ENERGOPROEKT Kyiv Research and Design Institute
Public Joint-Stock Company(KIEP)

ENERGOATOM NATIONAL ATOMIC ENERGY GENERATING COMPANY
STATE ENTERPRISE – ATOMPROEKTENGINEERING SEPARATE DIVISION

CONSTRUCTION OF A CENTRALIZED STORAGE OF SPENT NUCLEAR FUEL FROM UKRAINE NPP VVER TYPE REACTORS

PROJECT 337-T

VOLUME 12.2

Environmental Impact Assessment

PART 2

Appendices

Edition 1

571402.201.012-OBOC02

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2016

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Section	Position	Name	Signature
Appendices	Chief Specialist, Institute of Ecology – executive officer for engineering and construction design as to support to human health and life safety and environmental protection (qualification certificate – series AP No 006794).	D. I. Shirin	
	Leading Engineer, department No 202	V.I. Paseshchenko	
	Category III Design Engineer, department No 202	V.I. Petrichko	

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INTRODUCTION

The centralized storage of spent nuclear fuel (CSSNF) is a nationwide nuclear facility. The decision to build a site for CSSNF arrangement has been made under the Ukraine Law "On handling spent nuclear fuel in regard to arrangement, design and construction of a centralized storage of spent nuclear fuel from VVER type reactors of the national nuclear power plants" basing on the investment feasibility study No 131-p approved on the 4th of February, 2009, by the Ukraine Cabinet of Ministers. Key results of the feasibility study follow below:

- CSSNF is to be arranged on the site located among the villages of Staraya Krasnitsa, Buryakovka, Chistogalovka, and Stechanka, Kiev Region, within the exclusion zone which has radioactive contamination resulted from the Chernobyl disaster;
- spent nuclear fuel will be stored through application of a technique of superficial "dry" storage using a double-barrier insulation system;
- CSSNF service life will be 100 years;
- CSSNF capacity is 16529 spent fuel assemblies (SFA) including 12010 SFA from VVER-1000 and 4519 SFA from VVER-440.

CSSNF will employ the technology of Holtec International (hereinafter referred to as "Holtec"). Primary elements of the technology are:

- multipurpose cask (MPC);
- HI-STAR 190 UA (hereinafter – HI-STAR) – transport container;
- HI-STORM 190 UA (hereinafter – HI-STORM) – storage container;
- HI-TRAC 190 UA (hereinafter – HI-TRAC) – transfer cask;
- container transfer unit (CTU);
- container transfer means (CTM);
- vertical container transporter (VCT);
- transporter wagon for HI-STAR.

As envisioned within the scope of this project, HI-STAR will accept from MPC and transfer to HI-STORM, then HI-STORM shoulder rings will be concreted and the HI-STORMs filled with spent nuclear fuel (SNF) will be kept in the CSSNF territory.

Loading of SFA to MPCs from the power units of Rivne NPP, Khmelnitsky NPP and Yuzhno-Ukrainska NPP and MPC transportation to HI-STAR from the nuclear power plants to CSSNF are considered as separate activities.

This CSSNF Project (edition 1) is being developed on the basis of the approved feasibility study, request for proposal and town planning conditions and restrictions within the framework of the contract No 571402 dated 03.10.2014 between Energoatom and KIEP PJSC.

Appendix A
(mandatory)
Qualification certificate of the executive officer for engineering and construction design as to support to human health and life safety and environmental protection

UKRAINE MINISTRY OF REGIONAL DEVELOPMENT, CONSTRUCTION AND HOUSING AND PUBLIC SERVICES

ARCHITECTURAL AND CONSTRUCTION CERTIFICATION COMMISSION

Series AP No 006794

QUALIFICATION CERTIFICATE
of Executive Officer for Performance of Certain Works (Services) Associated with Creation of a Piece of Architecture

Design Engineer
(profession)

This was issued to certify that Shirin, Dmytro Ihorovych
(full name)
had passed professional certification which confirms his (her) compliance with the qualification requirements to the scope of activity associated with creation of pieces of architecture, professional specialization and a required level of qualification and knowledge.

Category: Design Engineer

The Qualification Certificate was issued pursuant to the decision by the Architectural and Construction Certification Commission (hereinafter – the Commission) as of _____ No_____(as decided by relevant section of the Commission as of 11.03.2013 under No 42 and approved by the Commission panel under No 40-ІП as of 13.03.2013).

The Certificate was filed in the Certified Persons Register 13.03.2013 under Reg. No 5987.

Works (services) intended to create pieces of architecture which can be performed as specified by this Qualification Certificate:
construction-engineering design for ensuring human health and life safety and environmental protection

Date of issue: 13.03.2013

P.I. Huben
Chairman (Deputy Chairman)
Architectural and Construction Certification Commission _____
(signature)

Seal

Appendix B
(mandatory)
A Task for Development of EIA Materials as Part of the Project – Construction of a Centralized Storage of Spent Nuclear Fuel (CSSNF) from Ukraine NPP VVER Type Reactors

AGREED with

ENERGOPROEKT Kyiv Research and Design Institute Public Joint-Stock Company

V.M. Chernavsky
Chief Engineer

_____
_____2016

APPROVED by

ENERGOATOM National Energy Generating Company
Atomproektengineering Separate Division

O.M. Rybchuk
General Director

_____
_____2015

A TASK FOR DEVELOPMENT OF QUALIFYING EIA MATERIALS
for the Project "Construction of a Centralized Storage of Spent Nuclear Fuel from Ukrainian NPP VVER Type Reactors

Target: Construction of a Centralized Storage of Spent Nuclear Fuel from Ukrainian NPP VVER Type Reactors

General Design Contractor: ENERGOPROEKT Kyiv Research and Design Institute Public Joint-Stock Company

List of Co-Contractors:

- Energoproekt Kyiv Institute for Engineering Research and Investigations State Enterprise (Energoproekt)
- Ukrainian Research Institute for Environmental Problems (UkrNID EP)
- Institute for NPP Safety, Ukraine National Academy of Sciences (IPB AES NAN).

Nature of Construction: New construction

Location: Kyiv Region, Ivankiv District, the exclusion zone within the territory that was affected by radioactive contamination resulted from the Chernobyl disaster. The construction site is adjacent to Vektor Center for Processing and Burial of Radioactive Wastes (CPB).

Design Stage: Draft

List of Impact Sources: CSSNF technology, CSSNF infrastructure, vehicles and railway used to carry casks and containers.

List of expected adverse effects:

- During pre-construction activities:
  Impact on air environment due to vehicular traffic and vegetation clearance.
  Impact on soil due to excavation.
  Impact on flora due to vegetation clearance and radiation effect.
- During construction:
  Impact on air environment due to vehicular traffic; impact on soil due to excavation.
  Effect of physical factors.
  Radiation effect.
- During operation:
  Impact on air environment due to CSSNF infrastructure, vehicles and railway transport.
  Impact on aquatic medium due to potential emissions.
  Effect of physical factors, radiation effect.

List of Environment Components for Impact Assessment:

- Climate and microclimate
- Air environment
- Geological environment
- Aquatic medium
- Soils
- Plants and animals, protected compartments
- Natural environment
- Technology-related medium

Requirements to EIA Scope and Phases: As part of the CSSNF Project, execute the EIA section basing on EIA approved for the CSSNF feasibility study while taking into account the requirements of the regulatory legal acts to environmental protection that became effective after the state expert appraisal of the CSSNF feasibility study had been provided (26.06.2006). Assess the environmental impacts as a contribution to the existing status of the exclusion zone and unconditional (compulsory) evacuation from the exclusion zone. Consider the approved draft pre-construction activities for EIA clarification. A scope of EIA should be in conformity with Item 5.1 and Item 6 of Appendix B to DBN A.2.2-1-2003 (State Construction Standards) and in conformity with amendments in the regulatory legal acts concerning environmental protection and design solutions. EIA stages should be conducted as per Appendix "Calendar Plan" to the Contract No 571402.

Requirements to Public Involvement: A notice of intent for the planned activities was published at the stage of feasibility study in order to inform public on the planned activities. As far as the design target is concerned, public hearings were held on the 22nd of March 2008 in the town of Slavutich, Kyiv Region. For recommendations from the public hearings regarding arrangement of the centralized storage of spent nuclear fuel from Ukrainian NPP VVER type reactors and related environmental impact as well as a book of questions and answers on CSSNF construction and other materials visit Energoatom's official website (http://www.energoatom.kiev.ua/ua/actvts/stroitelstvo/cssnf/official/).

Basing on the EIA results, at the design stage, the EIA Executor shall draw up a statement on environmental consequences. The Customer shall agree and publish the statement on environmental consequences in media.

EIA Procedure and Materials Preparation Deadline: EIA must be conducted at the design stage according to DBN A 2.2-1-2003. EIA materials must be prepared in accordance with Appendix "Calendar Plan" to the Contract No 571402.

CUSTOMER	GENERAL DESIGN CONTRACTOR
I.F. Orlov Deputy General Director Energoatom	O.D. Andryushchenko Project Chief Engineer KIEP PJSC

Appendix C
(mandatory)
Notice of Intent and Information on Publication of the Notice

AGREED	AGREED	AGREED
M.M. Kostrov Chief of State Ecological Inspectorate, Ukraine Ministry of Nature _____2006	A.M. Ponomarenko First Deputy Principal State Health Officer _____2006	S.K. Parashin Chief of State Dept. – Administration of Exclusion Zone and Unconditional (Compulsory) Evacuation, Ukraine Ministry of Emergency _____2006

Notice of Intent

on Construction of a Centralized Storage of Spent Nuclear Fuel from Rivne NPP, Khmelnitsky NPP and Yuzhno-Ukrainska NPP as Part of Energoatom National Energy Generating Company

1. **Investor (Customer) -** Energoatom National Energy Generating Company State Enterprise (Energoatom), Ukraine Ministry of Fuel and Energy. Postal address: 3 Vetrova St., Kyiv, 01032, Ukraine.
2. **Construction site locations –** Potential sites are suggested to be arranged within the exclusion zone which had been affected by radiation contamination as a result of the Chernobyl catastrophe (hereinafter referred to as the exclusion zone):
   - primary option – the site adjacent to Vektor Center for Processing and Burial of Radioactive Wastes (hereinafter – the CPB site);
   - alternative option – the site adjacent to the storage of spent nuclear fuel (SSNF-2) of Chernobyl Nuclear Power Plant (hereinafter – Chernobyl NPP).
3. **Characteristics of (facility) activities** – The radiation nuclear unit (nuclear plant) is a storage for intermediate centralized storage of spent nuclear fuel from Rivne NPP, Khmelnitsky NPP and Yuzhno-Ukrainska NPP (hereinafter – CSSNF VVER) that is equipped with required systems for processing, transport and safe storage of spent nuclear fuel (hereinafter – SNF) from the VVER-type reactors. Activities on the facility belong to Item 1 of the List of Activities and Facilities of Higher Ecological Hazard (Appendix E to DBN A.2.2-1-2003 "Composition and Contents of Materials of Environmental Impact Assessment (EIA) for Design and Construction of Enterprises, Buildings and Facilities").
   - Technical and technological characteristics: A volume of SNF scheduled for storage is 17 000 spent fuel assemblies (hereinafter – SFA) from VVER reactors in sealed canisters, the volume being further increased. The SNF storage technology to be used will have analogues implemented worldwide. Trans-border impacts are unlikely to be expected.
   - Annual capacity: Up to 1000 SFAs.

- Service life: Planned up to 100 years, inclusive of the active period (accumulation and keeping of SFA canisters – up to 50 years, further on there will be a passive period (storage of SFA canisters). The construction will be carried out in construction phases. Duration of the construction phase 1 is 3 years.

The CSSNF VVER project will be designed in accordance with the Ukrainian effective norms, regulations and standards and considering the international recommendations based on the principle of defense in depth.

The project will employ the technical means and organizational measures which, provided the normal operation, violation of normal operation and design basis accidents, will produce individual exposure doses not higher that the established dose limits for personnel and dose limit quotas for population whilst the emission and discharge levels will not be higher than the established allowable levels.

A system of technological and organizational measures for CSSNF VVER safety will be addressed in detail in the project and presented and analyzed in EIA materials, Safety Report and Report on Compliance with Health Legislation as legally required.

4. **A social and economic need for the planned activities** – Support to steady operation of Ukraine's NPPs on a long-term basis. When built, CSSNF will allow internal capabilities for SNF storage and avoid dependence on foreign SNF storage services.
5. Resource requirements for construction and operation:
   - **Land** for permanent use: a CSSNF VVER site (with ancillary production area) – up to 15 hectares, railroads and motor roads – up to 10 hectares.
   - **Raw materials**: prefabricated reinforced concrete – from building industry's factories; steel structures, rolled metal products, reinforcement steel – from Kyiv, broken stone – from Korosten, sand – from Chernobyl, cement – from Kamyanets-Podilsky (Podilsky Cement JSC), Zdolbuniv (the cement and slate factory).
   - **Power:** 750 kVA during the construction period, 4080 kVA during the active operation period, 3050 kVA during the passive operation period.
   - **Water:**
     - Drinking water for service needs – up to 0.4 m^3/day during the construction period, up to 17 m^3/day during the active operation period and up to 9 m^3/day during the passive operation period.
     - Water for production needs - 74 m^3/day during the construction period and 135 m^3/yr during the operation period (active period).
     - Water for fire control – 20 l/s during the construction period and 36 l/s during the operation period.
     - **Labor:** The Ukrainian building and installation contractors will be employed for the construction of CSSNF VVER while this will be operated by the personnel dismissed from operation of Chernobyl NPP. Labor is expected to require:
       - Up to 300 persons for construction and installation during the construction.
       - Up to 185 service persons during the active period of operation and up to 120 service persons during the passive period of operation.

6. **Transportation support (during construction and operation):** Railway service (general-purpose transport and specialized transport) – on the general-use railway

network and target-dedicated track; road haulage (construction and passenger transport) – on the existing motor roads.

7. **Environmental and other restrictions for the planned activities in options:** A sanitary protection zone and an observation zone are to be established for the facility in terms of the planned category. As expected, the CSSNF VVER sanitary protection zone will be within the range of the site and the observation zone will not go beyond the current borders of the exclusion zone.

8. **Required environmental and engineering treatment and protection of the area in options:**
   - CPB site – deforestation of an area of up to 10 hectares, planning activities.
   - Chernobyl NPP site – bush clearing at an area of up to 15 hectares, planning activities, protection of the site against minor flooding.

9. **Potential environmental impacts of the planned activities (construction and operation):**
   - **Climate and microclimate –** no impact.
   - **Geological environment** – impact not expected.
   - **Air environment**:
     - During construction: dust raising; a radiation effect is expected to be much lower than allowance allocation.
     - During operation: a radiation effect is expected to be much lower than allowance allocation.
     - **Aquatic medium -** A radiation effect is expected to be much lower than allowance allocation (particularly, with no essential effect on an annual radioactivity carryover with the Pripyat river flow).
   - **Soils:**
     - During construction: Positive effect – rehabilitation of radiation-polluted areas of the exclusion zone within the land resources needed for construction and operation.
     - During operation: A radiation impact is expected that will not have an essential effect on the current radiation condition of the environment.
   - **Plants and animals, protected areas –** no essential adverse impact.
   - **Social medium (population) –** A radiation impact is expected that will be much lower than the established dose limits in terms of the quotas specified by the Ukraine National Security Council (NRBU-97).
   - **Industry-related medium –** A radiation impact is expected that will not be in excess of the allowable dose limits for personnel involved in the exclusion zone.

10. **Production waste and its possible recycling, disposal, decontamination or safe burial** – Non-radioactive waste will be removed to the trash dumps within the exclusion zone whilst radioactive waste will be collected, temporarily kept and transferred to specialized businesses within the exclusion zone for processing and burial.

11. **EIA scope –** As per DBN A.2.2-1-2003.

12. **Public participation** - This is to be provided through public hearings to be held according to the Procedure for holding public hearings on nuclear and radiation safety approved by the Ukraine Cabinet of Ministers under Resolution No 1122 dated 18.07.98. Use the Customer's address to present proposals and familiarize with the project materials from November 1, 2006.

On Behalf of the Customer:

Yu.O. Nedashkovsky
President
Energoatom National Nuclear Energy Generating Company

_____

Yu.V. Malakhov

Chairman of Board
Energoproekt Research and Design Institute OJSC

_____

ENERGOATOM
25.01.2007

NOTICE OF INTENT
FOR CONSTRUCTION OF A CENTRALIZED STORAGE OF SPENT NUCLEAR FUEL FROM RIVNE NPP, KHMELNITSKY NPP AND YUZHNO-UKRAINSKA NPP OF ENERGOATOM NATIONAL NUCLEAR ENERGY GENERATING COMPANY

1. **Investor (Customer) –** Energoatom National Nuclear Energy Generating Company State Enterprise (Energoatom) of the Ukraine Ministry of Fuel and Energy.
   Postal address: 3 Vetrova Street, Kyiv, 01082, Ukraine.

2. **Location of the site** for construction of the Centralized Storage of Spent Nuclear Fuel from Rivne NPP, Khmelnitsky NPP and Yuzhno-Ukrainska NPP (hereinafter referred to as "CSSNF VVER") will be approved in accordance with the Ukraine Law "On a Procedure for Decision-Making on Arrangement, Design and Construction of Nuclear Nationwide Plants and Facilities Designed for Handling Radioactive Waste".

   As required by the Ukraine Law "On the Use of Nuclear Energy and the Radiation Safety", a rationale for site selection will analyze at least 3 options of sites for CSSNF VVER construction, in the first turn, those adjacent to the running NPP sites as well as those located in the exclusion zone within the area affected by radioactive contamination due to the Chernobyl disaster (hereinafter – the "exclusion zone").

3. **Facility performance**: CSSNF VVER is a radiation-nuclear storage facility (nuclear plant) for intermediate storage of spent nuclear fuel from Rivne NPP, Khmelnitsky NPP and Yuzho-Ukrainska NPP that is equipped with necessary systems designed to prepare for storage, transport and safely store spent nuclear fuel (hereinafter – "SNF") from VVER type reactors. Activities on the facility belong to Item 1 of the List of Activities and Facilities that offer a higher ecological hazard (Appendix E to DBN A.2.2-1-2003 "Composition and Contents of Environmental Impact Assessment (EIA) Materials for Design and Construction of Enterprises, Buildings and Facilities".

- technical and technological characteristics: SNF volumes planned for storage are up to 17 000 spent fuel assemblies (hereinafter – "SFA") from VVER type reactors in sealed canisters, the volumes to be increased in the future. Trans-border impacts from the facility is not anticipated.
- an annual capacity will be up to 1000 SFAs.
- service life is planned for 100 years including an active period (accumulation and storage of SFA-containing canisters) of up to 50 years that is to be followed by a passive period (storage of SFA-containing canisters). The construction will be performed in terms of construction phases.

The CSNF VVER arrangement, design and construction will be decided as required by Ukraine's effective legislation while the CSSNF VVER design will be developed to the effective Ukrainian rates, regulations and standards considering international recommendations basing on the principle of defense in depth.

The project will employ the technical means and organizational measures which, provided the normal operation, violation of normal operation and design basis accidents, will produce individual exposure doses not higher that the established dose limits for personnel and dose limit quotas for population whilst the emission and discharge levels will not be higher than the established allowable levels.

A system of technological and organizational measures for CSSNF VVER safety will be addressed in detail in the project and presented and analyzed in EIA materials, Safety Report and Report on Compliance with Health Legislation as legally required.

The Customer shall support all state expert appraisals of the design documents and arrange an additional peer review with foreign experts involved.

4. **Social and economic necessity of the planned activities:** Support to steady operation of Ukraine's NPPs on a long-term basis. When built, CSSNF will allow internal capabilities for SNF storage and avoid dependence on foreign SNF storage services.

5. **Resource requirements for construction and operation**: According to the pre-design studies, the following resources will be needed:

Land for permanent use: a CSSNF VVER site (with ancillary production area) – up to 15 hectares.

Raw materials: prefabricated reinforced concrete, rolled metal products and steel structures, sand, broken stone, cement, etc. from Ukrainian producers.

Power: electric power with power takeoff of no more than 4100 kVA.

Water: for service and production needs – up to 17 cu m/day.

Labor: The Ukrainian building and installation contractors will be employed for the construction of CSSNF VVER. Labor needs are expected as follows:

- Up to 300 persons for construction and installation during the construction.
- Up to 200 service persons during the period of operation.

6. **Transportation support (during construction and operation):** Railway service (general-purpose transport and specialized transport) – on the general-use railway network and target-dedicated track; road haulage (construction and passenger transport) – on the existing motor roads.

7. **Environmental and other restrictions for the planned activities in options:** A sanitary protection zone and an observation zone are to be established for CSSNF VVER in terms of the planned category. Actions will be taken to minimize the sizes of the above zones.

8. **Required environmental and engineering treatment and protection of the area in options:** Types and scope of the environmental and engineering treatment and site protection measures will be specified in the feasibility study for the CSSNF VVER construction.

9. **Potential environmental impacts of the planned activities (construction and operation):**

climate and microclimate – no impact.
geological environment – impact not expected.
air environment:

- during construction: minor dust raising; a radiation effect is expected to be much lower than allowance allocation for the site in the exclusion zone;
- during operation: a radiation effect is expected to be much lower than allowance allocation.

aquatic medium - a radiation effect is expected to be much lower than allowance allocation ;
soils:

- during construction: fertile soils, if any, will be removed from the construction site; additionally - positive effect for the exclusion zone in terms of rehabilitation of radiation-polluted areas of the exclusion zone within the land resources needed for construction and operation;
- during operation: a radiation impact is expected that will not have an essential effect on the current radiation condition of the environment;

plants and animals, protected areas – no essential adverse impact.
social medium (population) – a radiation impact is expected that will be much lower than the established dose limits in terms of the quotas specified by the Ukraine National Security Council (NRBU-97).
industry-related medium – a radiation impact is expected that will not exceed the allowable dose limits for personnel of the neighboring facilities within the sanitary protection zone.

10. **Production waste and its possible recycling, disposal, decontamination or safe burial** – Non-radioactive waste will be removed to the trash dumps within the exclusion zone whilst radioactive waste will be collected, temporarily kept and transferred to specialized businesses within the exclusion zone for processing and burial.

11. **EIA scope –** as per DBN A.2.2-1-2003.

12. **Public participation –** Ukraine's Constitution guarantees to right for any person to enjoy the environment which is to be safe for health and life and the right to have a free access to information on the environment conditions.

While respecting these constitutional rights of every person and pursuing the policy of transparent approaches to nuclear, radiation and ecological safety, for the planned activities regarding CSSNF VVER, Energoatom will take all required actions to support the rights of the citizens and related associations in regard to the use of nuclear energy and provision of ecological and radiation safety that proceed from the Ukrainian effective legislation, in particular, from:

- the Ukraine Law "On the Use of Nuclear Energy and the Radiation Safety";

- the Ukraine Law "On a Procedure for Decision-Making on Arrangement, Design and Construction of Nuclear Nationwide Plants and Facilities Designed for Handling Radioactive Waste";

- the Convention on Environmental Impact Assessment in the Trans-Border Context that was ratified by Ukraine's Supreme Rada (Ukraine Law No 534-XIV dated 19.03.99).

- a Procedure for Holding Public Hearings on Nuclear and Radiation Safety that was approved by the Ukraine Cabinet of Ministers under Resolution No 1122 of 18.07.98, etc.

For information on public consultations and on CSSNF VVER environmental impact please visit the Customer's website www.energoatom.kiev.ua or at 3 Vetrova St., Kyiv, after EIA is completed.

Appendix D
(mandatory)
Town Planning Conditions and Restrictions

Ukraine State Agency for Exclusion Zone Management

O.B. Turkevich
Interim Chairman
State Agency for Exclusion Zone Management

_____
_____2015

Town Planning Conditions and Restrictions for land development

Land plot location: The exclusion zone in the territory that was contaminated with radiation due to Chernobyl disaster, Ivankiv District, Kyiv Region.

General Data

1. **Construction target**: A Centralized Storage of Spent Nuclear Fuel from Ukrainian NPP VVER type reactors (CSSNF).

2. **Information on the Customer**: Energoatom National Nuclear Generating Company State Enterprise, Atomproektengineering Separate Division (hereinafter – "Atomproektengineering").

3. **The development intention**: Long-term storage of spent nuclear fuel from Rivne NPP, Khmelnitsky NPP and Yuzhno-Ukrainska NPP.

4. **The construction address or facility location:** The exclusion zone in the territory that was contaminated with radiation due to Chernobyl disaster, Ivankiv District, Kyiv Region. The CSSNF site borders in the east on the Vektor CPB site, in the west on the 110 kV overhead transmission line, in the south it is restricted by the access road to Vektor CPB, and in the north on the forest. The site is 1 km away from Buryakivka radioactive waste depository (RWD) and 12 km southwest away from Chernobyl NPP.

5. **Document of title or land property use:** An extract from the Ukrainian public property register of the right of permanent use of a land lot.

6. **Plot area:** 18.2 hectares.

7. **Intended use of the land plot:** As per the Land Use Classifier: 1.10.5. For construction of the centralized Storage of Spent Nuclear Fuel from VVER type reactors of the national nuclear power plants.

8. **Reference to town-planning documents**: A residential area general plan, a zoning plan, an area comprehensive plan, and decisions on approval thereof (if any) – **none.**

9. **Functional purpose of the land plot:** For Energoatom to conduct its statutory activities, to build and operate CSSNF.

10. **Key performance indicators of the construction project** (according to the feasibility study):

Description	Unit of Measurement	Value
Designed capacity, including:	SPAs (U t)	16529 (5648)
VVER 1000 SFA	pcs	12010
VVER 440 SFA	pcs	4519
Area	ha	12.87
Temporary buildings/facilities site area	ha	1.83
Headcount:		
- active period (50 years)	persons	183
- passive period (50 years)	persons	117
Annual demand in the active period of operation for:		
- power	thous. kWh/yr	1162.89
- water	m^3/yr	4732
Annual demand in the passive period of operation for:		
- power	thous. kWh/yr	822.38
- water	m^3/yr	2465

Town-Planning Conditions and Restrictions

1. Maximum allowable height of buildings: up to 50 m.

2. A maximum allowable percentage of plot development: not specified.

3. A maximum allowable population density (for residential development): not specified.

4. Distances from the project under design to red lines and development control lines: not specified.

5. Planning restrictions (cultural property protection zones, protected landscape zones, historical area borders, protected shoreline belts, sanitary protection zones and other protected zones):

- Vektor CPB site protection zone which is a source of hazardous substances and ionizing radiation – 50 m around the perimeter;
- waterway sanitary protection zone – 50 v;

- zones of sanitary protection against underground and open sources of water supply, water intake and water treatment facilities, health care facilities, etc. – none;
- protected cultural property sites, archaeological sites, historical residential areas – none;
- protected shoreline belts, water protection zones – none;
- other protection zones (around specially valuable natural sites, hydro-meteorological stations, along communication lines, power transmission lines, transport facilities, etc. – none;
- special areas for land use around military facilities of the Ukraine Armed Forces and other military units within the frontier belt – none.

6. **Minimum allowable distances** from the facilities under design to the existing houses and buildings: none within the range of the land plot.

7. **Protected utility zones:** The electric transmission line is away from the west side of the CSSNF site at no less than 20 m.

8. **Requirements to a need for exploration** in line with the DBN A.2.1-1-2008 state construction standards "Exploration for Construction": Exploration is to be carried out for the project development.

9. **Requirements to public services and amenities (**including revitalization of public services and amenities): As per the effective regulatory documents.

10. **Support to transport and pedestrian communication conditions:** To provide motor access as required by the regulatory documents.

11. **Requirements to a needed number of places to be provided for vehicle maintenance:** not specified.

12. **Requirements to protection of cultural property:** not specified.

M.Ya. Zaliznyak
Acting Chief
Capital Construction Division
Administration of Property and Procurement

_____

Appendix E
(mandatory)
Recommendations from public hearings on arrangement of CSSNF from Ukraine NPP VVER type reactors and related environmental impact

Held on the 22nd of March 2008 in the Town of Slavutich, Kyiv Region

The public hearings were attended by representatives of the territorial communities and public organizations of the town of Slavutich as well as of Ivankiv District and Polissya District of Kyiv Region.

On having considered and discussed the issues regarding arrangement, design and construction of the centralized storage of spent nuclear fuel from Ukraine's NPP VVER type reactors, the participants in the public hearings acknowledged that construction of the storage facility like this was a nationwide project which, when implemented, would foster the measures specified in the Ukrainian Energy Strategy for a Period until 2030 approved by the Ukraine Cabinet of Ministers under Resolution No 145-p dated 15.03.2006 and provide for the national energy security by way of efficient and failsafe operation of the running NPPs.

When implemented, the project will facilitate execution of the UN ten-year action plan for rehabilitation of the areas affected by radioactive contamination resulted from the Chernobyl catastrophe.

The construction of the centralized storage of spent nuclear fuel from the Ukrainian NPP's VVER type reactors will help both save funds in the near time and reserve valuable energy materials for the future that could be efficiently used for next-generation reactors.

At the same time, a future reuse of spent nuclear fuel for production operation will allow an essential decrease in radioactive waste to be buried that will contribute much to ecological safety of the environment.

Important positive consequences of the project implemented with arrangement of the storage facility within the exclusion zone will stem, particularly, from:

- ecological rehabilitation of a part of the 30 km exclusion zone;
- return of a part of this zone to business activities;
- creation of new hi-tech jobs in this region;
- a possibility to improve living conditions for people who reside within the range of the storage facility location.

The shortcomings arising from arrangement of the storage facility within the exclusion zone include a psychological impact on the residents of Ivankiv District and Polissya District (especially for those who live in the nearest villages of Polissya District to the exclusion zone) as well as on the residents of Slavutich where most of them work in the exclusion zone. The close location of the storage facility will have a psychological effect on the investment climate in Polissya District and Ivankiv District. The above-mentioned circumstances will require a set of compensation actions to be taken to foster these territories.

The participants in the public hearings believe that the construction of the centralized storage of spent nuclear fuel may only be supported on the terms as follows:

1. This facility arrangement should be approved by a majority of residents Ivankiv District, Polissya District and Slavutich, Kyiv Region, through a local advisory referendum.
2. The cost estimate for the storage construction should include a component for creating social infrastructure facilities, that being 10% of the project value with the funds to be allocated as follows:
   - 60% for creating general-use social facilities (20% for each administrative territorial unit – Ivankiv District, Polissya District and Slavutich);
   - 40% for improvements in communal and housing conditions for the population (proportional to the number of people living in each administrative-territorial unit).
3. The feasibility study and cost estimate of the project should include a detail list of social infrastructure facilities agreed upon with the local authorities and state administration of Ivankiv District, Polissya District and Slavutich.
4. Priority should be given to Chernobyl NPP personnel to be dismissed and the residents of Ivankiv District, Polissya District and Slavutich when employing workmen to be involved in the construction and operation of the centralized storage facility.
5. Since the CSSNF commissioning date, Energoatom should allocate a part of funds from the operating costs for handling the socio-economic problems faced by Ivankiv District, Polissya District and Slavutich.
6. The above recommendations should be validated in the government-level documents concerning the construction of the storage facility (in the Ukraine Law "On Arrangement, Design and Construction of a Centralized Storage of Spent Nuclear Fuel from Ukrainian NPPs' VVER Type Reactors", in the by-laws of the Ukraine Cabinet of Ministers, in the sector-level documents and Energoatom's documents).

The participants in the public hearings state that, in addition to the conditions directly linked with the construction and operation of the centralized storage, it is essential for the Chernobyl-affected residents of Ivankiv District, Polissya District and Slavutich that the government encourages addressing the social problems faced by the residents. These include:

1. A comprehensive analysis of the progress and guarantee of unconditional compliance with the Ukraine laws, instructions by the Ukraine President, resolutions and other regulatory legal acts by the Ukraine Cabinet of Ministers with regard to the addressing of the problems faced by the residents of Ivankiv District, Polissya District and Slavutich.
2. Additional social guarantees and privileges to be provided at the governmental level for the residents of Ivankiv Distruict, Polissya District and Slavutich including those who do not fall within the scope of the Ukraine Law "On the Status and Social Protection of the Citizens who Have Suffered from Chernobyl Disaster", particularly:
   - extending the social infrastructure;
   - entitling school leavers to enter III-IV level educational institutions on a non-competitive basis;
   - establishing reducing tariffs and prices for the use of abode (residential rent, payment for house-keeping) and public utilities (gas, electricity, heat, water supply, water disposal, etc.) within average rates of consumption.

3. Specialized health services for personnel who will be directly involved in the project implementation in the exclusion zone and guaranteed health services for the residents of Ivankiv District, Polissya District and Slavutich that are to be provided through setting up a health care center for Chernobyl NPP personnel and the residents of Ivankiv District, Polissya District and Slavutich on the basis of the Polissya District hospitals and the state institution "Specialized Medical and Sanitary Unit No 5".
4. Tax allowances to be provided for the enterprises which do business in Ivankiv District, Polissya Disctrict and Slavutich, Kyiv region.

In addition, a need will be to take actions to fulfill the government decisions concerning rehabilitation of the exclusion zone and implementation of the Ukrainian Energy Strategy until 2030, in particular:

1. Ensure perfect safety of Chernobyl NPP's broken fourth reactor.
2. Set up an information analytical center in Slavutich in order to provide for efficient implementation of projects in the exclusion zone.
3. Expand activities in Slavutich to establish a research center with a new research reactor facility and experimental test base for an NPP project research supervisor.
4. Repair and build roads in the exclusion zone, Ivankiv District and Polissya District and a rapid Chernihiv-Slavutich railway service.

The participants in the public hearings commission Energoatom as a project customer to generalize and consider in the project the proposals set forth in the course of these public hearings, round tables held and public discussions on the construction of the centralized storage of spent nuclear fuel from the Ukrainian NPPs' VVER tyoe reactors.

Adopted by the participants in the public hearings
22 March 2008
Slavutich

*On behalf of the town of Solavutich*_____

*On behalf of Ivankiv District*_____

*On behalf of Polissya District*_____

Appendix F
(mandatory)
A schematic map of CSSNF site general plan

Positions of the map:

Технико-экономические показатели бетонного завода – Technical and economic features of concrete factory

Description	*Quantity*	*Note*
1.Site area, ha	*0.60*	
2. Development area, ha	*0.09*	
3. Area for motor roads and sites, ha	*0.34*	

Условные обозначения – Legend
Проектируемые здания и сооружения – buildings and facilities designed
Проектируемое сетчатое ограждение – meshwire fencing designed
Проектируемое железобетонное ограждение – reinforced concrete fencing designed
Проектируемые автодороги – motor roads designed
Проектируемые железнодорожные пути – railway designed
Проектируемые переезды – crossroads designed
Проектируемые сети охранного освещения – secure lighting networks designed
Проектируемые сети наружного освещения – outdoor lighting networks designed

Маршруты движения транспорта – traffic routes
Граница землеотвода – land allocation boundaries
Дождеприемная решетка – gutter inlet
Лоток водосливной укрепленный – fixed drain trough
Канава водосливная укрепленная – fixed drain trunk
Тротуары – pavements
Молниеотвод – lightning discharger

Explanation of Buildings and Facilities

No in Plan	Description	Note
1	Acceptance building	
2	Canister site	
3	Maintenance building with multipurpose cask (MPC) warehouse	
3.1	HI-STORM shoulder rings site	
3.2	HI-STORM shoulder rings concreting section	
4	Administrative building (civil defense target)	
5	Electric devices building	
6	Garage	
6.1	Transporter garage	
6.2	4-vehicle garage	
7	Refueling station	
8	Fire water-supply facility	
8.1	Fire water-supply pumping station	
8.2	Emergency water tanks	
9	Security house	
9.1	Guard house	
9.2	Reviewing ground	
9.3	Gun loading place	
9.4	Fire rack (smoking area)	
9.5	Dog kennel (2-cabin)	
9.6	Shelter trench	6 trenches
10.1	Checkpoint 1	
10.2	Checkpoint 2	
11	Rainwater drain facilities	
11.1	Tanks for accumulating rainwater polluted portion	
11.2	Tanks for accumulating rainwater clean portion	
11.3	Rainwater treatment facilities	
12	Sewage pumping station	
13	Oil sump (separator)	2 sumps
14	Telecommunication tower with modular building	
15	Automated radiation monitoring system station	
16	Meteorological mast	
17	Car parking	
30	Concrete factory	
30.1	Concrete mixing plant	
30.2	Access ramp	
30.3	Open-air filling aggregate storage	
30.4	Recycling plant with settling reservoir	
30.5	Checkpoint	
30.6	5-car parking	

Appendix G
(mandatory)
Data on meteorological characteristics and a background air pollution level in the area of planned activities

Ministry of Energy and Coal Industry
Energoatom National Nuclear Energy Generating Company
Atomproektengineering Separate Division

No 03.46/76 of 22.01.2005

6 Gaidara St., Kyiv, 01033, Ukraine
Tel.: +380 44 206-9787, fax: +380 44 201-0903

RE: **V.M. Chernavsky**
Chief Engineer
Energoproekt PJSC

O.M. Sokolov
Director
Transproekt-1 Ltd.

On source data, for designing

Dear Messrs,

Attached herein please find copies of the letters from the Department of Ecology and natural Resources and Central Geophysical Laboratory as source data for designing.

Attachments:

1. A copy of the letter from the Kyiv State Regional Administration and Department of Ecology and Natural Resources No 1-11/4689 dated 23.12.2014 – 1 sheet.
2. A copy of the letter from the Ukraine State Emergency Service and Central Geophysical Laboratory No 16-13/-82-06-06 dated 15.01.2015 – 1 sheet.

Sincerely yours,

O.M. Rybchuk
General Director

Ukraine State Emergency Service
CENTRAL GEOPHYSICAL LABORATORY

No 16-13/-82-06-06 of 15.01.2015

RE: **O.M. Rybchuk**
General Director
Atomproektengineering Separate Division
Energoatom

On meteorological characteristics of Chernobyl, Ukraine

As requested, below please find the climate parameters (meteorological characteristics) according to the data from Chernobyl met station that have been averaged by the Central Geophysical Laboratory over the 30-year period.

1. An average maximum air temperature in the hottest month (July) is 24.2^{o}C.
2. An average month air temperature in the coldest month (January) is minus 6.1^{o}C.
3. Wind speed, 5% frequency, is 11 m/s.
4. An annual average wind direction frequency:

Wind Direction (%)							
North	*Northeast*	*East*	*Southeast*	*South*	*Southwest*	*West*	*Northwest*
11.3	7.9	13.1	15.3	9.2	13.9	17.0	12.3

This information is provided for calculations of polluting substance emissions to the atmospheric air for the Centralized Storage of Spent Nuclear Fuel (CSSNF) from the Ukrainian NPPs' VVER type reactors and the access railroad track from the existing Vilcha-Yaniv branch line to the CSSNF site which is located near the closest residential area – the town of Chernobyl, Ivankiv District, Kyiv Region (near Vektor CPB).

S. Gryshko
Deputy Director

Seal, signature

UKRAINE
KYIV REGIONAL STATE ADMINISTRATION
DEPARTMENT OF ECOLOGY AND NATURAL RESOURCES

1/2A Baseina St., Kyiv, 01004 Tel.: (044)279-01-58; fax: (044) 234-96-15
EDRPOU code: 38750794 koekology@kievweb.com.ua

No 06.1-11/4689 of 23.12.2014

RE: Energoatom
Atomproektengineering
6 Gaidare St., Kyiv, 01033

On delivery of background concentration values

Ivankiv District, Kyiv Region, near Vektor CPB, the nearest residential area: Chernoby.

The enterprise for which the background is established: Centralized Storage of Spent Nuclear Fuel.

The organization which requests the background: Energoatom's Atomproektengineering.

The background concentration values have been determined for the residential area at large and are:

Nitrogen monoxide in terms of nitrogen dioxide	- 0.008 mg/m^3
Carbon monoxide	- 0.4 mg/m^3
Sulfur dioxide	- 0.02 mg/m^3
Benzapyrene	- 0.04 x 10^{-5} mg/m^3
Dust (suspended matter)	- 0.05 mg/m^3

A.V. Andrushchenko
Deputy Director of Department
Chief of Bureau

Seal, signature

Appendix H
(mandatory)
A schematic map with radiation exposure sources

Positions of the Map:

Источник радиационного воздействия (площадка хранения) – radiation exposure source (storage site);

Масштаб 1:5000 (в 1 см 50 м, ед. изм.: метры) – scale 1:5000 (50 m in 1 cm, unit of measurement: metres).

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Annex К (11)
(Mandatory)
Calculated Radiation Impact During Operation
К.1 Calculation at MDBA (without precipitation)

See pp. 33–47 in the main PDF file.

P. 48:

К.2 Calculation at MDBA (with precipitation)

See pp. 48–62 in the main PDF file.

P. 63:

К.3 Calculation at BDBA (without precipitation)

See pp. 63–123 in the main PDF file.

P. 124:

К.4 Calculation at BDBA (with precipitation)

See pp. 124–184 in the main PDF file.

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Appendix M
(mandatory)
A Schematic Map with Pollutant Emission Sources at CSFSF Site

CES No…

Scale 1:5000 (50 m in 1 cm, unit of measurement: m)

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Appendix H
(mandatory)
Calculation of Ground Level Concentrations from Pollutant Emissions in Operation

H.1 Calculation of ground level concentrations from pollutant emissions in operation (with no background considered)

Softfond LTD.
Tel.:
Fax:

KIEP PJSC

EOL 2000[h]
(Windows Version)

An automated system for calculation of
pollutant emission dispersion

A General Report Based on Dispersion Data

Calculation of ground level concentrations from pollutant emissions in operation (with no background considered)

The system's calculation module employs OND-86 methodology.
The program is recommended for use by Ukraine Ministry of Environmental Protection
(2464/19/4-10 of 15.03.2006)

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Assignment for Calculation

Town	Chernobyl
Working site codes	
Substance codes	
Summation group codes	
Wind speed (m/s)	
Wind speed (average weighted U fractions)	
Wind speed (average over-plume U fractions)	

Wind shift step
Fixed wind direction
Number of the biggest contributors
Number of maximum concentrations
Is background considered? No
Is the estimated C33/enterprise impact area to be built? No/no
Estimated height (m)

Parameters of Estimated Sites

Nos	Coordinate X	Coord. Y	Length	Width	Turning angle of estimated site relative to OX axis of basic frame of reference	Mesh step, OX axis	Mesh step, OY axis	Special requirements

Town code	Town	Mean temp. of warmest month (°C)	Mean temp. of coldest month (°C)	Max. wind speed (m/s)	Regional stratification factor	Angle between north direction and OX axis, basic frame of reference	Town area (sq km)	Latitude (degrees, min., sec.)
	Chernobyl							…degrees

Latitude (north or south)	Longitude (deg., min., sec.)	Longitude (west or east)	Wind frequency (N)	Wind frequency (NE)	Wind frequency (E)	Wind frequency (SE)	Wind frequency (S)	Wind frequency (SW)	Wind frequency (W)
north	..deg.	east							

Wind frequency (NW)

Site code	Site description	Summation group substance code	Substance (substance codes as part of sum. group)	Intensity of emission (g/s)	Intensity of emi. (t/yr)
	CSFSF	Sum.gr.			
		Subst.code	Nitrogen dioxide		
			Sulfur dioxide		

Carbon oxide
Carbon soot
Benzapyrene
Saturate hydrocarbons C12-C19 (solvent RPK-265…
Suspended substances, composition-undifferentiated
Hydrogen sulfide
Inorganic dust containing silicon dioxide in %

Substance code	Substance	MAC (mg/m^3)
	Nitrogen dioxide	

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A List of Sources of Emissions Containing
Nitrogen Dioxide

Source code
Technological parameters
Emission, g/s
Class of hazard
…(MAC fractions)
… mg/m^3
…mg/m^3
…(m)
…(m/s)
Point coordinates, beginning of linear,
symmetry site center (m)
Coordinates of end of linear,
site length and width (m)
Terrain relief coefficient
Flow (m^3/s)
PGVS release rate: m/s
Diameter (m)
Height (m)
Temperature (C)
Normalized sedimentation factor
Emission, t/yr

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Estimated Concentrations of Substance: Nitrogen Dioxide,
in Reference Points and Numbers of Sources Yielding Highest Contribution at the Height of 2 m

Ref.poi-	Con-cent-	X ref.	Y ref.	Wind	Wind	Con-	Sour-	Con-	Sour-	Con-	Sour-	Con-	Sour-	Con-	Sour-

nt No	ration in MAC fraction point	point coord.	point coord.	direc-tion	speed	trib-ution Q0	ce No N0	trib-ution Q1	ce No N1	trib-ution Q2	ce No N2	trib-ution Q3	ce No N3	trib-ution Q4	ce No N4

Highest Nitrogen Dioxide Concentration Points
at Reference Site No 11 and Numbers of Sources Yielding Highest Contribution at the Height of 2.00 m

Con-centration in MAC fraction point	X ref. point coord.	Y ref. point coord.	Wind direc-tion	Wind speed	Con-trib-ution Q0	Sour-ce No N0	Con-trib-ution Q1	Sour-ce No N1	Con-trib-ution Q2	Sour-ce No N2	Con-trib-ution Q3	Sour-ce No N3	Con-trib-ution Q4	Sour-ce No N4

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Nitrogen Dioxide
A Schematic Map
H = 2.00 m

Standard buffer area

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Substance code Substance MAC (mg/m^3)
Sulfur dioxide

A List of Sources of Emissions Containing
Sulfur Dioxide

Source code
Technological parameters
Emission, g/s
Class of hazard
…(MAC fractions)
… mg/m^3
…mg/m^3
…(m)
…(m/s)

Point coordinates, beginning of linear,
symmetry site center (m)
Coordinates of end of linear,
site length and width (m)
Terrain relief coefficient
Flow (m^3/s)
PGVS release rate: m/s
Diameter (m)
Height (m)
Temperature (C)
Normalized sedimentation factor
Emission, t/yr

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Estimated Concentrations of Substance: Sulfur Dioxide,
in Reference Points and Numbers of Sources Yielding Highest Contribution at the Height of 2 m

Ref.point No	Concentration in MAC fraction point	X ref. point coord.	Y ref. point coord.	Wind direction	Wind speed	Contribution Q0	Source No N0	Contribution Q1	Source No N1	Contribution Q2	Source No N2	Contribution Q3	Source No N3	Contribution Q4	Source No N4

Highest Sulfur Dioxide Concentration Points
at Reference Site No 11 and Numbers of Sources Yielding Highest Contribution at the Height of 2.00 m

Concentration in MAC fraction point	X ref. point coord.	Y ref. point coord.	Wind direction	Wind speed	Contribution Q0	Source No N0	Contribution Q1	Source No N1	Contribution Q2	Source No N2	Contribution Q3	Source No N3	Contribution Q4	Source No N4

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Sulfur Dioxide
A Schematic Map

H = 2.00 m

Standard buffer area

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Substance code	Substance	MAC (mg/m^3)
	Carbon Oxide	

A List of Sources of Emissions Containing
Carbon Oxide

Source code
Technological parameters
Emission, g/s
Class of hazard
…(MAC fractions)
… mg/m^3
…mg/m^3
…(m)
…(m/s)
Point coordinates, beginning of linear,
symmetry site center (m)
Coordinates of end of linear,
site length and width (m)
Terrain relief coefficient
Flow (m^3/s)
PGVS release rate: m/s
Diameter (m)
Height (m)
Temperature (C)
Normalized sedimentation factor
Emission, t/yr

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Estimated Concentrations of Substance: Carbon Oxide,
in Reference Points and Numbers of Sources Yielding Highest Contribution at the Height of 2 m

Ref.poi-	Con-cent-	X ref.	Y ref.	Wind	Wind	Con-	Sour-	Con-	Sour-	Con-	Sour-	Con-	Sour-	Con-	Sour-

nt No	ration in MAC fraction point	point coord.	point coord.	direc-tion	speed	trib-ution Q0	ce No N0	trib-ution Q1	ce No N1	trib-ution Q2	ce No N2	trib-ution Q3	ce No N3	trib-ution Q4	ce No N4

Highest Carbon Oxide Concentration Points
at Reference Site No 11 and Numbers of Sources Yielding Highest Contribution at the Height of 2.00 m

Con-cent-ration in MAC fraction point	X ref. point coord.	Y ref. point coord.	Wind direc-tion	Wind speed	Con-trib-ution Q0	Sour-ce No N0	Con-trib-ution Q1	Sour-ce No N1	Con-trib-ution Q2	Sour-ce No N2	Con-trib-ution Q3	Sour-ce No N3	Con-trib-ution Q4	Sour-ce No N4

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Carbon Oxide
A Schematic Map
H = 2.00 m

Standard buffer area

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Substance code Substance MAC (mg/m^3)
Carbon Soot

A List of Sources of Emissions Containing
Carbon Soot

Source code
Technological parameters
Emission, g/s
Class of hazard
…(MAC fractions)
… mg/m^3
…mg/m^3
…(m)
…(m/s)

Point coordinates, beginning of linear,
symmetry site center (m)
Coordinates of end of linear,
site length and width (m)
Terrain relief coefficient
Flow (m^3/s)
PGVS release rate: m/s
Diameter (m)
Height (m)
Temperature (C)
Normalized sedimentation factor
Emission, t/yr

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Estimated Concentrations of Substance: Carbon Soot,
in Reference Points and Numbers of Sources Yielding Highest Contribution at the Height of 2 m

Ref.point No	Concentration in MAC fraction point	X ref. point coord.	Y ref. point coord.	Wind direction	Wind speed	Contribution Q0	Source No N0	Contribution Q1	Source No N1	Contribution Q2	Source No N2	Contribution Q3	Source No N3	Contribution Q4	Source No N4

Highest Carbon Soot Concentration Points
at Reference Site No 11 and Numbers of Sources Yielding Highest Contribution at the Height of 2.00 m

Concentration in MAC fraction point	X ref. point coord.	Y ref. point coord.	Wind direction	Wind speed	Contribution Q0	Source No N0	Contribution Q1	Source No N1	Contribution Q2	Source No N2	Contribution Q3	Source No N3	Contribution Q4	Source No N4

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Carbon Soot
A Schematic Map

H = 2.00 m

Standard buffer area

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Substance code	Substance	MAC (mg/m^3)
	Benzapyrene	

A List of Sources of Emissions Containing Benzapyrene

Source code
Technological parameters
Emission, g/s
Class of hazard
…(MAC fractions)
… mg/m^3
…mg/m^3
…(m)
…(m/s)
Point coordinates, beginning of linear,
symmetry site center (m)
Coordinates of end of linear,
site length and width (m)
Terrain relief coefficient
Flow (m^3/s)
PGVS release rate: m/s
Diameter (m)
Height (m)
Temperature (C)
Normalized sedimentation factor
Emission, t/yr

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Estimated Concentrations of Substance: Benzapyrene,
in Reference Points and Numbers of Sources Yielding Highest Contribution at the Height of 2 m

Ref.poi-nt No	Con-cent-ration in	X ref. point coor	Y ref. point coor	Wind direc-	Wind speed	Con-trib-utio	Sour-ce No	Con-trib-utio	Sour-ce No	Con-trib-utio	Sour-ce No	Con-trib-utio	Sour-ce No	Con-trib-utio	Sour-ce No

	MAC frac-tion point	d.	d.	tion		n Q0	N0	n Q1	N1	n Q2	N2	n Q3	N3	n Q4	N4

Highest Benzapyrene Concentration Points
at Reference Site No 11 and Numbers of Sources Yielding Highest Contribution at the Height of 2.00 m

Con-cent-ratio n in MAC frac-tion point	X ref. point coord.	Y ref. point coord.	Wind direc-tion	Wind speed	Con-trib-utio n Q0	Sour-ce No N0	Con-trib-utio n Q1	Sour-ce No N1	Con-trib-utio n Q2	Sour-ce No N2	Con-trib-utio n Q3	Sour-ce No N3	Con-trib-utio n Q4	Sour-ce No N4

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Benzapyrene
A Schematic Map
H = 2.00 m

Standard buffer area

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Substance code Substance MAC (mg/m^3)
Saturated Hydrocarbons

A List of Sources of Emissions Containing
Saturated Hydrocarbons from 12 – from 19, (solvent
rpk-265 and others)

Source code
Technological parameters
Emission, g/s
Class of hazard
…(MAC fractions)
… mg/m^3
…mg/m^3
…(m)
…(m/s)

Point coordinates, beginning of linear,
symmetry site center (m)
Coordinates of end of linear,
site length and width (m)
Terrain relief coefficient
Flow (m^3/s)
PGVS release rate: m/s
Diameter (m)
Height (m)
Temperature (C)
Normalized sedimentation factor
Emission, t/yr

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Estimated Concentrations of Substance: Saturated Hydrocarbons C12 – C19, (solvent RPK-265 and others) in Reference Points and Numbers of Sources Yielding Highest Contribution at the Height of 2 m

Ref.point No	Concentration in MAC fraction point	X ref. point coord.	Y ref. point coord.	Wind direction	Wind speed	Contribution Q0	Source No N0	Contribution Q1	Source No N1	Contribution Q2	Source No N2	Contribution Q3	Source No N3	Contribution Q4	Source No N4

Highest Saturated Hydrocarbons Concentration Points
at Reference Site No 11 and Numbers of Sources Yielding Highest Contribution at the Height of 2.00 m

Concentration in MAC fraction point	X ref. point coord.	Y ref. point coord.	Wind direction	Wind speed	Contribution Q0	Source No N0	Contribution Q1	Source No N1	Contribution Q2	Source No N2	Contribution Q3	Source No N3	Contribution Q4	Source No N4

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Saturated Hydrocarbons C12–C19 (solvent RPK-265 and others)

A Schematic Map
H = 2.00 m

Standard buffer area

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Substance code	Substance	MAC (mg/m^3)
	Composition-Undifferentiated Suspended Matter	

A List of Sources of Emissions Containing
Composition-Undifferentiated Suspended Matter

Source code
Technological parameters
Emission, g/s
Class of hazard
…(MAC fractions)
… mg/m^3
…mg/m^3
…(m)
…(m/s)
Point coordinates, beginning of linear,
symmetry site center (m)
Coordinates of end of linear,
site length and width (m)
Terrain relief coefficient
Flow (m^3/s)
PGVS release rate: m/s
Diameter (m)
Height (m)
Temperature (C)
Normalized sedimentation factor
Emission, t/yr

Estimated data on composition-undifferentiated suspended matter
at reference site 11

Composition-undifferentiated suspended matter was not estimated at the reference site 11 points as this is thought useless according to Item 5.21 of OND-86.

Substance code	Substance	MAC (mg/m^3)

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A List of Sources of Emissions Containing
Hydrogen Sulfide

Source code
Technological parameters
Emission, g/s
Class of hazard
…(MAC fractions)
… mg/m^3
…mg/m^3
…(m)
…(m/s)
Point coordinates, beginning of linear,
symmetry site center (m)
Coordinates of end of linear,
site length and width (m)
Terrain relief coefficient
Flow (m^3/s)
PGVS release rate: m/s
Diameter (m)
Height (m)
Temperature (C)
Normalized sedimentation factor
Emission, t/yr

Estimated data on hydrogen sulfide
at reference site 11

Hydrogen sulfide was not estimated at the reference site 11 points as this is thought useless according to Item 5.21 of OND-86.

Substance code	Substance	MAC (mg/m^3)
	Inorganic dust containing silicon dioxide	

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A List of Sources of Emissions Containing
Inorganic Dust Having Silicon Dioxide

Source code
Technological parameters
Emission, g/s
Class of hazard
…(MAC fractions)
… mg/m^3
…mg/m^3
…(m)
…(m/s)
Point coordinates, beginning of linear,
symmetry site center (m)
Coordinates of end of linear,
site length and width (m)
Terrain relief coefficient
Flow (m^3/s)
PGVS release rate: m/s
Diameter (m)
Height (m)
Temperature (C)
Normalized sedimentation factor
Emission, t/yr

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Estimated Concentrations of Substance: Inorganic Dust Containing Silicon Dioxide in % - 70-20 (chamotte, cement and others) in Reference Points and Numbers of Sources As Highest Contributors at the Height of 2 m

Ref.poi-nt No	Con-cent-ration in MAC frac-tion	X ref. point coord.	Y ref. point coord.	Wind direc-tion	Wind speed	Con-trib-ution Q0	Sour-ce No N0	Con-trib-ution Q1	Sour-ce No N1	Con-trib-ution Q2	Sour-ce No N2	Con-trib-ution Q3	Sour-ce No N3	Con-trib-ution Q4	Sour-ce No N4

	poin t														

Points with Highest Concentrations of Inorganic Dust Containing Silicon Dioxide in % - 70-20 (chamotte, cement and others) at Reference Site No 11 and Numbers of Sources Yielding Highest Contribution at the Height of 2.00 m

Con-cent-ratio n in MAC frac-tion point	X ref. point coord.	Y ref. point coord.	Wind direc - tion	Wind speed	Con-trib-utio n Q0	Sour - ce No N0	Con-trib-utio n Q1	Sour - ce No N1	Con-trib-utio n Q2	Sour - ce No N2	Con-trib-utio n Q3	Sour - ce No N3	Con-trib-utio n Q4	Sour - ce No N4

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Inorganic Dust Containing Silicon Dioxide in % - 70-20
(chamotte, cement and others)
Schematic Map
H = 2.00 m

Standard buffer area

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Substance code	Substance	MAC (mg/m^3)
	Nitrogen Dioxide	
	Sulfur Dioxide	

A List of Sources of Emissions Containing
Summation Group No 31

Source code
Technological parameters
Emission, g/s
Class of hazard
…(MAC fractions)
… mg/m^3
…mg/m^3
…(m)

…(m/s)
Point coordinates, beginning of linear,
symmetry site center (m)
Coordinates of end of linear,
site length and width (m)
Terrain relief coefficient
Flow (m^3/s)
PGVS release rate: m/s
Diameter (m)
Height (m)
Temperature (C)
Normalized sedimentation factor
Emission, t/yr

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Estimated Concentrations of Summation Group No 31in Reference Points and Numbers of Sources As Highest Contributors at the Height of 2 m

Ref.point No	Concentration in MAC fraction point	X ref. point coord.	Y ref. point coord.	Wind direction	Wind speed	Contribution Q0	Source No N0	Contribution Q1	Source No N1	Contribution Q2	Source No N2	Contribution Q3	Source No N3	Contribution Q4	Source No N4

Highest Summation Group No 31 Concentration Points at Reference Site No 11 and Numbers of Sources As Highest Contributors at the Height of 2.00 m

Concentration in MAC fraction point	X ref. point coord.	Y ref. point coord.	Wind direction	Wind speed	Contribution Q0	Source No N0	Contribution Q1	Source No N1	Contribution Q2	Source No N2	Contribution Q3	Source No N3	Contribution Q4	Source No N4

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Summation Group No 31
A Schematic Map
H = 2.00 m

Standard buffer area

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Substance code	Substance	MAC (mg/m^3)
	Sulfur Dioxide	
	Hydrogen Sulfide	

A List of Sources of Emissions Containing
Summation Group No 30

Source code
Technological parameters
Emission, g/s
Class of hazard
…(MAC fractions)
… mg/m^3
…mg/m^3
…(m)
…(m/s)
Point coordinates, beginning of linear,
symmetry site center (m)
Coordinates of end of linear,
site length and width (m)
Terrain relief coefficient
Flow (m^3/s)
PGVS release rate: m/s
Diameter (m)
Height (m)
Temperature (C)
Normalized sedimentation factor
Emission, t/yr

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Estimated Concentrations of Summation Group No 30 in Reference Points and Numbers of Sources As Highest Contributors at the Height of 2 m

Ref.point No	Concentration in MAC fraction point	X ref. point coord.	Y ref. point coord.	Wind direction	Wind speed	Contribution Q0	Source No N0	Contribution Q1	Source No N1	Contribution Q2	Source No N2	Contribution Q3	Source No N3	Contribution Q4	Source No N4

Highest Summation Group No 30 Concentration Points at Reference Site No 11 and Numbers of Sources As Highest Contributors at the Height of 2.00 m

Concentration in MAC fraction point	X ref. point coord.	Y ref. point coord.	Wind direction	Wind speed	Contribution Q0	Source No N0	Contribution Q1	Source No N1	Contribution Q2	Source No N2	Contribution Q3	Source No N3	Contribution Q4	Source No N4

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Summation Group No 30
A Schematic Map
H = 2.00 m

Standard buffer area

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H.2 Calculation of ground level concentrations from pollutant emissions in operation (with background considered)

Softfond LTD.
Tel.:
Fax:

EOL 2000[h]
(Windows Version)

An automated system for calculation of pollutant emission dispersion

A General Report Based on Dispersion Data

Calculation of ground level concentrations from pollutant emissions in operation (with background considered)

The system's calculation module employs OND-86 methodology.
The program is recommended for use by Ukraine Ministry of Environmental Protection (2464/19/4-10 of 15.03.2006)

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Assignment for Calculation

Town	Chernobyl
Working site codes	
Substance codes	
Summation group codes	
Wind speed (m/s)	
Wind speed (average weighted U fractions)	
Wind speed (average over-plume U fractions)	
Wind shift step	
Fixed wind direction	
Number of the biggest contributors	
Number of maximum concentrations	
Is background considered?	Yes
Is the estimated C33/enterprise impact area to be built?	No/no
Estimated height (m)	

Parameters of Estimated Sites

Nos	Coordinate X	Coord. Y	Length	Width	Turning angle of estimated site relative to OX axis of basic frame of reference	Mesh step, OX axis	Mesh step, OY axis	Special requirements
Town	Town	Mean	Mean	Max.	Regional	Angle	Town	Latitude

code		temp. of warmest month (°C)	temp. of coldest month (°C)	wind speed (m/s)	stratification factor	between north direction and OX axis, basic frame of reference	area (sq km)	(degrees, min., sec.)
	Chernobyl							…degrees

Latitude (north or south)	Longitude (deg., min., sec.)	Longitude (west or east)	Wind frequency (N)	Wind frequency (NE)	Wind frequency (E)	Wind frequency (SE)	Wind frequency (S)	Wind frequency (SW)	Wind frequency (W)
north	..deg.	east							

Wind frequency (NW)

Site code	Site description	Summation group substance code	Substance (substance codes as part of sum. group)	Intensity of emission (g/s)	Intensity of emi. (t/yr)
	CSFSF	Sum.gr.			
		Subst.code	Nitrogen dioxide		
			Sulfur dioxide		
			Carbon oxide		
			Carbon soot		
			Benzapyrene		
		Saturate hydrocarbons C12-C19 (solvent RPK-265…			
		Suspended substances, composition-undifferentiated			
			Hydrogen sulfide		
		Inorganic dust containing silicon dioxide in %			

Substance code	Substance	MAC (mg/m^3)
	Nitrogen dioxide	

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Background Concentrations Containing Contributions from Existing Sources
(MAC fractions (MAC fractions) (initial contamination levels) for the Substance: Nitrogen Dioxide.
Background Preset Option: a

X coord. of	Y coord. of	U<2 m/s	Wind speed	Wind speed	Wind speed	Wind speed	Wind speed	Wind speed	Wind speed	Wind speed

observ.station	observ.station	(no wind)	2<U<U* N	2<U<U* NE	2<U<U* E	2<U<U* SE	2<U<U* S	2<U<U* SW	2<U<U* W	2<U<U* NW

Background Concentrations Exclusive of Existing Sources
(MAC fractions (MAC fractions) (background proper – upper number, contribution – lower number) for the Substance: Nitrogen Dioxide. Background Preset Option: a

X coord. of observ.station	Y coord. of observ.station	U<2 m/s (no wind)	Wind speed 2<U<U* N	Wind speed 2<U<U* NE	Wind speed 2<U<U* E	Wind speed 2<U<U* SE	Wind speed 2<U<U* S	Wind speed 2<U<U* SW	Wind speed 2<U<U* W	Wind speed 2<U<U* NW

A List of Sources of Emissions Containing
Nitrogen Dioxide

Source code
Technological parameters
Emission, g/s
Class of hazard
…(MAC fractions)
… mg/m^3
…mg/m^3
…(m)
…(m/s)
Point coordinates, beginning of linear,
symmetry site center (m)
Coordinates of end of linear,
site length and width (m)
Terrain relief coefficient
Flow (m^3/s)
PGVS release rate: m/s
Diameter (m)
Height (m)
Temperature (C)
Normalized sedimentation factor
Emission, t/yr

Estimated Concentrations of Nitrogen Dioxide in Reference Points and Numbers of Sources As Highest Contributors at the Height of 2 m

Ref.point No	Concentration in MAC fraction point	X ref. point coord.	Y ref. point coord.	Wind direction	Wind speed	Contribution Q0	Source No N0	Contribution Q1	Source No N1	Contribution Q2	Source No N2	Contribution Q3	Source No N3	Contribution Q4	Source No N4

Highest Nitrogen Dioxide Concentration Points at Reference Site No 11 and Numbers of Sources As Highest Contributors at the Height of 2.00 m

Concentration in MAC fraction point	X ref. point coord.	Y ref. point coord.	Wind direction	Wind speed	Contribution Q0	Source No N0	Contribution Q1	Source No N1	Contribution Q2	Source No N2	Contribution Q3	Source No N3	Contribution Q4	Source No N4

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Nitrogen Dioxide
A Schematic Map
H = 2.00 m

Standard buffer area

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Substance code	Substance	MAC (mg/m^3)
	Sulfur Dioxide	

Background Concentrations Containing Contributions from Existing Sources
(MAC fractions (MAC fractions) (initial contamination levels) for the Substance: Sulfur Dioxide.
Background Preset Option: a

X coord. of observ.station	Y coord. of observ.station	U<2 m/s (no wind)	Wind speed 2<U< U* N	Wind speed 2<U< U* NE	Wind speed 2<U< U* E	Wind speed 2<U< U* SE	Wind speed 2<U< U* S	Wind speed 2<U< U* SW	Wind speed 2<U< U* W	Wind speed 2<U< U* NW

Background Concentrations Exclusive of Existing Sources
(MAC fractions (MAC fractions) (background proper – upper number, contribution – lower number) for the Substance: Sulfur Dioxide. Background Preset Option: a

X coord. of observ.station	Y coord. of observ.station	U<2 m/s (no wind)	Wind speed 2<U< U* N	Wind speed 2<U< U* NE	Wind speed 2<U< U* E	Wind speed 2<U< U* SE	Wind speed 2<U< U* S	Wind speed 2<U< U* SW	Wind speed 2<U< U* W	Wind speed 2<U< U* NW

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A List of Sources of Emissions Containing
Sulfur Dioxide

Source code
Technological parameters
Emission, g/s
Class of hazard
…(MAC fractions)
… mg/m^3
…mg/m^3
…(m)
…(m/s)
Point coordinates, beginning of linear,
symmetry site center (m)
Coordinates of end of linear,
site length and width (m)
Terrain relief coefficient
Flow (m^3/s)
PGVS release rate: m/s
Diameter (m)
Height (m)
Temperature (C)
Normalized sedimentation factor

Emission, t/yr

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Estimated Concentrations of Sulfur Dioxide in Reference Points and Numbers of Sources As Highest Contributors at the Height of 2 m

Ref.point No	Concentration in MAC fraction point	X ref. point coord.	Y ref. point coord.	Wind direction	Wind speed	Contribution Q0	Source No N0	Contribution Q1	Source No N1	Contribution Q2	Source No N2	Contribution Q3	Source No N3	Contribution Q4	Source No N4

Highest Sulfur Dioxide Concentration Points at Reference Site No 11 and Numbers of Sources As Highest Contributors at the Height of 2.00 m

Concentration in MAC fraction point	X ref. point coord.	Y ref. point coord.	Wind direction	Wind speed	Contribution Q0	Source No N0	Contribution Q1	Source No N1	Contribution Q2	Source No N2	Contribution Q3	Source No N3	Contribution Q4	Source No N4

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Sulfur Dioxide
A Schematic Map
H = 2.00 m

Standard buffer area

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Substance code	Substance	MAC (mg/m^3)
	Carbon Oxide	

Background Concentrations Containing Contributions from Existing Sources
(MAC fractions (MAC fractions) (initial contamination levels) for the Substance: Carbon Oxide.
Background Preset Option: a

X coord. of observ.station	Y coord. of observ.station	U<2 m/s (no wind)	Wind speed 2<U< U* N	Wind speed 2<U< U* NE	Wind speed 2<U< U* E	Wind speed 2<U< U* SE	Wind speed 2<U< U* S	Wind speed 2<U< U* SW	Wind speed 2<U< U* W	Wind speed 2<U< U* NW

Background Concentrations Exclusive of Existing Sources
(MAC fractions (MAC fractions) (background proper – upper number, contribution – lower number) for the Substance: Carbon Oxide. Background Preset Option: a

X coord. of observ.station	Y coord. of observ.station	U<2 m/s (no wind)	Wind speed 2<U< U* N	Wind speed 2<U< U* NE	Wind speed 2<U< U* E	Wind speed 2<U< U* SE	Wind speed 2<U< U* S	Wind speed 2<U< U* SW	Wind speed 2<U< U* W	Wind speed 2<U< U* NW

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A List of Sources of Emissions Containing
Carbon Oxide

Source code
Technological parameters
Emission, g/s
Class of hazard
…(MAC fractions)
… mg/m^3
…mg/m^3
…(m)
…(m/s)
Point coordinates, beginning of linear,
symmetry site center (m)
Coordinates of end of linear,
site length and width (m)

Terrain relief coefficient
Flow (m^3/s)
PGVS release rate: m/s
Diameter (m)
Height (m)
Temperature (C)
Normalized sedimentation factor
Emission, t/yr

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Estimated Concentrations of Carbon Oxide in Reference Points and Numbers of Sources As Highest Contributors at the Height of 2 m

Ref.poi-nt No	Con-cent-ration in MAC fraction point	X ref. point coord.	Y ref. point coord.	Wind direc-tion	Wind speed	Con-trib-ution Q0	Sour-ce No N0	Con-trib-ution Q1	Sour-ce No N1	Con-trib-ution Q2	Sour-ce No N2	Con-trib-ution Q3	Sour-ce No N3	Con-trib-ution Q4	Sour-ce No N4

Highest Carbon Oxide Concentration Points at Reference Site No 11 and Numbers of Sources As Highest Contributors at the Height of 2.00 m

Con-cent-ration in MAC fraction point	X ref. point coord.	Y ref. point coord.	Wind direc-tion	Wind speed	Con-trib-ution Q0	Sour-ce No N0	Con-trib-ution Q1	Sour-ce No N1	Con-trib-ution Q2	Sour-ce No N2	Con-trib-ution Q3	Sour-ce No N3	Con-trib-ution Q4	Sour-ce No N4

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Carbon Oxide
A Schematic Map
H = 2.00 m

Standard buffer area

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Substance code	Substance	MAC (mg/m^3)
	Carbon Soot	

Background Concentrations Containing Contributions from Existing Sources
(MAC fractions (MAC fractions) (initial contamination levels) for the Substance: Carbon Soot.
Background Preset Option: a

X coord. of observ.station	Y coord. of observ.station	U<2 m/s (no wind)	Wind speed 2<U< U* N	Wind speed 2<U< U* NE	Wind speed 2<U< U* E	Wind speed 2<U< U* SE	Wind speed 2<U< U* S	Wind speed 2<U< U* SW	Wind speed 2<U< U* W	Wind speed 2<U< U* NW

Background Concentrations Exclusive of Existing Sources
(MAC fractions (MAC fractions) (background proper – upper number, contribution – lower number) for the Substance: Carbon Soot. Background Preset Option: a

X coord. of observ.station	Y coord. of observ.station	U<2 m/s (no wind)	Wind speed 2<U< U* N	Wind speed 2<U< U* NE	Wind speed 2<U< U* E	Wind speed 2<U< U* SE	Wind speed 2<U< U* S	Wind speed 2<U< U* SW	Wind speed 2<U< U* W	Wind speed 2<U< U* NW

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A List of Sources of Emissions Containing
Carbon Soot

Source code
Technological parameters
Emission, g/s
Class of hazard
…(MAC fractions)

… mg/m^3
…mg/m^3
…(m)
…(m/s)
Point coordinates, beginning of linear,
symmetry site center (m)
Coordinates of end of linear,
site length and width (m)
Terrain relief coefficient
Flow (m^3/s)
PGVS release rate: m/s
Diameter (m)
Height (m)
Temperature (C)
Normalized sedimentation factor
Emission, t/yr

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Estimated Concentrations of Carbon Soot in Reference Points and Numbers of Sources As Highest Contributors at the Height of 2 m

Ref.poi-nt No	Con-cent-ration in MAC frac-tion point	X ref. point coord.	Y ref. point coord.	Wind direc-tion	Wind speed	Con-trib-ution Q0	Sour-ce No N0	Con-trib-ution Q1	Sour-ce No N1	Con-trib-ution Q2	Sour-ce No N2	Con-trib-ution Q3	Sour-ce No N3	Con-trib-ution Q4	Sour-ce No N4

Highest Carbon Soot Concentration Points at Reference Site No 11 and Numbers of Sources As Highest Contributors at the Height of 2.00 m

Con-cent-ration in MAC frac-tion point	X ref. point coord.	Y ref. point coord.	Wind direc-tion	Wind speed	Con-trib-ution Q0	Sour-ce No N0	Con-trib-ution Q1	Sour-ce No N1	Con-trib-ution Q2	Sour-ce No N2	Con-trib-ution Q3	Sour-ce No N3	Con-trib-ution Q4	Sour-ce No N4

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Carbon Soot
A Schematic Map
H = 2.00 m

Standard buffer area

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Substance code	Substance	MAC (mg/m^3)
	Benzapyrene	

Background Concentrations Containing Contributions from Existing Sources
(MAC fractions (MAC fractions) (initial contamination levels) for the Substance: Benzapyrene.
Background Preset Option: a

X coord. of observ.station	Y coord. of observ.station	U<2 m/s (no wind)	Wind speed 2<U< U* N	Wind speed 2<U< U* NE	Wind speed 2<U< U* E	Wind speed 2<U< U* SE	Wind speed 2<U< U* S	Wind speed 2<U< U* SW	Wind speed 2<U< U* W	Wind speed 2<U< U* NW

Background Concentrations Exclusive of Existing Sources
(MAC fractions (MAC fractions) (background proper – upper number, contribution – lower number) for the Substance: Benzapyrene. Background Preset Option: a

X coord. of observ.station	Y coord. of observ.station	U<2 m/s (no wind)	Wind speed 2<U< U* N	Wind speed 2<U< U* NE	Wind speed 2<U< U* E	Wind speed 2<U< U* SE	Wind speed 2<U< U* S	Wind speed 2<U< U* SW	Wind speed 2<U< U* W	Wind speed 2<U< U* NW

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A List of Sources of Emissions Containing
Benzapyrene

Source code
Technological parameters
Emission, g/s
Class of hazard
…(MAC fractions)
… mg/m^3
…mg/m^3
…(m)
…(m/s)
Point coordinates, beginning of linear,
symmetry site center (m)
Coordinates of end of linear,
site length and width (m)
Terrain relief coefficient
Flow (m^3/s)
PGVS release rate: m/s
Diameter (m)
Height (m)
Temperature (C)
Normalized sedimentation factor
Emission, t/yr

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Estimated Concentrations of Benzapyrene in Reference Points and Numbers of Sources As Highest Contributors at the Height of 2 m

Ref.poi-nt No	Con-cent-ration in MAC frac-tion point	X ref. point coord.	Y ref. point coord.	Wind direc-tion	Wind speed	Con-trib-ution Q0	Sour-ce No N0	Con-trib-ution Q1	Sour-ce No N1	Con-trib-ution Q2	Sour-ce No N2	Con-trib-ution Q3	Sour-ce No N3	Con-trib-ution Q4	Sour-ce No N4

Highest Benzapyrene Concentration Points at Reference Site No 11 and Numbers of Sources As Highest Contributors at the Height of 2.00 m

Con-cent-ratio n in MAC frac-tion point	X ref. point coord.	Y ref. point coord.	Wind direc-tion	Wind speed	Con-trib-utio n Q0	Sour-ce No N0	Con-trib-utio n Q1	Sour-ce No N1	Con-trib-utio n Q2	Sour-ce No N2	Con-trib-utio n Q3	Sour-ce No N3	Con-trib-utio n Q4	Sour-ce No N4

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Benzapyrene
A Schematic Map
H = 2.00 m

Standard buffer area

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Substance code	Substance	MAC (mg/m^3)
	Saturated Hydrocarbons C12-C19 (Solvent RPK-265)	

Background Concentrations Containing Contributions from Existing Sources (MAC fractions (MAC fractions) (initial contamination levels) for the Substance: Saturated Hydrocarbons C12-C19 (Solvent RPK-265 and others). Background Preset Option: a

X coord. of observ.station	Y coord. of observ.station	U<2 m/s (no wind)	Wind speed 2<U< U* N	Wind speed 2<U< U* NE	Wind speed 2<U< U* E	Wind speed 2<U< U* SE	Wind speed 2<U< U* S	Wind speed 2<U< U* SW	Wind speed 2<U< U* W	Wind speed 2<U< U* NW

Background Concentrations Exclusive of Existing Sources

(MAC fractions (MAC fractions) (background proper – upper number, contribution – lower number) for the Substance: Saturated Hydrocarbons C12-C19 (Solvent RPK-265 and others).. Background Preset Option: a

X coord. of observ.station	Y coord. of observ.station	U<2 m/s (no wind)	Wind speed 2<U< U* N	Wind speed 2<U< U* NE	Wind speed 2<U< U* E	Wind speed 2<U< U* SE	Wind speed 2<U< U* S	Wind speed 2<U< U* SW	Wind speed 2<U< U* W	Wind speed 2<U< U* NW

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A List of Sources of Emissions Containing
Saturated Hydrocarbons C12-C19 (Solvent RPK-265 and others)

Source code
Technological parameters
Emission, g/s
Class of hazard
…(MAC fractions)
… mg/m^3
…mg/m^3
…(m)
…(m/s)
Point coordinates, beginning of linear,
symmetry site center (m)
Coordinates of end of linear,
site length and width (m)
Terrain relief coefficient
Flow (m^3/s)
PGVS release rate: m/s
Diameter (m)
Height (m)
Temperature (C)
Normalized sedimentation factor
Emission, t/yr

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Estimated Concentrations of Saturated Hydrocarbons C12-C19 (Solvent RPK-265 and others) in Reference Points and Numbers of Sources As Highest Contributors at the Height of 2 m

Ref.point No	Concentration in MAC fraction point	X ref. point coord.	Y ref. point coord.	Wind direction	Wind speed	Contribution Q0	Source No N0	Contribution Q1	Source No N1	Contribution Q2	Source No N2	Contribution Q3	Source No N3	Contribution Q4	Source No N4

Points with Highest Concentrations of Saturated Hydrocarbons C12-C19 (Solvent RPK-265 and others) at Reference Site No 11 and Numbers of Sources As Highest Contributors at the Height of 2.00 m

Concentration in MAC fraction point	X ref. point coord.	Y ref. point coord.	Wind direction	Wind speed	Contribution Q0	Source No N0	Contribution Q1	Source No N1	Contribution Q2	Source No N2	Contribution Q3	Source No N3	Contribution Q4	Source No N4

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Saturated Hydrocarbons C12-C19 (Solvent RPK-265 and others)
A Schematic Map
H = 2.00 m

Standard buffer area

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Substance code	Substance	MAC (mg/m^3)
	Composition-Undifferentiated Suspended Matter	

Background Concentrations Containing Contributions from Existing Sources
(MAC fractions (MAC fractions) (initial contamination levels) for the Substance: Composition-Undifferentiated Suspended Matter. Background Preset Option: a

X coord. of observ.station	Y coord. of observ.station	U<2 m/s (no wind)	Wind speed 2<U<U* N	Wind speed 2<U<U* NE	Wind speed 2<U<U* E	Wind speed 2<U<U* SE	Wind speed 2<U<U* S	Wind speed 2<U<U* SW	Wind speed 2<U<U* W	Wind speed 2<U<U* NW

Background Concentrations Exclusive of Existing Sources
(MAC fractions (MAC fractions) (background proper – upper number, contribution – lower number) for the Substance: Composition-Undifferentiated Suspended Matter. Background Preset Option: a

X coord. of observ.station	Y coord. of observ.station	U<2 m/s (no wind)	Wind speed 2<U<U* N	Wind speed 2<U<U* NE	Wind speed 2<U<U* E	Wind speed 2<U<U* SE	Wind speed 2<U<U* S	Wind speed 2<U<U* SW	Wind speed 2<U<U* W	Wind speed 2<U<U* NW

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A List of Sources of Emissions Containing
Composition-Undifferentiated Suspended Matter

Source code
Technological parameters
Emission, g/s
Class of hazard
…(MAC fractions)
… mg/m^3
…mg/m^3
…(m)
…(m/s)
Point coordinates, beginning of linear,
symmetry site center (m)
Coordinates of end of linear,
site length and width (m)
Terrain relief coefficient
Flow (m^3/s)

PGVS release rate: m/s
Diameter (m)
Height (m)
Temperature (C)
Normalized sedimentation factor
Emission, t/yr

Estimated Data on Composition-Undifferentiated Suspended Matter
at Reference Site No 11

The composition-undifferentiated suspended matter was not estimated in reference site No 11 points as it was thought useless in accordance with Item 5.21 of OND-86.

Substance code	Substance	MAC (mg/m^3)
	Hydrogen Sulfide	

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Background Concentrations Containing Contributions from Existing Sources
(MAC fractions (MAC fractions) (initial contamination levels) for the Substance: Hydrogen Sulfide. Background Preset Option: a

X coord. of observ.station	Y coord. of observ.station	U<2 m/s (no wind)	Wind speed 2<U<U* N	Wind speed 2<U<U* NE	Wind speed 2<U<U* E	Wind speed 2<U<U* SE	Wind speed 2<U<U* S	Wind speed 2<U<U* SW	Wind speed 2<U<U* W	Wind speed 2<U<U* NW

Background Concentrations Exclusive of Existing Sources
(MAC fractions (MAC fractions) (background proper – upper number, contribution – lower number) for the Substance: Hydrogen Sulfide. Background Preset Option: a

X coord. of observ.station	Y coord. of observ.station	U<2 m/s (no wind)	Wind speed 2<U<U* N	Wind speed 2<U<U* NE	Wind speed 2<U<U* E	Wind speed 2<U<U* SE	Wind speed 2<U<U* S	Wind speed 2<U<U* SW	Wind speed 2<U<U* W	Wind speed 2<U<U* NW

A List of Sources of Emissions Containing
Hydrogen Sulfide

Source code
Technological parameters

Emission, g/s
Class of hazard
…(MAC fractions)
… mg/m^3
…mg/m^3
…(m)
…(m/s)
Point coordinates, beginning of linear,
symmetry site center (m)
Coordinates of end of linear,
site length and width (m)
Terrain relief coefficient
Flow (m^3/s)
PGVS release rate: m/s
Diameter (m)
Height (m)
Temperature (C)
Normalized sedimentation factor
Emission, t/yr

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Estimated Data on Hydrogen Sulfide
at Reference Site No 11

Hydrogen sulfide was not estimated in reference site No 11 points as it was thought useless in accordance with Item 5.21 of OND-86.

Substance code	Substance	MAC (mg/m^3)
	Inorganic Dust Containing Silicon Dioxide in % - 70-20	

Background Concentrations Containing Contributions from Existing Sources
(MAC fractions (MAC fractions) (initial contamination levels) for the Substance: Inorganic Dust Containing Silicon Dioxide in % - 70-20 (chamotte, cement and others). Background Preset Option: a

X coord. Of observ.station	Y coord. Of observ.station	U<2 m/s (no wind)	Wind speed 2<U<U* N	Wind speed 2<U<U* NE	Wind speed 2<U<U* E	Wind speed 2<U<U* SE	Wind speed 2<U<U* S	Wind speed 2<U<U* SW	Wind speed 2<U<U* W	Wind speed 2<U<U* NW

Background Concentrations Exclusive of Existing Sources
(MAC fractions (MAC fractions) (background proper – upper number, contribution – lower number) for the Substance: Inorganic Dust Containing Silicon Dioxide in % - 70-20 (chamotte, cement and others). Background Preset Option: a

X coord. Of observ.station	Y coord. Of observ.station	U<2 m/s (no wind)	Wind speed 2<U< U* N	Wind speed 2<U< U* NE	Wind speed 2<U< U* E	Wind speed 2<U< U* SE	Wind speed 2<U< U* S	Wind speed 2<U< U* SW	Wind speed 2<U< U* W	Wind speed 2<U< U* NW

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A List of Sources of Emissions Containing
Inorganic Dust Containing Silicon Dioxide in % - 70-20 (chamotte, cement and others)

Source code
Technological parameters
Emission, g/s
Class of hazard
…(MAC fractions)
… mg/m^3
…mg/m^3
…(m)
…(m/s)
Point coordinates, beginning of linear,
symmetry site center (m)
Coordinates of end of linear,
site length and width (m)
Terrain relief coefficient
Flow (m^3/s)
PGVS release rate: m/s
Diameter (m)
Height (m)
Temperature (C)
Normalized sedimentation factor
Emission, t/yr

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Estimated Concentrations of Inorganic Dust Containing Silicon Dioxide in % - 70-20 (chamotte, cement and others in Reference Points and Numbers of Sources As Highest Contributors at the Height of 2 m

Ref.point No	Concentration in MAC fraction point	X ref. point coord.	Y ref. point coord.	Wind direction	Wind speed	Contribution Q0	Source No N0	Contribution Q1	Source No N1	Contribution Q2	Source No N2	Contribution Q3	Source No N3	Contribution Q4	Source No N4

Points with Highest Concentrations of Inorganic Dust Containing Silicon Dioxide in % - 70-20 (chamotte, cement and others) at Reference Site No 11 and Numbers of Sources As Highest Contributors at the Height of 2.00 m

Concentration in MAC fraction point	X ref. point coord.	Y ref. point coord.	Wind direction	Wind speed	Contribution Q0	Source No N0	Contribution Q1	Source No N1	Contribution Q2	Source No N2	Contribution Q3	Source No N3	Contribution Q4	Source No N4

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Inorganic Dust Containing Silicon Dioxide in % - 70-20
(chamotte, cement and others)
A Schematic Map
H = 2.00 m

Standard buffer area

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Substance code	Substance	MAC (mg/m^3)
	Nitrogen Dioxide	
	Sulfur Dioxide	

Background Concentrations Containing Contributions from Existing Sources
(MAC fractions (MAC fractions) (initial contamination levels) for Summation group No 31.
Background Preset Option: a

X coord. of observ.station	Y coord. of observ.station	U<2 m/s (no wind)	Wind speed 2<U< U* N	Wind speed 2<U< U* NE	Wind speed 2<U< U* E	Wind speed 2<U< U* SE	Wind speed 2<U< U* S	Wind speed 2<U< U* SW	Wind speed 2<U< U* W	Wind speed 2<U< U* NW

Background Concentrations Exclusive of Existing Sources
(MAC fractions (MAC fractions) (background proper – upper number, contribution – lower number) for Summation group No 31. Background Preset Option: a

X coord. Of observ.station	Y coord. Of observ.station	U<2 m/s (no wind)	Wind speed 2<U< U* N	Wind speed 2<U< U* NE	Wind speed 2<U< U* E	Wind speed 2<U< U* SE	Wind speed 2<U< U* S	Wind speed 2<U< U* SW	Wind speed 2<U< U* W	Wind speed 2<U< U* NW

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A List of Sources of Emissions Containing
Summation Group No 31

Source code
Technological parameters
Emission, g/s
Class of hazard
…(MAC fractions)
… mg/m^3
…mg/m^3
…(m)
…(m/s)
Point coordinates, beginning of linear,

symmetry site center (m)
Coordinates of end of linear,
site length and width (m)
Terrain relief coefficient
Flow (m^3/s)
PGVS release rate: m/s
Diameter (m)
Height (m)
Temperature (C)
Normalized sedimentation factor
Emission, t/yr

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Estimated Concentrations of Summation Group No 31in Reference Points and Numbers of Sources As Highest Contributors at the Height of 2 m

Ref.poi-nt No	Con-cent-ration in MAC frac-tion point	X ref. point coord.	Y ref. point coord.	Wind direc-tion	Wind speed	Con-trib-ution Q0	Sour-ce No N0	Con-trib-ution Q1	Sour-ce No N1	Con-trib-ution Q2	Sour-ce No N2	Con-trib-ution Q3	Sour-ce No N3	Con-trib-ution Q4	Sour-ce No N4

Points with Highest Concentrations of Summation Group No 31at Reference Site No 11 and Numbers of Sources As Highest Contributors at the Height of 2.00 m

Con-cent-ration in MAC frac-tion point	X ref. point coord.	Y ref. point coord.	Wind direc-tion	Wind speed	Con-trib-ution Q0	Sour-ce No N0	Con-trib-ution Q1	Sour-ce No N1	Con-trib-ution Q2	Sour-ce No N2	Con-trib-ution Q3	Sour-ce No N3	Con-trib-ution Q4	Sour-ce No N4

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Summation Group No 31

A Schematic Map
H = 2.00 m

Standard buffer area

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Substance code	Substance	MAC (mg/m^3)
	Sulfur Dioxide	
	Hydrogen Sulfide	

Background Concentrations Containing Contributions from Existing Sources
(MAC fractions (MAC fractions) (initial contamination levels) for Summation Group No 30.
Background Preset Option: a

X coord. of observ.station	Y coord. of observ.station	U<2 m/s (no wind)	Wind speed 2<U< U* N	Wind speed 2<U< U* NE	Wind speed 2<U< U* E	Wind speed 2<U< U* SE	Wind speed 2<U< U* S	Wind speed 2<U< U* SW	Wind speed 2<U< U* W	Wind speed 2<U< U* NW

Background Concentrations Exclusive of Existing Sources
(MAC fractions (MAC fractions) (background proper – upper number, contribution – lower number) for Summation Group No 30. Background Preset Option: a

X coord. Of observ.station	Y coord. Of observ.station	U<2 m/s (no wind)	Wind speed 2<U< U* N	Wind speed 2<U< U* NE	Wind speed 2<U< U* E	Wind speed 2<U< U* SE	Wind speed 2<U< U* S	Wind speed 2<U< U* SW	Wind speed 2<U< U* W	Wind speed 2<U< U* NW

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A List of Sources of Emissions Containing
Summation Group No 30

Source code

Technological parameters
Emission, g/s
Class of hazard
…(MAC fractions)
… mg/m^3
…mg/m^3
…(m)
…(m/s)
Point coordinates, beginning of linear,
symmetry site center (m)
Coordinates of end of linear,
site length and width (m)
Terrain relief coefficient
Flow (m^3/s)
PGVS release rate: m/s
Diameter (m)
Height (m)
Temperature (C)
Normalized sedimentation factor
Emission, t/yr

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Estimated Concentrations of Summation Group No 30in Reference Points and Numbers of Sources As Highest Contributors at the Height of 2 m

Ref.point No	Concentration in MAC fraction point	X ref. point coord.	Y ref. point coord.	Wind direction	Wind speed	Contribution Q0	Source No N0	Contribution Q1	Source No N1	Contribution Q2	Source No N2	Contribution Q3	Source No N3	Contribution Q4	Source No N4

Points with Highest Concentrations of Summation Group No 30at Reference Site No 11 and Numbers of Sources As Highest Contributors at the Height of 2.00 m

Concentration in MAC	X ref. point coord.	Y ref. point coord.	Wind direction	Wind speed	Contribution Q0	Source No N0	Contribution Q1	Source No N1	Contribution Q2	Source No N2	Contribution Q3	Source No N3	Contribution Q4	Source No N4

frac-tion point														

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Summation Group No 30
A Schematic Map
H = 2.00 m

Standard sanitary and protection area

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Appendix P
(mandatory)

A Schematic Map of Noise Sources and Reference Points at CSFSF Site

Noise source (NS)
Reference point (RP)

Scale 1-5000 (50 m in 1 cm, unit of measurement: m)

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Appendix R
(mandatory)

Noise Load Calculation Data

R.1. Noise Load Calculation Data at Reference Points of Calculated Site

Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean

Frequencies in Hz

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La

X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La

X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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Point coordinates Height (m) Sound Pressure Levels (Intensity if Case of R = 0), La
X (m) Y(m) dB, in Octave Bands with Geometric Mean
Frequencies in Hz

---

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R.2. Noise Pressure Value Charts

A Noise Pressure Value Chart (for 31.5 Hz Frequency)

Calculation type: Noise levels
Calculation code: A noise pressure level in the octave band with a geometric mean frequency of 31.5 Hz.
Parameter: Noise pressure
Height: 1.5 m.

…dB…

Scale 1:15000 (150 m in 1 cm, unit of measurement: m)

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A Noise Pressure Value Chart (for 63Hz Frequency)

Calculation type: Noise levels
Calculation code: A noise pressure level in the octave band with a geometric mean frequency of 63 Hz.
Parameter: Noise pressure
Height: 1.5 m.

…dB…

Scale 1:15000 (150 m in 1 cm, unit of measurement: m)

---

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A Noise Pressure Value Chart (for 125Hz Frequency)

Calculation type: Noise levels
Calculation code: A noise pressure level in the octave band with a geometric mean frequency of 125 Hz.

Parameter: Noise pressure
Height: 1.5 m.

…dB…

Scale 1:15000 (150 m in 1 cm, unit of measurement: m)

---

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A Noise Pressure Value Chart (for 250 Hz Frequency)

Calculation type: Noise levels
Calculation code: A noise pressure level in the octave band with a geometric mean frequency of 250 Hz.
Parameter: Noise pressure
Height: 1.5 m.

…dB…

Scale 1:15000 (150 m in 1 cm, unit of measurement: m)

---

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A Noise Pressure Value Chart (for 500 Hz Frequency)

Calculation type: Noise levels
Calculation code: A noise pressure level in the octave band with a geometric mean frequency of 500 Hz.
Parameter: Noise pressure
Height: 1.5 m.

…dB…

Scale 1:15000 (150 m in 1 cm, unit of measurement: m)

---

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A Noise Pressure Value Chart (for 1000 Hz Frequency)

Calculation type: Noise levels
Calculation code: A noise pressure level in the octave band with a geometric mean frequency of 1000 Hz.
Parameter: Noise pressure
Height: 1.5 m.

…dB…

Scale 1:15000 (150 m in 1 cm, unit of measurement: m)

---

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A Noise Pressure Value Chart (for 2000 Hz Frequency)

Calculation type: Noise levels
Calculation code: A noise pressure level in the octave band with a geometric mean frequency of 2000 Hz.
Parameter: Noise pressure
Height: 1.5 m.

…dB…

Scale 1:15000 (150 m in 1 cm, unit of measurement: m)

---

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A Noise Pressure Value Chart (for 4000 Hz Frequency)

Calculation type: Noise levels
Calculation code: A noise pressure level in the octave band with a geometric mean frequency of 4000 Hz.
Parameter: Noise pressure
Height: 1.5 m.

…dB…

Scale 1:15000 (150 m in 1 cm, unit of measurement: m)

---

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A Noise Pressure Value Chart (for 8000 Hz Frequency)

Calculation type: Noise levels
Calculation code: A noise pressure level in the octave band with a geometric mean frequency of 8000 Hz.
Parameter: Noise pressure
Height: 1.5 m.

…dB…

Scale 1:15000 (150 m in 1 cm, unit of measurement: m)

---

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A Noise Pressure Value Chart (Integrated Index LpA)

Calculation type: Noise levels
Calculation code: A sound level.
Parameter: Sound level
Height: 1.5 m.

…dBA…

Scale 1:15000 (150 m in 1 cm, unit of measurement: m)

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Appendix S
(mandatory)
RF Environmental Impact Assessment

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Inv. No_____

The project "Construction of a Centralized Storage Facility for Spent Fuel from Ukrainian NPPs' VVER Type Reactors. Address: Ivankiv District, Kyiv Region (the 30-km Exclusion Zone Territory), CSFSF Site"

RF Environmental Impact Assessment

SD-P-170316

Kyiv 2016

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UKRAINE MINISTRY OF REGIONAL DEVELOPMENT, CONSTRUCTION AND HOUSING AND PUBLIC SERVICES

ARCHITECTURAL AND CONSTRUCTION CERTIFICATION COMMISSION

Series AP No 001988

QUALIFICATION CERTIFICATE
of Executive Officer for Performance of Certain Works (Services) Associated with Creation of a Piece of Architecture

Design Engineer
(profession)

This was issued to certify that Melnyk, Dmytro Anatoliyovich
(full name)
had passed professional certification which confirms his (her) compliance with the qualification requirements to the scope of activity associated with creation of pieces of architecture, professional specialization and a required level of qualification and knowledge.

Category: Design Engineer

The Qualification Certificate was issued pursuant to the decision by the Architectural and Construction Certification Commission (hereinafter – the Commission) as of _____ No_____(as decided by relevant section of the Commission as of 08.08.2012 under No 19 and approved by the Commission panel under No 17-ІП as of 09.08.2012).

The Certificate was filed in the Certified Persons Register 25.07.2012 under Reg. No 1404.

Works (services) intended to create pieces of architecture which can be performed as specified by this Qualification Certificate:_____
construction-engineering design for ensuring human health and life safety and environmental protection

Date of issue: 09.08.2012

P.I. Huben
Chairman (Deputy Chairman)
Architectural and Construction Certification Commission _____
(signature)

Seal

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Characteristics of Radio Facilities
at Ivankiv District, Kyiv Region (30-km Exclusion Zone), CSFSF Site

Nos Owner **Transmitter** Description Capacity, W Video Acoustic Q-ty Frequency/Range, MHz **Antenna** Type Amplification factor Radiation azimuth , degrees
Angle of slope El Mech Coordinates, m **Physical start-up instruments** Feeder length, m Attenuation, dB/m, Jumper lengths, m Extinction in jumpers, dB, Extinction in connectors, dB, Extinction in bifurcations, dB, Extinction in emitters, dB, Other extinctions, dB General extinction, dB

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Calculation of EMF Levels Created by RFs
in the Territories Adjacent to the Radio Facility

Contents

Calculation methodology
RF general data
Antennas, transmitters and physical start-up instruments data
Azimuth, Slope
….
Calculations of zones in planes:
- Projection of exceeded MAL zone to earth No 1
- Calculation in vertical plane No 1
- …No 2
- …No 3

Calculations in tables:
- Table no 1
- … No 2
- …No 3

EMI distribution chart:

- Chart No 1
- …No 2
- …No 3

Conclusions from calculation data

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Abbreviations

1. MAL - Maximum allowable level
2. RDA – Restricted development area
3. EEFD – Electromagnetic energy flux density
4. RFC – Radio facility certificate
5. EMF – Electromagnetic field
6. EIA – Environmental impact assessment
7. RF – Radio facility

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Calculation Methodology

The calculations have been carried out in line with "Sanitary Standard and Regulations for Protection against Electromagnetic Radiation" approved by Ukraine Ministry of Health under Order No 239 of 01.08.1996.

The methodologies recommended by the Sanitary Standard have been used for the calculations that are as follows:

1. *Methodology guidelines for determining electromagnetic field levels in the civil aviation traffic controls in HF, VHF, UHF and SHF bands. USSR Ministry of Health, 1988.*
2. *Methodology guidelines for determining electromagnetic field levels and boundaries of the buffer area and restricted development area at TV facilities and FM radio locations. USSR Ministry of Health, 1985.*

In the frequency bands of over 300 MHz, the radiation intensity is characterized by power flux density (PFD) or electromagnetic energy flux density (EEFD) and is measured in the units of power divided by the units of area – W/m^2 or $\mu W/cm^2$.

A strength level in the given point is calculated by:

...

where

E is the electromagnetic field strength, W/m

P_{emis} is the emission rate, W
N_{afc} is the total loss in antenna feeder circuit, times
Ga is the antenna amplification factor, times
R is a distance from the antenna phase center to the given point, m
K_f is the factor which considers the Earth's influence, times
F(ψ) is a rated diagram of directedness in horizontal plane, times
F(θ) is a rated diagram of directedness in vertical plane, times

The distance from the antenna phase center to the given point is calculated by:

...

where
Ha is an elevation of the antenna phase center above the Earth surface, m
h is the height of the given point above the Earth surface, m
L is the distance from the antenna mast (or its projection) to the given point horizontally, m
ΔH is the difference between topographic heights of the earth surface in the antenna installation point and the given point, m (to be defined following the layout plan)

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If the topographic height of antenna installation is greater , then ΔH is taken with plus, if it is smaller, then its is taken with minus.

Based on the assumption that the difference of topographic heights is minor within the RF location (-0.5 to – 1m/100 m) that make up ΔH, this may be neglected.

Then a formula for determining the distance to the given point will take the form as follows:

...

The angle between the horizontal plane drawn across the antenna centerline and the direction towards the given point is calculated by the formula:

...

An EEFD level in the given point is calculated by:

...

where
EEFD is the electromagnetic energy flux density, $\mu W/cm^2$.

In the case of several radiation sources including those that work in different radio frequency bands, an EMF level created by all the sources at the buffer area boundary must meet the following requirement:

...

The EEFD total levels (or a sum of relations of EEFD levels to EEFD MAL) created by antennas are shown in tabulated forms below on. The charts demonstrate buffer areas (BA) and

restricted development areas (RDA) on the above- mentioned heights and planes within the boundaries where the RF-produced EMF total level exceeds MAL (maximum allowable level). If there is no shaded region on the chart, the EMF level does not exceed MAL in the given plane.

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Facility General Data

Characteristics	*Description*	*Note*
Description	*Project of Centralized Storage Facility for Spent Nuclear Fuel from Ukrainian NPPs' VVER Reactors*	
Address	*Ivankiv District, Kyiv Region (30-km exclusion Zone), CSFSF site*	
Antennas setup	*Tower*	
Coordinates:		
a) latitude	*North*	
b) longitude	*East*	
c) height above sea level –		
Facility operational mode and information on reconstruction	*24-hour operation*	
Commissioning year		

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Technical Data of Antenna-Feeder Circuit Transmitter and Antenna: VRA08.136.05

Nos	*Parameter*	*Value*	*Note*
	Radiation band (carrier frequency), MHz		
	Number and capacity of transmitters, n x W		
	Amplifier factor, dB		
	Overall loss in antenna-feeder circuit, dB		
	Antenna type		
	Antenna amplification factor, dB		

Antenna phase center height Z, m
Antenna phase center X and Y coordinates, m
Antenna azimuth
Angle of antenna mechanical slope
Angle of electric slope of directivity pattern maximum in vertical plane
Total angle of slope of directivity pattern maximum in vertical plane
Antenna directivity patterns:
- *horizontally* *Fig. 1.1*
- *vertically* *Fig. 1.2*

Modulation type
Polarization type
EMF MAL for relevant band, μW/cm²

Fig. 1.1. Antenna directivity pattern in horizontal plane (E/Emax)
Fig. 1.2. Antenna directivity pattern in vertical plane (E/Emax)

Technical Data of Antenna-Feeder Circuit Transmitter and Antenna: CXL 70-5C/f

Nos	*Parameter*	*Value*	*Note*
	Radiation band (carrier frequency), MHz		
	Number and capacity of transmitters, n x W		
	Amplifier factor, dB		
	Overall loss in antenna-feeder circuit, dB		
	Antenna type		
	Antenna amplification factor, dB		
	Antenna phase center height Z, m		
	Antenna phase center X and Y coordinates, m		
	Antenna azimuth		
	Angle of antenna mechanical slope		
	Angle of electric slope of directivity pattern maximum in vertical plane		
	Total angle of slope of directivity pattern maximum in vertical plane		
	Antenna directivity patterns:		
-	*horizontally*	*Fig. 2.1*	
-	*vertically*	*Fig. 2.2*	
	Modulation type		
	Polarization type		

EMF MAL for relevant band, μW/cm²

Fig. 2.1. Antenna directivity pattern in horizontal plane (E/Emax)
Fig. 2.2. Antenna directivity pattern in vertical plane (E/Emax)

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Technical Data of Antenna-Feeder Circuit Transmitter and Antenna: ALCOMA AL13F_1.2

Nos	*Parameter*	*Value*	*Note*
	Radiation band (carrier frequency), MHz		
	Number and capacity of transmitters, n x W		
	Amplifier factor, dB		
	Overall loss in antenna-feeder circuit, dB		
	Antenna type		
	Antenna amplification factor, dB		
	Antenna phase center height Z, m		
	Antenna phase center X and Y coordinates, m		
	Antenna azimuth		
	Angle of antenna mechanical slope		
	Angle of electric slope of directivity pattern maximum in vertical plane		
	Total angle of slope of directivity pattern maximum in vertical plane		
	Antenna directivity patterns:		
-	*horizontally*	*Fig. 3.1*	
-	*vertically*	*Fig. 3.2*	
	Modulation type		
	Polarization type		
	EMF MAL for relevant band, μW/cm²		

Fig. 3.1. Antenna directivity pattern in horizontal plane (E/Emax)
Fig. 3.2. Antenna directivity pattern in vertical plane (E/Emax)

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Projection of Exceeded MAL Area on the earth No 1
Baseline Data on Horizontal Plane for Calculation

Fig. 4

Nos	*Parameter*	*Value*	*Note*
	minimum exceeded		
	MAL height, m		
	Maximum exceeded		
	MAL height, m		
	Mesh step along X axis, m		
	Mesh step along Y axis, m		

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Exceeded MAL Area in Vertical Plane No 1

Fig. 5
Baseline Data on Vertical Plane for Calculation

Nos	*Parameter*	*Value*	*Note*
	Plane azimuth relative to centerline – A, ^{o}		
	Vertical axis coordinates, (X, Y), m		
	Mesh step along Xa axis, m		*Xa axis is a distance toward azimuth A ^{o}*
	Mesh step along Z axis, m		
	Minimum height 303, Zmin, m		
	Maximum distance 303, Xamax, m		

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Exceeded MAL Area in Vertical Plane No 2

Fig. 6
Baseline Data on Vertical Plane for Calculation

Nos	*Parameter*	*Value*	*Note*
	Plane azimuth relative to centerline – A, ^{o}		
	Vertical axis coordinates, (X, Y), m		
	Mesh step along Xa axis, m		*Xa axis is a distance toward azimuth A ^{o}*
	Mesh step along Z axis, m		
	Minimum height 303, Zmin, m		
	Maximum distance 303, Xamax, m		

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Exceeded MAL Area in Vertical Plane No 3

Fig. 7
Baseline Data on Vertical Plane for Calculation

Nos	*Parameter*	*Value*	*Note*
	Plane azimuth relative to centerline – A, ^{o}		
	Vertical axis coordinates, (X, Y), m		
	Mesh step along Xa axis, m		*Xa axis is a distance toward azimuth A ^{o}*
	Mesh step along Z axis, m		
	Minimum height 303, Zmin, m		
	Maximum distance 303, Xamax, m		

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Table 1. Distribution of EEFD Levels Sum for All Antennas and Points Vertically with Vertical Centerline which Passes through Point 0(0;0), in Azimuth $\psi = 0^o$ at heights h(i) and at the Distance of R from the Centerline, $\mu W/cm^2$.
m

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Table 2. Distribution of EEFD Levels Sum for All Antennas and Points Vertically with Vertical Centerline which Passes through Point 0(0;0), in Azimuth $\psi = 0^o$ at heights h(i) and at the Distance of R from the Centerline, $\mu W/cm^2$.
m

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Table 3. Distribution of EEFD Levels Sum for All Antennas and Points Vertically with Vertical Centerline which Passes through Point 0(0;0), in Azimuth ψ = 0° at heights h(i) and at the Distance of R from the Centerline, μW/cm².
m

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Total EMF Flux Density, μW/cm²
Distance R from the Vertical Axis Toward Azimuth, m

Fig. 8. Schematic Diagrams of Distribution of EEFD Levels Sum Vertically with Vertical Centerline which Passes through Point 0(0;0), in Azimuth ψ = 0° at height h = 2 m and at the Distance of R from the Centerline, μW/cm².

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Total EMF Flux Density, μW/cm²
Distance R from the Vertical Axis Toward Azimuth, m

Fig. 9. Schematic Diagrams of Distribution of EEFD Levels Sum Vertically with Vertical Centerline which Passes through Point 0(0;0), in Azimuth ψ = 0° at height h = 2 m and at the Distance of R from the Centerline, μW/cm².

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Total EMF Flux Density, μW/cm²
Distance R from the Vertical Axis Toward Azimuth, m

Fig. 10. Schematic Diagrams of Distribution of EEFD Levels Sum Vertically with Vertical Centerline which Passes through Point 0(0;0), in Azimuth ψ = 267° at height h = 2 m and at the Distance of R from the Centerline, μW/cm².

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Conclusions from Calculation Results

Azimuth, deg.	*Maximum EMF Level (S/Sadd.) at Height of 2.0 m*	*Minimum Height*	*Maximum Radius*
		303 m	*303*

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CONCLUSIONS

1. *For the facility under design, the value of (S/Sadd) at the height of 2.0 m, a maximum radius of the fixed radiation level of 2.0 μW/cm^2 and the height of the restricted development area in the direction of maximum emission of the antennas designed are:*

Table 1.

Azimuth, deg.	*Maximum EMF Level (S/Sadd.) at Height of 2.0 m*	*Minimum Height*	*Maximum Radius*
		303 m	*303*

2. *The total electromagnetic flux density in the adjacent territory at the height of 2 m from the ground surface 0-1000 m away from the transmitting antennas does not exceed 3.2% of MAL. Construction and operation of the base station does not require introduction of a buffer area.*
3. *The overall impact of transmitting antennas accounts for a need to introduce a restricted residential development area. The minimum height 303 is not less than 37.399 m. Radii 303 are given in Table 1.*
   The existing residential development is beyond the restricted area. On setting up the restricted development area around this radio facility, the electromagnetic field it produces is safe for human health.
4. *Actions to normalize an electromagnetic situation are not required.*
5. *Broadly, the conditions for arrangement and operation of the facility under design in Ivankiv District, Kyiv Region (30-km exclusion zone), CSFSF site, as a radiation source meet the requirements of "Sanitary Standard and Regulations for Protection against Electromagnetic Radiation" approved by Ukraine Ministry of Health under Order No 239 of 01.08.1996.*

D.A. Melnyk
Chief Project Engineer *Signature*
Seal

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References

1. *The Ukraine Law "On Environmental Approval"*
2. *DBN A.2.2-1-2003(State Construction Regulations). Design. Composition and contents of EIA materials for design and construction of enterprises, buildings and facilities.*

3. *DSN 239-96. State sanitary standards and regulations for protection of people against electromagnetic radiation impact.*
4. *A collection of important official materials on sanitary and epidemiological issues. Volume 5, part 1, Kyiv, 1996.*
3. *Methodology guidelines on determination of electromagnetic field levels in the civil aviation traffic controls in HF, VHF, UHF and SHF band, 4550-8, USSR Ministry of Health, 1988.*

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Appendix T
(mandatory)

CSFSF Water Consumption and Water Disposal Balance

Consumer Unit of measurement Number of consumers Water demand rate Per day
Per max. shift Total, Q_T^{tot} Incl. hot water, Q_T^h, Daily variation factor Hourly variation factor
Water supply Service/drinking water Total Incl. hot water m^3/yr m^3/day (max) m^3/day (mean)
m^3/hr (max) l/s (max) m^3/yr m^3/day (max) m^3/day (mean) m^3/hr (max) l/s (max)
Industrial water m^3/yr m^3/day (max) m^3/day (mean) m^3/hr (max) l/s (max) Domestic sewage
m^3/yr m^3/day (max) m^3/day (mean) m^3/hr (max) l/s (max) Non-recoverable water losses
m^3/yr m^3/day (max) m^3/day (mean) m^3/hr (max) l/s (max) Notes

Administrative building

Operating (administrative) personnel* men
Showers 1 head
40-seat canteen 1 dish
First aid room 1 patient
1 worker
Deferrization station****
Total

Acceptance building

Operating personnel men
Showers for nonoccupied area 1 head
Showers for normally occupied area 1 head
Production needs
Total

Maintenance and MPC storage building

Operating personnel men
Indoor firefighting
Automatic firefighting
Production needs
Total

Checkpoint 1

Security*** men

Guard building

Security*** men
Operating personnel* men

Showers	1 head
Dog kennels	1 dog
Total	
	Concrete factory
Operating personnel**	men
Production needs	
Total	
	CSFSF site
Outdoor firefighting	
Total	

*water consumption was calculated in terms of personnel work for 220 days per year, 8 hours per shift;
** water consumption was calculated in terms of personnel work for 30 days per year, 8 hours per shift;
*** water consumption was calculated in terms of security men on duty for 365 days per year, 12 hours per two shifts;
****water consumption for flushing the deferrization plant filters is periodic (once per three days during the hours of least water consumption.

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Appendix U
(mandatory)
A Schematic Map of Observation Wells Located on CSFSF Site

Legend

Well and well number
Wellhead elevation, m

Observation well and well number
Wellhead elevation, m

Radioisotope logging point

Number and direction of (?) of engineering geological section

Note:

1. The coordinate system is a local Pripyat system
2. The system of elevations is the Baltic system

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Appendix F
(mandatory)
Nomenclature, Generation and Hazard Classes of Non-Radioactive Waste
F.1. Nomenclature, Generation and Hazard Classes of Non-Radioactive Waste (in Operation)

Waste code as per DK-005	**Description**	**Waste Generation Process**	**Physico-chemical characteristics of waste**		
Aggregative state	Basic components contents, %		**Waste generation volume, t/yr**		**Waste handling procedure**
Transfer to outsource enterprises for recycling or disposal	Reuse at enterprise		Burial in waste dump	Project-proposed waste disposal method	
Hazard class 1 waste					
Mercury-vapor and luminescent lamps (luminescent lamps and mercury-containing waste)		Replacement of lamps in lighting units	Solid	Glass Aluminium Luminophor Mercury	Disposal
Total for hazard class 1					
Hazard class 2 waste					
Spent car batteries (lead batteries – spoilt or used)		Maintenance and repairs of vehicles	Liquid	Lead Antimony Lead sulfate Lead dioxide Sulfuric acid Water PVC PPR	Disposal
Used compressor oil (spoilt, contaminated or unidentified petroleum oils and their remains that cannot be used as intended)		Compressor plant operation	Liquid	Hydrocarbons Mechanical impurities Water	Disp.
Hydraulic fluid (hydraulic oils and other spoilt or used oils)		Transporter maintenance and repair	Liquid	Saturated hydrocarbons Unsaturated hydrocarbons Suspended substances Water	Disp.
Used car oil (motor oils and lubricants, gear and other spoilt or used oils)		Maintenance and repairs of vehicles	Liquid	Saturated hydrocarbons Unsaturated hydrocarbons Suspended substances Water	
Total for hazard class 2					

Waste code as per DK-005	**Description**	**Waste Generation Process**	**Physico-chemical characteristics of waste**		
Aggregative state	Basic components contents, %	**Waste generation volume, t/yr**			**Waste handling procedure**
Hazard class 3 waste					
	Spent belts for retaining casks on transporter (offgrade plastic fabric)	Transporter operation	Solid	Synthetic fiber	Disposal
	Spent car filters (waste generated during operation of vehicles and carriages not otherwise specified)	Maintenance and repairs of vehicles	Solid	Motor oil – Petrol – Mechanical impurities – Steel – Aluminium – Filter paper – Polyethylene insert –	Disposal
	Car wash sludge (waste generated during operation of vehicles and carriages not otherwise specified)	Maintenance of vehicles	Liquid	Not specified	Discharge to industrial sewage after radiation control
	Petrol remains which lost consuming properties (during operation of vehicles and carriages not otherwise specified)	Maintenance of vehicles	Liquid	Petroleum derivatives	Disposal
	Fuel-oil-contaminated sand (waste generated during operation of vehicles and carriages not otherwise specified)	Maintenance and repairs of vehicles	Solid	Sand – Soil – Hydrocarbons –	Disposal
	Diesel oil remains which lost consuming properties (during operation of vehicles and carriages not otherwise specified)	Maintenance of vehicles	Liquid	Petroleum derivatives –	Disposal
	Oil-contaminated cleaning cloth (spoilt, used or contaminated cleaning cloth)	Maintenance and repairs of vehicles	Solid	Textile – Petroleum derivatives –	Disposal

Oil container (separator) waste (a mix of lubricants, greases and petroleum oils produced from extracting oils from waste water)	Rainfall runoff cleanout	Sludge	Petroleum derivatives – Water	Disposal

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Waste code as per DK-005	**Description**	**Waste Generation Process**	**Physico-chemical characteristics of waste**	
Aggregative state	Basic components contents, %	**Waste generation volume, t/yr**		**Waste handling procedure**
Hazard class 4 waste				
	Concrete mixer washing settlings (offgrade mortars)	Recycling plant with sediment basin)	Liquid	Not specified	Burial
	Metal abrasive dust (machining waste)	Equipment repairs	Solid	Silicon dioxide – Iron –	Burial
	Remains and stubs from welding consumables (welding waste)	Equipment repairs	Solid	Iron – Covering, $Ti(CO_3)_2)$ type – Others –	Burial
	Used abrasive disks, junk (abrasive materials and spoilt, contaminated or unidentified abrasive pieces which cannot be used as intended)	Equipment repairs	Solid	Silicon dioxide – Iron –	Burial
	Copper wires (insulated wires and offgrade cables)	Replacement of device terminals	Solid	Copper – PVC –	Reprocess
	Air conditioner filtering material (spent air clearing filters)	Replacement of air conditioner filters	Solid	Galvanized sheet, polyester, fabric	Burial
	Filtering material from potable water plant filters (production and other waste not otherwise specified or waste from combined processes of drinking water and industrial water treatment)	Potable water treatment	Solid	Silicon dioxide – Magnesium oxide – Iron oxide – Aluminium oxide – Remaining –	Burial
	Broken glass (broken glass materials and items)	Glazing of buildings	Solid	Silicon dioxide – Calcium oxide –	Reprocess

			Sodium carbonate – Other oxides –	
Spent brake pads (waste generated during operation of vehicles and carriages not otherwise specified)	Maintenance and repairs of transporter	Solid	Group 5 asbestos – Synthetic butadiene rubber – Boosters (sulfur, captax, thiuram) – Barium oxide – Alumina – Cutting waste – Graphite – Oil PN-6 – Wastes -	Burial

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Waste code as per DK-005	**Description**	**Waste Generation Process**	**Physico-chemical characteristics of waste**	
Aggregative state	Basic components contents, %	**Waste generation volume, t/yr**		**Waste handling procedure**
Spent car tyres (the tyres spoilt before operation startup, spent, broken or contaminated in operation)		Maintenance and repairs of vehicles	Solid	Service rubber – Textile cord fabric – Wire – Metal cord – Rubber – Sulfur – White soot – Others –	Disposal
Ferrous metal cutting waste (ferrous metal broken junk, other small junk)		Maintenance and repairs of vehicles	Solid	Iron – Iron oxide – Carbon –	Reprocess.
Food waste (kitchen organic waste usable for composting)		Food acceptance and cooking	Solid	Water – Starches – Proteins – Fats – Plastic – Metals –	Disposal
Mixed cloth rags and ravels (worn-out or spoilt clothes)		Writing-off of worn-out overalls	Solid	Textile	Reprocess.
Uncontaminated rubber items (spoilt or spent rubber items and materials)		Repairs of process equipment	Solid	Rubber – Sulfur and other additives –	Reprocess.
Domestic garbage (mixed communal (urban) waste		House keeping	Solid	Paper and paperboard –	Disposal

including litterbin garbage)			Polymer materials – Wood – Broken glass – Metals – Textile –	
Sweepings from premises (waste from streets and public facilities cleaning, and others)	House keeping	Solid	Not specified	Disposal
First aid station waste (waste from services provided for human health protection, and others)	Medical treatment	Solid	Not specified	Disposal
Litter from rainfall runoff balancing reservoir grate (small remains from sifting)	Rainfall runoff disposal	Solid	Not specified	Disposal
Sediment from rainfall runoff sludge (remains produced from sand extraction)	Rainfall runoff disposal	Sludge	Sand – Water -	Disposal
Total for class 4 hazard **Grand total**				

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F.2. Nomenclature, Generation and Hazard Classes of Non-Radioactive Waste (in Construction)

Waste code as per DK-005	**Description**	**Waste Generation Process**	**Physico-chemical characteristics of waste**		
Aggregative state	Basic components contents, %		**Waste generation volume, t/yr**		**Waste handling procedure**
Class 3 hazard waste					
Materials wasted from painting processes (cloth, grinding films, etc.)		Painting remains	Solid	Metal container – Remains of paints and varnishes –	Disposal
Total for class 3 hazard					
Class 4 hazard waste					
Spent electrodes		Welding activities	Solid	Fe – Covering, $Ti(CO_3)_2$) type – Others –	Disposal

Insulated wires and offgrade cables	Cabling	End product which lost consum. properties	Plastic – Aluminium –	Reprocess.
Spoilt, contaminated or unidentified gravel, crushed stone, sand, dolomite powder, fillers, gypsum cements, water putty, bonding materials	Construction activities	Solid	Concrete -	Disposal
Spoilt, contaminated or unidentified bonding organic materials, their remains which cannot be used as intended	Construction activities	Solid	Cement –	Disposal
Broken faced tile, roof cladding and ceramic items	Construction activities	Solid	Facing material –	Disposal
Spoilt, contaminated or unidentified plastic materials and items which cannot be used as intended	Construction activities	Solid	Polymer	Disposal

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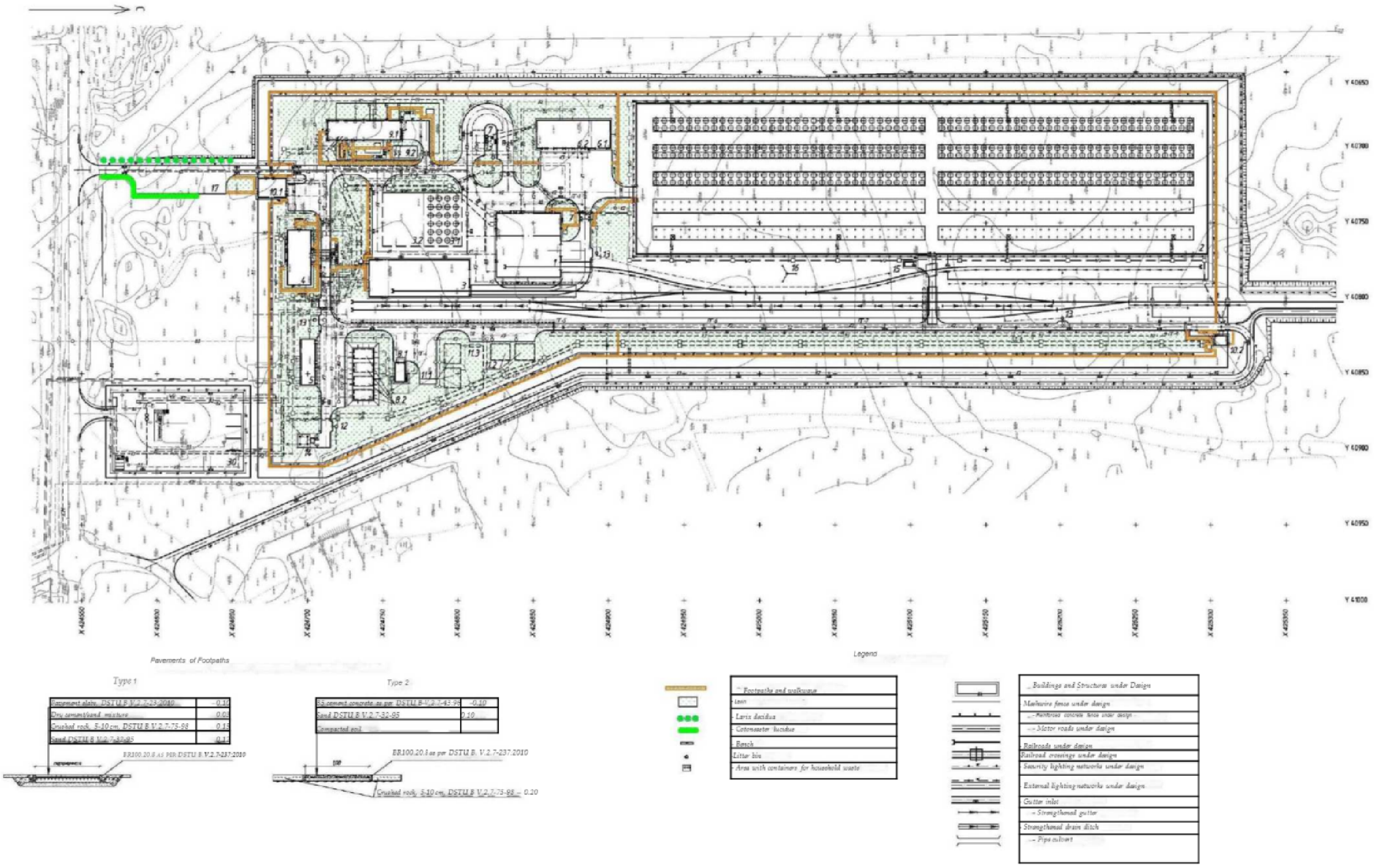
Waste code as per DK-005	**Description**	**Waste Generation Process**	**Physico-chemical characteristics of waste**	
Aggregative state	Basic components contents, %	**Waste generation volume, t/yr**		**Waste handling procedure**
Spoilt, contaminated or unidentified building materials and items including paperboard, blankets, mats, plates or their remains which cannot be used as intended	Construction activities	Solid	Polymer	Disposal
Asphalt and asphalt-concrete mix remains without bitumen contained	Construction activities	Solid	C – H – S – O –	Disposal
Spoilt (damaged) or unidentified reinforced concrete and metal structures and iron items	Pipeline dismantling and installation	Solid	Fe – C (steel) – Zn –	Reprocess.

Mixed waste from construction and erection of buildings and facilities	Reinforced concrete borings from hole-drilling	Solid	Fe – SiO_2 – Al_2O_3 – H_2O – Fe_2O_3 – $CaCO_3$ – C – $ZnSiO_3$ -	Reprocess.

Annex X(22) (mandatory)
CSFSF Site Landscaping and Greenery Map



Legend—Buildings and Structures

Number on the drawing	Description	Note
1	Reception building	
2	Cask storage area	
3	Maintenance building with an MPC warehouse	
3.1	HI-STORM shell storage area	
3.2	HI-STORM shell concrete-casting shop	
4	Office building (subject to civil protection)	
5	Electrical equipment building	
6	Garage	
6.1	Garage for the transfer vehicle	
6.2	Garage for 4 cars/trucks	
7	Filling station	
8	Fire water supply structures	
8.1	Fire water supply pump station	
8.2	Fire water tanks	
9	Security structures	
9.1	Guardhouse (subject to civil protection)	
9.2	Drill ground	
10.1	Checkpoint 1	
10.2	Checkpoint 2	
11	Storm water treatment structures	
11.1	Accumulating tanks for the polluted storm water	
11.2	Accumulating tanks for the clean storm water	
11.3	Storm water purification works	
12	Household wastewater pump station	
13	Oil drain tank	4 pcs.
14	Telecommunication tower with a modular building	
15	Automated radiation monitoring system post	
16	Meteorological mast	
17	Parking lot	
30	Concrete plant	

List of Greenery Elements

No.	Species or type	Age, years	Quantity	Note
	Regular lawn, hectares		1.9	Composition: 50% Festuca pratensis, 25% Poa pratensis, 25% Agrostis alba
	Larix decidua	5-7	15	
	Cotoneaster lucidus	2-3	72	Single-row untrimmed hedge
Bushes are to be planted with the addition of the topsoil into planting holes				

List of Small Architectural Elements and Portable Items

No.	Designation	Description	Quantit	Note
	TP 310-5-4-	Bench, type 1	6	
	TP 310-5-4-	Litter bin, type 1	12	
	TP 310-5-4-	Container for household waste	2	

List of Footpaths, Walkways and Grounds

No.	Description	Type	Pavement area, m^2	Note
	Waste container ground	1	30	
	Footpaths of 6K.7 concrete slabs	1	1180	
	Walkways with cement/concrete pavement	2	1755	
	VR 100.20.8 curb stone—7270 m			

Annex Ц(23)
(mandatory)
Environmental Impact Assessment of the Planned Activity

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06 May 2016, PAT KIEP, Risk Indicator utility, EOL-2000 software, License No. 133681414

Assessment of risks of the projected activity on the public health via ambient air
Non-carcinogenic risks of the projected activity, by substance

CAS code/Group code	Substance name (combined action group)	Annual average concentration (mg/cubic m)	Background concentrations (mg/cubic m)	Reference (safe) concentration (mg/cubic m)	Hazard class (hazard index)
10102-44-0	Nitrogen dioxide	0.15016209	0.00799999	0.0400	3.75405216
7783-06-4	Hydrogen sulfide	0.00320003	0.00320000	0.0010	3.20003414
7446-09-5	Sulphurous anhydride	0.09075899	0.01999996	0.0800	1.13448739
630-08-0	Carbon monoxide	0.75543207	0.39999986	3.0000	0.2518107
	Overall risk				8.34038448
*100	Group affecting the respiratory organs (10102-44-0, 7446 09-5, 7783-06-4)		-	-	*8.06857369
*33	Summation group 33 (10102-44-0, 630-08-0, 7446-09-5)		-	-	*5.14035025
*31	Summation group No. 31 (10102-44-0, 7446-09-5)		-	-	*4.88853955
*25	Summation group No. 25 (10102-44-0, 630-08-0)		-	-	*4.00586286

N	Risk Specification	Harmful substances (combined action group)	Hazard ratio (hazard index*)
1	The likelihood of adverse effects increases in proportion as HQ increases	100: Group affecting the respiratory organs 33: Summation group No. 33 31: Summation group No. 31 25: Summation group No. 25 10102-44-0 Nitrogen dioxide 7783-06-4 Hydrogen sulfide 7446-09-5 Sulfurous anhydride	8.08857369 5.14035025 4.88853955 4.00586286 3.75405216 3.20003414 1.13448739
2	The risk of harmful effects is extremely low	630-08-0: Carbon monoxide	0.2518107

Carcinogenic risks of the projected activity, by substance

CAS Code (Group code)	Harmful substance (combined action group)	Annual average concentration (mg/cubic m)	Background concentrations (mg/cubic m)	Cancer potency factor ***SF*** (mg/kg•day))	Standalone risk (UR) (cubic m/mg)	Individual carcinogenic risk (*carcinogenic risk of the combined action)
50-32-8	Benz(a)pyrene	0.00000153	0.00000040	3.1000	0.88571423	0.00000136

N	Risk specification	Harmful substance (combined action group)	Lifetime risk
1	Notionally acceptable	50-32-8: Benz(a)pyrene	0.00000136

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Assessment of Social Risk on the Basis of the Ambient Air Criterion

Vulnerability of the area due to the air pollution	0.5143
Area allotted for the facility (square km)	0.18
Area of the facility with the sanitary protection zone (buffer area) (square km)	0.35
Population (people)	607
Life expectancy (years)	70
New construction/rehabilitation	yes/no
Number of additional jobs (pcs)	0
Allowance for the potential carcinogenic effect groups	Implemented
Method of carcinogenic risk assessment:	on the basis of target ratios (CRa=0.000001)

Assessment of Social Risk on the Basis of the Ambient Air Criterion

N	Risk level	Harmful substance (combined action group)	Carcinogenic risk	Lifetime risk
1	Notionally acceptable		0.000001	0.00000446

Detailed calculation of the annual average concentration on the basis of maximum concentration points

Wind occurrence frequency (N)	Wind occurrence frequency (NE)	Wind occurrence frequency (E)	Wind occurrence frequency (SE)	Wind occurrence frequency (S)	Wind occurrence frequency (SW)	Wind occurrence frequency (W)	Wind occurrence frequency (NW)
11.3	7.0	13.1	15.3	0.2	13.9	17	12.3

Wind occurrence frequency (<2 m per sec)	Wind occurrence frequency (2 to 4 m per sec)	Wind occurrence frequency (4 to 6 m per sec)	Wind occurrence frequency (6 to 8 m per sec)	Wind occurrence frequency (8 to 10 m per sec)	Wind occurrence frequency (10 to 12 m per sec)	Wind occurrence frequency (12 to 14 m per sec)	Wind occurrence frequency (14 to 16 m per sec)	Wind occurrence frequency (16 to 18 m per sec)	Wind occurrence frequency (18 to 20 m per sec)
10	10	10	10	10	10	10	10	10	10

Nitrogen dioxide

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	WIND VELOCITY (M/SEC)	Average annual frequency (%)
40903.00	424633.00	0.38138202	0.00800000	292.59	0.5000	0.013899999856.
		0.42744216	0.00800000	302.59	0.5000	0.013899999856.
		0.37536201	0.00800000	282.59	0.5000	0.017000000178.
		0.42833290	0.00800000	312.59	0.5000	0.013899999856.
		0.34881410	0.00800000	272.59	0.5000	0.017000000178.
		0.43971840	0.00800000	322.59	0.5000	0.013899999856.
		0.30302799	0.00800000	262.59	0.5000	0.017000000178.
		0.39751115	0.00800000	332.59	0.5000	0.013899999856.
		0.23151207	0.00800000	252.59	0.5000	0.017000000178.
		0.36735699	0.00800000	342.59	0.5000	0.009200000017.
		0.15554933	0.00800000	242.59	0.5000	0.012300000339.
		0.36445966	0.00800000	352.59	0.5000	0.009200000017.
		0.09991240	0.00800000	232.59	0.5000	0.012300000339.
		0.38696263	0.00800000	002.59	0.5000	0.009200000017.
		0.05846196	0.00800000	222.59	0.5000	0.012300000339.
		0.41713420	0.00800000	012.59	0.5000	0.009200000017.
		0.03103223	0.00800000	212.59	0.5000	0.012300000339.
		0.45114061	0.00800000	022.59	0.5000	0.015299999713.
		0.02310292	0.00800000	202.59	0.5000	0.012300000339.
		0.44249383	0.00800000	032.59	0.5000	0.015299999713.
		0.03178803	0.00800000	192.59	0.5000	0.011300000548.
		0.44232017	0.00800000	042.59	0.5000	0.015299999713.
		0.04994453	0.00800000	182.59	0.5000	0.011300000548.
		0.39270172	0.00800000	052.59	0.5000	0.015299999713.
		0.06790421	0.00800000	172.59	0.5000	0.011300000548.
		0.34671816	0.00800000	062.59	0.5000	0.015299999713.
		0.07983082	0.00800000	162.59	0.5000	0.011300000548.
		0.30291402	0.00800000	072.59	0.5000	0.013099999729.
		0.08419811	0.00800000	152.59	0.5000	0.007900000393.

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.28045356	0.00800000	082.59	0.5000	0.013099998725
		0.08668493	0.00800000	142.59	0.5000	0.007900000363
		0.24709573	0.00800000	092.59	0.5000	0.013099998725
		0.09968833	0.00800000	132.59	0.5000	0.007900000363
		0.21747516	0.00800000	102.59	0.5000	0.013099998725
		0.12994051	0.00800000	122.59	0.5000	0.007900000363
		0.17197177	0.00800000	112.59	0.5000	0.007900000363
		0.17197177	0.00800000	112.59	0.5000	0.007900000363
		0.12034472	0.00800000	292.59	2.0000	0.013899998856
		0.15250006	0.00800000	302.59	2.0000	0.013899998856
		0.15931837	0.00800000	282.59	2.0000	0.017000000178
		0.18305308	0.00800000	312.59	2.0000	0.013899998856
		0.15315174	0.00800000	272.59	2.0000	0.017000000178
		0.09134657	0.00800000	322.59	2.0000	0.013899998856
		0.14280692	0.00800000	262.59	2.0000	0.017000000178
		0.04222000	0.00800000	332.59	2.0000	0.013899998856
		0.14221069	0.00800000	252.59	2.0000	0.017000000178
		0.07809515	0.00800000	342.59	2.0000	0.009200000017
		0.12343454	0.00800000	242.59	2.0000	0.012300000339
		0.09149220	0.00800000	352.59	2.0000	0.009200000017
		0.09817951	0.00800000	232.59	2.0000	0.012300000339
		0.12032372	0.00800000	002.59	2.0000	0.009200000017
		0.07338869	0.00800000	222.59	2.0000	0.012300000339
		0.21694131	0.00800000	012.59	2.0000	0.009200000017
		0.03768128	0.00800000	212.59	2.0000	0.012300000339
		0.23175244	0.00800000	022.59	2.0000	0.015299999713
		0.03327416	0.00800000	202.59	2.0000	0.012300000339
		0.13941310	0.00800000	032.59	2.0000	0.015299999713
		0.02922419	0.00800000	192.59	2.0000	0.011300000548

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.11273356	0.00800000	042.59	2.0000	0.015299999713...
		0.02169305	0.00800000	182.59	2.0000	0.011300000548...
		0.17912070	0.00800000	052.59	2.0000	0.015299999713...
		0.06000365	0.00800000	172.59	2.0000	0.011300000548...
		0.17714141	0.00800000	062.59	2.0000	0.015299999713...
		0.12026682	0.00800000	162.59	2.0000	0.011300000548...
		0.10759659	0.00800000	072.59	2.0000	0.013099999725...
		0.13419397	0.00800000	152.59	2.0000	0.007900000363...
		0.09967943	0.00800000	082.59	2.0000	0.013099999725...
		0.10784296	0.00800000	142.59	2.0000	0.007900000363...
		0.10639107	0.00800000	092.59	2.0000	0.013099999725...
		0.07875928	0.00800000	132.59	2.0000	0.007900000363...
		0.10706951	0.00800000	102.59	2.0000	0.013099999725...
		0.10609453	0.00800000	122.59	2.0000	0.007900000363...
		0.10093643	0.00800000	112.59	2.0000	0.007900000363...
		0.10093643	0.00800000	112.59	2.0000	0.007900000363...
		0.05455529	0.00800000	292.59	11.0000	0.013899999856...
		0.03513556	0.00800000	302.59	11.0000	0.013899999856...
		0.11588684	0.00800000	282.59	11.0000	0.017000000178...
		0.04940814	0.00800000	312.59	11.0000	0.013899999856...
		0.07646076	0.00800000	272.59	11.0000	0.017000000178...
		0.01470832	0.00800000	322.59	11.0000	0.013899999856...
		0.08284353	0.00800000	262.59	11.0000	0.017000000178...
		0.00855385	0.00800000	332.59	11.0000	0.013899999856...
		0.08176517	0.00800000	252.59	11.0000	0.017000000178...
		0.00805278	0.00800000	342.59	11.0000	0.009200000017...
		0.07773567	0.00800000	242.59	11.0000	0.012300000339...
		0.00810164	0.00800000	352.59	11.0000	0.009200000017...
		0.02231368	0.00800000	232.59	11.0000	0.012300000339...

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.00863766	0.00800000	002.59	11.0000	0.009200000017...
		0.02326821	0.00800000	222.59	11.0000	0.012300000339...
		0.01400567	0.00800000	012.59	11.0000	0.009200000017...
		0.01217480	0.00800000	212.59	11.0000	0.012300000339...
		0.04783716	0.00800000	022.59	11.0000	0.015299999713...
		0.00802620	0.00800000	202.59	11.0000	0.012300000339...
		0.08902075	0.00800000	032.59	11.0000	0.015299999713...
		0.00800002	0.00800000	192.59	11.0000	0.011300000548...
		0.09434799	0.00800000	042.59	11.0000	0.015299999713...
		0.00800058	0.00800000	182.59	11.0000	0.011300000548...
		0.10713609	0.00800000	052.59	11.0000	0.015299999713...
		0.00805839	0.00800000	172.59	11.0000	0.011300000548...
		0.09137433	0.00800000	062.59	11.0000	0.015299999713...
		0.00829365	0.00800000	162.59	11.0000	0.011300000548...
		0.09499708	0.00800000	072.59	11.0000	0.013099999725...
		0.00816955	0.00800000	152.59	11.0000	0.007900000363...
		0.09900311	0.00800000	082.59	11.0000	0.013099999725...
		0.00809560	0.00800000	142.59	11.0000	0.007900000363...
		0.09253307	0.00800000	092.59	11.0000	0.013099999725...
		0.00827185	0.00800000	132.59	11.0000	0.007900000363...
		0.08458676	0.00800000	102.59	11.0000	0.013099999725...
		0.00964557	0.00800000	122.59	11.0000	0.007900000363...
		0.03215171	0.00800000	112.59	11.0000	0.007900000363...
		0.03215171	0.00800000	112.59	11.0000	0.007900000363...
		0.38138378	0.00800000	292.59	0.5002	0.013899999856...
		0.42725420	0.00800000	302.59	0.5002	0.013899999856...
		0.37547067	0.00800000	282.59	0.5002	0.017000000178...
		0.42800456	0.00800000	312.59	0.5002	0.013899999856...
		0.34895805	0.00800000	272.59	0.5002	0.017000000178...

X (m)	Y (M)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.43938309	0.00800000	322.59	0.5002	0.013899999856.
		0.30306518	0.00800000	262.59	0.5002	0.017000000178.
		0.39752194	0.00800000	332.59	0.5002	0.013899999856.
		0.23152344	0.00800000	252.59	0.5002	0.017000000178.
		0.36790881	0.00800000	342.59	0.5002	0.009200000017.
		0.15555522	0.00800000	242.59	0.5002	0.012300000339.
		0.36535236	0.00800000	352.59	0.5002	0.009200000017.
		0.09992076	0.00800000	232.59	0.5002	0.012300000339.
		0.38733616	0.00800000	002.59	0.5002	0.009200000017.
		0.05847536	0.00800000	222.59	0.5002	0.012300000339.
		0.41719028	0.00800000	012.59	0.5002	0.009200000017.
		0.03104426	0.00800000	212.59	0.5002	0.012300000339.
		0.45056269	0.00800000	022.59	0.5002	0.015299999713.
		0.02311314	0.00800000	202.59	0.5002	0.012300000339.
		0.44168960	0.00800000	032.59	0.5002	0.015299999713.
		0.03180526	0.00800000	192.59	0.5002	0.011300000548.
		0.44176775	0.00800000	042.59	0.5002	0.015299999713.
		0.04968407	0.00800000	182.59	0.5002	0.011300000548.
		0.39261287	0.00800000	052.59	0.5002	0.015299999713.
		0.06796797	0.00800000	172.59	0.5002	0.011300000548.
		0.34678835	0.00800000	062.59	0.5002	0.015299999713.
		0.07990406	0.00800000	162.59	0.5002	0.011300000548.
		0.30299807	0.00800000	072.59	0.5002	0.013099999725.
		0.08426137	0.00800000	152.59	0.5002	0.007900000363.
		0.28052065	0.00800000	082.59	0.5002	0.013099999725.
		0.08672681	0.00800000	142.59	0.5002	0.007900000363.
		0.24715991	0.00800000	092.59	0.5002	0.013099999725.
		0.09971314	0.00800000	132.59	0.5002	0.007900000363.
		0.21752186	0.00800000	102.59	0.5002	0.013099999725.

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.12998089	0.00800000	122.59	0.5002	0.007900000363
		0.17200248	0.00800000	112.59	0.5002	0.007900000363
		0.17200248	0.00800000	112.59	0.5002	0.007900000363
		0.37125763	0.00800000	282.59	0.7503	0.013899999856
		0.38210791	0.00800000	302.59	0.7503	0.013899999856
		0.32137072	0.00800000	282.59	0.7503	0.017000000178
		0.34344780	0.00800000	312.59	0.7503	0.013899999856
		0.26375073	0.00800000	272.59	0.7503	0.017000000178
		0.29088280	0.00800000	322.59	0.7503	0.013899999856
		0.23268275	0.00800000	262.59	0.7503	0.017000000178
		0.25565025	0.00800000	332.59	0.7503	0.013899999856
		0.20615076	0.00800000	252.59	0.7503	0.017000000178
		0.25407395	0.00800000	342.59	0.7503	0.009200000017
		0.16509628	0.00800000	242.59	0.7503	0.012300000339
		0.30239695	0.00800000	352.59	0.7503	0.009200000017
		0.11754507	0.00800000	232.59	0.7503	0.012300000339
		0.37958482	0.00800000	002.59	0.7503	0.009200000017
		0.07272571	0.00800000	222.59	0.7503	0.012300000339
		0.42753002	0.00800000	012.59	0.7503	0.009200000017
		0.03879735	0.00800000	212.59	0.7503	0.012300000339
		0.41224834	0.00800000	022.59	0.7503	0.015299999713
		0.02330518	0.00800000	202.59	0.7503	0.012300000339
		0.35886118	0.00800000	032.59	0.7503	0.015299999713
		0.03663790	0.00800000	192.59	0.7503	0.011300000548
		0.32103130	0.00800000	042.59	0.7503	0.015299999713
		0.08665506	0.00800000	182.59	0.7503	0.011300000548
		0.31853589	0.00800000	052.59	0.7503	0.015299999713
		0.15118361	0.00800000	172.59	0.7503	0.011300000548
		0.32292682	0.00800000	062.59	0.7503	0.015299999713

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.18353899	0.00800000	162.59	0.7503	0.011300000548...
		0.32106325	0.00800000	072.59	0.7503	0.013099999725...
		0.15954684	0.00800000	152.59	0.7503	0.007900000363...
		0.30576155	0.00800000	082.59	0.7503	0.013099999725...
		0.10829367	0.00800000	142.59	0.7503	0.007900000363...
		0.27741635	0.00800000	092.59	0.7503	0.013099999725...
		0.08479775	0.00800000	132.59	0.7503	0.007900000363...
		0.23012117	0.00800000	102.59	0.7503	0.013099999725...
		0.11179669	0.00800000	122.59	0.7503	0.007900000363...
		0.16961926	0.00800000	112.59	0.7503	0.007900000363...
		0.16961926	0.00800000	112.59	0.7503	0.007900000363...
		0.13440011	0.00800000	292.59	5.4500	0.013899999856...
		0.15539095	0.00800000	302.59	5.4500	0.013899999856...
		0.03828543	0.00800000	282.59	5.4500	0.017000000178...
		0.02823279	0.00800000	312.59	5.4500	0.013899999856...
		0.04719704	0.00800000	272.59	5.4500	0.017000000178...
		0.01343178	0.00800000	322.59	5.4500	0.013899999856...
		0.06565966	0.00800000	262.59	5.4500	0.017000000178...
		0.05560873	0.00800000	332.59	5.4500	0.013899999856...
		0.05054978	0.00800000	252.59	5.4500	0.017000000178...
		0.03103502	0.00800000	342.59	5.4500	0.009200000017...
		0.10430807	0.00800000	242.59	5.4500	0.012300000339...
		0.01382846	0.00800000	352.59	5.4500	0.009200000017...
		0.04601352	0.00800000	232.59	5.4500	0.012300000339...
		0.01590002	0.00800000	002.59	5.4500	0.009200000017...
		0.08711710	0.00800000	222.59	5.4500	0.012300000339...
		0.03483949	0.00800000	012.59	5.4500	0.009200000017...
		0.07002856	0.00800000	212.59	5.4500	0.012300000339...
		0.06137178	0.00800000	022.59	5.4500	0.015299999713...

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.04342765	0.00800000	202.59	5.4500	0.012300000339
		0.06409530	0.00800000	032.59	5.4500	0.015299999713
		0.01217490	0.00800000	192.59	5.4500	0.011300000548
		0.07322829	0.00800000	042.59	5.4500	0.015299999713
		0.00843273	0.00800000	182.59	5.4500	0.011300000548
		0.07348782	0.00800000	052.59	5.4500	0.015299999713
		0.00800346	0.00800000	172.59	5.4500	0.011300000548
		0.07392769	0.00800000	062.59	5.4500	0.015299999713
		0.00801215	0.00800000	162.59	5.4500	0.011300000548
		0.07267680	0.00800000	072.59	5.4500	0.013099999725
		0.00854012	0.00800000	152.59	5.4500	0.007900000363
		0.07740856	0.00800000	082.59	5.4500	0.013099999725
		0.01132318	0.00800000	142.59	5.4500	0.007900000363
		0.07270493	0.00800000	092.59	5.4500	0.013099999725
		0.01251158	0.00800000	132.59	5.4500	0.007900000363
		0.07284701	0.00800000	102.59	5.4500	0.013099999725
		0.01807283	0.00800000	122.59	5.4500	0.007900000363
		0.04374424	0.00800000	112.59	5.4500	0.007900000363
		0.04374424	0.00800000	112.59	5.4500	0.007900000363
		0.05488032	0.00800000	292.59	10.9000	0.013899999856
		0.03523381	0.00800000	302.59	10.9000	0.013899999856
		0.11681760	0.00800000	282.59	10.9000	0.017000000178
		0.04970816	0.00800000	312.59	10.9000	0.013899999856
		0.07601438	0.00800000	272.59	10.9000	0.017000000178
		0.01474978	0.00800000	322.59	10.9000	0.013899999856
		0.08290475	0.00800000	262.59	10.9000	0.017000000178
		0.00856666	0.00800000	332.59	10.9000	0.013899999856
		0.08330691	0.00800000	252.59	10.9000	0.017000000178
		0.00805351	0.00800000	342.59	10.9000	0.009200000017

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.07704870	0.00800000	242.59	10.9000	0.012300000330...
		0.00810309	0.00800000	352.59	10.9000	0.009200000017...
		0.02231480	0.00800000	232.59	10.9000	0.012300000330...
		0.00894307	0.00800000	002.59	10.9000	0.009200000017...
		0.02342691	0.00800000	222.59	10.9000	0.012300000330...
		0.01412420	0.00800000	012.59	10.9000	0.009200000017...
		0.01222724	0.00800000	212.59	10.9000	0.012300000330...
		0.04775336	0.00800000	022.59	10.9000	0.015299999713...
		0.00802690	0.00800000	202.59	10.9000	0.012300000330...
		0.08882446	0.00800000	032.59	10.9000	0.015299999713...
		0.00800002	0.00800000	192.59	10.9000	0.011300000548...
		0.09306324	0.00800000	042.59	10.9000	0.015299999713...
		0.00800060	0.00800000	182.59	10.9000	0.011300000548...
		0.10641239	0.00800000	052.59	10.9000	0.015299999713...
		0.00806013	0.00800000	172.59	10.9000	0.011300000548...
		0.09148204	0.00800000	062.59	10.9000	0.015299999713...
		0.00830268	0.00800000	162.59	10.9000	0.011300000548...
		0.09439657	0.00800000	072.59	10.9000	0.013099999725...
		0.00817492	0.00800000	152.59	10.9000	0.007900000363...
		0.09857781	0.00800000	082.59	10.9000	0.013099999725...
		0.00809857	0.00800000	142.59	10.9000	0.007900000363...
		0.09217363	0.00800000	092.59	10.9000	0.013099999725...
		0.00827866	0.00800000	132.59	10.9000	0.007900000363...
		0.08441728	0.00800000	102.59	10.9000	0.013099999725...
		0.00966712	0.00800000	122.59	10.9000	0.007900000363...
		0.03225917	0.00800000	112.59	10.9000	0.007900000363...
		0.03225917	0.00800000	112.59	10.9000	0.007900000363...
Ca	=	0.15010209	0.00799999			

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X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	WIND VELOCITY (M/SEC)	Annual average frequency (%)
49903.00	424633.00	0.20630457	0.02000000	287.57	0.5000	0.017000000178.
		0.22827946	0.02000000	297.57	0.5000	0.013899999856.
		0.19817717	0.02000000	277.57	0.5000	0.017000000178.
		0.22873218	0.02000000	307.57	0.5000	0.013899999856.
		0.18028691	0.02000000	267.57	0.5000	0.017000000178.
		0.24707253	0.02000000	317.57	0.5000	0.013899999856.
		0.15217780	0.02000000	257.57	0.5000	0.017000000178.
		0.22716723	0.02000000	327.57	0.5000	0.013899999856.
		0.11429726	0.02000000	247.57	0.5000	0.017000000178.
		0.20751423	0.02000000	337.57	0.5000	0.009200000017.
		0.07874706	0.02000000	237.57	0.5000	0.012300000339.
		0.19639234	0.02000000	347.57	0.5000	0.009200000017.
		0.05527024	0.02000000	227.57	0.5000	0.012300000339.
		0.20296067	0.02000000	357.57	0.5000	0.009200000017.
		0.03835843	0.02000000	217.57	0.5000	0.012300000339.
		0.21661519	0.02000000	007.57	0.5000	0.009200000017.
		0.02882418	0.02000000	207.57	0.5000	0.012300000339.
		0.23282538	0.02000000	017.57	0.5000	0.009200000017.
		0.02907882	0.02000000	197.57	0.5000	0.011300000548.
		0.25008923	0.02000000	027.57	0.5000	0.015299999713.
		0.03605964	0.02000000	187.57	0.5000	0.011300000548.
		0.23255734	0.02000000	037.57	0.5000	0.015299999713.
		0.04564877	0.02000000	177.57	0.5000	0.011300000548.
		0.21397991	0.02000000	047.57	0.5000	0.015299999713.
		0.05344653	0.02000000	167.57	0.5000	0.011300000548.
		0.20860636	0.02000000	057.57	0.5000	0.015299999713.
		0.05740063	0.02000000	157.57	0.5000	0.011300000548.
		0.17288773	0.02000000	067.57	0.5000	0.013099999725.
		0.05856318	0.02000000	147.57	0.5000	0.007900000363.

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.16281457	0.02000000	077.57	0.5000	0.013099999725.
		0.08160269	0.02000000	137.57	0.5000	0.007900000363.
		0.14387584	0.02000000	087.57	0.5000	0.013099999725.
		0.07245158	0.02000000	127.57	0.5000	0.007900000363.
		0.13315529	0.02000000	097.57	0.5000	0.013099999725.
		0.09164539	0.02000000	117.57	0.5000	0.007900000363.
		0.11152616	0.02000000	107.57	0.5000	0.013099999725.
		0.11152616	0.02000000	107.57	0.5000	0.013099999725.
		0.08855395	0.02000000	287.57	2.0000	0.017000000178.
		0.07889301	0.02000000	297.57	2.0000	0.013899999856.
		0.09667945	0.02000000	277.57	2.0000	0.017000000178.
		0.10677853	0.02000000	307.57	2.0000	0.013899999856.
		0.08848375	0.02000000	267.57	2.0000	0.017000000178.
		0.09019212	0.02000000	317.57	2.0000	0.013899999856.
		0.08806542	0.02000000	257.57	2.0000	0.017000000178.
		0.04421471	0.02000000	327.57	2.0000	0.013899999856.
		0.08165976	0.02000000	247.57	2.0000	0.017000000178.
		0.04450180	0.02000000	337.57	2.0000	0.009200000017.
		0.07327381	0.02000000	237.57	2.0000	0.012300000339.
		0.05881783	0.02000000	347.57	2.0000	0.009200000017.
		0.06909600	0.02000000	227.57	2.0000	0.012300000339.
		0.06504828	0.02000000	357.57	2.0000	0.009200000017.
		0.04416742	0.02000000	217.57	2.0000	0.012300000339.
		0.09783885	0.02000000	007.57	2.0000	0.009200000017.
		0.03186744	0.02000000	207.57	2.0000	0.012300000339.
		0.14395258	0.02000000	017.57	2.0000	0.009200000017.
		0.03277801	0.02000000	197.57	2.0000	0.011300000548.
		0.11115265	0.02000000	027.57	2.0000	0.015299999713.
		0.02733286	0.02000000	187.57	2.0000	0.011300000548.

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.06000264	0.02000000	037.57	2.0000	0.015299999713.
		0.03285128	0.02000000	177.57	2.0000	0.011300000548.
		0.09157337	0.02000000	047.57	2.0000	0.015299999713.
		0.08257886	0.02000000	167.57	2.0000	0.011300000548.
		0.11288640	0.02000000	057.57	2.0000	0.015299999713.
		0.08293575	0.02000000	157.57	2.0000	0.011300000548.
		0.07785481	0.02000000	067.57	2.0000	0.013099999725.
		0.07818112	0.02000000	147.57	2.0000	0.007900000383.
		0.06812992	0.02000000	077.57	2.0000	0.013099999725.
		0.05805037	0.02000000	137.57	2.0000	0.007900000383.
		0.06728262	0.02000000	087.57	2.0000	0.013099999725.
		0.06275528	0.02000000	127.57	2.0000	0.007900000383.
		0.07019598	0.02000000	097.57	2.0000	0.013099999725.
		0.07229718	0.02000000	117.57	2.0000	0.007900000383.
		0.06763770	0.02000000	107.57	2.0000	0.013099999725.
		0.06763770	0.02000000	107.57	2.0000	0.013099999725.
		0.05834013	0.02000000	287.57	11.0000	0.017000000178.
		0.03196755	0.02000000	297.57	11.0000	0.013899999856.
		0.06987770	0.02000000	277.57	11.0000	0.017000000178.
		0.03982503	0.02000000	307.57	11.0000	0.013899999856.
		0.05124811	0.02000000	267.57	11.0000	0.017000000178.
		0.03130956	0.02000000	317.57	11.0000	0.013899999856.
		0.05803604	0.02000000	257.57	11.0000	0.017000000178.
		0.02126640	0.02000000	327.57	11.0000	0.013899999856.
		0.05647831	0.02000000	247.57	11.0000	0.017000000178.
		0.02004189	0.02000000	337.57	11.0000	0.009200000017.
		0.03212132	0.02000000	237.57	11.0000	0.012300000339.
		0.02005498	0.02000000	347.57	11.0000	0.009200000017.
		0.02950779	0.02000000	227.57	11.0000	0.012300000339.

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.02010943	0.02000000	357.57	11.0000	0.009200000017...
		0.02494718	0.02000000	217.57	11.0000	0.012300000339...
		0.02105359	0.02000000	007.57	11.0000	0.009200000017...
		0.02032846	0.02000000	207.57	11.0000	0.012300000339...
		0.02908674	0.02000000	017.57	11.0000	0.009200000017...
		0.02000118	0.02000000	197.57	11.0000	0.011300000548...
		0.05016417	0.02000000	027.57	11.0000	0.015299999713...
		0.02000001	0.02000000	187.57	11.0000	0.011300000548...
		0.06647653	0.02000000	037.57	11.0000	0.015299999713...
		0.02000414	0.02000000	177.57	11.0000	0.011300000548...
		0.06551056	0.02000000	047.57	11.0000	0.015299999713...
		0.02010182	0.02000000	167.57	11.0000	0.011300000548...
		0.06305450	0.02000000	057.57	11.0000	0.015299999713...
		0.02012227	0.02000000	157.57	11.0000	0.011300000548...
		0.06526735	0.02000000	067.57	11.0000	0.013099999725...
		0.02006457	0.02000000	147.57	11.0000	0.007900000363...
		0.06496599	0.02000000	077.57	11.0000	0.013099999725...
		0.02007182	0.02000000	137.57	11.0000	0.007900000363...
		0.06239072	0.02000000	087.57	11.0000	0.013099999725...
		0.02025162	0.02000000	127.57	11.0000	0.007900000363...
		0.06275718	0.02000000	097.57	11.0000	0.013099999725...
		0.02359896	0.02000000	117.57	11.0000	0.007900000363...
		0.04830355	0.02000000	107.57	11.0000	0.013099999725...
		0.04630355	0.02000000	107.57	11.0000	0.013099999725...
		0.20630457	0.02000000	287.57	0.5000	0.017000000178...
		0.22827946	0.02000000	297.57	0.5000	0.013899999856...
		0.19817717	0.02000000	277.57	0.5000	0.017000000178...
		0.22873218	0.02000000	307.57	0.5000	0.013899999856...
		0.18028691	0.02000000	267.57	0.5000	0.017000000178...

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.24707253	0.02000000	317.57	0.5000	0.013899999856.
		0.15217780	0.02000000	257.57	0.5000	0.017000000178.
		0.22716723	0.02000000	327.57	0.5000	0.013899999856.
		0.11429726	0.02000000	247.57	0.5000	0.017000000178.
		0.20751423	0.02000000	337.57	0.5000	0.009200000017.
		0.07874706	0.02000000	237.57	0.5000	0.012300000339.
		0.19639234	0.02000000	347.57	0.5000	0.009200000017.
		0.05527924	0.02000000	227.57	0.5000	0.012300000339.
		0.20296067	0.02000000	357.57	0.5000	0.009200000017.
		0.03835843	0.02000000	217.57	0.5000	0.012300000339.
		0.21661519	0.02000000	007.57	0.5000	0.009200000017.
		0.02862418	0.02000000	207.57	0.5000	0.012300000339.
		0.23282538	0.02000000	017.57	0.5000	0.009200000017.
		0.02907882	0.02000000	197.57	0.5000	0.011300000548.
		0.25008923	0.02000000	027.57	0.5000	0.015299999713.
		0.03805964	0.02000000	187.57	0.5000	0.011300000548.
		0.23255734	0.02000000	037.57	0.5000	0.015299999713.
		0.04564877	0.02000000	177.57	0.5000	0.011300000548.
		0.21397991	0.02000000	047.57	0.5000	0.015299999713.
		0.05344653	0.02000000	167.57	0.5000	0.011300000548.
		0.20890636	0.02000000	057.57	0.5000	0.015299999713.
		0.05740063	0.02000000	157.57	0.5000	0.011300000548.
		0.17288773	0.02000000	067.57	0.5000	0.013099999725.
		0.05856318	0.02000000	147.57	0.5000	0.007900000363.
		0.16281457	0.02000000	077.57	0.5000	0.013099999725.
		0.06160269	0.02000000	137.57	0.5000	0.007900000363.
		0.14387584	0.02000000	087.57	0.5000	0.013099999725.
		0.07245158	0.02000000	127.57	0.5000	0.007900000363.
		0.13315529	0.02000000	097.57	0.5000	0.013099999725.

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.09164530	0.02000000	117.57	0.5000	0.007900000363
		0.11152616	0.02000000	107.57	0.5000	0.013099999725
		0.11152616	0.02000000	107.57	0.5000	0.013099999725
		0.18989041	0.02000000	287.57	0.7500	0.017000000178
		0.20791881	0.02000000	297.57	0.7500	0.013899999856
		0.16089027	0.02000000	277.57	0.7500	0.017000000178
		0.19970228	0.02000000	307.57	0.7500	0.013899999856
		0.13876721	0.02000000	267.57	0.7500	0.017000000178
		0.17439269	0.02000000	317.57	0.7500	0.013899999856
		0.12887393	0.02000000	257.57	0.7500	0.017000000178
		0.15108196	0.02000000	327.57	0.7500	0.013899999856
		0.11031727	0.02000000	247.57	0.7500	0.017000000178
		0.14047483	0.02000000	337.57	0.7500	0.009200000017
		0.08686548	0.02000000	237.57	0.7500	0.012300000339
		0.15202935	0.02000000	347.57	0.7500	0.009200000017
		0.06299683	0.02000000	227.57	0.7500	0.012300000339
		0.18625994	0.02000000	357.57	0.7500	0.009200000017
		0.04247421	0.02000000	217.57	0.7500	0.012300000339
		0.22103356	0.02000000	007.57	0.7500	0.009200000017
		0.02985633	0.02000000	207.57	0.7500	0.012300000339
		0.22990300	0.02000000	017.57	0.7500	0.009200000017
		0.02873924	0.02000000	197.57	0.7500	0.011300000548
		0.20985071	0.02000000	027.57	0.7500	0.015299999713
		0.04460724	0.02000000	187.57	0.7500	0.011300000548
		0.18383753	0.02000000	037.57	0.7500	0.015299999713
		0.07523786	0.02000000	177.57	0.7500	0.011300000548
		0.17422172	0.02000000	047.57	0.7500	0.015299999713
		0.10194153	0.02000000	167.57	0.7500	0.011300000548
		0.17625634	0.02000000	057.57	0.7500	0.015299999713

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.10442808	0.02000000	157.57	0.7500	0.011300000548.
		0.17764281	0.02000000	067.57	0.7500	0.013099999725.
		0.08335750	0.02000000	147.57	0.7500	0.007900000363.
		0.17399692	0.02000000	077.57	0.7500	0.013099999725.
		0.06214583	0.02000000	137.57	0.7500	0.007900000363.
		0.16297828	0.02000000	087.57	0.7500	0.013099999725.
		0.06280597	0.02000000	127.57	0.7500	0.007900000363.
		0.14389471	0.02000000	097.57	0.7500	0.013099999725.
		0.08571795	0.02000000	117.57	0.7500	0.007900000363.
		0.11651354	0.02000000	107.57	0.7500	0.013099999725.
		0.11651354	0.02000000	107.57	0.7500	0.013099999725.
		0.04641642	0.02000000	287.57	5.4500	0.017000000178.
		0.11550350	0.02000000	297.57	5.4500	0.013899999856.
		0.03616389	0.02000000	277.57	5.4500	0.017000000178.
		0.05078645	0.02000000	307.57	5.4500	0.013899999856.
		0.04580551	0.02000000	267.57	5.4500	0.017000000178.
		0.02647306	0.02000000	317.57	5.4500	0.013899999856.
		0.04324102	0.02000000	257.57	5.4500	0.017000000178.
		0.02968468	0.02000000	327.57	5.4500	0.013899999856.
		0.05434004	0.02000000	247.57	5.4500	0.017000000178.
		0.06272461	0.02000000	337.57	5.4500	0.009200000017.
		0.05963667	0.02000000	237.57	5.4500	0.012300000339.
		0.02311095	0.02000000	347.57	5.4500	0.009200000017.
		0.03960331	0.02000000	227.57	5.4500	0.012300000339.
		0.02275527	0.02000000	357.57	5.4500	0.009200000017.
		0.06955379	0.02000000	217.57	5.4500	0.012300000339.
		0.02798277	0.02000000	007.57	5.4500	0.009200000017.
		0.04314269	0.02000000	207.57	5.4500	0.012300000339.
		0.03817736	0.02000000	017.57	5.4500	0.009200000017.

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.03108254	0.02000000	197.57	5.4500	0.011300000548.
		0.05244412	0.02000000	027.57	5.4500	0.015299999713.
		0.02086714	0.02000000	187.57	5.4500	0.011300000548.
		0.04476468	0.02000000	037.57	5.4500	0.015299999713.
		0.02002614	0.02000000	177.57	5.4500	0.011300000548.
		0.05778729	0.02000000	047.57	5.4500	0.015299999713.
		0.02000041	0.02000000	167.57	5.4500	0.011300000548.
		0.05024003	0.02000000	057.57	5.4500	0.015299999713.
		0.02004190	0.02000000	157.57	5.4500	0.011300000548.
		0.05160157	0.02000000	067.57	5.4500	0.013099999725.
		0.02087229	0.02000000	147.57	5.4500	0.007900000363.
		0.05654568	0.02000000	077.57	5.4500	0.013099999725.
		0.02219468	0.02000000	137.57	5.4500	0.007900000363.
		0.05168475	0.02000000	087.57	5.4500	0.013099999725.
		0.02299973	0.02000000	127.57	5.4500	0.007900000363.
		0.05348454	0.02000000	097.57	5.4500	0.013099999725.
		0.02949082	0.02000000	117.57	5.4500	0.007900000363.
		0.04716012	0.02000000	107.57	5.4500	0.013099999725.
		0.04716012	0.02000000	107.57	5.4500	0.013099999725.
		0.05876076	0.02000000	287.57	10.9000	0.017000000178.
		0.03199165	0.02000000	297.57	10.9000	0.013899999856.
		0.06980468	0.02000000	277.57	10.9000	0.017000000178.
		0.03994712	0.02000000	307.57	10.9000	0.013899999856.
		0.05109774	0.02000000	267.57	10.9000	0.017000000178.
		0.03138575	0.02000000	317.57	10.9000	0.013899999856.
		0.05854462	0.02000000	257.57	10.9000	0.017000000178.
		0.02128124	0.02000000	327.57	10.9000	0.013899999856.
		0.05671179	0.02000000	247.57	10.9000	0.017000000178.
		0.02004328	0.02000000	337.57	10.9000	0.009200000017.

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.03187640	0.02000000	237.57	10.9000	0.012300000339...
		0.02005512	0.02000000	347.57	10.9000	0.009200000017...
		0.02657295	0.02000000	227.57	10.9000	0.012300000339...
		0.02011098	0.02000000	357.57	10.9000	0.009200000017...
		0.02500281	0.02000000	217.57	10.9000	0.012300000339...
		0.02105991	0.02000000	007.57	10.9000	0.009200000017...
		0.02033457	0.02000000	207.57	10.9000	0.012300000339...
		0.02910098	0.02000000	017.57	10.9000	0.009200000017...
		0.02000122	0.02000000	197.57	10.9000	0.011300000548...
		0.05010135	0.02000000	027.57	10.9000	0.015299999713...
		0.02000001	0.02000000	187.57	10.9000	0.011300000548...
		0.06606449	0.02000000	037.57	10.9000	0.015299999713...
		0.02000426	0.02000000	177.57	10.9000	0.011300000548...
		0.06494289	0.02000000	047.57	10.9000	0.015299999713...
		0.02010489	0.02000000	167.57	10.9000	0.011300000548...
		0.06298403	0.02000000	057.57	10.9000	0.015299999713...
		0.02012607	0.02000000	157.57	10.9000	0.011300000548...
		0.06510930	0.02000000	067.57	10.9000	0.013099999725...
		0.02006664	0.02000000	147.57	10.9000	0.007900000363...
		0.06472368	0.02000000	077.57	10.9000	0.013099999725...
		0.02007375	0.02000000	137.57	10.9000	0.007900000363...
		0.06219574	0.02000000	087.57	10.9000	0.013099999725...
		0.02025700	0.02000000	127.57	10.9000	0.007900000363...
		0.06259426	0.02000000	097.57	10.9000	0.013099999725...
		0.02362838	0.02000000	117.57	10.9000	0.007900000363...
		0.04632387	0.02000000	107.57	10.9000	0.013099999725...
		0.04632387	0.02000000	107.57	10.9000	0.013099999725...
Ca	=	0.09075899	0.01999996			

Carbon monoxide

X(m)	*Y(m)*	*Maximum once-off concentration (mg/cubic m)*	*Background concentration (mg/cubic m)*	*Wind direction (degrees)*	**WIND VELOCITY (M/SEC)**	*Average annual frequency (%)*
40903.00	424633.00	1.33347332	0.39999998	292.55	0.5000	0.013899999856
		1.44858551	0.39999998	302.55	0.5000	0.013899999856
		1.31829067	0.39999998	282.55	0.5000	0.017000000178
		1.45094931	0.39999998	312.55	0.5000	0.013899999856
		1.25171008	0.39999998	272.55	0.5000	0.017000000178
		1.47957861	0.39999998	322.55	0.5000	0.013899999856
		1.13706219	0.39999998	262.55	0.5000	0.017000000178
		1.37406528	0.39999998	332.55	0.5000	0.013899999856
		0.95813483	0.39999998	252.55	0.5000	0.017000000178
		1.29850984	0.39999998	342.55	0.5000	0.009200000017
		0.76828969	0.39999998	242.55	0.5000	0.012300000339
		1.29100800	0.39999998	352.55	0.5000	0.009200000017
		0.62035531	0.39999998	232.55	0.5000	0.012300000339
		1.34640169	0.39999998	002.55	0.5000	0.009200000017
		0.52589327	0.39999998	222.55	0.5000	0.012300000339
		1.42253280	0.39999998	012.55	0.5000	0.009200000017
		0.45748166	0.39999998	212.55	0.5000	0.012300000339
		1.50753009	0.39999998	022.55	0.5000	0.015299999713
		0.43778527	0.39999998	202.55	0.5000	0.012300000339
		1.48595220	0.39999998	032.55	0.5000	0.015299999713
		0.45960546	0.39999998	192.55	0.5000	0.011300000548
		1.48589047	0.39999998	042.55	0.5000	0.015299999713
		0.50429296	0.39999998	182.55	0.5000	0.011300000548
		1.36188695	0.39999998	052.55	0.5000	0.015299999713
		0.54990673	0.39999998	172.55	0.5000	0.011300000548
		1.24701667	0.39999998	062.55	0.5000	0.015299999713
		0.57994975	0.39999998	162.55	0.5000	0.011300000548
		1.13743055	0.39999998	072.55	0.5000	0.013099999725
		0.59051132	0.39999998	152.55	0.5000	0.007900000363

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		1.08133090	0.39999998	082.55	0.5000	0.013099999725...
		0.59675711	0.39999998	142.55	0.5000	0.007900000363...
		0.99793828	0.39999998	092.55	0.5000	0.013099999725...
		0.62941598	0.39999998	132.55	0.5000	0.007900000363...
		0.92403144	0.39999998	102.55	0.5000	0.013099999725...
		0.70518643	0.39999998	122.55	0.5000	0.007900000363...
		0.81030440	0.39999998	112.55	0.5000	0.007900000363...
		0.81030440	0.39999998	112.55	0.5000	0.007900000363...
		0.68100393	0.39999998	292.55	2.0000	0.013899999856...
		0.76062632	0.39999998	302.55	2.0000	0.013899999856...
		0.77846503	0.39999998	282.55	2.0000	0.017000000178...
		0.83795911	0.39999998	312.55	2.0000	0.013899999856...
		0.76269537	0.39999998	272.55	2.0000	0.017000000178...
		0.60922974	0.39999998	322.55	2.0000	0.013899999856...
		0.73702502	0.39999998	262.55	2.0000	0.017000000178...
		0.48542857	0.39999998	332.55	2.0000	0.013899999856...
		0.73548901	0.39999998	252.55	2.0000	0.017000000178...
		0.57488036	0.39999998	342.55	2.0000	0.009200000017...
		0.68842959	0.39999998	242.55	2.0000	0.012300000339...
		0.60865086	0.39999998	352.55	2.0000	0.009200000017...
		0.62530768	0.39999998	232.55	2.0000	0.012300000339...
		0.68019390	0.39999998	002.55	2.0000	0.009200000017...
		0.56311050	0.39999998	222.55	2.0000	0.012300000339...
		0.92142987	0.39999998	012.55	2.0000	0.009200000017...
		0.47410694	0.39999998	212.55	2.0000	0.012300000339...
		0.95989317	0.39999998	022.55	2.0000	0.015299999713...
		0.46322340	0.39999998	202.55	2.0000	0.012300000339...
		0.72937572	0.39999998	032.55	2.0000	0.015299999713...
		0.45294005	0.39999998	192.55	2.0000	0.011300000548...

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.86138494	0.39999998	042.55	2.0000	0.015299999713.
		0.43431804	0.39999998	182.55	2.0000	0.011300000548.
		0.82724547	0.39999998	052.55	2.0000	0.015299999713.
		0.53059804	0.39999998	172.55	2.0000	0.011300000548.
		0.82337171	0.39999998	062.55	2.0000	0.015299999713.
		0.68105471	0.39999998	162.55	2.0000	0.011300000548.
		0.64920634	0.39999998	072.55	2.0000	0.013099999725.
		0.71538830	0.39999998	152.55	2.0000	0.007900000383.
		0.62916905	0.39999998	082.55	2.0000	0.013099999725.
		0.84928067	0.39999998	142.55	2.0000	0.007900000383.
		0.64591467	0.39999998	092.55	2.0000	0.013099999725.
		0.57704186	0.39999998	132.55	2.0000	0.007900000383.
		0.64773035	0.39999998	102.55	2.0000	0.013099999725.
		0.84549685	0.39999998	122.55	2.0000	0.007900000383.
		0.63248014	0.39999998	112.55	2.0000	0.007900000383.
		0.63248014	0.39999998	112.55	2.0000	0.007900000383.
		0.51677978	0.39999998	292.55	11.0000	0.013899999856.
		0.46786317	0.39999998	302.55	11.0000	0.013899999856.
		0.67002106	0.39999998	282.55	11.0000	0.017000000178.
		0.50388617	0.39999998	312.55	11.0000	0.013899999856.
		0.57072705	0.39999998	272.55	11.0000	0.017000000178.
		0.41693214	0.39999998	322.55	11.0000	0.013899999856.
		0.58728606	0.39999998	262.55	11.0000	0.017000000178.
		0.40138420	0.39999998	332.55	11.0000	0.013899999856.
		0.58448207	0.39999998	252.55	11.0000	0.017000000178.
		0.40013182	0.39999998	342.55	11.0000	0.009200000017.
		0.57431203	0.39999998	242.55	11.0000	0.012300000339.
		0.40025264	0.39999998	352.55	11.0000	0.009200000017.
		0.43570396	0.39999998	232.55	11.0000	0.012300000339.

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.40157974	0.39999998	002.55	11.0000	0.009200000017...
		0.43820876	0.39999998	222.55	11.0000	0.012300000339...
		0.41510865	0.39999998	012.55	11.0000	0.009200000017...
		0.41034883	0.39999998	212.55	11.0000	0.012300000339...
		0.49917096	0.39999998	022.55	11.0000	0.015299999713...
		0.40006453	0.39999998	202.55	11.0000	0.012300000339...
		0.60217488	0.39999998	032.55	11.0000	0.015299999713...
		0.40000004	0.39999998	192.55	11.0000	0.011300000548...
		0.61598355	0.39999998	042.55	11.0000	0.015299999713...
		0.40000147	0.39999998	182.55	11.0000	0.011300000548...
		0.64791048	0.39999998	052.55	11.0000	0.015299999713...
		0.40014771	0.39999998	172.55	11.0000	0.011300000548...
		0.60828739	0.39999998	062.55	11.0000	0.015299999713...
		0.40073669	0.39999998	162.55	11.0000	0.011300000548...
		0.61754417	0.39999998	072.55	11.0000	0.013099999725...
		0.40042335	0.39999998	152.55	11.0000	0.007900000363...
		0.62759984	0.39999998	082.55	11.0000	0.013099999725...
		0.40023899	0.39999998	142.55	11.0000	0.007900000363...
		0.61128950	0.39999998	092.55	11.0000	0.013099999725...
		0.40068263	0.39999998	132.55	11.0000	0.007900000363...
		0.59177530	0.39999998	102.55	11.0000	0.013099999725...
		0.40415791	0.39999998	122.55	11.0000	0.007900000363...
		0.46082908	0.39999998	112.55	11.0000	0.007900000363...
		0.46082908	0.39999998	112.55	11.0000	0.007900000363...
		1.33348000	0.39999998	292.55	0.5000	0.013899999856...
		1.44859099	0.39999998	302.55	0.5000	0.013899999856...
		1.31826162	0.39999998	282.55	0.5000	0.017000000178...
		1.45095599	0.39999998	312.55	0.5000	0.013899999856...
		1.25170767	0.39999998	272.55	0.5000	0.017000000178...

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		1.47957575	0.39999998	322.55	0.5000	0.013899999856..
		1.13705945	0.39999998	262.55	0.5000	0.017000000178..
		1.37406051	0.39999998	332.55	0.5000	0.013899999856..
		0.95813370	0.39999998	252.55	0.5000	0.017000000178..
		1.29850626	0.39999998	342.55	0.5000	0.009200000017..
		0.76829022	0.39999998	242.55	0.5000	0.012300000339..
		1.29100943	0.39999998	352.55	0.5000	0.009200000017..
		0.62935758	0.39999998	232.55	0.5000	0.012300000339..
		1.34840908	0.39999998	002.55	0.5000	0.009200000017..
		0.52589703	0.39999998	222.55	0.5000	0.012300000339..
		1.42254257	0.39999998	012.55	0.5000	0.009200000017..
		0.45746499	0.39999998	212.55	0.5000	0.012300000339..
		1.50753880	0.39999998	022.55	0.5000	0.015299999713..
		0.43778810	0.39999998	202.55	0.5000	0.012300000339..
		1.48596764	0.39999998	032.55	0.5000	0.015299999713..
		0.45961022	0.39999998	192.55	0.5000	0.011300000548..
		1.48570561	0.39999998	042.55	0.5000	0.015299999713..
		0.50430387	0.39999998	182.55	0.5000	0.011300000548..
		1.36189127	0.39999998	052.55	0.5000	0.015299999713..
		0.54992431	0.39999998	172.55	0.5000	0.011300000548..
		1.24703932	0.39999998	062.55	0.5000	0.015299999713..
		0.57966995	0.39999998	162.55	0.5000	0.011300000548..
		1.13745368	0.39999998	072.55	0.5000	0.013099999725..
		0.59052873	0.39999998	152.55	0.5000	0.007900000363..
		1.08134937	0.39999998	082.55	0.5000	0.013099999725..
		0.59676862	0.39999998	142.55	0.5000	0.007900000363..
		0.99795610	0.39999998	092.55	0.5000	0.013099999725..
		0.62942243	0.39999998	132.55	0.5000	0.007900000363..
		0.92404425	0.39999998	102.55	0.5000	0.013099999725..

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.70519203	0.39999998	122.55	0.5000	0.007900000383
		0.81031293	0.39999998	112.55	0.5000	0.007900000363
		0.81031293	0.39999998	112.55	0.5000	0.007900000363
		1.30803370	0.39999998	292.55	0.7500	0.013899999856
		1.33571649	0.39999998	302.55	0.7500	0.013899999856
		1.18311727	0.39999998	282.55	0.7500	0.017000000178
		1.23948646	0.39999998	312.55	0.7500	0.013899999856
		1.03925729	0.39999998	272.55	0.7500	0.017000000178
		1.10806119	0.39999998	322.55	0.7500	0.013899999856
		0.96170235	0.39999998	262.55	0.7500	0.017000000178
		1.01966453	0.39999998	332.55	0.7500	0.013899999856
		0.89515555	0.39999998	252.55	0.7500	0.017000000178
		1.01520717	0.39999998	342.55	0.7500	0.009200000017
		0.79229242	0.39999998	242.55	0.7500	0.012300000339
		1.13540745	0.39999998	352.55	0.7500	0.009200000017
		0.67334723	0.39999998	232.55	0.7500	0.012300000339
		1.32812977	0.39999998	002.55	0.7500	0.009200000017
		0.56139225	0.39999998	222.55	0.7500	0.012300000339
		1.44837642	0.39999998	012.55	0.7500	0.009200000017
		0.47673362	0.39999998	212.55	0.7500	0.012300000339
		1.41097403	0.39999998	022.55	0.7500	0.015299999713
		0.43822631	0.39999998	202.55	0.7500	0.012300000339
		1.27792859	0.39999998	032.55	0.7500	0.015299999713
		0.47187719	0.39999998	192.55	0.7500	0.011300000548
		1.18322873	0.39999998	042.55	0.7500	0.015299999713
		0.59711707	0.39999998	182.55	0.7500	0.011300000548
		1.17680645	0.39999998	052.55	0.7500	0.015299999713
		0.75819582	0.39999998	172.55	0.7500	0.011300000548
		1.18760240	0.39999998	062.55	0.7500	0.015299999713

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.83850729	0.39999998	162.55	0.7500	0.011300000548...
		1.18303716	0.39999998	072.55	0.7500	0.013999999725...
		0.77814227	0.39999998	152.55	0.7500	0.007900000363...
		1.14480603	0.39999998	082.55	0.7500	0.013999999725...
		0.65017712	0.39999998	142.55	0.7500	0.007900000363...
		1.07409871	0.39999998	092.55	0.7500	0.013999999725...
		0.59198827	0.39999998	132.55	0.7500	0.007900000363...
		0.95592320	0.39999998	102.55	0.7500	0.013999999725...
		0.65994751	0.39999998	122.55	0.7500	0.007900000363...
		0.80559623	0.39999998	112.55	0.7500	0.007900000363...
		0.80559623	0.39999998	112.55	0.7500	0.007900000363...
		0.71434331	0.39999998	292.55	5.4500	0.013899999856...
		0.77005535	0.39999998	302.55	5.4500	0.013899999856...
		0.47558177	0.39999998	282.55	5.4500	0.017000000178...
		0.45090124	0.39999998	312.55	5.4500	0.013899999856...
		0.40818808	0.39999998	272.55	5.4500	0.017000000178...
		0.41356996	0.39999998	322.55	5.4500	0.013899999856...
		0.54407980	0.39999998	262.55	5.4500	0.017000000178...
		0.51810678	0.39999998	332.55	5.4500	0.013899999856...
		0.50857105	0.39999998	252.55	5.4500	0.017000000178...
		0.45777088	0.39999998	342.55	5.4500	0.009200000017...
		0.64093167	0.39999998	242.55	5.4500	0.012300000339...
		0.41407511	0.39999998	352.55	5.4500	0.009200000017...
		0.49456269	0.39999998	232.55	5.4500	0.012300000339...
		0.41935717	0.39999998	002.55	5.4500	0.009200000017...
		0.59854078	0.39999998	222.55	5.4500	0.012300000339...
		0.46891394	0.39999998	012.55	5.4500	0.009200000017...
		0.55451286	0.39999998	212.55	5.4500	0.012300000339...
		0.53305042	0.39999998	022.55	5.4500	0.015299999713...

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.48841056	0.39999998	202.55	5.4500	0.012300000338
		0.54050779	0.39999998	032.55	5.4500	0.015299999713
		0.41038638	0.39999998	192.55	5.4500	0.011300000548
		0.56271070	0.39999998	042.55	5.4500	0.015299999713
		0.40106791	0.39999998	182.55	5.4500	0.011300000548
		0.56395125	0.39999998	052.55	5.4500	0.015299999713
		0.40000850	0.39999998	172.55	5.4500	0.011300000548
		0.56477207	0.39999998	062.55	5.4500	0.015299999713
		0.40003103	0.39999998	162.55	5.4500	0.011300000548
		0.58153822	0.39999998	072.55	5.4500	0.013099999725
		0.40136534	0.39999998	152.55	5.4500	0.007900000363
		0.57367718	0.39999998	082.55	5.4500	0.013099999725
		0.40833545	0.39999998	142.55	5.4500	0.007900000363
		0.56170583	0.39999998	092.55	5.4500	0.013099999725
		0.41129076	0.39999998	132.55	5.4500	0.007900000363
		0.56222355	0.39999998	102.55	5.4500	0.013099999725
		0.42528969	0.39999998	122.55	5.4500	0.007900000363
		0.48972464	0.39999998	112.55	5.4500	0.007900000363
		0.48972464	0.39999998	112.55	5.4500	0.007900000363
		0.51755077	0.39999998	292.55	10.9000	0.013899999856
		0.48790671	0.39999998	302.55	10.9000	0.013899999856
		0.67183352	0.39999998	282.55	10.9000	0.017000000178
		0.50444043	0.39999998	312.55	10.9000	0.013899999856
		0.58961244	0.39999998	272.55	10.9000	0.017000000178
		0.41703716	0.39999998	322.55	10.9000	0.013899999856
		0.58745074	0.39999998	262.55	10.9000	0.017000000178
		0.40141618	0.39999998	332.55	10.9000	0.013899999856
		0.58833945	0.39999998	252.55	10.9000	0.017000000178
		0.40013367	0.39999998	342.55	10.9000	0.009200000017

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.57258668	0.39999998	242.55	10.9000	0.012300000339
		0.40025625	0.39999998	352.55	10.9000	0.009200000017
		0.43571204	0.39999998	232.55	10.9000	0.012300000339
		0.40159318	0.39999998	002.55	10.9000	0.009200000017
		0.43860579	0.39999998	222.55	10.9000	0.012300000339
		0.41517946	0.39999998	012.55	10.9000	0.009200000017
		0.41047898	0.39999998	212.55	10.9000	0.012300000339
		0.49896404	0.39999998	022.55	10.9000	0.015299999713
		0.40006626	0.39999998	202.55	10.9000	0.012300000339
		0.60169053	0.39999998	032.55	10.9000	0.015299999713
		0.40000004	0.39999998	192.55	10.9000	0.011300000548
		0.61277437	0.39999998	042.55	10.9000	0.015299999713
		0.40000153	0.39999998	182.55	10.9000	0.011300000548
		0.64609146	0.39999998	052.55	10.9000	0.015299999713
		0.40015209	0.39999998	172.55	10.9000	0.011300000548
		0.60855860	0.39999998	062.55	10.9000	0.015299999713
		0.40075934	0.39999998	162.55	10.9000	0.011300000548
		0.61604339	0.39999998	072.55	10.9000	0.013099999725
		0.40043676	0.39999998	152.55	10.9000	0.007900000363
		0.62653613	0.39999998	082.55	10.9000	0.013099999725
		0.40024641	0.39999998	142.55	10.9000	0.007900000363
		0.61039019	0.39999998	092.55	10.9000	0.013099999725
		0.40069970	0.39999998	132.55	10.9000	0.007900000363
		0.59134775	0.39999998	102.55	10.9000	0.013099999725
		0.40421215	0.39999998	122.55	10.9000	0.007900000363
		0.46109802	0.39999998	112.55	10.9000	0.007900000363
		0.46109802	0.39999998	112.55	10.9000	0.007900000363
Ca	=	0.75543207	0.39999998			

Benz(a)pyrene

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	WIND VELOCITY (M/SEC)	Average annual frequency (%)
43903.00	424633.00	0.00000338	0.00000040	287.57	0.5000	0.017000000178...
		0.00000373	0.00000040	297.57	0.5000	0.013899999856...
		0.00000325	0.00000040	277.57	0.5000	0.017000000178...
		0.00000374	0.00000040	307.57	0.5000	0.013899999856...
		0.00000296	0.00000040	267.57	0.5000	0.017000000178...
		0.00000403	0.00000040	317.57	0.5000	0.013899999856...
		0.00000251	0.00000040	257.57	0.5000	0.017000000178...
		0.00000371	0.00000040	327.57	0.5000	0.013899999856...
		0.00000191	0.00000040	247.57	0.5000	0.017000000178...
		0.00000340	0.00000040	337.57	0.5000	0.009200000017...
		0.00000134	0.00000040	237.57	0.5000	0.012300000339...
		0.00000322	0.00000040	347.57	0.5000	0.009200000017...
		0.00000096	0.00000040	227.57	0.5000	0.012300000339...
		0.00000333	0.00000040	357.57	0.5000	0.009200000017...
		0.00000069	0.00000040	217.57	0.5000	0.012300000339...
		0.00000354	0.00000040	007.57	0.5000	0.009200000017...
		0.00000054	0.00000040	207.57	0.5000	0.012300000339...
		0.00000380	0.00000040	017.57	0.5000	0.009200000017...
		0.00000055	0.00000040	197.57	0.5000	0.011300000548...
		0.00000408	0.00000040	027.57	0.5000	0.015299999713...
		0.00000066	0.00000040	187.57	0.5000	0.011300000548...
		0.00000380	0.00000040	037.57	0.5000	0.015299999713...
		0.00000081	0.00000040	177.57	0.5000	0.011300000548...
		0.00000350	0.00000040	047.57	0.5000	0.015299999713...
		0.00000093	0.00000040	167.57	0.5000	0.011300000548...
		0.00000342	0.00000040	057.57	0.5000	0.015299999713...
		0.00000100	0.00000040	157.57	0.5000	0.011300000548...
		0.00000284	0.00000040	067.57	0.5000	0.013099999725...
		0.00000102	0.00000040	147.57	0.5000	0.007900000363...

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.00000268	0.00000040	077.57	0.5000	0.013099999725...
		0.00000107	0.00000040	137.57	0.5000	0.007900000363...
		0.00000238	0.00000040	087.57	0.5000	0.013099999725...
		0.00000124	0.00000040	127.57	0.5000	0.007900000363...
		0.00000221	0.00000040	097.57	0.5000	0.013099999725...
		0.00000155	0.00000040	117.57	0.5000	0.007900000363...
		0.00000186	0.00000040	107.57	0.5000	0.013099999725...
		0.00000186	0.00000040	107.57	0.5000	0.013099999725...
		0.00000150	0.00000040	287.57	2.0000	0.017000000178...
		0.00000134	0.00000040	297.57	2.0000	0.013899999856...
		0.00000163	0.00000040	277.57	2.0000	0.017000000178...
		0.00000179	0.00000040	307.57	2.0000	0.013899999856...
		0.00000150	0.00000040	267.57	2.0000	0.017000000178...
		0.00000152	0.00000040	317.57	2.0000	0.013899999856...
		0.00000149	0.00000040	257.57	2.0000	0.017000000178...
		0.00000079	0.00000040	327.57	2.0000	0.013899999856...
		0.00000139	0.00000040	247.57	2.0000	0.017000000178...
		0.00000079	0.00000040	337.57	2.0000	0.009200000017...
		0.00000125	0.00000040	237.57	2.0000	0.012300000339...
		0.00000102	0.00000040	347.57	2.0000	0.009200000017...
		0.00000104	0.00000040	227.57	2.0000	0.012300000339...
		0.00000112	0.00000040	357.57	2.0000	0.009200000017...
		0.00000079	0.00000040	217.57	2.0000	0.012300000339...
		0.00000164	0.00000040	007.57	2.0000	0.009200000017...
		0.00000059	0.00000040	207.57	2.0000	0.012300000339...
		0.00000237	0.00000040	017.57	2.0000	0.009200000017...
		0.00000060	0.00000040	197.57	2.0000	0.011300000548...
		0.00000186	0.00000040	027.57	2.0000	0.015299999713...
		0.00000052	0.00000040	187.57	2.0000	0.011300000548...

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.00000120	0.00000040	037.57	2.0000	0.015299998713
		0.00000061	0.00000040	177.57	2.0000	0.011300000548
		0.00000154	0.00000040	047.57	2.0000	0.015299998713
		0.00000108	0.00000040	167.57	2.0000	0.011300000548
		0.00000189	0.00000040	057.57	2.0000	0.015299998713
		0.00000141	0.00000040	157.57	2.0000	0.011300000548
		0.00000133	0.00000040	067.57	2.0000	0.013099999725
		0.00000133	0.00000040	147.57	2.0000	0.007900000363
		0.00000114	0.00000040	077.57	2.0000	0.013099999725
		0.00000101	0.00000040	137.57	2.0000	0.007900000363
		0.00000116	0.00000040	087.57	2.0000	0.013099999725
		0.00000108	0.00000040	127.57	2.0000	0.007900000363
		0.00000120	0.00000040	097.57	2.0000	0.013099999725
		0.00000124	0.00000040	117.57	2.0000	0.007900000363
		0.00000116	0.00000040	107.57	2.0000	0.013099999725
		0.00000116	0.00000040	107.57	2.0000	0.013099999725
		0.00000101	0.00000040	287.57	11.0000	0.017000000178
		0.00000059	0.00000040	297.57	11.0000	0.013899999856
		0.00000120	0.00000040	277.57	11.0000	0.017000000178
		0.00000072	0.00000040	307.57	11.0000	0.013899999856
		0.00000090	0.00000040	267.57	11.0000	0.017000000178
		0.00000059	0.00000040	317.57	11.0000	0.013899999856
		0.00000101	0.00000040	257.57	11.0000	0.017000000178
		0.00000042	0.00000040	327.57	11.0000	0.013899999856
		0.00000098	0.00000040	247.57	11.0000	0.017000000178
		0.00000040	0.00000040	337.57	11.0000	0.009200000017
		0.00000059	0.00000040	237.57	11.0000	0.012300000339
		0.00000040	0.00000040	347.57	11.0000	0.009200000017
		0.00000050	0.00000040	227.57	11.0000	0.012300000339

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.00000040	0.00000040	357.57	11.0000	0.009200000017...
		0.00000048	0.00000040	217.57	11.0000	0.012300000339...
		0.00000042	0.00000040	007.57	11.0000	0.009200000017...
		0.00000041	0.00000040	207.57	11.0000	0.012300000339...
		0.00000055	0.00000040	017.57	11.0000	0.009200000017...
		0.00000040	0.00000040	197.57	11.0000	0.011300000548...
		0.00000088	0.00000040	027.57	11.0000	0.015299999713...
		0.00000040	0.00000040	187.57	11.0000	0.011300000548...
		0.00000114	0.00000040	037.57	11.0000	0.015299999713...
		0.00000040	0.00000040	177.57	11.0000	0.011300000548...
		0.00000113	0.00000040	047.57	11.0000	0.015299999713...
		0.00000040	0.00000040	167.57	11.0000	0.011300000548...
		0.00000109	0.00000040	057.57	11.0000	0.015299999713...
		0.00000040	0.00000040	157.57	11.0000	0.011300000548...
		0.00000112	0.00000040	067.57	11.0000	0.013099999725...
		0.00000040	0.00000040	147.57	11.0000	0.007900000363...
		0.00000112	0.00000040	077.57	11.0000	0.013099999725...
		0.00000040	0.00000040	137.57	11.0000	0.007900000363...
		0.00000108	0.00000040	087.57	11.0000	0.013099999725...
		0.00000040	0.00000040	127.57	11.0000	0.007900000363...
		0.00000108	0.00000040	097.57	11.0000	0.013099999725...
		0.00000046	0.00000040	117.57	11.0000	0.007900000363...
		0.00000082	0.00000040	107.57	11.0000	0.013099999725...
		0.00000082	0.00000040	107.57	11.0000	0.013099999725...
		0.00000338	0.00000040	287.57	0.5000	0.017000000178...
		0.00000373	0.00000040	297.57	0.5000	0.013899999856...
		0.00000325	0.00000040	277.57	0.5000	0.017000000178...
		0.00000374	0.00000040	307.57	0.5000	0.013899999856...
		0.00000296	0.00000040	267.57	0.5000	0.017000000178...

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.00000403	0.00000040	317.57	0.5000	0.013899999856...
		0.00000251	0.00000040	357.57	0.5000	0.017000000178...
		0.00000371	0.00000040	327.57	0.5000	0.013899999856...
		0.00000191	0.00000040	247.57	0.5000	0.017000000178...
		0.00000340	0.00000040	337.57	0.5000	0.009200000017...
		0.00000134	0.00000040	237.57	0.5000	0.012300000339...
		0.00000322	0.00000040	347.57	0.5000	0.009200000017...
		0.00000096	0.00000040	227.57	0.5000	0.012300000339...
		0.00000333	0.00000040	357.57	0.5000	0.009200000017...
		0.00000069	0.00000040	217.57	0.5000	0.012300000339...
		0.00000354	0.00000040	007.57	0.5000	0.009200000017...
		0.00000054	0.00000040	207.57	0.5000	0.012300000339...
		0.00000380	0.00000040	017.57	0.5000	0.009200000017...
		0.00000055	0.00000040	197.57	0.5000	0.011300000548...
		0.00000408	0.00000040	027.57	0.5000	0.015299999713...
		0.00000066	0.00000040	187.57	0.5000	0.011300000548...
		0.00000380	0.00000040	037.57	0.5000	0.015299999713...
		0.00000081	0.00000040	177.57	0.5000	0.011300000548...
		0.00000350	0.00000040	047.57	0.5000	0.015299999713...
		0.00000093	0.00000040	167.57	0.5000	0.011300000548...
		0.00000312	0.00000040	057.57	0.5000	0.015299999713...
		0.00000100	0.00000040	157.57	0.5000	0.011300000548...
		0.00000284	0.00000040	067.57	0.5000	0.013099999725...
		0.00000102	0.00000040	147.57	0.5000	0.007900000363...
		0.00000268	0.00000040	077.57	0.5000	0.013099999725...
		0.00000107	0.00000040	137.57	0.5000	0.007900000363...
		0.00000238	0.00000040	087.57	0.5000	0.013099999725...
		0.00000124	0.00000040	127.57	0.5000	0.007900000363...
		0.00000221	0.00000040	097.57	0.5000	0.013099999725...

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.00000155	0.00000040	117.57	0.5000	0.007900000363.
		0.00000186	0.00000040	107.57	0.5000	0.013099999725.
		0.00000186	0.00000040	107.57	0.5000	0.013099999725.
		0.00000312	0.00000040	287.57	0.7500	0.017000000178.
		0.00000340	0.00000040	297.57	0.7500	0.013899999856.
		0.00000265	0.00000040	277.57	0.7500	0.017000000178.
		0.00000327	0.00000040	307.57	0.7500	0.013899999856.
		0.00000230	0.00000040	267.57	0.7500	0.017000000178.
		0.00000287	0.00000040	317.57	0.7500	0.013899999856.
		0.00000211	0.00000040	257.57	0.7500	0.017000000178.
		0.00000250	0.00000040	327.57	0.7500	0.013899999856.
		0.00000184	0.00000040	247.57	0.7500	0.017000000178.
		0.00000233	0.00000040	337.57	0.7500	0.009200000017.
		0.00000147	0.00000040	237.57	0.7500	0.012300000339.
		0.00000251	0.00000040	347.57	0.7500	0.009200000017.
		0.00000109	0.00000040	227.57	0.7500	0.012300000339.
		0.00000306	0.00000040	357.57	0.7500	0.009200000017.
		0.00000076	0.00000040	217.57	0.7500	0.012300000339.
		0.00000361	0.00000040	007.57	0.7500	0.009200000017.
		0.00000056	0.00000040	207.57	0.7500	0.012300000339.
		0.00000376	0.00000040	017.57	0.7500	0.009200000017.
		0.00000054	0.00000040	197.57	0.7500	0.011300000548.
		0.00000343	0.00000040	027.57	0.7500	0.015299999713.
		0.00000079	0.00000040	187.57	0.7500	0.011300000548.
		0.00000302	0.00000040	037.57	0.7500	0.015299999713.
		0.00000128	0.00000040	177.57	0.7500	0.011300000548.
		0.00000287	0.00000040	047.57	0.7500	0.015299999713.
		0.00000171	0.00000040	167.57	0.7500	0.011300000548.
		0.00000290	0.00000040	057.57	0.7500	0.015299999713.

X (m)	Y (m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.00000175	0.00000040	157.57	0.7500	0.011300000548...
		0.00000292	0.00000040	067.57	0.7500	0.013099999725...
		0.00000141	0.00000040	147.57	0.7500	0.007900000363...
		0.00000286	0.00000040	077.57	0.7500	0.013099999725...
		0.00000107	0.00000040	137.57	0.7500	0.007900000363...
		0.00000269	0.00000040	087.57	0.7500	0.013099999725...
		0.00000108	0.00000040	127.57	0.7500	0.007900000363...
		0.00000238	0.00000040	097.57	0.7500	0.013099999725...
		0.00000145	0.00000040	117.57	0.7500	0.007900000363...
		0.00000194	0.00000040	107.57	0.7500	0.013099999725...
		0.00000194	0.00000040	107.57	0.7500	0.013099999725...
		0.00000082	0.00000040	287.57	5.4500	0.017000000178...
		0.00000193	0.00000040	297.57	5.4500	0.013899999856...
		0.00000066	0.00000040	277.57	5.4500	0.017000000178...
		0.00000089	0.00000040	307.57	5.4500	0.013899999856...
		0.00000081	0.00000040	267.57	5.4500	0.017000000178...
		0.00000050	0.00000040	317.57	5.4500	0.013899999856...
		0.00000077	0.00000040	257.57	5.4500	0.017000000178...
		0.00000051	0.00000040	327.57	5.4500	0.013899999856...
		0.00000095	0.00000040	247.57	5.4500	0.017000000178...
		0.00000108	0.00000040	337.57	5.4500	0.009200000017...
		0.00000103	0.00000040	237.57	5.4500	0.012300000339...
		0.00000045	0.00000040	347.57	5.4500	0.009200000017...
		0.00000071	0.00000040	227.57	5.4500	0.012300000339...
		0.00000044	0.00000040	357.57	5.4500	0.009200000017...
		0.00000119	0.00000040	217.57	5.4500	0.012300000339...
		0.00000053	0.00000040	007.57	5.4500	0.009200000017...
		0.00000077	0.00000040	207.57	5.4500	0.012300000339...
		0.00000069	0.00000040	017.57	5.4500	0.009200000017...

X (m)	Y (m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.00000058	0.00000040	197.57	5.4500	0.011300000548.
		0.00000092	0.00000040	027.57	5.4500	0.015299999713.
		0.00000041	0.00000040	187.57	5.4500	0.011300000548.
		0.00000080	0.00000040	037.57	5.4500	0.015299999713.
		0.00000040	0.00000040	177.57	5.4500	0.011300000548.
		0.00000100	0.00000040	047.57	5.4500	0.015299999713.
		0.00000040	0.00000040	167.57	5.4500	0.011300000548.
		0.00000088	0.00000040	057.57	5.4500	0.015299999713.
		0.00000040	0.00000040	157.57	5.4500	0.011300000548.
		0.00000091	0.00000040	067.57	5.4500	0.013099999725.
		0.00000041	0.00000040	147.57	5.4500	0.007900000363.
		0.00000098	0.00000040	077.57	5.4500	0.013099999725.
		0.00000044	0.00000040	137.57	5.4500	0.007900000363.
		0.00000091	0.00000040	087.57	5.4500	0.013099999725.
		0.00000045	0.00000040	127.57	5.4500	0.007900000363.
		0.00000094	0.00000040	097.57	5.4500	0.013099999725.
		0.00000055	0.00000040	117.57	5.4500	0.007900000363.
		0.00000083	0.00000040	107.57	5.4500	0.013099999725.
		0.00000083	0.00000040	107.57	5.4500	0.013099999725.
		0.00000102	0.00000040	287.57	10.9000	0.017000000178.
		0.00000059	0.00000040	297.57	10.9000	0.013899999856.
		0.00000120	0.00000040	277.57	10.9000	0.017000000178.
		0.00000072	0.00000040	307.57	10.9000	0.013899999856.
		0.00000090	0.00000040	267.57	10.9000	0.017000000178.
		0.00000058	0.00000040	317.57	10.9000	0.013899999856.
		0.00000102	0.00000040	257.57	10.9000	0.017000000178.
		0.00000042	0.00000040	327.57	10.9000	0.013899999856.
		0.00000099	0.00000040	247.57	10.9000	0.017000000178.
		0.00000040	0.00000040	337.57	10.9000	0.009200000017.

X (m)	Y (m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.00000059	0.00000040	237.57	10.9000	0.012300000339..
		0.00000040	0.00000040	347.57	10.9000	0.009200000017..
		0.00000051	0.00000040	227.57	10.9000	0.012300000339..
		0.00000040	0.00000040	357.57	10.9000	0.009200000017..
		0.00000048	0.00000040	217.57	10.9000	0.012300000339..
		0.00000042	0.00000040	007.57	10.9000	0.009200000017..
		0.00000041	0.00000040	207.57	10.9000	0.012300000339..
		0.00000055	0.00000040	017.57	10.9000	0.009200000017..
		0.00000040	0.00000040	197.57	10.9000	0.011300000548..
		0.00000088	0.00000040	027.57	10.9000	0.015299999713..
		0.00000040	0.00000040	187.57	10.9000	0.011300000548..
		0.00000114	0.00000040	037.57	10.9000	0.015299999713..
		0.00000040	0.00000040	177.57	10.9000	0.011300000548..
		0.00000112	0.00000040	047.57	10.9000	0.015299999713..
		0.00000040	0.00000040	167.57	10.9000	0.011300000548..
		0.00000109	0.00000040	057.57	10.9000	0.015299999713..
		0.00000040	0.00000040	157.57	10.9000	0.011300000548..
		0.00000112	0.00000040	067.57	10.9000	0.013099999725..
		0.00000040	0.00000040	147.57	10.9000	0.007900000363..
		0.00000112	0.00000040	077.57	10.9000	0.013099999725..
		0.00000040	0.00000040	137.57	10.9000	0.007900000363..
		0.00000107	0.00000040	087.57	10.9000	0.013099999725..
		0.00000040	0.00000040	127.57	10.9000	0.007900000363..
		0.00000108	0.00000040	097.57	10.9000	0.013099999725..
		0.00000046	0.00000040	117.57	10.9000	0.007900000363..
		0.00000082	0.00000040	107.57	10.9000	0.013099999725..
		0.00000082	0.00000040	107.57	10.9000	0.013099999725..
Ca	=	0.00000153	0.00000040			

Hydrogen sulfide

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	WIND VELOCITY (M/SEC)	Annual average frequency (%)
40703.00	424833.00	0.00320032	0.00320000	046.54	0.5000	0.015299999713.
		0.00320027	0.00320000	056.54	0.5000	0.015299999713.
		0.00320027	0.00320000	036.54	0.5000	0.015299999713.
		0.00320016	0.00320000	066.54	0.5000	0.015299999713.
		0.00320016	0.00320000	026.54	0.5000	0.015299999713.
		0.00320007	0.00320000	076.54	0.5000	0.013099999725.
		0.00320007	0.00320000	016.54	0.5000	0.009200000017.
		0.00320001	0.00320000	086.54	0.5000	0.013099999725.
		0.00320001	0.00320000	006.54	0.5000	0.009200000017.
		0.00320000	0.00320000	096.54	0.5000	0.013099999725.
		0.00320000	0.00320000	356.54	0.5000	0.009200000017.
		0.00320000	0.00320000	106.54	0.5000	0.013099999725.
		0.00320000	0.00320000	346.54	0.5000	0.009200000017.
		0.00320000	0.00320000	116.54	0.5000	0.007900000363.
		0.00320000	0.00320000	336.54	0.5000	0.013899999856.
		0.00320000	0.00320000	126.54	0.5000	0.007900000363.
		0.00320000	0.00320000	326.54	0.5000	0.013899999856.
		0.00320000	0.00320000	136.54	0.5000	0.007900000363.
		0.00320000	0.00320000	316.54	0.5000	0.013899999856.
		0.00320000	0.00320000	146.54	0.5000	0.007900000363.
		0.00320000	0.00320000	306.54	0.5000	0.013899999856.
		0.00320000	0.00320000	156.54	0.5000	0.007900000363.
		0.00320000	0.00320000	296.54	0.5000	0.013899999856.
		0.00320000	0.00320000	166.54	0.5000	0.011300000548.
		0.00320000	0.00320000	286.54	0.5000	0.017000000178.
		0.00320000	0.00320000	176.54	0.5000	0.011300000548.
		0.00320000	0.00320000	276.54	0.5000	0.017000000178.
		0.00320000	0.00320000	186.54	0.5000	0.011300000548.
		0.00320000	0.00320000	266.54	0.5000	0.017000000178.

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.00320000	0.00320000	196.64	0.5000	0.011300000548.
		0.00320000	0.00320000	256.64	0.5000	0.017000000178.
		0.00320000	0.00320000	206.64	0.5000	0.012300000339.
		0.00320000	0.00320000	246.64	0.5000	0.012300000339.
		0.00320000	0.00320000	216.64	0.5000	0.012300000339.
		0.00320000	0.00320000	336.64	0.5000	0.012300000339.
		0.00320000	0.00320000	226.64	0.5000	0.012300000339.
		0.00320000	0.00320000	226.64	0.5000	0.012300000339.
		0.00320028	0.00320000	046.64	2.0000	0.015299999713.
		0.00320014	0.00320000	056.64	2.0000	0.015299999713.
		0.00320017	0.00320000	036.64	2.0000	0.015299999713.
		0.00320002	0.00320000	066.64	2.0000	0.015299999713.
		0.00320003	0.00320000	026.64	2.0000	0.015299999713.
		0.00320000	0.00320000	076.64	2.0000	0.013099999725.
		0.00320000	0.00320000	016.64	2.0000	0.009200000017.
		0.00320000	0.00320000	086.64	2.0000	0.013099999725.
		0.00320000	0.00320000	006.64	2.0000	0.009200000017.
		0.00320000	0.00320000	096.64	2.0000	0.013099999725.
		0.00320000	0.00320000	356.64	2.0000	0.009200000017.
		0.00320000	0.00320000	106.64	2.0000	0.013099999725.
		0.00320000	0.00320000	346.64	2.0000	0.009200000017.
		0.00320000	0.00320000	116.64	2.0000	0.007900000363.
		0.00320000	0.00320000	336.64	2.0000	0.013899999856.
		0.00320000	0.00320000	126.64	2.0000	0.007900000363.
		0.00320000	0.00320000	326.64	2.0000	0.013899999856.
		0.00320000	0.00320000	136.64	2.0000	0.007900000363.
		0.00320000	0.00320000	316.64	2.0000	0.013899999856.
		0.00320000	0.00320000	146.64	2.0000	0.007900000363.
		0.00320000	0.00320000	306.64	2.0000	0.013899999856.

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.00320000	0.00320000	156.64	2.0000	0.007900000363...
		0.00320000	0.00320000	296.64	2.0000	0.013899999856...
		0.00320000	0.00320000	166.64	2.0000	0.011300000548...
		0.00320000	0.00320000	286.64	2.0000	0.017000000178...
		0.00320000	0.00320000	176.64	2.0000	0.011300000548...
		0.00320000	0.00320000	276.64	2.0000	0.017000000178...
		0.00320000	0.00320000	186.64	2.0000	0.011300000548...
		0.00320000	0.00320000	266.64	2.0000	0.017000000178...
		0.00320000	0.00320000	196.64	2.0000	0.011300000548...
		0.00320000	0.00320000	256.64	2.0000	0.017000000178...
		0.00320000	0.00320000	206.64	2.0000	0.012300000339...
		0.00320000	0.00320000	246.64	2.0000	0.012300000339...
		0.00320000	0.00320000	216.64	2.0000	0.012300000339...
		0.00320000	0.00320000	236.64	2.0000	0.012300000339...
		0.00320000	0.00320000	226.64	2.0000	0.012300000339...
		0.00320000	0.00320000	226.64	2.0000	0.012300000339...
		0.00320089	0.00320000	046.64	11.0000	0.015299999713...
		0.00320009	0.00320000	056.64	11.0000	0.015299999713...
		0.00320041	0.00320000	036.64	11.0000	0.015299999713...
		0.00320000	0.00320000	066.64	11.0000	0.015299999713...
		0.00320001	0.00320000	026.64	11.0000	0.015299999713...
		0.00320000	0.00320000	076.64	11.0000	0.013099999725...
		0.00320000	0.00320000	016.64	11.0000	0.009200000017...
		0.00320000	0.00320000	086.64	11.0000	0.013099999725...
		0.00320000	0.00320000	006.64	11.0000	0.009200000017...
		0.00320000	0.00320000	096.64	11.0000	0.013099999725...
		0.00320000	0.00320000	356.64	11.0000	0.009200000017...
		0.00320000	0.00320000	106.64	11.0000	0.013099999725...
		0.00320000	0.00320000	346.64	11.0000	0.009200000017...

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.00320000	0.00320000	116.64	11.0000	0.007900000363...
		0.00320000	0.00320000	336.64	11.0000	0.013899999856...
		0.00320000	0.00320000	126.64	11.0000	0.007900000363...
		0.00320000	0.00320000	326.64	11.0000	0.013899999856...
		0.00320000	0.00320000	136.64	11.0000	0.007900000363...
		0.00320000	0.00320000	316.64	11.0000	0.013899999856...
		0.00320000	0.00320000	146.64	11.0000	0.007900000363...
		0.00320000	0.00320000	306.64	11.0000	0.013899999856...
		0.00320000	0.00320000	156.64	11.0000	0.007900000363...
		0.00320000	0.00320000	296.64	11.0000	0.013899999856...
		0.00320000	0.00320000	166.64	11.0000	0.011300000548...
		0.00320000	0.00320000	286.64	11.0000	0.017000000178...
		0.00320000	0.00320000	176.64	11.0000	0.011300000548...
		0.00320000	0.00320000	276.64	11.0000	0.017000000178...
		0.00320000	0.00320000	186.64	11.0000	0.011300000548...
		0.00320000	0.00320000	266.64	11.0000	0.017000000178...
		0.00320000	0.00320000	196.64	11.0000	0.011300000548...
		0.00320000	0.00320000	256.64	11.0000	0.017000000178...
		0.00320000	0.00320000	206.64	11.0000	0.012300000339...
		0.00320000	0.00320000	246.64	11.0000	0.012300000339...
		0.00320000	0.00320000	216.64	11.0000	0.012300000339...
		0.00320000	0.00320000	236.64	11.0000	0.012300000339...
		0.00320000	0.00320000	226.64	11.0000	0.012300000339...
		0.00320000	0.00320000	226.64	11.0000	0.012300000339...
		0.00320032	0.00320000	046.64	0.5000	0.015299999713...
		0.00320027	0.00320000	056.64	0.5000	0.015299999713...
		0.00320027	0.00320000	036.64	0.5000	0.015299999713...
		0.00320016	0.00320000	066.64	0.5000	0.015299999713...
		0.00320016	0.00320000	026.64	0.5000	0.015299999713...

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.00320007	0.00320000	076.64	0.5000	0.013099999725.
		0.00320007	0.00320000	016.64	0.5000	0.009200000017.
		0.00320001	0.00320000	086.64	0.5000	0.013099999725.
		0.00320001	0.00320000	006.64	0.5000	0.009200000017.
		0.00320000	0.00320000	096.64	0.5000	0.013099999725.
		0.00320000	0.00320000	356.64	0.5000	0.009200000017.
		0.00320000	0.00320000	106.64	0.5000	0.013099999725.
		0.00320000	0.00320000	346.64	0.5000	0.009200000017.
		0.00320000	0.00320000	116.64	0.5000	0.007900000363.
		0.00320000	0.00320000	336.64	0.5000	0.013899999856.
		0.00320000	0.00320000	126.64	0.5000	0.007900000363.
		0.00320000	0.00320000	326.64	0.5000	0.013899999856.
		0.00320000	0.00320000	136.64	0.5000	0.007900000363.
		0.00320000	0.00320000	316.64	0.5000	0.013899999856.
		0.00320000	0.00320000	146.64	0.5000	0.007900000363.
		0.00320000	0.00320000	306.64	0.5000	0.013899999856.
		0.00320000	0.00320000	156.64	0.5000	0.007900000363.
		0.00320000	0.00320000	296.64	0.5000	0.013899999856.
		0.00320000	0.00320000	166.64	0.5000	0.011300000548.
		0.00320000	0.00320000	286.64	0.5000	0.017000000178.
		0.00320000	0.00320000	176.64	0.5000	0.011300000548.
		0.00320000	0.00320000	276.64	0.5000	0.017000000178.
		0.00320000	0.00320000	186.64	0.5000	0.011300000548.
		0.00320000	0.00320000	266.64	0.5000	0.017000000178.
		0.00320000	0.00320000	196.64	0.5000	0.011300000548.
		0.00320000	0.00320000	256.64	0.5000	0.017000000178.
		0.00320000	0.00320000	206.64	0.5000	0.012300000339.
		0.00320000	0.00320000	246.64	0.5000	0.012300000339.
		0.00320000	0.00320000	216.64	0.5000	0.012300000339.

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.00320000	0.00320000	236.64	0.5000	0.012300000339.
		0.00320000	0.00320000	226.64	0.5000	0.012300000339.
		0.00320000	0.00320000	226.64	0.5000	0.012300000339.
		0.00320030	0.00320000	046.64	0.7500	0.015299999713.
		0.00320024	0.00320000	056.64	0.7500	0.015299999713.
		0.00320024	0.00320000	036.64	0.7500	0.015299999713.
		0.00320012	0.00320000	066.64	0.7500	0.015299999713.
		0.00320012	0.00320000	026.64	0.7500	0.015299999713.
		0.00320003	0.00320000	076.64	0.7500	0.013099999725.
		0.00320003	0.00320000	016.64	0.7500	0.009200000017.
		0.00320000	0.00320000	086.64	0.7500	0.013099999725.
		0.00320000	0.00320000	006.64	0.7500	0.009200000017.
		0.00320000	0.00320000	096.64	0.7500	0.013099999725.
		0.00320000	0.00320000	356.64	0.7500	0.009200000017.
		0.00320000	0.00320000	106.64	0.7500	0.013099999725.
		0.00320000	0.00320000	346.64	0.7500	0.009200000017.
		0.00320000	0.00320000	116.64	0.7500	0.007900000363.
		0.00320000	0.00320000	336.64	0.7500	0.013899999856.
		0.00320000	0.00320000	126.64	0.7500	0.007900000363.
		0.00320000	0.00320000	326.64	0.7500	0.013899999856.
		0.00320000	0.00320000	136.64	0.7500	0.007900000363.
		0.00320000	0.00320000	316.64	0.7500	0.013899999856.
		0.00320000	0.00320000	146.64	0.7500	0.007900000363.
		0.00320000	0.00320000	306.64	0.7500	0.013899999856.
		0.00320000	0.00320000	156.64	0.7500	0.007900000363.
		0.00320000	0.00320000	296.64	0.7500	0.013899999856.
		0.00320000	0.00320000	166.64	0.7500	0.011300000548.
		0.00320000	0.00320000	286.64	0.7500	0.017000000178.
		0.00320000	0.00320000	176.64	0.7500	0.011300000548.

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.00320000	0.00320000	276.64	0.7500	0.017000000178..
		0.00320000	0.00320000	186.64	0.7500	0.011300000548..
		0.00320000	0.00320000	266.64	0.7500	0.017000000178..
		0.00320000	0.00320000	196.64	0.7500	0.011300000548..
		0.00320000	0.00320000	256.64	0.7500	0.017000000178..
		0.00320000	0.00320000	206.64	0.7500	0.012300000339..
		0.00320000	0.00320000	246.64	0.7500	0.012300000339..
		0.00320000	0.00320000	216.64	0.7500	0.012300000339..
		0.00320000	0.00320000	236.64	0.7500	0.012300000339..
		0.00320000	0.00320000	226.64	0.7500	0.012300000339..
		0.00320000	0.00320000	226.64	0.7500	0.012300000339..
		0.00320044	0.00320000	046.64	5.4500	0.015299999713..
		0.00320006	0.00320000	056.64	5.4500	0.015299999713..
		0.00320018	0.00320000	036.64	5.4500	0.015299999713..
		0.00320000	0.00320000	066.64	5.4500	0.015299999713..
		0.00320000	0.00320000	026.64	5.4500	0.015299999713..
		0.00320000	0.00320000	076.64	5.4500	0.013099999725..
		0.00320000	0.00320000	016.64	5.4500	0.009200000017..
		0.00320000	0.00320000	086.64	5.4500	0.013099999725..
		0.00320000	0.00320000	006.64	5.4500	0.009200000017..
		0.00320000	0.00320000	096.64	5.4500	0.013099999725..
		0.00320000	0.00320000	356.64	5.4500	0.009200000017..
		0.00320000	0.00320000	106.64	5.4500	0.013099999725..
		0.00320000	0.00320000	346.64	5.4500	0.009200000017..
		0.00320000	0.00320000	116.64	5.4500	0.007900000363..
		0.00320000	0.00320000	336.64	5.4500	0.013899999856..
		0.00320000	0.00320000	126.64	5.4500	0.007900000363..
		0.00320000	0.00320000	326.64	5.4500	0.013899999856..
		0.00320000	0.00320000	136.64	5.4500	0.007900000363..

X(m)	Y(m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.00320000	0.00320000	316.64	5.4500	0.013899999856...
		0.00320000	0.00320000	146.64	5.4500	0.007900000363...
		0.00320000	0.00320000	306.64	5.4500	0.013899999856...
		0.00320000	0.00320000	156.64	5.4500	0.007900000363...
		0.00320000	0.00320000	296.64	5.4500	0.013899999856...
		0.00320000	0.00320000	166.64	5.4500	0.011300000548...
		0.00320000	0.00320000	286.64	5.4500	0.017000000178...
		0.00320000	0.00320000	176.64	5.4500	0.011300000548...
		0.00320000	0.00320000	276.64	5.4500	0.017000000178...
		0.00320000	0.00320000	186.64	5.4500	0.011300000548...
		0.00320000	0.00320000	266.64	5.4500	0.017000000178...
		0.00320000	0.00320000	196.64	5.4500	0.011300000548...
		0.00320000	0.00320000	256.64	5.4500	0.017000000178...
		0.00320000	0.00320000	206.64	5.4500	0.012300000339...
		0.00320000	0.00320000	246.64	5.4500	0.012300000339...
		0.00320000	0.00320000	216.64	5.4500	0.012300000339...
		0.00320000	0.00320000	236.64	5.4500	0.012300000339...
		0.00320000	0.00320000	226.64	5.4500	0.012300000339...
		0.00320000	0.00320000	226.64	5.4500	0.012300000339...
		0.00320088	0.00320000	046.64	10.9000	0.015299999713...
		0.00320009	0.00320000	056.64	10.9000	0.015299999713...
		0.00320040	0.00320000	036.64	10.9000	0.015299999713...
		0.00320000	0.00320000	066.64	10.9000	0.015299999713...
		0.00320001	0.00320000	026.64	10.9000	0.015299999713...
		0.00320000	0.00320000	076.64	10.9000	0.013099999725...
		0.00320000	0.00320000	016.64	10.9000	0.009200000017...
		0.00320000	0.00320000	086.64	10.9000	0.013099999725...
		0.00320000	0.00320000	006.64	10.9000	0.009200000017...
		0.00320000	0.00320000	096.64	10.9000	0.013099999725...

X (m)	Y (m)	Maximum once-off concentration (mg/cubic m)	Background concentration (mg/cubic m)	Wind direction (degrees)	Wind velocity (m/sec)	Annual average frequency (%)
		0.00320000	0.00320000	356.64	10.9000	0.009200000017..
		0.00320000	0.00320000	106.64	10.9000	0.013099999725..
		0.00320000	0.00320000	346.64	10.9000	0.009200000017..
		0.00320000	0.00320000	116.64	10.9000	0.007900000363..
		0.00320000	0.00320000	336.64	10.9000	0.013899999856..
		0.00320000	0.00320000	126.64	10.9000	0.007900000363..
		0.00320000	0.00320000	326.64	10.9000	0.013899999856..
		0.00320000	0.00320000	136.64	10.9000	0.007900000363..
		0.00320000	0.00320000	316.64	10.9000	0.013899999856..
		0.00320000	0.00320000	146.64	10.9000	0.007900000363..
		0.00320000	0.00320000	306.64	10.9000	0.013899999856..
		0.00320000	0.00320000	156.64	10.9000	0.007900000363..
		0.00320000	0.00320000	296.64	10.9000	0.013899999856..
		0.00320000	0.00320000	166.64	10.9000	0.011300000548..
		0.00320000	0.00320000	286.64	10.9000	0.017000000178..
		0.00320000	0.00320000	176.64	10.9000	0.011300000548..
		0.00320000	0.00320000	276.64	10.9000	0.017000000178..
		0.00320000	0.00320000	186.64	10.9000	0.011300000548..
		0.00320000	0.00320000	266.64	10.9000	0.017000000178..
		0.00320000	0.00320000	196.64	10.9000	0.011300000548..
		0.00320000	0.00320000	256.64	10.9000	0.017000000178..
		0.00320000	0.00320000	206.64	10.9000	0.012300000339..
		0.00320000	0.00320000	246.64	10.9000	0.012300000339..
		0.00320000	0.00320000	216.64	10.9000	0.012300000339..
		0.00320000	0.00320000	236.64	10.9000	0.012300000339..
		0.00320000	0.00320000	226.64	10.9000	0.012300000339..
		0.00320000	0.00320000	226.64	10.9000	0.012300000339..
Ca	=	0.00320003	0.00320000			

Annex Ч (24) (Mandatory)
Estimated Concentrations Of Contaminants In The Lowest Atmospheric Layer During Construction

Ч (24)1 Calculated Concentrations Of Contaminants During Construction (without regard to the background)

General Estimate Based On The Estimated Dispersion

"Calculated Concentrations Of Contaminants During Construction (without regard to the background)"

Estimate Brief	
City/Village Name	Chernobyl
Production Site	57
Substance Codes	301 330 337 328 703 2754 2902 123
Summation Group Codes Wind Velocity (m/s)	143 31
Wind Velocity (fraction of U, avg.)	0.5 2 11 05 1 1.5 0.5 1 1.5 10
Wind Velocity (fraction of U, avg. above torch)	5
Wind direction change incr. Fixed wind direction No. of major contrib. No. of max. conc.	10
Background considered Map estimated SPZ/impact area	No
of the enterprise Estimation altitude (m)	No/No
	2

Calculation platforms' parameters

№	Coord. X	Coord. Y	Length	Width	Angle of rep. calc. of density along OX of the main frame of reference	Grid pitchOX axis	Grid pitchOY axis	Special req.
11	40803.0	424933.0	3000.0	3000.0	0.0	100.0	100.0	0

Code of city	Name of city	Avg temp. of the hottest month (°C)	Avg temp. of the coldest month (°C)	Prev. wind speed (m/s)	Regional coeffic. of stratific.	Angle bw northing direction and OX of the main frame of ref. (°)	Area of city (sq. km)	Lat. (° ' ")
57	Chernobyl	24.2	-6.1	11.0	180	0	5	51°W

Lat. (N or S)	Long. (° ' ")	Long. (W or E)	Freq. of occurr. of wind (N)	Freq. of occurr. of wind (NE)	Freq. of occurr. of wind (E)	Freq. of occurr. of wind (SE)	Freq. of occurr. of wind (S)	Freq. of occurr. of wind (SW)	Freq. of occurr. of wind (W)	Freq. of occurr. of wind (NW)
N	30°13'00"	E	11.3	7.9	13.1	15.3	9.2	13.9	17	12.3

Code	Name of production site	Summ. group substance code	Substance name (codes of substance in the summation group)	Rate of emission (g/s)	Rate of emission (t/y)
57	CSFSF	Sum.Gr. № 31	301 330	1.1696	12.8093
		S. Code 301	Nitrogen dioxide	0.3978	4.2705
		S. Code 330	Sulphurous anhydride	0.1750	2.1330
		S. Code 337	Carbon monoxide	0.8882	10.6645
		S. Code 328	Soot	0.1356	1.6530
		S. Code 703	Benz(a)pyren	0.0000	0.0000
		S. Code 2754	Saturated hydrocarbons c12-c19 (solvent onk-265)	... 0.2627	3.1990
		S. Code 2902	Suspended solids, undifferentiated composition	0.8887	8.6426
		S. Code 123	Iron oxide** (in terms of iron)	0.0052	0.0490
		S. Code 143	Manganese and its compounds(in terms of dioxide)	0.0008	0.0070

S. Code	Substance name	MAV (mg/cu.m)
301	Nitrogen dioxide	0.20000000

Source code Technolog. parameters	570001
Emission (g/s)	0.2583625
Hazard Class	(100 m)
CM[h=2.00m] (MAV fractions) CM[h=2.00m] mg/cu.m CM/M[h=2.00m] mc/cu.m	1790.6782
XM (m)	14.31
UM[h=2.00m] (m/s)	1.00
X Y Coord. begin. point of linear sym. center plane (m)	40750.00 425000.00
X Y Coord. end. point of linear length and width of plane (m)	600.00 180.00
Relief factor	1.0000
Rate (cu.m/s)	0.0000
PGVS exh. rate: m/s	0
Dia (m)	
Height (m)	2.5000
Temp. (°C)	120.0000
Ordered settl. factor	1.0000
Emission (t/y)	3.7700

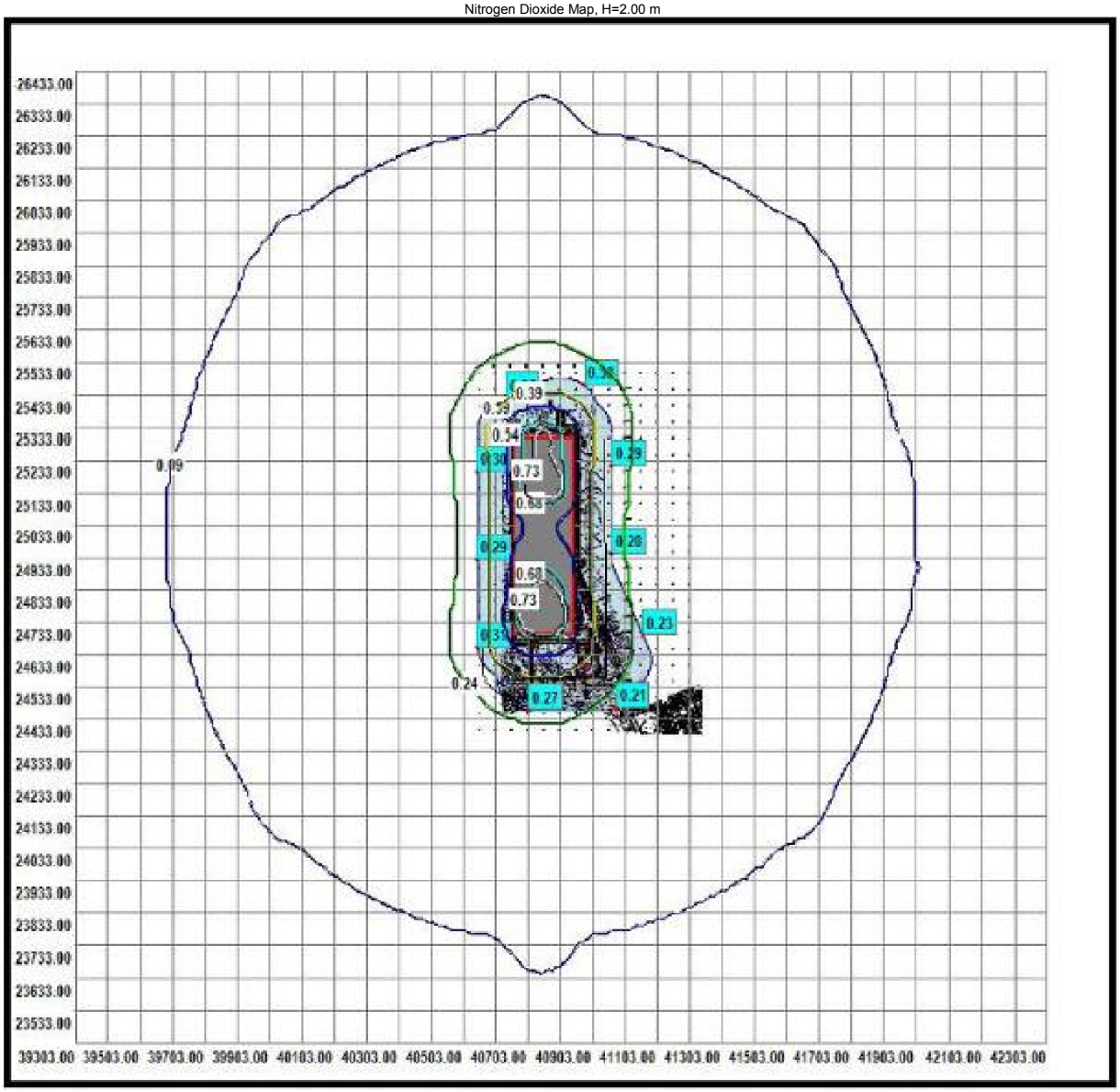
List Of Sources, Emissions Of Which Contain Nitrogen Dioxide

№ of Point	Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	Veloc. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	№ of source N1	Value of contrib. Q2	№ of source N2	Value of contrib. Q3	№ of source N3	Value of contrib. Q4	№ of source N4
1	0.2862	40703.5	424458.5	265	0.75	0.2862	570001								
2	0.3113	40546.3	424851.4	230	0.50	0.3113	570001								
3	0.2938	40546.0	424923.9	200	0.50	0.2938	570001								
4	0.3028	40546.0	425196.4	146	0.50	0.3028	570001								
5	0.3563	40635.4	425421.8	115	0.50	0.3563	570001								
6	0.3028	40878.5	425460.0	74	0.50	0.3028	570001								
7	0.2948	40962.1	425214.6	35	0.50	0.2948	570001								
8	0.2827	40962.4	424942.1	335	0.50	0.2827	570001								
9	0.2263	41058.1	424689.6	325	0.50	0.2263	570001								
10	0.2146	40975.3	424464.6	293	0.50	0.2146	570001								

Points of maximum concentrations of Nitrogen Dioxide on site № 11 and the numbers of sources of maximum contribution at the altitude of 2.00 m

Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	Veloc. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	№ of source N1	Value of contrib. Q2	№ of source N2	Value of contrib. Q3	№ of source N3	Value of contrib. Q4	№ of source N4
0.7840	40703.0	424733.0	260	0.50	0.7840	570001								
0.7832	40803.0	424733.0	281	0.50	0.7832	570001								
0.7429	40803.0	425133.0	58	0.50	0.7429	570001								
0.7362	40703.0	425133.0	119	0.50	0.7362	570001								
0.7157	40703.0	424833.0	254	0.50	0.7157	570001								
0.7150	40803.0	424833.0	288	0.50	0.7150	570001								
0.7114	40703.0	425233.0	101	0.50	0.7114	570001								
0.7099	40803.0	425233.0	77	0.50	0.7099	570001								
0.6793	40703.0	425333.0	98	0.50	0.6793	570001								
0.6761	40803.0	425333.0	81	0.50	0.6761	570001								

Nitrogen Dioxide Map, H=2.00 m



Sanitary protection zone

S. Code	Substance name	MAV (mg/cu.m)
330	Sulphurous anhydride	0.50000000

Calculated concentrations of substance: Sulphurous anhydride
in the design points and the numbers of sources of maximum contribution at the altitude of 2.00 m

List Of Sources, Emissions Of Which Contain Sulfur Dioxide

Source code Technolog. parameters	570001
Emission (g/s)	0.12918125
Hazard Class	(100 m)
CM[h=2.00m] (MAV fractions) CM[h=2.00m] (MAV fractions) CM[h=2.00m] mg/cu.m CM/M[h=2.00m] mc/cu.m	358.1356
XM (m)	1431
UM[h=2.00m] (m/s)	1.00
X Y Coord. begin. point of linear, center of width of plane (m)	40750.00 425000.00
X Y Coord. end. point of linear length and width of plane (m)	600.00 180.00
Relief factor	1.0000
Rate (cu.m/s)	0.0000
PGVS exh. rate: m/s	0
Dia (m)	-
Height (m)	2.5000
Temperature (°C)	120.0000
Ordered settl. factor	1.0000
Emission (t/y)	1.8850

№ of Point	Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	Veloc. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	№ of source N1	Value of contrib. Q2	№ of source N2	Value of contrib. Q3	№ of source N3	Value of contrib. Q4	№ of source N4

Calculated concentrations of substance: Sulphurous anhydride
in the design points and the numbers of sources of maximum contribution at the altitude of 2.00 m

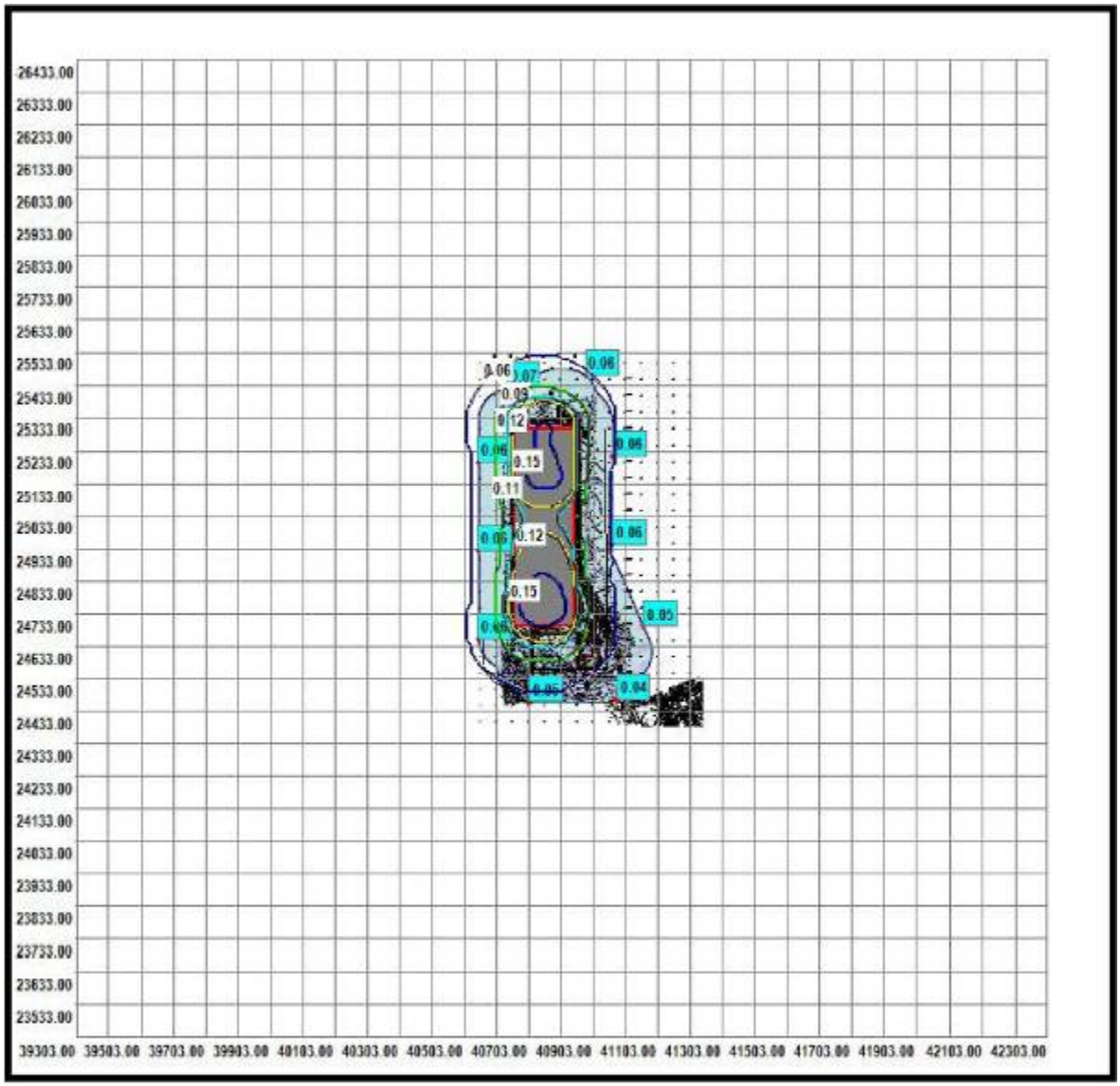
1	0.0532	40703.5	424458.5	265	0.75	0.0532	570001								
2	0.0623	40546.3	424651.4	230	0.50	0.0623	570001								
3	0.0588	40546.0	424923.9	200	0.50	0.0588	570001								
4	0.0606	40546.0	425196.4	146	0.50	0.0606	570001								
5	0.0713	40635.4	425421.9	115	0.50	0.0713	570001								
6	0.0606	40878.5	425480.0	74	0.50	0.0606	570001								
7	0.0590	40962.1	425214.6	35	0.50	0.0590	570001								
8	0.0565	40962.4	424942.1	335	0.50	0.0565	570001								
9	0.0453	41058.1	424689.6	325	0.50	0.0453	570001								
10	0.0429	40975.3	424484.6	293	0.50	0.0429	570001								

Points of highest concentration of sulphur dioxide
on site № 11 and the numbers of sources of maximum contribution at the altitude of 2.00 m

Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	Veloc. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	№ of source N1	Value of contrib. Q2	№ of source N2	Value of contrib. Q3	№ of source N3	Value of contrib. Q4	№ of source N4
0.1568	40703.0	424733.0	260	0.50	0.1568	570001								
0.1566	40803.0	424733.0	281	0.50	0.1566	570001								
0.1486	40803.0	425133.0	58	0.50	0.1486	570001								
0.1472	40703.0	425133.0	119	0.50	0.1472	570001								
0.1431	40703.0	424833.0	254	0.50	0.1431	570001								
0.1430	40803.0	424833.0	288	0.50	0.1430	570001								
0.1423	40703.0	425233.0	101	0.50	0.1423	570001								
0.1420	40803.0	425233.0	77	0.50	0.1420	570001								
0.1359	40703.0	425333.0	98	0.50	0.1359	570001								
0.1352	40803.0	425333.0	81	0.50	0.1352	570001								

Sulphur Dioxide Map, H=2.00 m

Calculated concentrations of substance: Sulphurous anhydride
in the design points and the numbers of sources of maximum contribution at the altitude of 2.00 m



Sanitary protection zone

S. Code	Substance name	MAV (mg/cu.m)
337	Carbon Oxide	5.00000000

List Of Sources, Emissions Of Which Contain Carbon Oxide

Source code Technolog. parameters	570001
Emission (t/y)	0.64590625
Hazard Class	(100 m)
CM[h=2.00m] (MAV fractions) CM[h=2.00m] mg/cu.m CM/M[h=2.00m] mc/cu.m	179.0678
XM (m)	1431
UM[h=2.00m] (m/s)	1.00
X Y Coord. begin. point of linear, center of width of plane (m)	40750.00 425000.00
X Y Coord. end. point of linear length and width of plane (m)	600.00 180.00
Relief factor	1.0000
Rate (cu.m/s)	0.0000
PGVS exh. rate: m/s	0
Dia (m)	-
Height (m)	2.5000
Temperature (°C)	120.0000
Ordered settl. factor	1.0000
Emission (t/y)	9.4250

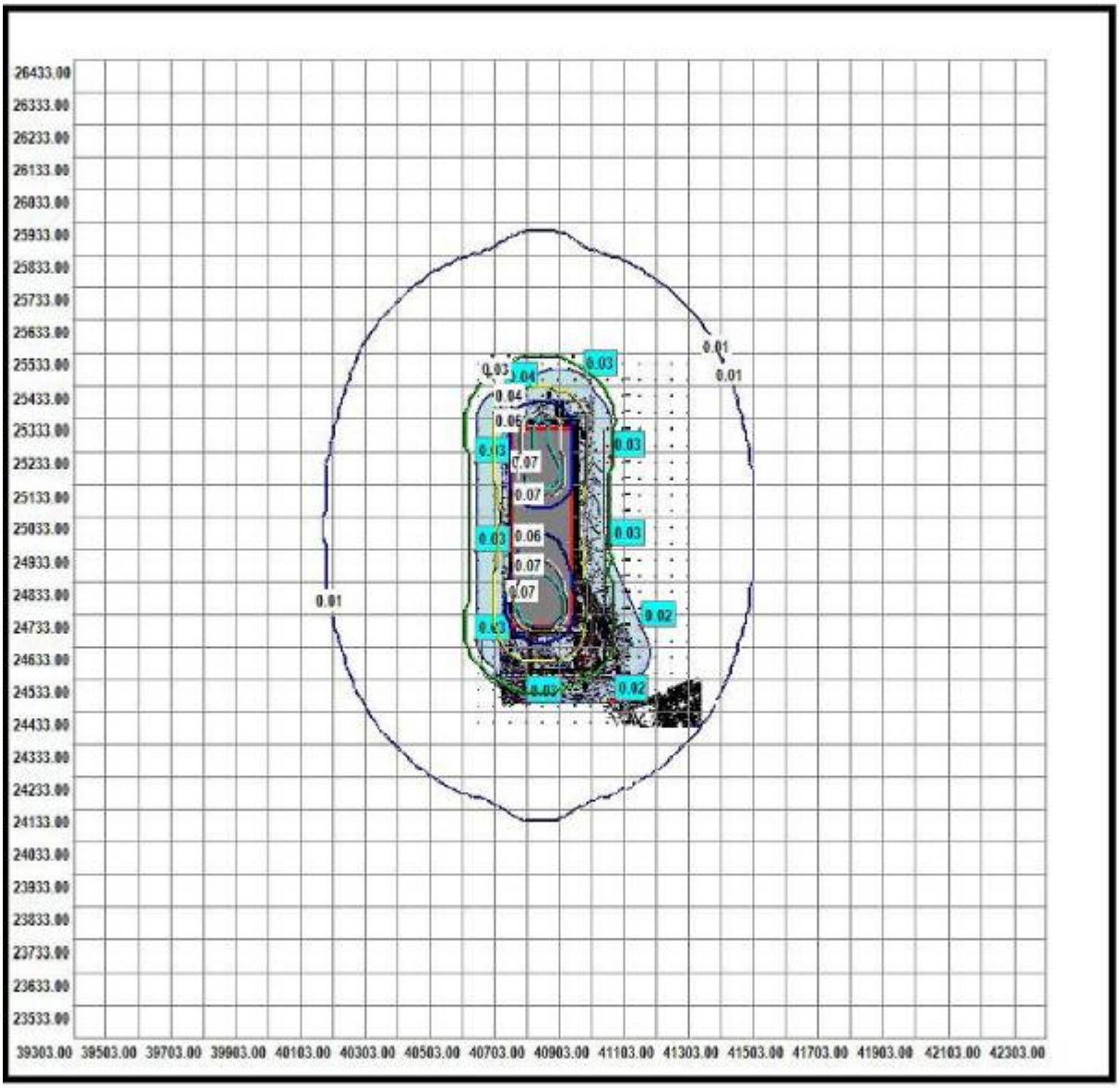
№ of Point	Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	VELOC. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	№ of source N1	Value of contrib. Q2	№ of source N2	Value of contrib. Q3	№ of source N3	Value contrib. Q4	№ of source N4

1	0.0266	40703.5	424458.5	265	0.75	0.0266	570001								
2	0.0311	40546.3	424851.4	230	0.50	0.0311	570001								
3	0.0294	40546.0	424923.9	200	0.50	0.0294	570001								
4	0.0303	40546.0	425196.4	148	0.50	0.0303	570001								
5	0.0356	40835.4	425421.8	115	0.50	0.0356	570001								
6	0.0303	40878.5	425460.0	74	0.50	0.0303	570001								
7	0.0295	40982.1	425214.6	35	0.50	0.0295	570001								
8	0.0283	40982.4	424942.1	335	0.50	0.0283	570001								
9	0.0226	41058.1	424689.6	325	0.50	0.0226	570001								
10	0.0215	40975.3	424464.6	293	0.50	0.0215	570001								

Points of maximum concentrations of carbon oxide on site № 11 and the numbers of sources of maximum contribution at the altitude of 2.00 m

Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	Veloc. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	№ of source N1	Value of contrib. Q2	№ of source N2	Value of contrib. Q3	№ of source N3	Value of contrib. Q4	№ of source N4
0.0784	40703.0	424733.0	260	0.50	0.0784	570001								
0.0783	40803.0	424733.0	281	0.50	0.0783	570001								
0.0743	40803.0	425133.0	58	0.50	0.0743	570001								
0.0736	40703.0	425133.0	119	0.50	0.0736	570001								
0.0716	40703.0	424833.0	254	0.50	0.0716	570001								
0.0715	40803.0	424833.0	288	0.50	0.0715	570001								
0.0711	40703.0	425233.0	101	0.50	0.0711	570001								
0.0710	40803.0	425233.0	77	0.50	0.0710	570001								
0.0679	40703.0	425333.0	98	0.50	0.0679	570001								
0.0676	40803.0	425333.0	81	0.50	0.0676	570001								

Carbon Oxide Map, H=2.00 m



Sanitary protection zone

S. Code	Substance name	MAV (mg/cu.m)
328	Soot	0.15000000

Calculated concentrations of substance: Ben(a)pyrene
in the design points and the numbers of sources of maximum contribution at the altitude of 2.00 m

List Of Sources, Emissions Of Which Contain Soot

Source code Technolog. parameters	570001
Emission (g/s)	0.10011547
Hazard Class	(100 m)
CM[h=2.00m] (MAV fractions) CM[h=2.00m] mg/cu.m CM/M[h=2.00m] mc/cu.m	925.1837
XM (m)	14.31
UM[h=2.00m] (m/s)	1.00
X Y Coord. begin. point of linear sym. center of plane (m)	40750.00 425000.00
X Y Coord. end. point of linear length and width (m)	600.00 180.00
Relief factor	1.0000
Rate (cu.m/s)	0.0000
PGVS exh. rate: m/s	0
Dia (m)	
Height (m)	2.5000
Temperature (°C)	120.0000
Ordered settl. factor	1.0000
Emission (t/y)	14810

№ of Point	Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	VELOC. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	№ of source N1	Value of contrib. Q2	N2 of source N2	Value of contrib. Q3	№ of source N3	Value contrib. Q4	№ of source N4

Calculated concentrations of substance: Ben(a)pyrene
in the design points and the numbers of sources of maximum contribution at the altitude of 2.00 m

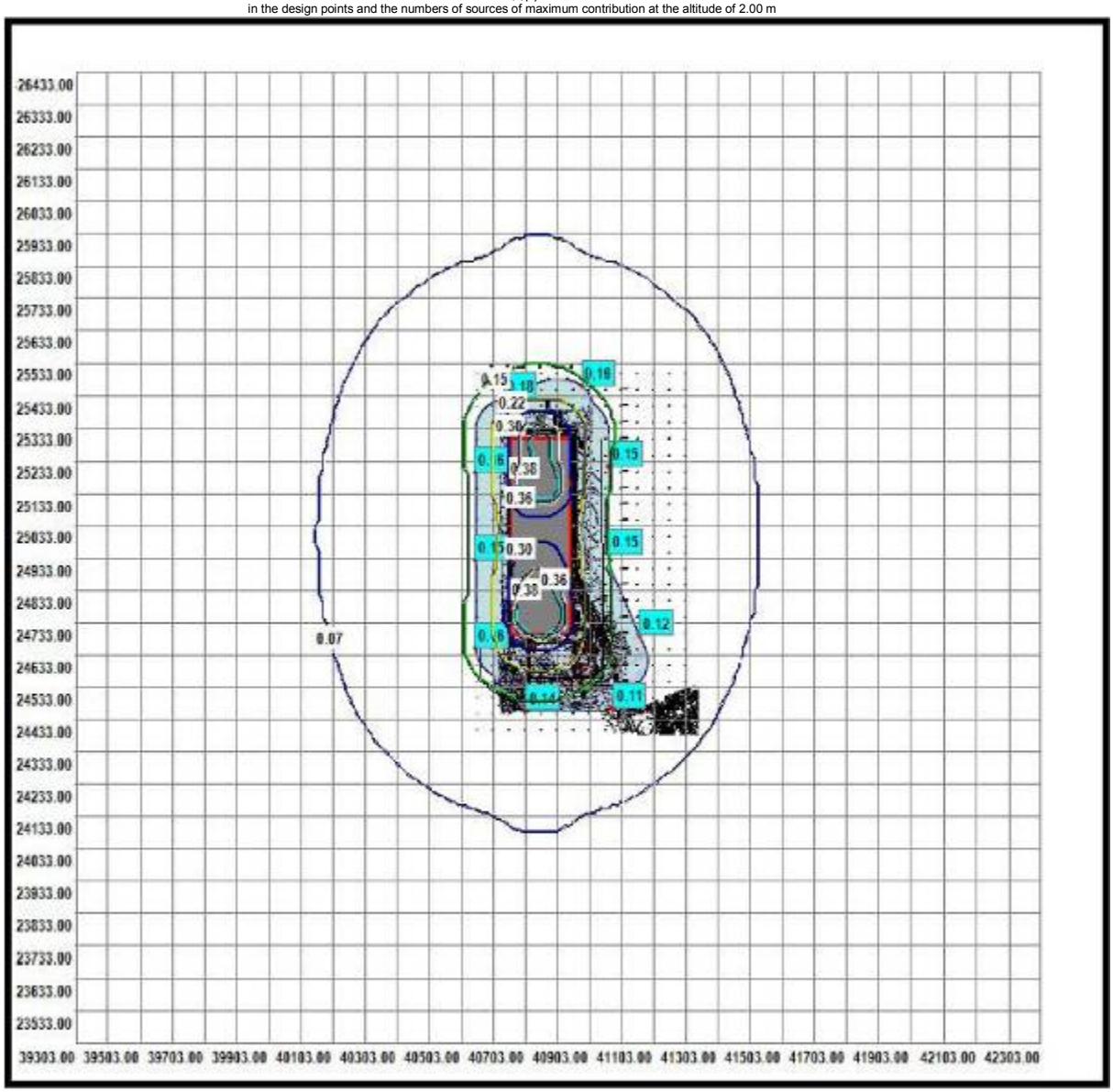
1	0.1375	40703.5	424458.5	265	0.75	0.1375	570001								
2	0.1608	40546.3	424851.4	230	0.50	0.1608	570001								
3	0.1518	40546.0	424923.9	200	0.50	0.1518	570001								
4	0.1564	40546.0	425196.4	146	0.50	0.1564	570001								
5	0.1841	40635.4	425421.9	115	0.50	0.1841	570001								
6	0.1565	40878.5	425460.0	74	0.50	0.1565	570001								
7	0.1523	40962.1	425214.6	35	0.50	0.1523	570001								
8	0.1461	40962.4	424942.1	335	0.50	0.1461	570001								
9	0.1169	41058.1	424669.0	325	0.50	0.1169	570001								
10	0.1109	40975.3	424464.6	293	0.50	0.1109	570001								

Points of maximum concentrations of soot on site № 11 and the numbers of sources of maximum contribution at the altitude of 2.00 m

Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	VELOC. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	N2 of source N1	Value of contrib. Q2	№ of source N2	Value of contrib. Q3	N2 of source N3	Value of contrib. Q4	№ of source N4
0.4051	40703.0	424733.0	260	0.50	0.4051	570001								
0.4047	40803.0	424733.0	281	0.50	0.4047	570001								
0.3838	40803.0	425133.0	58	0.50	0.3838	570001								
0.3804	40703.0	425133.0	119	0.50	0.3804	570001								
0.3698	40703.0	424833.0	254	0.50	0.3698	570001								
0.3694	40803.0	424833.0	288	0.50	0.3694	570001								
0.3676	40703.0	425233.0	101	0.50	0.3676	570001								
0.3668	40803.0	425233.0	77	0.50	0.3668	570001								
0.3510	40703.0	425333.0	98	0.50	0.3510	570001								
0.3493	40803.0	425333.0	81	0.50	0.3493	570001								

Carbon Oxide Map, H=2.00 m

Calculated concentrations of substance: Ben(a)pyrene
in the design points and the numbers of sources of maximum contribution at the altitude of 2.00 m



Sanitary protection zone

S. Code	Substance name	MAV (mg/cu.m)
703	Benz(a)pyrene	0.00001000

List Of Sources, Emissions Of Which Contain Benz(a)pyrene

Source code Technolog. parameters	570001
Emission (g/s)	0.00000207
Hazard Class	(100 m)
CM[h=2.00m] (MAV fractions) CM[h=2.00m] mg/cu.m CM/M[h=2.00m] mc/cu.m	286.9382
XM (m)	14.31
UM[h=2.00m] (m/s)	1.00
X Y Coord. begin. point of linear sym. center of plane (m)	40750.00 425000.00
X Y Coord. end. point of linear length and width of plane (m)	600.00 180.00
Relief factor	1.0000
Rate (cu.m/s)	0.0000
PGVS exh. rate: m/s	0
Dia (m)	
Height (m)	2.5000
Temperature (°C)	120.0000
Ordered settl. factor	1.0000
Emission (t/y)	0.00003016

№ of Point	Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	VELOC. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	№ of source N1	Value of contrib. Q2	№ of source N2	Value of contrib. Q3	№ of source N3	Value contrib. Q4	№ of source N4

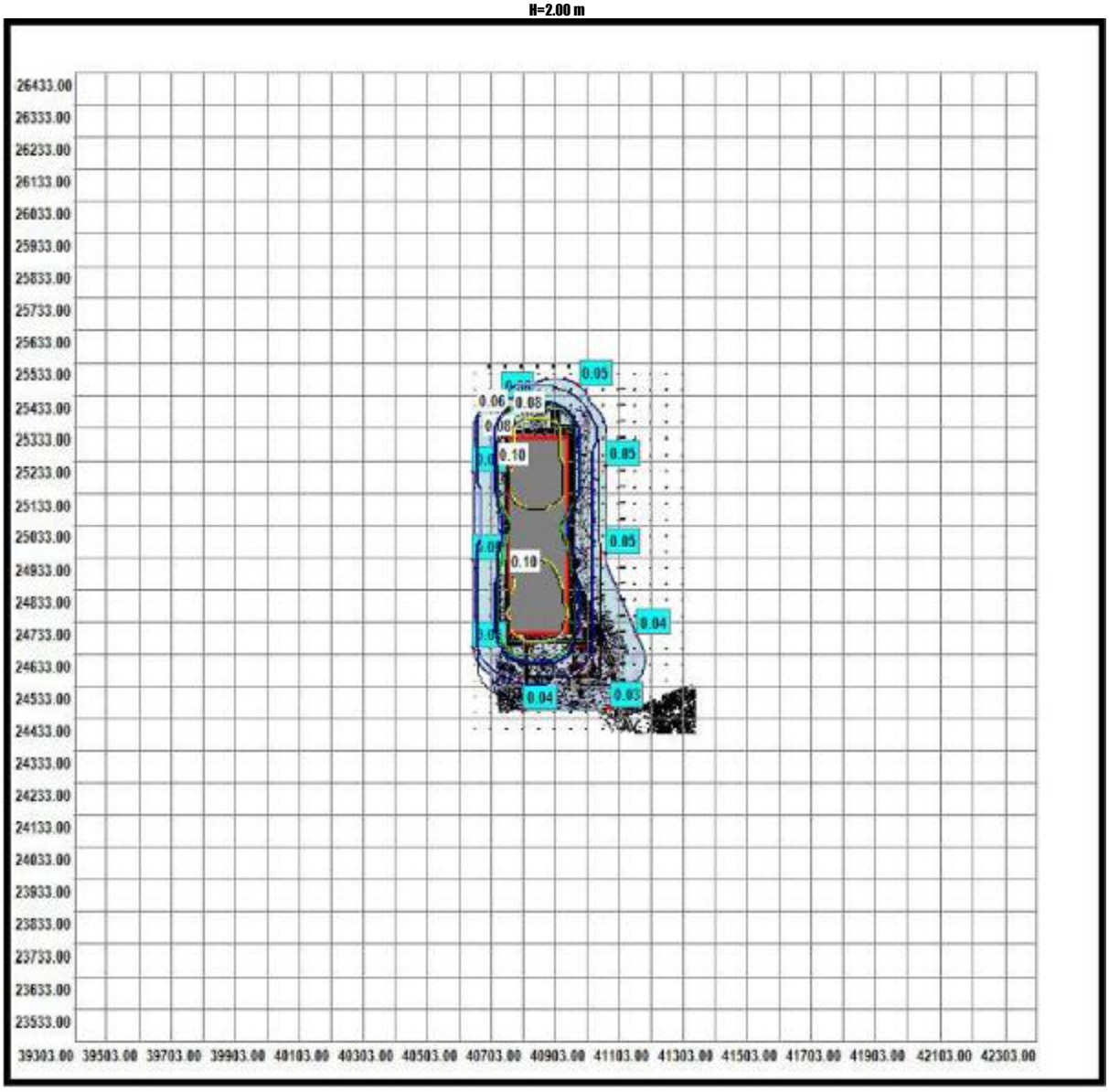
1	0.0427	40703.5	424458.5	265	0.75	0.0427	570001								
2	0.0499	40546.3	424651.4	230	0.50	0.0499	570001								
3	0.0471	40546.0	424923.9	200	0.50	0.0471	570001								
4	0.0485	40546.0	425196.4	146	0.50	0.0485	570001								
5	0.0571	40635.4	425421.9	115	0.50	0.0571	570001								
6	0.0485	40878.5	425460.0	74	0.50	0.0485	570001								
7	0.0472	40962.1	425214.6	35	0.50	0.0472	570001								
8	0.0453	40962.4	424942.1	335	0.50	0.0453	570001								
9	0.0363	41058.1	424689.6	325	0.50	0.0363	570001								
10	0.0344	40975.3	424464.6	293	0.50	0.0344	570001								

Points of maximum concentrations of benz(a)pyrene on site № 11 and the numbers of sources of maximum contribution at the altitude of 2.00 m

Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	VELOC. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	N2 of source N1	Value of contrib. Q2	№ of source N2	Value of contrib. Q3	N2 of source N3	Value of contrib. Q4	№ of source N4
0.1256	40703.0	424733.0	260	0.50	0.1256	570001								
0.1255	40803.0	424733.0	281	0.50	0.1255	570001								
0.1190	40803.0	425133.0	58	0.50	0.1190	570001								
0.1180	40703.0	425133.0	119	0.50	0.1180	570001								
0.1147	40703.0	424833.0	254	0.50	0.1147	570001								
0.1146	40803.0	424833.0	288	0.50	0.1146	570001								
0.1140	40703.0	425233.0	101	0.50	0.1140	570001								
0.1137	40803.0	425233.0	77	0.50	0.1137	570001								
0.1088	40703.0	425333.0	98	0.50	0.1088	570001								
0.1083	40803.0	425333.0	81	0.50	0.1083	570001								

Benz(a)pyrene Map,

H=2.00 m



Sanitary protection zone

Calculated concentrations of substance: Saturated hydrocarbons c12-c19 (solvent rpk-256p etc.)
in the design points and the numbers of sources of maximum contribution at the altitude of 2.00 m

S. Code	Substance name	MAV (mg/cu.m)
2754	Saturated hydrocarbons c12-c19 (solvent rpn-265p	etc.)

List Of Sources, Emissions Of Which Contain Saturated
Hydrocarbons c12-c19 (solvent rpn-265p etc.)

Source code Technolog. parameters	570001
Emission (g/s)	0.19377188
Hazard Class	(100 m)
CM[h=2.00m] (MAV fractions) CM[h=2.00m] mg/cu.m CM/M[h=2.00m] mc/cu.m	268.6017
XM (m)	14.31
UM[h=2.00m] (m/s)	1.00
X Y Coord. begin. point of linear sym. center of plane (m)	40750.00 425000.00
X Y Coord. end. point of linear length and width (m)	600.00 180.00
Relief factor	1.0000
Rate (cu.m/s)	0.0000
PGVS exh. rate: m/s	0
Dia (m)	
Height (m)	2.5000
Temperature (°C)	120.0000
Ordered settl. factor	1.0000
Emission (t/y)	2.8280

Calculated concentrations of substance: Saturated hydrocarbons c12-c19 (solvent rpk-256p etc.)
in the design points and the numbers of sources of maximum contribution at the altitude of 2.00 m

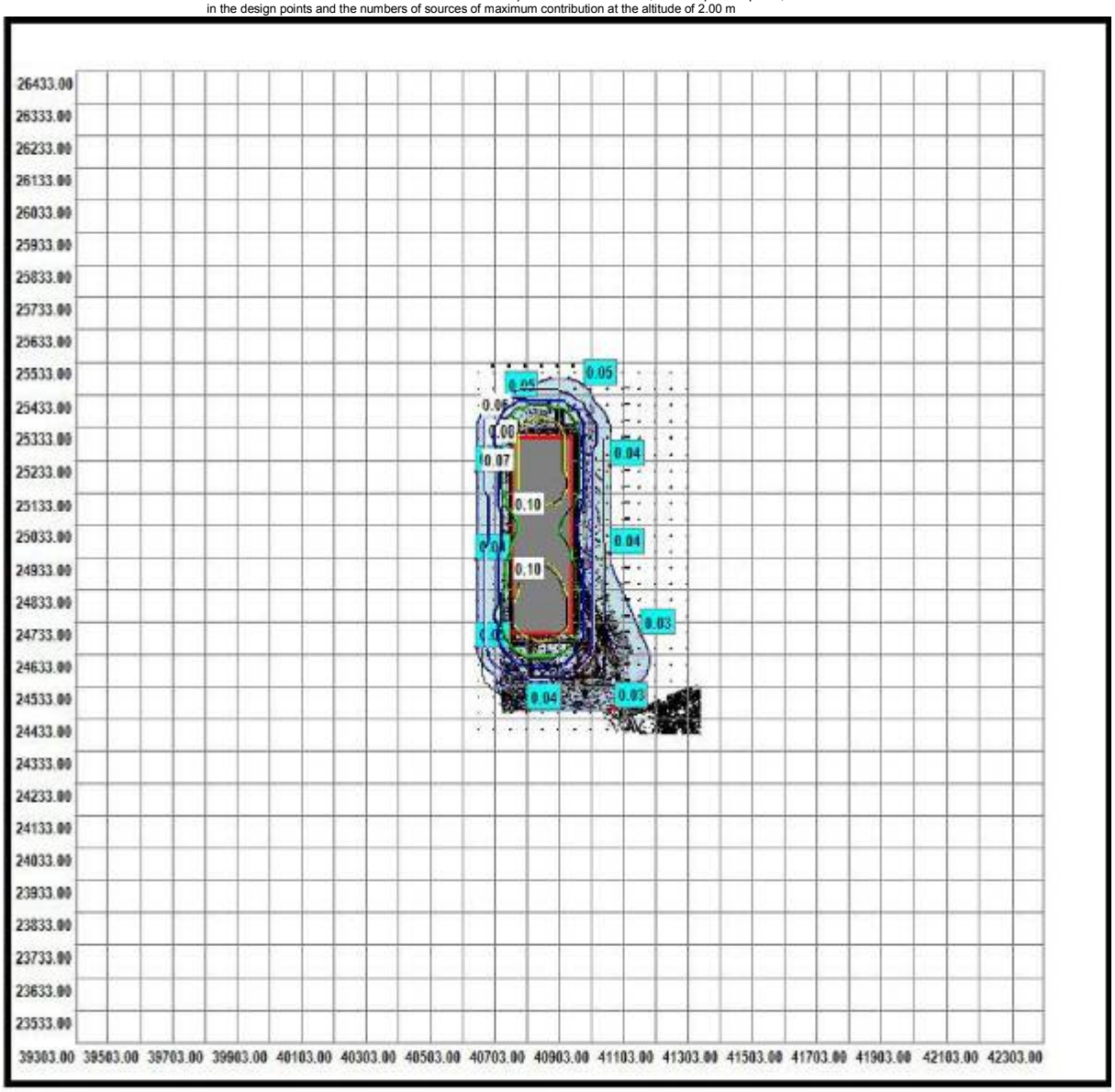
№ of Point	Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	VELOC. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	№ of source N1	Value of contrib. Q2	№ of source N2	Value of contrib. Q3	№ of source N3	Value of contrib. Q4	№ of source N4
1	0.0399	40703.5	424458.5	265	0.75	0.0399	570001								
2	0.0467	40546.3	424651.4	230	0.50	0.0467	570001								
3	0.0441	40546.0	424923.9	200	0.50	0.0441	570001								
4	0.0454	40546.0	425196.4	146	0.50	0.0454	570001								
5	0.0535	40635.4	425421.9	115	0.50	0.0535	570001								
6	0.0454	40878.5	425460.0	74	0.50	0.0454	570001								
7	0.0442	40962.1	425214.6	35	0.50	0.0442	570001								
8	0.0424	40962.4	424942.1	335	0.50	0.0424	570001								
9	0.0340	41058.1	424689.6	325	0.50	0.0340	570001								
10	0.0322	40975.3	424464.6	293	0.50	0.0322	570001								

Points of maximum concentrations of saturated hydrocarbons c12-c19 (solvet rpk-265p etc.) on site № 11 and the numbers of sources of maximum contribution at the altitude of 2.00 m

Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	VELOC. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	N2 of source N1	Value of contrib. Q2	№ of source N2	Value of contrib. Q3	N2 of source N3	Value of contrib. Q4	№ of source N4
0.1176	40703.0	424733.0	260	0.50	0.1176	570001								
0.1175	40803.0	424733.0	281	0.50	0.1175	570001								
0.1114	40803.0	425133.0	58	0.50	0.1114	570001								
0.1104	40703.0	425133.0	119	0.50	0.1104	570001								
0.1074	40703.0	424833.0	254	0.50	0.1074	570001								
0.1072	40803.0	424833.0	288	0.50	0.1072	570001								
0.1067	40703.0	425233.0	101	0.50	0.1067	570001								
0.1065	40803.0	425233.0	77	0.50	0.1065	570001								
0.1019	40703.0	425333.0	98	0.50	0.1019	570001								
0.1014	40803.0	425333.0	81	0.50	0.1014	570001								

Saturated Hydrocarbons c12-c19 (solvet rpk-265p etc.) Map, H=2.00 m

Calculated concentrations of substance: Saturated hydrocarbons c12-c19 (solvent rpk-256p etc.)
in the design points and the numbers of sources of maximum contribution at the altitude of 2.00 m



Sanitary protection zone

S. Code	Substance name	MAV (mg/cu.m)
2902	Suspended solids, undifferentiated composition	0.50000000

Calculated concentrations of substance: Suspended solids of undifferentiated composition
in the design points and the numbers of sources of maximum contribution at the altitude of 2.00 m

List Of Sources, Emissions Of Which Contain Suspended Solids of Undifferentiated Composition

Source code Technolog. parameters	570003
Emission (g/s)	0.8880
Hazard Class	(100 m)
CM[h=2.00m] (MAV fractions) CM[h=2.00m] mg/cu.m CM/M[h=2.00m] mc/cu.m	72086.7795
XM (m)	11.45
UM[h=2.00m] (m/s)	1.00
X Y Coord. begin. point of linear sym. center of plane (m)	40750.00 425000.00
X Y Coord. end. point of linear length and width of plane (m)	700.00 180.00
Relief factor	1.0000
Rate (cu.m/s)	0.0000
PGVS exh. rate: m/s	0
Dia (m)	
Height (m)	2.0000
Temperature (°C)	0.0000
Ordered settl. factor	1.0000
Emission (t/y)	8.6350

№ of Point	Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	VELOC. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	№ of source N1	Value of contrib. Q2	№ of source N2	Value of contrib. Q3	№ of source N3	Value of contrib. Q4	№ of source N4

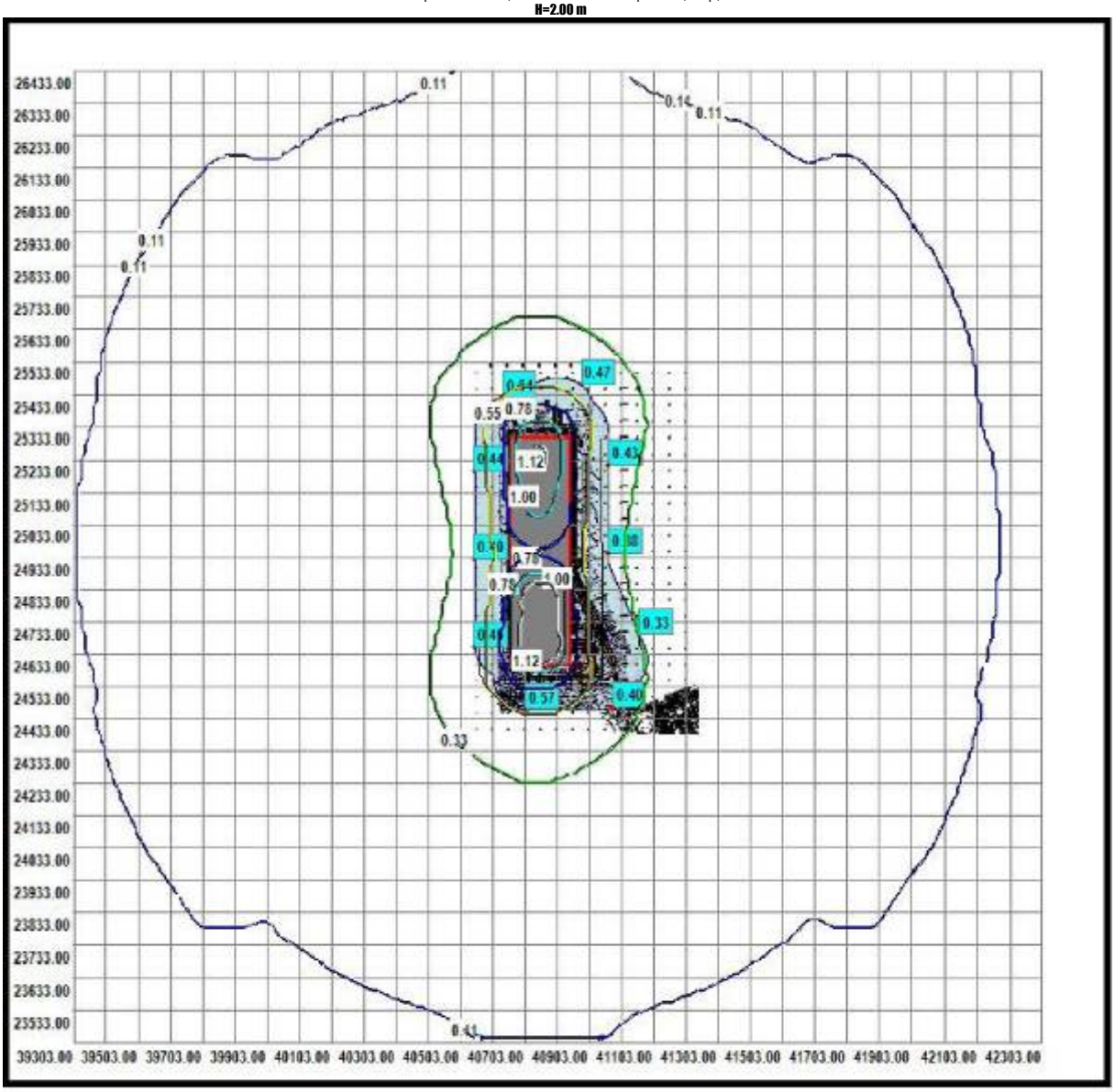
Calculated concentrations of substance: Suspended solids of undifferentiated composition
in the design points and the numbers of sources of maximum contribution at the altitude of 2.00 m

1	0.5745	40703.5	424458.5	265	0.50	0.5745	570003								
2	0.4474	40546.3	424651.4	228	0.50	0.4474	570003								
3	0.3981	40546.0	424923.9	197	0.50	0.3981	570003								
4	0.4364	40546.0	425196.4	140	0.50	0.4364	570003								
5	0.5399	40635.4	425421.9	114	0.50	0.5399	570003								
6	0.4671	40878.5	425460.0	76	0.50	0.4671	570003								
7	0.4273	40982.1	425214.6	41	0.50	0.4273	570003								
8	0.3824	40982.4	424942.1	348	0.50	0.3824	570003								
9	0.3319	41058.1	424689.6	330	0.50	0.3319	570003								
10	0.4006	40975.3	424464.6	305	0.50	0.4006	570003								

Points of maximum concentrations of suspended solids of undifferentiated composition on site № 11 and the
numbers of sources of maximum contribution at the altitude of 2.00 m

Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	VELOC. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	N2 of source N1	Value of contrib. Q2	№ of source N2	Value of contrib. Q3	N2 of source N3	Value of contrib. Q4	№ of source N4
1.1742	40803.0	424633.0	289	0.50	1.1742	570003								
1.1734	40703.0	424633.0	252	0.50	1.1734	570003								
1.1473	40803.0	424733.0	294	0.50	1.1473	570003								
1.1455	40703.0	424733.0	248	0.50	1.1455	570003								
1.1150	40803.0	424833.0	294	0.50	1.1150	570003								
1.1094	40703.0	424833.0	248	0.50	1.1094	570003								
1.0806	40703.0	425233.0	99	0.50	1.0806	570003								
1.0777	40803.0	425233.0	79	0.50	1.0777	570003								
1.0185	40703.0	425133.0	104	0.50	1.0185	570003								
1.0158	40803.0	425133.0	74	0.50	1.0158	570003								

Suspended solids, undifferentiated composition, Map,
H=2.00 m



Sanitary protection zone

S. Code	Substance name	MAV (mg/cu.m)
123	Iron oxide** (in terms of iron)	0.40000000

List Of Sources, Emissions Of Which Contain Iron Oxide (in terms of iron)

Source code Technolog. parameters	570002
Emission (g/s)	0.00522083
Hazard Class	(100 m)
CM[h=2.00m] (MAV fractions) CM[h=2.00m] mg/cu.m CM/M[h=2.00m] mc/cu.m	529.7759
XM (m)	11.45
UM[h=2.00m] (m/s)	1.00
X Y Coord. begin. point of linear sym. center of plane (m)	40840.00 424660.00
X Y Coord. end. point of linear length and width (m)	10.00 5.00
Relief factor	1.0000
Rate (cu.m/s)	0.0000
PGVS exh. rate: m/s	0
Dia (m)	-
Height (m)	2.0000
Temperature (°C)	1050.0000
Ordered settl. factor	1.0000
Emission (t/y)	0.0490

Calculated data for Iron Oxide** (in terms of iron) on site № 11

Calculation for the substance
Iron Oxide** (in terms of iron) in the designed points of site № 11
was no carried out due to inexpediency as stipulated in
Paragraph 5.21 OND-86

S. Code	Substance name	MAV (mg/cu.m)
143	Manganese and its compounds (in terms of dioxide)	0.01000000

List of sources, the emissions of which contain manganese and its compounds (in terms of dioxide)

Source code Technolog. parameters	570002
Emission (g/s)	0.00077917
Hazard Class	(100 m)
CM[h=2.00m] (MAV fractions) CM[h=2.00m] mg/cu.m CM/M[h=2.00m] mc/cu.m	3162.6045 -
XM (m)	11.45
UM[h=2.00m] (m/s)	1.00
X Y Coord. begin. point of linear sym. center of plane (m)	40840.00 424660.00
X Y Coord. end. point of linear length and width of plane (m)	10.00 5.00
Relief factor	1.0000
Rate (cu.m/s)	0.0000
PGVS exh. rate: m/s	0
Dia (m)	-
Height (m)	2.0000
Temperature (°C)	1050.0000
Ordered settl. factor	1.0000
Emission (t/y)	0.0070

Calculated data for manganese and its compounds (in terms of dioxide) on site № 11

Calculation for the substance
Manganese and its compounds** (in terms of dioxide) in the designed points of site № 11 was no carried out due to inexpediency as stipulated in Paragraph 5.21 OND-86

Sum. Gr. Code	S. Code	Substance name	MAV (mg/cu.m)
31	301 330	Nitrogen dioxide Sulphurous anhydride	0.20000000 0.50000000

List Of Sources, Emissions Of Which Contain Summation Group
№ 31

Source code Technolog. parameters	***570001
Emission (g/s)	0.775087535
Hazard Class	(100 m)
CM[h=2.00m] (MAV fractions) CM[h=2.00m] mg/cu.m CM/M[h=2.00m] mc/cu.m	2148.8138
XM (m)	14.31
UM[h=2.00m] (m/s)	1.00
X Y Coord. begin. point of linear, center of width of plane (m)	40750.00 425000.00
X Y Point of linear length and width of plane (m)	600.00 180.00
Relief factor	1.0000
Rate (cu.m/s)	0.0000
PGVS exh. rate: m/s	0
Dia (m)	-
Height (m)	2.5000
Temperature (°C)	120.0000
Ordered settl. factor	1.0000
Emission (t/y)	11.31000042

Calculated concentrations of substance: Summation Group № 31
in the design points and the numbers of sources of maximum contribution at the altitude of 2.00 m

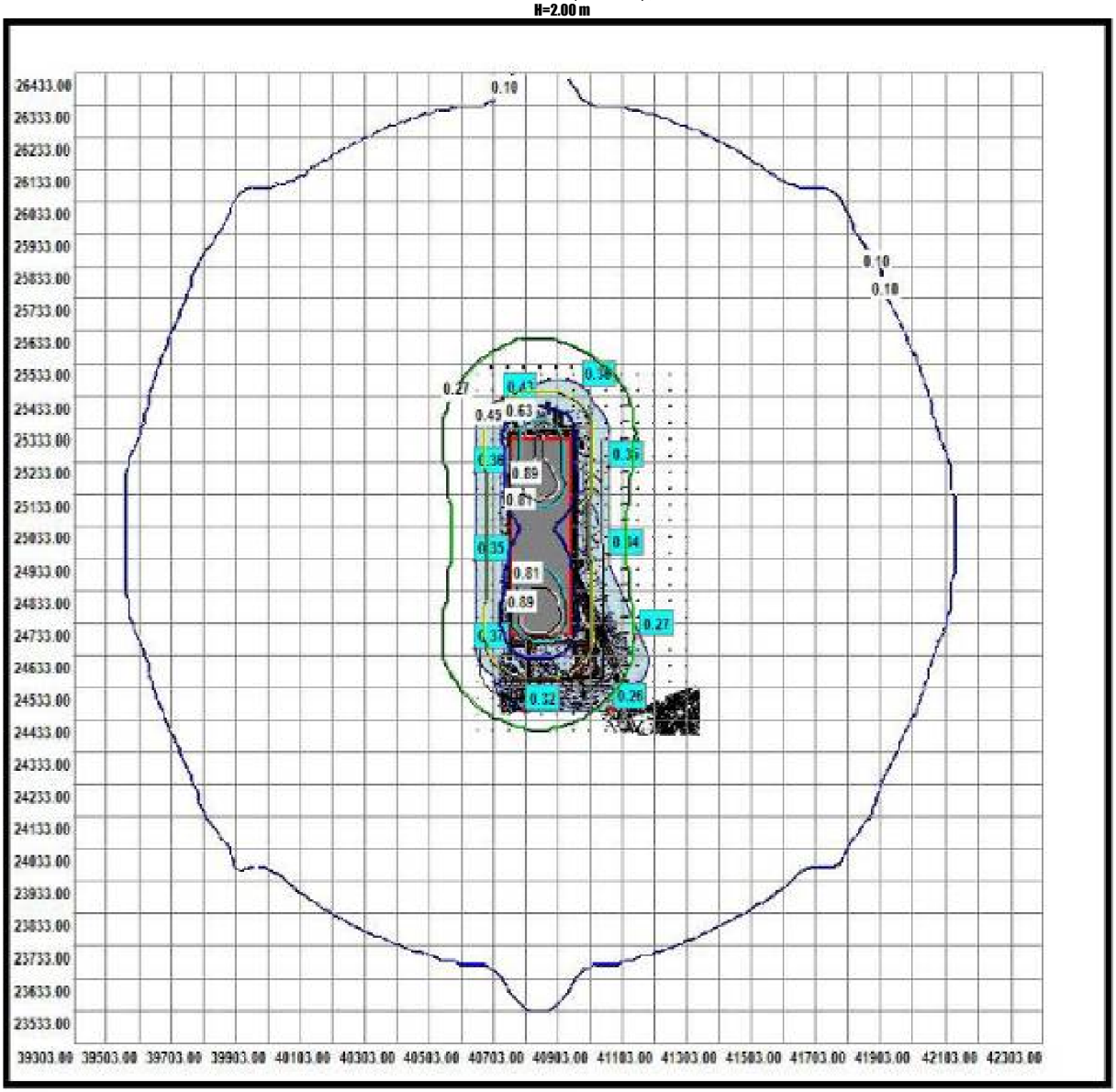
№ of Point	Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	Veloc. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	№ of source N1	Value of contrib. Q2	№ of source N2	Value of contrib. Q3	№ of source N3	Value of contrib. Q4	№ of source N4
1	0.3195	40703.5	424458.5	265	0.75	0.3195	570001								
2	0.3735	40548.3	424851.4	230	0.50	0.3735	570001								
3	0.3526	40546.0	424923.9	200	0.50	0.3526	570001								
4	0.3633	40546.0	425196.4	148	0.50	0.3633	570001								
5	0.4276	40635.4	425421.0	115	0.50	0.4276	570001								
6	0.3634	40878.5	425460.0	74	0.50	0.3634	570001								
7	0.3537	40962.1	425214.6	35	0.50	0.3537	570001								
8	0.3392	40962.4	424942.1	335	0.50	0.3392	570001								
9	0.2716	41058.1	424689.6	325	0.50	0.2716	570001								
10	0.2575	40975.3	424464.6	293	0.50	0.2575	570001								

Points of maximum concentrations of Summation Group № 31 on site № 11 and the numbers of sources of maximum contribution at the altitude of 2.00 m

Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	Veloc. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	№ of source N1	Value of contrib. Q2	№ of source N2	Value of contrib. Q3	№ of source N3	Value of contrib. Q4	№ of source N4
0.9409	40703.0	424733.0	260	0.50	0.9409	570001								
0.9398	40803.0	424733.0	281	0.50	0.9398	570001								
0.8915	40803.0	425133.0	58	0.50	0.8915	570001								
0.8834	40703.0	425133.0	119	0.50	0.8834	570001								
0.8589	40703.0	424833.0	254	0.50	0.8589	570001								
0.8580	40803.0	424833.0	288	0.50	0.8580	570001								
0.8537	40703.0	425233.0	101	0.50	0.8537	570001								
0.8518	40803.0	425233.0	77	0.50	0.8518	570001								
0.8151	40703.0	425333.0	98	0.50	0.8151	570001								
0.8113	40803.0	425333.0	81	0.50	0.8113	570001								

Summation Group № 31 Map,

H=2.00 m



Sanitary protection zone

Ч (24)2 Estimated Concentrations Of Contaminants In The Lowest Atmospheric Layer During Construction (with regard to background)

General Estimate Based On The Estimated Dispersion

Estimated Concentrations Of Contaminants In The Lowest Atmospheric Layer During Construction (with regard to background)

Estimate Brief	
City/Village Name Production Site Substance Codes	Chernobyl
Sum. Gr. Code Veloc. of wind (m/s)	57
Wind Velocity (fraction of U, avg.)	301 330 337 328 703 2754 2902 123
Wind Velocity (fraction of U, avg. above torch)	143 31
Wind direction change incr. Fixed wind direction No. of	0.5 2 11 05 1 1.5 0.5 1 1.5 10
major contrib. No. of max. conc.	5
Background considered Map estimated SPZ/impact area	10
of the enterprise Estimation altitude (m)	Yes
	No/No
	2

Calculation platforms' parameters

№	Coord. X	Coord. Y	Length	Width	Angle of rep. calc. of density along OX of the main frame of reference	Grid pitchOX axis	Grid pitchOY axis	Special req.
11	40803.0	424933.0	3000.0	3000.0	0.0	100.0	100.0	0

Code of city	Name of city	Avg temp. of the hottest month (°C)	Avg temp. of the coldest month (°C)	Prev. wind speed (m/s)	Regional coeffic. of stratific.	Angle bw northing direction and OX of the main frame of ref. (°)	Area of city (sq. km)	Lat. (° ' ")
57	Chernobyl	24.2	-6.1	11.0	180	0	5	51°16'00"

Lat. (N or S)	Long. (° ' ")	Long. (W or E)	Freq. of occurr. of wind (N)	Freq. of occurr. of wind (NE)	Freq. of occurr. of wind (E)	Freq. of occurr. of wind (SE)	Freq. of occurr. of wind (S)	Freq. of occurr. of wind (SW)	Freq. of occurr. of wind (W)	Freq. of occurr. of wind (NW)
N	30°13'00"	E	11.3	7.9	13.1	15.3	9.2	139	17	12.3

Code	Name of production site	Summ. group substance code	Substance name (codes of substance in the summation group)	Rate of emission (g/s)	Rate of emission (t/y)
57	CSFSF	Sum.Gr. № 31	301 330	1.1696	12.8093
		S. Code 301	Nitrogen dioxide	0.3978	4.2705
		S. Code 330	Sulphurous anhydride	0.1750	2.1330
		S. Code 337	Carbon Oxide	0.8882	10.6645
		S. Code 328	Soot	0.1356	1.6530
		S. Code 703	Benz(a)pyren	0.0000	0.0000
		S. Code 2754	Saturated hydrocarbons c12-c19 (solvent onk-265)	... 0.2627	3.1990
		S. Code 2902	Suspended solids, undifferentiated composition	0.8887	8.6426
		S. Code 123	Iron oxide** (in terms of iron)	0.0052	0.0490
		S. Code 143	Manganese and its compounds(in terms of dioxide)	0.0008	0.0070

S. Code	Substance name	MAV (mg/cu.m)
301	Nitrogen dioxide	0.20000000

Background concentrations containing the contributions of existing sources (MAV fractions) (MAV fractions) (Initial pollution conditions) for the substance: Nitrogen dioxide, background condition: a.

Coord. X of point of control	Coord. Y of point of control	U<2 m/s (calm)	Veloc. of wind 2<U<U* N	Veloc. of wind 2<U<U* NE	Veloc. of wind 2<U<U* E	Veloc. of wind 2<U<U* SE	Veloc. of wind 2<U<U* S	Veloc. of wind 2<U<U* SW	Veloc. of wind 2<U<U* W	Veloc. of wind 2<U<U* NW
0.00	0.00	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04

Background concentrations less the existing sources (MAV fractions) (MAV fractions) (upper value — background, lower value — contribution) for the substance: Nitrogen dioxide, background condition: a.

Coord. X of point of control	Coord. Y of point of control	U<2 m/s (calm)	Veloc. of wind 2<U<U* N	Veloc. of wind 2<U<U* NE	Veloc. of wind E	Veloc. of wind 2<U<U* SE	Veloc. of wind 2<U<U* S	Veloc. of wind 2<U<U* SW	Veloc. of wind 2<U<U* W	Veloc. of wind 2<U<U* NW
0.00	0.00	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400

List Of Sources, Emissions Of Which Contain Nitrogen Dioxide

Source code Technolog. parameters	570001
Emission (g/s)	0.2583625
Hazard Class	(100 m)
CM[h=2.00m] (MAV fractions) CM[h=2.00m] mg/cu.m CM/M[h=2.00m] mc/cu.m	1790.6782
XM (m)	14.31
UM[h=2.00m] (m/s)	1.00
X Y Coord. begin. point of linear sym. center of plane (m)	40750.00 425000.00
X Y Coord. end. point of linear length and width of plane (m)	600.00 180.00
Relief factor	1.0000
Rate (cu.m/s)	0.0000
PGVS exh. rate: m/s	0
Dia (m)	
Height (m)	2.5000
Temperature (°C)	120.0000
Ordered settl. factor	1.0000
Emission (t/y)	3.7700

№ of Point	Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	Veloc. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	№ of source N1	Value of contrib. Q2	N2 of source N2	Value of contrib. Q3	№ of source N3	Value of contrib. Q4	№ of source N4

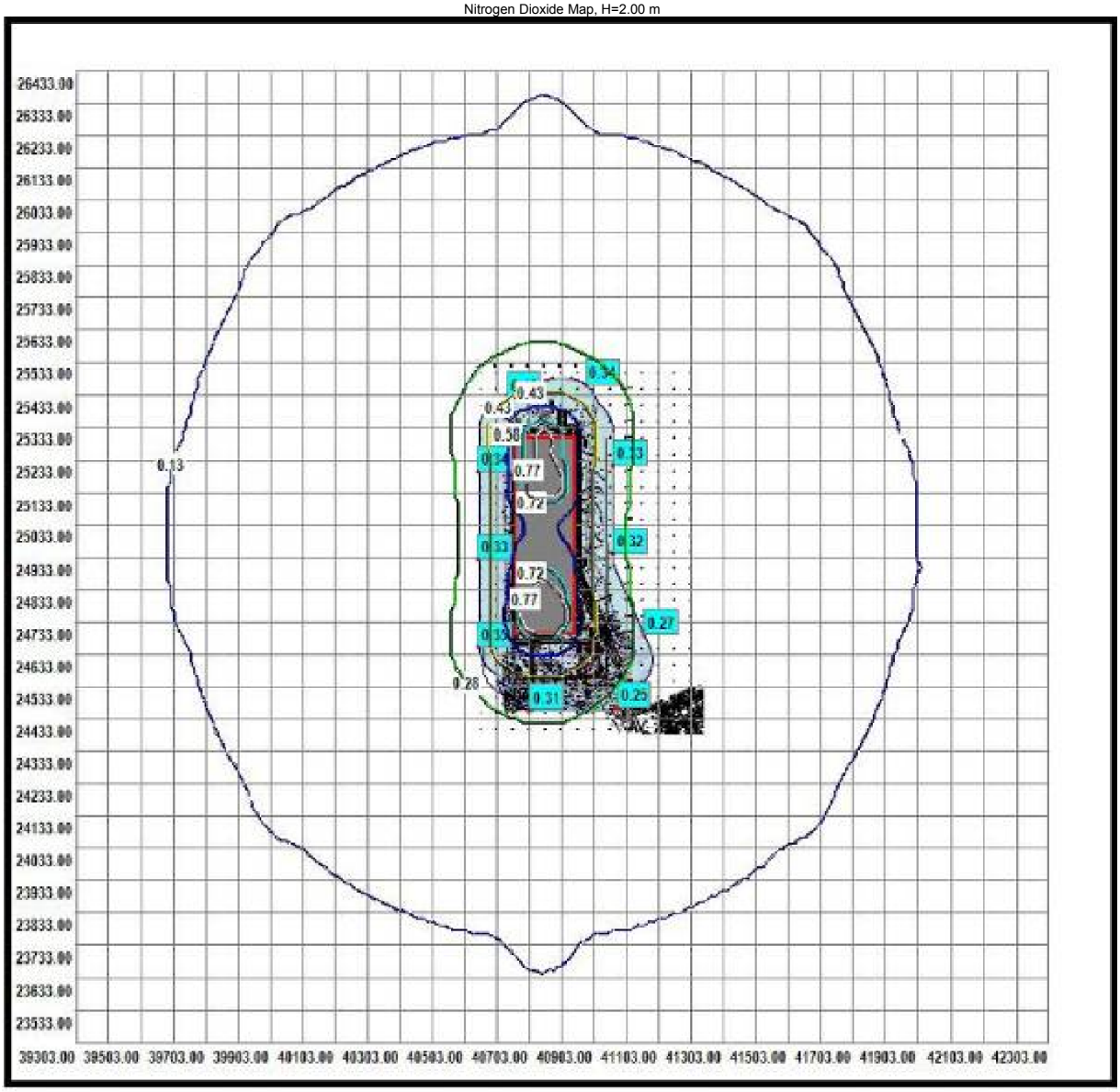
Calculated concentrations of substance: Nitrogen dioxide
in the design points and the numbers of sources of maximum contribution at the altitude of 2.00 m

1	0.3062	40703.5	424458.5	265	0.75	0.2862	570001								
2	0.3513	40546.3	424651.4	230	0.50	0.3113	570001								
3	0.3338	40546.0	424923.9	200	0.50	0.2938	570001								
4	0.3428	40546.0	425196.4	146	0.50	0.3028	570001								
5	0.3963	40635.4	425421.9	115	0.50	0.3563	570001								
6	0.3428	40878.5	425460.0	74	0.50	0.3028	570001								
7	0.3348	40962.1	425214.6	35	0.50	0.2948	570001								
8	0.3227	40962.4	424942.1	335	0.50	0.2827	570001								
9	0.2863	41058.1	424689.6	325	0.50	0.2263	570001								
10	0.2546	40975.3	424464.6	293	0.50	0.2146	570001								

Points of maximum concentrations of Nitrogen Dioxide on site № 11 and the numbers of sources of maximum contribution at the altitude of 2.00 m

Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	Veloc. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	N2 of source N1	Value of contrib. Q2	№ of source N2	Value of contrib. Q3	N2 of source N3	Value of contrib. Q4	№ of source N4
0.8240	40703.0	424733.0	260	0.50	0.7840	570001								
0.8232	40803.0	424733.0	281	0.50	0.7832	570001								
0.7829	40803.0	425133.0	58	0.50	0.7429	570001								
0.7762	40703.0	425133.0	119	0.50	0.7362	570001								
0.7557	40703.0	424833.0	254	0.50	0.7157	570001								
0.7550	40803.0	424833.0	288	0.50	0.7150	570001								
0.7514	40703.0	425233.0	101	0.50	0.7114	570001								
0.7499	40803.0	425233.0	77	0.50	0.7099	570001								
0.7193	40703.0	425333.0	98	0.50	0.6793	570001								
0.7161	40803.0	425333.0	81	0.50	0.6761	570001								

Nitrogen Dioxide Map, H=2.00 m



Sanitary protection zone

S. Code	Substance name	MAV (mg/cu.m)
330	Sulphurous anhydride	0.50000000

Background concentrations containing the contributions of existing sources (MAV fractions) (MAV fractions) (Initial pollution conditions) for the substance: Sulphurous anhydride, background condition: a.

Coord. X of point of control	Coord. Y of point of control	U<2 m/s (calm)	Veloc. of wind 2<U<U* N	Veloc. of wind 2<U<U* NE	Veloc. of wind 2<U<U* E	Veloc. of wind 2<U<U* SE	Veloc. of wind 2<U<U* S	Veloc. of wind 2<U<U* SW	Veloc. of wind 2<U<U* W	Veloc. of wind 2<U<U* NW
0.00	0.00	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04

Background concentrations less the existing sources (MAV fractions) (MAV fractions) (upper value — background, lower value — contribution) for the substance: Sulphurous anhydride, background condition: a.

Coord. X of point of control	Coord. Y of point of control	U<2 m/s (calm)	Veloc. of wind 2<U<U* N	Veloc. of wind 2<U<U* NE	Veloc. of wind 2<U<U* E	Veloc. of wind 2<U<U* SE	Veloc. of wind 2<U<U* S	Veloc. of wind 2<U<U* SW	Veloc. of wind 2<U<U* W	Veloc. of wind 2<U<U* NW
0.00	0.00	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400

Source code Technolog. parameters	570001
Emission (g/s)	0.12918125
Hazard Class	(100 m)
CM[h=2.00m] (MAV fractions) CM[h=2.00m] mg/cu.m CM/M[h=2.00m] mc/cu.m	358.1356 - -
XM (m)	14.31
UM[h=2.00m] (m/s)	1.00
X Y Coord. begin. point of linear sym. center plane (m)	40750.00 425000.00
X Y Coord. end. point of linear length and width of plane (m)	600.00 180.00
Relief factor	1.0000
Rate (cu.m/s)	0.0000
PGVS exh. rate: m/s	0
Dia (m)	
Height (m)	2.5000
Temperature (°C)	120.0000
Ordered settl. factor	1.0000
Emission (t/y)	1.8850

List Of Sources, Emissions Of Which Contain Sulphurous anhydride

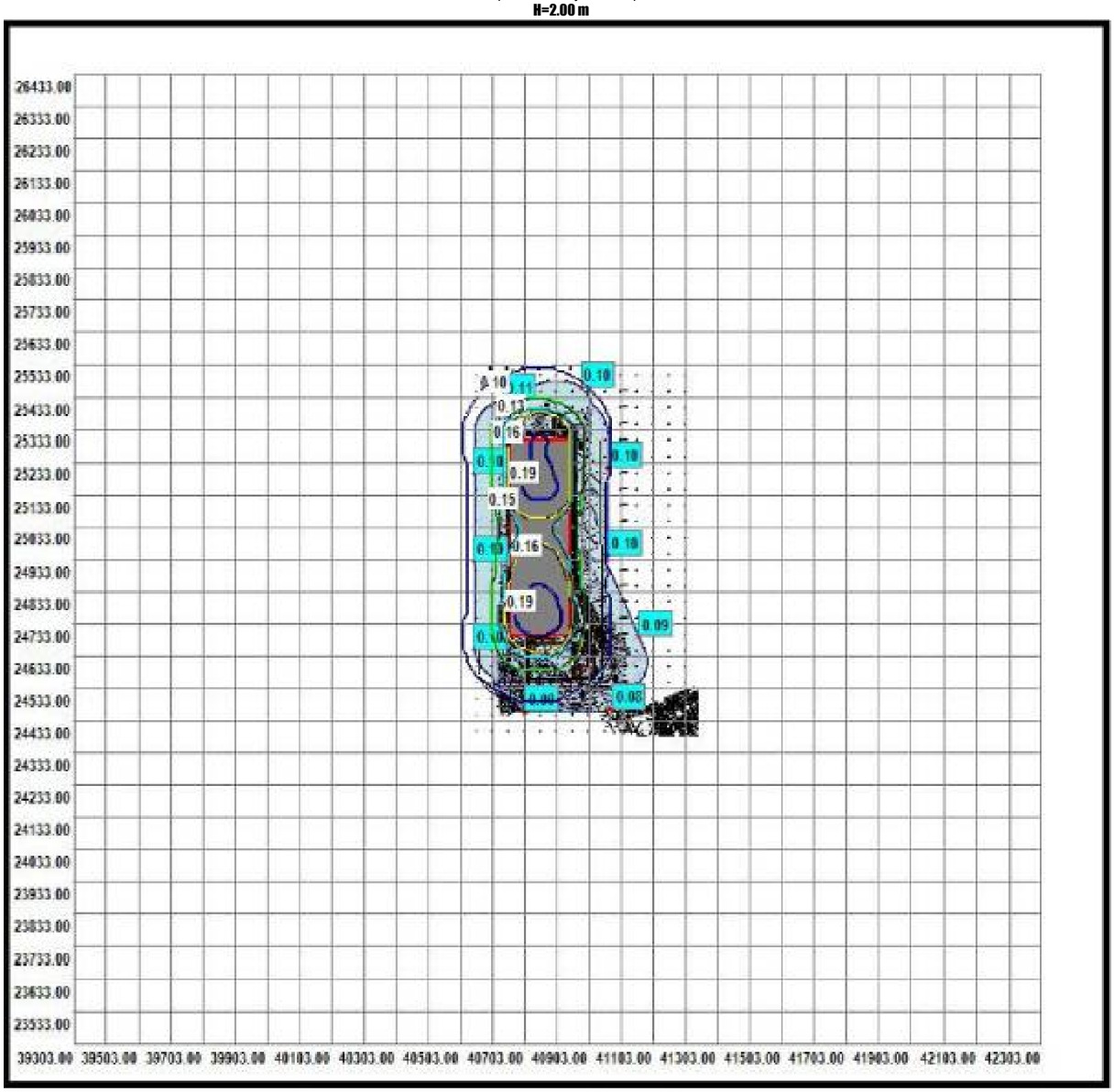
Calculated concentrations of substance: Sulphurous anhydride
in the design points and the numbers of sources of maximum contribution at the altitude of 2.00 m

№ of Point	Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	Veloc. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	№ of source N1	Value of contrib. Q2	№ of source N2	Value of contrib. Q3	№ of source N3	Value of contrib. Q4	№ of source N4
1	0.0932	40703.5	424458.5	265	0.75	0.0532	570001								
2	0.1023	40546.3	424651.4	230	0.50	0.0623	570001								
3	0.0988	40546.0	424923.9	200	0.50	0.0588	570001								
4	0.1006	40546.0	425196.4	146	0.50	0.0606	570001								
5	0.1113	40635.4	425421.9	115	0.50	0.0713	570001								
6	0.1006	40878.5	425460.0	74	0.50	0.0606	570001								
7	0.0990	40962.1	425214.6	35	0.50	0.0590	570001								
8	0.0965	40962.4	424942.1	335	0.50	0.0565	570001								
9	0.0853	41058.1	424689.6	325	0.50	0.0453	570001								
10	0.0829	40975.3	424464.6	293	0.50	0.0429	570001								

Points of maximum concentrations of sulphurous anhydride on site № 11 and the numbers of sources of maximum contribution at the altitude of 2.00 m

Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	Veloc. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	№ of source N1	Value of contrib. Q2	№ of source N2	Value of contrib. Q3	№ of source N3	Value of contrib. Q4	№ of source N4
0.1968	40703.0	424733.0	260	0.50	0.1568	570001								
0.1966	40803.0	424733.0	281	0.50	0.1566	570001								
0.1886	40803.0	425133.0	58	0.50	0.1486	570001								
0.1872	40703.0	425133.0	119	0.50	0.1472	570001								
0.1831	40703.0	424833.0	254	0.50	0.1431	570001								
0.1830	40803.0	424833.0	288	0.50	0.1430	570001								
0.1823	40703.0	425233.0	101	0.50	0.1423	570001								
0.1820	40803.0	425233.0	77	0.50	0.1420	570001								
0.1759	40703.0	425333.0	98	0.50	0.1359	570001								
0.1752	40803.0	425333.0	81	0.50	0.1352	570001								

Sulphurous Anhydride Map,
H=2.00 m



Sanitary protection zone

S. Code	Substance name	MAV (mg/cu.m)
337	Carbon Oxide	5.00000000

Background concentrations containing the contributions of existing sources (MAV fractions) (MAV fractions) (Initial pollution conditions) for the substance: Carbon oxide, background condition: a.

Coord. X of point of control	Coord. Y of point of control	U<2 m/s (calm)	Veloc. of wind 2<U<U* N	Veloc. of wind 2<U<U* NE	Veloc. of wind 2<U<U* E	Veloc. of wind 2<U<U* SE	Veloc. of wind 2<U<U* S	Veloc. of wind 2<U<U* SW	Veloc. of wind 2<U<U* W	Veloc. of wind 2<U<U* NW
0.00	0.00	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08

Background concentrations less the existing sources (MAV fractions) (MAV fractions) (upper value — background, lower value — contribution) for the substance: Carbon oxide, background condition: a.

Coord. X of point of control	Coord. Y of point of control	U<2 m/s (calm)	Veloc. of wind 2<U<U* N	Veloc. of wind 2<U<U* NE	Veloc. of wind 2<U<U* E	Veloc. of wind 2<U<U* SE	Veloc. of wind 2<U<U* S	Veloc. of wind 2<U<U* SW	Veloc. of wind 2<U<U* W	Veloc. of wind NW
0.00	0.00	0.0800	0.0800	0.0800	0.0800	0.0800	0.0800	0.0800	0.0800	0.0800

List Of Sources, Emissions Of Which Contain Carbon oxide

Source code Technolog. parameters	570001
Emission (g/s)	0.64590625
Hazard Class	(100 m)
CM[h=2.00m] (MAV fractions) CM[h=2.00m] mg/cu.m CM/M[h=2.00m] mc/cu.m	179.0678
XM (m)	14.31
UM[h=2.00m] (m/s)	1.00
X Y Coord. begin. point of linear sym. center of plane (m)	40750.00 425000.00
X Y Point of linear length and width of plane (m)	600.00 180.00
Relief factor	1.0000
Rate (cu.m/s)	0.0000
PGVS exh. rate: m/s	0
Dia (m)	
Height (m)	2.5000
Temperature (°C)	120.0000
Ordered settl. factor	1.0000
Emission (t/y)	9.4250

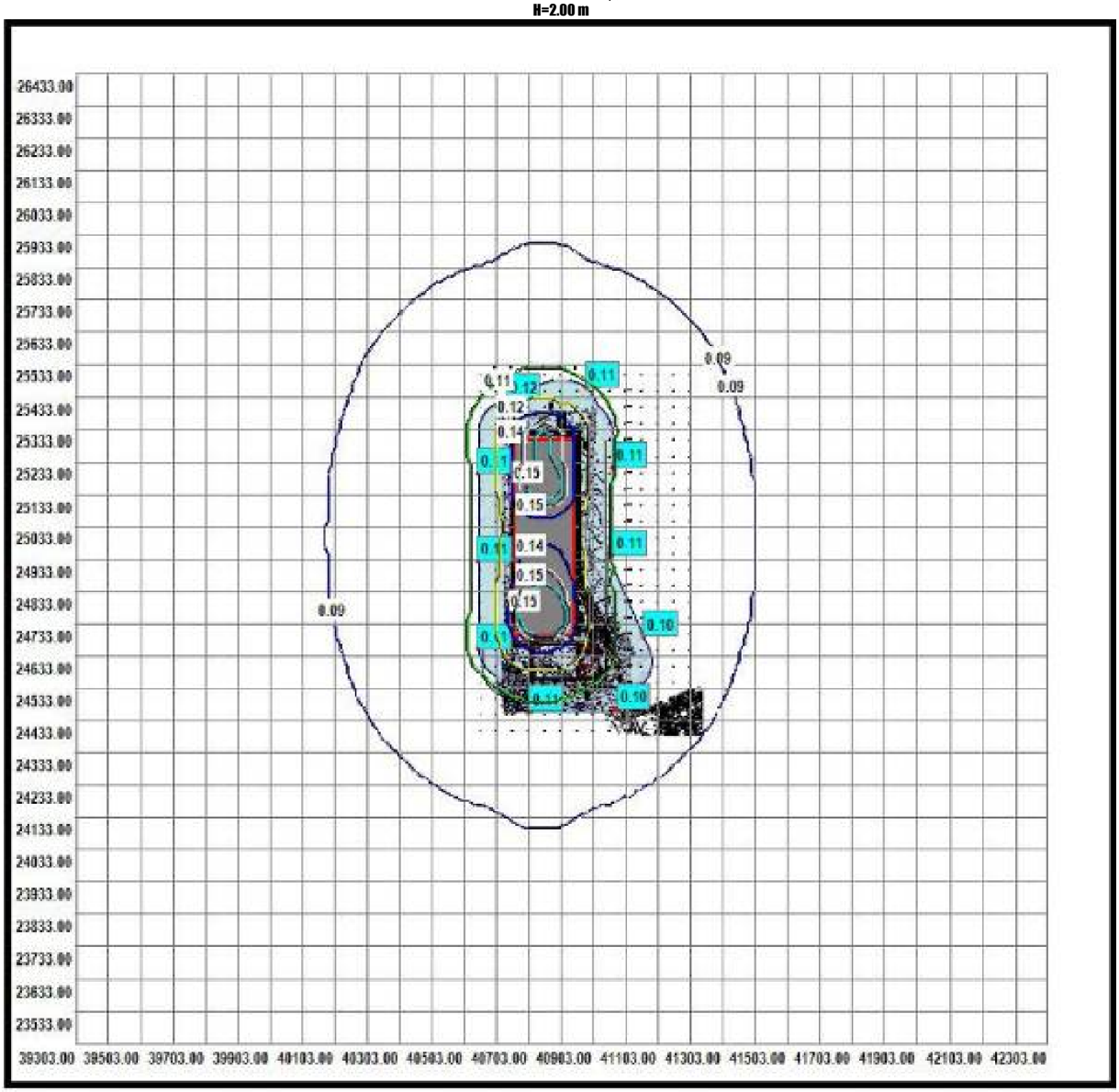
Calculated concentrations of substance: Nitrogen dioxide
in the design points and the numbers of sources of maximum contribution at the altitude of 2.00 m

№ of Point	Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	Veloc. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	№ of source N1	Value of contrib. Q2	N2 of source N2	Value of contrib. Q3	№ of source N3	Value of contrib. Q4	№ of source N4
1	0.1066	40703.5	424458.5	265	0.75	0.0266	570001								
2	0.1111	40546.3	424851.4	230	0.50	0.0311	570001								
3	0.1094	40546.0	424923.9	200	0.50	0.0294	570001								
4	0.1103	40546.0	425196.4	146	0.50	0.0303	570001								
5	0.1156	40635.4	425421.9	115	0.50	0.0356	570001								
6	0.1103	40878.5	425460.0	74	0.50	0.0303	570001								
7	0.1095	40962.1	425214.6	35	0.50	0.0295	570001								
8	0.1083	40962.4	424942.1	335	0.50	0.0283	570001								
9	0.1026	41058.1	424889.6	325	0.50	0.0226	570001								
10	0.1015	40975.3	424464.6	293	0.50	0.0215	570001								

Points of maximum concentrations of carbon oxide on site № 11 and the numbers of sources of maximum contribution at the altitude of 2.00 m

Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	Veloc. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	N2 of source N1	Value of contrib. Q2	№ of source N2	Value of contrib. Q3	N2 of source N3	Value of contrib. Q4	№ of source N4
0.1584	40703.0	424733.0	260	0.50	0.0784	570001								
0.1583	40803.0	424733.0	281	0.50	0.0783	570001								
0.1543	40803.0	425133.0	58	0.50	0.0743	570001								
0.1536	40703.0	425133.0	119	0.50	0.0736	570001								
0.1516	40703.0	424833.0	254	0.50	0.0716	570001								
0.1515	40803.0	424833.0	288	0.50	0.0715	570001								
0.1511	40703.0	425233.0	101	0.50	0.0711	570001								
0.1510	40803.0	425233.0	77	0.50	0.0710	570001								
0.1479	40703.0	425333.0	98	0.50	0.0679	570001								
0.1476	40803.0	425333.0	81	0.50	0.0676	570001								

Carbon Oxide Map,
H=2.00 m



Sanitary protection zone

S. Code	Substance name	MAV (mg/cu.m)
328	Soot	0.15000000

Background concentrations containing the contributions of existing sources (MAV fractions) (MAV fractions) (Initial pollution conditions)
for the substance: Soot, background condition: a.

Coord. X of point of control	Coord. Y of point of control	U<2 m/s (calm)	Veloc. of wind 2<U<U* N	Veloc. of wind 2<U<U* NE	Veloc. of wind 2<U<U* E	Veloc. of wind 2<U<U* SE	Veloc. of wind 2<U<U* S	Veloc. of wind 2<U<U* SW	Veloc. of wind 2<U<U* W	Veloc. of wind 2<U<U* NW
0.00	0.00	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40

Background concentrations less the existing sources (MAV fractions) (MAV fractions) (upper value — background, lower value — contribution)
for the substance: Soot, background condition: a.

Coord. X of point of control	Coord. Y of point of control	U<2 m/s (calm)	Veloc. of wind 2<U<U* N	Veloc. of wind 2<U<U* NE	Veloc. of wind 2<U<U* E	Veloc. of wind 2<U<U* SE	Veloc. of wind 2<U<U* S	Veloc. of wind 2<U<U* SW	Veloc. of wind 2<U<U* W	Veloc. of wind NW
0.00	0.00	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000

List Of Sources, Emissions Of Which Contain Soot

Source code Technolog. parameters	570001
Emission (g/s)	0.10011547
Hazard Class	(100 m)
CM[h=2.00m] (MAV fractions) CM[h=2.00m] mg/cu.m CM/M[h=2.00m] mc/cu.m	925.1837 - -
XM (m)	14.31
UM[h=2.00m] (m/s)	1.00
X Y Coord. begin. point of linear sym. center of plane (m) plane (m)	40750.00 425000.00
X Y Coord. end. point of linear length and width of plane (m)	600.00 180.00
Relief factor	1.0000
Rate (cu.m/s)	0.0000
PGVS exh. rate: m/s	0
Dia (m)	
Height (m)	2.5000
Temperature (°C)	120.0000
Ordered settl. factor	1.0000
Emission (t/y)	1.4610

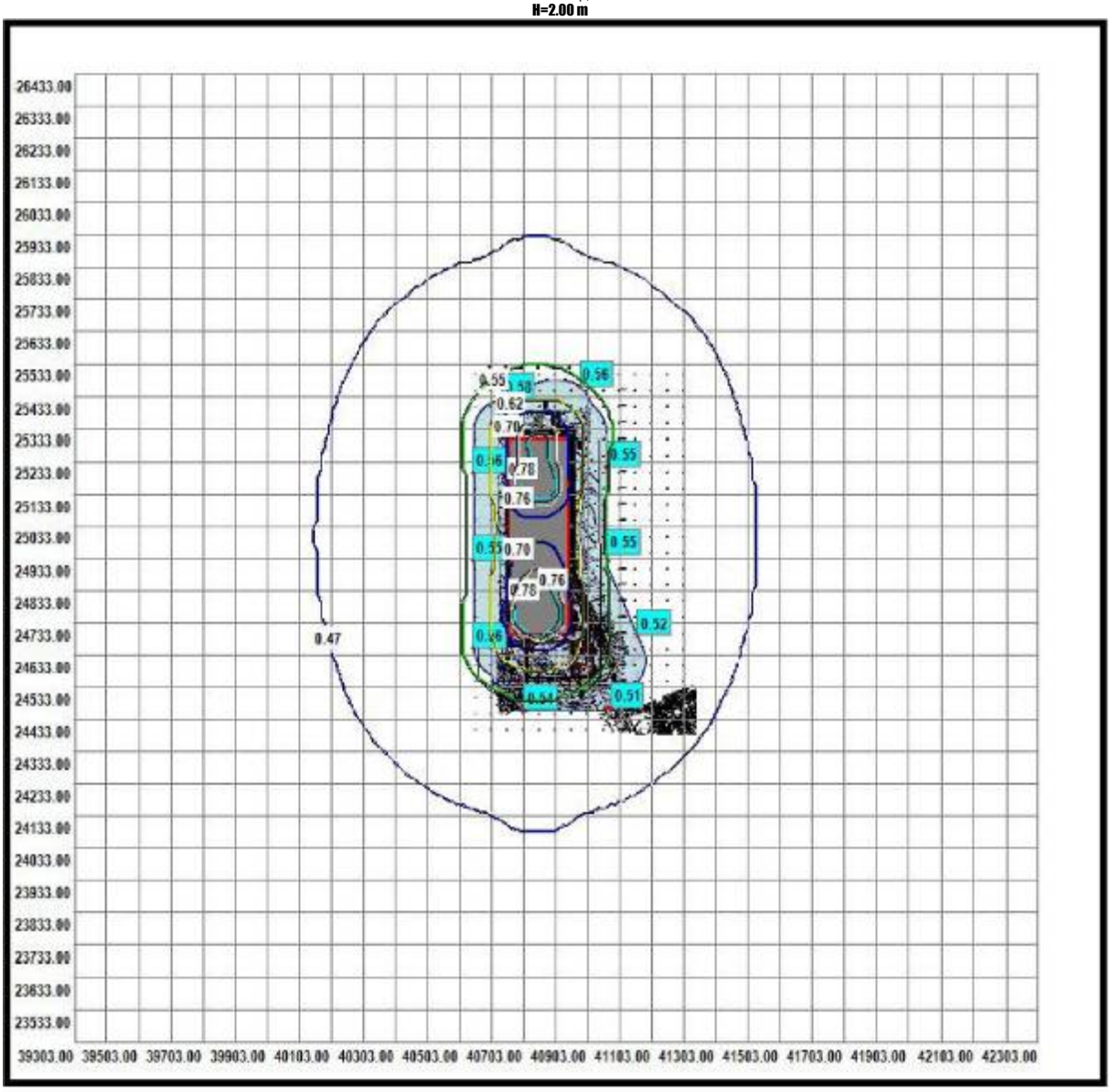
Calculated concentrations of substance: Ben(a)pyrene
in the design points and the numbers of sources of maximum contribution at the altitude of 2.00 m

№ of Point	Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	Veloc. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	№ of source N1	Value of contrib. Q2	N2 of source N2	Value of contrib. Q3	№ of source N3	Value of contrib. Q4	№ of source N4
1	0.5375	40703.5	424458.5	265	0.75	0.1375	570001								
2	0.5608	40546.3	424651.4	230	0.50	0.1608	570001								
3	0.5518	40546.0	424923.9	200	0.50	0.1518	570001								
4	0.5564	40546.0	425196.4	146	0.50	0.1564	570001								
5	0.5841	40635.4	425421.9	115	0.50	0.1841	570001								
6	0.5565	40878.5	425460.0	74	0.50	0.1565	570001								
7	0.5523	40962.1	425214.6	35	0.50	0.1523	570001								
8	0.5461	40962.4	424942.1	335	0.50	0.1461	570001								
9	0.5169	41058.1	424689.6	325	0.50	0.1169	570001								
10	0.5109	40975.3	424464.6	293	0.50	0.1109	570001								

Points of maximum concentrations of Soot on site № 11 and the numbers of sources of maximum contribution at the altitude of 2.00 m

Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	Veloc. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	N2 of source N1	Value of contrib. Q2	№ of source N2	Value of contrib. Q3	N2 of source N3	Value of contrib. Q4	№ of source N4
0.8051	40703.0	424733.0	260	0.50	0.4051	570001								
0.8047	40803.0	424733.0	281	0.50	0.4047	570001								
0.7838	40803.0	425133.0	58	0.50	0.3838	570001								
0.7804	40703.0	425133.0	119	0.50	0.3804	570001								
0.7698	40703.0	424833.0	254	0.50	0.3698	570001								
0.7694	40803.0	424833.0	288	0.50	0.3694	570001								
0.7676	40703.0	425233.0	101	0.50	0.3676	570001								
0.7668	40803.0	425233.0	77	0.50	0.3668	570001								
0.7510	40703.0	425333.0	98	0.50	0.3510	570001								
0.7493	40803.0	425333.0	81	0.50	0.3493	570001								

Soot Map,
H=2.00 m



Sanitary protection zone

S. Code	Substance name	MAV (mg/cu.m)
703	Benz(a)pyrene	0.00001000

Background concentrations containing the contributions of existing sources (MAV fractions) (MAV fractions) (Initial pollution conditions) for the substance: Benz(a)pyrene, background condition: a.

Coord. X of point of control	Coord. Y of point of control	U<2 m/s (calm)	Veloc. of wind 2<U<U* N	Veloc. of wind 2<U<U* NE	Veloc. of wind 2<U<U* E	Veloc. of wind 2<U<U* SE	Veloc. of wind 2<U<U* S	Veloc. of wind 2<U<U* SW	Veloc. of wind 2<U<U* W	Veloc. of wind 2<U<U* NW
0.00	0.00	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04

Background concentrations less the existing sources (MAV fractions) (MAV fractions) (upper value — background, lower value — contribution) for the substance: Benz(a)pyrene, background condition: a.

Coord. X of point of control	Coord. Y of point of control	U<2 m/s (calm)	Veloc. of wind 2<U<U* N	Veloc. of wind 2<U<U* NE	Veloc. of wind 2<U<U* E	Veloc. of wind 2<U<U* SE	Veloc. of wind 2<U<U* S	Veloc. of wind 2<U<U* SW	Veloc. of wind 2<U<U* W	Veloc. of wind 2<U<U* NW
0.00	0.00	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400

Source code Technolog. parameters	570001
Emission (g/s)	0.00000207
Hazard Class	(100 m)
CM[h=2.00m] (MAV fractions) CM[h=2.00m] mg/cu.m CM/M[h=2.00m] mc/cu.m	286.9382 - -
XM (m)	14.31
UM[h=2.00m] (m/s)	1.00
X Y Coord. begin. point of linear sym. center plane (m)	40750.00 425000.00
X Y Point of linear length and width of plane (m)	600.00 180.00
Relief factor	1.0000
Rate (cu.m/s)	0.0000
PGVS exh. rate: m/s	0
Dia (m)	
Height (m)	2.5000
Temperature (°C)	120.0000
Ordered settl. factor	1.0000
Emission (t/y)	0.00003016

List Of Sources, Emissions Of Which Contain Benz(a)pyrene

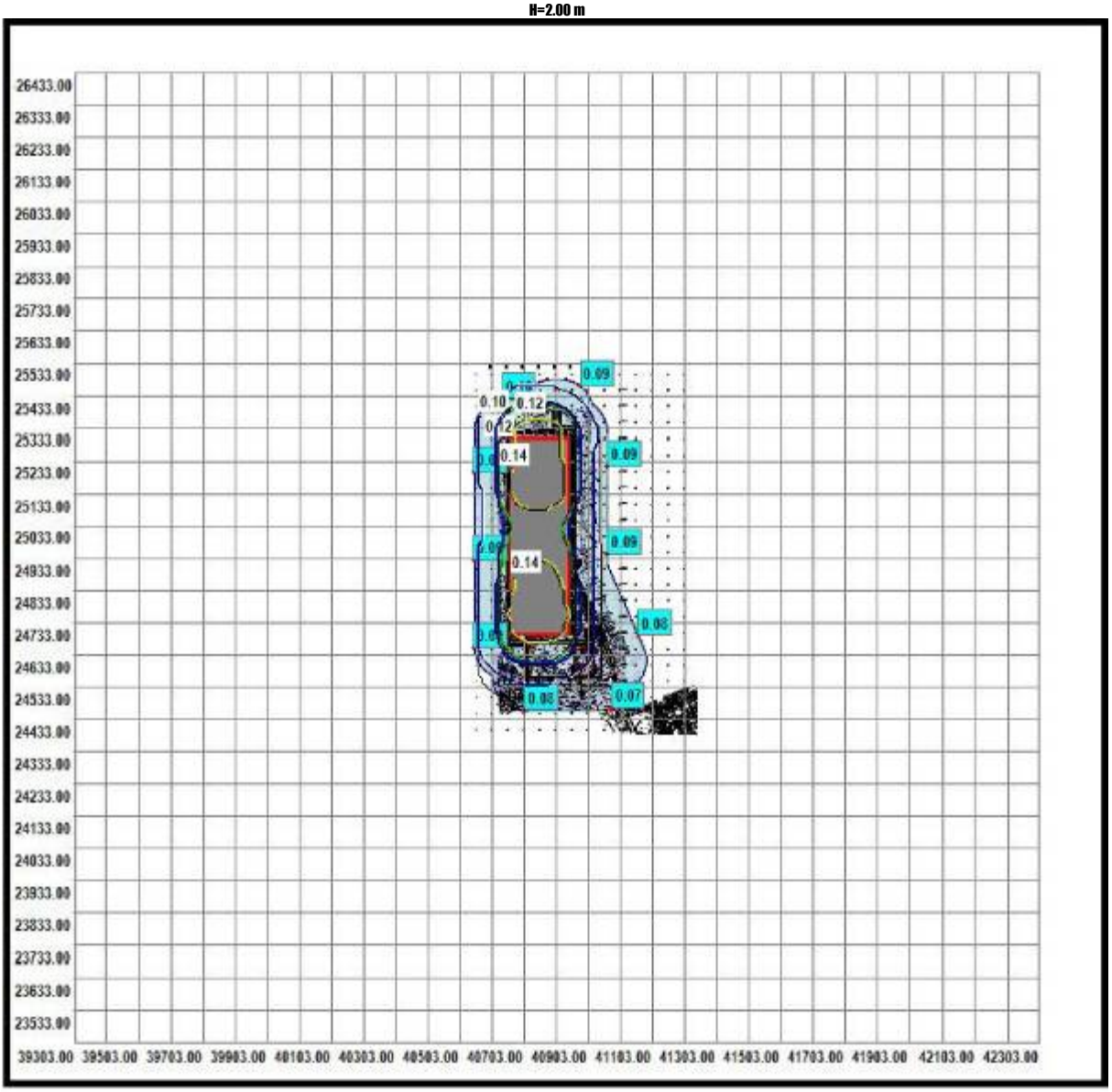
Calculated concentrations of substance: Ben(a)pyrene
in the design points and the numbers of sources of maximum contribution at the altitude of 2.00 m

№ of Point	Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	Veloc. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	№ of source N1	Value of contrib. Q2	№ of source N2	Value of contrib. Q3	№ of source N3	Value of contrib. Q4	№ of source N4
1	0.0827	40703.5	424458.5	265	0.75	0.0427	570001								
2	0.0899	40548.3	424851.4	230	0.50	0.0499	570001								
3	0.0871	40546.0	424923.9	200	0.50	0.0471	570001								
4	0.0885	40546.0	425196.4	146	0.50	0.0485	570001								
5	0.0871	40635.4	425421.9	115	0.50	0.0571	570001								
6	0.0885	40878.5	425460.0	74	0.50	0.0485	570001								
7	0.0872	40962.1	425214.6	35	0.50	0.0472	570001								
8	0.0853	40962.4	424942.1	335	0.50	0.0453	570001								
9	0.0763	41058.1	424689.6	325	0.50	0.0363	570001								
10	0.0744	40975.3	424484.6	293	0.50	0.0344	570001								

Points of maximum concentrations of benz(a)pyrene on site № 11 and the numbers of sources of maximum contribution at the altitude of 2.00 m

Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	Veloc. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	№ of source N1	Value of contrib. Q2	№ of source N2	Value of contrib. Q3	№ of source N3	Value of contrib. Q4	№ of source N4
0.1656	40703.0	424733.0	260	0.50	0.1256	570001								
0.1655	40803.0	424733.0	281	0.50	0.1255	570001								
0.1590	40803.0	425133.0	58	0.50	0.1190	570001								
0.1580	40703.0	425133.0	119	0.50	0.1180	570001								
0.1547	40703.0	424833.0	254	0.50	0.1147	570001								
0.1546	40803.0	424833.0	288	0.50	0.1146	570001								
0.1540	40703.0	425233.0	101	0.50	0.1140	570001								
0.1537	40803.0	425233.0	77	0.50	0.1137	570001								
0.1488	40703.0	425333.0	98	0.50	0.1088	570001								
0.1483	40803.0	425333.0	81	0.50	0.1083	570001								

Benz(a)pyrene Map,
H=2.00 m



Sanitary protection zone

S. Code	Substance name	MAV (mg/cu.m)
2754	Saturated hydrocarbons c12-c19 (solvent	rpk-265) 1.00000000

Background concentrations containing the contributions of existing sources (MAV fractions) (MAV fractions) (Initial pollution conditions) for the substance: Saturated hydrocarbons (solvent rpk-256p etc.), background condition: a.

Coord. X of point of control	Coord. Y of point of control	U<2 m/s (calm)	Veloc. of wind 2<U<U* N	Veloc. of wind 2<U<U* NE	Veloc. of wind 2<U<U* E	Veloc. of wind 2<U<U* SE	Veloc. of wind 2<U<U* S	Veloc. of wind 2<U<U* SW	Veloc. of wind 2<U<U* W	Veloc. of wind 2<U<U* NW
0.00	0.00	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40

Background concentrations less the existing sources (MAV fractions) (MAV fractions) (upper value — background, lower value — contribution) for the substance: Saturated hydrocarbons c12-c19 (solvent rpn-265p etc.), background condition: a.

Coord. X of point of control	Coord. Y of point of control	U<2 m/s (calm)	Veloc. of wind 2<U<U* N	Veloc. of wind 2<U<U* NE	Veloc. of wind 2<U<U* E	Veloc. of wind 2<U<U* SE	Veloc. of wind 2<U<U* S	Veloc. of wind 2<U<U* SW	Veloc. of wind 2<U<U* W	Veloc. of wind NW
0.00	0.00	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000

Source code Technolog. parameters	570001
Emission (g/s)	0.19377188
Hazard Class	(100 m)
CM[h=2.00m] (MAV fractions) CM[h=2.00m] mg/cu.m CM/M[h=2.00m] mc/cu.m	268.6017 - -
XM (m)	14.31
UM[h=2.00m] (m/s)	1.00
X Y Coord. begin. point of linear sym. center plane (m)	40750.00 425000.00
X Y Coord. end. point of linear length and width of plane (m)	600.00 180.00
Relief factor	1.0000
Rate (cu.m/s)	0.0000
PGVS exh. rate: m/s	0
Dia (m)	
Height (m)	2.5000
Temperature (°C)	120.0000
Ordered settl. factor	1.0000
Emission (t/y)	2.8280

List Of Sources, Emissions Of Which Contain Saturated hydrocarbons c12-c19 (solvent rpn-265p etc.)

Calculated concentrations of substance: Saturated hydrocarbons c12-c19 (solvent rpk-256p etc.)
in the design points and the numbers of sources of maximum contribution at the altitude of 2.00 m

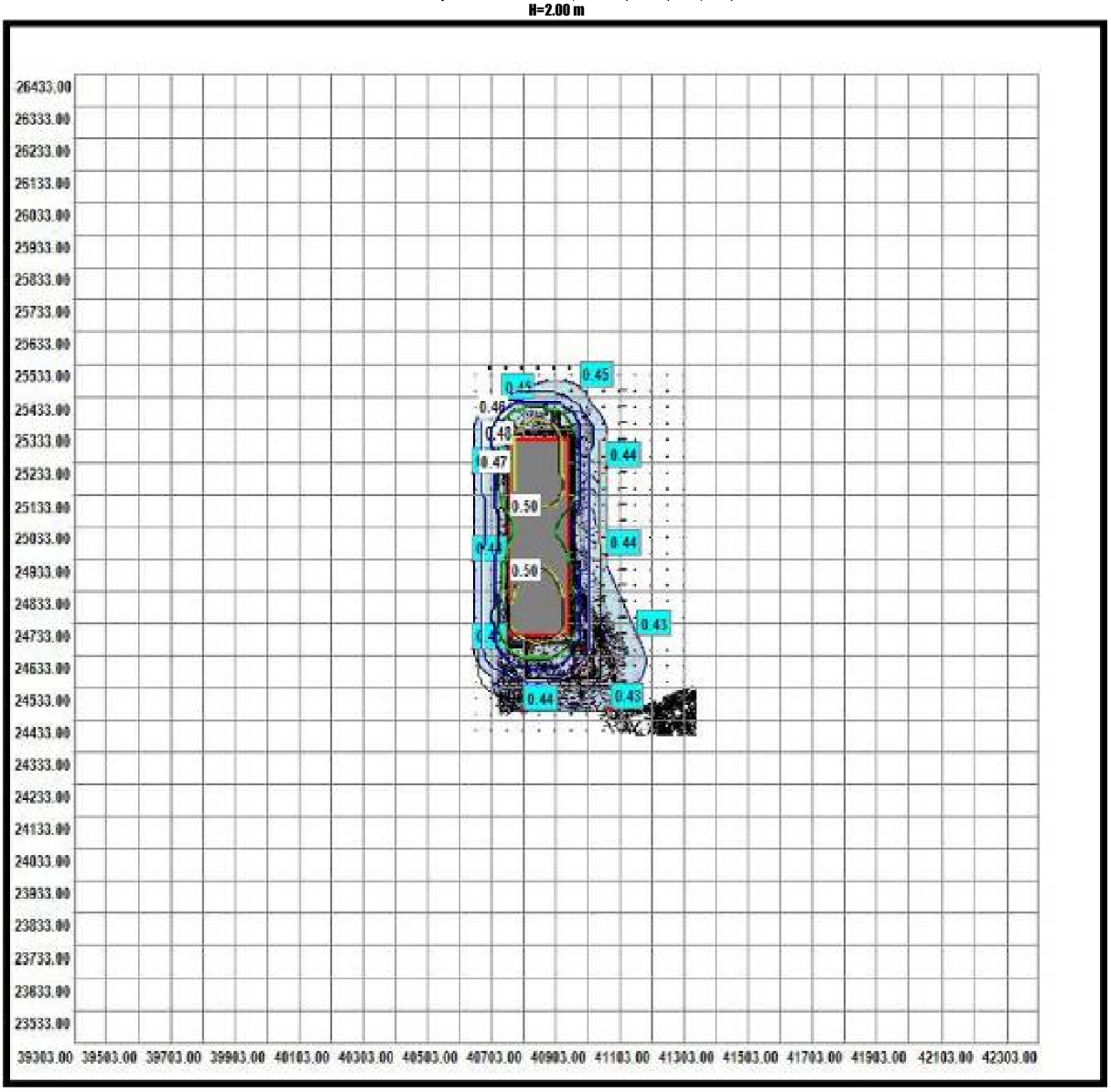
№ of Point	Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	Veloc. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	№ of source N1	Value of contrib. Q2	N2 of source N2	Value of contrib. Q3	№ of source N3	Value of contrib. Q4	№ of source N4
1	0.4399	40703.5	424458.5	265	0.75	0.0399	570001								
2	0.4467	40546.3	424651.4	230	0.50	0.0467	570001								
3	0.4441	40546.0	424923.9	200	0.50	0.0441	570001								
4	0.4454	40546.0	425196.4	146	0.50	0.0454	570001								
5	0.4535	40635.4	425421.9	115	0.50	0.0535	570001								
6	0.4454	40878.5	425460.0	74	0.50	0.0454	570001								
7	0.4442	40962.1	425214.6	35	0.50	0.0442	570001								
8	0.4424	40962.4	424942.1	335	0.50	0.0424	570001								
9	0.4340	41058.1	424689.6	325	0.50	0.0340	570001								
10	0.4322	40975.3	424464.6	293	0.50	0.0322	570001								

Points of maximum concentrations of saturated hydrocarbons c12-c19 (solvet rpk-265p etc.) on site № 11 and the numbers of sources of maximum contribution at the altitude of 2.00 m

Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	Veloc. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	N2 of source N1	Value of contrib. Q2	№ of source N2	Value of contrib. Q3	N2 of source N3	Value of contrib. Q4	№ of source N4
0.5176	40703.0	424733.0	260	0.50	0.1176	570001								
0.5175	40803.0	424733.0	281	0.50	0.1175	570001								
0.5114	40803.0	425133.0	58	0.50	0.1114	570001								
0.5104	40703.0	425133.0	119	0.50	0.1104	570001								
0.5074	40703.0	424833.0	254	0.50	0.1074	570001								
0.5072	40803.0	424833.0	288	0.50	0.1072	570001								
0.5067	40703.0	425233.0	101	0.50	0.1067	570001								
0.5065	40803.0	425233.0	77	0.50	0.1065	570001								
0.5019	40703.0	425333.0	98	0.50	0.1019	570001								
0.5014	40803.0	425333.0	81	0.50	0.1014	570001								

Saturated hydrocarbons c12-c19 (solvent rpn-265p etc.), Map,

H=2.00 m



Sanitary protection zone

S. Code	Substance name	MAV (mg/cu.m)
2902	Suspended solids, undifferentiated composition	0.50000000

Background concentrations containing the contributions of existing sources (MAV fractions) (MAV fractions) (Initial pollution conditions) of substanceL Suspended solids of undifferentiated composition, background condition: a.

Coord. X of point of control	Coord. Y of point of control	U<2 m/s (calm)	Veloc. of wind 2<U<U* N	Veloc. of wind 2<U<U* NE	Veloc. of wind 2<U<U* E	Veloc. of wind 2<U<U* SE	Veloc. of wind 2<U<U* S	Veloc. of wind 2<U<U* SW	Veloc. of wind 2<U<U* W	Veloc. of wind 2<U<U* NW
0.00	0.00	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10

Background concentrations less the existing sources (MAV fractions) (MAV fractions) (upper value — background, lower value — contribution) for the substance: Suspended solids of undifferentiated composition, background condition: a.

Coord. X of point of control	Coord. Y of point of control	U<2 m/s (calm)	Veloc. of wind 2<U<U* N	Veloc. of wind 2<U<U* NE	Veloc. of wind 2<U<U* E	Veloc. of wind 2<U<U* SE	Veloc. of wind 2<U<U* S	Veloc. of wind 2<U<U* SW	Veloc. of wind 2<U<U* W	Veloc. of wind 2<U<U* NW
0.00	0.00	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000

Source code Technolog. parameters	570003
Emission (g/s)	0.8880
Hazard Class	(100 m)
CM[h=2.00m] (MAV fractions) CM[h=2.00m] mg/cu.m CM/M[h=2.00m] mc/cu.m	72086.7705
XM (m)	11.45
UM[h=2.00m] (m/s)	1.00
X Y Coord. begin. point of linear sym. center plane (m)	40750.00 424950.00
X Y Coord. end. point of linear length and width of plane (m)	700.00 180.00
Relief factor	1.0000
Rate (cu.m/s)	0.0000
PGVS exh. rate: m/s	0
Dia (m)	
Height (m)	2.0000
Temperature (°C)	0.0000
Ordered settl. factor	1.0000
Emission (t/y)	8.6350

List Of Sources, Emissions Of Which Contain Suspended Solids of Undifferentiated Composition

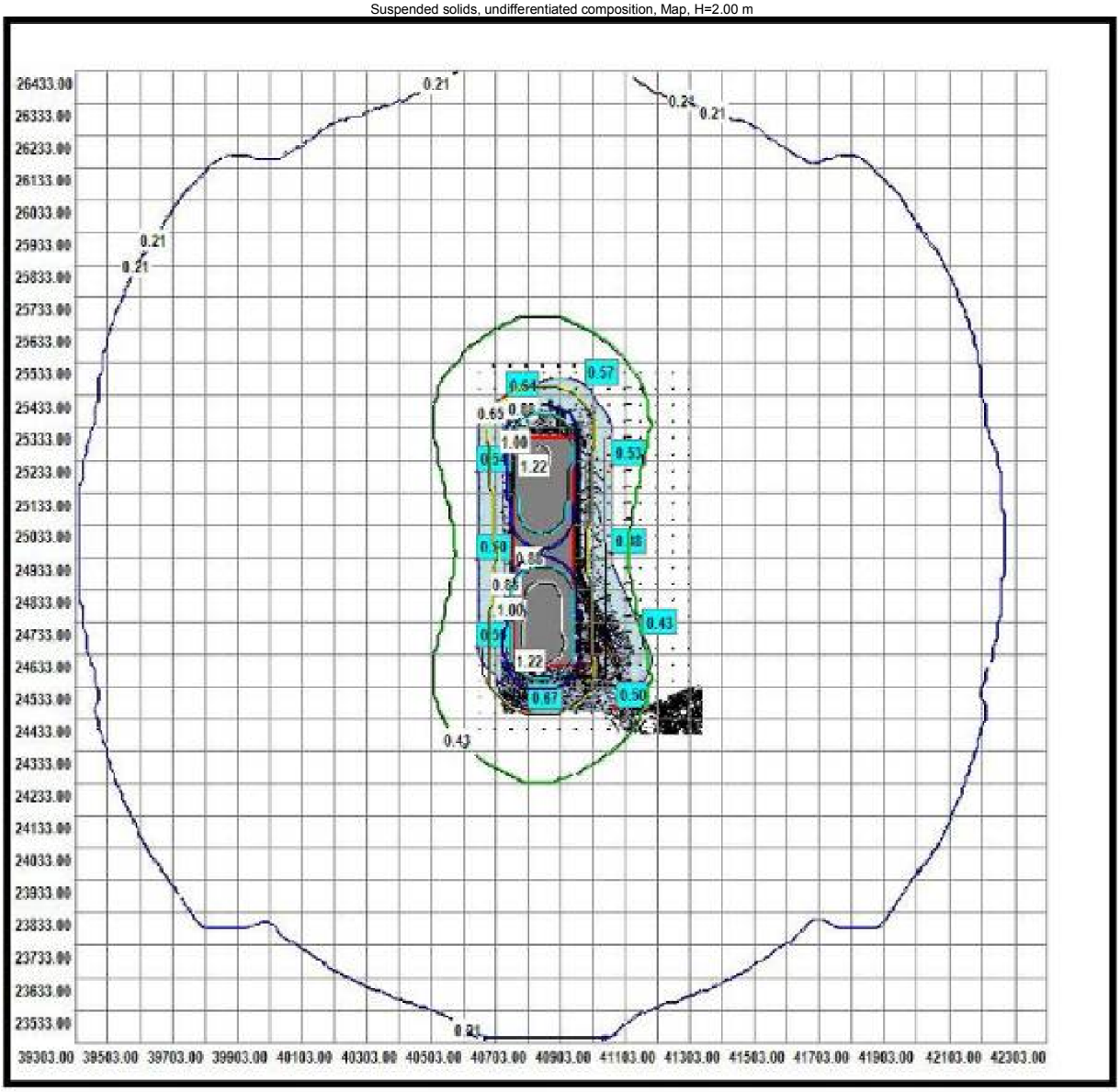
Calculated concentrations of substance: Suspended solids of undifferentiated composition
in the design points and the numbers of sources of maximum contribution at the altitude of 2.00 m

№ of Point	Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	Veloc. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	№ of source N1	Value of contrib. Q2	№ of source N2	Value of contrib. Q3	№ of source N3	Value of contrib. Q4	№ of source N4
1	0.6745	40703.5	424458.5	265	0.50	0.5745	570003								
2	0.5474	40546.3	424851.4	226	0.50	0.4474	570003								
3	0.4981	40546.0	424923.9	187	0.50	0.3981	570003								
4	0.5364	40546.0	425196.4	140	0.50	0.4364	570003								
5	0.6399	40635.4	425421.8	114	0.50	0.5399	570003								
6	0.5671	40878.5	425460.0	76	0.50	0.4671	570003								
7	0.5273	40962.1	425214.6	41	0.50	0.4273	570003								
8	0.4824	40962.4	424942.1	348	0.50	0.3824	570003								
9	0.4319	41058.1	424889.6	330	0.50	0.3319	570003								
10	0.5006	40975.3	424464.6	305	0.50	0.4006	570003								

Points of maximum concentrations of suspended solids of undifferentiated composition on site № 11 and the
numbers of sources of maximum contribution at the altitude of 2.00 m

Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	Veloc. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	№ of source N1	Value of contrib. Q2	№ of source N2	Value of contrib. Q3	№ of source N3	Value of contrib. Q4	№ of source N4
1.2742	40803.0	424633.0	289	0.50	1.1742	570003								
1.2734	40703.0	424833.0	252	0.50	1.1734	570003								
1.2473	40803.0	424733.0	294	0.50	1.1473	570003								
1.2455	40703.0	424733.0	248	0.50	1.1455	570003								
1.2150	40803.0	424833.0	294	0.50	1.1150	570003								
1.2094	40703.0	424833.0	248	0.50	1.1094	570003								
1.1806	40703.0	425233.0	99	0.50	1.0806	570003								
1.1777	40803.0	425233.0	79	0.50	1.0777	570003								
1.1185	40703.0	425133.0	104	0.50	1.0185	570003								
1.1158	40803.0	425133.0	74	0.50	1.0158	570003								

Suspended solids, undifferentiated composition, Map, H=2.00 m



Sanitary protection zone

S. Code	Substance name	MAV (mg/cu.m)
123	Iron oxide** (in terms of iron)	0.40000000

Background concentrations containing the contributions of existing sources (MAV fractions) (MAV fractions) (Initial pollution conditions) for the substance: Iron oxide** (in terms of iron), background condition: a.

Coord. X of point of control	Coord. Y of point of control	U<2 m/s (calm)	Veloc. of wind 2<U<U* N	Veloc. of wind 2<U<U* NE	Veloc. of wind 2<U<U* E	Veloc. of wind 2<U<U* SE	Veloc. of wind 2<U<U* S	Veloc. of wind 2<U<U* SW	Veloc. of wind 2<U<U* W	Veloc. of wind 2<U<U* NW
0.00	0.00	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40

Background concentrations less the existing sources (MAV fractions) (MAV fractions) (upper value — background, lower value — contribution) for the substance: Iron oxide** (in terms of iron), background condition: a.

Coord. X of point of control	Coord. Y of point of control	U<2 m/s (calm)	Veloc. of wind 2<U<U* N	Veloc. of wind 2<U<U* NE	Veloc. of wind 2<U<U* E	Veloc. of wind 2<U<U* SE	Veloc. of wind 2<U<U* S	Veloc. of wind 2<U<U* SW	Veloc. of wind 2<U<U* W	Veloc. of wind NW
0.00	0.00	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000

List Of Sources, Emissions Of Which Contain Iron oxide** (in terms of iron)

Source code Technolog. parameters	570002
Emission (g/s)	0.00522083
Hazard Class	(100 m)
CM[h=2.00m] (MAV fractions) CM[h=2.00m] mg/cu.m CM/M[h=2.00m] mc/cu.m	529.7759
XM (m)	1145
UM[h=2.00m] (m/s)	1.00
X Y Coord. begin. point of linear sym. center of plane (m)	40840.00 424660.00
X Y Point of linear length and width of plane (m)	10.00 5.00
Relief factor	1.0000
Rate (cu.m/s)	0.0000
PGVS exh. rate: m/s	0
Dia (m)	
Height (m)	2.0000
Temperature (°C)	1050.0000
Ordered settl. factor	1.0000
Emission (t/y)	0.0490

Calculated data for Iron Oxide** (in terms of iron) on site № 11

Calculation for the substance Iron Oxide** (in terms of iron) in the designed points of site № 11 was no carried out due to inexpediency as stipulated in Paragraph 5.21 OND-86

S. Code	Substance name	MAV (mg/cu.m)
143	Manganese and its compounds (in terms of dioxide)	0.01000000

Background concentrations containing the contributions of existing sources (MAV fractions) (MAV fractions) (Initial pollution conditions) for the substance: Manganese and its compounds (in terms of dioxide), background condition: a.

Coord. X of point of control	Coord. Y of point of control	U<2 m/s (calm)	Veloc. of wind 2<U<U* N	Veloc. of wind 2<U<U* NE	Veloc. of wind 2<U<U* E	Veloc. of wind 2<U<U* SE	Veloc. of wind 2<U<U* S	Veloc. of wind 2<U<U* SW	Veloc. of wind 2<U<U* W	Veloc. of wind 2<U<U* NW
0.00	0.00	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40

Background concentrations less the existing sources (MAV fractions) (MAV fractions) (upper value — background, lower value — contribution) for the substance: Manganese and its compounds (in terms of dioxide), background condition: a.

COORD. X of point of control	Coord. Y of point of control	U<2 M/S (calm)	VELOC. of wind 2<U<U* N	VELOC. of wind 2<U<U* NE	VELOC. of wind E	VELOC. of wind 2<U<U* SE	VELOC. of wind 2<U<U* S	VELOC. of wind 2<U<U* SW	VELOC. of wind 2<U<U* W	VELOC. of wind 2<U<U* NW
0.00	0.00	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000	0.4000

List of sources, the emissions of which contain manganese and its compounds (in terms of dioxide)

Source code Technological parameters	570002
Emission (g/s)	0.00077917
Hazard Class	(100 m)
CM[h=2.00m] (MAV fractions) CM[h=2.00m] mg/cu.m CM/M[h=2.00m] mc/cu.m	3162.6045
XM (m)	11.45
UM[h=2.00m] (m/s)	1.00
X Y Coord. begin. point of linear sym. center of plane (m)	40840.00 424660.00
X Y Point of linear length and width of plane (m)	10.00 5.00
Relief factor	1.0000
Rate (cu.m/s)	0.0000
PGVS exh. rate: m/s	0
Dia (m)	
Height (m)	2.0000
Temperature (°C)	1050.0000
Ordered settl. factor	1.0000
Emission (t/y)	0.0070

Calculated data for manganese and its compounds (in terms of dioxide) on site № 11

Calculation for the substance Manganese and its compounds (in terms of dioxide) in the designed points of site № 11 was no carried out due to inexpediency as stipulated in Paragraph 5.21 OND-86

Sum. Gr. Code	S. Code	Substance name	MAV (mg/cu.m)
31	301 330	Nitrogen dioxide Sulphurous anhydride	0.20000000 0.50000000

Background concentrations containing the contributions of existing sources (MAV fractions) (MAV fractions) (Initial pollution conditions) for Summation Group № 31. Background condition: a.

COORD. X of point of control	Coord. Y of point of control	U<2 m/s (calm)	Veloc. of wind 2<U<U* N	Veloc. of wind 2<U<U* NE	VELOC. of wind 2<U<U* E	VELOC. of wind 2<U<U* SE	Veloc. of wind 2<U<U* S	VELOC. of wind 2<U<U* SW	VELOC. of wind 2<U<U* W	Veloc. of wind 2<U<U* NW
0.00	0.00	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08

Background concentrations less the existing sources (MAV fractions) (MAV fractions) (upper value — background, lower value — contribution) for the substance: Summation Group № 31. Background condition: a.

COORD. X of point of control	Coord. Y of point of control	U<2 m/s (calm)	Veloc. of wind 2<U<U* N	Veloc. of wind 2<U<U* NE	VELOC. of wind 2<U<U* E	Veloc. of wind 2<U<U* SE	Veloc. of wind 2<U<U* S	VELOC. of wind 2<U<U* SW	VELOC. of wind 2<U<U* W	Veloc. of wind 2<U<U* NW
0.00	0.00	0.0800	0.0800	0.0800	0.0800	0.0800	0.0800	0.0800	0.0800	0.0800

Calculated concentrations of substance: Summation Group № 31
in the design points and the numbers of sources of maximum contribution at the altitude of 2.00 m

Source code Technolog. parameters	***570001
Emission (g/s)	0.775087535
Hazard Class	(100 m)
CM[h=2.00m] (MAV fractions) CM[h=2.00m] mg/cu.m CM/M[h=2.00m] mc/cu.m	2148.8138
XM (m)	14.31
UM[h=2.00m] (m/s)	1.00
X Y Coord. begin. point of linear sym. center plane (m)	40750.00 425000.00
X Y Point of linear length and width of plane (m)	600.00 180.00
Relief factor	1.0000
Rate (cu.m/s)	0.0000
PGVS exh. rate: m/s	0
Dia (m)	-
Height (m)	2.5000
Temperature (°C)	120.0000
Ordered settl. factor	1.0000
Emission (t/y)	11.31000042

List Of Sources, Emissions Of Which Contain Summation Group № 31

Calculated concentrations of substance: Summation
Group № 31
in the design points and the numbers of sources of

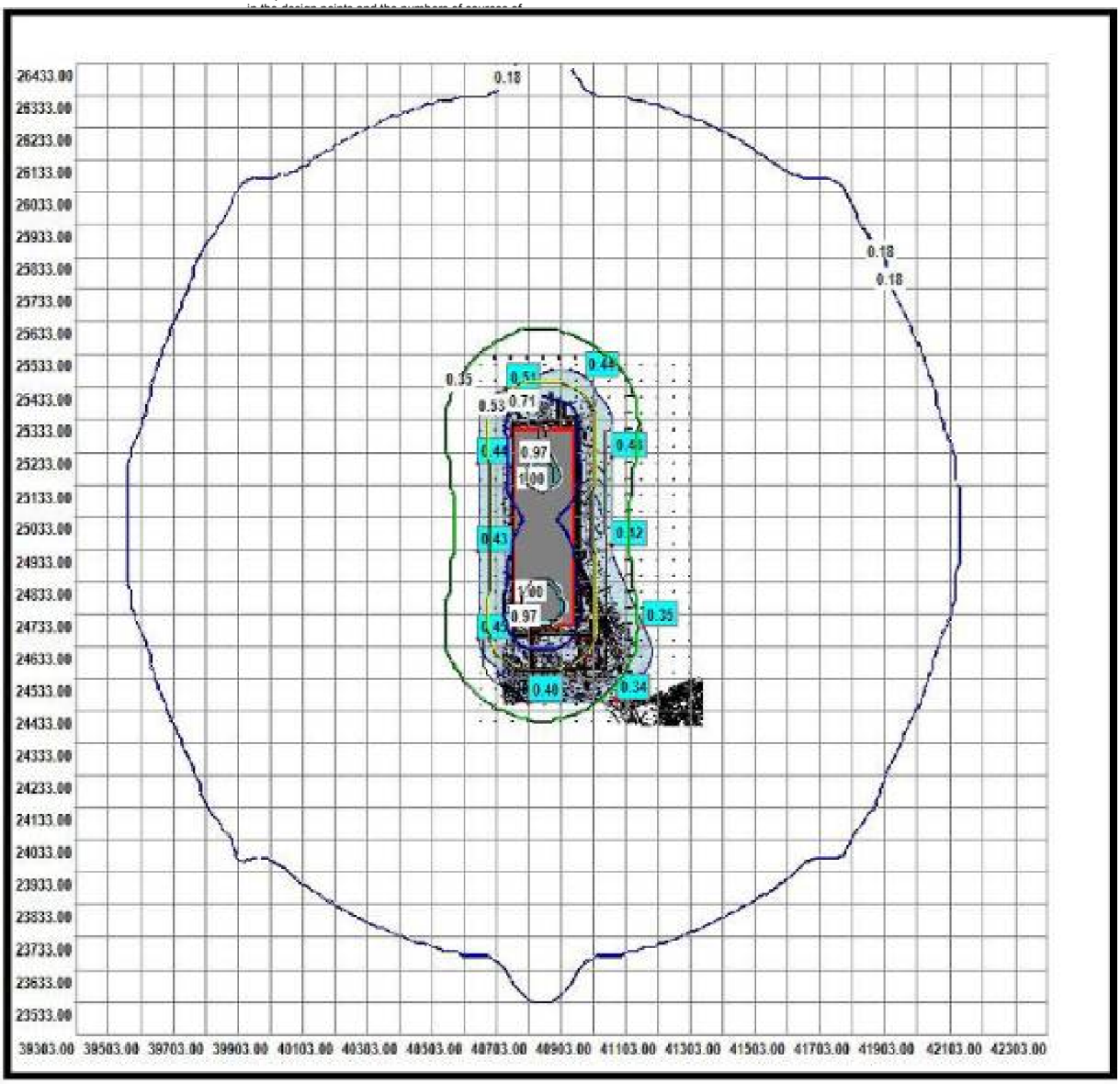
№ of Point	Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	Veloc. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	№ of source N1	Value of contrib. Q2	№ of source N2	Value of contrib. Q3	№ of source N3	Value of contrib. Q4	№ of source N4
1	0.3995	40703.5	424458.5	265	0.75	0.3195	570001								
2	0.4535	40546.3	424651.4	230	0.50	0.3735	570001								
3	0.4326	40546.0	424923.9	200	0.50	0.3526	570001								
4	0.4433	40546.0	425196.4	146	0.50	0.3633	570001								
5	0.5076	40635.4	425421.9	115	0.50	0.4276	570001								
6	0.4434	40878.5	425460.0	74	0.50	0.3634	570001								
7	0.4337	40962.1	425214.6	35	0.50	0.3537	570001								
8	0.4192	40962.4	424942.1	335	0.50	0.3392	570001								
9	0.3516	41058.1	424689.6	325	0.50	0.2716	570001								
10	0.3375	40975.3	424464.6	293	0.50	0.2575	570001								

Points of maximum concentrations of Summation Group № 31 on site № 11 and the numbers of sources of maximum contribution at the altitude of 2.00 m

Conc. in Point, MAV frac.	Coord. of Point X	Coord. of Point Y	Direct. of wind	Veloc. of wind	Value of contrib. Q0	№ of source N0	Value of contrib. Q1	№ of source N1	Value of contrib. Q2	№ of source N2	Value of contrib. Q3	№ of source N3	Value of contrib. Q4	№ of source N4
1.0209	40703.0	424733.0	260	0.50	0.9409	570001								
1.0198	40803.0	424733.0	281	0.50	0.9398	570001								
0.9715	40803.0	425133.0	58	0.50	0.8915	570001								
0.9634	40703.0	425133.0	119	0.50	0.8834	570001								
0.9389	40703.0	424833.0	254	0.50	0.8589	570001								
0.9380	40803.0	424833.0	288	0.50	0.8580	570001								
0.9337	40703.0	425233.0	101	0.50	0.8537	570001								
0.9318	40803.0	425233.0	77	0.50	0.8518	570001								
0.8951	40703.0	425333.0	98	0.50	0.8151	570001								
0.8913	40803.0	425333.0	81	0.50	0.8113	570001								

Summation Group № 31 Map, H=2.00 m

Calculated concentrations of substance: Summation
Group № 31
in the design points and the numbers of sources of



Sanitary protection zone

Annex Ш (25) (Mandatory)

Report On The Measures To Inform The Neighbouring States About The Possible Impact Of The CSFSF In The Transboundary Context

Ministry of Fuel and Energy of Ukraine

REPORT

On Measures To Inform The Neighboring States About The Possible Impact In A Transboundary Context Of The Central Storage Facility For Spent Fuel From The VVER Nuclear Power Plants Of Ukraine

Kyiv — 2008

CONTENTS

ABBREVIATIONS

NPP	Nuclear Power Plant
VVER	water-water energy reactor
SE NNEC Energoatom	The State Enterprise" National Nuclear Energy Generating Company "Energoatom"
DNITS SCAR	State Scientific and Engineering Center for Monitoring and Emergency Response
Media	mass media
BDBA	beyond design basis accident
IAR	Information and Analytical Review of the VVER CSFSF IFS materials
MFA	Ministry of Foreign Affairs of Ukraine
MFE	Ministry of Fuel and Energy of Ukraine
MDBA	maximum design basis accident
NC	normal conditions
EIA	environmental impact assessment
PC	public consultations
CSFSF	Central Storage Facility for Spent Fuel from the VVER Nuclear Power Plants of Ukraine
IFS	investment feasibility study
TUE	transuranic elements

1. INTRODUCTION

1.1 General Information

1.1.1, This report on measures to inform the neighboring states about the possible impact in a transboundary context of the central storage facility for spent fuel (the CSFSF, the Facility) from the VVER nuclear power plants of Ukraine (the Report) describes the procedures and results of informing the neighboring states on the possible impact of the Facility during February-July 2008.

This report does not cover other measures of public interaction performed within the mentioned period or beyond it, which do not intended to inform the neighboring states on the possible impact of the CSFSF in a transboundary context.

1.1.2 The Informing of the neighboring states about the possible impact in a transboundary context was carried out by the following bodies within their jurisdiction:

- Ministry of Foreign Affairs of Ukraine (MFA),
- Ministry of Fuel and Energy of Ukraine (MFE).

1.1.4 The planning, preparation of information materials, signing the contacts with the public and mass media (the Media), including the foreign ones, and the production of reports is entrusted to:

- State Enterprise "National Nuclear Energy Company "Energoatom"" (SE NNEC Energoatom),
- State Scientific and Engineering Center for Monitoring and Emergency Response (DNITS SCAR).

1.1.5 The informing of the neighbouring states on the possible impact of the CSFSF in a transboundary context is based on the results of the Envoronmental Impact Assessment (EIA) made as part of the Investment Feasibility Study (IFS) by JSC Kyiv Scientific-Research and Design Institute "Enerhoproekt" on demand of SE NNEC Energoatom.

1.2 Normative Legal Acts Regulating The Process Of Informing The Neighboring States About The Possible Impact Of The CSFSF In A Transboundary Context

1,2.1 The consistency and mutual conditionality of the global environmental processes and phenomena in the world determines the growing concern of the international community about the environmental problems. The Declaration of the United Nations Conference on Environment and Development and The Agenda for the XXI-th Century, adopted at the UN Conference on Environment and Development (Rio de Janeiro, Brazil, 1992) [1, 2], declared that the current environmental problems can be resolved only with the proper participation of all the stakeholders, and the special role here belongs to the public. The participation of public in the evaluation of the environmental impact and making environmentally significant decisions as well as the public discussion of the

proposed activities among all the stakeholders at early stages of decision-making can prevent conflict and mitigate the adverse effects of the decisions made.

These principles were further developed in a number of conferences and meeting at the global scale, including the World Summit on Sustainable Development (Johannesburg, South Africa, 2002) [3], the Kiev Ministerial Conference "Environment for Europe" (Kyiv, Ukraine, 2003) [4] and others.

In the international law, the requirements concerning granting of the possibilities of preliminary and effective participation of the public and other stakeholders in the evaluation of plans and programs, including the right to choose different options, are established by many international conventions and agreements adhered to by the vast majority of countries, including Ukraine.

1.2.2 The implementation of the international treaties, the development of international cooperation in the field of nuclear energy for peaceful purposes, and strengthening the international regime of safety and radiation protection are the basic principles of the state policy of Ukraine in the field of nuclear energy. This policy, which, while making the environmentally significant decisions, provides for the comprehensive and timely consultations both at the international level and with the local public is regulated by a number of international agreements ratified by Ukraine and laws of Ukraine, in particular:

- Convention on Nuclear Safety [5];
- Convention on Environmental Impact Assessment in a Transboundary Context [6];
- Convention on Access to Information, Public Participation in Decision-making, and Access to Justice in the Environmental Matters [7];
- Joint Convention on the Safety of Spent Fuel Management and Radioactive Waste Management [8];
- Law of Ukraine "On Nuclear Energy Use and Radiation Safety" [9];
- Law of Ukraine "On Environmental Protection" [10];
- Law of Ukraine "On Protection of People from Ionizing Radiation" [11];
- Law of Ukraine "On Radioactive Waste Management" [12];
- Law of Ukraine "On Procedure of Making Decisions on the Placement, Design, and Construction of Nuclear Installations and Facilities for Radioactive Waste Management of National Importance" [13];
- Law of Ukraine "On Information" [14];
- Law of Ukraine "On Ecological Assessment" [15], etc.

1.2.3 The order of informing the public of the neighboring countries on the planned activity is established by the Convention on Environmental Impact Assessment in a Transboundary Context [6]. According to Paragraph 4 of Article 2 of the Convention,

“the Party of origin... shall provide for the notification of affected Parties on the proposed activity... that may cause significant adverse transboundary impact.” The “affected Party” as defined by Article 1, means the “Contracting Party to this Convention that might be affected by the transboundary impact of a proposed activity.”

According to Paragraph 6 of Article 2 of the Convention [6], “The Party of origin shall provide, in accordance with the provisions of this Convention, an opportunity to the public in the areas likely to be affected to participate in relevant environmental impact assessment procedures regarding proposed activities and shall ensure that the opportunity provided to the public of the affected Party is equivalent to that provided to the public of the Party of origin.”

1.2.4 The content of the information presented supplied to the public is determined, in particular, in Paragraph 6 of Article 6 of “The Convention on Access to Information, Public Participation in Decision-making, and Access to Justice in the Environmental Matters” [7]:

The relevant information shall include at least, and without prejudice to the provisions of Article 4:

a) A description of the site and the physical and technical characteristics of the proposed activity, including an estimate of the expected residues and emissions;

b) A description of the significant effects of the proposed activity on the environment;

c) A description of the measures envisaged to prevent and/or reduce the effects, including emissions;

d) A non-technical summary of the above;

e) An outline of the main alternatives studied by the applicant; and

f) In accordance with national legislation, the main reports and advice issued to the public authority at the time when the public concerned shall be informed...”

Paragraph 4 of Article 4 of the Convention [7] defines constraints on the content of the information provided to the public, namely “... if the disclosure could adversely affect... the national security, confidentiality of commercial and industrial information; ... the intellectual property rights.” In this case, Paragraph 6 of Article 6 guarantees “... that, in the cases where the information is not to be disclosed... it can be separated from the rest of the information without compromising the confidentiality of information not subject to disclosure, and such environmental information can be made available by the state authorities.”

1.2.5 Under the provisions of Article 5 of the Law of Ukraine “On Nuclear Energy Use and Radiation Safety” [9], the openness and availability of information related to the use of nuclear energy is one of the basic principles of the state policy in the field of nuclear energy and radiation protection. According to Article 11 of this law, “the citizens and their associations have the right... to participate in the discussions on the issues related to placement, design, construction, operation and decommissioning of the nuclear

installations and the ionizing radiation sources. In order to attract the citizens and their associations to participate in the consideration of issues related to nuclear energy, the local authorities and governments may organize public hearings on the projects related to the placement, construction, and decommissioning of the nuclear installations and facilities for the radioactive waste."

The rights of citizens to discuss the issues of placement, construction and reconstruction of the objects that may adversely impact the environment, and to participate in the public hearings are also established by the Law of Ukraine "On Environmental Protection" [10] (Article 9), the Law of Ukraine "On Radioactive waste Management" [12] (Article 8), etc.

1.2.6 Article 5 of the Law of Ukraine "On Procedure of Making Decisions on the Placement, Design, and Construction of Nuclear Installations and Facilities for Radioactive Waste Management of National Importance" [13] specifies that:

"the Draft Law 'On Placement, Design, and Construction of Nuclear Installations and Facilities for Radioactive Waste Management of National Importance' shall be supplemented with:...

the report on the measures to inform the neighboring states about the possible impact in a transboundary context, as provided by the law."

1.2.7 The detailed information on the requirements as to the measures to inform the neighboring states about the possible impact in a transboundary context is provided in Annex A (1).

1.3 The EIA Findings As To The Potential Impact Of The CSFSF, The Environmental Risks, And The Possible Consequences In A Transboundary Context

1.3.1 The EIA as part of the IFS includes the estimation of influence of the CSFSF construction and operation under normal conditions (NC) at the maximum design-basis accident (MDBA)

and the beyond design-basis accident (BDBA) with the most severe radiological consequences. The distance, at which the limit dose for inhalation of radionuclides in case of BDBA may be exceeded is estimated at 600 meters. Thus, the estimated potential impact zone of the CSFSF is about 600 meters from the storage site. The risk of the BDBA at the CSFSF is described in the EIA as "negligible" (less than 10^{-7}/year).

1.3.2 According to the findings of the EIA, if the values of exposure under normal conditions of construction and operation of the CSFSF, the environmental risk acceptable. According to the EIA, the environmental risk in case of accident may be associated with fire during construction. According to the EIA findings, if the regulatory measures to ensure fire safety during construction are observed, the environmental risk of fire is acceptable.

1.3.3 The closest neighboring states under the possible impact to be analysed are the Republic of Belarus and the Russian Federation. Since the shortest distance from the site to the border of the Russian Federation is 220 km and the “Convention on Environmental Impact Assessment in a Transboundary Context” [6] was not ratified by the Russian Federation, the influence on the territory of the RF is beyond the EIA scope.

1.3.4 The shortest distance from the CSFSF site to the border of Belarus is 13 km in the north (near the abandoned settlement of Khutor Lis). The nearest place of permanent residence of the population is at the distance of 31 km (Oleksandrivka) north-west of the CSFSF and 31 km (Gden) east if the CSFSF.

1.3.5 The impact on these areas of the Republic of Belarus considered in Paragraph 1.3.4 are analysed in the EIA as part of the CSFSF IFS:

- normal conditions of construction;
- normal operation of the CSFSF;
- MDBA at the CSFSF;
- BDBA at the CSFSF.

Since the forest fire was assumed as the accident during construction of the CSFSF, the event that is not the direct result of the storage facility construction, the impact of such accident on the territory of the Republic of Belarus was not considered in the IFS.

1.3.6 Since the effects of radiation are the main types of impact of the Facility, the state of the environment in Belarus was estimated in the IFS EIA using the following key indicators:

radioactive air contamination;

radioactive soil contamination;

additional exposure of the population.

1.3.7 The estimated levels of radioactive air contamination on the sites in the Republic of Belarus listed in Paragraph 1.3.4 under different conditions of construction and operation of the Facility are set out in Table 1.1. The estimated in the EIA levels of radioactive soil contamination are given in Table 1.2. The forecast levels of additional exposure of the population are shown in Table 1.3.

Table 1.1. The volumetric activity of radionuclides in the air during the construction and operation of the Facility (Bq/m^3)

	Construction, NC		Operation, NC		MDBA at CSFSF		BDBA at CSFSF	
	13 km	31 km	13 km	31 km	13 km	31 km	13 km	31 km
^{60}Co	-	-	$8\cdot10^{-9}$	$2\cdot10^{-9}$	$1.5\cdot10^{-6}$	$3\cdot10^{-7}$	-	-
^{137}Cs	$4.0\cdot10^{-5}$	$1.3\cdot10^{-5}$	-	-	-	-	$6.0\cdot10^{-4}$	$2.0\cdot10^{-4}$
^{90}Sr	$9.0\cdot10^{-6}$	$5.0\cdot10^{-6}$	-	-	-	-	$4.0\cdot10^{-4}$	$1.3\cdot10^{-4}$
TUE	$5.0\cdot10^{-7}$	$1.5\cdot10^{-7}$	-	-	-	-	$1.4\cdot10^{-6}$	$6.0\cdot10^{-7}$

Table 1.2. The density of radioactive contamination of the soil surface during the construction and operation of the Facility (Bq/m^2)

	Construction, NC		**Operation, NC**		**MDBA at CSFSF**		**BDBA at CSFSF**	
	13 km	31 km	13 km	31 km	13 km	31 km	13 km	31 km
^{60}Co	-	-	$2\cdot10^{-3}$	$5\cdot10^{-3}$	68	10	-	-
^{137}Cs	*	*	-	-	-	-	12	7
^{90}Sr	*	*	-	-	-	-	8	3
TUE	*	*	-	-	-	-	0.03	0.015

* Not included in the EIA due to low values.

Table 1.3. The additional exposure doses for the population during the construction and operation of the Facility

	Construction, NC		**Operation, NC**		**MDBA at CSFSF**		**BDBA at CSFSF**	
	13 km	31 km	13 km	31 km	13 km	31 km	13 km	31 km
mSv/year	*	*	$9.4\cdot10^{-7}$	$6.3\cdot10^{-7}$	-	-	-	-
mSv			-	-	$3.6\cdot10^{-5}$	$5.3\cdot10^{-6}$	$4.0\cdot10^{-4}$	$1.5\cdot10^{-4}$

* Not included in the EIA due to low values.

** Inhalation of ^{60}Co.

*** Inhalation of the mixture of radionuclides during 30 days.

1.3.8 Based on the results, the following conclusions on the impact of the Facility on the environment in Belarus were made:

- The and normal operation of the Facility will not result in significant adverse impact on the air, soil and human health in the neighbouring areas of Belarus during the whole design period of existence (100 years).
- In case of design basis accident with maximum consequences during the CSFSF operation, the air and soil contamination as well as the additional public exposure in the border territories of Belarus will be negligible due to the significant distance of these territories from the storage facility.
- In case of beyond design basis accident at the CSFSF, the air and soil contamination as well as the additional public exposure in the border territories of Belarus the radiation situation will not change significantly due to low probability of such an accident, which can be considered acceptable.

1.4 Mandatory Measures Under International Obligations of Ukraine To Inform The Neighboring States About The Possible Impact In A Transboundary Context

1.4.1 According to the results of EIA, made as part of IFS, the zone of potential impact during the construction and operation of the CSFSF, including the MDBA and BDBA scenarios, covers the territory radius of about 600 meters from the facility, which is entirely within Ukraine.

1.4.2 On the territory of the immediately neighboring states, the influence of construction and operation, including the MDBA and BDBA scenarios, will be several order of magnitude less as compared to the maximum allowed values established by the laws of the corresponding states [16-18] and the domestic law [11].

1.4.3 Based on the assumptions specified in Paragraphs 1.4.1 and 1.4.2, the intent to build the CSFSF does not imply any obligation under international obligations of Ukraine to inform the neighboring states, as affected parties, about the possible impact in a transboundary context.

1.5 Voluntary Informing The Neighbouring States About The Establishment Of The CSFSF, The Results Of Its Environmental Impact Assessment, And The Possible Impact In A Transboundary Context

1.5.1 Despite the lack of obligations with the Ukrainian Party to inform the neighboring states, as affected parties, about the possible impact of the Facility in a transboundary context, following the principles of good neighborliness, the Ministry of Foreign Affairs of Ukraine and the Ministry of Fuel and Energy of Ukraine, on the initiative and with the support of the contractors, voluntarily informed the Republic of Belarus about the intent to establish the Facility.

1.5.2 The Belarusian Party expressed interest and participated in the process of

assessing the environmental impact during the construction and operation of the Facility.

Official letters by the Parties are set out Annex Б (2).

1.5.3 The measures in voluntary informing the Belarusian Party and its participation in the EIA include as follows:

- providing the Belarusian party with the set of information documents on the CSFSF;
- involvement of the representatives of the Belarusian mass media to participate in the public consultations (PC);
- providing of current information on the PC to the interested parties in Belarus by mail, fax and e-mail;
- providing for the opportunities for public participation of the Belarus in case of interest in the PC events carried out in Ukraine (round tables, public discussions and hearings);
- providing the Belarusian party with notes and comments on the establishment of the CSFSF, the results of its environmental and transboundary impact assessment;
- preparation and submission to the Belarusian Party of expert conclusions and incorporation of practical observations and comments on the draft IFS in the final version.

1.5.4 In relation to other neighboring states, the voluntary informing by Ukraine is not intended due to significant remoteness of the CSFSF from the borders of the states. In case of interest on their part, the contractors had extra sets of documents to provide on request to the national authorities or concerned natural or legal persons. All the public events provided for appropriate amounts of spare materials.

2. VOLUNTARY MEASURES IN INFORMING THE BELARUSIAN PARTY AND ITS PARTICIPATION IN THE EIA

2.1 The Information Package On The CSFSF Provided To The Belarusian Party

2.1.1 The information document package on the CSFSF was transferred to the Belarusian party along with Letter № 06/33-139 of Ministry of Fuel and Energy of 09.02.2008 (Annex B (3)) and simultaneously with the publication of official reports on the commencement of the PC in the national press (Annex Г (4)).

2.1.2 The information package was similar to that submitted to the public in Ukraine and included:

- a copy of the Statement of environmental impact of construction and operation of the CSFSF (Annex Д (5));
- the Action Plan for the public consultations on the construction of the CSFSF (Annex E (6));

- the informational and analytical review of the investments feasibility study for the Central Storage Facility for Spent Fuel from the VVER Nuclear Power Plants of Ukraine (Annex Ж (7)).

2.1.3 The expected total duration of the active phase of PC was about 2.5 months with possible extension for another term of 0.5 months for written relies to complex technical questions, remarks and comments made by the public.

The terms and details of some activities were subject to confirmation during the implementation of the Action Plan.

2.1.4 Overall, the IFS materials included as follows:

- Volume 1, Part 1. Source Data For The Justification Of The Need And Advisability Of The CSFSF Construction.
- Volume 1, Part 2. Analysis And Evaluation Of Alternative SNF Management Technologies.
- Volume 1, Part 3. Basic Technological Solutions.
- Volume1, Part 4. Nuclear And Radiation Safety.
- Volume1, Part 5. Selection And Comparison Of The Sites For The CSFSF Construction.
- Volume1, Part 6. Master Plan And Transport.
- Volume1, Part 7. Major Decisions On The Organization Of Construction.
- Volume1, Part 8. Facility Performance.
- Volume 2. Consolidated Cost Estimate.
- Volume 3. Environmental Impact Assessment (2 parts):

- Part 1. Characteristics of the CSFSF site and the area. The CSFSF Overview.
- Part 2. The CSFSF's Sources Of Environmental Impact. The CSFSF Environmental Impact Assessment.

- Volume 4. Draft Statement Of Environmental Impact.

The IFS materials listed contain confidential information provided for by the Convention on Access to Information, Public Participation in Decision-making, and Access to Justice in the Environmental Matters [7] (see Paragraph 1.2.4 of this Report)). In particular, such confidential information includes:

- the issues related to national security: organizational and technical solutions for physical security, enforcement of non-disclosure, etc.
- the issues related to the confidentiality of commercial and industrial information and the intellectual property rights.

Taking into account the above and the large amount of the IFS materials, a brief set of

materials was compiled for free dissemination among the public — “The Informational And Analytical Review Of The Investments Feasibility Study For The Central Storage Facility For Spent Fuel From The VVER Nuclear Power Plants Of Ukraine” (IAR) containing the ecological and technical information required under the provisions of the Convention [7] (see Paragraph 1.2.4 of this Report)). The IAR was prepared and distributed both in Ukrainian and Russian.

2.1.5 After reviewing the information provided in the package, the Belarusian Party requested from the Ukrainian Party the full version of the EIA for further study by experts. These materials were provided to the Belarusian Party. The copies of relevant e-mails are listed in Annex И (9).

2.2 Participation Of Representatives Of The Belarusian Mass Media In The PC

2.2.1 According to the PC Action Plan (Annex Б (2)), at the beginning of its active phase for the media representatives, including the representatives of the Belarusian media, the briefing was held (February 7, 2008, the Crisis Center of SE NNEC Energoatom, 3 Vetrova Str., Kyiv). The full list of media that participated in the PC is presented in Table 2.1.

Table 2.1. The List Of Media That Participated In The PC

№	**Media**	**Location**
1	*UNIAN* Agency	Kyiv
2	*Atomnik Ukrainy* newspaper	Kyiv
3	*Goos Ukrainy* newspaper	Kyiv
4	*Novyny Polissya* newspaper	Settl. Ivankiv
5	*Teleden Slavutych* newspaper	Slavutych
6	*Uryadovy Kurier* newspaper	Kyiv
7	*Den’* newspaper	Kyiv
8	*Der Spiegel-Profil* magazine	Kyiv
9	*Novy Region* Information Agency	Kyiv
10	*RBK-Ukraina* Information Agency	Kyiv
11	*Ukrinform* Information Agency	Kyiv
12	*Fotolenta* Information Agency	Kyiv

33	*Interfax-Ukraina*	Kyiv
14	*ITAR-TASS*	Kyiv
15	*Kommersant* newspaper	Kyiv
16	*LigaBiznesInform*	Kyiv
17	*Mezhdunarondy Kurier*	Kyiv
18	*Novynar*	Kyiv
19	*ONT Belarus*	Republic of Belarus
20	*Pershy Dilovyi Kanal*	Kyiv
21	*UAT OSR ChAES Press*	Slavutych
22	Radio *Era*	Kyiv
23	Radio *Svoboda*	Kyiv
24	Radio *106 FM*	Kyiv
25	Studio *1+1*	Kyiv
26	TV channel *Tonis*	Kyiv
27	TV channel *Gamma*	Kyiv
28	TV channel *Inter*	Kyiv
29	TRK *Era*	Kyiv
№	**Media**	**Location**
30	TRK *Slavutych*	Slavutych
31	*Ukrainski Novyny*	Kyiv
32	*Ukrainski Oglyadachi*	Kyiv
33	*Ukrainski Biznes Kanal*	Kyiv
34	*UTR*	Kyiv
35	Internet publication *URA-Inform*	Kyiv
36	*Chistaya Pribyl*	Kyiv
37	*IVS*	Kyiv
38	*24 Kanal*	Kyiv

2.3 Providing Of Current Information To The Interested Representatives Of The Belarusian Party Granting The Possibilities To Participate In The PC Activities

2.3.1 Throughout the PC process, all public organizations and the media, including the Belarusian media interested in PC, were receiving current information on the PC activities (notifications, press releases, etc.).

2.3.2. In the preparation of public events (the round tables in Kyiv and Slavutich, the public discussion in Ivankiv, the public hearings in Slavutych), not less than 10 % of seats and the corresponding number of handout packages were reserved for the interest foreign representatives, NGOs and the media, including the representatives of the Belarusian.

2.4 Questions, Remarks And Comments Of The Belarusian Party

2.4.1 Having studied the submissions received, the specialists of the Belarusian Party formulated a number of questions, remarks and comments on the EIA and other aspects of the CSFSF establishment (Annex К (11)).

2.4.2. All the questions, remarks and comments were duly addressed by the Ukrainian Party and taken into account in the final version of the IFS. A copy of the letter is in Annex К (11)).

2.5 Completion Of Consultations With The Belarusian Party

2.5.1 The satisfactory completion of the consultations procedures with the Belarusian Party was confirmed by Letter № 14-09/3039 of the Ministry of Natural Resources and Environmental Protection of Belarus dated 22.07.2008 (Annex Л (12)).

3. FINAL PROVISIONS

The information contained in this Report on the grounds, organization and implementation of measures to inform the neighboring states about the possible impact of the CSFSF in a transboundary context and their results leads to the conclusions set out below.

3.1 According to international agreements ratified by Ukraine and the laws of Ukraine, the IFS provided for and implemented all the activities in the CSFSF environmental impact assessment in a transboundary context. The results of IFS showed that the CSFSF is not the object that actually or potentially impacts the population and the environment in a transboundary context in relation to all the neighboring states.

According to the results of EIA, made as part of IFS, the zone of potential impact during the construction and operation of the CSFSF, including the MDBA and BDBA scenarios, covers the territory radius of about 600 meters from the facility, which is entirely within Ukraine. On the territory of the immediately neighboring states, the

influence of construction and operation, including the MDBA and BDBA scenarios, will be several order of magnitude less as compared to the maximum allowed values established by the laws of the corresponding states and the domestic law.

Based on the stated above, the intent to build the CSFSF does not imply any obligation under international obligations of Ukraine to inform the neighboring states, as affected parties, about the possible impact in a transboundary context.

7.2 Despite the lack of obligations with the Ukrainian Party to inform the neighboring states, as affected parties, about the possible impact of the Facility in a transboundary context, following the principles of good neighborliness, the Ukrainian Party voluntarily informed the Republic of Belarus about the intent to establish the Facility.

In relation to other neighboring states, the voluntary informing by Ukraine is not intended due to significant remoteness of the CSFSF from the borders of the states.

7.3. The Belarusian Party expressed interest and participated in the process of assessing the environmental impact during the construction and operation of the Facility. The measures in voluntary informing the Belarusian Party and its participation in the EIA include as follows:

- providing the Belarusian party with the set of information documents on the CSFSF;
- involvement of the representatives of the Belarusian mass media to participate in the public consultations;
- providing of current information on the PC to the interested parties in Belarus by mail, fax and e-mail;
- providing for the opportunities for public participation of the Belarus in case of interest in the PC events carried out in Ukraine (round tables, public discussions and hearings);
- providing the Belarusian party with notes and comments on the establishment of the CSFSF, the results of its environmental and transboundary impact assessment;
- preparation and submission to the Belarusian Party of expert conclusions and incorporation of practical observations and comments on the draft IFS in the final version.

7.4 The satisfactory completion of the consultations procedures with the Belarusian Party was confirmed by Letter № 14-09/3039 of the Ministry of Natural Resources and Environmental Protection of Belarus — the national body authorized under The Convention on Environmental Impact Assessment in a Transboundary Context.

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ANNEX A (1)

THE DETAILED INFORMATION ON THE REQUIREMENTS AS TO THE MEASURES TO INFORM THE NEIGHBORING STATES ABOUT THE POSSIBLE IMPACT IN A TRANSBOUNDARY CONTEXT

A1. Definitions Of Activities That Can Have Harmful Trabsboundary Impact

"Convention On Environmental Impact Assessment In A Transboundary Context" [6]

"Article 1. Definitions

For the purposes of this Convention:

... vii) "impact" means any effect caused by a proposed activity on the environment including human health and safety, flora, fauna, soil, air, water, climate, landscape and historical monuments or other physical structures or the interaction among these factors; it also includes effects on cultural heritage or socio-economic conditions resulting from alterations to those factors;

viii) "Transboundary impact" means any impact, not exclusively of a global nature, within an area under the jurisdiction of a Party caused by a proposed activity the physical origin of which is situated wholly or in part within the area under the jurisdiction of another Party.

Article 2. General Provisions

1. The Parties shall, either individually or jointly, take all appropriate and effective measures to prevent, reduce and control significant adverse transboundary environmental impact from proposed activities.

2. Each Party shall take the necessary legal, administrative or other measures to implement the provisions of this Convention, including, with respect to proposed activities listed in Appendix I that are likely to cause significant adverse transboundary impact, the establishment of an environmental impact assessment procedure that permits public participation and preparation of the environmental impact assessment documentation described in Appendix II.

5... General guidance for identifying criteria to determine significant adverse impact is set forth in Appendix III.

APPENDIX I. List Of Activities

... 2. Thermal power stations and other combustion installations with a heat output of 300 megawatts or more and nuclear power stations and other nuclear reactors (except research installations for the production and conversion of fissionable and fertile materials, whose maximum power does not exceed 1 kilowatt continuous thermal load).

3. Installations solely designed for the production or enrichment of nuclear fuels, for the reprocessing of irradiated nuclear fuels or for the storage, disposal and processing of radioactive waste.

APPENDIX III. General Criteria To Assist In The Determination Of The Environmental Significance Of Activities Not Listed In Appendix I

1. In considering proposed activities to which Article 2, Paragraph 5, applies, the concerned Parties may consider whether the activity is likely to have a significant adverse transboundary impact in particular by virtue of one or more of the following criteria:

a) Size: proposed activities which are large for the type of the activity;

b) Location: proposed activities which are located in or close to an area of special environmental sensitivity or importance (such as wetlands designated under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention), national parks, nature reserves, sites of special scientific interest, or sites of archaeological, cultural or historical importance); also, proposed activities in locations where the characteristics of proposed development would be likely to have significant effects on the population;

c) Effects: proposed activities with particularly complex and potentially adverse effects, including those giving rise to serious effects on humans or on valued species or organisms, those which threaten the existing or potential use of an affected area and those causing additional loading which cannot be sustained by the carrying capacity of the environment.

2. The concerned Parties shall consider for this purpose proposed activities which are located close to an international frontier as well as more remote proposed activities which could give rise to significant transboundary effects far removed from the site of development.

"**Protocol On Strategic Environmental Impact Assessment To The Convention On Environmental Impact Assessment In A Transboundary Context" [4]**

"Article 4. Field Of Application Concerning Plans And Programmes

1. Each Party shall ensure that a strategic environmental assessment is carried out for plans and programmes referred to in Paragraphs 2, 3 and 4 which are likely to have significant environmental, including health, effects.

2. A strategic environmental assessment shall be carried out for plans and programmes which are prepared for agriculture, forestry, fisheries, energy, industry including mining, transport, regional development, waste management, water management, telecommunications, tourism, town and country planning or land use, and which set the framework for future development consent for projects listed in Annex I and any other project listed in Annex II that requires an environmental impact assessment under national legislation.

Annex II

Any other projects referred to in Article 4, Paragraph 2

16. Installations, as far as not included in Annex I, designed:

- for the production or enrichment of nuclear fuel
- for the processing of irradiated nuclear fuel;
- for the final disposal of irradiated nuclear fuel;
- solely for the final disposal of radioactive waste;
- solely for the storage (planned for more than 10 years) of irradiated nuclear fuels in a different site than the production site; or
- for the processing and storage of radioactive waste."

A2. Notification On The Proposed Activity. "Convention On Environmental Impact Assessment In A Transboundary Context" [6]

"Article 2. General Provisions

... 4. The Party of origin shall, consistent with the provisions of this Convention, ensure that affected Parties are notified of a proposed activity listed in Appendix I that is likely to cause a significant adverse transboundary impact.

Article 3. Notification

1. For a proposed activity listed in Appendix I that is likely to cause a significant adverse transboundary impact, the Party of origin shall, for the purposes of ensuring adequate and effective consultations under Article 5, notify any Party which it considers may be an affected Party as early as possible and no later than when informing its own public about that proposed activity.

2. This notification shall contain, inter alia:

a) Information on the proposed activity, including any available information on its possible transboundary impact;

b) Information on the nature of the possible decision; and

c) An indication of a reasonable time within which a response under Paragraph 3 of this Article is required, taking into account the nature of the proposed activity;

and may include the information set out in Paragraph 5 of this Article.

3. The affected Party shall respond to the Party of origin within the time specified in the notification, acknowledging receipt of the notification, and shall indicate whether it intends to participate in the environmental impact assessment procedure.

4. If the affected Party indicates that it does not intend to participate in the environmental impact assessment procedure, or if it does not respond within the time

specified in the notification, the provisions in Paragraphs 5 to 8 of this Article and in Articles 4 to 7 will not apply. In such circumstances the right of a Party of origin to determine whether to carry out an environmental impact assessment on the basis of its national law and practice is not prejudiced.

5. Upon receipt of a response from the affected Party indicating its desire to participate in the environmental impact assessment procedure, the Party of origin shall, if it has not already done so, provide to the affected Party:

a) Relevant information regarding the environmental impact assessment procedure, including an indication of the time schedule for transmittal of comments; and

b) Relevant information on the proposed activity and its possible significant adverse transboundary impact.

6. The affected Party shall, at the request of the Party of origin, provide the latter with reasonably obtainable information relating to the potentially affected environment under the jurisdiction of the affected Party, where such information is necessary for the preparation of the environmental impact assessment documentation...

7. When a Party considers that it would be affected by a significant adverse transboundary impact of a proposed activity listed in Appendix I, and when no notification has taken place in accordance with Paragraph 1 of this Article, the concerned Parties shall, at the request of the affected Party, exchange sufficient information for the purposes of holding discussions on whether there is likely to be a significant adverse transboundary impact. If those Parties agree that there is likely to be a significant adverse transboundary impact, the provisions of this Convention shall apply accordingly. If those Parties cannot agree whether there is likely to be a significant adverse transboundary impact, any such Party may submit that question to an inquiry commission in accordance with the provisions of Appendix IV to advise on the likelihood of significant adverse transboundary impact, unless they agree on another method of settling this question."

"Protocol On Strategic Environmental Impact Assessment To The Convention On Environmental Impact Assessment In A Transboundary Context" [4]

"Article 10. Transboundary Consultations

1. Where a Party of origin considers that the implementation of a plan or programme is likely to have significant transboundary environmental, including health, effects or where a Party likely to be significantly affected so requests, the Party of origin shall as early as possible before the adoption of the plan or programme notify the affected Party.

2. This notification shall contain, inter alia:

a) The draft plan or programme and the environmental report including information on its possible transboundary environmental, including health, effects; and

b) Information regarding the decision-making procedure, including an indication of a reasonable time schedule for the transmission of comments.

3. The affected Party shall, within the time specified in the notification, indicate to the Party of origin whether it wishes to enter into consultations before the adoption of the plan or programme and, if it so indicates, the Parties concerned shall enter into consultations concerning the likely transboundary environmental, including health, effects of implementing the plan or programme and the measures envisaged to prevent, reduce or mitigate adverse effects.

4. Where such consultations take place, the Parties concerned shall agree on detailed arrangements to ensure that the public concerned and the authorities referred to in Article 9, Paragraph 1, in the affected Party are informed and given an opportunity to forward their opinion on the draft plan or programme and the environmental report within a reasonable time frame."

A3. Siting. "Convention On Nuclear Safety" [5]

"Article 17. Siting

1. Each Contracting Party shall take the appropriate steps to ensure that appropriate procedures are established and implemented:

i) for evaluating all relevant site-related factors likely to affect the safety of a nuclear installation for its projected lifetime;

ii) for evaluating the likely safety impact of a proposed nuclear installation on individuals, society and the environment;

iii) for re-evaluating as necessary all relevant factors referred to in sub-paragraphs (i) and (ii) so as to ensure the continued safety acceptability of the nuclear installation;

iv) for consulting Contracting Parties in the vicinity of a proposed nuclear installation, insofar as they are likely to be affected by that installation and, upon request providing the necessary information to such Contracting Parties, in order to enable them to evaluate and make their own assessment of the likely safety impact on their own territory of the nuclear installation."

"Joint Convention on the Safety of Spent Fuel Management and Radioactive Waste Management" [8]

"Article 6. Siting Of Proposed Facilities

1. Each Contracting Party shall take the appropriate steps to ensure that procedures are established and implemented for a proposed spent fuel management facility:

i) to evaluate all relevant site-related factors likely to affect the safety of such a facility during its operating lifetime;

ii) to evaluate the likely safety impact of such a facility on individuals, society and the environment;

iii) to make information on the safety of such a facility available to members of the public;

iv) to consult Contracting Parties in the vicinity of such a facility, insofar as they are likely to be affected by that facility, and provide them, upon their request, with general data relating to the facility to enable them to evaluate the likely safety impact of the facility upon their territory.

2. In so doing, each Contracting Party shall take the appropriate steps to ensure that such facilities shall not have unacceptable effects on other Contracting Parties by being sited in accordance with the general safety requirements of Article 4."

A4. Environmental Impact Assessment In A Transboundary Context

"Convention On Environmental Impact Assessment In A Transboundary Context" [6]

"Article 1. Definitions

For the purposes of this Convention:

... vi) "assessment of environmental impact" means a national procedure for evaluating the likely impact of a proposed activity on the environment.

Article 2. General Provisions

... 3. The Party of origin shall ensure that in accordance with the provisions of this Convention an environmental impact assessment is undertaken prior to a decision to authorize or undertake a proposed activity listed in Appendix I that is likely to cause a significant adverse transboundary impact.

Article 4. Preparation Of The Environmental Impact Assessment Documentation

1. The environmental impact assessment documentation to be submitted to the competent authority of the Party of origin shall contain, as a minimum, the information described in Appendix II.

2. The Party of origin shall furnish the affected Party, as appropriate through a joint body where one exists, with the environmental impact assessment documentation. The concerned Parties shall arrange for distribution of the documentation to the authorities and the public of the affected Party in the areas likely to be affected and for the submission of comments to the competent authority of the Party of origin, either directly to this authority or, where appropriate, through the Party of origin within a reasonable time before the final decision is taken on the proposed activity.

APPENDINX II. Content Of The Environmental Impact Assessment Documentation

Information to be included in the environmental impact assessment documentation shall, as a minimum, contain, in accordance with Article 4:

a) A description of the proposed activity and its purpose;

b) A description, where appropriate, of reasonable alternatives (for example, locational or technological) to the proposed activity and also the no-action alternative;

c) A description of the environment likely to be significantly affected by the proposed activity and its alternatives;

d) A description of the potential environmental impact of the proposed activity and its alternatives and an estimation of its significance;

e) A description of mitigation measures to keep adverse environmental impact to a minimum;

f) An explicit indication of predictive methods and underlying assumptions as well as the relevant environmental data used;

g) An identification of gaps in knowledge and uncertainties encountered in compiling the required information;

h) Where appropriate, an outline for monitoring and management programmes and any plans for post-project analysis; and

i) A non-technical summary including a visual presentation as appropriate (maps, graphs, etc.).

"Protocol On Strategic Environmental Impact Assessment To The Convention On Environmental Impact Assessment In A Transboundary Context" [4]

"Article 6. Scoping

1. Each Party shall establish arrangements for the determination of the relevant information to be included in the environmental report in accordance with Article 7, Paragraph 2.

2. Each Party shall ensure that the environmental and health authorities referred to in Article 9, Paragraph 1, are consulted when determining the relevant information to be included in the environmental report.

3. To the extent appropriate, each Party shall endeavour to provide opportunities for the participation of the public concerned when determining the relevant information to be included in the environmental report.

Article 7. Environmental Report

1. For plans and programmes subject to strategic environmental assessment, each Party shall ensure that an environmental report is prepared.

2. The environmental report shall, in accordance with the determination under Article 6, identify, describe and evaluate the likely significant environmental, including health, effects of implementing the plan or programme and its reasonable alternatives. The

report shall contain such information specified in Annex IV as may reasonably be required, taking into account:

a) Current knowledge and methods of assessment;

b) The contents and the level of detail of the plan or programme and its stage in the decision-making process;

c) The interests of the public; and

d) The information needs of the decision-making body.

The Law of Ukraine "On Ecological Assessment" [15]

"Article 35. Statement Of Environmental Consequences Of The Activity

The Statement of Environmental Consequences should contain the information on the purpose and means of implementation of the activities, the relevant factors that affect or may affect the state of the environment in terms of emergency situations, the quantitative and qualitative assessment of environmental risk of the activities, the measures to ensure the implementation of the activities in accordance with the environmental standards and regulations, and the customer's commitment to ensure compliance with the environmental safety requirements.

Article 36. Requirements To The Environmental Impact Assessment Materials

The materials of environmental impact assessment of the planned or ongoing activities shall contain the substantiation of their feasibility and methods of implementation, the possible alternative solutions, the characteristics of the environment on the territory, the types and levels of exposure under normal and emergency conditions, the possible changes in its quality, the ecological and economical consequences of the activities, the measures to reduce the level of ecological risk and to ensure the compliance with the environmental safety requirements."

A5. Consultations On The EIA Documentation. Ensuring Public Participation

"Convention On Environmental Impact Assessment In A Transboundary Context" [6]

Article 2. General Provisions

... 5. Concerned Parties shall, at the initiative of any such Party, enter into discussions on whether one or more proposed activities not listed in Appendix I is or are likely to cause a significant adverse transboundary impact and thus should be treated as if it or they were so listed. Where those Parties so agree, the activity or activities shall be thus treated. General guidance for identifying criteria to determine significant adverse impact is set forth in Appendix III.

6. The Party of origin shall provide, in accordance with the provisions of this

Convention, an opportunity to the public in the areas likely to be affected to participate in relevant environmental impact assessment procedures regarding proposed activities and shall ensure that the opportunity provided to the public of the affected Party is equivalent to that provided to the public of the Party of origin.

Article 3. Notification

… 8. The interested Parties shall provide the public of the affected Party in the areas which seems to be affected with the information and the possibility to submit comments and remarks on the planned activity, and to ensure communication of these comments and remarks to the competent authority of the Party of origin directly or through the Party of origin.

Article 5. Consultations Based On The Documents On The Environmental Impact Assessment

The Party of origin, after completion of the documentation on the environmental impact assessment and without undue delay, shall consult with the relevant affected Party concerning, inter alia, the potential transboundary impact of the proposed activity and the measures to reduce or eliminate this impact. Consultations may relate to;

a) possible alternatives to the proposed activity, including any non-use alternatives and possible measures to reduce the significant adverse transboundary

impact of the planned activities and to monitor the effects of such measures by the Party of origin;

b) other forms of possible mutual assistance in reducing any significant adverse transboundary impact of the proposed activity; and

c) any other relevant matters relating to the proposed activity. On the initial stage of consultations, the Parties shall agree on the duration of measures

within reasonable time limits. Any such consultations may be conducted through an appropriate joint body, if one exists."

"Protocol On Strategic Environmental Impact Assessment To The Convention On Environmental Impact Assessment In A Transboundary Context" [4]

"Article 8. Public Participation

1. Each Party shall ensure early, timely and effective opportunities for public participation, when all options are open, in the strategic environmental assessment of plans and programmes.

2. Each Party, using electronic media or other appropriate means, shall ensure the timely public availability of the draft plan or programme and the environmental report.

3. Each Party shall ensure that the public concerned, including relevant non-governmental organizations, is identified for the purposes of Paragraphs 1 and 4.

4. Each Party shall ensure that the public referred to in Paragraph 3 has the opportunity to express its opinion on the draft plan or programme and the environmental report within a reasonable time frame.

5. Each Party shall ensure that the detailed arrangements for informing the public and consulting the public concerned are determined and made publicly available. For this purpose, each Party shall take into account to the extent appropriate the elements listed in Annex V.

Annex V. Information Referred To In Article 8, Paragraph 5

1. The proposed plan or programme and its nature.

2. The authority responsible for its adoption.

3. The envisaged procedure, including:

a) The commencement of the procedure;

b) The opportunities for the public to participate;

c) The time and venue of any envisaged public hearing;

d) The authority from which relevant information can be obtained and where the relevant information has been deposited for examination by the public;

e) The authority to which comments or questions can be submitted and the time schedule for the transmittal of comments or questions; and

f) What environmental, including health, information relevant to the proposed plan or programme is available.

4. Whether the plan or programme is likely to be subject to a transboundary assessment procedure.

"Convention on Access To Information, Public Participation In Decision-making, And Access To Justice In The Environmental Matters" [7]

"Article 4. Access To Environmental Information

1. Each Party shall ensure that, subject to the following paragraphs of this article, public authorities, in response to a request for environmental information, make such information available to the public, within the framework of national legislation, including, where requested and subject to subparagraph (b) below, copies of the actual documentation containing or comprising such information:

a) Without an interest having to be stated;

b) In the form requested unless:

2. The environmental information referred to in Paragraph 1 above shall be made available as soon as possible and at the latest within one month after the request has been submitted, unless the volume and the complexity of the information justify an extension of

this period up to two months after the request. The applicant shall be informed of any extension and of the reasons justifying it.

3. A request for environmental information may be refused if:

a) The public authority to which the request is addressed does not hold the environmental information requested;

b) The request is manifestly unreasonable or formulated in too general a manner; or

c) The request concerns material in the course of completion or concerns internal communications of public authorities where such an exemption is provided for in national law or customary practice, taking into account the public interest served by disclosure.

4. A request for environmental information may be refused if the disclosure would adversely affect:

a) The confidentiality of the proceedings of public authorities, where such confidentiality is provided for under national law;

b) International relations, national defence or public security;

d) The confidentiality of commercial and industrial information, where such confidentiality is protected by law in order to protect a legitimate economic interest. Within this framework, information on emissions which is relevant for the protection of the environment shall be disclosed;

e) Intellectual property rights.

7. A refusal of a request shall be in writing if the request was in writing or the applicant so requests. A refusal shall state the reasons for the refusal and give information on access to the review procedure provided for in accordance with Article 9.

The refusal shall be made as soon as possible and at the latest within one month, unless the complexity of the information justifies an extension of this period up to two months after the request. The applicant shall be informed of any extension and of the reasons justifying it.

Article 6. Public Participation In Decisions On Specific Activities

2. The public concerned shall be informed, either by public notice or individually as appropriate, early in an environmental decision-making procedure, and in an adequate, timely and effective manner, inter alia, of:

a) The proposed activity and application on which a decision will be taken;

b) The nature of possible decisions or the draft decision;

c) The public authority responsible for making the decision;

d) The envisaged procedure, including, as and when this information can be provided:

i) The commencement of the procedure;

ii) The opportunities for the public to participate;

iii) The time and venue of any envisaged public hearing;

iv) An indication of the public authority from which relevant information can be obtained and where the relevant information has been deposited for examination by the public;

v) An indication of the relevant public authority or any other official body to which comments or questions can be submitted and of the time schedule for transmittal of comments or questions; and

vi) An indication of what environmental information relevant to the proposed activity is available; and the fact that the activity is subject to a national or transboundary environmental impact assessment procedure.

3. The public participation procedures shall include reasonable time-frames for the different phases, allowing sufficient time for informing the public in accordance with Paragraph 2 above and for the public to prepare and participate effectively during the environmental decision-making.

4. Each Party shall provide for early public participation, when all options are open and effective public participation can take place...

6. Each Party shall require the competent public authorities to give the public concerned access for examination, upon request where so required under national law, free of charge and as soon as it becomes available, to all information relevant to the decision-making referred to in this article that is available at the time of the public participation procedure, without prejudice to the right of Parties to refuse to disclose certain information in accordance with Article 4, Paragraphs 3 and 4. The relevant information shall include at least, and without prejudice to the provisions of Article 4:

a) A description of the site and the physical and technical characteristics of the proposed activity, including an estimate of the expected residues and emissions;

b) A description of the significant effects of the proposed activity on the environment;

c) A description of the measures envisaged to prevent and/or reduce the effects, including emissions;

d) A non-technical summary of the above;

e) An outline of the main alternatives studied by the applicant; and

f) In accordance with national legislation, the main reports and advice issued to the public authority at the time when the public concerned shall be informed in accordance with Paragraph 2 above.

7. Procedures for public participation shall allow the public to submit, in writing or, as appropriate, at a public hearing or inquiry with the applicant, any comments, information, analyses or opinions that it considers relevant to the proposed activity.

A6. Final Decision. "Convention On Environmental Impact Assessment In A Transboundary Context" [6]

"Article 6. Final Decision

1. The Parties shall ensure that, in the final decision on the proposed activity, due account is taken of the outcome of the environmental impact assessment, including the environmental impact assessment documentation, as well as the comments thereon received pursuant to Article 3, Paragraph 8 and Article 4, Paragraph 2, and the outcome of the consultations as referred to in Article 5.

2. The Party of origin shall provide to the affected Party the final decision on the proposed activity along with the reasons and considerations on which it was based.

3. If additional information on the significant transboundary impact of a proposed activity, which was not available at the time a decision was made with respect to that activity and which could have materially affected the decision, becomes available to a concerned Party before work on that activity commences, that Party shall immediately inform the other concerned Party or Parties. If one of the concerned Parties so requests, consultations shall be held as to whether the decision needs to be revised.

"Article 7. Post-project Analysis

1. The concerned Parties, at the request of any such Party, shall determine whether, and if so to what extent, a post-project analysis shall be carried out, taking into account the likely significant adverse transboundary impact of the activity for which an environmental impact assessment has been undertaken pursuant to this Convention..."

"Protocol On Strategic Environmental Impact Assessment To The Convention On Environmental Impact Assessment In A Transboundary Context" [4]

"Article 11. Decision

1. Each Party shall ensure that when a plan or programme is adopted due account is taken of:

a) The conclusions of the environmental report;

b) The measures to prevent, reduce or mitigate the adverse effects identified in the environmental report; and

c) The comments received in accordance with Articles 8 to 10.

2. Each Party shall ensure that, when a plan or programme is adopted, the public, the authorities referred to in Article 9, Paragraph 1, and the Parties consulted according to Article 10 are informed, and that the plan or programme is made available to them together with a statement summarizing how the environmental, including health, considerations have been integrated into it, how the comments received in accordance with

Articles 8 to 10 have been taken into account and the reasons for adopting it in the light of the reasonable alternatives considered."

"Convention on Access to Information, Public Participation in Decision-making, and Access to Justice in the Environmental Matters" [7]

"Article 6. Public Participation In Decisions On Specific Activities... 8. Each Party shall ensure that in the decision due account is taken of the outcome of the public participation.

9. Each Party shall ensure that, when the decision has been taken by the public authority, the public is promptly informed of the decision in accordance with the appropriate procedures.

Each Party shall make accessible to the public the text of the decision along with the reasons and considerations on which the decision is based.

Law of Ukraine "On Procedure of Making Decisions on the Placement, Design, and Construction of Nuclear Installations and Facilities for Radioactive Waste Management of National Importance" [13]

"Article 5. "Justification of adoption of the Law 'On Placement, Design, and Construction of Nuclear Installations and Facilities for Radioactive Waste Management of National Importance' shall be supplemented with:...

Draft Law 'On Placement, Design, and Construction of Nuclear Installations and Facilities for Radioactive Waste Management of National Importance' shall be supplemented with:...

the report on the measures to inform the neighboring states about the possible impact in a transboundary context, as provided by the law."

OFFICIAL LETTERS ON NOTIFICATION OF, AND EXPRESSION OF INTEREST BY, THE REPUBLIC OF BELARUS WITH REGARD TO THE PARTICIPATION IN THE ENVIRONMENTAL IMPACT ASSESSMENT OF THE CSFSF CONSTRUCTION AND OPERATION

(National Emblem of Ukraine)

MINISTRY OF FUEL AND ENERGY OF UKRAINE

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Our Ref.: October 16, 2006, No. 01/33-0669

To: Ministry of Foreign Affairs of Ukraine

Re: Notification of the Republic of Belarus of the Intent to Build a Spent Nuclear Fuel Storage Facility

In accordance with provisions of the 2030 Energy Strategy of Ukraine, the Ministry of Fuel and Energy and DP NAEK Energoatom are discussing the issue of establishing a facility for the provisional storage of the spent nuclear fuel from Rivne, Khmelnitsky, and South Ukraine Nuclear Power Plants (hereinafter referred to as the "CSFSF".

Law of Ukraine "On Procedure of Making Decisions on Location, Design, and Construction of Nuclear Installations and Radioactive Waste Management Facilities of National Importance" prescribes that the decision on locating, designing, and constructing the CSFSF be made by the Verkhovna Rada (Parliament) of Ukraine by means of adoption of a law to that effect. The draft law, *inter alia,* must be supported with a report on measures on the notification of neighboring states of the potential environmental impact of the CSFSF construction and operation in a transboundary context.

According to a preliminary estimate, the most suitable site for the construction of the storage facility is located in the exclusion zone around the Chernobyl NPP. Being guided by provisions of the Convention on Environmental Impact Assessment in a Transboundary Context and the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, the Ministry of Fuel and Energy has drafted a Letter of Notification of the Intent to Build a CSFSF (see Annex) which has to be forwarded to the Republic of Belarus not later than the public in our own country is informed.

Since the consultations with the Ukrainian public are scheduled to take place in November this year, you are kindly requested to urgently notify the Republic of Belarus of Ukraine's intent to build a storage facility for the provisional storage of the spent nuclear fuel from Ukrainian NPPs with VVER reactors within the exclusion zone around the Chernobyl NPP.

Annexes:

1. Letter of Notification of the Intent to Build a Spent Nuclear Fuel Storage Facility (1 copy on 2 pages)
2. Draft letter from the Ministry of Foreign Affairs of Ukraine to the Embassy of the Republic of Belarus to Ukraine (1 copy on 1 page).

Minister (Signature) Yu. Boiko

Originator: Megeleva, +380 44 206-36-03

(National Emblem of Ukraine)

MINISTRY OF FUEL AND ENERGY OF UKRAINE

01001, Kyiv, 30 Vulytsia Khreshchatyk, Phone (+380 44) 249-41-64, 239-43-33, Fax 249-19-92

E-mail: kanc@mintop.energy.gov.ua

Our Ref.: October 16, 2006, No. 01/33-0683

Letter of Notification of the Intent to Build a Spent Nuclear Fuel Storage Facility

In accordance with provisions of the Convention on Environmental Impact Assessment in a Transboundary Context and the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, the Ministry of Fuel and Energy, the Ministry of Fuel and Energy of Ukraine notifies you hereby of the intent of Ukraine to build a storage facility for the provisional storage of the spent nuclear fuel from Rivne, Khmelnitskyi, and South Ukraine nuclear power plants (hereinafter referred to as the SFSF).

In line with the legislation of Ukraine, three potential sites are evaluated for the SFSF: Two of them are located within the exclusion zone around the Chernobyl NPP and one is located near Khmelnitskyi NPP. One of the sites within the exclusion zone around the Chernobyl NPP is deemed to be the most suitable one for the construction of the storage facility on the basis of a number of indicators. The decision on the location, design, and construction of the storage facility will be made by the Verkhovna Rada (Parliament) of Ukraine in accordance with the Law of Ukraine “On Procedure of Making Decisions on Location, Design, and Construction of Nuclear Installations and Radioactive Waste Management Facilities of National Importance”.

During the development of the storage facility construction investment feasibility study (“FS”), ENERGOPROEKT Kyiv Research and Development Institute has assessed the harmful impact of the construction, operation, and decommissioning of the SFSF on the natural environment. The FS will be submitted for the comprehensive state expert appraisal soon.

In accordance with the above-mentioned conventions, the Ministry of Fuel and Energy of Ukraine kindly requests the competent agencies of the Republic of Belarus for the information about their intent to take part in the procedure of the assessment of the impact of the SFSF construction and operation on the environment in a transboundary context.

Minister (signature) Yu. Boiko

Originator: Megeleva, +380 44 206-36-03

(National Emblem of the Republic of Belarus)

EMBASSY OF THE REPUBLIC OF BELARUS TO UKRAINE

No. 363-n

The Embassy of the Republic of Belarus to Ukraine renews the assurances of its highest consideration to the Ministry of Foreign Affairs of Ukraine and, with a reference to Note of the Ministry No. 51/23-3552 of October 20, 2006, has the honor to state the intent of the Republic of Belarus to take part in the assessment of the environmental impact of the construction and operation of a spent nuclear fuel storage facility within the territory of Ukraine.

The Republic of Belarus requests to be informed about the expected time frames of, and forms of the participation in, the said assessment.

The Embassy avails itself of this opportunity to renew to the Ministry the assurances of its highest consideration.

Done in Kyiv, November 15, 2006

(Illegible seal with the National Emblem of the Republic of Belarus)

To: **Ministry of Foreign Affairs of Ukraine**
Kyiv

(Illegible incoming correspondence stamp of the Ministry of Foreign Affairs of Ukraine with an illegible number dated November 17, 2006)

(National Emblem of Ukraine)

Ministry of Foreign Affairs of Ukraine

1 Mykhailivska square
Kyiv 01018, Ukraine

Illegible handwritten text

Our ref. November 20, 2006, # 50/14-3905

To your ref. 01/33-0669 of October 16, 2006

To: **Ministry of Fuel and Energy of Ukraine**

Notification of the Republic of Belarus of the intent to build a spent nuclear fuel storage facility

With a reference to Letter from the Ministry of Fuel and Energy of Ukraine No. 01/33-0669 dated October 16, 2006, with a request to inform the Republic of Belarus of Ukraine's intent to build a spent nuclear storage facility, please be informed as follows.

The original Letter of Notification of the Intent to Build a Spent Nuclear Fuel Storage Facility No. 01/33-0683 was forwarded by the Ministry of Foreign Affairs of Ukraine with its Note No. 51/23-3552 to the Embassy of the Republic of Belarus to Ukraine. In addition, a copy of the said Letter of Notification was forwarded to Ukraine Embassy to the Republic of Belarus for the notification of the Republic of Belarus.

In response, the Republic of Belarus, with a note of the Embassy of the Republic of Belarus to Ukraine (a copy thereof is attached), has stated its intent to take part in the assessment of the environmental impact of the construction and operation of a spent nuclear fuel storage facility within the territory of Ukraine, and requested that it be informed about the expected time frames and forms of the participation in the said assessment.

In view of the above, you are kindly requested to consider the response of the Republic of Belarus, and provide information for the response to them.

Annex: as mentioned hereinabove, 1 page

Deputy Minister (Signature) **M. I. Maimeskul**

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(National Emblem of Ukraine)

Ministry of Foreign Affairs of Ukraine

The Ministry of Foreign Affairs of Ukraine presents its compliments to the Embassy of the Republic of Belarus to Ukraine and, with a reference to Note of the Embassy No. 363-n of November 15, 2006, is honored to provide the following information about the participation in the assessment of the environmental impact of the construction of a storage facility (SFSF) for the spent nuclear fuel from Ukrainian NPPs with VVER reactors within the territory of Ukraine.

The storage facility construction investment feasibility study (FS) is the document that will be used to prepare materials for consultations with regard to the assessment of the environmental impact of the SFSF within the territory of Ukraine. The FS was submitted for the comprehensive state expert appraisal in February this year.

Currently, State-owned Enterprise National Energy Generating Company ENERGOATOM (DP NAEK ENERGOATOM) subordinated to the Ministry of Fuel and Energy of Ukraine, which ordered the FS development and is in charge of the consultations, has developed a Program for the Assurance of the Professional Public Review of Issues Related to the Location, Design, and Construction of a Central Spent Fuel Storage Facility for Ukraine's NPPs with VVER Reactors ("Program"). The Program provides for the commencement of consultations with the Republic of Belarus not earlier than in August 2007. Specific suggestions on the said consultations will be provided after the development of a Joint Action Plan for Consultations by DP NAEK ENERGOATOM.

Ukraine will keep you informed about the most important SFSF construction-related events, and suggests initiating direct contacts between representatives of stakeholders from Ukraine and the Republic of Belarus. Liudmyla Vitaliyivna Meteleva will act as a contact officer of the Ministry of Fuel and Energy of Ukraine.

The Ministry of Foreign Affairs of Ukraine avails itself of this opportunity to renew to the Embassy of the Republic of Belarus to Ukraine the assurances of its highest consideration.

Done in Kyiv, February 21, 2007

To: Embassy of the Republic of Belarus to Ukraine

Copy of Letter of the Ministry of Fuel and Energy of Ukraine No. 06/33-139 of February 9, 2008

(National Emblem of Ukraine)

MINISTRY OF FUEL AND ENERGY OF UKRAINE

01001, Kyiv, 30 Vulytsia Khreshchatyk, Phone (+380 44) 206-38-46, Fax 249-19-92

E-mail: kanc@mintop.energy.gov.ua

Our Ref.: February 9, 2008, No. 06/33-139

To:
Ministry of Natural Resources and
Environmental Protection of the Republic of Belarus

Copies:
Embassy of the Republic of Belarus to Ukraine

Ministry of Foreign Affairs of Ukraine

Provision of Materials Related to the Construction of a Spent Fuel Storage Facility in Ukraine

With a reference to Note of the Embassy of the Republic of Belarus No. 363-n of November 15, 2006, stating the intent to take part in the assessment of the environmental impact of the construction and operation of a central spent nuclear fuel storage facility (CSFSF) in Ukraine, the Ministry of Fuel and Energy of Ukraine encloses herewith the following materials in order to inform the Republic of Belarus about the progress of activities related to the construction of the said facility:

- a statement of environmental consequences of the CSFSF construction and operation as published in *Uriadovyi Kuryer* newspaper (issue 43 of March 7, 2007);
- an information and analysis review of materials related to the feasibility study of CSFSF investments (including the environmental impact assessment);
- an action plan of the organization of the process of public consultations with regard to the CSFSF construction.

Please also be informed that additional details on the project of the CSFSF construction in Ukraine are posted on the web site of DP NAEK ENERGOATOM at www.energoatom.kiev.ua

Please bear in mind that the potential impact zone of the designed storage facility does not exceed 1 km and is situated fully within the boundaries of Ukraine. Nevertheless, if the Republic of Belarus decides that it is necessary to hold consultations, we suggest that the following measures be taken:

- the participation of representatives of the Republic of Belarus in a roundtable scheduled to take place on March 4, 2008, in Kyiv;
- consultations within the territory of the Republic of Belarus in the format of information meetings on March 10 to 15, 2008.

We are looking forward to constructive and fruitful cooperation.

Annex: for the first addressee only, 95 pages.

Deputy Minister (Signature) **Yu. Nedashkivskyi**

Originator: Kulesha, +380 44 206-36-04

Notice by DP NAEK ENERGOATOM of the Commencement of the Public Consultation Process with Regard to the Construction of a CSFSF for VVER Reactors of Ukraine's NPPs

Uriadovyi Kuryer

February 5, 20__

INFORMATION

Notice by DP NAEK ENERGOATOM
of the Commencement of the Public Consultation Process
with Regard to the Construction of a CSFSF for VVER Reactors of Ukraine's NPPs

In order to ensure the energy security of the country by means of the efficient operation of the existing nuclear power plants of Ukraine and to implement the 2030 Energy Strategy of Ukraine, the State-owned Enterprise National Nuclear Energy Generation Company ENERGOATOM ("DP NAEK ENERGOATOM") plans to build a central storage facility for the storage of the spent nuclear fuel from VVER reactors of Ukraine's nuclear power plants (CSFSF) for the long-term storage of the spent nuclear fuel from reactors of Rivne, Khmelnitskyi, and South Ukraine Nuclear Power Plants. Statements by DP NAEK ENERGOATOM of its intent to build and of environmental consequences of CSFSF construction and operation activities were published in *Uriadovyi Kuryer* newspaper on January 31 and March 7, 2007.

On the basis of the principle of the openness of the company's environmental policy and in accordance with requirements of the legislation of Ukraine, DP NAEK ENERGOATOM initiates hereby the process of public consultations for the discussion of issues related to the construction of the CSFSF with the support from the State Science and Engineering Center of Control and Emergency Response Systems (DNIC SKAR) starting from February 6, 2008.

Consultations will last for one month and a half in the form of briefings for media, roundtables and public discussions for representatives of non-governmental organizations and concerned individuals, the notification of neighboring countries of Ukraine, and the participation of specialists of the nuclear sector in public hearings and other events hosted by local authorities and local self-government bodies for the purposes of the discussion of the CSFSF construction-related issues.

Two data rooms will be set up for the registration of process participants, the provision of the necessary information, the collection of questions, comments, and suggestions at the following addresses:

04213, Kyiv, 64/56 Prospekt Heroyiv Stalinhradu, DNIC SKAR

City of Slavutych, Central Square, 2, ENERGIIA Community Center.

Data rooms are open Monday through Saturday from 10am till 5pm.

Applications for registration, questions, comments, and proposals can be sent by regular mail to DNIC SKAR's address, by e-mail to pkg@dnic.kiev.ua, or by fax to +380 44 411-9270.

All the information resulting from the public consultations process will be posted to the website of DP NAEK ENERGOATOM at www.energoatom.kiev.ua

STATEMENT OF ENVIRONMENTAL CONSEQUENCES OF CSFSF CONSTRUCTION AND OPERATION ACTIVITIES PUBLISHED IN URIADOVYI KURYER NEWSPAPER

March 7, 2007

Energy Sector

Statement of Environmental Consequences of the Construction and Operation of a Central Spent Nuclear Fuel Facility for Rivne, Khmelnitsky, and South Ukraine Nuclear Power Plants of DP NAEK ENERGOATOM

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Annex E(6)

ACTION PLAN FOR THE PROCESS OF PUBLIC CONSULTATIONS WITH REGARD TO THE CONSTRUCTION OF THE CSFSF FOR VVER REACTORS OF UKRAINE NPPs

No.	Activity	Deadline *
1	Publication of DP NAEK ENERGOATOM statement of environmental consequences of the construction and operation of a CSFSF for VVER reactors of NPPs of Ukraine	March 7, 2007
2	Notice of the commencement of the process of public consultations and scheduled activities in media and on the Internet (website of DP NAEK ENERGOATOM), and otherwise	February 4-8, 2008
3	Organization of two data rooms at: • *04213, Kyiv, 64/56 Prospekt Heroyiv Stalinhradu, DNIC SKAR, Fax +380 44 411-92-70; e-mail: pkg@dnic.kiev.ua* • *City of Slavutych, 2 Central Square, Energiia Community Center*	February 4-8, 2008
4	Data room work, including: • the registration of applications for the participation in public consultations **; • the provision of an information document package: 1. a Statement of Environmental Consequences of the Project 2. a Consultation Process Action Plan 3. a CSFSF Materials Information and Analytical Overview 4. a draft Law of Ukraine "On CSFSF Construction" 5. a query registration form • Collection of questions, comments, and proposals	February 8 to March 21 Work hours: Monday through Friday: 10:00am-5:00pm Saturday: 10:00am-2:00pm
5	Media briefing on the commencement of public consultations *Kyiv, 3 Vulytsia Vetrova, Office of DP NAEK ENERGOATOM*	February 7, 2008
6	Notification of embassies of neighboring states about the public consultations and the provision of information materials	February 1 to 8, 2008
7	Hosting of roundtable discussions of CSFSF construction with the participation of media, NGOs, and concerned citizens: • *Slavutych, Office of the City Executive Committee, Conference Room* • *Kyiv, 3 Vulytsia Vetrova, Office of DP NAEK ENERGOATOM, Conference Room of the Crisis Center*	February 28, 2008, 11:00am March 4, 2008, 11:00am
8	Public discussions of the CSFSF construction with inhabitants of Ivankiv and Polisky raions of Kyiv Province *Ivankiv, Musical School*	March 1, 2008, 11:00am
9	Public hearings on the CSFSF construction (by decision of Slavutych City Council of Kyiv Province) *Slavutych, 2 Central Square, Energiia community center*	March 22, 2008, noon
10	Consolidation and analysis of queries, comments, and proposals; preparation and sending out answers of specialists; setting up a QA BOOK, a report on measures to inform neighboring states, a report on the discussion of the draft law, and a final report.	March 23 to April 23
11	Publication of reports on the Internet, provision of electronic copies to NGOs	April 23 to 30, 2008
12	Media briefing on results of public consultations *Kyiv, 3 Vulytsia Vetrova, Office of DP NAEK ENERGOATOM*	April 30, 2008

* Updates with the information about the time of each event, press releases, minutes of meetings, reports, and other relevant information about the progress of public consultations will be promptly published on DP NAEK ENERGOATOM's website at ***www.energoatom.kiev.ua***

** Written requests for the participation in public consultations can be sent by mail, fax or e-mail to the data room address in Kyiv

Information and Analytical Overview of Materials of the Investment Feasibility Study of the Construction of a Storage Facility for the Spent Nuclear Fuel from VVER Reactors of Ukrainian Nuclear Power Plants

COPIES OF LETTERS WITH REGARD TO THE PROVISION OF ENVIRONMENTAL IMPACT ASSESSMENT MATERIALS TO THE REPUBLIC OF BELARUS

(National Emblem of the Republic of Belarus)

Ministry of Natural Resources and Environmental Protection of the Republic of Belarus

(the contact information is illegible)

February 26, 2008,

Our ref.: 14-09/298-vn

Your ref.: 06/33-139 of February 9, 2008

To:
Yu.A. Nedashkivskyi,
Deputy Minister of Fuel and Energy of Ukraine

Provision of a Report on the Environmental Impact Assessment of a CSFSF in Ukraine

Dear Mr. Nedashkivskyi,

The Ministry of Natural Resources and Environmental Protection of the Republic of Belarus ("Ministry of Environment") as a contact point of the Republic of Belarus in charge of the implementation of the UNECE Convention on Environmental Impact Assessment in a Transboundary Context is grateful for the opportunity to take part in the discussion of materials related to the construction of a Central Spent Fuel Storage Facility (CSFSF) in Ukraine.

Being aware of concerns of the public associated with the activity planned by Ukraine in close vicinity to its border with Belarus due to the negative experience of the Chernobyl NPP accident, the Ministry of Environment kindly requests a Report on the Environmental Impact Assessment of the CSFSF in Ukraine for familiarizing the specialists in line with requirements of the above-mentioned Convention.

In order to determine the relevant specialists in the Republic of Belarus for the potential participation in the roundtable discussion scheduled to take place on March 4, 2008, in Kyiv, you are kindly requested to provide an agenda of the above-mentioned event.

Please send the Environmental Impact Assessment Report and the agenda of the roundtable discussion by e-mail to expert@minpriroda.by

Yours sincerely,

First Deputy Minister (Signature) A.N. Apatskyi

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(National Emblem of Ukraine)

MINISTRY OF FUEL AND ENERGY OF UKRAINE

01001, Kyiv, 30 Vulytsia Khreshchatyk, Phone (+380 44) 206-38-46, Fax 249-19-92

E-mail: kanc@mintop.energy.gov.ua

Our Ref.: February 28, 2008, No. 06/33-351

To:
A. N. Apatskyi, First Deputy Minister of
Natural Resources and
Environmental Protection of the Republic of Belarus

Dear Mr. Apatskyi,

With a reference to your letter No. 14-98/898-vn of February 26, 2008, with a request to provide a Report on the Environmental Impact Assessment of the CSFSF in Ukraine for familiarizing the Belarusian specialists and an agenda for the CSFSF roundtable discussion event scheduled to take place in Kyiv on March 4, 2008, please be informed that the requested materials have been sent to your e-mail address at expert@minpriroda.by

Please also be informed that Ukraine is prepared to cooperate with Belarusian specialists and organize joint meetings with them, should the Republic of Belarus decide that consultations on the construction of the CSFSF are warranted.

Deputy Minister (Signature) **Yu. Nedashkivskyi**

Originator: Kulesha, +380 44 206-36-04

QUESTIONS, REMARKS AND ISSUES RAISED BY THE BELARUSIAN COUNTERPARTS, AND EXPERT RESPONSES THERETO

(National Emblem of the Republic of Belarus)

Ministry of Natural Resources and Environmental Protection of the Republic of Belarus

(the contact information is illegible)

April 28, 2008,

Our ref.: 14-09/396

Your ref.: 06/33-351 of February 28, 2008

To:
Ministry of Fuel and Energy of Ukraine

30 Vulytsia Khreshchatyk, Kyiv 01001

CSFSF Environmental Impact Assessment Report

The Ministry of Natural Resources and Environmental Protection of the Republic of Belarus acting as a contact point of the Republic of Belarus under the Convention on Environmental Impact Assessment in a Transboundary Context together with other stakeholders reviewed Volume 3, Environmental Impact Assessment, of the Investment Feasibility Study of the Central Spent Fuel Storage Facility for VVER Reactors of Ukraine Nuclear Power Plants ("CSFSF EIA Report") consisting of two parts, and would like to raise the following issues, additions, and suggestions.

The potential environmental impact of the airborne activity discharges, the potential impact of the radiation from facilities and plants that contain radioactive materials, the potential environmental impact in case of normal operation, design-basis, and beyond-design-basis accidents are covered in the presented materials relatively well. Nevertheless:

1. Section 7.1.1 "Radiation Control System" does not cover in enough detail the issue of setting up a radiation control and monitoring system within the sanitary protection zone (buffer area) and the supervised area within the territory of Ukraine.
2. The issue of the potential impact of the CSFSF on the radiation situation within the territory of the Republic of Belarus under normal operating conditions and in case of emergency is properly covered in Section 10 "Impact of the Construction, Operation, and Accidents of CSFSF on the Territory of Neighboring States".
   2.1. However, it is necessary to make provisions for setting up a system for the exchange of the operative information on the radiation situation both within the territory of the sanitary protection zone and in the CSFSF buffer area with the Republic of Belarus to make it possible to take preventive measures in the Republic of Belarus to mitigate consequences of emergency emissions and discharges.
   2.2. Taking into account the fact that beyond-design-basis accidents can result in the radioactive contamination of the territory of the Republic of Belarus used for the agricultural production and the additional exposure of a population group, whose current effective annual dose equivalent is determined by the impact of the Chernobyl Accident, we kindly request that Ukraine provide information about locations of radiation monitoring posts on the Ukrainian territory, because the CSFSF construction would require Belarus to develop a system of radiation control on its territory located within the supervised area of the potentially hazardous radioactive contamination source under design.

3. The CSFSF is to be located at a distance of 13 km from the state border of the Republic of Belarus. For this reason, it is possible for radioactive substances to fall out within the territory of the Republic of Belarus (in case of northerly winds). We consider it appropriate to expand the section of the CSFSF EIA Report dedicated to the assessment of the impact of potential emergencies on Belarus' water resources in the border area.
4. The suggested construction site is situated within the exclusion zone of the Chernobyl NPP where other facilities with radiation hazard are available, such as spent fuel storage facilities for units of Chernobyl NPP (SFSF-1 and SFSF-2), as well as destroyed unit No. 4 (Shelter facility). Therefore, we consider it appropriate to assess the impact of the entire set of radiation facilities on the Belarusian territory.
5. The complexity of the technology suggested by Holtec company invites extra attention. This technology involves a large number of handling operations with MPC casks containing spent nuclear fuel which are associated with the elevated accident risk. The process includes operations of the spent nuclear fuel loading at nuclear power plants using HI-TRAC casks into multi-purpose casks (MPCs), the sealing of MPCs, the re-loading thereof into HI-STAR transfer casks, and the transportation thereof to the CSFSF site where the MPCs are re-loaded using HI-TRAC casks into HI-STORM casks to be stored on an open ground.

   A conclusion can be made that Holtec's technical proposal was dictated by its economic advantages to the detriment of the project safety.

   Mass and radionuclide composition, and the spatial configuration of the packaging module are the most important features for the substantiation of the nuclear safety of a spent nuclear fuel storage facility. For this reason, we believe that the possibility to store more spent fuel assemblies in an MPC cask in comparison with a cask offered by Ukratomenergobud cask (31 versus 19 spent nuclear fuel assemblies) quoted as an advantage of the casks can affect the nuclear safety of the installation as a whole. For this reason, an analysis of the nuclear safety of a CSFSF with MPC modules filled with fuel from VVER-1000 or VVER-440 reactors is called for.

   The CSFSF EIA Report does not cover such an important quantitative indicator of the nuclear fuel cycle as the expected percentage of non-tight fuel rods in the total amount of fuel rods to be stored. The presence of non-tight fuel elements and fuel elements damaged in the course of the reactor operation give rise to certain difficulties in the course of the spent nuclear fuel handling associated with the assurance of their safety during storage and transfer.

   It is not clear from the provided description of the technology of the cask storage on the CSFSF ground and the system of control over their condition how the integrity of protective barriers (shells of MPC casks) will be controlled on the cask storage ground, because the said shells are not accessible due to casting concrete on HI-STAR casks.

   If a cask becomes non-tight, it will be necessary to repack fuel in a hot cell. However, it is evident from the report that no equipment is to be installed on the CSFSF site under the Holtec technology for repacking nuclear fuel from non-tight MPCs with spent nuclear fuel and for operations with non-tight fuel elements. Non-tight casks will be carried away to nuclear power plants for the fuel to be repacked into tight containers. In our opinion, this approach is not compatible with general requirements for the nuclear safety and IAEA guidelines which require simplifying operations with the spent nuclear fuel and reducing their number as much as possible.
6. Data from Holtec—a developer and a supplier of the spent nuclear fuel storage technology—have been used for the assessment of discharges into ambient air under normal operating conditions and the potential impact of design-basis and beyond-design-basis accidents for the purposes of the CSFSF EIA Report. The report covers anomalous events or expected deviations from normal operating conditions used to license the HI-STORM system in the USA in accordance with regulations of the U.S. agency in charge of the nuclear safety regulation (NUREG-1536). A beyond-design-basis accident involving a falling plane can be quoted as an example. However, the analysis of the impact intensity relies on background data (plan parameters) of small-sized private or commercial aircraft of category II (with a mass of 5 to 20 tonnes) in accordance with the classification prescribed by the regulation on the

Consideration of External Impacts of Natural and Technology-induced Origin on Nuclear Energy Facilities published in 2005. Such aircraft cannot be treated as representative aircraft for the CSFSF site. Moreover, IAEA Safety Standards (Series of Nuclear Power Plant Safety Regulations: Selection of NPP Sites, 50-C-S, 1990) provides that, wherever possible, the future characteristics of air traffic and aircraft flying over the site should be considered. In connection with this, the conclusions on the potential impact of the CSFSF on environmental objects and the human health can only be viewed as preliminary findings to be detailed at the next design stage taking into account the physical protection requirements.

Minister (Signature) L.I. Khoruzhyk

(Originator details are illegible)

(National Emblem of Ukraine)

MINISTRY OF FUEL AND ENERGY OF UKRAINE

01001, Kyiv, 30 Vulytsia Khreshchatyk, Phone (+380 44) 206-38-46, Fax 249-19-92

E-mail: kanc@mintop.energy.gov.ua

Our Ref.: June 19, 2008, No. 06/33-800

To:
Ministry of Natural Resources and
Environmental Protection of the Republic of Belarus

Consultations on the Assessment of Impact of the CSFSF on the Territory of the Republic of Belarus

The Ministry of Fuel and Energy of Ukraine is grateful for comments and suggestions raised with regard to the Environmental Impact Assessment of the Central Storage Facility for the Spent Fuel from VVER Reactors of nuclear power plants of Ukraine ("CSFSF EIA Report") sent by Letter No. 14-09/396 within the scope of consultations held in accordance with provisions of the Convention on Environmental Impact Assessment in a Transboundary Context and the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, the Ministry of Fuel and Energy.

Please find attached to this letter clarifications on issues raised by Belarusian specialists. It should be noted, however, that some issues raised go beyond the scope of the CSFS EIA Report.

The Ministry of Fuel and Energy of Ukraine is grateful for co-operation, and kindly requests you to decide on the need to hold further consultations for the assessment of the probability of the CSFSF impact on the territory of the Republic of Belarus.

Annex: 6 pages

Deputy Minister (Signature) **Yu. Nedashkivskyi**

Originator: Kulesha (+380 44) 206-36-04

No.	Issue raised by the Ministry of Natural Resources and Environmental Protection of the Republic of Belarus in connection with CSFSF EIA materials	Explanations of the Ministry of Fuel and Energy of Ukraine
1	Section 7.1.1 “Radiation Control System” does not cover in enough detail the issue of setting up a radiation control and monitoring system within the sanitary protection zone (buffer area) and the supervised area within the territory of Ukraine.	A system for monitoring radiation situation in the buffer area and the supervised area of the CSFSF facility will be developed at the design development stage. According to Ukrainian national requirements, only major technical solutions underlying the assessment of the facility safety are to be developed at the Feasibility Study stage. For instance, it is specified that an environment radiation control system will be developed to ensure the CSFSF radiation safety as the main technical solution for the radiation control in the sanitary protection zone (buffer area) and the supervised area.
2.1	…it is necessary to make provisions for setting up a system for the exchange of the operative information on the radiation situation both within the territory of the sanitary protection zone and in the CSFSF buffer area with the Republic of Belarus to make it possible to take preventive measures in the Republic of Belarus to mitigate consequences of emergency emissions and discharges.	Law of Ukraine “On Use of Nuclear Energy and Radiation Safety” specifies openness and transparency of the information associated with the use of the nuclear energy among core principles of Ukraine’s public policy in the field of the use of the nuclear energy and the radiation protection. It is in accordance with this principle and in pursuance of provisions of the UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters that the CSFSF Operator will provide information about the radiation situation within the buffer area and the supervised area of the CSFSF to public Internet websites and media. The <u>operative</u> information about the radiation situation within the buffer area and the supervision area of the CSFSF can be provided on the basis of an appropriate interstate agreement.
2.2	Taking into account the fact that beyond-design-basis accidents can result in the radioactive contamination of the territory of the Republic of Belarus used for the agricultural production and the additional exposure of a population group, whose current effective annual dose equivalent is determined by the impact of the Chernobyl Accident, we kindly request that Ukraine provide information about locations of radiation monitoring posts on the Ukrainian territory,	It is stated in materials of the CSFSF EIA Report that the supervision area of the facility covers 600 meters from the spent nuclear fuel storage ground’s boundary, and is situated fully within boundaries of Ukraine. The impact of the CSFSF—with a minimum distance to the border of the Republic of Belarus of 13 km or a minimum distance to the closest Belarusian settlement of 31 km—is within fractions of a single

	because the CSFSF construction would require Belarus to develop a system of radiation control on its territory located within the supervised area of the potentially hazardous radioactive contamination source under design.	percent of the standard allowed levels. In the opinion of Ukrainian specialists, it confirms the lack of the need for changes in the existing radiation control system within the territory of the Republic of Belarus. Please also be informed that no technology process monitoring outside the supervision area of a nuclear installation is prescribed by the Ukrainian sanitary standards; accordingly, any practical activity is permitted (however, subject to specifics of the Chernobyl exclusion zone in this particular case).
3.	The CSFSF is to be located at a distance of 13 km from the state border of the Republic of Belarus. For this reason, it is possible for radioactive substances to fall out within the territory of the Republic of Belarus (in case of northerly winds). We consider it appropriate to expand the section of the CSFSF EIA Report dedicated to the assessment of the impact of potential emergencies on Belarus' water resources in the border area.	The CSFSF radiation impact on the environment, including ground and underground water, under normal operating conditions, as well as in the case of design-basis and beyond-design-basis accidents is analyzed in detail in the CSFSF EIA Report. It is stated that the maximum radiation impact on surface waters as a result of a beyond-design-basis accident is possible in case of the fallout of radioactive substances in the estuary of the Pripyat River (12 km away from the CSFSF site); in this case, the aggregate amount of radionuclides that fall out will not exceed $1.1 \bullet 10^{\text{illegible}}$ Bq. Since the aggregate annual radioactivity transfer with the flow of the Pripyat River amounts up to 10^{15} Bq per year, it has been concluded that the impact of all the reviewed accidents on ground waters is negligible. The impact of beyond-design-basis accidents will be determined more accurately at the design development stage.
4	The suggested construction site is situated within the exclusion zone of the Chernobyl NPP where other facilities with radiation hazard are available, such as spent fuel storage facilities for units of Chernobyl NPP (SFSF-1 and SFSF-2), as well as destroyed unit No. 4 (Shelter facility). Therefore, we consider it appropriate to assess the impact of the entire set of radiation facilities on the Belarusian territory	The assessment of the impact of the entire set of radiation facilities situated in the exclusion zone on the territory of the Republic of Belarus is not an objective of the CSFSF EIA in accordance with regulatory requirements for the contents of an EIA of a construction project. However, results of the EIA for facilities being developed within the Chernobyl exclusion zone (SFSF-2 of the Chernobyl NPP, the Solid Radioactive Waste Management Facility, the Liquid Radioactive Waste Processing Plant, etc.) have demonstrated that these facilities do not have any substantial impact on the territory of Belarus in the case of normal operation and accidents. On this basis, and in view of the 600-m large observation zone of the CSFSF, it can be concluded that the CSFSF construction and operation will not result in

		an increase in the aggregate impact of radiation facilities situated within the Chernobyl exclusion zone on the territory of the Republic of Belarus.
5	The complexity of the technology suggested by Holtec company invites extra attention. This technology involves a large number of handling operations with MPC casks containing spent nuclear fuel which are associated with the elevated accident risk. The process includes operations of the spent nuclear fuel loading at nuclear power plants using HI-TRAC casks into multi-purpose casks (MPCs), the sealing of MPCs, the re-loading thereof into HI-STAR transfer casks, and the transportation thereof to the CSFSF site where the MPCs are re-loaded using HI-TRAC casks into HI-STORM casks to be stored on an open ground. A conclusion can be made that Holtec's technical proposal was dictated by its economic advantages to the detriment of the project safety. Mass and radionuclide composition, and the spatial configuration of the packaging module are the most important features for the substantiation of the nuclear safety of a spent nuclear fuel storage facility. For this reason, we believe that the possibility to store more spent fuel assemblies in an MPC cask in comparison with a cask offered by Ukratomenergobud cask (31 versus 19 spent nuclear fuel assemblies) quoted as an advantage of the casks can affect the nuclear safety of the installation as a whole. For this reason, an analysis of the nuclear safety of a CSFSF with MPC modules filled with fuel from VVER-1000 or VVER-440 reactors is called for. The CSFSF EIA Report does not cover such an important quantitative indicator of the nuclear fuel cycle as the expected percentage of non-tight fuel rods in the total amount of fuel rods to be stored. The presence of non-tight fuel elements and fuel elements damaged in the course of the reactor operation give rise to certain difficulties in the course of the spent nuclear fuel handling associated with the assurance of their safety during storage and transfer. It is not clear from the provided description of the technology of the cask storage on the CSFSF ground and the system of control over their condition how the integrity of protective barriers (shells of MPC casks) will be controlled on the cask storage ground, because the said shells are not accessible due to casting concrete on HI-STAR	The technology of storage of the spent nuclear fuel of the Ukrainian nuclear power plants was selected as a result of an open international tender. Technical and financial bids were received from a Ukrainian consortium consisting of Ukratomenergobud, NKMZ, Enerhetychni Investitytsiyi, Strum, and from Holtec International, a U.S. corporation. Both bids were based on the dry spent nuclear fuel storage technology with the use of multi-purpose (transfer and storage) casks; both technologies were found acceptable in the territory of Ukraine. The additional evaluation resulted in finding the bid submitted by Holtec International to be more beneficial. The CSFSF Investment Feasibility Study (FS) has been developed on the basis of data provided by Holtec International. Currently, it is undergoing comprehensive state expert appraisal in Ukraine. So far, positive opinions have been issued as a result of the expert appraisals of the nuclear and radiation safety, the investment, sanitary and hygiene expert appraisals. In addition, IS ENERCON (a Hungarian consultancy company) has carried out an alternative international expert appraisal of the CSFSF Investment Feasibility Study on the basis of requirements of the IAEA and the European Nuclear Energy Agency, and come up with a positive opinion as a result. A description of technical solutions that ensure the nuclear safety of the spent nuclear fuel management system offered by Holtec International has not been included into the CSFSF EIA on the basis of requirements for the make-up and the contents of an EIA (Ukraine state building code DBN-A.2.2-1-2003). These solutions and the information about the management of non-tight spent fuel assemblies, the control over the storage facility operation process, the integrity of protective barriers, and operations to be carried out in case of the non-tightness of a cask are described in detail in the CSFSF Investment Feasibility Study. However, this document has not been requested by the Republic of Belarus.

	casks. If a cask becomes non-tight, it will be necessary to repack fuel in a hot cell. However, it is evident from the report that no equipment is to be installed on the CSFSF site under the Holtec technology for repacking nuclear fuel from non-tight MPCs with spent nuclear fuel and for operations with non-tight fuel elements. Non-tight casks will be carried away to nuclear power plants for the fuel to be repacked into tight containers. In our opinion, this approach is not compatible with general requirements for the nuclear safety and IAEA guidelines which require simplifying operations with the spent nuclear fuel and reducing their number as much as possible.	A complete analysis of the nuclear and radiation situation in the storage ground will be carried out at the stage of the design development in accordance with the Ukrainian building code and rules.
6	Data from Holtec—a developer and a supplier of the spent nuclear fuel storage technology—have been used for the assessment of discharges into ambient air under normal operating conditions and the potential impact of design-basis and beyond-design-basis accidents for the purposes of the CSFSF EIA Report. The report covers anomalous events or expected deviations from normal operating conditions used to license the HI-STORM system in the USA in accordance with regulations of the U.S. agency in charge of the nuclear safety regulation (NUREG-1536). A beyond-design-basis accident involving a falling plane can be quoted as an example. However, the analysis of the impact intensity relies on background data (plan parameters) of small-sized private or commercial aircraft of category II (with a mass of 5 to 20 tonnes) in accordance with the classification prescribed by the regulation on the Consideration of External Impacts of Natural and Technology-induced Origin on Nuclear Energy Facilities published in 2005. Such aircraft cannot be treated as representative aircraft for the CSFSF site. Moreover, IAEA Safety Standards (Series of Nuclear Power Plant Safety Regulations: Selection of NPP Sites, 50-C-S, 1990) provides that, wherever possible, the future characteristics of air traffic and aircraft flying over the site should be considered. In connection with this, the conclusions on the potential impact of the CSFSF on environmental objects and the human health can only be viewed as preliminary findings to be detailed at the next design stage taking into account the physical protection requirements.	Only brief conclusions made as a result of the analysis provided by Holtec International in terms of the consideration of a falling aircraft impact have been presented in the CSFSF EIA Report. This information is covered in more detail in the CSFSF Investment Feasibility Study which describes various falling aircraft scenarios, including a fall of a large airplane (Boing 767).

A COPY OF A LETTER FROM BELARUSIAN COUNTERPARTS WITH REGARD TO THE SATISFACTORY COMPLETION OF CONSULTATIONS

(National Emblem of the Republic of Belarus)

Ministry of Natural Resources and Environmental Protection of the Republic of Belarus

(the contact information is illegible)

July 22, 2008,

Our ref.: 14-09/3089

Your ref.: 06/33-800 of June 19, 2008

To:
Ministry of Fuel and Energy of Ukraine

30 Vulytsia Khreshchatyk, Kyiv 01001

Consultations

The Ministry of Natural Resources and Environmental Protection, having consolidated opinions of the concerned state authorities of the Republic of Belarus with regard to the need for further consultations on the basis of issues and suggestions raised by Belarusian specialists in connection with Volume 3 " Environmental Impact Assessment" of the Investment Feasibility Study for a Central Spent Fuel Storage Facility for the spent nuclear fuel from VVER reactors of nuclear power plants of Ukraine ("CSFSF EIA Report"), would like to inform you as follows.

The information provided in Letter of the Ministry of Fuel and Energy of Ukraine No. 06/33-800 of June 19, 2008, clarifies the issues raised in Letter of the Ministry of Natural Resources and Environmental Protection of the Republic of Belarus ("Ministry of Environment") No. 14-09/396 of April 28, 2008, on the assessment of the impact of the CSFSF on the territory of the Republic of Belarus. For this reason, there is no need to continue consultations with experts of the Ministry of Environment.

However, we consider it possible to continue expert consultations with the State Research Institution "United Institute of Energy and Nuclear Studies—Sosny" of the National Academy of Sciences of Belarus which has expressed its interest. Thus, if contacted by the said institution, we kindly request you to be so kind as to provide explanations on any issues raised thereby in the regular course of work.

First Deputy Minister (Signature) A.N. Apatskyi

Illegible information about the originator of the letter

Statement of Environmental Effect of Activities and Data on Its Publication

STATEMENT OF ENVIRONMENTAL CONSEQUENCES OF THE PROJECT OF CONSTRUCTION OF A CENTRALIZED STORAGE FACILITY FOR THE SPENT NUCLEAR FUEL OF VVER REACTORS OF NUCLEAR POWER PLANTS OF UKRAINE

1 Details of the Planned Activity, Its Objective, and Methods of Its Exercise

A Central Spent Fuel Storage Facility (CSFSF) is a nuclear installation of national importance. A decision on the implementation of the construction project and the CSFSF site has been made with the Law of Ukraine "On Spent Nuclear Fuel Management with Regard to the Location, Design, and Construction of a Central Storage Facility for Spent Fuel of VVER Reactors of Domestic Nuclear Power Plants" on the basis of an Investment Feasibility Study endorsed by Instruction of the Cabinet of Ministers of Ukraine No. 131-r of February 4, 2009. Main results of the Feasibility Study are as follows:

- the CSFSF is to be located on a site situated among villages of Stara Krasnytsia, Buriakivka, Chystohalivka, and Stechanka of Kyiv Province within the exclusion zone in the area subjected to the radioactive contamination as a result of the Chernobyl Disaster;
- a ground-based "dry" storage technology with a dual-barrier containment isolation system is to be used for the storage of the spent nuclear fuel;
- the period of CSFSF operation is 100 years;
- the CSFSF capacity is 16,529 spent fuel assemblies, including 12,010 spent fuel assemblies from VVER-1000 reactors and 4,519 spent fuel assemblies from VVER-440 reactors on the basis of the technology offered by Holtec International ("Holtec").

These are the main elements of the technology:

- MPC—a multi-purpose cask;
- HI-STAR 190 UA (HI-STAR)—a transfer cask;
- HI-STORM 190 UA (HI-STORM)—a storage cask;
- HI-TRAC 190 UA (HI-TRAC)—a reloading cask;
- a cask transfer facility (CTF);
- a cask transfer device (CTD);
- a vertical cask transporter (VCT) (transfer vehicle);
- a rail car transporter for the HI-STAR.

This project calls for the reception of HI-STAR casks with MPCs, the concrete casting of HI-STORM shells, the re-loading MPCs from HI-STAR into HI-STORM casks, and the storage of HI-STORM casks filled with the spent nuclear fuel on the grounds of the CSFSF.

The adjustment of the technology to meet needs of particular units of nuclear power plants is planned within the scope of modification projects in accordance with the applicable legislation in the field of the use of nuclear energy.

The CSFSF will be designed in three stages. The assessment of the environmental impact of the CSFSF has been carried out at the first design stage as a part of the investment feasibility study. The EIA Results have been endorsed by Instruction of the Cabinet of Ministers of Ukraine No. 131-r of February 4, 2009, on the basis of a positive comprehensive expert opinion (by Ukrderzhbudekspertyza) No. 84/54/288o of August 26, 2008, with

- updates of design solutions offered by the Technology Supplier;
- background data as prescribed by the Law of Ukraine "On Regulation of City Development Activities";
- requirements of environmental protection regulations that have come into effect after the issue of the comprehensive opinion as a result of the state expert appraisal of the CSFSF Investment Feasibility Study (August 26, 2008).

2 Essential Factors That Affect or Can Affect the Condition of the Natural Environment Taking into Account the Potential of Environmental Emergencies

There are no essential factors that affect or can affect the condition of the natural environment taking into account the potential of environmental emergencies in the course of the planned activity. The additional radiation impact in case of hypothetic accidents is insignificant. Maximum additional personnel exposures will not exceed reference levels; population exposures are much lower than the ceiling set by NRBU-97 regulations.

Analysis of calculated indicators of radiation impacts on components of the environment in border areas of the Republic of Belarus in the course of the CSFSF construction, normal operation, and accidents has demonstrated that:

- the construction and the normal operation of the CSFSF will not result in noticeable negative impacts on the ambient air, the soil, and the health of the population of border areas of the Republic of Belarus during the entire period of existence of the facility (100 years);
- the ambient air and soil contamination, as well as the additional exposure of the population of border areas of the Republic of Belarus, in case of a maximum design-basis accident in the course of the CSFSF operation will be insignificant in comparison with target criteria prescribed by the radiation safety standards of the Republic of Belarus;
- the ambient air and soil contamination, as well as the additional exposure of the population of border areas of the Republic of Belarus, in case of a hypothetic beyond-design-basis accident in the CSFSF will not result in significant changes in the

radiation situation. This is acceptable in view of the low probability of such an accident.

Analysis of calculated indicators of radiation impacts on components of the environment in border areas of the Republic of Belarus in the course of the CSFSF construction, normal operation, and accidents carried out at the Design stage has confirmed results of the analysis of the CSFSF transboundary impact presented in the Investment Feasibility Study.

3 Quantitative and Qualitative Indicators of Environmental Risk and Population Safety Levels Related to the Planned Activity, and Measures to Guarantee the Exercise of the Activity in Accordance with Environmental Standards and Requirements

No thermal contamination or evaporations are expected in the course of the CSFSF operation. The CSFSF operation will not affect the solar exposure, temperature, wind velocity, humidity, atmospheric inversions, fog durations, and other climate features. Thus, the impact on climate and microclimate is nil.

The additional radiation impact in the case of regular work and accidents is negligible. Contaminant discharges will not have any negative impact on health and lifestyle of the population in adjacent areas because the facility is located away from areas with a prescribed target level of the residential environment quality. The analysis of results of the calculation of ground-level contaminant concentrations has shown that the applicable sanitary standards are met for each contaminant under review in the case of the implementation of this project. The operation of the facility is acceptable from the point of view of the ambient air contamination.

There will be permanent acoustic impact in the course of the operation of the facility throughout its operating life. The analysis of results obtained as a result of the calculation of the acoustic impact has shown that the acoustic discomfort zone around the process equipment of the facility is fully within its sanitary protection zone, and will not affect the acoustic field development beyond it.

The operation of the facility is acceptable from the point of view of the expected acoustic impact.

There will be impact of electric and electromagnetic fields in the course of the operation of the facility throughout its operating life.

There is no impact from electrical equipment (e.g., transformers, generators, electric motors, diesel power plants). The impact from radio communication antennas is acceptable. Since the facility is located away from areas with the prescribed target level of the residential environment quality, its operation will not result in the exceedence of sanitary standards. The electromagnetic field developed around the radio facility (radio communication antennas) is safe for human health. The operation of the facility is acceptable from the point of view of the expected impact of electric and electromagnetic fields. There are no active karst and underwashing processes, no landslides and soil collapses that could interfere with the normal operation.

Nothing is discharged into water directly in the course of the implementation of this project.

The assessment of the environmental impacts has been carried out at a Design stage taking into account the updated information about CSFSF technology, equipment, and infrastructure subject to requirements of environmental protection regulations; assessment results confirm the EIA results stated in the Investment Feasibility Study. The environmental impacts of the planned activity are acceptable.

The implementation of the Project is not subject to any restrictions as a result of the environmental impact assessment.

Results of the Environmental Impact Assessment of the Planned Activity

Assessment of the radiation contamination risk

- the impact on the environment does not exceed the existing condition of the environment and is within sanitary standards applicable to the exclusion and compulsory resettlement zone; for this reason, the impact can be deemed acceptable (in line with reference levels).

Assessment of the Human Health Risk from Atmospheric Air Contamination with Chemicals

- the risk of the development of non-carcinogenic effects is extremely minuscule; the probability of the development of harmful effects grows pro rata with the increase in hazard factors of specific substances;
- the risk of the development of carcinogenic effects is notionally acceptable;
- the social risk of the planned activity is notionally acceptable.

As per analysis of results of calculations of the CSFSF radiation impact risk, the risk for the natural environment and the human health is acceptable.

Risks of the environmental impact of the planned activity on the human health due to the ambient air contamination with chemicals are deemed acceptable.

The implementation of the Project is not subject to any restrictions as a result of the risk assessment.

4 List of Residual Impacts

Residual Impacts from the Planned Activity in the Course of Construction:

- the radiation impact from dust development;
- contaminant emissions by the construction machinery;
- the acoustic impact from the construction machinery;
- the waste generation.

Residual Impacts from the Planned Activity in the Course of Operation:

- the radiation impact;
- emissions of chemical contaminants from the CSFSF infrastructure;
- the acoustic impact from the CSFSF infrastructure;
- the impact of electrical and electromagnetic fields from the radio communication antenna;

- the waste generation.

Measures called for by the design will ensure an acceptable level of residual impacts on all environmental objects.

5 Measures Taken to Inform Public about the Planned Activity, Its Objective, and Methods of Its Exercise

The following measures have been taken to inform public about the planned activity in accordance with requirements of the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters ratified by Ukraine on July 6, 1999, at the Feasibility Study stage:

- the publication of the Statement of Intent (January 25, 2007);
- the process of public consultations on the construction of a centralized storage facility for the spent nuclear fuel of VVER reactors of nuclear power plants of Ukraine (starting from February 6, 2008);
- the roundtable discussion in the city of Slavutych dedicated to the CSFSF construction (February 28, 2008);
- the roundtable discussion in the city of Ivankiv dedicated to the CSFSF construction (March 1, 2008);
- public hearings held with regard to the planned activity in the city of Slavutych (Kyiv Province) (March 22, 2008);
- the publication of the Statement of Environmental Consequences of the Activity (on March 7, 2007).

The information about the planned activity is maintained up to date on the web site of DP NAEK ENERGOATOM in line with the principle of transparency of the environmental policy of DP NAEK ENERGOATOM and in accordance with requirements of the legislation of Ukraine.

Public relations materials of the CSFSF project are posted on the official website of DP NAEK ENERGOATOM (http://www.energoatom.kiev.ua/ru/actvts/stroitelstvo/cssnf/press/).

The following measures to inform public about the planned activity are scheduled to be implemented at the Design stage:

- the publication of the Statement of Environmental Consequences of the Activity;
- keeping the information about this project up to date on the website of

DP NAEK ENERGOATOM (http://www.energoatom.kiev.ua/ru/actvts/stroitelstvo/cssnf/official/).

6 Undertaking of the Principal to Implement Design Solutions in Accordance with Environmental Protection Standards and Rules, and Environmental Safety Requirements at all Stages of Construction and Operation of the Planned Facility

DP NAEK ENERGOATOM as an Operator will ensure:

- the safe operation in accordance with regulatory instruments, operating manuals, and technology guidelines applicable in Ukraine;
- the appropriate management structure and personnel qualification;
- the ongoing control over all activities for the assurance of the compliance with environmental requirements during the operation.

PRINCIPAL	**GENERAL DESIGNER**
Director General	Chair of the Management Board
VP API DP NAEK ENERGOATOM	PJSC KIEP
O. M. Rybchuk _____	*Yu. V. Malakhov (signature, seal)*
“ “ 2016	“ _____ “ 2016