

**To: Ministry of Environment and Water of the Republic of Bulgaria**

**Sofia, 22 Mariya Luiza Blvd**

**Attn: Minister of Environment and Water of the Republic of Bulgaria**

**Subject:** Project for the Construction of a Waste-to-Energy Plant on cadastral parcels 1420/1, 1420/4, 1491/1, 1541/1, 1541/2, 1552, 5824/1, 6513/1, 6513/2 on the cadastral map of the Prahovo settlement, municipality of Negotin, and phased construction of a Non-Hazardous Waste Landfill within the industrial chemical complex in Elixir Prahovo on cadastral parcels number 2300/1, 1491/1 and 1541/1 Prahovo, municipality of Negotin.

**Our Reference:** Letter Reg. No 000886163 2024 dated March 6<sup>th</sup>, 2024, submitting Notification for the subject project under Article 3 of the Convention on the Environmental Impact Assessment in a transboundary context (Espoo Convention).

**Your Reference:** Letter Reg. No 00-04-949 dated on April 26<sup>th</sup>, 2024.

**Dear,**

Hereby we would like to express our gratitude for showed interest in taking part in the Environmental Impact Assessment (EIA) study procedure in a transboundary context (in accordance with the Espoo Convention provisions) for the subject project for the Construction of a Waste-to-Energy Plant on cadastral parcels 1420/1, 1420/4, 1491/1, 1541/1, 1541/2, 1552, 5824/1, 6513/1, 6513/2 on the cadastral map of Prahovo settlement, municipality of Negotin, and phased construction of a Non-Hazardous Waste Landfill within the industrial chemical complex in Prahovo on cadastral parcels number 2300/1, 1491/1 and 1541/1 Prahovo, municipality of Negotin (hereinafter: the Subject Project).

Within this letter we are submitting the Environmental Impact Assessment (EIA) study prepared for the subject project in English language, with additional summaries:

- **Executive Summary of the EIA for the subject project** (Waste-to-Energy Plant and Non-Hazardous Landfill in Prahovo, (p. 2 – 33)
- **Summary of the most important EIA references which respond to the recommendations and comments submitted in your letter Reg. No 00-04-949 dated on April 26<sup>th</sup>, 2024, respectfully included within the decision on the subject project EIA content determination issued by the Ministry of Environmental Protection, Republic of Serbia, on June 17<sup>th</sup>, 2024.** (p. 34 – 40)

Hopefully, you will find the level of provided details sufficient for full project impact comprehension.

**Yours sincerely,**

**Ministry of Environmental Protection, Republic of Serbia**

<p style="text-align: center;"><b>Executive Summary of the Environmental Impact Assessment (EIA)</b> <b>for the Waste-to-Energy Plant and Non-Hazardous Waste Landfill in Prahovo</b></p>
---

## **GLOSSARY OF TERMS**

<b>Waste-to-Energy Plant</b>	Installation designed for the thermal treatment of non-recyclable hazardous and non-hazardous waste, where 30 MW of thermal energy is recovered from the fluid bed waste incineration process. WtE Plant Prahovo includes several buildings and facilities that together represent this technical - technological whole (waste storages, waste pretreatment facility, WtE boiler facility, flue gas cleaning system, wastewater treatment facility, facility for stabilization and solidification of thermally treated waste residues, administrative and other supporting units). WtE process plays a key role in reducing greenhouse gas emissions by utilizing waste as an energy source, replacing fossil fuels. In the Appendix to the EIA, term „Plant for energy utilization” is used as equivalent.
<b>Non-Hazardous Waste Landfill</b>	Installation designed for landfilling of stabilized and solidified waste residues from WtE Plant Prahovo, exclusively. Acceptance of waste for landfilling is predicated on demonstrating compliance with non-hazardous leaching criteria set for non-reactive waste class according to national and EU regulation. In the Appendix to the EIA, term „Landfill of non-hazardous waste” is used as equivalent.
<b>The Subject Project</b>	Refers to the both Waste-to-Energy Plant and Non-Hazardous Waste Landfill, located in the dedicated area of industrial chemical complex of Prahovo. The Subject Project aims to modernize waste management practices, reduce carbon emissions, and support sustainable energy production for constant need of Elixir Prahovo production processes.
<b>Elixir Group</b>	A Serbian business entity engaged in the production of phosphoric acid and mineral fertilizers, operating across several locations in Serbia, including two existing industrial chemical complexes - one in Prahovo, municipality of Negotin and the other in municipality of Šabac. As the mother company with over 2,000 employees across 13 member companies, the Elixir Group is the driving force supporting development and financing of the Subject Project.
<b>Elixir Prahovo</b>	A subsidiary of Elixir Group located in the dedicated area of industrial chemical complex in Prahovo, specializing in phosphoric acid and mineral fertilizer production, with constant need of thermal energy for its production processes.
<b>Elixir Craft</b>	A subsidiary of Elixir Group, specializing in providing range of industrial services for the Elixir Group subsidiaries operating in both industrial chemical complexes of Prahovo and Šabac. In accordance with the planned investments and operations development, the Elixir Craft has registered the Eco Energy branch, located in the dedicated area of industrial chemical complex in Prahovo.

<b>Investor</b>	Elixir Craft – Eco Energy branch is defined as the Investor of the Subject Project as well as the future operator of both installations - the Waste-to-Energy Plant and the Non-Hazardous Waste Landfill.
<b>Industrial Chemical Complex in Prahovo</b>	The existing industrial chemical site located in Prahovo settlement, municipality of Negotin, developed over several decades since the period of the former Yugoslavia. After privatization in 2013, this site is owned by Elixir Group and its subsidiaries. Elixir Group subsidiaries operating within this site are Elixir Prahovo, owner of the existing installations specializing in the production of phosphoric acid and mineral fertilizers, and Elixir Craft, with its facilities and workshops specializing in providing industrial services for Elixir Prahovo. Within this site is determined the suitable undeveloped land-plot dedicated for the construction of the Subject Project installations.
<b>Seveso Complex</b>	A classification for industrial sites that handle large quantities of hazardous substances, subject to strict safety regulations under the EU Seveso Directive.
<b>Accident Scenarios</b>	Scenarios of potential industrial accidents involving hazardous substances, such as chemical spills, explosions, or fires. These scenarios are used to develop preventive and emergency response measures to minimize harm to people and the environment.
<b>Emission modelling</b>	Process of simulating and predicting the environmental impact of emissions (air, water, soil, noise, etc.) from industrial activities. This involves using advanced modelling techniques to assess potential emissions from installations like the Subject Project, ensuring compliance with regulatory limits and minimizing environmental impact.
<b>Prevention measures</b>	Set of preventive actions and practices, in accordance with the best available techniques, implemented to prevent accident scenarios and environmental harm in compliance with national and EU regulations. These measures ensure safe storage, handling, and treatment of hazardous substances, as well as the installation of automatized detection systems, proper ventilation, operating procedures and emergency response protocols to mitigate any potential EHS risks (Environmental, Health, Safety).
<b>Monitoring program</b>	Systematic measuring and analyzing of environmental impact indicators and pollutant emissions as required by national laws and EU directives. The Investor is responsible for developing a monitoring plan that defines the frequency, types of pollutants, and methods for measuring the effectiveness of pollution prevention measures. Data from the monitoring program must be regularly submitted to the relevant authorities.

## **Introduction**

**Elixir Group** is a Serbian business system specializing in the production of phosphoric acid and complex mineral fertilizers. The Group operates across four locations in Serbia, including two existing industrial chemical sites, one in Prahovo, municipality of Negotin and the other in municipality of Šabac, with over 2,000 employees across 13 member companies.

In pursuit of more responsible and sustainable development of its production facilities, Elixir Group has initiated the investment cycle focusing on implementing circular economy concept, recourse efficiency and decarbonization of production value chain in both industrial chemical sites.

Planned investments in industrial chemical site in Prahovo, municipality of Negotin, aims to modernize production of Elixir Prahovo, member company engaged in phosphoric acid and mineral fertilizer production, maximize resource efficiency and accelerate the transition to alternative and renewable energy sources.

Therefore, Elixir Group via its subsidiary **Elixir Craft - Eco Energy branch, as the Investor**, envisions investment in the project of a Waste-to-Energy Plant construction on cadastral parcels 1420/1, 1420/4, 1491/1, 1541/1, 1541/2, 1552, 5824/1, 6513/1, 6513/2 on the cadastral map of Prahovo, municipality of Negotin, and phased construction of a Non-Hazardous Waste Landfill within the industrial chemical complex in Prahovo on cadastral parcels number 2300/1, 1491/1 and 1541/1 Prahovo, municipality of Negotin (hereinafter: the Subject Project).

Through the Subject Project, Elixir Group aims to decarbonize its energy sources and substitute using of fossil-based fuels for production of heating energy needed for phosphoric acid production of Elixir Prahovo, contributing to global efforts to combat climate change and protection of the environment.

**The Subject Project** includes the construction of two technologically connected installations:

- Waste-to-Energy Plant and
- Non-Hazardous Waste Landfill.

Both above mentioned installations of the Subject Project will be located within the area of industrial chemical complex in Prahovo, municipality of Negotin, where also are located the existing production installations of Elixir Prahovo which are constant heating energy consumers.

**Waste-to-Energy Plant** is based on bubbling fluidized bed technology for waste incineration with a combustion chamber of a 30 MW thermal power. The purpose of the Subject Project would be to thermally treat non-recyclable hazardous and non-hazardous waste with energy recuperation higher than 0,7 according to R1 calculation applicable for such installations. The energy would be utilized for production of Low-Pressure Steam (LPS). LPS is currently utilized in the phosphoric acid concentration within Elixir Prahovo production process. The investment would thereby phase out current LPS based on fossil fuels. Consequently, such investment reduces greenhouse gas emissions in the full scope of material lifecycle.

**Non-Hazardous Waste Landfill** is designed for disposal of stabilized and solidified thermal treatment waste residues from WtE Plant, exclusively. It includes use of advanced non-filtrable membrane which prevent leachate from contaminating soil and underground water, as well as systems for leachate drainage, collection and processing in a wastewater treatment facility of the Waste-to-Energy Plant, complying with best available techniques and strict environmental regulations. Acceptance for landfilling is predicated on demonstrating compliance with non-hazardous leaching criteria set for non-reactive waste class according to national and EU regulation.

The Subject Project would be aligned with EU Waste Directive favorizing incineration of non-recyclable material over landfilling. Moreover, such investments are intended to improve the national waste management efforts, while supporting the overall goal of decarbonation, addressed as one of the key principles for sustainable and low-carbon development in the Green Agenda for Western Balkans.

## **1. Project description**

The technology necessary for safe and effective thermal treatment of waste is well established. Only in EU there are nearly 500 Waste-to-Energy (WtE) plants in operation across 23 European countries (according to CEWEP: Confederation of European Waste-to-Energy plants), yielding large industrial experience in the field. The selected partner with proven field track record in engineering design is Austrian company "TBU Stubenvoll" GMBH<sup>1</sup>. The proposed design encapsulates experience accumulated in the field with state-of-the-art technical solutions.

Upstream of the boiler the process incorporates liquid waste loading to the working buffer storage tanks, solid waste shredding, shredded solid waste mixture homogenization, nitrogen blanketed shredding of multiphase hazardous waste and sludge loading to a buffer tank. Prepared waste is fed to the boiler using dosing screw or special pumps connected to supercritical nozzles for atomization. Waste combustion is performed in sub-stoichiometric and stoichiometric zone of the boiler. The lower zone with the sand bed is characterized by sub-stoichiometrically condition, which is the basic requirement for controlling the process while mixing combustion air and recirculation gas. In the upper boiler zone, gases coming from the bottom boiler zone are mixed with the upper secondary air. The nozzles are arranged to create a vortex movement of the gas. Flue gases enter this zone sub-stoichiometrically and react with secondary air in the turbulent flow zone. At the end of this reaction, the flue gases have an excess of oxygen and a temperature between 850°C and 950°C. The retention time after the secondary air level injection is minimum 2 seconds or even longer. Consequently, three most important parameters for molecule decomposing are met, turbulence, temperature and retention time.

Most sophisticated part of the Waste-to-Energy Plant is the flue gas cleaning system (flue gas treatment). In the first step a cyclone battery removes large particles. Downstream, activated carbon filter adsorbs dioxins, Hg and heavy metals from the stream before being separated in the 6-chamber bag filter. The gases are then directed to a 2-step scrubbing process where chlorides, fluorides, heavy metals and SO<sub>x</sub> are removed. Finally, before emitting the flue gas on a stack, the gas is treated in a selective catalytic DeNO<sub>x</sub> process, where NO<sub>x</sub> is in reaction with ammonia water converted to nitrogen (N<sub>2</sub>) and water (H<sub>2</sub>O).

Wastewater generated on the Waste-to-Energy Plant includes the stream contaminated in the flue gas scrubbing process which is treated via 3 complementary neutralization steps (pH value and additives varied) and always followed by sedimentation process. In the final stage of neutralization, a flocculant agent is also added for easier contaminant separation. In case the treated wastewater does not meet the set quality control standards it is directed to column with sand filter followed by column with activated carbon, before ones again sent to the first neutralization step of the purification process.

Combustion process residues, bottom ash, cyclone ash, filter ash and scrubbing process residues are intended to be treated before disposal on Non-Hazardous Waste Landfill. Firstly, ferrous and non-ferrous metals will be separated from bottom ash as non-hazardous metals for recycling. Subsequently, non-recyclable material would be combined with other residues stream before all residues will be stabilized and solidified. Water should be added to the mixture to promote completion of chemical reactions. After a minimal stabilization time of 10 days, the mixture should be reacted with cement and additives to solidify contaminants in a concrete crystal structure. Solidified structure would be disposed on a specially designed Non-Hazardous Waste Landfill with a protective textile membrane on top of high-density polyethylene membrane with a filterability of 10<sup>-7</sup> (GRI Test method GM 13 "Test Methods, or European standard EN 134934). Material to be positioned on the membranes is selected to control the water filterability and rate of flow to the non-filtrable membrane, which prevents leachate (contaminated water) to reach the soil and underground water. The leachate would be drained and directed for processing in the wastewater treatment facility. The processing strategy is intended to control the

---

<sup>1</sup> TBU Stubenvoll GmbH References List: ABRG DRO (AT), ABRG WSO (AT), ABRG WSO new (AT), AVN 1,2 (AT), AVN 3 (AT), Kralupy (CZ), Malta (M), Monthey (CH), Moscow (RU), RVL Lenzing (AT), Villas (AT), Villas II (AT). For more details, you can visit their official website: [TBU](http://www.tbu.at)

quality of leachate to meet the non-hazardous waste requirements, while collection and drainage does not allow release of the leachate to the environment.

Adopted technical solutions have been developed fully in compliance with the applicable laws and by-laws of Republic of Serbia as well as Commission implementing decision (EU) 2019/2010 of 12<sup>th</sup> November 2019 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration (notified under document C(2019) 7987), Commission Implementing Decision (EU) 2018/1147 of August 10<sup>th</sup> 2018 establishing best available techniques (BAT) conclusions for waste treatment, under Directive 2010/75/EU of the European Parliament and of the Council (notified under document C(2018) 5070), Commission reference document on Best Available Techniques on Emissions from Storage (July 2006) and Directive (EU) 2018/850 of the European Parliament and of the Council of May 30<sup>th</sup> 2018 amending Directive 1999/31/EC on the landfill of waste.

## **2. Location selection & current state of the environment**

There are very limited thermal treatment capacities for non-hazardous and hazardous waste treatment in Serbia, affecting business development sustainability. Alternative way of handling produced industrial waste is export to treatment facilities in the neighboring and EU countries. It is clear that such practices increase the emissions induced via transport, create long administrative process with elevated costs. Consequently, increasing the capacities of treatment would improve the waste management practices, elevate the economic effect of business activities and reduce energy dependency on third parties. Successful implementation of such a project requires an industrial zone with established production practices and constant consumption of energy recovered. Due to these factors and most importantly constant energy need of Elixir Prahovo production process, Investor considers the location within the area of existing industrial complex in Prahovo as suitable for the Subject Project implementation.

Produced energy would reduce the need for LPS production using fossil-based fuels, on aggregate project implementation would have a positive effect on the overall greenhouse gas emissions (Product Life Cycle Analysis). Water utilization as a resource would not change on the location, as the amount of produced steam would not change. Moreover, any water treatment results in a wastewater release to the original water source and/or recipient, Danube River.

Emissions in air have been considered within the process of location selection; emission synergies are carefully analyzed while flue gases characterized for such facilities do not impose a cumulative large influence. Current state of the environment has been assessed before any modelling has been conducted, all measurement has been done by accredited bodies.

The study considered the biodiversity representative for the larger area, including neighboring Bulgaria and Romania, potentially affected by the project. It has been concluded that the eradication of the Mesian forest of gray pedunculate and the drainage of the floodplain of ponds and wetlands in the 1930s, and the construction of HPP "Đerdap II" permanently destroyed natural potential vegetation, and with it the accompanying fauna. The area is dominated by anthropogenic communities. Current vegetation, flora and fauna are of secondary origin and are of no protection interests. Study also found that negative effects on the fish fauna are mainly due to the impact of the HPP dams "Đerdap I and II", which prevent migration upstream and downstream, affect the flow regime and cause large oscillations in the water level, above, between and in the part of the flow below the dams. These significant changes caused changes in the ichthyofauna of the Danube. Migratory fish species such as sterlet and barbel, which favor the faster flow, have migrated to the upstream part of the Danube, while species such as bream showed intensive growth in the newly formed reservoirs.

### **3. Emission modelling**

Influence on the environment has been studied cumulatively taking into account impact specific for the existing industrial activities within the existing industrial chemical complex in Prahovo, particularly air emissions, wastewater emissions, soil contamination, noise, etc. State-of-art rigorous modelling approach took theoretical maximal allowed emissions from the considered technical solutions. Dominant influence of Waste-to-Energy Plant would be reflected in air and wastewater emissions. Other induced influence is minimized to marginal due to either nature of the project and/or selected technical solutions. On the other hand, Non-Hazardous Waste Landfill is considered as a potential source of dust emissions. Leachate and contaminated soil induced effects are not possible in regular operations of neither Waste-to-Energy Plant nor Non-Hazardous Waste Landfill.

#### **3.1. Waste acceptance for thermal treatment**

The Subject Project documentation defines that waste containing more than 1% of halogen organic substances expressed as chlorine cannot be treated in the Subject Waste-to-Energy Plant. It is strictly forbidden to receive waste that is explosive, flammable, infectious, radioactive, waste materials containing or contaminated with polychlorinated biphenyls (PCBs) and/or polybrominated triphenyls (PCTs) and/or polybrominated biphenyls (PBB), waste containing cyanides, isocyanates, thiocyanates, asbestos, peroxides, biocides, cytostatics, electronic waste. Additional restrictions on admission to the subject Waste-to-Energy Plant are waste substances in the form of aerosols, as well as organometallic compounds (spent metal-based catalysts, or organometallic wood preservatives) and aluminized paints. Moreover, the subject WtE installation will not accept infectious, explosive, flammable and waste which releases toxic gases in reaction with water. Waste pre-acceptance and acceptance procedure define in which way is the documentation, characterization with assurance and control performed within the process of waste reception. After reception the waste would be prepared for the thermal process, to prevent emissions and odors a significant number of measures are foreseen, i.e., special design is made. After reception gates are closed, while the air from the separation is succeed with a vacuum system and directed to the combustion process. Similarly, in special preparation lines, liquid and sludge lines, nitrogen is used for blanketing. In case the boiler is not in operation, the vacuum system from the storage and waste shredding allows for gases to be directed to the filtering system consisting of a waste pretreatment filter system and activated carbon filter.

#### **3.2. Air emissions**

Atmospheric dispersion models of pollutants are used to determine the concentration of pollutants in flue gas during the removal of the smoke plume from the source of emissions, and to estimate their ground concentrations. The dispersion model represents the mathematical expression of the influence of atmospheric processes on pollutants in the atmosphere. Atmospheric conditions (which include wind speed and direction, air temperature and mixing height) are simulated using dispersion models, and pollutant concentrations are estimated as they move away from the emitter. The software package AERMOD was used, i.e., a model based on the Gaussian distribution and recommended by the EPA (U.S. Environmental Protection Agency). AERMOD includes a wide range of capabilities for modeling the impact of pollutants on air pollution. The mentioned model provides the possibility of modeling several pollution sources, including point, line, surface and volume sources. The model contains algorithms for the analysis of aerodynamic flow in the vicinity of and around buildings. Modelling strategy considered all existing stack and surface emissions within the existing industrial chemical complex in Prahovo, as a current state of air pollutant emissions in the area. Additionally, a cumulative approach is considered where it is envisioned that with the Subject Project execution there would be 3 additional emitters:

- Emitter of the Waste-to Energy boiler - after the flue gas cleaning system which includes bag filters, activated carbon filters, scrubbers and SCR filter (selective catalytic DeNO<sub>x</sub> reduction)
- Emitter of the waste pretreatment filter stacks - after the bag filter and activated carbon filter

- Emitter of the stabilization and solidification of the thermal treatment residues - after the bag filters

Moreover, Non-Hazardous Waste Landfill is also taken into account as a potential surface emitter in the model.

Study included an impact zone of 50 km x 50 km, i.e., an area of 2500 km<sup>2</sup> expressed in the form of Cartesian coordinate system with variable receptor distance (Multi-Tier Grid). Thereby, the model was set to assess the potential local as well as cross-border impact.

In order to define local prevailing meteorological parameters, hourly meteorological data for a specific location and for a period of five consecutive calendar years (2017 - 2021) were procured from Lakes Environmental Consultants from Canada. This dataset consists of information on the surface and upper atmosphere layers, which are required to run the dispersion model.

Emission of pollutants already characteristic for the industrial chemical complex in Prahovo would be negligible affected by the Subject Project implementation (Waste-To-Energy Plant & Non-Hazardous Waste Landfill), namely influence of the existing Elixir Prahovo and Phosphea emitters are dominating point source emissions. On the other hand, surface sources found in phosphor-gypsum storage area are dominating the emissions of dust (particulate matter). It was found that in the case of some components (SO<sub>2</sub>, PM<sub>10</sub> and HF), there is a possibility of episodic high concentrations in the case of extremely unfavorable (from the point of view of dispersion) meteorological conditions. However, the number of hours/days with these concentrations is extremely small, i.e., there is low statistical probability of this happening. It has been established that the cause of these potential episodic elevated concentrations is the existing SO<sub>2</sub> and HF emitters within the Elixir Prahovo, i.e., phospho-gypsum landfills in the case of PM<sub>10</sub>, both for the current and future situation. Therefore, these episodic emissions are not a potential consequence of the operation of the future Waste-to-Energy Plant and Non-Hazardous Waste Landfill. Moreso, potential zones with exceedances of the limit values of these components occur on uninhabited areas in the immediate vicinity of the property limit of the existing chemical industry complex in Prahovo. Pollutants components that are currently not emitted and that would be emitted only from the emitters of the Waste-to-Energy Plant (Hg and PCDD/F), the modelling results indicate that the concentrations would be far below the regulated limit values. Additionally, the results show that the emissions would be practically negligible from the aspect of PM<sub>10</sub> and TVOC (indicator of odor emissions) in cases of Waste-to Energy boiler in or out of operations.

**Comprehensively concluded, the modelling results indicate that that already active emission sources are dominating the air quality, while the added emissions related to Subject Project execution would be almost negligible. The impact of the Subject Project installations would be marginal with limited synergistic effect. The potential influence on the larger area air quality is marginal, meaning that there is no potential influence in neighboring area of Romania and Bulgaria.**

### **3.3. Wastewater emissions**

Considered technical solutions do not allow for underground water contamination under normal operating circumstances. On the other hand, it is envisioned that there are 3 wastewater sources to be treated and discharged to the existing receiving collector of the industrial chemical complex in Prahovo, as a single collection point before being released to the final recipient, Danube River.

- The first wastewater source to be discharged to the receiving collector would be sanitary wastewater (separate sewage system collects waste sanitary-foul wastewater) threated mechanically and biologically. This stream is similar in quality with a regular municipal sewage water; thus, its cleaning is considered to be standard with limited threats for the receiving water body.
- The second wastewater source to be discharged to the receiving collector would be a stream of potentially oiled wastewater originated from roads, manipulative surfaces and parking lots. This source would be drained and directed for processed on oil/grease-"bypass" separators before being discharged to the receiving collector.



- The third and potentially most contaminated wastewater source would be the stream originating from process wastewater treatment, which includes water from the drainage of the waste storage and boiler area, leachate from the Non-Hazardous Waste Landfill, wastewater from fire extinguishing, wastewater from process water preparation process and finally wastewater produced during Waste-to-Energy flue gas scrubbing (wet cleaning) process.

All these streams (abovementioned as the third wastewater source) would be treated on the wastewater treatment process with three stages of neutralization, sedimentation and flocculation, before being released to the existing central receiving collector and finally to Danube River.

The release of the atmospheric clean water (separate rainwater sewerage for the collection of clean atmospheric water from the roofs of buildings) would naturally be a non-contaminated source directly released to the central receiving collector.

Wastewater release to the existing central receiving collector and to the Danube River have been assessed cumulatively considering the currently measured emissions which are connected to existing industrial complex operation. Before attempting any modelling, the current values of contaminant concentration in Danube River upstream and downstream of the release point have been determined. For newly expected pollutant sources, concentration limits given by BAT conclusions (Commission implementing decision (EU) 2019/2010 of 12<sup>th</sup> November 2019 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration (notified under document C (2019) 7987)) have been taken as an overestimate of expected negative contribution of the Subject Project execution.

Release models consider the current flow of industrial complex wastewater release of 141.8 l/s, flow of wastewater from the oil separators 233 l/s, flow from fecal wastewater treatment 4 l/s and flow from the process wastewater treatment of 5 l/s. The model took into account the average flow rate of the Danube (at the Prahovo site) of  $4,9 \cdot 10^3$  m<sup>3</sup>/s. Model implies that the outflow of wastewater disperses through the Danube River course in the form of a developed plume and in accordance with the hydrodynamic parameters of the Danube River (J. Rutherford Handbook on mixing in rivers, Water & soil miscellaneous publication, No. 26/1981, Wellington), taking into account transverse and vertical turbulent diffusion of pollutants in the river flow.

By comparing the results of the Danube River pollution modeling due to the discharge of collective wastewater from the Elixir Prahovo complex and the addition of the future Subject Project complex, it can be observed that no parameters exceed the concentration limit values of the tested parameters. Moreover, it should be borne in mind that based on the results of the "zero state" of the Danube River water quality, it can be stated that in the tested water in its current state there is no negligible load of any of the polluting substances characteristic for expected wastewater release which will be discharged from the future Subject Project complex. Bearing in mind the above, as well as the fact that all pollutants in wastewater from the Subject Project installations will be below the Emission Limit Value (ELV) prescribed by the conclusions on the best available technologies and BREF documents from 2019. (Commission implementing decision (EU) 2019/2010 of 12 Nov. 2019 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration), it can be stated that after putting the Subject Project into operation, there would be no cumulatively higher values of the concentration of polluting substances in the collective wastewater discharged into the Danube River. Flow modeling additionally shows that concentrations already 100 m downstream from the wastewater outlet are negligible. At 100 m downstream from the outlet is the relatively highest load (in relation to the limit value) of chemical Oxygen Demand (COD), which is 22 times less than defined by the Regulation on limit values of polluting substances in surface and underground waters and sediment and deadlines for reaching them (Official Gazette of RS, No. 50/2012). On the other hand, among the parameters not regulated by the Regulation, the highest relative load (in relation to the limit value) is TI, which is 1667 times less than the concentration prescribed by the conclusions on the best available technologies and BREF documents from 2019 (Commission implementing decision (EU) 2019/2010 of 12<sup>th</sup> November 2019 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration (notified under document C(2019) 7987)).

**Additionally, modeling the effects of pollutant emission into the air from the Subject Project even under the most unfavorable weather conditions, and in the case of accidental situations with the most damaging scenarios of air pollutants release, didn't indicate any impact on the quality of Danube.**

**Determined concentrations 100 m and 200 m downstream of the treated wastewater discharge point are negligible in concentration and to a large level barely if at all detectable. The study results conclusively showed that there would not be any violation of emission limits outlined for such installations and, more importantly, deterioration of Danube water quality as a consequence of the Subject Project execution.**

### **3.4. Solid Waste Management**

As above described all solid residues formed during the process are treated to encapsulate contaminants in the crystal structure of concrete after stabilization. This allows for management of waste in a sustainable manner on a Non-Hazardous Waste Landfill, which would be equipped with a non-permeable HDPE foil, thus the leachate would be drained and sent for treatment in the wastewater processing.

Acceptance of waste on the Non-Hazardous Waste Landfill is predicated on demonstrating compliance with non-hazardous leaching criteria set for non-reactive waste class according to national and EU regulation (NEN 7345 Leaching Characteristics of Soil and Stony Building and Waste Materials - Leaching Tests - Determination of the Leaching of Inorganic Components from Building and Monolithic Waste Materials with the Diffusion Test) which set the criteria for the solidified waste characterization to be accepted for landfilling. Consequently, the operating procedure specifies the need of taking samples of material after the stabilization and solidification process. In case of demonstrating compliance to the criteria the material would be accepted to be landfilled on the Non-Hazardous Waste Landfill. If case the material analysis would not demonstrate compliance to the criteria, it would be reverted to other operators for hazardous waste landfill and/or underground storage.

The management strategy prevents direct exposure of soil to solid waste, moreover the underground water sources are protected. The Non-Hazardous Waste Landfill operation itself would be monitored constantly via quality control piezometers. More precisely, soil and water quality will be monitored with preset frequency.

## **4. Accident scenarios**

Detailed assessment of the consequences and risks at the Subject Project complex, defining the safety system, prevention and response measures in emergency situations, will be carried out through the development of Documents for operators of Seveso plants according to the provisions of the Law on Environmental Protection ("Official Gazette of the RS", nos. 135/2004, 36/09 and 36/2009 - other law, 72/2009 - other law and 43/2011 – CC decision, 14/2016 and 95/2018). Pursuant to the provisions of the Seveso Directive on the control of major accident hazards involving dangerous substances, i.e., article 58 of the Law on Environmental Protection and the Rulebook on the list of hazardous substances and their quantities and criteria for determining the type of documents prepared by the operator of the Seveso plant or complex, taking into account the maximum possible quantities of hazardous substances that may be present at any time within the Subject Project complex, as in Table 1 - List of dangerous substances and limit values thereof (ordinal number 11, 33 and 40), as well as in Table 2 – List of dangerous substances category and limit values thereof (Section "H" - HEALTH HAZARD, Section "P" – PHYSICAL HAZARDS, Section "E1" and "E2" HAZARD for the AQUATIC ENVIRONMENT), the status of the Subject Project was determined.

It was noted that the the Subject Project represents a "higher order" Seveso complex and therefore it is the obligation of the Investor, in terms of accident risk management obligations, to prepare a Safety Report and an Accident Protection Plan and obtain the consent of the competent authority. Considering that these documents as well as the project documentation will envisage all necessary measures in order to prevent and minimize the consequences of the accident, we believe that the only impacts that can be significant for the environment

(accident situations) due to the operation of the Subject Project will be limited by these documents. It is the obligation of the Investor to prepare both the Final Fire Protection Design and the Fire Protection Plan in accordance with the Law on Fire Protection ("Official Gazette of the RS", Nos. 111/2009, 20/2015, 87/2018 and 87/2018 – other laws) and to obtain the consent of the competent Ministry of the Interior, Republic of Serbia.

#### **4.1. Waste-to-Energy Plant accident scenarios**

12 scenarios have been analysed as potential Waste-to-Energy Plant accident, classified in accordance to level of potential consequences:

- level II (level of the complex – consequences of the accident limited to the entire complex - there are no consequences outside the boundaries of the complex)
- level III (the level of the municipality or city – the consequences of the accident are extended to the municipality or the entire city)
- level IV (regional level – the consequences have spread to the territory of several municipalities or cities) and
- level V (international level – the consequences have spread beyond the boundaries of the Republic of Serbia).

These occurrences consider liquid waste spillage, dust discharge, gas leakage, gas formation followed with toxic contaminate spread or fire initiation with toxic gas formation. Accident effects were modelled using appropriate mathematical models and the ALOHA<sup>R</sup> (Areal Locations of Hazardous Atmospheres) software program, designed for professionals dealing with chemical accident issues to ensure quality assessment of vulnerable zones in case of chemical accidents and to enable quick responses to minimize consequences. The program, developed by US EPA ALOHA<sup>R</sup>, successfully models three types of risks: toxic gas dispersion, fires, and explosions. For gas dispersion modelling (release of toxic substances), ALOHA<sup>R</sup> uses the Gaussian dispersion model. According to this model, wind and atmospheric turbulence are forces that move the released gas molecules through the air, and turbulent mixing and lateral wind allow the cloud to spread in multiple directions. At the moment of hazardous gas release, the concentration of the pollutant is very high, but as it moves away from the accident site, the concentration decreases. ALOHA<sup>R</sup> models three levels of hazard for toxic gas dispersion.

The most important events are accidents classified as level II and level III. There are no accidental scenarios classified as level IV or level V.

Accident classified as level II, with consequences limited to the boundaries of the Subject Project complex, is accidental leak at the liquid waste transfer point, uncontrolled discharge of dust (total particulate matter) from flue gas bag filter, forced flue gas discharge to the stack without cleaning in the scrubber system and accidental situations in the stabilization and solidification facility.

Accidental leak at the liquid waste transfer station involving a tank truck fire for about 30 minutes, leading to BLEVE (Boiling Liquid Expanding Vapor Explosion) effect is considered to be the worst case scenario accident. This would potentially include contained within a range of up to 57 m, some of the accompanying effects, such as shock waves and fragments from the potential tank truck explosion, could extend beyond the Waste-to-Energy Plant's area. However, toxic concentrations for CO, NO<sub>x</sub>, SO<sub>2</sub>, and soot remain below hazardous levels in the vicinity of the Waste-to-Energy Plant, classifying this accident scenario as Level II, meaning the consequences are limited to the boundaries of the Subject Project complex, with no impact beyond its boundaries.

Accident classified as level III, with the the highest reach which extends the boundaries of the Subject Project, is linked to accidents involving ammonia water, as the furthest range for toxic concentrations is 680 m. Effects of subsequent ignition are within the boundaries of the complex, and the subsequent ignition effects remain within 11 m from the spill site.

By implementing protective measures in accordance with technical standards across construction, electrical, technological, and mechanical engineering, along with adhering strictly to relevant regulations and operational guidelines, the risk of accidents (such as fires, explosions, and spills) is minimized. Regular technical inspections and proper WtE installation maintenance also help prevent such accidents. In case of an accident, local emergency interventions will be conducted following established instructions and standards. For larger-scale accidents, the remediation process will be coordinated in collaboration with competent institutions to ensure proper management and resolution.

Special attention has been given to the effects of hazardous substance emissions in accident situations at the Waste-to-Energy Plant on the Danube River. For modelling pollution on the river flow, a mathematical model for a continuous pollution source was applied, based on the FATE software (Faculty of Civil Engineering, Podgorica, [https://www.ucg.ac.me.objava\\_130961](https://www.ucg.ac.me.objava_130961)) development. In the case of ammonia vapours, the fractions of ammonia, HCl, SO<sub>2</sub> and NO<sub>x</sub> dissolving in the river surface were calculated based on the deposition velocity, whose value in this case is taken as 0.01 m/s (S.Hanna et al., Handbook on Atmospheric Diffusion, Oak Ridge, 1982.) – the effect of “acid rain”. On the other hand, In the case of total particulate matter (PM), the portion of PM reaching the Danube River was calculated based on the deposition fraction flux from the turbulent diffusion equation, based on the calculated deposition velocity of the mean PM particle diameter.

**The modelling results shown that the pollutant levels (PM and recalculated values of NH<sub>3</sub>, HCl, HF, SO<sub>2</sub> i NO<sub>x</sub>) are far below the acceptable values, meaning that accident situations at the Waste-to-Energy Plant would not lead to pollution of the Danube River even in the worst case scenario.**

**The Subject Project is clasified as a "higher order" Seveso complex and therefore it is the obligation of the Investor, in terms of accident risk management obligations, to prepare a Safety Report and an Accident Protection Plan and obtain the consent of the competent authority (Ministry of Environmental Protection, Republic of Serbia).**

#### **4.2. Non-Hazardous Waste Landfill accident scenarios**

Two scenarios have been analysed as potential Non-Hazardous Waste Landfill accident, migration of contaminants and leakage of contaminated leachate causing groundwater contamination both in case of cracking of HDPE foil. After analysing the possible consequences due to these accidents, the occurances are assessed as low in likelihoud and of low significance in magnitude.

Molecular diffusion of two saturated layers occurs, in conditions where there is no flow, so that the transport of the contaminant occurs due to flux from the higher concentration zone to the lower concentration zone, it can be concluded that it takes more than 100 years for the concentrations at a distance of 5 m to be 0.5 % of the initial value. By increasing the distance, as well as the time, this value becomes negligibly small. In the presented case, it is clearly evident that diffusion is not a rapid process and is the prevailing mechanism of transport of contaminants in conditions of poorly permeable to watertight formations.

The scenario of leakage of contaminated water, leachate, from the landfill into the aquifer, causing contamination of groundwater, and consequently their drainage into the Danube watercourse, represents the most unfavorable possible accident scenario of the movement of contaminated groundwater, which has reached the groundwater level and is still transported by advective transport. The obtained results for a period of ½, 1 and 2 years and a distance of up to 500 m, refer to the hydrodynamic dispersion of the inert tracer (chloride) without retardation, shown that after 1 year the pollutions would reach a point 125 m from the location of release and 500 m after 2 years.

Metals are characterized by large sorption in the soil, the effect is dependent on the pH of the soil, thereby multiple scenarios are considered. In case of pH 4,9 the value would be almost 500 times lower than the initial one at 20 m after 2 years. In case of pH 6,8 the retardation is larger, thereby the pollution transfer is even less a concern.

**The study results conclusively indicate that there is sufficient time to react in case of accidents involving leakage of contaminated leachate in case of cracking of HDPE foil of the Non-Hazardous Waste Landfill, imposing limiting risks for the environment.**

## **5. Prevention measures**

All foreseen environmental harm and accident prevention measures have been developed fully in compliance with applicable laws and by-laws of Republic of Serbia as well as the following:

- Commission implementing decision (EU) 2019/2010 of 12<sup>th</sup> November 2019 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration (notified under document C (2019) 7987);<sup>2</sup>
- Commission Implementing Decision (EU) 2018/1147 of August 10<sup>th</sup>, 2018, establishing best available techniques (BAT) conclusions for waste treatment, under Directive 2010/75/EU of the European Parliament and of the Council (notified under document C (2018) 5070);<sup>3</sup>
- Commission reference document on Best Available Techniques on Emissions from Storage (July 2006)<sup>4</sup>
- Directive (EU) 2018/850 of the European Parliament and of the Council of May 30<sup>th</sup>, 2018, amending Directive 1999/31/EC on the landfill of waste;<sup>5</sup>

Moreover, all national legislation strongly corresponding EU regulatory framework has also been considered and the developed technical, operation and organizational strategies are fully compliant with the requirements. The Subject Project is considered as a high-order Seveso complex, thereby preparation of the Safety Report and an Accident Protection Plan is mandatory including obtaining approval from the competent authority (Ministry of Environmental Protection, Republic of Serbia).

Finally, operating procedures are subject to the Waste Framework Directive (The Waste Framework Directive 2008/98/EC of the EU Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives and its amendments (2018)) 6 and corresponding Serbian Law on Waste Management<sup>7</sup> and Law on Integrated Prevention and Control of the Environmental Pollution<sup>8</sup>.

In order to familiarize employees with preventive fire protection measures as well as with the use of fire extinguishing agents, training and testing of employees should be carried out. It is the obligation of the Investor (as the future Operator) to develop a Training Program of Employees for Fire Protection according to the Law on Fire Protection<sup>9</sup>, and in accordance with the Rulebook on the minimum content of the general part of the training program for workers in the field of fire protection<sup>10</sup> and to obtain the approval of the relevant authority. For each planned civil unit within the Waste-to-Energy Plant, the basic requirements from the aspect of fire protection are defined in accordance with the applicable regulations in this area. System design allows for early detection, alarming and response of the operation personnel.

---

<sup>2</sup> [Implementing decision - 2019/2010 - EN - EUR-Lex \(europa.eu\)](#)

<sup>3</sup> [Implementing decision - 2018/1147 - EN - EUR-Lex \(europa.eu\)](#)

<sup>4</sup> [Waste Incineration | EU-BRITE \(europa.eu\)](#)

<sup>5</sup> [Landfill Directive - Directive \(EU\) 2018/850 | Circular Cities and Regions Initiative \(europa.eu\)](#)

<sup>6</sup> [Directive - 2008/98 - EN - Waste framework directive - EUR-Lex \(europa.eu\)](#)

<sup>7</sup> "Official Gazette of the RS", no. 36/2009, 88/2010, 14/2016, 95/2018 - other law and 35/2023, Available at [Zakon o upravljanju otpadom \(paragraf.rs\)](#)

<sup>8</sup> "Official Gazette of the RS", No. 135/2004, 25/2015 and 109/2021, Available at [Zakon o integrisanom sprečavanju i kontroli zagađivanja životne sredine \(paragraf.rs\)](#)

<sup>9</sup> "Official Gazette of the RS", no. 111/2009, 20/2015, 87/2018 and 87/2018 - other laws, Available at [Zakon o zaštiti od požara \(paragraf.rs\)](#)

<sup>10</sup> "Official Gazette of the SRS", no. 40/1990 Available at <https://pravno-informacioni-sistem.rs/SIGlasnikPortal/eli/rep/sgsrs/ministarstva/pravilnik/1990/40/1/reg>

**The Subject Project foresees its own fire station and fire brigade, in addition to which in case of need it is possible to hire 2 more fire brigades equipped to react: Elixir Prahovo and Negotin municipality fire brigades.** In case of unwanted events remediation procedures exist, setting monitoring measures and or special handling of residual contaminated waste (e.g., fire extinguishing water, contaminated soil, etc.).

Both regulatory framework and technical operating requirements set a need for constant availability of responsible expert personal. Among the staff, expert chemists would be needed with responsibilities linked to pre-acceptance and acceptance procedures of waste, waste testing, stabilized and solidified waste compliance testing with landfilling criteria requirements. Complementary, an expert for waste regulatory framework would be necessary, while verification of full compliance of the regulatory framework is mandatory within the scope of work, it would also be necessary to execute a sophisticated reporting schedule. Responsibility for the full operation of the Subject Project in terms of environmental protection must be given to the Environmental Health and Safety expert, as a EHS Manager. Naturally the operation of the Waste-to-Energy installation must be guided by an expert in that field, as a Technical Manager. Responsibility and scope delegation would be determined by the operating procedures which include but are not limited to, equipment operating procedures, start and shutdown procedures, maintenance procedures, waste pre-acceptance and acceptance procedure, waste movement reporting procedure (including waste recycling preparation, waste thermal treatment and waste disposal), equipment calibration and certification procedures, R1 calculation procedure, safety report development procedure, accident protection plan development procedure, fire protection system maintenance and testing procedure, environment state monitoring plan report development procedure, emergency situation reaction procedure, eco-management and audit scheme verification procedure.

Prevention measures are taken within design to avoid hazard circumstances and/or to prevent magnitude in case of an event. Thereby, material storage would be segregated maximally allowable by process unit co-dependency, installation of significance concentration detectors for H<sub>2</sub>, CH<sub>4</sub>, CO, H<sub>2</sub>S and NH<sub>3</sub> are envisioned on locations outlined as potentially hazardous zones. Complete Subject Project complex would be equipped with signalization of gas detection. Moreover, design measures are taken for the regular operations of the Subject Project installations to avoid incomplete waste treatment, unpleasant odours or uncontrolled emissions.

Furthermore, it is foreseen that the waste incineration boiler will be equipped with at least one auxiliary burner which must be activated automatically when the process gas temperature drops below 850°C. Air ventilation system is designed with large capacity to prevent harmful gas accumulation in an event of hazardous scenario unravelling. Waste storage system would be kept under vacuum with automatic direction of the gas to the combustion burners. At the same time the vacuum would be directed to the filter system with activated carbon in case the boiler is not in operation. Moreover, the liquid waste, sludge and hazardous waste preparation would be nitrogen blanketed to prevent any release of gas to the environment.

Most of these practices are well defined within Commission implementing decision (EU) 2019/2010 of 12th November 2019 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration (notified under document C(2019) 7987) <sup>11</sup>, Commission Implementing Decision (EU) 2018/1147 of August 10th 2018 establishing best available techniques (BAT) conclusions for waste treatment, under Directive 2010/75/EU of the European Parliament and of the Council (notified under document C(2018) 5070) <sup>12</sup> and Commission reference document on Best Available Techniques on Emissions from Storage (July 2006) <sup>13</sup>. The best practices set by these documents are as well the basis for procedure development, emission monitoring and reporting requirements of the Waste-to-Energy Plant. In order to minimize the Subject Project influence on the surrounding environment, the designers as well based the above-described technical solutions on BAT described in the EU reference documents.

---

<sup>11</sup> [Implementing decision - 2019/2010 - EN - EUR-Lex \(europa.eu\)](#)

<sup>12</sup> [Implementing decision - 2018/1147 - EN - EUR-Lex \(europa.eu\)](#)

<sup>13</sup> [Waste Incineration | EU-BRITE \(europa.eu\)](#)

## **6. Monitoring programme**

In accordance with the Law on Environmental Protection<sup>14</sup>, and according to Article 72, the Investor (as the future Operator) is obliged to monitor emission indicators, i.e. indicators of the impact of its activities on the environment and indicators of the effectiveness of applied measures for preventing the occurrence or reducing the level of pollution. The Investor is obliged to develop a monitoring plan, which will define the dynamics of monitoring and the type of pollutants to be measured. The Investor shall submit the data on the performed monitoring to the competent authorities within the legally prescribed deadline. An environmental impact monitoring program already exists at the location of the industrial chemical complex in Prahovo, and monitoring reports are regularly submitted to the competent authorities. The report results are also integrated as a so-called "zero state" as a part of environment impact assessment of the project.

In terms of Waste-to Energy Plant, the technical and technological conditions of measurement, emission limit values and their monitoring are defined by the Regulation on technical and technological conditions for the design, construction, equipping and operation of installations and types of waste for thermal waste treatment, emission limit values and their monitoring<sup>15</sup>, as well as Conclusions on best available techniques for waste incineration (Commission implementing decision (EU) 2019/2010 of 12 November 2019 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration (notified under document C(2019) 7987)<sup>16</sup>.

The content and method of monitoring the operation of the Non-Hazardous Waste Landfill, as well as subsequent maintenance after the closure of the landfill are defined by the Regulation on the disposal of waste at landfills<sup>17</sup> and Directive (EU) 2018/850 of the European Parliament and of the Council of May 30<sup>th</sup>, 2018, amending Directive 1999/31/EC on the landfill of waste<sup>18</sup>.

### **6.1. Monitoring of the Waste-to-Energy Plant operation**

#### **6.1.1. Monitoring of pollutant emissions into the air**

The EIA study and monitoring of air quality aims to control and determine the degree of air pollution, as well as to determine the trend of pollution to act in a timely manner to reduce the emission of harmful substances to a level that will not significantly affect the quality of the environment. The results of measurements of pollutant concentrations are compared with the prescribed emission limit values (ELVs), and based on the performed analyses, the conditions and trends are determined to take appropriate air protection measures. Air monitoring activities may be performed by professional organizations accredited as a testing laboratory, which meets the prescribed requirements and has the permission of the ministry responsible for environmental protection to perform air monitoring and/or emission measurement.

By implementing the Subject Project from point stationary sources of pollutants into the air, where monitoring of emissions into the air should be established, the following are:

- Emitter of the Waste-to Energy boiler: dust (total particulate matter), heavy metals, (Sb + As + Pb + Cr + Co + Cu + Mn + Ni + V), Cd + Ti, HCl, HF, SO<sub>2</sub>, NO<sub>x</sub>, CO, NH<sub>3</sub>, TVOC, PCDD/F, dioxins as PCBs and Hg);

---

<sup>14</sup> "Official Gazette of the RS", nos. 135/04, 36/09, 36/09 - other law, 72/09 - other law, 43/11 - decision of the CC and 14/16, Available at [Zakon o zaštiti životne sredine \(paragraf.rs\)](#)

<sup>15</sup> "Official Gazette of the RS", No. 103/2023, Available at [about:blank \(ekologija.gov.rs\)](#)

<sup>16</sup> [Implementing decision - 2019/2010 - EN - EUR-Lex \(europa.eu\)](#)

<sup>17</sup> "Official Gazette of the RS", No. 92/2010, Available at [Uredba o odlaganju otpada na deponije \(paragraf.rs\)](#)

<sup>18</sup> [Directive - 2018/850 - EN - EUR-Lex \(europa.eu\)](#)



- Emitter of the waste pretreatment filter stacks: dust (total particulate matter), TVOC, i.e. organic matter, expressed as total carbon and unpleasant odours.
- Emitter of the stabilization and solidification of the thermal treatment residues: dust (total particulate matter).

Measurements of pollutant emission into the air from the Waste-to-Energy boiler stack shall be carried out in accordance with Annexes 2 and 3. Regulation on technical and technological conditions for the design, construction, equipping and operation of plants and types of waste for thermal treatment, emission limit values and their monitoring<sup>19</sup> and the Conclusions on best available techniques for waste incineration (Commission Implementing Decision (EU) 2019/2010 of 12 November 2019 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration)<sup>20</sup>:

- 1) Continuous measurement of nitrogen oxides (NO<sub>x</sub>), ammonia (NH<sub>3</sub>), carbon monoxide (CO), dust (total particulate matter), total organic carbon (TVOC), hydrogen chloride (HCl), hydrogen fluoride (HF), sulphur dioxide (SO<sub>2</sub>).

Note: For waste thermal treatment plants with a proven low and stable mercury content (e.g., monostreams of controlled composition waste), as is the case of the Subject Project installation, continuous monitoring of emissions can be replaced by long-term sampling (there is no EN standard for long-term mercury sampling) or periodic measurements with a minimum frequency once every six months. In the second case, EN 13211 is relevant.

- 2) Continuous measurement of the following process parameters: temperature at the inner wall of the combustion chamber or at another representative point of the combustion chamber and/or additional combustion chamber, in accordance with the permit of the competent authority, as well as the volume fraction of oxygen, flue gas flow, pressure, temperature and water vapor content in the waste gases.

The gas retention time as well as the minimum temperature and oxygen content of the process gases shall be adequately checked, at least once, when the thermal treatment plant is put into operation and under the most unfavourable operating conditions expected.

- 3) Individual measurement of the heavy metals' concentration and metalloids (As, Cd, Co, Cr, Cu, Mn, Ni, Pb, Sb, Ti, V), dioxins and furans at least twice a year, whereby these measurements in the first year of operation are performed at least four times a year with an interval of three months, as well as benzo[a] pyrene once a year.

Limit values for emissions of pollutants into the air from thermal waste treatment plants are prescribed in Appendix 2. Regulation on technical and technological conditions for the design, construction, equipping and operation of plants and types of waste for thermal treatment, emission limit values and their monitoring<sup>21</sup> and the Conclusions on best available techniques for waste incineration (Commission Implementing Decision (EU) 2019/2010 of 12 November 2019 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration)<sup>22</sup> as shown in Table 1 and 2. Emission limit values are prescribed for dry waste gas, under normal conditions: T=273.15 K and P=101.3 kPa. The standard values are with an oxygen content of 11 %, except in cases of incineration of mineral waste oil, in accordance with the regulation governing the management of waste oils, when the standard value is 3 % of the oxygen content. Regulation on technical and technological conditions for the design, construction, equipping and operation of plants and types of waste for thermal treatment, emission limit values and their monitoring<sup>23</sup>.

<sup>19</sup> "Official Gazette of the RS", No. 103/2023, Available at [about:blank \(ekologija.gov.rs\)](https://www.ekologija.gov.rs)

<sup>20</sup> [Implementing decision - 2019/2010 - EN - EUR-Lex \(europa.eu\)](https://eur-lex.europa.eu/legislation-summary.do?uri=COM:2019:2010:OJ:L:2019:318:EN:NOT)

<sup>21</sup> "Official Gazette of the RS", No. 103/2023, Available at [about:blank \(ekologija.gov.rs\)](https://www.ekologija.gov.rs)

<sup>22</sup> [Implementing decision - 2019/2010 - EN - EUR-Lex \(europa.eu\)](https://eur-lex.europa.eu/legislation-summary.do?uri=COM:2019:2010:OJ:L:2019:318:EN:NOT)

<sup>23</sup> "Official Gazette of the RS", No. 103/2023, Available at [about:blank \(ekologija.gov.rs\)](https://www.ekologija.gov.rs)



**Table 1.** Emission limit values of pollutant emissions into the air from waste thermal treatment plant.

Pollutant	Unit	ELV according to RS regulations <sup>24</sup>	BAT-AELs in accordance with BREF WI <sup>25</sup>		Test method according to BAT-AELs according to BREF WI*
			BAT-AEL for new plants	Averaging period	
Dust (Total Particulate matter)	mg/Nm <sup>3</sup>	10	< 2–5	Mean daily	General Standard and EN 13284-2
Cd+Tl	mg/Nm <sup>3</sup>	0.05	0.005-0.02	During the sampling period	EN 14385
Sb+As+Pb+Cr+Co +Cu+Mn+Ni+V	mg/Nm <sup>3</sup>	0.5	0.01-0.3	During the sampling period	EN 14385
HCl	mg/Nm <sup>3</sup>	10	< 2–6	Mean daily	General EN Standards
HF	mg/Nm <sup>3</sup>	1	< 1	Mean daily or mean during the sampling period	General EN Standards
SO <sub>2</sub>	mg/Nm <sup>3</sup>	50	5-30	Mean daily	General EN Standards
NO <sub>x</sub>	mg/Nm <sup>3</sup>	200	50-120	Mean daily	General EN Standards
CO	mg/Nm <sup>3</sup>	50	10-50	Mean daily	General EN Standards
NH <sub>3</sub>	mg/Nm <sup>3</sup>	-	2-10	Mean daily	General EN Standards
TVOC	mg/Nm <sup>3</sup>	10	< 3–10	Mean daily	General EN Standards
PCDD/F	ng I-TEQ/Nm <sup>3</sup>	0.1	< 0.01-0.04	Mean value during the sampling period	EN 1948-1, EN 1948-2, EN 1948-3
			< 0.01-0.06	Long sampling period	
PCDD/F + dioxin-like PCBs	ng WHO-TEQ/Nm <sup>3</sup>	-	< 0.01-0.06	Mean value during the sampling period	EN 1948-1, EN 1948-2, EN 1948-4

<sup>24</sup> Regulation on technical and technological conditions for the design, construction, equipping and operation of plants and types of waste for waste thermal treatment, emission limit values and their monitoring ("Official Gazette of the RS", No. 103/2023), Available at [about:blank\(ekologija.gov.rs\)](http://about:blank(ekologija.gov.rs))

<sup>25</sup> Conclusions on best available techniques for waste incineration (Commission Implementing Decision (EU) 2019/2010 of 12 November 2019 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration) Available at [Implementing decision - 2019/2010 - EN - EUR-Lex \(europa.eu\)](http://Implementing decision - 2019/2010 - EN - EUR-Lex (europa.eu))

			< 0.01-0.08	Long sampling period	
Hg	$\mu\text{g}/\text{Nm}^3$	50	< 5–20	Mean daily or mean value during the sampling period	General EN standards and EN 14884
			1–10	Long sampling period	

**Table 2.** Mean half-hour limit values (in accordance with the Regulation on technical and technological conditions for the design, construction, equipping and operation of plants and types of waste for thermal treatment, emission limit values and their monitoring<sup>26</sup> for the following pollutants.

Pollutant	(100% of measured values) A	(97% of measured values) B
Dust (Total Particulate matter)	30 mg/normal m <sup>3</sup>	10 mg/normal m <sup>3</sup>
Gaseous or vapour organic matter, expressed as total organic carbon (TOC)	20 mg/normal m <sup>3</sup>	10 mg/normal m <sup>3</sup>
Hydrogen chloride (HCL)	60 mg/normal m <sup>3</sup>	10 mg/normal m <sup>3</sup>
Hydrogen fluoride (HF)	4 mg/normal m <sup>3</sup>	2 mg/normal m <sup>3</sup>
Sulphur dioxide (SO <sub>2</sub> )	200 mg/normal m <sup>3</sup>	50 mg/normal m <sup>3</sup>
Nitrogen monoxide (NO) and nitrogen dioxide (NO <sub>2</sub> ), expressed as nitrogen dioxide for incineration plants whose nominal capacity exceeds 6 tonnes per hour or for new plants	400 mg/normal m <sup>3</sup>	200 mg/normal m <sup>3</sup>

**Table 3.** Mean half-hour limit values (in accordance with the Regulation on technical and technological conditions for the design, construction, equipping and operation of plants and types of waste for thermal treatment, emission limit values and their monitoring<sup>27</sup> for the following heavy metals during sampling for a minimum of 30 min. and a maximum of 8 h.

Pollutant	(Sampling for min of 30 minutes)	(Sampling for max of 8 hours)
Cadmium and its compounds, measured as cadmium (Cd)	total 0.05 mg/normal m <sup>3</sup>	total 0.1 mg/normal m <sup>3</sup> *)
Thallium and its compounds, expressed as thallium (Tl)		
Mercury and its compounds, expressed as mercury (Hg)	200 mg/normal m <sup>3</sup>	0.1 mg/normal m <sup>3</sup> *)
Antimony and its compounds, expressed as antimony (Sb)	total 0.5 mg/normal m <sup>3</sup>	total 1 mg/normal m <sup>3</sup> *)
Arsenic and its compounds, expressed as arsenic (As)		
Lead and its compounds, expressed as lead (Pb)		
Chromium and its compounds, expressed as chromium (Cr)		
Cobalt and its compounds, expressed as cobalt (Co)		
Copper and its compounds, expressed as copper (Cu)		

<sup>26</sup> "Official Gazette of the RS", No. 103/2023, Available at [about:blank \(ekologija.gov.rs\)](https://www.ekologija.gov.rs)

<sup>27</sup> Ibid.

Manganese and its compounds, expressed as manganese (Mn)		
Nickel and its compounds, expressed as nickel (Ni)		
Vanadium and its compounds, expressed as vanadium (V)		

**Table 4.** shows the mean emission values for dioxins and furans over a sampling period of at least 6 h and at most 8 h. The emission limit values apply to the total concentrations of dioxins and furans, calculated based on factors of equivalent toxicity.

Dioxins and furans	0.1 ng/Nm <sup>3</sup>
--------------------	------------------------

The emission limit values for carbon monoxide (CO) must not be exceeded regarding gases from the combustion process:

- a) 50 mg/normal m<sup>3</sup> determined as a daily average;
- b) 100 mg/normal m<sup>3</sup> determined as a half-hour value;
- (c) 150 mg/normal m<sup>3</sup> as the mean ten-minute value.

An emission limit value for carbon monoxide (CO) may be applied to waste incineration installations using fluidised bed combustion process, provided that the permit clearly states an emission limit value for carbon monoxide (CO), which is a maximum of 100 mg/normal m<sup>3</sup>, determined as the mean hourly value. Air emission limit values for gaseous or vapour organic substances, expressed as total organic carbon (TOC) of 20 mg/Nm<sup>3</sup> (100 % of measured values) and 10 mg/Nm<sup>3</sup> (97 % of measured values), for mean half-hourly LV and carbon monoxide (CO) referred to in point 5 for mean half-hourly LV (100 mg/Nm<sup>3</sup>) must not be exceeded.

During the regular operation of the pretreatment (mechanical treatment) of waste to be thermally treated at the Waste-to-Energy boiler, as well as during the unloading of waste, dust (total particulate matter), unpleasant odours and TVOC may be emitted (only when the organic compounds in question have been identified as relevant in the waste gas stream). To dedust and remove unpleasant odours, the air from the area where the unloading and pretreatment of non-hazardous and hazardous waste intended for energy generation is carried out will be conducted by means of a fan with a capacity of 24,000 m<sup>3</sup>/h through a system of suction hoods and pipelines to the filter unit (Waste Pretreatment Bag Filter System and Activated Carbon Filter). The filter unit consists of a bag filter with pulsed shaking by compressed air, an activated carbon filter and an emitter.

All sources of dust (total particulate matter) emission into the air from the stabilisation and solidification process are equipped with bag filters on which total particulate matter is separated (ash mixture and thickened sediment storage bunker in which the stabilisation process takes place; mechanical treatment of slag or separation of ferrous metals using magnetic separators and non-ferrous metals using eddy current separators; mixer reactor in which the process of mixing cement, ash and water or the solidificates takes place; cement storage silo; cement weighing scale and ash weighing scale). The dedusting system consists of: exhaust shutters and hoods, pipelines, bag filter unit with accompanying equipment, centrifugal fan (capacity Q=25,000 m<sup>3</sup>/h, P=37 kW) and emitter (stack).

Limit values of emissions into the air for these 2 emitters are prescribed by the Regulation on Limit Values of Emissions of Pollutants into the Air from Stationary Pollution Sources, except for combustion plants<sup>28</sup>. In accordance with the Regulation on measurements of pollutant emissions into the air from stationary sources of pollution<sup>29</sup> and the Regulation on limit values for the emission of pollutants into the air from stationary sources

<sup>28</sup> "Official Gazette of the RS", No. 111/2015 and 83/2021, Available at [https://www.ekologija.gov.rs/sites/default/files/old-documents/Vazduh/Uredbe/uredba\\_o-granicnim-vrednostima-emisija\\_zagadjujuce\\_materija-u-vazduh-iz-stacionarih-izvora-zagadjuvanja.pdf](https://www.ekologija.gov.rs/sites/default/files/old-documents/Vazduh/Uredbe/uredba_o-granicnim-vrednostima-emisija_zagadjujuce_materija-u-vazduh-iz-stacionarih-izvora-zagadjuvanja.pdf)

<sup>29</sup> "Official Gazette of the RS", no. 5/16 and 10/24, Available at [uredba\\_o-merenjima-emisija\\_zagadjujuce\\_materija\\_u\\_vazduh-iz-stacionarnih-izvora-zagadjuvanja.pdf](https://www.ekologija.gov.rs/sites/default/files/old-documents/Vazduh/Uredbe/uredba_o-merenjima-emisija_zagadjujuce_materija_u_vazduh-iz-stacionarnih-izvora-zagadjuvanja.pdf) (ekologija.gov.rs)

of pollution, except for combustion plants<sup>30</sup> - Annex 1, Part VII WASTE TREATMENT PLANTS and OTHER MATERIALS, with the EXCEPTION OF THERMAL TREATMENT and BAT conclusions for waste treatment plants (Commission Implementing Decision (EU) 2018/1147 of 10 August 2018 establishing best available techniques (BAT) conclusions for waste treatment, under Directive 2010/75/EU of the European Parliament and of the Council (notified under document C(2018) 5070)<sup>31</sup> (Text with EEA relevance.) it is necessary to:

- On the emitter of the Waste Pretreatment Bag Filter System and Activated Carbon Filters, measure the concentrations of dust (total particulate matter), TVOC or organic matter, expressed as total carbon;
- Measure the concentrations of dust (total particulate matter) on the emitter of the stabilization and solidification process.

At the specified point emission sources, periodically measure emissions twice during the calendar year, in accordance with legal regulations. One periodic measurement is performed in the first six calendar months, and the other periodic measurement in the second six ones. Table 5 shows the limit values for the emission of pollutants into the air from the Emitter of the Waste Pretreatment Bag Filter System and Activated Carbon Filter, as well as Filter system of the stabilization and solidification process.

**Table 5.** Limit values for the emission of pollutants into the air.

Emitter		Pollutants	ELV with RS regulations <sup>32</sup>	BAT WT <sup>33</sup>	Test method according to BAT-AELs in accordance with BREF WT <sup>4</sup>
Emitter of the Waste Pretreatment Filter System and Activated Carbon Filters	Stack after bag filter and activated carbon filter (H=21.5 m)	Dust (Total Particulate matter)	10 mg/Nm <sup>3</sup>	2-5 mg/Nm <sup>3</sup>	EN 13284-1
		TVOC	-	10-30* mg/Nm <sup>3</sup>	EN 12619
		Organic matter, expressed as total carbon	20 mg/Nm <sup>3</sup>	-	-
Emitter of the stabilization and solidification process Filter system	Stack after bag filter (H=21.5 m)	Dust (Total Particulate matter)	10 mg/Nm <sup>3</sup>	2-5 mg/Nm <sup>3</sup>	EN 13284-1

<sup>30</sup> "Official Gazette of the RS", No. 111/2015 and 83/2021, Available at [https://www.ekologija.gov.rs/sites/default/files/old-documents/Vazduh/Uredbe/uredba\\_o-granicnim-vrednostima-emisija\\_zagadjujuce\\_materija-u-vazduh-iz-stacionarih-izvora-zagadjivanja.pdf](https://www.ekologija.gov.rs/sites/default/files/old-documents/Vazduh/Uredbe/uredba_o-granicnim-vrednostima-emisija_zagadjujuce_materija-u-vazduh-iz-stacionarih-izvora-zagadjivanja.pdf)

<sup>31</sup> [Implementing decision - 2018/1147 - EN - EUR-Lex \(europa.eu\)](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32018I1147)

<sup>32</sup> Regulation on Limit Values of Air Pollutant Emissions from Stationary Sources of Pollution, Except from Combustion Installations, "Official Gazette of the RS", No. 111/2015 and 83/2021, Available at [https://www.ekologija.gov.rs/sites/default/files/old-documents/Vazduh/Uredbe/uredba\\_o-granicnim-vrednostima-emisija\\_zagadjujuce\\_materija-u-vazduh-iz-stacionarih-izvora-zagadjivanja.pdf](https://www.ekologija.gov.rs/sites/default/files/old-documents/Vazduh/Uredbe/uredba_o-granicnim-vrednostima-emisija_zagadjujuce_materija-u-vazduh-iz-stacionarih-izvora-zagadjivanja.pdf)

<sup>33</sup> Conclusions on best available techniques for waste incineration (Commission Implementing Decision (EU) 2019/2010 of 12 November 2019 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration) Available at [Implementing decision - 2019/2010 - EN - EUR-Lex \(europa.eu\)](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32019I2010)

The impact on air quality in the subject area will be based on the monitoring of ambient air quality. Currently, in accordance with the adopted environmental monitoring plan and program, the operator Elixir Prahovo performs monitoring of ambient air quality in the vicinity of the subject location through an authorized accredited laboratory of the City Institute for Public Health Belgrade.

Air quality monitoring is carried out once a year for 15 days at the measuring point 1: Dragiša Brebulović-Žmiga, 11 Vuka Karadžića Street, Prahovo (N 44°17'40.6", E 22°35'9.5 " ), which is about 2.5 km northwest of the location of the Waste-to-Energy Plant and Non-Hazardous Waste Landfill. The tests include monitoring of the following parameters:

- Mass concentrations of suspended particles PM<sub>10</sub> and PM<sub>2,5</sub>;
- Total content of metals (As, Cd, Pb, Ni, Cr) in fraction of suspended particles PM<sub>10</sub>;
- Hydrogen fluoride (HF) mass concentration;
- Total content of phosphorus (P) in fraction of suspended particles PM<sub>10</sub>.

The analysis of the pollutants concentration in the air results, in the impact zone in relation to the maximum permissible concentration, was carried out in accordance with the Regulation on monitoring conditions and air quality requirements ("Off. Gazette of RS" no.75/10, 11/10 and 63/13). Based on the results of the Report on the conducted public consultations in the implementation of the projects for the construction of the Waste-to-Energy Plant in Prahovo, a strategic and systematic approach to future long-term interactions between investors and the local community regarding the operation of the Waste-to-Energy Plant has been defined through consultations with citizens. In addition to the conducted consultation, the need to donate an automatic measuring station to the municipality of Negotin was recognized. The automatic measuring station would be part of the network of the Environmental Protection Agency, at whose initiative an adequate location would be defined and relevant parameters for measurement would be determined. In accordance with the above, in the Environmental Protection Agency, a meeting was held in mid-April 2024, attended by the President of the Municipality of Negotin and representatives of the Elixir Foundation. On May 13<sup>th</sup> 2024, the Head of the Monitoring Group of the Environmental Protection Agency, the representative of Urbanism of the Negotin Municipality and the representative of the Elixir Foundation visited 6 potential locations in Negotin, after which the representative of the Agency selected the location of the preschool institution "Pčelica" (in the city center). Representatives of the local authorities and the civil association 'Negotinci in Action' were also introduced to all the above.

### **6.1.2. Wastewater quality monitoring**

In accordance with the Law on Waters<sup>34</sup>, and the Rulebook on the manner and conditions for measuring and testing the quality of wastewater and their impact to the recipient and the content of the report on the performed measurements<sup>35</sup>, Appendix 1 - technical conditions for the implementation of monitoring, it is the obligation of the water treatment facility owner, in this case the Investor, to monitor wastewater before and after their treatment through a legal entity authorized for wastewater testing or independently if the conditions are met.

Sampling of treated and/or untreated wastewater will be done by taking a composite or instantaneous sample depending on the dynamics of wastewater discharge. The basic parameters of the wastewater to be tested are flow (minimum, maximum and mean daily), air temperature, water temperature, barometric pressure, colour, odour, visible substances, sediment matter (after 2h), pH value, biochemical oxygen demand (BOD<sub>5</sub>), chemical

---

<sup>34</sup> "Official Gazette of the RS", no. 30/2010, 93/2012, 101/2016, 95/2018 and 95/2018 - other law, Available at [Zakon o vodama \(paragraf.rs\)](https://zakon.ris.gov.rs/Zakon%20o%20vodama%20(paragraf.rs))

<sup>35</sup> "Official Gazette of the RS", no. 18/2024, Available at [Правилник о начину и условима за мерење количине и испитивање квалитета отпадних вода и садржини извештаја о извршеним мерењима: 33/2016-18 \(pravno-informacioni-sistem.rs\)](https://pravno-informacioni-sistem.rs/33/2016-18)

oxygen demand (COD), oxygen content, dry residue, annealed residue, annealing loss, suspended matter and electrical conductivity.

In addition to the above basic parameters, testing of certain groups or categories of pollutants prescribed for technological and other wastewater that is directly discharged into the recipient will be performed (in accordance with the Regulation on Emission Limit Values for Pollutant into Water and Deadlines for Their Reach<sup>36</sup> as well as parameters related to emissions from wastewater treatment from the flue gas treatment process generated in the waste incineration installation (in accordance with the Regulation on technical and technological conditions for the design, construction, equipment and operation of plants and types of waste for thermal treatment, emission limit values and their monitoring<sup>37</sup>.

In accordance with the characteristics of wastewater generated and discharged into the recipient, it is the obligation of the Investor to perform regular monitoring of wastewater quality:

- After treatment at the wastewater treatment facility: total suspended solids (TSS), total organic carbon (TOC), metals and metalloids (As, Cd, Cr, Cu, Hg, Ni, Pb, Sb, Tl, Zn, Mo), ammonium-nitrogen (NH<sub>4</sub>-N), sulphates (SO<sub>4</sub><sup>2-</sup>) and PCDD/F, chlorides;
- before and after treatment on the grease and oil "by-pass" separator: temperature, pH value, biochemical oxygen demand (BOD<sub>5</sub>), chemical oxygen demand (COD), hydrocarbon index.

To facilitate manipulation and possible response in the event that the water quality does not correspond to the required quality after treatment for discharge into the recipient, wastewater chamber (numbered as chamber 2) is divided into 4 identical parts (sub-chambers 2a, 2b, 2c, 2d). The volume of each part, i.e. each subchamber, is 80 m<sup>3</sup>, which is enough for each sub-chamber to accept wastewater for a period of 8 hours. After that, the wastewater from the sub-chamber in question is sampled and the quality parameters are tested. In this way, it is possible for each batch of 80 m<sup>3</sup> to be analysed before discharge. By dividing chamber 2 into smaller segments, a semi-batch method of wastewater treatment management is enabled, in order to have time to perform complete physico-chemical analyses. The maximum duration of the analysis is 8 hours, and then the water can be discharged in an appropriate manner, depending on the analysis results. In case that the waters do not have a satisfactory quality for discharge into the final recipient, water would be transported to the wastewater treatment facility by filtration (sand filter column and activated carbon column). After these filters, the water is once again sent for re-treatment to the wastewater treatment facility from the WtE boiler facility.

Limit values for emissions of pollutants at discharging wastewater from the waste gas treatment system of the waste incineration plant are prescribed IN APPENDIX 4. Limit Values for Emissions of Pollutants in Wastewater from the Waste Gas Treatment Process Generated in the Incineration Plant and Co-Incineration of Waste, Regulation on technical and technological conditions for the design, construction, equipping and operation of plants and types of waste for thermal treatment, emission limit values and their monitoring<sup>38</sup>. Emission limit values shall be applied at the point where the wastewater generated in the waste gas treatment process, containing the pollutants referred to in Annexes 2 and 3 of the said Regulation is discharged, i.e., at the point where the cleaned process water from the receiving basin is discharged into the collector of wastewater from the Waste-to-Energy Plant. In addition to Serbian national legislation, to define the monitoring of wastewater from the Subject Project, the Conclusions on best available techniques for waste incineration (Commission implementing decision (EU) 2019/2010 of 12 November 2019 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration (notified under document C(2019) 7987)) were also used<sup>39</sup>.

---

<sup>36</sup> "Official Gazette of the RS", No. 67/2011, 48/2012 and 1/2016, Available at [Уредба о граничним вредностима емисија загађујућих материја у ваздух из стационарних извора загађивања, осим постројења за сагоревање: 111/2015-3, 83/2021-8 \(pravno-informacioni-sistem.rs\)](http://pravno-informacioni-sistem.rs)

<sup>37</sup> "Official Gazette of the RS", No. 103/2023, Available at [about:blank \(ekologija.gov.rs\)](http://about:blank(ekologija.gov.rs))

<sup>38</sup> "Official Gazette of the RS", No. 103/2023, Available at [about:blank \(ekologija.gov.rs\)](http://about:blank(ekologija.gov.rs))

<sup>39</sup> [Implementing decision - 2019/2010 - EN - EUR-Lex \(europa.eu\)](http://eur-lex.europa.eu)



Regulation on technical and technological conditions for the design, construction, equipping and operation of plants and types of waste for waste thermal treatment, emission limit values and their monitoring<sup>40</sup>, the following measurements are performed at the wastewater discharge point:

- 1) continuous measurement of the parameters referred to in the aforementioned Annex 4 of the Regulation;
- 2) individual daily measurement of total suspended solids;
- 3) monthly measurement also on a representative sample of discharged waters during 24 hours, i.e., pollutants in connection with Annex 4 of the Regulation;
- 4) measurements of dioxins and furans every six months (in the first year of operation, it would be measured at least four times a year with an interval of three months).

**Table 6.** Emission limit values for pollutants at discharging of wastewater from the waste gas treatment system of the thermal treatment plant.

Parameter name	Process		Unit	BAT-AELs BREF WI <sup>41</sup>	ELV in accordance with the regulations of RS <sup>42</sup>	Test method according to BAT-AELs in accordance with BREF WI <sup>5</sup>	Minimum monitoring requirement
Total suspended solids (TSS)	FGC Treatment of bottom ash		mg/l	10-30	30 (in 95% measured values) 45 (in 100% measured values)	EN 872	Once a day (2) Once a month (1)
Total organic carbon (TOC)	FGC Treatment of bottom ash			15 – 40	-	EN 1484	Once a month Once a month (1)
Metals and metalloids	As	FGC		0.01-0.05	0.15	Different EN standards (e.g. EN ISO 11885, EN ISO 15586 or EN ISO 17294-2)	Once per month
	Cd	FGC		0.005-0.03	0.05		Once per month
	Cr	FGC		0.01-0.1	0.5		Once per month
	Cu	FGC		0.03-0.15	0.5		Once per month
	Mo	FGC		--	-	Different EN standards (e.g. EN ISO 12846 or EN ISO 17852)	Once per month
	Hg	FGC		0.001-0.01	0.03		Once per month
	Ni	FGC		0.03-0.15	0.5		Once per month
	Pb Sb	FGC Treatm ent of bottom ash		0.02-0.06 0.02-0.9	0.2 -		Once per month
Tl	FGC	0.005-0.03	0.05		Once per month		

<sup>40</sup> "Official Gazette of the RS", No. 103/2023, Available at [about:blank \(ekologija.gov.rs\)](https://www.ekologija.gov.rs/)

<sup>41</sup> Commission implementing decision (EU) 2019/2010 of 12 November 2019 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration (notified under document C(2019) 7987), Available at [Implementing decision - 2019/2010 - EN - EUR-Lex \(europa.eu\)](https://eur-lex.europa.eu/eli/dec/2019/2010/oj)

<sup>42</sup> Regulation on technical and technological conditions for the design, construction, equipping and operation of plants and types of waste for waste thermal treatment, emission limit values and their monitoring "Official Gazette of the RS", No. 103/2023, Available at [about:blank \(ekologija.gov.rs\)](https://www.ekologija.gov.rs/)

	Zn	FGC		0.01-0.5	1.5		Once per month
PCDD/F	FGC		ng l-TEQ/l	0.01-0.05	0.3	No EN standard	Once every 6 months

(1) Monitoring may also be performed once every 6 months if it is proven that emissions are relatively stable.

(2) Daily 24-hour flow-proportional sampling may be replaced by daily measurements.

In accordance with the characteristics of the wastewater that is generated and discharged into the recipient, it is the responsibility of the Investor to carry out regular monitoring of the quality of wastewater after treatment at the wastewater treatment facility: total suspended matter (TSS), total organic carbon (TOC), metals and metalloids and (As, Cd, Cr, Cu, Hg, Ni, Pb, Sb, Ti, Zn, Mo) and PCDD/ F.

During the regular operation of the Subject Project, atmospheric (potentially polluted) wastewater will be generated. For the purpose of treating oily atmospheric water from manipulative surfaces, roads and parking lots, two "by pass" separators of petroleum products are planned, made and tested according to SRPS EN 858, rated size NS10/100 (flow through the separator 10 l/s while the max flow is 100 l/s) and rated size NS15/150 (flow through the separator 15 l/s while the max flow is 150 l/s). The efficiency of separating light petroleum products - light liquids in the separator outlet water is up to 5 mg/l. So cleaned oily sewer is connected to the conditionally clean rainwater sewer and conducted to the drainage existing central receiving collector for the entire industrial chemical complex in Prahovo, and through it is discharged into the Danube River.

Wastewater quality control will include regular analyses of samples of potentially polluted atmospheric wastewater, before and after their treatment on the separator of petroleum products. Wastewater quality testing will be carried out 4 times a year in accordance with Article 99 Law on Waters<sup>43</sup> and in accordance with the Rulebook on the method and conditions for measuring the amounts and examination of the quality of wastewater and its impact on the recipient and the content of the report on the measurements performed<sup>44</sup> the Regulation on Limit Values of Pollutant Emissions into Water and Deadlines for Reaching Them<sup>45</sup>.

When sampling, preparing samples, storing and storing them, handling samples, as well as during field testing and analysis of wastewater samples, reference methods as required by standard SRPS ISO/IEC 17025 will be applied. The quality of wastewater discharged into the recipient (Danube River) must correspond to the values prescribed by the Rulebook on the method and conditions for measuring the amounts and examination of the quality of wastewater and its impact on the recipient and the content of the report on the measurements performed<sup>46</sup> and the Regulation on Limit Values of Pollutant Emissions into Water and Deadlines for Reaching Them<sup>47</sup>, Appendix 2, 19. Emission limit values for wastewater; II Other wastewater; Section 4. Limit values for the emission of wastewater containing mineral oils. Table 7 provides emission limit values at the point of discharge into surface waters.

<sup>43</sup> "Official Gazette of the RS", no. 30/2010, 93/2012, 101/2016, 95/2018 and 95/2018 - other law, Available at [Zakon o vodama \(paragraf.rs\)](#)

<sup>44</sup> "Official Gazette of the RS", no. 18/2024, Available at [Правилник о начину и условима за мерење количине и испитивање квалитета отпадних вода и садржини извештаја о извршеним мерењима: 33/2016-18 \(pravno-informacioni-sistem.rs\)](#)

<sup>45</sup> "Official Gazette of the RS", No. 67/2011, 48/2012 and 1/2016, Available at [Уредба о граничним вредностима емисија загађујућих материја у ваздух из стационарних извора загађивања, осим постројења за сагоревање: 111/2015-3, 83/2021-8 \(pravno-informacioni-sistem.rs\)](#)

<sup>46</sup> "Official Gazette of the RS", no. 18/2024, Available at [Правилник о начину и условима за мерење количине и испитивање квалитета отпадних вода и садржини извештаја о извршеним мерењима: 33/2016-18 \(pravno-informacioni-sistem.rs\)](#)

<sup>47</sup> "Official Gazette of the RS", No. 67/2011, 48/2012 and 1/2016, Available at [Уредба о граничним вредностима емисија загађујућих материја у ваздух из стационарних извора загађивања, осим постројења за сагоревање: 111/2015-3, 83/2021-8 \(pravno-informacioni-sistem.rs\)](#)



In accordance with the characteristics of the generated wastewater and discharge of them into the recipient, it is the responsibility of the Investor to perform regular monitoring of the quality of wastewater before and after treatment at the grease and oil separator: temperature, pH value, biochemical oxygen demand (BOD<sub>5</sub>), chemical oxygen demand (COD), hydrocarbon index.

Bearing in mind that all wastewater, which meets the prescribed ELV, from the subject Waste-to-Energy Plant will be collectively released into the existing central receiving collector, which is discharged into the natural recipient – the Danube River, it is the obligation of the Investor to perform regular quarterly monitoring of the surface water quality of the Danube River upstream and downstream of the inflow of wastewater from the central receiving collector of clean water, after the implementation of the Subject Project.

**Table 7.** Emission limit values at the point of discharge into surface waters (I).

Parameter name	Unit	Limit value(I)	Testing method
Temperature	°C	30	EPA Method 150.1:1982
pH		6.5-9	EPA Method 170.1:1974
Biochemical Oxygen Demand (BOD <sub>5</sub> )	mgO <sub>2</sub> /l	40	EN 1899
Chemical Oxygen Demand (COD)	mgO <sub>2</sub> /l	150	EPA Method 410.1:1978
Hydrocarbon index	mg/l	10	EN ISO 9377-2

(I) The values refer to a two-hour sample.

Monitoring requirements for underground water, treated sewage water, soil quality, noise and waste handling are not described in detailed in this short summary. All the procedures with corresponding pollutant limits have been developed in accordance with Serbian legislative framework and are subject to special permitting system as a part of the IPPC permit authorization process.

## **6.2. Monitoring of Non-Hazardous Waste Landfill operations**

The content and method of monitoring the operation of the Non-Hazardous Waste Landfill, as well as subsequent maintenance after the closure of the landfill are defined by the Regulation on the disposal of waste at landfills<sup>48</sup>, Appendix 6 - Monitoring the operation of the landfill.

The monitoring of the landfill operation will be carried out during the active and passive phase of the landfill and will include the following:

- 1) monitoring of meteorological parameters (daily);
- 2) monitoring of surface waters (volume and composition measurement upstream and downstream of the landfill quarterly);
- 3) monitoring of leachate (volume – monthly, composition – quarterly);
- 4) monitoring of gas emissions (there will be no emissions of landfill gas and unpleasant odours);
- 5) monitoring of groundwater (water table every six months, composition – must be determined based on the flow);

<sup>48</sup> "Official Gazette of the RS", No. 92/2010, Available at [Uredba o odlaganju otpada na deponije \(paragraf.rs\)](http://uredba.odlaganju.otpada.na.deponije.paragraf.rs)

- 6) monitoring of the amount of rainwater (daily);
- 7) monitoring of the landfill body stability (every year);
- 8) monitoring of protective layers (continuously);
- 9) monitoring of pedological and geological characteristics (yearly).

The monitoring will be carried out by sampling and measurement in the manner defined in Appendix 6. – Monitoring the operation of the landfill, the Regulation on disposal of waste on landfills<sup>49</sup>.

In the first six months of the landfill operation every 15 days, measurement and testing (shortened chemical and bacteriological analyses) of groundwater will be performed, and after this period the frequencies of measurement during exploration determined. If the results of the testing of the taken samples show that it has deviated from the limit values in accordance with the law governing water, it is considered that an accidental situation of the protective layers of the landfill has occurred. In this case, additional hydrogeological facilities shall be made considering the hydrogeological conditions of the environment. All processed data are displayed by control charts with established control rules of limit values for each groundwater measuring point.

Due to critical nature of the activity and with a purpose of accident prevention/control a plan has been proposed to determine the soil quality in the subject area during exploration:

- In order to determine the characteristics of the drilled soil, sampling should be performed for laboratory testing of the granulometric composition of approximately 5 samples per well, which would include all changes in relation to the heterogeneity of the lithological column, as well as the material immediately below the ground up to 1 m, the area above the aquifer zone, and specifically the capillary rise zone and the aquifer zone.
- Based on the drilled core of the well, soil sampling for physical and chemical soil analysis should be performed on the characteristic changes of the terrain. From each exploration well, take 1 sample in the over aquifer zone above the capillary zone, 1 sample in the capillary rise zone, 1 sample in the groundwater fluctuation zone, as well as 1 sample in the zone one meter below the aquifer level) – approximately 4 samples per well, in accordance with SRPS ISO 18400-101:2019, SRPS ISO 18400-104:2019, SRPS ISO 18400-203:2020.
- Installation of a piezometer structure made of solid threaded PVC pipes with a diameter of Ø 90 mm in accordance with (SRPS EN ISO 1452-1 and SRPS EN ISO 1452-5 as well as standards EPA/540/S-95/500).
- During the first year of groundwater quality monitoring, it is proposed that monitoring be carried out on a quarterly basis in all observation piezometers simultaneously, with daily groundwater level measurements. After the annual review of the status, it is proposed to switch to 6-month quality monitoring, if there is no deterioration in the quality of groundwater, i.e., that all tested parameters are in accordance with the applicable legislation.

The establishment of an adequate monitoring system will ensure:

- consideration of the direction of groundwater flow under different conditions of the relationship between the groundwater regime, the precipitation regime and the surface water regime, by forming potentiometer maps,
- encompassing the complete convection image of the aquifer formed in the terraced deposits of the "City Terrace" as well as the aquifer formed in the Pliocene deposits, in order to determine the hydraulic dependence of the roof and floor aquifer,
- hydraulic connection between the surface waters of the Danube and the intergranular aquifer formed within the "City Terrace",
- defining hydrogeological parameters for each facility – piezometer, by testing them,

---

<sup>49</sup> Ibid.

- monitoring the potential movement of the pollutant in order to alert early and applying preventive and remediation measures to improve the quality of groundwater drained into the Danube.

The concept of establishing monitoring in order to alert early by establishing three zones of representative piezometers:

A- zone - background piezometers in relation to the position of industrial chemical complex in Prahovo and Danube reflecting the neutral composition of groundwater – where, in addition to the existing piezometers 2 additional should be placed.

Leachate monitoring zone in the landfill zone with two piezometers, both reaching the depth above the HDPE film.

B – zone – placed downstream in the direction of the underground flow towards the Danube in the immediate zone in relation to the position of a potential source of pollution – Non-Hazardous Waste Landfill. Based on the calculated values of advective transport, this zone should be set to a distance of 125 m in relation to the landfill, namely 3 piezometers.

C – zone – is set downstream in the direction of the underground flow, as a downstream control zone. Based on the calculated values of the advective transport, the control piezometers should be placed at a distance of 250 m and 500 m in relation to the landfill in the direction of the flow. In this zone, it is necessary to place 3 piezometers at a distance of 250 m from the landfill. In addition, two more piezometers must be installed at a distance of 500 m.

With the aforementioned concept, it is necessary to include the layers that represent the Perched aquifer as well as the lower intergranular aquifer formed in Pliocene deposits. Figure 1 provides a conceptual model of the proposed zoning system for monitoring the subject area.

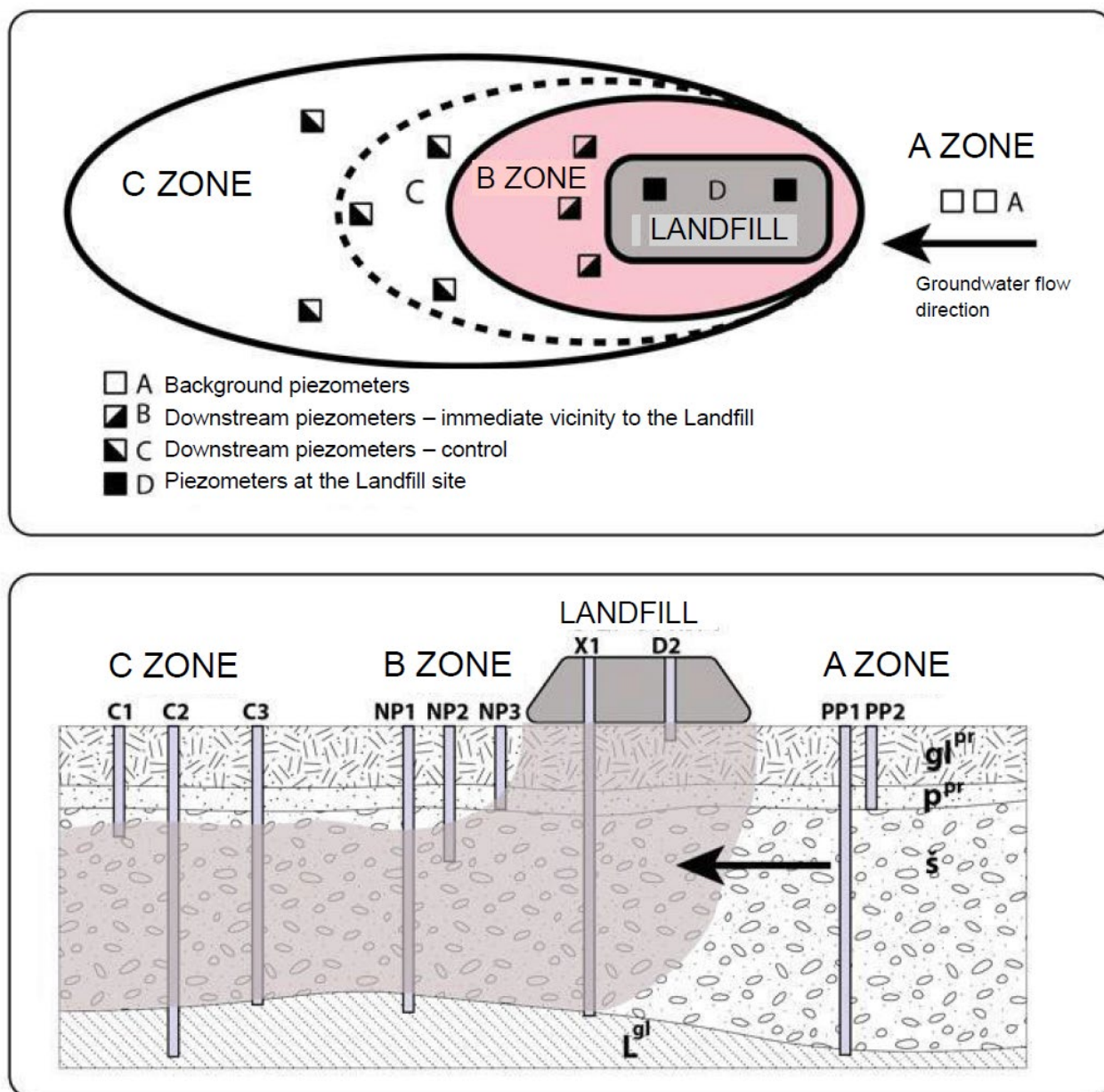


Figure 1. Conceptual model of the proposed zoning system for monitoring the subject area.

### 6.3. Monitoring of waste quantities

Pursuant to the Law on Waste Management<sup>50</sup>, the Investor is obliged to constantly monitor and record the quantities and types of waste that are taken over and disposed of at the Non-Hazardous Waste Landfill, in accordance with the operating procedures of the Subject Project (pre-acceptance, acceptance, operation guidance of the Waste-to-Energy Plant and the Non-Hazardous Waste Landfill).

Waste monitoring is achieved by the following activities:

- Implementation of the Work Plan and the permit of the competent authority for the disposal of waste at the Non-Hazardous Waste Landfill.

<sup>50</sup> "Official Gazette of the RS", no. 36/09, 88/2010, 14/2016, 95/2018 – other law and 35/2023, Available at [Zakon o upravljanju otpadom \(paragraf.rs\)](#)

- At the entrance to the Non-Hazardous Waste Landfill, the installed scale shall measure the mass of the waste transport vehicle and measure the waste received by the landfill.
- The acceptance of waste into a Non-Hazardous Waste Landfill is carried out according to the following procedures:
  1. examination of waste for disposal;
  2. compliance check;
  3. on-site check.
- By obtaining the Waste Characterization Report.

Examination of waste for disposal shall be carried out for each type of waste, in accordance with a special regulation prescribed by Regulation on disposal of waste on landfills<sup>51</sup> and sampling in accordance with the prescribed standards. The data obtained by examination of waste for disposal at the landfill, in particular relate to:

- 1) a description of the previous waste treatment or a statement that the waste can be disposed of without prior treatment,
- 2) composition of waste and leachate,
- 3) the class of landfill to which the waste is disposed,
- 4) proof that the waste is not the waste referred to in Article 9 of this regulation,
- 5) special requirements and measures to be taken when disposing of, if necessary, in accordance with Article 13 of Regulation on disposal of waste on landfills ("Official Gazette of the RS", no. 92/2010),
- 6) certain key parameters for checking compliance, as well as its dynamics.

For waste regularly produced in the same procedure and in the same plant, the examination produces data which particularly refer to:

- variability in the composition of individual types of waste,
- limits of variability of significant properties.

For waste that is regularly produced in the same process but in different plants, examination provides data related to waste from each plant based on a certain number of measurements performed.

Examination of waste intended for disposal shall be carried out by authorized professional waste examination organizations in accordance with the Law on Waste Management<sup>52</sup>. The data obtained from examination of waste are an integral part of the waste examination report for disposal, in accordance with a special regulation prescribed by Regulation on disposal of waste on landfills<sup>53</sup>.

Special examining: For waste regularly produced in the same process and in the same plant, for which there are data specified in Article 16, par. 2 and 3 of the Regulation on the disposal of waste at landfills<sup>54</sup>, if the measurement results show small deviations from the limit values of the disposal parameters, perform examination at the first delivery, and then periodic compliance verification in accordance with the Regulation.

For waste that is not regularly produced in the same process and in the same plant, as well as for waste whose characteristics are variable, examination of waste for disposal is performed for each batch of waste and no compliance check is performed for it.

Compliance check is a periodic check of waste that is regularly submitted for disposal in order to determine whether the parameters of that waste correspond to the parameters obtained by examination of the waste for disposal and whether they meet the limit values of the parameters for disposal of waste. The parameters for the

---

<sup>51</sup> "Official Gazette of the RS", No. 92/2010, Available at [Uredba o odlaganju otpada na deponije \(paragraf.rs\)](#)

<sup>52</sup> "Official Gazette of the RS", no. 36/09, 88/2010, 14/2016, 95/2018 – other law and 35/2023, Available at [Zakon o upravljanju otpadom \(paragraf.rs\)](#)

<sup>53</sup> "Official Gazette of the RS", No. 92/2010, Available at [Uredba o odlaganju otpada na deponije \(paragraf.rs\)](#)

<sup>54</sup> Ibid.

compliance check and the dynamics of the implementation of the compliance check are contained in the report referred to in Article 16, paragraph 6 of the Regulation on disposal of waste on landfills<sup>55</sup>. The compliance check is performed only for those parameters that were determined as critical during the examination of waste for disposal. When checking compliance, the same examinations that were used in examination of waste for disposal will be applied. The compliance check is carried out at least once a year, and the landfill operator makes sure that it is carried out according to the scope and dynamics in accordance with the regulation.

On-the-spot checks: The on-the-spot check consists of a visual inspection of each batch of waste before and after unloading, as well as a check of the accompanying documentation in accordance with Regulation:

- Waste is accepted at the landfill if it has been determined on the spot that it is identical to the waste for which the testing or compliance check was performed, as well as the description in the waste testing report.
- Criteria for accepting or not accepting waste at the landfill are limit values of waste disposal parameters defined by the Rulebook on Waste Categories, Examination and Classification<sup>56</sup>, Appendix 8, point 2. Disposal of non-reactive hazardous waste at the Non-Hazardous Waste Landfill in cassettes not used for the disposal of biodegradable waste:

Parameter	Concentration limit value in granular waste
Total Organic Carbon (TOC)	5%
pH	Minimum 6
Acid neutralizing capacity (ANC)	Must be assessed
	Concentration limit value in leachate in mg/ kg dm* (L/S= 10 l/kg)**
Antimony, Sb	0.7
Arsenic, As	2
Copper, Cu	50
Barium, Ba	100
Mercury, Hg	0.2
Cadmium, Cd	1
Molybdenum, Mo	10
Nickel, Ni	10
Lead, Pb	10
Selenium, Se	0.5
Chromium Total, Cr	10
Zinc, Zn	50
Evaporation residue at 105°C	60000
Soluble Organic Carbon (DOC)	800
Sulphates (SO <sub>4</sub> <sup>2-</sup> )	20000
Fluorides (F <sup>-</sup> )	150
Chlorides (Cl <sup>-</sup> )	15000

<sup>55</sup> Ibid.

<sup>56</sup> "Official Gazette of the RS", No. 56/2010, 93/2019 and 39/2024, Available at [Pravilnik o kategorijama, ispitivanju i klasifikaciji otpada \(paragraf.rs\)](http://Pravilnik%20o%20kategorijama%20ispitivanju%20i%20klasifikaciji%20otpada%20(paragraf.rs))

Parameter	Concentration limit value in leachate in mg/m <sup>2</sup> kg dm (monolithic waste)***
Antimony, Sb	0.3
Arsenic, As	1.3
Copper, Cu	45
Barium, Ba	45
Mercury, Hg	0.1
Cadmium, Cd)	0.2
Molybdenum, Mo	7
Nickel, Ni	6
Lead, Pb	6
Selenium, Se	0.4
Chromium Total, Cr	5
Zinc, Zn	30
Soluble Organic Carbon (DOC)	Must be assessed
Sulphates (SO <sub>4</sub> <sup>2-</sup> )	10000
Fluorides (F-)	60
Chlorides (Cl-)	10000
Parameter	Additional concentration values in monolithic waste
pH	Must be assessed
Acid neutralizing capacity (ANC)	Must be assessed
Electrical conductivity, mS/cm at 20°C/m <sup>2</sup>	Must be assessed

- and non-reactive hazardous waste is hazardous waste whose leaching behaviour does not deteriorate over a long period of time, under the conditions present at the landfill or a possible accident: in the waste itself, due to the influence of external factors (temperature, air or the like), the influence of other waste including waste disposal products: landfill gas and leachate).
- \* dm – dry mass
- \*\* Refers to granular or fractured monolithic waste. Leaching tests are performed according to the following standards:
  - EN 12457-2:2002 Characterization of waste-Leaching – Compliance test for leaching of granular waste materials and sludges – Part 2: One stage batch test at a liquids to a solid ratio of 10l/kg for materials with particle size below 4mm (without or with size reduction),
  - EN 12457-4:2002 Characterization of waste-Leaching – Compliance test for leaching of granular waste materials and sludges – Part 4: One stage batch test at a liquids to a solid ratio of 10l/kg for materials with particle size below 10mm (without or with size reduction).
- \*\*\*Leaching tests for the monolithic waste in question will be performed according to the NEN 7345 Leaching Characteristics of Soil and Stony Building and Waste Materials – Leaching Tests – Determination of the Leaching of Inorganic Components from Building and Monolithic Waste Materials with the Diffusion Test. The concentration limit values are given in relation to the 64-day test, but it is possible to use a shorter test in the first four steps, where the concentration limit values are a quarter of the concentration values for individual parameters given in the table.
- In addition to the parameters given in the table, it is possible to examine other parameters that can be found in waste such as pollutants, which are significant from the aspect of risk assessment.

- Reporting (announcement) to the competent ministry on the movement of hazardous waste in electronic form; Submitting data from the document on the movement of hazardous waste to the Environmental Protection Agency, electronically, by entering data from the document on the movement of hazardous waste into the Agency's information system through the portal [www.sepa.gov.rs](http://www.sepa.gov.rs).
- Completely certified and signed Document on the movement of waste in accordance with the Rulebook on the form of the document on the movement of hazardous waste, the form of prior notification, the manner of its delivery and the instructions for their completion<sup>57</sup>, as a recipient /donor of hazardous waste, must also submit it to the postal address of the Ministry and the Agency, in accordance with the law governing waste management.
- By regularly completing the Document on the movement of waste as a recipient /donor of hazardous waste in accordance with the Rulebook on the form of the document on the movement of waste and the instructions for its completion<sup>58</sup>.
- Pursuant to Article 75 of the Law on Waste Management<sup>59</sup> and the Rulebook on the form of daily records and annual report on waste with instructions for its completion<sup>60</sup> The Investor, as the future operator at the landfill, is obliged to keep daily records of the collected and disposed quantities of waste, i.e., to submit to the Agency a regular annual report on the types and quantities of disposed waste on the Non-Hazardous Waste Landfill and the results of monitoring, as follows:
  - Form DEO 2 - Daily waste records of the Landfill Operator,
  - Form GIO 2 - Annual Waste Report of the Landfill Operator.

The report shall contain data on all necessary costs during the operation of the Landfill.

Report forms shall be submitted to the Agency as follows:

- in electronic form by entering data into the information system of the National Register of Pollution Sources at the address of the Environmental Protection Agency: <http://www.sepa.gov.rs/index.php?menu=20170&id=20004&action=showAll>

---

<sup>57</sup> "Official Gazette of the RS", no. 17/2017, Available at [Правилник о обрасцу Документа о кретању опасног отпада, обрасцу претходног обавештења, начину његовог достављања и упутству за њихово попуњавање: 17/2017-57](http://Pravilnik%20o%20obrascu%20Dokumenta%20o%20kretanju%20opasnog%20otpada,%20obrascu%20pretходног%20обавештења,%20начину%20његовог%20достављања%20и%20упутству%20за%20њихово%20попуњавање:17/2017-57) ([pravno-informacioni-sistem.rs](http://pravno-informacioni-sistem.rs))

<sup>58</sup> Ibid.

<sup>59</sup> "Official Gazette of the RS", no. 36/09, 88/2010, 14/2016, 95/2018 – other law and 35/2023, Available at [Zakon o upravljanju otpadom](http://Zakon%20o%20upravljanju%20otpadom) ([paragraf.rs](http://paragraf.rs))

<sup>60</sup> "Official Gazette of the RS", nos. 7/2020 and 79/2021), Available at [Правилник о обрасцу дневне евиденције и годишњег извештаја о отпаду са упутством за његово попуњавање: 7/2020-6, 79/2021-87](http://Pravilnik%20o%20obrascu%20dnevne%20evidencije%20и%20годишњег%20извештаја%20о%20отпаду%20са%20упутством%20за%20његово%20попуњавање:7/2020-6,%2079/2021-87) ([pravno-informacioni-sistem.rs](http://pravno-informacioni-sistem.rs))



## **7. Conclusion**

Waste-to-Energy is a well-established technic for thermal treatment of waste, deemed as necessary within EU waste management hierarchy for waste which cannot be recycled. Industrial field has captivated large experience in technical, operational and legislative domain.

Thereby, Elixir Group via its subsidiary Elixir Craft - Eco Energy branch, as the Investor, utilizes state-of-the art knowledge to present a project proposal for a Waste-to-Energy Plant based on bubbling fluidized bed technology for waste incineration with a combustion chamber of a 30 MW thermal power. Technical design is in full compliance with Commission implementing decision (EU) 2019/2010 of 12th November 2019 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration (notified under document C(2019) 7987), Commission Implementing Decision (EU) 2018/1147 of August 10th 2018 establishing best available techniques (BAT) conclusions for waste treatment, under Directive 2010/75/EU of the European Parliament and of the Council (notified under document C(2018) 5070), Commission reference document on Best Available Techniques on Emissions from Storage (July 2006) and Directive (EU) 2018/850 of the European Parliament and of the Council of May 30th 2018 amending Directive 1999/31/EC on the landfill of waste.

Adopted solutions minimize the risk of environment degradation possibility. Moreover, investment is planned for the industrial area with constant energy take-off need, with limited influence on the inhabited area. Cumulative impact assessment study indicated that there are very limited synergic pollutants with the existing operation within the industrial chemical complex in Prahovo. The impact of execution of the Subject Project would be very limited, with marginal to no impact on the surrounding, including the cross-border areas of Romania and Bulgaria.

The Subject Project should limit overall need of the Elixir Prahovo for fossil-based fuel due to the intended production of low-pressure steam from heating energy recovered in thermal treatment process of non-recyclable hazardous and non-hazardous waste. Goals of the Subject Project are in full alignment with environmental, decarbonation and energy independence goals of EU Green Deal, Green Agenda for Western Balkans with a positive effect on the Serbian national waste management market.

For detailed EIA study references to the recommendations and comments submitted in your letter Reg. Reg. No 00-04-949 dated on April 26th, 2024. we refer Your attention to the subsequent Summary on next pages (p. 34 – 40).

**Summary of the most important references of the Subject Project EIA study which respond to the recommendations and comments submitted in your letter Reg. No 00-04-949 dated on April 26<sup>th</sup>, 2024.**

**Recommendation & Comment 1: Discharge and treated wastewater into the Danube River, which will be of a permanent nature and at a distance of approximately 13 km upstream of the Bulgarian section of the Danube River.**

**The EIA response reference 1:** To assess the potential project impact on the Danube River quality, the EIA study has modeled the impact on the ground water and surface water quality with high technical precision. In the EIA subsection 6.1.1.2 the impact on water quality during construction phase has been assessed as without concerns. On a similar note, in the EIA subsection 6.2.1.2.1 the effects on Danube quality as the final recipient of the Subject Project treated wastewater has been modeled. The results conclusively showed that there will not be any violation of emission limits outlined for such installations and, more importantly, deterioration of Danube water quality as a consequence of the Subject Project execution. 100 m downstream of the treated wastewater discharge point most of the Subject Project characteristic wastewater pollution parameters would be already negligible or even barely detectable.

**Recommendation & Comment 2: Emission of combustion gases into the atmosphere, also of a permanent nature, approximately 9 km north-west of the Bulgarian border.**

**The EIA response reference 2:** Considered Waste-to-Energy Plant technology has air emission sources, more precisely 3 stack emission points. Non-Hazardous Waste Landfill is considered to be 1 surface emission point for the dust. To assess the cumulative impact of such installation and current emitters within the area of existing industrial chemical complex in Prahovo, the Investor contracted Faculty of Mechanical Engineering of the University of Belgrade. 2 separate dedicated studies (provided as appendix to the EIA study) covered a range of air emission scenarios with conclusion that there will not be a considerable impact of the Subject Project addition. Most of the air emissions are related to existing installations within the area of industrial chemical complex in Prahovo, however even considering the residual additional burden on the environment will be limited. The Subject Project emissions are in accordance to the design which provides compliance with the applicable laws and by-laws of Republic of Serbia as well as with Commission implementing decision (EU) 2019/2010 of 12<sup>th</sup> November 2019 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration (notified under document C(2019) 7987) and Commission Implementing Decision (EU) 2018/1147 of 10 August 2018 establishing best available techniques (BAT) conclusions for waste treatment, under Directive 2010/75/EU of the European Parliament and of the Council (notified under document C(2018) 5070). The most important modelling findings for permanent air emission in the Subject Project assets exploitation period are expressed in the EIA section 6.2.1. For more detailed explanation be referred towards 2 separate dedicated studies, both given in appendix to the EIA study:

- “Study of the impact of the waste pretreatment filter system and activated carbon filter within the waste-to-energy plant on the air quality of the wider location of the chemical industry complex in Prahovo” study from July 2024 and
- “Study of Plant for energy utilization of waste and landfill of non-hazardous waste impact on air quality of the wider location of the chemical industry complex in Prahovo” from April 2024.

**Recommendation & Comment 3: The Environmental Impact Assessment Report should consider and analyze in detail the impact of the diffuse atmospheric pressure resulting from combustion gases on the waters of the Danube and the rivers west of the Ogosta.**

**The EIA response reference 3:** Modeling the effects of pollutant emission into the air from the Subject Project installations, even under the most unfavorable weather conditions, and in the case of accidental situations with the most damaging scenarios of air pollutants release, didn't indicate any impact on the quality of Danube. The theoretical extremely improbable most damaging scenarios are modeled and given within the EIA subsection 7.2.1 (Scenario 12), hence we would refer to this part of the EIA study for more details.

**Recommendation & Comment 4:** In order to establish the potential for significant adverse transboundary impacts from the implementation and operation of the project, Article 7 of the Espoo Convention should be applied to the Danube and the rivers west of the Ogosta.

**The EIA response reference 4:** In the EIA study has been given attention to the assessment and preservation of the Danube River quality. In the previous EIA response references (1 and 3), information on the quality assessment impact with respect to Danube has been given. Considering the conclusion that Danube quality would not deteriorate as a consequence of the Subject Project implementation, there are no possibilities that any downstream connected river system could be affected.

**Recommendation & Comment 5:** In order to take into account the most significant contribution of the installation to the ambient air quality on the territory of the Republic of Bulgaria and in particular in the nearest settlements to the installation, mathematical modelling of the dispersion and expected concentrations of pollutants in the ground layer of the atmosphere must be carried out. A study on the transboundary impact of the installation's emissions has been carried out by means of dispersion modelling to calculate ground-level concentrations of pollutants, but does not present the input data and results of this modelling. Present the input data and results of this modelling.

**The EIA response reference 5:** As this point is of critical importance for the impacted area, modelling reach has been extended to 50 km x 50 km (2500 km<sup>2</sup>). The impact on the air quality of the wider location of the industrial complex Prahovo is assessed. in abovementioned dedicated studies, both given in appendix to the EIA study:

- "Study of the impact of the waste pretreatment filter system and activated carbon filter within the waste-to-energy plant on the air quality of the wider location of the chemical industry complex in Prahovo" study from July 2024 and
- "Study of Plant for energy utilization of waste and landfill of non-hazardous waste impact on air quality of the wider location of the chemical industry complex in Prahovo" from April 2024

The impact assessment includes the theoretical operation of the Subject Project (Waste-to-Energy Plant and the Non-Hazardous Waste Landfill) on air quality. The study provided expected concentrations of pollutants and mathematical modeling of pollutant dispersion in the ground layers, results are presented on figures clearly showing intensity and area of the impact of pollutant dispersion. Relevant input data (meteorological data, emitter characteristics, emission data, etc.) were used for the modeling. Within modelling results pollutants represent the theoretical maximum values with corresponding averaging periods; these values are far above the real values due to adoption of max allowed emissions as expressed within the applicable laws and by-laws of Republic of Serbia as well as with Commission implementing decision (EU) 2019/2010 of 12 November 2019 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration (notified under document C(2019) 7987) and Commission Implementing Decision (EU) 2018/1147 of 10 August 2018 establishing best available techniques (BAT) conclusions for waste treatment, under Directive 2010/75/EU of the European Parliament and of the Council (notified under document C(2018) 5070) as permanent without stops in asset utilization.

The study concludes that already active emission sources are dominating the air quality, while the added emissions related to Subject Project execution would be almost negligible. Moreover, the air quality with respect to SOx emissions could be locally (existing industrial complex area) an extremely seldom concern even under extremely unfavorable climate conditions.

The most important conclusions of the impact study on air quality are given in the EIA subsection 6.2.1.1.6.

**Recommendation & Comment 6:** When performing the modelling, the height and diameter of the flue(s), the mass flow rate calculated as the product of the emission limit values for the given installation and maximum permitted flue gas flow rate emitted into the atmosphere when the boiler is operating, must be used as input data.

**The EIA response reference 6:** All expressed parameters are essential for modelling and as such are the foundation of the performed studies abovementioned in the previous references EIA response references (2 and 5). The characteristics of point emitters (height, internal diameter, flue gas temperature, flue gas volumetric flow, mass flow of expected pollutants, and geographical coordinates) were considered during modeling. The characteristics of surface emitters were also considered. The dedicated air quality impact studies are an integral part of the EIA study and are included in its appendix, with the most important conclusions processed in the EIA subsection 6.2.1.1.6. Analysis of the cumulative impact of emissions on air quality.

**Recommendation & Comment 7:** It must also be modelled in the case where the boiler is not on operation and the gases generated by the unloading, storage, pre-treatment, stabilization and curing processes will be emitted through the flue as those from the sludge area.

**The EIA response reference 7:** Modeling scenarios of pollutant emissions when the boiler is not operating is addressed in the dedicated study:

- "Study of the impact of the waste pretreatment filter system and activated carbon filter within the waste-to-energy plant on the air quality of the wider location of the chemical industry complex in Prahovo" from July 2024.

On the other hand, another dedicated study reflects the expectation of regular exploitation of the Subject Project asset:

- "Study of Plant for energy utilization of waste and landfill of non-hazardous waste impact on air quality of the wider location of the chemical industry complex in Prahovo" from April 2024.

From the results of the obtained modeling, it can be concluded that the potential transboundary impact is negligible. The mentioned studies are provided in the appendix of the EIA study, and the most important conclusions of this air quality impact study for the Subject Project when the boiler is and is not in operation are processed in the EIA subsection 6.2.1.1.6. Analysis of the cumulative impact of emissions on air quality.

**Recommendation & Comment 8:** The modelling results (concentrations of regulated pollutants in the ground layer) should in both cases ensure that, at these maximum permissible levels of emissions of pollutants from the stack, they will not lead to an exceedance of the standards for the protection of human health set out in European and national legislation.

**The EIA response reference 8:** In the EIA section 6.2.2. Impact on health, the impact of the Subject Project on public health is considered, specifically in subsection 6.2.2.2. Impact of emissions to air on health. Based on the conclusions from the results of pollutant dispersion modeling in the air, addressed in the abovementioned studies, the impacts on air quality are limited, and therefore, no significant impact on public health can be expected.

Moreover, considering the conclusions that Danube quality would not deteriorate as a consequence of the Subject Project implementation and there are no possibilities that any downstream connected river system and/or connected underground water sources could be affected, it can be concluded that no significant impact on public health can be expected.

Complementary with the planned implementation of all preventive measures, proper plant management, and technical-technological solutions that comply with the applicable laws and by-laws of Republic of Serbia as well

as with all relevant EU regulations, standards and BAT requirements, the future operator of the Subject Project installation must demonstrate compliance with emission limit requirements.

**Recommendation & Comment 9:** In the mechanical treatment processes of waste electrical and electronic equipment, as required by Commission Implementing Decision (EU) 2018/1147 of 10 August 2018 establishing best available techniques (BAT) conclusions for waste treatment, an emission limit value for mercury should also be set.

**The EIA response reference 9:** Treatment of waste electrical and electronic equipment is not foreseen on the Subject Project installation. This has been expressed in waste exclusion list given within the EIA subsection 3.2.1.2. Nonetheless, Hg emission limits are anyhow set for the main stack of the boiler and treated wastewater emissions in accordance with the applicable laws and by-laws of Republic of Serbia as well as with Commission implementing decision (EU) 2019/2010 of 12 November 2019 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration (notified under document C (2019) 7987). The corresponding emissions are also modeled with respect to effects of Hg emissions to air and Danube, as outlined in the EIA chapters 6.2.1.1.2 and 6.2.1.2.1.

**Recommendation & Comment 10:** The EIA report should include a dedicated section analyzing the potential for transboundary impacts, including accidents involving hazardous substances, including health aspects and measures to prevent and mitigate them. In the EIA report and the specialized section of the EIA report, these issues should be developed in detail and addressed in the following aspects for the affected settlements, zones and areas in Bulgaria.

**The EIA response reference 10:** In the EIA chapter 7, the risk assessment of potential accident scenarios for the Subject Project is addressed, including the assessment of the possibility of accident scenarios with potential transboundary impact. Based on the hazard identification performed, a depiction of possible event development is provided, and a detailed analysis of the consequences of a chemical accident and modeling of accident effects according to defined accident scenarios is conducted. Based on the modeling of accident scenarios and consequences, the risk assessment of potential accidents is evaluated as low risk for the Non-Hazardous Waste Landfill and medium risk for the Waste-to-Energy Plant. Only for two possible analyzed accident scenarios does the endangered zone extend beyond the boundaries of the Subject Project area, but it does not reach zones with transboundary impact. The conclusion of the accident scenario analysis is that there will be no transboundary impact. All accident situations will be minimized by prescribed measures for accident prevention given in the EIA chapter 8, adequate risk management and limiting the impact of the accident on human life, health and the environment.

**Recommendation & Comment 11:** To provide full, comprehensive and well-illustrated information on the location and exact distances from the nearest settlements and other sites (In Bulgaria context) subject to health protection to all sites, potential sources of nuisance included in the investment proposal.

**The EIA response reference 11:** In the EIA chapter 6, table 6.22, the distances of populated areas from the Subject Project are provided, including the distances to the nearest cross-border municipalities.

**Recommendation & Comment 12:** The instantaneous status of individual factors and components of the living environment in the area (ambient air, surface and groundwater, soils, noise, ionizing and non-ionizing radiation, etc.).

**The EIA response reference 12:** The analysis of the state of environmental factors (air, ground water and surface water, soil, noise) was addressed in abovementioned separate study, as well as the Biodiversity study of the potentially affected area (including nearby Bulgaria protected biodiversity sites Natura 2000 area Timok,

Natura 2000 area Novo Selo). Both analyses are provided in the appendix of EIA study as an integral part of it. These analyses determined the baseline environmental condition.

**Recommendation & Comment 13:** Identification of the risk factors for harm to the health of people from the environment during the construction, subsequent operation and decommissioning phases of all sites and facilities related to the investment proposal.

**The EIA response reference 13:** All risk factors during the construction and subsequent operation of the Subject Project are thoroughly analyzed in EIA chapter 6 (6.1 Overview of possible changes in the environment during the execution of the project and 6.2 Overview of possible changes in the environment during regular operation of the project), assuming compliance with all prescribed environmental protection measures.

**Recommendation & Comment 14:** Detailed and comprehensive information of the extent of the expected adverse impacts on individual components and factors of the environment and life, with particular attention to:

- the future impact on surface water, groundwater and soils in the area, and hence on all water sources used for drinking purposes in the affected areas, with or without an established sanitary protection zone, that are affected or could be affected as a result of the operation of the facilities;
- the possible impact on ambient air quality by mathematical modelling of expected pollution from point and area sources. Due to the hazardous and non-hazardous waste treatment pathways envisaged in the report, it is necessary to draw conclusions on the possible airborne dispersion of pollutants both during normal operation of the facilities and in emergency or disaster situations, including modelling on the airborne dispersion of a toxic plume in the direction of Bulgaria formed by fire, explosion or spillage on landfilled liquid hazardous and non-hazardous waste;
- in particular, the potential for the transboundary spread of the odors from the operation of the investment proposal;
- the expected noise pollution by making appropriate calculations of the assumed noise levels from the operation of the facilities at the boundary of the development or residential area of the nearest settlements;
- the expected impact from ionizing and non-ionizing radiation.

**The EIA response reference 14:** The comprehensive approach towards assessment of overall project impact has been adopted. To punctually address the outlined aspect a bulleting answer is given corresponding to the question order:

- The effect on surface water, groundwater and soils in the area as a consequence of Subject Project asset exploitation has been addressed within the EIA section 6.2, where attention is taken to model the influence of wastewater and air pollution (due to accidents) on Danube quality (subsection 7.2.1 - Scenario 12). The model did not indicate a potential scenario of concerning contamination which might impact any downstream river water and/or connected underground water sources. On the other hand, the soil contamination and/or underground water might be affected only within the scope of accident scenario, which is outlined in the EIA chapter 7 without major implication on any water source.
- The impact on ambient air quality by mathematical modelling during regular operation (the EIA subsection 6.2.1.1) and accidental scenario (the EIA chapter 7) have been mathematically modeled from all sources within the scope of the subject project. Influence during regular operation has deemed to be negligible outside of the existing industrial complex area, and it is correspondingly negligible from perspective of transboundary influence on Bulgaria (covered in the model area of 50 km x 50 km). At the same time, the conclusion of the accident scenario analysis is that there will be no transboundary impact.

- The odor emission could be theoretically possible only when the boiler is not in operation, considering that the ambient air from the inside spaces of the Waste-to Energy [pretreatment and storage facilities](#) is used as a secondary air for the combustion process during regular operation. For this purpose, a modeling study has been issued and given in the appendix of the EIA study:
  - Study of the impact of the waste pretreatment filter system and activated carbon filter within the waste-to-energy plant on the air quality of the wider location of the chemical industry complex in Prahovo” study from July 2024.

In a scenario of emissions during irregular operation, when boiler would not be in operation, would partially be suppressed using a carbon filter. The modelling study which is provided in the EIA appendix demonstrated that odor expressed as TVOC emissions drastically drops with distance, posing no impact of the environmental conditions. Thereby, this conclusion stands for any transboundary location in Bulgaria as well.

- Preventive measures for noise reduction are foreseen, while the expected influence has been presented in the EIA subsection 6.2.1.4 with no influence on the area outside the industrial complex.
- There are no ionizing and non-ionizing radiation associated with the subject project.

**Recommendation & Comment 15: Complete and comprehensive information regarding the type and classification of waste. Where radioactive waste is to be treated, the risk of all aspects associated with this type of contamination should be considered and assessed.**

**The EIA response reference 15:** Acceptable and non-acceptable waste types for treatment are provided with corresponding procedures within the EIA subsections 3.3.1, 3.2.1.1, 3.2.1.2. Additionally, and as appendix to the EIA study a full list of acceptable EWC (European Waste Catalogue) codes has been provide. Radioactive waste is not considered for treatment in the foreseen project. Even more, in case of radioactivity detection during reception (special detectors are foreseen) there is a special procedure of notifying the governing body of Republic of Serbia which is authorized to respond and arrange for such waste treatment elsewhere (section 4.3.1).

**Recommendation & Comment 16: Identification of new risk factors and contaminants, if any, expected from the implementation of the investment proposal.**

**The EIA response reference 16:** It is foreseen that potential project implementation might inflict distinguished air and water pollutants (e.g., Hg emissions) with respect to present emissions within the area of industrial complex Elixir Prahovo. The risks associated with these emissions have been modeled in terms of air and water quality without concern within postulates of implementation of best available techniques for emission prevention (Commission implementing decision (EU) 2019/2010 of 12 November 2019 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration (notified under document C(2019) 7987)) as foreseen in the Subject Project technology design documentation.

**Recommendation & Comment 17: Identification of the potentially affected population and territories, areas and/or sites subject to health protection, depending on the territorial extent of the environmental impacts. This should be done on the basis of the mathematical modelling of the distribution and predictive calculations of the predicted concentrations and levels of pollutants released into the living environment.**

**The EIA response reference 17:** The assessment has been done based on mathematical modelling considering probability, climate factors, technology related emissions, etc. Details can be found in the EIA subsection 6.2.1.1.6 (and air quality modelling assessment studies provided as the EIA appendix) with conclusion in relation to specify air quality by the regulatory framework.

**Recommendation & Comment 18: Characterization of individual risk factors in terms of their impact on human health and their comparison with the current hygiene standards and requirements for the affected residential areas. Determination of the leading risk factors in terms of significance for the affected population.**

**The EIA response reference 18:** Individual risk factors in terms of human health have been evaluated in the EIA section 5.1, while additionally impact of the Subject Project in the exploitation phase on the inhabitants has been addressed in the EIA subsection 6.2.2, where it has been concluded that the potential impact is negligible. On the other hand, it has been noted that accidental scenarios described in the EIA section 7 could have profound influence on the dominantly operating personal. Therefore, corrective protective measures are necessary as outlined in the EIA section 8.

**Recommendation & Comment 19: Assessment of the potential for combined complex, cumulative and remote impacts of the risk factors on the adversely affected population, considering the activities of other production sites and ports in the area, including those in the territory of the Republic of Bulgaria.**

**The EIA response reference 19:** Both in terms of air pollution and water (read Danube) pollution a cumulative approach has been adopted. Namely, in the EIA subsection 6.2.1.1.6 (and air quality modelling assessment studies provided as appendix) a cumulative emission study has been done considering current emissions from the existing installations of Elixir Prahovo. Similarly, in the modelling approach described in the EIA subsection 6.2.1.2.1 the effects on Danube water quality have been assessed cumulatively considering treated wastewater quality of the existing installations within the area of industrial complex in Prahovo. Port operations are different in nature compared to the foreseen project emissions, thereby a strong cumulative effect is not expected from such operation with exception of transport emissions (deemed to be negligible). In all modelling approach it has been demonstrated that the effect on air and water quality in Bulgaria by implementation of the Subject Project would be negligible. Therefore, this conclusion stands for any transboundary location in Bulgaria as well.

**Recommendation & Comment 20: Assessment of the risk of harm to human health and propose health protection and risk management measures.**

**The EIA response reference 20:** All the measures found to be necessary considering the Subject Project impact assessment, regulation and technology required are presented in the EIA chapter 8. Included measures which must be taken to protect all factors of the environment and human health (plans and technical solutions for environmental protection), which relate to the construction, regular operation, termination of use or removal of the subject project, as well as measures for accident prevention during construction and operation, accident response measures and elimination of the consequences of the accident.