

ZONAL URBAN PLAN

Waste oil recycling plant

FIRST VERSION OF THE PLAN

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Waste oil recycling plant

Municipality of Oltenita, Calarasi County

FIRST VERSION OF THE PLAN

Beneficiary:

Green Oil and Lubes S.R.L

Elaborator:

SC Smart Ecologic Consulting SRL

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I. GENERAL DATA

1. Name of the investment site:

Zonal Urban Plan – Used Oil Recycling Plant.

2. Location of the investment site:

The investment site is located within the limits of Oltenita town in Calarasi County. The address of the property is field 89, plot A5774. The area of the property in question (property under review) is 17,88 ha.

3. Specialty designer:

4. Beneficiary of the investment

GREEN OIL AND LUBES SRL

identified by registration number at the Trade Register J40 / 5301/2015 and fiscal registration code RO34450328

Headquarters: AP Street 2 Cehov, 1st district, Bucharest
tel. 0729120153 E-mail: daniela.coman@bees_group.eu

5. Legal regime of the land:

The land is private property of Oltenita city and is licensed to the beneficiary of the investment - namely GREEN OIL AND LUBES SRL in order to build the objective "waste oil recycling plant".

6. Technical regime of the land:

The land is located within the limits of Oltenita town and is regulated by the town planning documentation - PUG phase - developed and approved in 2013. Current category of use is non-productive land. The land subject to the investment is arable land.

7. Compliance with town planning:

The land is located within the limits of Oltenita town and is regulated by the town planning documentation - PUG phase - developed and approved in 2013, in the territorial reference unit 63. The current function of the site subject to this documentation is: activities related to the commercial port: non-polluting production units, storage and services - having a high percentage of green areas, according to the town planning documentation - PUG phase - developed and approved in 2013.

8. Economic regime of the land:

The land which is subject to this technical documentation is non-built-up and has no fencing. The category of use of the land is "non-productive land".

9. The estimated value of the works:

The estimate value of the works cannot be calculated in this design phase -town planning documentation (PUZ). Likewise, the estimated value of the environment protection works cannot be calculated in this phase, and is to be calculated in the next design phases.

10. The proposed execution period:

The period proposed for the execution of the investment works is 2016 -2018.

II. OPPORTUNITY OF THE INVESTMENT:

➤ **Purpose and importance of the investment site:**

The Zonal urban plan (PUZ), subject to this survey, is the basis of the decisions to be made by the beneficiary for carrying out future investments, which will be developed after its endorsement and approval, according to Annex 1 to the Law no. 350/2001.

➤ **Public utility and compliance with town planning:**

This documentation (PUZ phase) is developed, endorsed and approved as town planning documentation for the urban planning regulation of the site under survey (establishing the acceptable and prohibited functions, the setbacks of the future buildings, establishing the town planning indicators - P.O.T., C.U.T, height regime).

1. **Opportunity of the investment against the background of the obligations undertaken by ROMANIA for waste management and waste recycling according to the European directives:**

The development of this economic activity - used oil recycling plant - is also crucial against the background of the obligations undertaken by ROMANIA for waste management and waste recycling according to the European directives:

2. **Economic background:**

Beneficiary of the investment - GREEN OIL AND LUBES SRL wishes to build a used oil recycling plant with a capacity of 200 tonnes/day. The development of this economic activity is also crucial against the background of the obligations undertaken by ROMANIA for waste management and waste recycling according to the European directives:

At present, in Romania there are no facilities - used oil recycling plants – of this capacity as compared to the investment proposed by GREEN OIL AND LUBES SRL. In this respect, a very small quantity of the used oils is collected to be recycled at country level. As a case study concerning the economic impact and environmental impact concerning waste management - in this case used oil, car services will be used as an example. In this respect, a small quantity of the used oils is recycled by authorized companies. Most amounts of waste - used oils are either discharged into sewerage drains or watercourses, causing an extremely negative environmental impact, or are burned in poor facilities, also having an environmental impact in the context of toxic emissions. When an economic operator is set up and will pay for the acquisition of the amount of used oils, the car service will be directly interested in adhering to this economic flow, both economically and in terms of risks taken so far with regard to the management of the resulting waste.

3. Production capacities:

The used oil recycling plant will have a processing capacity of 200 tonnes/day which requires, according to the technological flow presented by the beneficiary, an annual processing quantity of approximately 66,000 tonnes of oils. Technology will be state-of-the-art by combining advanced technology of vacuum distillation with catalytic high-pressure hydrotreating of the recovered oil.

Overall, the plant will ensure environment protection by processing approximately 66,000 tonnes/year of hazardous and toxic waste, producing high quality lubricants.

4. Contribution to the employment market:

The commissioning of the site will directly generate jobs and will have an indirect influence on creating or maintaining jobs in related activities of the investor (administrative services, marketing and accounting services etc.)

5. Opportunity concerning the selection of the site:

The beneficiary of the investment - GREEN OIL AND LUBES SRL is part of a group of companies that developed similar investments in other regions of the world (UAE, Saudi Arabia, Malaysia, South Africa) have reviewed several scenarios regarding the location of the site. In this respect, the reviewed scenarios included at macro-regional level several countries in Central Europe and Eastern Europe. Considering the macro-economic stability of Romania in a long-term scenario, and also the possible evolution in a regional geopolitical and economic context, Romania was preferred over other countries (Bulgaria, Serbia etc.)

The consultants of the investor on finding the site for the investment took into consideration several factors, among which the most important were: available surface and the legal status of the land, road access, rail infrastructure, existing utilities in the area and possible connection to the utilities for power supply, natural gas supply, water and sewerage system existing in the area. Also an important factor was the workforce existing in the neighbouring area of the investment, the human resource being essential from this point of view. Following the review of several possible sites for the

investment, the site located within the limits of Oltenita town was selected. In this respect a very important factor in selecting this location was also a possible connection - in a possible long-term scenario - to the naval transport infrastructure (both on Danube and Arges rivers).

The land proposed for the investment is located within the limits of Oltenita town and is regulated by the town planning documentation - PUG phase - developed and approved in 2013, in the territorial reference unit 63.

The land under review is located in the south area of Oltenita municipality, adjacent to two watercourses - Dunarea river and Arges river.

The plot of land proposed for investment is located outside the built-up area of the town, at a distance of over 770 meters from the first houses, so it is unlikely to affect the residential area because of the presence of the industrial constructions and current activities.

From the point of view of access to the land subject to the investment, access will be through the national road - DN 4 - up to the area of Oltenita port (road end), then on Portului Street on a distance of approximately 970 meters (modernized road). The access to the investment will be from Portului Street on a non-modernized road of approximately 200 meters, which the beneficiary of the investments will do its best to improve. To this end, we propose that the road infrastructure should be modernized - Portului Street and access road to the property.

In a further phase, proposals will be made for the modernization of the road infrastructure, such as B-dul 1 Decembrie and Dr. Lucian Popescu Street, as well as the surrounding roads.

6. Impact elements:

The site is located near NATURA 2000 site ROSPA 0038 *Danube - Oltenita and in* accordance with art. 28 of OUG 57/2007 regarding the regime of the natural protected areas, natural habitats, wild flora and fauna preservation with the subsequent amendments must consider the impact of the future investment in relation to its location in the protected area.

Additional car traffic generated by the investment is not likely to generate malfunctions, and in conjunction with the proposed modernization of the road infrastructure as described above, the impact will not be significant in this respect.

The environmental impact should also be approached both in the construction and operation phases. The surfaces occupied by the new works will be very small as compared to the total area of the protected natural areas and there are no important species of flora in need of conservation on the work site, so that the impact on this protected area is not significant.

In case of fauna species identified on site, there will be an impact because they will be disturbed by the level of noise and vibrations, the presence of the construction equipment and workers, the level of emissions of air pollutants. The impact will be punctual on the work front. Because these species will move in similar habitats in the vicinity of the site without their numbers being reduced. Moreover, the range of such species is not limited strictly to the work site, which is very small as compared to the total area of the site.

Also, there is a high degree of human intervention existing on the work site.

During the operation period, the environmental impact will be determined by the emissions of air pollutants and wastewater discharged from the facility.

The plant will be equipped with a flare for incineration and dispersion of accidental gas emissions, as defined in the IPPC, the reference documents for the most advanced technologies in the field of mineral oil refineries.

There is a programme of prevention and detection of gas leaks in the plant.

- The pumps will be equipped with seals that prevent leakage
- The valves will be equipped with seals that prevent losses
- All safety valves will discharge to the flare system.
- Compressors will be equipped with the most modern seals that prevent leaks.
- The flanges within the hydrotreater will be RTJ, which are the safest in terms of leakage.
- The tanks for light products will be equipped with breather valves (instead of atmospheric vents).
- The valves of the tanks and the non-condensable gases will be sent to the flare.
- Chemically impure water will be stripped for H₂S elimination, and then sent to the flare.
- All burners will be NO_x reduced burners.

The main effluent is hydrogen sulphide (H₂S) which will be produced in the hydrotreater. The quantity will be very small, below 24 Kg/h. This will be absorbed by the amine plant, and then will be sent to the burner of the furnace or flare. The use of MDEA amines is compatible with BAT.

The heat generated by the furnace where hot oil is heated (medium heat) will be generated by 1,188 tonnes/year of gas produced in the hydrotreater, completed by 3,212 tonnes/year of natural gas.

There will be two sources of air pollution, namely technological furnace and flare. The emissions will be as follows:

| | |
|---|---|
|  | NO _x : (0.4kg/h) low NO _x burners (John Zink, ZEECO or equivalent). |
|  | CO: (0.3kg/h) low using modern burners. |
|  | CO ₂ : (1000kg/h) |
|  | SO ₂ : (35kg/h) |

The plant will mainly use demineralized water. The necessary steam is very low, mainly for cleaning the equipment when stopping. The vacuum pumps do not require steam like conventional ejectors, using state-of-the-art technology.

The cooling will be provided by recycled water cooled in a cooling tower. Any leakage of oil products will not affect the groundwater as it is a closed circuit.

All liquid effluents will be treated in the wastewater treatment plant, which contains the separation of hydrocarbons, chemical and biological treatment.

The reactors in the hydrotreater require the replacement of the catalyst every 6 months. These catalysts will not contaminate the environment, but will be sent to the original provider for regeneration and recycling.

Overall, the plant will ensure environment protection by processing approximately 66,000 tonnes/year of hazardous and toxic waste, producing high quality lubricants.

Noise pollution: all equipment will be purchased in compliance with the standards imposed by the international regulations (EEMUA 140 & 141, OSHA, IEC 651/225/942)

Because there are no protected habitats on site and there are very few species and have been seen only in passage or occasionally at feeding times, the proposed project will not have a significant impact on the natural area of Community interest.

7. **The compliance of the activity with the Law 278/2013 on industrial emissions**

The project is subject to Law 278/2013 on industrial emissions. According Annex 1 to the Law 278/2013 the refining of used oils is subject to art. 5. **Waste management; point 5.1. Disposal or recovery of hazardous waste with a capacity of over 10 tonnes per day, para j) - re-refining or other reuses of oils''.**

8. **Possible environmental impact in a trans boundary context**

In accordance with the provisions of Annex No. 1 of Law 22/2001 ratifying the Convention on Environmental Impact Assessment in a Trans boundary Context, adopted at ESPOO on 25 February 1991 in conjunction with the fact that the proposed investment is the proximity of the Romanian-Bulgarian border, the developed investment falls under the scope of **Article 6 "Integrated chemical installations." The distance to the Bulgarian border is 1000 m.**

9. **Site of the investment and vicinities**

The investment site is located at a distance of 1000 meters from the state border between Romania and Bulgaria.

The distance from the River Danube is 650 meters.

The distance from the River Arges is 300 meters.

In terms of latitude in the national system of elevation Black Sea 1975 the average altitude of the land subject to the investment is approximately 18.50 - 19.00 metres. The terrain is rugged in the sense that there are sharp bumps and landforms created mostly anthropogenic - pits, mounds, etc.) Also, near the land is an archaeological site located at a distance of 24 m.

III. DESCRIPTION OF THE PROJECT

Objective and main purpose of the project:

This Zonal Urban Plan (PUZ) proposes the change of the urban planning indicators related to the land owned by the beneficiary, according to the documents submitted for obtaining the Urban Planning Certificate, and also the current function of the site will also be amended from a commercial and tourist port to an industrial area.

The used oil recycling plant will have a processing capacity of 200 tonnes/day which requires, according to the technological flow presented by the beneficiary, an annual processing quantity of approximately 66,000 tonnes of oils. Technology will be state-of-the-art by combining advanced technology of vacuum distillation with catalytic high-pressure hydrotreating of the recovered oil.

Overall, the plant will ensure environment protection by processing approximately 66,000 tonnes/year of hazardous and toxic waste, producing high quality lubricants.

1. Description of the technological flow:

In this chapter, the technological process of installations is explained, and the effluents of each step of the process are described, along with the methods applied.

a. Dehydration

Dehydration is obtained by heating the oil used in specialized equipment. This process results in 3,986 tonnes/year of vapours, consisting of a mixture of steam and volatile components. Water is then condensed and sent to the collection system of chemically impure waters. The volatile components are used as fuel gas with low calorific power in the furnace of the facility or burnt in the flare.

- ✚ Intake: 66,666 tonnes/year of used oil
- ✚ Utilities: heat in the form of recirculated hot oil and cooling water
- ✚ Products: 62,680 tonnes/year of dehydrated used oil, 3,986 tonnes/year of wastewater

b. Separation of liquid fuel (diesel oil)

The system consists of a vacuum evaporator. A quantity of 6,680 tonnes/year of fuel will be extracted from the used oil. This will be used in the furnace, but it will also supply the hydrotreater.

- ✚ Intake: 62,680 tonnes/year of used dehydrated oils.
- ✚ Utilities: heat in the form of hot recycled oil and cooling water
- ✚ Products: 56,000 tonnes/year supply of film evaporator, 6,680 tonnes/year of liquid fuel

c. Oil separation

The basic product of the fuel separator will supply the film evaporators (Falling Film Evaporator & Wiped Film Evaporator). The separation will be carried out under vacuum.

The residue (bitumen) from the film evaporator, 9,320 tonnes/year, will be sold as road bitumen.

- ✚ Intake: 56,000 tonnes/year
- ✚ Utilities: heat in the form of hot recycled oil and cooling water
- ✚ Products: 46,680 tonnes/year from film evaporators, 9,320 tonnes/year of bitumen

d. Hydrotreating

The oil recovered from the film evaporators is treated with hydrogen in this facility to produce high quality base oils. The oil resulting from evaporators are treated in the presence of a special catalyst at a temperature of 360°C and pressure of 96 bar. The main resulting product is the oil base. The sulphur present in the raw material is extracted in the form of hydrogen sulphide (H₂S). It

will be extracted from the hydrogen flow by means of the amine absorption facility. A part of the recirculated hydrogen flow will be burnt as fuel in the furnace to keep the concentration of light hydrocarbons at the desired level.

- ✚ Products: 46,680 tonnes/year from the film evaporators, 3,624 tonnes/year of hydrogen
- ✚ Utilities: heat in the form of recirculated hot oil and cooling water
- ✚ Products: 45,624 tonnes/year of hydrotreated base oils, 680 tonnes/year of hydrogen-rich gases, used as fuel in the furnace.

e. Final fractionation

The hydrotreated oil is fractionated in the vacuum distillation column to produce base oils SN-150 or SN-500. In the same fractionation column light refinery streams are extracted to comply with the specifications of the products SN-150 and SN-500.

f. Hydrogen plant

The hydrogen required for the hydrotreating plant is produced by the electrolysis of water. The Oxygen produced will be released in the air.

- ✚ Intake: 4,285 tonnes/year of demineralized water.
- ✚ Utilities: electricity, cooling water
- ✚ Products: 360 tonnes/year of hydrogen

g. Amine absorption facility

The mixture of hydrogen-rich gases, produced in the hydrotreater, also contains H₂S. The gas is sent to the amines absorption plant for the removal of H₂S. The hydrogen-rich mixture of filtrated gas is recirculated in the hydrotreater while H₂S is burnt in the furnace or in the flare. The maximum quantity of H₂S is 24 kg/h (192 tonnes/year).

BAT References (Best Available Technologies)

Technologies adopted for this installation are the most advanced included in the document:

INTEGRATED POLLUTION PREVENTION and CONTROL (IPPC)

The reference document on best available techniques for the waste treatment industries, August 2006 - European Commission

The references are the following:

- ✚ Distillation - used to remove water and liquid fuel and decomposition of compounds containing heavy metals (Chapter 4, page 88)
- ✚ Film evaporators - for recovery of oil refinery streams and removal of heavy metals in asphalt waste (chapter 4.4.1.6, page 415)

- ✚ Hydrotreating- used to improve the base oils (chapter 4.4.1.9, page 416)
- ✚ Absorption of amines - amine absorption facility is integrated into the hydrotreating plant to treat the gases rich in hydrogen sulphide (chapter 4.4.1.9, page 417).
- ✚ Treatment of resulting gases - they are incinerated in technological furnace (chapter 4.6.14, page 473)
- ✚ Wastewater treatment - Treatment of water consists in separation of hydrocarbons, filtration of solids and biological treatment (chapter 4.7, page 488)
- ✚ Vacuum generation - is produced with vacuum pumps (oil ring), not with ejectors. The generation of additional wastewater, difficult to be treated and dangerous for the environment, will be avoided (chapter 4.4.1.1, page 411)

Emissions

There is a programme of prevention and detection of gas leaks in the plant.

- ✚ The pumps will be equipped with seals that prevent leakage
- ✚ The valves will be equipped with seals that prevent losses
- ✚ All safety valves will discharge to the flare system.
- ✚ Compressors will be equipped with the most modern seals that prevent leaks.
- ✚ The flanges within the hydrotreater will be RTJ, which are the safest in terms of leakage.
- ✚ The tanks for light products will be equipped with breather valves (instead of atmospheric vents).
- ✚ The valves of the tanks and the non-condensable gases will be sent to the flare.
- ✚ Chemically impure water will be stripped for H₂S elimination, and then sent to the flare.
- ✚ All burners will be NO_x reduced burners.

The main effluent is hydrogen sulphide (H₂S) which will be produced in the hydrotreater. Quantity is very low, under 24 kg/h. This will be absorbed by the amine plant, and then will be sent to the burner of the furnace or flare. The use of MDEA amines is compatible with BAT - according to the previous paragraph.

The heat generated by the furnace where hot oil is heated (medium heat) will be generated by 1,188 tonnes/year of gas produced in the hydrotreater, completed by 3,212 tonnes/year of natural gas.

There will be two sources of air pollution, namely the technological furnace and the flare. The emissions will be as follows:

- ✚ NO_x: (0.4kg/h) low NO_x burners (John Zink, ZEECO or equivalent).
- ✚ CO: (0.3kg/h) low using modern burners.
- ✚ CO₂: (1000kg/h)
- ✚ SO₂: (35kg/h)

The plant will mainly use demineralized water. The necessary quantity of steam is very low, mainly for cleaning the equipment when stopping. The vacuum pumps do not require steam like conventional ejectors, using state-of-the-art technology in the field.

The cooling will be provided by recycled water cooled in a cooling tower. Any leakage of oil products will not affect the groundwater as there is a closed circuit.

All liquid effluents will be treated in the wastewater treatment plant, which contains the separation of hydrocarbons, chemical and biological treatment.

The reactors in the hydrotreater require the replacement of the catalyst every 6 months. These catalysts will not contaminate the environment, but will be sent to the original provider for regeneration and recycling.

Overall, the plant will ensure environment protection by processing approximately 66,000 tonnes/year of hazardous and toxic waste, producing high quality lubricants.

Noise pollution: all equipment will be purchased in compliance with the standards imposed by the international regulations (EEMUA 140 & 141, OSHA, IEC 651/225/942) (Chapter 4, page 364).

2. The components of the investment are the following:



➤ ***Object 1 - Processing factory;***

Comprising of the distillation installation and the hydrotreating unit. Estimated Sizes: 20 x 15 m for each facility.

➤ ***Object 2 - utilities platform;***

It includes the tanks for storing raw materials (used oil), intermediate products and the finished product.

| Current no. | Description | No. of units | Capacity (m³) |
|--------------------|--------------------------------------|---------------------|---------------------------------|
| 1 | Tank for raw material (used oil) | 3 | 2000 |
| 2 | Tank for oil base | 4 | 1000 |
| 3 | Diesel fuel tank | 1 | 500 |
| 4 | bitumen tank | 2 | 250 |
| 5 | Waste oil tank (future expansion) | 1 | 2000 |
| 6 | Caustic soda tank | 1 | 50 |
| 7 | Fuel tank | 1 | 200 |
| 8 | Tank for oil base (future extension) | 2 | 2000 |

➤ *Object 3 - Platform for loading / unloading;*

Includes the access area for trucks for unloading raw material (used oil) and loading finished products. Norm capacity - tanks with a volume of 35m³. Estimated volume - 6312m³ / month (75750m³ / year), maximum traffic - 10

➤ *Object 4 – Hydrogen plant;*

Includes the H₂ production plant necessary in the hydrotreating process. The factory is located at a safety standard distance of minimum 10m from the plant. H₂ produced from water by hydrolysis. Estimated area 1054m²..

➤ *Object 5 - pre-cleaning station;*

It includes hydrocarbon separator that will treat rainwater collected from the inside roads. Estimated area - 347m²..

➤ *Object 6 - PSI Station;*

It includes household water necessary for the fire fighting equipment, including group of pumps and intangible water reserves. Estimated area - 275m²..

➤ *Object 7 – power connection (transformation post)*

It includes the transformation point of MT / JT and the electrical connection of the objective. Estimated area - 1100m²..

➤ *Object 8 - Control Room;*

It includes the remote control unit of the plant, which will control, using a computer system, all the equipment of the objective. Estimated area - 125m²..

➤ *Object 9 - laboratory*

Includes the unit for analysis of raw materials introduced into the factory, and of the finished products resulting from the production process. Estimated area - 50m²..

➤ *Object 10 - Cooling tower;*

It includes the cooling equipment of process water circulating through the system. Estimated area - 365m²..

➤ *Object 11 - Household water;*

Includes connections to the water public network, pressurizing station and general distributor of process water. Estimated area - 6m²..

➤ *Object 12 - maintenance workshop and storage for chemicals;*

Includes the mechanical workshop necessary for the maintenance of the equipment in the factory and the storage for chemicals needed for functioning. Estimated area - 470m²..

➤ *Object 13 - Management Building*

Will accommodate the administrative staff of the objective and the changing rooms of the operational staff and the canteen of the unit. Occupied area is 450m², the building will have three floors (GF + 2).

➤ *Object 14 - inside roads;*

Includes all circulations inside the interior, they will be paved roads with a minimum road width 7.00ml, connection intersections will be achieved with norm rays for heavy-duty circulation (trucks). Occupied area of circulation is estimated at approx. 1.6ha.

➤ *Object 15 - fencing.*

Includes the fencing of the entire enclosure the objective with metal fence with a concrete base. The total length of fencing - approx. 1100 ml.

In terms of facilities within the investment the following installations and equipment will be used:

➤ For the technological process that involves *hydrotreating*:

| | |
|--|--------------------------------------|
| | <i>Columns, vessels and reactors</i> |
|--|--------------------------------------|

| | |
|----|--|
| | |
| 1 | <i>fractionation column</i> |
| 2 | <i>Absorber MDEA (amine)</i> |
| 3 | <i>MDEA Regenerator (amine)</i> |
| 4 | <i>hydrotreating supply expansion vessel</i> |
| 5 | <i>Low-pressure separator</i> |
| 6 | <i>circulation compressor for the expansion vessel</i> |
| 7 | <i>High pressure separator, cold</i> |
| 8 | <i>High pressure separator, hot</i> |
| 9 | <i>Supply compressor expansion vessel</i> |
| 10 | <i>vacuum pump expansion vessel</i> |
| 11 | <i>water injection vessel</i> |
| 12 | <i>Neutralizer injection vessel</i> |
| 13 | <i>corrosion inhibitor injection vessel</i> |
| 14 | <i>atmospheric vessel</i> |
| 15 | <i>Heat transfer oil tank</i> |
| 16 | <i>oil expansion vessel for heat transfer</i> |
| 17 | <i>Liquid fuel vessel</i> |
| 18 | <i>MDEA absorber Supply tank</i> |
| 19 | <i>Regenerator reflux Vessel</i> |
| 20 | <i>MDEA vessel</i> |
| 21 | <i>flare expansion vessel</i> |
| 22 | <i>Reactor</i> |
| 23 | <i>Reactor</i> |
| 24 | <i>Hydrotreating main reactor</i> |

| | |
|----|---|
| | <i>Furnaces</i> |
| | |
| 25 | <i>Furnace</i> |
| | |
| | <i>Pumps</i> |
| | |
| 26 | <i>Hydrotreating supply pumps</i> |
| 27 | <i>Factionary pumps</i> |
| 28 | <i>Re-contracting pumps</i> |
| 29 | <i>Supply pump for dehydration heavy refinery streams</i> |
| 30 | <i>light refinery streams pumps</i> |
| 31 | <i>vacuum pumps fractioning</i> |
| 32 | <i>Supply pumps</i> |
| 33 | <i>Water injection pumps</i> |

| | |
|----|---|
| 34 | <i>neutralizer injection pump</i> |
| 35 | <i>Corrosion inhibitor injection pump</i> |
| 36 | <i>Condensate pump vacuum</i> |
| 37 | <i>Heat transfer oil circulation pump</i> |
| 38 | <i>Heat transfer oil filling pump</i> |
| 39 | <i>Light amine pumps</i> |
| 40 | <i>amine regenerator reboiler pumps</i> |
| 41 | <i>flame pumps</i> |
| | |
| | <i>compressors</i> |
| | |
| 42 | <i>re-circulation compressor</i> |
| 43 | <i>Hydrogen Supply Compressor</i> |
| | <i>Heat exchangers</i> |
| | |
| 44 | <i>Supply exchange</i> |
| 45 | <i>Reactor supply heater</i> |
| 46 | <i>Fractioning supply heater</i> |
| 47 | <i>Recirculated gas cooler</i> |
| 48 | <i>finished product cooler</i> |
| 49 | <i>Main reactor supply heater</i> |
| 50 | <i>Beam supply vessel</i> |
| 51 | <i>light distillation fraction cooler</i> |
| 52 | <i>fractional condenser</i> |
| 53 | <i>hydrogen cooler</i> |
| 54 | <i>hydrotreating supply reheater</i> |
| 55 | <i>Supply gas cooler</i> |
| 56 | <i>light amines cooler</i> |
| 57 | <i>amine reboiler</i> |
| 58 | <i>regeneration condenser</i> |
| | |
| | <i>Filters</i> |
| | |
| 59 | <i>Hydrotreating supply filters</i> |
| 60 | <i>Product filters</i> |
| 61 | <i>heat transfer oil filters</i> |
| 62 | <i>Cartridge filter</i> |
| 63 | <i>Active carbon filter</i> |
| 64 | <i>Mechanical particle filter</i> |
| | |
| 65 | <i>Flame</i> |
| | |

| | |
|----|--|
| | <i>Complete modules</i> |
| | |
| 66 | <i>Amine additive injection module</i> |
| 67 | <i>Hydrogen production unit</i> |

➤ For the technological process that involves *distillation*:

| | | <i>Equipment type</i> |
|---|---|-----------------------|
| | <i>1057-GOAL-P-PFD-1001/01</i> | |
| 1 | <i>Supply tanks</i> | <i>Tank</i> |
| 2 | <i>Caustic soda storage tank</i> | <i>Tank</i> |
| 3 | <i>Self-cleaning filter</i> | <i>Filter</i> |
| 4 | <i>Raw material receiving pump</i> | <i>Pump</i> |
| 5 | <i>raw material transfer pump</i> | <i>Pump</i> |
| 6 | <i>Caustic soda injection pump</i> | <i>Pump</i> |
| | | |
| | <i>1057-GOAL-P-PFD-1001/02</i> | |
| 1 | <i>Heat recovery</i> | <i>Heat exchanger</i> |
| 2 | <i>centrifuge</i> | <i>Filter</i> |
| 3 | <i>daily supply tank</i> | <i>Tank</i> |
| 4 | <i>process supply pump</i> | <i>Pump</i> |
| | | |
| | <i>1057-GOAL-P-PFD-1002</i> | |
| 1 | <i>Dehydration pre-heater</i> | <i>Heat exchanger</i> |
| 2 | <i>Dehydration Evaporator</i> | <i>Heat exchanger</i> |
| 3 | <i>Water and light refinery streams condenser</i> | <i>Heat exchanger</i> |
| 4 | <i>dehydrated oil separator</i> | <i>vessel</i> |
| 5 | <i>condensate collection vessel</i> | <i>vessel</i> |
| 6 | <i>dehydrated oil transfer pump</i> | <i>Pump</i> |
| 7 | <i>water and light refinery streams condensate pump</i> | <i>Pump</i> |
| | | |
| | <i>1057-GOAL-P-PFD-1003</i> | |
| 1 | <i>liquid fuel pre-heater</i> | <i>Heat exchanger</i> |
| 2 | <i>liquid fuel evaporator</i> | <i>Heat exchanger</i> |
| 3 | <i>liquid fuel condenser</i> | <i>Heat exchanger</i> |
| 4 | <i>liquid fuel separator</i> | <i>vessel</i> |
| 5 | <i>liquid fuel collecting vessel</i> | <i>vessel</i> |
| 6 | <i>Recirculation and oil transfer pump</i> | <i>Pump</i> |
| 7 | <i>liquid fuel transfer pump</i> | <i>Pump</i> |
| | | |
| | <i>1057-GOAL-P-PFD-1004</i> | |

ZONAL URBAN PLAN

Waste oil recycling plant

FIRST VERSION OF THE PLAN

| | | |
|---|--|-----------------------|
| 1 | <i>Supply condenser</i> | <i>Heat exchanger</i> |
| 2 | <i>recirculated liquid cooler</i> | <i>Heat exchanger</i> |
| 3 | <i>liquid separator</i> | <i>vessel</i> |
| 4 | <i>discharge separator</i> | <i>vessel</i> |
| 5 | <i>liquid transfer pump</i> | <i>Pump</i> |
| 6 | <i>liquid circulation pump</i> | <i>Pump</i> |
| 7 | <i>vacuum pump for the dehydration area</i> | <i>Pump</i> |
| | | |
| | 1057-GOAL-P-PFD-1005/01 | |
| 1 | <i>Intermediate refinery streams pre-heater</i> | <i>Heat exchanger</i> |
| 2 | <i>Intermediate refinery streams evaporator</i> | <i>Heat exchanger</i> |
| 3 | <i>Intermediate refinery streams condenser</i> | <i>Heat exchanger</i> |
| 4 | <i>Intermediate waste separator</i> | <i>vessel</i> |
| 5 | <i>Intermediate refinery streams collection Vessel</i> | <i>vessel</i> |
| 6 | <i>Intermediate waste transfer pump</i> | <i>Pump</i> |
| 7 | <i>Intermediate refinery streams transfer pump</i> | <i>Pump</i> |
| | | |
| | 1057-GOAL-P-PFD-1005/02 | |
| 1 | <i>Supply condensator-2</i> | <i>Heat exchanger</i> |
| 2 | <i>Supply condensator-3</i> | <i>Heat exchanger</i> |
| 3 | <i>liquid separator-2</i> | <i>vessel</i> |
| 4 | <i>liquid separator-3</i> | <i>vessel</i> |
| 5 | <i>Booster for the intermediate refinery streams recovery area</i> | <i>Pump</i> |
| 6 | <i>Wine pump for the intermediate refinery streams recovery area</i> | <i>Pump</i> |
| 7 | <i>liquid transfer pump - 2</i> | <i>Pump</i> |
| 8 | <i>liquid transfer pump - 3</i> | <i>Pump</i> |
| | | |
| | 1057-GOAL-P-PFD-1006/1 | |
| 1 | <i>Heavy refinery streams pre-heater</i> | <i>Heat exchanger</i> |
| 2 | <i>Film evaporator 1</i> | <i>Heat exchanger</i> |
| 3 | <i>Evaporator heavy fraction condenser</i> | <i>Heat exchanger</i> |
| 4 | <i>heavy refinery streams collecting vessel</i> | <i>vessel</i> |
| 5 | <i>residue vessel for film evaporator</i> | <i>vessel</i> |
| 6 | <i>transfer pump for heavy refinery streams</i> | <i>Pump</i> |
| 7 | <i>residue transfer pump</i> | <i>Pump</i> |
| | | |
| | 1057-GOAL-P-PFD-1006/2 | |
| 1 | <i>Supply condensator-4</i> | <i>Heat exchanger</i> |
| 2 | <i>Supply condensator-5</i> | <i>Heat exchanger</i> |
| 3 | <i>circulation liquid cooler</i> | <i>Heat exchanger</i> |
| 4 | <i>liquid separator-4</i> | <i>vessel</i> |
| 5 | <i>liquid separator-5</i> | <i>vessel</i> |

ZONAL URBAN PLAN

Waste oil recycling plant

FIRST VERSION OF THE PLAN

| | | |
|----|---|-----------------------|
| 6 | <i>liquid separator-6</i> | <i>vessel</i> |
| 7 | <i>discharge separator</i> | <i>vessel</i> |
| 8 | <i>vacuum booster-2</i> | <i>Pump</i> |
| 9 | <i>vacuum booster-3</i> | <i>Pump</i> |
| 10 | <i>Vacuum pump for recovery of heavy refinery streams</i> | <i>Pump</i> |
| 11 | <i>liquid transfer pump - 4</i> | <i>Pump</i> |
| 12 | <i>liquid transfer pump - 5</i> | <i>Pump</i> |
| 13 | <i>liquid circulation pump</i> | <i>Pump</i> |
| | | |
| | 1057-GOAL-P-PFD-1007/01 | |
| 1 | <i>Film evaporator-2</i> | <i>Heat exchanger</i> |
| 2 | <i>Evaporator heavy fraction condenser-2</i> | <i>Heat exchanger</i> |
| 3 | <i>heavy refinery streams collecting vessel-2</i> | <i>vessel</i> |
| 4 | <i>heavy refinery streams collecting vessel-2</i> | <i>vessel</i> |
| 5 | <i>transfer pump for heavy refinery streams-2</i> | <i>Pump</i> |
| 6 | <i>residue transfer pump-2</i> | <i>Pump</i> |
| | | |
| | 1057-GOAL-P-PFD-1007/02 | |
| 1 | <i>Supply condensator-6</i> | <i>Heat exchanger</i> |
| 2 | <i>Supply condensator-7</i> | <i>Heat exchanger</i> |
| 3 | <i>circulation liquid cooler-3</i> | <i>Heat exchanger</i> |
| 4 | <i>liquid separator-7</i> | <i>vessel</i> |
| 5 | <i>liquid separator-8</i> | <i>vessel</i> |
| 6 | <i>liquid separator-9</i> | <i>vessel</i> |
| 7 | <i>discharge separator</i> | <i>vessel</i> |
| 8 | <i>vacuum booster-4</i> | <i>Pump</i> |
| 9 | <i>vacuum booster-5</i> | <i>Pump</i> |
| 10 | <i>Vacuum pump for recovery of heavy refinery streams-2</i> | <i>Pump</i> |
| 11 | <i>liquid transfer pump - 6</i> | <i>Pump</i> |
| 12 | <i>liquid transfer pump - 7</i> | <i>Pump</i> |
| 13 | <i>liquid circulation pump</i> | <i>Pump</i> |
| | | |
| | 1057-GOAL-P-PFD-1008/01 | |
| 1 | <i>Film evaporator-3</i> | <i>Heat exchanger</i> |
| 2 | <i>Evaporator heavy fraction condenser-3</i> | <i>Heat exchanger</i> |
| 3 | <i>heavy refinery streams collecting vessel-3</i> | <i>vessel</i> |
| 4 | <i>heavy refinery streams collecting vessel-3</i> | <i>vessel</i> |
| 5 | <i>transfer pump for heavy refinery streams-3</i> | <i>Pump</i> |
| 6 | <i>residue transfer pump-3</i> | <i>Pump</i> |
| | | |
| | 1057-GOAL-P-PFD-1008/02 | |
| 1 | <i>Supply condensator-8</i> | <i>Heat exchanger</i> |

ZONAL URBAN PLAN

Waste oil recycling plant

FIRST VERSION OF THE PLAN

| | | |
|----|---|-----------------------|
| 2 | <i>Supply condensator-9</i> | <i>Heat exchanger</i> |
| 3 | <i>circulation liquid cooler-4</i> | <i>Heat exchanger</i> |
| 4 | <i>liquid separator-10</i> | <i>vessel</i> |
| 5 | <i>liquid separator-11</i> | <i>vessel</i> |
| 6 | <i>liquid separator-12</i> | <i>vessel</i> |
| 7 | <i>discharge separator</i> | <i>vessel</i> |
| 8 | <i>vacuum booster-6</i> | <i>Pump</i> |
| 9 | <i>vacuum booster-7</i> | <i>Pump</i> |
| 10 | <i>Vacuum pump for recovery of heavy refinery streams-3</i> | <i>Pump</i> |
| 11 | <i>liquid transfer pump - 8</i> | <i>Pump</i> |
| 12 | <i>liquid transfer pump - 9</i> | <i>Pump</i> |
| 13 | <i>liquid circulation pump</i> | <i>Pump</i> |
| | | |
| | <i>1057-GOAL-P-PFD-1009/01</i> | |
| 1 | <i>Film evaporator-4</i> | <i>Heat exchanger</i> |
| 2 | <i>Evaporator heavy fraction condenser-4</i> | <i>Heat exchanger</i> |
| 3 | <i>heavy refinery streams collecting vessel-4</i> | <i>vessel</i> |
| 4 | <i>heavy refinery streams collecting vessel-4</i> | <i>vessel</i> |
| 5 | <i>transfer pump for heavy refinery streams-4</i> | <i>Pump</i> |
| 6 | <i>residue transfer pump-4</i> | <i>Pump</i> |
| | | |
| | <i>1057-GOAL-P-PFD-1009/02</i> | |
| 1 | <i>Supply condensator-10</i> | <i>Heat exchanger</i> |
| 2 | <i>Supply condensator-11</i> | <i>Heat exchanger</i> |
| 3 | <i>circulation liquid cooler-5</i> | <i>Heat exchanger</i> |
| 4 | <i>liquid separator-13</i> | <i>vessel</i> |
| 5 | <i>liquid separator-14</i> | <i>vessel</i> |
| 6 | <i>liquid separator-15</i> | <i>vessel</i> |
| 7 | <i>discharge separator</i> | <i>vessel</i> |
| 8 | <i>vacuum booster-8</i> | <i>Pump</i> |
| 9 | <i>vacuum booster-9</i> | <i>Pump</i> |
| 10 | <i>Vacuum pump for recovery of heavy refinery streams-4</i> | <i>Pump</i> |
| 11 | <i>liquid transfer pump - 10</i> | <i>Pump</i> |
| 12 | <i>liquid transfer pump - 11</i> | <i>Pump</i> |
| 13 | <i>liquid circulation pump</i> | <i>Pump</i> |
| | | |
| | <i>1057-GOAL-P-PFD-1010</i> | |
| 1 | <i>Pre-heater for stripping</i> | <i>Heat exchanger</i> |
| 2 | <i>oil separator</i> | <i>vessels</i> |
| 3 | <i>liquid fuel recovery vessel</i> | <i>vessels</i> |
| 4 | <i>waste water recovery vessel</i> | <i>vessels</i> |
| 5 | <i>Wastewater stripping column</i> | <i>Column</i> |

| | | |
|---|--|-----------------------|
| 6 | <i>liquid fuel transfer pump</i> | <i>Pump</i> |
| 7 | <i>wastewater intermediate transfer pump</i> | <i>Pump</i> |
| 8 | <i>wastewater transfer pump</i> | <i>Pump</i> |
| 9 | <i>wastewater cooler</i> | <i>Heat exchanger</i> |

3. Utilities:

a. Water supply

Water supply will be made from the public network of the municipality of Oltenita, network administered by SC Ecoaqua S.A.

b. Evacuation of wastewater

The domestic sewage together with the water resulting from the sanitation of the premises and the rinsing of the containers (from the laboratory) will be discharged through a R1 connection into the public sewerage system of SC ECOAQUA SA CALARASI SUCURSALA OLTENITA.

The domestic sewage resulting from the dish washing (from the canteen) will pass through a fat separator after being discharged together with sewage water and water used for sanitation of the premises into the public sewerage system.

c. Drainage of rainwater and process water resulting from the production process

The wastewater resulting from the gas stripping and oil dehydration will pass through a treatment plant before being discharged into the public sewerage system.

Once a year, the water used for cooling the plant will also be discharged. Before discharging into the public sewerage system, the wastewater will pass through the treatment plant.

Rainwater will pass through an oil separator and discharged into the public sewerage network through the R2 connection.

d. Electrical installations

Electrical installations of an investment will ensure power supply, regular and safety lighting installation, installation of low current and against accidental contact voltage protection and against lightning surges. The electricity will be provided by connecting it to the existing distribution network. In this regard we insert the favourable opinion of the site obtained from ENEL DISTRIBUTION DOBROGEA.

e. Natural gas supply

The natural gases will be supplied by connecting to the existing distribution network in the area, network managed by WIROM GAS SA. In this regard we insert the favourable opinion of the site obtained from WIROM GAS S.A.:

f. Fire fighting systems

For fire fighting will be ensured intangible water reserves, or if applicable the specific extinguishing agents (powder, foam). The extinguishing substances reserves will be ensured based on regulations in force, especially P118-2 / 2013. In this regard, the beneficiary will submit documentation for obtaining the ISU opinion for PUZ phase.

4. The local town planning regulation proposed

The maximum occupancy percentage of the land (POT) with buildings will be 60%, and the rest of the area will be used for green spaces and traffic, and the maximum height will be ground floor + 4 floors (P+4).

Compliance with the legal requirement for green spaces (minimum 26 square metres/user, according to the Government's Emergency Ordinance 114/2007 for amending and supplementing the Government's Emergency Ordinance 195/2005 on environmental protection) will be achieved through green areas on the lands without buildings in the enclosure studied. It will also provide to the local urban planning regulations the mandatory minimum planting of one tree on 100sqm of space free from construction.

IV. SOURCES OF POLLUTANTS AND PROTECTION OF ENVIRONMENT FACTORS

1. Water quality protection:

The water supply will be made of the public network of SC Ecoaqua S.A. CALARASI OLTENITA BRANCH through two connections.

The water in the public network will be used:

for hygiene and sanitary purposes by the employees of the company
technologically (steam generation, cooling facility (water which is recycled)
at the laboratory (for rinsing the containers used in the lab)
sanitation of the premises (toilets and canteen - kitchen)

for cooking and dish washing - a canteen is planned to be arranged only for the employees of the company

for providing the fire fighting equipment - a reservoir for water supply of the fire hydrants is provided, if necessary.

The plant will mainly use demineralized water. The necessary quantity of steam is very low, mainly for cleaning the equipment when stopping. The vacuum pumps do not require steam like conventional ejectors, using state-of-the-art technology.

The cooling will be provided by a recycled water system with water cooled in a cooling tower. Any leakage of oil products will not affect the groundwater as there is a closed circuit.

The following categories of wastewater will result on site:

sewage water

water used for sanitation of the premises

from dish washing

from the laboratory (from rinsing of containers)

from gas stripping

from oil dehydration

The water used within the plant will pass through a softening/demineralization facility before use.

The domestic sewage together with the water resulting from the sanitation of the premises and the rinsing of the containers (from the laboratory) will be discharged through a R1 connection into the public sewerage system of SC ECOAQUA SA CALARASI SUCURSALA OLTENITA.

The domestic sewage resulting from the dish washing (from the canteen) will pass through a fat separator after being discharged together with sewage water and water used for sanitation of the premises into the public sewerage system.

The wastewater resulting from the gas stripping and oil dehydration will pass through a treatment plant before being discharged into the public sewerage system.

Once a year, the water used for cooling the plant will also be discharged. Before discharging into the public sewerage system, the wastewater will pass through the treatment plant.

All liquid effluents will be treated in the wastewater treatment plant, which contains the separation of hydrocarbons, chemical and biological treatment.

Rainwater will pass through an oil separator and discharged into the public sewerage network through the R2 connection.

The distance from the first house will be approximately 1 km.

The site is located in a dammed area with a height of approximately 20 metres from the water level, so there is no risk of flooding of the area under review.

2. Protection of air quality:

There will be two sources of air pollution, namely the technological oven and the flare.

The plant will be equipped with a flare for incineration and dispersion of accidental gas emissions, as defined in the IPPC, the reference documents for the most advanced technologies in the field of mineral oil refineries.

The main effluent is hydrogen sulphide (H₂S) which will be produced in the hydrotreater. The quantity will be very small, below 24 Kg/h. This will be absorbed by the amine plant, and then will be sent to the burner of the furnace or flare. The use of MDEA amines is compatible with BAT.

The heat generated by the oven where hot oil is heated (medium heat) will be generated by 1,188 tonnes/year of gas produced in the hydrotreater, completed by 3,212 tonnes/year of natural gas.

The emissions will be as follows:

NO_x: (0.4kg/h) low NO_x burners (John Zink, ZEECO or equivalent).

CO: (0.3kg/h) low using modern burners.

- CO₂: (1000kg/h)
- SO₂: (35kg/h)

There is a programme of prevention and detection of gas leaks in the plant.

The pumps will be equipped with seals that prevent leakage

The valves will be equipped with seals that prevent losses

All safety valves will discharge to the flare system.

Compressors will be equipped with the most modern seals that prevent leaks.

The flanges within the hydrotreater will be RTJ, which are the safest in terms of leakage.

The tanks for light products will be equipped with breather valves (instead of atmospheric vents).

The valves of the tanks and the non-condensable gases will be sent to the flare.

Chemically impure water will be stripped for H₂S elimination, and then sent to the flare.

All burners will be NO_x reduced burners.

The reactors in the hydrotreater require the replacement of the catalyst every 6 months. These catalysts will not contaminate the environment, but will be sent to the original provider for regeneration and recycling.

3. Protection against noise and vibration:

Compliance with the noise level within the maximum acceptable values at the limit of the functional area, according to STAS 10009-88.

- Noise level at the limit of the functional area:
 - noise level equivalent Lech = 65 db (A)
 - value of noise curve Cz = 60 dB
 - Noise level inside the functional area:
 - noise level equivalent Lech = 70 db (A)
 - value of noise curve Cz = 65 dB
- avoiding as much as possible collisions, unnecessary impact in the operations: mechanical, loading - unloading of raw materials and materials etc.
- organization of the work schedule in such a way as not to overlap the noise-generating operations;
 - all noise-generating equipment are located in indoors and are fastened to the base in order to reduce noise and vibrations.

4. Protection against radiations

Pollution sources

The activity of the company does not involve the production or use of radioactive materials.

Environmental impact

Not applicable

Protection measures

Not required.

5. Protection of soil and subsoil:

Pollution of soil and subsoil occurs because of the removal of the soil layer for the constructions.

There are various materials located on the soil which affect its quality due to the debris and dust remaining after use.

Another source of soil pollution is the spills of petroleum products, solvents, primers and paints and other technological waste to which can be added household waste deposited uncontrollably.

Soil protection is achieved by recovering the soil and temporary storage in order to be used in the ecological rehabilitation process of the operating area.

Proper storage of materials on specially designed surfaces and recovery of unusable scrap are also ways to protect the quality of soil.

Spills of petroleum products can be avoided by the permanent control and operative repair of the occurring defects.

Protection measures

Preliminary storage of waste in containers located in appropriate spaces and protected from bad weather (rain, snow).

Handling and storage of raw materials should be made according to the applicable legislation, in specially designed spaces, preventing the pollution of soil and subsoil.

6. Protection of terrestrial and water ecosystems:

The site studied, according to Order M no. 776/2007 lies at a distance of about 7 m from the site of Community importance SPA EN 0038 - Danube - Oltenita.

The ROSPA0038 Danube-Oltenita site is located on the Danube between km 451 and km 430, in the southern part of Romania, in the floodplain of the Danube.

It includes both the section of the Danube between Greaca, Cascioarele, Oltenita and the agricultural land that is part of the dammed area Greaca-Arges-Chirnogi. The geographic coordinates are 26° 29' 4" East longitude 44° 3' 48" North latitude. It covers an area of 5,927 hectares. The average altitude of the territory is 15 m. Most of the area is located in Calarasi County, and only 5% is in Giurgiu County.

The purpose of the designation of the ROSPA0038 Danube-Oltenita Site is the conservation of the wild bird species existing in its area, the maintenance/restoration of the favourable conservation status of the bird species of Community interest and their specific habitats.

The Special Protection Area ROSPA0038 Danube-Oltenita - hereinafter referred to as Site ROSPA0038 Danube-Oltenita - is a protected natural area of Community interest - the category of special protection area under Directive 2009/147/EC of the European Parliament and of the Council of 2009 on the conservation of wild birds designated by the Government Decision no. 1284/2007, declaring special protection areas for bird fauna as an integral part of the European ecological network Natura 2000 in Romania, as amended and supplemented by the Government Decision no. 971/2011.

The proposed project site is not included in the community area of interest.

There are no habitats of Community interests on site. The characteristic habitat is of arable farmland and shrub vegetation.

Neither nests nor any other indications were observed in order to prove that on the land under survey there are any protected nesting species.

7. Protection of human settlements and other sites of public interest:

The activity should be developed according to economic criteria, based on a sustainable development plan to ensure protection of human settlements.

The plot of land proposed for investment is located outside the built-up area of the town, at a distance of over 770 meters from the first houses, so it is unlikely to affect the residential area because of the presence of the industrial constructions and current activities.

8. Management of waste generated on site

The waste resulted during the execution period will be generated mainly from the plant construction processes, but will be in small quantities given that the main raw material is ballast for construction which is a natural material without environmental impact.

Regarding the domestic waste, it will mainly consist of paper, bags/polyethylene foil, PET packaging, organic materials (food scraps) resulting from the operating staff.

The selective collection of the waste is required by following the procedures below:

- arranging a waste collection location, acquisition and provision of necessary logistics (machinery, equipment, bins of different sizes and colours for all categories of collected waste) and organization of the collection in a centralized system from the source.
- waste sorting
- standardization of the waste collection and transport systems by:
 - types of containers for waste and their location
 - waste collection containers
 - transport vehicles.

Waste will be collected in special containers. The waste disposal will be carried out at the nearest landfill by the contractor based on a firm contract with the manager of the warehouse.

In terms of containers, separate containers should be provided for each type of resulting waste. The size of the containers should be 1,100 litres, with vents and lids with locks to prevent going through them. Four or five containers of 1,100 litres each should be sufficient for recycling.

The containers should be placed carefully considering that they should be readily accessible both to people and to collection vehicles in any weather. The containers should be placed on a solid platform, with a three-sided edge, and access should be from the road so that the collection operators will also be able to move the containers towards the vehicles and stop the vehicles with the back near the containers.

The areas where the containers are placed should be kept clean (and ensure that the operators collect including the garbage that was thrown around them), illuminated and covered to prevent any rain, for instance.

In the operating period, the areas where the containers are placed should be kept clean (and ensure that the operators collect including the garbage that was thrown around them), illuminated and covered to prevent any rain, for instance. Separate bins should be placed for each type of waste: biodegradable (household), paper, plastic etc.)

For an easy identification, the bins will be labelled with the type of waste to be collected. This way the staff is informed about the method of disposal of the waste. Bins must comply with the colour code and be placed on a concrete platform in a waste collection centre.

Special, safe containers will be provided for hazardous waste which will be stored separately in a specially designed space. Liquid waste that contain hazardous substances will be collected in containers, secured with tray with sand bed under each container to prevent the soil pollution with hazardous substances.

All liquid effluents will be treated in the wastewater treatment plant, which contains the separation of hydrocarbons, chemical and biological treatment.

The reactors in the hydrotreater require the replacement of the catalyst every 6 months. These catalysts will not contaminate the environment, but will be sent to the original provider for regeneration and recycling.

9. Management of toxic and hazardous substances:

Activities that will involve the use of toxic and hazardous substances will be used within the company. All chemical products used will be acquired only from authorized providers for which a monthly register will be kept.

The operator will prove to the competent control authorities that it will take all measures, according to the Law no. 59/2016, to prevent any major accident hazards of major accidents in which hazardous substances are used.

Compliance with the legal standards concerning informing its own staff on the safety measures and actions required in case that a major accident occurs and informing the territorial civil protection authorities and territorial public authorities for environment protection in case of major accident with toxic and hazardous substances, according to the Law no. 59/2016.

Likewise, there is a requirement to appoint within the unit a person responsible for safety management, who will monitor and ensure the compliance with all obligations provided in the Law no. 59/2016.

The operator will have the obligation to inform the county environment protection agencies through the risk secretariat (SRAPM), in case that the following changes occur:

- significant increase in quantity or significant change in the nature or physical condition of the existing hazardous waste or the occurrence of any change in the processes in which this hazardous substance is used;
- final or temporary closing down of the facility or putting the facility in a conservation regime.
- change in the operator of the activity.

V. SITE IMPROVEMENT WORKS

Ecological reconstruction is the process of recreation or recovery of an ecosystem undergoing regression, which consists in restoring the structure and functions to the original form that they have previously had.

The lifespan of the investment is at least 49 years according to the concession contract concluded with Oltenita Town Council, with the possibility of extension thereof.

At the end of the operating period the beneficiary can choose one of the following alternatives:

Rehabilitation of facilities by removing and replacing worn equipment with new and latest generation ones;

Objective decommissioning;

Decommissioning works consist of:

- dismantling the installation;
- removal of the reinforced concrete foundations;
- recovery of metal and equipment;
- removal/disposal of all waste resulting from demolition;
- demolition of access roads (if the local authorities require it);
- rehabilitation of the soil by filling and levelling;
- rehabilitation of the topsoil with species existing in adjacent areas.

The works mentioned shall be subject to a decommissioning project and will be carried out in accordance with the requirements of relevant authorities, based on compliance with current regulations.

VI. ALTERNATIVES OF THE IMPLEMENTATION OF THE PLAN

Alternatives considered

- Zero alternative or maintaining the current situation
- Presented version

"ZERO" ALTERNATIVE OR "NO ACTION"

The "zero" alternative was considered to provide a reference against other alternatives for various elements of the project that is the subject to the PUZ analysed.

The main impacts associated with adopting "zero" alternative are:

- loss of major job opportunities;
- loss of investments made to date, resulting in loss of interest of the private investors, commercial banks and international financing institutions on future industrial development projects in the region and in Romania;
- loss of support for the development of a modern installation, consistent with the regulations in the field of reducing the amount of waste nationwide - recycling the used oil);

The most favourable situation for the area would be:

- dispose of solid economic opportunities and jobs;
- The environmental and social impact generated by the activity that will be developed and other major economic developments to be minimal;
- to have the capacity and technical resources necessary to remedy the occurrence of pollution.

To accomplish this (and prevent the negative social - economic impact generated by the failure to implement the project) requires a viable economic resource, capable of generating opportunities for jobs in significant numbers and sufficient income to enable solving environmental problems

In those below is presented a comparison of the forms of environmental impact corresponding to the "zero" alternative with the implementation of the project.

ALTERNATIVES REGARDING THE DEVELOPMENT OF THE PROJECT

The proposed version leads to the following advantages:

- the existing roads will be modernized;
- new jobs will be generated;
- expansion of the town water collection and water distribution network
- achieving of a sewage system that provides routing of the wastewater to the treatment plant;
- will develop the power supply network to ensure a high degree of reliability and quality exploitation;
- applying a modern and efficient waste management system;
- introduction of new sorting systems at source and selective collection of recyclable materials.

for this plan, the following has been considered

- ✓ Economic criteria (namely the efficiency). The proposed solution for P.U.Z. shows the best results in terms of cost, lower compared to other alternatives; similarly, the maintenance costs are lower.
- ✓ Social criteria (namely the social acceptability). The P.U.Z. proposals show the best results in terms of protection of the human factor; positive impact on the residents is significant.
- ✓ Environment criteria (namely the environmental sustainability). The P.U.Z. proposals show significant effects on biodiversity, which is developed in appropriate assessment study which was approved by the EPA Calarasi. It is true that at first glance is an act of courage to build a factory for recycling used oil in the vicinity of a Natura 2000 site, but monitoring done on the environment have shown that in the area there are no priority

habitats, so it does not destroy habitats, the species of the birds identified are not resident on the site, were observed only in passage, most processes will be closed circuit. The investment brings environmental benefits by creating a refinery that will reduce the amount of waste of used oil nationwide. Through a strict monitoring program or there will be no significant adverse environmental effects.

The proposals for the works designed from the P.U.Z. meet the technical norms in force. No other version of the design would have provided further environmental benefits compared with the chosen version.

The building materials will include simple materials generally used in such works. It is anticipated that traditional building materials and techniques will be used, although the final details depend on the manufacturer's technology. The technical solutions later proposed will have to take into account:

- the environmental conditions
- type and nature of the work,
- the possibility of using local materials,
- technical, functional usefulness, and the security of the proposed development,
- the facilities, the functional, geological, hydrogeological, hydrological, institutional characteristics of the area,
- the existing vicinities.

Through the specifications the manufacturer is recommended the use of modern equipment and machinery to comply with the technical requirements and the current European standards practiced in environmental protection. A recommendation will be made where the work spaces are limited to use mainly manual work to minimize the impact of the construction works.

VII. PROVISIONS FOR ENVIRONMENT MONITORING

Also in the operating phase of the plant, it is recommended to observe both the effects which the plant will have on the species of birds in transit over the site under review and whether the investment influences their conduct or density, and on a regular basis there will be requirements to control the level of emissions in air and water, and such measurements will be carried out by specialized and authorized units.

VIII. ANNEXES

- i. Development site plan – scale 1:50.000;**
- ii. Plan CURRENT SITUATION – scale 1:5.000;**
- iii. Plan regulations for zoning – scale 1: 2.000;**
- iv. Plan regulations for endowments - scale 1:5.000;**
- v. Topographical plan – scale 1:1.000.**

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