

CHAPTER 3

WASTES

Archaeological studies have shown that in times when resources are diminishing raw materials are becoming scarce, rubbish dumps of ancient cities containing potentially less waste, demonstrating therefore their recycling (tools, ceramics etc.). Such concerns about responsible management of natural resources and even recycling some materials are therefore emerging from the earliest times of humanity.

In pre-industrial eras, processing waste bronze and other precious metals was preceded in Europe by a targeted collection of wastes of such metal artifacts that were melted down for reuse, The process continued on some occasions repeatedly. Further more in some areas the dust and ash from coal or wood fires were reused for the production of basic material in the manufacture of bricks. The main reason for practicing materials recycling was the economic advantage, the accessibility to natural raw materials becoming smaller.

During wars there were the periods when recycling was the most intense. Nazi Germany was one of the countries where rationalization and recycling were adopted both during and in the pre-war period. In particular iron and other rare metals were recycled, but also textile fibers or bones for making soap.

Lack of resources caused by the two world wars and other events strongly encouraged recycling. Massive government campaigns have been promoted during the World War II in every country involved, urging citizens to donate metals and conserve fiber, as a reflection of patriotism. Resource conservation programs established during the war were continued afterwards in some countries that did not have significant resources, such as Japan.

Since 1970 there has been realized that waste is also a problem and methods of treating landfills or incineration were not satisfactory. Also, another issue was in relation to their components. United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro since 1992 have adopted policies that have been introduced worldwide. The next big investment in recycling occurred in the 70s due to increased cost of energy (recycling aluminum uses only 5% of the energy required for production de-novo, glass, paper and metals have also reduced consumption if recycled). Adoption of the 1977 US Clean Water Act has created a strong demand for white paper (office paper that has been bleached increased value then).

Waste of any kind resulting from human activity, is a matter of great substance nowadays, due both to continued growth in quantities and types thereof (by decay and infestation in the natural environment presents a danger to the environment and human health), as due to their possibility to generate important quantities of raw materials, reusable materials and energy that can be recovered and put into use.

European Union concerns were much older, the first Directives of the European Commission on the issue of waste dating from 1975.

According to GEO no.195 of 22 December 2005 on environmental protection, waste is defined as "any substance, fraction or object in the categories set by specific legislation on waste regime, which the holder discards or intends or is obliged to throw".

In general, waste represents the last stage in the life cycle (the time between the manufacturing date and the date when it becomes waste) of a product.

According to the same law cited above, waste recycled is considered that waste which can be raw material in a production process for obtaining the initial product or for other purposes while hazardous waste is represented by waste classified generically under specific arrangements waste in these types or categories of waste and at least one constituent or a property that makes it hazardous.

Currently the issue of waste management is manifested more acute because of the increasing quantity and diversity, as well as their negative impact, more pronounced on the environment. Landfilling ground without respecting minimum requirements, discharge into water courses and their uncontrolled burning raises major risks both for the environment and for health.

Therefore, European legislation transposed into national regulation imposed a new approach to waste issues, starting from the need to save natural resources, reduce management costs and finding effective solutions in the process of reducing the environmental impact product waste. Waste management includes all activities of collection, transport, treatment, recovery and disposal of waste, including the monitoring of such operations and monitoring landfills after their closure.

By H. G. nr.856 / 2002 for "Registration of waste management and approving the list of waste, including hazardous waste" is established mandatory for operators and for any other waste generators, natural or legal persons to keep records of waste management.

Thus, the holder of any investment is to keep a record of waste management based on the "List of waste, including hazardous waste" model shown in Annex 2 of H. G. nr.856 / 2002. The data gathered annually on waste management records are transmitted territorial public authorities for environmental protection at their request.

Producers and holders of waste, public authority defense, public order and national security are required to fit the codes set out in Annex. 2 to Government Decision no. 856/2002 for approving the list of waste management and waste, including hazardous waste, with additions, each type of waste generated by their activity, based on specific regulations for waste management.

For inclusion in Schedule. 2 of GD 856/2002, a individually waste, operators are obliged their 6-digit coding. Classified as hazardous waste - waste marked with an asterisk (*) - have one or more of the hazardous properties listed in Law 211/2011 on waste regime.

Regarding aspects of waste that can flow from BRUA, from the initiative of the Ministry of Environment and Forests become relevant several items related to the management of waste from construction and demolition, effective application of management measures thereof as provided for in the strategy and National Waste Management Plan as amended and supplemented.

Given that most of the activities related to project implementation stages BRUA are close to the building to meet the relevant legal provisions of waste management are to ensure:

- Classification responsibilities of stakeholders in the waste management system resulting from construction activities;
- National strategic objectives on separate collection of waste from construction activities;
- Compulsory existence of records on the waste resulting from construction activities (from producer recovery to eliminate them through storage, if applicable) so that there is a database of accurate, reflecting the reality of the current market and clearly showing the rate of collection and recovery of this category of waste;
- Development of facilities for the proper disposal of waste;
- Legislative and financial support for re-contaminated waste resulting from construction activities;
- Minimization and reuse of waste from construction activities, to the extent that they are not contaminated;
- Gathering at the site of generation, waste resulting from construction activities;
- Treat contaminated waste resulting from construction activities appropriate to recovery or disposal;
- Recovery and the material and / or energy waste from construction activities;
- Application of the "polluter pays" and producer responsibility through:
- Obligation to provide collection systems at waste;
- Inclusion in building permits in the regulatory procedure for public and private projects or for modification or expansion of existing activities, including decommissioning projects, the clear conditions on the disposal of waste from construction activities.
- Enforcement of such non-compliance;
- Nomination control bodies responsible for finding contraventions.

The implementation of this system will lead to minimizing the amount of waste arising from construction activities by ensuring an efficient separation at the place where, by exploiting this waste through reuse, to the extent that they are not contaminated by addressing incentives to reuse waste from construction activities, while limiting the production of natural raw materials.

3.1. Waste producing

Waste producing is the indicator that best illustrates the extent of the interaction between human activities and the environment. Waste generation is usually reflecting trends in consumption and production. For example, the producing of waste (quantity / capita) increases when living standards are increasing. Increasing economic output, and inefficient management of resources, is leading to the producing of large amounts of waste.

Awareness campaign which showed that the most effective form of waste is recycling held in Europe under the brand three Rs (Reduce, Reuse, Recycling, the French Reduce, Réutiliser, Recycler) since the early 90s. However we note that such initiatives in Romania have started long before, in the '80s, but the context was a very distinct, full of political elements attempting to combat capitalist consumerism and thus on a small extent targeting economic relevance. Furthermore, the action being imposed from above, encountered a certain resistance. Currently, actions aiming recycling are resumed, but successful steps (and economic relevance) taken and the possibility of sorting waste, which should be started right from the first phase through their selective collection and separation of recyclable materials such.

Waste produced as a result of the establishment and operation of the project are addressed separately on the two main stages, as follows:

- during construction
- operation period.

3.1.1. Producing of waste during construction

While performing construction and assembling processes there are specific construction wastes resulting. These wastes can be collected separately and removed by the care and responsibility of the contractors.

Waste that will be produced during the construction and installation will consist of building materials and household waste from the staff.

The following types of waste will be generated:

3.1.1.1. Non-hazardous waste

- 17 05 04 earth excavation (other than those specified in May 17, 03);
- 17 09 04 construction waste materials (including concrete batch discarded);
- 02 01 07 waste from forestry;
- 17 04 07 metal waste resulting from assembly operations of metal structures and installation of equipment;
- 17 02 01 wood waste;
- 12 01 13 welding wastes;
- 16 01 03 tires;
- 20 01 08 household domestic waste, arising from employees;
- Packaging waste (15 01 01 paper and cardboard, 15 01 02 plastics, 15 01 03 wood, glass 15 01 07);
- 20 01 01 paper and paperboard;

3.1.1.2. Hazardous Waste:

- 08 01 11 * packaging primers and paints
- 15 02 02* protective equipment worn; Fatty and oily waste (cloth impregnated with lubricants);

For the implementation phase of the construction works, how effective and consistent management of the waste generated in this stage will be considered:

- The inventory of the types and quantities of waste that will be produced, including their dangerous class;

- Evaluating opportunities to reduce the generation of solid waste, particularly hazardous or toxic waste types;
- Determining how to implement the measures and responsible waste management;
- Reuse as much as possible of the excavated material, overburden or tailings as filler material being stockpiled surplus (zones delimited)
- Separate collection and recovery through authorized companies with potentially usable materials (wood, metal, plastics, glass);
- Strict flow of hazardous waste (waste oils and lubricants, packaging of paints and varnishes), temporary storage of their safe and teaching for recovery or final disposal by licensed operators;
- Temporary storage of any waste on site in specially designed and equipped for this work, so as to reduce the risk of pollution of soil, subsoil and groundwater.

Outside wastes on the project, equipment and production bases will accumulate their activity specific waste such as tires, scrap of concrete and other construction materials, parts of damaged machinery.

Site activities and work sites will be monitored in terms of environmental protection, which will include mandatory monitoring waste management.

The work sites are provided with enclosures for waste cans and containers.

It is difficult to make a quantitative assessment of such wastes because the technologies adopted by entrepreneur priority in assessing the nature and quantity of waste. Entrepreneurs will be those who will be responsible waste management compliant.

3.1.2. The producing of waste in the operating phase

Regarding activities related technical and administrative areas within the compressor stations, their work is likened to the office from which will generate the following categories of waste:

- household waste;
- toners (cartridges) from printers and copiers;
- waste paper and paperboard;
- packaging waste and plastic containers;
- waste glass;
- scrap metal;

From operating activities in the period will give the following categories of waste:

3.1.2.1. Non-hazardous waste

- Technological waste such as: ferrous and non-ferrous operations resulting from repair and overhaul of equipment;
- Sludge resulting from cleaning operations of the sewerage network and treatment plants;
- Household domestic waste, arising from employee personnel (such as paper, plastic, glass, food waste, plant residues).

3.1.2.2. Dangerous waste

Among the categories of non-hazardous waste, therefore the maintenance and repair of pipelines and associated elements will result in the following categories of hazardous waste:

- Oily wastes and wastes of liquid fuels;
- Waste organic solvents, coolants and fuels;
- Technological waste by type of waste oils, welding electrodes, cloths soaked with solvents etc .;
- Waste electrical and electronic equipment;

If damage occurs to the gas pipeline, specific interventions repair actions are required, generating waste products similar to those during the execution, differing only the quantities of waste generated.

3.2. Waste management

The general principles of waste management are concentrated in the so-called "hierarchy of waste management". The main priorities are prevention of waste and reduce their harmfulness. When not be achieved nor any other waste should be reused, recycled or used as a source of energy (incineration). Ultimately, waste must be disposed of safely.

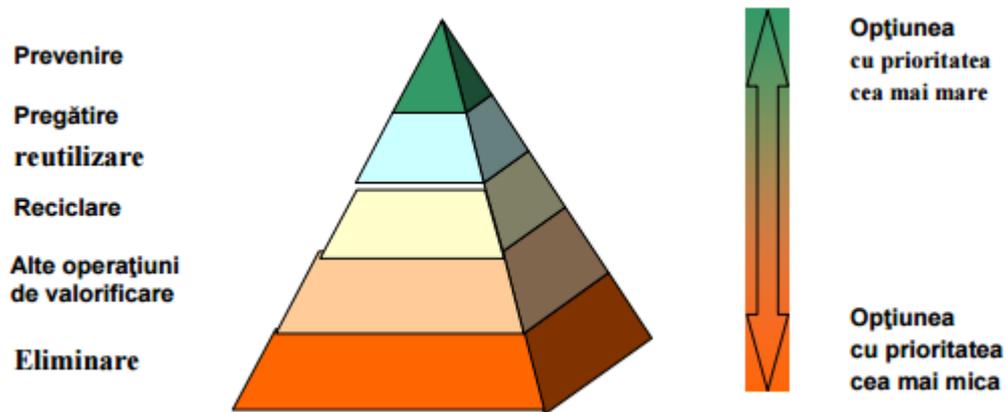


Fig.3.1. Waste management hierarchy ¹

Applying a sustainable waste management system involves major changes to current practices. Implementation of these changes will require the participation of all segments of society: individuals as consumers, businesses, social-economic and public authorities.

The concept of "waste management" refers to the operations to be carried out after the emergence of waste. Yet in a broader sense this concept refers to activities of prevention of waste generation and minimizing costs.

Each of the generators of waste streams will be separated to ensure that incompatible materials are not stored together and meet targets for recycling and reuse default. Waste storage containers will be arranged to ensure adequate access for transferring containers and in case of emergency. The waste generated off-site will be selectively collected for teaching establishments authorized in terms of environmental protection off-site for disposal will be collected at specific locations.

Depending on the content of dangerous and landfill acceptance criteria, these types of waste can be classified generic (conf. Ord. No.95 / 2005 on establishing acceptance criteria and preliminary procedures for the acceptance of waste at waste disposal and the national list accepted in each class of landfill) into three main categories:

- Non-hazardous waste - treated municipal waste and non-hazardous and technological waste;
- dangerous waste;
- Inert waste and non-hazardous construction and demolition waste.

3.2.1. Hazardous waste management

Regarding non-hazardous waste, they will be managed off-site specific waste streams could be reused as recycling and disposed of in landfills to approved landfills. Wherever possible, efforts will be made to minimize or eliminate waste streams and recycling or reuse of their material.

Selective waste collection will be done on the project site will be placed municipal waste containers for collecting them before being transported to the disposal facility by authorized companies. Other collection points could operate temporarily close the site organization, which is located in close proximity to pathways (DN, DJ, DC), so that logistical issues to be resolved efficiently. Recyclable waste will be arranged for a special area of optimum

¹http://www.anpm.ro/anpm_resources/migrated_content/uploads/48601_6%20Cap%206%20Managementul%20Deseurilor_2010.pdf

quantities of waste storage prior to dispatch their authorized firms. Purchase recycling services will be based on criteria of economic efficiency and in full compliance with legal requirements relating to public health and environmental protection.

Waste transport will be done by specialized companies authorized to transport hazardous waste to recycling or disposal facilities specific. Preliminary estimates suggest a waste stream more intense and therefore a transit intense of all types of hazardous waste during the construction phase and the operational phase waste stream will be relatively stable and low, comprising mostly volumes of waste municipal type.

Temporary storage will be the main option for the disposal of non-hazardous waste.

3.2.1.1. Non-hazardous waste management during construction

Following the transposition of European legislation on waste management in Romania was elaborated the National Strategy for Waste Management (SNGD), which aims to create the necessary framework for the development and implementation of an integrated waste management, efficient environmentally and economically.

Through the agreement signed with contractors of works will determine the responsibility of the parties regarding waste management.

Quantities of waste can be appreciated globally, after the lists of works quantities.

Some of these inert waste (from excavation, construction, etc.) will be used in earthworks, the fillings and for temporary works of roads, platforms, leveling and as inert material etc.

At the site as a whole will be organized management deșeurilor points, followed their selective collection (differentiated) to provide separate containers marked. Garbage will be collected in special containers being disposed of by authorized companies under a service contract.

For proper management will hold a separate management, monthly according to legal provisions, defining quantitative physical condition, coding, classification, etc.

A summary inventory is accompanied by a quantitative evaluation is summarized in the table below.

Table 3.1 Management of hazardous waste during construction

No. crt	Name waste	The amount expected to be generated	Physical condition	Waste code *)	Code on main hazardous property	Statistical classification code ***)	Waste management-amount expected to be generated		
							Harnessed	Eliminated	Left in stock
1.	Construction waste material, including concrete batch scrapped	Maximum 10 t/month Varies work carried out month	S	17 09 04	-		10 t/month	-	-
2.	Deșeuri de la sudură	0,1 t/month	S	12 01 13	-		0,1 t/month	-	-
3.	Waste from welding	0,5 t/month	S	17 04 07	-	06.26	0,5 t/month	-	-
4.	Wood waste (scrap carpentry, formwork)	80t	S	17 02 01	-	1533	80t	-	-
5.	Waste from forestry	Land clearing	S	02 01 07	-	1533	integral	-	-
6.	Packaging waste (paper, cardboard, plastic, metal, glass)	0,1t/month	S	15 01 01 15 01 02 15 01 04 15 01 07	-		Integral 0,1t/month	-	-
7.	Specific waste paper and office work	10 kg/month	S	20 01 01	-	3710	Integral 10 kg/month	-	-

No. crt	Name waste	The amount expected to be generated	Physical condition	Waste code *)	Code on main hazardous property	Statistical classification code ***)	Waste management-amount expected to be generated		
							Harnessed	Eliminated	Left in stock
8.	Household and similar waste	0,35 t/day	S	20 01 08	H9; H3-B; H13	5551 7470 7483 7511	Parțial 0,2 t/day	Parțial 0,15 t/day	-

* According to the list of wastes in Annex 2 of the GD 856/2002 for approving the list of waste management and waste, including hazardous waste.

** Law 211/2011 on waste regime, republished 2014. Law no. 211/2011, republished in 2014

*** Regulation (EC) no. 2150/2002 of the European Parliament and of the Council of 25 November 2002 on waste statistics (with Romania's accession to EU, EU regulations are directly applicable in Romania)

3.2.1.2. Non-hazardous waste management operating stage

Table 3.II Hazardous waste management during operation

No. crt	Name waste	The amount expected to be generated	Physical condition	Waste code *)	Code on main hazardous property	Statistical classification code ***)	Waste management amount expected to be generated		
							Harnessed	Eliminated	Left in stock
Waste stations									
1	Scrap metal	1 t/year	S	17 04 07			1 t/year		
2	Biodegradable waste resulting from the maintenance of green areas		S	20 02 01			-	Integral	-
3	Household or equivalent	10 kg/day	S	20 01 08	H9; H3.B	5551; 7470; 7483; 7511	-	10kg/day	-
4	Specific waste paper and office work	2 kg/month	S	17 04 07		3710	2 kg/month	-	-
5	Packaging waste (paper, cardboard, plastic, metal, glass)	5 kg/month	S	15 01 01 15 01 02 15 01 04 15 01 07		-	5 kg/month	-	-
Hazardous waste produced during revisions (amounts depend on the number of personnel involved, the duration revision etc.)									
6	Packaging waste (paper, cardboard, plastic, metal, glass)	50 kg/month	S	15 01 01 15 01 02 15 01 04 15 01 07			50 kg/month	-	-
7	Scrap metal		S	17 04 07			integral	-	-
9	Household or equivalent	10 kg/day	S	20 01 08	H9; H3.B	5551; 7470; 7483; 7511	-	10kg/day	-

* According to the list of wastes in Annex 2 of the GD 856/2002 for approving the list of waste management and waste, including hazardous waste.

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3.2.2. Hazardous waste management

Hazardous waste will be collected selectively for surrender to the garage as far as the environment. In all phases of the project will seek a consistent application technologies, so as to arrive at a possible reduction in volumes and quantities of hazardous deșuri.

In order to correct management of hazardous waste generated or managed a number of requirements must be met absolutely basic:

- Each category of hazardous waste will be stored separately, based on physical and chemical characteristics, and depending on compatibility and nature of extinguishing substances which may be used for each category in case of fire;
- Containers of hazardous waste will not be moved or transferred to the site only by qualified personnel using appropriate equipment and vehicles;
- Employees involved in waste management will benefit from regular training, specific to each product, covering general requirements for hazardous waste management;
- Contractors on site will have to meet the same standards for hazardous waste management or equivalent for all hazardous waste they generate;
- Will not be removed or incineration of hazardous waste on site.

Hazardous waste or hazardous materials will be collected selectively at the site organization will be handed over to third parties.

Specific requirements for the proper management of hazardous waste:

- Containers used for the collection and storage of hazardous waste generated on site must be compatible with the waste they contain;
- All containers and containers for temporary storage of hazardous waste should not be stored on the roads, traffic, pedestrian or any point that could affect emergency exits;
- Containers of hazardous waste will be properly marked and labeled or accompanied by specific documents according to the regulations on hazardous waste;
- Containers of hazardous waste will be kept safe, sealed;
- Containers and storage of hazardous waste containers shall be inspected periodically to ensure their tightness and that they are kept safe.

Waste management is approached differently on the two main stages of the project BRUA as follows:

- during construction
- operation period.

3.2.2.1. Management of hazardous waste during construction

For proper management will hold a separate management, monthly according to legal provisions, defining quantitative physical condition, coding, classification, etc.

A summary inventory is accompanied by a quantitative evaluation is summarized in table. 3.III.

Table 3.III Management of hazardous waste during construction

No. crt	Name waste	The amount expected to be generated	Physical condition	Waste code *)	Code on main hazardous property	Statistical Classification code (***)	Waste management amount expected to be generated		
							Harnessed	Eliminated	Left in stock
1.	Contaminated waste textile (cloth), protective equipment worn	30 kg/month	S	15 02 02*	H5		-	30 kg/month	-
2.	Packaging		S	15 01 10*	H4		-	Integral	-

No. crt	Name waste	The amount expected to be generated	Physical condition	Waste code *)	Code on main hazardous property	Statistical Classification code (***)	Waste management amount expected to be generated		
							Harnessed	Eliminated	Left in stock
	containing residues or contaminated with hazardous substances								

* According to the list of wastes in Annex 2 of the GD 856/2002 for approving the list of waste management and waste, including hazardous waste.

** Law 211/2011 on waste regime, republished 2014. Law no. 211/2011, republished in 2014

*** Regulation (EC) no. 2150/2002 of the European Parliament and of the Council of 25 November 2002 on waste statistics (with Romania's accession to EU, EU regulations are directly applicable in Romania)

3.2.2.2. Hazardous waste management operating stage

Table 3.IV Hazardous waste management during operation

No. crt	Name waste	The amount expected to be generated	Physical condition	Waste code *)	Code on main hazardous property	Statistical Classification code (***)	Waste management amount expected to be generated		
							Harnessed	Eliminated	Left in stock
Waste stations									
1	Oil sludge	0,2 m ³ /year	L	13 05 02*	H3-B		-	0,2 m ³ /year	-
Waste from periodic reviews									
2	Mineral-based chlorinated engine, gear and lubricating	100 l/month	L	13 02 04*			-	100 l/month	-
3	Oil filters	10 buc/year	S	16 01 07*	H5		-	10 buc/year	-
4	Fatty and oily solid waste (pads, oil filters) Absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by dangerous substances	100 kg/year	S	15 02 02*	H5		-	Integral	-
5	Waste electrical and electronic equipment	60 kg/month	S	16 02 14	-		Integral	0,06t/year	-

* According to the list of wastes in Annex 2 of the GD 856/2002 for approving the list of waste management and waste, including hazardous waste.

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*** Regulation (EC) no. 2150/2002 of the European Parliament and of the Council of 25 November 2002 on waste statistics (with Romania's accession to EU, EU regulations are directly applicable in Romania)

3.3. Removal of the waste management phase / decommissioning / closure / post closure

For industrial facilities studied were not foreseen deadlines running, they will be brought into operation indefinitely. They are expected retrofitting, maintenance and repairs in the future is expected to function in normal operating efficiency and increased yield for the next three decades.

Treating stage of dismantling / decommissioning a theoretical exercise at the current time, a coherent approach can be achieved only at a time, based on studies of solutions appropriate for the time in question.

Schematically, decommissioning stages (they are also the main sources of waste) will involve:

- Bringing the site team workers and equipment needed;
- Evacuation facilities and industrial elements removable from the surface;
- Maintenance and repair activities of existing equipment or made on site;
- Functional reconversion of buildings and / or demolition;
- Work to recover the main pipe (if necessary);

If the decision to close the project does not include repairing the pipeline, the waste products resulting from the activities will be the demolition of buildings and structures on the surface, as well as maintenance and repair of equipment, plus household and similar waste.

If it has adopted radical solution which recovers the main pipe that includes the demolition of surface facilities will give the following types of waste:

Non-hazardous waste

- Household and similar waste (paper, cardboard, plastic, glass, food waste and crop residues);
- Inert construction and demolition waste:
- Construction and demolition materials resulting from buildings (concrete, bricks, tiles and ceramics, wood, glass and plastics, scrap carpentry etc);
- Materials resulting from decommissioning access roads and associated structures (sand, gravel, asphalt, stone construction, pitch, tar substances, substances or hydraulic bituminous binders etc.);
- Excavated material during decommissioning activities, dredging (earth, stones, loose ballast, soil and plant debris, gravel, sand etc).
- Technological waste (metals and alloys, wood etc.).

Dangerous waste

- Oily wastes and wastes of liquid fuels (waste hydraulic oil, waste engine, gear and lubricating oils, gasoline and other fuels etc);
- Waste organic solvents, coolants and fuels;
- Waste water treatment for water supply (if necessary) and from wastewater treatment plants, sludge decanter
- Technological waste (oil filters, used oil, tires scrapped)
- Sanitary waste from the sanitary point of which will be equipped site organization.

3.4. Disposal and recycling

Waste disposal is addressed separately on the two main stages, as follows:

- during construction
- operation period.

3.4.1. Disposal and recycling of waste during the construction phase

During the execution of works main result is waste land to be excavated. Much of the resulting material will be used in the work of filling and covering the excavations.

Overburden (topsoil) will be temporarily stored at a separate sector, where amounts will be used for ecological restoration recopertare and perimeters.

Supply of raw materials and auxiliary materials during the execution of the work will be done so as not to create inventories, impairment which lead to the formation of waste. Waste storage areas will be clearly marked, labeled

and containers will be marked. Operations and waste management practices will be recorded in a special register, which will be made available at all times environmental authorities.

The general contractor is obliged to enter / maintain service contracts with companies authorized by public collection of various types of waste. Hazardous waste disposal is in compliance with all the measures imposed by legislation depending on the nature and properties of the waste, and can then be periodically removed only by authorized companies.

Observe the legal provisions in force in the field of waste and recommendations of best available techniques summarized in table. 3.V.

Table 3.V. Provisions relating to the disposal and recycling proposed in conjunction with the best practices available

Emplacement	Type waste	Mod collection / disposal	Observations
Site organization	Household or equivalent (Including scraps from cooking)	The enclosure will organize collection points set type container bin. They will be periodically emptied of cars sanitation.	It will keep records strict dates, quantities identifiers removed and means of transport.
	Scrap metal	Se vor colecta temporar în incintă, pe platforme și/sau în containere specializate sau zone delimitate. Vor fi valorificate în mod obligatoriu prin unități specializate de prestări servicii.	
Site organization	Scrap metal, electrical equipment and protection	As the generation will be transported premises organizations to be binding site recovered.	
	Waste materials	The emergence of this category of waste involves a specific approach. In terms of potential contaminant such waste poses no particular problem (mostly in scrap concrete).	
	Oil sludge	These wastes are generated with low frequency. In view of their hazardous (flammable and toxic to the body) is proposed collection in closed metallic containers (200 l drums sheet) to redeem the garage.	
	Waste oil	These wastes are generated with low frequency. Given their dangerous character (flammability and toxicity to organisms) will capitalize by specialized companies.	
	Wood waste	Collection of such waste will be carried out selectively, they will be valued according to size as accessories and supporting elements in construction works. Using cutting will be as combustible material - wood waste to the public	

Emplacement	Type waste	Mod collection / disposal	Observations
Site social organization s and offices	Specific waste paper and office work	The paper will be collected and stored separately from other waste in order to capitalize.	
	Electrical and electronic equipment, toners, printers, lighting	All waste electrical and electronic equipment will be used by authorized centers.	
	Waste plastics, glass.	Collection of such waste will be carried out selectively, they will be recovered	
	Household or equivalent	Will organize collection points set type container bin. They will be periodically emptied of cars sanitation.	

3.4.2. Disposal and recycling stage of operation

Waste management should be done without endangering human health and without harming the environment, in particular:

- a) without incurring risks to air, water, soil, plants or animals;
- b) without causing discomfort through noise or odors;
- c) without adversely affecting the countryside or places of special interest.

Law no.211 of 15 November 2011 on waste regime establishes the necessary measures to protect the environment and human health by preventing or reducing the adverse effects resulting from the generation and management of waste and by reducing overall impacts of resource use and improving the efficiency of their use.

The waste hierarchy applies prioritization in legislation and policy on prevention of generation and waste management, as follows:

- a) prevention;
- b) preparation for reuse;
- c) recycling;
- d) other recovery, eg energy recovery;
- e) disposal.

Applying the waste hierarchy referred to above is to encourage action on the prevention of the generation and management efficient and effective waste so as to reduce their negative effects on the environment.

In this regard, for specific waste streams specific application of the waste hierarchy might change the assessment on the type of life cycle analysis on the overall impacts of the generation and management of such waste.

According to the normative act mentioned above, recycling is defined as any recovery operation by which waste materials are reprocessed into products, materials or substances to fulfill their original function or for other purposes. It includes the reprocessing of organic material but does not include energy recovery and conversion for use as fuels or for backfilling operations. Capitalization is any transaction which is the principal result is waste serving a useful purpose by replacing other materials which would have been used in a particular purpose or waste being prepared to fulfill that in enterprises or in the wider economy. Removal can be defined as any transaction which is not a recovery operation, even if one secondary consequence the reclamation of substances or energy.

In accordance with the "polluter pays", costs of waste management shall be borne by the producer of the waste or, where appropriate, current or previous holder of the waste.

The best performance in terms of environment is usually related to installing the best technology and its operation in the most effective and efficient as possible. This is recognized by definition "techniques" emphasizes the idea mentioned earlier that "both the technology used and the way the facility / equipment are designed, constructed, maintained, operated and decommissioned".

Stage operating officer, waste from maintenance and repair, and waste resulting from activities related offices will be selectively collected, stored temporarily in areas household on concrete platforms in the vicinity of the points of greatest interest, where they will be taken in order to use / disposal by licensed operators.

Household domestic waste resulting from the activity of employees, which will operate under objective, must be disposed of in special containers imprinted concrete platforms located in the vicinity of objective analysis.

Eliminating waste and assimilated waste is made based on service contracts with processors.

Also capitalizing waste material through specialized units depending on the category of waste.

The main objective of waste policy is to prevent their occurrence. It is also the top priority in the hierarchy of waste issues contained in the Waste Framework Directive.

Prevention and minimization of waste must be carried from the building design phase and continuing with purchase of materials and actual construction through measures such as:

- Avoiding execution solutions involving the use of a greater amount of feedstock and requiring more time for execution;
- Accurate calculation of the necessary materials;
- Choice execution solutions that involve the use of recycled or recovered;
- The use of raw materials and technology "environmentally friendly";
- Choice of controlled processes to enable the recovery and the recovery of some materials, such as wood, stone etc;
- Adopt policies to the return of packaging material suppliers - this will benefit both the construction company and suppliers;
- Storage and careful handling of materials on site.

3.4.2.1. Minimum measures of conduct to be respected

In implementing and operating the project, the minimum measures of conduct that must be followed are:

- Using low impact techniques for solid waste disposal;
- Storage of waste in a safe and suitable, that does not affect the environment.
- Development of activities in the area must respect the natural, physical and social character and capacity of the environment in which they operate.

Both during the execution of construction works and during the use of the recipient and the general contractor are required to manage and / or store waste from activities performed, respecting the laws in force:

3.4.2.2. Regulatory acts undertaken by the project owner

In implementing and operating the project, the relevant legislation will be respected is shown below:

- Law no.211 of 15 November 2011 on waste regime, republished in 2014;
- H. G. no. 349/2005 on waste (Official Gazette no. 394 of 10 May 2005), by GD no. 210 / 28.02.2007 amending and supplementing certain acts transposing the acquis communautaire in the field of environmental protection;
- H. G. 621/2005 on the management of packaging and packaging waste, as amended and supplemented
- H.G no. 235/2007 on the management of waste oils
- GD. 1132/2008 on batteries and accumulators and waste batteries and accumulators
- Government Emergency Ordinance no. 5/2015 on waste and electrical and electronic equipment
- Order no. 757/2004 for the approval of Technical Norms on landfill of waste (Official Gazette no. 86 dated 26 January 2005) as amended by Order no. 1230 of 30 November 2005 amending the Annex to the Order of the Minister of Environment and Water Management no. 757/2004 for the approval of Technical Norms on landfill of waste (Official Gazette no. 1101 of 7 December 2005);
- Order no. 95/2005 establishing acceptance criteria and preliminary procedures for the acceptance of waste storage and the national list of waste accepted in each class of landfill (Official Gazette no. 194 of 8 March 2005);
- Law 249/2015 on the management of packaging and packaging waste;

- Order no. 794 6 February 2012 on the procedure for reporting data on packaging and packaging waste (Official Gazette No. 130 of 23 February 2012);
- Order no. 1281/1121/2005 establishing detailed identification of containers for different types of materials for the purposes of selective collection (Official Gazette no. 51 dated 19 January 2006);
- GD. 173/2000 regulating the special regime for the management and control of polychlorinated biphenyls and other similar compounds, as amended and supplemented (text updated legislative information by product based LEX EXPERT amending normative acts, published in the Official Gazette of Romania, Part I, until 30 august 2007: Government Decision no. 291/2005; Government Decision no. 210/2007; Government Decision no. 975/2007);
- GD. 856/2002 for waste management and approving the list of wastes, including hazardous waste (Official Gazette no. 659 of September 5, 2002) modified by GD no. 210/2007 amending and supplementing certain acts transposing the acquis communautaire in the field of environmental protection (Official Gazette no. 187 of 19 March 2007)
- Government Decision 1168/2013 for amending GD 788/2007 establishing measures for the implementation of European Parliament and of the Council (EC) no. 1.013 / 2006 on the transfer of waste. Decision 1168/2013 (Official Gazette, Part I, No. 19 of 11 January 2014);
- GD. 1061 / 10.09.2008 transport hazardous and non-hazardous waste in Romania (Official Gazette no. 672 / 30.09.2008);
- Joint Order no. 344/708/2004 approving the technical norms on environmental protection and in particular of the soil, when sewage sludge is used in agriculture (Official Gazette no. 959 of 19 October 2004)
- Joint Order no. 1223/715/2005 of EWM and MEC on the procedure for registration of producers, how recording and reporting of data on electrical and electronic equipment and waste electrical and electronic equipment, with subsequent modifications and a full;
- Order no. 1399/20132/2009 of MM and ME approving the procedure on how to record and report data on batteries and accumulators and waste batteries and accumulators.

3.5. The potential impact of product waste and measures to reduce it

To assess the impact of waste on the environment and on local communities both during the execution of the works and on the operation of natural gas pipeline and decommissioning, it followed an algorithm analytically that appealed to a table rating severity of impact:

Table 3.VI. Table severity of the impact assessment associated waste produced at the project level

Impact severity	Receptors						Probability of occurrence				
	Air	Water	Soil	Flora and fauna	Resources	Population	A Unexpected but predictable	B Rare	C Possible	D Expected	E Expected and repeatable
0	No effect						Green	Green	Green	Green	Green
1	Diminished effect						Green	Green	Green	Green	Green
2	Diminished						Green	Green	Green	Yellow	Yellow
3	Medium						Green	Green	Yellow	Yellow	Red
4	Big						Green	Yellow	Yellow	Red	Red
5	Very big						Yellow	Yellow	Red	Red	Red

, note the color codes used:

- Green - limited level of impact;

- Yellow - neutral impact;
- Red - severe impact

To reduce the impact of the proposed measures are generally available to management as follows:

Rules of conduct

- Compliance strategy, plans and waste management rules within each objective and to all staff;
- Compliance procedures to reduce the volumes of waste;
- Selective waste;
- Recycling;

Equipment and logistics

- Creation of points household type cages that do not allow penetration of fauna and provide them with suitable waste storage type containers sealed, weatherproof. The bins for the storage of waste containing products (residues) food will be provided with safety lids opening.
- Provide transport as waste at the sites for storage areas / processing. In this regard will be perfect third contracts with companies that have adequate facilities and infrastructure in this regard.

Remedies

- Perimeters which will be held at the collection points will be carefully restored in ecologically.

The potential impact of waste situation shown in Tables. 3.VII. and 3.VIII for each step.

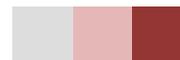
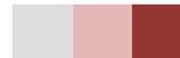
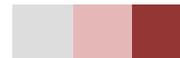


Table 3.VII The impact of waste generated during the project implementation

ACTIVITY / SOURCE	IMPACT	RECEPTOR						REDUCTION MEASURES TO COMBAT AND PREVENT	RESIDUAL IMPACT and RISK	RECEIVER					
		AIR	WATER	SOL	FLORA AND FAUNA	RESOURCES	COMMUNITY			AIR	WATER	SOL	FLORA AND FAUNA	RESOURCES	COMMUNITY
Production, collection, temporary storage and disposal of waste during construction at the site organization and deposits pipe	<p>It is known that improper waste management, with a high content of food waste is able to attract fauna.</p> <p>Uncontrolled disposal of waste can lead to direct damage to fauna and indirect damage (increased soil toxicity) for plant species, subsequently reaching toxic levels go through the entire food chain, with final damage potential of the human population.</p> <p>Imbalance in favor of natural balances and opportunistic species of predatory species may generate conflicts with local populations or affect domestic livestock and / or increased pressure on prey species.</p> <p>Episodes appear punctually and generating odors.</p> <p>In the absence of selective collection, the additional costs arising from management.</p>	C2	E2	E3	E3	E4	E1	<p>Proper management of waste, their selective collection, installation of containers (bins, bins) suitable for each kind of food will provide sized metallic containers, safety-lid opening. Household where points will be placed bins will be placed in mesh cages to prevent access to waste fauna.</p> <p>It would entail contracting sanitation services to specialized companies that have taken over the necessary logistics, transport and waste management fair.</p> <p>Containers will be labeled as.</p> <p>It will seek reducing waste volumes through their primary compacting, crushing, flattening, etc.</p> <p>It will keep a record of waste management for each establishment HG 856/2002.</p> <p>Complete statements shall be prepared in relation to the transfer of waste in accordance with GD. 1061/2008. The cases will be centralized at failed or the entire project.</p> <p>It will establish appropriate management plans and measures the waste into categories.</p> <p>The focus will be on solutions for</p>	<p>Riscurile de toxicitate datorate impactului rezidual, rămân asociate doar eventualelor locuri de depozitare a unor deșeuri periculoase.</p> <p>Persistența unor mirosuri pot atrage unele specii de faună</p>	E0	E0	E0	E2	E2	E0



								<p>recycling of waste and judicious use of materials and raw materials. It is essential to observe the waste disposal program, ensuring periodicity adapted volumes generated.</p> <p>It will take a coherent program for training the personnel involved in the operation aims to ensure a high level of accountability and risk awareness and in terms of individual ownership of specific tasks.</p>							
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Tabelul 3.VIII. Impactul produs de deșeurile generate în perioada de implementare a proiectului

ACTIVITY / SOURCE	IMPACT	RECEPTOR						REDUCTION MEASURES TO COMBAT AND PREVENT	RESIDUAL IMPACT and RISK	RECEIVER					
		AIR	WATER	SOL	FLORA AND FAUNA	RESOURCES	COMMUNITY			AIR	APA	SOL	FLORA AND FAUNA	RESOURCES	COMMUNITY
Production, collection, temporary storage and disposal of waste in the period running from the SC	<p>Uncontrolled disposal of waste can lead to direct damage to fauna and indirect damage (increased soil toxicity) for plant species, subsequently reaching toxic levels go through the entire food chain, with final damage potential of the human population.</p> <p>Imbalance in favor of natural balances and opportunistic species of predatory species may generate conflicts with local populations or affect domestic livestock and / or increased pressure on prey species. Episodes appear punctually and generating odors. In the absence of selective collection, the additional costs arising from management.</p>	E1	E2	E3	E3	E4	E1	<p>Proper management of waste selective collection, organization of appropriate collection points, equipped with bins for each type of waste. It would entail contracting sanitation services to specialized companies that have taken over the necessary logistics, transport and waste management fair. Containers will be labeled as. It will seek reducing waste volumes through their primary compacting, crushing, flattening, etc. It will keep a record of waste management for each establishment HG 856/2002. Complete statements shall be prepared in relation to the transfer of waste in accordance with GD. 1061/2008. It will establish appropriate management plans and measures the waste into categories. It will take a coherent program for training the personnel involved in the operation aims to ensure a high level of accountability and risk awareness and in terms of individual ownership of specific tasks.</p>	<p>Production waste the need to package and carry waste (some of these dangerous). Storage of Hazardous conditions safety. The use of limited space ecological landfill Animal attraction</p>	E0	E0	E0	E2	E2	E0

3.6. Waste management plan

Waste management, education refers to the collection, transportation, treatment, recycling and disposal. Waste management aims and saving natural resources by reusing of returnable.

In Romania waste management activity is based on Law 211/2011, which implements a series of directives of the Council of Europe. Coordination of this activity is the responsibility of the Ministry of Environment and the National Environment Protection Agency (NEPA).

National policy on waste management must underwrite European policy objectives in terms of waste prevention and aim to reduce resource consumption and practical application of the waste hierarchy. The principle of preventive action is one of the principles underpinning the Government Emergency Ordinance no.195 / 2005 on environmental protection, as amended and supplemented, and Directive 2008/98 / EC on waste, transposed into national law by Law no.211 / 2011 on waste regime, presents the waste hierarchy which "applies as a priority order in legislation and policy on prevention of generation and waste management, as follows: prevention, preparation for reuse, recycling, other operations recovery, eg energy recovery and disposal".

Waste management includes all activities of collection, transport, treatment, recovery and disposal of waste. Organization of waste production's obligation.

The EU approach to waste management is based on three main principles:

- Waste Prevention - factor considered to be extremely important in any strategy for waste management, directly related both to improved production methods and the determination of consumers to modify their application on products (orientation towards green products) and to address a lifestyle that generate low waste;
- Recycling and reuse - where waste is generated, encouraging a high level of material recovery components, preferably by recycling material. In this respect identified several waste streams for recycling material which is Priority packaging waste, end of life vehicles, waste batteries, waste electrical and electronic equipment;
- Improving final disposal of waste and monitoring - where waste can not be recovered, they must be disposed of in a safe environment and human health, with strict monitoring program.

The main objective of waste policy is to prevent their occurrence. This is also the main priority in the hierarchy of waste issues contained in the Waste Framework Directive.

Prevention and minimization of waste must be carried from the building design phase and continuing with purchase of materials and actual construction through measures such as:

- Avoiding execution solutions involving the use of a greater amount of feedstock and requiring more time for execution;
- Calculate more accurate material requirements;
- Choice of runtime solutions that involve the use of recycled or recovered;
- Use of raw materials and technology "environmentally friendly";
- Choice of control methods to enable the recovery and exploitation of construction material, such as wood, stone etc;
- Adopting policies to the return of packaging material suppliers - this will benefit both the construction company and suppliers;
- Storage and careful handling of materials.

The EU framework on waste management is vast and complex, but when it was transposed into Romanian legislation foreseen transitional period to achieve the results required in terms of waste management.

Romanian legislation on waste, harmonized with the European Union has had a positive impact in recent years, but need further efforts to ensure compliance with European standards and achieving a total quality management of waste in theory at a level as practical.

3.6.1. Waste management in the design phase

In the design phase, to fulfill one of the priorities is related to the principles underlying waste management activities outlined in the National Waste Management Strategy and Community legislation and the inclusion of the principles of project elements. Thus, the design work will be done taking into account the need to reduce the quantities of waste produced during the works.

Both in the construction camp and associated stations will design special purpose temporary storage platforms and selective waste collection containers labeled.

3.6.2. Waste management in active phases of the project (construction / operation / decommissioning)

The theoretical principles contained in the elements of design are put into practice and adopted at each stage of the project.

The main objective of waste policy is to prevent their occurrence. It is also the top priority in the hierarchy of waste issues contained in the Waste Framework Directive.

The principle of preventive action is one of the principles underpinning the Government Emergency Ordinance no.195 / 2005 on environmental protection, as amended and supplemented, and Directive 2008/98 / EC on waste, transposed into national law by Law no.211 / 2011 on waste regime, presents the waste hierarchy which shall apply as a priority order in legislation and policy on prevention of generation and waste management.

Based on this legislation, waste produced during performance / operation / shutdown after termination of the life of the project will be selectively collected, transported and deposited at landfill to recovery, neutralization or elimination.

Waste management includes all activities of collection, transport, treatment, recovery and disposal of waste. Organization of waste production's obligation. According to GEO no.195 / 2005 on environmental protection, "legal persons performing activities with significant environmental impacts are required to organize their own structure for environmental protection."

Effective waste management is based on three principles: waste prevention, recycling and reuse and improving final disposal of waste and monitoring.

Thus, to achieve a better management of waste will be taken the following measures:

- Selective waste collection will be done in specific containers properly labeled;
- Metal containers for storage of waste oils will be marked accordingly (with type code used oil) and will be placed on concrete surfaces, fenced;
- Waste should not be stored near watercourses or areas of protection;
- Both within the construction camp and associated stations will be established with clearly defined destination areas controlled storage and safe disposal of waste;
- For household and similar waste will be landscaped spaces intended for temporary storage and will conclude contracts with sanitation unit in the town nearest to eliminate these types of waste;
- Inert waste will be recycled from the excavations in the pipeline or coating work will be used for temporary works of roads, platforms etc.
- Both during the construction and operational phases in any metal debris will be stored in special places in this respect, taking into consideration making their regular units under contract specializate default;
- Oils from electrical transformers will be managed by the electricity company that has transformer management;
- According to GD nr.856 / 2002 on evidence of waste management, will keep records of waste management by completing monthly records of waste management, the types of waste identified the model in Annex 1 of this law;
- According to GD # 621/2005 on the management of packaging, recycling and recovery of packaging waste, packaging waste recoverable will be returned to suppliers to recovery, recycling or elimination;
- Transportation of waste for recovery / final disposal will be carried out on the basis of documentation prepared for the transfer of waste, according to GD nr.1061 / 2008;

Hazardous waste management plan produced during the site, including their demobilization is shown in the table below:

Table 3.IX Proposing a waste management plan for the project BRUA

Type waste	Origin	Mod collection / treatment / disposal / storage final	Responsibilities	Resources
1	2	3	4	5
Specific waste paper and office work	Activities record keeping, correspondence, supervision and site supervision, correspondence and records during operation.	They will be collected and stored separately, in order to exploit the licensed operators.	It will keep record of the quantities removed	Financial resources necessary to: For large quantities - purchase shredder plant
Household or equivalent	Personnel will carry out inside the site organization in warehouses pipe and the fronts of work (during construction and decommissioning); personnel associated with the project objectives serves BRUA - SC, valves (operating phase).	Selectively collected recyclable fractions are taught licensed operators - R4. The mixed fractions are removed by sanitation services of towns in the area - D1 Will organize collection points provided with bins type containers. Periodically will be raised by authorized operators and transported to landfills or transfer stations of localities.	It will keep strict records on dates, quantities identifiers removed and means of transport	Financial resources necessary to: - Concluded contracts with authorized
Packaging waste (paper, cardboard, plastic, metal, glass)	The supply	They will be collected and stored selectively, in order to exploit the licensed operators - R5.	It will keep record of the quantities removed	Financial resources necessary to: - Purchase installation of pressed cans, plastic bottles -încheiere contract with licensed operator
Scrap metal	From activities concerning: - Maintenance of equipment, - Building demolition - Pipelining	They will be collected and stored temporarily in the technological premises. Necessarily will be used in specialized units - R4	It will keep records of the quantities recovered	Financial resources necessary to: - Concluded contracts with authorized
Waste wood, wood packaging, pallets	Support activities to the shore, packaging, casings, various carpentry works	They will be selected, and the material used to support banks excavation is still in use on another sector. The remaining waste will be disposed of by size as accessories and supporting elements in construction - . Also, depending on their quality, will be	It will keep records of the quantities recovered	

		valued as firewood for the local population - R1. The pallets will be returned to the vendor.		
Waste from excavation (topsoil and cover material)	Pipe trench excavation, foundations, building access roads, land systematization	No hazardous waste The topsoil will be stored so that it can be reused. The remaining inert debris will be transported to existing land where the backfilling and subsequently ensure ecological restoration - R10. Alternatively, the residue may be used as a coating material in landfill waste (municipal) to reduce emissions in the atmosphere and prevent pests from D1 waste-		Resurse financiare necesare pentru transport
Sawdust and small wood material (biodegradable) stumps	Land clearing	Depending on the quality of the wood small, it will be capitalized: - As firewood for the local population R1 - Or be stored -D1. Sawdust and small wood material are biodegradable waste will be composted and to increase volumes of organic matter in soils to be used for recopertare Waste which comes from deforestation areas with conifer forests are placed in stacks with anti-erosion role -D1 The sawdust will be spread evenly on the soil or composted - R1.	Sawdust will not be stored on riverbanks	

Management plan of hazardous waste produced during the construction site, including demobilization and decommissioning / closure.

Type waste	Who / what generated waste	Mod collection / treatment / disposal / storage final ¹⁵	Responsibilities	Resurse
1	2	3	4	5
Sludge collected from rain water clarifiers polders	Washings platform site organization	Periodically will be transported safely to a landfill indicated by the mayor, with the consent of the administrator - D1	It will keep record of the quantities removed	Financial resources necessary for - concluded contracts with authorized
Waste oil	Waste engine oil, transmission and lubrication from oil changes performed on vehicles and equipment	They will be collected on the types of metal marked with the type of oil that will be stored in designated area for interim storage of waste. The area will be fenced and locked. Waste oil will be taken periodically to order or contract companies authorized for collection and processing - R9, or final will be disposed by incineration in a licensed incinerator - R1, if exploitation is not possible	Oil change will be made in facilities It will keep strict records on dates, quantities identifiers removed and means of transport	Financial resources necessary for - concluded contracts with authorized
Oil filters	From vehicles and equipment	They will be collected in metal containers placed in the designated area. These wastes will be disposed of by incineration possibly by authorized companies, if exploitation is not possible -R1	It will keep strict records on dates, quantities identifiers removed and means of transport	Financial resources necessary for - concluded contracts with authorized
Oil sludge	The terminals inside the construction camp	Collection in metallic containers sealed and handed over to specialized units to their recovery through recycling - R9	Records will be kept of the quantities recovered in accordance with HG 235/2007	Financial resources necessary for - concluded contracts with authorized
Textile waste contaminated by petroleum products (cloth)	Duct cleaning	They will be collected in metal containers placed in the designated area. These wastes will be disposed of by incineration possibly by firms autorizate- R1		Financial resources necessary for - concluded contracts with authorized
Packing primers and paints	Priming and painting activities	Will be collected and stored separately in order to use by or will be eliminated by eventual incineration companies autorizate- R1	It will keep record of the quantities removed	Financial resources necessary for - concluded contracts with authorized

Hazardous waste management plan produced during the operation of the gas pipeline and compression stations is summarized in table. 3.X.

Table 3.X Proposal Management Plan hazardous waste produced during the operation of BRUA

Emplacement	Type waste	Who / what generated waste	Mod collection / treatment / disposal / storage final	Responsibilities	Resources
0	1	2	3	4	5
SCG	Household or equivalent (vegetable waste, etc.)	Personnel will carry out maintenance inside the station station site	Will organize collection points provided with bins type containers. Recyclable parts are selectively collected and handed over licensed operators. The mixed fractions are removed by sanitation services of towns in the area that will carry them safely to landfills or transfer stations of localities -D1 The amount depends on the number of personnel or green areas of the station	It will keep strict records on dates, quantities identifiers removed and means of transport.	Financial resources necessary for - concluded contracts with authorized
	Specific waste paper and office work	Activities record keeping and supervision	They will be collected and stored separately, in order to exploit the licensed operators - R5.	It will keep record of the quantities removed	
	Scrap metal	Results of the maintenance station	They will be collected and temporarily stored inside on concrete platforms. Necessarily will be used in specialized units - R4	It will keep strict records on dates, quantities identifiers removed and means of transport	Financial resources necessary for - concluded contracts with authorized
Location pipeline - only if interventions or retrofitting (breakage or corrosion)	Waste from excavation (topsoil and discovered material) in case of repair	Stripping pipe	Store to cover the pipe. Particular attention will be paid to the vegetation		Financial resources needed for transport
	Scrap metal	Results of activity - Periodic inspections during the operation - Interventions during the operation	They will be collected and stored temporarily in the premises, platforms and / or specialized containers. Necessarily will be used in specialized units - R4	It will keep strict records on dates, quantities identifiers removed and means of transport	Financial resources necessary for - concluded contracts with authorized

Management of hazardous waste plan Produced During the operation of the pipeline and related stations.

Emplacement	Type waste	Who / what generated waste	Mod collection / treatment / disposal / storage final	Responsibilities	Resources
0	1	2	3	4	5
SCG	Waste from electrical and electronic equipment	Electrical and electronic equipment	They will be collected and stored separately, in order to exploit	It will keep record of the quantities removed	Financial resources necessary for - concluded contracts with authorized
	Hydraulic oil	Results of the maintenance facility	They will be collected on the types of metal marked with the type of oil that will be stored in designated area for interim storage of waste. The area will be fenced and locked. Waste oil will be taken periodically to order or contract companies authorized for collection and processing - R9, or final will be disposed by incineration in a licensed incinerator - R1, if exploitation is not possible	It will keep record of the quantities removed	Financial resources necessary for - concluded contracts with authorized
	Transformer oil	Results of the maintenance of electrical transformers	Will be collected and stored separately, in order to exploit - R1	Electric transformer administrator will keep records of the quantities removed	Financial resources necessary for - concluded contracts with authorized
	Oils, oil filters	Resulting from the operation of the equipment from the SC	Will be collected and stored separately, in order to exploit - R1	SC Administrator	Financial resources necessary for - concluded contracts with authorized
	Absorbers (filter materials, protective clothing)	Results of the maintenance and operation of SC	They will be collected and stored separately, in order to exploit	It will keep record of the quantities removed	Financial resources necessary for - concluded contracts with authorized
	Oil sludge	Results of the maintenance / cleaning of the pipeline BRUA	They will be collected and stored separately, in order to exploit	It will keep record of the quantities removed	Financial resources necessary for - concluded

Emplacement	Type waste	Who / what generated waste	Mod collection / treatment / disposal / storage final	Responsibilities	Resources
0	1	2	3	4	5
					contracts with authorized
	Toners (cartridges) from printers and copiers	Resulting from the operation of the SC	They will be collected and stored separately, in order to exploit	It will keep record of the quantities removed	Financial resources necessary for - concluded contracts with authorized

Emplacement	Type waste	Who / what generated waste	Mod collection / treatment / disposal / storage final	Responsibilities	Resources
0	1	2	3	4	5
Location pipeline	Packing primers and paints	Priming and painting activities	They will be collected and stored separately, in order to exploit the suppliers	It will keep record of the quantities removed	Financial resources necessary for - concluded contracts with authorized
	The resulting sludge from the cleaning action of the pipeline (godevilare)	Duct cleaning	They will be collected in containers and disposed of by licensed operators	It will keep record of the quantities removed	Financial resources necessary for - concluded contracts with authorized
	Absorbents, filter materials (including oil filters), towels, protective clothing contaminated by dangerous substances	Maintenance	They will be collected in metal containers placed in the designated area. These wastes will be disposed of by incineration possibly by firms autorizate- R1	These wastes will be disposed of by incineration by authorized companies	Financial resources necessary for - concluded contracts with authorized

Hazardous waste management plan produced after completing the operation of the pipeline and associated stations

Scenario 1: gas pipe remains buried. Only waste resulting from the demolition of Surface associated pipeline stations.

Scenario 2: SCG are demolished and removed and the pipe is removed from the surface; table nr.3.XI. presents the worst case, that scenario no. 2

Table 3.XI. Worst case scenario represented by the SC demolition and dismantling pipeline transportation BRUA

Type waste	Who / what generated waste	Mod collection / treatment / disposal / storage final	Responsibilities	Resources
1	2	3	4	5
Specific waste paper and office work	Activities record keeping, supervision and site supervision	They will be collected and stored separately, in order to exploit the licensed operators - R5.	It will keep record of the quantities removed	
Household or equivalent	Personnel will carry out construction camp site in deposits and pipe production bases in site maintenance cleaning work site	Recyclable parts are selectively collected and handed over licensed operators - R4. The mixed fractions are removed by sanitation services of towns in the area - D1 Will organize collection points provided with bins type containers. Periodically will be raised by authorized operators and transported to landfills or transfer stations of localities	It will keep strict records on dates, quantities identifiers removed and means of transport	Financial resources necessary for - concluded contracts with authorized
Packaging waste (paper, cardboard, plastic, metal, glass)	The supply	They will be collected and stored selectively, in order to exploit the licensed operators - R5. The shipyard will be equipped with facilities for pressing cans, plastic bottles	It will keep record of the quantities removed	Financial resources necessary for - concluded contracts with authorized - achiziționat pressed plants cans, plastic bottles
Sludge collected from rain water clarifiers	Washings platform site organization	Periodically it will be transported safely to a landfill by the city indicated localității- D1	It will keep record of the quantities removed	Financial resources necessary for - concluded contracts with authorized
Scrap metal	Results of the maintenance of equipment and operations of dismantling the pipeline and associated stations	They will be collected and stored temporarily in the premises, platforms and / or in special containers. Necessarily will be used in specialized units - R4	Repairs will be carried out in special places. It will keep records of the quantities recovered	Financial resources necessary for - concluded contracts with authorized
Wooden material	Building demolition	Depending on the quality of the wood, it will be valued as firewood for the local population - or R1 will be stored for reuse in other constructions	Sawdust will not be stored on riverbanks	Financial resources necessary for - concluded contracts with authorized

Management plan of hazardous waste produced after completing the operation of the pipeline and associated stations

Scenario 1: gas pipe remains buried. Only waste resulting from the demolition area related to pipeline stations.

Scenario 2: pipe is dismantled and removed from the surface.
The table below shows the worst case, that scenario no. 2

Table 3.XII. Worst case

Type waste	Who / what generated waste	Mod collection / treatment / disposal / storage final	Responsibilities	Resources
1	2	3	4	5
Waste from electrical and electronic equipment	Electrical and electronic equipment	They will be collected and stored separately, in order to exploit	It will keep record of the quantities removed	Financial resources necessary for - concluded contracts with authorized
Packaging waste (paper, cardboard, plastic, metal, glass)	The supply	They will be collected and stored selectively, in order to exploit the licensed operators - R5. The shipyard will be equipped with facilities for pressing cans, plastic bottles	It will keep record of the quantities removed	Financial resources necessary for - concluded contracts with authorized
Waste oil	Waste engine oil, transmission and lubrication from oil changes performed on vehicles and equipment	They will be collected on the types of metal marked with the type of oil that will be stored in designated area for interim storage of waste. The area will be fenced and locked. Waste oil will be taken periodically to order or contract companies authorized for collection and processing - R9, or final will be disposed by incineration in a licensed incinerator - R1, if exploitation is not possible	Oil change will be made in places. It will keep records strict dates, quantities identifiers removed and means of transport	Financial resources necessary for - concluded contracts with authorized
Oil filters	From vehicles and equipment	They will be collected in metal containers placed in the designated area. These wastes will be disposed of by incineration possibly by authorized companies, if exploitation is not possible -R1	It will keep strict records on dates, quantities identifiers removed and means of transport	Financial resources necessary for - concluded contracts with authorized