

**REGULATION No. 12
ON THE REQUIREMENTS WHICH MUST BE MET BY THE WASTE
TREATMENT FACILITY SITES**

Dated 6 November 1998

**Chapter One
GENERAL CONDITIONS**

Article 1

(1) This Regulation shall define the requirements, which must be met by the waste treatment facility sites referred to below as 'waste treatment sites'.

(2) The waste treatment sites shall be determined and the activities therein organised in conformity with the provisions of the Territorial and Urban Development Act, the Agricultural Land Protection Act, the Forests Act and the international agreements to which the Republic of Bulgaria is a party - for the cases where additional requirements are raised with them in respect of the waste treatment sites.

Article 2

(1) This Regulation shall apply to the domestic, industrial, construction and hazardous waste treatment sites located at the generation source or which are separate sites wherein the following waste treatment facilities shall be organised:

1. waste collection, including:
 - a) at the source of generation thereof;
 - b) on an individual waste collection and/or separation (separate collection) site.
2. temporary storage of waste in individual sites, including:
 - a) in transfer sites and stations;
 - b) in waste baling, packing or briquetting sites prior to and following the carrying out of the main waste disposal activity.
3. disposal of waste, including:
 - a) landfilling - storing of wastes for more than 6 months in a manner not posing human health and environmental threats and without envisioning of subsequent treatment of the wastes;
 - b) disposal of wastes by thermal methods (incineration and pyrolysis), composting or by other methods;
 - c) recycling or other treatment to convert wastes into initial materials or end products for use - where performed on individual sites;

(2) This Regulation shall not apply to the waste treatment sites under Article 2, paragraph 2 of the Limitation of the Harmful Impact of the Wastes on the Environment Act (LHIWEA).

Article 3

The activities not carried out within the waste treatment sites shall ensure the treatment or disposal of the wastes in a manner not causing damage to human health and without the use of environmentally harmful production processes or disposal methods, including:

1. no risks for the condition of water, air, soil, geological base, vegetation and animal life;
2. above-limit noise, vibrations, impacts from other harmful physical factors and odour;
3. substantial damages to the landscape and harmful consequences for the protected nature sites and the non-movable monuments of culture.

Article 4

(1) With regard to the territory of each municipality, the municipal authorities shall make provisions for the necessary integrated and efficient network of waste treatment sites.

(2) The network under paragraph 1 shall ensure:

1. suitable choice of the sites where the waste treatment activity facilities and installations shall be placed in compliance with the requirements hereof and of the waste activity management plans;
2. disposal of waste at the nearest suitable site as regarded from the viewpoint of disposal methods and technologies.

(3) Positioned in the sites shall be facilities and installations in conformity with the best available technology not involving excessive costs in the performance of the respective waste treatment activity;

Chapter Two

CONDITIONS AND PROCEDURES FOR SITE ALLOCATION

Article 5

The allocation of new waste treatment sites involves:

1. a preliminary study for the determination of the possible sites;
2. a site selection procedure.

Article 6

(1) The preliminary study for the determination of possible sites involves:

1. determination of the site capacity;
2. ascertaining of the purpose and ownership of the land on which the site is envisioned;
3. assessment of the topographic features of the area, the soil characteristics, the category of land and the climatic conditions - for the sites outside the construction boundaries of the populated areas;
4. carrying out of geological, engineering and geological, hydrogeological and hydrological studies - in the cases where required by the type and specifics of the waste treatment facilities and activities envisioned for the site;
5. determination of unprotected and surface aquifers;
6. determination of the possibilities for transport access to the site by vehicles;
7. determination of the distance from the site to other sites that are subject to health related protection;
8. determination of the specific features of the treatment activities in consideration of the type and quantity of wastes;

9. proving the need for a new waste treatment site for the respective territory (region, municipality, settlement or enterprise), including proof of the impossibility to carry out the treatment on the existing site;

(2) The waste treatment facility sites may not be allocated over:

1. terrains threatened by inundation;
2. terrains with potentially active or receding landslides;
3. rock-slides and terrains endangered by falling stones;
4. marshy areas;
5. karst areas;
6. areas with studied and proven geological deposits of natural resources.

Article 7

(1) The individual waste treatment sites shall be chosen with the territorial development and town development plans in the predominantly production and special production zones under Article 22 of Regulation No.5 on the Territorial and Urban Development Rules and Standards (promulgated in the State Gazette, issue 48/1995; amended, issue 30/1996 and 7/1998).

(2) Where provisions are made for allocating the sites for treatment of industrial and hazardous waste at the place of generation thereof, the sites shall be included in the infrastructure of the respective enterprise.

(3) Provisions shall be made in the sites under paragraph 2 for the facilities needed to achieve the most complete possible disposal or reduction the volume thereof (mixing chambers, separators, oil and oil product collection tanks, belt-filter presses, crushing, baling, packaging, packing, briquetting facilities, etc.).

Article 8

Where the waste treatment facility is to be allocated on agricultural or forest land, the choice shall be made by means of the relevant procedure concerning:

1. change of the allocation of agricultural land under the terms and conditions of the Protection of Agricultural Lands Act and the Guidance on the Implementation of the Agricultural Lands Act (SG, 48/1996);
2. change of the allocation of forest land under the terms and conditions of the Forests Act and the Guidance on the Implementation of the Forests Act (SG issue 41/1998).

Article 9

(1) The location of waste treatment site shall be assessed for its technical-economic feasibility on the basis of:

1. the existing opportunities for performing a maximum number of waste treatment operations within one and the same site, while giving priority to the regional (inter-municipal) waste treatment principle and the possibility of joint treatment of compatible waste, generated by multiple sources;
2. the optimal distances to key waste generation points;
3. the use of unproductive agricultural land, unafforested areas or areas under bush or vegetation of low value;
4. the prospective lateral expansion of the site, wherever such has been planned under the waste activities management program, drawn in compliance with Article 28

of the Limitation of the Harmful Impact of Waste upon the Environment Act (LHIWEA);

5. the opportunities for connecting the site to existing water supply and sewerage systems, to power and to any available road infrastructure;

6. the maximum conservation of the green spaces lying between the enterprises and the settlements, and between the waste treatment sites and the adjacent industrial enterprises;

7. the centralised use of earth mass from landfills for construction and use of waste landfills and tailings ponds;

8. the area's relief and wind pattern promoting the most favourable conditions for spreading of any discharged pollutants and unpleasant odour emitted by discharge devices of waste thermal disposal systems and by waste landfill gas collection systems;

9. the air pollution in the region, in observance of the precautions (degree of cleaning, height of the discharging device, etc.) that when taken, would ensure that once a waste landfill's waste disposal system and/or gas collection system are built, the pollution content of the lower troposphere would not exceed the maximum allowable concentrations according to Regulation No.14 on the Norms for Maximum Allowable Concentrations of Air Pollutants (SG issue 88/1997).

(2) Sites that are intended for waste treatment involving the emission of dust, dangerous substances or an unpleasant odour in the atmospheric air (combustion and waste pyrolysis facilities, waste landfills and others), shall be situated in the leeward side in relation to habitable zones, to the other sites that are subject to health protection and to adjacent enterprises, by calculating the direction and speed of the prevailing winds.

(3) Waste treatment sites with noise-generating facilities of a noise pressure above 50 dB (ballistic separation, waste shredding and milling, etc.), shall be situated at a distance from habitable zones in compliance with the Norms for the Maximum Allowable Levels of Noise Pressure within the Various Urban Areas and Zones (SG, issue 87/1972; amended, issue 16/1975).

(4) Waste treatment sites with electromagnetic field-producing facilities shall be situated at a distance from inhabited territories in agreement with Regulation No.9 for the Maximum Allowable Levels of Electromagnetic Fields in Inhabited Territories and Allocation of Sanitary Protection Zones around Irradiating Facilities (published together with the relevant methodology in the *Internal Bulletin of the Medical Academy*, issue 2 of 1991).

Article 10

(1) Between waste treatment sites and the boundaries of the residential zones of settlements, resort and recreation sites, as well as food industry enterprises and storehouses, there shall be set up a mandatory hygiene protection zone to ensure the health protection of the urban environment and its appertaining territory in accordance with Annex No. 1 to Regulation No.7 on the Health Protection of the Urban Environment (prom. SG, issue 46/1992; amended issue 46/1994, issues 89 and 101/1996 and issue 101/1997)

(2) Permit for increase or decrease of the hygiene protection zones and norms in waste treatment siting shall be granted by the Ministry of Health under the terms and conditions of Article 4, Regulation No.7 on Health Protection of the Urban

Environment which stipulates that a screening shall be made of the health and hygienic aspects related to the facility's location, based on:

1. nature of the treated waste, including:
 - a) waste type (hazardous or non-hazardous);
 - b) the amount of treated, resp. landfilled waste;
 - c) physical and chemical structure of the waste materials and their toxicity;duration of impact and bio-accumulation capacity;
2. technological characteristics and parameters of the waste treatment facilities and systems used with regard to their polluting effect over the components of the environment and their compliance with the requirements for healthy and risk-free working conditions;
3. the expected harmful emissions to the environmental components by type and quantity;
4. the specific terrain and climatic features that affect the type, quantity and scope of dispersal of the harmful emissions in the environmental components.

Article 11

Waste treatment sites may not be located beyond the industrial zones, designated by the territorial and urban development plans, where the territory constitutes:

1. agricultural and forest lands whose allocation may not be altered;
2. protected natural territories or territories, declared as immovable cultural monuments;
3. resort areas, resorts, recreation sites and buffer zones surrounding reservation areas;
4. sanitary protection zones around fresh water sources and the drinking water supply networks and facilities;
5. regions marked with unfavorable engineering-geologic conditions, such as land or rock slides, bogs, karst regions, etc.;
6. aquifers that are unprotected or exposed to the surface;
7. sites of underground natural resources.

Article 12

(1) Waste treatment sites shall cover a portion of land (area), as designated in a master construction plan for the individual sites and congruent with the established coefficients, laid out in Table 1.

(2) The coefficient of utilization of the sites listed in Table 1 shall be calculated as a ratio of the area occupied by key or auxiliary facilities and waste treatment systems, administrative, housing and other buildings and premises, storehouses, sheds, above-ground and underground engineering infrastructures of the individual sites (roads, pavements, pedestrian lanes, water supply and sewerage systems and facilities, power systems, overpasses and other areas, occupied by open manufacturing sites, storehouses and parking lots), to the total site area, encompassing all of the necessary terrains under the master plan and the inventory attached thereto, depicting the dimensions and area of all individual buildings, facilities, outdoor sites and roads. The total site size shall not include green spaces or space allocated for health protection of the urban environment, any of which lie beyond the site's territory.

Chapter Three

RULES AND NORMS FOR CONSTRUCTION OF WASTE TREATMENT SITES

Article 13

(1) Sites whose primary designation is waste treatment, shall be constructed upon with:

1. industrial facilities and systems (for the main waste disposal operations);
2. auxiliary facilities and systems for pre-treatment or treatment of disposed waste, including out- and indoor storehouses;
3. service buildings and facilities for the site's personnel.

(2) Waste treatment sites located within the territory of a waste-generating enterprise shall be laid out and constructed upon according to the rules and norms governing the layout and construction of such key industrial or other enterprise.

Article 14

(1) Construction activities over the territory of a waste treatment site shall be conducted in observance of the norms in Table 2.

Table 2

(2) The maximum allowable construction density, the maximum permissible construction intensity expressed in terms of volume, shall be determined respectively by force of Articles 9, 10 and 23, paragraph 3, subparagraph 4 of Regulation No.5 for the Rules and Norms on Territorial and Urban Area Planning.

Article 15

(1) Areas (sites), intended for collection and temporary storage of domestic waste within urban territories, including separate collection thereof, shall be classified as:

1. special sites located within unregulated or regulated parcels or within the scope of the road infrastructure (in pavement zones or parking lot spaces);
2. located within residential and other types of buildings at the level of their appertaining terrain as rooms for domestic waste collection.

(2) The places under paragraph (1) shall:

1. be situated in closest possible proximity to the road infrastructure;
2. have a durable paving (made of concrete, asphalt and concrete, flags, etc.) enabling hygiene operations and soil protection;
3. have unobstructed access to the street;
4. occupy an area, sufficient for accommodating household waste tipping operations;
5. be equipped with spill-proof and hence environmentally sound, waste collection vessels.

Article 16

A waste treatment site's master construction plan shall ensure the most favorable conditions for setting up operations, involving waste treatment, environmental protection, healthy and risk-free working conditions, fire safety, physical protection (security) of the territory and thrifty land use at a high return on investment.

Article 17

A waste treatment site's master construction plan shall be drawn in observance of:

1. the functional zoning of the territory, including:
 - a) the peculiarities of the waste treatment technology as a major factor in the master plan layout;
 - b) the relation between the technological links and the load turnover of the incoming and/or emitted waste;
 - c) the sanitary, hygienic and fire safety requirements and environmental protection provisions;
2. the thrifty land use which ensures:
 - a) fast reconstruction of the facilities or replacement of the waste treatment technology and a possibility for fast recultivation of landfills, tailings ponds and sludge ponds;
 - b) the necessary and justified reserves for expanding the facilities and systems without harming the overall zoning structure;
3. the erection of the necessary administrative and service buildings and premises for the personnel;
4. the improvements to the site area;
5. the existence of protected natural sites or immovable cultural monuments, etc.;
6. the need to harmonize the site and its constructions with the surrounding landscape;

Article 18

(1) A waste treatment site master plan shall be subdivided in zones based on the type of operation conducted therein, as follows:

1. a zone for waste receipt with a control check-point;
2. a key (industrial) zone designated for performance of the main waste treatment operations;
3. an auxiliary zone for pre-treatment prior to the main disposal operations and for treatment of the waste treatment residues;
4. storehouse zone;
5. service (administrative and housing) zone, wherever there is a need for one.

(2) The zoning under paragraph (1), the grouping of the waste treatment facilities and systems within the separate zones and the allocation of the zones shall be site-specific and tailored to the type of waste treatment operations.

Article 19

The distance between buildings and open-air facilities accommodating machines that cause dynamic loading and vibrations of the ground base shall be calculated in view of:

1. the engineering-geologic and hydro-geologic conditions of the terrain;

2. the physical-mechanical and deformation properties of the ground beneath the foundations;
3. the measures for eliminating the impact of any dynamic load and vibrations of the ground base over other buildings and facilities.

Article 20

Water basins (retention basins, sludge ponds, etc.), located on the waste treatment site shall not pose a danger of flooding its territory or those adjacent thereto, or contaminate the appertaining groundwater aquifers.

Article 21

The buildings and facilities shall be located depending on the fire-proof capacity of the structures, the fire risk involved in the waste treatment operations, grouped in categories under the fire safety construction and technical norms (FSCTN), the sanitary and hygiene requirements and the easement distances between the communications, in the effort to provide the shortest communication and technological links.

Article 22

(1) Vehicles' roads over the area of the waste treatment site, as well as loading/tipping sites, both of which are features of the master plan, shall ensure:

1. an integrated transportation process for waste submission for treatment by avoiding transfer operation where possible;
2. traffic safety;
3. observance of the FSCTN requirements;
4. enforcement of a control checkpoint regime as stipulated in Regulation No.7 on the Components of the Systems Ensuring the Physical Protection of Constructions (SG issue 70/1998).

(2) The location within the master plan of hydraulic, pneumatic and conveyor transport, as well as of pipelines, shall be determined in observance of the technological requirements towards on-site transport.

Article 23

(1) The following shall be mapped out when planning the territory of a waste treatment site:

1. the operational internal vehicles' roads among the individual waste treatment facilities and systems depending on the topographic and planning conditions;
2. the internal vehicles' roads ensuring a driving speed of 15 to 30 km/h for:
 - a) transportation of auxiliary and household cargo;
 - b) passage of fire brigade cars;
 - c) approaches to garages and parking lots, loading points, store houses, etc.

(2) When planning the territory of waste landfills, tailings ponds and sludge ponds, provisions shall be made for individual roads for track-chain and compacting machines traffic (bulldozers, scrapes, etc.) and for big load vehicles.

(3) The number of traffic lanes, the width of the roadway and the type of road paving, the minimum and maximum, lengthwise and crosswise slopes, the minimum

horizontal and vertical curve radiuses, the roadway cross-section profile and the possibilities for construction and use of the operational roads in the process of construction shall depend on the road type and function, the designed volume of the transported waste and other transported cargo, the size and width of the sizing vehicle and the driving speed.

(4) Track-chain machine roads shall be designed as running parallel to the vehicles transport roads, at a lower level or separately, where possible. Should the terrain offer scarce space or should a separate road prove unjustifiably costly, track-chain machines may drive along any one of the hard shoulders of the automobile road. The hard shoulder shall be designed with a width greater than 3,5 m and shall be reinforced.

(5) One-way roads shall have broader sections enabling the vehicles to pass by each other or turn around (U-points).

(6) Water run on top of the roads used by waste-transporting vehicles or waste disposing track-chain and compacting machines shall be captured for disposal .

Article 24

(1) The master plan shall map out the on-site engineering infrastructure for water supply and sewerage, including retention basins or treatment facilities where necessary, and for power supply, telephone communications, as well as heat or gas supply where necessary.

(2) A site's engineering infrastructures shall be connected to those of the industrial zone or urban area, depending on its location.

(3) The location and sizing of the engineering infrastructures under paragraph 1 shall depend on the number and diameter of the pipelines thus ensuring minimum width of the installation zone and in observance of the provisions established for the minimum distances for the parallel building and crossing of separate types of underground pipelines.

Article 25

A waste treatment site's vertical plan shall be designed:

1. to ensure a terrain with a relief that favors the construction works and maintenance of the facilities and systems, and matches the site relief;

2. in consideration of the geologic, engineering-geologic and hydro-geologic conditions, for the cases of waste landfills, tailing ponds and sludge ponds - also the landfilling technology and the requirements for minimum inclination of the crest and air slopes of the top liner.

3. at a maximum preservation of the natural relief;

4. at a balance of the excavated and heaped earth masses; in the case of waste landfills, tailings ponds and sludge ponds there shall be considered the need of stocking earth masses in immediate proximity to the landfill bed for the needs of landfilling and the top liner recultivation;

5. to protect the site against flooding by surface water by means of creating the optimal slopes for catching, removing and impeding surface water from accessing the landfill or tailings pond beds;

6. where possible, to ensure gravity conducting of waste water to the retention basins, treatment facilities or the relevant water intakes for treated water;

7. to create conditions for an effective layout of the buildings and facilities.

Article 26

(1) The green spaces of the waste treatment site shall be planted with grass, trees and shrubs by taking into account their sanitary protection properties, ornamental qualities and resistance to harmful substances, emitted in the atmospheric air and the soil, in preservation of the native vegetation to the highest possible degree.

(2) In the case of biological recultivation of landfills, tailings ponds and sludge ponds, the latter shall be afforested with trees and shrubs with a shallow root system.

(3) Afforestation of waste treatment sites involving combustion or pyrolysis may not be done with tree species, yielding cotton, fiber and other similar substances during their flowering period, or with coniferous trees.

(4) Waste treatment sites whose operations exercise a significant impact over the atmospheric air may not be afforested with trees and shrubs in dense groups and zones, creating conditions for the accumulation of harmful substances in the operational zone.

(5) Sites with a wind speed above 10 m/sec during the three coldest winter months, and sites located in the windward side in relation to urban areas and other territories, subject to health protection, shall have a sheltering tree belt planted on the side of the prevailing winds' direction.

Chapter Four

GEOLOGIC, ENGINEERING-GEOLOGIC, HYDRO-GEOLOGIC AND HYDROLOGIC CONDITIONS WHICH THE WASTE TREATMENT SITES SHOULD MEET

Section I

Geologic, Engineering-Geologic and Hydro-Geologic Conditions for Assessment and Selection of the Geologic Base.

Geologic and Hydro-Geologic Surveys

Article 27

(1) Screening and selection of the geologic base (the ground base for the facilities) shall depend on the type of waste and treatment operations to be performed on the site.

(2) Geologic, engineering-geologic and hydro-geologic surveys shall be performed in a size and scope as allow to properly assess the given terrain's potential as the site for the considered waste treatment operations.

(3) The geologic base and waste treatment facilities' designs shall ensure a reliable protection against the pollution of the water, soil and ground base.

Article 28

(1) A waste treatment site terrain, through the natural ground base or through the ground base in combination with additional technical operations, shall:

1. ensure compliance with the requirements towards the carrying capacity and stability of the waste treatment facilities;

2. provide a geologic barrier against penetration and diffusion of pollution deep in the geologic base and in the groundwater;

3. have a maximum water table at a depth greater than 1 m beneath the foundation level in the cases of landfills, tailings ponds, sludge ponds, field composting facilities and others, as pose a risk for groundwater pollution.

(2) The water table may exceed the one indicated in paragraph 1, subparagraph 3, when could be allowed if proven that it will not impede the construction of the components of the bottom insulation liner and its stability and on condition that a reliable protection against groundwater pollution has been secured.

(3) The ground base beneath the facilities referred to in paragraph 1, subparagraph 3, over which the foundations are laid, shall:

1. constitute a natural geologic barrier, restricting the migration of harmful substances to the greatest possible extent (it should consist of natural low permeable soils having high adsorption capacity), if possible having a filtration coefficient $\leq 1.10^{-7}$ m/sec;

2. be homogeneous, of non-ruptured rock or bound lithologic varieties in a solid to a solid-plastic consistency;

3. not be located in zones exposed to a higher seismic risk or active tectonics, or in areas with recurrent land- or rock slides, settlement and subsidence above abandoned mining workings or caverns and in karst regions.

Article 29

(1) Sites intended for landfills, tailings ponds, sludge ponds and field composting facilities shall be designated on the grounds of the following geo-technical criteria:

1. geomorphology of the region;
2. geologic structure, lithologic composition, physical-mechanic and deformation features;
3. tectonic structure;
4. physical-geologic processes and phenomena within the region;
5. groundwater hydro-geologic conditions and regime, including:
 - a) the existence of an aquifer and its key parameters;
 - b) interaction between the aquifers and their individual parts (zones);
 - c) groundwater chemical content and assessment of its aggressiveness;
 - d) a hydraulic connection between surface water and groundwater and water catchment areas;
 - e) aeration zone;
6. ground base carrying capacity and deformation;
7. terrain stability (danger of slipping);
8. behavior during earthquakes and other dynamic impacts;
9. durability of the natural and artificial barriers;
10. harmonizing the facilities with the surrounding landscape;
11. need to additionally consolidate and drainage of the ground base;
12. conditions for blocking the migration of contaminants to the geologic base and Water;
13. extent of risk and danger of accidents;

14. reliability of the existing natural geologic barrier and natural insulating materials.

(2) Geologic, engineering-geologic and hydro-geologic surveys aim to establish the conditions present at the site area (geo-morphologic, geologic, lithologic and tectonic structure, physical-mechanic and deformation properties of the lithologic varieties, hydro-dynamic, hydro-chemical and migratory parameters of the individual aquifers and confining beds, engineering-geologic phenomena and processes, etc.) and provide data to prepare a forecast for their change during construction, operation and post-closure of waste treatment facilities.

Article 30

(1) The selection of waste treatment sites shall be preceded by geologic and hydro-geologic surveys

(2) Geologic and hydro-geologic surveys aim to establish the engineering-geologic conditions present at the construction site (geo-morphologic, geologic and lithologic structure, the properties of the soils which are being built upon, hydro-geologic conditions, physical-geologic and engineering-geologic phenomena and processes, etc.) and forecast their change during construction, operation and post-closure of waste treatment facilities.

Article 31

(1) Engineering-geologic and hydro-geologic surveys shall comprise:

1. engineering-geologic and hydro-geologic surveys;
2. collection, analysis and summarizing of data on the geologic, engineering-geologic and hydrologic conditions characterizing the area of the site, including study material available from past surveys;
3. engineering-geologic and hydro-geologic mapping;
4. field surveys and laboratory research;
5. delivery of a report on the study outcomes.

(2) Geologic and hydro-geologic surveys shall depend for their type and volume on the design requirements towards the ground base of the waste treatment facilities, the complexity of the natural conditions and the degree of familiarity with the region.

Article 32

Engineering-geologic and hydro-geologic surveys shall be conducted under a program, drawn by the entity performing the study and approved by the investor, containing:

1. existing information (study records) on the geo-morphologic and geologic structure, hydro-geologic conditions, physical-geologic and engineering-geologic processes and phenomena, the condition and properties of the soils within the construction region (site);
2. the grounds for the scale of the engineering-geologic mapping and system for studying the lithologic varieties and groundwater, in recognition of the complexity of the natural conditions, type and class (category) of the designed facility, deadlines and steady observation frequency.
3. special requirements towards the type, volume and methods of survey in sections with unfavorable physical-geologic and hydro-geologic processes and

phenomena (landslides, rock slides, karst, etc.), and in such where peculiar construction soils are present (subsiding, salinated, peated, etc.)

Article 33

(1) An engineering-geologic and hydro-geologic survey shall serve to conduct:

1. quality assessment of the data gathered on the engineering-geologic and hydro-geologic conditions present in the construction region and identification of options for placing the sites and communication lines;
2. comparative assessment of the engineering-geologic and hydro-geologic conditions of the listed options for placing the sites and communication lines;
3. preliminary assessment of the prospective development of engineering-geologic processes and change in the regime and state of the groundwater and geologic bed under the impact of construction and of buildings and facilities' operation.

(2) The engineering-geologic surveys shall also incorporate route observations.

Article 34

The data gathered shall depict the aquifer distribution, dimensions and protection, stratification and the properties of the peculiar lithologic varieties, as well as the causes producing unfavorable processes and phenomena.

Article 35

(1) The engineering-geologic and hydro-geologic mapping shall be paralleled by an integrated study and assessment of the engineering-geologic and hydro-geologic conditions of the construction region (site).

(2) The boundaries for the mapping works in various scales shall depend on the peculiarities of the natural environment and on the 3-dimensional design decisions for the buildings and facilities.

(3) The engineering-geologic and hydro-geologic mapping shall precede any other survey operations and their results shall be used for drawing preliminary working maps of the engineering-geologic and hydro-geologic conditions, land zoning, guidance and justification of the specialised survey work.

(4) Where mapping is performed in regions characterised by development of unfavorable processes and phenomena, mining works inclusive, the following activities shall be performed:

1. the boundaries of dissemination of the above processes and phenomena and underground excavations shall be set;
2. the conditions and causes for their arisal and development, and the presence of deformed buildings and protection facilities shall be established;
3. sections for conducting steady observations and tests shall be identified.

Article 36

(1) Specialised field surveys and tests shall be conducted to:

1. establish the geologic profile and stratification of the lithologic varieties;
2. determine the properties of the lithologic varieties and groundwater content detected through field and/or laboratory tests;

3. identify the zones featuring engineering-geologic processes and phenomena and clarify the mechanism and regularities in their development;

4. determine the conditions for the stratification and distribution, regime and chemical content of the existing groundwater, the hydrologic parameters of the aquifers and their connection to surface water.

(2) Laboratory tests shall be conducted to determine the content, condition and construction properties of the lithologic varieties, and identify the chemical content, aggressiveness and corrosive capacity of the groundwater.

(3) Specialised field surveys and tests shall include:

1. the construction of survey structures (bore-holes, test pits, galleries, etc.);
2. press tool loading, pressiometry, static and dynamic penetration;
3. geophysical tests;
4. test-filtration;
5. test-migration;
6. special engineering-geologic tests, including the scrutiny of the ground base beneath deformed buildings and facilities;
7. permanent (monitoring) observations;
8. analysis and processing of materials and preparation of a technical report (conclusion).

(4) The type and frequency of the survey structures, and the type and frequency of the specialised tests shall be selected and designed depending on the geologic complexity and familiarity with the region, and on the category of the building or facility.

Article 37

The penetration depth of the survey tests shall be established by taking into account the zone of interaction between the buildings and facilities and the geologic environment. The boundaries of this zone shall be set in recognition of the function, type, size and peculiarities of the buildings' and facilities' structure, the complexity of the engineering-geologic conditions, the distribution, content, state and peculiarities of the soil strata and the unfavorable physical-geologic processes and phenomena.

Article 38

Sample-taking from the survey structures, and sample packaging, storage and transportation to laboratory premises shall be conducted under the relevant standards or approved methodologies.

Article 39

(1) Laboratory tests shall be performed to reveal the physical-mechanic and deformation properties of the lithologic varieties, to highlight the main regularities of their transformation and study the groundwater's chemical content.

(2) Laboratory tests on engineering-geologic samples shall be conducted in recognition of the working conditions (stressed state) of the ground base within the zone of interaction of the buildings and facilities with the geologic ambiance.

(3) Laboratory tests shall provide data that can help determine the design value of the indices for the physical-mechanic properties of the individual engineering-

geologic varieties in compliance with the design layouts of the facilities and their foundations.

(4) Laboratory tests on soil samples shall be conducted under the effective national standards.

(5) To determine aggressiveness and corrosive capacity of groundwater towards materials used in building structures, water samples taken from aquifers shall be tested according to Bulgarian State Standard (BDS) 9075 and BDS 3097.

Article 40

Field surveys shall specify the geologic profile, trace the lens-shaped and weak bands and establish the regularities in the modification of the properties of the lithologic varieties in horizontal and vertical planes.

Article 41

Geophysical methods shall be applied in combination with laboratory and field testing to explain the heterogeneous structure of the lithologic varieties, the content, state and conditions of their stratification, to detect any tectonic dislocation and karst zones, as well as the conditions of aquifer stratification.

Article 42

Test-filtration work shall establish the hydro-geologic conditions, basic hydro-geologic aquifer and confining bed parameters, and shall help forecast any changes as may occur in the construction and operation of the buildings and facilities, such as flooding, contamination and alteration of the chemical content of groundwater.

Article 43

Stationary observations shall be made where there is a need to establish the dynamics and development of geologic processes and phenomena, the way they interrelate with the geomorphologic components and forms of the relief, and the groundwater's regime and chemical content.

Article 44

The engineering-geologic and hydro-geologic survey results under this Chapter shall be analyzed, interpreted and summarised, and subsequently filed into a report by the surveying entity.

Section II

Hydrologic Conditions for Assessment and Selection of Waste Treatment Site Locations

Article 45

The assessment and selection of the waste treatment site location, based on the hydrologic conditions, shall be directly dependent on the type of wastes (hazardous

and non-hazardous) and the treatment operations to be performed on the site, with view to mitigating the risk of environmental pollution caused by the wastes, as a result of the impact over them of natural stream flows and natural and artificial water bodies in the event of flooding of the waste treatment facilities and installations.

Article 46

Waste treatment sites and facilities situated on them shall meet the following hydrologic requirements:

1. waste treatment facilities should not fall within the flooded zone, determined as calculation of the probability of exceeding of the maximum design water discharge for:

a) natural stream flows (rivers) - 1% for hazardous waste treatment facilities, 5% for non-hazardous waste treatment facilities with a useful life exceeding 10 years, and 10% for non-hazardous waste treatment facilities with a useful life up to 10 years inclusive;

b) hydraulic structures (HS), depending on the class of the hydraulic facility, established under Chapter Two "Classification of Hydraulic Facilities. General Provisions". (publication of the Bulgarian Business Association, issue 11/1985) as follows:

- class I HS - 0,01% for waste treatment facilities, 1% for non-hazardous waste treatment facilities with a useful life exceeding 10 years, and 5% for non-hazardous waste treatment facilities with a useful life up to 10 years inclusive;

- class II HS - 0,1% for hazardous waste treatment facilities, and within the meaning of item "a" - for non-hazardous waste treatment facilities;

- class III HS - 0,5% for hazardous waste treatment facilities, and within the meaning of item "a" - for non-hazardous waste treatment facilities;

class IV HS - 1% for hazardous waste treatment facilities, and within the meaning of item "a" - for non-hazardous waste treatment facilities;

2. facilities along the way of the water and sludge to and inside waste water treatment plants shall be classified and designed at a probability of exceeding of the maximum design water discharge as follows:

a) with a probability of exceeding of 0,1% in the case of waste water treatment by class II hazardous waste treatment facilities;

b) with a probability of exceeding of 1% in the case of waste water treatment by class IV non-hazardous waste treatment facilities.

3. tailings ponds and sludge ponds shall be classified under Table 4 and shall be designed at a probability of exceeding of the maximum design water discharge under Table 6 on the Hydraulic Facility Design Norms (Main Points);

4. the landfill bed shall be protected against surface- and groundwater by means of appropriate facilities;

5. facilities along the way of the leachate in the drainage system of the body of waste shall be designed at a probability of exceeding of the maximum design leachate discharge, as follows:

a) with a probability of exceeding of 1% in the case of hazardous waste landfills;

b) with a probability of exceeding of 10% in the case of non-hazardous waste landfills.

Article 47

(1) The selection of a waste treatment site shall be accompanied by hydrologic surveys, aimed at establishing the hydrologic conditions referred to in Article 46.

(2) Hydrologic surveys shall help specify the hydrologic conditions at the site and obtain data as would allow to identify the areas, exposed to flooding by the existing stream flows and HS.

(3) Hydrologic surveys shall include:

1. collection, analysis and summarizing of the available data on the hydrologic and meteorological conditions of the waste treatment site region, materials from past surveys inclusive;

2. a hydrologic field study;

3. hydrologic observations and surveys;

4. hydrographic works;

5. identification of the flood-prone areas and design parameters of the drainage systems, tailings- and sludge ponds, all of which are essential in selecting the site location;

(4) hydrologic surveys shall be conducted under a program, containing:

1. records on past surveys of the region;

2. a hydrologic profile of the region and the local natural conditions - regime of the rivers, lakes, reservoirs and HS, relief and climate peculiarities etc. which influence the hydrologic conditions for selection of the waste treatment site location;

3. surveys of the water catchment basins which have a potential of forming destructive aquatic and sediment flows;

4. surveys of the river morphology and the trends of deformation of the river beds downstream of tailings-, sludge ponds and others HS, used as waste storage facilities;

5. surveys of the water's aggressive qualities, etc.

(5) The hydrologic study results shall be laid out and submitted by the surveying entity in the shape of an engineering-hydrologic report or an engineering-hydrologic conclusion.

ADDITIONAL PROVISION

§ Within the meaning of this Regulation:

1. 'waste', 'domestic waste', 'industrial waste', 'hazardous waste', 'construction waste', 'waste treatment', 'waste disposal', 'waste recycling', 'waste processing', 'waste landfilling' and 'widespread waste', are used within the meaning of § 1, subparas 1-12 of the Additional Provisions of the Limitation of the Harmful Impact of Waste upon the Environment Act;

2. 'an operator' shall be a legal or physical person holding a permit for waste disposal and is accountable for the stewardship of a waste treatment site and for managing the waste-related operations during the operational period and post-closure of the site;

3. 'maximum construction density', 'maximum construction intensity', 'maximum construction intensity in terms of volume' are used within the meaning of Article s 9, 10 and 23, paragraph 3 subparagraph 4 of Regulation No.5 on the Rules and Norms

for Territorial and Urban Planning (promulgated, SG, issue 48/1995; amended, issue 30/1996 and issue 7/1998)

FINAL PROVISIONS

§2 This Regulation has been issued on the grounds of Article 13 paragraph 2 of the Limitation of the Harmful Impact of Waste upon the Environment Act.

§3 Instructions on the implementation of the Regulation shall be given by the Minister for Regional Development and Public Works in coordination with the Minister for Environment and Water and the Minister for Health.

For the Minister for Regional Development and Public Works:

E. Chachev

Minister for Environment and Water:

E. Maneva

Minister for Health:

P. Boyadjiev

Table 1

No.	Waste Treatment Sites	Coefficient of
	Efficiency	of the Site Area
1.	Disposal	0,90
2.	Thermic neutralisation (combustion and pyrolysis)	0,80
3.	Composting	0,75
4.	Collection, temporary storage and pre-treatment	0,80
5.	Recycling	0,85
6.	Other physical-mechanic and chemical neutralisation and processing methods	0,85
7.	Tailings ponds, sludge ponds, etc. - up to 1 m of the embankment base	0,95

Table 2

No. Waste	Maximum	Maximum	Maximum	Treatment
Density, D	Maximum	Maximum	Intensity	
inArea in %	Intensity, K_{int}	Intensity	Terms of Volume, K_{int}/vol	
1. Disposal	90	-	-	10+50 of the
2. Thermic neutralisation (combustion and pyrolysis)	60	1,8	925	
3. Composting	70	2,4	9	25
4. Collection, temporary storage and pre-treatment	70	1,8	9	25
5. Recycling	70	2,4	9	25
6. Other physical-mechanic and chemical neutralisation and processing methods	70	1,8	9	25
7. Tailings ponds, sludge ponds, etc. - up to 1 m of the embankment base	100	-	-	50 of the recultivated area