

Appendix 2  
to the Guidelines on the Environmental  
Management System  
in the Joint-stock company  
"National Company "Kazakhstan Temir  
Zholy"  
and its subsidiaries, approved by the  
decision  
The Board of JSC "NC "KTZ"  
dated May 16, 2023 (Protocol No. 02/13)

### Typical measures in the field of environmental protection

Protection of the air basin:

- 1) commissioning, repair and reconstruction of dust and gas cleaning plants intended for the capture, neutralization (disposal) of harmful substances generated from technological equipment and aspiration systems;
- 2) installation works related to the rationalization of thermal systems, including heat energy recovery, flue gas recirculation with discharge into the burner and the use of alternative, environmentally friendly energy sources;
- 3) implementation of measures to prevent and reduce emissions of pollutants from stationary and mobile sources;
- 4) introduction of equipment, installations and devices for neutralization of exhaust gases, suppression and neutralization of emissions of pollutants and their compounds into the atmosphere from stationary and mobile sources of pollution;
- 5) installation of catalytic converters for exhaust gas purification in vehicles using unleaded gasoline as fuel, reducing the toxicity and smokiness of exhaust gases, equipping vehicles running on diesel fuel with exhaust gas neutralizers, switching vehicles to another type of fuel, etc.;
- 6) introduction and improvement of technical and technological solutions (including the transition alternative fuels, raw materials, materials), allowing to reduce the negative impact on the environment;
- 7) purchase of modern equipment, replacement and reconstruction of the main equipment providing effective cleaning, utilization, neutralization, suppression and neutralization of pollutants in gases discharged from emission sources, dismantling of outdated boilers with a high concentration of harmful substances in flue gases;
- 8) implementation of technological solutions that optimize fuel combustion modes (change in the quality of fuel used, the structure of the fuel balance), reduction of toxic substances (including lead compounds, nitrogen oxides) in emissions of pollutants into the atmosphere, including for mobile sources;
- 9) implementation of measures aimed at reducing greenhouse gas emissions;
- 10) introduction of automatic monitoring systems for emissions of harmful substances and atmospheric air quality at the border of the residential sanitary protection zone;
- 11) improving the efficiency of existing dust and gas installations (including their modernization, reconstruction) and equipping them with automatic control instrumentation;
- 12) construction, modernization of atmospheric air monitoring posts with the expansion of the range of controlled ingredients through the acquisition of modern equipment and the introduction of a local network for transmitting information to the authorized body in the field of environmental protection and its territorial divisions.

3.2. Protection and rational use of water resources:

- 1) organization of measures in the field of industrial safety and construction of treatment facilities that improve the quality of the discharged water, implementation of programs to increase the efficiency of small reserve tanks as part of local treatment facilities (storage tanks, settling tanks, structures and devices for aeration of water);
- 2) implementation of a complex of technological, hydrotechnical, sanitary and other measures aimed at preventing clogging, pollution and depletion of water resources;
- 3) construction, reconstruction, modernization:  
wastewater treatment and post-treatment plants, liquid waste and cubic residues processing;

sewage treatment plants and sewerage systems for linear level subdivisions located on the catchment area of reservoirs, as well as on the territory having the status of a national park, resort;

closed-loop water supply systems, including systems for hydrosol removal and hydraulic sludge removal, recycling systems for industrial purposes and water reuse;

installations for the treatment of groundwater and groundwater that have been subjected to man-made pollution;

domestic and industrial wastewater treatment plants;

sewage treatment plants with mechanical, biological and physico-chemical methods of purification, wastewater treatment plants, wastewater receivers and outlets;

networks for the transportation of drainage and stormwater, household, industrial wastewater and hydraulic sludge waste, flotation tailings (sludge accumulators, settling tanks, ash dumps, evaporation ponds);

4) liquidation of abandoned and inactive wells, grouting or transfer to the crane controlled mode of self-emptying artesian wells;

5) reconstruction of emergency water facilities, reuse of drainage and stormwater, household and industrial wastewater for technological purposes through the construction of circulating water supply systems and local treatment facilities, implementation of measures to reduce the use of drinking water for technical needs;

6) implementation of automatic monitoring systems for the quality of consumed and discharged water.

### 3.3. Protection of land resources:

1) inventory and liquidation of ownerless production facilities polluting the environment;

2) recultivation of degraded territories, disturbed and polluted lands as a result of economic and other activities: restoration, reproduction and improvement of soil fertility and other useful properties of the land, its timely involvement in economic turnover, removal, preservation and use of the fertile soil layer during work related to land disturbance;

3) protection of land from depletion, degradation and desertification, the negative effects of water and wind erosion, mudslides, flooding, waterlogging, secondary salinization, desiccation and compaction, pollution by production and consumption waste, chemical, biological, radioactive and other harmful substances;

4) construction, reconstruction, modernization of anti-erosion hydraulic structures, creation of protective forest strips, fixing of ravines, terracing of steep slopes;

5) elimination of historical pollution, localization and demercurization of sources of pollution of land resources;

6) in places where animals often go to the railway track, use reflective tapes, organize joint rounds with the invitation of representatives of forestry and hunting grounds.

7) implementation of measures aimed at restoring natural fertility or increasing soil humus.

### 3.4. Protection of flora and fauna:

1) greening of the territory of administrative-territorial units, increasing the area of green spaces, plantings on the territory of subdivisions of the network, regional and linear levels;

2) carrying out works on the protection and reproduction of the forest fund, rehabilitation of the territory after forest fires and reforestation.

### 3.5. Waste management of production and consumption:

1) introduction of technologies for the collection, transportation, neutralization, use and processing of all types of waste, including orphan waste;

2) construction, reconstruction of factories, workshops and production facilities, purchase and operation of installations

for the collection, transportation, processing, sorting, disposal and disposal of production and consumption waste;

collection and processing of secondary material resources;

collection, transportation, processing and disposal of liquid industrial waste polluting reservoirs or groundwater;

3) reconstruction, modernization of equipment and technological processes aimed at minimizing the volume of formation and disposal of production and consumption waste;

4) carrying out measures for the elimination of unauthorized (natural) landfills and historical

pollution, preventing their further occurrence, timely reclamation of lands disturbed as a result of pollution by industrial, solid household and other waste.

3.6. Implementation of management systems and the best safe technologies:

1) the introduction of environmentally friendly water-saving, soil-protecting technologies and reclamation measures in the use of natural resources, the use of low-waste technologies, the improvement of advanced technical and technological solutions that reduce emissions of pollutants into the environment;

2) introduction of environmentally friendly resource-saving technologies for cleaning and disposal of industrial waste;

3) the introduction of progressive, breakthrough and effective technological solutions based on the results of scientific research, the use of modern equipment and modern technologies in production processes, the transition to alternative energy sources characterized as environmentally friendly (bioethanol and others);

4) the use of technologies that have passed the state environmental expertise and received positive conclusions.

3.7. Research, survey and other developments:

1) conducting environmental studies to determine the background state of the environment, identifying possible negative impacts of industrial activities on ecosystems and developing programs and action plans to reduce environmental pollution;

2) improvement of methods of neutralization of solid household and industrial waste in order to prevent heavy metals and xenobiotics - compounds alien to organisms (industrial pollutants, pesticides, household chemicals, medicines) from entering the natural environment.

3.8. Environmental education and promotion:

1) creation and development of information systems, opening of websites, dissemination of information in the field of environmental protection to attract public attention to environmental problems;\_\_\_\_\_