Approved by the Order of Federal
Environmental, Industrial and
Nuclear Supervision Service
No. 20 of 20.01.2017

Safety Guide on Transport of Dangerous Substances in Hazardous Production Facilities by Railway and Road Means of Transport

I. GENERAL

1. The Safety Guide on Transport of Dangerous Substances in Hazardous Production Facilities by Railway and Road Means of Transport (hereinafter referred to as Guide) contains recommendations on ensuring industrial safety requirements when transporting flammable, oxidizing, combustible, explosive, toxic and highly toxic substances and substances which are of hazard to the environment by railway and motor means of transport on non-public tracks (roads) in fire explosive and chemically hazardous production facilities (hereinafter referred to HPFs) of the organizations within the territories of which process transport of dangerous goods is performed.

The Guide does not cover the issues related to transport of radioactive and infectious substances.

2. The Guide has been developed to facilitate the observance of Federal Codes and Rules in the field of industrial safety "General Rules of Explosion Safety for Fire Explosive Chemical, Petrochemical and Oil Processing Productions" approved by the Order of Rostechnadzor, No. 96 of March 11, 2013, with amendments made by the Order of Federal Environmental, Industrial and Nuclear Supervision Service, No. 480 of November 25, 2015, Federal Codes and Rules in the field of industrial safety "Safety Rules of Chemically Hazardous Production Facilities" approved by Rostechnadzor Order No. 559 of November 21, 2013.

To meet the requirements of the Federal Codes and Rules in the field of industrial safety, other means and methods rather than those indicated in this Guide may be used.

3. This Guide is recommended for use when performing in HPFs activities (services) connected with transport, relocation, loading, unloading and temporary storage of dangerous substances, as well as during preparation of means of transport for shipment of dangerous goods.

For the terms and definitions applied for the purpose of this Guide refer to Annex 1 to the Guide.

4. The provisions of the Guide are recommended for use when:

developing processes, operating, re-equipping, overhauling, preserving and liquidating HPFs, developing the HPF safety report and changes to be made in the HPF safety report;

manufacturing, installing, adjusting, maintaining, diagnosing and repairing technical devices used in HPFs;

reviewing industrial safety of the technical devices designed for transport (relocation) of dangerous substances, buildings and structures in HPFs.

5. In order to bring the non-public railway tracks (roads) of HPFs into compliance with the requirements of the regulatory legal acts in the field of safety, comprehensive examination of their actual status is recommended with measures developed for further safe operation of such facilities, and with a safety report developed as necessary.

6. The workers of the organizations operating hazardous production facilities, contracting organizations and other organizations involved shall be tested in the area of industrial safety in accordance with the procedure established by the Order of Federal Environmental, Industrial and Nuclear Supervision Service, No. 37 of January 29, 2007, “The Procedure of Training and Certification of the Workers of Organizations Supervised by Federal Environmental, Industrial and Nuclear Supervision Service”.

7. In accordance with the international requirements, dangerous goods are subdivided into classes, subclasses, categories and groups. For the recommended classification of dangerous goods in accordance with the international classification standards refer to Annex 2 to this Guide.

For recommendations on the issues of identification and classification of facilities of transport of dangerous goods refer to Annex 3 to this Guide.

Railway Transport

8. Technical operation of the non-public railway tracks, arrangement of traffic and shunting on such tracks within HPFs should be performed in accordance with the Rules of Technical Operation of Railways of the Russian Federation approved by the Order of the Ministry of Transport of the Russian Federation, No. 286 of December 21, 2010 (hereinafter referred to as RTO), with the Rules of Operation and Maintenance of Non-public Railway Tracks approved by the Order of the Ministry of Communication Lines of the Russian Federation, No. 26 of June 18, 2003 (hereinafter referred to as Rules of Operation and Maintenance of Non-public Railway Tracks).

9. The non-public railway tracks on which railway rolling stock is operated with the right of access to the public railway tracks should be maintained in accordance with the provisions of RTO.

10. The velocities of the rolling stock and the axle loading set on a concrete section of a non-public track, as well as components of a non-public railway track in HPFs should meet the design and technical documentation for these sections of the track, considering the layout of the HPFs and space planning decisions of their territories.

11. When transporting dangerous substances by railway transport, it is recommended that the organization manager’s order should assign workers in charge of:

the upkeep of signal and track signs, buffer stops, mobile signals, artificial structures on the non-public railway tracks;

accounting, issue, marking and storage of stop blocks; fastening of the rolling stock on the non-public railway tracks; arrangement and implementation of shunting on the non-public railway tracks.

12. Traffic and maintenance of the non-public railway tracks in HPFs should be arranged in accordance with the provisions of the instruction on the procedure of maintenance and arrangement of traffic on a non-public railway track (hereinafter referred to as Instruction) to be developed in accordance with the Rules of Operation and Maintenance of Non-public Railway Tracks.

The Instruction is to be developed by the owner of the non-public railway track and approved by it in agreement with the owner of the railway transport infrastructure this track sides with.

13. The Instruction specifies the characteristic of the layout of railway tracks, the border of the railway track, tonnage rating and length of the rolling stock (train) allowed for use on a non-public track, maximum admissible velocity, types of locomotives, procedure of making available and removal of wagons, arrangement of shunting relocations, positions of the pointworks, availability and layout of the safety locks, alarms, the procedure and rules of wagon anchorage, as well as other provisions related to safety of traffic on the non-public railway tracks.

14. The wagons should be made available on the railway tracks by instruction of the connecting railway station operator (traffic controller of centralized traffic control) as agreed with the person in charge of arrangement and implementation of shunting on the non-public railway tracks.

15. The wagons should be made available to the loading/unloading areas of dangerous substances as agreed with the person in charge for safety of loading/unloading in accordance with the Instruction.

16. The velocities of the shunting trains (consists) on the non-public railway tracks should be established by the manager of the organization operating the HPF (owner of the non-public railway track) and specified in the Instruction.

17. The person in charge of arrangement and implementation of shunting should ensure safe traffic of single locomotives and shunting consists on the non-public railway tracks. The shunting executive should directly supervise the shunting operations.

18. As a shunting train (consist) with wagons containing dangerous goods moves, the person in charge of arrangement and implementation of shunting on the non-public railway tracks should take measures to:

inform the shunting executive when the shunting assignment is issues, and the shunting executive should inform the locomotive driver about the presence of wagons with dangerous goods on the shunting train (consist);

have the chuting of the crossings and the service lanes where the wagons will travel cleaned;

instruct the workers of the shunting brigade on additional safety measures during shunting.

19. The worker in charge of the safety of loading/unloading operations and arrangement of the wagons on the loading (unloading) locations should make sure that the wagons are fastened correctly and securely. Then the locomotive should be uncoupled and leave the loading (unloading) location, and the wagons should be fenced with portable shields (stop signals painted red on both sides), the points leading to the loading (unloading) tracks should be switched over to the position preventing from entrance of the rolling stock to these tracks.

20. After loading (unloading) of the wagons, the worker in charge of the safety of loading/unloading operations and arrangement of the wagons should make sure that the operations are completed; there are no people on and under the wagon; there are no obstacles for the movement of means of transport; the people, machines and mechanisms are removed beyond the clearance to obstructions; the route of movement of the shunting consist is available; the portable protections are removed; and should issue the permission for attaching the locomotive and removal of the stop blocks.

The shunting consist should not be motioned without the shunting supervisor's relevant instruction permitting the motion and to remove stop blocks.

21. When performing shunting operations on the non-public railway tracks, there should be a work procedure that excludes:

jerkily shunting;

moving the wagons manually, by automobiles, by other appliances;

leaving the wagons without fastening with stop blocks;

leaving the wagons without a locomotive on crossings, service lanes, in gate openings, on pointworks and artificial structures;

using foreign objects to fasten the wagons;

using stop blocks made from sparking materials to fasten the wagons with dangerous substances;

using trapping and safety tracks for temporary lay-over of the wagons.

22. The locomotives intended for shunting in HPFs should be presented for technical examination and scheduled repair works, while the locomotives authorized to move on the public railway tracks should also be presented for spring and autumn commission examination of technical state with the participation of the representative of the owner of the adjacent public railway track.

23. To avoid self-movement, the groups of or individual wagons should be connected and securely fastened with stop blocks, stationary devices and other means for wagon fastening, as well as guarded with portable stop signals.

The points leading to the lay-over tracks of such wagons should be set into the position that excludes a possibility of access of other consists on these tracks and locked.

24. The passage of locomotives on a non-public railway tracks with a loading/unloading rack on it should be restricted to avoid throughfare.

Automobile Transport

25. The non-public highways with artificial structures located on them intended for transport of dangerous substances in the HPFs should be kept in accordance with the requirements of civil engineering codes and rules, standards establishing admissible, by traffic safety conditions, maximum values of highway serviceability indexes and other regulatory and technical documents.

26. Dangerous substances are conveyed by automobile transport in the HPFs on the roads with one common surfaced portion with hard surfacing and the strength that corresponds to the weight parameter of the means of transport operated on the specific section of the highway.

27. The traffic of means of transport with dangerous substances in the HPFs should be arranged in accordance with the transport process scheme with placement of relevant road signs and leading marks as stated in the Traffic Rules approved by the ordinance of the Council of Ministers – the Government of the Russian Federation No. 1090 of October 23, 1993.

28. The routes of means of transport should be established with regard for transport of dangerous substances in the shortest direction with a maximum number of stops on the route and a possibility of access of fire and emergency engines to some of the facilities, the lowest speed limit and traffic safety.

Traffic diagrams should be placed in visible locations on the route of means of transport.

When transporting dangerous substances in the HPFs, the drivers should observe the waybill and all its instructions.

29. To enable a U-turn at the end of terminal roads and maneuvering at the loading and unloading points, loop bypass roads or sites with dimensions calculated on the basis of the sizes of the means of transport and properties of transported substances should be provided.

30. Crossings of motor roads with railway tracks at the same level should be arranged at locations remote enough from the loading/unloading locations to avoid blocking of the crossing with railway consists to be loaded or unloaded.

31. When the operational state of the motor roads fails to meet the safety requirements established by the organization operating an HPF, measures should be taken to temporarily restrict the traffic until the following violations are rectified:

presence of foreign objects on the surfaced portion that may cause an emergency, absence of relevant roads signs;

formation of defects and damage of the surfaced portion above the maximum allowable values;

the state of the wheel tracks on a road section is above the maximum allowable values;

presence of damaged and unsealed expansion joints on cement concrete surfacing;

presence of disorganized exits;

presence of vegetation in the right of way that decreases the seeing distance of the approaching train on the railway crossings (without persons on duty) less than 400 m within 50 m from the nearest rail, at the same level crossings – less than 250 m;

presence of uncut vegetation that hamper the visibility of road signs and guiding devices at a distance of 100 m.

32. The organization operating an HPF should make sure that the motor road with artificial structures is periodically examined, as well as technical examination is performed in the spring and autumn terms to determine the amount and kinds of road repair in the coming term.

33. When breaching the standards of maintenance of a road and artificial structures located on it, the traffic of means of transport with dangerous substances should be restricted if:

the expansions joints and near-joint area are damaged with the formation of gaps between superstructures;

the subplates and interlinkages are damaged with the formation of a threshold of over 10 cm;

the state of railings and walkways may endanger the movement of the pedestrians (damage of walkway slabs, partial or complete collapse of the railing along a structure);

damage of the surfacing with exposure of reinforcement on the majority of the surface mat;

formation of through holes in the roadway slab due to damage of slab concrete;

damage of fencing along the majority of the bridge length;

weakening of the concrete cross-section in the compressive zone due to cavities in the steel concrete structures, cracks and chips of concrete or local degradation of concrete grade in the compressive zone, mechanical damage of reinforcement cross-section or its corrosion in the tensile zone, the state between bearing elements changing the structural model of structure operation;

multiple cracks over 0.3 mm wide;

intensive reinforcement corrosion with an area weakening of 10% and over;

damage of concrete due to leaching and defrosting on the majority of the roadway slab in steel concrete structures;

unfastened railing and fencing, gaps and other damage of railing that may affect the safety of the pedestrians.

II. RECOMMENDATIONS FOR OPERATION OF MEANS (EQUIPMENT) OF TRANSPORT INTENDED FOR TRANSPORTATION OF DANGEROUS SUBSTANCES

34. All design changes in the means of transport intended for transportation of dangerous substances should be made in accordance with the technical documentation approved by the manager of the organization owning the means of transport provided that the dimensions of a means of transport, traffic safety and industrial safety agreed with the manufacturer as necessary are observed.

35. The technical state of the rolling stock operated in a HPF, operated on the public railway tracks should be ensured in accordance with the requirements

for technical operation of the rolling stock (Annex 5 to the Rules of Technical Operation).

36. When operating a railway rolling stock, a technical passport (form), operating guide, general view drawings and other technical documentation should be provided for each unit of a means of transport to confirm the compliance of the means of transport with the safety requirements (for example, a certificate of compliance).

37. The sets of wheels of the wagons used for transportation of explosive materials, liquefied and compressed gases should be equipped with antifriction bearings and composition brake shoes in the train stop system.

38. To ensure safe conditions of transportation of the below liquid chemically hazardous goods, cistern wagons with the following design features should be used:

for chlorine, hydrogen sulfide – a cistern designed for excess pressure, equipped with a safety valve with a pressure safety element, without openings below the liquid level, as well as openings for cleaning located in the lower part of the boiler;

for anhydrous ammonia – a cistern designed for excess pressure, equipped with a safety valve with a pressure safety element;

for nitrogen, argon, helium, oxygen, krypton, neon, air, carbon dioxide – a cistern with an internal vessel, closure, heat insulation, equipped with vacuumizing valves, a pressure safety element, and evaporating gas exhaust from the cistern (gas discharge);

for inflammable liquids (petroleum products) – a cistern equipped with a safety inlet valve, a hermetically sealed hatch with a crossbar cover, an all-purpose draining instrument having two or three independent degrees of protection for gravity draining or with top control of the drainage with a vacuum pump;

for viscous petroleum products – a cistern equipped with a steam jacket, a safety inlet valve, a hermetically sealed hatch with a crossbar cover, an all-purpose

draining instrument having two or three independent degrees of protection for gravity draining;

for methanol – a cistern equipped with a protective cover on the hatch cover, with a top draining device;

for carbon bisulfide – a cistern with a top draining device;

for yellow phosphorous – a cistern equipped with a covered dome and an accessory for a locking safety device, with a top drainage device;

for hydrogen peroxide, water solution (concentration from 60%) – a cistern made from aluminum alloys designed for excess pressure;

for poisonous (toxic) substances, caustic (corrosive) substances – a cistern equipped with top drainage devices;

for liquid pitch – a cistern equipped with a heat insulation cover, with a heating device;

for caprolactam – a cistern made from stainless steel, with a heat insulation device, with a heating device;

for hydrochloric and superphosphoric acids, hypochlorite of sodium – the internal surface of the cistern should be covered with a layer of rubber of up to 5 mm (rubberized).

Carbon bisulfide should be transported under a layer of water (in summer) or under a layer of blanket of inert gas (nitrogen).

Yellow phosphorous should be transported under a layer of water (a layer of nonfreezing liquid in winter) and a layer of blanket of inert gas (nitrogen).

Caprolactam should be transported under a layer of blanket of inert gas (extra pure nitrogen with oxygen volume fraction less than 0.0005%).

39. The railway rolling stock intended for the use in an HPF without an exit to the public railway tracks should be kept (with regard for special conditions of its operation, maintenance and repair) as prescribed by the hazard class of the HPF where this rolling stock is operated.

At that, measures should be taken to provide:

safety conditions for the traffic and operational personnel’s work;

maximum performance under optimal performance indicators, necessary reliability and maintainability;

security of the transported substances;

a possibility of safe operation with regard for the plan and profile of the used railway tracks;

a possibility of integrated mechanization and automation of loading/unloading operations.

40. The locomotives operated in the HPFs and intended to transport wagons on the non-public railway tracks should be operated as required by the Rules of Technical Operation.

41. Special shunting means (traction units, locotractors, mules, shunt trolleys, electric hoists and other equipment) should be operated as required by the technical documentation, ensuring safe traffic, security of the railway rolling stock and safety of the workers associated with shunting and loading/unloading operations.

42. When preparing a motor vehicle for transportation of dangerous goods, the consignors should execute a special permission for traffic of the motor vehicle on the public highways and establishment of the route.

43. The containers and cistern containers intended for the use in HPFs should be transported (operated) with regard for the established requirements of the international conventions, agreements and codes on containers and transport of dangerous goods.

44. No repair and fire works should be done on the loaded cisterns and also on the empty uncleaned cisterns (without steaming cleaning, washing, drying and degassing) in compliance with the goods. After degassing, the environment inside the cisterns should be monitored with a gas analyzer.

45. Technical examination of the boilers of cistern wagons, cylinders and drums in which dangerous substances are transported under a pressure of 0.07 MPa and higher or in which a pressure above 0.07 MPa is periodically created for emptying should be carried out in accordance with the Federal codes and rules in

the field of industrial safety “Riles of Industrial Safety of Hazardous Production Facilities where Equipment Working under Excess Pressure Is Used” approved by Rostechnadzor order No. 116 of March 25, 2014.

46. When operating means of transport, account should be taken of the specifics of the dangerous substances transported in a cistern of the concrete model, design and functional capabilities of the cistern in accordance with the operating guide and with regard for the requirements existing at the organization operating the HPFs and process instructions on loading/unloading operations.

47. All components of the working and structural equipment of the cistern vessel or cylinder should be arranged in such a way as to preclude the danger of their fall or damage in the course of transportation and loading/unloading operations.

48. When preparing means of transport for transportation of dangerous goods, the provisions of Annexes A and B of the European Agreement concerning the International Carriage of Dangerous Goods by Road of September 30, 1957, should be taken into account.

49. Completeness of the operated vehicles and conditions for the possibility of their identification should be provided with due regard of the requirements of the Customs Union technical regulations “On the Safety of Wheeled Means of Transport” (TR TS 018/2011) approved by the decision of the Customs Union Commission, No. 877 of December 9, 2011.

50. The possibility of using cistern containers for transportation of dangerous substances, including the possibility of their transit, should be confirmed with the following plates located on the cistern container:

safety plates in accordance with the International Convention for Safe Containers;

plates in accordance with the Customs Convention on Containers;

plates with technical data of the cistern in accordance with the standards of international agreements and codes for transport of dangerous goods.

51. When the containers have no markings (plates) and documents confirming their compliance with the requirements of the international conventions, agreements and codes for containers and transport of dangerous goods, their compliance with the requirements of the industrial safety codes and rules specified in Para. 2 of this Guide should be assessed.

III. ARRANGEMENTS FOR LOADING/UNLOADING OPERATIONS IN HAZARDOUS PRODUCTION FACILITIES

52. When arranging locations for loading/unloading dangerous goods, the lay-out of the HPF area and spatial planning approaches to locating buildings and structures in HPFs should be taken into account.

53. The loading/unloading locations for dangerous goods should be provided with protection from direct lightning strikes and electromagnetic induction.

To arrest a direct lightning strike and minimize its secondary effects in the loading/unloading zone, free-standing lightning rods should be installed.

54. The procedure of loading, unloading, movement when lodging for loading and unloading goods with dangerous substances should be captured in the process instructions indicating among others:

duties of the persons who work at each work position;

the procedure of action under normal and abnormal operation;

safe methods of loading/unloading operations, their possible violations, attributes and methods of elimination.

55. The loading/unloading locations should be equipped with the relevant technical means designed for safe operation in accordance with the technology adopted in the organization.

Loading/unloading operations should be performed by mechanical means with lifting and transport equipment and labour saving tools.

56. The consignor should take measures for safe and secure delivery of dangerous goods to the consignee. For this purpose, when the dangerous goods are prepared for transportation, it should:

use tare, wrapping and packaging made as required by the tare and packaging standards, tested to prevent any leakage (spillage) of the contents, which may occur on the route due to dynamic impacts, temperature variations and humidity, and inert to the contained goods;

use railway rolling stock and automobile means of transport for transportation of only the liquid dangerous substances they are designed for in accordance with the design documentation of the means of transport (specifications, certificate, operating guide);

develop and have agreed layout diagrams of transport tare and methods applied to fix it on a means of transport.

57. When loading/unloading, measures should be taken to preclude:

the use of open fire at the locations where dangerous goods are loaded/ unloaded;

smoking at a distance of less than 50 m from the locations where dangerous goods are loaded/unloaded;

operation during a thunder storm;

absence of lighting during darkness hours.

58. Loaded means of transport should not be used for storage of dangerous substances.

The procedure of transit (short-term) storage of vehicles and cistern containers loaded with dangerous substances should be established by the organization operating an HPF.

59. When the state of the sites and locations for loading/unloading dangerous substances does not meet the operating requirements, temporary restrictions should be imposed, up to prohibition of traffic, to ensure safety of the traffic and loading/unloading operations.

60. Traffic of means of transport and loading/unloading operations should not be performed at the loading/unloading locations when:

there are foreign objects causing an accident environment when there are no relevant road signs;

there are individual foreign objects on the sideways and side lopes that affect the traffic safety and are not marked with the relevant road signs;

there are damaged and unfilled with mastic expansion joints on the cement concrete surfacing;

the loading/unloading sites and locations are not equipped with special accessories;

the loading/unloading sites and locations lack a solid hard water-resistant surface;

there is no protection (earthing) of the loading/unloading from direct lightning strikes and their effects;

there are no tools and accessories used in fire and explosion hazardous zones and not sparking when they are used.

61. As required by Annex 5 to the Rules of technical Operation, the organization operating an HPF should establish the procedure of technical examination and repair of wagons prior to loading.

Wagons should not be provided for loading:

when they have not been presented for maintenance and without an entry in the relevant logbook on their technical serviceability;

when their lifetime or time between repairs (or calendar period) have expired;

with faulty locks of the hatch cover or door, locking devices for sealing (if available) of the open wagons, hopper wagons and cistern wagons;

with untight hatch covers, with axial displacement of the unloading mechanism shaft, with clearances between the catch tooth and the lever tooth of more than 3 mm, with a value of lever transfer across the fulcrum of less than 8 mm or more than 18 mm for the wagons transporting hot pellets and agglomerate;

with a clearance between the latch tooth and the lock pin tooth of more than 8 mm for the wagons with mineral fertilizers;

with a bend, break of the lock pin of the unloading mechanism steering wheel when there is no steering wheel, with cracks in the welded joints of the attachment bracket of the unloading mechanism drives, with bends and dents of the loading and unloading hatches, of the hopper wagons with tear in the hinge joints: for the unloading mechanism – more than 2 mm, for the insertion pieces of the unloading mechanism drive – more than 3 mm;

as well as when:

there is no (a damaged) shutoff safety valve, bar, drain accessory plug on the cistern wagons;

there are no (damaged) sealing rubber gaskets of the unloading hatches on the hopper wagons, hopper cover, mismatch of the sector tooth with the slot in the support, as well as closing mechanisms in serviceable state;

there are no (damaged) end cock or coupling hose.

62. The following should be checked prior to technical examination on the cisterns presented for technical examination:

compliance with the dates of repair and technical expert examination of the cistern;

absence of foreign products in the cistern;

compliance and state of the painting, inscriptions and stencils, danger signs corresponding to the nature of hazard of the goods;

presence of orange plates with hazard code and United Nations Organization (UN) code;

serviceability of the valves and fastening of the hatch cover;

absence of mechanical damage of the safety valves;

absence of visible damage of the insulation cover of the cistern (if available);

serviceability of drainage accessories, internal ladders, hatch covers with packing elements, closing and sealing devices;

the value of residual pressure in the cistern;

presence of seals and plugs;

presence and content of accompanying documents;

presence of inscriptions with dates of periodic repair and test of the cistern, description of the goods.

63. The sites where dangerous goods are loaded/unloaded should be equipped with emergency kits of individual protective gear, means for emergency localization and first aid to the injured in an emergency (a self-care shower or bathtub, a self-care sink).

64. The sites and process equipment of the washing and steaming points should be maintained in accordance with the requirements of the design documents and operated on the basis of the process instruction which regulates operations on provision (removal), treatment and cleaning of the cistern wagons, filling of the drain instrument valves, and cleaning and washing of the territory.

65. Repair works with the use of open fire on the sites where dangerous goods are loaded/unloaded should be performed in accordance with the requirements of the Federal Law “Technical regulations on Fire Safety Requirements”, No. 123-FZ of July 22, 2008.

66. When loading, unloading and transporting explosives in the HPFs, the requirements of the Federal codes and rules in the field of industrial safety “Safety Rules during Blasting Operations” approved by the order of Rostechnadzor, No. 605 of December 16, 2013, should be observed.

The Instruction on train traffic and shunting of railway transport (Annex 8 to the Rules of Technical Operation) establishes the minimal value of closing for a wagon loaded with explosives.

67. When transporting in the HPFs melted ferrous and non-ferrous metals and melt-based alloys, the requirements of the Federal codes and rules in the field of industrial safety “Safety Rules when Receiving, Transporting and Using Melted Ferrous and Non-Ferrous Metals and Melt-Based Alloys” approved by the order of Rostechnadzor, No. 656 of December 30, 2013, should be observed.

Annex 1

to Safety Guide on Transport of Dangerous Substances in Hazardous Production Facilities by Railway and Road Means of Transport, approved by the order of Federal Environmental, Industrial and Nuclear Supervision Service
No. _____ of _____ 2017

Terms and Definitions

Artificial structures is a conventional name of the structures that need track (road) laying on broken ground to preserve the earthwork from washing out, landslides, spring water passage and suchlike.

Cistern is a mobile vessel permanently installed on the frame of a railway wagon, on the chassis of a vehicle (trailer) or on other means of transport, and intended for transportation and storage of gaseous, liquid and other substances.

Clearance to obstructions is a maximum transversal (perpendicular to the axis of railway track) outline, inside of which, apart from the railway rolling stock, there should be no parts of structures and devices, or materials, spare parts and equipment lying near the railway, except the parts of devices intended for direct interaction with the railway rolling stock (contact wires with fasteners, swinging arms of the water cranes when taking water, etc), provided that the position of these devices in the inner space is coordinated with the relevant parts of the railway rolling stock and that they cannot cause contact with the other elements of the railway rolling stock.

Container is a unit of transport equipment of multiple uses intended to transport and temporarily store goods without intermediate handling.

Dangerous goods are substances, materials and products which are in virtue of their attributes may be a cause of explosion, fire, chemical or other contamination, damage of vehicles and devices, as well as infliction of harm to the life and health of citizens and the environment during transportation, shunting,

handling and storage.

Dangerous substances are flammable, oxidizing, explosive, toxic, highly toxic substances, and substances constituting a danger to the environment listed in Annex 1 to Federal Law “On Industrial Safety of Hazardous Production Facilities”, No. 116-FZ of July 21, 1997.

Goods are an object, including products, items, minerals, materials, raw materials, waste pf production and consumption, accepted in accordance with the established procedure for transportation in vehicles on the basis of a contract of carriage.

Loading gage is a transversal (perpendicular) outline of open rolling stock, in which freight (with packaging and fastening) is located without coming out.

Non-public highways are motor roads owned, held or used by the executive authorities, local administrations (executive and regulatory authorities of municipalities), natural and juridical persons, and used by them exclusively for their own needs or for state and municipal needs.

Non-public railway tracks are railway access tracks siding with public railway tracks directly or via other railway access tracks and intended to provide railway transport services to certain users or to perform work to satisfy own needs.

Packaging is means or a system of means which ensure that products are protected from damage and loss, the environment is protected from contamination, and provide the system of product handling.

Railway crossing is an intersection of a motor road with railway tracks at the same level, equipped with devices that ensure safe conditions of clearing for rolling stock of railway vehicles and motor vehicles.

Railway transport vehicles are a railway rolling stock, including wagons, trolleys, motor trolleys, diesel electric trains, railway building machines (self-propelled), diesel locomotives and motor locomotives.

Road transport vehicles are motor vehicles, including specially equipped lorries, tank lorries, traction engines, trailers and semitrailers.

Service lane is a crossing of non-public railway tracks within the borders of the territory of an industrial estate with motor roads intended to provide for the process of this estate.

Shunting is the process of sorting items of rolling stock (trains, locomotives) on non-public railway tracks between two separate points, as well as between public and non-public railway stations, the borders of which are joints of point rails, fouling posts or insulated joints of colour light signals.

Shunting consist is a group of wagons or one wagon coupled with a locomotive performing shunting.

Structure is a result of construction representing a three- or two-dimensional or linear building system which has ground, overground and/or underground parts and consists of bearing, and in some cases, enclosure building structures, and intended to perform different types of processes, storage of products, temporary stay of persons, and conveyance of persons and goods.

Each individual structure with all devices being integral to it is a facility serving as a structure. For example,

a loading/unloading rack which includes a foundation, supports, decks, flooring, railway tracks and railing;

a motor road within the established borders, including a road bed, a carpet, a milieu (road signs) and other road-related structures such as fences, descents, spillways, ditches, bridges up to 10 m, a moat;

elements of a railway track, including a subgrade, drain, water discharge and strengthening structures of the subgrade, a superstructure (rails, flat crossings, pointworks and others).

Tank wagon is a wagon with a cistern (tank) as its body designed to transport and store gaseous, liquid and other substances.

Tare is a main type of packaging intended for location of products.

UN (United Nations) code is a four-digit identification code of a substance or a product specified in the UN Model Regulations on the Transport of Dangerous Goods.

Vessel is a sealed tank (fixed or mobile) intended to conduct chemical, thermal and other processes, as well as to store and transport gaseous, liquid and other substances.

Annex 2

to Safety Guide on Transport of Dangerous Substances in Hazardous Production Facilities by Railway and Road Means of Transport, approved by the order of Federal Environmental, Industrial and Nuclear Supervision Service
No. _____ of _____ 2017

Classes and Marking of Dangerous Goods

By nature of their dangerous properties, substances and products are subdivided into the following classes in accordance with the UN Model Regulations on the Transport of Dangerous Goods:

Class 1	Explosive substances and products
Class 2	Gases
Class 3	Highly flammable liquids
Class 4.1	Highly flammable solids, self-reactive substances and solid desensitized explosive substances
Class 4.2	Self-ignitable substances
Class 4.3	Substances extracting flammable gases as they interact with water
Class 5.1	Oxidizing substances
Class 5.2	Organic peroxides
Class 6.1	Poisonous (toxic) substances
Class 6.2	Infectious substances
Class 7	Radioactive materials
Class 8	Caustic (corrosive) substances
Class 9	Other dangerous substances and products

Each of the items (substances, products or group of substances and products) has its UN code.

Depending on the degree of danger they are characterized with, the following groups of packaging are established for substances and products (except the substances of Classes 1, 2, 5.2, 6.2, self-reactive substances of Class 4.1):

I – for high level substances;

II – for intermediate level substances;

III – for low level substances.

The consignor shall apply marking on each piece of cargo to identify the type and degree of danger of the goods. The marking shall contain:

danger signs;

name of the goods (when several types of dangerous goods are packed together, the name shall be applied for each type of the goods);

classification code;

UN code.

The pieces of cargo with dangerous goods shall have transport marking in accordance with the rules of transport of goods existing for the corresponding type of transport.

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Annex 3

to Safety Guide on Transport of Dangerous Substances in Hazardous Production Facilities by Railway and Road Means of Transport, approved by the order of Federal Environmental, Industrial and Nuclear Supervision Service
No. _____ of _____ 2017

Recommendations to Matters of Identification and Classification of Objects Transporting Dangerous Goods

In accordance with Article 2 and Annexes 1 and 2 to the Federal Law "On Industrial Safety of Hazardous Production Facilities", No. 116-FZ of July 21, 1997, hazardous production facilities are facilities where dangerous substances are transported in amounts indicated in the annexes to this federal law. The hazard classes of the facilities are established on the basis of amounts of a dangerous substance or dangerous substances which are or may be located in a hazardous production facility at the same time, in accordance with Tables 1 and 2, Annexes 1 and 2 to the Federal Law "On Industrial Safety of Hazardous Production Facilities", No. 116-FZ of July 21, 1997.

When identifying, it shall be taken into account that means of transport (railway rolling stock, motor vehicles, capacitance transport equipment) cannot be categorized and registered as hazardous production facilities as they are technical devices intended to convey dangerous goods, and, correspondingly, the amount of dangerous substances located in such devices at the same time (in total) shall not be taken into account.

For the hazardous production facilities (technological complexes) where transport section are part of the facilities technologically linked with the main process, the processes of transportation are attributes which characterize the main facilities. At the same time, the section of transportation shall not be identified independently (separately), and the information on the composition of a facility associated with transport of dangerous substances shall be contained in the

statement describing a hazardous production facility. The hazard class is assigned to a main facility which comprises an object (section) of transport of dangerous substances shall be established in accordance with Annex 2 to Federal Law “On Industrial Safety of Hazardous Production Facilities”, No. 116-FZ of July 21, 1997.

For the sections of transport of dangerous substances which comprise their own or leased non-public railways (roads) and where dangerous substances are handled (with loading/unloading racks, transloading (transfer of liquids) sites, equipped sites for parking of vehicles), Hazard Classes III and IV shall be established depending on the amount of dangerous substances which can be simultaneously located in the facility in accordance with design documentation, as specified in Tables 1 and 2 of Federal Law “On Industrial Safety of Hazardous Production Facilities”, No. 116-FZ of July 21, 1997.

For the sections of repair, maintenance, washing, steam cleaning, degassing and parking of means of transport which accommodate equipment working at an excess pressure from 1.6 MPa or at an operating environment temperature from 250 degree Celsius, Hazard Class III shall be established. For the same type of facilities, but where equipment working at an excess pressure up to 1.6 MPa, but over 0.007 MPa or at an operating environment temperature from 115 degrees Celsius is used, Hazard Class IV shall be established.

For the sections of transport of dangerous substances, which comprise their own or leased non-public railway tracks (roads) only designed for transfer and making available (removal of) means of transport with dangerous goods, and where handling (transshipment) and/or other process operations are not performed, no hazard class shall be established. Supervision and control of the safety status of such facilities are performed as part of supervisory and control activity on the status of process facilities which these sections side with, in accordance with design documentation establishing the borders of building and operation of the facilities.

The transported vessels (cisterns) subject to accounting by Rostechnadzor

authorities shall be registered on location of the site of the operating organization where repairs, maintenance and examination of the aforesaid equipment are performed.