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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

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Code for design of environmental protection in coal industry

煤炭工业环境保护设计规范

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2.2 Site selection and general layout - General layout

The page available carries the end of clause 2.2.6, which says that noise-sensitive areas should be placed in the sound shadow of a natural barrier.

2.2.7 The design of transport lines is governed by four rules: the line should not pass through densely populated areas; roads laid out in the living area and in other noise-sensitive areas should be of the dead-end type; the layout of railway stations and

yards is to make full use of the surrounding buildings and structures for sound insulation; the noise value at the boundary of a dedicated railway line may be taken from the relevant provisions of the current national standard GB 12525 on noise limits at railway boundaries and their measurement method.

3.1 Ecological protection - General requirements

3.1.1 The construction and the working of a coal project are to save and protect land resources. During construction, during extraction and after extraction has ended, the land damaged by mining, dumping, gangue disposal, construction and similar activities is to be treated against subsidence and reclaimed, and site greening and soil and water conservation measures are to be taken. Where villagers or other buildings and structures are seriously affected by coal mining, relocation and resettlement or other protective measures are to be carried out.

3.1.2 The design of land reclamation and of soil and water conservation is to follow five principles: the land reclamation plan is to be coordinated with the general land use plan of the region and the soil and water conservation plan is to be unified with the basin and regional soil and water conservation plans, and where the reclamation area or the treatment area lies inside an urban planning area the urban plan is also to be met; the work is to be combined with the pollution control works, so that environmental and social benefits are unified; it is to be planned together with the process of extraction, stripping, transport, dumping and gangue disposal, and is to be brought into the unified management of the coal mine; the design of the soil and water conservation measures is to carry out the policy quoted in the text as prevention first, overall planning, integrated control, adaptation to local conditions, stronger management and attention to results, and is to combine plant measures with engineering measures and artificial planting with the natural closure of vegetation; the design of land reclamation is to keep to the principles quoted as scientific planning, adaptation to local conditions, integrated treatment, economic feasibility and rational use.

3.2 Ecological protection - Land reclamation

3.2.1 The design of the reclamation works is to state the object of the reclamation, including its position, extent, area and features, the process flow, the process measures, the choice of machinery and equipment, the consumption of materials and the labour needed to reach the objectives of the general plan of the mining area, together with the implementation programme and the budget.

3.2.2 A coal construction project is to reclaim in full the excavation sites, the dumps, the gangue heaps, the subsidence areas and the temporary land used for the industrial site and for road construction; the objectives and tasks of land reclamation for each phase are to be planned as a whole and settled reasonably according to the progress of production

and construction, and are to be carried out on schedule.

3.2.3 The use of reclaimed land is to be settled according to the principles of reclamation, the natural conditions and the state of damage of the land. Reclaimed land should be used for agriculture.

3.2.4 The quality of the land of the various sites of shaft mines and opencast mines that need reclamation, once reclaimed for different uses, is to meet the provisions of the relevant current national land reclamation standards.

3.2.5 An opencast mine should strip the topsoil separately first; the thickness stripped is to be settled according to the conditions of occurrence and to the quantity of topsoil to be spread later. The stripped topsoil is to be stored properly.

3.2.6 Topsoil should be moved by machine. Where the haul distance is long, water is plentiful or the topsoil is used to improve poor land near the mining area, hydraulic transport of the topsoil may also be used.

3.2.7 The thickness of the topsoil cover is to be settled according to the local soil conditions, the climate, the use of the reclaimed land and the quantity of soil available, and is to meet the requirements of reclamation. After the topsoil cover has been levelled, soil improvement should be carried out.

3.2.8 The equipment of the reclamation works of an opencast mine is to be chosen at the same time as the production equipment and is to be coordinated with the mining, stripping, haulage and dumping equipment. The type and the number of reclamation machines are to be settled according to the volume of reclamation work and the haul distance of the covering soil.

3.2.9 Where subsidence areas, underground gullies or low-lying land are reclaimed by filling with gangue, the method is to be settled according to the gangue disposal process and the intended use of the filled land. Where the fill is used as a building site, the ground treatment method and the construction process are to be chosen according to the type of building, the carbon content of the fill should not exceed 12 % and its sulphur content should not exceed 1.5 %, and where these figures are not met measures against spontaneous combustion are to be taken.

3.3 Ecological protection - Soil and water conservation

3.3.1 The area in which a coal construction project is responsible for preventing and controlling soil and water loss is to cover the construction area of the project and the area directly affected.

3.3.2 The design of soil and water conservation for a coal construction project is to reach five basic objectives: the existing soil and water loss in the construction area is brought substantially under control; newly caused soil and water loss is effectively controlled; the

ecology is protected to the greatest possible extent and the environment is markedly improved; the soil and water conservation facilities are safe and effective; the disturbed land treatment rate, the total soil and water loss treatment degree, the soil loss control ratio, the slag retention rate, the forest and grass vegetation recovery rate and the forest and grass cover rate reach the values of the corresponding grade in the current national standard GB 50434 on the control of soil and water loss of development and construction projects.

3.3.3 The prevention of soil and water loss is to be based on a full survey of the landform, the climate, the vegetation types and cover and the present state of soil and water loss in the project area, and the engineering and plant measures are to be chosen according to the soil and water loss type zone in which the project lies, the engineering features of the construction project and the protection requirements.

3.3.4 The engineering protection measures may include slag retention works, slope protection works, flood control and drainage works, rainfall storage and infiltration works, windbreak and sand fixation works, land levelling works and temporary protection works. The measures are to be chosen according to the environmental conditions and the features of the project, are to be designed in phases, and their content and requirements are to follow the relevant provisions of the current national standard GB 50433 on the technical requirements for soil and water conservation of development and construction projects.

3.3.5 Plant protection may take the form of grass planting or afforestation. Vegetation recovery works should be carried out in three kinds of area: excavated and damaged faces, spoil surfaces, occupied and damaged faces and side slopes that are fairly stable; borrow pits, spoil tips and temporary occupied land no longer used by the works; and bare land in the project area suitable for planting trees and grass.

3.3.6 The original surface vegetation, the topsoil and the crust of the site are to be protected during construction. Land left after construction is to be levelled in good time.

3.3.7 The construction organization design of the project is to meet three rules: construction is to be arranged reasonably so as to reduce the volume of earthwork excavation and of waste; the construction schedule and sequence are to be arranged reasonably so as to reduce the area and the duration of the bare disturbed surface; earth and rock are to be allocated reasonably so as to prevent repeated excavation and repeated handling of soil, stone and spoil.

3.3.8 This clause is one of the provisions declared mandatory in the ministerial announcement. Temporary protection measures must be taken during the construction of a coal construction project. Sites that are excavated, dumped on or filled must be given retaining, slope protection, interception and drainage and other treatment measures.

3.3.9 Waste soil, stone and slag are to be used where possible; where they cannot be used they are to be disposed of properly and are to meet three requirements: a dedicated storage site is to be provided, and waste gullies and low-lying land should be chosen as the