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

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**Technical Guidelines for Identification and Assessment of
Eco-environmental Damage Environmental Elements - Part 1:
Soil and Groundwater**

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1 Scope of application

This standard specifies the content, working procedures, methods and technical requirements of the evaluation and evaluation of ecological environmental damage involving soil and groundwater.

This standard applies to the identification and assessment of ecological environmental damage involving soil and groundwater caused by environmental pollution or ecological damage.

This standard does not apply to the identification and evaluation of ecological environmental damage involving soil and groundwater caused by nuclear and radiation accidents.

2 Normative references

This standard refers to the following documents or their clauses. For dated reference

documents, only the dated version applies to this standard. Where It is an undated reference document, and its latest version (including all amendments) is applicable to this standard.

GB 5084 Farmland Irrigation Water Quality Standard

GB 5749 Sanitary Standard for Drinking Water

GB 9834 Soil Organic Matter Determination Method

GB 11607 Fishery Water Quality Standard

GB 15618 Soil Environmental Quality Agricultural Land Soil Pollution Risk Control Standard (for Trial Implementation)

GB 36600 Soil Environmental Quality Construction Land Soil Pollution Risk Control Standard (Trial)

GB/T 14848 Groundwater Quality Standard

GB/T 18508 Evaluation Regulations for Urban Land

GB/T 39791.1 General Outline and Key Links of Technical Guidelines for Ecological and Environmental Damage Identification Assessment Part 1.General Outline

GB/T 39791.2 General Outline and Key Links of Technical Guidelines for Eco-environmental Damage Assessment and Assessment Part 2.Damage Investigation HJ 25.1 Technical Guidelines for the Investigation of Soil Pollution Status of Construction Land HJ 25.2 Technical Guidelines for Soil Pollution Risk Control and Remediation Monitoring of Construction Land HJ 25.3 Technical Guidelines for Soil Pollution Risk Assessment of Construction Land HJ 25.4 Technical Guidelines for Soil Remediation of Construction Land HJ 25.5 Technical guidelines for risk management and soil remediation evaluation of contaminated land HJ 25.6 Technical Guidelines for Groundwater Remediation and Risk Management of Contaminated Land HJ 493 Technical Regulations for Storage and Management of Water Quality Sampling Samples HJ 710.1 Technical Guidelines for Biodiversity Observation and Terrestrial Vascular Plants HJ 710.2 Biodiversity Observation Technical Guidelines Lichen and Moss HJ 710.3 Biodiversity Observation Technical Guidelines for Terrestrial Mammals HJ 710.5 Biodiversity Observation Technical Guidelines for Reptiles HJ 710.6 Technical Guidelines for Biodiversity Observation Amphibians HJ 710.10 Technical Guidelines for Biodiversity Observation, Large and Medium-sized Soil Animals HJ 710.11 Guidelines for Biodiversity Observation Technology HJ 1019 Technical Guidelines for Sampling of Volatile Organic Compounds in Soil and Groundwater HJ/T 164 Technical Specification for Groundwater Environmental Monitoring HJ/T 166 Technical Specification for Soil Environmental Monitoring CJ/T 206 Water Quality Standard for Urban Water Supply DZ/T 0290 Groundwater Quality Standard NY/T 1121.16 Soil Testing Part 16.Determination of Total Water-soluble Salt in Soil NY/T 1121.22 Soil Testing Part

22. Determination of Soil Field Water Holding Capacity-Ring Knife Method NY/T 3343
Cultivated land pollution control effect evaluation criteria NY/T 3499 Guidelines for the
Treatment and Restoration of Contaminated Farmland "Recommended Methods for
Environmental Damage Assessment in the Emergency Response Phase of Environmental
Incidents" (Huanban [2014] No. 118)

"Recommended Methods for Environmental Damage Appraisal and Assessment (II
Edition)" (Huanban [2014] No. 90)

"Guidelines for Investigation and Evaluation of Groundwater Environmental Conditions"
(Huanban Soil Letter [2019] No. 770)

"Guidelines for Groundwater Pollution Simulation, Prediction and Assessment" (Huanban
Soil Letter [2019] No. 770)

"Detailed Rules for the Verification of Direct Economic Losses in the Emergency Response
Phase of Emergent Ecological and Environmental Incidents" (Huan Emergency [2020] No.
28)

3 Terms and definitions

The following terms and definitions apply to this standard.

3.1 Soil The loose layer on the earth's land surface composed of minerals, organic matter,
water, air, and biological organisms.

3.2 Groundwater Water buried in voids in the earth's crust in various forms.

3.3 Environmental sensitive area Legally established protected areas of various levels and
areas, as well as areas particularly sensitive to certain types of pollutants or ecological
impacts, mainly include ecological protection The ecological protection red lines, nature
reserves, special marine protection areas, drinking water source protection areas, basic
Farmland protection areas, basic grasslands, important wetlands, natural forests, important
wildlife habitats, key protected wild plant growth and reproduction areas, heavy The habitats
and migration channels of aquatic organisms, natural fishing grounds, key water and soil
erosion prevention areas, sandy land closed protection areas, and natural coastlines, As
well as areas whose main functions are housing, medical and health, cultural education,
scientific research, and administrative office.

3.4 Health risk assessment Based on soil and groundwater surveys, analyze the main
exposure pathways of pollutants to the population, and evaluate the effects of pollutants on
human health The carcinogenic risk or hazard level.

3.5 Conceptual model Use words, diagrams, tables, etc. to systematically and
comprehensively describe pollution sources, pollutant migration pathways, and exposure of
the human body or ecological receptors to polluting media Process and contact methods,

etc.

3.6 Receptor Environmental factors such as soil and groundwater in the assessment area and its surrounding environment that may be affected by environmental pollution or ecological damage, and People, biological groups and ecosystems.

3.7 Theoretical treatment cost The governance cost calculated by the governance cost function. The governance cost function takes governance costs as the dependent variable, and uses processing technology and processing Factors such as scale and pollutant removal efficiency are function models constructed by independent variables. When the concentration of pollutants and governance objectives are determined, the The above variables are brought into the governance cost function, and the corresponding theoretical governance costs can be obtained.

4.1 Work plan formulation

Grasp the basic situation of ecological environmental damage involving soil and groundwater, and understand the natural environment and social conditions of the damaged area and surrounding areas;

Preliminarily judge the damage scope of soil and groundwater, clarify the content of the ecological environment damage identification assessment involving soil and groundwater, and determine the identification Evaluation methods, preparation of appraisal and evaluation work plans.

4.2 Damage investigation confirmation

Through conducting geological and hydrogeological surveys, soil and groundwater pollution status surveys, soil and groundwater ecological service function surveys, soil The baseline level survey of soil and groundwater environmental quality and its ecological service function, to determine whether the soil and groundwater environment and its ecological service function got damage.

4.3 Causality analysis

Through pollution source analysis, migration and transformation process analysis and verification, analyze whether there is a relationship between environmental pollution behavior and soil and groundwater damage Causal relationship. By analyzing the mechanism of ecological damage caused by soil and groundwater damage, determine ecological damage and soil and groundwater damage Whether there is a causal relationship between harms.

4.4 Physical quantification of soil and groundwater damage and development of restoration plans