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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB 26861-2011

Safety code of electric power industry - High voltage laboratory

电力安全工作规程 高压试验室部分

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Issued by: General Administration of Quality Supervision, Inspection and Quarantine;
Standardization Administration of the PRC

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Foreword

All the technical contents of this standard is mandatory. This standard was drafted in accordance with GB/T 1.1-2009 given rules. The standard proposed by China Electricity Council. This standard by the National Standardization Technical Committee of high voltage electrical safety (SAC/TC226) centralized. This standard was drafted. State Grid Electric Power Research Institute. Drafters of this standard. Yang Yingjian, Tsai Chung-ho plot, Zhang Xi.

Based, retained the DL560 main content. The increase in the standard scope of application, "according to the standards required to form substation test area, High voltage test power plant site "in the safety management absorbed nearly 10 years of experience, an increase in the technical content of" safe distance "for It should test voltage levels. DL560-1995 "electrical safety regulations" (high voltage test chamber portion) former Wuhan High Voltage Research Institute of Electric Power Industry Ministry to develop. the Lord To drafters. Tsai Chung-ho plot, Zhu Tong Chun, Wang Wei Lin. Electrical safety work order high voltage test chamber portion

1 Scope

China's mandatory safety code for work in high voltage laboratories - the test halls where transformers, switchgear, insulators and cables are subjected to power frequency, impulse and direct voltage far above anything found in service, and where the hazard is not a fault but the intended operating condition. It sets the safety requirements for the personnel, the premises and the test work itself: the qualification, training and duties of the staff, the layout and enclosure of the test area with its barriers, interlocks, earthing and warning systems, the organisation of a test with its work ticket, permit, supervision and handover, and the operating rules for the power frequency withstand, impulse voltage, direct voltage, large current, insulator and arrester test facilities, together with the measures against residual charge, the discharge and earthing of the object under test, and the emergency

arrangements. The whole technical content of the standard is mandatory. It applies to the high voltage laboratories of electric power enterprises, research institutes, manufacturers and testing bodies. Issued on 29 July 2011 and in force since 1 June 2012, it was prepared on the basis of the earlier power industry rule DL 560-1995 and is under the jurisdiction of SAC/TC 226, with the State Grid Electric Power Research Institute as the lead drafting organisation.

This standard specifies the basic safety requirements for high-voltage laboratory, safety measures, technical measures, procedures and test in preparation Claim. This standard applies to the high-pressure test chamber (including high voltage test hall, high voltage outdoor test site) and his staff. This standard also applies to the press Calls for a substation, power plants, high voltage test field test area.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB 311.1 insulation with high-voltage power transmission equipment

GB 2900.19 electrician term high voltage test and insulation technology cooperation

GB/T 16927.1 High-voltage test techniques - Part 1. General test requirements

3 Terms and Definitions

GB/T 2900.19 define the following terms and definitions apply to this document.

3.1 High voltage test chamber highvoltagelab Using higher than 1000V power frequency, DC and impulse voltage for electrical equipment, insulation material (member), and other various electrical air gap Laboratory tests of the characteristics (including high voltage test hall, high voltage outdoor test site).

3.2 Clearance clearance Air distance between two live parts or live parts and ground (or ground object) between.

3.3 The minimum clearances minimumclearance Air between live parts or live parts to a minimum clearance between the ground.

3.4 Work space/safe distance workingclearance Live parts of the effective length between the security staff or the minimum safe distance from live action tools.

3.5 Test grounding groundintesting The test equipment, measuring equipment and the test according to the test requirements cited by the ground wire to the laboratory dedicated ground piles (band).

3.6 Ground discharge dischargebygrounding After the test will be the high voltage terminal and the ground terminal (or low side) after the test, the high voltage output terminal and the ground test equipment, using a dedicated Short-circuit grounding rods, the charge is released to the ground, the equipment and the ground potential are equal.

3.7 Abnormal discharge abnormaldischarge During operation impulse voltage test, impulse discharge does not occur in accordance with the relevant requirements of the arranged between the test gap, but hair Born in the gap between the high-pressure side of the other grounding body composition, and the gap distance is greater than the test gap distance (or even much bigger).

4 Basic Safety Requirements

4.1 high-pressure test personnel High voltage test should have a high-pressure test of professional knowledge, familiar with the test equipment and test, familiar with the standards and training after passing the examination In order to work in high-pressure test. The new interns to participate in the high-pressure test, should have experience in high-pressure test personnel designated to participate in custody High-pressure test to work, not work as leaders and guardians. Foreign personnel participating in the trial should be carried out on-site safety training and technology Disclosure. High voltage test personnel to these Rules shall be an examination every year. In addition, high-pressure test should.

a) healthy and have no prejudice to the work of the high-pressure test conditions;

b) learn first aid law, in particular shock to learn to maneuver;

c) understand the general knowledge of fire, use fire-fighting laboratory facilities.

4.2 high voltage test chamber

4.2.1 Grounding System High voltage laboratory (field) should have a good grounding system to ensure that the high-voltage test measurement accuracy and security of person. Grounding resistance should meet Design specifications, usually less than 0.5Omega. It should be reliable metallic ground connected between the test equipment and the device under test ground Connection. Laboratory (field) in all of the metal structure, fixed metal security shield cover (gate) and the grounding grid column should have a firm connection. Ground Point should have visible signs. In order to ensure that the grounding system is always in good condition, it should be measured every five years to connect the first grounding resistor, butt ground and ground will be An inspection.

4.2.2 Experimental Area High voltage test room shall be consistent with the safety cover bar enclosed test area GB/T 16927.1 proximity effect influence requirements, the test area should not heap Put debris. Without compromising security, dedicated isolation test area may also be enclosed with (especially high-voltage outdoor test site for a big test Area).

4.2.3 Environment High voltage test chamber should be kept well lit, close the doors and

windows, ventilation facilities; indoor should be left to meet the requirements, marking a clear channel. test Laboratories around the proper fire exits, and ensure the smooth flow. The control room shall lay rubber insulation pad. High voltage test room should be equipped with the appropriate safety equipment, anti-virus, anti-radiation, anti-scald-proof and protective equipment as well as fire safety facilities, Equipped with emergency lighting power supply.

4.3 Other Laboratory should be safe system of work, the main equipment shall prepare safety procedures, establish a complete technical file. Each test is too full Cheng should be complete and detailed records. After using test equipment, due to the condition of the equipment description, the maintenance should be a complete record. Explosive device may produce toxic substances or after discharge should be ready to fire, explosion, anti-virus measures. SF6 gas-insulated high voltage test And the test equipment should be sealed well, the test site shall be required to be installed powerful ventilation apparatus and protective facilities. Important instruments and electronic equipment shall be installed to prevent discharge protection device and counter-induced voltage, or take other security measures.

4.5

Note 1. The test voltage 200kV safe distance below the requirements of not less than 1.5m.

Note 2. The test voltage is AC rms DC maximum.

Note 3. for not more than 1000m altitude region. Used for elevation above 1000m, according to GB 311.1 in altitude correction provisions be amended. Table

2 Impact test (peak) Safety distance Test voltage kV safe distance Impulse lightning impulse Test voltage kV safe distance Impulse lightning impulse 5003320001614 1000 7.2 7.2 30,003,018 1500 13.2 12.5 4000-- 22

Note 1. The test voltage 500kV safe distance below the requirements of not less than 3m.

Note 2. for not more than 1000m altitude region. Used for elevation above 1000m, according to GB 311.1 in altitude correction provisions be amended.

6.3 Personal Protection When the high voltage test, especially in impulse test voltage (peak value) is higher than 2000kV, due to the irregularity of the discharge path, it is possible Abnormal discharge can occur, all personnel should stay to prevent abnormal discharge endanger the safety zone, such as the control room, the observation room or shield cover bar outer. Cut off the power before the test, any person should not enter the test area. High and low temperature, low pressure test, should be feasible precautions to prevent harm to the person; when large current tests, should prevent Sample damage have burst personal injury protection measures.

6.4 grounding and ground discharge