

ABSTRAK

ANALISA SISTEM *GROUNDING MAIN SWITCH STATION* SEBAGAI PENGAMAN PERALATAN LISTRIK PT. BUKIT ASAM Tbk.

(2025: XIV + 52 Halaman + 24 Daftar Gambar + 15 Daftar Tabel + 8 Lampiran)

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Sistem pentanahan (*grounding*) merupakan salah satu komponen penting dalam sistem tenaga listrik karena berfungsi sebagai pengaman terhadap peralatan dan keselamatan manusia dari bahaya tegangan lebih dan arus gangguan. Penelitian ini bertujuan untuk menganalisis sistem *grounding* pada *Main Switch Station* (MSS) PT Bukit Asam Tbk dengan cara membandingkan hasil pengukuran di lapangan dengan hasil perhitungan teoritis, serta mengevaluasi tegangan sentuh dan tegangan langkah terhadap standar PUIL 2011. Metode yang digunakan meliputi studi *literatur*, observasi, wawancara, dan pengukuran langsung menggunakan *Earth Tester*. Berdasarkan hasil pengukuran selama tiga hari, nilai tahanan pentanahan berada pada kisaran 0,40–0,41 Ω , sedangkan hasil perhitungan teoritis menghasilkan nilai 0,54 Ω . Nilai tegangan sentuh yang diperoleh sebesar 101,5 volt dan tegangan langkah sebesar 106 volt, keduanya masih jauh di bawah batas aman sesuai standar. Dari hasil tersebut dapat disimpulkan bahwa sistem pentanahan MSS di PT. Bukit Asam Tbk telah memenuhi standar keamanan, efektif dalam menyalurkan arus gangguan, serta mampu melindungi peralatan dan personel dari risiko listrik berbahaya.

Kata Kunci: Pentanahan, Pengaman, Tegangan, Arus, Peralatan.

ABSTRACT

ANALYSIS OF THE MAIN SWITCH STATION GROUNDING SYSTEM AS A SAFETY DEVICE FOR ELECTRICAL EQUIPMENT PT. BUKIT ASAM Tbk.

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The grounding system is one of the essential components in power systems, functioning as protection for equipment and human safety from overvoltage and fault currents. This study aims to analyze the grounding system at the Main Switch Station (MSS) of PT Bukit Asam Tbk by comparing field measurement results with theoretical calculations, and by evaluating touch and step voltages against the PUIL 2011 standard. The methods used include literature study, observation, interviews, and direct measurements using an Earth Tester. Based on measurements conducted over three consecutive days, the ground resistance values ranged between 0.40–0.41 Ω , while theoretical calculations resulted in a value of 0.54 Ω . The touch voltage obtained was 101.5 volts and the step voltage was 106 volts, both of which are far below the permissible safety limits. These results conclude that the grounding system at the MSS of PT Bukit Asam Tbk meets safety standards, is effective in discharging fault current into the ground, and provides protection for equipment and personnel against electrical hazards.

Keywords: *Grounding, Safety, Voltage, Current, Equipment.*