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22 September 1998

MEMORANDUM

To: PDs/PMs/APMs/PAs/A&A Staff via E-Mail

From: Tan L S

POWERGRID'S CIRCULAR ENTITLED "CABLE DAMAGES CAUSED BY SINKING OF EARTH RODS"

I am transmitting for your information, PowerGrid's circular of 10 September 1998 to all LEWs on the above subject matter.

In the light of the circular, we should adopt the following for our new projects:

1. When obtaining quotations from the Licensed Cable Detection Workers, their fees should cover additional duties called for in item b) ii) & iv) and c) i) of the circular.

2. Our electrical specification and/or drawings should include PowerGrid's "Guidelines for Electrical Work at Construction Site".

3. For earthing near PowerGrid's 66 kV/22 kV underground cables, we should specify the use of earthing plates instead of earthing rods.

4. Upon appointment of Piling Contractor, Earthwork Contractor, Foundation Contractor, Sub-Structure Contractor, Super-Structure Contractor, PowerGrid's "Guidelines for Electrical Work at Construction Sites" should be issued to them officially for observation/compliance.

Tan L S

cc Notice Board

enc

TLS/na

Your Ref:
Our Ref:
DID : 4700600
FAX : 4759400

10 Sep 1998

POWER GRID
A subsidiary of Singapore Power

Mr Tan Leh Seong @ Tan Lai Siong
4 Greenwood Place
Singapore 289129

Dear Sirs

CABLE DAMAGES CAUSED BY SINKING OF EARTH RODS

We wish to share our concern with you on the increasing incidents of cable damages caused directly by sinking of earth rods by the contractor. From our records, there were a total of 16 such cases over the past 3 years. Among these were 4 incidents where transmission cables were damages and had resulted in power dips affecting many customers. The latest incident occurred in Jun this year at a construction site where an electrical sub-contractor's worker sunk earth rods on top of a 66kV cable.

2 There are serious political, economical and social consequences whenever underground cables and in particular, transmission cables are damaged. Such damages lead to lengthy work stoppages at sites, expensive repair costs and possible legal actions taken against the person or company who had caused the damage.

3 PowerGrid Ltd., through its Cable Damage Prevention Unit (CDPU) has put in great efforts to implement a network of activities and programmes to prevent cable damages. These include the daily patrolling of transmission cable routes and identification of high-risk sites for close scrutiny. However, we envisage that PowerGrid's efforts alone are not adequate without the full co-operation and dedication of the parties working at the construction sites namely main contractors, sub-contractors and other site personnel including the Licensed Electrical Workers (LEWs).

4 We would therefore urge your co-operation as a Licensed Electrical Worker together with your electrical contractor(s) when carrying out electrical work including the sinking of earth rods for the installations to take extra care and implement measures so as not to cause damage to the underground cables. To assist you, we are pleased to enclose herewith a set of guidelines for your perusal.

5 Should you have any doubt or clarification on the guidelines, you are welcome to contact Mr Joseph Samy, Engr of CDPU at Tel No: 4700602 or the undersigned at 4700600.

Yours faithfully

LEONG KUM SENG
MANAGER
OPERATIONS SUPPORT SECTION
encl

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GUIDELINES FOR ELECTRICAL WORK AT CONSTRUCTION SITES

LEWs shall work closely with Licensed Cable Detection Workers (LCDWs) on the care and measures to be taken for the prevention of cable damage at the construction sites. Generally, these include the following:

a) Cable Markings

Cable markings on the ground provided by the LCDW are indications of cable locations in the vicinity but not the absolute identifications.

b) Trial Holes

i) Before any earth rods are sunk, trial holes must be made at selected positions to either confirm the cable positions or to ensure that there are no presence of electricity cables prior to any work at that particular spot.

ii) LEWs and electrical contractors should have their LCDWs present to advise them on the digging of trial holes or seek help from the main site project managers and their LCDWs if they agree to extend their service to them in reconfirming the trial hole positions.

iii) Trial holes should be dug manually by hand without the use of mechanical excavation.

iv) Trial holes should preferably be 1 metre by 1 metre and dug to a depth of at least 1.5 metre. If necessary, a cable detector should be used to reconfirm the presence of any cables below. Further digging beyond the recommended 1.5 metre may be necessary depending on the results of renewed cable detection checks.

c) Sinking of Earth Rods

i) LEWs and electrical contractors should have their LCDWs at sites to endorse the positions selected for sinking the earth rods. Alternatively, the LEWs or the electrical contractors could consult the main contractors' site project managers or the principal/owner for the established cable detection drawings and seek their LCDW's assistance during the sinking of earth rods.

ii) LEWs and electrical contractors must ensure that their supervisory staff and workers doing earth rod sinking are properly instructed to follow all the safety measures outlined in this guideline. More importantly, a competent person must be present to supervise the workers during the entire session when earth rods are sunk.

iii) It is highly recommended that a permit-to-work system be implemented at the site to control and manage any associated excavation works and sinking of earth rods. Such a system will require that a worker applies formally on the Permit form before he sinks earth rods. The supervising authority will then check the sites and ensure that all the steps outlined in this guidelines are followed or complied with before authorising earth rods to be sunk;

d) Earthing Plates

Subject to the relevant code of practices, LEWs may consider using earthing plates where transmission cables are present.