FATAL INCIDENT DUE TO ELECTROCUTION IN AN OFFSHORE PROCESS PLATFORM

Introduction:

A fatal incident took place on an offshore process platform. A contractual engineer was found unconscious while working on 'Oxygen Analyser' near De-oxygenating tower. Victim was provided CPR at the site and in platform dispensary. He was not responding to the medical treatment, hence was shifted to a hospital, where he was declared dead.

Brief description:

The victim was involved in pre-commissioning activities of instrumentation equipment of De-oxygenation tower. He opened the panel of Oxygen Analyser (used to measure oxygen content in sea water to be injected into the wells) and started checking power supply with a line tester. Another contact person, working nearby, saw the victim holding two separate wires with his two hands.

Observations:

i. Pre-commissioning/commissioning of various systems/equipment were going on simultaneously. The job related to 'Oxygen Analyser' was not planned in advance and came up during pre-commissioning. Job safety analysis was not done.

ii. Technical specifications and related documents were not available on board (made available to the investigating officer later at base).

iii. As per the technical data sheet, power supply to the Oxygen Analyser should be 6.5-13.5 Volts DC (the same is displayed on the sticker fixed at the panel also) through safety barrier. On checking, during incident investigation, it was found that power supply to the panel was 230V AC thereby confirming that there was no safety barrier installed in the line.

iv. The victim was staying at Work Barge continuously for 55 days. This long stay might have resulted in inadequate rest and restitution for the victim, thereby affecting his alertness.

v. The victim was shifted to Platform's dispensary where he was given immediate medical support by the doctor. As the patient was not responding to the medical treatment, he was shifted to the base hospital where he was declared dead.

Root cause of the Incident:

1. Immediate cause of the incident:

Electrocution with 240 Volts AC supply.

2. Contributing factors:

i. Project management was poor

Job was taken up without job safety analysis. Nobody, either from contractor side or the company project team, was aware that victim is going to work on the analyser. Had the victim's supervisor been aware of the job to be undertaken, he might have ensured required precautions.

ii. Technical documents not available

User manual (including installation instructions) related to oxygen analyser was not available on the platform (it was available in the base office).

iii. Competency of the victim

Though victim was holding bachelor degree in 'Electronics and Computer Hardware' and diploma in "Process Control Instrumentation", he was not imparted any job related training. The deceased apparently relied on the power supply details given on the sticker and did not consider it necessary to check the incoming voltage.

iv. Power supply exceeded the voltage level, shown on the sticker pasted on the oxygen analyser panel

'6.5 to 13.5 VDC (50ma)' is mentioned as power supply on the sticker pasted on the oxygen analyser. As per the installation manual for the analyser, the power to the instrument must be provided through a safety barrier. Safety barrier was not used in the line and 230V AC supply was being fed directly to the panel.

v. **Work related stress**

Victim was working in offshore, at a stretch, for 55 days. Long stay at offshore might have caused lack of alertness due to inadequate rest and restitution.

Recommendations:

I. Safety should be emphasized during project works through bridging document for interface management, clearly spelling out responsibility of the company and the contractor.

II. All the required documents (like drawings, manuals, specifications, procedures) should be made available at the site of work for reference during carrying out the job. [Installation of safety barrier would have been ensured if the required technical documents were available at site and compliance with the installation requirements verified by the contractor personnel]

III. Before carrying out any job on electrical/ instrumentation panel, supply voltage should be measured and necessary precautions be taken.

IV. High risk jobs, like working on electrical system, should be done under supervision, so that required actions related to safety are not inadvertently missed/overlooked.

V. Competency of contractor's employee to be ensured before allowing them to undertake work.

VI. Period of stay at offshore for contractor's employees working in projects should be optimized to avoid lack of alertness due to inadequate rest and restitution.