



# National Electric Power Regulatory Authority

## Islamic Republic of Pakistan



NEPRA Alert # 2021-01/ August 4, 2021

### Flashover during Hotspot Rectification, Inspection, and Cleaning Activity

#### Summary

Two contractor workers were injured due to a flashover on a live/ energized isolator while working to attend hotspot rectification, inspection, and cleaning of the insulators at 132kV switchyard area. Both victims were transferred to the hospital, the first victim was discharged on the same day while the second victim passed away on the third day.



Figure: Incident Location

#### Findings

1. Hot spot rectification work was planned during the scheduled outage at 132kV switchyard.
2. The de-energizing and re-energizing scheme was issued from morning 07:00 hrs to evening 20:00 hrs for maintenance activity.
3. The circuit was isolated and Work Permit was issued at 07:00 hours in the morning as per the scheme.
4. Work Permit Receiver did not apply his own lock for isolation before receiving of Work Permit.
5. In the evening, isolation was removed by the area owner, and the circuit was re-energized at 20:00 hours as per scheme but the work permit was not closed/canceled. Work Permit Issuer and Receiver mutually agreed to not close/cancel existing Work Permit and will resume maintenance activity with the same Work Permit next day and did not adhere to established work permit procedure and safe work practices for closing/canceling of Work Permit before re-energization of the circuit.
6. The next morning, contractor workers entered in switchyard area when the system was energized and started maintenance work at the isolator as they had the Work Permit.
7. The switchyard gate key was not secured by the area owner to control unauthorized entry before isolation and work permit.
8. The company site supervision failed to perform their assigned responsibilities to protect the worker at the switchyard area.





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### Lessons Learned

1. Safe work practices and procedures shall be ensured to adequately plan, coordinate, direct, perform, monitor, and enforce work requirements at the site to carry out activities under safe conditions.
2. Work Permit Issuer and Receiver shall both apply their own LOTO for electrical and/or mechanical isolation before issuing of Work Permit. Work Permit Issuer will be the first to apply his lock/tag and will be the last to remove his lock/tag after closure/cancellation of work permit.
3. Work Permit Issuer and Receiver shall adhere to established work permit procedure and safe work practices for closing/canceling of the Work Permit.
4. Switchyard gate key shall be secured by the area owner to control unauthorized entry without isolation and work permit.
5. The area owner shall ensure that all electrical requirements, safe work practices, and procedures are well coordinated between all involved parties to protect workers.