



Adani Total Gas Ltd.

Incident Investigation – DRS Fire Incident, Faridabad



Brief Description

Overhead 11 kV HT cable fell over DRS Canopy resulting into Fire incident at our Faridabad GA (dated 1st Aug,2021).

The incident left no human injury, but entire DRS package burnt & got damaged. Due to looping of network customers were served without much interruption.

Fire lasted for 20 min. Fire brigade team was involved into extinguishing activity.



Investigation findings

Why Arcing takes place?

Fall of High-Tension Conductor:

- Fallen conductor has created phase to ground fault.
- Such condition does not establish rigid connection to ground and hence considered high impedance grounding.
- Fallen conductor is expected to swing till it settles down. Creating repeated arcing.

Protective Earthing:

- Earthing cable burnt due to heavy surge of 11KVA by electrical wire.
- **Electrical earthing's are designed for earthing of static currents and not for HT/LT cable protections.**



Investigation findings

Why fire initiated and sustained inside the DRS compartment?

- Burnt bare conductor bonding with compartment body was evident inside the compartment.
- These burnt interconnections and gaps at some points suggest internal arcing (reverse fault current) at these locations which resulted into burning of these conductors .



Paint burnt and peeled off:

- Arcing created by current flow through bonding wires and fault current flow in directions of bond grounds resulted in to rise in temperature of internal parts of compartment and ultimately fire at paint surfaces. (Contributing factor).



Immediate & Root cause

- 11 KVH HT electrical line fell on DRS body and it result in fire. **Repeated arcing provide ignition**
- Mechanical **joints failure may be the cause of gas leakage** - due to electric arching inside DRS.

Contributing Cause

- **Burning of metal enclosure paint** and paints applied to the piping inside the compartment
- **Trees** near DRS/overhead lines may have contributed to damage of cable

Recommendation

Covering of the installation with metallic cage or shade ensuring installation as per classified hazardous area and management of change.



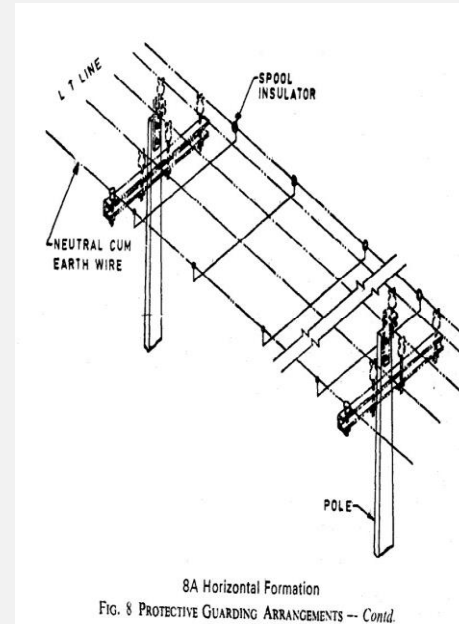
Recommendation

Approach electricity co. to provide protection to electrical line

Overhead line shall be provided with conductor fall protection.

Guarding of wire with earthed wire cage at the bottom of the phase conductors. (By electricity board, IS 5613, Part 1/sec 2)

Provision of medium voltage line cover for the overhead conductor above DRS zone (By electricity board).



Recommendation

- **“Copper Strip type” jumper** to be installed **in place of wire type jumper** for all metal piping & structure
- **Shifting of overhead HT line/ DRS** to be reviewed as permanent solution
- **New DRS installation site to be reviewed for any vulnerable risk** like overhead cables
- **Periodic surveillance of network should address any new installations** around assets/**any vulnerable risk**

Vulnerability Safety Risk Assessment

Vulnerability Safety Risks: All those risks which are beyond safety risks identified through personal risk assessments, having very high potential to create business disruptions and negative impact – (examples – overhead electrical cables at store/CGS/near DRS,

Vulnerability Safety Risks Assessment: Conducting assessment to identify Vulnerability Safety Risks (VSR) through a coordinated and collaborated effort involving cross functional teams

adani

Growth
with
Goodness

Thank You

