

SAFETY ALERT



Safety Alert No. 370
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Overcharged Battery in Non-Ventilated Box Lead to Explosion of Remote Terminal Unit Panel



Remote Terminal Unit Panel



Overcharged 12 Volt Battery

On February 14, 2019, a Remote Terminal Unit (RTU) panel (used for sending gas sales data to shore) exploded. Projectiles from the components landed over 40 feet away. There were no injuries and no damage to nearby equipment.

The investigation found evidence that a 12 Volt battery inside the panel was overcharged. This produced enough hydrogen gas to create an explosive mixture within the panel. The hydrogen gas was likely ignited by an electrical component within the panel that was not rated for the Area Classification in which it was installed.

American Petroleum Institute (API) Recommended Practice (RP) 14F (incorporated by reference in 30 CFR 250.198) states, “[a]ll rechargeable type batteries release hydrogen to the atmosphere in varying degrees” ... “[a]ll rechargeable battery systems should be installed such that hydrogen cannot collect in sufficient quantity to create a hazard.”

The overcharged battery was installed in a non-ventilated panel, creating a Class 1 Division 1 location as defined in API RP 500. The components inside the panel were not rated for use in a Class 1 Division 1 location, so one of these non-rated components may have been the ignition source for the explosion.

Therefore, BSEE recommends that operators consider the following:

- Ensure battery enclosures comply with API RP 500;
- Confirm all rechargeable battery systems are installed properly to prevent the level of hydrogen collection that can create a hazard. Refer to API RP 14 F section 4 for protection methods; and,
- Verify all electrical components are rated for the area classification in which they are installed. Pay attention to third party installations, especially when a third party may not be familiar with the facility's Area Classification layout drawings.

--BSEE--

A Safety Alert is a tool used by BSEE to inform the offshore oil and gas industry of the circumstances surrounding a potential safety issue. It also contains recommendations that could assist avoiding potential incidents on the Outer Continental Shelf.