Saturated Glycol Handling Leads to Fire

Fire damage was caused when an unattended glycol reboiler was starting up. The glycol and hydrogen condensate ignited.

In January 2019, a fire occurred on a production platform resulting in damage to a glycol reboiler unit and compressor building.

Prior to the fire, and after an extended shut-in, platform personnel began the platform start-up process. The field foreman ignited the glycol reboiler and set the temperature to 200º F. The foreman continued the start up by increasing the temperature to 250º F, but did not initiate circulating the reboiler fluid contents. The field foreman left the glycol reboiler unattended to handle a compressor shutdown and other duties as the temperature increased. Less than 90 minutes later, a mechanic observed a large flame on the side of the platform where the glycol reboiler unit is located.

BSEE’s investigation revealed that the operator’s start-up procedure did not provide specifics on the rate of temperature increase when starting the reboiler after an extended shut-in, nor did the procedure note that the reboiler should not be left unattended during start-up.
The fluid in the glycol reboiler had approximately 21% water content at the time of startup, possibly due to the extended shut-in. During normal operations, the typical water content of the reboiler should be less than 6%.

BSEE determined the cause of the fire to be high water content combined with a rapid increase in temperature, which flooded the still column; the flooded still column expelled glycol and hydrocarbon condensate onto the reboiler stack, where it ignited.

Therefore, BSEE recommends that operators consider the following:

- Provide advanced training to personnel who work with glycol units to address handling saturated glycol safely;

- Ensure that procedures specify that glycol system start-up should be a manned operation;

- Ensure that procedures specify circulation time before increasing boiler temperature; and

- Review reboiler stack installations and consider adding insulation to mitigate the stack as an ignition source.

For more information on this incident, see the incident report [here](https://on.doi.gov/2nPJGr7) or at the following url: https://on.doi.gov/2nPJGr7