January 24, 2025

HYDROGEN SULPHIDE REPORTING ("H_2S") PROCEDURE

This procedure applies when sources of gas containing H_2S greater than 23 mg/m^3 or 16 ppm, prior to processing, exists upstream of a meter station on the NGTL Integrated System where H_2S protection equipment is not installed at the meter station.

REPORTING REQUIREMENT AND PROCEDURE

Common Stream Operator (CSO) and Customers shall notify NGTL when they become aware of sources of H_2S greater than 23 mg/m^3 prior to any processing exists upstream of a meter station which does not have H_2S protection. NGTL requires information to determine whether new or existing sources of H_2S pose a risk to safety, pipeline integrity and/or gas marketability.

CSO and Customer(s) shall contact NGTL to upgrade an existing meter station to include H_2S protection equipment if the potential for an H_2S excursion exists.

When the CSO and Customer(s) notifies NGTL that sources of H_2S greater than 23 mg/m^3 prior to processing exists upstream:

1. Flow will not be curtailed unless H_2S greater than 23 mg/m^3 is detected at the meter station. If H_2S greater than 23 mg/m^3 is detected, the procedure detailed in the next section shall apply.

2. NGTL may request additional operational information from all Customers via CSO to assess the risk associated with the sour well(s). This information may include, but is not limited to: H_2S concentrations of sour wells behind meter station prior to processing, plant low compression turn down, flow rate of all wells, information related to operational infrastructure upstream of meter station.

3. NGTL may conduct a high-level risk assessment using information provided to determine whether H_2S protection is required at the meter station to mitigate the risks associated with the sources of H_2S upstream of the meter station.

4. NGTL shall provide options to the CSO and/or Customer(s) for mitigating the H_2S risk at the meter station. These options may include, but are not limited to: installing H_2S protection equipment at the meter station/upgrading the meter station at a cost to the Customer(s), keep sour well(s) shut-in under Officer's Certificate, transfer sour gas to NGTL approved meter station under Officer's Certificate.

5. NGTL shall carry out the actions required to implement the option selected by the Customer(s) in #4.

If a H_2S excursion occurs at a meter station without H_2S protection, NGTL will implement the following procedure:

1. NGTL shall notify the CSO and Customer(s) of the H_2S excursion and require all production to be curtailed immediately. NGTL shall close the station block valve. Should NGTL's attempts to contact the CSO fail, or if the risk to the system is significant as a result of the H_2S excursion, NGTL may shut the station block valve without waiting for controlled shut down upstream.

2. CSO and Customer(s) shall not resume flow at this meter station or redirect the shut-in production to any other meter station on the NGTL Integrated System without prior approval from NGTL.

3. NGTL may request operational information from all Customers via CSO to understand the cause of the H_2S excursion and assess the risk associated with the sour production which caused it. This information may include, but is not limited to: H_2S analysis of all individual wells behind meter station prior to processing, plant low compression turndown, individual well flow rates, information related to operational infrastructure upstream of meter station.

4. NGTL may conduct a risk assessment using information provided to determine whether H_2S protection is required at the meter station to mitigate the risks associated with the sources of H_2S upstream of the meter station. During this process NGTL may allow the resumption of flow from select gas sources which pose no risk to the system if the CSO and/or Customer signs and returns an Officer's Certificate provided by NGTL.

5. NGTL shall provide options to the CSO and/or Customer(s) for mitigating the H_2S risk at the meter station. These options may include, but are not limited to: installing H_2S protection equipment at the meter station/upgrading the meter station at a cost to the Customer(s), keep sour well(s) shut-in under Officer's Certificate, transfer sour gas to NGTL approved meter station under Officer's Certificate.

6. NGTL shall carry out the actions required to implement the option selected by the CSO and/or Customer(s) in #5 which may include the initiation of a project to carry out the meter station upgrade, or an update to a previously signed Officer's Certificate. CSO and Customers shall not flow any wells with unknown concentrations of H_2S or wells with H_2S concentration in excess of 23 mg/m^3 until H_2S protection equipment is installed and the Officer's Certificate is voided by NGTL.

TERMINOLOGY

In this document:

- An **H_2S excursion** is an incident where H_2S in excess of the NGTL Gas Quality Specification limit of 23 mg/m^3, as defined in Article 3.0 (c) of the NGTL Tariff General Terms & Conditions[1], is detected at a meter station.

- A **meter station with H_2S protection equipment** is a meter station on the NGTL Integrated System which has equipment to monitor, control and contain gas with H_2S concentration in excess of the 23 mg/m^3 limit.

- **Sour well** or **sour production** is any source of gas containing H_2S greater than 23 mg/m^3 prior to processing.

Any upper-cased term not defined herein shall have the meaning given to it in the NGTL Gas Transportation Tariff (the "Tariff").

BACKGROUND

H_2S is a naturally occurring contaminant found in natural gas that is strictly controlled on the NGTL Integrated System. In the event of a CSO and/or Customer process failure or H_2S control system failure upstream of a meter station without H_2S protection equipment, gas containing H_2S in excess of the NGTL Gas Quality Specification limit may enter the NGTL Integrated System undetected and pose a risk to employee and public safety, pipeline integrity and gas marketability. At locations where H_2S poses a risk to downstream customers and operations of the NGTL Integrated System should such a failure occur, the station must be equipped with H_2S protection.

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[1] http://www.tccustomerexpress.com/854.html

NGTL will not be liable to any Customer for any damages or losses (including loss of profits or revenue) a Customer may incur or sustain as a result of Customer's failure to meet the Gas Quality Requirements and subsequent production curtailment due to an H_2S excursion discovered at the meter station.

NGTL may change procedures from time to time. Please refer to the Customer Express website to view current procedures.

For further information regarding the Hydrogen Sulphide Reporting Procedure, please contact Gas Quality at gas_quality@tcenergy.com.