The Joint Office, Relevant
Gas Transporters, Shippers and other
interested parties

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Industry Information
Request from AUGE

Dear Colleague

During the preparation of the AUGS for 2019/2020, the AUGE investigated the potential issue of volume conversion error for meters that use the standard conversion factors. Currently a fixed temperature conversion is assumed for all meters unless they have volume converters fitted. Even where non-standard factors are used, this is likely to be based on an assumed temperature of the gas at the meter of 12.2°C.

There has been much debate in both the AUG Sub-committee and UIG UNC Workgroup meetings.

The AUGE believes that the data required to establish an up to date robust relationship between air or ground temperature and the temperature of gas in the pipe at the meter at the point of metering does not exist. The AUGE has suggested that further practical studies are required to obtain such data which can be used to determine whether the fixed temperature of 12.2°C used to calculate the conversion factor is still valid and if not what an alternative value should be.

On more than one occasion, representatives from industry code parties have suggested that the data does exist and that the AUGE should be able to model this.

For example, in the minutes of the UNC UIG Workgroup (26th February) under item 5, a number of points were made referencing the activities undertaken by the AUGE:

"Some parties believe that the industry already has sufficient information (indirect or otherwise) in relation to indoor/outdoor meter locational information to be able to allow the AUGE to make an informed assessment of the potential impacts etc – the industry has sufficient location/temperature information to come up with some meaningful figures which would be a more informed assessment/estimate than the zero value information used now. "

"It was then suggested that perhaps all that would be needed is a formula that takes into account air temperature, indoor/outdoor (meter location) temperature in order to come up with something that is preferable to the current 12.2°C factor."

The method that the AUGE has been looking at does follow an approach of using a mixture of internal/external temperatures to come up with a suitable average. However, an additional factor is required and that is the relationship between the air temperature and the temperature of gas in the pipe.

Studies carried out by Kiwa (see 2019/20 AUG Statement for reference) indicate that whilst there is a high correlation between air temperature in the vicinity of the meter and gas temperatures in the pipe, the most accurate conclusion that can be drawn is that the temperature of gas in the pipe is likely to lie within ±2°C of the ambient air temperature. This level of precision is insufficient to allow an alternative figure to 12.2°C to be calculated, and therefore, to produce any improvement over the current fixed factors, this level of variation must be reduced through the collection and analysis of more detailed data.

There is a significant risk that over-simplification of the problem will not only fail to find a solution, but could make the current situation worse rather than better. The conversion factor is used in many industry processes, and production of an unreliable factor based on over-simplified calculations will have a detrimental impact.

Xoserve are currently seeking support from the industry to procure a laboratory test and potentially a more detailed field study to obtain the data/information required to establish the relationship between gas temperature within the pipe at the point of metering vs ground and air temperature.

However, as code parties have suggested on more than one occasion that the information exists it is prudent for both the AUGE and Xoserve to try and obtain this information and thus avoid the need to invest in a series of practical studies.

Therefore, as a doublecheck, the AUGE would like to put forward the following data request.

The AUGE would like to obtain any data that already exists regarding gas temperature at the meter, as follows:

1) Historic gas temperatures in the gas pipe at the gas meter for internal, external, sheltered meters
    a. Ideally hourly, but a daily average would be helpful if hourly data not available
    b. Ideally > 1 year period (or at least covering winter/summer)
    c. LDZ or location information
    d. Meter type (alternatively, the MPRN which, if the data is sent via Xoserve could be anonymised so we can pick up the relevant asset data which may be useful in terms of grouping different meter types/sizes)

    Any such existing data would be extremely helpful in the derivation of a method to link within-pipe gas temperatures with the surroundings and would reduce the need for extensive new studies and/or lab tests.

2) Historic ambient air temperatures for internal, external, sheltered meters
    a. Ideally hourly, but a daily average would be helpful if hourly data not available
    b. Ideally > 1 year period (or at least covering winter/summer)
    c. LDZ or location information
    d. Meter type (alternatively, the MPRN which, if the data is sent via Xoserve could be anonymised so we can pick up the relevant asset data which may be useful in terms of grouping different meter types/sizes)

    Whilst this second data set would not be sufficient in isolation (and we believe this is the data some code parties refer to as being generally available), it would help support / validate the derived methodology and feed into the production of a relationship between gas and air temperature.

Note that in item 1, this is specifically the temperature of gas measured **within** the gas pipe and not the surrounding air temperature.

The AUGE would be grateful if industry parties could consider the above data request in advance of the Xoserve proposal to produce studies to estimate gas meter temperatures and supply any available data to/via Xoserve by the 31st August 2019.

Sincerely
for DNV GL

Clive Whitehand
Section Head