Why CNG Station Performance Specifications Are Critical for Maintenance Technicians

By Annalloyd Thomason, Vice President/General Manager, NGVi

The CNG fueling station maintenance technician has a huge responsibility. He or she is, by default, in charge of safety for station users and the general public, ensuring the highest station reliability possible, maintaining environmental and regulatory compliance, managing operating costs, and protecting the long-term capital investment.

The information contained in performance specifications will become the basis of an effective Operation and Maintenance (O&M) program for any compressed natural gas (CNG) fueling station. Therefore it is essential that CNG fueling station maintenance technicians understand what performance levels are required of the equipment. These performance specifications should have been established when the station was designed.

While stations vary widely and not all of the following may apply, here are seven areas of specifications to which the O&M technician must have access to effectively perform his or her job:

1. Fuel delivery – This specification is essential so the O&M technician can evaluate whether the station is performing as specified. Fuel delivery specifications are usually expressed as a volume of fuel over a particular time period—for example, in gasoline gallon equivalents (GGEs) per minute, per hose or in vehicles per hour, per hose. In addition, specifications should ensure that vehicles are fueled to a nominal 3,600 psi at 70^{o}F.

2. Gas quality – Gas quality is critical to ensure that vehicles fueling at the station perform optimally and are not damaged by failure of the fuel to meet specifications. Gas quality specifications may include those for lubrication oil content, water content, and odorant level. A sample gas quality specification for these elements might look like this:

- Lube oil content <0.5 pounds per million scf (10 ppm) at the compressor skid discharge
- Water content <0.5 pounds per million scf (-10°F at 3,600 psig) at the dryer discharge
- Odorant level - gas detectable > 1/5 of the lower flammability limit

3. Operations and maintenance – A general specification may be established for the amount of time a station must be operational and available to deliver fuel to customers. As an example:

- Operational and available to deliver fuel to customers 99% of the time
- Maximum downtime twelve month period < 90 total hours
- No routine maintenance to be performed during peak fueling hours

4. Overall operation and maintenance Costs – Usually fuel and electrical costs make up the major cost of CNG. A specification designed to measure these costs is very effective in helping determine whether the station is operating within the projected cost parameters. For example, the specification might be read:

- Operating costs less than $.30/GGE, including electrical or fuel gas costs. (Of course, these factors are very volume and transaction dependent and this is merely an example.)

5. Service requirements – Whether the CNG station is being maintained by in-house fleet operations personnel or a third party, a minimum specification for service expectations should be established and met. Some of the criteria might include:

- Service representative on site within less than two hours of emergency call
- All parts will have a 12-month warranty period
- Spare parts must be available in less than 24 hours

This is particularly important during the start-up, warranty and/or extended service contract period.

6. Noise level – The noise emanating from a CNG fueling station can be a major issue within certain locations. For example, there are usually noise restrictions for stations near hospitals, schools and other similar institutions that are administered by local planning organizations or other permitting groups. CNG stations need a minimum specification for noise level to be measured in dba scale. For example, a station located near a hospital might have a noise level specification of less than 75 dba per compressor skid.

7. **Liquid and vapor fugitive emissions** – Properly working CNG stations should

have no liquid (oil or other) or gas emissions except for the depressurization of the nozzle/receptacle connection when a vehicle is being fueled. In other words, nothing should be emitted into the environment from the station. The ideal specification would indicate that there are no liquid or vapor fugitive emissions coming from the station's equipment.

While this is not an exhaustive list of CNG fueling station specifications, they are some of the most important items that the CNG fueling station maintenance technician must have.

To learn more about what CNG fueling station maintenance technicians must know, click here, or contact Lawrence McBride, NGVi® Customer Solutions Manager, via lmcbride@ngvi.com, 800-510-6484, or 702-254-4180 x28, for additional information.