It is not uncommon for VEGA personnel to encounter gauge users who have radiometric measurement devices that are in need of replacement. In these situations, there are one or more radiation sources already in service, and these can be used to support new equipment installation on the same or other applications and measurements.

Reuse of existing source holders has several benefits: 1) The user does not need to amend or modify their existing material license or radiation safety program. 2) The cost of upgrading or making a new measurement is reduced because new materials do not need to be purchased and existing devices do not need to be transferred from the user's possession. 3) The practice presents an avenue for existing materials to remain in service, and reduces material going for end of life disposal.

Radiometric devices should be inspected thoroughly to ensure they are in a sufficient state of mechanical quality for prolonged use, and so that relevant details of the source may be gathered. With the user's permission, a VEGA specialist can photograph the device, which can be useful for the Field Service department or Radiometric Services department to offer comment on current physical condition/operability.

One thing to keep in mind is that even though the source may be significantly aged, a significant advancement in detector technology ~20 years ago increased sensitivity 5-10x over previous models. Considering Cesium 137 (Cs137) has a 30.1 year half-life, it is common for VEGA personnel to see that a source aged 30 years is still more than sufficient for measurement using modern detectors.

In order to qualify the existing source for reuse, there are 2 courses of action that a VEGA specialist may take. The first option, when the intent is that the source holder will remain in use at that measuring point, is to measure the radiation field at the detector location. The reading is taken between the detector and the vessel. The individual performing this reading also takes consideration of conditions inside the vessel; to illustrate the importance of vessel conditions, take this example, if the vessel is full of process, it is likely that a reading will measure zero radiation field, and this does not provide meaningful information about measurement field strength. For pipe density measurements, the reading needs to be taken with process material in the pipe, and estimated material density noted. With this reading, VEGA can verify if a simple detector upgrade is in order.

The second option is for a VEGA specialist to provide the relevant application datasheet (ADS) and the following information to produce calculations to support continued use. The information can generally be located on the radioactive materials tag displayed on the outside of the source holder.

1.) Isotope and activity (typically mCi, MBq, or GBq)
2.) Age of the source, so current decayed activity can be calculated.

3.) Manufacturer / Model Code
4.) Collimation/Emission Angle

Once the information is made available, the Inside Sales (IS) and Radiometric Applications teams can advise on suitability for continued use and recommend new detectors to accomplish the user's measurement needs.

Through the steps outlined above, VEGA specialists can help radiometric measurement device users to properly consider reusing viable existing equipment to meet their measurement goals, and will reduce the number of communications required to arrive at a clear course of action. Even if a user's existing equipment cannot be reused, VEGA can consider options to provide new sources, support them for end-of-life transfer from their possession, and advise them on materials license amendment and radiation safety program updates.

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