

TECH TIPS

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PACP JOINT CODING: NOT EVERY "SEPARATED" JOINT IS A SEPARATED JOINT

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The primary purpose of NASSCO's Pipeline Assessment Certification Program (PACP) is to establish consistent standards by which all of the various CCTV observations are to be coded. This coding should not be based upon the inspector's experience or opinions as to what constitutes a defective observation. Rather, these should be coded based upon established PACP protocol. This enables corrective action decisions and budgets to be made based upon reliable and consistent data. If this is not the case, costly errors can result.

A case in point involves the assessment of PVC pipe joints. A properly constructed joint installation consists of pushing the spigot so that the line on the outside is flush with the face of the bell. Installed correctly, there is an expansion gap inside, between the end of the spigot and back of bell.

Figure 1: Properly Inserted Spigot

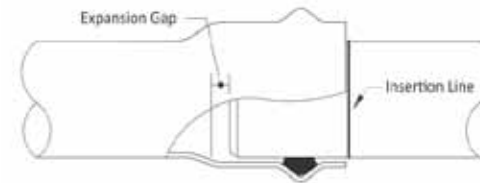
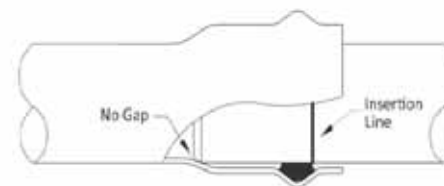
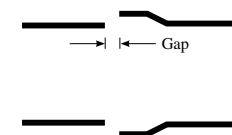


Figure 2: Over-Inserted Spigot



At each PVC pipe joint, there should be a definite distance visible between the end of spigot and back of bell. The video/camera should, therefore, noticeably jump or bounce as it crosses the joint section. This actually indicates a correct installation. Therefore, a "tight" PVC joint, while typically not thought to cause any problems, is actually an incorrect installation. Unfortunately, these correctly installed joints may be incorrectly coded by PACP inspectors as separated joints (JS) potentially resulting in costly, but unnecessary, corrective actions.

The PACP definition of a separated joint is where there is a literal physical gap between two pipe segments.



For a separation to be considered "medium", the segments are not touching and separated by up to one pipe wall thickness. Soil or backfill outside the pipe can be seen. "Large" separations are defined as a gap greater than one pipe wall thickness. "Small" separations are not coded in sanitary or stormwater sewers, and are only used in a dam or levee systems

where there is "noticeable separation between pipe segments, but no gap is visible". This is the only correct use of the "small" modifier, or where a visible, but not separated, expansion gap may be considered defective. The potential for an extremely catastrophic failure of a dam or levee warrants the more aggressive observation.

Three other conditions exist that may be related to a joint but are totally separate from this issue. There may be infiltration flowing from the joint due to groundwater being above the pipe. While this does positively confirm a path for this water to enter the pipe, this does not mean that the pipe itself is defective in the way a joint separation is defective. It could simply mean the joint gasket has deteriorated. These should be coded, independent of any joint separation, as stain (IS), weeping (IW), dripping (ID), running (IR) or gushing (IG), depending upon the severity and nature of the infiltration. So, while infiltration does indicate a defective observation that may need repair, this is typically much less an issue than repairing a separated joint. While coding joint infiltration, any defect that may be allowing the infiltration must only be coded if it can be seen.

A similar issue involves roots that enter a pipe through joints. If this occurs, there is obviously something defective about the joint, but it does not indicate a separation. Roots should be coded as fine (F), medium (M), ball (B) or tap (T), depending upon the severity and nature of the roots. However, they are not indicative of a separation unless a gap, including soil or backfill outside the pipe, is visible.

Finally, there is the issue of the sealing ring or a gasket. Internal sealing rings should be between the pipe bell inside diameter and the pipe spigot outside diameter, and not visible to the inspector. ISSRL (Intruding Sealing Ring Loose, Poorly Fitting) is used if the sealing ring is not inside the pipe but visible at the joint. ISSRH (Intruding Sealing Ring Hanging) is used when it is visible inside the pipe, whereas ISSRB (Intruding Sealing Ring Broken) is used when the sealing ring is visibly broken. These should never be visible and, if so, are always coded as defective. They do not, however, indicate a separated joint.

Without question, joint issues frequently indicate some level of pipe installation defect. What is important to remember is that these must be carefully observed and coded in accordance with PACP.