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WHAT HAPPENS IN LAS VEGAS...HAPPENS EVERYWHERE: INTEGRAL PVC LINER FAILURES

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ABSTRACT: The Las Vegas valley is one of the nation's fastest growing communities. Clark County Water Reclamation District (CCWRD) owns and operates the collection system and the treatment facilities serving unincorporated areas of the Las Vegas valley. Project Engineering Consultants, Ltd. (PEC) is assisting CCWRD in the aggressive evaluation of their collection system.

From 1993 to 2001, CCWRD installed a 60 to 84 inch diameter sewer pipeline, the Crosstown Interceptor (CTI), to meet their growing demands. Nine (9) miles of the CTI consists of concrete pipe with mechanically locked PVC-lining. This lining protects the concrete from attack by hydrogen sulfide gases (H₂S). Many agencies have installed this type of pipe. PEC provided pipeline condition evaluation services on the PVC-lined portion of the CTI located in Las Vegas, Nevada.

PEC utilized CCTV to investigate the interceptor. Defects were coded and graded. Analysis demonstrated that the CTI had defects very similar to those PEC found in other PVC-lined collection systems. Defects include blisters, pinholes, liner failures and weld strip detachments at the joints. It is suspected that improper installation caused premature disbondment of the weld strip. Weld strip failures expose the RCP joint to attack by H₂S gases leading to further liner detachment. Approximately one (1) out of every 48 weld strips was detached.

The results of the evaluation found the CTI PVC-lined RCP to be in good condition. However, repair of the detached weld strips is needed to prevent deterioration of the concrete in this vital sewer pipeline.