

عنوان مقاله:

An Investigation on the Cracks and Hot Corrosion-like Failures in AISI 310 Flare Tips of South Pars Gas Complex

محل انتشار:

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نویسندگان:

Askar Soltani - Senior Corrosion Inspector , Phase 12 Gas Refinery, South pars Gas Complex

,Koorosh Farzanfar - Head of Mechanical Inspection Department

,Reza Zarei - Head of Inspection Department

خلاصه مقاله:

The flare system in gas refineries collects hydrocarbon gases released from relief valves during upset conditions, process venting during start-up and blow down gas during normal shutdown and emergency conditions. So, having an intact flaring system is one of the most fundamental requirements in gas refineries in order to have gas production continuity, Specially in emergency flaring during unexpected shut downs. Since stainless steel grade AISI 310 has a good resistance against high temperature oxidation and hot corrosion, it has been used extensively in the construction of most flare tips in refineries. In this paper we have been focused on failure analysis of cracks and corrosion-like failure which occurred on medium pressure flare tips after short period of being in service. In order to investigate root causes of the failure, some samples taken from cracked and corroded areas and metallographic analysis was done. Results of microscopic examinations containing SEM, EDS and micro hardness measurements revealed Intergranular corrosion due to the occurrence of chromium depletion around the grain boundaries. Diffraction pattern of XRD examination on the burned parts of the pilot indicated high levels of oxygen which can be the result of high temperature oxidation. Low distance between high and medium pressure flares and consequent flame impingement .due to predominant wind direction and retention rings improper design concluded as root causes in this kind of failure

کلمات کلیدی:

Flare tip, SEM, XRD, EDS, Corrosion

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