

## An Integrated Approach to Handle Sour Gas Transportation Problems and Pipeline Failures

**Authors :** Venkata Madhusudana Rao Kapavarapu

**Abstract :** The Intermediate Slug Catcher (ISC) facility was built to process nominally 234 MSCFD of export gas from the booster station on a day-to-day basis and to receive liquid slugs up to 1600 m<sup>3</sup> (10,000 BBLS) in volume when the incoming 24" gas pipelines are pigged following upsets or production of non-dew-pointed gas from gathering centers. The maximum slug sizes expected are 812 m<sup>3</sup> (5100 BBLS) in winter and 542 m<sup>3</sup> (3400 BBLS) in summer after operating for a month or more at 100 MMSCFD of wet gas, being 60 MMSCFD of treated gas from the booster station, combined with 40 MMSCFD of untreated gas from gathering center. The water content is approximately 60% but may be higher if the line is not pigged for an extended period, owing to the relative volatility of the condensate compared to water. In addition to its primary function as a slug catcher, the ISC facility will receive pigged liquids from the upstream and downstream segments of the 14" condensate pipeline, returned liquids from the AGRP, pigged through the 8" pipeline, and blown-down fluids from the 14" condensate pipeline prior to maintenance. These fluids will be received in the condensate flash vessel or the condensate separator, depending on the specific operation, for the separation of water and condensate and settlement of solids scraped from the pipelines. Condensate meeting the colour and 200 ppm water specifications will be dispatched to the AGRP through the 14" pipeline, while off-spec material will be returned to BS-171 via the existing 10" condensate pipeline. When they are not in operation, the existing 24" export gas pipeline and the 10" condensate pipeline will be maintained under export gas pressure, ready for operation. The gas manifold area contains the interconnecting piping and valves needed to align the slug catcher with either of the 24" export gas pipelines from the booster station and to direct the gas to the downstream segment of either of these pipelines. The manifold enables the slug catcher to be bypassed if it needs to be maintained or if through-pigging of the gas pipelines is to be performed. All gas, whether bypassing the slug catcher or returning to the gas pipelines from it, passes through black powder filters to reduce the level of particulates in the stream. These items are connected to the closed drain vessel to drain the liquid collected. Condensate from the booster station is transported to AGRP through 14" condensate pipeline. The existing 10" condensate pipeline will be used as a standby and for utility functions such as returning condensate from AGRP to the ISC or booster station or for transporting off-spec fluids from the ISC back to booster station. The manifold contains block valves that allow the two condensate export lines to be segmented at the ISC, thus facilitating bi-directional flow independently in the upstream and downstream segments, which ensures complete pipeline integrity and facility integrity. Pipeline failures will be attended to with the latest technologies by remote techno plug techniques, and repair activities will be carried out as needed. Pipeline integrity will be evaluated with ili pigging to estimate the pipeline conditions.

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