

ABSTRACT

PRODUCTION TREE WITH MULTIPLE SAFETY BARRIERS

The wellhead assembly has a production tree with multiple safety barriers. A tubing hanger lands and seals in the bore of the tree. The tubing hanger has a lateral production flow passage that registers with a lateral passage in the tree. A tubing annulus passage extends upward from the tubing annulus to an exterior port. A second portion of the tubing annulus passage extends upward from the exterior port into the bore above the tubing hanger seal. The external port may be used for gas injection. If so, two closure members are located in the upper portion of the tubing annulus above the seal. The upper closure member may be either a check valve or a removable plug.

FIGURE 1



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