

Crash Course – Depth of Cover and Geotextile Pipeline Weights

The vast majority of energy pipelines are buried to protect both the pipeline and the environment around it. There are a few exceptions, such as the Trans Alaskan Pipeline System (Alyeska), which is elevated to prevent the permafrost from melting, and the Tas-Tumas/ Yakutsk natural gas pipeline in Siberia, which also traverses permafrost. Pipelines are buried for a number of reasons that include preventing the pipeline from becoming a barrier to people, vehicles and animals; to reduce the risk of third party damage (either accidental or intentional); to protect the pipeline from the elements; and to improve protection of the environment in the case of a catastrophic pipeline failure.

Pipeline depth of cover refers to the soil measured from the top of the pipeline, or other appurtenances, to the surface, whether that is ground level, a roadbed, a river bottom, or sea bottom. So how deep is deep enough? It depends. The depth of cover for hazardous liquid pipelines, such as oil & gas, depend on a number of factors including the area the pipeline is buried and whether it is a normal excavation or a rock excavation (blasting or equivalent).

Federal Regulators, such as the Department of Transportation (DOT) in the US and the Canada Energy Regulator (CER) in Canada, enforce national standards for minimum depth of cover requirements (49 CRA 195.248 in the US; CSA-Z662 in Canada). Depending on the type of cover and location of the pipeline, depth of cover ranges from 24" (0.6m) to 48" (1.2m) - with additional cover required for pipelines that are within 50' of a private dwelling, industrial building, or any other place people work, congregate or assemble. After a pipeline is built, depth of cover needs to be routinely monitored by pipeline owners to ensure it is maintained. Many pipeline owning companies chose to exceed the minimum depth of cover requirements – sometimes by a significant margin – to ensure the long term integrity and safety of their pipelines.

At PipeSak we get lots of questions on depth of cover with respect to pipeline weights. Regulations state that any appurtenance to the pipeline, such as a valves, fittings or a concrete set on weight, should be considered in the depth of cover measurements. This is because they are solid and, if ever struck from above, could be driven into the pipeline below. PipeSak geotextile pipeline weights are a 'soft' method of buoyancy control with only the top webbing and fabric exposed to any potential contact from the surface. If a plow or excavator were ever to mistakenly come in contact with a PipeSak there is nothing solid that would get driven into the pipeline, unlike a concrete set on weight. PipeSak weights are also designed to have an ultra low profile that ensures depth of cover can be maintained with out the need for additional (and expensive) trench depth.

Depth of cover is a critical factor in maintaining long term pipeline integrity and protecting the environment. Pipeline operators are committed to the safe and responsible delivery of energy, and PipeSak is committed to helping protect the pipelines they build. For more information visit www.pipesak.com.