



CHEMICAL CLEANING HISTORY FOR PIPELINES

**PIPELINE PROJECT
COMPLETION HISTORY**



ISO 9001:2015

OPERATIONAL SCOPE

With oil, gas, and NGL transmission pipeline development expecting to represent one third of North American midstream infrastructure development by 2035, the need for proper inspection and maintenance cleaning processes will remain an integral part of pipeline operations. The installation and operation of these new lines might also prompt an increase in pre-commissioning, abandonment, conversion, or preservation procedures on new and pre-existing infrastructure.

PROCESS ISSUES

Regardless of the required process or procedure, the issue of cleanliness and integrity is a critical one and of major concern not only from an operational standpoint but, in some cases, from an environmental and economic one as well. To address these concerns, it is vital to match the pertinent chemical and mechanical cleaning methods to the required pipeline cleaning scope. This entails identifying the appropriate chemical program and mechanical pig train design capable of breaking up, softening, and, in some cases, inhibiting deposition to reach desired outcomes.

OUTCOMES

Pipeline operators across the United States have coordinated successfully with industrial service providers and even directly with West Penetone support staff for over 10 years to return their assets back to optimum operation using West Penetone products and recommendations.

This is a result of West Penetone providing products to combat specific process and overall project issues with a brief but not exhaustive list of examples of successful pipeline project completions in the table on the next page.



ADVANTAGES

Examples of Successful Pipeline Projects Completed by West Penetone Products & Recommendations

REGION	LENGTH (miles)	DIAMETER (inches)	CONTENT	PRODUCTS	NOTABLE OUTCOMES
Alaska	23	20	Paraffinic Crude	CITRIKLEEN HD	Downhole disposal of waste effluent provided a reduction in injection pressure requirements and drastically increased flow rates.
Colorado	350	6 & 8	LNG, Black Powder	CITRIKLEEN HD	Ongoing acid cleaning to remove rust and scale buildup.
Montana	22	10	Crude	CITRIKLEEN HD	Successful line decommissioning.
Texas	2.5	12	Crude	CITRIKLEEN HD	The batch train successfully cleaned the line in one pass following a lack of reporting on a 150' U-shaped drop in the line extending over 325' not being de-inventoried before initiating chemical cleaning.
Wyoming	32.5	6	Crude, ferrous scale	RAMSOL BCX, TETRAGARD, WEST FL	Removal of oil-wetted ferrous material and other organics to allow for an unobstructed run of a magnetic ILLI tool.
Minnesota	2	6	Brine	ROC 45, DEFOAMER 631	A non-aggressive batch train to remove significant brine and scale buildup.

All projects are also supported with characterization and solubility testing of field samples where needed or required, recommendations on pig train design and operation, effluent handling and disposal, and scheduled product delivery in order to create a continued history of successful pipeline project completions.

A comprehensive and *integrated approach*

With over 100 years of product development, manufacturing and application experience, the West Penetone family of companies has designed and patented many products to satisfy the needs of our clients world wide.

Our technical group provides customers effective support to ensure that contaminants are paired with the right chemistry for any task.

Establishing and maintaining a collaborative approach with our customers in tackling their operational and maintenance challenges is key to realizing efficiencies and cost savings.

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