



PetroGenesis

Advanced Petroleum Recovery

Tank Cleaning and Sludge Pit Remediation



- **Over 400% Return on Investment**
- **Greater than 95% of Sludge Converted to Saleable Oil**
- **Personnel Safe - No Entry Method for Tank Cleaning**
- **Environmentally Friendly**
- **Proven Effective**

HCD Multi-Flow

The HCD Multi-Flow product is used to perform safe and effective tank cleanings in a fraction of the time required using conventional cleaning methods.

The No Entry tank cleaning method with HCD Multi-Flow product reduces sludge viscosity and allows rapid and effective separation of the tank sludge into three production streams while ensuring no personnel entry and a highly efficient hydrocarbon retrieval system.

This system maximizes extraction of saleable oil from the sludge in the tank bottom in a rapid and cost effective manner.

HCD Multi-Flow is a concentrated re-liquification product using the most innovative chemistries available in liquifying heavy tank sludge or residual oil found in storage tanks or pits. It is specifically effective in waxy and asphaltene laden crudes.

HCD Multi-Flow is also designed to re-mediate petroleum based compounds such as heavy oils by replacing the lost volatile fractions with temperature resistant molecules which do not vent easily. The product is organic in nature with no catalyst poisoning. The product produces a long lasting effect of creating flow able crudes without wax reformation.



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How it Works

HCD Multi-Flow reliquifies the HC chain on contact reducing the heavy oils and paraffin's to a more easily transferable state. This reduction aids to the removal of sludge in storage tanks, paraffin in oil transfer lines, improves the quality of crude oils, reduces oil viscosity and increases API specific gravity as well as greatly improves the velocity of oil transfer through the transfer lines. Profits increase markedly due to reduction in clean up time without taking the tank "off Line"! The oil is not harmed and is saleable which greatly increases profit margins and reduces oil production cost.

Using HCD Multi-Flow, greater than 95% of sludge is converted to saleable Oil!

Cost vs. Benefit

For a typical Tank Cleaning or Sludge Pit Remediation process, the following product volumes will be required to achieve greater than 95% conversion of the sludge to saleable oil:

HCD Multi-Flow	2 Gallons per Metric Ton of Sludge
Diesel Fuel	12 Gallons per Metric Ton of Sludge

Per Metric Ton (MT) of Sludge (approximately 370 Gallons, or 9 BBLs), Treatment Product Cost:

HCD Multi-Flow	2 Gallons	\$84.00
Diesel Fuel	12 Gallons	\$42.00

Total Cost: **\$126.00**

95% Reclaimed Oil	8.5 BBLs	\$680.00
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Total Return: **\$680.00**

Return on Investment per MT - \$554.00 439% ROI per Metric Ton

Other Benefits:

- Does not require removal prior to refining
- Does not require heating of the oil in flow lines
- Reduces viscosity (up to 74%)



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Case Study – Pemex Tank Cleanings

The following data documents the results of two tank cleanings for Pemex, and illustrates the high return on investment realized by using HCD Multi-Flows as part of the tank cleaning process:

	<u>Tank TV-1</u>	<u>Tank TV-2</u>
Sludge Volume	57 MT	121 MT
HCD Multi-Flow Volume	114 Gal.	242 Gal.
Diesel Fuel Volume	684 Gal.	1452 Gal.
HCD Multi-Flow Cost	\$4,788	\$10,164
Diesel Fuel Cost	\$2,394	\$5,082
Total Cost	\$7,182	\$15,246
Recovered Saleable Volume	505.6 BBL	1057.6 BBL
Value of Recovered Volume	\$40,448	\$84,608
Net Return on Investment	\$33,266	\$69,362

Total Return on Investment - \$102,628 457% ROI

Typical Application Volumes

<u>(Diameter) Tank size</u>	<u>Sludge Volume In Gallons</u>	<u>HCD Multi-Flow Needed for Type I Oil</u>	<u>HCD Multi-Flow Needed for Type II Oil</u>
80 Foot	300,786 Gallons	750 Gallons	1,500 Gallons
120 Foot	676,775 Gallons	1,700 Gallons	3,400 Gallons
160 Foot	1,203,155 Gallons	3,005 Gallons	6,010 Gallons
200 Foot	1,879,933 Gallons	4,700 Gallons	9,400 Gallons
240 Foot	2,707,100 Gallons	6,775 Gallons	13,350 Gallons
350 Foot	5,757,290 Gallons	14,400 Gallons	28,800 Gallons