

Produced Water Separation System Allows Increased Crude Production Levels

“The M-I SWACO produced water separation system is processing over 12,000 b/d of oily produced water with peaks as high as 23,000 b/d. This has allowed increased production levels previously restricted because of the facility’s inability to handle the increase in associated water production.”

Alejandro Prieto, Project Supervisor

The Situation

Increased oil production at a Colombian operator’s central production facility produced more associated water than the existing produced water processing system was capable of handling. In addition, the turbidity and oil levels in the water exceeded what was permitted by law for discharge in the area.

The lack of processing system capacity was restricting the amount of crude oil the operator could produce.

The Solution

M-I SWACO personnel used laboratory data and treatment analysis to develop a mechanical-chemical separation system. The system efficiently handles the high daily volumes of water generated and reduces turbidity and oil levels so that cleaned water can be discarded safely.

Water passes through skimming tanks, where oil is skimmed off before the solids are removed via a two-stage coagulation and flocculation process. Treated water can be safely discharged once it passes through the system.

The Results

M-I SWACO cleaned up over 3 MMbbl of produced water in an 8-month period and continues to process over 12,000 b/d, with peaks as high as 23,000 b/d. This separation system has allowed the operator to increase oil production levels and to comply with local environmental legislation for water discharge and maximum oil content limits of 10 ppm.



Customer-focused, solutions-driven

Performance Report



The Problem

An operator’s produced water processing facility was unable to handle the volume of oily water being generated in the process of producing oil. Untreated water could not be discharged. Processing system limitations were restricting oil production.

The Situation

The operator wanted to find a way to increase its capacity for treating produced water so that oil production levels could be increased.

The Solution

M-I SWACO developed a produced water treatment system that increased throughput to accommodate sufficient volume for the operator to increase oil production.

Summary

After careful sampling of the water and detailed analysis in the laboratory, M-I SWACO developed a mechanical-chemical separation system locally that could handle the high daily volumes of water generated (up to 23,000 b/d) and also reduce turbidity and oil levels so that cleaned water could be discarded within the parameters of local environmental legislation.

Treatment begins at the skimming tanks, where separated oil is skimmed off before the solids are removed via a two-stage coagulation and flocculation process. At the final stage, treated water passes to a final conditioning unit, where the water is aerated and cooled prior to discharge.

Inlet and outlet measurements taken of the fluid treated by the M-I SWACO process system illustrate the system's effectiveness.

	pH	Conductivity (s/cm)	Turbidity (ntu)	Oil (mg/L)
Inlet	7.5	1,321	22	183.2
Outlet	7.3	1,439	4.6	0
Limit	5-9	<2500	<75	<10



The Results

The M-I SWACO solution allowed the operator to treat 3 MMbbl water in an 8-month period.

- Throughput capacity now meets the operator's needs
- Treated water can be discharged safely within environmental parameters
- The operator has been able to increase crude production



Questions? We'll be glad to answer them.

If you'd like to know more about the Production Waste Management solutions and how they are performing for our other customers, please call the M-I SWACO office nearest you.

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