Case Study

4194-E (Emulsion Breaker)

Solving Foam and Emulsion in Flowback Operations

The flowback phase of new wells often brings a host of challenges, one of the most significant being foam and emulsion issues. These problems are particularly prevalent when polymers used during the completion phase mix with the water, oil, and gas produced. Coastal Chemical experts addressed the foam and emulsion challenges during the flowback by understanding the root causes and deploying targeted mitigation strategies that significantly enhanced the efficiency and productivity of well operations.

PROBLEM IDENTITY

During the flowback phase of new well completions, operators have encountered substantial challenges related to foam and emulsion issues arising from the use of polymers. These polymers, introduced during the completion phase, significantly complicate the oil and water separation processes and affect operational efficiency and oil sales.

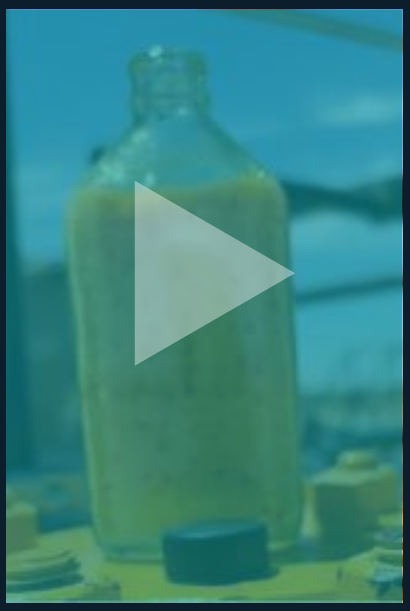
SOLUTION

Coastal Chemical's two-pronged approach involved different chemistries to break down the polymers, while also polishing the oil in order to effectively resolve emulsion and foam issues; with the ultimate goal of collapsing foam and facilitating emulsion resolution within the system's retention time.

BENEFITS

- Overall Cost Savings
- Optimization of Production
- Operational risk reduced (HS&E)

UP TO 5X FASTER THAN REGULAR DEMULSIFIER



84% SAVINGS

Compared to traditional treatment and mitigation for flowback challenges

12 min ROI

The chemical treatment investment was covered with the first 12 minutes of Production of Oil.

COASTAL CHEMICAL SOLUTION

Several combinations of chemical agents were meticulously evaluated at varying concentrations to identify optimal formulations. Critical factors considered included the ability to collapse the foam and resolve the emulsion efficiently within the system's retention time.

FORMULATION 4194-E OPTIMIZED

By adding optimized formulation at the wellhead; Coastal Chemical was able to resolve the emulsion at the allocation separators allowing for less manpower needed to manage the oil and water dump levels. The target concentration needed was 150-300ppm. Within 20 minutes Coastal was able to confirm the treatment improved the fluid quality.

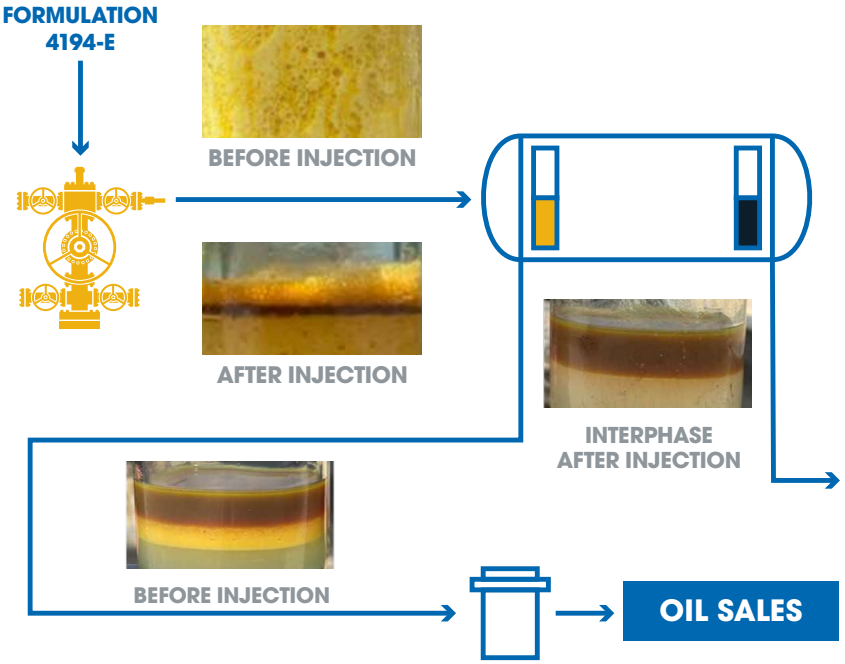
CHALLENGE

COMPLEX POLYMERS

The presence of polymers is creating a stable foam, which complicates the flowback process. This foam leads to water carryover at the allocation separators, making it difficult for flowback personnel to maintain accurate oil and water levels. The stable foam not only hinders visibility but also impacts the efficiency of the separation process, ultimately affecting overall well productivity.

CHEMICAL EMULSION

In addition to stable foam problems, emulsion issues also arise during flowback. The interaction of polymers with other well fluids creates complex emulsions that are difficult to break. This further complicates the separation process and can lead to reduced efficiency and increased operational costs.



CONCLUSION

By resolving emulsions and collapsing foam within the specified retention times, operational efficiency is significantly improved. This enhanced efficiency translates to reduced downtime, lowered operational costs, and better resource management. Moreover, the polished oil output ensures higher quality end products, thereby increasing market competitiveness. Coastal Chemical's strategy exemplifies the pivotal role of targeted chemical innovation in optimizing industrial processes.

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