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Reclamation of the Polymer-Flooding Produced Water

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ABSTRACT

In order to resolve the discharge problem of the polymer-flooding produced water (PFPW) in crude oil extraction, the PFPW was treated by a four-grade and four-segment (four GS) electro dialysis reversal (EDR) set-up. The testing results show that the treated PFPW has two kinds, one is the diluted treated PFPW, the total dissolved solids (TDS) of the diluted treated PFPW is less than the original PFPW, the diluted treated PFPW is feasible for confecting polymer solution; another one is the concentrated treated PFPW, the TDS of the concentrated treated PFPW exceeds the original PFPW, the concentrated treated PFPW is feasible for replacing the PFPW as the injecting water in the water-flooding process for high permeability layer. This treatment technology can not only decrease environment pollution resulted by the PFPW discharge, but also achieve closed-circuit of the water resource during crude oil extraction by using polymer flooding technology.

KEYWORDS

Polymer-Flooding Produced Water, Total Dissolved Solids, Electrodialysis, Treatment

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References

- [1] D. K. Han, C. Z. Yang, Z. Q. Zhang, Z. H. Lou, and Y. I. Chang, *Journal of Petroleum Science and Engineering*, 22 (1-3), pp. 181-188, 1999.
- [2] D. M. Wang, J. C. Cheng, and J. Z. Wu, SPE 49018, pp. 313-317, 1998.
- [3] Q. M. Wang, *Petroleum Geology, and Oilfield Development in Daqing*, 18 (4), pp. 1-5, 1999.
- [4] K. C. Taylor, SPE 29008, pp. 675-690, 1995.
- [5] T. L. Chen, Z. Y. Song, Y. Fan, C. Z. Hu, L. Qiu, and J. X. Tang, *SPE Reservoir Evaluation and Engineering*, 1 (1), pp. 24-29, 1998.
- [6] G. L. Jing, X. Y. Wang, and C. J. Han, "The effect of oilfield polymer-flooding wastewater on anion-exchange membrane performance," *Desalination*, 220, pp. 386-393 (Proceedings Greece 2007), 2008.
- [7] R. B. Zhao and X. G. Yue, "Flowing characteristics of 2-acrylamide-2-methyl propane-sulfonic-acid copolymer solution in porous medium," *Journal of Acta Petrolei Sinica*, 26 (2), pp. 85-97, 2005.
- [8] L. Liangxiong, T. M. Whitworth, and R. Lee, "Separation of inorganic solutes from oil-field produced water using a compacted bentonite membrane," *Journal of Membrane Science*, 217, pp. 215-225, 2003.
- [9] G. F. Doran, F. H. Carini, D. A. Fruth, J. A. Drago, and L. Y. C. Leong, "Evaluation of technologies to treat oil field produced water to drinking water or reuse quality," *Proceedings of the Annual SPE Technical Conference, San Antonio, Texas, 1997*.

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- [10] J. Pellegrino, C. Gorman, and L. Richards, " A speculative hybrid reverse osmosis electro dialysis unit operation," *Desalination*, 214, pp. 11-30, 2007.
- [11] C. Murray-Gulde, J. E. Heatley, T. Karanfil, J. H. Rodgers Jr., and J. E. Myers, " Performance of a hybrid re-verse osmosis-constructed wetland treatment system for brackish oil field produced water," *Water Research*, 37, pp. 705-713, 2003.
- [12] R. Bradley, " Pilot testing high efficiency reverse osmosis on gas well produced water," *Proceedings of the International Water Conference (61st Annual Meeting)*, Pitts-burg, PA, 2000.
- [13] T. Sirivedhin, J. McCue, and L. Dallbauman, " Reclaim-ing produced water for beneficial use: Salt removal by electro dialysis," *Journal of Membrane Science*, 243, pp. 335-343, 2004.