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Dawson et al.

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[54] **METHOD OF CONTROLLING PRODUCTION OF EXCESS WATER IN OIL AND GAS WELLS**

5,073,202 12/1991 Wallach 134/6
5,278,206 1/1994 Göbel et al. 524/13

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[57] **ABSTRACT**

[21] Appl. No.: **277,955**

The production of excessive water in oil and gas wells and other subterranean formations is reduced by introducing a hydrocarbon fluid containing dispersed superabsorbing particles formed using invert emulsion polymerization techniques wherein the superabsorbing particles are formed from hydratable polymers which are cross-linked so that they are insoluble in water. By introducing these superabsorbing particles into fluid passages of the formation, the water producing zones can be selectively blocked off by allowing the superabsorbing particles to swell with the absorption of water within the aqueous fluid containing fluid passages, while the superabsorbing particles remain small and unswollen in the hydrocarbon conducting fluid passages. Thus, the ability of fluids to flow through the aqueous fluid containing fluid passages is selectively reduced resulting in the reduced production of aqueous fluids while maintaining production of hydrocarbons.

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[51] **Int. Cl.**⁶ **E21B 33/138**

[52] **U.S. Cl.** **166/295; 166/294**

[58] **Field of Search** 166/294, 295;
405/264; 523/130

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,302,717	2/1967	West et al.	166/295 X
3,810,468	5/1974	Harper et al. .	
4,282,928	8/1981	McDonald et al.	166/295 X
4,328,864	5/1982	Friedman	166/295 X
4,572,295	2/1986	Walley	166/295
4,635,726	1/1987	Walker	166/294
4,828,911	5/1989	Morman	428/288
4,952,550	8/1990	Wallach et al.	502/404

36 Claims, No Drawings