

Nine Well Success. As first reported in *The Brief* of December 1996, the RAY OIL TOOL COMPANY innovative 'No Squeeze System' has now proven successful in the first nine Amoco Deepwater Wells (45 strings of cemented casing). The wells are in water depths from 3,000 feet to 7,000 feet in the Mississippi Canyon, Viosca Knoll and Desota Canyon blocks.

Wellbore Friendly Centralizers. The casing strings were equipped with ROTCO's patented Centralized Up-Jet Float Shoes and Centralized Float Collars and patented Solid Straight Blade Casing Centralizers. As experienced before, the straight blade float equipment and solid centralizers were wellbore friendly by eliminating scrapping and reducing drag, plus giving the proper stand-off for primary cementing. The cemented centralized Float Shoe anchors the casing, minimizing casing back-off.

Cost Savings. The cost savings of a No-Squeeze well can very well be appreciated and credited to Amoco's superb well planning and their use of the latest innovative combined technologies and equipment. The 'No Squeeze System' combines the first ever designed and patented Ray Oil Tool Solid Casing Centralizers and the Centralized 360° Up-Jet Float Shoe (which ensures complete cement coverage). A single squeeze job on most drilling wells costs approximately 24 hours of rig delay and operational costs. A Deepwater Rig's total operational cost can easily exceed \$200,000 per day.

Amoco Eliminates Cement Squeezing. Because of Amoco's excellent advance planning and execution, Amoco has been able to eliminate cement squeezing on their Deepwater wells. Other Deepwater Operators that are using the Ray Oil Tool Company 'No Squeeze System' are experiencing the same results as Amoco. This unique System is also being used in non-Deepwater areas by operators worldwide, all with No-Squeeze results. By eliminating costly and time consuming remedial cementing, Amoco has been able to complete their wells under their estimated expenditures. This is something of which to be very proud.

The Centralization Leader. Ray Oil Tool Company has long been recognized as the world leader in the field of Solid Casing Centralization. We are grateful to Amoco for allowing us the opportunity to prove out our 'No Squeeze System.'



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DEEPWATER REPORT: RAY OIL TOOL COMPANY, INC. 'NO SQUEEZE SYSTEM'

Location	Gulf of Mexico
Water Depth	3,000 - 7,000 feet
Operator	AMOCO
Number of Wells	9
Block Location	Mississippi Canyon Viosca Knoll Desota Canyon
Number of Casing Strings per Well	5
Total Primary Cementing Jobs	45
Success Percent	100%