

A. P. D. (cont.)
Thirteen Point Surface Use Plan
Federal "C" #1

4. Casing and Cement Program:

<u>--DEPTH--</u>	<u>SECTION</u>	<u>HOLE</u>	<u>CSG</u>	<u>WT.</u>	<u>THREADS</u>	<u>NEW</u>
<u>FROM TO</u>	<u>LENGTH</u>	<u>SIZE</u>	<u>SIZE</u>	<u>PPF</u>	<u>GRADE COUPLINGS</u>	<u>USED</u>
7250' 10000'	2750'	6.125"	4.5"	11.35	L-80 FL-45	New
10000' 11000'	1000'	3.875	Open Hole			

The 4 1/2" liner will be run below the Woodford Shale to ensure that the ECP will isolate the Woodford from the Devonian.

Centralizer Program:

4 1/2" Conventional centralizers middle of 1st joint, then every joint to 9000', and 1 centralizer every 4th joint thereafter to 7300'.

Cementing Summary

4 1/2" liner, 7250' - 10,000'
 ECP tool depth - above landing collar

Slurry: Class "H" with 5% CSE + 1% CF-14, 3% WL-1P

<u>FROM</u>	<u>TOC</u>	<u>HOLE</u>	<u>%</u>	<u>YIELD</u>	<u>DENSITY</u>	<u>QTY</u>
<u>DEPTH</u>		<u>SIZE</u>	<u>EXCESS</u>			<u>SX</u>
10,000'	9200'	6.125	50	1.28	15.33	165
9,200'	7850'	ANN	50	1.28	15.33	65
7,850'	7250'	CSG	0	1.28	15.33	70