

## 1. Introduction

In a technical study summary of the same title as this (hereupon called Part I) of the 1981 Technical Report (Ref. 1), the results of laboratory scale experiments on subsurface oil collectors are described. The collectors were of the inverted funnel-type intended for use immediately above the wellhead or blowout source. It was found that the fraction of blowout oil collected was primarily dependent on the Froude number  $F$ , and the phase ratio  $R$ , with these quantities defined by

$$F = Q_T / (gh^5)^{1/2} \quad (1)$$

$$R = Q_T / Q_g \quad (2)$$

where  $Q_T$  is the total collected liquid flow rate passing through collector and riser,  
 $Q_g$  is the gas volume flow rate,  
 $g$  is the acceleration of gravity  
 $h$  is the vertical distance from the blowout source to the base of the collector.

So long as nearly all of the blowout gas was collected, the fraction of blowout oil collected was found to be relatively insensitive to details of the collector shape. When the collector was made small enough for a substantial portion of the gas to avoid collection by rising beside the collector, an increase in fraction of blowout oil collected was often observed to occur. This led to the conclusion that under many circumstances, a collection system could encounter more than the optimum amount of gas. To aid in overcoming the reduction in collection efficiency resulting from excess gas, a gas separating collector was devised. Preliminary laboratory experiments with the gas separating collector are described in Part I. Now, further experiments with the laboratory scale model of the gas separating collector have been carried out and are described in the next section of this paper.