



with a liquid product which is predominantly used for gasoline production. The gaseous product consisting of hydrogen, methane and propane can either be burned or can be sent to an ammonia synthesis plant. Here the hydrogen is separated from the hydrocarbons and used to produce ammonia. The hydrocarbons remaining can either be burned or sold to consumers, depending upon the particular refinery situation at the time of the test.

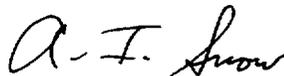
In a typical test four tracer injections will be used with 50 millicuries of krypton-85 per test. This tracer concentration is selected to give a total of 1000 accumulated counts in the flow detection equipment. This equipment consists of parallel rows of metal wall Geiger counters in a metal container. The concentration of krypton-85 in the gas diluted by one day's production is  $3.85 \times 10^{-7}$  microcuries per milliliter. This number compares very favorably with the Schedule C, 30.73 value for krypton-85 of  $3 \times 10^{-6}$  microcuries per milliliter. Taking into account the various possible paths of gaseous product of the reactor concerned it seems extremely unlikely that the Part 30.73 Schedule C value will be exceeded.

There can be some reconcentration of the krypton-85 when the hydrogen is removed from the hydrocarbon in purification of the synthesis hydrogen gas to the ammonia plant. However, taking into account the fact that hydrocarbon produced will be diluted by inactive streams of gas it would appear that the concentrations arrived at will be below the Part 30.73 Schedule C value.

We desire to obtain a license to use up to 500 millicuries of krypton-85 in the test. Selected test sites include refineries owned and operated by Sinclair Refining Company, including those located at East Chicago, Indiana; Marcus Hook, Pennsylvania; Sinclair, Wyoming and Wood River, Illinois. Present plans are to run a test of the type described after receipt of a license at the Sinclair refinery in East Chicago, Indiana. The description above which refers to ammonia plant is specific to the East Chicago, Indiana refinery. In tests at other refineries the same general safety descriptions will, however, apply. We trust the information presented above is sufficient for your evaluation purposes. We would appreciate your early action on this application.

Yours very truly,

SINCLAIR RESEARCH, INC.



A. I. Snow, Chairman,  
Radioisotope Committee

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