

DUPLICATED

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Office Memorandum • UNITED STATES GOVERNMENT

TO : Isotopes Extension Files

DATE: September 11, 1956

FROM : T. W. Brockett *TWB*SUBJECT: VISIT TO SINCLAIR RESEARCH LABORATORIES, INC., 400 EAST SIBLEY BOULEVARD,
HARVEY, ILLINOIS

Department visited: Engine Laboratories

User visited: Dr. Adolph I. Snow, Senior Project Chemist

License: License No. 12-140-2 for 10 millicuries of Cobalt 60 and Sulfur
and 25 millicuries Nickel 63.

Type and date of visit: First visit, August 28, 1956.

Accompanied by: Roy C. Hageman, Division of Inspection, Chicago Operations
Office and Robert R. French, Sanitary Engineer, Illinois Department of
Public Health.Administrative Control

The use of radioactive materials at this laboratory is under the direction of Dr. Snow. Dr. Snow has had about 10 years experience in the handling, and use of radioactive materials at Ames Laboratory, University of Chicago, and Sinclair Research Laboratories. At the present time, two other men are engaged in the work. Mr. H. L. Skonecke is supervising the engine laboratory work under Dr. Snow's direction. A new laboratory is being constructed and an irradiation facility is being included which will use MTR fuel elements. License No. SNM-34 has been issued by Lyle Johnson on August 14, 1956, authorizing Sinclair to possess 4 irradiated MTR elements.

Administrative procedures are being formulated at the present time and Dr. Snow stated that he may apply in the near future for a broad license for approximately 500 millicuries of elements 3 - 83 and also a quantity of tritium.

Instructions to personnel have been drawn up concerning the procedures to follow in the setting up of experiments, handling materials, storing materials, and measures to take in the event of emergency. These are posted at points where applicable.

The safety director, Mr. R. H. King, has custody of the personnel monitoring and survey records. Dr. Snow is responsible for the procurement, handling procedures, radiological protection measures, waste disposal and all other aspects of the program. The custody of the records by Mr. King was explained in that filing space was readily available in the safety office.

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Complete records are kept on personnel in regard to exposures and this information is requested for new employees from their former employers. A job has recently been offered a man at Iowa State who has had training and experience in radiochemistry. They hope to employ this person to set up the laboratory in the new irradiation facility which should be ready in 8 months to 1 year.

Material Licensed

Several service irradiations have been obtained in the past and they have obtained and had on hand a few millicuries of Cobalt 60, Sulfur 35 and Nickel 63 for research in measuring thickness deposits in automobile engines and effect of additives in lubricating oils. It was explained to them that long half life materials stored for decay must be included in their possession limit and they were aware of this.

The following standard sources are available for calibration:

- Tracerlab 12-7 gamma source 11.1×10^{-1} microcuries.
- Nuclear Instrument and Chemical Company Model R 2 Radium source.
- Three 2 milligram radium sulfate samples.

Disposal of short half-life materials is by hold up for decay. The long life material is sent to Argonne National Laboratory for disposal.

Facilities & Equipment

There are two areas where tests are carried out - one is a glass enclosed room containing a one cylinder engine. This equipment is used to study piston ring wear. This operation is well designed and no radiation hazard is involved in the operation of the engine. The procedures used are good and exposures are kept to the minimum. The other room contains a lathe which is equipped with a special container which collects all machined particles and the cutting oil is kept in a closed system so that none is lost during an operation. These two rooms are properly posted with radiation signs and constant monitoring devices are used to alert them in the event of any hazard developing.

A well kept laboratory room is also a part of the set up and here the machined particles and oil samples are weighed and checked for radiation. Alberene stone hoods are used and are adequate. A Blickman A-1 low intensity dry box is also used. The storage facilities consist of concrete lined holes in the floor of a small storage room. The holes are stoppered by 16" long concrete plugs. Special lead storage containers are available for radioactive piston rings and cutting tools. This storage room is kept locked at all times and instructions to personnel are posted on the door.

Remote handling equipment consists of 5 foot long handled tongs and a magnetic pick-up with a 5 foot handle.

Waste oil is stored in 55 gallon drums which are labeled and are kept until the radioactive material has decayed. These are sealed and stored in an isolated yard and the radiation from a typical barrel is only slightly above background.

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Various instruments are available for surveying and monitoring and special equipment has been made by Tracerlab for measuring and analyzing the piston ring wear.

Personnel Monitoring is by Nuclear Instrument and Chemical film badges processed weekly, and direct reading pocket dosimeters. The highest film badge readings for 1 week have not exceeded 50 mr.

Precautionary Procedures

Physical examinations include initial and semi-annual complete blood counts, urinalysis, chest x-ray and a routine general physical examination for all personnel handling radioactive materials.

Records

Complete records are maintained of personnel monitoring results, surveys, receipt and ultimate disposition of byproduct materials. No accidents or overexposures have occurred.

Compliance

No violations of regulations or conditions of licenses or authorizations were noted. No hazardous conditions were evident.