

DRAFT INSPECTION REPORT FORM

1. Name and address of license  
ATLANTIC RICHFIELD COMPANY  
400 EAST SIBLEY BOULEVARD  
HARVEY, ILLINOIS 60426
2. Date of Inspection 9-18-73
3. Type of Inspection UNANNOUNCED  
REINSPECTION

4. License number(s), docket number(s), number and date of last amendment for each license. Category and Priority of each licensee.

12-00140-04 AMEND. 17, 9-28-72 E(1-A) II

12-00140-05 AMEND. 4, 12-10-69 E III

12-00140-06 AMEND. 2, 5-31-73 E III

5. Date of previous inspection -4 INSPECTED 2-4-72  
-5 INSPECTED 7-7-70  
-6 INSPECTED 10-8-71

6. Proprietary information NONE

7. Scope of inspection if other than routine

ROUTINE REINSPECTION

A/76

8. Participants (Licensee representatives and titles, State representatives, etc.)

DR. A. I. SNOW, CHAIRMAN OF ISOTOPE COMMITTEE & RSO

MR. G. A. UHL, RESEARCH CHEMICAL ENGINEER

ILLINOIS STATE HEALTH DEPT. NOT NOTIFIED OF INSPECTION

& AEC REPRESENTATIVE NOT ACCOMPANIED.

9. Management Interview (Information required for N/C cases)

INSPECTION FINDINGS REVIEWED WITH SNOW & UHL.

NO DEFICIENCIES WERE NOTED.

10. Action and Date: Letter to Licensee \_\_\_\_\_

AEC-591 Clear \_\_\_\_\_

AEC-591 N/C \_\_\_\_\_

11. Recommend reinspection date -4 (9-75) -5 & -6 (9-76)

12. William H. Schultz  
Inspector

10-31-73  
Date of Report

Charles E. Noeline  
Reviewer

11/20/73  
Date of Review

13. Inspection Summary (Including violations and safety items, and status of previously reported violations and safety items, etc.)

NO NONCOMPLIANCE OR SAFETY ITEMS NOTED DURING 9-18-73

INSPECTION FOR -A', -5 AND -6 LICENSES.

-A LICENSE INSP. 2-A-72 SHOWED 2 NONCOMPLIANCE (BOTH  
RELATED TO INADEQUATE SURVEYS, CONTRARY TO 10CFR 20.20(k).  
REVIEWED ON 9-18-73 AND BOTH CORRECTED.

PREVIOUS INSPECTIONS OF -5 AND -6 LICENSES SHOWED NO  
DEFICIENCIES.

14. Summary of Licensed Program (Kind of program, number of people, rate of use or quantities on hand, places and frequency of use, type, quantity and use as authorized, etc.)

LIC. NOS. -04 & -06, USED FOR R&D & TRACER STUDIES IN  
REFINERY EQUIPMENT. LICENSE NO. -05, USES 2700 Ci  $^{60}$   
SEALED SOURCE IN HOT CELL IRRADIATOR. NEARLY ALL WORK  
UNDER THESE LICENSES BY MR. UHL. ROUTINELY USES UP TO  
330mCi  $^{198}$  Au, 150mCi  $H^3$ , 50mCi  $Sc^{46}$  and 100mCi  $I^{131}$   
PER TEST. USES & QUANTITIES AS AUTHORIZED. SAMPLES

NO LONGER PREPARED IN FIELD - NOW PREPARED IN LAB.  
SEE ATTACHMENT 'A' FOR COMPLETE JUNE 1973 INVENTORY.

15. Organization and Administration (Management organization, RSO, authorities and responsibilities, authorized users, qualifications, supervision, etc.)

COMMITTEE: DR. A.I. SNOW, CHAIRMAN

MR. L.A. BAILLIE, RES. CHEMIST

MR. G.A. UHL, RES. CHEM. ENGR.

UHL IS PRINCIPAL USER AND MAINTAINS RECORDS & MAKES  
TESTS.

16. Facilities (Use facilities, storage facilities, control of access, control devices and alarms, etc.)

DESCRIPTION IN LIC. APPLICATION DATED 5-16-57 AND  
IN REPORT DATED 10-28-66. NO SIGNIFICANT CHANGES  
SINCE THEN. ALL AREAS WHERE RADIOACTIVE MATERIAL  
IS USED ARE ACCESSIBLE ONLY TO AUTHORIZED PER-  
SONNEL.

17. Equipment (Devices utilizing licensed material, monitoring instrumentation, special equipment as glove boxes, hoods, handling tools, respirators, etc.)

NO CHANGES IN INSTRUMENTATION OR EQUIPMENT  
EXCEPT ADDITION OF AIR SAMPLER FOR EVALUATION  
OF AIRBORNE CONCENTRATIONS OF RADIOACTIVE MATERIAL.

18. Radiological Safety Procedures (Written operating and emergency procedures, availability of procedures, license and regs, training, Form AEC-3, etc.)

WRITTEN PROCEDURES FOR ALL PROGRAMS.  
LICENSE & REGS. ON FILE  
FORM AEC-3 POSTED

19. Personnel Monitoring and Exposure to External Radiation (Type of monitoring, range of exposures, supplier, period worn, exposure history, etc.)

FILM BADGES ARE BI-WEEKLY FROM LANDAUER  
FORM AEC-5 MAINTAINED  
MAX. QUARTERLY EXPOSURE SINCE LAST INSPECTIONS  
WAS 30 MREM.

20. Exposure of Employees to Airborne Radioactive Materials (Method of evaluation, type of samples, radioisotopes, records, bioassay, etc.)

AIR SAMPLER USED DURING PREPARATION OF TAGGED  
COMPOUNDS. FOR LOW ENERGY EMITTERS AIR IS DRAWN  
THRU VIAL OF TOLUENE & CHECKED WITH LIQUID SCIN-  
TILLATION SYSTEM. ALSO, ROUTINE BIOASSAY PROGRAM  
FOR BAILLIE & UHL.  $H^3$  MAXIMUM  $< 0.5 \mu Ci/ml$ .

21. Effluents to Unrestricted Areas (Types, source, measurements, flow rates, applicable MPC, analytical procedures, environmental samples, etc.)

NO INTENTIONAL RELEASE EXCEPT AS EXEMPT  
CONCENTRATIONS IN OIL, ASPHALT, COKE &  
GASOLINE. RECORD OF ALL EXEMPT TRANSFERS  
SENT TO AEC.

22. Disposals (Methods, typical quantities, etc.)

PRINCIPALLY BY DECAY SINCE MOST ACTIVITY IS  
Au<sup>198</sup>. DECAYED TO BACKGROUND & SURVEYED  
BEFORE DISPOSAL. NO SHIPMENTS TO DISPOSAL  
AGENCY SINCE LAST INSPECTION.

23. Miscellaneous Surveys, Evaluations and Records (External radiation levels, contamination levels, leak tests, etc.)

EACH SHIPMENT OF ISOTOPES IS SMEARED TO CHECK  
FOR REMOVABLE CONTAMINATION - RECORD KEPT.  
DIRECT READING SURVEYS IN LAB., LEAK TESTS  
ON SEALED SOURCES & WATER IN IRRADIATOR. ALL  
TESTS ON TIMELY BASIS AND WITHIN PERMISSIBLE  
LIMITS. RECORD MAINTAINED OF ALL RECEIPT, USE  
& DISPOSAL.

24. Special License Conditions

ALL CONDITIONS REVIEWED WITH SNOW & UHL -  
NO DEFICIENCIES.

25. Posting and Labelling

ALL IN ACCORDANCE WITH 10 CFR 20.203

26. Independent Measurements (Type, results, comparison to licensee results, etc.)

NONE

27. Operations Observed

NONE

28. Incidents, Overexposures, Theft or Loss, Equipment Malfunction (Those not described elsewhere should be reported here.)

NONE

29. Other Information or Continuation from Previous Paragraphs

NONE



ISOTOPE INVENTORY  
June, 1973

$C^{14}$

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BaCO <sub>3</sub>	20 mc
carbon monoxide	0.5 mc
2-propanol	0.2 mc
ethyl iodide	0.1 mc
Na-acetate	0.5 mc
t-butyl alcohol	0.05 mc
benzoic acid	0.0025 mc
indole	0.0025 mc
ethylene	0.5 mc
propylene	0.05 mc
propane	0.05 mc
butene-1	0.1 mc
isobutane	0.1 mc
benzene	0.49 mc
n-heptane	0.9 mc
toluene	0.34 mc
n-octane	8.7 mc
naphthalene	0.05 mc
hexadecane	9.9 mc
heneicosane	0.05 mc
dotriacontane	8.3 mc

$H^3$

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H <sub>2</sub> O	7100 mc
ethylcyclohexane	1300 mc
ethylbenzene	5320 mc
H <sub>2</sub>	1510 mc
anisole	1594 mc
n-butane	330 mc
butene	76 mc
propane	76 mc
propylene	76 mc
benzene	39 mc
p-xylene	1 mc
pentamethyl benzene	2.5 mc
durene	7.2 mc
n-hexane	7.2 mc
lube stocks	173 mc

Other Sources

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1/2 Life

Co-60	5.3 yr.	2700 curies (sealed source)
Cs-137	30 yr.	396 mc (3 sealed sources)
Cs-137	"	276 mc (solution)
Kr-85	10.3 yr.	12.8 curies
Ni-63	85 yrs.	10 mc
Cl-36	300,000 yrs.	0.4 mc
Co-60	5.3 yrs.	2.9 mc (solution)
Zn-65	250 days	0.8 mc
Sc-46		3.3 mc (solution)

Harvey Technical Center

Harvey Technical Center  
400 East Sibley Boulevard  
Harvey, Illinois 60426  
Telephone 312 333 3000

Products Division  
Research & Engineering

Research & Development

2894

July 18, 1973

U.S. Atomic Energy Commission  
Washington, D.C. 20545

Attention: Isotopes Branch  
Division of Materials Licensing

JGK	EJO
WHS	MJM
WBS	HP
EJM	File

*Carv*

Gentlemen:

In accordance with the requirements of our Byproduct Material License No. 12-00140-04 and 12-00140-06, we are hereby reporting material transfers in accordance with Section 32.12, Title 10, CFR Part 32. The period covered is from July 1, 1972 to June 30, 1973.

License 12-00140-04

Heating oil and gasoline containing Carbon-14 and Hydrogen-3 in accordance with Conditions 16, 17 and 18 of this license.

Date	Location	Material	Isotope	Quantity Transferred Curies	Maximum Permitted By Lic. $\mu\text{c/ml.}$	Max. Conc. In Product $\mu\text{c/ml.}$	Volume of Product ml.
6-14-72	Sinclair, Wyoming	Heating Oil	C <sup>14</sup>	0.0018	$8 \times 10^{-3}$	$1.13 \times 10^{-6}$	$1.6 \times 10^9$
6-1-72	Ferrdale, Washington	Gasoline	H <sup>3</sup>	0.300	$8 \times 10^{-5}$	$2.4 \times 10^{-5}$	$1.27 \times 10^{10}$
6-22-72	Sinclair, Wyoming	Gasoline	C <sup>14</sup>	0.0048	$3.3 \times 10^{-7}$	$3.01 \times 10^{-7}$	$1.59 \times 10^{10}$

License 12-00140-06

Asphalt containing Gold-198 at a concentration not to exceed  $5 \times 10^{-4}$  microcuries per milliliter in accordance with Condition 16 of this license.

6-15-73	East Chicago, Indiana	Asphalt	Au <sup>198</sup>	0.015	$5 \times 10^{-4}$	$8 \times 10^{-6}$	$1.9 \times 10^9$
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Very truly,

*[Signature]*  
J. I. Snow,  
Chairman, Radioisotope Committee

JUL 27 1973