



March 27, 2006

The Dow Chemical Company
Midland, Michigan 48667

Document Control Desk
United States Nuclear Regulatory Commission
Washington D.C., 20555

Dear Sir;

Enclosed is the annual report for The Dow TRIGA Research Nuclear Reactor, Docket No. 50-264. If you have any questions, please contact me at (989) 636-6584.

Ward L. Rigot
Facility Director and Reactor Supervisor
Dow TRIGA Research Reactor

Enclosure

CC: Alexander Adams; USNRC
Tom Dragoun, USNRC
Kevin Hool, 1897
Alex Pollock, 2030
Thomas J. Quinn III, 1602
Siaka O. Yusuf, 1602
James R. Weldy, 1803
Jay. D. Romick, 1897
Michael E. Buchmann, 1776

A020

DOW TRIGA RESEARCH REACTOR

ANNUAL REPORT - 2005

There was no US NRC inspection in 2005.

The normal in-house audits of the radiation protection program, safety and housekeeping, and records were also performed and the recommendations acted upon. A peer review audit was conducted by Mr. Andrew Kauffman and Mr. Rick Myser, from The Ohio State University. This audit took place December 8 and 9, 2005. A report has been issued and will be reviewed at the second quarter 2006 reactor operations committee meeting.

The planned upgrade to the primary cooling system was completed and was successfully started without incident.

A. Staff, Licenses, and Training

Ward L. Rigot continues serving as reactor supervisor and facility director of The DOW TRIGA Research Reactor. Kevin Hool continues as the new first level manager for the facility. Thomas J. Quinn III remains a designated alternate (assistant reactor supervisor) for the reactor supervisor. Siaka O. Yusuf is on staff as a Senior Reactor Operator. Bryan Haskins is actively training for his license exam.

W. L. Rigot	Reactor Supervisor and Facility Director
T. J. Quinn	Assistant Reactor Supervisor
S.O. Yusuf	Senior Reactor Operator
B. D. Haskins	Reactor Operator Trainee

Licenses are current. Rigot's and Quinn's licenses were renewed in 2005, while Siaka O. Yusuf received his Senior Reactor Operator's license in 2000. All operators are current in their required medical examinations; which were taken in 2004.

The two-year re-qualification program was completed in the second quarter 2004. The next cycle will be completed in 2006. All operators are up-to-date in their quarterly re-qualification participations. The SROs are current with operating experience and participation in emergency preparedness drills, Reactor Operation Committee meetings, operating examinations, and the annual fuel inventory.

DOW TRIGA RESEARCH REACTOR

ANNUAL REPORT - 2005

Operation of the reactor is an important part of the training program, since this reactor is operated on an as-needed basis, which results in numerous operations each involving reactivity manipulations, use of the control console, placement and retrieval of samples and handling of radioactive materials. The reactor was operated for a total of approximately 300 hours during 2004. Furthermore, each licensee performed about 1/3 of the daily checkout procedures during 2004 and at least three monthly checkout procedures.

James R. Weldy is the Radiation Safety Officer and sits as a member of the Reactor Operations Committee. T. D. Lickly announced his intentions to retire from the company in 2006 and relinquished his duties as a member of the reactor operations committee in December 2005. He has been replaced by Michael E. Buchmann. Mr. Buchmann is a manager in the Research and Engineering capability of The Dow Chemical Company. He is a former senior reactor operator, and has extensive knowledge of the facility and operations. His presence on the committee will provide an excellent perspective to operations. Jerry Cassidy continues as the Health Physics Technician for the Midland Area and assists in support of the reactor facility. The entire composition of the Reactor Operations Committee is listed below.

K. H. Hool	Chairman
W. L. Rigot	Reactor Supervisor and Facility Director
J. R. Weldy	Radiation Safety Officer
T. J. Quinn	Assistant Reactor Supervisor
J. D. Romick	Senior Analytical Specialist
M.E. Buchmann	Senior R&D Leader

K. H. Hool is the Segment Leader for the Core Technology group within the Dow Global Analytical Sciences Laboratory (GAS). W. L. Rigot reports administratively to K. H. Hool. J. R. Weldy is the Dow Midland location Radiation Safety Officer as well as the TRIGA Radiation Safety Officer and reports through the Dow Environmental, Health, Safety and Security department. J. D. Romick and T. J. Quinn report through The Global Analytical Sciences Organization. M.E. Buchmann reports through the Research and Engineering Services Capability.

B. Reactor Operating Experience

The reactor was operated for 1.9 Megawatt-days during 2005 for a total of approximately 300 hours. Operational experience is slightly higher than 2004. The main purpose of operations at the Dow facility is to perform neutron activation analysis. The total number of experiments introduced in 2005 exceeded 6400.

C. Major Changes

There was 1 major change to the facility, which required 10CFR50.59 review. The upgrade

DOW TRIGA RESEARCH REACTOR

ANNUAL REPORT - 2005

project, to convert the secondary cooling system from a one pass through tube and shell heat exchanger to a closed loop system, is nearing completion. The 50.59 review was performed prior to operation of the new cooling system.

There were minor changes to the facility procedures in 2005 related to security. These changes have been communicated to US NRC separately.

D. Unscheduled Shutdowns

There were 15 unscheduled shutdowns (scrams) during 2005. All 15 were due to losses of computer function. The most common malfunction is still with the DIS064 device which processes the digital signals into the DAC computer. We have begun discussions to evaluate an upgrade to the reactor console. It is important to note that the frequency of unscheduled shutdowns does not reflect any safety concerns, but rather is a source of operational inconvenience.

E. Major Preventive and Corrective Maintenance of Safety Significance

There was one maintenance item, which had the potential for safety significance performed during 2005. An object, which was subsequently identified as a broken sample holder (Rabbit) was discovered in the terminus (in-core location) of the pneumatic tube. The pneumatic tube was removed from the reactor core, cleared of the obstruction and re-assembled. The performance was tested and determined to be operable. A root cause investigation was held and corrective measures put into place; which include new and updated procedures for sample introduction. There were 3 preventive and corrective maintenance items: 1) Replacement of the high resolution monitor for the CSC console, 2) Replacement of water purification cartridge, 3) Repair of the NM-1000 signal cable. This was necessary, due to a high background level caused by a defect in the cable shield.

F. Radioactive Effluents

The only radioactive material normally released to the environment from the facility is argon-41, which is produced from activation of the natural argon dissolved in the pool water and subsequently escapes from the pool into the reactor room and from there to the outside of the building, and from the natural argon present in the air used to transport samples from a laboratory into a terminus in the core of the reactor.

G. Radiation Exposures

Radiation exposures received by facility personnel and visitors are monitored using film badges and thermoluminescent detectors. No persons have received exposures approaching 25% of those allowed or recommended in 10CFR20.

H. Request from The University of Michigan NER dept.

DOW TRIGA RESEARCH REACTOR

ANNUAL REPORT - 2005

A. request by the university of Michigan NER department to allow some of their reactor lab students to visit and observe some of our experimental works was approved by the ROC. During 2005, one such visits were made and the outcomes were beneficial to the students and the Dow Chemical Company.

W. L. Rigot
Facility Director and Reactor Supervisor
Dow TRIGA Research Reactor
March 27, 2006