



The Dow Chemical Company
Midland, Michigan 48667

March 20, 2007

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
Kevin Witt, USNRC
Kevin Hool, 1897
Alex Pollock, 2030
Thomas J. Quinn III, 1602
Siaka O. Yusuf, 1602
James R. Weldy, 1803
Jay. D. Romick, 1604
Michael E. Buchmann, 1776

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DOW TRIGA RESEARCH REACTOR

ANNUAL REPORT - 2006

There was one U.S. Nuclear Regulatory Commission inspection in 2006. This audit was performed between September 26 and September 28, 2006 by Mr. Kevin Witt. This was a routine, announced inspection which included a review of activities authorized for the facility. The inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations of activities in progress. No safety concerns or noncompliance with U.S. Nuclear Regulatory Commission requirements were identified.

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. Kevin Herminghuysen, from The Ohio State University. This audit took place December 12 and 13, 2006. A report has been issued and will be reviewed at the second quarter 2006 reactor operations committee meeting.

Modification to the primary cooling system were made to allow for cold weather operation of the chiller. The source of make-up water for the primary system was changed from stream condensate which is subsequently treated by ion-exchange to a system which has an additional total organic carbon removal cartridge. The water quality is constantly monitored and is on a maintenance schedule. The water quality is superior to the previous source.

Mr. Bryan D. Haskins successfully passed his Senior Reactor Operator's exam on October 2, 2006. The examination was administered by Mr. Paul Doyle and became effective October 13, 2006.

A. Staff, Licenses, and Training

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

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

Licenses are current. Mr. Rigot's and Mr. Quinn's licenses were renewed in 2005, while Dr. Yusuf's license was renewed in 2006. All operators are current in their required medical examinations; which were taken in 2006.

The two-year re-qualification program was completed in the second quarter 2006. All operators successfully completed the comprehensive biennial examination. All operators are up-to-date in their quarterly re-qualification participations. The SROs are current with operating experience

DOW TRIGA RESEARCH REACTOR

ANNUAL REPORT - 2006

and participation in emergency preparedness drills, Reactor Operation Committee meetings, operating examinations, and the annual fuel inventory.

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 314 hours during 2006. Furthermore, each licensee performed about 1/3 of the daily checkout procedures during 2006 and at least three monthly checkout procedures.

Mr. James R. Weldy is the Radiation Safety Officer and sits as a member of the Reactor Operations Committee. Jerry Cassiday 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 Research Specialist
M.E. Buchmann	Senior R&D Leader

Dr. Hool is the Segment Leader for the Core Technology group within the Dow Global Analytical Sciences Laboratory (GAS). Mr. Rigot reports administratively to Dr. Hool. Mr. 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. Mr. Quinn reports through The Global Analytical Sciences Organization. Mr. Buchmann reports through the Research and Engineering Services Capability. Mr. Romick changed roles in 2006 and now reports through the Emulsion Polymer Business with the Specialty Chemicals and Plastics portfolio.

B. Reactor Operating Experience

The reactor was operated for 1.3 Megawatt-days during 2006 for a total of approximately 314 hours. Operational experience is similar to 2005. The main purpose of operations at the Dow facility is to perform neutron activation analysis. The total number of experiments introduced in 2005 exceeded 5400.

C. Major Changes

There was 1 significant change to the facility during 2006. The primary coolant system was modified to allow for low temperature operations.

DOW TRIGA RESEARCH REACTOR

ANNUAL REPORT - 2006

There were minor changes to the facility procedures in 2006 related operations. These changes were reviewed and approved by the Reactor Operations Committee.

D. Unscheduled Shutdowns

There were 39 unscheduled shutdowns (scrams) during 2006. All but 3 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. There were 3 high power scrams; 2 of which occurred during training of Mr. Haskins. Changes in operating discipline were identified, late in 2006 which have positively impacted the scram rate for the facility.

E. Major Preventive and Corrective Maintenance of Safety Significance

There were no changes to the facility which had safety significance. There were 2 changes which have improved facility reliability. The chiller for the water treatment system was re-programmed to allow operations through out the year. The previous winter the chiller was inhibited from operations due to default program settings. The alternate heat exchanger was used during the winter months. After verification that the chiller had a cold weather package installed, the chiller was programmed to operate in cold weather. The second modification was changing the source of make-up water for the primary coolant. The new water supply is similar to the previous system which takes plant de-ionized water and treats it further via ion exchange. The new system has the advantage of having an additional total organic carbon removal system. It also has an in-line meter to display the purity of the water and is monitored by site services. Site services performs maintenance and oversight of the system.

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.

DOW TRIGA RESEARCH REACTOR

ANNUAL REPORT - 2006

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