The Dow Chemical Company
Midland, Michigan 48667

March 25, 2005

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
Tim Lickly, 1803

A020

DOW TRIGA RESEARCH REACTOR

ANNUAL REPORT - 2004

There was one US NRC inspection in 2004. The inspection took place June 22, 2004 through June 25, 2004 and was performed by Stephen W. Holmes of NRC. The inspection was comprehensive and covered all aspects of our operation namely: Organizational Structure and Functions, Experiments, Review and Audit, Operations, Fuel Handling, Radiation safety, Operator Requalification, Surveillance, Maintenance, Design Control, Procedures, Emergency Services and Security. There were no violations of NRC regulations noted in the inspection report.

The normal in-house audits of the radiation protection program, safety and housekeeping, and records were also performed and the recommendations acted upon. The required annual peer review audit was conducted by an outside consultant. Recommendations were made and the Reactor Operations Committee has responded to these recommendations.

There were no significant changes to the facility during 2004. An upgrade is being done to the secondary cooling system. It is expected to be completed in 2005.

There was no security incidence during 2004. Several communications were made to and from the US NRC regarding compensatory measures. Marvin Mendoca, Dan Hughes (US NRC) and Inez Acencio from Sandia National Laboratories were on site June 7 and June 8, 2004 to perform vulnerability assessment of our facility. There were useful discussions and suggestions, some of which have been considered by the reactor operation committee. A draft report was received and commented upon.

A. Staff, Licenses, and Training

Ward L. Rigot continues serving as reactor supervisor and facility director of The DOW TRIGA Research Reactor. Following Richard A. Wagner's retirement in 2004, Kevin Hool is the new first level manager for the facility. Thomas J. Quinn III remains as one of the two designated alternates (assistant reactor supervisors) for the reactor supervisor. Siaka O. Yusuf serves as the other designated alternate. Bryan Haskins is actively pursuing his operator training program. His time commitment is still part-time and that is expected to change as his work load improves.

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

Licenses are current. Rigot's and Quinn's licenses were renewed in 1999, 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. A comprehensive exam was taken at the end of the two-year cycle. All licensed SROs passed the exam. Also, 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.

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. 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
T. D. Lickly	Senior Technical Leader
J. D. Romick	Senior Analytical Specialist

K. H. Hool is the Resource 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, as does T.D. Lickly, to the Dow Environmental, Health, Safety and Security department. J. D. Romick and T. J. Quinn report through The Global Analytical Sciences Organization.

B. Reactor Operating Experience

The reactor was operated for 1.8 Megawatt-days during 2004 for a total of approximately 300 hours. Operational experience is lower than 2003. The main purpose of operations at the Dow facility is to perform neutron activation analysis. The total number of experiments introduced in 2004 exceeded 7000.

C. Major Changes

There were no completed major changes to the facility, which required 10CFR50.59 review. The upgrade 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. A 50.59 review will be performed prior to operation of the new cooling system.

There were minor changes to the facility procedures in 2004 related to security these changes have been communicated to US NRC separately.

D. Unscheduled Shutdowns

There were 27 unscheduled shutdowns (scrams) during 2004. Of these, 19 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. The vendor has been asked to address this situation, but as of the end of 2004, there has not been a successful solution provided. It is important to note that the frequency of unscheduled shutdowns does not reflect any safety concerns, but is a source of operational inconvenience. The other shutdowns occurred due to high power indications on the safety channels. Most of them can be attributed to electrical spikes or power excursion at 250kW.

E. Major Preventive and Corrective Maintenance of Safety Significance

There was no maintenance, which had safety significance performed during 2004. There were 4 preventive and corrective maintenance items: 1) Replacement of water conductivity meter, 2) Replacement of water purification cartridge, 3) Pool water temperature and 4) Tie-in to the pool water treatment system to install the new cooling unit.

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.

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 2004, three 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 25, 2005