



The Dow Chemical Company
Midland, Michigan 48667

March 28, 2000

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 (517) 636-6584.

A handwritten signature in cursive script that reads "Ward L. Rigot".

Ward L. Rigot
Reactor Supervisor
Dow Chemical Research Reactor

Enclosure

CC: Alexander Adams; USNRC
Stephen Holmes, USNRC
Susan Butts, 1897
Stan Dombrowski, 1803

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DOW TRIGA RESEARCH REACTOR

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There was one US NRC inspection in 1999. This was a normally scheduled inspection which covered operations, safety, radiation protection, emergency preparedness and the requalification program. The inspection report cited no deviations from NRC requirements and no safety concerns. It did acknowledge licensee self-identification of two deficiencies. The first deficiency relates to surveillance frequency for completion of the monthly checklist. Twice during 1999 the monthly checklist was completed outside the required frequency of monthly, or not to exceed 6 weeks. Although the surveillance was late, 12 monthly checklists were completed during 1999. Corrective actions was identified and implemented. These initiatives were reviewed by the inspector and found to be acceptable. The second item relates to physical security. Initiatives for this occurrence were reviewed and found to be acceptable by the inspector. The required annual audit was conducted by an outside consultant. Recommendations were made and the Reactor Operations Committee has responded to these recommendations. The normal in-house audits of the radiation protection program, safety and housekeeping, and records were also performed and the recommendations acted upon.

A. Staff, Licenses, and Training

Ward Rigot continues to serve as facility director of The DOW TRIGA Research Reactor. Susan Butts remains as first level manager for the facility. Michael Buchmann has replaced Jay Romick as assistant reactor supervisor. In addition, Siaka Yusuf has been hired and is currently training for his RO/SRO license examination. The staff consists of four Senior Reactor Operators and one trainee, who are listed below.

W. L. Rigot	Reactor Supervisor and Facility Director
T. J. Quinn	Assistant Reactor Supervisor
M. E. Buchmann	Assistant Reactor Supervisor
J. D. Romick	Senior Reactor Operator
S.O. Yusuf	RO/SRO trainee

Licenses are current. Rigot and Quinn licenses were renewed in 1999, while the Buchmann and Romick licenses were renewed in 1997. All operators are current in their required medical examinations, which were taken during 1998.

The current two-year re-qualification program started in the second quarter of 1998 and will be completed during 2000. The previous re-qualification program ended in 1998, and was followed by a comprehensive written examination, successfully completed by all senior reactor operators. Four quarterly re-qualification sessions were held during 1999. All operators have participated and successfully completed the requirements for these sessions. The SROs are current with operating experience and participation in emergency preparedness drills, Reactor Operation Committee meetings, an annual operating examination, and the annual fuel inventory.

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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 minimum experience of an operator during 1999 was 18 hours of actual operating time and the maximum experience was 201.9 hours of actual operating time. Furthermore, each licensed person performed about 1/4 of the daily checkout procedures and at least two monthly checkout procedures. Each operator was involved in instructing operator trainees and overseeing operations during training periods.

J. A. Grappin remains the Radiation Safety Officer and sits as a member of the Reactor Operations Committee. 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.

S. B. Butts	Chairman
W. L. Rigot	Reactor Supervisor and Facility Director
J. A. Grappin	Radiation Safety Officer
T. J. Quinn	Assistant Reactor Supervisor
T. D. Lickly	Research Associate

S. B. Butts is the Resource Leader for the Atomic Spectroscopy and Inorganic Analysis Discipline within the Global Analytical Sciences Laboratory; Rigot and Quinn report administratively to Butts; Grappin is the Dow Midland location Radiation Safety Officer as well as the TRIGA Radiation Safety Officer and reports, as does Lickly, to the Dow Environmental, Health, Safety and Security department.

B. Reactor Operating Experience

The reactor was operated for 1.80 Megawatt-days during 1999 for a total of 330 hours, including checkouts and testing as well as the irradiation of samples. Operational experience is similar to recent years. The main purpose of operations at the Dow facility is to perform neutron activation analysis. The number of experiments introduced into the facility increased to just below 7000 samples.

C. Major Changes

There were no major changes to the facility during 1999

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D. Unscheduled Shutdowns

There were 15 unscheduled shutdowns (scrams) during 1999. This is an improvement from the 17 scrams in 1998 and significantly lower than in previous years. 10 scrams were computer related; either loss of communications or loss of function. In all cases, safety systems initiated the required automatic shutdowns. Five scrams were high power scrams. These resulted from coming to power on an increased period.

E. Major Preventive and Corrective Maintenance of Safety Significance

There was no maintenance, which had safety significance performed during 1998. One maintenance item was performed on a safety-related system during 1999. The hard drive on one of the computers was having intermittent problems coming to speed, which prevented loading the software and completing communications with the other computer. This is a requirement for operations and the disk drive was scheduled to be replaced after the shutdown for the Y2K event. For the Y2K event, it was decided that no operations would be performed during the rollover of the year, and that the console would be powered down, and remain in that mode, until January 2000. This is when the disk drive was replaced.

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 also within the air contained inside the sample irradiation terminus in the core. The argon subsequently escapes from the pool into the reactor room and from there to the outside of the building; and from the terminus into a hood which is fitted with a HEPA filter for release to the outside,

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.

W. L. Rigot
Reactor Supervisor
28 March 1999