The Dow Chemical Company
Midland, Michigan 48667

February 24, 2020

Document Control Desk
United States Nuclear Regulatory Commission
Washington, DC 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) 638-6185.

Paul J. O'Connor
Facility Director
Dow TRIGA Research Reactor

Enclosure

CC: Geoff Wertz; USNRC
Wayde Konze, 1897
Siaka Yusuf, 1602
Bryan Haskins, 1602
Kelly Wegener, 1803
James Weldy, 1803
Michael Buchmann, 1897
Paul O'Connor, 1897

A020

NRR

DOW TRIGA RESEARCH REACTOR

ANNUAL REPORT - 2019

There was one US NRC inspection in 2019 during which selected aspects of the Dow TRIGA Research Reactor programs were examined. There were no violations found. The annual peer review audit was conducted by Mr. Joseph Talnagi of Ohio State University (Retired) in December of 2019. The audit examined all aspects of the Dow TRIGA nuclear reactor facility programs and there were no safety concerns or non-compliances with US NRC requirements found.

The regular in-house audits of the radiation protection program, safety and housekeeping, and records were also performed by the Dow Chemical Company Radiation Safety Officer and there were no issues found.

There were no significant changes to the facility during 2019. There were no changes to the Reactor Operation Committee (ROC) membership during the year, 2019 as well.

A. Staff, Licenses, and Training

The current reactor staff members are:

P. J. O'Connor	Facility Director
S. O. Yusuf	Reactor Supervisor
B. D. Haskins	Assistant Reactor Supervisor
N. J. Goodman	Trainee

There are two Senior Reactor Operators and their operator licenses are current. Dr. Yusuf renewed his Senior Reactor Operator's license in 2018. Mr. Haskins also renewed his Senior Reactor Operator's license in 2018.

The annual re-qualification program was carried out according to the NRC approved program, dated September 6, 2011. All licensed operators are up-to-date in their quarterly re-qualification participations, including operating experience, 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, thus, the reactor is operated on an as-needed basis which results in numerous operations. Each operation involves 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 164 hours during 2019 by the two Senior Reactor Operators.

The ROC is currently composed of the following staff members:

W. V. Konze	ROC Chairman
P. J. O'Connor	Facility Director
S. O. Yusuf	Reactor Supervisor
K. A. Wegener-Gave	Radiation Safety Officer
J. R. Weldy	EH&S Dow Michigan Operations
M. E. Buchmann	Process Analytical Global Leader

Dr. Konze is the first level manager for the facility on behalf of Analytical Sciences and serves as the chairman for the ROC. Dr. O'Connor is the level 2 manager and the facility director. Dr. Yusuf is the level 3 manager and the reactor supervisor for the facility. Yusuf is the reactor operations staff member of the ROC. Ms. Wegener-Gave is the Dow Midland location Radiation Safety Officer as well as the TRIGA Radiation Safety Officer and reports through the Dow Environmental, Health and Safety department. Mr. J. R. Weldy is the Radiation and Industrial Hygiene Specialist for the Dow Chemical Company and reports through the Industrial Hygiene Expertise Center of the Dow Environmental Health and Safety (EH&S). Mr. M. E. Buchmann is a Process Analytical Global Leader and reports through the Dow Global Process Analytical. Mr. Weldy and Mr. Buchmann serve as the outside members, (neither members of reactor operations nor members of analytical sciences), of the ROC.

B. Reactor Operating Experience

The reactor was operated for 0.68 Megawatt-days in 2019 (a 50% decrease from last year) for a total of 164 hours (also a decrease from last year). The main purpose of operations at the Dow facility is to perform neutron activation analysis. About 2,749 samples were irradiated in 2019, down by about 50% from last year, 2018 and consistent with hours of operation and focus.

C. Major Changes

There were no changes made to the facility in 2019.

D. Unscheduled Shutdowns

There were 11 unscheduled shutdowns (scrams) during 2019. All of these scrams were due to a computer function, specifically, the DIS064 device which processes the signals into the DAC computer. The number is consistent with previous years and the number of hours of operations.

E. Major Preventive and Corrective Maintenance of Safety Significance

There was no maintenance which had safety significance performed during 2019. There were however, 12 preventive and corrective maintenance items during 2019. Only one of these was related to low level noise in the NM1000 channel, a significant decrease from last year. Others were related to the replacements of water purification cartridges (3 times), adjustments on the NP1000 safety channel (3 times), resetting of the High Resolution Display unit. There were two minor diagnoses and routine maintenances involving the continuous air monitor. There were also a couple of Control Rod Drive controller adjustments in 2019.

F. Radioactive Effluents

The only radioactive material normally released to the environment from the facility is argon-41. This 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. Ar-41 is also produced from the natural argon present in the air used to transport samples from a laboratory into a terminus in the core of the reactor.

Overall, any release, after dilution is estimated to be less than 25% of the allowed or recommended maximum concentration in 10CFR20.

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. Outside Sampling and Monitoring

There were no incidences requiring outside sampling or monitoring during the year 2019.

Paul J. O'Connor

P. J. O'Connor
Facility Director
Dow TRIGA Research Reactor
February 24, 2020