The Dow Chemical Company
Midland, Michigan 48667

Mr. Alexander Adams
Research and Test Reactors Licensing Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Subject: Dow Chemical Company- Response to the Request for Additional Information regarding Financial Qualifications for the renewed license of the TRIGA research reactor. License No. R-108; Docket No. 50-264

Dow is providing it's response in support of its Application for License Renewal for the Dow TRIGA research reactor. Some of the attachments herewith constitute proprietary and confidential commercial information that should be held in confidence by the NRC under 10 C.F.R. 2.390 because:

i. This information is and has been held in confidence by Dow.
ii. This information is of a type that is held in confidence by Dow and there is a rational basis for doing so because it is proprietary confidential and commercial information concerning Dow's proposed actions of Dow's Board of Directors and does not constitute public information.
iii. This information is not available through public sources and is only known to certain officers and employees of Dow who have a need to know.
iv. Public disclosure of this information would create substantial harm to Dow by disclosing Dow internal confidential commercial activities.

Accordingly, Dow requests that Attachments 2 and 5 be withheld from public disclosure under 10 C.F.R. 2.390.

The Affidavit required for withholding from public disclosure under 10 CFR 2.390 is included as Attachment 5.

The response to the RAI is organized by individual question. Each question will be reiterated and our response will follow.

1. Pursuant to 10 CFR 50.33(d), "contents of applications; general information," certain information is required by the applicant, Dow, as applicable. To comply with the regulation, update the application to include the following additional information:
   (a) The names, addresses and citizenship of Dow's directors and principal officers.
   (b) A statement as to whether Dow is owned, controlled, or dominated by an alien, a foreign corporation, or government, and if so give details.

DTRR Response
(a) The names, addresses and citizenship of Dow's directors and principal officers are included in Attachment 1 of this document.
(b) A statement regarding Dow's ownership and control is included in Attachment 1. A negation plan for the DTRR is included in Attachment 2.

2. The Nuclear Regulatory Commission (NRC) staff will analyze the financial statements for the current year, which are required by 10 CFR 50.71(b) to determine if Dow is financially qualified for to operate the DTRR. Since Dow's financial statements were not included in the application, please provide a copy of the latest annual financial statements for the NRC to review.

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DTRR response
The annual financial statement can be found at www.Dow.com under Investor Relations.

http://www.dow.com/financial/fin_reports/index.htm.
A hard copy is included as attachment 4.

3. Pursuant to 10 CFR 50.33(f)(2), "[t]he applicant shall submit estimates for the total annual operating cost for each of the five years of operation of the facility." While the application states that a'[s]worn statement certifying Dow's funding source for operating ...funds," was included, the NRC staff needs the following additional information to complete its review:
(a) Projected operating costs of the DTRR for each of the fiscal years (FYs) 2012 through FY2016 (the first five years of operation after the projected license renewal).
(b) Dow's source(s) of funding to cover the operating costs for the above fiscal years, FY2012 through FY2016.

DTRR response

(a) The DTRR budget consists of the salary of three staff, maintenance, NRC fee's, travel, materials and supplies. The following table summarizes the projected operational costs for the DTRR, based on the information from FY 07-08, 08-09.

	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Salaries + Benefits	560,000	576,800	594,104	611,927	630,285
Maintenance	20,000	20,600	21,218	21,855	22,510
Material & Supplies	42,000	43,260	44,558	45,895	47,271
Radiological Health Support	40,000	41,200	42,436	43,709	45,020
NRC fee's, annual license	145,000	149,350	153,831	158,445	163,199
Travel	3,000	3,090	3,183	3,278	3,377
Total	810,000	834,300	859,329	885,109	911,662

(b) DTRR is entirely funded through Analytical Sciences which is in turn part of the annual operating budget for Dow's Core Research and Development. Funding is allocated annually. Dow has included financial information that demonstrates Dow possesses, or has reasonable assurance of obtaining, the funds necessary to cover the estimated operating costs for the period of the facility operating licenses, including the period of operation under the renewed license, in accordance with 10CFR50.33(f)(2).

4. Pursuant to 10CFR50.75(d)(1), [e]ach non-power reactor applicant for or holder of an operating license for a production or utilization facility shall submit a decommissioning report as required by §50.33 of this part.

Since the application does not clearly provide certain details regarding the eventual decommissioning of the DTRR, the NRC staff requests that Dow complete and/or update the 2009 submittal by providing the following additional information:

(a) A current decommissioning cost estimate in (2011 dollars) for the DTRR to meet the NRC's radiological release criteria for decommissioning the facility for unrestricted use,

pursuant to 10 CFR 50.75(d)(2)(i). Accordingly, describe the basis on how the decommissioning cost was developed.

(b) A summary of total decommissioning cost broken down in the categories of labor, waste disposal , other items (such as energy, equipment, and supplies) in current dollars, and a contingency factor (normally 25 percent).

(c) A statement of the decommissioning method to be used (i.e., DECON).

(d) A statement of whether the decommissioning funding assurance will continue to be provided by the surety method, as allowed by 10 CFR 50.75(e)(1)(iii). Assuming the Surety Method will continue to be used to provide decommissioning funding assurance, please state how Dow plans to adjust it's Surety Bond periodically over the life of the facility to meet changes in the decommissioning cost estimate.

(e) A description of the means of adjusting the cost estimate and associated funding level periodically over the life of the facility, pursuant to 10 CFR 50.75(d)(2)(iii). Since the application does not provide this information please update the application to include a full description of the method to be used as the means of adjusting the cost estimate periodically over the life of the facility (e.g., consumer price indices, independent study, etc.). Also provide a detailed numerical example updating the cost estimate to 2011 dollars.

DTRR response

(a) The estimate for decommissioning the DTRR is based on estimates included in the decommissioning plans from University of Illinois $4,200,000 (2007), Georgia Tech- $7,140,000 (2001), University of Virginia $6,400,000 (2003), Ford Reactor -University of Michigan $9,800,000 (2006). Using these estimates as a guide, the cost of decommissioning the DTRR in 2007 was estimated as $5,000,000. The 2007 estimate was adjusted using the inflation rate described in 4(d) of this response. Based on facility usage and building size, the current estimate for decommissioning the DTRR is $5,467,000 dollars. This estimate is comparable to the more recent decommission estimates of Purdue $623,000, Pennsylvania State $12,000,000 and MURR $47,300,000 dollars when considering facility usage and square footage.

(b) The following table summarizes the estimated decommissioning costs assuming immediate decommission of the R-108 licensed area bldg 1602 laboratories 51, 52 and 11. It is anticipated that the internal personnel will perform the planning, and preparation, and surveying.

Labor	1,353,000
Fuel Removal and Transportation	1,563,000
Materials/Equipment/ Supplies	416,000
LL-Waste Disposal	1,041,000
Subtotal	4,373,000
Contingency (25%)	1,093,000
Total	5,467,000

(c) Currently, there are no plans to decommission the DTRR. However, the anticipated approach is immediate decommissioning, DECON.

(d) As allowed by 10 CFR 50.75(e)(1)(iii),The Surety Bond will continue to be used to provide decommissioning funding assurance. Attachment 3 is the documentation for The Dow Chemical Company Surety bond for decommissioning. The Surety bond is adjusted annually using an inflation factor, for 2010 the inflation factor was 1.021. The current bond amount is $5,472,560. The inflation factor is based

on the Implicit Price Deflators for Gross National Product (FINAL) which are published in March of each year. Since the cost estimates are provided prior to the annual GNP being published in March, the previous 2 and 3 year annual GNP figures are used.

2007 Annual GNP Implicit Price Deflator is 106.215 and 2008 Annual GNP Implicit Price Deflator is 108.486 (as of July 31, 2009) – source is the Bureau of Economic Analysis, National Income and Product Accounts Table – Table 1.1.9. Implicit Price Deflators for Gross Domestic Product.
http://www.bea.gov/national/nipaweb/TableView.asp?SelectedTable=13&ViewSeries=NO&Java=no&Request3Place=N&3Place=N&FromView=YES&Freq=Year&FirstYear=2007&LastYear=2008&3Place=N&Update=Update&JavaBox=no

108.486 ÷ 106.215 = 1.02138116085 rounded to 1.021.

This inflation factor was used to inflate the surety bond amount
$5,360,000 x 1.021 = $5,472,560.

(e) The cost estimate for decommissioning the DTRR will continue to be adjusted annually using the inflation factor as calculated in 4(d) of this response.
(f) A statement regarding Dow's ownership and control is included in Attachment 1. A negation plan for the DTRR is included in Attachment 2.

5. Section 103d of the Atomic Energy Act prohibits the NRC from issuing a license to:

. . . an alien or any corporation or other entity if the commission knows or has reason to believe it is owned, controlled or dominated by an alien, foreign corporation or foreign government.

Section 50.38 of 10 CFR is the regulatory provision that implements this statutory prohibition. The NRC staff notes that six out of 26 of Dow's current Directors and Officers, as stated within the April 1, 2009 submittal, are foreign citizens (e.g., Director and President, Chief Executive Officer and Chairman). In order for the NRC staff to complete its review of the application, please provide the following additional information:

(a) Provide information in the form of a negation action plan that will describe how Dow will segregate decisions relating to safety, security, etc. from foreign Directors, Officers, investors, etc. Also, please state if Dow intends to establish a Nuclear Advisory Group, and if so, please provide details concerning this group.
(b) State whether the foreign Directors and Officers will have any special veto or approval rights, quorums, with respect to the DTRR.

DTRR response

- Physical access to the reactor and special nuclear fuel (SNM) is restricted to US citizens. Physical Security is discussed, planned and approved with individuals on the Reactor Operations Committee. The Reactor Operations Committee is restricted to US citizens.

(a) A negation plan for the DTRR is included in Attachment 2. The negation plan does not include the formation of a Nuclear Advisory Group.
(b) The negation plan included in Attachment 2 addresses the rights and responsibilities of the Board of Directors.

Should you have questions or need additional information, please contact the undersigned at 989-638-6932.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on Dec. 7, 2010

Melinda Krahenbuhl, Ph.D.
Director
Dow TRIGA Research Reactor

Subscribed and sworn to before me this 7th day of December, 2010

Notary Public
_____ County, Michigan
My Commission Expires:

_____

Stacy L. McKeon
NOTARY PUBLIC, BAY COUNTY, MICHIGAN
ACTING IN MIDLAND COUNTY, MICHIGAN
MY COMMISSION EXPIRES JUNE 28, 2011

cc: Sandeep Dhingra
Michele Osmun