

National Aeronautics and
Space Administration

Lewis Research Center
Cleveland, Ohio
44135

NASA

Reply to Attn of 8604

November 7, 1980

U. S. Nuclear Regulatory Commission
Attn: Mr. Robert W. Reid, Chief,
Operating Reactors Branch No. 4
Division of Operating Reactors
Washington, DC 20555

SUBJECT: Request for Issuance of Dismantling Order and Termination of
License TR-3, Docket No. 50-30, and License R-93, Docket No.
50-185

REF.: Two Letters from NASA-Lewis Research Center (D. E. Benedict),
to USNRC, Acting Assistant Director for Operating Reactor
Projects (W. P. Gammill), both dated March 17, 1980, Same
Subject as Above

The referenced letters, in accordance with Section 50.82, 10 CFR 50,
requested the issuance of dismantling orders and, subsequent to dismantlement and a final radiation survey of site environs, a termination of USNRC license TR-3 for the NASA 60 MWt Plum Brook Reactor (PBR) and USNRC license R-93 for the NASA 100 KWt Mock-up Reactor (MUR). Supporting dismantling Plans and Environmental Reports accompanied this request. We understand that NRC Staff review of these submittals is nearing completion.

In a recent telephone conversation with your Mr. Peter B. Erickson, Project Manager, Operating Reactors Branch No. 4, who is managing the Plum Brook Reactor Facility (PBRF) application, we were advised that two questions had arisen during Staff review of our submittals. The purpose of this letter is to respond to those questions.

The thrust of both questions is concerned about pollution control effort - the identification and control of chemical wastes that may result from decontamination and dismantling operations. Although below we have responded specifically to each question, we believe it important to emphasize the NASA-Lewis Research Center policy, in full compliance with NEPA, to protect and enhance the quality of the environment in all activities conducted at this Center, which includes both the Cleveland and Plum Brook Station locations. Certainly this policy applies to the dismantlement of the PBRF.

This broad policy is set forth in NASA Headquarters Management Instructions and Lewis Management Instructions which are implemented through the Lewis Environmental Quality Organization. This organization is structured

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specifically to 1) provide employees with a work situation free from environmental hazards and instill in them an environmental awareness, 2) provide specialized technical knowledge essential to continuing protection of environmental quality, 3) maintain control over potential environmental hazards, and 4) provide a centralized source of information on matters of environmental quality and control. The Lewis Environmental Quality Organization consists of the Environmental Pollution Control Board, the Office of Occupational Medicine, the Office of Environmental Health and the Radiation Safety Committee. Supplementing this organization was the formation of the PBRF Dismantling Safety Committee which has the specific responsibility for review of all matters with safety implications relative to the PBRF dismantling project. These organizations are identified on Figure 21 of the Dismantling Plan, Plum Brook Reactor Dismantling.

In carrying out its responsibilities for PBRF dismantling to date, the PBRF Dismantling Safety Committee has reviewed and approved all documents supporting our request to USNRC for issuance of dismantling orders and termination of licenses. Appropriately, the Environmental Pollution Control Board has reviewed and approved the Environmental Report submittals for both the PBR and MUR dismantlings.

In responding to the Staff's specific questions we believe that only a clarification or expansion of existing information appearing in the Environmental Report, Plum Brook Reactor Dismantling is necessary. Therefore all references cited apply to that document.

Question No. 1:

What types of chemicals do you anticipate using to support dismantling operations at the PBRF?

Response:

Reference: Page 59, Section IV. B.1. a

As explained in our request letters of March 17, 1980, it is our intent to engage the services of a qualified, experienced contractor to perform all decontamination and dismantling field activities with NASA project management provided by this Office. Therefore, it is not possible to specify which chemicals will be selected by the contractor for use at PBRF. This depends largely upon advances in the state-of-the-art and the contractor's experience and success in chemical/technique use combinations. However, in line with decontamination methods existing today, likely candidates include the following:

1. Manual cleaning (wipe, scrub, mop) using water, detergents, solvents, and chelating agents. One chelating agent exhibiting good results to date is ethylene diamine tetra-acetic acid.
2. Mechanical cleaning (vacuuming, high pressure steam cleaning, soaking, ultrasonics) using water, detergents, and other common chemicals such as acids and caustics.

Special situations will require specific approaches and can involve many reagents such as the following: citric acid, ammonium citrate, oxalic acid,

alkaline permanganate, sulfamic acid, sulfuric acid, dilute hydrochloric and nitric acids, trisodium phosphate, ammonium bifluoride, organic solvents, abrasive cleaning powders, as well as available commercial decontaminates, e.g., the TURCO, WEDAC, NUTEK, RADIACWASH, and WYANDOTTE series of cleaners.

The toxicity of each cleaning agent proposed will be evaluated for potential adverse effect on the environment and the analysis of the liquid wastes will be modified to ensure protection of the environment. In addition, the environmental effects of planned decontamination procedures will be considered in the formal review and approval process for such procedures.

Question No. 2:

What methods will be employed for control of liquid (chemical) wastes produced during PBRF dismantling?

Response:

Reference: Page 56, Section IV. A. 2
Pages 61 and 62, Section IV. B. 1. c
Page 71A, Figure 10

All liquid wastes generated in decontamination activities will be collected in hold tanks, sampled, analyzed for radioactivity, and released on a batch basis only after it has been demonstrated that the effluent specification limits have been met both for radioactivity and for toxic chemical characteristics. The water is then released to the PBRF effluent ditch system for offsite discharge.

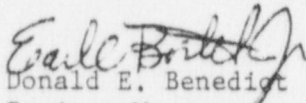
NASA maintains a National Pollution Discharge Elimination System (NPDES) Permit which regulates the release of all liquid wastes from the Plum Brook Station. A copy of the current NPDES Permit No. OH 0001392 is enclosed. Please note there are seven (7) discharge points regulated under this Permit. Only Outfall 003, page 4 of 12, is applicable to the PBRF. Also enclosed is a copy of Figure 10 on which the location of Outfall 003 is circled. All PBRF surface and waste waters are collected on site by a series of open ditches, catch basins, and covered culverts which flow into a single canal and leaves the site through the Effluent Control Station (not currently operational), located at the southeast corner of the site. From there the PBRF effluent flows into an open ditch which runs in an easterly direction, south of Pentolite Rd., until intersecting the Plum Brook creek. The Outfall 003 monitoring station is just downstream (north) of this intersection.

This office has on December 20, 1979, and again on June 23, 1980, established telephone contact with Mr. Mike Lin, USEPA Region V, and discussed the proposed dismantling of the PBRF. Mr. Lin was appreciative of such advance notification regarding future plans for the PBRF. As you can see from the Permit cover letter dated August 25, 1980, Mr. Lin has USEPA responsibility for the Permit.

The analysis of water samples at Outfall 003 will, of course, include NPDES parameters and any other applicable local, State, and Federal release limitations. Before specific PBRF decontamination and dismantling activities are to begin, the detailed procedures will be reviewed and approved as described in the Dismantling Plan. NASA-Lewis Research Center will then negotiate a revision to the NPDES Permit with USEPA, if necessary, based upon these planned activities. We will continue to comply with conditions and limitations of the current or revised Permit and other applicable regulations.

In addition to NPDES, NASA has in place a Spill Prevention Control and Countermeasure (SPCC) Plan for both the Cleveland and Plum Brook Station locations, which establishes procedures, methods and equipment utilization to prevent the discharge of oils and fuels into navigable waters. This Plan was reviewed and approved by the Environmental Pollution Control Board prior to submittal to USEPA in September 1978. This SPCC Plan also will be reviewed in light of planned PBRF activities, and revisions made, if necessary, to assure continued compliance with 40 CFR 112.

In the event the Staff requires further information in this matter please do not hesitate to contact this office. We intend to provide whatever information and assistance necessary to effect timely receipt of the dismantling orders so that the PBRF project may proceed.

for 
Donald E. Benedict
Project Manager

Reactor Decommissioning Project Office

Enclosures

Three copies w/enclosures to:
U. S. Nuclear Regulatory Commission
Attn: P. B. Erickson, Project Manager
Operating Reactors Branch No. 4
Division of Operating Reactors
Washington, DC 20555

Copy to:

NASA--Headquarters: BX-9/B. J. McGarvey (w/out encl.)
BXE-9/J. B. Vitagliano (w/out encl.)



UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION V
230 SOUTH DEARBORN ST.
CHICAGO, ILLINOIS 60604

REPLY TO ATTENTION OF:

AUG 25 1980
CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. R.J. Koch, Chief
Plum Brook Management Office
National Aeronautics and Space
Administration
Lewis Research Center
Plum Brook Station
Sandusky, Ohio 44870

Re: NPDES Permit No. OH 0001392
NASA - Lewis Research Center
Plum Brook Station

Dear Mr. Koch: *[Signature]*

Your application OH 0001392 for National Pollutant Discharge Elimination System (NPDES) permit, has been processed in accordance with Sections 402 and 405 of the Clean Water Act of 1977, (33 U.S.C. Section 1251 et. seq.)

The enclosed NPDES permit covers your operations which discharge into Kuebler Ditch, Ransom Brook and Plum Brook at Sandusky, Ohio. This permit is issued as publicly noticed on January 21, 1980, except for the changes indicated in the attachment which were made as conditions for certification by the Ohio Environmental Protection Agency.

All dischargers from this facility shall be consistent with the terms and conditions of this permit. Any questions you may have should be directed to Mr. Mike Lin, of my staff, at (312) 353-2105.

Very truly yours,

[Signature]

Sandra S. Gardebring
Director, Enforcement Division

Attachment

cc: Ralph W. Everett, Chief, Permit and
Approval Section, Ohio EPA w/copy of permit

J.E. ROSS (INFO AND COMPLIANCE)

J. BRAUNIG ("")

T. L. JUND (INFO)

SAFETY OFFICE (INFO)