



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

June 6, 1994

Mr. Tom Clements
Greenpeace International
1436 U Street, N.W.
Washington, DC 20009

Dear Mr. Clements:

Your letter of May 9, 1994, to Dr. Selin, Chairman of the U.S. Nuclear Regulatory Commission (NRC), has been referred to me for reply. You sought answers to a series of questions pertaining to the shipment of fuel debris from the Three Mile Island Nuclear Station Unit 2 (TMI-2) to South Korea and to any other country.

Two research programs involved the shipment of fuel debris from the TMI-2 reactor vessel to foreign countries. The first program, initiated by the Organization for Economic Cooperation and Development (OECD), was the Accident Evaluation Program (AEP). The U.S. Department of Energy (DOE) sponsored U.S. participation in the AEP. Within the framework of the program, an international group of experts evaluated material from the damaged TMI-2 reactor to improve the understanding of the specific conditions during the TMI-2 accident, and to gain data for verifying results from smaller scale severe fuel damage experiments.

The second program, also sponsored by OECD, was the Vessel Investigation Program (VIP). The NRC managed U.S. participation in this program. The primary objectives of the VIP were to extract and examine samples from the lower head of the TMI-2 reactor vessel, and to examine the potential modes of failure and the margin of structural integrity that remained in the TMI-2 reactor vessel during the accident.

The NRC staff is aware that TMI-2 core debris was shipped overseas under the AEP; however, the NRC staff does not have the detailed information (specific amounts and overseas destinations) that you requested in your letter. I suggest you contact Mr. Walter Pasedag, Manager, PWR Programs, Office of Nuclear Energy, DOE at (301) 903-3628. A member of my staff has discussed your request with Mr. Pasedag and he has agreed to help you obtain the information.

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June 6, 1994

Mr. Tom Clements

- 2 -

We have contacted the Idaho National Engineering Laboratory (INEL), the lab that handled the shipment of samples obtained under the VIP. INEL told us that a small amount of fuel debris adherent to structural material removed from the reactor vessel lower head region was shipped to France. Detailed information on that shipment is enclosed.

If you need any additional information pertaining to the shipment of material under the VIP please contact Dr. Michael Masnik of my staff at (301) 504-1191.

Sincerely,

Original signed by: Frank Miraglia for

William T. Russell, Director
Office of Nuclear Reactor Regulation

Enclosure:

As stated

cc: W. Pasedag, DOE

DISTRIBUTION:

Docket File 50-312

PDR

JTaylor

JMilhoan

HThompson

JBlaha

RBernero

KCyr, OGC

CStoiber, IP

ARubin, RES

WRussell/FMiraglia

LReyes

ATHadani

DCrutchfield

FGillespie

BGrimes

SWeiss

RDudley

KPerkins, RIV

OGC

OPA

OCA

KBohrer (GT10066 w/incoming) 12-G-18

JLindsay (GT10066 w/incoming)

NOlson (GT10066 w/incoming) 12-G-18

EHylton (w/incoming)

MMasnik

EDO #0010066

*PREVIOUSLY CONCURRED

ONDD:LA

EHylton

5/26/94

ONDD:PM

MMasnik:dmj

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TECH ED.*

RSanders

5/25/94

ONDD:SC*

RDudley

5/26/94

ONDD:D*

SWeiss

5/26/94

DORS:DD*

BGrimes

5/26/94

(A) ABR

LReyes

5/26/94

DONRR

WRussell

5/6/94

*RES reviewed draft of ltr.
No need for RES conc.
in final per Al Rubin, RES*

OFFICIAL RECORD COPY

DOCUMENT NAME: G:\SECY\ACTN_ITM\GT10066.MTM

Mr. Tom Clements

- 2 -

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Sincerely,



William T. Russell, Director
Office of Nuclear Reactor Regulation

Enclosure:
As stated

cc: W. Pasedag, DOE

NOVEMBER 1991 SHIPMENT OF TMI-2 LOWER PLENUM NOZZLE
AND GUIDE TUBE MATERIAL TO FRANCE

Background

As part of the Organization for Economic Cooperation and Development (OECD) Three Mile Island Nuclear Station Unit 2 (TMI-2) Vessel Inspection Program (VIP), small sections of four instrument nozzles and guide tubes were shipped to France for examination. These samples had small amounts of adherent core debris.

Weight of Debris

Calculations determined a total estimated amount of uranium of 0.55 grams adherent to the instrument nozzles and guide tubes. The maximum enrichment of the TMI-2 fuel was 2.64 percent. Therefore, the calculated total of U-235 shipped was 29 milligrams.

Curies Shipped

The primary radionuclides and their measured radioactivity inventory is as follows:

<u>Radionuclide</u>	<u>Microcuries</u>
K-40	10.94
Co-60	111.60
Sb-125	36.30
Cs-134	22.48
Cs-137	3900.40
Eu-154	28.10
Eu-155	6.38
Th-232	<u>0.54</u>
Total	4116.74

Country Receiving Material

The material was shipped by air-freight to the Institute de Protection et de Sûreté Nucleair of the Commissariat à l'Energie Atomique de France, Saclay.

France belongs to the OECD and participated in the VIP. Metallographic examinations were performed primarily on the nozzle sections. Under international agreement, France is responsible for disposing of the material when its examinations are complete.

Reports

As a participant in the VIP, France presented the results of the French examinations of the nozzle sections and the adherent core debris at the semiannual program review meetings. This information was also presented at the VIP final public meeting held in Boston in October 1993. Information on the results of the French nozzle examinations are contained in two VIP reports: "TMI-2 Vessel Investigation Project Integration Report," NUREG/CR-6197, TMI V(93)EG10, March 1994, and "TMI-2 Nozzle Examinations Performed at the INEL," NUREG/CR-6198, TMI V(94)EG01, March 1994.

ACTION

EDO Principal Correspondence Control

FROM: Tom Clements Greenpeace
DUE: 05/31/94
EDO CONTROL: 0010066
DOC DT: 05/09/94
FINAL REPLY:

TO: Chairman Selin

FOR SIGNATURE OF : Russell
** GRN **
CRC NO: 94-0450

DESC: Q'S PERTAINING TO THE SHIPMENT OF TMI DEBRIS TO SOUTH KOREA AND ANY OTHER COUNTRY
ROUTING: Taylor, Milhoan, Thompson, Blaha, Russell, RI, Bernero, NMSS, Cyr, OGC, Stoiber, IP

DATE: 05/17/94
ASSIGNED TO: NRR
CONTACT: Russell

SPECIAL INSTRUCTIONS OR REMARKS:

NRR RECEIVED: MAY 17, 1994
NRR ACTION: DORS:GRIMES
NRR ROUTING: RUSSELL, MIRAGLIA, REYES, THADANI, CRUTCHFIELD, GILLESPIE, BOHRER

→ SW - action
I would guess that this was a DOE shipment. Try to confirm this and give Greenpeace the person ^{in DOE} who can respond to their questions. (Check with RES also) when we have the info., you might call Clements as well as processing the ACTION
DUE TO NRR DIRECTOR'S OFFICE
BY [Signature] 26, 1994
(get an extension ASAP if one is necessary)
5/18/94

