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The Honorable Brian Donnelly
United States House of Representatives
Washington, D.C. 20515

Dear Congressman Donnelly:

I am pleased to respond to your letter of May 30, 1985 to Carlton Kammerer, regarding our current efforts to reduce radiation exposure levels encountered on a daily basis by nuclear power plant workers.

A comprehensive summary of our efforts to ensure radiation protection in nuclear power plants is provided in the enclosure.

I trust this information indicates our interest and intent to maintain working personnel and public exposure to radiation and radioactivity as low as is reasonably achievable (ALARA) in conformance with our regulations.

Thank you for your inquiry and concern.

Sincerely,

(Signed) William J. Dircks

William J. Dircks
Executive Director for Operations

Enclosure:

Nuclear Regulatory Commission Radiation Protection
Programs For Nuclear Power Plants, including
NUREG/CR-3469 and NUREG/CR-4254

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*SEE PREVIOUS CONCURRENCE

bcc I Taylor, IE

D:EDQ
WJDircks
07/17/85

L-41, Pt. 20

OFC	:DSI:RAB*	:DSI:RAB*	:DSI:RAB*	:AD:RP*	:D:DSI*	:DD:NRR*	:D:NRR
NAME	:RJSerbu:sj	:ODTLynch	:FJCongel	:DRMuller	:RMBernero	:DEisenhut	:HRDenton
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K. PULSIPHER

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(Signed) William J. Dircks

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Executive Director of Operations

Enclosures:

1. NUREG/CR-3469
2. NUREG/CR-4254

D:EDO
WJDircks
07/ /85

OFC	:DSI:RAB	:DSI:RAB	:DSI:RAB	:AD:RP	:D:DSI	:DD:NRR	:D:NRR
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NUCLEAR REGULATORY COMMISSION RADIATION PROTECTION
PROGRAMS FOR NUCLEAR POWER PLANTS

The Nuclear Regulatory Commission has several significant efforts underway, or pending, directed at reducing occupational exposure levels encountered on a daily basis by nuclear power plant workers. Additionally, the NRC is cooperating with a number of industry efforts to devise systems and practices to reduce potential radiation exposures in nuclear power plants.

These efforts to reduce occupational radiation exposures to workers at power reactors encompass the following:

- (1) During the licensing process, licensee radiation protection programs are reviewed by NRC staff health physicists to insure that measures to keep occupational radiation exposures as low as reasonably achievable (ALARA) are incorporated in the licensee's radiation protection program.
- (2) Operating reactor radiation protection programs are routinely inspected in all areas by Regional health physics inspectors.
- (3) In order to achieve mutual goals of excellence in radiation protection programs at power reactors, the NRC has entered into a cooperative agreement with the Institute for Nuclear Power

Operations (INPO - an industry group). The NRC will evaluate industry performance under this program.

- (4) The NRC assesses licensee performance in radiation protection through non-routine health physics team appraisals.
- (5) The SALP (Systematic Assessment of Licensee Performance) process provides an integrated assessment of licensee performance in radiation protection based on inspections and licensing actions.
- (6) The NRC collects and disseminates information specifically aimed at reducing individual and collective radiation exposures in the field.
- (7) Senior NRC managers, speaking in public forums, have advocated that industry strive to reduce occupational exposures to workers to ALARA levels.
- (8) The NRC is cooperating with several industry groups in radiation protection research to minimize duplication of effort and maximize the return on research expenditures in this area and related areas.

The following summaries provide additional details outlining these efforts:

- (1) All recently licensed power reactors, and those currently under construction and undergoing licensing reviews, are required to incorporate radiation protection design features in their facility design which are directed at keeping radiation exposures for both workers and the general public as low as reasonably achievable (ALARA), during routine operations, normal and special maintenance, and the eventual decommissioning of the facility. NRC staff health physicists review each licensee's proposed ALARA measures during the design and construction stages for compliance with detailed NRC criteria (i.e. Regulatory Guide 8.8 and Standard Review Plan). The staff additionally evaluates the radiation protection organization, management, equipment, facilities, and training programs to assure that licensees possess the capability to implement an effective radiation protection program incorporating the ALARA concept. These staff reviews are documented in Safety Evaluation Reports prepared by the NRC for each facility.
- (2) Licensee commitments for radiation protection and ALARA measures, as well as compliance with the Commission's radiation protection requirements in 10 CFR Part 20, are inspected at the reactor sites by Regional health physics inspectors during routine and scheduled preoperational and operational inspections. NRR health physicists

also conduct a site visit to review design features, equipment, facility layouts, personnel qualifications, and ALARA programs during the licensing process. Preoperational inspections verify that radiation protection design features are incorporated into the facility as required by the NRC and described by the license applicant in their Final Safety Analysis Report (FSAR), and that the radiation protection program is adequate to assure radiation safety during initial operation of the plant. Subsequent post-criticality inspections by the Regions verify compliance with NRC radiation protection requirements of 10 CFR Part 19, 20, and 50; certain Technical Specifications, and commitments made by the licensee. These inspections follow standardized inspection modules covering all areas of radiation protection and ALARA.

- (3) Cooperative agreements with industry have also led to a significant effort to reduce radiation exposures to power reactor workers. The NRC staff, under Commission guidance, has entered into a cooperative agreement with the Institute for Nuclear Power Operations (INPO), which represents every U.S. nuclear utility. Under a blanket NRC/INPO agreement, a "Coordination Plan for Radiological Protection Activities" has been jointly developed, whereby the NRC would

recognize INPO efforts in evaluation and assistance in radiation protection at nuclear utilities, where these efforts are effective and consistent with NRC regulatory responsibilities. INPO, over the period of 3/83 to 3/85, has sought to establish standards of excellence in radiation protection and ALARA which would result in successful ALARA-integrated radiation protection programs on an overall basis in the power reactor industry. INPO has developed and introduced a number of criteria for excellence, and has identified and promulgated many "good practices" for radiation protection programs and ALARA measures to the industry. The NRC staff will evaluate the results of this INPO/industry effort (by 9/85), using the trends of a number of parameters in radiation protection, such as average annual radiation dose per facility, numbers of overexposures (if any), and other performance and management indicators. Initial indications, based on preliminary trends from eleven different criteria, appear to show an improving trend in industry, and indicate that some of the improvement may be due to INPO's efforts.

- (4) The NRC staff conducts other non-routine inspections in the areas of radiation protection and ALARA, primarily from the Regional offices. These have included team inspections composed of several health physics inspectors, and their purpose is to evaluate overall performance

in radiation protection, not merely to assess compliance with regulations. The Regions also continue to follow up on licensee commitments stemming from the NRC's Health Physics Appraisal Program, conducted in 1981-1982. This appraisal was performance-based and, in conjunction with follow-up efforts, has been one of the major influences in improved performance in radiation protection and ALARA at power reactors. Additionally, the Office of Inspection and Enforcement sends out Performance Appraisal Teams (PAT) to assess licensee performance in all areas, including radiation protection.

- (5) A Systematic Assessment of Licensee Performance (SALP), which encompasses radiation protection performance, is conducted periodically for each power reactor facility. This SALP is based on inspection results and licensee management response to NRC requirements and staff concerns during various licensing actions.
- (6) Information, technologies and experience which can be used to reduce cumulative and individual occupational exposures at power reactors are documented and disseminated to the industry by the NRC. This information is generally provided as regulatory guides and "NUREG" technical reports. Some recent and current examples are NUREG/CR-3540, "Radiological Assessment of Steam Generator Repair and

Replacement", and pending contract B-2538, "Radiological Assessment of BWR Primary System Pipe Crack Repair and Replacement." Both of these efforts, contracted through Pacific Northwest Laboratories, describe in detail the radiation protection measures employed during major reactor repair efforts, and encompass radiation protection training, task planning and management, applicable technologies, ALARA dose methods and techniques, radioactive waste control, and personnel surveillance and monitoring.

Other current contracts with Brookhaven National Laboratory (BNL) are aimed at specific dose reduction measures applicable to particular high dose maintenance tasks at power reactors. BNL has also sponsored several national and international dose reduction/ALARA conferences in conjunction with NRC contract responsibilities. Two contract NUREG's reflecting NRC's efforts to publicize dose reduction measures are attached.

- (7) Senior NRC managers, speaking in public forums, have advocated a strong industry effort to support ALARA radiation protection concepts. Harold Denton, Director of the Office of Nuclear Reactor Regulation, speaking at an Atomic Industrial Forum ALARA conference in October of 1984, reviewed recent industry occupational dose trends and challenged the power reactor industry to reduce overall average doses at power reactors by 20% over two years. At an American Nuclear

Society conference a few months later, Victor Stello, the NRC's Deputy Executive Director for Regional Operations and Generic Requirements, similarly addressed ALARA radiation protection.

- (8) In research areas related to radiation protection, such as reactor plant chemistry and maintenance, the NRC has cooperated with industry to avoid duplication of effort to maximize the effect of research expenditures, consistent with NRC regulatory responsibilities. This includes cooperation with and recognition of dose reduction and dose analysis studies by the Atomic Industrial Forum (AIF), the Electric Power Research Institute (EPRI) and various light water reactor owner's groups and independent design review groups (IDRG's).



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

EDO PRINCIPAL CORRESPONDENCE CONTROL

FROM:

DUE: 07/03/85

EDO CONTROL: 000741

REP. BRIAN DONNELLY

DOC DT: 05/30/85

FINAL REPLY:

TO:

CARLTON KAMMERER

FOR SIGNATURE OF:

** GREEN **

SECY NO: 85-493

EXECUTIVE DIRECTOR

DESC:

ROUTING:

REQUEST UPDATE OF ACTIVITIES IN AREA OF PLANT
WORKER SAFETY, EFFORTS UNDERWAY OR CONTEMPLATED
TO REDUCE RADIATION EXPOSURE LEVELS ENCOUNTERED
ON A DAILY BASIS BY NUCLEAR POWER PLANT WORKERS

DATE: 06/19/85 *NRR*

ASSIGNED TO: *RES*

CONTACT: *Denton*
MINOGUE

SPECIAL INSTRUCTIONS OR REMARKS:

MARK ENVELOPE ATTN: GERRY LAMB

NRR rec'd 6/24/85

ACTION
R. Bernero

D. Muller
cys to:
DEisenhut
H. Denton
PPAS

Logged 6/25
cap

851179

CORRESPONDENCE CONTROL TICKET

SECY NUMBER: 85-493

LOGGING DATE: 6/18/85

OFFICE OF THE SECRETARY

ACTION OFFICE: EDO

AUTHOR: Rep Brian Donnelly

AFFILIATION: U. S House of Representatives

LETTER DATE: 5/30/85

FILE CODE:

ADDRESSEE: OCA

SUBJECT: Req update of the Comm's activities in the are of plant work safety--ways to reduce radiation exposure etc;

ACTION: Direct Reply..Suspense: June 27

DISTRIBUTION: OCA to Ack

SPECIAL HANDLING: None

SIGNATURE DATE:

FOR THE COMMISSION: Champ

Rec'd Off. EDO
Date.....6-19-85
Time.....1:52

EDO --- 000741