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ER-122:Wallace

REPORT OF FOREIGN TRAVEL BY PETER G. GROER, ORAU

Robert W. Wood, Director of Physical and Technological Research, ER-74,  
Headquarters, Germantown, Maryland

Attached is a copy of a trip report prepared by Peter G. Groer covering his travel to Australia during the period April 1-18, 1988. Dr. Groer presented a paper entitled "Lung Cancer in Colorado Plateau Uranium Miners - A Reanalysis" at the International Workshop on Radiological Protection in Mining in Darwin, and made a poster presentation on "Prediction of Lung Cancer Risk after Exposure to Rn-Daughters" at the Seventh International Congress of the International Radiation Protection Association in Sydney.

The report has been reviewed and does not contain any classified information.

ORIGINAL SIGNED BY  
M. G. WALLACE

*for*

W. D. Adams, Director  
Research and Waste Management Division

Attachment

cc w/atchmt:

- J. F. Decker, ER-1, HQ, FORS
- D. B. Waller, IE-1, HQ, FORS
- J. G. Coyne, MA-28, OSTI
- J. A. Lenhard, ER-10, ORO
- D. J. Cook, DP-82, ORO

ER-122:MWallace:cb:6-0714:06-06-88

REPOSITORY

*Oak Ridge Operations*

COLLECTION

*Records Holding Area*

BOX No.

*A-58-7 7 of 8 91-64 Bldg. 2714-H*

FOLDER

*1515-ORAU*

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| CONCURRENCES  |         |
| RTG. SYMBOL   | ER-122  |
| INITIALS/SIG. | WALLACE |
| DATE          | 6/14/88 |
| RTG. SYMBOL   | ER-122  |
| INITIALS/SIG. | ATCHLEY |
| DATE          | 6/20/88 |
| RTG. SYMBOL   | DP-80   |
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| DATE          | 6-22-88 |
| RTG. SYMBOL   | ER-122  |
| INITIALS/SIG. | WALLACE |
| DATE          | 6/26/88 |
| RTG. SYMBOL   |         |
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| DATE          |         |
| RTG. SYMBOL   |         |
| INITIALS/SIG. |         |
| DATE          |         |

FOREIGN TRIP REPORT

Dr. Peter G. Grožer

Medical and Health Sciences Division  
Oak Ridge Associated Universities  
Center for Epidemiologic Research  
P. O. Box 117  
Oak Ridge, TN 37831-0117

- I. International Symposium on Radiological Protection in Mining, Darwin, Australia, 4-8 April, 1988.
- II. Seventh International Congress of the International Radiation Protection Association, Sydney, Australia, 10-17 April, 1988.

ABSTRACT

The purpose of this trip was presentation of a paper entitled, "Lung Cancer in Colorado Plateau Uranium Miners - A Reanalysis," at the International Symposium on Radiological Protection in Mining (Darwin, Australia) and a poster presentation on "Prediction of Lung Cancer Risk after Exposure to Rn-Daughters" at the Seventh International Congress of the International Radiation Protection Association (Sydney, Australia).

Funding sources: DOE

Actual cost: \$4,554.80

1120271

I. International Symposium on Radiological Protection in Mining  
Darwin, Australia, April 4-8, 1988

The symposium was organized by the Department of Mines and Energy (Darwin) and by members of the Australian Radiation Protection Society. The symposium was attended by radiation protection specialists, mining engineers, epidemiologists, and health physicists from Europe, South Africa, Canada, the United States, and Australia. Some highlights of the symposium follow:

David K. Myers (Physics and Health Sciences, Chalk River Nuclear Laboratories, Chalk River, Canada) gave a clear review of radiation dosimetry and epidemiological studies for uranium miners exposed to Rn-daughter products. He stressed that uranium miners are not only exposed to  $^{222}\text{Rn}$ -daughter products but also to thoron daughters, radioactive-ore dust, and external gamma radiation. He gave a summary of risk coefficients which resulted from studies of the Colorado, Ontario, Beaverlodge, United States (Colorado Plateau), Czech uranium miners, and the Newfoundland fluospar miners. It was not clear from this tabulation up to what point in time Working Level Months (WLM) were accumulated for the diverse risk estimates. He discussed in some detail the problem of uncertain exposure estimates in these epidemiologic studies. The risk coefficients in units of excess lung cancers per  $10^6$  person-years per WLM vary by about a factor of 10 for the different studies. He mentioned the study of the interaction of smoking and  $^{222}\text{Rn}$ -daughter exposure in the fluospar miners and pointed out that this data did not permit a clear choice between a relative or absolute risk model indicative of a multiplicative or additive interaction respectively. He concluded by stating that the ICRP health hazard estimates associated with inhaled uranium and thorium ore dusts are probably too high by a factor of 2 to 10.

Emil Kunz (Institute of Hygiene and Epidemiology, Department of Radiation Hygiene, Prague Czechoslovakia) gave a presentation of the latest update of the Czechoslovakian uranium miner studies. He covered in essence most of the material which was published recently in Health Physics (H.P.). He used the same figures and tables as in the H.P. paper. The methodology is not clearly explained and, therefore, some doubts about some of the results exist. Smoking information is not available for all members of the original study cohort and the early cumulative exposures (in WLM) are based on  $^{222}\text{Rn}$  measurements only. For the "new" study (N) the accumulated exposures were determined on the basis of personal "dosimetry cards" and  $^{222}\text{Rn}$ -daughter measurements. For the N-cohort and the L-cohort ("shale-clay" miners) smoking information was obtained through questionnaires. Only partial smoking information is available for the members of the original S-study. A two-fold increase of the lung cancer rate in smoking as compared to non-smoking miners was observed. This result was also found in my reanalysis of the Colorado Plateau uranium miners.

Juergen Schmitz (Kernforschungszentrum Karlsruhe) talked about instrumentation for radiation measurements in mines. He discussed the use of and experience with personal dosimeters for external gamma radiation and recommended the use of phosphate glass or TLD dosimeters. He showed a comparison of the results obtained with TLDs worn on the helmet and glass dosimeters worn in a chest pouch. The correlation of the two dosimeters was quite good. The helmet dosimeters showed only slightly higher results for the gamma exposure of the miners.

For internal exposure to  $^{222}\text{Rn}$ -daughters he discussed measurements with the MDA811-Instant Working Level Meter (IWLM). He showed a plot of the  $\alpha$  to  $\beta$  activity ratio vs. frequency and fitted a log-normal distribution to the results. The instrument performed reliably over a period of about five years. He noted that the gamma background of the device could be reduced by changing the  $\beta$ -detector to avoid high gamma background counting rates. He pointed out that measurement of instantaneous WL values multiplied by time spent in a particular area yield an exposure measure that cannot adequately describe short term variations in the Rn-daughter concentrations. Continuous monitoring devices placed at a fixed point would record temporal variations but would not record spatial variations. Personal dosimeters (P.D.) worn by each miner take care of both problems. He favored passive P.D.s over active ones but admitted that an equilibrium factor has to be assumed if the passive detector is covered by a filter paper which is only permeable to  $^{222}\text{Rn}$ . He reported that comparison of a French active P.D. with a German passive P.D. showed satisfactory correlation.

Rene Rolle (Chamber of Mines Research Organization, Johannesburg, South Africa) reported on his derivation of  $^{222}\text{Rn}$ -daughter activity ratios under the dual constraints of fixed decay and plate-out constants. He also "indicated more efficient means to monitor radon daughter products individually" and gave some formulas for the precision of measurements of Working Level (WL). He suggested use of a microprocessor and simultaneous detection of total  $\beta$ -counts and  $\alpha$ -spectroscopy to determine individual  $^{222}\text{Rn}$ -daughter products. This idea is not new. Groër, et al. (see for example Proc. Int. Meeting on Radon and Radon Progency Measurements, EPA 52015-83/021) built several instruments based on total  $\beta$ -counting and  $\alpha$ -spectroscopy over 15 years ago.

I discussed the re-analysis of the Colorado Plateau uranium miner data done in collaboration with Carlos Pereira (University of San Paulo, Brazil). I pointed out that all recent analysis of this data set (including BEIR IV) did not use the exposures in hard-rock miners which some miners accumulated before they started uranium mining. The reanalysis used the idea of "weight of evidence" and shows that at exposure rates of  $<15$  WLM/year and for  $>10$  years underground there is no evidence that the odds for lung cancer deaths are increased by this exposure. I showed posterior distributions for the rate of all lung cancer deaths for smokers, non-smokers, and ex-smokers. This analysis used WLM accumulated

during underground mining instead of time as the random quantity. It showed that the lung cancer mortality rate is approximately twice as large in smokers and ex-smokers as compared to non-smokers.

II. Seventh International Congress of the International Radiation Protection Association, Sydney, Australia, April 10-17, 1988.

This large international congress was organized by the Australian Radiation Protection Society. The congress was attended by many health physicists, radiation risk analysts, and radiation protection specialists from around the world. Some highlights of the congress are given below:

Margaret Maxey (University of Texas, Austin) was not present, but her paper was read by David Higson, the publications coordinator of the Congress. She argued that there is an "absence of evidence of harm from low levels of exposure" to ionizing radiation. This implies that several arguments dependent on the "inconclusive scientific status of the linear hypothesis" are inherently flawed. Hormesis after exposure to ionizing was characterized as "scientifically established." She quoted Newell Stannard's remark that ALARA has been misinterpreted to mean: "If you can do it technically, you must do it." I have a lot of sympathy for her views, especially about the linear hypothesis, but feel that general statements about the methodologic inadequacies of the existing radiation protection framework will not change the status quo. Change has to be initiated by the scientists through a coherent paradigm of concepts for radiation protection and through demonstrations of the inadequacy of certain concepts like the linear hypothesis in peer reviewed articles in the open literature.

Otto Raabe (University of California, Davis) talked about his well known three-dimensional approach to dose-response modeling (dose-time-response). His approach would benefit from incorporation of accepted

statistical terminology and estimation procedures. The origin of his three-dimensional dose-response surfaces would then be more easily understood and his approach would be accessible to a wider audience.

Branko Bosnjakovic (Radiation Protection Doctorate, The Netherlands) gave an interesting comparison of policies and regulations governing exposure limitations for UV and ionizing radiations. Presently, the main difference between UV and ionizing radiations lies in the facts that UV is used intentionally for cosmetic purposes and that sudden large scale emergencies are absent. Depletion of the ozone layer could change the situation.

K. Matsushita (Japan Atomic Research Institute, Tokai-Mura, Japan) presented an interesting poster on the use of the hybrid log-normal distribution to characterize radiation doses of workers in special jobs at research reactors. This distribution reflects the reduction effort to reduce radiation doses to workers. I discussed this interesting distribution with the author and am planning to apply it to doses or exposures at facilities under study at ORAU-CER.

T. Kosako (University of Tokyo, Tokyo, Japan) showed an interesting poster describing their efforts to assess the neutron flux based on measurements of residual activity  $^{152}\text{Eu}$  in a granite specimen taken from a pillar of the Motoyasu bridge. The authors point out that the DS86 dosimetry system for the A-bomb survivors of Hiroshima and Nagasaki uses neutron doses based on neutron transport calculations. Their measurement of  $^{152}\text{Eu}$   $\gamma$ -rays yielded 15.5Gy for the tissue kerma in air at the position of this bridge pillar 132 m from the Hiroshima hypocenter. T65D, LLNL, ORNL, and DS86 values for the same point are: 121 Gy (12.5kt), 65.2 Gy (15kt), 24.6 Gy (12.5kt), and 31.4 Gy (15kt) respectively. If the anisotropy of the Hiroshima weapon is taken into account a close agreement of the different values can be achieved.

I presented a poster on "Prediction of Lung Cancer Risk after Exposure to Rn-daughters." It treated the prediction of the probability of lung cancer if the lung cancer rate is not precisely known. The remaining uncertainty about the lung cancer rate is characterized by a posterior distribution which resulted from updating of a uniform prior with the data on the Colorado Plateau uranium miners. Predictions of the probability of death from lung cancer for smokers, non-smokers, and ex-smokers for miners working under different exposure standards were made with the so-called predictive distribution.

Appendix

Itinerary

|               |                                |
|---------------|--------------------------------|
| April 1 - 3   | Knoxville - Darwin (Australia) |
| April 4 - 8   | Darwin                         |
| April 9 - 10  | Darwin - Sydney (Australia)    |
| April 11 - 17 | Sydney                         |
| April 18      | Sydney - Knoxville             |

Literature acquired:

1. Proceedings of the Seventh International Congress of the International Radiation Protection Association (Vol. I, II, III).
2. Proceedings International Workshop on Radiological Protection in Mining, Vol. A.

Contacts:

- I. Many health physicists and radiation protection specialists from around the world.



REQUEST FOR APPROVAL OFFICIAL FOREIGN TRAVEL

(Previous Editions are Obsolete)

PART B--To be completed by traveler's administrative officer

Budget and Reporting Classification to be charged: HA 02 01 01 0  
(see Chapter II, Accounting Practices and Procedures Handbook)

PART C--To be completed by traveler

|  |  |
|--|--|
| 1a. NAME OF TRAVELER<br>Peter G. Groer   | c. DATE AND PLACE OF BIRTH<br>[REDACTED], Austria  |
| b. CITIZENSHIP U.S.  | d. PASSPORT NUMBER (if available) [REDACTED]   |
| 2a. HOME ADDRESS<br>[REDACTED]   | b. BUSINESS ADDRESS<br>Oak Ridge Associated Universities<br>P.O. Box 117; Oak Ridge, TN 37831-0117 |
| 3a. EMPLOYER<br>Oak Ridge Associated Universities  | c. TELEPHONE NUMBER 615/576-3532   |
| b. ORGANIZATIONAL UNIT<br>Medical and Health Sciences Division   | c. CONTRACT NUMBER<br>DE-AC05-76OR00033  |
| 4. PURPOSE OF TRAVEL--Include all pertinent background information leading to travel and attach copies of invitations and correspondence regarding travel to present papers, give speeches, or to attend conference or symposia. Justification for travel must be provided including benefit to be derived by the government if trip is taken. Also identify by name and organization other DOE and contractor personnel who, to the traveler's knowledge, are going to the same destination at the same time as the traveler. In addition, specify nature and classification of information to be disclosed including titles of papers to be presented; nature of information to be obtained at each of the places to be visited and conferences to be attended and its relation to traveler's work. Travelers are responsible for obtaining clearances for papers or speeches when necessary. If more space is required, attach a separate sheet. NOTE: IF THIS INFORMATION IS CLASSIFIED BE SURE TO CLASSIFY THIS FORM APPROPRIATELY. | d. POSITION TITLE (including profession)<br>Senior Scientist (Physicist)                           |

The purpose of this travel is to present a paper entitled, "Lung Cancer in Colorado Plateau Uranium Miners - A Reanalysis," at the International Workshop on Radiological Protection in Mining (Darwin, Australia) and a paper on "Prediction of Lung Cancer Risk After Exposure to Rn-Daughters" at the 7th IRPA Congress in Sydney (Australia).

The meeting in Darwin will give me the opportunity to meet with investigators from France, South Africa, and Czechoslovakia and to discuss with them their respective epidemiologic studies of miners exposed to radon progeny. At the 7th IRPA Congress, I expect to hear presentations on external and internal dosimetry and radiation risk assessment methodology by scientists from many different countries. New research results on radiation dosimetry, survival analysis and risk assessment methodology are relevant for the Health and Mortality Study sponsored by DOE and may improve the analysis of data on cohorts under study at ORAU's Center for Epidemiologic Research.

1120278

ATTACHMENT FOR DR. PETER GROER: FOREIGN TRAVEL

| <u>Dates</u> | <u>Location</u>                   | <u>Individual</u> | <u>Subject</u>  | <u>Class/Unclas</u> |
|--------------|-----------------------------------|-------------------|---|---------------------|
| 04/09/88     | AR Sydney, Australia              |                   |   |                     |
| 04/10-17/88  | Sydney, Australia                 | Peers/scientists  | Present paper<br>"Prediction of<br>Lung Cancer Risk<br>After Exposure to<br>Rn-Daughters" at the<br>Seventh IRPA Congress | X                   |
| 04/18/88     | LV Sydney, Australia<br>AR U.S.A. |                   |   |                     |

# memorandum

DATE: February 18, 1988

REPLY TO  
ATTN OF: ER-122:Wallace

SUBJECT: PROPOSED FOREIGN TRAVEL BY REPRESENTATIVES OF ORAU

TO: Robert W. Wood, Director of Physical and Technological Research, ER-74,  
Headquarters, Germantown, Maryland

Attached for DOE Headquarters approval are three copies each of DOE F 1512.1 covering the proposed travel to Australia by ORAU representatives as follows:

| <u>Traveler</u>           | <u>Period of Travel</u> | <u>Cost to DOE Budget<br/>Activity HA 02 01</u> |
|---------------------------|-------------------------|---|
| William A. Mills          | April 10-16, 1988       | \$1,372   |
| <del>Peter G. Groer</del> | April 1-18, 1988        | \$4,522   |
| Clarence C. Lushbaugh     | April 16-23, 1988       | \$2,869   |

Each of the travelers will attend and/or present papers at the Seventh International Radiation Protection Association (IRPA) Congress in Sydney, Australia. Prior to attendance at the Congress, Dr. Groer will also present a paper at the International Workshop on Radiological Protection in Mining in Darwin, Australia. As noted in the itinerary for Dr. Mills, his travel dates are April 5-24, 1988. Official travel dates for Dr. Mills are April 10-17, 1988. The remainder of the travel will be charged to personal leave.

Dr. Mills was selected by the Health Physics Society to be an official delegate to the IRPA Congress. As noted in Part 8b., DOE F 1512.1, the Health Physics Society will pay round trip airfare for Dr. Mills.

Two additional ORAU representatives, Robert C. Ricks and James D. Berger, plan to attend the IRPA Congress. Their respective forms were submitted earlier.

*4/6/88 Travel approved for Ricks  
per Bob Train, ER-HQ. Notified  
Carol Baker, ORAU. W.W.*

1120280

T-217

1512 ORAU

Robert W. Wood

-2-

February 19, 1988

Please have Margie Wallace (FTS 626-0714) notified as soon as a determination is made regarding the travel and return the signed originals of DOE F 1512.1 to this office.

*M.C. Wallace*  
for W. D. Adams, Director  
Research and Waste Management Division

Attachment

cc w/atchmt:  
J. A. Lenhard, ER-10, ORO  
M. M. Dare, AD-43, ORO  
D. J. Cook, DP-82, ORO

1128281

REQUEST FOR APPROVAL OFFICIAL FOREIGN TRAVEL

All Other Editions Are Obsolete

PART A--SUMMARY TRAVEL INFORMATION

ORGANIZATION: ORAU

COST TO DOE: \$4,522.00

FUND SOURCE: HA 02 01 010

NAME OF TRAVELER: Groer, P. G.

DOE/CONTRACTOR/UNIVERSITY: C

DESTINATION: Darwin, Australia

DATES: 04/03/88 TO 04/08/88

PURPOSE: Present paper, "Lung Cancer in Colorado Plateau Uranium Miners - A Reanalysis"  
at the International Workshop on Radiological Protection in Mining

AGREEMENT: NONE

DESTINATION: Sydney, Australia

DATES: 04/10/88 TO 04/17/88

PURPOSE: Present paper, "Prediction of Lung Cancer Risk after Exposure to Rn-daughters"  
at the Seventh IRPA Congress

AGREEMENT: NONE

DESTINATION: \_\_\_\_\_

DATES: \_\_\_/\_\_\_/\_\_\_ TO \_\_\_/\_\_\_/\_\_\_

PURPOSE: \_\_\_\_\_

AGREEMENT: \_\_\_\_\_

DESTINATION: \_\_\_\_\_

DATES: \_\_\_/\_\_\_/\_\_\_ TO \_\_\_/\_\_\_/\_\_\_

PURPOSE: \_\_\_\_\_

AGREEMENT: \_\_\_\_\_

REQUEST FOR APPROVAL OFFICIAL FOREIGN TRAVEL

(Previous Editions are Obsolete)

PART B—To be completed by traveler's administrative officer

Budget and Reporting Classification to be charged: HA 02 01 01 0  
(see Chapter II, Accounting Practices and Procedures Handbook)

PART C—To be completed by traveler

|   |  |
|---|--|
| 1a. NAME OF TRAVELER<br>Peter G. Groer  | c. DATE AND PLACE OF BIRTH<br>[REDACTED] Austria   |
| b. CITIZENSHIP U.S.   | d. PASSPORT NUMBER (if available) [REDACTED]   |
| 2a. HOME ADDRESS<br>[REDACTED]  | b. BUSINESS ADDRESS<br>Oak Ridge Associated Universities<br>P.O. Box 117; Oak Ridge, TN 37831-0117 |
| 3a. EMPLOYER<br>Oak Ridge Associated Universities   | c. TELEPHONE NUMBER 615/576-3532   |
| b. ORGANIZATIONAL UNIT<br>Medical and Health Sciences Division  | c. CONTRACT NUMBER<br>DE-AC05-76OR00033  |
| 4. PURPOSE OF TRAVEL—Include all pertinent background information leading to travel and attach copies of invitations and correspondence regarding travel to present papers, give speeches, or to attend conference or symposia. Justification for travel must be provided including benefit to be derived by the government if trip is taken. Also identify by name and organization other DOE and contractor personnel who, to the traveler's knowledge, are going to the same destination at the same time as the traveler. In addition, specify nature and classification of information to be disclosed including titles of papers to be presented; nature of information to be obtained at each of the places to be visited and conferences to be attended and its relation to traveler's work. Travelers are responsible for obtaining clearances for papers or speeches when necessary. If more space is required, attach a separate sheet. NOTE: IF THIS INFORMATION IS CLASSIFIED BE SURE TO CLASSIFY THIS FORM APPROPRIATELY. | d. POSITION TITLE (including profession)<br>Senior Scientist (Physicist)                           |

The purpose of this travel is to present a paper entitled, "Lung Cancer in Colorado Plateau Uranium Miners - A Reanalysis," at the International Workshop on Radiological Protection in Mining (Darwin, Australia) and a paper on "Prediction of Lung Cancer Risk After Exposure to Rn-Daughters" at the 7th IRPA Congress in Sydney (Australia).

The meeting in Darwin will give me the opportunity to meet with investigators from France, South Africa, and Czechoslovakia and to discuss with them their respective epidemiologic studies of miners exposed to radon progeny. At the 7th IRPA Congress, I expect to hear presentations on external and internal dosimetry and radiation risk assessment methodology by scientists from many different countries. New research results on radiation dosimetry, survival analysis and risk assessment methodology are relevant for the Health and Mortality Study sponsored by DOE and may improve the analysis of data on cohorts under study at ORAU's Center for Epidemiologic Research.

1128283

5. PROPOSED ITINERARY (Account for all time from beginning and ending dates of travel. Vacation dates taken in conjunction with this travel shall be indicated. NOTE: IF INFORMATION IS CLASSIFIED, CLASSIFY THIS FORM APPROPRIATELY.)

| DATES                               | LOCATION<br>(Installation, City, Country)           | INDIVIDUALS TO BE CONTACTED | SUBJECTS OF DISCUSSION  | (Check One) |              |
|-------------------------------------|---|-----------------------------|---|-------------|--------------|
|                                     |   |                             |   | Classified  | Unclassified |
| 04/01/88<br>04/03/88<br>04/03-08/88 | LV USA<br>AR Darwin, Australia<br>Darwin, Australia | Peers/scientists            | Present paper, "Lung Cancer in Colorado Plateau Uranium Miners - A Reanalysis" at the International Workshop on Radiological Protection in Mining |             | x            |
| 04/09/88<br>CONTINUED               | LV Darwin, Australia                                |                             |   |             |              |

6. HAS TRAVELER SUBMITTED DOE FORM 1512.2 TO COGNIZANT DOE SECURITY OFFICE? (Required for travel to a sensitive country by an individual who currently holds or has ever held, within the last 5 years, a DOE Access Authorization.)

N/A

YES  NO: Have not held a DOE Access Authorization within last 5 years.

7. SIGNATURE OF TRAVELER—By signing, the traveler acknowledges the obligation to file a trip report within 30 days of return to duty station.

*Pete J. Lewis*  
(Signature)

1/25/88  
(Date)

PART D—To be completed by official responsible for travel funds

8a. ESTIMATED COST OF TRAVEL TO DOE

Transportation \$ 1,850.00  
Per Diem and Miscellaneous \$ 2,672.00  
Total \$ 4,522.00

b. IF PART OF COST OF TRAVEL IS TO BE PAID OR HAS BEEN REQUESTED FROM SOURCES OTHER THAN DOE, INDICATE SOURCE AND AMOUNT.

N/A

TRAVEL FUNDS ARE NOW AVAILABLE FOR THIS TRIP

*Billie P. Lyon* 02/02/88  
Division Business Officer (Signature and Title) (Date)

*William F. Countiss* 2/15/88  
William F. Countiss, Manager of Finance (Da

PART E—To be completed by Traveler's supervisor

9. REVIEW AND COMMENTS:

*William W. Burr* 02/02/88  
Division Chairman (Signature and Title of Supervisor) (Date)

*William F. Countiss* 2/17/88  
William E. Felling, Executive Director (Da

PART F—To be completed by DOE Field Organization

10. NON SENSITIVE TRAVEL: Review/approval by Head of DOE Field Organization. (Approval may be given if such authority has been delegated by the Cognizant Secretarial Officer.)

Approval recommended.

*M. C. Wallace*  
(Signature)

for W. D. Adams, Director  
Research and Waste Management Div.  
(Title)

2/18/88  
(Date)

11. SENSITIVE TRAVEL: Review by Head of DOE Field Organization. Has Field Security reviewed DOE F 1512.2 and completed DOE F 1512.3?

YES  NO

PART G—To be completed at Headquarters

12. REVIEW/COMMENTS BY DIRECTOR OF DIVISION OR OFFICE

(Signature)

(Title)

(Date)

13. COGNIZANT SECRETARIAL OFFICER

IF DOE EMPLOYEE TRAVEL  IE Determination Received

IF SENSITIVE TRAVEL  IE Determination Received  ISA Determination Received

OSS Determination Received

1128284

(Signature)

(Date)

ATTACHMENT FOR DR. PETER GROER: FOREIGN TRAVEL

| <u>Dates</u> | <u>Location</u>                   | <u>Individual</u> | <u>Subject</u>  | <u>Class/Unclas</u> |
|--------------|-----------------------------------|-------------------|---|---------------------|
| 04/09/88     | AR Sydney, Australia              |                   |   |                     |
| 04/10-17/88  | Sydney, Australia                 | Peers/scientists  | Present paper<br>"Prediction of<br>Lung Cancer Risk<br>After Exposure to<br>Rn-Daughters" at the<br>Seventh IRPA Congress | X                   |
| 04/18/88     | LV Sydney, Australia<br>AR U.S.A. |                   |   |                     |

 Oak Ridge  
Associated Universities Post Office Box 117  
Oak Ridge, Tennessee 37831-0117

Executive  
Office

February 12, 1988

Mr. William D. Adams, Director  
Research and Waste Management Division  
Department of Energy  
Oak Ridge, Tennessee 37831

Subject: REQUEST FOR APPROVAL OF FOREIGN TRAVEL  
WILLIAM A. MILLS - SYDNEY, AUSTRALIA  
~~ROBERT C. RICKS - DARWIN AND SYDNEY, AUSTRALIA~~

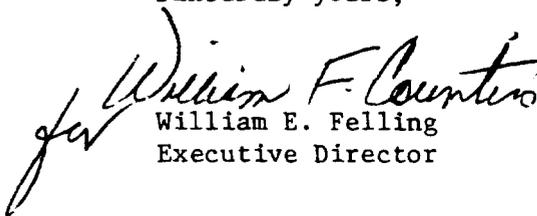
Dear Mr. Adams:

The enclosed DOE Forms 1512.1 describe the proposed travel. Approximately \$1,372.00 for Dr. Mills and approximately \$4,522.00 for Dr. Groer will be charged to DOE Budget Activity HA 02 01 01 0. The Health Physics Society will be responsible for roundtrip airfare (approximately \$1,783.00) for Dr. Mills. A copy of the formal letter naming him an official Society Delegate is enclosed for your information.

Approval forms for Dr. Robert C. Ricks and Mr. James D. Berger, who will be attending this same conference, were submitted separately prior to our being aware that there would be others requesting approval to attend. Dr. Ricks' forms were transmitted by our letter of December 11, 1987 and Mr. Berger's were transmitted on February 1, 1988.

A trip report covering Dr. Mills' previous foreign travel was transmitted to your office by our letter of September 15, 1987. Dr. Groer's previous trip report was transmitted on July 16, 1987.

Sincerely yours,

  
William E. Felling  
Executive Director

Enclosures

BAKER

1128286

X-665