LICENSEE'S EXHIBIT 8

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judge
Peter B. Bloch

In the Matter of	Docket Nos. 70-00270
	30-02278-MLA
THE CURATORS OF	
THE UNIVERSITY OF MISSOURI	RE: TRUMP-S Project
(Byproduct License	
No. 24-00513-32;	ASLBP No. 90-613-02-MLA
Special Nuclear Materials	
License No. SNM-247)	

AFFIDAVIT OF DR. J. STEVEN MORRIS
REGARDING STEPPEN SUGGESTIONS AND COMMENTS

I, J. Steven Morris, being duly sworn, hereby state as follows:

1. I am Interim Director of the University of Missouri-Columbia Research Reactor Facility ("MURR"), a position I have held since March 1, 1989. My background and qualifications are described in the companion Affidavit of Dr. J. Steven Morris Regarding Safety Analysis (Licensee's Exhibit 3).

2. I have reviewed the Written Presentation of Arguments of Intervenors and Individual Intervenors ("Intervenors' Written Presentation") (October 15, 1990) including Exhibits 1-19 thereof, and other relevant materials, including Intervenors' Renewed Request for Stay Pending Hearing ("Renewed Stay Request") (October 15, 1990).

3. Intervenors raise a number of allegations based on an internal memorandum 1/ that Mr. John Ernst (MURR Health Physics Department) had written summarizing his discussions with Mr. G. Steppen, a health physics consultant retained by Licensee. To the extent that Intervenors allege that another DOP-tested HEPA filter should be installed in the exhaust line because of

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1/ See "Summary of Consultant Visit," Memorandum to Charlie McKibben from John Ernest (June 19, 1990) ("Summary Memorandum"), reproduced as Exhibit 2 of Intervenors' Temporary Stay Application (Aug. 20, 1990) at A-2 to A-4.

backflow concerns, Licensee believed that it had satisfactorily addressed that subject in the Affidavit of J. Steven Morris Regarding Temporary Stay Application (Aug. 23, 1990) (the "August 23 Morris Affidavit"), submitted with Licensee's Response to "Intervenors' Application for Temporary Stay to Preserve the Status Quo" (Aug. 23, 1990). However, since the Presiding Officer, in issuing a temporary stay on October 20, 1990 expressed some concerns as to whether the Licensee's exhaust system conformed to industry practice, Licensee retained an expert on the design of plutonium glove box ventilation and exhaust systems to provide his opinion on the adequacy of the systems at the Alpha Laboratory. The Affidavit of Veryl G. Eschen Regarding Argon Glovebox Exhaust System (the "Eschen Affidavit")(Licensee's Exhibit 7), which is also being filed with Licensee's Written Presentation, should put to rest any lingering concerns of the Presiding Officer. In this affidavit below, I will not repeat any of the information that I have provided previously, but I will respond to a few miscellaneous related points raised by Intervenors.

4. In addition, Intervenors question what actions Licensee has taken with respect to Mr. Steppen's other recommendations. Intervenors' Written Presentation at 59. Without conceding the relevance of such information to the admitted concerns in this proceeding, I provide a brief response below.

HEPA Filters

5. Intervenors claim that the fact that the HEPA filter [at the exhaust of the argon glove box] is not DOP-tested in place violates DOE Order 6430.1A, Section 1300-3.6, "General Design Criteria," an excerpt from which is enclosed as Intervenors' Exhibit 8, and discussed by Intervenors in their Written Presentation at p.33-34. The acceptability of the design of the argon glove box exhaust system is dealt with comprehensively in both the August 23 Morris Affidavit and the Eschen Affidavit (Licensee's Exhibit 7). However, I would like to point out that DOE Order 6430.1A is not applicable to the Alpha Laboratory or the TRUMP-S experiments being carried out there. As explicitly stated in the very first section of Intervenors' Exhibit 8, DOE's General Design Criteria have a limited purpose:

> "To provide general design criteria (GDC) for use in the acquisition of <u>the Department's facilities</u> and to establish responsibilities and authorities for the development and maintenance of these criteria." (Emphasis added)

The first sentence of Section 4, Applicability states:

> "(a) The GDC provided by this Order shall be applied to all facilities which shall be reported on in the Department's Real Property Inventory System (RPIS), or which shall be reported on in the General Services Administration's annual "Summary Report of Real Property Owned by the United States Throughout the World."

None of the foregoing statements include Licensee's Alpha Laboratory. In performing the TRUMP-S experiments, Licensee is not obligated to comply with DOE 6430.1A. Its responsibility is to comply with NRC requirements.

6. It should be emphasized that not every HEPA filter has to be tested in place. HEPA filters that are not tested in place are commonly installed to prevent contamination of glove box gas and exhaust lines, associated equipment (Dri-train, Ni-train, etc.) and to reduce the loading on the downstream in-place tested HEPA filters. Such common use is acknowledged, for example, in DOE's Health Physics Manual of Good Practices for Plutonium Facilities (PNL-6534) (May 1988) at page 3.24, (Attachment 2) which states:

> "The exhaust outlet for each glove box shall have HEPA filters to keep the ventilation duct work clean. This filter should not be counted as a formal HEPA stage and need not meet all the test capabilities for HEPA filtration; however, it should be tested prior to installation."

This is exactly the role served by HEPA-1 at the argon glove box, and I have previously described its testing prior to installation.

7. Finally, Intervenors allege that I took it upon myself to overrule the recommendation of Mr. Steppen. Intervenors' Written Presentation at 5. This allegation is not true.

8. Mr. Steppen's suggestion that another DOP-testable in-place HEPA filter be added was discussed in detail by those members of the TRUMP-S working group who are principally responsible for infrastructures such as design, engineering, operations and health physics. The decision process involved MURR managers in health physics (Susan Langhorst), facilities management (Chester Edwards), reactor operations (Walter Meyer) and the director's office (Charles McKibben). As Interim Director of the MURR, I participated in this process by which the suggestion was evaluated. The matter was thoroughly discussed, each participant freely contributed, and the unanimous decision was reached to reject the Steppen suggestion on the basis that

multiple failures are required before a condition would be generated that could possibly cause the back flow that Mr. Steppen cited as the basis for his suggestion. It was noted that the existing filtration scheme was described in the schematic submitted in the license application and approved by the NRC, and that a license amendment might be needed to revise that scheme by adding another HEPA filter. The review staff concluded that the addition of the filter suggested by Mr. Steppen offered no significant improvement in safety and hence had no compelling ALARA significance, and in fact would require the re-balancing of a ventilation system that is functioning extremely well.

9. My responsibility in the process was to make certain that the decision to reject Mr. Steppen's suggestion was thoroughly evaluated for safety significance. As I have shown above, such an evaluation was conducted.

10. Mr. Steppen is a health physicist and does not profess to be a design engineer. When the Presiding Officer expressed his concerns in issuing the temporary stay order, Licensee retained an engineer qualified by education, training and experience to conduct an additional evaluation. The findings contained in the Eschen Affidavit (Licensee's Exhibit 7) provide additional confirmation that the Licensee's determinations were sound.

Other Suggestions and Comments of Consultant

11. Licensee holds Mr. Steppen's knowledge of health physics practices with the actinide elements in high regard. Mr. Steppen's suggestions were carefully considered in the context of the MURR Alpha Laboratory and the TRUMP-S experiments by the MURR Isotope Use Subcommittee ("IUS"). Mr Steppen's suggestions and comments2/ and Licensee's response are discussed below. Extracts from the August 15, 1990 minutes of the IUS are also attached (Attachment 3) for reference. In some instances Licensee's response is identical to that indicated in the August 15, minutes of the IUS. In those cases the IUS is referenced. In other cases, the disposition was determined after further deliberations subsequent to the August 15, 1990 IUS meeting. These dispositions are consistent with the IUS review. Mr. Steppen has suggestions in three categories: glove boxes, instrumentation and monitoring, and general comments.

Mr. Steppen's Suggestions on Glove Boxes

12. Suggestion/Comment 1: The plexiglass windows in the glove boxes are flexible, particularly the air glove box. If the

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2/ Mr. Steppen's suggestions are taken from the June 19, 1990 memorandum of Mr. Ernst.

boxes are subjected to a very high negative pressure windows could be sucked in and lose containment. A brace on the inside of the air glove box window could be a solution to the problem.

Licensee's Response: The argon glove box is equipped to prevent excessive negative pressure via the argon gas make up system. No modifications were deemed necessary. The manufacturer certifies that the air glove box will withstand ± 10 inches of water which is greater than the maximum pressure differential generated by the exhaust system.

13. Suggestion/Comment 2: The vacuum pump under the air glove box does not have hose clamps on all hoses.

Licensee's Response: The hose clamps have been installed. (From August 15, 1990 IUS minutes)

14. Suggestion/Comment 3: All glove ports should have metal clamps holding the gloves on.

Licensee's Response: The metal clamps have been installed. (From August 15, 1990 IUS minutes)

15. Suggestion/Comment 4: Volarath cans or other stainless steel containers with lids should be used to hold glove box waste until bagged out.

Licensee's Response: Metal containers with lids are being used.

16. Suggestion/Comment 5: Boxes of sand should be placed in the argon and air glove boxes for use to smother a fire. Given the small amount of Pu, this would be a satisfactory method of fire control.

Licensee's Response: The recommendation to include boxes of sand in the glove boxes was not accepted because of the need to keep the interior of the boxes clean and clutter-free. Additional empty waste cans with lids will be used to smother a fire. (From August 15, 1990 IUS minutes)

17. Suggestion/Comment 6: To lower the chances of fire, use carbon tet (tetrachloride) or other non-flammable degreaser to clean items in the air glove box. He was concerned with using H^2O on the active metals.

Licensee's Response: No liquid of any kind is allowed in the argon glove box when the box is being maintained

with an argon atmosphere. Small quantities of non-combustible liquids are permitted in the air glove box.

18. Suggestion/Comment 7: Consider using leaded gloves to lower the gamma dose when working with americium.

Licensee's Response: Shielding for ^{241}Am is still being evaluated by the working group in preparation of authorization to use the material. At this point, the consensus is that leaded gloves will not be used due to the delicate manipulations necessary in the glove box. Other methods of shielding and remote manipulations are being considered.

19. Suggestion/Comment 8: Use of glove port covers is an out of date practice. The hazard associated with losing a glove is small compared to problems created by imploding a glove box due to excessive negative pressure.

Licensee's Response: A review of the use of glove port covers at various DOE facilities is not consistent. Since the argon glove box is equipped with a ± pressure relief system, and the air glove box is protected by specifications, it was decided that the best stand-by mode was with the glove port covers in place.

Mr. Steppen's Suggestions/Comments on Instrumentation and Monitoring

20. Suggestion/Comment 1: When opening the inner container of the plutonium shipping package, expect contamination. Mr. Steppen has had bad experiences with plutonium shipments for Oak Ridge.

Licensee's Response: For receipt of all radioactive materials at MURR, the inner shipping container is considered to be potentially contaminated (From August 15, 1990 IUS minutes). In the case of the CRM-127 material, neither the outer or inner container was contaminated.

21. Suggestion/Comment 2: To help reduce the possibility of contamination, mount the nozzle of a HEPA filtered vacuum cleaner under the glove box port during bag out or glove change.

Licensee's Response: The consultant also suggested the use of a catch tray beneath the bag out port as an alternative method for contamination control, and this was incorporated into the bag out procedure. (From August 15, 1990 IUS minutes)

22. Suggestion/Comment 3: The nuts on the glove ports used to fasten the port covers interfere with glove change out. Investigate the possibility of removing the nuts before changing the gloves.

Licensee's Response: The glove port covers are in use. Experience with glove changes have shown that the nuts in question do not cause interference.

23. Suggestion/Comment 4: Eberline Instrument Corporation manufactures a smaller, easier to use frisker called Rocky Flats Type Alpha Met. Consider this instrument if present friskers ever need replacing.

Licensee's Response: Consideration of the Eberline friskers for needed instrument replacement is being made. (From August 15, 1990 IUS minutes)

24. Suggestion/Comment 5: Considering the number of tools and wires in the glove boxes, puncture wounds are a real possibility. A wound counter should be available. A counting instrument with a NaI detector is used for this purpose.

Licensee's Response: Jamie (Shotts) stated that Health Physics Services has a small detector which could serve as a wound counter. (From August 15, 1990 IUS minutes)

25. Suggestion/Comment 6: Individual air monitoring filter heads should be installed in the alpha room breathing zones. The filters in these locations should be changed on a weekly basis (or as needed) and analyzed. The analysis would become the permanent HP record of compliance to airborne contamination regulatory limits.

Licensee's Response: Nine air monitoring filter heads have been installed in the Alpha Laboratory. The filters are changed and analyzed on a weekly basis. Only naturally occurring alpha-emitting isotopes (radon daughter products) have been observed on these filters.

26. Suggestion/Concern 7: Use smoke source to map air flow patterns in the room. This information can be used to help locate air sampling filter heads.

Licensee's Response: Multiple sampling points are being installed. Further consultation with other health physicists led Sue (Dr. Langhorst) to decide that use of a smoke source would not provide additional information beyond the prudent placement of samplers and could affect the performance of the exhaust HEPA filters. (From August 15, 1990 IUS minutes)

Mr. Steppen's General Comments

27. General Comment 1: When changing HEPA filters, build a plastic room around the filter housing opening for contamination control. Personnel in the plastic room for filter change out should wear respiratory protection.

Licensee's Response: Sue (Dr. Langhorst) reported that Joe DeMers and Mark Stumbaugh have experience from their work in the Navy with this type of HEPA filter change out. (From August 15, 1990 IUS minutes)

28. General Comment 2: Vacuum pumps on the glove boxes should be considered internally contaminated until proven otherwise.

Licensee's Response: All vacuum pumps used with glove boxes containing unsealed radioactive sources are considered internally contaminated until proven otherwise. (From August 15, 1990 IUS minutes)

29. General Comment 3: Put a filter on the computer cooling fan and any other similar fans. This will help reduce the amount of equipment decontamination necessary in the event of airborne contamination.

Licensee's Response: The availability of using filters on all equipment located in the Alpha Laboratory is being investigated. Sue (Dr. Langhorst) added that equipment removed for the Alpha Lab is considered to be potentially contaminated until proven otherwise.

30. See the minutes of the August 15, 1990 IUS meeting for other general comments of the members related to issues raised by Mr. Steppen.

Subscribed and sworn
before me in
BOONE County,
Missouri this 13th day of
November 1990

J. Steven Morris
Interim Director

Sharon Wesselman
Notary Public

Sharon Wesselman, Notary Public State of Missouri
My commission expires February 21, 1991
Boone County, Missouri

My Commission Expires

2-21-91

exposure to radiation shall be limited according to DOE 5480.11. Design goals shall be established to maintain radiation exposure of employees ALARA. The nature of the hazardous materials in the facility, including radionuclides, shall be considered in the assessment of potential employee exposure.

For mixed-use facilities, such as those combining PPHFs and PSFs, the design of either part of that facility shall not jeopardize the safety requirements of the other.

1300-1.4 Guidance on Limiting Exposure of the Public

1300-1.4.1 General

The confinement of hazardous materials produced, processed, or stored in special facilities shall be designed to minimize dose to a maximally exposed member of the public.

1300-1.4.2 Accidental Releases

Releases of hazardous materials postulated to occur as a result of DBAs shall be limited by designing facilities such that at least one confinement system remains fully functional following any credible DBA (i.e., unfiltered/unmitigated releases of hazardous levels of such materials shall not be allowed following such accidents). Facility design shall provide attenuation features for postulated accidents (up to and including DBAs) that preclude offsite releases that would cause doses in excess of the DOE 5400 series limits for public exposure. To the extent practical, ALARA concepts shall be applied when designing special facilities to mitigate post-DBA releases of hazardous materials. For facilities whose hazard potential is determined to be extremely low, deviations from the criteria of this section may be considered in accordance with Section 0101-2, Criteria Deviations.

1300-1.4.3 Routine Releases

The annual dose resulting from postulated, planned, or expected releases from the proposed facility shall be considered in combination with the annual doses resulting from planned or expected releases from other facilities at the same site. The sum of the doses from the site shall be limited according to DOE Radiation Standards of Protection of the Public in the Vicinity of DOE Facilities or subsequent guidance included in the directive on Radiation Protection of the Public and the Environment in the DOE 5400 series.

1300-1.4.4 Monitoring of Releases

Releases shall be monitored in accordance with the directive on Radiological Effluent Monitoring and Environmental Surveillance in the DOE 5400 series.

1300-2 SAFETY ANALYSIS

Safety analysis shall comply with DOE 5481.1B. See also Section 0110-5.2, Safety Analysis.

as pumps, blowers, motors, compressors, gear trains, and controls, shall be located in an area least likely to be contaminated.

The design of equipment that must be located within confinement systems shall allow for in-place maintenance or replacement.

The capability shall be provided for the maintenance of contaminated equipment that cannot be repaired in place. This capability shall include the necessary provisions for confinement, ventilation, and waste control.

The design of all process equipment shall include features to minimize self-contamination of the equipment, piping, and confinement areas. The design of process equipment shall also include features to minimize the spread of contamination out of local areas.

1300-3.6 Testing

The design shall include provisions for periodic testing of monitoring, surveillance, and alarm systems. In addition, the design shall provide the capability to test periodically, under simulated emergency conditions, safety class items that are required to function under emergency conditions.

All systems for which credit is taken to meet the criteria of Section 1300-1.4.2, Accidental Releases, shall be in-place testable in terms of pressure, filtration or removal efficiency, alarm capability, leak resistance, and the like. Safety class items shall be designed to be testable on a regular schedule.

The facility design shall allow for routine in-place testing of HEPA filtration systems as outlined by ASME N510.

1300-4 NUCLEAR CRITICALITY SAFETY

An assessment of a design shall be made as early as practical to determine if the potential for nuclear criticality exists. When such potential exists, the design of nuclear criticality control provisions, including equipment and procedures, shall meet, as a minimum, the requirements of DOE 5480.5 and the ANS 8 series on Nuclear Criticality Safety.

Nuclear criticality safety shall be achieved by exercising control over both the quantity and distribution of all fissile materials and other materials capable of sustaining a chain reaction, and over the quantities, distributions, and nuclear properties of all other materials with which the fissile materials and other materials capable of sustaining a chain reaction are associated. Design considerations for establishing such controls shall be mass, density, geometry, moderation, reflection, enrichment, interaction, material types, and nuclear poison.

The design shall ensure that material shall not be displaced or allowed to accumulate to form a critical mass in the event of an internal or external accident. The design shall emphasize geometrically favorable compartments or spacing to minimize reliance on administrative control, and shall prevent the unsafe accumulation of moderator or reflection materials (e.g., water from a fire sprinkler system). Also, heating or cooling jackets in the

U.S. Department of Energy

Washington, D.C.

ORDER

DOE 5400.5

2-8-90

SUBJECT: RADIATION PROTECTION OF THE PUBLIC AND THE ENVIRONMENT

1. PURPOSE. To establish standards and requirements for operations of the Department of Energy (DOE) and DOE contractors with respect to protection of members of the public and the environment against undue risk from radiation.

2. SUPERSESSION. DOE 5480.1A, ENVIRONMENTAL PROTECTION, SAFETY, AND HEALTH PROGRAM FOR DOE OPERATIONS, of 8-13-81, Chapter XI that addressed public and environmental radiation protection standards and control practices.

3. SCOPE. The provisions of this Order apply to all Departmental Elements and contractors performing work for the Department as provided by law and/or contract and as implemented by the appropriate contracting officer.

4. IMPLEMENTING PROCEDURES AND REQUIREMENTS This Order becomes effective 3 months from the date of issuance. Within 1 month from the date of issuance of the Order, Heads of Operations Offices shall provide to the appropriate Program Office with copy to EH-1 for review and comment: (1) a certification for those areas covered by the Order for which Site/Operations Offices are in compliance; and/or (2) a request for exemption for areas of non-compliance that includes a Plan for achieving compliance. Within 2 months of issuance, the appropriate Program Office will submit to EH-1 the certification and/or the request for exemption(s). The compliance plan shall include schedules for achieving compliance with the requirements of this Order within 3 months after issuance of this Order.

5. POLICY. It is the policy of DOE to implement legally applicable radiation protection standards and to consider and adopt, as appropriate, recommendations by authoritative organizations, e.g., the National Council on Radiation Protection and Measurements (NCRP) and the International Commission on Radiological Protection (ICRP). It is also the policy of DOE to adopt and implement standards generally consistent with those of the Nuclear Regulatory Commission (NRC) for DOE facilities and activities not subject to licensing authority.

6. OBJECTIVES.

a. Protecting the Public. It is DOE's objective to operate its facilities and conduct its activities so that radiation exposures to members of the public are maintained within the limits established in this Order and to control radioactive contamination through the management of real and personal property. It is also a DOE objective that potential exposures to members of the public be as far below the limits as is reasonably achievable (ALARA) and that DOE facilities have the capabilities, consistent with the types of operations conducted, to monitor routine and non-routine releases and to assess doses to members of the public.

DISTRIBUTION:
All Departmental Elements

INITIATED BY:
Office of Environment, Safety and Health

CHAPTER II

REQUIREMENTS FOR RADIATION PROTECTION OF THE PUBLIC AND THE ENVIRONMENT

1. PUBLIC DOSE LIMITS. Dose limits for members of the public are presented in this chapter. The primary public dose limits include consideration of all exposure modes from all DOE activities (including remedial actions). The primary dose limit is expressed as an effective dose equivalent, a term developed by the ICRP for their risk-based system, which requires the weighted summation of doses to various organs of the body. Additional public dose limits are established by EPA regulations for exposures to several selected sources or exposure modes (pathways or conditions). Public dose limits promulgated by EPA for selected exposure modes are sometimes expressed as dose equivalents, which do not include risk-based weighting or summation of doses to various organs, and sometimes expressed as effective dose equivalent. DOE must also comply with legally applicable requirements (e.g., 40 CFR Parts 61, 191, and 192 and 10 CFR Parts 60 and 72), including administrative and procedural requirements. Except for those provided in paragraph II.1a(4), administrative and procedural requirements of legally applicable regulations are not addressed in this Order. Such legally applicable regulations must be consulted for provisions not addressed in this Order.

   a. DOE Public Dose Limit--All Exposure Modes, All DOE Sources of Radiation. Except as provided by II.1a(4), the exposure of members of the public to radiation sources as a consequence of all routine DOE activities shall not cause, in a year, an effective dose equivalent greater than 100 mrem (1 mSv). Dose evaluations should reflect realistic exposure conditions (see II.6b).

      (1) Dose Components. The limit of 100 mrem (1 mSv) effective dose equivalent in a year specified in paragraph II.1a is the sum of the effective dose equivalent (or deep dose equivalent, if dosimeter data are used) from exposures to radiation sources external to the body during the year plus the committed effective dose equivalent from radionuclides taken into the body during the year.

      (2) Exposure Modes. Other than for sources specifically excepted, doses to members of the public from all exposure modes that could contribute significantly to the total dose shall be considered for evaluation. Requirements and methods for performing the evaluations are discussed in paragraph II.6.

LICENSEE'S EXHIBIT 8
ATTACHMENT 3

Excerpts on TRUMP-S from the
Minutes of the August 15, 1990 Meeting of
the Isotope use Subcommittee of the Reactor Advisory Committ

The meeting was called to order at 1:44 p.m. Members present were Jamie Shotts, Gary Ehrhardt, Kurt Zinn, Sue Langhorst, and Steve Gunn. Chester Edwards was present as a guest for a portion of the meeting.

1. The minutes of the July 17, 1990 meeting were unanimously approved. Steve Gunn suggested that, where possible, names be included in the minutes; the committee was agreeable to this request.

2a. RadSafe-9 and RadSafe-10 forms were presented to authorize Dr. Leon Krueger as a user of 80 g of depleted uranium in the TRUMP-S Project; the authorization was unanimously approved. A second authorization for Dr. Krueger for use of 5 g (3.6 mCi) of Np-237 in the TRUMP-S Project was presented. As part of the review of this authorization request, the IUS was next updated on the progress of the TRUMP-S experiments.

5b. The IUS reviewed John Ernst's June 19, 1990 memo, "Summary of Consultant Visit", on recommendations made by the health physics consultant. Much discussion centered on the first recommendation that a scenario was possible in which backflow into the Alpha Lab could occur through two HEPA filters, only one of which is in-place DOP (dioctylphthalate) tested. Sue indicated that an additional in-place DOP tested filter is being considered for installation into the ventilation system. NRC Region III personnel have indicated that changes to the ventilation system as described in our license amendment requests would require another license amendment before implementing the change. Sue said that use of the actinide materials has been approved by the NRC with the current ventilation system. The installation of additional HEPA filters is still being considered and scheduling of the installation contingent on obtaining an additional license amendment.

Kurt asked if exhaust through the final filters was blocked, what would pressurize the system to drive a backflow. Jamie pointed out that possibly a regulator break on an Ar tank could occur and, if this happened simultaneously with a blockage of the main exhaust filters, then possibly a backflow could occur. Kurt remarked that DOE regulations might not be applicable to this ventilation system, as DOE might have some other source of pressure in their glove boxes.

Chester Edwards was requested to join the meeting to answer some of the IUS's questions. Chester indicated the Ar glove box has a pressure relief system which is exhausted through a certified HEPA filter and then through the glove box exhaust. In answer to Kurt's question, Chester agreed with Jamie's comments on backflow but also said that the Alpha Lab pressure alarm would sound if the final filters were blocked, thus giving immediate indication to the workers of an exhaust problem. Upon review of the multiple failures that would have to occur in order to get this backflow condition into the Alpha Lab and give no warning to the workers, the IUS unanimously agreed that experiments using Np-237 could be safely done with the current ventilation system.

Sue next reported on the actions to date on the other comments listed in the summary memo:

GLOVE BOXES

1. The need for additional bracing of the air glove box plexiglass windows is still being assessed along with the possible alternatives.
2. The hose clamps have been installed.
3. The metal clamps have been installed.
4. Containers with lids have been obtained.
5. The recommendation to include boxes of sand in the glove boxes was not accepted because of the need to keep the interior of the boxes clean and clutter-free. Additional empty waste cans with lids will be used to smother a fire.
6. The hazard of fire with respect to water on small amounts of active metals is minimal. These handling procedures continue to be assessed.
7. The need for leaded gloves is also being assessed for Am handling. While these gloves are effective in absorbing the 60 keV gamma from Am-241, they also make manipulations clumsy and require longer exposure times. Different uses of shielding and distance are being evaluated to minimize hand doses.
8. A review of the use of glove port covers at various DOE facilities is not consistent. Sue noted that the Ar glove box is equipped with a pressure relief system designed to prevent excessive negative pressure.

INSTRUMENTATION AND MONITORING

1. For receipt of all radioactive materials at MURR, the inner shipping container is considered to be potentially contaminated.
2. The consultant also suggested the use of a catch tray beneath the bag out port as an alternative method for contamination control, and this was incorporated into the bag out procedure.
3. Modifications of the glove port cover fasteners is being reviewed in connection with the continued use of glove port covers (see item 8 above).
4. Consideration of the Eberline friskers for needed instrument replacement is being made.
5. Jamie stated that Health Physics Services has a small detector which could serve as a wound counter.
6. Individual air monitoring filter heads are being installed and incorporated into the assessment of airborne contamination in the Alpha Lab.
7. Multiple sampling points are being installed. Further consultation with other health physicists led Sue to decide that use of a smoke source would not provide additional information beyond the prudent placement of samplers and could affect the performance of the exhaust HEPA filters.

Excerpts on TRUMP-S from the
Minutes of the August 15, 1990 Meeting of
the Isotope Use Subcommittee of the Reactor Advisory Committee
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GENERAL COMMENTS

1. Sue reported that Joe DeMers and Mark Stumbaugh have experience from their work in the Navy with this type of HEPA filter change out.
2. All vacuum pumps used with glove boxes containing unsealed radioactive sources are considered internally contaminated until proven otherwise.
3. The feasibility of using filters on all equipment fans located in the Alpha Lab is being investigated. Sue added that equipment removed from the Alpha Lab is considered to be potentially contaminated until proven otherwise.

Chester noted that recommendations based on experience with Pu production facility might not be applicable to laboratory-scale research.

Steve asked if masks were available in the event of an accident. Sue replied that additional respirators had been obtained for support of the TRUMP-S Project. The IUS discussed alternate emergency breathing devices that could also be considered.

Kurt asked whether DOE approval to accept TRU waste from the TRUMP-S Project had been received. Sue presented the July 20, 1990 and July 30, 1990 DOE letters which stated DOE's commitment to accept return of the radioactive materials used during the tests and to accept any TRU or mixed wastes.

With respect to the experience gained from depleted uranium experiments, it appears that quantities of less than 10 mg are sufficient for each experimental run which reduces the amount of actinide material that will need to be available in the glove box. Surveys are being performed and no contamination has been found. The glove boxes will be cleaned between changes in actinide materials. The IUS indicated they were satisfied with the safety aspects of the project.

The IUS unanimously approved Dr. Krueger's authorization for 5 g of Np-237 to be used in the TRUMP-S Project.

2b. Similar authorization requests for use of depleted uranium and Np-237 in the TRUMP-S Project for Dr. Truman Storvick were reviewed. The IUS unanimously approved Dr. Storvick's authorization for 80 g of depleted uranium to be used in the TRUMP-S Project. The IUS unanimously approved Dr. Storvick's authorization for 5 g of Np-237 to be used in the TRUMP-S Project.