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March 23, 1971

John R. Totter, Director, DEM

THRU: William W. Burr, Jr., Deputy Director, DEM

VISIT TO FNWL AND EHF

During the period of 16-17 March I held discussions with Dr. Alpen and selected staff members of FNWL, and the EHF staff. I also paid a courtesy call to the Manager of the Richland Operations Office. I invited Mr. D. Jones, Mr. T. Bralley's successor, to accompany me to most of the sessions and which I believe was to our mutual benefit.

The following items were discussed with Dr. Alpen in closed conference.

(1) In regard to his request for the Triga Reactor he stated the needs were other than those of Medical Branch interest. None-the-less he willingly discussed his reasons for his selection of the Triga for his neutron sources. As to exploring getting one that was currently not in use, he stated there was such a reactor at San Ramon but he explained that the costs of dismantling and decontaminating same for removal and reconstruction, would make it more economical to construct a new reactor. The question of the proposed channel being put into the N-reactor, if it were retained for 3 years more, also seemed less than attractive because the construction alone was estimated at 750 k, and the mechanical end result was somewhat uncertain. His stated needs for a reactor for the work described seemed straightforward. For the medical research needs, the use of Cf-252 was suitable. Later I discussed this with Dr. M. Sullivan, the principal investigator in further detail. Although he can get Cf-252 from Oak Ridge, he stated the encapsulation would cost about \$3000. In view of the relevance of his planned research to the cancer therapy program, I inquired if some of our "exchange" Cf-252 sources could meet his needs. His affirmative answer will now permit my exploring this possibility with SROO to supply him with the equivalent of 50pg of "fresh" Cf-252. The inherent lag-time in getting these sources presented no difficulties and will both save encapsulation costs and permit more experimental flexibility, if this can be done through the loan program.

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(2) Dr. J. ... Dr. Milano, (enclosure 1) regarding the fate of the ... of exposure of the local population to radiation ... of the Hanford plant was brought up in relation to the proposed reactor shutdown. Dr. Alpen stated that ... Dr. Alpen to be carried out ... I explained that at the request of Dr. Burr I had ... of the "Population Survey at Hanford" ... information should be given, if at all possible, to fulfill ... request to reduce, analyze and report the ... approximately 15,000 individuals. I had, prior to this visit, expressed ... interest along these same lines to Mr. ... It was clear that neither Dr. Alpen and or Mr. ... at this point in time give me a firm answer because of the uncertain fate of the N reactor. It was equally clear that both were receptive to the idea that, given the chance, this information would be salvaged probably with austere and realistic funding. Any further "selling" at this time, I feel, would not be prudent. I would not be surprised to see an EPA interest in this area in the near future.

(3) Technical support for Dr. Help's AEC medical supported in vivo activation analysis was explored with Dr. Alpen within the context of possible new developments in both neutron activation and detection systems. Dr. Alpen felt that Dr. Palmer of his staff was actually used for service rather than new instrument development during the last year while assisting Dr. ... Dr. Wood of the Instrumentation Branch may also have similar feelings. Dr. Help feels that his efforts are thus being underutilized. As a part of an ongoing Branch review of the foreseeable value of neutron activation analysis, as for example, over the other prevailing procedures used in calcium metabolic diseases, the Medical Branch staff held a meeting with Dr. Wheadon of the National Institutes of Metabolic Diseases in the recent past. In reply to a direct query as to the potential benefits of in vivo activation he stated that if the sensitivity could be improved it would for many reasons be a real contribution to the study of these diseases. He felt that Dr. Help's program should be reviewed on-site and a more complete appraisal made. We intend to do so in the near future and will invite Dr. Wheadon. In the interim, on 16 March, I requested Dr. Help to have Dr. Palmer submit specific ideas on how he proposes to improve the instrumentation. This information will be sent to me informally by Dr. Help for review by Dr. Wood's staff and us. If this is of interest the on-site review will be held and recommendations made accordingly to all concerned parties which presently seem amenable to this concept of approach. Parenthetically Dr. Help's procedure seems attractive over the BNL system because of its relative simplicity and thus broader clinical usage.

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(4) Following a request for an additional 8 k by HEHF for this fiscal year, I requested Dr. Alpen to help us out of this dilemma by forgiving 4 k of this amount which was claimed as being due to PNWL for Pu tissue analysis. Dr. Alpen, following serious consideration, granted this request and about two hours later called me while I was going over this matter with the HEHF staff and told me the bill was about \$5700 but he would "wipe the slate clean" and instructed his staff to take measures to do so immediately.

(5) Dr. Swinth, PNL, was visited later and the new triple silicon crystal array for the intra-esophageal probe was seen. Even with one of the crystals (easily identified) being of relatively poor efficiency, he states he can measure 12 nanocuries of Pu in the tracheobronchial glands (95% limits). He hopes to improve the sensitivity soon and then hold a trial run in a human. I suggested that he try to prepare a full presentation at the PNWL Transuranium Symposium in September 1971. He felt optimistic that this could be done.

The staff at HEHF was met at 9:00 a.m. on 17 March and three items were covered as follows:

(1) The draft letter which was being submitted to Mr. J. A. Erlevine for his approval and dispatch to concerned parties regarding AEC interest in the Plutonium Registry and respectfully requesting their cooperation in the successful achievement of its goals, was well received by Dr. Norwood et.al.

(2) The letter requesting 8 k additional funds for FY 71 was then discussed. I had the advantage of a full breakdown of their spending up to January 1971. Without making premature judgments it appears to me at this time that the deficiencies are at the "business level" and that the organizational structure is in need of "clarification" but I must admit I don't know how they should go about the latter in a "humane" manner at present. At any rate, I told them that PNWL forgave the 4 k they requested for the testing but I added that the remaining 4 k which they also requested for extra time to interview persons of interest being lost through the reduction of the reactor production program, could be negated by reorganizing their time on a "first things first basis". To emphasize this low probability of getting this extra 4 k, I informed them that it would be prudent to start thinking about the FY 72 budget at a 10% level less than FY 71. This was accepted with apparent equanimity but Dr. Norwood then handed me his thoughts for a FY 72 budget which was over double the amount of FY 71. I recommended he mail it to the Tech. Rep. for study. After reestablishing my contact with reality, I suggested

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that instead of having a separate effort for input and retrieval of data on Pu exposure workers they should immediately contact Dr. Brooks of this office to add any special items of information to Dr. Ross' new input list prepared for Dr. Mancuso's programs. On my return, 3/18/71, Dr. Brooks called Dr. Ross and the document containing additional input items prepared by DOS was placed in a hold category pending discussions with Dr. C. Newton of HEHF.

(3) The 189 "Radiosurgery Facility Research Program" (enclosure 2) which HEHF submitted to Dr. Doran on February 24, 1971, was received. For background, two points are of interest, first, this 189 was submitted to DBM in April 1967 and not funded, and second, it is now submitted to DOS with Dr. C. M. Unruh, who is a full-time PNWL employee, as its Principal Investigator. The PNWL Director concerned is not aware of this commitment. Without belaboring objections to the proposal as written I suggested that at best it would be considered as operations research and not medical research. At this point Dr. C. Newton told me that this 189 was being revised. Its purpose will be to train people in the nuclear industry the various levels of medical care to be given to an accident victim depending on time, training and facilities. I then suggested that they: (1) contact Dr. R. Linnemann at Philadelphia who has a working organization supported by nuclear reactor power companies in the greater Philadelphia area; (2) get a copy of the minutes of the two sessions of the review committee expressly convened by AEC for such matters (Chairman: Dr. Gould Andrews), by contacting Drs. Catlin or Doran at DOS. (3) DBM would be willing to review any proposal with new ideas appropriate to DBM research. (4) Explore their proposed training with DNET.

In general I believe a thorough reevaluation of the administrative procedures of this unit be undertaken early in close coordination with the ROO to clarify present ambiguities. On 3/22 Mr. Brazley, Program Coordination Branch was contacted as an initial step to achieve same.

Artificial Heart Program - March 17, 1971

At Dr. Mott's request I attended a meeting at the Federal Building in Richland at which Mr. Cole from DID and Mr. D. Jones from ROO represented AEC interests. Members of Dr. Clarke's Biology Division, Dr. Cross and others of the physics engineer groups, Dr. William Bair and Dr. E. Alpen represented the PNWL research effort in the AEC nuclear powered artificial heart program.

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The program was discussed in two phases as per the 189's. The first phase dealt primarily with intrathoracic placement of heat dissipators and sources and is scheduled for the remaining FY 71. The second phase deals with abdominally placed heat sources with dissipation through either the supra or infra diaphragmatic aorta.

The meeting was productive in that it permitted the clarification of such essential points as:

1. The source capsule must stand up to the maximum credible accident for 5 to 7 years (without rupture).
2. The health physics staff at PNL will probably set safety criteria for heat build-up following pump failure or incineration in excess of "reasonable" requirements.
3. The biology team has already demonstrated its ability to implant successfully a "sham-sham" into the thoracic aorta of a miniature pig and is experimenting with different stabilizing methods of the heat sources against the thoracic cage. (A recently operated pig was observed following the sham insertion via a single rib resection).
4. The present planned heat source was accepted for the first group of these sources as to its configuration, but with removal of the Pt. cladding which only saved about .2 lb. This was a compromise by the veterinarian who would have preferred a flat configuration but the present sources were considered as acceptable.
5. Dr. Mott and Mr. Cole plan to provide one Pu²³⁸ heat source by 1 July and six more such medical grade Pu sources by 1 Jan 72.
6. To encourage acceleration of this combined study, DID will explore the possibilities of some additional funding for FY 71 and 72.
7. It was agreed to have informal timely periodic reports sent to DBM and DID so that maximum time will be afforded to us for planning responsively to program developments.

J. D. Goldstein, M.D., Chief
Medical Research Branch
Division of Biology and Medicine

Enclosures:

As stated
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Follow-up Items

1. Fate of Environmental Study at Hanford with Dr. Alpen and Mr. Baronowski (plus other human monitoring DOP activities).
2. Drs. Nelp and Palmer vis a vis new neutron activation instrumentation (University of Washington and PNL).
3. SROO on 50µg Cf-252 availability for "loan" to Dr. M. Sullivan (PNL).
4. Dr. C. Newton's (HEHF) contribution to Dr. Ross for inclusion into "new item" input list for special items pertaining to Pu workers.
5. Progress reports on "Artificial Heart Program" PNL - as special file.

cc: Dr. Barr
 Dr. Wood
 Dr. Engelmann
 Mr. Whitnah

OFFICE ▶	BMM					
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DATE ▶	3-23-71					

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