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W. W. Burr, Jr., Deputy Director, DBER  
J. D. Goldstein, Chief, HSRAB, DBER

REPORT ON CYTOGENETIC STUDY FROM DR. W. F. BRANDOM TO DOW CHEMICAL CO.

Pursuant to our discussions, after our meeting yesterday with Mr. T. R. Clark and Mr. Gordon Facer of DMA, Mr. Don Ross of DOS, Dr. John Willging of DOW, and Mr. Herman Roser, Deputy Director of the Albuquerque Operations Office, and after reading the report from Dr. Brandom on the cytogenetic study being done by the University of Denver on Rocky Flats employees, I have the following thoughts. First, the report does not really provide enough information for me to be able to judge either the competence with which the work is being done or the significance of the results. However, Brandom has published what appears to be a reasonable paper on his cytogenetic studies on uranium miners. Also, it appears that Dr. Brandom has some sort of consultation with Dr. Arthur Bloom from the University of Michigan who has been responsible for developing the ABCC cytogenetics program, and who is certainly competent. We have furthermore been told that Drs. Petersen and Deven from LASL have looked at material from some of the Rocky Flats subjects and are in general agreement with Dr. Brandom, so I feel that we can accept Brandom's work at least for the moment as probably quite competent. Only a more complete report, or seeing the raw data itself, could answer some questions I have about the significance of the findings. A major difficulty is that in the report we have seen, only pooled data by exposure classes (i.e. control, external exposure, Pu burden) is presented, so one cannot tell, for example, whether there are more aberrations in samples from people with larger Pu body burdens or apply tests for statistical significance of differences. Nevertheless, there does not appear to be anything particularly unexpected in the findings as they are presented; certainly the finding of aberrations in the peripheral leukocytes of the externally-exposed subjects is no surprise, in view of similar results already reported in the literature.

Second, it seems to me that the plans and arrangements that were made at DOW before the cytogenetic study was initiated were inadequate.

REPOSITORY GERMANTOWN RC  
COLLECTION # 7731  
BOX No. 118, Loc # 3688  
FOLDER MHS 2.2.3 (b)  
Rocky Flats  
(Cytogenic Studies)

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Some form of legal consent should have been obtained from the subjects, and decisions about how to inform the subjects of the results (particularly since it could have been anticipated that the results would be positive) should have been made. The question of publication of results in the open scientific literature should have been settled in advance. Possibly most important, the possible legal and labor relations consequences should have been examined in advance.

Third, I feel that many problems could be avoided if contracts in the biomedical area were only let after satisfactory peer review of the scientific merit of the proposed study. I actually would guess that Brandom's study is probably adequate, and I feel that we certainly should be getting what data we can from the available subjects with Pu burdens. If the project had been outside reviewed in advance, however, I'll bet the AEC wouldn't be in the position in which it now finds itself.

Fourth, the "liberation" of the preliminary results (plus the way in which the whole matter seems to have been handled) could quite conceivably result in a lot of very unfavorable publicity for the AEC. I feel that the best move the AEC can make now is to attempt to get the preliminary results reported in the scientific literature just as quickly and quietly as possible, in the hope that should the charge later be made that the AEC has been suppressing information about the "damage AEC has done to the Rocky Flats workers" or about the hazards of the Pu it has released, or about the public danger from breeder Pu, the AEC can point to the fact that the information was not only not really suppressed, but in fact has already been released to the scientific community.

Dr. Brandom is supposed to attend the Annual Radiation Research Society meeting in St. Louis, April 30-May 3. He has submitted an abstract for a report on his cytogenetic study of uranium miners. There will be a special session at this meeting for "Work in Progress." The deadline for submission for this session was March 30, but perhaps a late submission could still be made. A second, and perhaps better opportunity might be the International Congress of Genetics to be held this summer. The deadline for abstracts is April 15, but owing to some administrative problems, it appears likely that abstracts received later will still be accepted. I suggest that the AEC might encourage Dr. Brandom to present his material in one or even both of these places.

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Finally, Dr. Brandom apparently would like not only to continue his study, but to expand it. I feel strongly that the present survey should be completed, and that it is in the best interests of the AEC to gather just as much information about effects (or lack of them) in the presently available population of persons with known Pu burdens. In order for cytogenetic data to be most useful, I think that some thought should be given now to how post mortem data on actual Pu tissue distributions in these people might be obtained. If such data can ultimately be gotten, and correlated with the cytogenetic data, it might provide an important, if somewhat crude, independent estimate of the value of Q.F. applicable for Pu alpha particles.

Dr. Brandom may not be our first choice for doing the cytogenetic studies, but he seems reasonably competent to continue them now that they are started, and the advantages of keeping him going appear considerable. I understand that Dr. Herbert Lubs of the University of Colorado Medical School is also interested in doing a cytogenetic study at Rocky Flats. Keeping Dr. Brandom's program going would provide a convenient means of keeping Dr. Lubs out of this area. In view of the AEC's previous experience with Dr. Lubs, this is an end I feel is highly desirable from the AEC's point of view. However, Dr. Brandom also wishes, according to the report to DOW, to start looking at the children of the workers with Pu body burdens. I think any such study should be considered separately from the project now going on, and should receive a careful outside review in order to be sure that any results obtained will be meaningful. I suspect that the population available will probably be far too small, but should some congenital chromosomal defect show up in a child of a Pu-burdened worker, even though not scientifically attributable to the Pu body burden of the parent, it could attract a good deal of attention and perhaps unfavorable publicity.

*M A Bender*

Michael A. Bender  
Geneticist, Biology Branch  
Division of Biomedical and  
Environmental Research