



Pacific Northwest Laboratories
 Battelle Boulevard
 Richland, Washington 99352
 Telephone (509)
 Telex 32-6345

September 22, 1975

Dr. J. L. Liverman
 Director
 Division of Biomedical and
 Environmental Research
 U.S. Energy Research and
 Development Administration
 Washington, D.C. 20545

Dear Dr. Liverman:

Enclosed is a draft of comments on Gofman's two papers on inhaled plutonium. Before these comments are transmitted beyond DBER I'd like an opportunity to revise them following a review by our local staff and completion of comments being prepared by two of our mathematicians working on catastrophe theory. I am hopeful these two gentlemen can come up with a more convincing and sophisticated approach to discrediting Gofman's arguments.

Included with my comments is a risk estimate based on our dog data. If this passes critical examination I may include it in my paper at the IAEA meeting on Transuranics at San Francisco.

I am sending a copy of this to Roger McClellan, Chet Richmond, Doug Grahn and Jack Healy.

Sincerely yours,

Bill

W. J. Bair, Ph.D., Manager
 Biomedical and Environmental
 Research Program

WJB:mjs

Enclosure

cc: B. W. Wachholz

REPOSITORY DOE Records Center
 Job # 7723
 COLLECTION ASEV Central Files for 1975

BOX No. WJF

FOLDER MH 5-21 1975
 Univ. of Cal., LLL Gofman/Tamplin

MEDICINE HEALTH & SAFETY - 2

11255

4005053

REFERENCES

1. Jack Anderson Column, Washington Post, September 19, 1975.
2. Congressional Record-Senate, July 31, 1975, S14600-S14636.
3. Bair, W. J., Ballou, J. E., Park, J. F., and Sanders, C. L. (1973), "Plutonium in Soft Tissues with Emphasis on the Respiratory Tract," In: Handbook of Experimental Pharmacology (H. C. Hodge, J. N. Stannard and J. B. Hursh, eds.), Springer-Verlag, Berlin.
4. Bair, W. J. (1974), "Toxicology of Plutonium," In: Advances in Radiation Biology, Volume 4, (J. T. Lett, H. Adler and M. Zelle, eds.), Academic Press.
5. Buldakov, L. A., Lyubchansky, E. R., Moskalev, Y. I., and Nifatov, A. P. (1969), In "Problemy Toksikologii Plutoniya, Atom Publications, Moscow (translated as "Problems of Plutonium Toxicology," U.S. Atomic Energy Commission LF-tr-41, 1970).
6. Wanebo, C. K., et al. (1968), "Lung Cancer and Exposure to Atomic Bomb Radiation, Hiroshima-Nagasaki," Amer. Rev. Resp. Dis. 98, 778-787.
7. Archer, V. E., et al. (1973), "Uranium Mining and Cigarette Smoking Effects on Man," J. of Occupational Medicine 15.3, 204-211.
8. International Commission on Radiological Protection (1966), "Recommendations of the International Commission on Radiological Protection (Adopted September 17, 1965)," ICRP Publication 9, Pergamon Press, Oxford.
9. National Council on Radiation Protection and Measurements (1971), "Basic Radiation Protection Criteria," NCRP Report No. 39, Washington, D.C.
10. Biological Effects of Ionizing Radiations (1972), "The Effects on Populations of Exposure to Low Levels of Ionizing Radiation," National Academy of Sciences-National Research Council, Washington, D.C.
11. Sanders, C. L. and Dagle, G. E. (1974), "Studies of Pulmonary Carcinogenesis in Rodents Following Inhalation of Transuranic Compounds," In: Experimental Lung Cancer. Carcinogenesis and Bioassays (E. Karbe and J. F. Park, eds), Springer-Verlag, Berlin.
12. Lafuma, J. (1974), "Respiratory Carcinogenesis in Rats After Inhalation of Radioactive Aerosols of Actinides and Lanthanides in Various Physicochemical Forms, In: Experimental Lung Cancer. Carcinogenesis and Bioassays (E. Karbe and J. F. Park, eds.), Springer-Verlag, Berlin.

13. Clarke, W. J., Park, J. F., and Bair, W. J. (1966), "Plutonium Particle-induced Neoplasia of the Canine Lung. II. Histopathology and Conclusions," In: Lung Tumours in Animals (Lucio Severi, Ed.) University of Perugia, Perugia, Italy.
14. Berg, J. W. (1970), "Epidemiology of the Different Histologic Types of Lung Cancer," Morphology of Experimental Respiratory Carcinogenesis, CONF-700501, National Technical Information Service, Springfield, VA 22151.
15. Coalsen, J. J. et al. (1970), "Electron Microscopy of Neoplasms in the Lung with Special Emphasis on the Alveolar Cell Carcinoma." Am. Rev. of Resp. Dis. 101:181-197.
16. Boucot, K. R., et al. (1964) "Appearance of First Roentgenographic Abnormalities Due to Lung Cancer," J. Amer. Med. Assoc. 190:1103-1106.
17. Warnock, M. L. and Chung, A. M. (1975), "Association of Asbestos and Bronchogenic Carcinoma in a Population with Low Asbestos Exposure," Cancer 35:1236-1242.
18. Greenberg, S. D., Smith, M. N., and Spjut, H. J. (1975) "Bronchiolo-alveolar Carcinoma - Cell of Origin," Amer. J. of Comp. Path. 63:153-167.
19. Berg, J. W. (1970), "Epidemiology of the Different Histologic Types of Lung Cancer," In: Morphology of Experimental Respiratory Carcinogenesis (P. Nettesheim, M. G. Hanna, Jr., J. W. Deatherage, Jr., eds.) National Technical Information Service, Springfield, VA 22151.
20. Dalhamn and Rylander, R. (1965), "Ciliastic Action of Cigarette Smoke," Arch. Otolaryn. 81:379-382.
21. Albert, R. E. et al. (1974), "Short-term Effects of Cigarette Smoking on Bronchial Clearance in Humans," Arch. Environ. Health 30:361-367.
22. Lourenco, R. V., Klimek, M. F., and Borowski, C. J. (1971), "Deposition and Clearance of 2 μ Particles in the Tracheobronchial Tree of Normal Subjects - Smokers and Nonsmokers," J. Clinical Invest. 50:1411-1420.
23. International Commission on Radiological Protection (1974), "Report of the Task Group on Reference Man", ICRP Publication 23, Pergamon Press, Oxford.
24. Bennett, B. G. (1974), "Fallout ²³⁹Pu Dose to Man," USAEC Report HASL-278, January.