

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)	Docket Nos. 50-387
)	and 50-388
PENNSYLVANIA POWER AND LIGHT CO.)	
)	
ALLEGHENY ELECTRIC COOPERATIVE, INC.)	
)	
(Susquehanna Steam Electric Station,)	
Units 1 and 2))	

AFFIDAVIT OF REGINALD L. GOTCHY

I, Reginald L. Gotchy, being duly sworn, depose and state:

1. I am employed by the U.S. Nuclear Regulatory Commission as a Senior Radiobiologist in the Division of Systems Integration, Office of Nuclear Reactor Regulation. A copy of my statement of professional qualifications is attached.

In this position I am responsible for assessing the environmental impacts of nuclear facilities and alternative fuel cycle facilities.

2. I have read the Applicant's Motion for Partial Summary Disposition of Contention 1 (Fuel Cycle Doses) and the Affidavit of Dr. Morton J. Goldman which accompanies and supports the Motion.
3. Fuel Cycle Doses
The dose estimates per Reference Reactor Year (RRY) from the fuel cycle (excluding Rn-222) which Dr. Goldman cites are comparable to those of the NRC staff, and provided in the FES (pp. 4-31 to 4-32). There are no new data available which would substantially change those dose estimates, and the staff agrees with the applicant that those estimates are reasonably conservative. As a result, the staff fully supports the applicant's request for a Partial Summary Disposition of the issue of potential population dose commitments for all radioisotopes (other than radon-222 and technetium-99) which may be released during the fuel cycle required for operation of the Susquehanna nuclear power station.
4. Fuel Cycle Health Effects
Although the applicant has not yet provided evidence which would support a Motion for Summary Disposition of the potential public health impacts from fuel cycle releases of radionuclides other than Rn-222 and Tc-99, I feel both the S-3 Hearing and GESMO Hearing Records* show this issue has been well

*The GESMO record was largely the basis for the estimates of population doses and potential health impacts for the S-3 Hearing and NUREG-0116 and NUREG-0216 which collectively updated WASH-1248, "Environmental Survey of the Nuclear Fuel Cycle. WASH-1248 was the basis for the original S-3 rule.

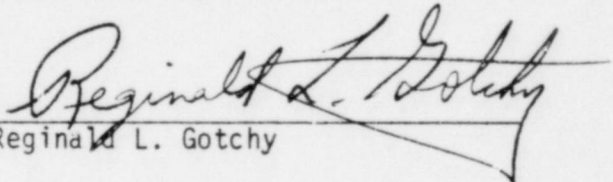
ventilated**. The health effects of fuel cycle releases of radionuclides have been found to be inconsequential and incapable of significantly affecting the cost-benefit balance for operation of the station. Those estimates are summarized in the FES as 0.08 to 0.12 cancer deaths per RRY over periods of time ranging from 100 to 1,000 years into a dim and uncertain future and therefore does not tip the cost-benefit balance for the facility.

The most recent and authoritative guidance on potential risks from exposure to low-level ionizing radiation comes from the 1980 BEIR III Report***. However, the recommendations of the BEIR III Report do not significantly change the NRC staff risk estimates presented in the S-3 Hearing, and the preceding GESMO Hearing (Docket RM-50-2 and NUREG-0002).

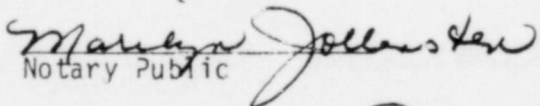
5. Other recent independent estimates of population doses and impacts from the nuclear fuel cycle are shown in Table 1.

What these independent reviews show is that generating one RRY of electrical power from the nuclear fuel cycle for all radionuclides (excluding Rn-222) may result in less than one human health effect (cancer and genetic effects) per RRY over time spans up to 500 years into the future. Furthermore, all of these reviews (including the Ford Foundation study, which was equivocal about the future of nuclear power) support the staff assessments in the FES.

6. As a result, I conclude that a Summary Disposition on this issue is appropriate and timely for the Susquehanna Hearings.
7. The statements given above are true and correct to the best of my knowledge.


Reginald L. Gotchy

Sworn before me this 9th day of
September, 1981.


Notary Public

My Commission expires: July 1, 1982

**See, for example, Docket No. RM-50-2; Gotchy at Tr. 589-623, 1483-1491, 2713-2733, 2870-2918; Grahn at Tr. 2937-2992, 3084-3203, 3228-3238; Alexander at Tr. 3051-3090, 3147-3157, 3205-3227; Bair at Tr. 3110-3147, 3206-3227, 3247-3250, 3267-3271; and Parsont at Tr. 3160-3182, 3190-3192. Also Docket No. RM-50-3, NRDC at Tr. 14; Lewis at Tr. 63; EPA at Tr. 74; Sierra Club, Direct Testimony; Gotchy at Tr. 494-514.

***The Effects on Populations of Exposure to Low Levels of Ionizing Radiation, Committee on the Biological Effects of Ionizing Radiations (BEIR), National Research Council, National Academy of Sciences, Washington, D.C. (1980).

TABLE 1 - RECENT INDEPENDENT REVIEWS OF THE RADIOLOGICAL IMPACTS OF THE NUCLEAR FUEL CYCLE PER RRY (EXCLUDING RN-222 AND TC-99)

Source	Length of the Environmental Dose Commitment	Population Doses (person-rem)	Potential Impacts	
			Cancer Deaths	Genetic Effects
American Physical Society Study on Nuclear Fuel Cycles & Waste Management, Chapt. V, pp. 1-45 (July 1977)	500 yrs	~ 500 (Global)	< 0.05	< 0.2
Nuclear Energy Policy Study Group, Ford Foundation (Nuclear Power, Issues & Choices, 1977)	~ 50 yrs	< 1,000 (U.S.)	< 0.2	None Given
National Academy of Sciences Committee on Literature Survey of Risks Associated with Nuclear Power (1979)	~ 100 yrs	~ 450 (U.S.) ~ 750 (Global)	~ 0.09 ~ 0.15	~0.09 ~0.15
National Academy of Sciences Committee on Nuclear & Alternative Fuel Cycles, (Energy in Transition: 1985-2000, 1979)	~ 100 yrs	~ 450 (U.S.) ~ 750 (Global)	~ 0.09 ~ 0.15	~0.09 ~0.15
United Nations Scientific Committee on the Effects of Atomic Radiation, Sources & Effects of Ionizing Radiation (1977)	~ 100 yrs	1,200 (Global)	0.12	0.22

DR. R. L. GOTCHY

Professional Qualifications

My name is Reginald L. Gotchy. I am a Senior Radiobiologist on assignment with the Radiological Assessment Branch in the Office of Nuclear Reactor Regulation. In this capacity, I am responsible for coordinating the technical review and evaluation of the environmental radiological impact of nuclear facility operations.

I received a B.S. in Zoology from the University of Washington in 1958, an M.S. in Radiation Health from the Colorado State University in 1966, a Ph.D. in Radiation Biology from the Colorado State University in 1968, and attended the University of Washington Graduate School 1958-1959 as an AEC Radiological Physics Fellow.

I have 19 years of professional experience in health physics, industrial hygiene, radiation physics, radiation biology, environmental sciences, project coordination of research and development programs, and development of AEC and NRC standards. This experience has included operational and safety responsibilities, and review and coordination of facility operations under contract to the AEC. I have been employed by the Lawrence Radiation Laboratory, the U.S. Public Health Service, Reynolds and Electrical Engineering Company, the AEC Nevada Operations Office, and the NRC Office of Standards Development prior to my assignment in the Office of Nuclear Reactor Regulation in 1975. I was an adjunct professor of Radiation Health Technology at the University of Nevada, Las Vegas (1969-1972).

I am a member of Sigma Xi (Research Society of North America), the American Nuclear Society, the Health Physics Society and the International Radiation Protection Association, and the Radiation Research Society. I am a past member of the American Association for the Advancement of Science and the American Industrial Hygiene Association.

I am certified by the American Board of Health Physics, and served as a member of the Panel of Examiners (1972-1976). I remain active in the development of examination questions and updating my professional standing by periodic post-graduate work and training.

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PENNSYLVANIA POWER AND LIGHT CO.
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(Susquehanna Steam Electric Station,
Units 1 and 2)

Docket Nos. 50-387
50-388

CERTIFICATE OF SERVICE

I hereby certify that copies of "NRC STAFF RESPONSE SUPPORTING APPLICANTS' MOTION FOR PARTIAL SUMMARY DISPOSITION OF CONTENTION 1 (FUEL CYCLE DOSES) AND NRC STAFF MOTION FOR SUMMARY DISPOSITION OF A PORTION OF CONTENTION 1", "STATEMENT OF MATERIAL FACTS AS TO WHICH THERE IS NO GENUINE ISSUE TO BE HEARD", and "AFFIDAVIT OF REGINALD L. GOTCHY", dated September 10, 1981, have been served on the following by deposit in the United States mail, or as indicated by an asterisk, through deposit in the Nuclear Regulatory Commission's internal mail system, this 10th day of September, 1981:

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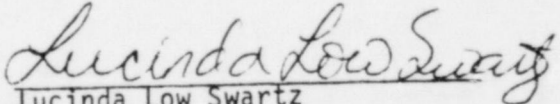
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