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Personal Qualification Statement

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Birthplace: Port Washington, New York, Citizen USA

Current Position: Section Chief, TMI-2 Project Section
Location: Three Mile Island Program Office
Address: US Nuclear Regulatory Commission
P.O. Box 311
Middletown, PA 17057

Education:

- Port Washington Senior High School, New York State High School Regents Diploma
- Clarkson College of Technology, Potsdam, New York, Bachelor of Chemical Engineering, 1950
- New York University, New York, 1959, Master Degree, Chemical Engineering (minor was in Nuclear Engineering)
- Ohio State University, 24 quarter hours
- Other training attached

Experience:

- A. US Nuclear Regulatory Commission (NRC) From: 1/80 To: Present
Three Mile Island Program Office
P.O. Box 311, Middletown, PA 17057

Position Title: Section Chief (Inspection and Enforcement)

Supervised five to eight professionals, resident health physicists and resident reactor operation inspectors. Coordinate and participate in special investigations. Supervise and participate in multi-disciplinary technical review and evaluation of changes affecting Three Mile Island (TMI) nuclear facilities. Supervise and participate in ongoing review of operation activities (cleanup of TMI-2) and overall performance of licensee at TMI. Supervise section participation and direct participation in actual and drill emergency responses at TMI.

Immediate Supervisor(s) while in this position:

Current: Lake H. Barrett, 717-948-1120

Previous: R. R. Keimig
J. M. Allan/B. Grier

- B. Division of Reactor Construction From: 7/1/79 To: 1/27/80
Performance Appraisal Branch (PAB)
IE Headquarters, Bethesda, MD

Position Title: Inspection Specialist (Audit/Investigate/Inspect)

Assist in the development and implementation of performance appraisal methods and procedures for the evaluation of licensee's performance, effectiveness of the NRC inspection and investigation program. Determine the consistency and objectivity of program performance. Perform as investigative team member into the March 28, 1979 TMI-2 accident from May 1979 through September 1979.

Immediate Supervisor(s) while in this position:

At time of position change: J. E. Gagliardo

Previous: K. W. Whitt

- C. US Nuclear Regulatory Commission From: 6/1/77 To: 6/30/79
Office of Inspection and Enforcement
Region I - Reactor Construction and
Engineering Support
King of Prussia, PA 19406

Position Title: Reactor Inspector - Construction - (plants under construction, major shutdown, and modifications)

Performed inspection of construction bolting, equipment supports, pipe supports, imbeds, special design changes. The special assignments included inspection of high density fuel rack storage from design aspect to affect on operating/emergency procedure/training; modifications to pressurizer relief valves to protect against low temperature over pressurization including installation, testing, procedure changes, and training. Involved in special inspection resulting over Stone and Webster pipe hanger issue.

Immediate Supervisor(s):

At time of position change: L. E. Tripp, 215-337-5227

Previous: R. W. McGaughy, R. Haynes

- D. US Nuclear Regulatory Commission From: 2/6/71 To: 5/31/77
(US Atomic Energy Commission)
Division of Compliance
Region 1, Germantown, MD

Position Title: Reactor Inspector (preoperation/ascension to power/operations)

Principal (Project) inspector responsible for the conduct of inspection, investigation and enforcement programs at assigned nuclear facilities. The assigned facilities were those in

preoperational - startup status under review for license and in early operation. Participated in hearings before the ASLB for Maine Yankee, 1971-72, Indian Point 2, 3, 1972-75, and Beaver Valley-1, 1973-76, and assigned as principal inspector for TMI-1 & 2, 1976-77.

Immediate Supervisor(s):

At time of position change: A. B. Davis, 312-790-5681

Previous: E. J. Brunner, N. Mosley

- E. Air Force Logistic Command, AFLC From: 8/26/70 To: 2/6/71
Wright Patterson AFB
Ohio

Position Title: General Engineer

Advise the Division Chief on repair technology involving multi-technical processes. Provide technical recommendations for interfacing of facilities and equipment used in aircraft/weapon system repair process. Represent the Technology Division in contact with major Air Force commands with authority to make binding commitments regarding aircraft repair technology programs. Participate as technical coordinator for new technologies stemming from new advanced weapon system/equipment development.

- F. Chief, Engineering and Experimentation Div. From: 1/66 To: 1971
Air Force Nuclear Engineering Center
Air Force Institute of Technology
Wright-Patterson AFB, Ohio 45433

Position Title: Chief, Engineering and Experimentation Division

Provided management and technical guidance to the personnel of the Engineering and Experimentation Division. Directly supervised 3 branch chiefs, one shop foreman and one steno. The division at one time consisted of five branches. This included the Trace Analysis Branch, Non-Destructive Testing Branch, Engineering and Experimentation Branch, Support Engineering Branch and the Nuclear Engineering Branch. The staff of the division included 17 persons, 11 having professional degrees in electrical, mechanical, chemical, nuclear (engineering), biology, and mathematics. Provided planning for programs for the Division on a five year basis. Provided budget estimates for planned development and projects on a 1, 2, and 5 year basis. Provided guidance for the development of reactor test facilities and initiated the development of new facilities, and capabilities as a need demand trend dictated by users of the Air Force Nuclear Engineering Center. These developments included the direction for the establishment of laboratory facilities to allow for trace element determination (including chemistry lab), radiography, trace element usage, and radiation effects. The work included the directing of design and installation of new facilities to allow for radioisotope production, neutron diffraction, and neutron radiography. The work included the planning for upgrading the

support shops and remote hot lab handling facilities. Represented the Division before Nuclear Safety Review Committees. Maintained technical surveillance of the nuclear reactor. As a member of the Safety Review Committee, reviewed nuclear safety questions and technological questions for all projects conducted at the Air Force Nuclear Engineering Center Committee, reviewed similar questions for the Wright-Patterson AFB as a member of the Base Radiological Hazards Committee. Performed consultant services on special problem requests and on experimental protocol. Responsible for the institutional promotion of the Center services to Air Force labs, DOD and other government labs, universities, and industry.

- G. Air Force Nuclear Engineering Test From: 1961 To: 1966
Facility
AF Flight Dynamics Laboratory
Wright-Patterson AFB, Ohio

Position Title: Chief, Engineering and Experimentation Branch
Chief, Engineering and Experimentation Section

Acting Branch Chief, then Branch Chief of Engineering and Experimentation Branch. Provided management for the branch personnel involved in the pre-startup and checkout of the 10 million watt AF nuclear reactor. This included the direction for the assembly of an electronic support facility, meteorological facility, and the establishment of a dual health physics and dosimetry radiation detection laboratory. The work required the contact of potential users of the nuclear reactor. Constant review of overall engineering for technical sufficiency was maintained to insure contractor compliance in building, and nuclear measurement program for the reactor. Provided technical guidance toward the completion of studies verifying the usefulness of the Air Force nuclear reactor. Made presentations to US Air Force staff at Pentagon. Project engineer representing the Air Force for nuclear parameter measurements of all the facilities of the Air Force Nuclear Engineering Test Facility Reactor during initial startup. Performed as project manager and as engineer in measurements of neutron and gamma environments. Coordinated on technical discrepancies on all phases of checkout. Prepared staff to enter use phase of an online reactor.

- H. Aeromechanics Division, Flight From: 1961 To: 1961 (9 mo.)
Accessory Laboratory
Flight Vehicle Power Branch
Static Energy Conversion Section
HQ WADD, WPAFB, Ohio

Position Title: Chemical Engineer

Project manager for the development of direct chemical to electrical energy conversion fuel cells. Acted as consultant in the establishment of an in-house fuel cell testing laboratory. Checked H_2O_2 fuel cells in operation. Initiated interest in solid electrolytes.

- I. Wright-Patterson AFB, Ohio From: 1958 To: 1961

Position Title: Chemical Engineer

Started as project manager reevaluating the design concepts of the Air Force Nuclear Engineering Test facilities, this included the concept of using heavy water. Redesigned the thermal column section and managed the testing, fabrication, and installation of the new design. Wrote and reviewed sections of the Hazards Summary Report. Assigned as Acting Unit Chief of the Test Design and Project Engineering Unit, Oct. 31, 1960, and Acting Section Chief, Engineering Section, Dec. 1960. Provided technical guidance and management to the section staff.

- J. Brookhaven National Laboratory From: 1956 To: 1958
Upton, Long Island, New York

Position Title: Mechanical Engineer

Development work in shielding concepts and measurements of neutron transmission. Responsible for developing unique shielding for neutron and gamma detectors. Developed and tested special purpose neutron detectors. Developed and produced special materials into forms that could be used for neutron detection. Worked on radio-chemical extractions and weightless foil production. Designed the system and made measurements of xenon leakage from new Brookhaven National Laboratory uranium fuel. Measured diffusion of xenon in out-pile and in-pile loop.

- K. Reactor Department Shielding Group From: 1953 To: 1956
Brookhaven National Laboratory
Upton, New York

Position Title: Junior Technical Specialist

Assisted scientists in the design, fabrication, and final checkout and installation of experiment support equipment, and the conduct of experiments. Coordinated work with all of the various shops to insure expeditious and correct fabrication of many unique pieces of equipment. This work was directed toward the use of all the various types of facilities found at the Brookhaven National Laboratory graphite reactor (shield tank, beam tubes, animal tunnel, medical facility, etc.). Where equipment, radiation and neutron sensitive foils were not available on the market, they were developed specifically for the needs of the experiments. This included shielding, cryogenics, under water assemblies, detectors, and a variety of unique mechanical and electromechanical designs of remotely operated equipment.

Qualification Extraction:

- My overall work record reflects the ability to adapt and assume leadership of complex activities. My current position requires integrating internal programs as affects the cleanup of Three Mile Island - Unit 2. This integration involves the approach to the inspection/audit functions under Region I policy of inspection and the Three Mile Island Program Office, (TMIPO), policy of technical review and oversight. The recognition of coordinating efforts has been demonstrated in direct cooperation in performing review followed by direct audits of implementation of activities by the licensee.

Due to the public interest surrounding TMI, recognition of cooperation with internal offices and other government agencies, laboratories and industry groups is understood. This is practiced by my group in dealing with the Region inspectors, Headquarter investigators, Department of Justice, Department of Energy, Environmental Protection Agency, and State of Pennsylvania regulatory groups. Continuous communication with these entities has resulted in mutual assistance in solving complex problems. Such cooperation resulted in increased credibility of area monitoring of radioactivity, radioactive waste management, waste shipments, emergency plan integration, independent technical audits, and measurements, etc. Controversial technical issues are better resolved when there is intra/inter cooperation. This is particularly understood at TMIPO. This facilitates credible communications with the general public.

- My current and past assignments have required that I function as an organizational representative and liaison on substantive issues. Past assignments have required presentations to the Department of Defense, presenting justifications for the construction and operation of a 10 megawatt nuclear reactor. This required cooperative effort of a technical staff to provide the basis for technical merit in the project. Currently, I have represented the NRC in communicating with the public, the press, and other government agencies on the conduct of activities at TMI-2. I understand the importance of being factually correct in all such representations.
- Program development for both TMI-1 and TMI-2 have been prime responsibilities. These have been unique because there were no models. Programs have been developed. It was apparent, in the early stages at TMI, that reactive efforts would be the order of the day. The immediate short term program was developed to cope with reactive requirements, but the long term program has been developed. My involvement was mainly to provide direction and guidance. My section has formulated goals at the inspector level that reflect the microcosm of NRC goals. Past positions have included the responsibility of preparing programs reflecting one to five year projections, including resource requirements. I thoroughly understand the need to establish goals and a feasible, affordable program to accomplish the agreed upon goals.

- Past positions at the Branch and Division level required direct involvement in resource acquisition and administration. Specifically, the task to man and operate the Air Force reactor was part of my responsibilities. In particular, the manning with professionals to carry out research and development projects that interfaced with government, business, and universities. Both near term and long term budget/resource plans were developed, presented, and accepted. This effort required the assistance and cooperation of a dedicated staff. Plans were formulated for contractual assistance, making use of professional consultant assistance, as well as hardware procurement.
- My current staff enjoys a planned promotion progression approach to enhance their technical and managerial goals. The section is unique in that it is composed of radiation protection specialists and reactor operation residents. Our section has had a unique assignment working closely with NRR systems engineers and direct participation in cleanup activities at TMI. Personnel with diverse backgrounds have developed into excellent reviewers and inspectors of diverse activities at the TMI site. I understand the need for continuous development through on the job assignments and formal planned training needed by the professional to remain abreast of his field, remain confident, and to remain motivated. The approach has resulted in the performance of inspection activities in waste management, environmental monitoring, quality assurance, physical security, packaging and transportation of radioactive material as well as health physics and reactor operational activities.
- Both past and present assignments have required the analysis and review of program/project activities. It is understood that to accomplish the desired results, it is important to perform ongoing review of activities. Currently, this is accomplished by a short daily meeting between the inspectors and the systems engineers where a brief review is made of licensee activities. The broader review of inspection results is performed as each report is completed and then summed up into the Systematic Assessment of Licensee Performance (SALP), each year. Analysis of technical issues such as radioactive contamination generation in the TMI-2 containment to licensee administrative control over activities affecting safety are reviewed and analyzed.

PUBLISHED ARTICLES AND REPORTS

1. Shore, F.S.; Schamberger, R.D.; Benenson, R.E., Fasano, A.N.; and Dooley, J.A., Transmission of Neutrons Through Cylindrical Ducts compilation, Washington 185, BNL No. R16120 (1955). Presented at reactor shielding information meeting, General Electric - ANP, Dayton, Ohio, 1955.
2. Benenson, R.E. and Fasano, A.N., The Transmission of Fission Neutrons Having Energy Above S32 (np) P32 Threshold by Straight Cylindrical Ducts in Water. WADC T.R. 57-89 ASTIA Document Number AD 118088, 1957.
3. Schamberger, R.D., Fasano, A.N., Thermal and Epithermal Neutron Activation in a Thick Steel Slab. WADC TN 57-347 ASTIA Document No. AD142060, 1957.
4. Fasano, A.N., Some New Types of Neutron Shielding Materials. WADC TN 59-227, 1959.
5. Fasano, A.N., Diffusion of Xenon Through Aluminum Uranium Alloy, Thesis NYU, 1959.
6. Kelley, R.H. and Fasano, A.N., A Gaseous Xenon Thermal Neutron Detector. WADC TN 60-281, 1960.
7. Fasano, A.N., Finston, H. and Segal, R., An Upper Limit to the Diffusion of Xenon Through Aluminum, BNL internal report, 1956.
8. Avery, Thomas W. and Fasano, A.N., Preliminary Design Study for Heavy Water Thermal Column, Engineering Study 59-3, March 4, 1959, internal report.
9. Fasano, A.N., A Description of Proposed Closed Heavy Water Loop, Engineering Study 59-15, August 26, 1959, internal.
10. Day, J.E. and Fasano, A.N., The Parallel Plug Shaft and Parallel Plug, Engineering Study 59-17, September 3, 1959, internal.
11. Rash, Larry A. and Fasano, A.N., High Altitude Study, Engineering Study 60-8, May 17, 1960, internal report.
12. Fasano, A.N., Review of Test Procedures and Shield Consideration for Radiation Testing of a Computer System Under Project 666A, Engineering Study 62-4, August 1962, internal report.
13. Fasano, A.N. and Mahafkey, E.T., Jr., Dynamic Test of Silver Cadmium Cell Exposed to CO-60 Gamma Radiation, Engineering Study 63-1, May 1963, internal report.
14. Schaffer, Louis, et al., Report Nr. 1 and 2 of the NETF Study Group Aeronautical Systems Division, NETF Utilization Study, March 16, 1962.
15. Bohannon, J.R., Jr., et al., Operations Plan, AF, NETF, (co-authored Chapter 7, and adapted the Engineering Planning Document and Preliminary Planning Document, appendix).

16. Fasano, A.N., Dooley, John A., Penaranda, F.E. Lt., Robinson, R.D. MSG and Medrud, Nelder, Jr., Micrometeorological Program at the W-P Nuclear Engineering Test Facility, Engineering Study 64-10, Nov. 15, 1964.
17. Fasano, A.N. and Clark, D.T., North Face Research Accomodations at the Air Force Nuclear Engineering Test Facility, AFIT TR 66-1, January 1966.
18. Fasano, A.N. and Vallish, E.J., Inspection of Reactor Push Rods, AFFDL-ES-65-5, 1966.
19. Buoni, F.B., Fasano, A.N., Hary, L.B. and Hooks, K.R., Fuel Plate Measurements at the Air Force Nuclear Engineering Test Facility. Paper presented at the ANS Meeting, 1967.
20. Baker, J.W., Hary, L.B., Fasano, A.N., Buoni, F.B., AF NETF Primary Coolant Conductivity Study, paper presented at the ANS Meeting, 1967.
21. Dooley, J.A., Fasano, A.N. and Whittenberger, W.W., Fast Neutron Dose Measurements at the Wright-Patterson Air Force Base Nuclear Engineering Center, paper presented at the Toronto ANS Meeting, 1968.
22. Buoni, F.B., Fasano, A.N. and Gwynn, P.S., Experiment Usage Development of the Air Force Nuclear Engineering Reactor, paper presented at the 1968 Winter Meeting.
23. Gorrell, J.H., Thompson, M.F., Polishuk, P. and Fasano, A.N., Capabilities for Non-Destructive Testing by Neutron Activation Analysis at WPAFB, paper presented at the 7th Defense Conference on Non-Destructive Testing, San Antonio, Texas, 1968.
24. Thompson, M.F. and Fasano, A.N., Relative Shutdown Power of the Air Force Nuclear Engineering Center Reactor, Air Force Institute of Technology, TR 69-9, 1969.
25. Fasano, A.N., Kelley, Raymond H. and Clark, D.T., Relative Neutron Flux Distribution Measured in the West Test Cell of the Air Force Institute of Technology Nuclear Engineering Test Reactor, Air Force Institute of Technology TR 69-11, 1969.
26. Soifer, N., Thompson, M.F., Fasano, A.N., Altman, R., Endahl, G., Johnson, G. and Holdsworth, C., Biochemical Studies of Otosclerosis Iorganic Constituents by Neutron Activation Analysis, 1969, accepted for publication in the Acta Oto-Larynologica.
27. Johnson, G.F., Thompson, M.F., Fetterolf, S.K. and Fasano, A.N., Neutron Activation Analysis Technique for Nail Sodium Concentration in Cystic Fibrosis Patients, submitted to Pediatrics, 1970. Published, Pediatrics, Vol. 47, No. 1, Part 1, January 1971.
28. Spreen, D.E., Bauer, A.R., Fasano, A.N., Hagee, G.R and Holloway, J.A., Development of Neutron Radiographic Techniques and Standards at the AFIT Nuclear Engineering Center, AFML-TR (in publishing).

29. Soifer, N., Thompson, M.F., Fasano, A.N., Morrow, J.R., Endahl, G. and Holdsworth, C., Otosclerosis: A Further Investigation of Inorganic Constituents by Neutron Activation Analysis, submitted to Acta Oto-Laryngologica.
30. Martin, R.D., Cresswell, J.S., Fasano, A.N., Hunter, D.R., Martin, T.T., et al, Investigation into the March 28, 1979, Three Mile Island Accident by Office of Inspection and Enforcement, Investigative Report No. 50-320/79-10, NUREG-0600.

AWARDS

1. Sustained Superior Performance, \$250 award - 1964
2. Outstanding Performance Rating - 1965
3. Suggestion Award for Neutron Detector
4. High Quality Performance Step Increase - 1974
5. Investigation - Performance Award as Member of TMI-2 Investigation Team - 1979

CERTIFICATIONS AND REGISTRATIONS

Certified as Reactor Operator at the Air Force Nuclear Engineering Center
- 1968

Region I Inspector Certification

SPECIAL COURSES

1. Nuclear Physics - Brookhaven National Laboratory - 32 hours - 1957
2. Nuclear Engineering I, II, AF Institute of Technology - 1958, 1959
3. Cryogenic Material Usage
4. Critical Path Method
5. Air Force Management I - 40 hours
6. Research and Engineering Management (AMA) - 40 hours - 1965
7. Principals of Laser Holography, USAF Flight Dynamics Lab - 1968
8. Region I - Board Examination - Region I Inspector Certification - 1973
9. Westinghouse PWR Systems and Zion Simulator Course - 1973
10. Pressurized Water Reactor Technology Course Series; Core Physics, System Design and Operation, Instrumentation and Controls, Transient Analysis, Technical Specification - 1976. Overall course grade was 88% - class average grade was 82%
11. Boiling Water Reactor Fundamentals Course - 1977; course grade was 97%, class average grade was 78%
12. General Non-Destructive Testing Course; Radiography, Ultrasonics, Magnetic Particle, Liquid Penetrant, Eddy Current - 1977, course grade was 97%, class average grade was 92%
13. Fundamentals of Inspection Course - 1978
14. Welding Technology and Codes - 1978, course grade was 91%
15. Management Oversight Risk Tree (MORT) - 1979
16. Accident Investigation Workshop - 1979
17. Quality Assurance Training Course - 1979; course grade 100% (Final)
18. Advanced Management Training - 1980
19. Accident Investigation Refresher - 1982
20. Risk Analysis Workshop - 1982
21. Inspection, Report Writing Course - 1982
22. Inspection Report Writing - 1982
23. Critical Elements and Performance Standards - 1982
24. Pressurized Water Reactor Simulator Refresher for Managers - 1983