

AFFIDAVIT OF CRAIG D. LUNDIN

State of Tennessee)
)
Knox County) ss.

CRAIG D. LUNDIN, being duly sworn, deposes and says:

1. My name is Craig D. Lundin. I am a Stone and Webster Engineering Corporation (SWEC) employee, and I have worked for SWEC for 15 years. Currently, I am a loaned manager at TVA, where I have been involved nearly full-time since January of 1986. When I initially commenced my employment with SWEC, I worked with the SWEC Field Quality Control Division performing special tasks, including audits of commercial nuclear power plant job sites. Subsequently, I was assigned as the Assistant Superintendent of Quality Control (QC) at the Beaver Valley Power Station. I held the same position at the Shoreham Nuclear Power Station, and then became the Superintendent of QC at North Anna. Subsequently, I served as the Quality Assurance Manager at River Bend. In 1982, I was promoted to the position of Chief Engineer of the Quality Systems Division of SWEC in our headquarters office in Boston. In that position, I ran the Quality Systems Division, and worked on several special projects, including the construction reinspection at Diablo Canyon, the DeLaval

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diesels inspection for both Long Island Lighting and the TDI owners' group, and quality assurance work at the Clinton and Vogle facilities.

2. Before joining SWEC in 1973, I worked for five years at the Portsmouth Naval Shipyard in the Quality Assurance Department. When I left Portsmouth, I was the manager of nuclear inspection. I also previously worked for Avco as a non-destructive test technician in the aerospace field. I have a bachelor's degree in mechanical engineering (1968) from Lowell Technological Institute. Attached to my affidavit as Exhibit A is my resume.

3. In early 1986, I first came to TVA, along with a number of other SWEC managers and senior managers from various other organizations within the nuclear power industry who were brought on board by Steven White when he became TVA's Manager of Nuclear Power. Our job was to provide whatever assistance we could to Mr. White in developing and implementing a very intensive nuclear recovery program for TVA's nuclear power plants.

4. At TVA, I reported to Mr. Richard Kelly, who then was the senior manager and officer in SWEC in the quality assurance field and who subsequently, in mid-February, 1986, was appointed by Mr. White to become the director of QA in a loaned-manager capacity.

5. As I testified to investigators from the NRC's Office of Investigation (OI) on February 26, 1987, in late-January, 1986, I was asked by a member of Mr. White's immediate staff, Mr. Larry Nace, who was then a senior, non-TVA employee of SWEC, to review the responses that were being prepared by TVA personnel to the issues that had been raised by TVA's Nuclear Safety Review Staff (NSRS) when they met with NRC Commissioner Asselstine in late-1985. These issues were the 11 so-called "perceptions" of the NSRS staff, which apparently led the NRC to write its letter of January 3, 1986 inquiring whether the Watts Bar Nuclear Station was in compliance with 10 CFR Part 50, Appendix B. At the time that Mr. White and I arrived at TVA, the drafting of the response was underway. See In the Matter of Investigative Interview of Craig D. Lundin, February 26, 1987 (Lundin OI Interview) at 5, 30, 85.

6 I spent some time commenting on the draft responses to the NSRS perceptions which ultimately became the attachments to TVA's March 20, 1986 letter to the NRC. In doing so, I worked with TVA personnel, many of whom were located at the Watts Bar site. My draft review role continued as the responses evolved during the month of February.

7. In the course of reviewing and commenting on the draft responses, Mr. Kelly and I agreed that it would be

prudent to conduct a short-term evaluation of the specific concerns that had led to the NSRS' perceptions. Our purpose in doing this review was to validate the adequacy and accuracy of the information that was being generated by TVA's line organization. In our view, it was an important means of obtaining confidence in the factual information that had already been accumulated by TVA personnel. See Lundin OI Interview at 5-6. It also seemed to be the most efficient way to test the validity of the NSRS perceptions. See Lundin OI Interview at 53-54, 85.

8. Mr. Kelly and I agreed that in conducting this review, we should utilize a group of non-TVA personnel, who we thought would be objective in their analysis. We also wanted people with the appropriate experience to go out into the field and ask appropriate questions, look at appropriate documents and, where warranted, observe activities at the plant. This means that we needed senior-level personnel who had worked or were working at near term operating licensed plants (NTOLs), who were experienced in the technical issues that were involved there, and who would understand the Appendix B significance of the information they were obtaining. See Lundin OI Interview at 6, 53, 79-80.

9. The group of individuals that we selected were experienced SWEC employees, who had had from 12 to 27 years of experience in the nuclear field. Most of the individuals

had about 14 years of experience in the nuclear energy field. All of these individuals had NTOL experience. Their particular fields of expertise varied; some of these individuals worked in SWEC's QA organization; others were in construction or engineering. We spent considerable time matching the particular subjects of inquiry with personnel qualifications in order to have a suitable mix of people in the group. This group subsequently became known as the "Lundin group", since the group reported to me.

10. I did not require the Lundin group to conduct a formal review, for I believed that the more formal a review, the more time consuming and cumbersome the review process would be. I wanted them to focus their efforts, as they did, in the field. Based on their field work, I wanted them to describe to me, as they did, what they found. Their activities included field observations and reviews of documentation. They also met with technical personnel in the disciplines in question. They met together as a group and had daily exit meetings where they shared the information they had accumulated during the day. I was briefed by them continuously. I then briefed Mr. Kelly, with whom I was in daily contact. The Lundin group worked for several extended (10-12 hour) days. It was an intensive effort. When the review was completed, I also met with a small group of people, including Mr. Mason, Mr. Mullin and others to present

the results of our efforts. See Lundin OI Interview at 75-82.

11. In my judgment and experience, the work of the Lundin group constituted an intensive, short-term review of the bases for the NSRS' perceptions. Although that review was not highly formalized, as I told OI, on the basis of this review, I was then able to form an independent opinion about the conclusions reached by the NSRS based on their perceptions of the eleven issues. Lundin OI Interview at 53-54, 89.

12. During my OI interview, I was asked by OI whether the Lundin group's independent review was intended to determine whether Watts Bar was in compliance with Appendix B or not. See Lundin OI Interview at 53. I also am aware that the NRC Staff in its recent proposed Notice of Violation to TVA (October 21, 1988) has referred to this statement, by implication, suggesting that we did not do what we purported to do. This implication is not accurate. The purpose of my statement to OI, which was quoted only partially, was to indicate that the scope of the efforts of the Lundin group was designed to be and, in fact, was narrower than a review of all aspects of Appendix B. As I told OI in February, 1987, the Lundin group's review was focused on the eleven issues identified by the NSRS. The purpose of the review was either to validate the conclusions reached by the NSRS on the

basis of their perceptions of eleven issues, or to say that their conclusions could not be validated on the basis of the information on which the NSRS had relied. See Lundin OI Interview at 53-54.

13. The Lundin group's review did not support the conclusions that the NSRS had reached based on their perceptions of the eleven issues. See Lundin OI Interview at 57-74.

14. I did not participate in the preparation of the June 5, 1986 letter from TVA to the NRC. Nevertheless, as I told OI, it was my impression that the reference to the "group of outside individuals with significant and extensive nuclear QA experience in the areas questioned", who "conducted a review of each one of the perceptions" was a reference to the Lundin group. See Lundin OI Interview at 74. In fact, this is what the Lundin group did.

15. Furthermore, I would interpret the reference in the June 5 letter to "this group's findings" to the conclusions of the Lundin group which, while not set forth in a formal document, were reflected in the validated responses to the NSRS perceptions. These responses subsequently were attached to the March 20 letter to the NRC. As I told OI, the people who reviewed the Lundin group's findings were "the individuals upstairs," who worked directly with Mr. White,

namely "the Wegners, Kelleys, etceteras". Lundin OI
Interview at 74-75.

16. In its proposed NOV, the NRC Staff describes my two-page memorandum, which summarized the Lundin group's effort, as the "Lundin effort," and appears to suggest that it was this memorandum that was reviewed by the senior non-TVA personnel. In fact, the findings of the Lundin group were reflected in the attachments to the March 20 letter, which were modified where the information contained in those responses could not be validated through the Lundin group's efforts.



Craig D. Lundin

Subscribed and sworn to before me
this 17 day of November, 1988.



Notary Public

My Commission Expires: 9-23-91

LUNDIN, CRAIG D.

MAY 1988

CHIEF ENGINEER
QUALITY SYSTEMS DIVISION

EDUCATION

Lowell Technological Institute - B.S. Mechanical Engineering - 1968
Various SWEC Continuing Education Courses and Management Workshop

EXPERIENCE SUMMARY

Mr. Lundin has been employed in the aerospace, shipbuilding and nuclear power industries in Quality Assurance/Quality Control since 1968. As Chief Engineer, Quality Systems Division, he is responsible for establishing and directing all Department programs in systems development, procedures and publications, continuing education, specification review, inspection planning, quality related reports, data analysis, and licensing support. Mr. Lundin provides the Quality Assurance interface for the Plant Services Department. Since joining SWEC in 1973, he has held the positions of Quality Assurance Engineer, Quality Assurance Auditor, Assistant Superintendent of Field Quality Control, Superintendent of Field Quality Control, and Project QA Manager.

He is currently on temporary assignment with the Tennessee Valley Authority (TVA) Watts Bar Nuclear Power station as a Task Team Leader, as part of the overall recovery program and also acts as TVA's Weld Program Manager directing the activities resolving TVA's welding related issues with the NRC.

Mr. Lundin has performed special projects which have included the QA sponsorship of a Third Party Evaluation of Construction Quality Assurance at Diablo Canyon Nuclear Power Plant, which included providing expert testimony at the ASLB Hearings, and the overall direction of the SWEC QA involvement with the TDI Diesel Owners Group which included supervision of the inspection of the Shoreham Nuclear Power Station Emergency Diesel Generators. He has also performed Inspection Program evaluations at Clinton and Rancho Seco, and participated in the Georgia Power Readiness Review Program as Technical Consultant in the Quality Assurance Areas.

Assigned to the Field Quality Control Division in Boston Headquarters as an Auditor, he was responsible to the Headquarters Auditing Supervisor and performed audits of FQC operations at various construction sites. He was then assigned to the Beaver Valley Power Station as an Assistant Superintendent, FQC responsible for the quality control of piping/welding, concrete and structural steel, and mechanical equipment; providing management reports and assuring proper training and utilization of engineers, inspectors, and technicians under his supervision. Mr. Lundin was assigned to the Shoreham Nuclear Power Station as an Assistant Superintendent FQC, where he was responsible for supervision of site QA/QC functions including inspection, NDT, and documentation. He was then

assigned to North Anna Power Station, Units 1,2,3&4, as the Superintendent of FQC. He was responsible for directing the activities of FQC personnel at the project construction site and coordinating and planning all efforts relating to FQC during construction and support to operations. He was assigned to River Bend Power Station, Unit 1 as Project Quality Assurance Manager with overall responsibility for implementation and performance of Quality Assurance Program on the project.

Prior to SWEC, Mr. Lundin held responsible positions in Quality Control and Quality Assurance activities in the nuclear shipbuilding industry. His last position being the Head of the Nuclear Inspection Branch.

Mr. Lundin has working knowledge of necessary Quality Assurance Criteria, 10CFR50, and Codes, B.31.1, B.31.7, ASME III and Standards NEMA, IEEE, IPECA, for nuclear power plants.

PROFESSIONAL AFFILIATIONS

American Society of Mechanical Engineers - Member
American Society of Quality Control - Member

DETAILED EXPERIENCE RECORD
LUNDIN, CRAIG D. 54585

STONE & WEBSTER ENGINEERING CORPORATION, BOSTON, MA (Jun 1973 to Present)

Appointments:

Chief Engineer - Jul 1982

Project QA Manager - Apr 1979

Superintendent of Field Quality Control - Apr 1977

Assistant Superintendent of Field Quality Control - Feb 1974

Auditor - Jun 1973

Quality Systems Division (Jul 1982 to Present)

Watts Bar Nuclear Power Station (Feb 1987 to Present)

Assigned as WELD PROGRAM MANAGER, responsible for the overall recovery program and currently acts as TVA's Weld Program Manager directing the activities resolving TVA's welding related issues with the NRC.

As CHIEF ENGINEER, QUALITY SYSTEMS DIVISION, responsible for overall management of the Division consisting of approximately 30 people. This activity covers all department programs in Systems Development (procedures and publications), Education and Media (continuing education), Engineering Support (specification review and inspection planning), Reports and Analysis (data analysis), Code and Standards (ASME Code interpretations and replies), and Licensing support (preparation of testimony and support for hearings). Mr. Lundin's present assignment includes representation of the QA Department on special assignments such as third party Quality Assurance Program evaluations, Operations Quality Assurance and quality/technical validations such as the TDI Diesel Owners Group.

River Bend Power Station - Unit 1 (Apr 1979 - Jul 1982)

As PROJECT QUALITY ASSURANCE MANAGER, reporting to the Vice-President of Quality Assurance, Boston Headquarters. Responsible for overall direction, implementation, and performance of the Quality Assurance program at River Bend.

North Anna Power Station (Apr 1977 - Apr 1979)

As SUPERINTENDENT OF FIELD QUALITY CONTROL, responsible to the Division Manager of Field Quality Control for overall direction of all of the activities of the FQC Division.

Shoreham Nuclear Power Station (Jun 1975 - Apr 1977)

As ASSISTANT SUPERINTENDENT OF FIELD QUALITY CONTROL, responsible for the supervision of the site QA/QC functions including inspection, NDT and documentation.

Beaver Valley Power Station (Feb 1974 - Jun 1975)

As ASSISTANT SUPERINTENDENT OF FIELD QUALITY CONTROL, assigned the responsibilities for providing direction and guidance of QA/QC program requirements to FQC personnel, construction supervision, contractors and craft personnel. Also, duties consisted of being responsible for Quality Control of piping/welding, management reports and assuring proper training and utilization of engineers, inspectors and technicians under his supervision.

Field Quality Control Division (Jun 1973 - Feb 1974)

As an AUDITOR, responsible to the Headquarters Auditing Supervisor and performed audits of Field Quality Control operations at various construction sites.

PORTSMOUTH NAVAL SHIPYARD, KITTERY, ME (Jun 1968 - Jun 1973)

As HEAD, NUCLEAR INSPECTION AND TEST BRANCH (Jun 1972 - Jun 1973), duties included the responsibilities for timely and adequate performance of all final inspections and nondestructive tests of all Nuclear Reactor Plant components and systems at the shipyard.

As ASSISTANT TO THE NUCLEAR QUALITY ASSURANCE MANAGER (Jun 1970 - Jun 1972), evaluated/revised, developed, and implemented quality assurance programs related to the nuclear reactor plant and related systems.

As GENERAL ENGINEER (Jun 1968 - Jun 1970), active in quality control and quality assurance activities in the shipbuilding industry. Responsible initially for preparing quality control and quality assurance procedures and for revising existing procedures for use in all manufacturing and repairs performed at Portsmouth.

AVCO AEROSPACE DIVISION, LOWELL, MA (Feb 1968 - Jun 1968)

As NON-DESTRUCTIVE TEST TECHNICIAN, performed and/or assisted in the performance of ultrasonic tests, magnetic particle tests, and radiography on aircraft components and the Apollo Space Capsule heat shield.