UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
HOUSTON LIGHTING & POWER COMPANY	)	Docket No. 50-466
	)	
(Allens Creek Nuclear Generating Station, Unit 1)	)	

AFFIDAVIT OF FELIX B. LITTON
CONCERNING DOHERTY CONTENTION 35

My name is Felix B. Litton. I am employed by the Nuclear Regulatory Commission in the Materials Engineering Branch. I have been so employed since 1975. A statement of my professional qualifications is attached.

The purpose of my affidavit is to address Doherty Contention 35, which reads as follows:

> Applicant will be unable to provide safe welding of piping at ACNGS without costly repairs to such welding or danger to petitioners health and economic interests in the event of pipe break as a result of such welding not being rewelded when it should have been. Welding at Comanche Peak Nuclear Steam Station, Units 1 & 2 in Somerville County, Texas, has been done frequently by persons being trained to be welders prompting large frequency of rewelding and seven meetings between NRC officials and the utility representatives. This Intervenor says the same situation is likely to occur here due to a shortage of trained employees and less than union wages from Applicant's constructor, Ebasco. Intervenor contends Applicant should be required to present a program for training persons before they weld at the ACNGS site and to require a pay scale for employees of all contractors for welding and welders equal to union wages for welders at similar construction conditions, in order to assure continued employment of such welders.

Criterion IX of Appendix B of 10 C.F.R. Part 50 requires that measures be established to control special processes, including welding, and that they be performed by qualified personnel using procedures conforming to the applicable codes, standards, and specifications. For welding qualification, the applicable standards (per Appendix B) are contained in Section IX of the ASME Boiler and Pressure Vessel Code. In Section 3.6.3.1.1.5.3.2 of the Allens Creek Nuclear Generating Station Unit 1 Preliminary Safety Evaluation Report, Houston Lighting and Power Company states that welders shall be trained to perform welding procedures to the standards required by the above-mentioned section of the ASME code. In order to ensure ductile behavior of the welds for the Allens Creek facility, Houston Lighting and Power Company requires, in addition to the ASME code requirement, that Charpy-V notch impact tests be performed as part of the weld qualification tests.

Section IX of the ASME Boiler and Pressure Vessel Code does not control the basic or fundamental training of the welder or welding operator. The intent of the code is to ensure that the welder or welding operator perform the welding procedures specified for the facility to make sound welds, which possess the necessary mechanical properties. Performance qualification tests are required by Section IX of the code from each manufacturer or contractor to qualify each welder or welding operator for each welding procedure or process to be used in the production welding. If, during the performance qualification tests, it becomes apparent to the supervisor

conducting the tests that the welder or welding operator does not possess the skill to produce satisfactory welds, the tests are terminated and the welder or welding operator disqualified.

The type and purpose of the tests and examinations required for the Welding Procedure Qualifications are stated in Article III of Section IX of the ASME code. The actual test may be selected from a group of tests required for a particular Welding Procedure Qualification. The Houston Lighting and Power Company requires that Charpy-V notch impact tests be performed in addition to the particular Section IX requirements. The tests that are required by the code may be Tension Tests, Guided Bend Tests, Notch-Toughness Tests, Fillet-Weld Tests, and other tests and examinations, including Radiographic and Macro-scopic Examination. The acceptance criteria are stated with the the test requirements.

In compliance with Section IX code requirements, Houston Lighting and Power Company has established a Quality Assurance Program at the Allens Creek Nuclear Generating Station Unit 1 and has developed written procedures and controls for fabrication of components to ensure that production welding is performed by qualified personnel. Additional fabrication welding and welding during construction at the site will be governed by procedures developed pursuant to Appendix B and ASME Code requirements. These procedures describe the welding to be performed and the documentation required. Conformance to these requirements is assured by a review of the procedures and controls by authorized inspectors and audits to verify implementation.

The Applicant and its architect engineer are responsible for testing and documenting the adequacy of production welds. This documentation is then audited by the Commission's Office of Inspection and Enforcement to ensure that the production welds possess the necessary mechanical properties. The Office of Inspection and Enforcement has conducted inspections since 1974 for the Allens Creek Nuclear Generating Station Unit 1 for the implementation of the Quality Assurance Program by the Houston Lighting and Power Company. The inspections consisted of selective examination of procedures and representative records, interviews with personnel, and observations by the inspectors. No deviations were identified within the scope of the inspection in the most recent report.

With regard to Mr. Doherty's allegation that there is a shortage of trained welders, the short answer is that until the individuals who are to perform the production welding at Allens Creek pass the qualification tests, no production welding will be performed.

Therefore, the conduct of safe welding operations at Allens Creek will be assured by (1) the requirements of 10 CFR Part 50, Appendix B which mandate appropriate welder qualification, (2) the testing requirements of the ASME code and the Applicant, (3) the examination of production welds by the architect engineer and Applicant to verify that they possess necessary mechanical properties, and (4) the audit of those tests by the Office of Inspection and Enforcement.

The foregoing affidavit was prepared by me and I swear that it is true and correct to the best of my knowledge, information and belief.

Felix B. Litton

Subscribed and sworn to before me
this 6th day of August, 1980.

Notary Public

My Commission expires: July 1, 1982 .

PROFESSIONAL QUALIFICATIONS

FELIX B. LITTON

I am a Senior Materials Engineer in the Materials Engineering Branch of the Office of Nuclear Reactor Regulation, Nuclear Regulatory Commission. I am assigned to the Inservice Inspection and Component Integrity Sections and my duties involve the review and evaluation of materials and processes used in the construction and operation of components in the nuclear power industry.

My education consists of a B. S. (1936) and M. S. (1937) degree in Physical Chemistry from Virginia Polytechnic Institute, Blacksburg, Va. I have completed additional study in Material Science at the University of New Mexico and have taken special courses in Fracture Mechanics and other job oriented courses at Union College and George Washington University.

Prior to joining the Nuclear Regulatory Commission, my experience consists of metallurgical research related to the preparation, fabrication and alloy formation of new structural materials for nuclear, advanced aircraft and high temperature application. I have published in technical journals on the environmental behavior, thermodynamic stability and mechanical properties of uranium, plutonium, vanadium, zirconium, tetanium, hafrium and silicon and their alloys. Although my primary experience in ferrous metallurgy has related to the cause of material failure in service, I have managed metallurgical research on welding and welding processes.

the reactor.

Q. A Class 9 accident at another plant 60 miles away?

A. That would do I think.

Q. Is that it? A Class 9 accident 60 miles away will be abandoning Allens Creek for 30 years?

A. A lower accident might also do it.

Q. Let's go to your last contention on welder training. That's number 35.

How did you surmise that there's a shortage of trained employees?

A. There aren't any employees.

Q. It's your contention, Mr. Doherty.

A. No. I said there will be. Well, up in Dallas there's a shortage of trained employees, and there's been some poor welding reported at --

Q. Let's deal with these in incriments.

A. These are to employ your question.

Q. The fact that they've had welding problems at South Texas indicates that there's a shortage of welding employees?

A. It may be well to go in and find out that that's not the case. That they are well trained, but they are not doing their job.

Q. Do you have any other factual basis that

there will be a shortage of trained employees other than the alleged problems at Comanche Peak and South Texas?

A. No. Nothing definite. Gossip.

Q. How did you surmise that an ASCC will say --

A. You've forgotten that Ebasco, to my knowledge, was to be removed.

Q. And that portion was dropped in the contention?

A. In the Board's order and at the licensing hearing it was reported to me that if Ebasco is a union business, which our understanding is, that that part is not part of the contention any longer.

Q. All right. We'll consider that withdrawn.

Have you examined HL&P's or Ebasco's welding procedures or QA and QC procedures relative to welding?

A. No, I don't think so.

Q. So you have no basis for commenting on the sufficiency of those procedures

A. Not of those procedures as written, no.

Q. Let me focus now on what exactly is the

definitive factual basis for this contention.

You allege that there is potential absence of trained employees due to occurrences at Comanche Peak and at South Texas. What other facts will contribute to that?

A. The shortage that you're concerned about?

Q. Yes. The shortage. What else will contribute to improper welding?

A. Inadequate training.

Q. Have you examined HL&P's or Ebasco's procedures for training, welding or training welders or qualifying welders or the re-qualifications of welders or any other part of QA and QC procedures for monitoring welding?

A. No.

Q. So is it just speculation on your part that there will be improper training?

A. Well, the back up we've already mentioned on this contention.

Q. I'm sorry.

A. Unless I misunderstood what you said.

Q. How do you know that Ebasco's training of its welders will be inadequate?

A. At this moment, I do not know that Ebasco's part in this will be inadequate.

Q. Well Ebasco is the constructor, is it not? Ebasco will be doing the welding, so I don't know who's part other than Ebasco's we're talking about.

A. HL&P has a part, too.

Q. Is it your understanding that HL&P will be doing some welding?

A. It's my understanding that HL&P will be part of the QC and whatever HL&P -- HL&P is in a position to influence that aspect of it.

Q. What will be inadequate about HL&P's role in welding QA or QC?

A. Perhaps, they'll simply not support QC sufficiently which has been reported at the South Texas Project.

Q. So --

A. They are unwilling to do that.

Q. Has there been reports that whatever alleged deficiencies occurred in HL&P's management have contributed to the problems in welding?

A. As I read the report here a couple of weeks ago, yes. A proprietary report.

Q. Can you give me references or pages in that report that make that connection between

HL&P's QA management and welding?

A. No. I didn't take down any page numbers.

Q. Was that report an assessment of HL&P's QA program?

A. I don't recall that it was of that.

Q. As I understand the report, it was an investigation only of Brown & Root's QA program?

A. Yes. But HL&P was involved in it.

Q. Did the study concern itself with HL&P QA or only Brown & Root QA?

A. Both.

Q. Do you know that for a fact?

A. I believe it would be impossible for the two to be separated completely and purely.

Q. All right. If you're mistaken as to that fact, do you have any other basis for your assertion that HL&P management will contribute to welding problems in the future?

A. If HL&P has nothing to do with the problems at South Texas Project?

Q. Well, your only basis for an assertion that HL&P has something to do with the welding problems at the South Texas Project is the proprietary report you referenced.

Now is there some disagreement what that

even discusses?

A. Well, there's another basis, too. I don't think I brought it with me. It's a Federal Register Notice which I think you must know or must have.

Q. Yes.

A. That indicates that HL&P in some way is responsible for making certain that the constructor follows the QC patterns.

Q. There's no doubt about that.

A. So maybe the question is too hypothetical.

Q. No. I believe more importantly the question is too specific. Do you have a factual basis for the assertion that HL&P's management of QA and QC at South Texas has contributed to any alleged welding problems there?

A. If you're asking can I prove --

Q. Ultimately that's what we're going to get to in this proceeding is proof.

A. Well --

Q. Then maybe it's as simple as this: Is it correct that there's evidence to show that HL&P has not properly supervised QA-QC, and that you then conjecture that this improper

supervision can manifest itself. In welding problems at Allens Creek?

A. Yes. I think there is by virtue of the fact that the NRC has been after HL&P for -- specifically in that statement in the Federal Register. I think of May 1.

Q. You're saying that the NRC faulted HL&P specifically as to its welding management?

A. No. Its QC.

Q. All right. But not specifically to welding --

A. Well --

Q. -- to your knowledge?

A. I'll try to find --

Q. Well, the document speaks for itself.

A. The document is addressed to you.

Q. I don't think my name appears anywhere in there?

A. Sorry. To your employer here in this case.

Q. My client, perhaps. What's your experience with welding?

A. None.

Q. All right.

A. I've never welded anything.

Q. Would you know a bad weld if you saw one?

A. Some.

Q. How would you recognize it?

A. It wouldn't be strong enough to support what it was supposed to do. You could break it in your hands or something like that.

Q. So if you were able to physically separate the weld, that would be --

A. One way, yes.

Q. -- method of testing its ability of a weld?

A. Yes.

Q. Is that how welds are normally tested?

A. No. They are, at least in nuclear, often x-rayed, or some times they are impact tested.

Q. Do you know anything about having familiarity with radiography?

A. I've never done any radiography.

Q. You have no expertise in welding or radiography?

A. No.

Q. Do you have anything in QA or QC control?

A. It's Greek to me.

Q. All right. Fine

MR. BIELLO: That's all I have, Mr. Roherty

SUBSCRIBED AND SWORN to before me, the undersigned authority, on this the day of , 1980

Notary Public in and for
Harris County, Texas