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 DENTON, Office of Nuclear Reactor Regulation, Director (post B51125)

SUBJECT: Forwards response to Generic Ltr B6-04, "Policy Statement o  
 Engineering Expertise on Shift." Util does not utilize  
 equivalency criteria to engineering degree.

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Iowa Electric Light and Power Company

May 14, 1986  
NG-86-1477

Mr. Harold Denton, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Subject: Duane Arnold Energy Center  
Docket No: 50-331  
Op. License No: DPR-49  
Response to Generic Letter 86-04, Policy  
Statement on Engineering Expertise On Shift  
Reference: NRC Letter dated February 13, 1986, "Policy  
Statement on Engineering Expertise On Shift"  
(Generic Letter 86-04)  
File: A-107a, A-202, A-203

Dear Mr. Denton:

Attached to this letter please find our responses to those questions found in the referenced letter. Please contact this office if you require further information.

Very truly yours,

*David L. Wilson for*

Richard W. McGaughy  
Manager, Nuclear Division

RWM/MSG/ta\*

Attachment: Response to Generic Letter 86-04

cc: M. Grim  
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RESPONSE TO GENERIC LETTER 86-04  
"POLICY STATEMENT ON ENGINEERING EXPERTISE ON SHIFT"

Generic Letter 86-04, Policy Statement on Engineering Expertise On Shift, requested that all power plant licensees and applicants for power reactor licenses respond to questions regarding plans for meeting current requirements for providing engineering expertise on shift (NUREG-0737, Item I.A.1.1) and licensed operator staffing requirements (10 CFR 50.54(m)(2)).

In order to keep the NRC apprised of the current status of, and future plans for, the Shift Technical Advisor (STA) and dual role programs in the industry, we were requested to state our intentions regarding:

1. Our current program for providing engineering expertise on shift;
2. If our current STA program utilizes an "equivalency" criteria to an engineering degree, a description of the criteria used; and,
3. A description of any modifications we intend to propose to our current program in order to take advantage of the options identified in the Commission's Policy Statement (Generic Letter 86-04).

Response to Question 1

The Iowa Electric Duane Arnold Energy Center currently utilizes the Shift Technical Advisor position for providing engineering expertise on shift. The STA is required to be within 10 minutes of the control room at all times, except when the reactor is in a Cold Shutdown Condition. The STA responsibilities include service in an advisory capacity to the Operations Shift Supervisor during off-normal reactor plant conditions. Routine STA duties include engineering evaluation of daily plant operations. Currently, each on-shift STA possesses a bachelor's degree in either a scientific or engineering discipline. Additionally, all STAs must successfully complete a forty-two (42) week hot licensing training course.

The Operations Shift Supervisor position also contributes engineering expertise in the control room, as approximately 50 percent of the Shift Supervisors possess engineering or scientific degrees.

Response to Question 2

Iowa Electric does not utilize an equivalency criteria to an engineering degree. If a prospective candidate possesses an engineering degree, he may enter the STA program. If the prospective candidate possesses a scientific degree, he may also enter the STA program provided his academic background included the following "core" courses:

Subject

Contact Hours\*

Mathematics (Trigonometry,  
Analytical Geometry,  
College Algebra)

90

<u>Subject</u>	<u>Contact Hours*</u>
Chemistry (Inorganic Chemistry)	30-45
Physics (Engineering Physics [Heat, Mechanics, Light, Sound, Electricity and Magnetism])	120-150
Mathematics (Engineering Mathematics through the solution of first-order linear differential equations associated with topics presented in this program)	90
Thermal Sciences	120
Thermodynamics	
- Laws of Thermodynamics	
- Properties of Water & Steam	
- Steam Cycles	
- Efficiency	
Fluid Dynamics	
- Bernoulli's Equation	
- Fluid Friction & Head Loss	
- Elevation Head	
- Pump & System Characteristics	
- Two-Phase Flow	
Heat Transfer	
- Methods of Heat Transfer	
- Boiling Heat Transfer	
- Heat Exchangers	
Electrical Sciences	60
Electronics (Circuit Theory, Digital Electronics)	
- Motors	
- Generators	
- Transformers	
- Switchgear Instrumentation & Control Theory	

\*For courses completed at an accredited college, a semester credit hour is considered equivalent to 15 contact hours.

Note: The above criteria is based upon the INPO Recommendations for Shift Technical Advisor - April 1981, Revision 1. The remainder of the STA course work follows the INPO document and is taught by the Iowa Electric Training Department.

### Response to Question 3

Presently, Iowa Electric does not plan to modify our STA program, although this might be reevaluated in the future. We believe the on-shift STA is productively occupied with daily control room activities (such as maintaining logs, participation in shift turnover activities, monitoring plant parameters, performing calculations and other duties assigned by the Operations Shift Supervisor) and is an asset to the continued safe operation of the plant.