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UNITED STATES GENERAL ACCOUNTING OFFICE  
WASHINGTON, D.C. 20548

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JAN 19 1973

RESOURCES AND ECONOMIC  
DEVELOPMENT DIVISION

B-164105



Dear Dr. Schlesinger:

The General Accounting Office has surveyed the reactor inspection program of the Atomic Energy Commission (AEC). Under this program AEC carries out its statutory responsibility for insuring that nuclear power reactors are constructed and operated in a manner consistent with public health and safety. 743

Our survey concerned how AEC Headquarters was managing the reactor inspection program and how two AEC regional compliance offices, Glen Ellyn, Illinois, and Berkeley, California, were implementing it. As of June 30, 1972, 26 reactors were in operation, 51 were under construction, and 66 were on order.

Electric utility companies authorized by AEC to construct or operate nuclear power plants are commonly referred to as reactor licensees. AEC's Division of Compliance was responsible for regulating these licensees, but on April 25, 1972, while our survey was in process, major organizational changes were made in AEC's regulatory organization, and the functions of the Division of Compliance were transferred to the newly established Directorate of Regulatory Operations.

Because of the many changes being made in the regulatory organization, including the designation of new management officials, we decided at the end of our survey not to proceed with a detailed review of those areas which we thought needed further management attention but, instead, to present our survey findings and recommendations to AEC officials so they could take early corrective action.

On September 15, 1972, we orally presented our findings and recommendations to the Director of Regulation and three of his top management officials in the Directorate of Regulatory Operations. In a letter dated November 22, 1972, the Director of Regulatory Operations recognized the need for increased effort in each area of our findings and stated that plans responsive to our recommendations had been developed.

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This report summarizes our recommendations and the responses furnished by AEC officials. Should you or any of your staff desire further details, we will be pleased to furnish them to you.

AEC SHOULD PROVIDE ADDITIONAL GUIDANCE  
TO REACTOR INSPECTORS

AEC has 18 quality assurance criteria which licensees are expected to follow and which AEC inspectors are to use when they determine the effectiveness of a licensee's quality assurance program during onsite inspections. This determination is the basis for the regulatory decision on whether there is reasonable assurance that a licensee and his contractors have constructed a reactor in accordance with regulatory requirements and whether the plant can be operated safely.

We analyzed the 18 criteria (set forth in title 10, part 50, appendix B of the Code of Federal Regulations, effective July 1970), and found that 21 terms, in our opinion, are subject to considerable subjective interpretation. For example, the first sentence of criterion IV states that:

"Measures shall be established to assure that applicable regulatory requirements, design bases, and other requirements which are necessary to assure adequate quality are suitably included or referenced in the documents for procurement of material, equipment, and services ..."  
(Underscoring supplied)

This sentence raises three questions:

What are the acceptable measures that can be established?

What are the "other requirements which are necessary"?

What constitutes suitable inclusion?

Regional AEC compliance office inspectors have stated that terms such as "necessary" and "adequate" are nondefinitive and are therefore impossible to measure. The Chief of the Construction Branch at one of the regional offices we visited advised AEC Headquarters in May 1972 of the need for "positive interpretation guidelines with respect to each of the 18 criteria."

We believe that AEC, to insure that all matters considered necessary by AEC management will be covered by inspectors, needs to provide its inspectors with (1) more guidance on what constitutes an effective and working quality assurance program and (2) a well-defined, minimum scope of inspection.

Without more thorough guidance to inspectors, it appears likely that decisions about the acceptability of licensees' quality assurance programs and the depth of inspections necessary to make such decisions will be made more on the basis of individual judgment than on the basis of established criteria.

#### Recommendation

To improve the effectiveness of the reactor inspection program, we recommend that AEC:

- Provide its inspectors with guidance as to what constitutes acceptable methods of implementation of the 18 quality assurance criteria contained in 10 CFR 50, appendix B.
- Develop a well-defined, minimum inspection program that would provide inspectors with the guidance needed to carry out program objectives.

In commenting on these matters, the Director of Regulatory Operations stated that AEC's inspection program had been carried out by highly qualified personnel with guidance from headquarters and in accordance with written procedures and had been continually upgraded but that, because of other priorities, had not been upgraded to the extent desired particularly in those areas pointed out during our presentation.

In addition he stated that:

"With the increase in construction inspection workload, and increased emphasis on QA [quality assurance] (implementation of 10 CFR 50, Appendix B), we recognize that there is some need for more specific guidance for our inspectors and for sharpening the definition of the inspection process requirements. More guidance in the inspection process as to the application of the 18 QA Criteria by the licensee is a recognized goal."

Specifically, the Director advised us that AEC had surveyed existing guidance--formal and informal--for assessing the implementation of 10 CFR 50, appendix B, and had provided the regional compliance offices

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with a bibliography of all guidance reflecting AEC policy in November 1972. He also stated that a composite of formal and informal guidance would be provided to the regional compliance offices by March 1, 1973.

The Director stated that AEC was developing a well-defined, minimum scope of inspection and that AEC had updated draft procedures for quality assurance inspections in November 1972. AEC expects that this effort will be completed by March 1, 1973.

AEC SHOULD REQUIRE CERTAIN  
OPERATING REACTOR LICENSEES TO UPGRADE  
THEIR QUALITY ASSURANCE PLANS

In March and April 1971 AEC asked 13 utilities to submit descriptions of their quality assurance plans for operating reactors. In commenting on these plans in November 1971, the Assistant Director for Inspection and Enforcement, Division of Compliance, said that none of them adequately addressed the requirements of the 18 quality assurance criteria. He stated that the licensees should be required to upgrade their plans; otherwise, tacit approval of the licensees' quality assurance programs was implied.

AEC did not formally ask the licensees to upgrade their quality assurance plans. The Chief, Reactor Testing and Operations Branch, Division of Compliance, and a senior reactor inspector at one of the regional compliance offices we visited told us that AEC had no basis for citing these licensees for not complying with the 18 quality assurance criteria because tacit approval had been given to the licensees' quality assurance plans.

Recommendation

We recommend that AEC require the operating reactor licensees to upgrade their quality assurance plans to improve the basis for evaluating the adequacy of licensees' quality assurance programs.

In commenting on this recommendation, the Director of Regulatory Operations acknowledged that the licensees' current plans did not provide as good a basis for operational quality assurance as was desirable and stated that AEC planned to ask the licensees to upgrade their plans.

INCREASED EMPHASIS ON INSPECTORS' REVIEW  
AND EVALUATION OF LICENSEES'  
QUALITY ASSURANCE AUDITS

Criterion XVIII calls for licensees to have a comprehensive system of planned and periodic audits. Appropriately trained personnel who do not have direct responsibilities in the areas being audited should verify licensees' compliance with their quality assurance programs and determine the effectiveness of the programs.

An official of the regional AEC compliance office in Glen Ellyn told us that the AEC inspectors had not emphasized reviewing licensee quality assurance audits at plants which had been under construction for quite some time because the quality assurance manuals for these reactors, written before the issuance of 10 CFR 50, appendix B, did not clearly define provisions for performing quality assurance audits. On the other hand, inspectors in the regional compliance office in Berkeley told us they generally reviewed licensees' audit reports during their inspections.

In our opinion, the systematic, consistent review and evaluation of licensees' quality assurance audits by AEC inspectors is important to help AEC determine (1) whether a licensee has an effective and working quality assurance program and (2) the extent to which such audits can be relied on to help insure licensee compliance.

Recommendation

We recommend that AEC require its reactor inspectors to systematically and consistently review and evaluate licensees' quality assurance audits.

In commenting on this recommendation, the Director of Regulatory Operations stated that:

"The QA inspection procedure will be revised to place emphasis on this point. The point was emphasized in a meeting held with field Reactor Construction Branch Chiefs in Headquarters on September 20, 1972."

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We believe that the actions planned by AEC, if adequately implemented, should help improve the effectiveness of its reactor inspection program.

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We appreciate the courtesy and cooperation extended to our representatives during the survey and would like to be advised of any additional actions planned or taken.

Copies of this report are being sent to the Director, Office of Management and Budget; the Chairman, Joint Committee on Atomic Energy; and the Appropriations and Government Operations Committees of both Houses of Congress. <sup>1300</sup>  
<sub>21500</sub>

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Sincerely yours,

*Henry Eschwege*

Director, Resources and  
Economic Development Division

The Honorable James R. Schlesinger  
Chairman, Atomic Energy Commission 743