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HOW A LAWYER "BUILDS" A NUCLEAR POWER PLANT

ROBERT P. GARBARINO†

AS A RESULT of the daily references in the news media to the Geneva test ban discussions, the resumption of nuclear testing by Russia and the United States and the activities of the various "ban the tests" groups, no doubt the words "nuclear power" mean to many lawyers, and to a substantial portion of the public in general, a frightfully destructive atomic or hydrogen bomb. This, of course, is not surprising since the atomic age came into being with the dropping of the atomic bomb on Hiroshima in 1945. However, in the relatively short space of time which has elapsed since that devastating explosion, the tremendous potential of atomic energy for peacetime commercial purposes has so developed that it should be as well known as the military potential. Because of the public health and safety factors associated with the use of atomic energy and the continuing needs of the military, a detailed and intricate body of law and regulation governing its industrial use has been established. When one considers the ever-increasing use of radioactive materials for medical therapy, food preservation, heat, propulsion, and power, it is clear that the day is not too far off when a client will walk into a law office and ask counsel either to advise him of the requirements necessary to the handling of radioactive materials, or, to the construction, ownership or operation of a nuclear facility. (In fact to a limited extent the day has arrived.) It is with these contractual and regulatory requirements that this article is concerned, placing particular emphasis on industry proposals for power reactor construction arising under the Atomic Energy Commission's (AEC) Power Reactor Demonstration Program.

Unfortunately for counsel meeting this problem for the first time, the obvious and usual sources of information on the requisite procedures (applicable statutes and regulations) will not provide him with all (or even *nearly* all) of the answers. The essential ground rules are of course found in the Atomic Energy Act of 1954, as amended,¹

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1. 68 Stat. 919 (1954), as amended, 42 U.S.C.A. § 2011 *et seq.* (1961 Supp.).

and the Commission's Regulations.² A great deal of stability and clarity has been added to both of these references by virtue of the United States Supreme Court's decision in *Power Reactor Development Co. v. I.U.E.*³ There, the Court upheld the legality of the Commission's construction permit and licensing procedures as set forth in its Regulations and applied in that case. (More will be said about the *Power Reactor* decision at a later point.) However, many of the necessary contractual and regulatory steps are not to be found in these statutory references and regulations. They can be learned only on an *ad hoc* basis while pursuing a proposal before the Commission or closely tracing the history of prior similar proposals. This article will cover both the statutory and *ad hoc* requirements, with a view toward including some of the practical problems associated with both.

A client seeking to build or own a power reactor is in the position of one desiring to attend a gala ball — he needs an invitation. He either finds one in the Commission's then current invitations for industry proposals to construct certain types of reactors, or, he makes a proposal to build some other type in the hope that this will lead to an invitation. However, despite the Commission's broad statutory authority over atomic matters its inviting powers are, practically speaking, to a great extent, circumscribed by the Joint Congressional Committee on Atomic Energy. For example, section 261 of the 1954 Act, as amended,⁴ requires authorizing legislation prior to the appropriation of funds for "cooperative proposals," where the AEC provides financial assistance for research and development associated with construction of developmental reactors. Further, a provision which was inserted in the 1957 authorization bill (and which has been carried over each succeeding year) requires certain AEC action, including entering into any such cooperative arrangement, to be submitted to the Joint Committee. Action is then postponed for forty-five days, while Congress is in session, thus giving the Committee the opportunity to have Congress take action if it is unsatisfied with the Commission's proposed action or if the Commission does not follow its recommendations.⁵

To understand how Commission invitations arise it will be necessary to examine briefly the history of the 1954 Act. Prior to 1954 there were no invitations. The Atomic Energy Act of 1945⁶

2. 10 C.F.R. § 1.1 *et. seq.* (1961 Supp.).

3. 367 U.S. 396 (1961).

4. 68 Stat. 919 (1954), as amended, 42 U.S.C.A. § 2017 (1961 Supp.).

5. P.L. 85-162 § 11(b), 71 Stat. 403, 85th Cong., 1st Sess. (1957).

6. 60 Stat. 755 (1946).

expressly prevented private industry from directly owning nuclear facilities. Accordingly, the only way private industry could become associated in a reactor project was as an operator of a government-owned plant. On August 30, 1954, the Atomic Energy Act was completely revised to authorize the expansion of private participation in the national program, thereby laying the foundation for a competitive atomic energy industry operating under government regulation. For the first time, the 1954 Act authorized private ownership of production and utilization facilities, including nuclear power plants. Licensing and distribution by the Commission of special nuclear materials (principally fuel for power and research reactors) to private persons and corporations was also authorized.⁷ The Act also supplied a basis for the dissemination of classified information of industrial interest under an access permit program.⁸ On July 31, 1953, the Joint Congressional Committee on Atomic Energy — whose composition and functions will be discussed later — requested that the AEC prepare an outline of the objectives it sought to achieve in the field of reactor development over the next five years, and of its program for the accomplishment of those objectives.⁹ The Commission's Five Year Experimental Civilian Power Reactor Program resulted from that request.¹⁰ This program, which was announced in 1954, led to the establishment, in January 1955, of the Commission's Power Reactor Demonstration Program designed to encourage American industry to develop, fabricate and operate experimental nuclear power reactors with some assistance from the government.¹¹ The aim of the program is to bring private resources into the development of engineering information on the performance of nuclear power reactors and to hasten the day of economic atomic power.¹² In the early years of this program the Commission issued three rounds of invitations for private participation, each round covering a different form of cooperative financing arrangement.¹³ Under the Third Round Invitation the participating industry pays for all capital costs and thus constructs, operates and owns the entire facility (except for the nuclear fuel). At the same time, the Commission pays for part of the research and development work associated with the project and waives the fuel use charges for a specified length of time. Un-

7. CCH Atomic Energy L. Rep., Paras. 1002-1022.

8. *Ibid.*

9. *Ibid.*

10. *Ibid.*

11. *Ibid.*

12. *Ibid.*

13. U.S. ATOMIC ENERGY COMMISSION, MAJOR ACTIVITIES IN THE ATOMIC ENERGY PROGRAMS 75, 76 (Jan. 1962).

der a provision inserted in the 1958 authorizing legislation, the Commission, before entering into any new demonstration project arrangement, must make public announcement of each particular reactor project it regards as technically desirable for construction and must set reasonable dates for submission and approval of proposals for AEC assistance.¹⁴ Under the above promotions the Commission, in 1960, sought Third Round proposals for a prototype organic-cooled power reactor and, when none were received, it sought proposals in 1961 for such a reactor on a Second Round basis under which the Commission would own the reactor.¹⁵

Hence, your client has an invitation which he can seek to accept, provided his proposed reactor falls within one of the types specified by the Commission in its invitation. If he is proposing a different type, his problems are multiplied: he not only has to convince the Commission of the desirability of approving the proposed type, but the Joint Committee and Congress as well, in light of the statutory provisions previously noted.

The next concern of your client is an architect and a builder; these he no doubt has before consulting with counsel. Over the past ten or fifteen years, a number of firms have become expert in both fields and their services are, of course, available to private industry. In fact, there has been such substantial progress in this respect that firm bids are no longer uncommon. As is always the case, your client needs money; presumably he has some or he wouldn't be coming to you. However, in addition to contracts of government assistance and conventional methods of financing, several of these power reactor projects have been financed in part by funds supplied by non-profit corporations. These companies are organized and supported by utilities and other industrial concerns interested in the proposed reactor; they, in turn, will receive technical know-how and information, as well as an opportunity to train their employees in reactor technology.¹⁶ The legal work associated with conventional financing and the organizing of non-profit corporations is not unique and will not be discussed. However, the legal problems associated with financing via contracts of government assistance are unique (and in many respects

14. P.L. 85-590, § 107(f), 72 Stat. 489, 85th Cong., 2d Sess. (1958); CCH Atomic Energy L. Rep., Para. 3014.

15. *Op. cit. supra* note 13, at 30.

16. Such arrangements have been quite common in nuclear power plant proposals. For example, The Detroit Edison Company and Reactor Development Company and Atomic Power Development Associates, Inc.; South Carolina Electric & Gas Co. and Carolinas-Virginia Nuclear Power Associates; Philadelphia Electric Co. and High Temperature Reactor Development Associates, Inc.

peculiar to the atomic field) and will therefore be discussed in detail.

The first legal step is to make a proposal in response to the Commission's invitation. The proposal will include the information specified in the invitation, such as: the parties involved; specification of the reactor type and a detailed description of its intended use and method of operation; a detailed budget covering capital and operating costs; a statement as to the source of all funds required, including the amount of government financial assistance sought, if any; and, the proposed completion date.¹⁷ In addition, the proposal must contain a sufficiently detailed technical description or design of the project in order to permit evaluation of its technical merits.¹⁸ The designs submitted to date vary from highly detailed ones to more general outlines and sketches of the reactor and its characteristics. The reason for this variance in design detail is that, usually, the proposed reactor is of a developmental type; hence, its precise design may be unknown at the time the proposal is made — it being the belief of the proposer that through research and development the details will be ascertained. Thus, despite the importance of the design in obtaining Commission approval, counsel will have little knowledge of or control over its contents, and will be guided in this respect by the extent to which the architect and builder have advanced in perfecting it. When completed, the proposal is submitted to the Commission's Division of Reactor Development.

Upon receipt of the proposal by the Commission the proposer may be asked to discuss it informally with the Commission. And, prior to submitting a proposal, it is common for the proposer to have exploratory talks with the Commission staff concerning the types of reactors considered ready and available for private development and, those which the Commission considers most worthy of Government assistance.¹⁹ In any event, the proposal will then be evaluated by a "Commission Selection Board" with the help of a technical group.²⁰ These "Boards" are composed of six to ten Commission administrative and technical personnel, accountants and lawyers; the group is presided over by a Chairman. The Board Chairman will arrange for a series of meeting dates and provide the proposer with a list of questions which the Board wishes to discuss at the conferences.

17. CCH Atomic Energy L. Rep., Para. 3023 & Para. 3048.

18. *Ibid.*

19. *Ibid.* See also Staff of Joint Committee on Atomic Energy, 85th Cong., 1st Sess., Report on *A Study of AEC Procedures and Organization in the Licensing of Reactor Facilities*, 7, 11 (1957).

20. CCH Atomic Energy L. Rep., Para. 3014.

Most of the questions will pertain to the technical features of the reactor. A few will deal with patent rights, the nature of the contractual and financial arrangements between the proposer, architect, builder and any other parties providing funds, as well as an inquiry into any state regulatory agency, and zoning approvals required to construct the proposed reactor. After these questions and the proposer's answers have been discussed informally at length, it is customary for the proposer to prepare written answers to these questions and any additional ones raised at the conference.

Concurrent with these discussions, and of greater interest to counsel, a series of informal conferences is held with a "Commission Contract Negotiation Board." Such groups are composed of Commission lawyers, accountants and administrative personnel. The purpose of the discussions is to explore and reach agreement on the broad outline of a contract between the proposer and the Commission in the event the proposal is approved by the Commission. This contract outline ultimately takes the form of a "Letter of Intent." To a large measure the contract provisions are governed by statute, the AEC Manual and the precedents set by prior contracts. If the proposal requests no government financial assistance, contract negotiations are less difficult. On the other hand, when a contract of government assistance is contemplated, the contract discussions and negotiations are, of course, much more detailed and prolonged. All of these discussions are without prejudice to the Commission's right to reject the proposal, their purpose being to expedite matters in the event of approval. After reviewing the proposal and the formal answers to the questions, the Selection Board makes its recommendation to the Division Head and, in turn, to the Commission. Upon agreement between the parties on the terms of the Letter of Intent, the Letter is submitted and the proposal is then ready for agency action. The Letter of Intent is simply a letter from the proposer to the Director of the Commission's Division of Reactor Development. It includes: a table summarizing the technical aspects of the proposed reactor; a summary of the source and purpose of funds for the project and of the undertakings of the parties; the completion date; the proposed terms of the contract; a summary of the organization and financing arrangement between the proposer and its associates in the project, if any; provisions for termination, inspection of records; option to purchase in the event of default by the proposer; and, a detailed statement concerning inventions. Usually the invention or patent provision of the Letter of Intent is spelled out in detail and becomes verbatim the patent provision of the final contract between

the Commission and the proposer. Commission approval takes the form of an "acceptance of the proposal on a basis for contract negotiations." Essentially this means that the Commission has examined the proposal and is sufficiently satisfied with it to state that, if approved by the Joint Committee, there is a basis between the parties for agreement on an ultimate contract.²¹

The next step is the preparation by the Commission of a summary of the Letter of Intent which is called the Program Justification Data. The Program Justification Data, that which the Joint Committee approves or disapproves, must then be submitted by the Commission to the Joint Committee and, as already noted, a period of forty-five days must elapse while Congress is in session before the Commission may enter into any final arrangement with the proposer.²² An exception to the statutory rule arises when the arrangement has been included in Program Justification Data previously submitted to the Joint Committee in support of authorizing legislation.²³ Customarily, the Joint Committee sets an early date for hearings; at this time the Commission may ask the Committee to waive the forty-five day rule. At the hearings, Commission witnesses, such as the Director of the Division of Reactor Development, describe the proposed arrangement and answer any inquiries raised by the Joint Committee.

At this time it might be well to explain the composition and status of the Joint Committee. It is composed of nine members of the Senate appointed by the President of the Senate, and nine members of the House appointed by the Speaker of the House.²⁴ In each instance, not more than five members may be of the same political party.²⁵ In a word, it is a statutory Congressional "watchdog" over all atomic matters.²⁶

Thus the Program Justification Data is submitted to the Joint Committee by the Commission along with notification that it has accepted the proposal on a basis for contract negotiations. The Justification Data typically includes: (1) the name of the contractor; (2) a description of the proposed reactor (including its objectives, location, completion date and summary of its technical aspects); (3)

21. See note 19, *supra*.

22. P.L. 85-162, Section 111(b); 71 Stat. 403, 85th Cong., 1st Sess.; 1957 U.S. Code Cong. & Ad. News 437; CCH Atomic Energy L. Rep., Paras. 1258, 13068, 13075, 13076, 13101 and 13123.

23. *Ibid.*

24. 68 Stat. 919 (1954), as amended, 42 U.S.C. § 2251 (1958).

25. *Ibid.*

26. 68 Stat. 919 (1954), as amended, 42 U.S.C.A. § 2252 (1961 Supp.); 1954 U.S. Code Cong. & Ad. News 3484-3485.

an estimate of cost and the amount of assistance to be provided; and (4) the general features of the proposed arrangement. This last includes: references to the site, manner of construction and operation, amount of financial assistance, title, terms of the proposed contract, indemnity provision, necessity for other federal, state and local licenses and approvals, and, a statement concerning control of information and records and the responsibility of the proposer.²⁷

Assuming that the Joint Committee does not take issue with the proposal, and barring any delay dictated by the need for Congressional appropriation of the proposed government assistance, the Commission and the proposer then negotiate a contract consistent with and incorporating the terms of the Letter of Intent and the Program Justification Data. In addition to the matters set forth in these two documents, the final contract will include the usual provisions required by law to be inserted in all government contracts; for example, provisions concerning domestic preference, security, GAO audit, officials not to benefit, and the like. If not approved by the Committee, the proposal goes back to the Commission with the Committee's recommendations, which, as a practical matter, are binding for the reasons already noted.²⁸ The proposal might be rejected for several reasons.²⁹ The Committee may feel that it is not prudent to construct the proposed type of reactor, or that the reactor type is not one for which funds have been authorized or appropriated, or that it disapproves of the proposed contractual arrangement. The last situation can be cured by removing the objectionable features (assuming willingness of the parties). The two former situations pose a more serious problem since they either mean the death of the proposal or, at best, entail time-consuming legislation. However, assuming the normal situation and the signing of a contract, counsel's thoughts may now turn toward construction of the reactor.

At this point the other arm of the Commission, its regulatory arm — the Division of Licensing and Regulation — enters the picture. Up to this time, all communications have been with its contractual and promotional arm — the Division of Reactor Development — except for a possible informal discussion concerning the site.³⁰ The con-

27. See e.g., *Hearings Before the Subcommittee on Legislation of the Joint Committee on Atomic Energy on Review of Proposals under Power Demonstration Program*, 85th Cong., 1st Sess., September 17, 1957, pp. 1-10, and 2d Sess., March 12, 14 and 22 and May 23, 1958, pp. 26, 54, 138.

28. See note 22, *supra*.

29. See e.g., *Hearings Before the Subcommittee on Legislation of the Joint Committee on Atomic Energy on Review of Proposals under Power Demonstration Program*, 85th Cong., 2d Sess., March 12, 14 and 22 and May 23, 1958, pp. 25-135.

30. If the proposer is limited in his choice of site (and even if he isn't) it is desirable to request the Division of Licensing and Regulation and The Advisory

tract-regulation division within the Commission has been the subject of extensive discussion and debate between the Commission and the Joint Committee, and among legal writers.³¹ The result has been some extensive changes by the Commission in its organizational arrangement so as to make the separation of functions more dramatic.³² Accordingly, this division is made quite clear to the proposer during the many negotiations already mentioned.³³ In fact, a specific provision is inserted in the final contract to the effect that nothing contained therein shall be construed as a grant of regulatory approval.

The first step into the regulatory arena is taken with an application for a license, which is, in reality, a construction permit application.³⁴ Sections 101 through 110 of the 1954 Act govern the issuance of licenses for privately-owned nuclear reactors.³⁵ Provision is made in these sections for different types of licenses and different types of reactors. (For example, commercial and medical therapy licenses; developmental and research reactors.) In theory, reactors constructed pursuant to the Commission's Power Demonstration Program are covered by sections 103 and 104. In practice, all such applications fall under subsections (b) and (c) of section 104 since a part of section 103 requires, as a prerequisite to issuance of a 103 license, a finding that the type of facility involved has been sufficiently developed to be of practical value for industrial or commercial purposes. This has been construed by the Commission as applying only to commercial production and utilization facilities which have been found to be

Committee on Reactor Safeguards for an expression concerning the suitability of the site prior to filing a license application. In such event the proposer should prepare a report containing as much information as possible about the reactor and a complete description of the site and its surroundings. The report, together with a letter indicating the intention of applying for a facility license at some later date, should be submitted to the Division for advice on the suitability of the site. See remarks of Dr. Frank K. Pittmann then Deputy Director, AEC Division of Civilian Application (December 14, 1955) before the Nuclear Science and Engineering Congress at Cleveland, Ohio.

31. Joint Committee on Atomic Energy, *Improving the AEC Regulatory Process*, Congress of the United States, Vol. I, Vol. II Appendix, March 1961, 87th Cong., 1st Sess. (Joint Committee Print); *The Atomic Energy Commission and Regulating Nuclear Facilities*, Berman and Hydeman, Co-directors, Atomic Energy Research Project, The University of Michigan Law School, Ann Arbor, 1961; Cavers, *Administrative Decisionmaking in Nuclear Facilities Licensing*, 110 U. PA. L. REV. 330 (1962); Davis, *Nuclear Facilities Licensing: Another View*, 110 U. PA. L. REV. 371 (1962); Cavers, *Nuclear Facilities Licensing: A Word More*, 110 U. PA. L. REV. 389 (1962).

32. U.S. ATOMIC ENERGY COMMISSION, MAJOR ACTIVITIES IN THE ATOMIC ENERGY PROGRAMS 329 (Jan. 1962); 3 NUCLEAR SAFETY 92 (Sept. 1961).

33. Staff of Joint Committee on Atomic Energy, 85th Cong., 1st Sess., Report on *A Study of AEC Procedures and Organization in the Licensing of Reactor Facilities*, pp. 37-48 (1957).

34. 68 Stat. 919 (1954), as amended, 42 U.S.C. §§ 2134, 2235 (1958); for an excellent article on all safety aspects of permit and license applications, see Green, *The Law of Reactor Safety*, 12 VAND. L. REV. 115-144 (1958).

35. 68 Stat. 919 (1954), as amended, 42 U.S.C.A. §§ 2231-2239 (1961 Supp.).

"economically feasible."³⁶ Since the art of reactor technology has not progressed that far, power reactor applications, other than research reactor applications, normally fall under section 104(b) governing reactors designed to conduct research and development activities *leading* to a demonstration of their practical value for industrial and commercial purposes.³⁷ Thus, counsel must prepare a facility license application under section 104(b). In addition, a license application for the necessary fuel is needed.³⁸ However, it is customary for both applications to be filed and processed as a single application; this is pursuant to the Commission's power under section 161(h) to consider, in a single application, any combination of activities requiring licensing and to issue a single license governing them.³⁹ At this point the following practical hint becomes very important. It is necessary for counsel to recognize at all stages of the processing of a reactor proposal that, while all the various contract requirements and licensing requirements are legal in nature, they involve tremendous amounts of technical data and information. Hence, a power reactor proposal can be successfully pursued only if there is extremely close and intimate cooperation between counsel and the technicians engaged in the design and construction of the reactor. The need for such cooperation is paramount at this construction permit stage of the proceeding. The "meat" of this license application is a Hazards Summary Report which (as will be shown) is voluminous, completely technical in nature, and therefore represents, primarily, the work of the physicist and engineer. In addition to the Hazards Summary Report, the Regulations require that the application contain information on the financial and technical qualifications of the applicant and the earliest and latest completion dates.⁴⁰ These requirements in general pose no serious problem, but the regulatory requirements for data that must be included in the Hazards Summary Report do raise serious problems.⁴¹

36. 68 Stat. 919 (1954), as amended, 42 U.S.C. §§ 2132, 2133, 2134(c), 2135 (1958); CCH Atomic Energy L. Rep., Paras. 3508-3509; Also see, Green, *The Law of Reactor Safety*, p. 119, *supra* note 34.

37. 68 Stat. 919 (1954), as amended, 42 U.S.C. § 2134(b) (1958).

38. Depending on the type of reactor, the application may fall under Sections 53, 57, 62, 63 or 81 (42 U.S.C. §§ 2073, 2077, 2092, 2093 and 2111).

39. 68 Stat. 919 (1954), as amended, 42 U.S.C. § 2201(h) (1958).

40. 68 Stat. 919 (1954), as amended, 42 U.S.C.A. § 2232 (1961 Supp.); Atomic Energy Commission Regulations, §§ 50.33 and 50.34.

41. The general information and the technical information (Hazards Summary Report) which must be included in each application is found in Atomic Energy Regulations, §§ 50.33 and 50.34. Also see, *A Study of Atomic Energy Commission Licensing Procedures*, *supra* note 33, at 5, 6; Green, *The Law of Reactor Safety*, *supra* note 34, at 126.

The Commission, prior to issuing a license, must be satisfied that the applicant will comply with its Regulations, and is technically and financially qualified; further, it must be satisfied that the reactor can be operated without endangering public health and safety.⁴² This last determination, which is based on information derived from the Hazards Summary Report, is the one which creates difficulties. Because of the unstandardized state of reactor development (despite giant steps forward) and the embryo status of reactor technology, the Commission to date has not been able to issue clear cut safety standards and regulations capable of comparatively automatic application to all reactors, although it recognizes the growing need for such criteria.⁴³ Hence, each application is considered on its individual merits, particularly when the reactor design is of a more advanced type.⁴⁴ For these reasons, the Hazards Summary Reports submitted to date differ in volume and scope.⁴⁵

The only safe rule is to follow the regulations and provide the Commission with all the information that can possibly be obtained with respect to each of these requirements. The report must include a sufficiently detailed description of the reactor and of the various processes to be performed in order to permit an evaluation of the radioactive hazards involved.⁴⁶ It must also include a description of: the site; the safeguard procedures in the operation of the facility; and, the measures provided to minimize damage if an accident creating radioactive hazards should occur.⁴⁷ It should set forth the applicant's finding; this must include (1) his opinion as to the events that could take place in the reactor resulting in the release of radioactive material, (2) his judgment as to the adequacy of the countermeasures adopted to minimize the probability of such an event, and (3) his conclusions as to the effectiveness of containment and isolation in minimizing the effects if such an event should occur.⁴⁸ "Thus the Hazards Summary Report answers three questions: 'What can happen?' 'What has been done to prevent it?' and 'What are the consequences if it does happen?'"⁴⁹

42. 68 Stat. 919 (1954), as amended, 42 U.S.C.A. §§ 2232-2235 (1961 Supp.); Atomic Energy Commission Regulations, § 50.45; *A Study of AEC Licensing Procedures*, *supra* note 33, at 4-7; CCH Atomic Energy L. Rep., Para. 3513.

43. *A Study of AEC Licensing Procedures*, *supra* note 33, at 5.

44. *Ibid.*

45. Copies of Hazards Summary Reports accompanying prior applications are available for examination in the Commission's Public Document Room.

46. Atomic Energy Commission Regulations §§ 50.33 and 50.34; *A Study of AEC Licensing Procedures*, *supra* note 33, at 28-29; CCH Atomic Energy L. Rep., Para. 3513.

47. *Ibid.*

48. *Ibid.*

49. See remarks of Dr. Frank K. Pittmann, *supra* note 30.

In addition to the above mentioned, which is a summary of the requirements of the Regulations, the Commission on February 11, 1961, published in the Federal Register a proposed rule describing criteria which will guide the Commission in its evaluation of the suitability of proposed sites for power and test reactors, subject to part 50 of its Regulations. "Recognizing that insufficient experience has been accumulated to permit the writing of detailed standards that would provide a quantitative correlation of all the factors significant to the question of acceptability of reactor sites, this rule is intended primarily to identify a number of factors considered, and the general criteria utilized by the Commission as guides in approving or disapproving proposed sites."⁵⁰ These factors are:

(1) Population density and use characteristics of the site environs;

(2) Physical characteristics of the site, including seismology, meteorology, geology, and hydrology; and

(3) Characteristics of the proposed reactor, including, maximum power level, use of the facility, the extent to which the design of the facility incorporates well proven engineering standards, and the extent to which the reactor incorporates unique or unusual features which have a significant bearing on the probability or consequences of an accidental release of radioactive material.⁵¹ All of these factors are considered in determining whether or not a proposed reactor at any specific site would create an undue hazard to the health and safety of the public. This type of information is generally found in Hazards Reports filed to date and, hence, would no doubt be in the Report even if the proposed Regulation is not adopted.

It requires little reflection even for a non-technician to recognize that it takes months to accumulate all of this Hazards Summary Report data, particularly if the recommended rule of submitting all obtainable data is followed. In addition, because of the developmental nature of the reactor the applicant may not have all the answers at the time the application is filed, though he will have them before radioactive materials are inserted in the reactor. Yet, not even conventional construction work can proceed until a permit is obtained. The Commission's Regulations allow the applicant, without a permit, to proceed with: site exploration; site excavation and preparation; construction of roadways, railroad spurs and transmission lines; the procurement or manufacture of components of the facility; con-

50. Federal Register, Feb. 11, 1961; U.S. ATOMIC ENERGY COMMISSION, MAJOR ACTIVITIES IN THE ATOMIC ENERGY PROGRAMS 353 (Jan. 1962); 3 NUCLEAR SAFETY 73 (Dec. 1961); 2 NUCLEAR SAFETY 1 (June 1961).

51. 3 ATOMIC ENERGY L.J. 73-76.

struction of non-nuclear facilities (such as turbo-generators and turbine buildings) and temporary buildings (such as construction equipment storage sheds) for use in connection with construction of the facility and, with respect to research reactors, construction of buildings (such as a building with space for installation of a training reactor) which would be used for activities other than operation of a facility, but which may also be used to house a facility. However, with respect to developmental reactors, the Regulations expressly prohibit plant construction, including within the prohibition pouring the foundation for, or the installation of, any portion of the permanent facility on the site, until a construction permit is issued.⁵² In light of this situation, it was inevitable that the Commission would evolve an alternative procedure — that being the use of a *Preliminary Hazards Report* and an application for a *provisional* construction permit.⁵³ It was this procedure that was the subject of litigation in the *PRDC Case (supra)* with respect to a fast-breeder reactor being constructed by a group of utilities at Lagoon Beach, Michigan. The United States Supreme Court reversed the decision of the Circuit Court for the District of Columbia and found that the Atomic Energy Act does not require the Commission to make the same findings with regard to safety of operation, before granting a construction permit, as are required before granting an operating license and that the Act does not preclude the Commission from approving a site for a power reactor close to a populated area unless the Commission finds compelling reasons for such a location. Thus, the provisional procedure received the imprimatur of the United States Supreme Court and is now a firm part of the Commission's Regulations and procedures.

In utilizing this procedure, the applicant does not have to have complete hazards information (with the exception of the site) at the time of filing for or grant of a provisional construction permit. This is true as long as the available hazards information is sufficient to satisfy the Commission that (a) it has sufficient information to provide "reasonable assurance that a facility of the general type proposed can be constructed and operated at the proposed location without undue risk to the health and safety of the public," and (b) that the omitted information will be supplied.⁵⁴ Thus, the proposer's problem in filing at the outset a complete Hazards Report is solved and

52. Atomic Energy Commission Regulations, § 50.10; 2 ATOMIC ENERGY L.J. 389.

53. *A Study of AEC Licensing Procedures, supra* note 33, at 4-5, 29; Atomic Energy Commission Regulations, § 50.35; CCH Atomic Energy L. Rep. Para. 3513.

54. Atomic Energy Commission Regulations, § 50.35; See testimony of Commissioner Graham before Joint Committee on Atomic Energy, *On the AEC's Licensing Regulations*, February 17, 1960, p. 180 *et seq.*

public safety is preserved. Issuance of a provisional construction permit means that the Commission is satisfied that a reactor of the general type proposed can be safely operated at the proposed location and that such uncertainties as may exist can and will be favorably resolved as design and construction move forward.⁵⁵ In addition to this "general-type approval" of the reactor, the provisional construction permit means that the Commission has approved the site, at least in the sense that further information about the site will not in itself have any bearing on the conversion of the permit into a license.⁵⁶ In effect, it permits construction to proceed and approves the financial

55. "The AEC gave notice in the Federal Register of February 11, 1960, that it was considering an amendment to Sec. 50.35 designed to clarify the AEC's requirements for issuance of construction permits on a provisional basis. In the Federal Register of March 15, 1962, the AEC announced that that proposal has been revised in light of public comments received. The amendment of Sec. 50.35, set forth below, has been developed in order to identify more explicitly the principal elements of the safety determination which the Commission makes when it issues a provisional construction permit.

'Sec. 50.35. Issuance of provisional construction permits. — (a) When an applicant has not supplied initially all of the technical information required to complete the application and support the issuance of a construction permit which approves all proposed design features, the Commission may issue a provisional construction permit if the Commission finds that (1) the applicant has described the proposed design of the facility, including, but not limited to, the principal architectural and engineering criteria for the design, and has identified the major features or components on which further technical information is required: (2) the omitted technical information will be supplied: (3) the applicant has proposed, and there will be conducted, a research and development program reasonably designed to resolve the safety questions, if any, with respect to those features or components which require research and development; and that (4) on the basis of the foregoing, there is reasonable assurance that (i) such safety questions will be satisfactorily resolved at or before the latest date stated in the application for completion of construction of the proposed facility and (ii) taking into consideration the site criteria contained in Part 100, the proposed facility can be constructed and operated at the proposed location without undue risk to the health and safety of the public.

(b) A provisional construction permit will constitute an authorization to the applicant to proceed with construction but will not constitute Commission approval of the safety of any design feature or specification unless the applicant specifically requests such approval and such approval is incorporated in the permit. The applicant, at his option, may request such approvals in the provisional construction permit or, from time to time, by amendment of his construction permit. The Commission may, in its discretion, incorporate in any provisional construction permit provisions requiring the applicant to furnish periodic reports of the progress and results of research and development programs designed to resolve safety questions.

(c) Any construction permit will be subject to the limitation that a license authorizing operation of the facility will not be issued by the Commission until (1) the applicant has submitted to the Commission, by amendment to the application, the complete final hazards summary report, portions of which may be submitted and evaluated from time to time, and (2) the Commission has found that the final design provides reasonable assurance that the health and safety of the public will not be endangered by operation of the facility in accordance with the requirements of the license and the regulations in this chapter.'" CCH Atomic Energy L. Rep., Para. 14,661.

See testimony of Commissioner Graham, *supra* note 54; Green, *The Law of Reactor Safety*, *supra* note 34 at 63; *A Study of AEC Licensing Procedures*, *supra* note 33, at 6; Atomic Energy Commission Regulations, § 50.35.

56. *Ibid.* See also, CCH Atomic Energy L. Rep., para. 3513; Remarks of Dr. Frank K. Pittman, Deputy Director, AEC Division of Civilian Application (December 14, 1955) *supra* note 30; CCH Atomic Energy L. Rep., para. 3558.

and technical qualifications of the proposer.⁵⁷ It does *not*, however, approve the actual detailed design characteristics and safeguards of the reactor, *which is the case with an unconditioned construction permit*.⁵⁸ This is an important difference since, by statute, an unconditioned construction permit automatically becomes a license upon completion of construction in compliance with the terms and conditions of the construction permit (subject to any necessary testing for health or safety purposes), *absent a showing of good cause why it should not issue*.⁵⁹ On the other hand, by issuing a provisional construction permit and not approving the specific reactor's design and safety features, the burden of these proofs remains with the applicant all through construction and conversion of the permit into a license, since it is customary to go directly from provisional permit to some form of operating license.⁶⁰ However, the applicant is happy to utilize the provisional permit procedure because of the advantages noted, and the fact that he is no more interested in operating anything but a perfectly safe reactor than is the Commission.⁶¹ Thus, with the exception of proposals to construct near duplicates of operating reactors which have raised no doubts as to their safety, it is customary for the applicant to follow the provisional procedure.⁶² In summary, the application when filed will normally contain complete information on the site, completion date, technical and financial ability, and, as much relevant information as is available at the time for insertion in the Preliminary Hazards Report in order to satisfy the noted criteria.⁶³

Under the provisional permit approach it has become rather customary to follow, at least in most respects, the following procedure.⁶⁴

(1) Prior to filing the application for a provisional construction permit (in name, "an application for a construction permit and 104 license") it is advisable and customary for the applicant, his architect and builder to have preliminary talks, in an informal fashion, with officials of the technical and administrative staff of the Commission's Division of Licensing & Regulation (DL&R). The talks will con-

57. *Ibid.*

58. *Ibid.*

59. 68 Stat. 919 (1954), as amended, 42 U.S.C.A. § 2235 (1961 Supp.); Atomic Energy Commission Regulations, § 50.56.

60. See note 56, *supra*.

61. *Ibid.*

62. *Ibid.*

63. *Ibid.* There have been exceptions regarding financial ability. For example, the Yankee & PRDC proposals.

64. For an excellent and exhaustive study of this procedure see *Improving the AEC Regulatory Process*, Joint Committee on Atomic Energy, Congress of the U.S., Vol. 2 Appendix March 1961, 87th Cong., 1st Sess., p. 151, *et seq.* (Joint Committee Print.) This report is an invaluable reference for counsel meeting a licensing problem for the first time.

cern preparation of the application and the kinds of information needed for license evaluations.⁶⁵ Although not required under existing AEC Regulations, such conferences are encouraged by the Commission and are extremely beneficial to the proposer.⁶⁶

(2) In addition it is possible, and usually advisable, to submit a report accompanied by a letter requesting a preliminary site evaluation from the Licensing and Regulation Division and The Advisory Committee on Reactor Safeguards (ACRS) on the safety of the site.⁶⁷

(3) There are meetings with the AEC staff and an ACRS subcommittee to discuss the site and possibly, as part of step (1), to review the preliminary design. If ACRS reports favorably on the site, you are finished with your pre-filing procedures. The site evaluation report is simply a letter stating that the site has been found satisfactory.⁶⁸

(4) Now the filing and construction permit phase begins.⁶⁹ The basic application, including the preliminary safeguards report, is submitted to the Division of Licensing and Regulation. Although the initial AEC action deals only with issuance of a construction permit, the application is a request for both a construction permit and an operating license. Copies are sent by the Licensing and Regulations Division to all interested parties, including: ACRS, the Commission's Division of Compliance, and the Governor of the state where the reactor will be located. Notice of the filing is published in the Federal Register. This procedure is also followed with respect to all amendments to the basic application. After administrative review and a hazards evaluation by the Division of Licensing & Regulation staff members, a staff hazards analysis is prepared and sent to ACRS and the AEC's Division of Compliance.⁷⁰

(5) A meeting to discuss the applicant is arranged by DL&R with the Advisory Committee on Reactor Safeguards. At this meeting, the ACRS and the staff of the Division of Licensing & Regulation first meet privately to discuss the hazards aspect of the case and then the applicant is brought in for further discussions. ACRS may request further information or may find it has enough for a report.⁷¹ At this point a word about the ACRS is in order. The Commission is required to submit, among other things, all 103 and

65. *Ibid.*; *A Study of AEC Licensing Procedures*, *supra* note 33, at 11-12.

66. *Ibid.*; see also, Green, *The Law of Reactor Safety*, *supra* note 34.

67. *Ibid.*; see also, note 30, *supra*.

68. *Ibid.*

69. *Ibid.*

70. *Ibid.*

71. *Ibid.*

104(b) applications to the ACRS for review.⁷² A favorable ACRS report is virtually a prerequisite to obtaining any kind of a construction permit and license.⁷³ Although its report is not technically binding on the Commission, as a practical matter it controls, at least insofar as it finds the proposal unsatisfactory from a hazards standpoint.⁷⁴ The ACRS is a group of outstanding nuclear authorities, not to exceed fifteen, appointed by the Commission to review safety studies and facility license applications referred to it, with regard to the hazards of proposed or existing reactor facilities and the adequacy of proposed reactor safety standards.⁷⁵ Proceedings before ACRS are informal and follow this general pattern.⁷⁶ The application and the Division of Licensing and Regulation's hazards analysis are reviewed by the members individually before a meeting of the full Committee is held. As noted, at an ACRS meeting the Committee is first briefed by the DL&R staff in a question-answer session. Then the Committee may hear a short, formal presentation from the architect, contractor or applicant on the major safety problems and defenses. This presentation is followed by a discussion and question period between the contractor, applicant (or architect) and the Committee. The Committee then formulates its opinion in executive session. Frequently, a few significant items remain to be further explored. To expedite clarification of these points a subcommittee may be appointed to work with the AEC Staff and the architect or proposed operator. At a later meeting, the topic is again reviewed and the final opinion of the Committee is worked out in executive session. Then, the Committee reports its recommendations in the form of a letter addressed to the Chairman of the Commission.

(6) Prior to this stage it is of course important to become thoroughly acquainted with the Commission's Rules of Practice which govern the procedure at hearing.⁷⁷ Actually, the hearings are very similar to those conducted before hearing examiners of other federal agencies. One significant difference is that in the noncontested cases the hearing in many respects may be pro forma since it is highly doubtful that the applicant would proceed to hearing unless it had received a favorable ACRS report and unless it was clear that the AEC Staff would recommend issuance of the permit. Accordingly,

72. 68 Stat. 919 (1954), as amended, 42 U.S.C.A. § 2232(b) (1961 Supp.).

73. 1957 U.S. Code Cong. & Ad. News 1825, 1826; see also note 31, *supra*.

74. *Ibid.*

75. 68 Stat. 919 (1954), as amended, 42 U.S.C.A. § 2039 (1961 Supp.).

76. Advisory Committee on Reactor Safeguards Testimony to the Joint Committee on Atomic Energy, April 29, 1959; Oliphant Washington Service, April 29-30, 1959; see also, *Improving the AEC Regulatory Process*, *supra* note 64, at 153.

77. Atomic Energy Commission Regulations, Part 2, Rules of Practice.

it has been suggested by one administrative law authority that the formal hearing procedure be dispensed with in such cases.^{77a} On the other hand, one cannot help but recognize that from a practical standpoint the existence of a formal hearing puts everyone "on his toes" and thereby results in a better Hazards Report and Application. In addition to the above, there has been considerable discussion and criticism of the hearing procedure and the licensing procedure in general by legal writers,⁷⁸ but unless and until it is changed, this is the required approach. Under the Atomic Energy Act, as amended, the Commission is required to conduct hearings on all 103 and 104(b) applications, after giving thirty days notice in the Federal Register.⁷⁹ Any person whose interests may be affected by the proceeding may intervene and take part in the hearing.⁸⁰ In addition, the Commission's Rules of Practice provide for limited appearances by non-parties with the consent of the presiding officer. Such persons may make oral or written statements of their position on the issues involved in the proceeding but may not otherwise participate in the hearing.⁸¹ In addition to the statutory requirements of notice, the Commission's Regulations (by virtue of a December 16, 1961 amendment) require each applicant for a construction permit, operating license or a waste disposal license to serve a copy of the application on the mayor of the municipality or the chief executive of the county in which the proposed facility will be located.⁸² This notice is in addition to the notice given the governor of the state in which the proposed facility will be located.

(7) Section 2.735 of the Commission's Rules of Practice⁸³ sets forth the matters that are to be included in the notice of hearing published in the Federal Register, plus a "Specification of Issues" and a request for an answer. Accordingly, the applicant will file an answer and probably a request for a prehearing conference, which is provided for in Section 2.740 of the Commission's Rules of Practice.⁸⁴

(8) An additional pre-hearing step was added last year (1961) when the Commission initiated, on an experimental basis, the practice of holding informal public meetings in the community where the

77a. Davis, *Nuclear Facilities Licensing: Another View*, 110 U. PA. L. REV. 371 (1962).

78. See note 31 *supra*.

79. 68 Stat. 919 (1954), as amended, 42 U.S.C.A. § 2239 (1961 Supp.); see also, 1957 U.S. Code Cong. & Adm. News 1862.

80. *Ibid.*; see also, Atomic Energy Commission Regulations, § 2.705.

81. See Atomic Energy Commission Regulations, § 2.731.

82. U.S. ATOMIC ENERGY COMMISSION, MAJOR ACTIVITIES IN THE ATOMIC ENERGY PROGRAMS 346 (Jan. 1962).

83. Atomic Energy Commission Regulations § 2.735.

84. Atomic Energy Commission Regulations, §§ 2.735-2.740.

facility will be located prior to the granting of a construction permit or operating license. This was done with a view toward receiving any questions regarding the safety of the facility and also, to provide Commission staff members with an opportunity to describe the regulatory procedure being followed in the particular case.⁸⁵

(9) Upon completion of the public meeting, the next step is a hearing. The Commission Rules of Practice⁸⁶ provide that the Presiding Examiner will designate the order of procedure, including the order in which interveners will be heard. Normally, at hearings for the grant, amendment or transfer of a license or construction permit, the applicant will open and close. At hearing, the AEC staff, as an independent party, submits for the record the application and such amendments as may have been filed. In addition to the applicant's testimony (he has the burden of proof), AEC staff members testify concerning the safety aspects of the reactor and the applicant's technical and financial qualifications to construct the reactor. If there are interveners, the testimony of their witnesses is taken. Subsequent to hearing, proposed findings of fact and conclusions of law and a proposed construction permit are submitted to the examiner, first by the applicant, and then by the Commission's staff.⁸⁷

(10) Next, the examiner reviews the record and then hands down an intermediate decision which becomes final on a specific date (not less than twenty days after the decision date), unless a party to the proceeding files exceptions to the decision or, unless the Commission on its own motion undertakes to review the intermediate decision.⁸⁸ Provision is also made for judicial review, which, as already noted, might ultimately lead to the United States Supreme Court.⁸⁹

In addition to any special condition which the decision may attach to the grant of a permit in a particular application, the conditions of Sections 183 and 185 of the Atomic Energy Act⁹⁰ and Sections 50.54 and 50.55 of the Commission's Regulations⁹¹ must

85. Major Activities in the Atomic Energy Programs, United States Atomic Energy Commission, January, 1962, *supra* note 15, at 55.

86. Atomic Energy Commission Regulations, § 2.746.

87. See note 64, *supra*; Atomic Energy Commission Regulations § 2.749.

88. *Ibid.*; Atomic Energy Commission Regulations § 2.751.

89. 68 Stat. 919 (1954), as amended, 42 U.S.C.A. § 2239 (1961 Supp.); Atomic Energy Commission Regulations § 2.705, § 2.756.

90. 68 Stat. 919 (1954), as amended, 42 U.S.C.A. § 2233, § 2235 (1961 Supp.).

91. On October 12, 1961 the AEC published in the Federal Register a proposal to redesignate § 50.54(j) as § 50.54(m) and to add a new paragraph after § 50.54(i) requiring not only a licensed operator to be present at the controls at all times during operation of the facility but that a licensed supervisory operator responsible for directing the activities of the licensed operators be present at the facility or readily available at all times during its operation. In addition, if the license includes authorization for possession and use of special nuclear material, it must incorporate additional terms and conditions as specified in Sections 53(e) and 70.32 of the Commission's Regulations.

be attached to all permits and licenses. Also, the Price-Anderson Act⁹² requires the 104 license applicant to provide liability insurance against a nuclear incident in an amount equal to the total amount of private liability insurance available (\$60 million).⁹³ The benefits of these policies extend to the named insured and any other conceivable person who may be found liable. Further, the Commission by this same law is required to enter into an indemnification agreement with the licensee to hold harmless the licensee, and any other person who may be found liable, from public liability arising from nuclear incidents in excess of the amount of private insurance (up to an amount not to exceed \$500 million). Finally the permit must state the earliest and latest dates for completion of construction.⁹⁴ If the proposed construction is not completed by the latest completion date, the permit expires and all rights thereunder are forfeited unless the Commission extends (for good cause shown) the completion date for a reasonable time.⁹⁵

If the provisional construction permit procedure is followed, the decision will contain a finding that the Commission is satisfied that it has sufficient information to provide reasonable assurance (a) that a facility of the general type proposed can be constructed and operated at the proposed location without undue risk to the health and safety of the public, and (b) that the omitted information will be supplied.⁹⁶ As design details become complete subsequent to commencement of construction, the applicant may submit amendments to its hazards report and request that the construction permit be amended to incorporate, as AEC approved technical specifications, major features of the facility and components, such as: the instrumentation, containment, core, waste disposal systems, loop, trapping system, etc. This is necessary because, as already noted, the permit simply approves the general design.⁹⁷ The procedure for such amendments is substantially identical with the original permit application procedure, including ACRS review, hearing, etc. and decision. Actually, these amendments to the application turn the Preliminary Hazards Report portion of the application

92. 68 Stat. 919 (1954), as amended, 42 U.S.C.A. § 2210 (1961 Supp.); 1957 U.S. Code Cong. & Ad. News 1083, 1828.

93. The Commission may establish a lesser amount based on its written criteria. 42 U.S.C.A. § 2210 (1961 Supp.); Atomic Energy Commission Regulations, Part. 140, CCH Atomic Energy L. Rep., Para. 15089 and 15103.

94. 68 Stat. 919 (1954), as amended, 42 U.S.C.A. § 2235 (1961 Supp.); Atomic Energy Commission Regulations, § 50.55.

95. *Ibid.*

96. Atomic Energy Commission Regulations § 50.35; See Proposed Change set forth in note 55, *supra*; *Improving the AEC Regulatory Process*, *supra* note 76, at 154.

97. *Improving the AEC Regulatory Process*, *supra* note 76, at 154; Testimony of Commissioner Graham, *On the AEC's Licensing Regulations*, *supra* note 54.

into a Final Hazards Report and, set the stage for conversion of the construction permit into an operating license.

(11) Thus, when all the remaining technical information for completion of the Hazards Report, etc. is available, the applicant seeks an operating license. Again, the original application procedure is followed quite closely, with the additional fact that the AEC's Division of Compliance testifies in regard to the status of construction of the facility and whether the construction is in compliance with the terms and conditions of the construction permit.⁹⁸ Under an amendment to the Commission's Regulations, effective November 8, 1960,⁹⁹ the Commission has established criteria and procedure for the issuance of a provisional operating license for a reactor where the findings required for issuance of a final operating license cannot be made. These situations arise when construction of the facility has not been completed or there are involved features of the facility as to which it appears desirable to obtain operating experience before issuance of a full time (forty-year) operating license. In such cases, a provisional operating license will be issued upon a finding: (1) that there is reasonable assurance that the facility will be completed in conformity with the construction permit and (amended) application, the provisions of the Atomic Energy Act, and the Commission's Regulations; (2) that there is reasonable assurance that the activities authorized by the provisional operating license can be conducted without endangering public health and safety and that such activities will be conducted in compliance with the Commission's Regulations; (3) that the applicant is technically and financially qualified to engage in these activities; and (4) that there is reasonable assurance that the fuel loading will be ready within ninety days from the date of the issuance of the provisional operating license. The duration of such provisional licenses may not exceed eighteen months, but upon cause shown the expiration date may be extended. Provision is also made in this Regulation for an Examiner's intermediate decision to become effective immediately, under certain circumstances.

For a non-provisional operating license to issue, there must be sufficient evidence of record to warrant a finding that the reactor as finally designed and constructed can be operated without undue risk to the public health and safety.¹⁰⁰ Actually, the provisional oper-

98. *Improving the AEC Regulatory Process*, *supra* note 76, at 155; see also, *A Study of AEC Licensing Procedures*, *supra* note 33, at 9-14, 27-35; Remarks of Dr. Pittmann, *supra* note 30; see also, Atomic Energy Commission Regulations §§ 50.90 and 50.91.

99. Atomic Energy Commissions Regulations, § 50.57.

100. 68 Stat. 919 (1954), as amended, 42 U.S.C.A. § 2232 (1961 Supp.); *Improving the AEC Regulatory Process*, *supra* note 76, at 155.

ating license procedure is not too different from what has been happening in practice when the Presiding Officers issue operating licenses for operation up to a given power level, and then, after further tests and hearings, permit an increase in the level to full power.¹⁰¹

From the standpoint of time, and barring any prolonged intervention proceedings, it takes from four to eighteen months to proceed from application for a construction permit to issuance, and, from three to nine months from submission of a proposal to signing of a contract.¹⁰² Since a proposer cannot pour concrete until at least a provisional construction permit is obtained, the application for a permit might be filed a year and a half in advance of the proposed pouring date and thereafter supplemented and amended in the manner already described.

With the issuance of a license, the necessary Federal approvals for construction and operation are completed,¹⁰³ unless changes are proposed after issuance of an operating license. With a view toward removing some of the ambiguity that has arisen in this latter regard, the Commission has published a proposed amendment to its Regulations under which certain matters would be designated as technical specifications, and would require Commission approval for any changes therein, whereas certain other changes not so designed could be made unilaterally.¹⁰⁴

Until 1959 there had been considerable discussion and debate concerning the extent, if any, to which the states could legally enter this field of reactor licensing and regulation and impose additional, different or even identical requirements.¹⁰⁵ An attempt to settle this question was made by a 1959 amendment to the Atomic Energy Act. It was designed to clarify the respective responsibility under the Act of the states and the Commission. This amendment permits the states to submit proposals for assuming certain regulatory con-

101. The Commonwealth Edison Company Dresden Station is a perfect example of this procedure; see *supra* note 13, at 438.

102. For case chronologies see *Improving the AEC Regulatory Process*, *supra* note 64, at 170 *et seq.*; U.S. ATOMIC ENERGY COMMISSION, MAJOR ACTIVITIES IN THE ATOMIC ENERGY PROGRAMS 437 *et seq.* (Jan. 1962).

103. It may be necessary to obtain operators licenses under Section 107 (42 U.S.C. § 2173) for the client's employees to operate the facility. See CCH Atomic Energy L. Rep., Para. 3512. In general, applications for medical therapy, commercial and research reactors follow many of these same procedures to a less stringent and time consuming degree; see *Improving the AEC Regulatory Process* for the licensing procedures for Research Reactors, Reactors Operator Licenses, Source and Special Nuclear Material Licenses, etc., *supra* note 76, at 155-170.

104. *Op. cit. supra* note 82, at 352.

105. See testimony at Hearings Before the Joint Committee on Atomic Energy, *On Federal-State Relationships in the Control of Ionizing Radiation*, May 22, 1959, Oliphant Washington Service; also see CCH Atomic Energy L. Rep., paras. 8503-8505 and 8521.

trols over activities involving byproduct material, source material and special nuclear material in quantities less than a critical mass.¹⁰⁶ However, and significantly for purposes of the instant discussion, it excluded from agreements for discontinuance of Commission authority any reference to responsibility with respect to: the construction and operation of any production and utilization facility (which includes 104 licenses); the export from, or import into, the United States of any byproduct, source, or special nuclear materials, or of any production or utilization facility; and, the disposal into the ocean or sea of byproduct, source, or special nuclear waste materials. Thus, as one can see, the area of state responsibility with respect to power reactors is small indeed. Most states have passed laws dealing with radioactive protection¹⁰⁷ and these must be checked. The 1959 amendment authorizes and directs the Commission to cooperate with the states in the formation of standards for protection against hazards of radioactivity in order to assure that state and Commission programs for such protection will be coordinated and compatible.¹⁰⁸ Pennsylvania follows the more typical procedure and operates within the existing framework of the State Department of Health and Bureau of Environmental Health, instead of through a separate department. It has issued regulations patterned after those suggested by the National Committee on Radiation Protection.¹⁰⁹ With respect to permits, those required in Pennsylvania would be the type used in the case of a conventional plant, including: building and pressure vessel approval by the Department of Labor and Industry, and a permit from the Sanitary Water Board of the Department of Health relating to the discharge of industrial waste into state waters.¹¹⁰ In some states, including Pennsylvania, if the reactor is constructed by a public utility it is not necessary to obtain local zoning approvals since their courts have held that local zoning laws are not applicable, in certain instances, to public utility installations and facilities, although under certain circumstances it may be necessary to get Public Utility Commission approval.¹¹¹

106. 68 Stat. 919 (1954), as amended, 42 U.S.C.A. § 2021(g) (1961 Supp.); *op. cit. supra* note 82, at 61, 353.

107. See CCH Atomic Energy L. Rep., State Laws and Regulations, for a detailed compilation.

108. 68 Stat. 919 (1954), as amended, 42 U.S.C.A. § 2021(g) (1961 Supp.).

109. CCH Atomic Energy L. Rep., para. 4377.

110. Contrary to popular belief substantial portions of nuclear power plants contain conventional equipment. Hence existing regulations with some little changes can easily be applied to nuclear operated plants.

111. See, *e.g.*, *Wilson Point Prop. Owners Assoc. v. Conn. L. & P. Co.*, 140 A. 2d 874 (Conn. 1958); *Duquesne Light Company v. Upper St. Clair Township*, 377 Pa. 323, 105 A.2d 287 (1954); *Lower Chichester Township v. Pa. P.U.C.*, 180 Pa. Super. 503, 119 A.2d 694 (1956). With respect to Pennsylvania, in third class cities

With the acquisition of these state approvals and possibly the licensing of reactor operators (which under a proposed amendment to the Commission Regulations would be extended to require supervision by licensed supervisor operators), all significant regulatory requirements are satisfied. Much constructive discussion could be engaged in concerning the "pros and cons" of the federal and state requirements, but such is beyond the scope of this article. Suffice it to say that while the requirements are numerous, burdensome, and time-consuming, yet they are essential to the interest and the ultimate advantage of both the applicant and the public. However, it would appear both desirable and possible to speed the gestation period from submission of a proposal to the signing of a contract for a cooperative arrangement, and from application for a provisional construction permit to its issuance.

Commission approval would have to be obtained in order to override local zoning with respect to buildings and outdoor facilities. With respect to boroughs and first and second class townships Commission approval would be necessary only with respect to buildings in order to override local zoning, the objector's remedy being by way of a complaint to the Public Utility Commission with respect to non-buildings. *Commonwealth v. Philadelphia Electric Company*, 74 Montgomery County Reports (Pa.) 292 (1957); *Philadelphia Electric Company v. Township of Birmingham*, 42 Delaware County Reports (Pa.) 173 (1955).