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SEP 2 5 1968

Docket No. 50-302

Florida Power Corporation
101 Fifth Street South
St. Petersburg, Florida 33701

bcc: D. Nussbaumer, DML
J. R. Buchanan, ORNL
E. E. Hall, RDT
J. A. Harris, PI
E. B. Tremmel, IP
R. Leith, OC
J. Verme, NMM
A. A. Wells, AS&LB

Attention: Mr. J. T. Rodgers
Nuclear Project Manager

Gentlemen:

Provisional Construction Permit No. CPPR-51 is enclosed, together with a copy of a related notice which has been forwarded to the Office of the Federal Register for filing and publication.

The construction permit authorizes the Florida Power Corporation to construct a pressurized water nuclear reactor designated as the Crystal River Unit No. 3 Nuclear Generating Plant on the Company's site near Crystal River, Citrus County, Florida.

The construction permit has been issued pursuant to the Initial Decision of the Atomic Safety and Licensing Board. A copy of the decision has already been sent to you.

Sincerely,

Original Signed by
Peter A. Morris

Peter A. Morris, Director
Division of Reactor Licensing

Enclosures:
As stated above

cc:

A. P. Perez, President
Florida Power Corporation
101 Fifth Street South
St. Petersburg, Florida 33701

Roy B. Snapp
1725 K Street N.W.
Washington, 20006

OFFICE ▶	RPB-3/DRL	RPB-3/DRL	OGC	RPB-DRL	DRL	
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U.S. GOVERNMENT PRINTING OFFICE : 1966—O-214-629

UNITED STATES ATOMIC ENERGY COMMISSION

DOCKET NO. 50-302

FLORIDA POWER CORPORATION

NOTICE OF ISSUANCE OF PROVISIONAL CONSTRUCTION PERMIT

Notice is hereby given that, pursuant to the Initial Decision of the Atomic Safety and Licensing Board, dated September 24, 1968, the Director of the Division of Reactor Licensing has issued Provisional Construction Permit No. CPPR-51 to the Florida Power Corporation for the construction of a pressurized water nuclear reactor, designated as Crystal River Unit 3 Nuclear Generating Plant, on the applicant's site on the Gulf of Mexico, about seven and one-half miles northwest of the town of Crystal River, Citrus County, Florida. The reactor is designed for initial operation at approximately 2452 megawatts (thermal).

A copy of the Initial Decision is on file in the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C.

FOR THE ATOMIC ENERGY COMMISSION

Original Signed by
Peter A. Morris

Peter A. Morris, Director
Division of Reactor Licensing

Dated at Bethesda, Maryland
this 25th day of September, 1968.

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

FLORIDA POWER CORPORATION

(CRYSTAL RIVER UNIT 3 NUCLEAR GENERATING PLANT)

DOCKET NO. 50-302

PROVISIONAL CONSTRUCTION PERMIT

Construction Permit No. CPPR-51

1. Pursuant to Section 104 b. of the Atomic Energy Act of 1954, as amended, (the Act), and Title 10, Chapter 1, Code of Federal Regulations, Part 50, "Licensing of Production and Utilization Facilities," and pursuant to the order of the Atomic Safety and Licensing Board, the Atomic Energy Commission (the Commission) hereby issues a provisional construction permit to Florida Power Corporation (the applicant), for a utilization facility (the facility), designed to operate at 2452 megawatts (thermal), described in the application and amendments thereto (the application) filed in this matter by the applicant and as more fully described in the evidence received at the public hearing upon that application. The facility, known as Crystal River Unit 3 Nuclear Generating Plant, will be located at the applicant's site on the Gulf of Mexico, about seven and one-half miles northwest of the town of Crystal River, Citrus County, Florida.

2. This permit shall be deemed to contain and be subject to the conditions specified in Sections 50.54 and 50.55 of said regulations; is subject to all applicable provisions of the Act, and rules, regulations and orders of the Commission now or hereafter in effect; and is subject to the conditions specified or incorporated below:

   A. The earliest date for the completion of the facility is December 1, 1971, and the latest date for the completion of the facility is June 1, 1972.

   B. The facility shall be constructed and located at the site as described in the application, about seven and one-half miles northwest of Crystal River, Citrus County, Florida.

   C. This construction permit authorizes the applicant to construct the facility described in the application and the hearing record in accordance with the principal architectural and engineering criteria set forth therein.

3. This permit is provisional to the extent that a license authorizing operation of the facility will not be issued by the Commission unless (a) the applicant submits to the Commission, by amendment to the application, the

complete final safety analysis report, portions of which may be submitted and evaluated from time to time; (b) the Commission finds that the final design provides reasonable assurance that the health and safety of the public will not be endangered by the operation of the facility in accordance with procedures approved by it in connection with the issuance of said license; and (c) the applicant submits proof of financial protection and the execution of an indemnity agreement as required by Section 170 of the Act.

FOR THE ATOMIC ENERGY COMMISSION

Original Signed by
Peter A. Morris

Peter A. Morris, Director
Division of Reactor Licensing

Date of Issuance: SEP 2 5 1968

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

No. L-229
Tel. 973-3335 or
973-3446

FOR IMMEDIATE RELEASE

50-302
(CPtFac)

PERMIT ISSUED FOR NUCLEAR POWER PLANT IN CITRUS COUNTY, FLORIDA

The Atomic Energy Commission's Division of Reactor Licensing has issued a permit to Florida Power Corporation of St. Petersburg for construction of a nuclear power plant in Citrus County, Florida.

Florida Power will build the Crystal River Unit 3 Nuclear Generating Plant at a site on the Gulf of Mexico about 7 1/2 miles northwest of Crystal River and 70 miles north of Tampa. The facility will use a pressurized water reactor and will have an initial capacity of approximately 825,000 net electrical kilowatts. Babcock & Wilcox Company will supply the nuclear steam supply system; Gilbert Associates will perform the engineering design and Florida Power Company personnel will supervise construction of the overall plant. Total cost of construction of the facility, exclusive of fuel, is estimated to be $117,828,000. Plans call for the plant to be in operation by October 1972 at the latest.

Issuance of the permit follows reviews by the AEC Regulatory Staff and the Commission's Advisory Committee on Reactor Safeguards and a public hearing by an Atomic Safety and Licensing Board. The board conducted the hearing on July 16-17 at Crystal River and issued a decision on September 24 authorizing issuance of the permit. The permit and the board's decision are subject to review by the Commission and to any order the Commission may make on or before November 8, 1968.

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9/25/68

AEC

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

FOR IMMEDIATE RELEASE

No. L-229
Tel. 973-3335 or
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9/25/68

UNITED STATES OF AMERICA

ATOMIC ENERGY COMMISSION

IN THE MATTER OF FLORIDA POWER CORPORATION (Crystal River Unit 3 Nuclear Generating Plant)	)))))	DOCKET NO. 50-302

Appearances

Edgar H. Dunn, Jr., Esq.
Harry A. Evertz, III, Esq.
Appearing on behalf of the Applicant
Florida Power Corporation

George Spiegel, Esq.
James F. Fairman, Jr., Esq.
Appearing on behalf of Intervenors
City of Gainesville, Florida and
Gainesville Utilities Department

T. T. Turnbull, Esq.
Assistant Attorney General
Appearing on behalf of the
State of Florida

Gerald F. Hadlock, Esq.
Appearing on behalf of the
Regulatory Staff of the
Atomic Energy Commission

INITIAL DECISION

Florida Power Corporation (Applicant) filed an application and five amendments thereto, under Section 104b of the Atomic Energy Act of 1954, as amended (the Act), for a provisional construction permit to construct a pressurized water reactor designed to operate initially at power levels up to 2452 megawatts (thermal). The proposed reactor would be located on the Applicant's 4,738-acre site located on the Gulf of Mexico about 70 miles north of Tampa, Florida, and seven and one-half miles north of the Town of Crystal River, Florida. The site affords Applicant a 4,400 foot exclusion radius. There are no residents within three and one-half miles of the proposed reactor. Within ten miles of the proposed reactor, the population in 1967 was 3,300 and within twenty miles, the population was about 6,000. The nearest population center with more than 25,000 residents is Gainesville, Florida, which is fifty-five miles from the site. A significant increase in the five-ten mile zone population density is projected for the 40-year life of the plant primarily as a result of an increase in the population of the Town of Crystal River, from slightly over 3,000 people to over 25,000 people. The site geology is characterized by limestone which has been subjected to solutioning with resulting voids and channels. The Applicant proposes a consolidation grouting program to fill the voids and channels, to confine potential settlement-inducing zones, and to minimize solution rates. A curtain of grout around the foundation

area will control groundwater. This procedure was used successfully for the Applicant's fossil fuel plant, designated as Unit 2, which is also located on the site.

Following receipt of the application, the Commission Staff and the Advisory Committee on Reactor Safeguards have completed all preliminary reviews. Thereafter, the Commission issued a Notice of Hearing[1] for a public proceeding as required by the Act. In addition, a prehearing conference was convened to consider procedural aspects for the public hearing. In accordance with the Commission's Notice, a public hearing was held in Crystal River, Florida, at which, in addition to the Applicant and the Commission's Regulatory Staff, there appeared as intervenor parties the City of Gainesville, Florida, the Gainesville Utilities Department,[2] and the State of Florida. The Gainesville intervention was related to the jurisdictional issue whether a provisional construction permit may be granted pursuant to the authority granted to the Commission in Section 104b of the Act which permits such a license to be granted

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1/ General public distribution was made of this Notice of Hearing, which included publication in the Federal Register on June 1, 1968 (33 FR 8235).

2/ Gainesville, in addition to its Petition for Intervention, filed a Motion to broaden the issues for consideration to include contentions in reference to alleged anti-trust concerns and to include a claim to share in the ownership of the proposed nuclear facility. The Atomic Safety and Licensing Board denied the motion for involving matters beyond the jurisdiction of the Board.

"for a production or utilization facility involved in the conduct of research and development activities leading to a demonstration of practical value."

The State of Florida generally supported the application on the economic grounds of more jobs, more electricity and more taxes, but also added a concern respecting effects on the fish and wildlife in the area. In addition, many persons[3/] made limited appearances, as permitted by the Commission's Rules of Practice, by submitting oral statements which in most instances supported the application, but in other instances presented concerns respecting the thermal pollution, and other environmental aspects of the construction and, if authorized, the operation of the proposed reactor.

3/ The State of Florida introduced several persons who presented unsworn statements that may be considered to the same effect as if presented by way of limited appearances. Statements were made by Nathanial P. Reed, on behalf of the Honorable Claude R. Kirk, Jr., Governor of the State of Florida; and by T. T. Turnbull, Esq., Assistant Attorney General of Florida on behalf of the Honorable Spessard L. Holland, U. S. Senator from the State of Florida; George A. Smathers, U. S. Senator from the State of Florida; the Honorable William C. Cramer, Congressman, 8th District of Florida and the Florida Air and Water Pollution Control Commission. Statements were also presented by Randolph Hodges, Director, Florida Board of Conservation; R. W. Wood, Chief, Fisheries Division, Florida Game and Fresh Water Fish Commission; B. Kenneth Gatlin, on behalf of the Florida Public Service Commission; Edwin G. Williams, M.D., on behalf of Wilson Sowder, M.D., State Health Officer, Florida State Board of Health. Limited appearances were made by William B. Womack; Howard Zeller, Federal Water Pollution Control Administration; Lowell Bryant, Citrus County, Florida; Kenneth D. Morrison, on behalf of the Florida Audubon Society; Robert S. Sholtes, Professor of Environmental Engineering, University of Florida; Mrs. Helen C. Morrison, appearing for Norton L. Holmes; and David A. Gavin, on behalf of the Crystal River Council.

The nuclear steam supply system consists of a light water moderated and cooled pressurized water reactor (PWR) which transfers heat to two once-through steam generators from which steam passes to the turbine generator. The reactor core is comprised of 177 fuel assemblies containing low-enrichment uranium dioxide pellets within zircaloy tubes. Reactivity control will be accomplished by a combination of 69 control rod cluster assemblies and by liquid poison (boric acid) in the reactor coolant. The 69 control rod assemblies are withdrawn and inserted by a rack and pinion drive assembly. Neutron flux level, high or low reactor system pressure, high coolant temperature, or low coolant flow can initiate a reactor trip through the reactor protection instrumentation which de-energizes the magnetic clutches on the control rods and scrams the reactor. External neutron detectors and 52 in-core detector assemblies will be provided to monitor neutron flux distributions. The nuclear steam supply system is essentially identical in design[4/] to that of the Duke Power Company's Oconee Nuclear Station, Units 1, 2 and 3, and the Metropolitan Edison's Three Mile Island Station, previously authorized for construction by the Commission.

4/ The recognition that the Applicant's proposed reactor is essentially identical in design to previously authorized reactor projects is a substantial basis for the Intervenor Gainesville contention that there is little actual research and development involved in this project and thus cannot be authorized as a Section 104b facility. The Act requires that such a project be one that will lead to a demonstration of the practical value of nuclear power. The Commission view is that the demonstration must occur and must continue presumably for much of the expected 40-year life of the facility.

The proposed plant incorporates numerous systems, components, and features required for the protection of plant personnel and the public. The containment consists of a steel-lined, prestressed concrete cylinder with a shallow domed roof and a flat foundation slab designed to withstand a containment pressure of 55 pounds per square inch. The containment structure will have adequate capability for a suitable in-service surveillance program. Provision is also made for components that are expected to assure containment integrity under unlikely but hypothesized accident conditions. Plant design also includes devices expected to serve as protection against clad melting in further hypothesized reactor coolant system failures.

Among the important considerations respecting the hypothesized accident conditions is the proposed use of an iodine fixing additive which will be mixed with the containment spray water to remove iodine from the containment atmosphere after a loss-of-coolant accident. Two sprays are provided and it is calculated that either spray has the design capability to remove sufficient iodine from the containment atmosphere to reduce potential doses at the site boundary to Part 100 limits, or less. The Applicant has selected sodium thiosulfate as the additive. However, there are research programs which include alternate chemical solutions, one of which was considered at the hearing and contains a mixture of sodium thiosulfate and sodium hydroxide. While the removal factors needed to meet site guidelines appear to be available under laboratory conditions, the stability

and compatibility of the additives under accident conditions have not yet been proven.[5/]

The Staff Safety Evaluation includes the discussion of the necessity of an adequate demonstration of the efficacy of the iodine fixing additive, and is as follows:

> "...without iodine reduction the exclusion boundary 2-hour dose and the low population distance total dose exceed Part 100 guidelines by factors of 3.3 and 1.6 respectively, for TID-14844 [6/] release assumptions and the proposed leak rate at 0.25%/day. The spray system with additive is proposed to bring the design basis loss-of-coolant accident doses within Part 100 guidelines."
>
> "We have also calculated the potential doses from this accident assuming that both sprays were not operable to determine the iodine removal factors which must be achieved to meet 10 CFR Part 100 guidelines for thyroid doses. Our calculations indicate that (1) the 2-hour thyroid dose at the exclusion

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5/ The Staff statement is to the effect that the stability and compatibility of chemical additives to entrap radioactive iodine has not been proven under accident conditions. The Staff, however, does not submit a specific conclusion relative to this lack of proven chemical ability to control the iodine releases. It may be assumed the Staff view is that it is enough that something will be later considered by the Staff that will accomplish this necessary control of radioactive gaseous iodine. The Board cannot accept this assumption for decisional purposes in this public hearing proceeding.

6/ The validity of the TID-14844 calculations is under Commission review in an unrelated proceeding and will not be analyzed again here. It may be added, however, that the TID-14844 formula is based upon optimistic assumptions, and even that theoretical exercise contains mention that radioactive releases could be much worse, even 6 times greater, in the case of larger, which are possible, releases of solids.

boundary of 4400 feet would be a factor of 3.3 higher than the 300 rem guideline dose[7] and (2) the course-of-the-accident thyroid dose at the low population distance of 5 miles would be a factor of 1.6 higher than the 300 rem guideline dose if the sprays were inoperable. As discussed in Section 6.3 of this report, we believe that the experimental work performed to date and the research and development program outlined by the applicant provide reasonable assurance that reduction factors on the order of those described above can be achieved."

The foregoing Staff review expresses the hope that the necessary iodine reduction factors can be achieved. Upon the basis of this record, however, it appears that even this hope is open to some question. At the hearing, the Staff submitted references to reports on chemical additives prepared by Oak Ridge National Laboratory. The work which has been undertaken to this time lends doubt whether the sodium thiosulfate alone, or sodium thiosulfate including a solution of sodium hydroxide will achieve the necessary iodine reduction factors. These two chemical additives are those considered by the Applicant here, based upon the record made at the hearing, although the application and the analysis made by the Staff referred to the proposed

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7/ The Staff thus recognizes that if the chemical spray additives do not work under accident conditions that the radioactive thyroid doses at the exclusion boundary would be approximately 990 rem, rather than the guideline value of 300 rem.

use of sodium thiosulfate.[8] The Oak Ridge National Laboratory reports indicate that neither of the Applicant's proposed chemical additives for sprays will achieve the necessary reduction factors. The data developed by ORNL are to the effect that both sodium thiosulfate and sodium thiosulfate with sodium hydroxide undergo radiation decomposition which limits their useful life when exposed to gamma radiation during recirculation cooling of the reactor. The decomposition products include colloidal sulphur, hydrogen sulfide, hydrogen and oxygen, the latter two from net water radiolysis. In addition, radiation will destroy approximately 97% of sodium thiosulfate's ability to react with iodine by exposure to 1×10^8 roentgens, whereas radiation will destroy approximately 43% of the ability of sodium thiosulfate mixed with sodium hydroxide to react with iodine. Important also are the data that more than twice the hydrogen gas is produced by sodium thiosulfate mixed with sodium hydroxide under radiation than by sodium

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8/ At the hearing, inquiry was made why the Applicant was apparently proceeding with only sodium thiosulfate for the chemical additive, when from a review of other proceedings, other applicants presumably had abandoned sodium thiosulfate because it was ineffective. The Applicant here then stated that the solution it intended to use included sodium thiosulfate and sodium hydroxide.

thiosulfate, alone, although the volumes of gas[9/] for both are sizeable enough for concern.

With these data so far developed, it is somewhat difficult to share the Staff's hope that further research and development will produce better results which must be had in order to provide control of radioactive gaseous iodine. It is the view of the Board that this necessary control of radioactive gaseous iodine is as vital to design criteria considerations and determinations as the data for containment integrity and the fuel elements, and warrants review in a public hearing in a contested case.[10/] In that view, it is recommended that a condition be added to the construction permit hereinafter authorized to provide that further data be presented when further research and development has occurred to

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9/ In ORNL 4228, cited by the Staff, is the determination that:

> "The results obtained to date in the study of the various proposed spray solutions indicate that radiolytic H_2 is produced in quantities sufficient to be of concern in the proposed spray system."

This hydrogen hazard was not developed on the record in this proceeding. While the Staff reminds us that further studies are being made to determine the suitability of chemical additives, the fact that studies are being made is no assurance that all problems regarding the additives will be solved. The premise of undergoing studies for the Staff conclusions is not valid.

10/ See Florida Power & Light Company, Docket Nos. 50-250 and 50-251, Commission Memorandum and Order, dated August 4, 1967.

establish the necessary control of radioactive iodine,[11/] and before or at the time that a request is made for an operating license.

Both the Applicant and the Staff have enumerated eight items on which both assert, in substance, that "...further information and data are needed" and that such additional data will be acquired from research and development projects. The distinction between a program to develop needed additional data, on the one hand, and precise research and development programs, on the other, appears to be maintained and should not be combined or confused. Without a separate classification, however, the eight items are:

(a) Once-through steam generator;
(b) Control rod drive unit;
(c) In-core neutron detectors;
(d) Core thermal and hydraulic design;
(e) Emergency core cooling and core barrel check valves;
(f) Xenon oscillation control;
(g) Use of sodium thiosulfate for iodine removal; and
(h) Fuel rod failure mechanisms during loss-of-coolant accident.

At the hearing, Applicant's manufacturer candidly recognized that actual research and development areas included only the use of sodium thiosulfate for iodine removals and the core thermal and hydraulic designs. We agree with that recognition of the amount of

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11/ The addition by the Commission of the condition, as requested, will yet permit the Applicant to go forward with the major and basic construction while further concentration can be directed to the necessity of devising a process or mechanism to control the gaseous radioactive effluents. The record at the present time is inadequate in this regard.

research and development involved in this proceeding. The other items may thus be classified as ordinary improvement considerations not involving any great expansion of reactor technology, and on this basis, may be considered as not pertaining to research and development.

Applicant has identified the nuclear personnel who will assist in design and construction. These include both Applicant's employees, reactor manufacturers and consultants. Adequate training and experience are shown by this evidence for Applicant to proceed. Applicant has also testified in reference to its proposed quality assurance control program which is to be effective for the manufacture and the construction of the reactor. In this respect, Applicant has also shown the program for the development of specifications. The necessity of attaining the objectives sought by this program involves both adequate specifications, measured by code standards so far as feasible, and competent and alert personnel who can determine whether conformance is had with the specifications. Applicant is aware that the nuclear technology demands better specifications and a more active surveillance program than for fossil fuel power plants. While a licensee should be free, as Applicant implies, to develop its own quality assurance and control program, we find added confidence in the expected performance from the continuing review of specifications,

manufacture of components and construction of the project by the inspection staff of the Commission. It is understood that both the Applicant and the Staff will render adequate reporting for the record of the developments, the manufacture and the construction involved in this project. Applicant has also outlined in general scope its intended program for training proposed operators of the project, if authorized.

The financial program for this project includes provisions similar to those for Applicant's regular construction undertakings. We find that Applicant has adequate plans for financing this reactor facility, including both the construction and intended operation.

The intervention by Gainesville is limited to the jurisdictional issue under Section 104b of the Act. Gainesville contends, in effect, that it is unjustifiable to conclude that this reactor facility with its expected substantial electric generating capacity, and the intention to coordinate the electric supply as a necessary

addition[12/] to Applicant's service, all with a very sizeable cost needing extensive financing, should yet be considered a research and development project. Gainesville asserts in its proposed findings that the pressurized water concept for a nuclear power facility has long been accepted as valid, that different items of hardware for a project, such as differing means of control of the nuclear activity and detection instrumentation, are not changes in technology but rather are mere developments from the established

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12/ After the close of the hearing, Gainesville filed a motion to add to the record a statement issued by the Applicant's president concerning the usefulness of nuclear power generation, in general, and of this project in particular. The statement was in printed form which was given public distribution in the hearing room, although the president did not appear to orally present the statement as indicated at the prehearing conference that he would. Gainesville asserts that the commercial value, and not merely the research and development aspects, of this reactor project are shown by the statement. Applicant opposes the receipt of the president's statement upon the ground that a delay will occur in the proceeding to receive the statement, and that if the president were asked questions that would elicit such statements as were made in the printed form, Applicant's counsel would object to the making of such statements. The Board concludes that whatever be the basis of objections to keep a statement from being made, the issue here concerns a statement freely made for public consideration, and concerns in some respects the value of this nuclear power project for commercial purposes. The statement, of course, does not establish that a demonstration has occurred that the project has practical value. Nevertheless, the Board overrules the objection by Applicant, and grants the motion by Gainesville. The statement made by Applicant's president and described in the motion is received in evidence and may be identified as Gainesville Exhibit No. 2.

principles for this type of facility. Gainesville asserts, also, there are only two items that can be classified as research and development and even as to those, it implies that the basis is not substantial. The Commission view, however, respecting the Section 104b authority is that demonstration must be shown of the practical value of the particular type and the specific nuclear power project before a proposal is beyond the scope of Section 104b. Since this project has obviously not operated, and there do not exist years of operating experience from which to determine the economics of the project, there has not yet been a demonstration[13/] of the practical value of this power facility, and therefore,

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13/ Applicant's statement is succinct on the demonstration aspects of the proposed facility and is as follows:

> "At least until reactors of comparable size have demonstrated by operation their reliability, technical feasibility and economic competitiveness with other types of generating facilities, the Crystal River ... reactor must be considered 'developmental'."

consistent with the Commission's rulings,[14/] this proposal qualifies for a Section 104b license.

Concerning the final issue for determination, the Board concludes that the evidence is adequate and it is found that the Applicant is not owned, controlled or dominated by any alien, foreign corporation or foreign government, although it is to be noted that the specific owners of the stock are in no way identified.

The Board has considered the several proposed findings and conclusions submitted by the parties and the Board has substantially accepted all of the findings which have identified the significant and probative facts. The Board has differed with the Applicant and the Staff in reference to the research and development list of eight items and particularly the proposed finding regarding sodium

---

14/ In Duke Power Company, Docket Nos. 50-269, 50-270, and 50-287, Commission Decision, issued January 3, 1968, it was held that:

> "... our view that the 'research and development' about which Section 104 b. speaks encompasses as 'development' a demonstration that will provide a basis for commercial evaluation. Such 'commercial evaluation', in terms of earlier relevant declarations, means an evaluation of the economic competitiveness of the nuclear facility with conventional power plants.
>
> "In the context, then, of the statutory language and our construction of it, until there has been a 'demonstration of the practical value of such facilities for industrial or commercial purposes', utilization facilities which will provide a basis for commercial evaluation in connection therewith (i.e., 'leading to' such 'demonstration') may be licensed under Section 104 b."

thiosulfate. The Board has differed with all the parties in reference to some of the conclusions asserted within the proposals of facts in reference to the foregoing items, and has also differed with Gainesville respecting the Section 104b issue. Specific rulings on the proposed findings and conclusions, in accordance with the Administrative Procedure Act, are as follows:

Applicant's proposed findings of fact numbered 1 through 20, inclusive, and 23 through 27, inclusive, have been accepted in substance. Proposed findings of fact numbered 21, except insofar as reference is made to the thermal and hydraulic programs and to iodine removal system, and 22 (rejected because it consists of conclusions and not facts) have been rejected and denied for lack of evidence in the record to support these findings.

The Regulatory Staff proposed findings of fact numbered 1 through 16, inclusive, and both 18 and 19, have been accepted. Finding of fact numbered 17 (except insofar as reference is made to core thermal and hydraulic design and the use of sodium thiosulfate for iodine removal) (in addition, the last two sentences of proposed finding 17 are rejected because they consist of conclusions and not facts) has been rejected and denied for lack of evidence in the record to support this finding.

Intervenor Gainesville proposed findings of fact numbered 1, 2, 3, 4a, 4b, 4c, 4e, 4f, 4g, 5, 6, 7, 8, and 9 have been accepted in substance. Findings of fact numbered 4d and 4h have

been rejected and denied for lack of evidence in the record to support these findings.

Applicant's and the Regulatory Staff's conclusions of law have been accepted except by way of the recommendation to the Commission for the addition of a condition in reference to sodium thiosulfate, all as set forth in this Initial Decision. Intervenor Gainesville's conclusions of law have been denied because the asserted conclusions are contrary to the interpretations of the law by the Commission.

Upon consideration of the entire record of evidence in this proceeding, with the proposed findings of fact and conclusions of law and contentions made by the parties, and also based upon the findings and determinations hereinabove set out, this Atomic Safety and Licensing Board further concludes that:

1. In accordance with the provisions of 10 CFR Section 50.35(a)

(a) 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 incorporated therein for the protection of the health and safety of the public;

(b) Such further technical or design information as may be required to complete the safety analysis and which can reasonably be left for later consideration will be supplied in the final safety analysis report, except that it is recommended to the Commission that a condition be attached to the authority or license for construction of the proposed nuclear facility that data be developed upon a record made at a public hearing in this contested case concerning the use of either a chemical spray as an "iodine fixing additive" or other devices for purposes of controlling the release of radioactive iodine as a consequence of the maximum credible accident;

(c) Safety features or components which require research and development have been described by the Applicant and the Applicant has identified, and there will be conducted, a research and development program reasonably designed to resolve any safety questions associated with such features or components; and

(d) 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 10 CFR 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, provided that it be established that either a chemical spray or other devices can be used to reduce the quantities of iodine that are computed to be released in the event, though unlikely, of a maximum credible accident.

2. The Applicant is technically qualified to design and construct the proposed facility.

3. The Applicant is financially qualified to design and construct the proposed facility.

4. The issuance of a permit for the construction of the facilities will not be inimical to the common defense and security or to the health and safety of the public.

5. The proposed Crystal River Unit 3 facility is a utilization facility involved in the conduct of research and development activities leading to the demonstration of the practical value of such facility for industrial or commercial purposes.

6. The Applicant has sustained its burden of proof as to the jurisdiction of the Board and all other matters pertinent to its application.

7. The application is properly filed under and licenses may be issued under Section 104b of the Act.

WHEREFORE, IT IS ORDERED, pursuant to the Act and the Commission's Regulations, that, subject to review by the Commission upon its own motion or upon the filing of exceptions in accordance with the Rules of Practice, 10 CFR Part 2, the Director of Regulation is directed to issue to Florida Power Corporation a provisional construction permit pursuant to Section 104b of the Act substantially in the form of Appendix A to the Notice of Hearing in this proceeding within 10 days from the date of issuance of this Decision.

IT IS FURTHER ORDERED, in accordance with 10 CFR Section 2.764, good cause not having been shown to the contrary, this Initial Decision shall be immediately effective.

This Decision is issued by a quorum of the appointed Atomic Safety and Licensing Board and is so issued due to the unavailability because of illness, as shown in the record, of the third appointed member of the Board.

ATOMIC SAFETY AND LICENSING BOARD

Eugene Greuling

Eugene Greuling

Samuel W. Jensch

Samuel W. Jensch, Chairman

Issued:
September 24, 1968
Germantown, Maryland

HQ. 9404
(9.66)

REACTOR DATA INPUT FORM

#2639
REACTORS

A. IDENTIFYING & DESCRIPTIVE DATA

01. PROGRAM CODE	12. PROJ. NO.	03. DOCKET NO.	09. TASK NO.	10. TYPE OF REACTOR	11. CLASS OF REACTOR
211		50-302		Pressurized-Water	104(b)

18. APPLICANT: Florida Power Corporation

19. NAME OF REACTOR: Crystal River - 3

21. STREET-BUILDING: 101 Fifth Street South

24. CITY: St. Petersburg | 27. STATE: FLA | 30. ZIP: 33733

POWER LEVEL

TYPE	UNIT	REQUESTED	DESIGN	AUTHORIZED
ELEC.	65. MW	66. 855	67. 885	68.
THER.	69. MW	70. 2452	71. 2560	72.

B. ACTION DATA

BASIC PROCESSING STAGES

	ACTIV. CD.	74. FIRST ACTION YR.	MO.	DAY	90. END ACTION (DATE APPL. CONSID.) YR.	MO.	DAY
PRE-APPLICATION CONSIDERATION	31						

		APPLIC. REC. 33. YR.	MO.	DAY	CONSTRUCTION PER. ISSUED 76. NO.	77. YR.	MO.	DAY	78. LATEST COMPL. DATE YR.	MO.	DAY
PROCESSING APPLICA. FOR CONSTRUCTION	35	67	08	10	CPPR-51	68	09	25	72	06	01

			STARTED 80. YR.	MO.	DAY	PROV. OP. AUTHORITY ISSUED 81. NO.	82. YR.	MO.	DAY	39. EXPIRATION DATE YR.	MO.	DAY
PROCESSING OPERATING AUTHORITY	PROVISIONAL	36										
			STARTED 84. YR.	MO.	DAY	FULL TERM AUTH. ISSUED 85. NO.	86. YR.	MO.	DAY			
	FULL TERM	38										

SUPPLEMENTARY ACTION

TASK NO. (SAME AS FIELD 09)	86. DATE SUPPLE. REQUEST REC'D. YR.	MO.	DAY	88.	87. DATE SUPPLEMENTARY REQUEST (TASK) COMPLETED YR.	MO.	DAY
				bbb			

42. PURPOSE OF REQUEST (TASK)

54. RESULT OF TASK (AM. NO., CHANGE NO., ETC.)

C. STATISTICS

TYPE OF ACTION REQUESTED AND TAKEN		48. REQ.	51. TAK.
A	REACTOR CONCEPT REVIEW		
B	PRELIMINARY SITE REVIEW		
C	PRECONSTRUCTION STAGE REVIEW		
D	CONSTRUCTION PERMIT (C.P. REVIEW)	X	X
E	AUTHORITY TO OPERATE (OP. STAGE REVIEW)		
F	AUTHORITY TO POSSESS ONLY		
G	AMENDMENT TO CONSTRUCTION PERMIT		
H	AMENDMENT TO OPERATING LICENSE		
I	CHANGE TO TECHNICAL SPECIFICATIONS		
J	EXEMPTION		
K	CONSTRUCTION PERMIT EXTENSION		
L	OPERATING LICENSE (OR AUTHORITY) EXTENSION		
M	DRL ORDER		
N	SPECIAL AUTHORITY		
T	LICENSE (OR AUTHORITY) TERMINATED OR EXPIRED		
O	OTHER (EXPLAIN)		

52. VOID INPUT ENTERED UNDER CODES IN FIELDS 01, 03 OR 12, AND 09 AS RECORDED ABOVE AND ACTIVITY CODE _____

53. CONSOLIDATE INPUT ENTERED UNDER CODES IN FIELDS 01, 03 OR 12, AND 09 AS RECORDED ABOVE AND ACTIVITY CODE _____ WITH PROG. _____ PROJ. _____ TASK _____ ACT. _____