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The General Manager has requested that the attached report by the Director of Reactor Development be circulated for consideration by the Commission during the week of January 17, 1955.

W. B. McCOOL

Secretary

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ATOMIC ENERGY COMMISSION

INDUSTRIAL PARTICIPATION IN REACTOR DEVELOPMENT

Report to the General Manager
by the Director of Reactor Development

THE PROBLEM

1. To review the present study program for industrial participation in reactor development and to define the future course to be followed in the matter of agreements with both private and public organizations for the development and utilization of reactor technology for peaceful purposes.

SUMMARY

2. An appraisal of experience with the present study agreements has been made and is summarized in Appendix "A". The results of this appraisal are highlighted as follows:

a. The twelve groups in the program for a significant length of time have attained reasonable success in evaluating the feasibility of nuclear power.

b. Industry has not assumed a significant portion of the effort for developing and demonstrating the feasibility of nuclear power.

c. The study groups, especially during the past year, have gained momentum in the program and most of the twelve in the program for a significant period have ability and willingness to assume a greater role in the industrial development of reactor systems and reactor components.

d. AEC costs in connection with the study agreements to June 30, 1954 have been estimated at \$344,000. This amount is considered reasonable in comparison with the progress achieved, and in relation to the estimated \$4,900,000 expended by the participants to that date. AEC costs attributable to each study group have been roughly in proportion to the costs incurred by the groups.

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3. This appraisal, plus the interest shown by numerous other organizations in appraising their potential role in reactor technology, indicates the need for a continuing program. The proposed program, in contrast to the present program with the single type of agreement now used, would provide (1) a more simple type of "Access Agreement" entitling participants with an "L" clearance to Confidential Restricted Data, (2) "Study Agreements" on a more selective basis than is now the case, entitling participants with a "Q" clearance to Secret Restricted Data, and (3) "Commercial Agreements" for participants engaging in the business of furnishing services, materials and/or equipment required in the development of reactor systems, or of constructing or operating reactor plants. Participants with "L" clearances would be entitled to access to Confidential Restricted Data, and those with "Q" clearances access to Secret Restricted Data as required for particular work. Insofar as the activities of the participants require them to be licensees, and the licenses provide adequately for such features as access to information and patent rights, agreements separate from the licenses would not be necessary. In most cases, however, organizations wishing to evaluate their prospective use of reactor technology would not require licenses and the proposed agreements would be used.

4. Access Agreements. The establishment of "access" agreements would provide access to the Confidential Restricted Data (Reactor Development)^{1/} necessary to a limited evaluation of reactor technology. The purpose of such agreements would be to
^{1/} This term is defined as including the body of information classified as Category II in the reactor supplements of the Draft Declassification Guide (AEC 27/101) presented to the 7th International Declassification Conference, including such amendments and revisions thereto as may be made from time to time in the future. The relationship of this access to the general pattern of access by categories of information and for various classes of recipients is summarized in chart form in Appendix "E".

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make available to persons and organizations with a normal professional or business interest, information necessary to a limited evaluation of one or more aspects of nuclear reactor systems or the commercial aspects of supplying or servicing a private atomic energy industry, or complete evaluations thereof if access to Secret Restricted Data is not required. It is proposed that these agreements contain the C/ patent clause used in the present study agreements. It is pointed out that inclusion of this clause constitutes the establishment of a policy of partial waiver of the Commission's patent rights under Section 152 of the Atomic Energy Act of 1954. This policy is recommended as being consistent with the purpose of this staff paper and the objectives of the Act regarding widespread participation in the development and utilization of atomic energy. Only terminal summary reports would be required, to be distributed at the discretion of AEC. The agreements would have a term not longer than one-year, and be renewable upon justification to AEC. A sample standard form of access agreement is attached as Appendix "B".

5. In comparison with the study agreements, the access agreements would be more readily available, be on a largely self-supporting basis, permit wider dispersal in the field of the administrative workload, involve no Secret Data and no "Q" clearances, and make available sufficient information in an orderly manner to satisfy a large proportion of the organizations interested in evaluating their use of a reactor technology on a normal business basis.

6. Study Agreements. The purpose of study agreements would be to provide the information necessary to those who had determined

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as a result of limited evaluations the need for a more complete evaluation involving access to Secret Restricted Data. The present study agreements would be reviewed prior to further extension to determine whether the organizations concerned could justify a need to know Secret Restricted Data, and those not requiring Secret Restricted Data would have their study agreements converted to access agreements. Those continued, and new study agreements entered into in the future, would retain essentially the same form as the present study agreements including a one-year term with provision for renewal and the C/ patent clause, but would require more specific identification of the studies necessary to make a complete evaluation including any experimental work planned, and would be placed on a largely self-supporting basis. Like present study agreements, the proposed new study agreements would provide for four-month and annual reports, and such other reports as the AEC may require, to be distributed at the discretion of AEC. "Q" clearances would be provided only to a limited number of the organization's employees whose assignments necessitated access to Secret Restricted Data.

7. Commercial Agreements. This type of agreement would entitle persons or organizations to Confidential Restricted Data, or Secret Restricted Data as required, to engage on a normal business basis in engineering or management consulting work, research and development, and manufacturing and operations related to commercial applications of reactor technology. It is expected that in most cases access to Confidential Restricted Data (Reactor Development) would be adequate and that only "L" clearances would be required. When specific need for Secret Restricted Data could be shown, "Q" clearances would be granted, but this access would be withdrawn whenever the specific requirement was terminated.

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This type of agreement would be available to persons and organizations with a normal professional or business interest in the field of reactor systems or component parts thereof whose evaluations have led to a decision to enter the commercial field.

8. Most organizations applying for a commercial agreement probably would be subject to the licensing requirements of the Act. The detailed terms of these agreements should therefore be developed consistently with the license terms as they are established. In cases where licenses would not be required, in particular for consulting organizations, commercial agreements would be entered into specifying the information to be made available, providing for payments for services rendered by the Commission, and incorporating security regulations. It is proposed that the C₇ patent clause be included, and that reports made by participants would provide descriptions of the work being done sufficient to enable appraisal of the continuing need for access to Restricted Data. Information contained in these reports regarding confidential aspects of the participants' operations will not be distributed by the Commission to its contractors or others. However, such reports will not require complete disclosure of non-patentable developments made. To require such disclosure would, it is believed, deter participation and be counter to the objective of application of reactor technology in accordance with normal industrial patterns.

9. The agreements would provide that they would not apply to work done by the contractors which was not, in any way or in any part, based on AEC information not generally disseminated to the public. This provision will enable contractors to retain full proprietary rights to unclassified developments which, insofar as

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reliance on AEC information is concerned, could be made by anyone without an agreement. It has not as yet been determined whether patentable developments made by industrial participation contractors, outside the scope of these agreements, are nevertheless so integrated with a "contract, subcontract, arrangement, or other relationship with the Commission" as to require a waiver by the Commission under Section 152 for the granting of full proprietary rights; to the extent that such a waiver is determined to be necessary, it is to be noted that a policy of complete waiver of the Commission's patent rights under Section 152 is hereby established for the area of patentable developments as delimited in this paragraph.

10. This Division believes it is possible that the commercial agreements should include relatively more liberal patent provisions than the access agreements. However, in view of the past experience with the C/ clause in the study agreements, it has been decided to recommend its incorporation in all three types of agreements in the interest of simplifying their administration. In addition to the reports provided for by these agreements, the Commission would also have the right to review, at its request, any information and data developed by participants relating to their work under the agreements. It is not proposed that the Commission would, in the exercise of this right, make regular inspections of the data developed by participants. It would be used, on the other hand, when necessary to assure compliance with the patent provisions of the agreements.

11. The principal measures proposed to assist in making information available under the agreements to those with "L" clearances are issuance of a special edition of the Reactor

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Handbook, special issues of Nuclear Science and Engineering, and a bibliography of significant reports in the reactor field, confined to unclassified data and Confidential Restricted Data (Reactor Development), and periodic briefing sessions at the National Laboratories. Consideration will be given to establishment of depository libraries for Confidential Restricted Data (Reactor Development).

12. It is the policy of the Commission to charge for services rendered by AEC laboratories at prices approximating direct and indirect costs. An analysis of AEC costs related to the study agreements is included in Appendix "A", and periodic reports of such costs will be made in the future. As indicated in this analysis, it is not practicable to identify without very arbitrary allocations all costs incurred by the AEC attributable to industrial participation agreements. It is proposed, however, that all three types of agreements provide for payment for services rendered by AEC such as security clearances, reproduction and handling of technical publications, and the direct cost of briefing sessions. Payments would be made for services provided by AEC laboratories in accordance with AEC 642/1. In addition, a flat charge is proposed to cover processing of applications for agreements and facility security checks, estimated at \$250 per year for Access Agreements, and \$800 for Study and Commercial Agreements. The specific charges to be made will be established after further analysis of estimated costs.

STAFF JUDGMENTS

13. The Office of the General Counsel and Divisions of Finance, Production, Security, Information Services, and Classification concur in the recommendation.

RECOMMENDATION

14. The General Manager recommends that the Atomic Energy Commission:

a. Approve continuation of the present reactor study agreements to their expiration on the basis that such agreements have enabled industrial firms with a legitimate interest in reactor systems to appraise their role in reactor systems.

b. Approve a modified program for renewal of existing agreements and entering into new agreements, based on:

(1) Access Agreements, for the purpose of making a limited evaluation of specific aspects of the field of reactor development which are pertinent to the normal business or professional activities of the person or organization concerned and complete evaluations of such aspects if access to Secret Restricted Data is not required, providing access to Confidential Restricted Data (Reactor Development), on the basis of "L" clearance.

(2) Study Agreements, for the purpose of making a complete evaluation of specific aspects of the field of reactor development which are pertinent to the normal or professional activities of the person or organization concerned, providing access to Secret Restricted Data as may be required, on the basis of "Q" clearance.

(3) Commercial Agreements, for the purpose of engaging on a normal business basis in engineering or management consulting work, research and development, manufacturing, or operations related to commercial applications of reactor technology, providing access to Confidential or Secret Restricted Data (Reactor Development), with "L" or "Q" clearances, as required.

c. Approve the establishment of charges for services performed by the AEC under all three types of agreements in accordance with a schedule to be developed after further analysis of estimated costs, and to be approved by the General Manager.

d. Note that the proposed use of the C/ patent clause constitutes the establishment of a policy by the Commission of a partial waiver of its patent rights under Section 152 of the Act in connection with these agreements, and that to the extent that a waiver is determined to be necessary, the granting of full proprietary patent rights for developments outside the scope of these agreements constitutes the establishment by the Commission of a complete waiver of its patent rights under Section 152 of the Act.

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e. Note that, at least for the initial period of operation of the new program, all proposed agreements will be referred to the Commission for approval.

f. Note that issuance of special editions of Abstracts of Classified Reports and a Reactor Handbook, special issues of Nuclear Science and Engineering, and a bibliography of reports in the reactor field on Confidential Restricted Data (Reactor Development) basis, will be required.

g. Note that consideration is being given to establishment of depository libraries for Confidential Restricted Data (Reactor Development).

h. Note that a press release similar to Appendix "C" will be issued as soon as procedural and organizational arrangements for handling the proposed agreements can be established.

i. Note that the GAC and JCAE will be notified of this action by a letter similar to Appendix "D".

LIST OF ENCLOSURES

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APPENDIX "A"

BACKGROUND AND DISCUSSION

1. On December 20, 1950 (see AEC 331/10) the Commission approved participation of industrial groups in classified studies of use of reactors for generation of power. This program was publicly announced on January 28, 1951. Following this action, agreements were signed with the Dow-Detroit Edison, Monsanto-Union Electric, Commonwealth Edison-Public Service of Northern Illinois, and Bechtel-Pacific Gas and Electric groups.

2. The original concept of the program was that a limited number of participants would explore the possibilities of participation in development and use of reactors for production of civilian power, consistent with the objectives of maximum attention to the production program, application of industrial talents to important AEC problems, and minimum interference with AEC's over-all program and especially its defense program. On April 6, 1952, additional proposals were invited by a press release and on July 29, 1953, the Commission reviewed a proposed plan for increased industrial participation in reactor development and approved submission of a limited number of additional proposals meeting the criteria of a bona fide interest in development and future application of reactor technology, capabilities and experience enabling them to make a significant contribution to such development or application, and investment of time of technical personnel commensurate with their objectives. On April 5, 1954, the Commission approved for the guidance of the General Manager a plan for an accelerated Reactor Development Program (AEC 152/49) including continued encouragement of industrial participation and support of the study group by

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authorizing them to arrange for research and development in AEC laboratories in accord with AEC 642/1.

3. Participation of the present groups in the program has been reviewed and is summarized herein. One-third, or six, of the groups have not been participating long enough for any significant progress to have been made. The accomplishments of the remaining 12 can be roughly summarized as follows (most groups have participated in two or more of the following phases):

a. All the groups including utilities and several of the others have made evaluations of various types of reactors. Some of analyses are useful comparisons based on common ground rules.

b. Probably half of the 12 groups have sufficient knowledge and interest to represent potential builders and or operators of reactor power plants when favorable opportunities are presented. A member of one, the Duquesne Light Co., is the PWR participant. Another, GE, has submitted the Hanford dual-purpose proposal. A few have indicated an interest in submitting proposals for the first reactor of the year.

c. Five of the groups have developed designs or otherwise shown interest in building research or package power reactors, and eight of the participants bid on the Army Package Power Reactor.

d. Only three have done a significant amount of design and development work, thereby assuming a portion of the effort heretofore performed solely by the Government.

e. Four of the concerns with individual agreements and several members of other groups are capable of becoming suppliers of reactor components or auxiliaries.

f. Only two of the groups have worked closely with the AEC laboratories in their development program, but several others have assisted the laboratories on specialized problems.

g. Two groups have developed reactor data for special applications -- Newport News for ship propulsion and Westinghouse for an emergency power source.

h. One organization, American Machine and Foundry, has initiated a rather comprehensive effort for simplification of components.

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1. Several of the groups, Dow-Detroit in particular, have provided interesting examples of effective collaboration between utilities and representatives of a variety of other industries.

4. Many of the participants are also AEC contractors or subcontractors and it must be recognized that the progress toward commercial application is due to the knowledge gained in this capacity. At the same time, however, the program has provided a number of non-contractors with know-how in the reactor field, and permitted some contractors access to information they would not have had under their contracts. Personnel of the contractor participants not assigned to contractual AEC work have also been provided with access to reactor technology. The participation program has enabled some organizations whose contract work has been completed to continue to work in the field. The program has to a degree alleviated the problem of the preferred position of AEC contractors.

5. The varied activities listed in paragraph 3 indicate the present participants have varied from the original concept of the program of a limited number of groups of utilities and associated industrial firms engaged in appraising the prospects of building and operating nuclear power plants, and recommending how their development would be hastened. Interest in participation has broadened, indicating that many types of industry are to be involved if nuclear power is to be developed and utilized in accordance with normal industrial patterns.

6. The general objectives of the program, as stated in the agreements concerned with the feasibility of atomic power, have been:

a. Determining the engineering feasibility of designing, constructing, and operating reactors.

[REDACTED]

b. Examining the economic aspects of nuclear power plants.

c. Determining the research and development required.

d. Making recommendations to the AEC concerning use of nuclear power and industry's role in carrying it out.

Most of the groups have made reasonable progress with respect to the first two objectives. Some have made substantial efforts toward the third and a few have initiated some of the required development work. So far relatively little has been contributed with respect to the fourth except to point out a continuing interest in utilization of nuclear power when it becomes economically feasible.

7. The principle objective of several of the groups, including some of the new ones, is apparently to keep in touch with the technology and to be prepared to build or operate nuclear plants when development conducted by AEC has made them economically feasible. These groups have shown little inclination to work closely with the AEC laboratories. There appears little to be gained by more or less repetitive general evaluations by more and more groups. On the other hand, the presence of the groups has also encouraged the laboratories by providing concrete evidence of industrial interest in eventual use of atomic power.

8. The slight participation in research and development work, except for that being done by two or three groups, indicates that industry generally is not assuming a substantial portion of the effort necessary to make nuclear power economically feasible. There has therefore been relatively slow progress toward the transition of responsibility for civilian nuclear power development from Government to industry. It must be recognized, however, that

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the majority of the participants are operating utilities which have traditionally purchased their facilities and have not done much research and development themselves.

9. The newness of the technology and the unique situation of all prior development having been conducted by the Government has inevitably resulted in slow progress with respect to assumption of private responsibility. The transition has also been delayed by the time required for the groups to organize their study teams, assign and recruit personnel and obtain clearances. Progress also appears to have been slowed by industry's waiting for clarification of Government policy. Enactment of the Atomic Energy Act of 1954 has been accompanied by considerably increased industrial interest.

10. The chief accomplishment of the industrial participation program has been that a substantial segment of industry has acquired familiarity with reactor technology through having access to the information developed by AEC, providing a broader base for its civilian application as the prospective economy of nuclear power improves. Accompanying this has been the preparation of a fairly substantial body of data by the participants which, while mostly paper studies, constitutes additional knowledge available to the Government and others interested at no cost.

11. Interest is being expressed by a considerable number of other organizations, some of which fall into one or another of the above classes. Others include:

a. Government agencies (Federal and others) whose assigned functions require knowledge of reactor technology, for example, the REA and Maritime Administration.

[REDACTED]

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b. Associations or organizations with nationwide membership and interest in this field, for example, the National Association of Railroad and Utility Commissioners.

c. Insurance companies which would be called on to issue policies covering privately operated reactors or related facilities.

d. Financial organizations contemplating financing such facilities.

e. Universities and colleges engaged in research in reactor technology.

f. Consulting, engineering or research organizations providing services to firms interested in entering this field.

Provision of access to the latter group is particularly important in order to permit civilian use of reactor technology to develop in accordance with usual industrial patterns.

12. Continuation of a participation program would aid in effectuating the Commission's power policy adopted in March 1953 (AEC 331/67). This policy as proposed by the Commission to the National Security Council visualized a joint effort by industry and the AEC over a period of several years, during which it was hoped the major share of the effort would gradually be shifted from the AEC to privately financed firms. The National Security Council agreed that it was desirable to shift the effort to industry, but felt that a more rapid transfer was both desirable and practical. The Council's position is given in AEC 331/87.

13. In addition, the Atomic Energy Act of 1954 has re-emphasized the policy of encouraging widespread participation in the development and utilization of atomic energy for peaceful purposes, and its passage has resulted in substantial stimulation of industry's interest. The Commission's five-year program for development of power reactors and its enlisting industrial cooperation in financing, construction and operating experimental

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reactor power plants have also resulted in further stimulation of this interest.

14. The Commission's ultimate objective should be that knowledge developed by the Government in the field of reactor technology be available to industry on the same basis as that developed by such agencies as USDA or the Bureau of Mines. This is not now, and may never be, completely possible, but the program should be shaped in this direction. Included as an essential element in the establishment of a normal industrial pattern is the presence of private consulting, engineering and research organizations qualified to perform advisory services in the atomic reactor field.

15. The program described in the Recommendation is an interim step toward establishment of this pattern. This policy would provide for increased emphasis on industrial participation in accord with the objectives of the Atomic Energy Act of 1954. It would enable the objective stated recently by former Commissioner Glennan to be met:

"I think the AEC must now permit people outside of its program who are not security risks to have access to the classified information which they will need to educate themselves in atomic energy and to undertake projects which they -- and not necessarily the Government -- will consider to be worthwhile, and on which they -- and not the Government -- will risk the money."

16. Proposed continuation of the program requires consideration of a number of problems. First, the limited accomplishments of the present program, the variety of types of organizations seeking access to information and the variety of their interests, and the rapid increase in their number, make the present type of agreement, which was originally designed for a limited number of organizations, and which requires "Q" clearances

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for personnel having access to Restricted Data, no longer appropriate in most cases. Second, the information to be made available to American industry should be viewed in relation to the body of information to be made available to foreign countries. Third, the cost to the Government of the present participation program has been considerable, and would increase substantially with broader participation. Fourth, insofar as possible organizations which have not conducted work under AEC contracts should be given the same opportunity for access to reactor technology as contractors have had.

17. A rough presentation of the relationship of the availability of information under these agreements to that for other recipients is shown in chart form in Appendix "E". The information provided under the proposed access agreements would in all probability be considerably greater than to the International Pool. The information provided under international agreements for cooperation will of course vary from agreement to agreement, and in some cases will probably include information classified higher than Confidential Restricted Data. In others, access to only part of this category may be provided.

18. The requirements of most of those showing interest in studying commercial applications of reactor technology can probably be met by provision of Confidential Restricted Data (RD). It is also expected that sufficient information will be downgraded into this category to meet the requirements of many or most of the present study groups and other organizations with interests similar to those discussed in Paragraph 3. It is assumed, however, that participants engaged in design and development of certain types of reactors, particularly breeders of their components, may not be

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provided with adequate information by access to this area, and would require access similar to that provided by the present study agreements.

19. While administration of the access agreement would be simplified in comparison with that of the study agreements, a substantial number of the new agreements is expected, and the volume of work involved in issuing and administering them would require some expansion of AEC personnel for the general conduct of the program. As soon as sufficient experience was gained with this type of agreement, consideration would be given to having them approved and administered by Operations Offices on a regional basis. Insofar as practicable, consultation with the AEC staff and contractors would be limited to periodically arranged briefing sessions organized as to subject matter in accordance with the interest shown in various aspects of the technology. It must be recognized, however, that organizations with specific interests, such as the manufacture of individual components for a particular type of reactor, might have unique requirements necessitating separate access. This access would be controlled, however, to avoid undue interference with the Commission's research and development work.

20. It is expected that the proposed term of not over one year will require a large amount of work handling requests for renewals. However, at least until some experience is gained in administration of this type of agreement, this term is considered desirable in order to periodically disaffiliate organizations which are no longer interested. The reports required will be essential for consideration of renewals.

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21. The following special arrangements are required to aid in dissemination of information to participants in access agreements:

a. A special edition of Abstracts of Classified Reports, edited to contain material classified no higher than Confidential Restricted Data. It will enable those given access to this area to order only the reports they need, and eliminate the necessity for receiving all reports in one or more categories.

b. A special edition of the Reactor Handbook and special issues of Nuclear Science and Engineering (formerly Reactor Science and Technology) edited to contain only unclassified information and Confidential Restricted Data.

c. A bibliography of the most significant reports in the reactor field, containing only unclassified information and Confidential Restricted Data (RD).

d. While it would not be feasible immediately, consideration would be given to establishing collections of the most significant reports containing only Confidential Restricted Data (RD) as listed in this bibliography. Possibly depository libraries for Confidential Restricted Data could be established at certain National Laboratories or Operations Offices in order to make such collections available to those having access to this area on the same basis as unclassified data developed by the AEC is now available to all in the country through the AEC depository libraries.

e. Distribution of digest of patents available for licensing. Participants would also be kept advised of the opportunity to send personnel to ORSORT and the new reactor training school.

22. The total costs of the study group program to the Atomic Energy Commission from the inception of the program in 1951 to June 30, 1954, were approximately \$344,000, including estimated indirect costs. This includes costs of security clearances, approximately \$97,000, including 364 original clearances at an average direct (FBI and CSC) and indirect cost of \$250, plus 733 extensions at an average cost of \$8. Since many of the study group members have been previously "Q" cleared for other purposes, the number of original clearances are less than half of the extensions required. Thirteen physical surveys of industrial

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installations have been conducted to evaluate the security measures in effect, costing AEC \$2,000 for the period from fiscal year 1951 to June 30, 1954, an average of about \$150. The cost of such reviews consists primarily of travel expenses. The estimate of consulting and briefing costs relating to meetings and consultations initiated for the benefit of the various groups visiting contractors is based upon man-days spent with these groups at a direct cost ranging from \$31.25 per man-day at Savannah River to \$40.00 per man-day at various other contractors and totals \$60,000. The costs of publication and distribution of documents supplied to the various groups has been estimated at approximately \$20,000. Oak Ridge has distributed 8,040 documents at a total cost of \$11,000, averaging \$1.36 each. Costs of documents distributed according to the standard distribution list from contractors other than Oak Ridge have totalled \$6,000, and averaged \$1.23. Thirteen reports prepared by the study groups have been reproduced and given category distribution by AEC at a total cost of \$3,000, and an average cost of \$1.23 per copy. Estimated administrative costs of \$161,000 have been incurred by the personnel in the Division of Reactor Development primarily engaged since January 1, 1951, on the Industrial Participation Program. While it is possible to allocate some of these costs fairly precisely to the individual study groups, others can be allocated on only a very rough basis. The estimated allocation, compared with the estimated expenditures made by the groups, is as follows:

	<u>AEC Costs</u>	<u>Participants' Costs</u>
Dow - Detroit	\$115,000	\$2,200,000
Pioneer-Foster Wheeler	62,000	250,000
Monsanto	39,000	400,000
Nuclear Power	32,000	1,200,000
Babcock and Wilcox	23,000	250,000
Duquesne-Kidde	22,000	90,000
American Machine & Foundry	21,000	50,000
Bendix Aviation	11,000	125,000
General Electric	6,000	100,000
TVA	6,000	75,000
Newport News	4,000	75,000
Westinghouse	3,000	85,000
	\$344,000	\$4,900,000

23. The anticipated increase in participation indicates the desirability of requiring participants to bear some of the costs heretofore borne by AEC. It would be difficult and arbitrary to account for all AEC costs in connection with these agreements on a sufficiently precise basis to secure reimbursement from the participants. It would be especially difficult to account for the costs related to each agreement. Many of the costs which at least can be roughly assigned to the participation program in total could be allocated to individual agreements only on an extremely arbitrary basis.

24. There are a number of services supplied by the AEC, however, the costs of which would be recovered. These services are related to the AEC's being the sole source of information and to security requirements. It is conceivable these services should be provided without charge in the interest of encouraging wide dissemination of information, and in recognition of the security requirements being in the general public interest. It is also recognized there might be objections to charges because the AEC's contractors have had access to information developed by themselves and others without cost. Charging participants for readily identifiable costs of these services plus reasonable burdens for

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overhead and indirect costs is proposed, however, because of the desirability of industry paying more of its own way, and to provide some assurance of the sincerity of interest of those given access to classified information. Such charges would not be a deterrent to those sincerely interested, but should reduce the number requesting access who would be merely seeking information without intent to make significant use of it.

25. It is proposed, therefore, that charges be made to organizations entering into agreements to cover the following items for which rough cost estimates are shown. The amounts for each item would be established after more refined estimates have been made. (It is recognized that accuracy of the cost estimates would be affected by the difficulty of estimating volume under the proposed program.)

a. Costs of clearances, including the cost of field or file investigations plus a reasonable burden for AEC handling, approximately \$250 for an original "Q" clearance, \$8 for "Q" clearance extension or for an "L" clearance. (If full background investigation is required to clarify information received as the result of a file check on an "L" clearance request, the cost thereof would be a recoverable item.)

b. Costs of periodic security surveys of organizations holding classified material, estimated to average \$150.

c. Costs of reproduction, handling and mailing of classified technical reports estimated at approximately \$1.25 per report, the Reactor Handbook estimated at \$80, the Abstracts of Classified Reports at \$8 per year, and Nuclear Science and Engineering at \$20 per year. Those charges would be rentals for use of Government property. Present charges would be continued for unclassified material.

d. Cost of services or materials provided by AEC laboratories in accordance with AEC 642/1. These charges would cover any research done specifically for participants, but charges would not be made for brief consultations.

[REDACTED]

[REDACTED]

e. Direct costs of briefing sessions estimated at \$25 per head.

f. In addition an annual handling charge of \$100 per access agreement and \$500 per study group and commercial agreement.

26. Since it would be impracticable to charge for security surveys on an itemized basis, it is proposed that annual charges estimated at \$250 be made for each access agreement, based on the \$100 handling charge and one security survey. For the study group and commercial agreements an annual charge of \$800 is proposed, based on the \$500 handling charge and an average of 2 security surveys. Charges would be made for the other items listed in the preceding paragraph on a unit basis. In addition participants would, of course, bear costs they incur for providing approved facilities for protection of classified material, travel to briefing sessions or other consultations, and salaries of staff engaged in the work under the agreements.

27. This program would aid in resolving the problem of preferred position. Access to information through access and study agreements would tend to at least partially offset the advantages of present AEC contractors. Without such increased participation as is proposed, advancement of the art would result in the competitive positions of those who have heretofore had access to classified information becoming steadily enhanced. At the time, requiring contractors wishing to evaluate the possibilities of commercial applications, or to conduct such applications, to enter into agreements similar to those proposed herein, would aid in controlling their preferred position. This subject is treated more comprehensively in AEC 655/24 entitled "Commercial Work in Field of Reactor Development by AEC Current Contractors",

[REDACTED]

[REDACTED]

APPENDIX "B"

Proposed Standard Form -- Agreement for Access to
Confidential Restricted Data (Reactor Development)

AGREEMENT Between the

hereinafter sometimes referred to
as the contractor, and the United
States Atomic Energy Commission.

I. General Objectives

1. The contractor desires access to Confidential Restricted Data on reactor technology because of its interest in furthering the development and utilization of nuclear reactors and reactor technology for peaceful purposes.

2. The Atomic Energy Commission is willing, in the interests of forwarding the civilian use of atomic energy, to assist the contractor by making pertinent information on this subject available.



3. Irrespective of any other provisions of this agreement, it is understood by the parties hereto that this agreement applies only to work done, and developments, inventions or discoveries made by the contractor based in whole or in part on AEC information not generally disseminated to the public.

II. Terms of Agreement

1. Purpose and Scope - (to be varied according to interest and intent of organization).

2. Assistance of Others

For the purposes of this agreement the contractor may employ the services of other organizations and persons, subject to compliance with the provisions of this agreement.

3. Term

This agreement shall terminate _____ after the date of acceptance. It may be extended by mutual agreement.

4. Costs

The contractor agrees to pay \$250 as a service charge for this agreement in recognition of the costs to the government of providing access to Confidential Restricted Data (Reactor Development) and to make other payments for services in accordance with the attached schedule. The contractor will bear all costs incurred by it in obtaining, safeguarding, and using reports, documents, books, periodicals, films, etc., it orders from the Commission, and returning classified or loaned material upon termination of this agreement.

5. Reporting

Upon expiration or termination of this agreement, or prior thereto if renewal is requested, the contractor shall promptly submit a report to the Commission, summarizing its use of the information and new technical developments it may have made, and including such recommendations as may be appropriate. These reports will be distributed as the Commission sees fit. In addition, the Commission may review, at its request, any information and data developed by the contractor relating to work under this agreement. The Commission will not, in the exercise of this right, make regular inspections of the data developed by the contractor, but will use it only to the extent necessary to assure compliance with the patent provisions of this agreement.

6. Security

a. The Commission will grant limited security clearance, after completion of the necessary investigations and reports, for

[REDACTED]

[REDACTED]

a sufficient number of people in the employ of the contractor to permit fulfillment of this agreement. The total number will be kept to a minimum. It is understood that no more than _____ such clearances will be required, but this number may be modified as mutually agreed upon without formal amendment to this agreement.

b. In the performance of the work under this agreement, the contractor shall, in accordance with the Commission's security regulations and requirements, be responsible for safeguarding restricted data and other classified information or matter and protecting against sabotage, espionage, loss and theft, the classified documents, materials equipment, processes and similar things, as well as such other material of high intrinsic or strategic value as may be in his possession in connection with performance of the work under this agreement. Except as the Commission may authorize the contractor shall upon completion or termination of this agreement transmit to the Commission any classified information or matter in the possession of the contractor or any person under the contractor's control in connection with performance of this contract.

c. The term "restricted data", as used in this agreement shall mean restricted data as defined in the Atomic Energy Act of 1954 as it may be amended from time to time.

d. The contractor agrees to conform to all security regulations and requirements of the Commission.

e. Except as the Commission may authorize, in accordance with the Atomic Energy Act of 1954, the contractor shall not permit any individual to have access to restricted data until the Federal Bureau of Investigation or Civil Service Commission shall have made an investigation and report to the Commission on the character, associations and loyalty of such individual and the

[REDACTED]

[REDACTED]

Commission shall have determined that permitting such person to have access to Confidential Restricted Data will not endanger the common defense and security.

f. It is understood that the disclosure of information relating to the work under this agreement to any person not entitled to receive it, or failure to safeguard any restricted data or any top secret, secret, or confidential matter that may come to the contractor's or any person under the contractor's control in connection with the work under this agreement, may subject the contractor, its agents, employees, and associates, to criminal liability under the laws of the United States. (See the Atomic Energy Act of 1954, Public Law 703, 83d Congress. See also Title 18, U.S.C., sec. 791 to 797, inclusive, and Executive Order 10104 of February 1, 1950, 15 F.R. 597.)

g. Classified information or matter relating to the work under this agreement shall not be disclosed to any foreign government or citizen thereof unless such disclosure is approved by the Commission's representative responsible for administration of this agreement.

h. Except as otherwise authorized in writing by the Commission, the contractor shall insert provisions similar to the foregoing in all agreements made in carrying out the work under this agreement.

7. Information

The Commission will make available to the contractor all technical reports and data pertinent to the scope of this agreement which are available on a limited access basis, and the contractor will pay such charges for availability of such information as may be established by the Commission. In the event of disagreement as to pertinence or availability, the Commission's decision shall be controlling.

[REDACTED]

[REDACTED]

8. Consultation

In conformance with specific procedures established by the Commission, the Commission will arrange for or authorize representatives of the contractor to attend briefing sessions, and, when requirements cannot be met by such sessions or transmittal of available reports, to visit its offices, laboratories and plants, and those of its contractors, for the purpose of observing and discussing matters pertinent to this agreement. These visits and discussions will be controlled by the Commission so as to interfere as little as possible with Commission work already under way.

9. Indemnification

The contractor will hold the Commission and its contractors harmless with respect to any claims arising out of any use made of the information or out of any inaccuracies which may be present in the information furnished.

10. Patents

a. Whenever any invention or discovery is conceived or made by any employee of the contractor in the course of any of the work under or in connection with this agreement, the contractor shall promptly furnish the Commission with complete information thereon, and shall specify at the time of such disclosure whether or not the contractor desires to file patent applications subject to security restrictions and requirements. In each instance the contractor will retain at least: (1) an exclusive (except as against the Government and its account), irrevocable, royalty-free license, with the sole right to grant sub-licenses, under said invention, discovery, patent application, or patent for all purposes other than use in the production or utilization of special nuclear material or atomic energy; and (2) a non exclusive,

[REDACTED]

[REDACTED]

irrevocable, royalty-free license under said invention, discovery, patent application, or patent for use in the production or utilization of special nuclear material or atomic energy. The title and additional rights shall in each instance be determined by the Commission as it deems equitable and appropriate, after consultation with the contractor. The contractor, for itself, and its employees, agrees to execute all documents and do all things necessary to facilitate the filing and prosecution of any patent application which it agrees to file or which the Commission directs should be filed.

b. No claim for pecuniary award or compensation under the provisions of the Atomic Energy Acts of 1946 and 1954 shall be asserted by the contractor or its employees with respect to any invention or discovery made or conceived in the course of any of the work under this agreement.

c. The contractor agrees to secure appropriate agreements to effectuate the purposes of Paragraphs a. and b. from all persons who perform any work under this agreement, except such clerical and manual labor personnel as will not have access to technical data.

11. Public Statements

The contractor will submit all unclassified public releases, including advertising, public statements and speeches by the contractor, on its private reactor development work which relate to AEC or AEC sponsored activities, to AEC for review prior to issuance.

12. Officials not to Benefit

No member or delegate to Congress or resident commissioner shall be admitted to any share or part of this agreement or to any benefit that may arise therefrom, but this provision shall

[REDACTED]

[REDACTED]

not be construed to pertain to the agreement if made with the contractor for its general benefit.

13. Termination

Either the contractor of the Commission may terminate this agreement at any time by giving not less than 30 days prior written notice to the other. The Commission may terminate this agreement for cause, such as violation of security provisions of this agreement, at any time, without prior notice. In the event of termination for cause or otherwise, the company will forfeit all rights to classified or loaned material on hand and will promptly return all such information obtained from the Commission and will transmit all classified notes made therefrom.

14. Administration

The Director of the Division of Reactor Development or his designee will have responsibility for the administration of this agreement on behalf of the Commission. _____ has been designated as the person having responsibility for administration of the agreement on behalf of the contractor. The contractor may change such designation from time to time upon notice to the Commission.

Lawrence R. Hafstad
Director of Reactor Development

Accepted: _____
(Contractor)

By: _____
(Name)

(Title)

(Date)

[REDACTED]

[REDACTED]

APPENDIX "C"

DRAFT PRESS RELEASE

AEC EXPANDS PROGRAM FOR INDUSTRIAL
PARTICIPATION IN NUCLEAR POWER DEVELOPMENT

1. Lewis L. Strauss, Chairman of the Atomic Energy Commission, announced today that the Industrial Participation Program of the Atomic Energy Commission has been expanded to include three different categories of participants, giving the program greater flexibility and permitting simpler and less costly administration. In addition to the so-called "study agreements" inaugurated in 1951, the program now provides for "limited access agreements" and "commercial agreements". These new categories of agreements were made possible by the Atomic Energy Act of 1954 which permits simplified security clearances for access to limited areas of classified information.

2. "Limited access agreements" will be made with a wide range of organizations wishing to explore various aspects of nuclear power production. The AEC will entertain proposals for this type of agreement from such organizations as insurance companies, investment companies, consulting engineers, research organizations, and government agencies, including regulatory bodies with responsibilities related to the production of power.

3. The information to be made available under the "limited access agreements" is broad enough in scope to meet the needs of the new participants for at least initial evaluations of their potential part in commercial development of nuclear power. This information includes a large proportion of the existing classified reactor technology.

[REDACTED]

4. The next category in the program consists of the already established "study agreements". These studies will be continued for a limited number of groups that wish to make more complete evaluations of the industrial reactor field and for which the "limited access agreements" would be inadequate. Agreements in this category require a limited number of full security clearances and substantial expenditures of funds and manpower by participating companies. There are eighteen (18) study agreements now in effect with sixty-four (64) participant organizations. When current studies are completed these organizations will have invested an estimated \$8 million.

5. The third type of agreement, the "commercial agreement", will make it possible for organizations which are ready to make commercial applications of reactor technology to have access to the classified information needed for their enterprise. In this category either the limited access clearance or the full security clearance may be necessary, depending on the type of information required. As with the other two types of agreements the "commercial agreements" will require compliance with security and patent regulations.

6. The participants under all types of agreements will be required to pay identifiable costs incurred by the Government in administering the agreements. An agreement will not be required if the information needed by a participant is made available under terms of a license issued in accordance with the Atomic Energy Act.

Note: Simultaneous release of this announcement and one on the action taken on AEC 655/24 entitled "Commercial Work in Field of Reactor Development by AEC Current Contractors" is considered desirable. This could be accomplished by adding the paragraph included in Appendix "E" of the latter paper to this release.)

[REDACTED]

[REDACTED]

APPENDIX "D"

DRAFT LETTER TO GAC AND JCAE

1. Subsequent to enactment of the Atomic Energy Act of 1954, the Commission has reviewed the program for industrial participation in reactor development, and revised the arrangements for agreements with private and public organizations for development and use of reactor technology for peaceful purposes.

2. The study agreements which have been in effect since 1951 have provided access to Restricted Data to a limited number of organizations enabling them to participate in studies of the development of reactor technology at their own expense. These agreements originally provided for studies of the technology of various types of reactors, particularly dual purpose types, in order to determine the feasibility of their use for generation of electric power. As the number of agreements grew to the present 18, organizations representing such varied interests as making management-economic evaluations of use of reactors in power systems, of prospects of engaging in aspects of technology such as chemical processing, and of use of reactors for ship propulsion, entered the program. In addition, numerous other organizations of other types are seeking information as their interest in commercial applications of atomic energy has grown. While the present participants in the study group program have not assumed a significant portion of the effort for developing and demonstrating the feasibility of nuclear power, the program has resulted in a substantial segment of industry having attained reasonable success in evaluating the feasibility of nuclear power, and placed some organizations in a position enabling them to use the technology on a commercial basis whenever economically attractive opportunities exist. Continuation of some such arrangement

[REDACTED]

[REDACTED]

is essential in order to encourage widespread participation in the development and use of atomic energy for peaceful purposes by making the information developed by the Commission and its contractors on as broad a basis as possible consistent with security considerations.

3. The revised program consists of establishing three types of agreements. Access Agreements will provide access to Confidential Restricted Data necessary to the development and use of nuclear reactors for commercial purposes to persons or organizations wishing to make limited evaluations of aspects of the field of reactor development pertinent to their normal business or professional activities, and complete evaluations if access to Secret Restricted Data is not required. Access to this information will be granted to persons who receive "L" clearances, as described in our letter of November 9, 1954. These agreements will provide relatively complete technical data in this field to organizations considering participation in complete reactor projects, potential manufacturers of components and auxiliary equipment, other government agencies having responsibilities in fields where atomic energy may be used, trade associations, insurance and investment organizations considering financing commercial applications of atomic energy, universities and colleges conducting research in this field, and organizations providing consulting, engineering, and research services. In comparison with the present study agreements, these agreements would have more limited scope and objectives provide access to only Confidential Restricted Data related to civilian applications of reactor technology, require only brief reports, and provide for reimbursement of readily identifiable AEC costs attributable to their administration.

[REDACTED]

[REDACTED]

4. Continuation of agreements similar to the present type of Study Agreement is provided for organizations wishing to make complete evaluations of the prospects of engaging in research, development, construction or manufacturing in the reactor field, and demonstrating that access to higher categories of classified information than those made available under the access agreements is necessary. These agreements will retain essentially their present form except to provide for payments to cover AEC's readily identifiable costs of administration and for more comprehensive reporting. The number of these agreements will be restricted by the application of more rigorous criteria and by availability of the Access Agreements.

5. A third type of Commercial Agreement has been established for persons or organizations prepared to engage on a normal business basis in engineering or management consulting work, research and development, manufacturing, or operations related to commercial applications of reactor technology. These agreements would provide access to Confidential or Secret Restricted Data, on the basis of "L" or "Q" clearances respectively, as required. These agreements would be available to participants in the study program and to persons or organizations having competence to enter the field by virtue of their having done work under an AEC contract. These agreements will contain appropriate security, patent and reporting provisions, consistent with the terms of licenses which are now being developed.

6. The information supplied under these agreements will include the Reactor Handbook and the Journal of Reactor Science and Technology issued as Confidential Restricted Data, and technical reports issued by AEC contractors in the categories of information to be made available. Publication of a digest of such reports is planned.

[REDACTED]

[REDACTED]

[REDACTED]

7. The Commission realizes that this expanded program will involve substantially increased costs. It has provided that charges will be established to cover readily identifiable costs, such as those incurred in processing security clearances, checks of security facilities, reproduction and handling of technical publications, conduct of briefing sessions, and services provided by AEC laboratories at the specific request of the participants. In the interest of simplification, a flat charge for the first year, estimated at \$250 for the new Access Agreements and \$800 for Study and Commercial Agreements, will be made. In addition, itemized charges will be made for processing security clearances, technical publications, and specific services, including briefing sessions, provided by the laboratories. A specific schedule of charges will be established after more refined estimates of costs have been developed.

8. Public announcement of this program is being withheld until the necessary procedures for handling applications for agreements can be established. We will notify you at that time.

ESTIMATED DIVISION OF REACTOR INFORMATION BY CATEGORIES

