NRC CASELOAD

PLANNING PROJECTIONS FOR FISCAL YEARS 1982-86

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Planning Projections for Fiscal Years 1982-1986

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PLANNING PROJECTIONS FOR FISCAL YEARS 1982-86

1.0 The Caseload Panel was designated in late 1975 to assist the Budget Review Group (BRG). The Panel is chaired by a representative from the Office of Management and Program Analysis. Membership on the Panel is designated by the Office Directors for Nuclear Reactor Regulation, Inspection and Enforcement, Nuclear Materials Safety and Safeguards, the Controller, and Management and Program Analysis.

The Panel develops caseload projections for use by the NRC staff in budget preparation and longer range program planning. The projections are to be utilized within the overall policy and planning framework contained in the NRC FY 1982-86 "Policy, Planning, and Program Guidance" (PPPG).* Specific workload and manpower loadings based on these projections are developed by individual offices. The projections herein are based primarily on surveys conducted by NRR and NMSS of industry plans over the next three years. Additional workload is also generated on a continuous basis as a result of NRC's post-licensing activities and inspection purview of all operational facilities.

The caseload projections as detailed in the following sections are summarized below:

1. By the end of FY 86 there are expected to be about 135 reactors (124 GWe) operating or ready for fuel loading;**

2. Only one new Construction Permit application*** is expected in the early to mid-1980's; about 2-8 applications per year will be tendered for operating licenses for plants already under construction;

3. NRC will be conducting site characterization reviews (in a variety of media) for a high-level waste repository application throughout FY 81-86; an application is expected to be tendered by DOE by 1987;

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* Draft issued by the Chairman March 10, 1980. (See also EDO comments dated March 24, 1980.)

** If commercial operation is assumed to occur about 1 year after initial licensing, the equivalent number of reactors in commercial operation by FY 86 would be about 124 (111 GWe). Based on a separate analysis done by MPA, time from CP application in the 1983-1984 period to commercial operation for a large reactor is, based on historical trends, expected to be about 15-16 years; thus any reactor application tendered after that time would not be expected to be in commercial operation by the year 2000. Based on the FY 82-86 projections, Figures 1 and 2 depict the projected trend of reactors in commercial operation from 1965 to 2000. If the lower projections (Curves (2) or (3)) prove to be more accurate, the curves will likely not flatten out by the mid-to-late 1980's but will probably more gradually slope to an overall projection of about 123 GWe by the year 2000.

*** The only plant currently on order for which a CP application has not been tendered is Commonwealth Edison's proposed Carroll County 1 and 2 plant.

4. Four additional facilities for storage of spent fuel away from reactors are expected to be licensed during the planning period; these should meet the demand of about 5,000 MT anticipated by about FY 83;

5. By the end of the planning period, there are expected to be 23 fuel cycle facilities under NRC licensing authority and approximately 10,500 radioisotope licenses:

6. Up to 9 licensed LLW disposal sites (including the 3 currently licensed) are expected by the end of FY 86, and NRC assistance on 6 other sites is expected to be provided to Agreement States;

7. By the end of the planning period there are expected to be about 24 licensed uranium mills and about 70 additional licenses for other types of activities, such as solution mining and ore-buying stations;

8. Transportation reviews will average about 55 per year throughout FY 82-86; about 300-400 shipments of radioactive material per year will require a safeguards review and will be monitored in transit;

9. About 400 material control & accounting and about 500 physical security reviews for various fuel cycle facilities, power and non-power reactors will be required each year throughout the planning period; and

10. Export and import licenses will average about 1,000 reviews per year throughout the planning period; approximately 15% are designated major cases (which require Commission approval); and another 15-20% require safeguards reviews.

ESTIMATES OF REACTORS IN COMMERCIAL OPERATION

FIGURE 1

Number of Reactors

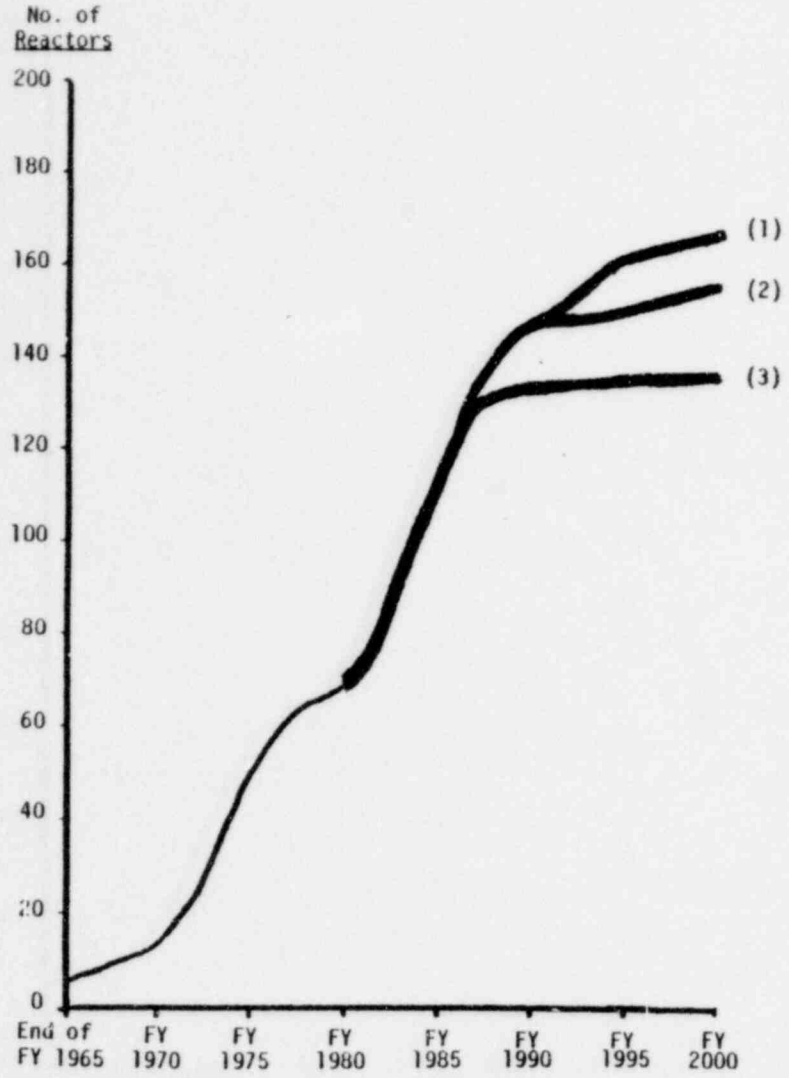
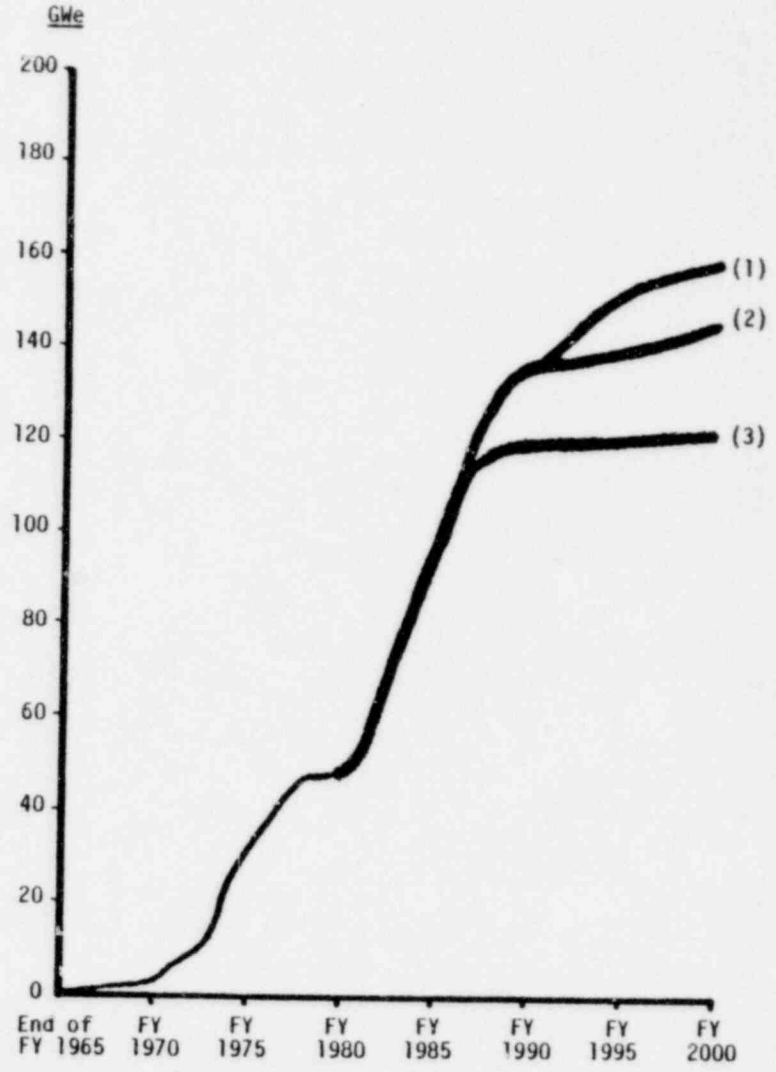


FIGURE 2

Capacity (GWe)



Legend:

Curve (1) - All reactors in caseload pipeline

Curve (2) - All reactors with CP's issued

Curve (3) - All reactors with first concrete poured

2.0 Power Reactors Casework Program*

Casework consists of licensing effort associated with the safety, environmental, and antitrust reviews of applications for a construction permit (CP), operating license (OL), Preliminary or Final Design Approval (PDA or FDA) of a standard plant design, early site approval, and post-construction permit activities. This effort also includes the safety review of DOE facilities. The CP review includes the safety aspects of the applicant's preliminary design of a nuclear facility, and also includes a detailed review of the site selection process, and the environmental aspects of the proposed site. This review must be completed prior to the start of any construction. A limited work authorization (LWA) may be issued prior to issuance of a CP if all NEPA and site suitability considerations are satisfied. The OL review addresses the final design of the plant. This phase starts approximately three years prior to the expected fuel load date. The standard plant design concept offers an opportunity for reactor designers and architect/engineers to submit for review standard designs that can be referenced by future license applicants, thereby reducing the staff manpower and the time required for review of individual applications. Early site reviews (ESR) are conducted to evaluate the environmental and site suitability aspects of sites to be used in future CP applications.

Only one new construction permit application will be received in the early to mid-1980's. No new orders are expected beyond those already announced. (The only plant currently on order for which a CP application has not been tendered is Commonwealth Edison's proposed Carroll County 1 and 2 plant.) The specific projections for licensed reactors were estimated by reviewing the applicant's projected date for construction completion, the date predicted by the NRC model (see Appendix "A"), and estimates made by the Regional Offices of Inspection and Enforcement. During the past year, the Panel also visited 18 plants to observe construction progress first-hand. The projections did not include any additional slippages stemming from TMI lessons-learned unless specific information was known. Adjustments were then made for plant-specific factors to arrive at the NRC projections.

The projections for this program area are shown in Table 1.

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* As of the end of 1979, seventy-one (71) research reactors were licensed. The number is expected to remain fairly constant throughout the planning period. Any new applications would not likely require sufficient manpower to justify the Panel making projections for research reactors.

Table 1

POWER REACTOR CASELOAD

	FY1980	FY1981	FY1982	FY1983	FY1984	FY1985	FY1986
New Applications[1]							
CP's	-0-	-0-	1(2)	-0-	-0-	-0-	-0-
OL's[4]	8(15)	3(8)	6(13)	2(3)	2(2)	2(3)	5(11)
New Issuances[1]							
Construction Permits[3]	-0-	6(11)[2]	-0-	-0-	-0-	1(2)	-0-
Licenses[5]	5	9	12	9	11	11	11
Total Reactors[6]							
Licensed[5]	72	81	93	102	113	124	135
Total Reactors							
Under Constr.[2]	85	85	73	64	53	44	33
New Applications							
NSSS/BOP	1	-0-	1	-0-	-0-	-0-	-0-
Site Reviews	1	-0-	-0-	-0-	-0-	-0-	-0-
Reviews for DOE	5	1	3	2	2	2	2

NOTES:

[1] Number listed is total number of plants or applications; number in parentheses is total number of reactors.

[2] The number of plants at the end of FY 79 includes two units already being constructed under an LWA but which are not projected for CP's issued until FY 1981; thus they were not re-added during those respective years. Two additional units being constructed under an LWA at the end of FY 1979 were cancelled early in FY 1980. Also, the number of reactors under construction excludes Sterling 1 and Jamesport 1 & 2 which have been denied certification by the N.Y. State Siting Board.

[3] Issuances are based on the assumption that CP reviews are resumed in FY 1980.

[4] New OL applications are based on tendering dates, but as a practical matter the actual reviews may not start until a later date, depending on NRR manpower constraints.

[5] Projections are based on dates when construction is estimated to be complete enough to permit issuance of an initial fuel load and/or low power testing license.

[6] Excludes 3 which have operating licenses but are shut down indefinitely--Three Mile Island 2, Humboldt Bay, and Indian Point 1.

3.0 Fuel Cycle and Materials Safety Program

This program area covers licensing of byproduct material, source material, and special nuclear material, as well as the facilities that process and fabricate fuel for reactors. NRC exercises licensing authority over UF_6 production facilities, uranium fuel fabrication plants and plutonium R&D facilities. (See Tables 2-4.) Standard assumptions for specific review times were supplied by NMSS. Depending on the type of facility, renewals and amendments could be completed within six months to two years after receipt. Enrichment plants are government owned and are not subject to licensing.

The fuel cycle program area also includes safety reviews of DOE-owned waste processing facilities, such as the Savannah River High Level Waste Treatment Facility. One review of this type per year is anticipated in FY 1982-84.

Table 5, "Radioisotopes," includes projections for byproduct, source, and special nuclear material. It is anticipated that by the beginning of FY 81, radioisotopes licenses will be processed within 30-45 days from receipt. The projections in Table 5 do not reflect any increase in new applications/licenses which might be required as a result of the study currently underway on consumer products (to be completed FY 1981) or the re-examinations of existing NRC policy in the use of general licenses (to be completed in FY 1983).

TABLE 2

URANIUM FUEL FABRICATION

	FY1980	FY1981	FY1982	FY1983	FY1984	FY1985	FY1986
New Facilities							
Received	1	0	0	0	0	0	0
Completed	0	1	0	0	0	0	0
Major Amendments							
Received	9**	21***	22*	9*	9*	9*	9*
Renewals							
Received	1	5	5	1	2	4	6
Total Licensed							
End FY	17	18	18	18	18	18	18

NOTES: New Facility - Little growth projected. Application in FY 80 is for Westinghouse, Prattville, Alabama plant.

Major Amendments - Identified companies partially for FY 80 and FY 81. Estimates for FY 80-86 based on past experience. In FY 81, 8, and, in FY 82, 9 major amendments to existing emergency plans are projected. Also in FY81 and FY82, 4 major amendments per year are projected to incorporate Clean Air Act requirements for certain fuel fabrication plants.

Renewals - All renewals based on identified companies.

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* All unidentified
** Two unidentified
*** Two identified

Table 3

PLUTONIUM R&D AND PILOT FACILITIES

	FY1980	FY1981	FY1982	FY1983	FY1984	FY1985	FY1986
New Facilities							
Received	0	0	0	0	0	0	0
Completed	0	0	0	0	0	0	0
Major Amendments*							
Received	1	2	3	1	0	0	1
Renewals							
Received	0	0	0	0	1	2	1
Total Licensed							
End FY	8	6	3	3	3	3	3

NOTES: Major Amendments - Identified companies for 80 and partially for 81. Estimates for 82-86 based on continued moratorium on Plutonium recycle.

Renewals - All renewals are based on identified companies.

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* Including decommissioning. Licensees have adequate authority to conduct decontamination activities leading to decommissioning of their facilities. However, assessment of the status of the facility following decontamination to provide approval for release of the facility for unrestricted use requires staff effort comparable to that of a major amendment.

Table 4

FUEL CYCLE FACILITIES

UF_6 Production Facilities

	FY1980	FY1981	FY1982	FY1983	FY1984	FY1985	FY1986
New Facilities							
Received	0	0	0	0	0	0	0
Completed	0	0	0	0	0	0	0
Major Amendments							
Received	1	3	1*	1*	1*	1*	1*
Renewals							
Received	0	0	1	1	0	0	0
Total Licensed							
End FY	2	2	2	2	2	2	2

NOTES: New Facility - None projected by industry for this period.

Major Amendments - Identified companies for 80. Estimates for 81-86 based on past needs. Includes 2 major amendments to incorporate emergency plans into existing licenses.

Renewals - Identified companies for all renewals.

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* All unidentified

Table 5

RADIOISOTOPES LICENSING

	FY1980	FY1981	FY1982	FY1983	FY1984	FY1985	FY1986
Appls. Received:							
New Licenses	710	720	760	840	845	780	760
Amendments	3300	3300	3300	3300	3300	3300	3300
Renewals	800	850	1100	1700	1715	1285	1100
Total Licenses	8950	9200	9450	9700	9950	10200	10500

NOTES: New Licenses - Based on historical data for new licenses; includes about 10% of expired licenses which are not renewed, but are issued as new licenses.

Amendments - Based on historical data, but expected to remain constant.

Renewals - Approximately 70% of licenses up for renewal are actually renewed.

Total Licenses - About a 3% net increase per year.

4.0 Waste Management Program

NRC's Waste Management Program is composed of three parts: high level waste (including transuranic wastes and spent fuel to be placed in deep geologic respositories for permanent disposal), low level waste, and uranium recovery. High level and low level waste disposal were addressed by the Interagency Group Report on Nuclear Waste Management (IRG).

4.1 High Level Waste

NRC's authority to license and regulate the disposal of high level radioactive waste is derived from three statutes: the Atomic Energy Act of 1954, the Energy Reorganization Act of 1974, and the National Environmental Policy Act of 1969. DOE has been given sole authority to dispose of commercially generated high level waste. In anticipation of the first DOE Application, NRC will concentrate on regulations, guidance, and supporting data.

The President's recent message to Congress outlined the time frame for resolving technical issues leading to an operational waste repository in the early 1990's. The exact timing of a specific DOE application to NRC is unknown at this time, but it is anticipated that NRC will be conducting site characterization reviews and will be involved in other pre-licensing efforts during FY 1981-86.

4.2 Low-Level Waste

NRC's authority to license and regulate the disposal of low-level radioactive waste is derived from three statutes: the Atomic Energy Act of 1954, the Energy Reorganization Act of 1974, and the National Environmental Policy Act of 1969.

The low-level waste management program is divided into two major areas: regulatory development and licensing casework. A regulation is in preparation on the disposal of low-level waste (10 CFR 61). Regulatory guides and review procedures are also included. NRC licenses low-level waste disposal sites in non-Agreement States and provides technical assistance, as resources permit, to Agreement States in the licensing of disposal sites within State jurisdiction. The low-level waste management program requires input and coordination from other NRC offices and other Federal agencies.

The new LLW applications projected in Table 6(a) are new commercial sites, assuming no changes from existing Federal and State regulatory roles. Technical assistance to Agreement States is also part of the LLW program. The three existing operational sites - Barnwell, Beatty, and Hanford - are located in Agreement States. (See Table 6(b).)

Although specific sites are not yet identified, it is anticipated that more capacity will be required, due to the current position held by the Governors of the three States (Washington, South Carolina, and Nevada)

with operating sites. The Governors do not believe that three States should bear the nation's low-level waste burden. Each State should be responsible for its own low-level wastes and the Governors are taking measures to assure that other States accept this responsibility. The States are evaluating options for establishing new sites in their own State and for forming compacts to jointly sponsor sites.

Additionally, if the IRG recommendations and the President's recommendations are implemented through legislative action, NRC will be required to license new DOE shallow land burial sites. In addition, the recommendations of the Congressionally requested NRC study entitled, "Regulation of Federal Radioactive Waste Activities" (NUREG-0527), would have NRC conduct in conjunction with DOE a pilot program to test the feasibility of extending the NRC regulatory authority on a consultative basis to existing DOE waste management activities. The Commission has assumed there will be no extension of NRC regulatory authority to DOE waste activities unless required by Congress and thus projections for this activity are not included in this report.

4.3 Uranium Recovery

NRC's authority to license and regulate uranium recovery operations is derived from four statutes: the Atomic Energy Act of 1954, the Energy Reorganization Act of 1974, the National Environmental Policy Act of 1969, and the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA).

The uranium recovery management program consists of the licensing and regulation of uranium recovery operations. Such operations include uranium mills, heap leaching, ore buying stations, commercial solution mining (in-situ), and research and development uranium extraction. Projections for these licensing actions are shown in Tables 7-10.

The NRC also provides technical assistance to Agreement States in assessing environmental impacts of uranium recovery facilities under State jurisdiction. As of the end of FY 1979, 21 requests were in-house and an additional 24 projects in Agreement States are identified which may result in requests for NRC assistance during the next year or two. (See Appendices B and C.)

In addition to the potential projects listed in Appendix C, a distinct possibility exists that some of the current Agreement States, who perform their own uranium mill licensing, may return this licensing authority to the NRC. This would increase current casework. At this time, however, it would be pure speculation to try to predict the increased future workload due to this possible occurrence.

Pursuant to the requirements of Title I of the Uranium Mill Tailings Radiation Control Act of 1978 (Public Law 95-604), NRC will also be involved in the remedial action program for 25 inactive tailings sites under DOE control. This involvement will take the form of providing reviews and comments, concurrences, and licensing actions at appropriate points in the remedial action process. It is expected that efforts will be initiated on all 25 projects during FY 1980, and that these efforts will be continued concurrently for all of the projects until all are completed in about 5 years.

The workload is expected to be evenly distributed during this period. Therefore, for purposes of projecting the required expenditure of manpower, a good approximation is that 5 cases will be incoming over each of the next 5 years (FY 1980 through FY 1984).

Table 6(a)

Licensed LLW Disposal Sites

	FY1980	FY1981	FY1982	FY1983	FY1984	FY1985	FY1986
New Sites*							
Received	0	2	3	1	0	0	0
Completed	0	0	0	2	3	1	0
Major Amendments							
Received	2	0	2	0	0	2	0
Renewals							
Received	1	0	1	0	0	1	0
Total Sites							
Licensed	3	3	3	5	8	9	9
Identified	3	3	3	3	3	3	3
Unidentified	0	0	0	2	5	6	6

Table 6(b)

Assistance to Agreement States

LLW Disposal Sites

	FY1980	FY1981	FY1982	FY1983	FY1984	FY1985	FY1986
New Sites*	0	2	3	1	0	0	0
Modifications for existing sites	5	4	6	5	7	10	10

*NOTE: All new sites are unidentified.

Table 7

URANIUM MILLING

	FY80	FY81	FY82	FY83	FY84	FY85	FY86
New Facilities							
Received[1]	3	4	2	1**	0**	0**	0**
Completed	0	3	4	2	1	0	0
Major Amendments[2]							
Received	6	7[4]	8[4]	8[5]	9[5]	9[5]	10[5]
Renewals[3]							
Received	0	1	3	1	5	3	3
Total Licensed							
End FY	15	17*	21	23	24	24	24
Identified	15	17	21	23	24	24	24

NOTES: [1]New Facilities - Identified companies through FY83.

[2]Major Amendments - Identified companies in FY80. For FY80-85 estimates based on experience and number of licensed mills.

[3]Renewals - All renewals based on identified companies.

[4]Two identified

[5]All unidentified

* TVA mill expected to be decommissioned in FY 81.

** NMSS had suggested two new mill applications per year (based on reactivation of projects projected by industry but omitted in recent survey) for the years 1983-87, although only application (in FY 1983) was identified. The Panel did not believe there was sufficient basis for these estimates in view of the projected reactor capacity growth from 49 GWe at the present time to a maximum of 160 GWe by 1995. If one assumes a 6,000 ton U_3O_8 requirements per 1 GWe over a 30-year life of a reactor, it appears that the domestic reactor industry would require only about 185,000 tons U_3O_8 by 1995. Given recent DOE projections /Statistical Data of the Uranium Industry (GJO-100 (79)/ of a 220,000 ton U_3O_8 U.S. production capability through 1986 from already existing mills, with another 100,000 tons additional capability becoming available during the early 1980's from already committed mills, it appears to the Panel that there is no strong basis for believing the new licensed mill applications will continue into the mid to late 1980's without some reversing trend in the present downward slide of the U.S. reactor projections. A similar situation could also be expected for mills in Agreement States. The Panel recognized the market uncertainties caused by price and export considerations but believed, if the above estimates of production capability are not greatly understated, there is indeed sufficient margin to handle these uncertainties.

Table 8

OTHER URANIUM ORE PROCESSING[1]

	FY80	FY81	FY82	FY83	FY84	FY85	FY86
New Facilities[2]							
Received	2	3	1[5]	1[5]	1[5]	1[5]	1[5]
Completed	0	2	3	1[5]	1[5]	1[5]	1[5]
Major Amendments[3]							
Received	0	0	0	1	0	0	0
Renewals[4]							
Received	0	0	1	0	2	0	2
Total Licensed							
End FY	5	6*	9	10	10**	11	12
Identified	5	6	9	9	8	8	8
Unidentified	0	0	0	1	2	3	4

* Expect Plateau Resources facility to be decommissioned in FY81.
** Expect Energy Fuels Nuclear OBS to be decommissioned in FY84.

NOTES: [1]Includes ore buying stations and various above ground leaching operations.

[2]New Facilities - Identified companies in FY80-81. Estimates for FY82-85 based on expected growth in heap leaching activities for low grade ores in place of conventional mills.

[3]Major Amendments - None expected except for FY83 decommissioning of OBS facility.

[4]Renewals - Based on identified companies FY80-86.

[5]Unidentified.

Table 9

SOLUTION MINING (COMMERCIAL SCALE)

	FY80	FY81	FY82	FY83	FY84	FY85	FY86
New Facilities[1]							
Received	1	4	3	3[4]	3[5]	3[5]	3[5]
Completed	1	2	4	3	3[4]	3[5]	3[5]
Major Amendments[2]							
Received	0	1	2[5]	2[5]	2[5]	2[5]	3[5]
Renewals[3]							
Received	0	0	0	1	0	1	2
Total Licensed							
End FY	2	4	8	11	14	17	20
Identified	2	4	8	11	12	12	12
Unidentified	0	0	0	0	2	5	8

NOTES:
[1] New Facilities - Identified companies in FY80-82. Estimates for FY83-86 based on expected conversion of R&D facilities to commercial scale operations.

[2] Major Amendments - Identified company FY81. Estimates for FY82-86 based on expected increased number of licensed facilities.

[3] Renewals - Based on identified companies.

[4] One company identified.

[5] All unidentified.

Table 10

OTHER SOLUTION RECOVERY[1]

	FY80	FY81	FY82	FY83	FY84	FY85	FY86
New Facilities[2]							
Received	3	5	3[5]	3[5]	3[5]	3[5]	3[5]
Completed	2	7	1	3[5]	3[5]	3[5]	3[5]
Major Amendments[3]							
Received	2	2	2	2	3	3	4
Renewals[4]							
Received	2	2	1	5	2	6	5
Total Licensed							
End FY	17	24	25	28	31	34	37
Identified	17	24	25	25	25	25	25
Unidentified	0	0	0	3	6	9	12

NOTES: [1]Includes R&D solution mining and recovery of uranium as a byproduct from solutions.

[2]New Facilities - Identified companies in FY80-81. Estimates based on anticipated increased interest in solution mining for FY 82-86.

[3]Major Amendments - Identified companies in FY80. Estimates for FY81-86 based on number of licensed facilities.

[4]Renewals - All renewals based on identified companies.

[5]All unidentified.

5.0 Spent Fuel Storage Program

Without reprocessing, spent fuel now has to be stored at reactor sites. Such storage will soon become inadequate. Independent Spent Fuel Storage Installations need to be operating beginning in the period FY83 to FY85 to meet off-site storage demand. Installed capacity of about 5,000 MT will be required to cover the needs up until the late 1980's.

Expansion of two existing facilities, Barnwell and GE-Morris, and one new facility for the storage of spent fuel outside of operating reactor pools will require licensing review if DOE implements its spent fuel storage policy. Implementation of that policy is dependent upon passage by Congress of the Spent Fuel Storage Bill. (If the Bill is not passed, and there are no government-owned facilities, similar types of applications may be submitted by commercial utilities.) Notwithstanding the passage of that Bill, another large capacity ISFSI application is anticipated by TVA in FY84. The total casework projections are shown below:

Table 11

Independent Spent Fuel Storage Facilities

	FY1980	FY1981	FY1982	FY1983	FY1984	FY1985	FY1986
Applications Received	0	2	1	0	1	0	0
Approval to Construct	0	0	0	2	1	0	1
Total Licensed	2	2	2	2	2	4	5

NOTES:
1) Also expect to complete in FY 1980 the review of Duke Power Company's request for transhipment of spent fuel, but this does not result in a license.
2) The FY 1981 applications are for DOE facilities A (Barnwell) and B (Morris).
3) The FY 1982 application is for DOE acquisition of the NFS-West Valley spent fuel pool.
4) Currently licensed by NRC is the Morris facility, noted above, and NFS-West Valley.
5) The FY 1984 application is for a TVA ISFSI.

6.0 Transportation Program

The Transportation Program Area deals with the regulation of transportation of radioactive materials. Certificates of Compliance are issued for packaging designs for radioactive materials on the basis of their satisfying the requirements of 10 CFR Part 71. A memorandum of understanding to resolve overlapping regulatory authority in this area has been developed between NRC and the Department of Transportation.

Reviews of package designs, for which projections are shown in Table 2, are classified as Category I, II, III, IV, or V, as follows:

Review Category	Description
I	Spent Fuel Casks Plutonium Air Transport Packages High Level Waste Casks
II	Normal Form Type B Packages
III	Special Form Type B Packages Fissile Type A Packages Amendments to Major I Packages
IV	Amendments to Major II or Major III Packages
V	Quality Assurance Programs Renewals

Table 12

Transportation Reviews

Applications Received	FY 80	FY 81	FY 82	FY 83	FY 84	FY 85	FY 86
Category I Reviews	1	(1)	(1)	(1)	(1)	(1)	(1)
Category II Reviews	10	9(5)	9(6)	9(7)	(9)	(9)	(9)
Category III Reviews	13	15(11)	15(14)	15(14)	(15)	(15)	(15)
Category IV Reviews	15	15(5)	15(8)	15(11)	15(13)	(15)	(15)
Category V Reviews	20	15(8)	15(11)	(15)	(15)	(15)	(15)
Total Reviews	59	55(30)	55(40)	55(48)	55(53)	(55)	(55)

NOTE: Numbers given in parentheses are for as yet unidentified reviews.

7.0 Safeguards Program

Under the Atomic Energy Act of 1954 and the Energy Reorganization Act of 1974, the NRC is responsible for the regulation of safeguards provided by certain of its licensees. NRC currently has safeguards regulatory control over 19 fuel cycle facilities that are authorized to possess formula quantities of highly enriched uranium or plutonium, transportation activities involving spent fuel or formula quantities of highly enriched uranium or plutonium (about 20 shipments per month), 70 licensed power reactors and 71 non-power reactors. NRC also has safeguards responsibilities for other facilities which possess significant quantities of low enriched uranium as well as numerous small facilities that possess and ship SNM (48 licensees and 2 shipments per month).

The NRC Domestic Safeguards Program is composed of two parts: (1) Material Control and Accounting (MC&A), and (2) Physical Security. Under the MC&A portion (see Table 13), NRC reviews new MC&A licensee plans and revisions to existing plans and institutes remedial licensing actions based on the results of inspections and evaluations. Under the physical security portion (see Table 14), NRC reviews physical protection plans, guard training plans, contingency plans and revisions to existing plans and institutes remedial licensing actions based on results of inspections and evaluation.

Table 13

Material Control and Accounting Caseload

FY 1980 - FY 1986

(Receipt)

Category	FISCAL YEAR						
	1980	1981	1982	1983	1984	1985	1986
Domestic Case Work							
Major Plan Change Application[1] (new)	5 (1)	3 (2)	2 (0)	5(b) (1)	2(c) (0)	4(c) (0)	4(c) (0)
Category I Physical Security Upgrade MC&A Review[2]	9	0	0	0	0	0	0
Category I MC&A Upgrade Amendments[3]	0	0	10	5(c)	2(c)	0	0
Integrated Rule	0	0	0	0	9	0	0
Major Remedial Actions[4]	7	5(b)	6(c)	2(c)	2(c)	2(c)	2(c)
IAEA Facility[5] Attachment reviews	10	90	90	50	20	20	20
(Major reviews)	(10)	(8)(a)	0	0	0	0	0
Minor Domestic Casework							
Plan Change Application	94	80	80	80	80	80	80
Remedial	11	10	10	10	10	10	10
International Case Work							
Foreign Country MC&A Analysis[6]	10	20	20	25	25	25	25
Export reviews[7]	140	140	150	150	150	150	150
Regulatory Issue Cases							
Generic issues[8]	8	21	20	20	20	20	20
Regulatory amendments[9]	10	8	21	20	20	20	20
Guidance documents[9]	20	16	42	40	40	40	40
Value-impact analyses[9]	6	2	4	4	4	4	4
Testimony[10]	0	1	0	2	1	1	1
TOTAL REVIEWS	330	396	455	~~393~~ 413	~~365~~ 385	376	376

(a) Two cases are unidentified
(b) Four cases are unidentified
(c) All cases are unidentified

Material Control and Accounting Caseload

FOOTNOTES

1. Application submitted for a license or to amend a license.
2. MC&A reviews of 9 Physical Security Upgrade licensing amendments.
3. Amendments to existing licenses will be required in FY82 as a result of the MC&A upgrade rule scheduled in FY1981.
4. Remedial action required from I&E reports.
5. Review and assistance to licensees required to complete facility attachments as a result of the IAEA Agreement.
6. Reviews required to support the Nuclear Non-Proliferation Act.
7. Reviews for the export of HEU, LEU, and source material and major imports as well as retransfers and agreements for cooperation.
8. Specific generic issue cases have been identified through FY81, and partially for FY82. Remaining FY82 and generic issue cases for FY83 through FY86 are based on past experience.
9. Regulatory amendments, guidance documents, and value-impact analysis cases for FY81 are based on prior year generic issue cases. Regulatory amendments result in licensing casework one year later.
10. Testimony cases are based on generic issue cases from second previous fiscal year.

Table 14

Physical Security

FY 1980 - FY 1986

(Receipt)

Category	FISCAL YEAR						
	1980	1981	1982	1983	1984	1985	1986
Domestic Case Work							
Fuel Cycle:							
Category I Physical[1] Security Upgrade Rule							
Fixed Site	9	0	0	0	0	0	0
Transportation	3	0	0	0	0	0	0
Category II/III Rule[2]							
Fixed Site	24	2	2(b)	2(b)	2(b)	2(b)	2(b)
Transportation	20	2	2(b)	2(b)	2(b)	2(b)	2(b)
Integrated Rule	0	0	0	0	9	0	0
Major Remedial Actions[3]	0	0	0	0	0	0	0
Other minor remedial cases							
Fixed Site	40	100	100	100	100	100	100
Transportation	10	10	10	10	10	10	10
Major Plan Change[4]							
Applications	0	3	1(a)	3(b)	2(b)	2(b)	2(b)
(new)	0	(2)	(0)	(1)	(0)	(0)	(0)
Transportation:[5]							
Spent Fuel Plans	35	35	35	35	35	35	35
Spent Fuel Shipments	300	300	300	300	300	300	300
Cat I/II Shipments	76	76	76	76	76	76	76
Power Reactors:							
Contingency Plan[6]	6	6	6	6	6	6	6
Guard Training Plans[6]	6	6	6	6	6	6	6
Physical Security Plan[6]	6	6	6	6	6	6	6
Vital Area Analysis	31	13	6	6	6	6	6
Minor Remedial Licensing	55	6	6	6	6	6	6
Minor Amendments for I&E Reports	10	30	50	64	64	64	64
Minor Plan Change[7] Applications	20	40	60	64	64	64	64

(a) one unidentified case
(b) two unidentified cases

TABLE 14 (Cont'd)

Physical Security

FY 1980 - FY 1986

(Receipt)

Category	FISCAL YEAR						
	1980	1981	1982	1983	1984	1985	1986
Non-Power Reactor:							
Cat II/III Rule	40	0	0	0	0	0	0
Cat I Rule							
Physical Security	2	16	0	0	0	0	0
Contingency Plans	0	0	18	0	0	0	0
Comp Evaluation[8]	0	0	0	18	0	0	0
Plan Change Application[7]	0	14	28	30	30	30	30
International:							
Export Applications	195	168	178	178	178	178	178
Foreign Country Evaluations	4	4	4	4	4	4	4
Regulatory Issue Cases							
Generic issues[9]	26	20	20	20	20	20	20
Regulatory amendments[10]	1	26	20	20	20	20	20
Guidance documents[10]	38	52	40	40	40	40	40
Value-Impact analysis[10]	5	5	4	4	4	4	4
Testimony[11]	1	1	2	1	1	1	1
TOTAL REVIEWS	981	941	980	1001	991	982	982

TABLE 14

Physical Security

FOOTNOTES

1. Physical security reviews of 9 fixed site and 3 transport Physical Security Category I Upgrade Amendments.

2. Physical security review of Category II/III rule amendments (after FY1981 cases are new Cat II/III licensees and amendments).

3. Remedial actions required from I&E reports. (Because major amendments will result from the new rules no major remedial action is forecast. Only minor ations are anticipated.)

4. Applications submitted for a license or to amend a license. The Westinghouse application in FY1980 is for a Cat II facility and is shown under the Cat II/III rule case work.

5. Reviews of transportation plans and monitoring of shipments (based on FY1980 workload).

6. Contingency, guard, and physical security plan reviews and vital area analysis for power reactors. (Projections based on the number of OL applications and back log.)

7. Minor plan changes requested by the licensee.

8. Remedial amendments as a result of the comprehensive evaluations.

9. Specific generic issue cases have been identified through FY81, and partially for FY82. Remaining FY82 and generic issue cases for FY83 through FY86 are based on past experience. Sources of generic regulatory issues include Commission concerns, Congressional concerns, public comments, licensee safeguards system reviews, and safeguards incidents.

10. Regulatory amendments, guidance documents, and value-impact analysis cases are based on prior year generic issue cases. Regulatory amendments result in licensing casework one year later.

11. Testimony cases are based on generic issue cases from second previous fiscal year.

8.0 International Program

This program encompasses NRC's nuclear export and import licensing and related functions, and a broad spectrum of cooperative activities with international organizations and foreign regulatory and safety agencies. More specifically, within this program, NRC licenses exports and imports of nuclear equipment and materials, including components of nuclear reactors, and interacts with other U.S. Government agencies having nuclear export functions. Major cases are exports of large quantities of source material, reactors, more than 1 kilogram of SNM or those of an unusual nature with policy implications. Major cases require Commission approval, whereas authority for approving minor cases has been delegated to the EDO.

Several offices participate in NRC's international program. While IP has lead responsibility for processing applications, certain cases as noted below, require NMSS review as well. These include:

- Production and utilization facilities;
- One effective kilogram or more of special nuclear material if such material is destined for a nation to which the Commission has not previously authorized the export of nuclear components or materials pursuant to Section 127 of the Atomic Energy Act;
- Any quantity of source material if such material is destined for a nation to which the Commission has not previously authorized the export of nuclear components or materials pursuant to Section 127 of the Atomic Energy Act;
- 1,000 kilograms or more of heavy water or nuclear grade graphite;
- NRC-licensed components destined for use in a reprocessing, enrichment or heavy water production facility;
- Any other license application determined by the staff or a Commissioner (or a majority of the Commissioners) to warrant review by the Commission.
- All major HEU cases.

Export licensing activity rose sharply in 1978 because of new NRC responsibilities resulting from the Nuclear Non-Proliferation Act of 1977. This trend is expected to continue in the near term, leveling off by FY 1982 and remaining constant (at about 1,000 cases per year) thereafter. (International safeguards reviews for either physical security or material control and accounting represent about 15-20% of the cases.)

Table 15

EXPORT/IMPORT LICENSING

Export

	FY1980	FY1981	FY1982	FY1983	FY1984	FY1985	FY1986
Licenses Issued:							
Major Cases							
HEU[1]	30	40	40	40	40	40	40
LEU	80	90	100	100	100	100	100
Source	10	15	15	15	15	15	15
Reactor	1	2	2	3	3	3	3
Minor Cases							
SNM[1]	150	200	200	200	200	200	200
Source	50	55	60	60	60	60	60
Byproduct	400	450	450	450	450	450	450
Special Materials[2]	400	450	450	450	450	450	450

Import

Major Cases	15	20	20	20	20	20	20
Minor Cases	15	20	30	30	30	30	30

[1] Includes license activities previously performed by DOE.

[2] Special reactor material and components previously licensed by Department of Commerce; assumes there will be no provisions in 19 CFR Part 110 for general licenses for these materials.

APPENDIX A

PROCEDURES FOR ESTIMATING FUEL LOAD DATES FOR REACTORS UNDER CONSTRUCTION

I. Introduction

The NRC estimates of expected fuel load dates for reactors under construction are based on a number of factors.

As a point of departure, a model was developed in 1977 which depicts the average time required to construct nuclear power plants. Subsequently, in early 1979, this model was refined to depict the relationship between the reported percent of construction completion of a nuclear power plant at any given time and the elapsed construction time from placement of first structural concrete. Using this model, an estimate of the time required to complete construction can then be determined based on the reported percent complete.

Additional data are obtained from regional inspectors, NRR project managers and special team visits to arrive at a nominal date for realistic completion of construction. The estimated completion dates for all plants expected to complete construction during the FY 1980-1986 time period were used to arrive at the planning projections shown in Table 1 (p. 4).

II. Development of Model

A 22-plant sample was selected. All plants included in the sample were either the first unit of a multi-unit application, or a single unit. All of the sample plants were completed and certified* ready for fuel-loading between December 31, 1974 and December 31, 1978. These years were selected because they are recent and included a sufficiently large number of plants having current construction histories.

Construction durations for the sample plants were analyzed from two perspectives. The first analysis examined times from start of first concrete to fuel load. Sufficient data** were available from only 14 units. Median, lower quartile and upper quartile*** plants were identified to reflect construction durations from placement of first structural concrete to fuel load. The median plant experienced a 77-month construction duration; the lower quartile plant experienced a 69-month construction duration, and the upper quartile plant experienced a 90-month construction duration. In

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* By the Office of Inspection and Enforcement.

** NRC did not begin collecting data on plants under construction until December 1973.

*** 50% of the plants had longer durations and 50% had shorter durations than the median plant, 25% of the plants had shorter durations than the lower quartile plant, and 25% of the plants had longer durations than the upper quartile plant; thus 75% of the plants had durations not longer than the upper quartile.

order to check these results, a second analysis examined times from start of first concrete to completion of cold hydro and times from completion of cold hydro to fuel load. It yielded the following results:

	Sample Size	Lower Quartile	Median	Upper Quartile
First Concrete - Complete Cold Hydro	18	58 mos.	67 mos.	75 mos.
Copmlete Cold Hydro - Fuel Load	14	7 mos.	10 mos.	12 mos.
TOTAL		65 mos.	77 mos.	87 mos.

Since both analyses were based on substantially the same data, it is not surprising that they yielded similar results.* The Panel concluded that 65, 77, and 87 months were reasonable estimates for an early, median, and late construction completion, respectively. These were used for the upper and lower bounds (reflecting a 22-month difference between the two).

After establishing the upper and lower bounds for construction durations, it was then necessary, for development of the refined model, to look at the relationship between percent complete and elapsed construction durations. "Percent Complete" refers to the extent which physical construction is actually complete and usually relates to craft manhours expended versus total craft manhours forecast for the project.** Since December 1973 this percentage has been reported monthly to the NRC by utilities.

During 1973-1978, 67 plants were in some phase of construction and information on their percent complete was available. "Percent complete" was examined at three-month intervals of elapsed time from first concrete. For each such three-month interval, median, lower quartile, and upper quartile values of percent complete were determined for all plants reporting percent complete at that time. The three smoothed curves depicting this data are plotted in Figure A-1. The "early finish" model has an average slope of 1.54% complete per month, the "median finish" model has an average slope of 1.30% complete per month, and the "late finish" model has an average slope of 1.15% complete per month. It is important to note that relationships were developed on the basis of empirical data from 67 plants. The family of curves represent an aggregate, or general relationship, and are not plant specific.

Subsequently, an analysis was made of elapsed time from placement of first concrete to the start of setting of the reactor pressure vessel,

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* A 65-month schedule is commonly used by industry for establishing its earliest completion dates.

** Some utilities use different bases, such as money expended, or apply a weighting factor based on contracts to determine percent complete.

the start of NSSS work and the completion of cold hydro. These milestones were then superimposed on the foregoing early finish, median finish, and and late finish curves, to depict a "typical" plant, although there is no direct correlation between percent complete and achievement of a particular milestone.

III. Estimating the Date of Construction Completion

The curve in Figure A-1 which best approximates the plant's previous construction history is used to estimate the fuel load date. If the plant is less than 40% complete, the additional months to completion vary with the curve. However, if the plant is more than 40% complete, the time to completion is virtually the same for all three curves. Thus, the differences between the early, median, and late finish curves mainly stem from differences in elapsed time until plants are 40% complete.

For example, in February 1978 Utility "A" reports that its plant A-1 is 50% complete. The elapsed time from placement of first concrete is 30 months. From Figure A-1 it can be seen that "Unit A-1" is approximating the early finish curve, and would thus require 37 months to complete. Utility "B" reports that its plant B-1 is also 50% complete but 50 months have elapsed since first concrete. It falls close to the late finish curve and would also have 37 months to completion. Overall, Plant A-1 would have a shorter construction duration than Plant B-1 but both could be expected to load fuel March, 1982 (37 months from February 1978).

Recognizing that the refined model could not be applied for plants whose construction status was not yet far enough along for first structural concrete, the Panel assumed the median construction duration of 77 months plus 10 months additional time from groundbreaking to placement of first structural concrete for this category of plants.

For example, Utility "C" has a Construction Permit but states that it will not break ground until April, 1980. The estimated completion for this plant would then be 87 months from April, 1980, or about July, 1987.

IV. Panel Visits to Specific Plant Sites

The aggregated curves in Figure A-1 give only a rough indication of the relationship between percent complete and time to completion. Many plant-specific variables can affect the actual time to completion.

When appropriate, the Panel made on-site visits to obtain specific data. During the past year, the Panel visited 18 sites containing 30 units (see listing in Table A-1). Data was obtained on such factors as labor availability, manning schedule, engineering and procurement status, weather constraints (depending on stage of construction), integration of construction schedule with start-up schedule, status of procedures and pre-op test program (numbers of tests and time allowed for them). The Panel also evaluated the capability and previous experience of the operations staff.

Specific data was obtained on achieved and planned installation rates of bulk material quantities. For example, Utility "D" had been pulling cable for six months and had completed 4000 cables. They estimated a total of 21,000 cables were required for hot functional testing. With 17,000 cables remaining, in order to achieve the hot functional milestone (12 months from the last visit) on their construction schedule, they would need to pull at least 1400 cables per month over a sustained period of time. Depending upon their targeted productivity (probably 1000-1200 cables per month) 14-17 months might be required to achieve the milestone. The Panel team estimated a probable installation rate depending on the nature of the problem causing the previous low installation rate (strike, craft shortage, late equipment delivery), recovery steps taken by the applicant, and the prognosis for improvement. Similar analyses were done on other quantities, such as hangers, piping, terminations, etc.

After all of the above factors were discussed and evaluated by the team, a most probable date was agreed on and discussed with the utility's management. If appropriate, follow-up meetings or telephone conference calls were held later to obtain construction status and discuss progress on certain items that may have been on the critical path at the time of the team visit.

V. Establishing Planning Projections

In March 1980, the Panel reviewed the estimated fuel load dates for all projected units. In addition to the site visit and applicant estimates, fuel load dates were estimated using the model discussed in Section III and estimates were obtained form I&E Regional Offices for each reactor. Except for the three reactors expected to load fuel over the next three months (NRR estimate) and for some reactors not expected to be completed until 1990 or later, the Panel chose as the estimated fuel load date either the site visit, the applicant's, the model or the I&E estimate. Except for the three near-term reactors, no TMI-induced slippage was explicitly incorporated into these estimates.

The Panel made its choice of the four estimates according to the following procedure:

(a) The applicant's estimate was used whenever it was the latest of the four estimates.

(b) The site visit estimate was used provided it was later than or no more than three months earlier than the model estimate.

(c) If the model estimate was more than three months later than the site visit estimate, the model or the I&E estimate was used, according to the Panel's judgment.

(d) If no site visit was made in the past year, the model estimate was compared with the previous model estimate made for the March 1979 Caseload Projections. When the two model estimates differed by six

months or less, the current model estimate was used. When the two model estimates differed by more than six months, either the model or the I&E estimate was used.

(e) The above procedure was used for all sites with only one unit under construction and for all first units* when more than one unit is projected for a site. The estimated fuel load date for a subsequent unit was estimated by adding the time differential estimated by the applicant to the Panel estimate for the first unit.

(f) The Panel made its own estimate for all the remaining reactors. None of these is expected to be completed before 1990.

A compilation of the sources of the Panel estimates is given by Table A-2, and a summary of the projected number and total capacity of reactors ready for fuel loading by year is given by Table A-3.

* Here, a first unit is the first unit not yet completed. In some cases, it may be the second or third nuclear reactor at a site.

TABLE A-1

PLANTS VISITED

March 1979 - February 1980

Plant	Dates of Visit
Comanche Peak 1 & 2	March 20-21
Palo Verde 1 - 3	April 25-26
Watts Bar 1 & 2	May 1-2
Susquehanna 1 & 2	May 15-16
Clinton 1 & 2	June 12-14 & Dec. 4-5
Limerick 1 & 2	Aug. 6-7
Grand Gulf 1 & 2	Aug. 21-22
Midland 1 & 2	Sept. 18-19
Waterford 3	Sept. 25-26
Summer	Oct. 15-16
Farley 2	Oct. 24-25
Perry 1 & 2	Nov. 13-14
San Onofre 2 & 3	Nov. 19-20
Callaway	Nov. 27-28
Wolf Creek	Nov. 29-30
St. Lucie 2	Feb. 13-15
WPPSS 2	Feb. 25-29
WPPSS 1 & 4	Feb. 25-29

TABLE A-2

SOURCES OF PANEL ESTIMATES

Source	Number of Reactors
NRR[1]	4
Site Visit	16
Model	25
I&E	7
Applicant	30
Panel[2]	17
Total	99

(1) Sequoyah 1, plus the other three near-term
(2) 1990 or later

TABLE A-3

PROJECTED NUMBER OF REACTORS READY FOR FUEL LOADING BY YEAR

Year	Number of Reactors	Capacity (GWe)
FY80	5	5
FY81	9	10
FY82	12	13
FY83	9	10
FY84	11	11
FY85	11	13
FY86	11	13
FY87-90	16	18
Beyond FY90	15	17
Total	99	110

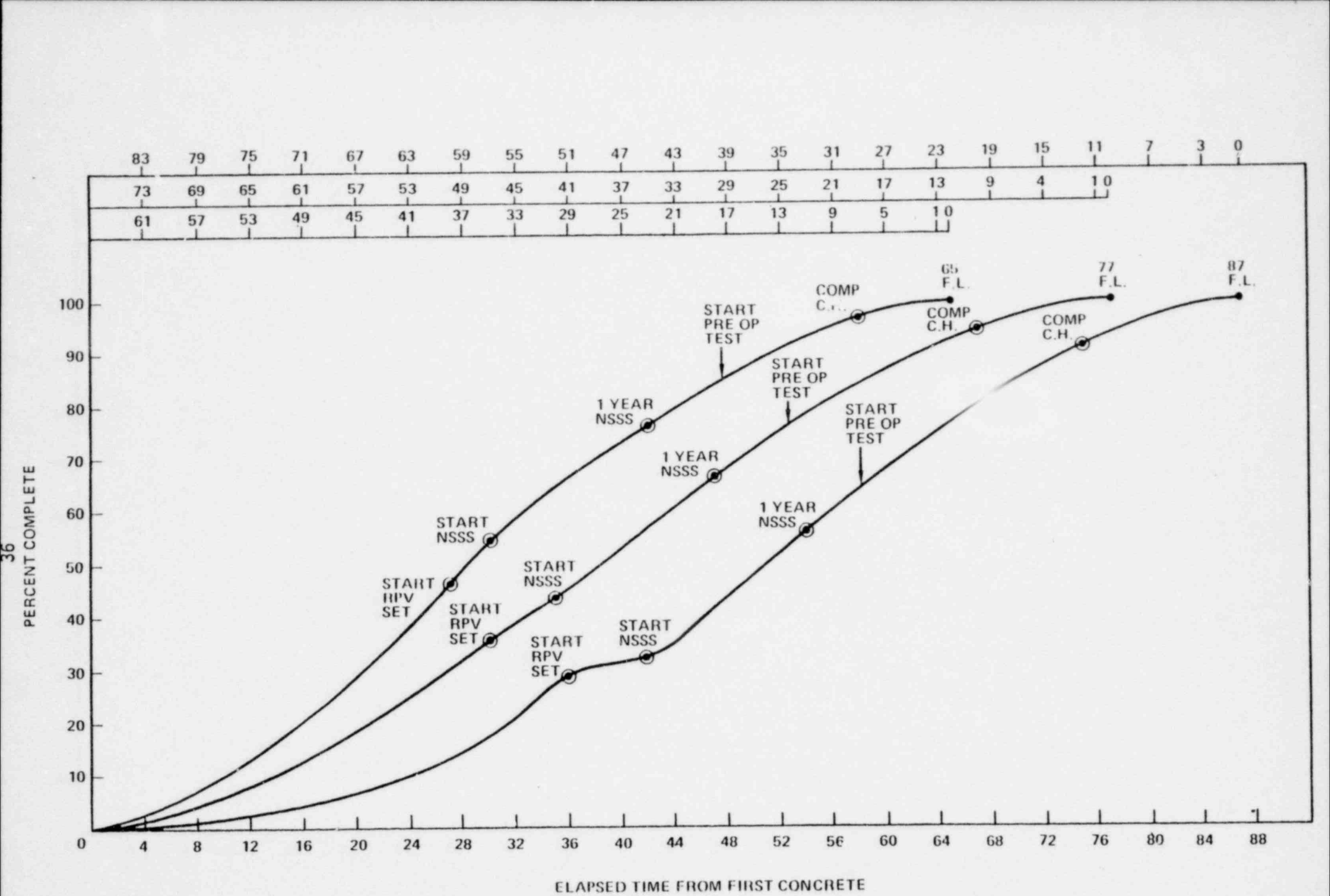
83 79 75 71 67 63 59 55 51 47 43 39 35 31 27 23 19 15 11 7 3 0
73 69 65 61 57 53 49 45 41 37 33 29 25 21 17 13 9 4 1 0
61 57 53 49 45 41 37 33 29 25 21 17 13 9 5 1 0
65 F.L.
77 F.L.
87 F.L.
COMP C.H.
COMP C.H.
COMP C.H.
START PRE OP TEST
START PRE OP TEST
START PRE OP TEST
1 YEAR NSSS
1 YEAR NSSS
1 YEAR NSSS
START NSSS
START NSSS
START NSSS
START RPV SET
START RPV SET
START RPV SET
PERCENT COMPLETE
0 10 20 30 40 50 60 70 80 90 100
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72 76 80 84 88
ELAPSED TIME FROM FIRST CONCRETE

Figure A–1

URANIUM RECOVERY
AGREEMENT STATES ASSISTANCE PROGRAM

ASSISTANCE REQUESTS IN-HOUSE END OF FY 1979

COMPANY	STATE	ACTIVITY
Bokum Resources	NM	Marquez - new mill
Cotter Corporation	CO	Canon City - Groundwatter
Cotter Corporation	CO	Canon City - Soil & Veg.
Cotter Corporation	CO	Schwartzwalder-Ore sorted
Cyprus Mining	CO	New mill
Gates and Fox	CO	U Recovery - Tailings
Gulf Mineral	NM	Mt. Taylor - new mill
Homestake Mining	CO	New mill - tailings disp.
Minerals Exploratory	AZ*	Anderson - new mill
Phillips Uranium	NM	Nose Rock - new mill
Pinal Mining	AZ*	Renewal
Pioneer Uravan	CO	New mill
Union Carbide, Uravan	CO	Dam review
Union Carbide, Uravan	CO	Radiological review
United Nuclear, Church Rock	NM	Dam review
United Nuclear, Church Rock	NM	Radiological review
Placer-AMAX	OR	Pre. Oper. - new mill
Wyoming Mineral, Keota	CO	New ISL
Anaconda	TX	Land ownership
Placer-AMAX	OR	Env. and Rad. review
Cotter Corporation	CO	Canon City - rad. review

* Request is pending from the State of Arizona that NRC reassert licensing authority for all uranium recovery activities; thus these actions would be added to Table 7 (p.14).

APPENDIX C

POTENTIAL ADDITIONAL AGREEMENT STATES ASSISTANCE PROJECTS

STATE AND COMPANY	ACTIVITY
CALIFORNIA	
Undesignated	ISL (on forest service land)
COLORADO	
Union Carbide	Rifle Mill Reactivation
Union Carbide	Expand Maybell heap leach
Wyoming Mineral	R&D In-situ leach (ISL)
ARIZONA**	
Phelps Dodge	Byproduct Recovery Renewal
Anamax	Byproduct Recovery Renewal
Exxon Minerals	Heap Leach
Atlas Minerals	Tailings Recovery (Tuba City)
NEVADA	
Bobcat Properties	New mill
Bobcat Properties	Heap leach or ISL
Chevron Resources	New mill
UOCO	Heap leach
IDAHO	
Undesignated	Uranium Recovery from Phosphate Operations
WASHINGTON	
Dawn Mining	Mill renewal
Dawn Mining	Heap leach
Western Nuclear	Wellpinit Mill Renewal
NEW MEXICO	
TVA-UNC-Burns	ISL (Navaho Reservation)
Comoco	Crown Point Mill
Exxon Minerals	ISL (L Bar Ranch)
Pioneer Nuclear	ISL R&D
Homestake Mining	ISL R&D
Anaconda, Bluewater*	Renewal
Kerr-McGee, Ambrosia Lake*	Renewal
UNC-Homestake, Grants*	Renewal

*Assistance on special problems may be requested.
**Request is pending from the State of Arizona that NRC reassert licensing authority for all uranium recovery activities.

DATA SOURCES

1. "Program Summary Report" (Brown Book) dated February 22, 1980 for currently licensed facilities.

2. "Status Summary Report to Nuclear Power Plants" (Blue Book) dated February 29, 1980.

3. "Construction Status Report" (Yellow Book) dated February 1980.

4. "Status Summary Report - Nuclear Material Safety and Safeguards" (Gold Book) dated January 18, 1980.

GLOSSARY

BOP	-	Balance of Plant
BRG	-	Budget Review Group
CFR	-	Code of Federal Regulations
CP	-	Construction Permit
DOE	-	Department of Energy
FDA	-	Final Design Approval
FLD	-	Fuel Load Date
FY	-	Fiscal Year (October 1 to September 30)
GWe	-	Gigawatts (Electrical)
HLW	-	High-Level Waste
IRG	-	Interagency Group Report on Nuclear Waste Management
ISFSI	-	Independent Spent Fuel Storage Facility
LLW	-	Low-Level Waste
LWA	-	Limited Work Authorization
MC&A	-	Material Control & Accounting
MPA	-	(Office of) Management and Program Analysis
NMSS	-	(Office of) Nuclear Materials Safety and Safeguards
NRC	-	Nuclear Regulatory Commission
NRR	-	(Office of) Nuclear Reactor Regulation
NSSS	-	Nuclear Steam Supply System
OL	-	Operating License
PDA	-	Preliminary Design Approval
SNM	-	Special Nuclear Material