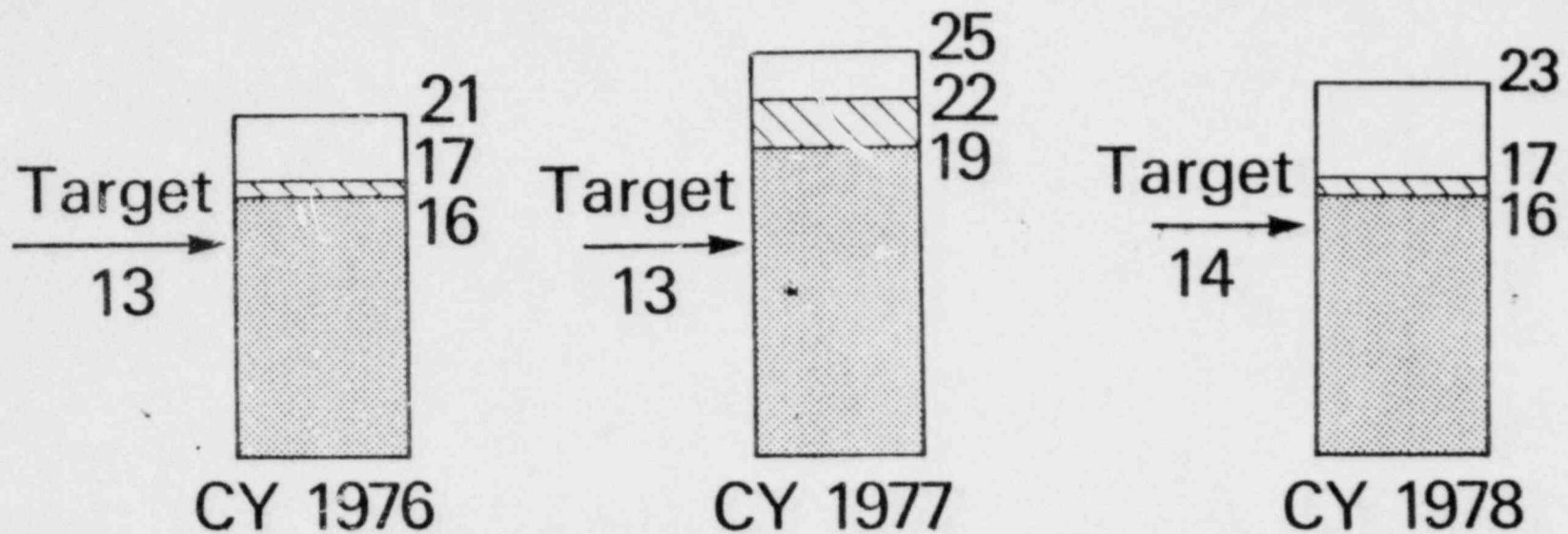
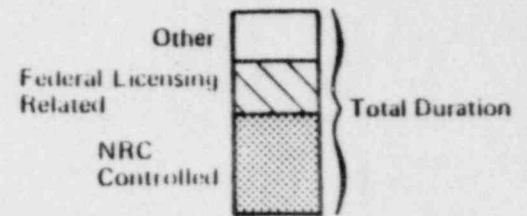


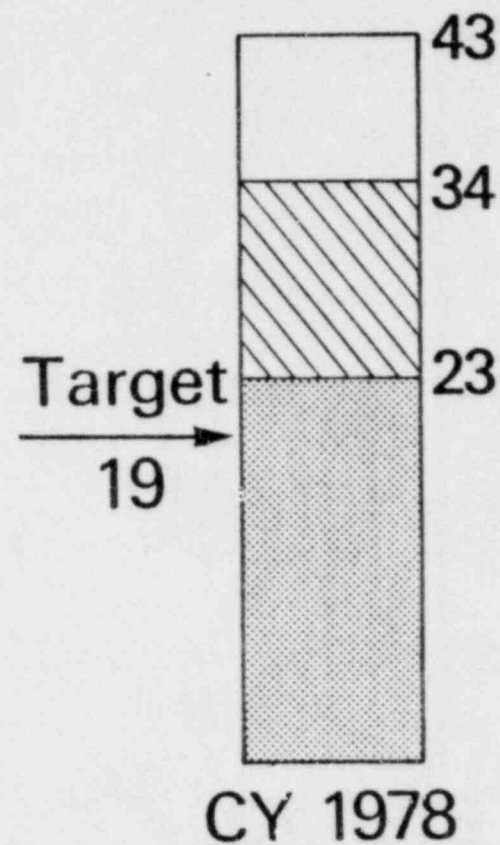
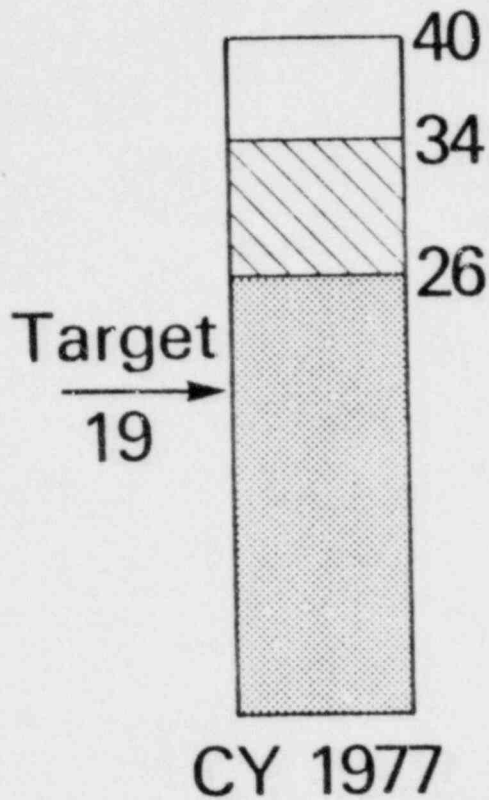
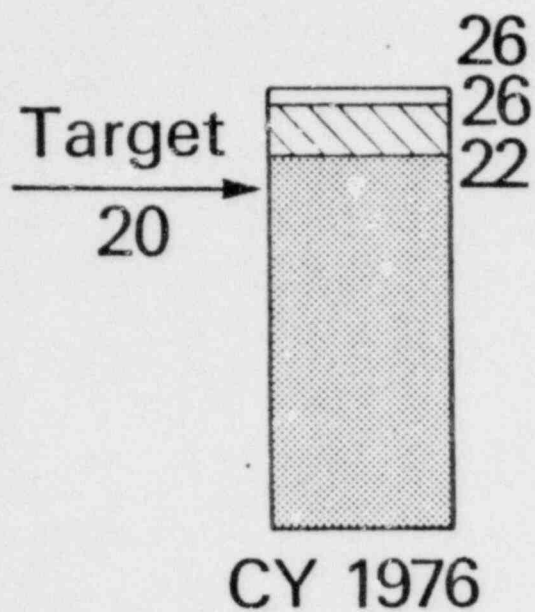
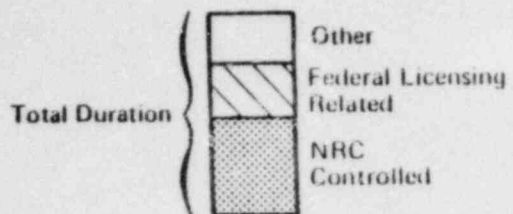
**REACTOR LICENSING
SCHEDULE PERFORMANCE
EVALUATION
CALENDAR YEARS
1976, 1977, 1978**

DECEMBER 31, 1978

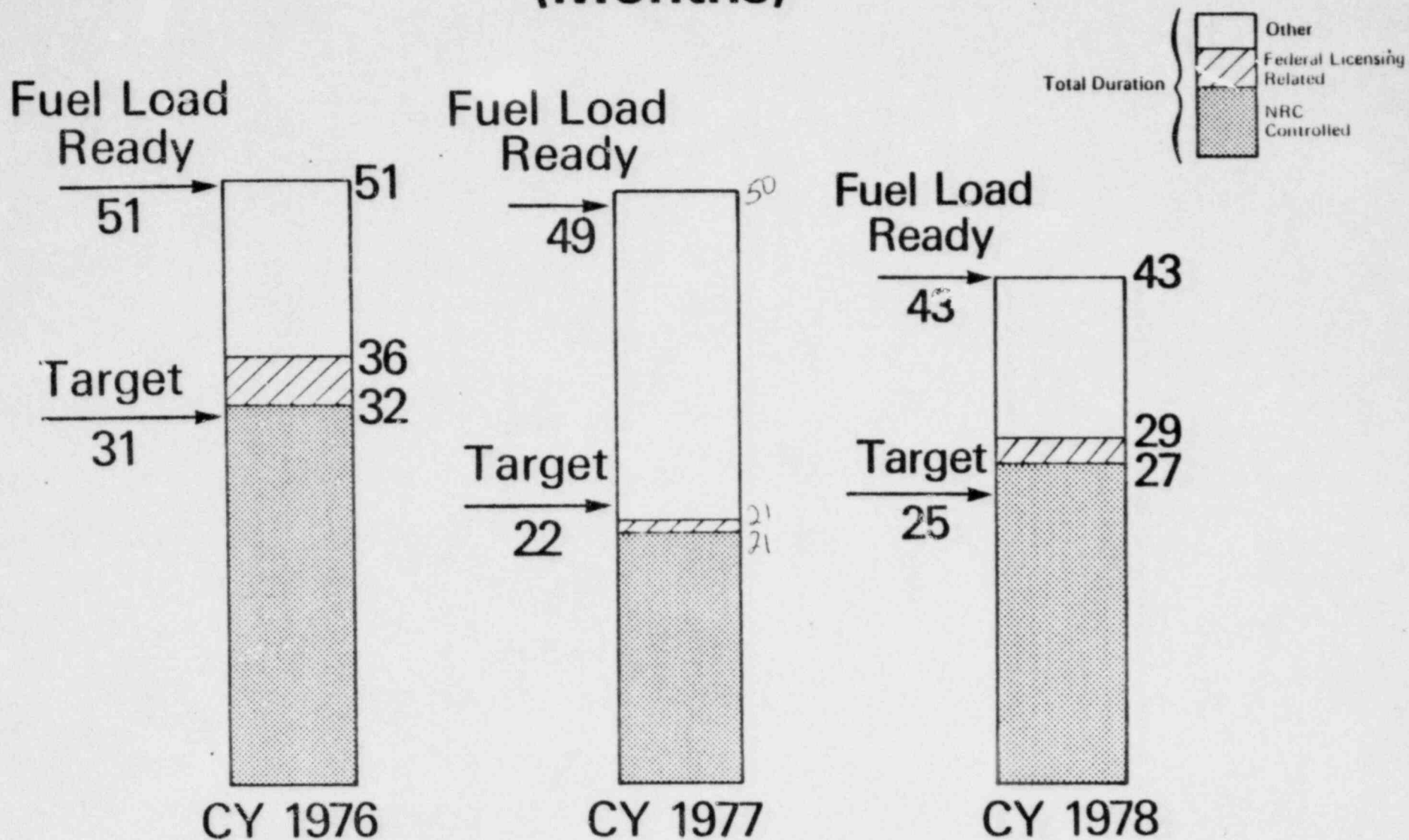
AVERAGE LWA DURATIONS (Months)



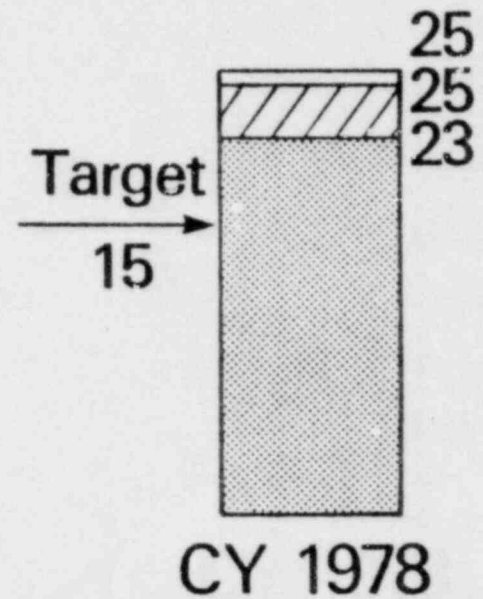
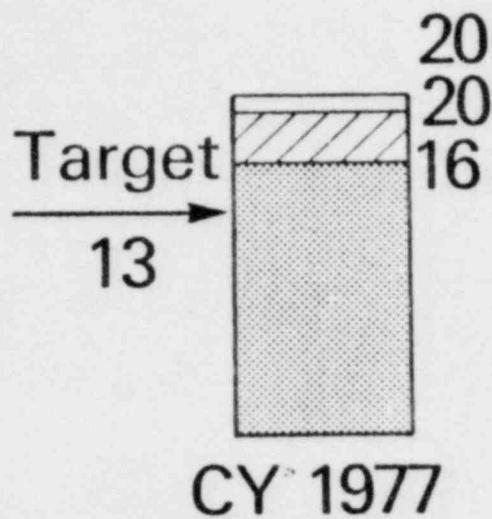
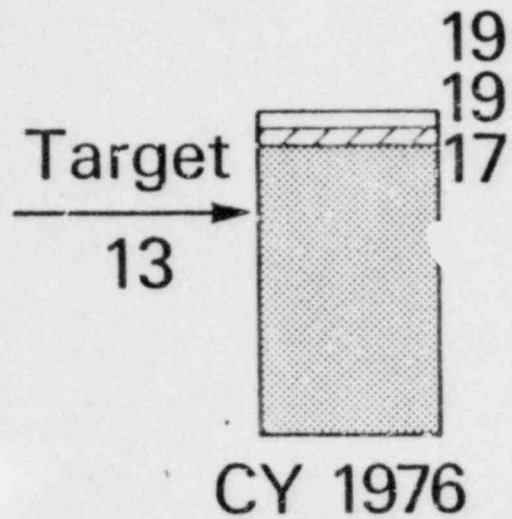
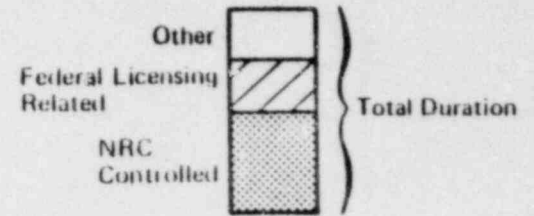
AVERAGE CP DURATIONS (Months)



AVERAGE OL DURATIONS (Months)



AVERAGE PDA DURATIONS (Months)



Evaluation of Reactor Licensing Schedule Performance
in 1976, 1977 and 1978

Assumptions, Definitions and Comments

- (1) Duration data current as of 2/31/78
- (2) Only first units of multi-unit OL applications are included in duration statistics
- (3) OL review durations have no significance. OL applications often are submitted too early. Also an OL cannot be issued until construction is complete. The only significant criterion is whether the OL was issued when the applicant and the facility were ready for fuel loading. Time to Fuel Load Ready is time between docketing and plant ready for fuel loading.
- (4) All durations are rounded to the nearest whole month
- (5) Target schedule is schedule duration established at review inception
- (6) Duration identified as "Federal Licensing Related" is obtained by subtracting from the total duration those schedule delays, designated as "Other", which are not related to the Federal licensing process. Such adjustments include State and local permit delays, applicant construction delays and deferrals, and applicant-initiated design changes. The resulting "Federal Licensing Related" duration is that which is attributable to the requirements of the Federal agencies, including the NRC.
- (7) Duration identified as "NRC Controlled" is obtained by subtracting from "Federal Licensing Related" duration those schedule delays which are related to the Federal licensing process but are beyond NRC control. Such adjustments include court decisions, late applicant submittals and discovery of natural phenomena. "NRC Controlled" is the licensing duration which is the result of the Federal licensing process and also is under NRC control. It is the schedule performance parameter by which NRC may be judged.

Schedule Summary For Reactor Licensing Actions Completed in Calendar Year 1976
Average Durations in Months

<u>Action</u>	<u>No. Issued</u>	<u>Target Schedule</u>	<u>Total Duration</u>	<u>Time to Fuel Load Ready</u>	<u>Federal Licensing Related</u>	<u>NRC Controlled</u>
LWA's Issued	2(7)	13	21	-	17	16
CP's Issued	4(9)	20	26	-	26	22
OL's Issued	7	31	51	51	36	32
PUA's Issued	4	13	19	-	19	17

Schedule Summary For Reactor Licensing Actions Completed in Calendar Year 1977
Average Durations in Months

<u>Action</u>	<u>No. Issued</u>	<u>Target Schedule</u>	<u>Total Duration</u>	<u>Time to Fuel Load Ready</u>	<u>Federal Licensing Related</u>	<u>NRC Controlled</u>
IWA's Issued	4(7)	13	25	-	22	19
CP's Issued	8(15)	19	40	-	34	26
OL's Issued	4	22	50	49	21	21
PDA's Issued	4	13	20	-	20	16

Schedule Summary For Reactor Licensing Actions Completed in Calendar Year 1978
Average Durations In Months

<u>Action</u>	<u>No. Issued</u>	<u>Target Schedule</u>	<u>Total Duration</u>	<u>Time to Fuel Load Ready</u>	<u>Federal Licensing Related</u>	<u>NRC Controlled</u>
LWA's Issued	2(4)	14	23	-	17	16
CP's Issued	6(13)	19	43	-	34	23
OL's Issued	3	25	43	43	29	27
PIA's Issued	2	15	25	-	25	23

DETAILED BACKUP DATA
FOR
SCHEDULE PERFORMANCE EVALUATION

DECEMBER 31, 1978

Duration Evaluation - Major Causes For Delay (Durations in Months)

I. LWA's Issued in CY 1976

<u>Application</u>	<u>Target Duration</u>	<u>Total Duration</u>	<u>Major Causes For Delay (Months of Delay)</u>	<u>Federal Licensing Related Duration</u>	<u>NRC Controlled Duration</u>
Hartsville 1-4	12	19	Late applicant responses Extended hearings - heavily contested	(2)** (5)	17
Cherokee 1-3	13	22	Inadequate field data Delay in initial decision by Board	(8)* (2)	14
Averages -	13	21		Averages -	17

* Subtracted from Total Duration to obtain Federal Licensing Related and NRC Controlled Durations

** Subtracted from Total Duration to obtain NRC Controlled Duration

11. LWA's Issued in CY 1977

Application	Target Duration	Total Duration	Major Causes For Delay (Months of Delay)		Federal Licensing Related Duration	NRC Controlled Duration
WPPSS 3 & 5	10	30	Awaiting water quality permit Court of Appeals Decision - Table S-3 1872 earthquake Board request for study on alternative energy sources	{ 12}* { 7>** { 1>** { 3}	18	13
Wolf Creek	14	30	Court of Appeals decision - Table S-3 Cooling lake review Hearing intervention	{ 5)** { 9) { 3)	30	25
Phipps Bend 1 & 2	12	18	Late applicant responses	{ 3)**	18	15
Marble Hill 1 & 2	15	23	Staff impact Extended hearings - hearing intervention	{ 3) { 6)	23	23
Averages -	13	25		Averages -	22	19

* Subtracted from Total Duration to obtain Federal Licensing Related and NRC Controlled Durations

** Subtracted from Total Duration to obtain NRC Controlled Duration.

III. LWA's Issued in CY 1978

<u>Application</u>	<u>Target Duration</u>	<u>Total Duration</u>	<u>Major Causes For Delay (Months of Delay)</u>		<u>Federal Licensing Related Duration</u>	<u>NRC Controlled Duration</u>
Yellow Creek 1 & 2	13	14	Late applicant responses	(2)**	14	12
Black Fox 1 & 2	15	31	Appendix 1 Delay in obtaining water use permit from city Applicant delays affecting environmental hearing Reopened hearings on Table S-3 radon	(2) (2)* (9)* (4)	20	20
Averages -	14	23		Averages -	17	16

* Subtracted from Total Duration to obtain Federal Licensing Related and NRC Controlled Durations

** Subtracted from Total Duration to obtain NRC Controlled Duration

IV. CP's Issued in CY 1976

Application	Target Duration	Total Duration	Major Causes For Delay (Months of Delay)	Federal Licensing Related Duration	NRC Controlled Duration
Clinton 1 & 2	20	28	Seismic problems (4)** Mark III containment problems (2) Late applicant responses (2)**	28	22
Palo Verde 1-3	19	19	None	19	19
Callaway 1 & 2	20	22	Staff impact (2)	22	22
Seabrook 1 & 2	22	36	Applicant delay in resolving open issues (12)** Extended hearings - heavily contested (3)	36	24
Averages -	20	26	Averages -	26	22

** Subtracted from Total Duration to obtain NRC Controlled Duration

V. CP's Issued in CY 1977

Application	Target Duration	Total Duration	Major Causes For Delay (Months of Delay)	Federal Licensing Related Duration	NRC Controlled Duration	
Wolf Creek	19	35	Staff impact Appendix I Court of Appeals Decision - Table S-3 Reopened hearing - State financial requirement Cooling lake review	(3) (3) (4)** (4)* (2)	31	27
Sterling	19	38	Staff impact Appendix I Financial review - new applicants added Late applicant responses Court of Appeals Decision - Table S-3 Impact of Seabrook decision on cooling towers	(3) (3) (2)** (3)** (3)** (5)**	38	25
Tyrone	17	44	Late applicant responses 3 year delay in construction start (applicant requested schedule slip) Financial review - new applicants added ECCS reevaluation - calculational error Change from 2 units to 1 unit; environmental impact	(7)** (4)* (2)** (3)** (8)*	32	20
Hartsville 1-4	18	29	Open GESSAR items	(12)	29	29
St. Lucie 2	20	47	Delays due to intended duplication of Unit 1 Technical problem - stalled hurricane Alternate site studies ECCS model problems - calculational error	(6) (12) (4) (2)**	47	45

* Subtracted from Total Duration to obtain Federal Licensing Related and NRC Controlled Durations

** Subtracted from Total Duration to obtain NRC Controlled Duration

V. CP's Issued in CY 1977 (Continued)

Application	Target Duration	Total Duration	Major Causes For Delay (Months of Delay)	Federal Licensing Related Duration	NRC Controlled Duration
River Bend 1 & 2	16	42	Applicant delay in resolving open items Appendix I Court of Appeals Decision - Table S-3 ECCS reevaluation - calculational error	42	22
Perry 1 & 2	19	46	Applicant design changes Late applicant responses ECCS reevaluation - calculational error	35	18
Cherokee 1-3	20	43	Review stretchout due to delay in need for CP	20	20
Averages -	19	40		Averages - 34	26

* Subtracted from Total Duration to obtain Federal Licensing Related and NRC Controlled Durations

** Subtracted from Total Duration to obtain NRC Controlled Duration

VI. CP's Issued in CY 1978

Application	Target Duration	Total Duration	Major Causes For Delay (Months of Delay)	Federal Licensing Related Duration	NRC Controlled Duration
Yellow Creek 1 & 2	19	28	Late applicant responses Staff impact Generic Issue (ALAB-444) responses	28	23
WPPSS 4	17	52	State requirements impacted financial qualifications submittal 1872 earthquake Site change Appendix I	37	20
WPPSS 3 & 5	19	44	Major plant redesign by applicant ACRS delay - seismic review ECCS model problem - calculational error 1872 earthquake Discovery of local faulting in excavation	41	18
Harris 1-4	20	76	Total project delay - applicant financial problems Redesign of cooling system - State required Review reactivated - rereview required Resolution of hearing issues and resolution of fault Applicant delay in submitting information on issues	39	27
Phipps Bend 1 & 2	19	26	Applicant appeal on seismology/hydrology	26	20

* Subtracted from Total Duration to obtain Federal Licensing Related and NRC Controlled Durations
 ** Subtracted from Total Duration to obtain NRC Controlled Duration

VI. CP's Issued in CY 1978 (Continued)

Application	Target Duration	Total Duration	Major Causes for Delay (Months of Delay)	Federal Licensing Related Duration	NRC Controlled Duration
Marble Hill 1 & 2	19	31	Heavily contested hearings Antitrust review and financial qualifications - new co-applicant Remanded 401 certificate	31	28
Averages -	19	43		34	23
				Averages -	

{ 7 }
{ 3 }**
(2)

* Subtracted from Total Duration to obtain Federal Licensing Related and NRC Controlled Durations
 ** Subtracted from Total Duration to obtain NRC Controlled Duration

VII. OL's Issued in CY 1976

Application	Target Duration	Total Duration	Time to Fuel Load Ready 1/	Major Causes For Delay (Months of Delay)	Federal Licensing Related Duration	NRC Controlled Duration
Beaver Valley 2	21	39	39	Construction delays - materials, labor & weather High energy line criteria - redesign necessary	(12)* (6)	27 27
Crystal River 3	40	70	69	Construction deferred - financial problems Late applicant responses Construction delay - repair of defective equipment High energy line criteria - redesign necessary	(12)* (12)* (7)* (6)	39 39
				NOTE: FSAR docketed 40 months ahead of anticipated fuel load date		
St. Lucie 1	24	36	36	Analytical and design changes - reevaluation of natural phenomena Design changes due to population growth estimate changes Not responsive to resolving open issues ECCS reevaluation - calculational error	(3)** (3)** (9)** (1)**	36 20
Salem 1	39	59	59	Construction delay - labor problems, late equipment delivery Design modifications based on operating experience and performance optimization - applicant initiated High energy line criteria - redesign necessary	(8)* (8)* (5)	43 43
				NOTE: FSAR docketed 39 months ahead of anticipated fuel load dates		

* Subtracted from Total Duration to obtain Federal Licensing Related and NRC Controlled Durations
 ** Subtracted from Total Duration to obtain NRC Controlled Duration

VII. OL's Issued in CY 1976 (Continued)

Application	Target Duration	Total Duration	Time to Fuel Load Ready ^{1/}	Major Causes For Delay (Months of Delay)	Federal Licensing Related Duration	NRC Controlled Duration
Browns Ferry 3	40	69	69	Third unit of 3-unit plant; review was completed when applicant was ready to load fuel; not included in duration averages	-	-
Calvert Cliffs 2	39	67	67	Second unit of 2-unit plant; review was completed when applicant was ready to load fuel; not included in duration averages	-	-
Brunswick 1	30	47	47	Second unit of 2-unit plant (Unit 2 was completed and licensed first); review was completed when applicant was ready to load fuel; not included in duration averages	-	-
Averages -	31	51	51		Averages - 36	32

* Subtracted from Total Duration to obtain Federal Licensing Related and NRC Controlled Durations

** Subtracted from Total Duration to obtain NRC Controlled Duration

^{1/} Months between docketing and plant ready for fuel loading

VIII. OL's Issued in CY 1977

Application	Target Duration	Total Duration	Time to Fuel Load Ready ^{1/}	Major Causes For Delay (Months of Delay)	Federal Licensing Related Duration	NRC Controlled Duration
North Anna 1	23	55	55	Construction deferred - financial problems Construction delays - repair of defective equipment Labor problem Not responsive to resolving open items NPSH problem Highly contested hearing	(12)* (18)* { 2)* { 6)* { 2) { 7)	17 17
Cook 2	-	84	84	Second unit of 2-unit plant; review was completed when applicant was ready to load fuel; not included in duration averages	-	-
Davis Besse 1	20	48	48	Construction delays Late applicant responses	(18)* { 9)*	21 21
Farley 1	24	46	44	Construction delays - reduced need for power; financial Late applicant responses Staff impacts	(15)* { 5)* { 2)	26 26
Averages -	22	50	49		Averages -	21 21

* Subtracted from Total Duration to obtain Federal Licensing Related and NRC Controlled Durations

^{1/} Months between docketing and plant ready for fuel loading

IX. OL's Issued in CY 1978

Application	Target Duration	Total Duration	Time to Fuel Load Ready 1/	Major Causes For Delay (Months of Delay)	Federal Licensing Related Duration	NRC Controlled Duration
Arkansas 2	28	51	51	Core Protection Calculator Review suspended - construction stretchout Construction delays, non-CPC	(12) (6)* (13)*	32 32
Hatch 2	22	31	31	Construction delay - financial problems Construction delays, other reasons	(7)* (2)*	22 22
Three Mile Island 2	24	46	46	Construction delay - financial problems Late applicant responses	(12)* (6)**	34 28
Averages -	25	33	43		Averages -	29 27

* Subtracted from Total Duration to obtain Federal Licensing Related and NRC Controlled Durations

** Subtracted from Total Duration to obtain NRC Controlled Duration

1/ Months between docketing and plant ready for fuel loading

X. PDA's Issued in CY 1976

Application	Target Duration	Total Duration	Major Causes For Delay (Months of Delay)	Federal Licensing Related Duration	NRC Controlled Duration
RESAR-3s	12	17	Unacceptable RHR design - applicant appeals	(5)**	12
Braun	12	17	Staff impact	(3)	17
SWESSAR-RESAR-41	14	22	Open RESAR items and S&W-W interactions Containment design issues - applicant appeals Staff impact - policy development	(4) (1)** (2)	21
SWESSAR-CESSAR	11	22	Staff impact - conflicts with SWESSAR-RESAR; S&W-CE interactions Applicant responses - higher priority vs. SWESSAR-RESAR	(4) (2)**	20
			NOTE: This case is somewhat analogous to a second unit of a multi-unit OL application. Applicant and staff efforts were simultaneous on large portions of this and SWESSAR-RESAR-41. Emphasis was put where applicant wanted it. Thus, this case not included in duration averages		
Averages -	13	19		Averages -	17

** Subtracted from Total Duration to obtain NRC Controlled Duration

XI. PDA's Issued in CY 1977

Application	Target Duration	Total Duration	Major Causes For Delay (Months of Delay)	Federal Licensing Related Duration	NRC Controlled Duration
Fluor	16	19	Staff report (3)	19	19
SWESSAR-RESAR 35	10	18	None	18	18
GESSAR-251	14	25	Late applicant responses (9)** ACRS delay (1) ECCS reevaluation - calculational error (3)**	25	16
RESAR-238 NSSS	12	17	ECCS reevaluation - calculational error (3)**	17	14
Averages -	13	20	Averages -	20	16

** Subtracted from Total Duration to obtain NRC Controlled Duration

XII. PDA's Issued in CY 19/8

Application	Target Duration	Total Duration	Major Causes For Delay (Months of Delay)	Federal Licensing Related Duration	NRC Controlled Duration
BSAR-205	16	27	Applicant late in responding to staff requests Staff impact	27	23
RESAR-414	14	22	Expansion of review scope - computer based protection system	22	22
Averages -	15	25	Averages -	25	23

* Subtracted from Total Duration to obtain NRC Controlled Duration