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LICENSING OF AWAY-FROM-REACTOR (AFR) INSTALLATIONS

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ABSTRACT

Storage of spent fuel at Away-From-Reactor (AFR) installations will allow reactors to continue to operate until reprocessing or other fuel disposal means are available. AFR installations must be licensed by the Nuclear Regulatory Commission (NRC). Although wide experience in licensing reactors exists, the licensing of an AFR installation is a relatively new activity. Only one has been licensed to date. This paper delineates the requirements for licensing an AFR installation and projects a licensing schedule. Because the NRC is developing specific AFR requirements, this schedule is based primarily on draft NRC documents.

The major documents needed for an AFR license application are similar to those for a reactor. They include: a Safety Analysis Report (SAR), an Environmental Report (ER), safeguards and security plans, decommissioning plans, proposed technical specifications, and others. However, the licensing effort has one major difference in that for AFR installations it will be a one-step effort, with follow-up, rather than the two-step process used for reactors. The projected licensing schedule shows that the elapsed time between filing an application and issuance of a license will be about 32 months, assuming intervention. The legal procedural steps will determine the time schedule and will override considerations of technical complexity. A license could be issued in about 14 months in the absence of intervention.

LICENSING OF AWAY-FROM-REACTOR (AFR) INSTALLATIONS

P. L. Gray

(Slide 1) INTRODUCTION

Many power reactors are nearing their onsite storage capacity for discharged fuel. Storage of spent fuel at Away-From-Reactor (AFR) storage installations will allow reactors to continue to operate until facilities are available either for reprocessing or for ultimate disposal in a waste repository.

Away-From-Reactor (AFR) installations must be licensed by the Nuclear Regulatory Commission (NRC). Although wide experience in licensing reactors exists, the licensing of an AFR installation is a relatively new activity. Only one has been licensed to date. Present regulations are about to be superseded by newer requirements being developed specifically for AFR installations.

This paper delineates the perceived requirements for licensing an AFR installation and presents a licensing schedule that was developed for planning purposes in the overall AFR program.

(Slide 2) LICENSING DOCUMENTS

Because the NRC was in the process of promulgating its AFR licensing requirements¹ at the time this paper was prepared, the

paper deals mainly with draft NRC documents. The applicable documents that govern licensing are parts 70, 72, and 2 of Title 10 of the Code of Federal Regulations. Ancillary documents include a regulatory guide (3.44) for the safety analysis, a proposed guide (3.XX) delineating what is required for the balance of an application, a proposed guide (3.XX) delineating which of the existing guides would apply to an AFR, and two draft standards (57.7 and 2.19) on design and siting.

(Slide 3) STUDY GOALS

This study was undertaken for several purposes: the major ones being identification of licensing requirements and development of a time schedule for licensing. The latter could then be integrated into an overall AFR project time schedule.

(Slide 4) OUTLINE OF TALK

In this talk I will:

- describe the contents of an AFR license application as given in the current NRC draft regulation
- show that much of the licensing action is a legal, not technical, process
- describe the bases I assumed for the study
- make a brief comparison of the process with that used for reactors
- show how licensing fits into an overall project schedule

- give highlights and indicate the magnitude of the details of the licensing schedule
- close with information on additional influences and delays in the schedule.

(Slide 5) PART 72 DOCUMENTS

The list of documents required in a license application is tentative because 10 CFR 72 is still in draft form. However, a safety analysis report prepared according to draft regulatory guide 3.44 will be required. The balance of the requirements of the license application, as earlier indicated, will be spelled out in regulatory guide 3.XX. However, a perusal of the draft of 10 CFR 72 shows that the major items shown on this slide will probably be required. There have been indications from NRC that not all of these plans, programs, and procedures need to be submitted to them at the time the application is made. It will suffice if certain ones are available at the site for review by NRC I and E field inspectors. However, NRC has not yet defined which fall into this category.

(Slide 6) LICENSING IS A LEGAL PROCESS

Licensing is a legal process, though it may appear to be a technical one. The licensing of an AFR facility requires the preparation and review of a large quantity of technically complex documents. However, the time required to process the application when intervenor activity is assumed is determined more by the sum of the legal steps involved than by the size and technical

complexity of the application. In fact, the legal steps as governed by the procedures from 10 CFR part 2 may be entirely time-determining, thus making the time required to process a license application quite independent of the technical complexity. However, it should be mentioned that the technical review by NRC will be the major time determiner if there is no intervenor action.

(Slide 7) BASES FOR STUDY

The NRC Rules of Practice for Domestic Licensing Proceedings,² which appear as 10 CFR part 2, were used in this study, and they form the basis for this analysis. It was assumed that the proceeding would be contested. However, the study included the schedule that would result were there no intervenors, and it will also be shown. The NRC procedures provide appeal opportunities and, consistent with the assumption of intervention, I also assumed that the appeal opportunities would be utilized. No time was included for delays as they are less amenable to being quantified than the explicit procedural steps; the types of delays that might occur are discussed later. Specific steps such as the publication of a notice or a conference are listed as an event occurring on a specific day and thus have no finite time element ascribed to them, whereas each time consumer on the schedule had a certain amount of time assigned to it. The amount was governed either by mandate (if part 2 gave information) or by judgment. Where part 2 did provide a time - for example, "within 30 days" a certain action will occur - the maximum time allowed was assumed to apply to the schedule. This was done

because it was highly unlikely that less time would be used, and because procedures exist that allow extensions of time to be granted.

(Slide 8) COMPARISON WITH REACTORS

It is perhaps worthwhile to digress for a moment to compare AFR's with licensing of power reactors, about which more is known. The comparison I wish to make is rather simple but has, I believe, a profound effect on the AFR. NRC has called this licensing a "one step" process in that only one SAR and one set of hearings - rather than a PSAR and FSAR and two sets of hearings - would be involved. However, where the reactor process allows some overlapping, it appears that the AFR process would have to be sequential. Before applying for a license, one must provide almost complete design and document preparation, and then one must be granted a license before undertaking construction. It may be a blessing to go through only one set of hearings rather than two, but it doesn't appear that it will save very much time.

(Slide 9) PROJECT SCHEDULE

As just indicated, the overall schedule to obtain AFR capability would be a sequential one with these four major steps following one another. Design and document preparation would go on concurrently to the extent that interactions between these two activities permit. The major point on this schedule, however, is that those two activities must be virtually complete prior to the start of licensing. Also, construction may not start until

licensing is complete, unlike a reactor where limited work authorizations (LWA) may be granted fairly early in the overall project schedule.

(Slide 10) SUMMARY OF LICENSING SCHEDULE

Licensing starts with the formal submission of a license application to NRC followed by their brief review for suitability and the opening of a docket. At this point an internal NRC action begins. A so-called external action may also start concurrently.

Internally, the staff will begin a technical review of the application. Should there be no intervenor action, this review would become the time limiting item, and a license ought to be issued following the review in a total time of about 14 months.

The external path, so-called because of possible intervention and public hearings, starts with a notice that the NRC is planning to take a proposed action. Many of the steps that follow, if there is intervention and a hearing is to be held, are compressed on this schedule into a few highlights. There are three main occurrences: the special prehearing conference, the prehearing conference, and the hearing. These are surrounded by preparatory steps and post-event occurrences, findings, rulings, and appeals. This whole process is estimated to consume 32 months until a license is issued.

I realize that the time available to me at today's meeting does not allow a description of the highlights of the licensing

schedule shown on this chart or a description of the detailed steps involved. For that, I suggest reference to the NRC procedures² or to a report³ I have prepared discussing in detail my understanding of this process.

(Slide 11) DETAILED LICENSING SCHEDULE

As I put this next slide up, let me caution you not to read it; I show it for an effect. For the details I again suggest reference to 10 CFR part 2 or my licensing report. This slide merely gives you an idea of the complexity of the steps in a one-hearing, contested licensing action as I believe that it would be governed by the NRC procedures. Even though many of these individual steps are only 10- to 30-days long, there are enough of them so that they very quickly add up to 32 months. None of these steps is either able to be deleted or shortened based on the technical degree of the proposed action; everything you see in this schedule is applicable to the least technical of actions as well as more complex ones because these are all procedural steps. And all of them are nominally required or, at least in the case of appeals, available.

(Slide 12) ADDITIONAL SCHEDULE INFLUENCES

There are two final categories of schedule influences that I wish to mention. I have not ascribed any quantitative aspects in the schedule to either of these but merely mention the factors for a fuller understanding of the licensing process. Within NRC, aside from the well-known effect of TMI, there is a newness

to handling an AFR application that occurs because only Morris has been licensed and very few other applications have been partially or fully processed. Additionally, the group that would be likely to handle an application - Nuclear Material Safety and Safeguards (NMSS) - has most of their experience with part 70 licenses where emphasis is on material. However, an AFR would be a licensing action that requires emphasis on the facility. This in turn may produce a request from NMSS to the Nuclear Reactor Regulation group for assistance with portions of the facility that resemble parts of a power reactor pool and auxiliaries. This could cause the AFR work to compete with reactor work for priorities in processing the application. It should be recognized that these factors apply to the NRC staff work, and, in a contested licensing action, these are not likely to be time limiting in an overall sense, but merely on the issuance of the staff reports.

(Slide 13) DELAYS

Delays in licensing in a contested action may also occur because of influences outside the NRC and some of these, though not by any means all of them, are listed on this slide.

ACKNOWLEDGMENT

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REFERENCES

1. United States Nuclear Regulatory Commission - Office of Standards Development. "Proposed Regulation 10 CFR Part 72, Storage of Spent Fuel in an Independent Spent Fuel Storage Installation," pp 46309-46321, Federal Register (October 6, 1978).
2. "Rules of Practice for Domestic Licensing Proceedings." U.S. Code of Federal Regulations, Title 10. Part 2 (10 CFR 2), U.S. Government Printing Office, Washington, DC (1979).
3. Gray, P. L. "Licensing Schedule for Away-From-Reactor (AFR) Spent Fuel Storage Facilities." USDOE Report, E. I. du Pont de Nemours and Co., Savannah River Laboratory, Aiken, SC (to be issued).

SLIDE 1

LICENSING OF AWAY-FROM-REACTOR (AFR) INSTALLATIONS

SLIDE 2

AFR LICENSING BASIS

FEDERAL REGULATIONS

- 10 CFR 70
- 10 CFR 72
- 10 CFR 2

ANCILLARY DOCUMENTS

- REGULATORY GUIDE 3.44 - ANS 57.7
- REGULATORY GUIDE 3.XX - ANS 2.19
- REGULATORY GUIDE 3.XX

SLIDE 3

AFR LICENSING SCHEDULE

A LICENSING SCHEDULE WAS DEVELOPED THAT SHOWS
32 MONTHS SHOULD BE ALLOWED FOR THE LICENSING
PORTION OF AN OVERALL PROJECT SCHEDULE TO OBTAIN
SPENT FUEL STORAGE CAPABILITY.

SLIDE 4

TOPICS

- CONTENTS OF APPLICATION
- LEGAL, NOT TECHNICAL
- BASES
- COMPARISON TO REACTORS
- OVERALL PROJECT SCHEDULE
- HIGHLIGHTS OF THE LICENSE SCHEDULE
- DETAILS
- ADDITIONAL SCHEDULE INFLUENCES
- DELAYS

SLIDE 5

LICENSING REQUIREMENTS

- SAFETY ANALYSIS REPORT (SAR)
- ENVIRONMENTAL REPORT (ER)
- EMERGENCY PLAN
- QUALITY ASSURANCE PROGRAM
- PHYSICAL SECURITY PLAN
- SAFEGUARDS CONTINGENCY PLAN
- PERSONNEL TRAINING PROGRAM
- PREOPERATIONAL TESTING PROGRAM
- DECOMMISSIONING PLAN
- PROPOSED LICENSE CONDITIONS
- TECHNICAL QUALIFICATIONS
- INVENTORY PLAN AND ACCOUNTABILITY AND MATERIAL CONTROL PROCEDURES

SLIDE 6

LICENSING IS A LEGAL PROCESS

IT APPEARS TECHNICAL

- SAR, ER, OTHER DOCUMENTS ARE TECHNICAL
- NRC STAFF REVIEW BY TECHNICAL GROUPS
- ASLB CONSISTS OF 2 TECHNICAL, 1 LEGAL MEMBER

TIME APPEARS RELATED TO TECHNICAL COMPLEXITY

- NEW CONSTRUCTION FULL REVIEW
- ADD-ON BASIN PARTIAL REVIEW
- RERACK LESSER REVIEW
- TRANSFER OF LICENSE ALMOST NO REVIEW

YET 10 CFR 2 GOVERNS

- STEPS RELATED TO LEGAL PROCESS
- ALL STEPS REQUIRED REGARDLESS OF PROCEEDING

SLIDE 7

BASES FOR SCHEDULE DEVELOPMENT

- 10 CFR PART 2
- PROCEEDING CONTESTED
- APPEAL OPPORTUNITIES UTILIZED
- NO DELAYS INCLUDED
- EXPLICIT "STEPS" CONSUME NO TIME
- FINITE "TIME CONSUMERS" GOVERNED BY:
 - MANDATE (SPECIFIC TIMES FROM REGULATION)
 - JUDGMENT (ESTIMATE OF REASONABLE LENGTH OF TIME)

SLIDE 8

COMPARISON OF AFR AND POWER REACTOR LICENSING

<u>AFR</u>	<u>POWER REACTORS</u>
"ONE STEP"	"TWO STEP"
- NONE - FSAR	PSAR FSAR
SEQUENTIAL	OVERLAPPING

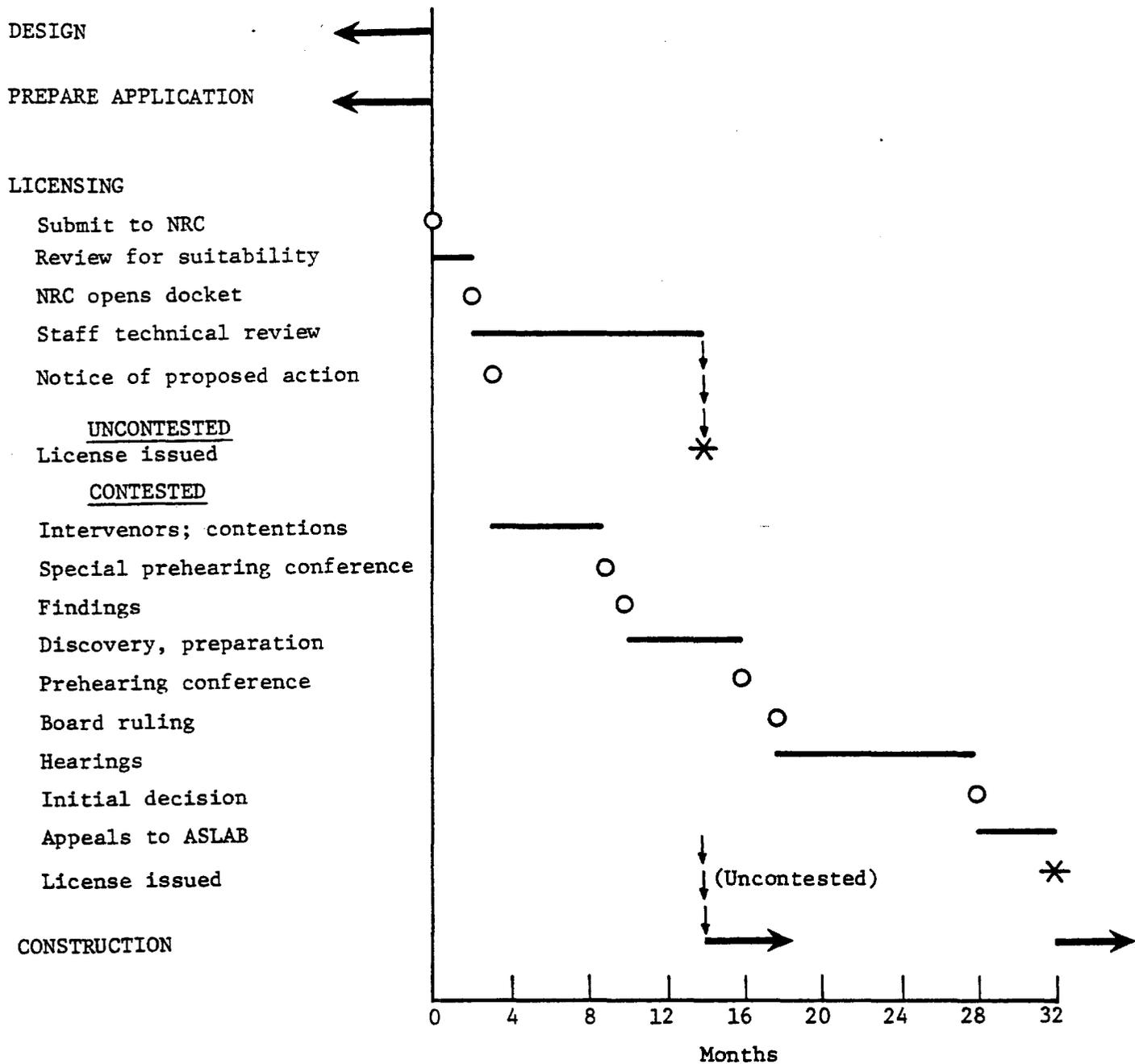
SLIDE 9

OVERALL AFR PROJECT SCHEDULE

- DESIGN AND DOCUMENT PREPARATION
- LICENSING BY NRC
- CONSTRUCTION
- OPERATION

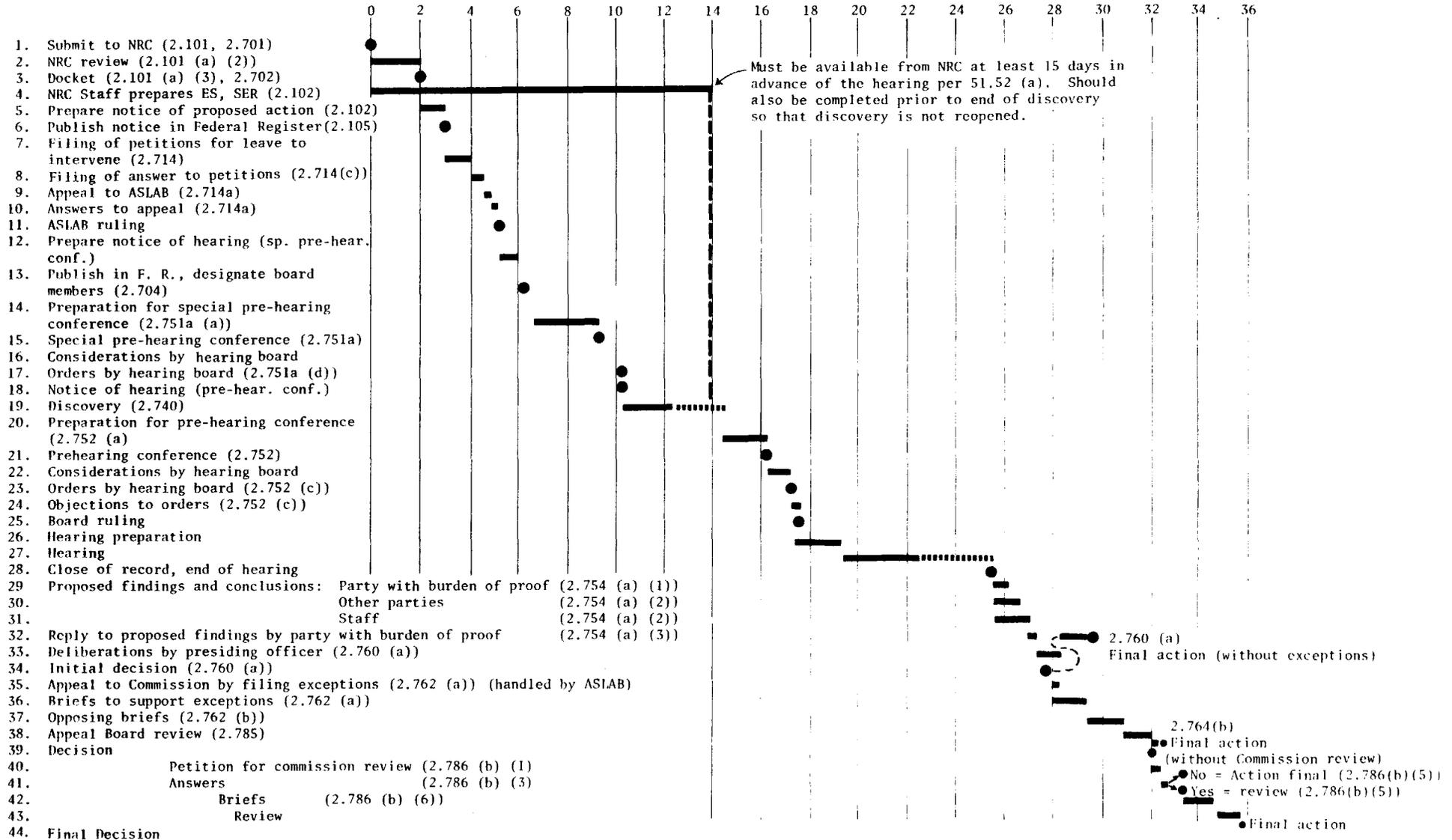
SLIDE 10

POSSIBLE AFR SCHEDULE



AFR LICENSING SCHEDULE DETAIL

Delta Time, Months



SLIDE 12

ADDITIONAL SCHEDULE INFLUENCES

- LICENSING IN A STATE OF FLUX AT NRC AFTER TMI
- NOT MANY AFR APPLICATIONS PROCESSED
- NMSS HANDLES 10 CFR 70 - EMPHASIS ON MATERIAL
- NMSS MAY HANDLE PART 72 - EMPHASIS ON FACILITY
- NMSS MAY REQUEST NRR ASSISTANCE

SLIDE 13

DELAYS

- VACATIONS
- SCHEDULE CONFLICTS (NOT ALL PARTIES AVAILABLE)
- OBJECTIONS
- INTRODUCTION OF EXTRANEIOUS QUESTIONS
- REQUESTS FOR MORE TIME TO PREPARE
- PROCEDURAL QUESTIONS, RULINGS