DOE/SF/02034-76¹MR

AC03-78SF02034
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Gas-Cooled Reactor Associates

MASTER

OUTLINE AND SCHEDULE FOR THE
HTGR-SC/C LICENSING PLAN

SEPTEMBER 1981

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High Temperature
Gas-Cooled Reactor Program

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OUTLINE AND SCHEDULE FOR THE
HTGR-SC/C LICENSING PLAN

DOE/SF/02034--T68

DE82 008529

Background

In the Program/Project Definition Phase, a series of firm plans are being developed as a basis for doing business and controlling the implementation of process. In FY '81 GCRA completed an outline and schedule of activities for a Licensing Plan that defines a project licensing strategy related to safety design, technological development, and early safety assurance and site review. See attachment.

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Summary Statement

The Licensing Plan is based on licensing a HTGR-SC/C lead plant in the near term. The plan also provides reference safety material and a basis (requirements, criteria, etc.) for licensing commercial follow-on plants. The plan is structured in two parts; program management and project management, and covers three sequences of licensing activities: Pre-application, construction permit application, and operating licensing application. Major activities and a schedule of events are outlined in these three phases indicating the approach, the objective and the documentation involved. The Licensing Plan will be further developed in detail in FY '82 as part of a "Project Decision Package."

OUTLINE
LICENSING PLAN - HTGR-SC/C

1. INTRODUCTION

1.1 BACKGROUND

1.2 SCOPE AND PURPOSE

2. PLAN STRUCTURE

2.1 PROGRAM MANAGEMENT

2.2 PROJECT MANAGEMENT

3. PLAN SEQUENCE AND SCHEDULE

3.1 PRE-APPLICATION

3.2 CONSTRUCTION PERMIT

3.3 OPERATING PERMIT

1. INTRODUCTION

- THE LICENSING PLAN IS PART OF THE MANAGEMENT/CONTROL PLANNING EFFORT IDENTIFIED IN THE HTGR LEAD PROJECT PLAN.
- A STRATEGY IS OUTLINED FOR LICENSING A LEAD NUCLEAR POWER PLANT, THE HTGR-SC/C, IN THE NEAR TERM (1987). IN ADDITION, REFERENCE SAFETY MATERIAL AND A BASIS FOR LICENSING COMMERCIAL FOLLOW-ON PLANTS IS PROVIDED.

1.1 BACKGROUND

- SUBSTANTIAL BACKGROUND EXISTS ON LICENSING THE HTGR WHICH PROVIDES SAFETY REQUIREMENTS/CRITERIA AND ALSO IDENTIFIES SAFETY ISSUES. THIS BASIS NEEDS UPDATING AND PRIORITY SAFETY ISSUES SHOULD BE REVIEWED AND STABILIZED PRIOR TO COMMITTING TO A PRELIMINARY DESIGN.
- CONTINUED REVIEW AND AWARENESS OF CURRENT LWR ACTIVITIES MUST BE SURVEYED TO ESTABLISH LIMITS OF APPLICABILITY TO AND PREVENT DUPLICATION OF EFFORT IN THE HTGR PROGRAM.

1.2 SCOPE AND PURPOSE

- THE LICENSING PLAN IDENTIFIES AND SCHEDULES ACTIVITIES NEEDED TO LICENSE THE HTGR-SC/C LEAD PLANT (E.G. SAFETY ASSESSMENTS/DOCUMENTATION, SAFETY R&D, REGULATORY REVIEW, ETC). THE PLAN ALSO INCLUDES A REFERENCE STANDARD SAFETY ANALYSIS (RESSAR) AND ESTABLISHES A LICENSING BASIS (SAFETY REQUIREMENTS, PROCEDURES, CRITERIA, ETC) SPECIFIC TO THE HTGR THAT CAN BE USED IN THE DEPLOYMENT OF FOLLOW-ON PLANTS.
- THE PLAN DETAILS A STRATEGY FOR OBTAINING A CONSTRUCTION PERMIT (CP) AND SITING THE PLANT IN A RELATIVELY SHORT PERIOD OF TIME (24 MONTHS) THROUGH PREAPPLICATION REVIEW OF SAFETY CRITERIA, CHARACTERISTICS AND ISSUES. INTERFACES WITH OTHER PROGRAM/PROJECT PLANS THAT SUPPORT LICENSING ARE IDENTIFIED (E.G. DESIGN AND TECHNOLOGY DEVELOPMENT PLAN, SITE QUALIFICATION PLAN, ENGINEERING AND CONSTRUCTION PLAN, ETC).

2. PLAN STRUCTURE

- THE LICENSING PLAN IS STRUCTURED IN TWO PARTS:
 - (1) PROGRAM MANAGEMENT
 - (2) PROJECT MANAGEMENT
- PART (1), PROGRAM MANAGEMENT, DEALS WITH DEVELOPMENT OF THE REFERENCE SAFETY ANALYSIS; THE TECHNOLOGY DATA BASE; THE ESTABLISHMENT OF LICENSING CRITERIA, AND REQUIREMENTS; AND RESOLUTION OF SAFETY ISSUES THROUGH GENERIC REVIEW OF THE HTGR NUCLEAR ISLAND. TABLE 2.1 TABULATES THESE ACTIVITIES AND OUTLINES THEIR RELATIONSHIP TO THE PROGRAM.
- PART (2), PROJECT MANAGEMENT, DEALS SINGULARLY WITH SITING AND LICENSING THE LEAD PLANT USING A PRE-REVIEWED RESSAR AND EARLY SITE REVIEW REPORT (ESR) AS THE BASIS FOR THE PSAR AND ER, TABLE 2.2 TABULATES THESE ACTIVITIES AND OUTLINES THEIR RELATIONSHIP TO THE PROJECT.

3. SEQUENCE AND SCHEDULE

- THE LICENSING PLAN IS BASED ON THE PRESENT FEDERAL TWO-STEP LICENSING PROCESS. FIRST, THE UTILITY MUST APPLY FOR A CONSTRUCTION PERMIT FROM THE NRC. SECOND, AN OPERATING LICENSE (OL) MUST BE RECEIVED BEFORE FUEL CAN BE LOADED AND THE PLANT OPERATED.
- THE LICENSING PLAN SCHEDULES THOSE PRE-APPLICATION ACTIVITIES IN A SEQUENCE NECESSARY TO OBTAIN A CP IN LATE 1985. BOTH PROGRAM AND PROJECT EFFORTS, IDENTIFIED IN TABLES 2.1 AND 2.2, ARE SHOWN IN FIGURE 3.1.
- THE LICENSING PLAN ALSO SCHEDULES THOSE ACTIVITIES INVOLVED IN APPLYING FOR AND RECEIVING A CP AND OL AND COMPLETING THE APPROVAL OF THE RESSAR IN ACCORDANCE WITH PRESENT NRC RULES. SEE FIGURES 3.2 AND 3.3.

TABLE 2.1
LICENSING PLAN - PROGRAM MANAGEMENT

<u>MAJOR ACTIVITY</u>	<u>APPROACH</u>	<u>OBJECTIVE</u>	<u>DOCUMENTATION</u>
DESIGN REACTOR PLANT	RESPOND TO SAFETY GOALS, SUCCESS/RELIABILITY CRITERIA, AND REG. REQUIREMENTS	ENGINEER A SAFE-RELIABLE DESIGN	SAFETY SPECIFICATION, CONCEPTUAL DESIGN-1983
DEVELOP SAFETY ANALYSIS OF REFERENCE PLANT	USE DETERMINISTIC/PROBABILISTIC ANALYSIS AND RISK ASSESSMENTS (PRA)	DETERMINE ACHIEVEMENT OF SAFETY GOALS/CRITERIA AND COMPLIANCE WITH REG. REQUIREMENTS	INTERIM SAFETY/LICENSING ASSESSMENT OF 2240MW(t) HTGR-SC/C REPORT-1982,, REFERENCE STANDARD SAFETY ANALYSIS REPORT (RESSAR)-198
STRUCTURE SAFETY-RELATED DESIGN AND DEVELOPMENT EFFORTS	USE SAFETY LEVEL CONCEPT (LOP'S)	ESTABLISH SAFETY RELATED TECHNOLOGY DATA NEEDS	DESIGN AND TECHNOLOGY DEVELOPMENT PLAN-1982
COORDINATE SAFETY RELATED TECHNOLOGY DEVELOPMENT WITH NRC	EARLY REVIEW OF RELATED PROGRAMS	ASSURE EFFECTIVE UTILIZATION OF PROGRAM RESOURCES/FUNDS.	NRC LONG RANGE RESEARCH PLAN-1982.
CONDUCT PRE/POST-APPLICATION REVIEW OF REFERENCE SYSTEM CONCEPT	SUBMIT RESSAR FOR NRC REVIEW (10 CFR 50 APPENDIX Q)	REDUCE RISK IN LICENSING HTGR LEAD PLANT AND ESTABLISH BASIS FOR LICENSING FOLLOW ON PLANTS	SAFETY EVALUATION REPORT (SER), ACRS LETTERS, PDA-1984 FDA, RULEMAKING-1993
SUBMIT NEGATIVE DECLARATION ON PROGRAMMATIC EIS	USE DOE ENVIRONMENTAL COMPLIANCE GUIDE	AVOID SPECIFIC PROGRAMMATIC EIS AND INCLUDE HTGR UNDER URANIUM FUEL CYCLE	ENVIRONMENTAL ASSESSMENT (EA)-1982

TABLE 2.2

LICENSING PLAN - PROJECT MANAGEMENT

<u>MAJOR ACTIVITY</u>	<u>APPROACH</u>	<u>OBJECTIVE</u>	<u>DOCUMENTATION</u>
DESIGN POWER PLANT	RESPOND TO SAFETY INTERFACE REQUIREMENTS FROM RESAR	INCORPORATE A PRE-APPROVED NUCLEAR SAFETY DESIGN	UTILITY FUNCTIONAL SPEC, PRELIMINARY DESIGN-1985
PERFORM EARLY SITE REVIEW	FOLLOW REGULATORY PROCEDURE (10CFR2 SUBPART F)	OBTAIN EARLY ACCEPTANCE AND DOCKETING FOR REVIEW OF SITE SUITABILITY ISSUES	SITE QUALIFICATION PLAN-1982 ESR-1983 PARTIAL DECISIONS ON SITE SUITABILITY ISSUES-1985
PREPARE SITE SPECIFIC SAFETY AND ENVIRONMENTAL IMPACT ASSESSMENT	USE PRE-REVIEWED APPROVED ASSESSMENTS (RESAR, ESR)	PRODUCE SITE/PLANT SPECIFIC MATERIAL FOR LICENSING	SAFETY ANALYSIS REPORT (PSAR) AND SITE ENVIRONMENTAL REPORT (ER)-1985
FILE APPLICATION FOR CONSTRUCTION OF A NUCLEAR POWER PLANT	FOLLOW REGULATORY PROCEDURES (10CFR50)	COMPLETE FIRST STEP IN LICENSING PLANT	SER, FES, ACRS LETTER, PUBLIC HEARINGS, CP-1987
FILE APPLICATION FOR OPERATION OF A NUCLEAR POWER PLANT	FOLLOW REGULATORY PROCEDURES (10CFR50)	COMPLETE SECOND STEP IN LICENSING PLANT	SER, FES, ACRS LETTER, PUBLIC HEARINGS, OL-1992

FIGURE 3.1 PRE-APPLICATION SEQUENCE AND SCHEDULE

FIGURE 3.2 CONSTRUCTION PERMIT REVIEW SEQUENCE AND SCHEDULE

FDA - FINAL DESIGN APPROVAL

() MONTHS FROM
DOCKET DATE (0)

FIGURE 3.3 OPERATING LICENSE REVIEW SEQUENCE AND SCHEDULE