Fort St. Vrain

Simulation Facility

Program Plan

May 26, 1988

EXECUTIVE SUMMARY

This plan presents Public Service Company of Colorado's (PSC) approach to the requirements of 10CFR55.45 regarding use of a simulation facility in the administration of an operating test.

PSC's goal is to utilize a simulation facility consisting of two major components. These are:

(1) A Reduced Scope Simulator integrated with a Control Room Mockup, and

(2) The reference plant

The Reduced Scope Simulator will use multiple microprocessors. Each computer will interface with the control panel instrumentation and will share data through a local area network. An instructors console will control the process. Real time distributed process simulation will be realized.

PSC feels that this approach will result in an innovative alternative to a full reference plant simulator, and will fulfill the requirements of 10CFR55.45.

TABLE OF CONTENTS

1.0 FORWARD

This report represents Public Service Company of Colorado's (PSC) plan to meet the requirements of 10CFR55.45(b) for the Fort St. Vrain (FSV) Nuclear Generating Station. The activities described herein provide a plan of action to assess the simulation facility needs at FSV, and to develop a facility to meet those needs. The guidance presented in the Utility Simulator Facility Group (USFG) document, "Guidance for Development of a Simulation Facility to Meet the Requirements of 10CFR55.45" dated March 1988, will be used in the implementation of this plan. Based on the implementation of this plan, the FSV Simulation Facility will be developed.

2.0 OBJECTIVES

This Simulation Facility Program Plan is being submitted to the NRC in compliance with 10CFR55.45(b)(2)(i). Upon implementation of this plan, the FSV Simulation Facility will:

- Meet the requirements of 10CFR55.45(b)(1)(i).

- Enable an operating license candidate to demonstrate his or her understanding of, and the ability to perform, the actions applicable to a representative sample of the 13 criteria comprising an operating test, as defined in 10CFR55.45(a).

- Provide for initial licensed operator training and requalification training.

The USFG guidance document is considered to be a supplement to this program plan, and is included as Attachment 8.1. For purposes of brevity, the applicable sections of the USFG document are not repeated. The USFG guidance document provides a general plan and philosophy of simulation facility development. It is the intent of this submittal to provide FSV's specific plans to meet the requirements of 10CFR55.45(b)(1)(i) using the USFG guidance. It should be noted that changes to this plan by PSC will be permitted to allow for incorporation of improved processes or methodology into the program.

3.0 BACKGROUND

In early 1982, PSC recognized the need for a simulator to enhance operator training, and formed a task team to develop a specification for a limited scope simulator. Initial vendor proposals received pertinent to this specification were considered wanting due to a lack of understanding of HTGR technology. An in-house proposal utilizing an early concept of Distributed Process Simulation (DPS) was also developed during this same time frame.

Efforts relative to simulator development continued through 1983 with PSC studying simulator architecture, investigating reactor physics codes, and improving DPS concepts and capabilities.

With the first PSC high-speed microprocessor based data acquisition system installation in January, 1984, small sections of different power plant associated systems were being simulated for engineering analysis, utilizing a PSC developed microprocessor based simulation language.

The committee investigating ways to reduce moisture ingress into the FSV reactor core recommended an improved operator capability and understanding of the helium circulator through an improved training program relative to this system. This recommendation resulted in the development of the Helium Circulator Auxiliaries Part Task Simulator (PTS). This real time simulation utilized the microprocessor based Distributed Process Simulation to successfully model a portion of Control Room Panel I-02.

The I-02 simulation effort commenced in early 1985 and resided in the Control Room Design Review Group's Control Room Mockup. This I-02 PTS was utilized extensively during January-February, 1986 for licensed operator training and requalification, and proved to be very beneficial. Not only did the operators gain an increased awareness of the Helium Circulator system operation, PSC gained immense knowledge pertinent to the use of microprocessor based DPS for replication of actual plant conditions through simulation techniques.

In early 1987, subsequent to the issuance of 10CFR55.45, the Simulator Task Group was formed to review the requirements of 10CFR55.45 and recommend the best method of meeting these requirements to the Vice President of Nuclear Operations. The recommendation to utilize a combination of a Reduced Scope Simulator (RSS), Control Room Mockup (CRM) and the reference plant was made at the end of July, 1987. This RSS was envisioned to consist of a series of PTSs sharing data through a Local Area Network (LAN). These PTSs would utilize the microprocessor based DPS techniques, which proved so successful for the I-02 PTS.

At a meeting with the NRC in early October, 1987, PSC's selected method of approach to meeting the provisions of 10CFR55.45 was presented to determine if its unique nature would be considered feasible for regulatory purposes. This concept was determined to be a unique and innovative manner of meeting the regulatory requirements. Subsequent to this meeting, a FSV Simulation Facility Program was formally established within the Nuclear Operations Organization under the Nuclear Training Department, and a program manager was designated. The charter of this program organization is to determine the overall effort required, identify the resources necessary, and formulate and execute a plan to establish a Simulation Facility at FSV which meets the regulatory requirements for operator training and testing within the 10CFR55.45 specified time frame.

During the same period that the Simulator Task Group was conducting their evaluation and conceptualization efforts, PSC also actively participated in the activities of the Utility Simulation Facility Group. This group consists of four nuclear utilities, and was established to serve as a focal point for the exchange of ideas and to formulate guidance for the USFG to confer with the NRC and to mutually agree upon acceptable means or alternatives of meeting the regulatory requirements without utilizing a Reference Plant Simulator (RPS).

The USFG met periodically during 1987 and early 1988 and developed the guidance document. Revision 2 of this document was submitted to the NRC in April, 1988. This submittal was the result of NRC comments and NRC/USFG agreements and understandings reached during joint meetings held in September and December, 1987.

PSC will incorporate the USFG guidance into the FSV Simulation Facility Program effort.

4.0 PROGRAM SCOPE

This section describes the overall scope and detailed Simulation Facility Program activities. The Program logic and organization of activities is indicated in Figure 4.1, and should be referenced throughout review of this section. The activities (Blocks) that comprise Figure 4.1 provide the overall systematic structure by which the FSV Simulation Facility (SF) will be developed. The Utility Simulation Facility Group document, "Guidance for the Development of a Simulation Facility to Meet the Requirements of 10CFR55.45", is the generic guidance used to develop this Program Scope.

Four major phases are defined within the program scope:

(1) Conceptual Program Definition
(2) Development and Implementation
(3) Validation of the Simulation Facility
(4) Approval of the Simulation Facility.

The background rationale which resulted in the designation of these phases is described, followed by a more detailed description of the blocks within each phase.

4.1 SIMULATION FACILITY PROGRAM PHASES

The development of a FSV Simulation Facility represents unique challenges primarily due to HTGR technology. Several of the options available to Light Water Reactor plants, such as Non-Plant Reference Simulation and the existence of plant software that can be modified to make it plant specific, are not viable for FSV. This phased program approach represents the logical sequence of tasks required to facilitate completion of the FSV Simulation Facility.

4.1.1 Conceptual Program Definition

This phase establishes the direction of the project. Four fundamental activities are included:

(1) BLOCK 101 Select FSV Approach

(2) BLOCK 102 Develop a Definition of the FSV SF Program

(3) BLOCK 103 Evaluate and Select Device Options

(4) BLOCK 104 Establish Design Inputs

These activities represent primarily subjective assessments and evaluations based upon unique factors of FSV as indicated above. The results of these assessments provide the initial basis for future activities. The subjectiveness of these assessments is eliminated through proven design bases identification and task analysis techniques conducted in the Development and Implementation phase. This Conceptual phase utilizes the expertise of Engineering, Operations, Human Factors, Training and Nuclear Support personnel to establish the starting point. It should be recognized that Blocks 101, 102 and 103 have been completed, as discussed in Section 3.0.

4.1.2 Development and Implementation

The comprehensive design and development of the SF occurs within the twelve blocks herein. These blocks (201-212) are categorized into five main components.

(1) Plant Design Bases, Configuration Management and Design Control (203-205)

(2) Training, Task Analysis and Functional/Physical Design (206-209)

(3) Performance Testing Procedure Development (202)

(4) Physical Structure/Facility which houses the SF (211-212)

(5) Detailed SF Design, Procurement and Fabrication (210)

Within this phase, are the details of the Simulation Facility's: design, configuration, testing, procurement, and fabrication.

In parallel with the above activities, the procedures which govern the administration and implementation of training and testing using the SF will be developed (block 201). This is depicted by a dashed line because these procedures will be developed in parallel with the other activities, and are based upon the results and processes defined within these activities.

4.1.3 Validation

Validation and testing are fundamental to ensuring all previous activities yield a Simulation Facility that meets the requirements of 10CFR55.45. This block provides for verification of technical accuracy to the design specification, implements the initial Performance Tests, validates the device's ability to respond to defined operational/system conditions and malfunctions, and validates training.

4.1.4 Approval

When all requirements have been successfully met, the submission of the SF application to the NRC will be prepared and forwarded, followed by appropriate NRC procedures (onsite/offsite reviews) which form the basis for NRC approval of the SF.

Once approval is received this Program Plan's goals will have been achieved. The SF then becomes a tool to train, test and license FSV operators. The processes and procedures which govern Configuration Control and Training System accuracy are now the bases for the use of the SF.

4.2 DESCRIPTION OF ACTIVITIES FOR EACH BLOCK

4.2.1 BLOCK 101, 102, AND 103

These block efforts comprise the major portion of the conceptual phase of the FSV Simulation Facility Program. These efforts have been completed as noted in the discussion of the Historical Background section of this document. These efforts were carried out utilizing the expertise of representatives from all departments within the Nuclear organization.

4.2.2 BLOCK 104 Establish Design Inputs

This block identifies the requirement to establish the design inputs applicable to the FSV Simulation Facility. The basis for the the facility is the requirement to allow demonstration of the 13 criteria of 10CFR55.45. Based upon this requirement, and the simulation facility approach selected by PSC, certain documents will be reviewed for guidance. The applicable sections of these documents will be identified and will then become the basis for activities associated with the simulation facility. These documents include, but are not limited to, the following:

- NUREG 1021, NUREG 1258, NUREG 0737
- Reg. Guide 1.149
- ANSI/ANS 3.5
- INPO 87-016
- EPRI NP-5504
- Local Building Codes

4.2.3 BLOCK 201 Develop Nuclear Simulation Facility Implementing Procedures

This block identifies the requirement to develop implementing procedures applicable to the FSV Simulation Facility. A program description will be included, as will organizational duties and responsibilities, administrative requirements, and program controls. Day-to-day operation of the facility will be controlled, including the following:

- Data base maintenance
- Documentation requirements
- Instructor duties
- Facility operation
- Security requirements
- Testing guidelines (i.e. use of the facility for operator testing)

These procedures will be generated throughout the development and implementation phase of the project.

4.2.4 BLOCK 202 Develop Performance Test Program

This block identifies the need to develop a program of performance testing, as is required by 10CFR55.45(b).

A number of elements are involved in the performance testing process, and will be required by this program. Such elements include the following:

- Selection of test scenarios
- Specification of performance test criteria
- Identification of applicable reference plant data
- Performance of test, with collection of RSS data
- Comparison of this data with the plant data
- Evaluation of the RSS performance, based on this comparison and the performance criteria
- Resolution of any discrepancies

An overall performance test program will be developed to insure that the above elements are applied during the simulation facility development. This test program will also include scheduling procedures, to insure that 100% retest is achieved on a 4-year cycle basis (approximately 25% per year).

4.2.5 BLOCK 203 Defining and Developing the FSV Simulation Design Basis

This block identifies the requirement for defining and developing the SF design basis. Developing the Simulator's Design Basis will involve four tasks:

- scope identification
- identifying existing documents
- evaluating existing and needed documents
- reverifying the selected documents which will be carried out in the following manner

Each block in the first level of effort from the Development and Implementation phase is made up of tasks which represent inputs into the design basis documentation.

During the design process, documents identifying the behavior of plant components will be identified and assembled. In addition to these documents, drawings depicting the physical space and ambience of the control room and those which show the design and construction of the control room panels will also be assembled. These documents will constitute the bulk of the RSS drawing data base. If the need for other types of informational documentation is identified during the course of the project, they will be added to this data base.

All related operating procedures and training plans for the simulated activities will become a part of the RSS design documentation.

Data bases will be developed to categorize and control this information. These data bases will be developed in such a manner as to provide the capability to cross reference between each other and the existing plant data bases.

These drawings, documents, procedures and data bases will be controlled by program procedures. These procedures and controls will meet the objectives of the FSV Simulation Facility Configuration Management Plan along with the intent of the overall FSV Configuration Management Program.

4.2.6 BLOCK 204 Develop Simulation Facility Configuration Management Program

This block identifies the requirement for a dedicated Simulation Facility Configuration Management Program (SCMP). Such a program will ensure that the RSS is maintained current with the reference plant such that training can be performed effectively and accurately. Note that a high level Simulation Facility Configuration Management Plan has been developed and is included as Attachment 8.4.

The SCMP will be comprised of the following key elements as described in the Simulator Configuration Management Program Plan:

- Simulator design bases documents
- Discrepancy report
- Simulation design
- Configuration validation

The SCMP along with the design control process will comprise the mechanisms to control each of the above elements.

The SCMP will draw from the information and procedures of the overall FSV Configuration Management Program which is currently being developed. Controls will be implemented to ensure that all mechanisms of change at FSV (i.e., modifications, setpoint changes, procedure changes, etc.) are properly reviewed to assess their impact on the FSV simulation facility.

Additionally, the SCMP will govern the simulation facility's structures, component and computer software. This program will document the physical and functional characteristics of the RSS and will ensure that changes thereto are properly developed, assessed, approved, issued, implemented, verified, recorded and incorporated into the simulator facility's design basis.

4.2.7 BLOCK 205 Develop Simulation Facility Design Control Process

This block identifies the requirement to provide procedural controls to ensure consistent application and documentation of both the initial design and RSS design changes. This process will assign design control administrative responsibility and will provide a mechanism to identify, track, evaluate, implement, and test the initial design and design changes. It will use an analysis process similar to that described in the USFG to determine RSS impact, and to make a decision as to the action that will be taken as the result of this analysis. It will provide an interface between training, the plant, and the simulation facility document control systems used to maintain the RSS design data base, and it will provide an interface with training and the simulation facility training material control system in order to maintain supporting simulation facility training materials. It will establish a method of prioritizing RSS changes and will provide format and content requirements for the RSS design packages. These controls are a key element of the Simulator Configuration Management Program.

4.2.8 BLOCK 206 Define and Develop New/Modified Training Requirements

This block identifies the need to define and develop any new or modified training (impacts) required, to incorporate the SF into the current operator training program. To achieve this integration of the SF and the operator training program, the following activities must be accomplished:

- Develop a SF Training Program/Development Plan that is integral to the INPO Accreditation efforts already accomplished.

- Specify, design, and develop simulation facility training materials.

- Specify operator simulation performance measures for procedural, individual, and team training objectives.

- Modify existing operator instructional materials to accommodate the integration of the SF materials.

- Design and develop simulator examinations.

- Develop a Simulator Instructor Training Program to be administered to FSV designated simulator instructors.

4.2.9 BLOCK 207 Develop Hardware (H/W) and Software (S/W) Specifications

This block identifies the requirement to define the types of information required to be included in any hardware or software specification prepared as part of the SF program. In addition, this activity will allow for consistency of format and content of these specifications. A general specification format will be developed that will typically include:

- Introduction
- Scope of Work
- Definitions (if unique definitions are used)
- Assignment of Responsibilities
- Technical Requirements (includes design, manufacturing, and performance)
- Testing Requirements
- Inspection/Quality Assurance Requirements (if applicable)
- Documentation Requirements
- References

The preparation of the appropriate specifications can commence as soon as sufficient design input information is available. However, completion of the specification is governed by Blocks 209 and 210.

4.2.10 BLOCK 208 Conduct USFG Simulation Facility Development Analysis and Evaluation

This block identifies the requirement to conduct a SF development analysis and evaluation, using USFG guidance. Attachment 8.1, Sections 3.1 and 3.2 should be consulted regarding generic USFG guidance. Included in this guidance are the following steps of analysis and evaluation:

- Performance of a procedures based task analysis
- Identification of the instrumentation and controls required to perform these tasks (i.e. a "cue" analysis)
- Selection of the simulation device, and instrumentation and controls to be simulated
- Any differences (deviations) between #3 above and the reference plant control room instrumentation and controls will be analyzed and a disposition made

These steps outline the analysis and evaluation that will be used at FSV to develop the simulation facility requirements based on the USFG guidance.

4.2.11 BLOCK 209 Integration of Analysis Findings

The purpose of this block is to integrate the results of blocks 206, 207, and 208. The results of blocks 206, 207, and 208 provide the detailed specifications of human performance and facility device issues which drive the actual SF configuration. The findings from 206, 207 and 208 must be systematically evaluated against a defined set of criteria. This in turn provides the detailed justification and documentation of how the specification was derived. The Design Specification, Attachment 8.2, will include man-machine/system interface requirements, systems modeling requirements and associated functional and physical fidelity definitions to establish specific design inputs. This will facilitate preparation of the detailed design specification.

4.2.12 BLOCK 210 Perform Design, Procurement, Fabrication

This block identifies the requirement to complete the detailed design, the procurement, and the fabrication stages of the simulator. The part-task simulator design packages will be completed, reviewed and approved in accordance with approved procedures while software packages will be developed and approved in accordance with the requirements of the FSV Nuclear Program Plan, "Management of Computer Software Systems". Quotes will be obtained for hardware and commercial software packages. Materials will be purchased, and fabrication of the RSS will be completed and tested per controlled work packages.

4.2.13 BLOCK 211 Define Preliminary Facility Structure

This block identifies the requirement to prepare the SF preliminary building structure design. This will include the following items:

- Space requirements
- Floor plan
- Location
- Cost estimate

4.2.14 BLOCK 212 Design and Construct Facility Structure

This block identifies the requirement to complete the detailed design and construction for the RSS building structure. This responsibility will include the following tasks:

- Completing detailed design for the structure, electrical, plumbing, HVAC, floor plan, panel layouts, and interior finishing

- Obtaining permits

Completing, reviewing, and approving design packages

- Procuring materials

- Constructing the Facility

- Fabricating and installing the panel structures

4.2.15 BLOCK 301 Verification, Validation and Testing

This block identifies the requirement to perform verification, validation, and testing of the RSS and the SF. This program will consist of the following major tasks:

- Component Verification - i.e. Verification, at the simulation device level, of the device's ability to perform it's design specification requirements.

- Facility Validation - i.e. Validation of the Simulation Facility's capability to meet its stated objective, especially at the integrated level.

- Performance Testing - i.e. Conduct of the Performance tests to support the application for the SF's approval, as required by 10CFR55.45(b).

The overall objective of the component verification aspect is to evaluate the technical adequacy of each simulator device and its interfaces with the overall SF. Technical accuracy is achieved through the proper incorporation and translation of technical information into the component.

The overall objective of the SF Validation is to evaluate the operational integration of the SF and its ability to meet the requirements of 10CFR55.45.

Performance testing is discussed in more detail in Block 202.

The completion of the verification, validation, and testing activities will be directed by a high-level plan, to assure performance in a resource efficient and logical sequence.

4.2.16 BLOCK 401 Submit Simulation Facility Application

This block identifies the requirement to submit an application for use of the SF in accordance with 10CFR55.45(b)(3)(ii). This application will be submitted not later than 180 days prior to the date that PSC proposes that the NRC conduct operating tests utilizing the SF. The application will comply with the requirements of 10CFR55.45(b)(4)(i), thus it will include the following:

- A statement that the SF meets the requirements of this program plan.
- A description of the components of the SF to be used for each part of the operating test.
- A description of the performance tests associated with the SF, and the results of these tests.

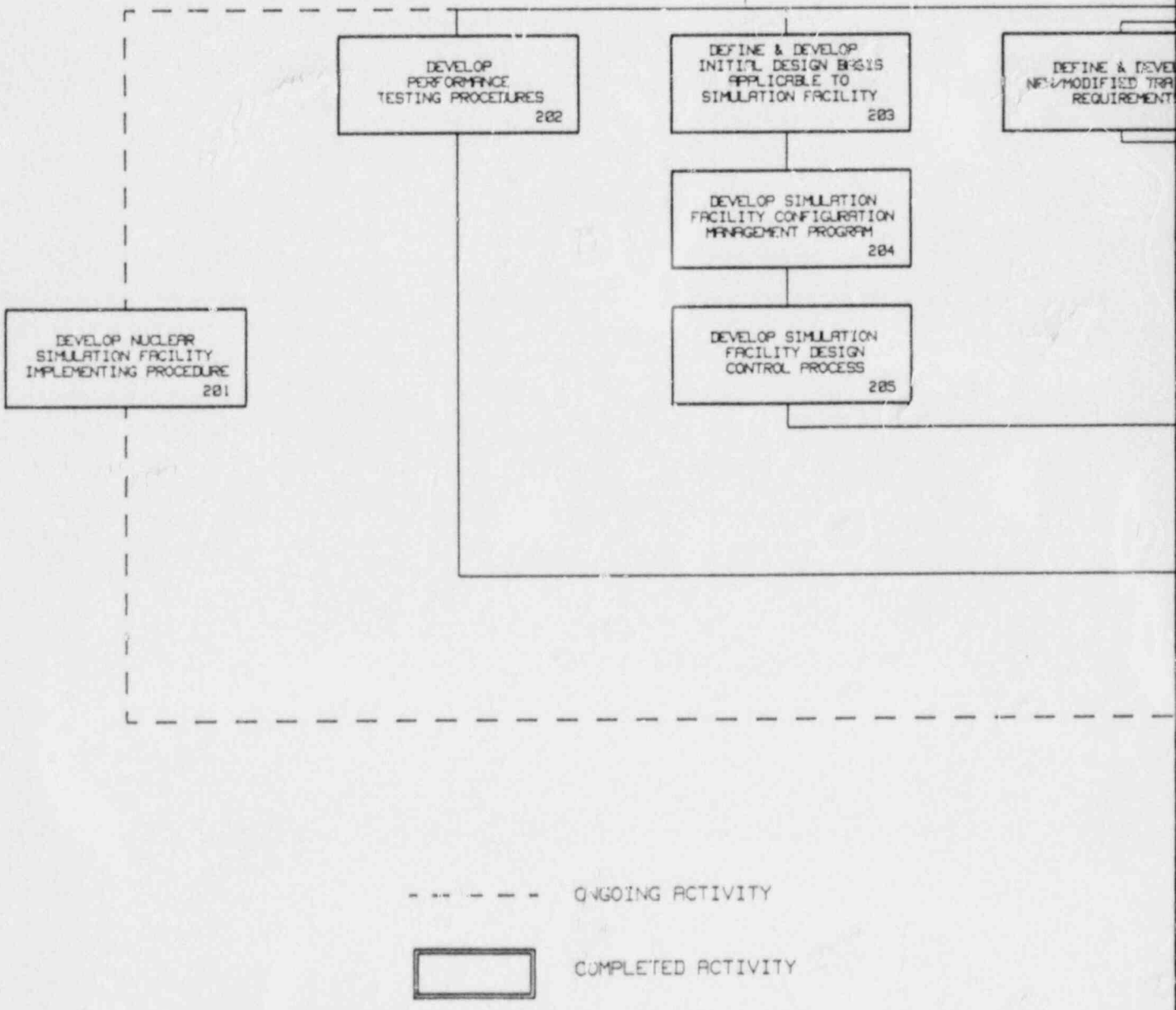
4.2.17 BLOCK 402 Obtain NRC Approval of Simulation Facilities

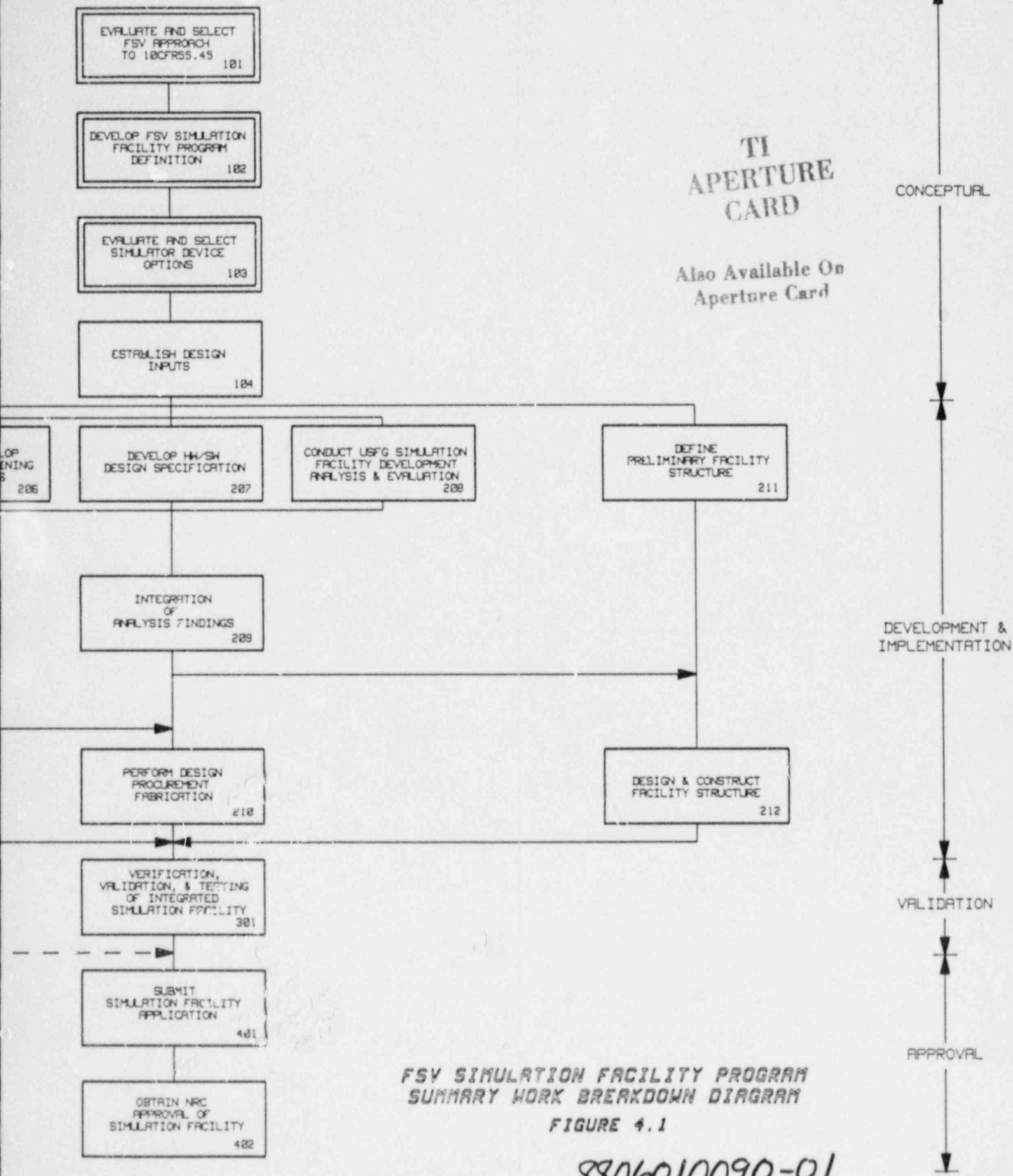
This block identifies the requirement for obtaining NRC approval of the FSV Simulation Facility to allow for conduct of operating tests utilizing the SF. This approval is expected to include an inspection of the SF (on and/or offsite), which will evaluate the following areas:

- Performance testing
- Physical fidelity/human factors
- Control capabilities
- Design data, data updating, modification, and testing

Any inspection findings will be evaluated and corrected to the extent that both the NRC and PSCo agree that minimal adverse impact to the conduct of an operating test remains.

The end product of this block, and of this process, will be an NRC approved simulation facility for FSV.


DEVELOP NUCLEAR SIMULATION FACILITY IMPLEMENTING PROCEDURE 201
DEVELOP PERFORMANCE TESTING PROCEDURES 202
DEFINE & DEVELOP INITIAL DESIGN BASIS APPLICABLE TO SIMULATION FACILITY 203
DEVELOP SIMULATION FACILITY CONFIGURATION MANAGEMENT PROGRAM 204
DEVELOP SIMULATION FACILITY DESIGN CONTROL PROCESS 205
ONGOING ACTIVITY
COMPLETED ACTIVITY



FSV SIMULATION FACILITY PROGRAM SUMMARY WORK BREAKDOWN DIAGRAM

FIGURE 4.1

5.0 FACILITY DEFINITION

In order to meet the 13 criteria of 10CFR55.45, relative to operator training, Public Service Company of Colorado intends to construct a Simulation Facility (SF) which will be comprised of both the Reference Plant and a Simulator Structure. The Simulator structure will contain a full scale representation of the FSV plant's control room along with the space required to house various support auxiliaries. The simulation control panel will combine computer controlled instruments and controls with instrument and control mockups into a Reduced Scope Simulator (RSS).

The System/Function Task Analyses will determine the instruments and controls that will be simulated. All other instruments and controls will be three dimensional colored "mock-ups". The active components on the panel will be integrated into a Distributed Process Simulation. See Attachment 8.2 and 8.5 for an expanded definition of the Distribution Process Simulation.

The reference plant itself will be used for the portions of the 13 criteria that can not be tested on the Reduced Scope Simulator.

The Simulator Structure will be constructed in such a manner that the ambient operating environment for the Reduced Scope Simulator will replicate, to the extent practicable, that of the reference plant control room. Temperature, noise, humidity, communications, and lighting are factors that will be considered.

Information compiled during the development phase of the Simulator Program will be utilized in determining the other requirements of this structure.

6.0 SCHEDULE

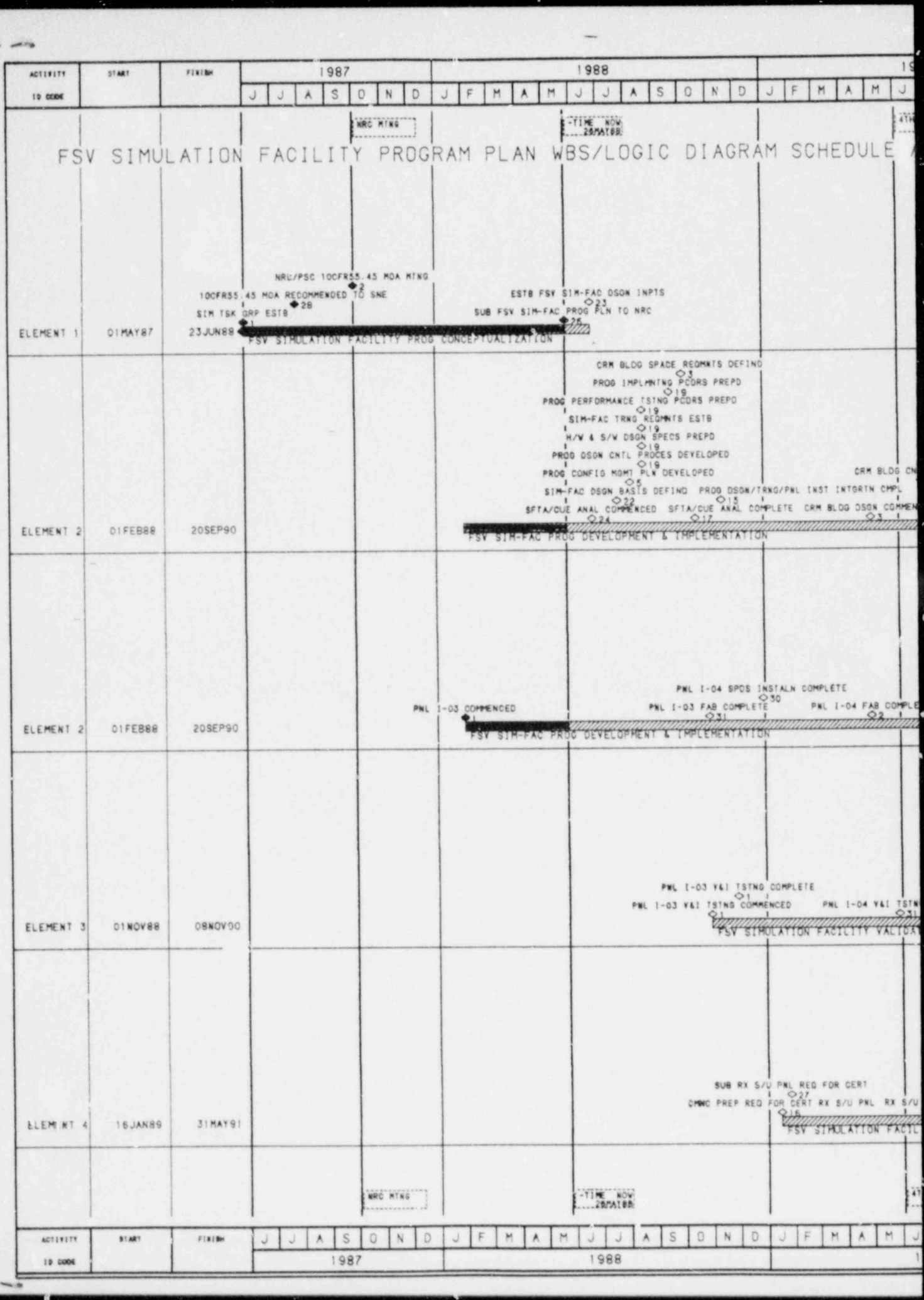
A preliminary schedule for the Fort St. Vrain Simulation Facility Program has been developed down to the activity level. The activities related to the design, procurement, and fabrication of the individual system/panels have had personnel resources included. The current schedule of activity durations and resource requirements were identified utilizing the previous effort associated with the control room panel I-02 Part-Task Simulator as a basis.

A final determination of what will constitute the active Control Room panel instrumentation has yet to be accomplished. This information will be developed during the System Functional Task/Cue Analysis (see USFG Document, Sections 3.1 and 3.2), which will be performed as part of the USFG Simulator Facility Development, Analysis and Evaluation (Block 208), and finalized during the Integration of Analysis Findings (Block 209).

As with all major undertakings, during the preliminary stages of planning additional work items will be identified. These items will in turn require increase and manpower to accomplish. Experience has shown this to be the case.

Once the finalized scope has been identified and a greater degree of experience has been developed with respect to what it will actually take to accomplish certain evaluations, then revised work activity durations and resource requirements will be generated. This detailed information could increase or decrease the presently identified activity durations as well as expand or decrease the current resource requirements.

The preliminary FSV Simulation Facility Program Summarized Milestone Schedule arranged by Work Breakdown Structure/Logic Elements is included as Figure 6.1 of this plan.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NRC/PSC 10CFR55.45 MOA MTNG
2
10CFR55.45 MOA RECOMMENDED TO SNE
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ESTB FSV SIM-FAC OSGN INPTS
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19
PROG PERFORMANCE TSTNG PCDRS PREPD
19
SIM-FAC TRNG REQMNTS ESTB
19
H/W & S/W DSGN SPECS PREPD
19
PROG OSGN CNTL PROCES DEVELOPED
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PROG CONFIG MGMT PLN DEVELOPED
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CRM BLDG CN
SIM-FAC DSGN BASIS DEFIND
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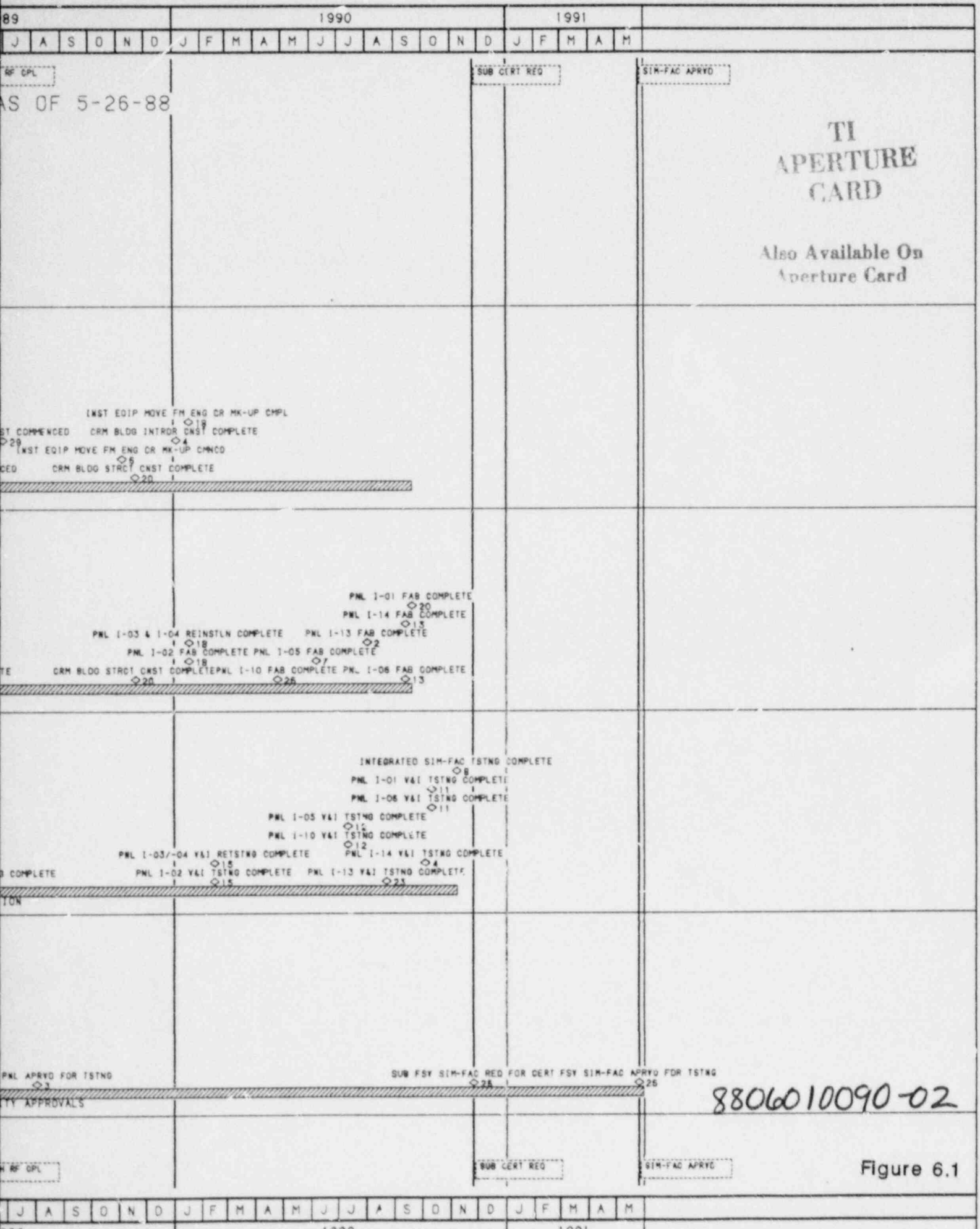

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Figure 6.1

7.0 ORGANIZATION/RESPONSIBILITIES

Figure 7.1 identifies the work breakdown responsibilities for the Simulation Facility program. The block numbers and descriptions indicated correlate with those on Figure 4.1. Departments within the FSV Nuclear organization are assigned responsibilities for insuring completion of tasks associated with the simulation facility. Other departments with inputs to given tasks are also indicated on this figure.

This is felt to be a superior method of program management, allowing for identification of necessary tasks, and assignment of responsibility for their completion to a specific individual within the appropriate department. Improved resource allocation is realized, as is improved project control.

A similar method of project management was utilized for the Equipment Qualification (EQ) program at FSV, and was found to be very successful.

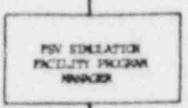
Note that a RSS Quality Assurance Plan has been developed, and is included as Attachment 8.6.

FORT SAINT VR

ORGANIZATIONA

▲ PRIMARY RESPONSIBILITY

● SUPPORT RESPONSIBILITY

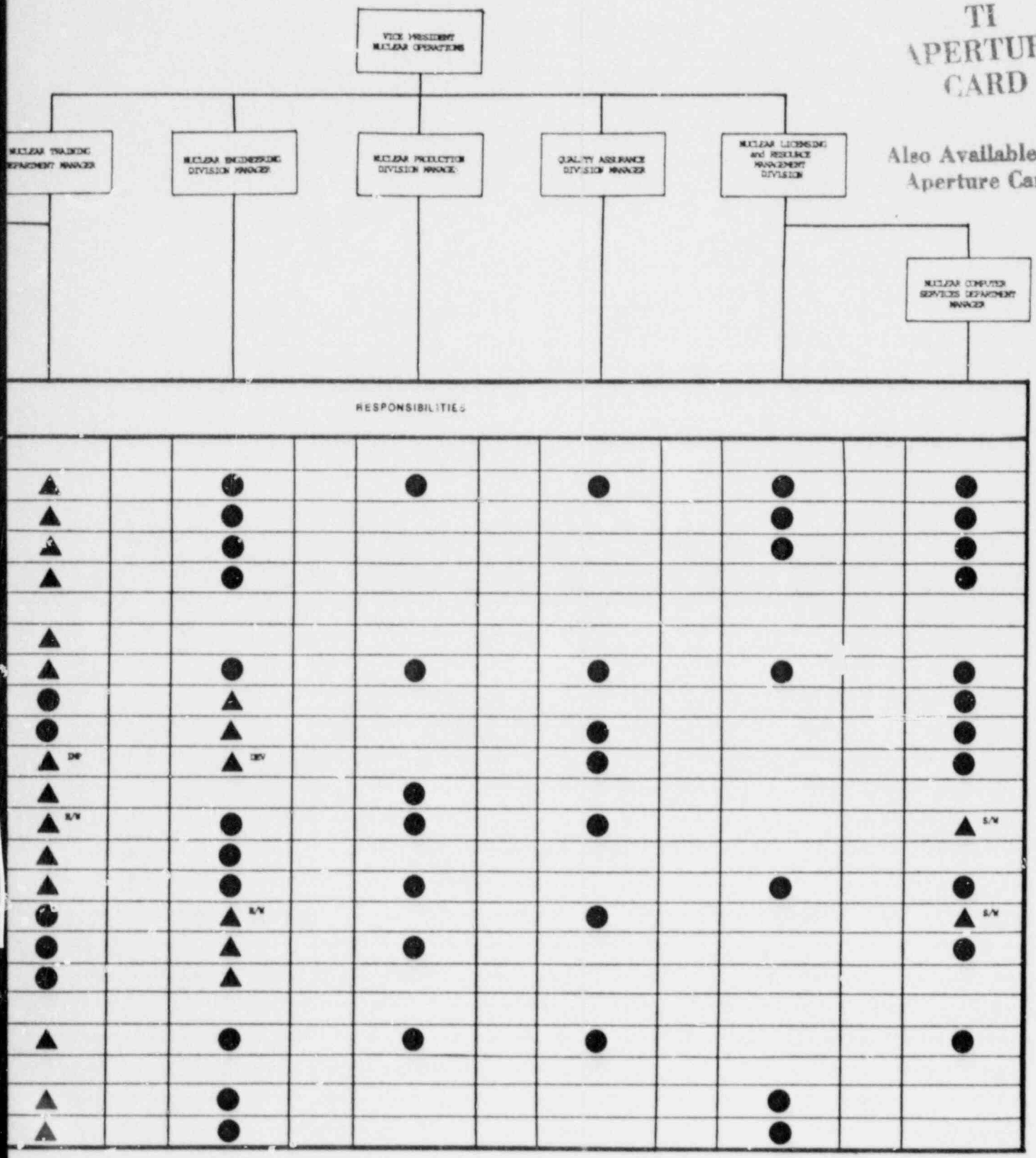


ELEMENT	BLOCK NO.	BLOCK DESCRIPTION	BLOCK MANAGER	REMARKS
	101	EVALUATE and SELECT FSV APPROACH TO 10CFR55.45	N/A	COMPLETE
	102	DEVELOP FSV SIMULATION FACILITY PROGRAM DEFINITION	N/A	COMPLETE
CONCEPTUAL	103	EVALUATE and SELECT SIMULATION DEVICE OPTIONS	N/A	COMPLETE
	104	ESTABLISH DESIGN INPUTS		
	201	DEVELOP FSV SIMULATION FACILITY IMPLEMENTING PROCEDURES		
	202	DEVELOP PERFORMANCE TESTING PROCEDURES		
	203	DEFINE and DEVELOP INITIAL DESIGN BASIS APPLICABLE to FSV SIMULATION FACILITY		
	204	DEVELOP FSV SIMULATION FACILITY CONFIGURATION MANAGEMENT PLAN		
	205	DEVELOP FSV SIMULATION FACILITY DESIGN CONTROL BASIS		
DEVELOPMENT and IMPLEMENTATION	206	DEFINE and DEVELOP NRC/MODIFIED PLANT-SPECIFIC REQUIREMENTS		
	207	DEVELOP HARDWARE and SOFTWARE DESIGN SPECIFICATION		
	208	CONDUCT USPG SIMULATOR FACILITY DEVELOPMENT ANALYSIS and EVALUATION		
	209	INTEGRATION of ANALYSIS FINDINGS		
	210	PERFORM DESIGN, PROCUREMENT and FABRICATION		
	211	DEFINE CRM BUILDING SPACE REQUIREMENTS		
	212	DESIGN and CONSTRUCT CRM BUILDING		
VALIDATION	301	VALIDATION and CONSTRUCT CRM BUILDING		
APPROVAL	401	SUBMIT FSV SIMULATION FACILITY APPLICATION for CERTIFICATION		
	402	OBTAIN NRC APPROVAL of the FSV SIMULATION FACILITY		

AIN SIMULATION FACILITY PROGRAM

L RESPONSIBILITY MATRIX DIAGRAM

Figure 7.1



Public Service
Public Service Company of Colorado

8.0 ATTACHMENTS

8.1 USFG Document

8.2 Design Specification

8.3 Glossary of Terms

8.4 Configuration Management

8.5 Distributed Process Simulation

8.6 Quality Assurance Plan