NO JAN

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PSNH

Public Service of New Hampshire

SEABROOK STATION
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April 14, 1983
SBN-499
T.F. B7.1.2
V2.2.1

United States Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Mr. D. G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation

References: (a) Construction Permits CPPR-135 and CPPR-136, Docket Nos. 50-443 and 50-444
(b) USNRC Letter, dated December 17, ~~192~~ 1982, "Supplement 1 to NUREG-0737 - Requirements for Emergency Response Capability (Generic Letter No. 82-33)," D. G. Eisenhut to All Licensees of Operating Reactors, Applicants for Operating Licenses, and Holders of Construction Permits

Subject: Response to Generic Letter 82-33; Supplement 1 to NUREG-0737

Dear Sir:

In response to the referenced letter in which you requested information pursuant to 10CFR50.54(f), we have enclosed a discussion of the status and have included commitments for implementation and integration of each of the following NUREG-0737, Supplement 1 items:

- Emergency Response Facilities (includes meteorological monitoring)
- Accident Monitoring Instrumentation (Regulatory Guide 1.97, Rev. 2)
- Emergency Operating Procedures
- Detailed Control Room Design Review
- Safety Parameter Display System

A003

ADD: W. Paulson

Please contact me should you require additional information.

Very truly yours,

YANKEE ATOMIC ELECTRIC COMPANY

J. DeVincentis
Project Manager

ALL/fsf
Enclosure
cc: Mr. George W. Knighton, Chief
Licensing Branch 3
Division of Licensing

Mr. Louis Wheeler, Project Manager
Licensing Branch 3
Division of Licensing

Atomic Safety and Licensing Board Service List

EMERGENCY RESPONSE FACILITIES

Following the declaration of an emergency, the activities of the emergency organization will be coordinated in a number of dedicated Emergency Response Facilities. During the initial stages of an emergency, the shift personnel classify and declare the emergency condition and direct initial emergency response actions. These actions include notification of appropriate officials of on-site and off-site emergency response personnel, corrective actions, dose assessment and protective action recommendations. As additional support personnel arrive, certain emergency response functions are transferred to personnel located in the Technical Support Center, Operational Support Center, and the Emergency Operations Facility. For information and details about meteorological monitoring and the use of meteorological parameters for atmospheric dispersion and dose projection purposes, see the PSNH letter to the NRC, dated January 18, 1983 ("Open Item Responses"; J. DeVincentis to G. W. Knighton).

Technical Support Center

On-site Technical Support Centers (TSC), located in each units' Control Building, have been established where assigned personnel diagnose accident conditions and assist the Control Room staff in plant stabilization (see Figure 1). The location and communications equipment of the TSCs facilitate voice and data interaction and coordination with the Control Room and the Emergency Operations Facility (EOF). Each TSC is included in the station emergency communications network. Voice communications are available between the TSC, Operational Support Center (OSC), and NRC. The TSC organization has direct access to the main plant computer data base that includes the Safety Parameter Display System (SPDS) which monitors and displays information on critical safety functions. This enables evaluation of incident sequence, appropriate mitigating actions, and damages.

Each TSC will accommodate the technical staff needed to evaluate the plant condition. Communications with and support by the Yankee Engineering Support Center in Framingham, Massachusetts will be an additional aid to the TSC. Each TSC will have access to the station Final Safety Analysis Report (FSAR), the station Emergency Plan and procedures, and a complete set of Station drawings and equipment specifications. Each TSC will also have access to current records which are essential for evaluation of the Station under accident conditions.

The TSC is habitable to the same degree as the Control Room for postulated accident conditions. Radiological protection and monitoring equipment assure that radiation exposure to any person working in the TSC would not exceed 5 rem whole body, or its equivalent to any part of the body for the duration of an accident. The TSC is designed using good human factors engineering principles and is environmentally controlled to provide room air temperature, humidity, cleanliness and lighting appropriate for personnel and equipment. The TSC is structurally built in accordance with the Uniform Building Code. Seismic qualifications of the TSC surpass the Uniform Building Code.

Operational Support Center

The Operational Support Center (OSC), located on the first floor of the Administration and Service Building (see Figure 2), provides a general assembly/dispatch area for assigned station manpower needed to effect protective and corrective actions in support of the emergency situation. OSC activities are directed by the OSC Coordinator. Voice communications between the OSC and the Control Room, TSC, and EOF will be maintained through the station emergency communications network.

Emergency Operations Facility

The primary Emergency Operations Facility (EOF) is located within the lower level of the Seabrook Education Center approximately 1,300 feet from the Unit 2 containment (see Figure 3). The EOF provides for management of overall licensee emergency response, coordination of radiological and environmental assessment, development of recommendations for public protective actions, and coordination of emergency response activities with Federal and State agencies.

When the EOF is activated, predesignated emergency personnel will report to the EOF. Their duties and activities will be directed by the Emergency Director. The EOF maintains sufficient space and equipment to accommodate Federal, State, and licensee predesignated personnel.

The EOF is provided with equipment which enables the acquisition, display, and evaluation of radiological and meteorological data, and containment conditions necessary to evaluate the actual or potential radioactive releases from the Station, to determine expected dose projections, and to select the necessary protective measure. Variables that are essential to EOF functions will be available in the EOF. The EOF will also be provided with up-to-date station drawings, schematic diagrams, procedures, emergency plans and procedures, area maps and environmental information needed to perform EOF functions.

The portion of the EOF in which radiological consequences and protective responses are analyzed and coordinated will provide a radiological protection factor of at least 5. Ventilation isolation will be provided in this area with any makeup air subject to HEPA and charcoal filtration. The primary EOF contains radiation monitoring equipment and written procedures which are used to assess EOF radiological habitability.

In the unlikely event that the primary EOF becomes radiologically uninhabitable, Station resources and personnel will be transferred to the alternate EOF which is located at the Public Service Company of New Hampshire's Newington Station, approximately 14 miles north of the site. The alternate EOF is included in the station emergency communications network. Seabrook Station maintains its emergency equipment in packed, readily transportable containers. Thus, if necessary, sufficient equipment can be transported to the alternate EOF to facilitate continuation of the emergency response.

Both primary and alternate EOFs satisfy good human factors engineering principles and are environmentally controlled to provide room air temperature, humidity, and cleanliness appropriate for personnel and equipment. Each EOF will be provided with industrial security when it is activated to exclude unauthorized personnel and when it is idle to maintain its readiness.

Implementation

The Seabrook TSC, OSC, and EOF will all be functional prior to fuel load.

ACCIDENT MONITORING INSTRUMENTATION (REGULATORY GUIDE 1.97, REV. 2)

We are in the process of selecting the Seabrook Accident Monitoring Instrumentation (AMI) using the guidance in ANSI/ANS 4.5-1980, "Criteria for Accident Monitoring Functions in Light-Water-Cooled Reactors," as endorsed by Regulatory Guide 1.97 (Rev. 2). The plant specific Emergency Operating Procedures (EOPs) and emergency radiological assessment procedures identify the actions required to respond to an accident. The AMI will be selected to ensure that information required to perform these actions is available to personnel in the Control Room and the emergency response facilities.

The AMI selection process will be a joint effort involving Engineering and Operations personnel. The adequacy of the AMI will be verified as part of the Control Room design review.

A list of the Seabrook AMI will be prepared that will provide the information requested by Section 6.2 of NUREG-0737, Supplement 1. A comparison to the recommendations in Regulatory Guide 1.97 will be provided and exceptions will be justified.

The AMI list and Regulatory Guide 1.97 comparison will be submitted to the NRC by September 1983. All AMI will be installed, integrated into the EOPs and appropriate training performed prior to loading fuel.

EMERGENCY OPERATING PROCEDURES

The Westinghouse Owners Group Emergency Response Guidelines (ERGs) are being used as the basis for the development of the Seabrook Station Emergency Operating Procedures (EOPs). Seabrook Station has completed its basic set of EOPs. The EOPs will be revised as necessary subsequent to the NRC staff's issuance of its Safety Evaluation Report on the ERGs and the Owners Group issuance of Revision 1 to the ERGs.

A review of the EOPs will be provided by the Seabrook Station Operations Department management, Station Operations Review Committee and Westinghouse. Verification and validation of the EOPs will be accomplished on-site, with the site-specific simulator.

The EOPs will be available for NRC staff review/audit in December 1983. Operator training on the EOPs will begin in March 1984.

DETAILED CONTROL ROOM DESIGN REVIEW

A detailed Control Room design review of the Main Control Board (MCB) is being conducted on the site specific simulator which is maintained as an essentially exact duplicate of the MCB.

A preliminary report on the Control Room design review was submitted to the NRC on May 12, 1982. ("Seabrook Station Control Room Design Review Preliminary Report"; J. DeVincentis to F. Miraglia.) This submittal provides the preliminary information recommended by NUREG-0700 and NUREG-0801, and the program plan required by NUREG-0737, Supplement 1. The preliminary report indicated that a final report would be submitted to the NRC in April 1983. This milestone will not be met; a revised schedule and the current status is discussed below.

We have completed a review of all those items that can be checked at this time. These comprise approximately 90% of the full review. There are some environmental items which must wait until the plant is operating before they can be checked. Specifically, these are items such as noise, heating, and ventilation.

An assessment of the Human Engineering Discrepancies (HEDs) which have been identified to date is underway. Implementation of MCB modifications resulting from the ongoing assessment of HEDs will be addressed in the Summary Report required by NUREG-0737, Supplement 1, which will be submitted by August 31, 1983. A supplement to the Summary Report will be submitted three months subsequent to the date of commercial operation; it will address the environmental items discussed above.

SAFETY PARAMETER DISPLAY SYSTEM

A safety Parameter Display System (SPDS) will be available to Control Room and Technical Support Center personnel. The status of our design effort on the SPDS is discussed below.

The SPDS will receive its input from the Plant Computer and will consist of a dedicated display (CRT) which monitors the following six critical safety function:

- Subcriticality
- Core Cooling
- Reactor Coolant System Integrity
- Heat Sink
- Containment Integrity
- Reactor Coolant System Inventory

If the condition of any of the six critical safety functions departs from its normal range, the color of the block corresponding to the effected critical safety function will vary as follows (see attached photograph of this level of display):

- Green - normal; no threat to critical safety function
- Yellow - off normal; no threat to critical safety function
- Orange - off normal; approaching a challenge to the critical safety function
- Red - off normal; challenge to the critical safety function

The SPDS can also display a representation of the safety status trees which correspond to any of the six critical safety functions (see attached photograph of this level of display). The color of the status tree branches corresponds to the color of the critical safety function block (i.e., if the core is adequately subcooled, the core cooling block should be green, and if the status tree for core cooling is displayed, its branches will be green). The SPDS is capable of displaying the procedure that should be utilized at any point in the status tree, and is also capable of providing data listings of various parameters.

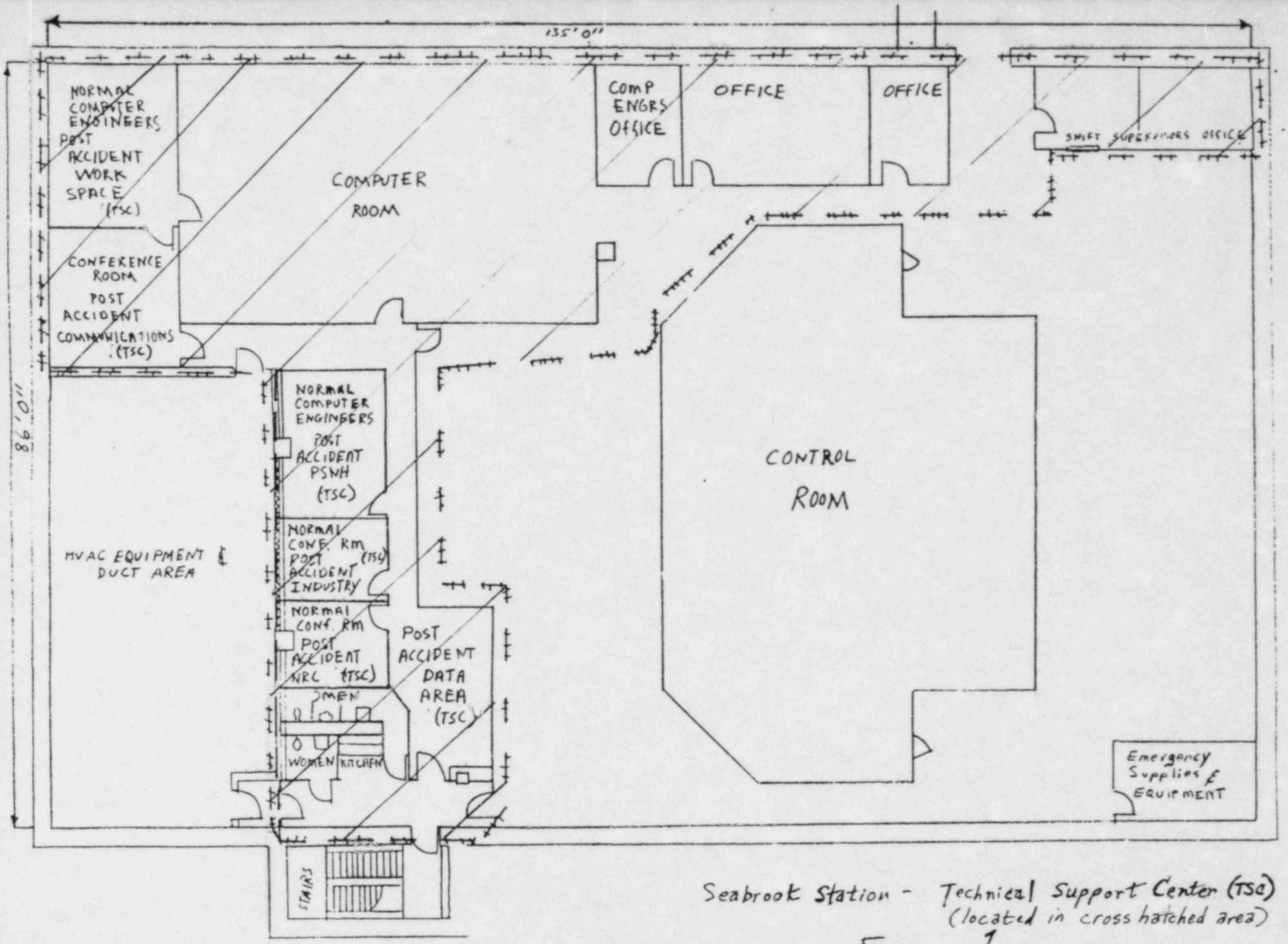
The six critical safety functions and the safety status trees were developed from the Westinghouse Owners Group Emergency Response Guidelines (ERGs).

It should also be noted that the Main Control Board will contain all the analog or digital instrumentation readouts that are input to the SPDS when the Plant Computer is available, and that hard copies of status trees and procedures are available to Control Room and TSC personnel. Therefore, the SPDS is a very useful tool available to the operator, but its function may be manually accomplished if the Plant Computer is unavailable.

The Plant Computer will use existing software to generate/store the graphics discussed above. Dynamic inputs are fed to the pregenerated/stored status trees, and the color scheme described above is generated when the input values achieve a preprogrammed level.

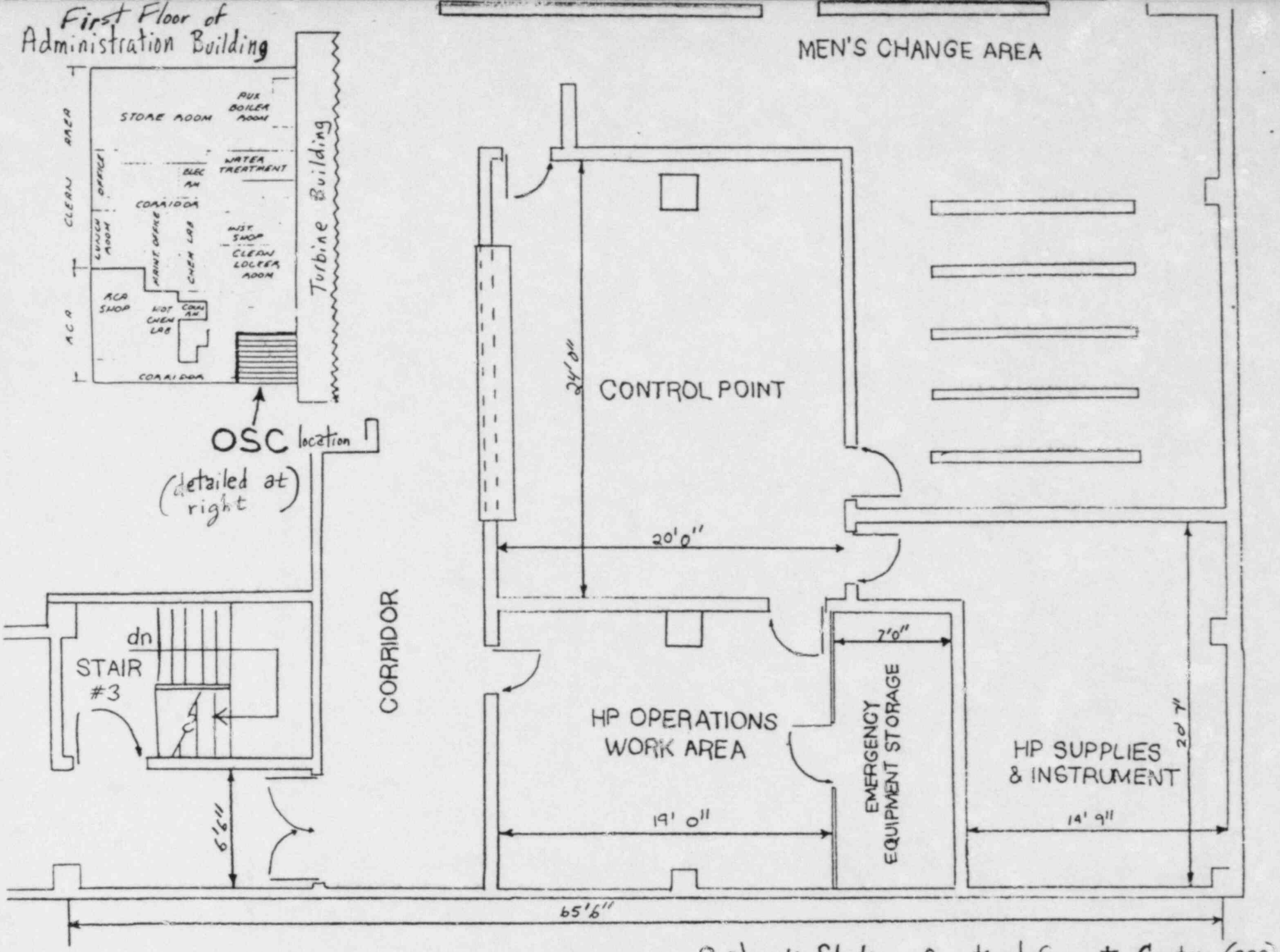
Some of the safety status trees have already been programmed into the simulator computer and were demonstrated to the ACRS Subcommittee members (Kerr and Michelson) on April 1, 1983. The attached photographs are of the simulated SPDS.

Verification and Validation of the SPDS will be accomplished by December 1983, at which time operator training will be initiated and a NRC post-implementation review can begin. Operators will be fully trained prior to fuel load. A safety analysis which describes the basis for SPDS parameter selection is essentially that which has been submitted in the Westinghouse Owners Group ERGs. It is therefore felt that the ERGs provide the required safety analysis which provides the basis for SPDS parameter selection.

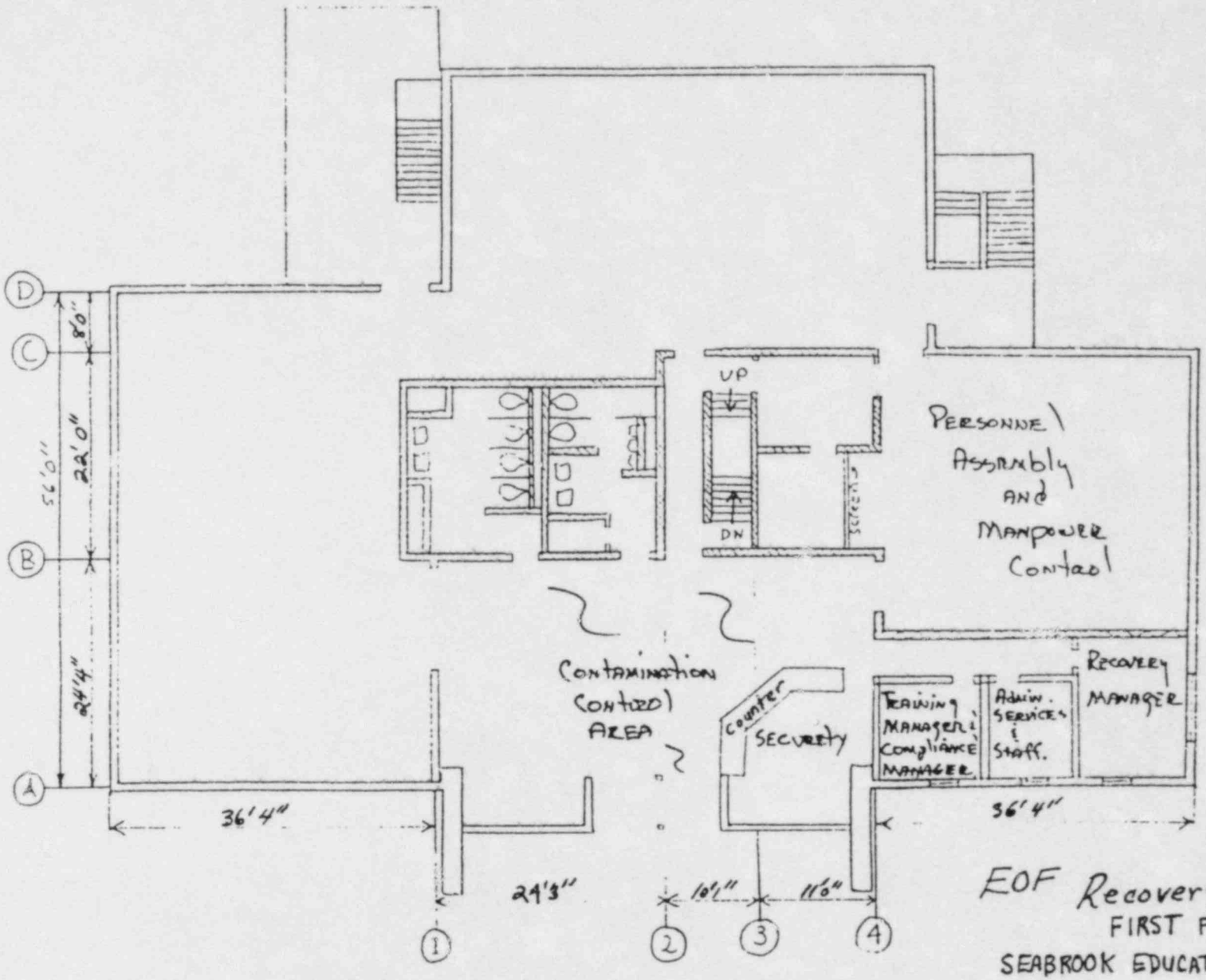


Seabrook Station - Technical Support Center (TSC)
(located in cross hatched area)

Figure 1.

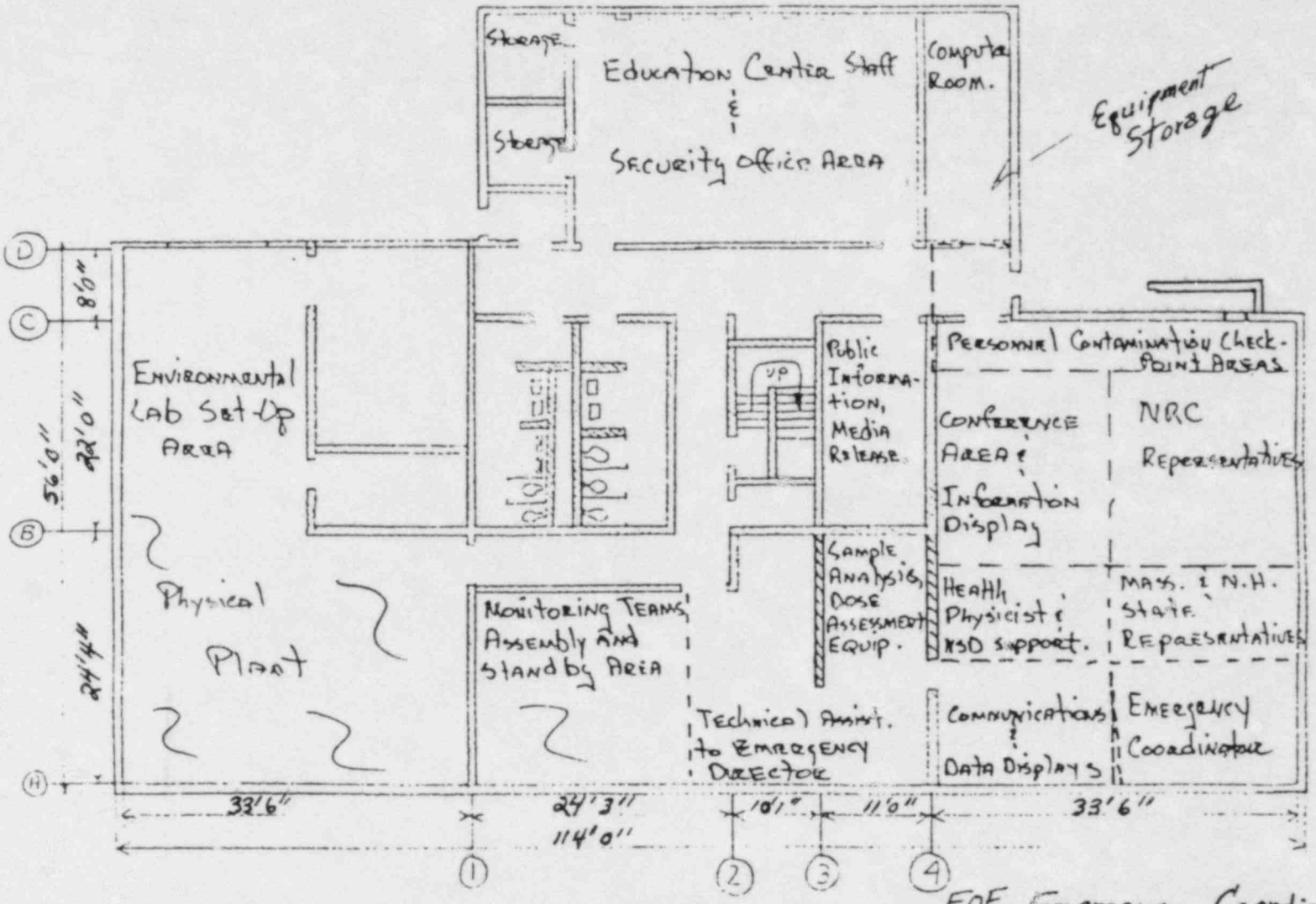


Seabrook Station - Operational Support Center (OSC)
Figure 2



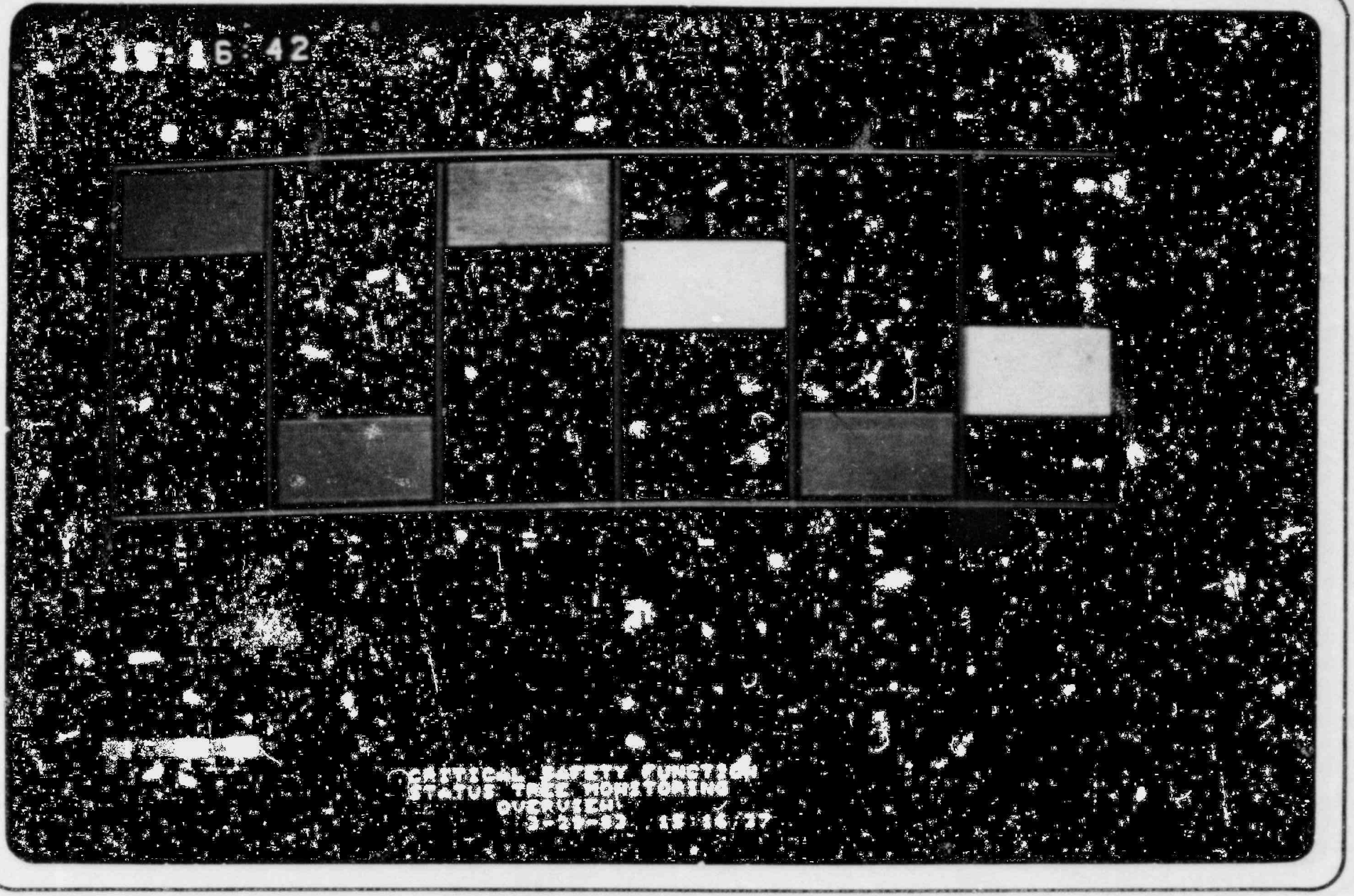
EOF Recovery Area
FIRST FLOOR
SEABROOK EDUCATION CENTER

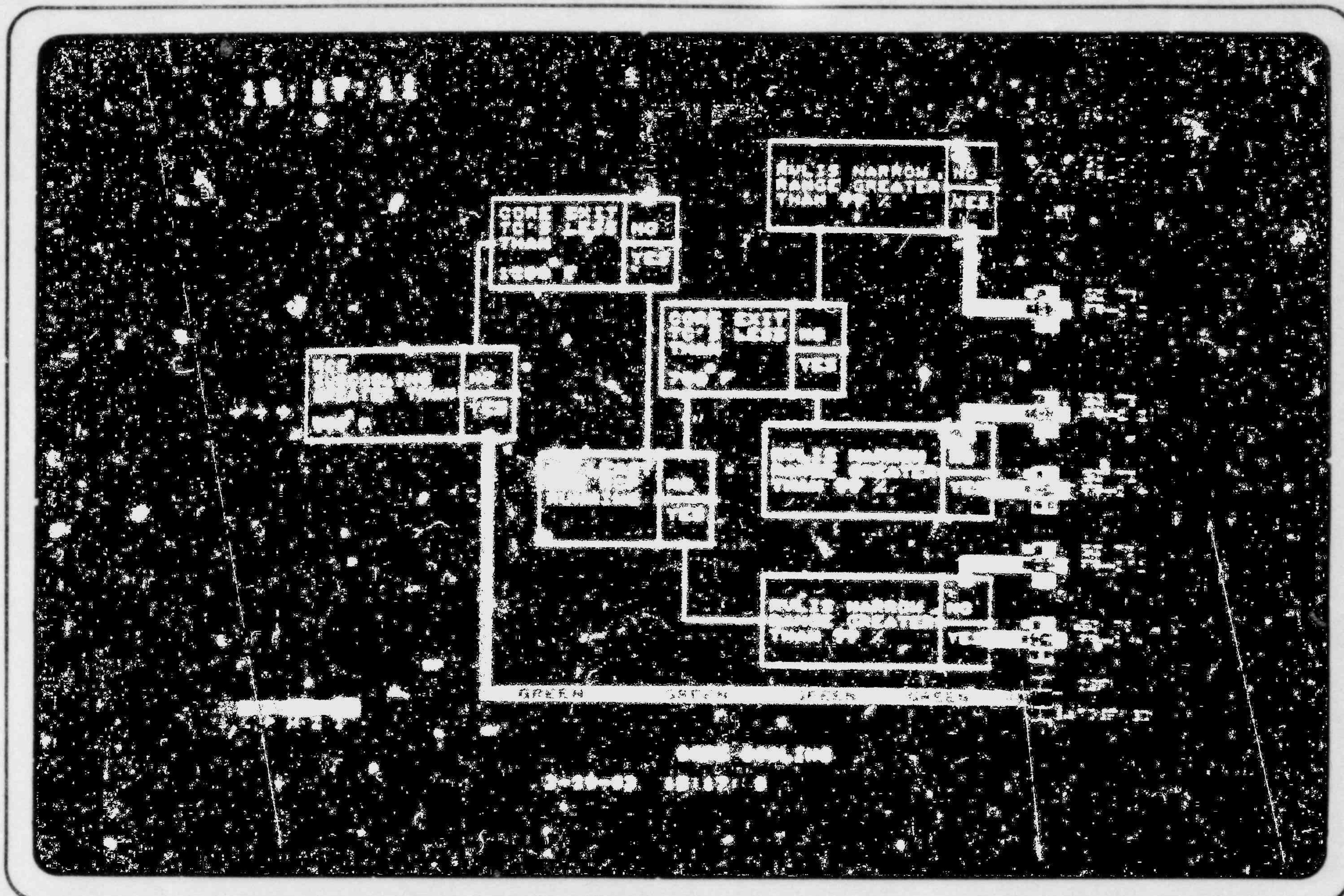
Figure 3 (Sheet 1 of 2)



EOF Emergency Coordination Area
LOWER LEVEL
SEABROOK EDUCATION CENTER

Figure 3 (Sheet 2 of 2)


15:16:42
CRITICAL SAFETY FUNCTION
STATUS TREE MONITORING
OVERVIEW
3-11-92 15:16:37


CORE EXIT
NO
YES
RVLIS NARROW
RANGE GREATER
GREEN