VERMONT YANKEE NUCLEAR POWER CORPORATION

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REPLY TO:
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B.3.2.1
WVY 80-7

January 8, 1980

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
7920 Norfolk Avenue
Bethesda, Maryland 20014

References: (a) License No. DPR-28 (Docket No. 50-271)
(b) USNRC Letter, H. R. Denton to All Operating Plants, dated October 30, 1979.
(c) Telecon, Vern Rooney to R. L. Smith, December 6, 1979.
(d) VYNPC Letter, D. E. Moody to H. R. Denton, dated December 14, 1979.

Enclosure: (1) Vermont Yankee Response to NUREG-0578 Recommendations.

Gentlemen:

Vermont Yankee has been proceeding to implement the recommendations of NUREG 0578 as clarified in Reference (b). A subsequent telephone conversation, Reference (c), further clarified the reporting requirements concerning the items due on January 1, 1980. The enclosure describes the manner in which Vermont Yankee has met these recommendations.

You will note a somewhat detailed description of the permanent Technical Support Center. Some of the details may be subject to change but the location and general description should remain accurate.

Certain hardware modifications will be installed during the February shutdown as described in Reference (d).

Should you have any questions, please contact us.

Very truly yours,

VERMONT YANKEE NUCLEAR POWER CORPORATION

D. E. Moody

D. E. Moody
Manager of Operations

LDM/smw

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Item 2.1.1 Emergency Power Supply

Vermont Yankee meets the intent of this recommendation. The reactor vessel power operated safety relief valves are air operated and provided with accumulators for operation despite a temporary loss of the plant air supply. Plant air compressors are not required as Engineered Safeguards, but are capable of being energized by the emergency diesel generators. Redundant safety relief valves are provided. No block valves are, or will be, provided because these relief valves constitute part of the code-required safety valve capacity and block valves are specifically prohibited as detrimental to safety. Vessel level instruments are powered from emergency sources. No action is contemplated.

Item 2.1.2 Testing of Relief and Safety Valves

Vermont Yankee intends to participate in the valve test program currently being discussed between the NRC and the BWR Owners Group. Mutually acceptable schedules and details of the test program are currently being decided.

High vessel level trips are provided on the HPCI, RCIC, and reactor feed pumps which reduce the probability of water relief through the safety and relief valves.

Item 2.1.3.A Direct Indication of Safety and Relief Valves

Vermont Yankee has installed pressure switches which detect changes in pressure in the safety-relief valve discharge piping leading to the torus and utilize this change as direct indication of SRV position. The pressure switches are located outside of the primary containment and connected to the SRV piping with a small diameter piping system which penetrates the containment.

This piping system was designed and installed to meet the same seismic standards as the SRV discharge piping. The switch mountings and panels were evaluated to meet the same seismic requirements. Conduit and cable installation were installed to the same requirements. The installed switches are not, at present, seismically qualified. The vendor (GE) is proceeding with a qualification program. In the event that the switches will not withstand the seismic movement, Vermont Yankee will replace them with a qualified indicator before January 1, 1981. Three switches are provided for each SRV and function on a two out of three logic. Each indicating circuit is powered from a single train of vital AC.

Position indication for the safety valves will be provided by acoustic accelerometers mounted on the valve discharge flange. The signal will be processed by a charge amplifier located in the containment and then routed to an indicator in the main control room. The equipment inside the containment will be qualified to the expected environment as well as the seismic conditions. Installation will be completed during the February outage.

Item 2.1.3.B Instrumentation to Detect Inadequate Core Cooling

These recommendations are being addressed by General Electric and the Bulletin and Orders Task Force. A prepublication version of the GE findings and recommendations was due to be submitted to the NRC on December 28 and to Vermont Yankee by January 15. Vermont Yankee expects to concur with the recommendation of this document.

The existing level instrumentation has been described in the Vermont Yankee response to Bulletin 79-08. GE SIL 299 has been reviewed by the plant operating staff. A possible error of 14 inches in the reactor level instrumentation was found to exist under the postulated conditions. The training program and operating procedures have been modified to assure that station operators are aware of this information.

2.1.4 Containment Isolation

Vermont Yankee has previously provided certain information concerning the containment isolation systems in a letter, R. H. Groce to W. F. Kane, dated November 15, 1979, which will be referenced in the following discussion.

1. Diversity of Parameters

The existing containment isolation system has been reviewed regarding the diverse signals required by SRP 6.2.4. It is concluded that sufficiently diverse signals have been provided in that reactor level and drywell pressure are both used as initiating signals with 2 inputs to each of 2 logic trains. All equipment is safety grade. Pipe lines going from the containment to the environment are also isolated by high radiation levels. This system is described in detail in the Vermont Yankee FSAR. The referenced letter provides additional information.

2. Identify Essential and Non-Essential Systems

These systems are identified in the referenced letter. The design has been reviewed in light of the NUREG-0578 recommendations with the following conclusions:

a. Essential systems that mitigate accident consequences are not automatically isolated.

b. All other systems are isolated except small instrument lines.

c. Small instrument lines connected to the reactor coolant system are provided with excess flow check valves.

d. The instrument lines are designed to withstand main coolant pressure.

3. Non-Essential Systems Should be Isolated

All non-essential systems are isolated except as noted in position 2.

4. Automatic Reopening of Valves

A review of the containment isolation logic was conducted and several valves were found which would automatically reopen when the logic was reset. Administrative controls were immediately issued which required the operators to place the switch in the "close" position before resetting the containment isolation logic. Electrical equipment has been ordered and will be installed during the February shutdown which will make this an automatic operation requiring no operator action.

Item 2.1.6.A Systems Integrity of High Radioactivity

Systems outside containment that would or could contain highly radioactive fluids during accident conditions have been identified (Table I) and examined for leakage under actual operating conditions. Steam and liquid systems were visually inspected and gaseous systems which operate at positive pressure were leak tested with helium. With one exception, no leakage was found. A minor leak on the suction of one reactor water cleanup pump was conservatively estimated to be less than 1 liter per hour. This will be repaired during the February shutdown.

Systems excluded from the tests are identified in the attached Table II.

In addition, "benchmark" samples of airborne activity were taken in areas not routinely visited by the station operator. These areas will be sampled whenever there is reason to suspect leakage and the sample results compared to the "benchmarks" as an indication of change in the leakage rate.

A program to detect and reduce leakage has been instituted. Once each month, visual leakage inspection will be conducted during the operability tests required by the technical specification. The results of these inspections will be documented and maintenance performed where required. This program will include the RHR, HPCI, RCUW, CS, RCIC, and sample systems.

The release pathway discovered at North Anna Unit 1 was reviewed to determine if similar paths exist at Vermont Yankee. It was determined that all tanks containing radioactivity vent into filtered ventilation systems before release to the environment. No modifications were found necessary.

TABLE I

Systems Outside Containment which were included in the Leak Measurement Program:

1. Waste Collector Tank
2. Floor Drain Collector Tank
3. Waste Surge Tank
4. Recirc. Loop Sample
5. Reactor Water Cleanup (RCUW)
6. Core Spray System (CS)
7. High Pressure Coolant Injection System (HPCI)
8. Reactor Core Isolation Cooling (RCIC)
9. Residual Heat Removal System (RHR)
10. Standby Gas Treatment System
11. Drywell Floor Drain System
12. Drywell Equipment Drain System
13. Reactor Building Floor Drain System
14. Reactor Building Equipment Drain System
15. Fuel Pool Cooling

TABLE II

Systems Outside Containment excluded from Leakage Inspection Program:

1. Advanced Off-Gas
2. Main and Auxiliary Steam
3. Condensate and Feedwater
4. Demineralized and Condensate Transfer
5. Heater Vents and Drains
6. Extraction Steam
7. Service Water
8. Reactor Building Closed Cooling Water
9. Turbine Building Closed Cooling Water
10. Service and Instrument Air
11. Demineralized Make-up Water
12. Fuel Oil
13. Turbine Lube Oil
14. Fire Protection
15. Recirc. M.G. Lube Oil
16. Circulating Water
17. Containment Air Dilution *
18. Containment Atmosphere Control *
19. Heating, Ventilation, and Air Conditioning
20. Standby Liquid Control
21. Control Rod Drive

*Leakage measurements on these systems are considered unnecessary since they operate at subatmospheric pressures and would experience in-leakage only.

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Item 2.1.6.B Shielding of Plant Systems

Vermont Yankee has conducted a preliminary survey of the shielding requirements in areas requiring access under accident conditions. The steps used in the survey are listed below.

1. Lists of systems and components requiring post-accident operator attention were generated. These lists included approximate frequency and duration of required operator surveillance.

2. Plant machinery location drawings were color-coded to show piping systems and components which could possibly contain radioactive fluids in a post-accident situation.

3. A visual survey of the areas containing both of the above was conducted.

Formal review of the results of the preliminary survey is not yet completed. Two comments have been provided by the review team, however. The first is that all safeguards equipment has the ability to operate without local operator attention in the post-accident period. The second points out that reactor coolant samples would probably be unobtainable due to area airborne activity levels and recommends modifications. These are discussed further in the response to NUREG-0578 recommendation 2.1.8.A.

Details of the as-yet unpublished results of the preliminary survey are available at the Westborough, Massachusetts office of the Yankee Atomic Electric Company, Nuclear Services Division.

Vermont Yankee intends to continue its detailed evaluation of the shielding requirements recommended by NUREG-0578.

Item 2.1.8.A Post-Accident Sampling

Vermont Yankee has completed a review of its sampling capability.

a. Containment Air Sampling

On-line hydrogen analysis capability exists in the Containment Air Dilution System. A connection is available outside the reactor building for obtaining an air sample of the containment atmosphere and the capability to perform isotopic analysis of the sample is also available.

b. Reactor Coolant Sampling

The reactor coolant sample tap is located inside the reactor building and may not be accessible under some accident conditions. However, procedures have been developed making it possible to draw a reactor coolant sample containing several mCi/ml, convey it the lab, and analyze it without exceeding allowable personnel exposures.

Proposed modifications presently under investigation include a dilution system which will allow analysis of the sample with existing laboratory equipment as well as on-line analytical equipment. Choice of the most suitable method will be made in time to meet the schedular requirements of January 1, 1981.

Item 2.1.8.B Increased Range of Radiation Monitors

Vermont Yankee has provided interim equipment and procedures to quantify high level releases beyond the capability of previously installed equipment. A dedicated RM-16 is installed in the base of the plant stack. The information provided by this monitor, in conjunction with stack flow rates, can be converted to a release rate. Written procedures are available to the plant operator describing this method. In addition, the procedure addresses retrieval and analysis of stack iodine and particulate sampling media; reactor coolant sampling and analysis; and primary containment sampling. Techniques for minimizing exposure during the collection, transport, and analysis of these samples are detailed in the procedure. Analysis will be performed in the plant counting laboratory with backup capability at Yankee Rowe, a mobile facility and at Westborough.

Item 2.1.8.C Improved In-Plant Iodine Instrumentation

Vermont Yankee has the capability to detect the presence of iodine in the region of interest following the accident. Multichannel analyzers are available to monitor a charcoal sampling medium. These analyzers clearly detect iodine in the presence of noble gases. Plant procedures describe methods of using this equipment. In addition, these procedures describe methods to prepare the sample medium in the event of a gross activity level on the sample medium. Briefly, the sample is cleared of noble gases by cleaning with compressed air or a smaller sample volume is used.

Improved equipment for iodine sampling is being evaluated but it will not be available before mid-January.

Item 2.1.9 Analysis of Transients and Accidents

The response to this recommendation is being provided in accordance with schedules arranged between the Bulletin and Orders Task Force and the BWR Owners Group. To date, the small break LOCA has been re-evaluated and the results of that evaluation factored into both the plant procedures and the training program.

Reactor Coolant System Vents

Vermont Yankee concurs with the BWR Owners Group position as expressed in the topical meeting at Bethesda on October 11. The following plant-specific details are supplied.

1. The Vermont Yankee vessel head vents are exactly as described in the owners group presentation.

2. These vents are operable from the main control room where position indication is provided.

3. These vents are normally-closed, air-to-open valves. The solenoid valves controlling the air supply are both energized from a single 120 volt AC supply and are normally de-energized.

4. No single failure or operator action will cause both valves to

open. Failure of a valve to open, if required, does not affect the venting function of the SRVs.

2.2.1.A Shift Supervisor's Responsibility

The Shift Supervisor's responsibilities have been restated in a management directive from the Vice President for Operations issued before January 1, 1980. It clearly defines the responsibilities and authorities of the Shift Supervisor under normal and accident conditions. It will be reviewed at approximately annual intervals with the purpose of re-emphasizing the primary management role of the Shift Supervisor and reducing the administrative duties of the Shift Supervisor and improving the functional capability of this office.

2.2.1.B Shift Technical Advisor

A Shift Technical Advisor will be available in the plant at all times starting January 1, 1980. These people are provided from the management and technical staff of the plant and are all familiar with aspects of nuclear power plant operation.

2.2.1.C Shift and Relief Turnover Procedures

The Vermont Yankee plant operating procedures have been reviewed and modified as needed to meet the requirements of this recommendation.

2.2.2.A Control Room Access

The authority of the Shift Supervisor to limit access to the Control Room has been re-affirmed and procedures have been modified to establish a Control Room access policy.

2.2.2.B On-Site Technical Support Center (TSC)

Temporary TSC

1. General Description:

As an initial and temporary action, the second floor of the existing "old" Service Administration Building has been designated as the TSC. The existing technical data and communications have been judged adequate for the short term. Major procedure changes have been made to recognize the new TSC and its function. Additional portable radiation monitoring equipment has been placed in the TSC as an emergency kit.

2. Detailed Description:

Further details of the temporary TSC are contained in items A through F attached. These descriptions follow the format of the clarifications of NUREG 0578 Position 2.2.2.B as contained in a letter, H. R. Denton, to All Operating Nuclear Power Plants dated October 30, 1979. The description items A through F are effective on or before January 1, 1980.

Permanent TSC

1. It is intended that the same floor space area designated as the temporary TSC will be upgraded over the next year such that it meets all requirements for the permanent TSC which must be in place by January 1, 1981. This approach has several advantages as follows:

   a. Training and procedures can maintain their continuity without an additional "switch" from a temporary to permanent location.

   b. Upgrading of equipment can proceed immediately without waiting for a new building to be constructed.

   c. The emergency habitability of the Control Room will be significantly improved by improving the ventilation system of the area immediately outside the Control Room. This will reduce/eliminate potential airborne intrusion into the Control Room during personnel traffic in/out of the Control Room.

2. Detailed Description

Further details of the plans for a permanent TSC are contained in the attached descriptions designated 2 through 10. The format of these descriptions follows that of the clarifications of NUREG 0578 Position 2.2.2.B as contained in a letter, H.R. Denton, to All Operating Nuclear Power Plants dated October 30, 1979. The items described in Sections 2 through 10 are planned for completion to meet the required date of January 1, 1981.

A. Description (Temporary TSC)

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NUREG 0578 Clarification:

"Establish a TSC and provide a complete description."

1. This section will provide a physical description of the Technical Support Center (TSC). Other Sections B through F will address procedures, communications, etc., as listed in the NUREG 0578 clarification dated October 30, 1978.

2. The TSC has been temporarily established as the second floor of the original administration building. A floor plan is shown in Figure 1.

3. The TSC includes 3125 ft^2 of already partitioned office space in addition to corridors, kitchen, rest rooms, storage rooms, and the computer room.

4. One room has been designated as the TSC Communications Room and contains the NRC "red" phone, one plant extension phone, and a page/intercom handset.

5. The TSC area includes the following rooms of special note:

   a. General clerk's office with telephone switchboard, telecopy, duplicating copier, and typewriters.

   b. Computer room with access to both digital and analog outputs from the process computer.

   c. Engineering print file office where as-built drawings, plant procedures, and other data are available.

6. The Control Room is one floor above the cable vault (see Figures 1 and 2). The Control Room is accessible from the TSC via two stairways, one on either end of the TSC.

7. The Operational Support Center for use by the Auxiliary Operators and Health Physics personnel is one floor directly below the TSC. The Operational Support Center is accessible from the TSC via two stairways, one on either end of the TSC.

B. Procedures (Temporary TSC)

NUREG 0578 Clarification:

"Provide plans and procedures for engineering/management support and staffing of the TSC."

1. A plant procedure has been developed to describe the Technical Support Center, its staffing, activation criteria, and evacuation criteria.

2. The Shift Supervisor's responsibility statement has been amended to include the responsibility of activating the TSC.

3. Other emergency related procedures have been amended to include the "where to go" directives, and the communication outline.

C. Communications (Temporary TSC)

NUREG 0578 Clarification:

"Install dedicated communications between the TSC and the Control Room, near site emergency operations center, and the NRC."

1. The NRC "red" phone is already installed in the designated Communications Room of the TSC. This phone will connect the TSC to NRC by picking up the red phone (no dialing required). Two other extensions of the NRC red phone on site allow a conference call between the NRC and three terminals on site. The other two Vermont Yankee "red" phones are located at the Emergency Coordination Center and the Control Room.

2. The TSC includes the normal plant switchboard plus 18 extension lines. Each plant extension can:

   a. Dial any other plant extension including 1) three extensions in the Control Room, 2) two extensions in offices directly adjoining Control Room, 3) three extensions at the Emergency Coordination Center.

   b. Dial any extension at the engineering offices of Yankee Atomic Electric Company by first dialing a 7 prefix to gain access to a dedicated microwave link.

   c. Dial any number in the national "Bell" system using the proper area code.

3. Four plant extensions in the TSC have a "power fail" feature such that they will function in all respects even during power loss to the switchboard.

4. One of the four "power fail" plant extensions can be isolated from all incoming switchboard calls. This assures at least one open switchboard line for outgoing calls.

5. Two phone extensions, including one in the TSC Communications Room, have speaker phones to facilitate conference call communications.

6. The General Electric Company has a phone installed, within the TSC, which is independent of the plant switchboard. This phone has general access to the national "Bell" area code system. This phone can also reach any extension in the GE "dial communications" network independent of long distance traffic. Thus, GE's San Jose, California Nuclear Division Offices are available as an inter-office call. (Note that this phone exists as a courtesy of the General Electric Company and is removable at the option of GE.)

7. A time share computer MESSAGE program exists where written messages (status reports, etc.) can be stored in a computer for later access by members of the program. Vermont Yankee, GE San Jose Nuclear Division, and most operating BWR sites are participants in such

a system. (Note that this capability exists as a courtesy of the General Electric Company and is removable at the option of GE.)

8. The plant has a Gaitronics page and four channel intercom system. This system is powered from vital AC with power available during a loss of normal power situation. There are 9 such page/intercom sets within the TSC, 6 in the Control Room, 2 in adjoining offices off of Control Room, and 1 in the Emergency Coordination Center.

9. One office telecopier is available.

10. Two fast duplicating copiers are available.

11. Five typewriters are available.

12. In summary:

    a. The communications room of the TSC has the following equipment:

       -NRC red phone

       -Plant extension with speaker phone

       -Page/intercom set

    b. Other equipment as described above is distributed throughout other rooms of the TSC.

    c. Procedures have established one channel of the page/intercom system as dedicated for use among three terminals: Control Room, TSC Communications Room, and Emergency Coordination Center.

D. Radiation Monitoring (Temporary TSC)

NUREG 0578 Clarification:

"Provide monitoring (either portable or permanent) for both direct radiation and airborne radioactive contaminants. The monitors should provide warning if the radiation levels in the support center are reaching potentially dangerous levels. The licensee should designate action levels to define when protective measures should be taken (such as using breathing apparatus and potassium iodide tablets, or evacuation to the Control Room)."

1. An emergency kit, similar to the one in the Control Room, has been assembled and placed in the Communications Room of the TSC.

2. It is expected that personnel occupying the TSC will each carry their normally issued TLD badge and low range dosimeter.

3. The portable radiation instruments available in the TSC are listed below with their detection range.

Instrument	Minimum	Maximum
RM-14	30 cpm .003 mr/hr 5×10^{-9} M Ci/cc	50,000 cpm 5 mr/hr 9×10^{-9} M Ci/cc
PIC-6	1.0 mr/hr	1000 R/hr
High Dosimeter	.2 R	5 R
Low Dosimeter	20 mr	500 mr

4. Action levels for evacuation and use of respiratory protection have been developed to limit personnel exposure to less than 5 R whole body and 30 R thyroid for the duration of the accident.

E. Technical Data (Temporary TSC)

NUREG 0578 Clarification:

"Assimilate or ensure access to Technical Data, including the licensee's best effort to have direct display of plant parameters, necessary for assessment in the TSC."

1. The TSC includes the normal plant main print file room. This room includes hard copies of drawings documenting plant design. This information includes:

   a. Flow diagrams

   b. Layout/arrangement drawings

   c. Isometric piping drawings

   d. Wiring and control diagrams

   e. Instrument lists, cable lists

   f. Detail equipment drawings

   g. Plant procedures

   h. ASME code

2. The existing (temporary) TSC includes the Computer Room which houses the hardware for the process computer.

   a. There is one digital display window in the Computer Room which provides continuous visual display of any selected analog parameter.

   b. There are four available analog outputs in the Computer Room for chart recorder trending of any selected analog parameters.

c. There is one typer available in the Computer Room for printing of various logs which include the following:

1) Print Value Summary - With one operator action, all points in the process computer will be printed.

2) Alarm Summary - With one operator action, all current points in alarm status will be printed out.

3) Value Print - Any computer point can be selected to print with a frequency of:

.. Once

.. Every 30 seconds for up to two points

.. Every 120 seconds for up to six points

4) Special Logs - A total of 31 logs containing a maximum of 15 points each in a preselected grouping can be requested for typer print. An additional log will give the value of the 15 most recent points in alarm status. These logs can be requested to print out at the following frequency:

.. Every 1 minute for up to two logs

.. Every 5 minutes for up to five logs

.. Every 20 minutes for up to thirty-two logs

d. There are approximately 580 calculated and process parameters which are available from the process computer as analog values.

e. There are approximately 240 digital, on/off, points available from the process computer.

f. Any or all of the output devices in the Computer Room can be used without interfering with information display in the Control Room.

g. In the Computer Room, all output devices can be used simultaneously; this includes 1 digital display window, 4 chart recorders, and 1 typer.

3. The preformatted data edits available on four computer typers in the Control Room are not directly available in the Computer Room. These paper edits will be hand carried to the TSC; they will be copied and returned to the Control Room if they are still needed there.

a. A preselected set of 40 parameters will print out automtically following any scram. The data is printed every 5 seconds, or faster, for a period 5 minutes before the trip to 11 minutes after.

b. The alarm typer records each alarm, in sequence, for both normal operation and posttrip operation.

c. A wide variety of other status summary edits are available upon demand.

F. Evacuate TSC to Control Room (Temporary TSC)

NUREG 0578 Clarification:

"Develop procedures for performing this accident assessment function from the Control Room should the TSC become uninhabitable."

1. Plant procedures describe the operation of the TSC both from its normal position outside the Control Room (in the administration building) and also from within the Control Room should evacuation from the administration building be required.

2. Evacuation guidelines have also been included in plant procedures.

PERMANENT TECHNICAL SUPPORT CENTER (TSC)

1. The temporary TSC is discussed elsewhere.

2. Location (Permanent TSC)

   a. The location of the permanent Technical Support Center (TSC) is the second floor of the original or "old" service/administration building.

   b. The permanent TSC will occupy the same floor space as the temporary TSC which is described elsewhere in this submittal.

   c. The floor plan is shown in Figure 1.

   d. The Control Room is located one floor up and is accessible via two stairways, one on either end of the TSC.

   e. The Operational Support Center is located one floor down from the TSC and is accessible via two stairways, one on either end of the TSC.

3. Physical Size and Staffing (Permanent TSC)

   a. The TSC includes 3125 ft^2 of already partitioned office space in addition to corridors, kitchen, rest rooms, storage rooms and the Computer Room.

   b. There is ample room for 25 people in the TSC.

   c. The staffing of the TSC consists generally of the various department supervisors. Additional people could be assigned as the situation warrants.

4. Activation (Permanent TSC)

   a. Activation of the TSC will be accomplished for all site and general emergency situations plus alert events listed in NUREG 0610. Activation for a local emergency is at the discretion of the Shift Supervisor.

5. Instrumentation (Permanent TSC)

   Plant process parameters will be made available in the TSC using the process computer. This will not interfere with the display of process computer information in the Control Room. The plant process information available 1/1/80 for the temporary TSC is judged satisfactory to meet the requirements of the permanent TSC effective 1/1/81. This information is described elsewhere under Section E.2 of the temporary TSC description; it is summarized as follows:

   - One digital display window
   - Four analog chart recorders

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- One typer with the following capability

.. Print value summary

.. Alarm summary

.. Value print

.. Special logs

6. Instrumentation Power Supply (Permanent TSC)

The process computer is now powered from vital AC. This system has a separate generator driven by an AC motor with 125vDC motor back-up. A flywheel provides uninterrupted transfer of generator motive power.

7. Technical Data (Permanent TSC)

a. The process computer will supply plant process data.

b. The main print file office for the plant is within the TSC. This contains hard copies of current revision drawings documenting plant design. This information includes:

1) Flow diagrams

2) Layout/arrangement drawings

3) Isometric piping drawings

4) Wiring and control drawings

5) Instrument list, cable lists

6) Detail equipment drawings

7) Plant procedures

8) FSAR

9) Technical Specifications

c. Additional technical information is available in the various department offices in the office space immediately adjoining the TSC.

d. Additional information is available just outside the Control Room in the Document Control Center. This office is within the same ventilated air volume as the TSC and should be accessible.

e. Meteorology information is expected to have limited use in the TSC since the TSC's prime orientation will be toward plant conditions rather than off-site conditions. The Emergency Coordination Center (Visitor's Center) will handle interactions with the local community; Yankee Atomic Electric Company will

provide predicted plume size and direction from data links directly from their offices.

1) Raw meteorology data is available to the TSC from the Control Room. A computer typer continually prints 15 minute averages of relevant on-site meteorology.

2) Following installation of a new data link to Yankee Atomic Electric Company in 1980, it will be possible to access the output of the plume prediction computer codes using the time share terminal in the TSC.

8. Data Transmission (Permanent TSC)

a. Current data transmission off-site is provided by:

1) Voice

2) Telecopy

3) Mail

4) Paper tape input into the GE Mark III Time Share System which can be accessed by GE's Nuclear Division in San Jose, California.

b. New magnetic tape equipment to be installed in 1980 will allow more efficient transfer of all core related parameters to GE (San Jose).

9. Structural Integrity (Permanent TSC)

The TSC structure has been built in accordance with the Uniform Building Code, Zone II, 1967 edition. No seismic analysis has been performed on this structure; and none is planned.

10. Habitability (Permanent TSC)

a. A study will be made of both whole body and thyroid radiation dose to personnel occupying the TSC post-accident. This study will be accomplished prior to 1/1/81; it will use the following as acceptance criteria: less than 5 rem whole body and 30 rem thyroid for the duration of the accident.

b. Permanent area radiation monitors will be installed by 1/1/81 which will monitor direct radiation at several locations in the TSC and alarm at a local panel in the Communications Room of the TSC.

A continuous air monitor will be located permanently within the TSC by 1/1/81. Both light and audio alarms will be located directly on the monitor. This monitor may be portable such that it can be moved to different locations within the TSC.

The emergency kit will remain as a permanent item of the TSC. This kit contains portable equipment for implementing all guidelines

for evacuation or protection in the TSC.

Plant procedures will be modified as necessary, to reflect the additional radiation monitoring equipment.

None of the radiation monitoring equipment described here will be redundant. They will be of high quality, and will be powered independent of normal AC power. The Security Diesel will be used for back-up AC power. All of this equipment will be separate from other radiation monitoring systems in the plant.

c. Where necessary, major upgrading of the ventilation system for the TSC area is planned by 1/1/81. The controlled ventilated air space will include the corridors between the TSC and the Control Room. Thus, there will be easy access between the TSC and the Control Room even under adverse airborne radiation conditions within the plant or in an external plume. This will also provide increased habitability protection for the Control Room.

1) The ventilation system serving the TSC is designated SAC-2 and is illustrated in FS/R Figure 10.12-2. This equipment is located in the same fan room as equipment of SAC-1 which serves the Control Room and Computer Room. No other system's ventilation equipment is located in this same fan room.

Both SAC-1 and SAC-2 share the same external ventilation opening to draw in external air. As a minimum, charcoal filters will be added to filter external air brought in to make the Control Room and TSC run at positive pressure with respect to surrounding air volumes. Studies will evaluate the need for charcoal filtration of recirculated air in both SAC-1 and SAC-2. The need for possible upgrading of existing particle filters will also be considered.

Most of the existing duct work will remain intact. An evaluation will be made as how to handle the Computer Room which has been designated as in the TSC but which is currently served by SAC-1 (which serves the Control Room).

2) Necessary changes will be made to provide the capability of powering SAC-2 from the Security Diesel. This Security Diesel currently supplies power to all security alarms and monitors in the event of loss of normal power. It is nonredundant and separate from normal plant emergency systems. It is maintained under a current surveillance program.

Additional loads to be added to the Security Diesel are lights in the TSC and power to the main telephone switchboard located in the TSC.

d. Guidelines for using protective measures such as evacuation, respirators, and potassium iodide are set forth in the appropriate plant procedure.

2.2.2.C Operational Support Center

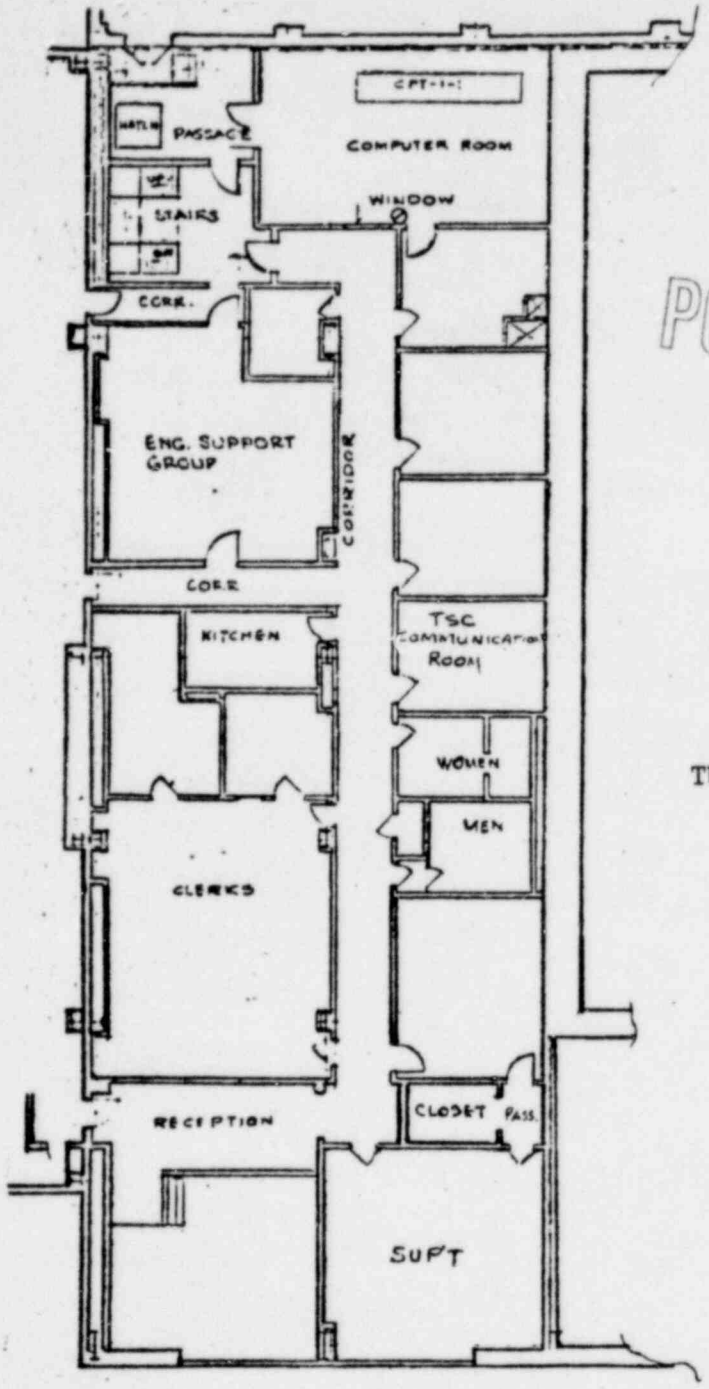
1. The Operational Support Center is located on the ground floor of the Service/Administration Building. The area is shown in Figure 2.

2. The Health Physics Control Point shall be the communications center for the Operational Support Center.

1742 201

CABLE VAULT

ROOM



SERVICE BUILDING ADDITION

TURBINE BUILDING

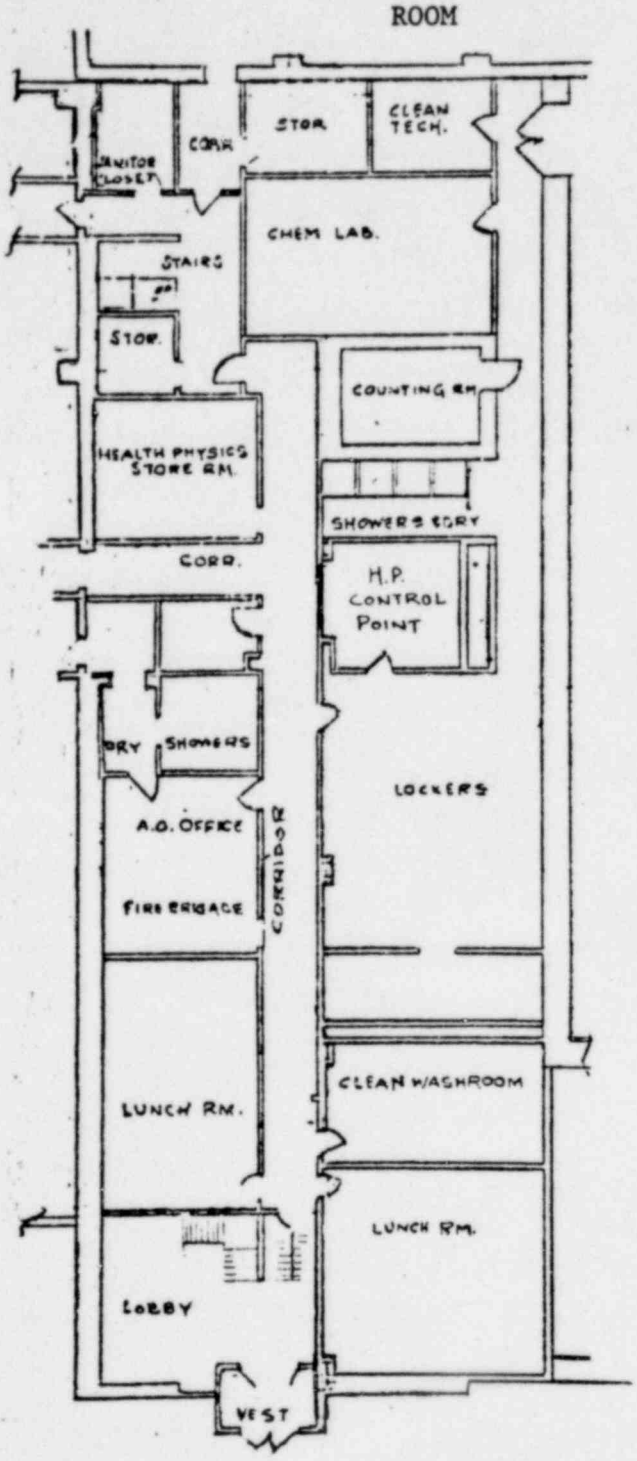
TECHNICAL SUPPORT CENTER

Figure 1

SWITCHGEAR ROOM

SERVICE BUILDING ADDITION

TURBINE BUILDING



OPERATIONAL SUPPORT CENTER

Figure 2