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NORTHEAST UTILITIES
NU
THE CONNECTICUT LIGHT AND POWER COMPANY
THE HARTFORD ELECTRIC LIGHT COMPANY
WESTERN MASSACHUSETTS ELECTRIC COMPANY
HOLYOKE WATER POWER COMPANY
NORTHEAST UTILITIES SERVICE COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY

P.O. BOX 270
HARTFORD, CONNECTICUT 06101
(203) 666-6911

May 6, 1980

Office of Nuclear Reactor Regulation
ATTN: Mr. H. R. Denton, Director
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Gentlemen:

Docket Nos. 50-213
50-245
50-336

SUBJECT: Haddam Neck Plant
Millstone Nuclear Power Station Unit Nos. 1 & 2
TMI-2 Short-Term Lessons Learned Implementation
Item 2.1.8(a) Post Accident Sampling

References: (1) W. G. Counsil letter to H. R. Denton dated December 31, 1979.
(2) W. G. Counsil letter to H. R. Denton dated January 31, 1980.
(3) W. G. Counsil letter to H. R. Denton dated April 1, 1980.

In the above referenced letters, CYAPCO and NNECO committed to supply to the NRC proposed plant modifications which would allow Post Accident Sampling under the source term conditions mandated in NUREG-0578. Accordingly, Attachment 1, Haddam Neck Plant, Millstone Nuclear Power Station No. 1, TMI-2 Short-Term Lessons Learned Implementation Item 2.1.8(a) Post Accident Sampling, and Attachment 2, Millstone Nuclear Power Station Unit 2, TMI-2 Short-Term Lessons Learned Implementation Item 2.1.8(a) Post Accident Sampling, are enclosed for your information and review.

Engineering and design of these systems is continuing in support of NRC mandated implementation date of January 1, 1981. As such it is imperative that the NRC review and approval be received, as soon as possible in order not to jeopardize an already compacted schedule.

CYAPCO, on the Haddam Neck Plant and NNECO, on Millstone Unit No. 1, continue to

conclude that implementation of such major modifications on the schedule mandated is inappropriate. It is our continuing belief that such major changes should be incorporated into an integrated assessment program under SEP and installed on a schedule consistent with the major backfit efforts expected as a result.

The absence of feedback from the NRC Staff regarding deferrals of these and other TMI-related requirements for reasons involving the SEP continues to complicate the efficient scheduling and prioritization of CYAPCO and NNECO resources.

Very truly yours,

CONNECTICUT YANKEE ATOMIC POWER COMPANY

NORTHEAST NUCLEAR ENERGY COMPANY

W. G. Counsil

W. G. Counsil
Vice President

D. C. Switzer

By: D. C. Switzer
President

Enclosure

ATTACHMENT 1

Docket No. 50-213
Docket No. 50-245

Haddam Neck Plant

Millstone Nuclear Power Station Unit No. 1

TMI-2 Short-Term Lessons Learned Implementation

Item 2.1.8a Post Accident Sampling System

May 1980

Connecticut Yankee and Millstone Nuclear Power Station Unit No. 1
Post Accident Sampling System

1.0 System Description for Post Accident Sampling System

As indicated in Reference 1, the Primary Sampling System at both the Haddam Neck Plant and Millstone Unit No. 1 would be inaccessible during post accident situations due to the high radiation fields that would be present in the areas where the existing systems' sampling panels are located. This situation has required that CYAPCO and NNECO to make provisions for the design, engineering, and installation of a new sampling station which would be accessible during a post accident situation.

The Post Accident Sampling System design will utilize the existing Primary Sampling System components wherever possible. As such the Primary Sample System connections, piping, and valves from the Reactor Coolant System to the outboard containment isolation valve will be common to both the existing Primary Sampling System and the proposed Post Accident Sampling System at each Unit. At some point downstream of the outboard isolation valve, connections, valving, and piping will be installed to allow a Reactor Coolant System sample to be drawn from either the existing Primary Sampling System panel or the new Post Accident Sampling System panel for analysis. Similar type connections to the Atmospheric Control System at Millstone Unit No. 1 and the Containment Atmosphere Monitoring System at the Haddam Neck Plant will provide the means of drawing containment atmospheric samples to the Post Accident Sampling System.

The Post Accident Sampling System will be located in an area readily

accessible following an accident and convenient to the existing Radiological Chemistry Laboratory.

The Post Accident Sampling System will have the means to recirculate liquid or air samples back to the Containment Sump (HNP) or Torus (MP-1) to ensure representative samples are obtained. An undiluted, undegassed, pressurized reactor coolant sample or unpressurized, degassed, reactor coolant sample can be obtained remote-manually from the Post Accident Sampling System for analyses in the Chemistry Laboratory. A remote manual gross dissolved gas analysis will be able to be performed by the Post Accident Monitoring System to determine the condition of the reactor core. The containment atmosphere samples will be obtained remote-manually for analysis in the Chemistry Laboratory. Containment atmosphere samples will be obtainable from the containment under either positive or negative pressures. Both the liquid sample lines and air sample lines will be capable of being flushed or purged following use. (See Section 2.0 entitled "General Design Criteria for Post Accident Sampling System" for additional system design considerations.)

The enclosed figures (Sketch 1 NUSCO, Sketch 2 NUSCO) prepared by Stone & Webster Engineering Corporation provides conceptual design and layout respectively of the above described systems. Stone & Webster, as consultant to CYAPCO and NNECO, is presently proceeding with final system design on a schedule commensurate with the required NRC implementation date of January 1, 1981.

2.0 General Design Criteria for Post Accident Sampling System

The sampling system shall be capable of obtaining a reactor coolant and containment atmosphere sample at time T=20 minutes after the accident using the required NUREG-0578 source terms, without exceeding a dose of 3 REM whole body or 18.75 REM extremity.

The reactor coolant sample shall either be a concentrated sample of 1-2 ml or an automatically diluted sample of appropriate size to meet the dose criteria (but at least 1 ml).

The reactor coolant samples shall have on-line capability to determine total dissolved gases. All other parameters will be determined in the laborabory.

The sampling system shall be capable of obtaining either pressurized or unpressurized coolant samples.

Sample coolers should be included in the design of the sampling station. However, the coolers may be located separate from the sampling station.

The sampling system shall provide for recycle capability with the return directed to the Containment Sump (HNP) or Torus (MP-1) so that representative samples may be obtained.

Provisions for flushing liquid sample line contents to the Sump (HNP) or Torus (MP-1) after use will be made. Air sample lines will be purged with nitrogen or air.

Provisions for adequate control of any gases which may escape into the

air in the area of the sampling station will be made.

Provisions for the capability of obtaining approximately a 10 cc vial sample of containment atmosphere will be made.

The capability to obtain particulate and iodine samples of containment air will be provided. The capability to obtain the gas vial sample will be possible with or without these filters installed. Excessive shielding is not required for the filters as they would only be installed for accidents of smaller source terms.

Containment air sample lines will recycle back to the containment.

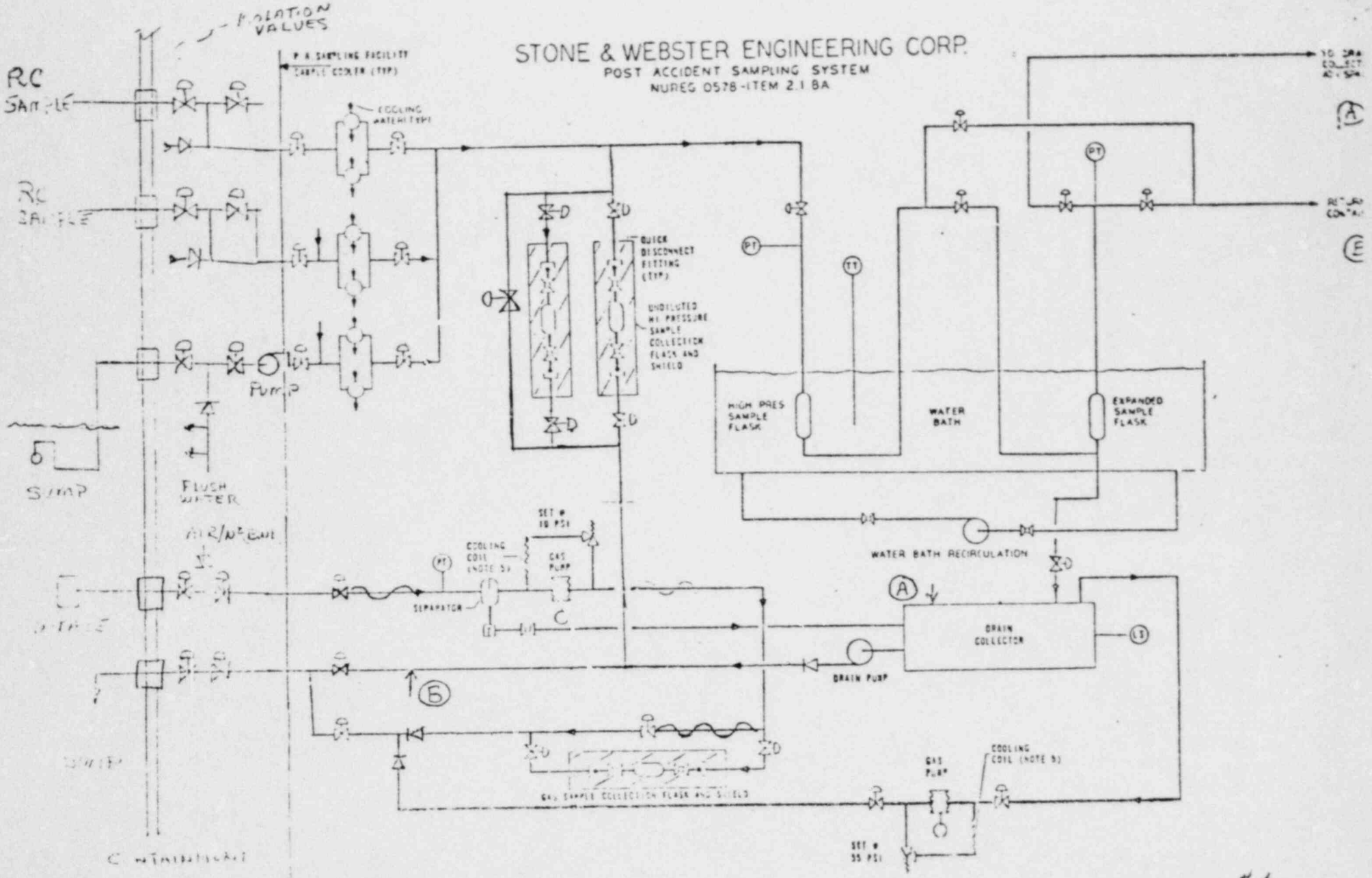
The sampling system will be able to sample containment air under both positive and negative containment pressures.

Sampling containment air saturated with steam will not plug sample lines or saturate filters due to condensation.

No on-line analysis capabilities are required for containment atmosphere samples.

The reactor coolant and containment air sampler will be located at the same location.

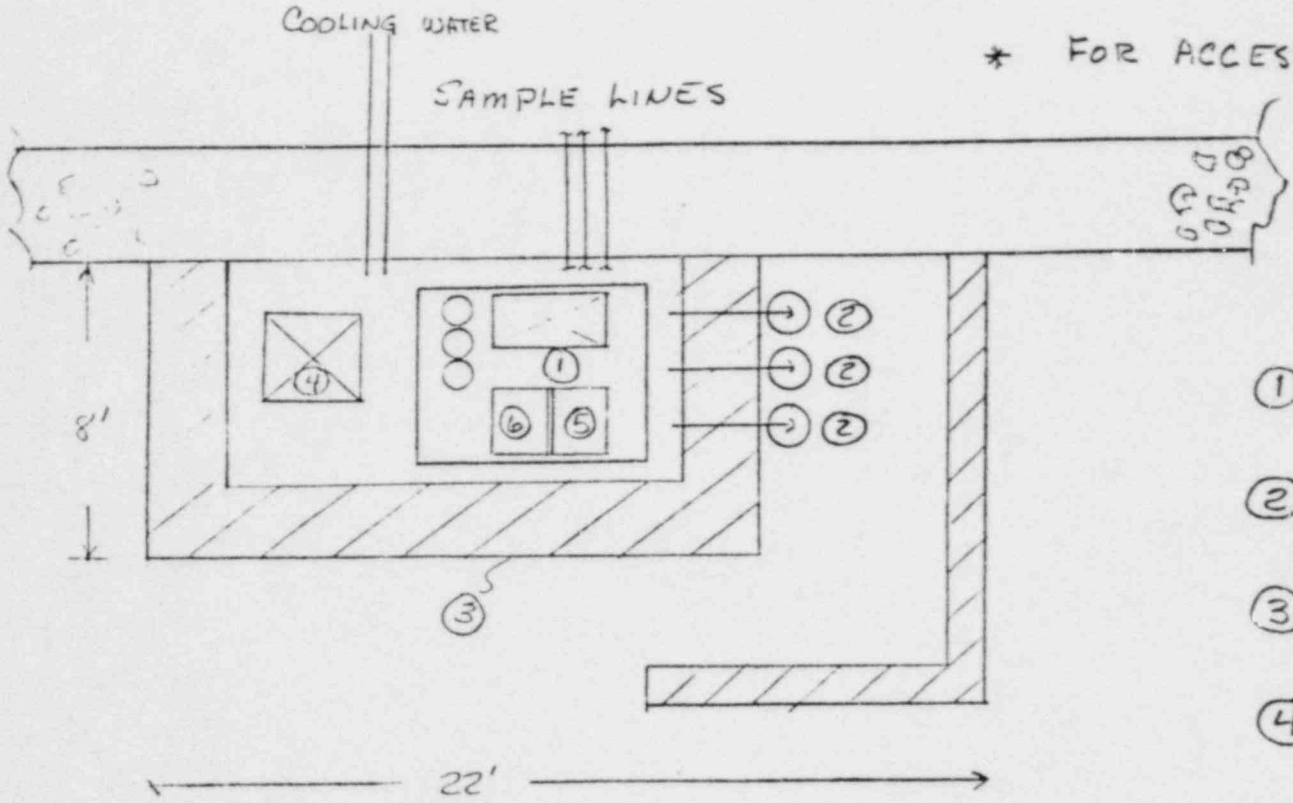
The sampling system will be designed to the identical component design criteria and quality group classification as the existing Primary Sampling System.



SKETCH #1

NUSCO

SAMPLE SYSTEM ARRANGEMENT - OUTSIDE *



* FOR ACCESS - IF REQUIRED

(1) SAMPLE SYSTEM SKID

(2) SAMPLE CONT. (SHIELDED)

(3) BLOCK WALL

(4) ACCESS HATCH

(5) ELECTRICAL BO

(6) VALVE PANEL

NOTES: 1. SAMPLE SKID (1)
SKID MAY REQUIRE MORE
THAN 8'X6'
2. BLOCK WALLS MAY NOT
BE REQUIRED

SKETCH # 2
NUSCO 524.575

ATTACHMENT 2

Docket No. 50-336

Millstone Nuclear Power Station Unit No. 2

TMI-2 Short-Term Lessons Learned Implementation

Item 2.1.8a Post Accident Sampling

May 1980

Millstone Unit Two - Post Accident Sampling

1.0 System Description for Post Accident Sampling System

As indicated in Reference 1, the present sampling system, as designed, cannot be used to obtain post accident samples with the source terms as specified in NUREG-0578.

For primary coolant samples, the only restriction was the dose rate due to the sample, sample line, and gases flashed during sampling. There is minimal dose involved in transit to the sampling sink or at the sampling sink from other potential sources. Thus, with the proper modifications to the existing sampling system and sampling procedures, the dose limits for primary coolant sample collection can be met.

The proposed modification involves the installation of an in-line, shielded sample chamber and a parallel bypass line with the necessary valves to the existing system piping as shown in Figures 1 and 2. This modified system would be operated by solenoid valves controlled from a remote operating panel located adjacent to the existing sample valve operating panel. Sampling would be accomplished by purging primary water through the sampling chamber and into the Volume Control Tank (VCT). This routing to the VCT makes use of an existing system to retain the noble gases until they have decayed sufficiently to be released to the Waste Gas System. Either a pressurized or non-pressurized sample can be obtained in the sample chamber by simply modifying the valve operation sequence.

Upon completion of the sampling, but prior to the individual entering the room to obtain the sample, the sample lines will be flushed with demineralized water introduced through existing vent taps as shown in Figure 1. Sample chamber isolation and flushing would be controlled by operating the appropriate solenoid valves from the remote panel. The flush would also be directed to the VCT. This flushing will significantly reduce the dose rate in the sample room.

The sample chamber and isolation valves will be shielded with one and one-half inches of lead. This would weigh approximately 17 pounds and allow relatively easy manipulation of the sample chamber.

The sampling is performed inside a sample hood with a design flow into the hood of 100 linear feet per minute. In order to increase this flow, the procedures will be modified to require closing the doors to the two adjacent hood areas. Thus, when the sample is disconnected and a small puff of gas is released, it will be taken up by the sample hood ventilation.

Samples from 2 ml up to 15 ml can be obtained using this system. The dose to obtain a 15 ml sample using the NUREG source term and the above procedure is calculated to be 1 REM to the whole body and 12 REM to the hands.

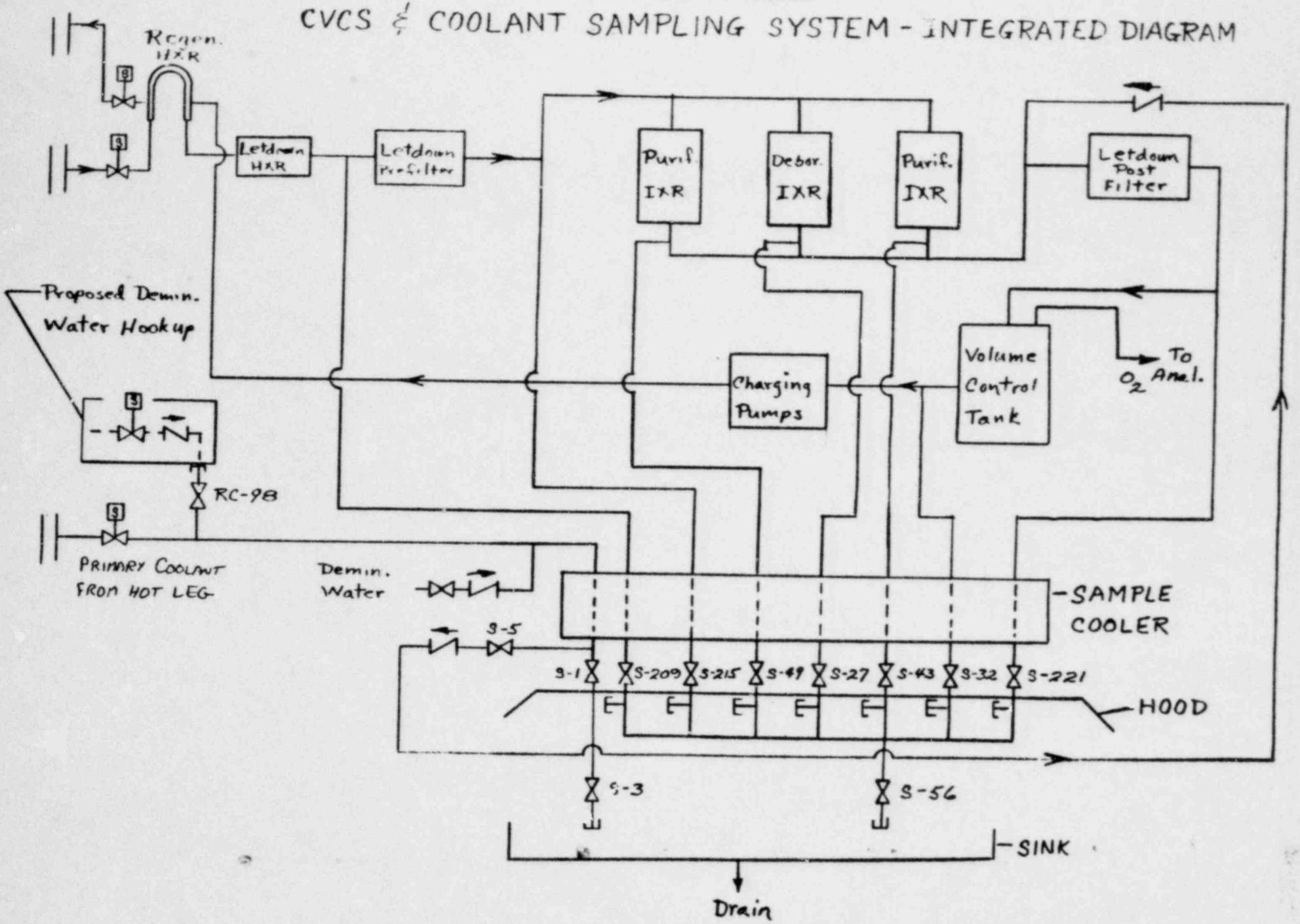
For containment atmosphere samples, the sample dose rates are not restrictive. However, the existing sampler location in the Enclosure

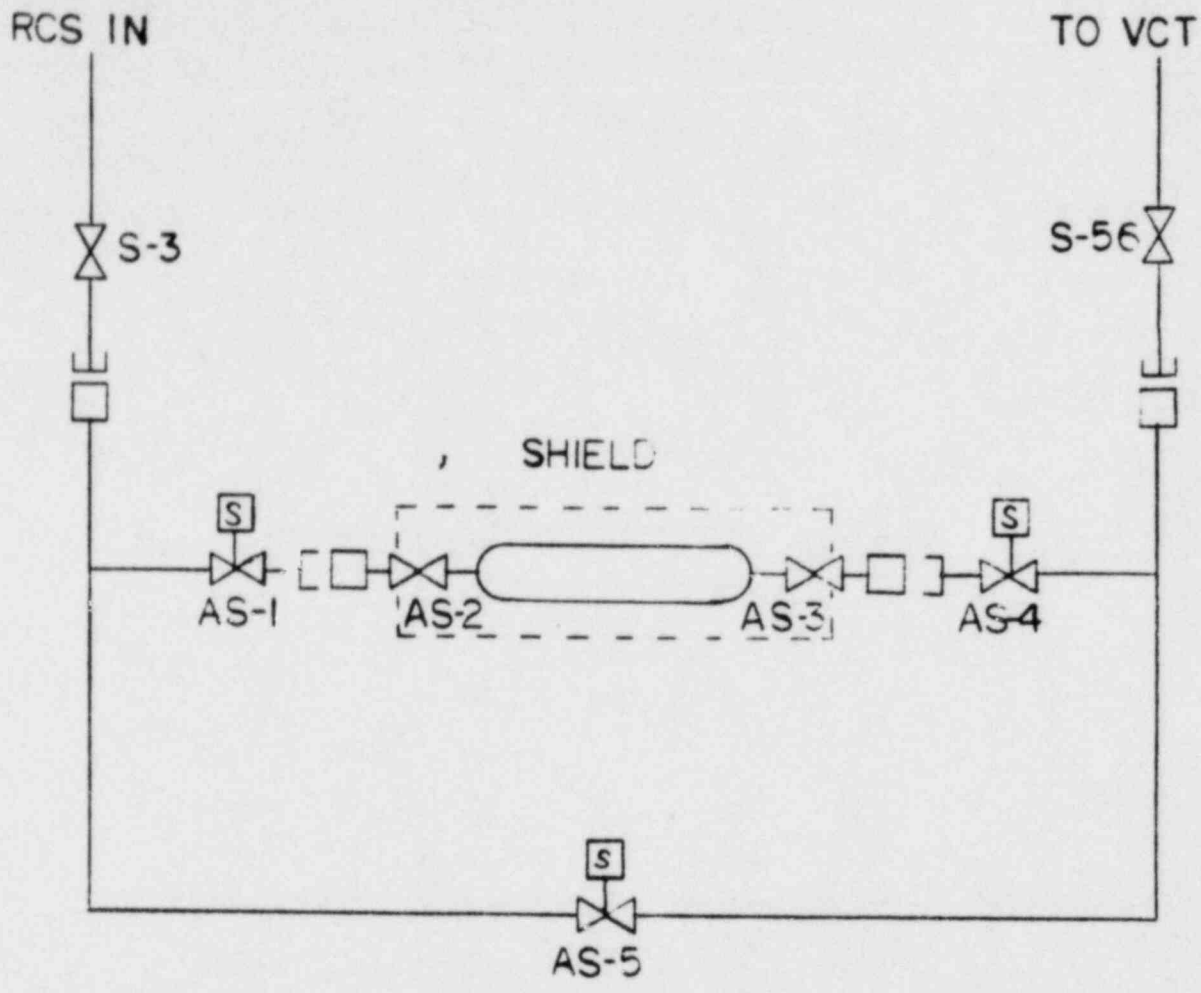
Building would be inaccessible following the postulated accident. The modification involves use of the existing system, but running an alternate line for sample collection into an accessible area of the Auxiliary Building.

Final engineering and design of this system will be proceeding commensurate with the required NRC implementation date of January 1, 1981.

FIGURE 1

CVCS & COOLANT SAMPLING SYSTEM - INTEGRATED DIAGRAM





PROPOSED ACCIDENT SAMPLE MODULE

FIGURE 2