UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

FEB 07 1992

Docket No. 50-255

Consumers Power Company
ATTN: Gerald B. Slade
General Manager
Palisades Nuclear Generating Plant
27780 Blue Star Memorial Highway
Covert MI 49043

Dear Mr. Slade:

We have reviewed your letter dated February 6, 1992, documenting your oral request for a one-time basis Waiver of Compliance from the Palisades Plant Technical Specifications, Sections 3.5.1.f and 3.5.3. These require that both main steam isolation valves (MSIVs) must be operable with the plant in operation, or the plant must be shut down to hot standby within six hours. You requested a waiver of the shut down requirement for up to 72 hours. A copy of your letter is enclosed.

The circumstances leading to this request were that, during reverification activities of components required to meet the environmental qualification provisions of 10 CFR 50.49, you discovered a design deficiency in the control circuitry for the solenoid valves necessary to the operation of the MSIVs. Several of these solenoid valves are in the component cooling water (CCW) room, where portions of the main steam lines are also located. A main steam line break in the CCW room would require MSIV closure, but the solenoids necessary to accomplish the closure might fail because of the harsh environment caused by the break. Separate solenoid valves in the turbine building could be indirectly affected because they have power supplies in common with some of the affected solenoids. The solenoids must energize to perform their function. Thus, the postulated scenario could necessitate MSIV closure and, at the same time, prevent it. This problem was discovered on February 5, 1992.

You declared both MSIVs inoperable at 4 p.m. EST on February 5, following onsite review by your Corrective Action Review Board (CARB). An orderly shut down was initiated to ensure compliance to a time limit of 10 p.m. for achieving hot standby. Concurrently, you performed an evaluation of the safety significance of the issue. The safety risk is the product of the probability of the event and its consequences. Given the design nature of the main steam lines (significant pipe design margins) and the fact that only a relatively small part of these lines are located in the CCW room, the probability of the postulated event is extremely low. The consequences, expressed in terms of offsite dose effects, are also low. Although not within the

original licensing basis, simultaneous blowdown of both steam generators has been subjected to prior analysis. The anticipated dose consequences were within the limits established by applicable regulations. Your onsite safety review committee determined the proposed waiver would not result in a significant reduction in the margin of safety.

You contacted this office and the Office of Nuclear Reactor Regulation (NRR) with a verbal request for a Temporary Waiver of Compliance. A joint conference call among your staff, staff of NRC Region III, and NRR personnel was conducted. We gave a verbal authorization at 6:49 p.m. (EST) waiving the shut down requirement of Technical Specification 3.5.3, because we likewise determined that this action did not significantly affect the margin of safety.

The verbal waiver was also premised on the following conditions:

1. The duration shall be 72 hours, however, the waiver shall be immediately void upon:

   a. completion of corrective action; or

   b. determination that timely corrective action cannot be completed; or

   c. discovery of a main steam line pressure boundary leak in the CCW room.

2. A knowledgeable individual shall be stationed at the location of the separate solenoid valves in the turbine building and shall, upon occurrence of a steam break or for any other reason so directed from the main control room, immediately operate the solenoids to close the MSIVs.

3. Visual inspection of the main steam lines in the CCW room, to detect the development of any pressure boundary leak, shall be performed each shift.

We understand that you determined that your request for this Temporary Waiver of Compliance met the eligibility criteria of 10 CFR 51.22(c)(9) and that pursuant to 10 CFR 51.22(b), no environmental impact statement need be prepared.

As stated above, we granted the requested relief on February 5, 1992, based on the minimal risk associated with delaying a plant shutdown to allow time to restore full compliance. An immediate shutdown would have imposed a thermal cycle on the plant which was not necessary.

This waiver terminated at 6:30 p.m. on February 6, 1992, pursuant to Item 1.b., when you determined that performing corrective actions while at power was impractical. The plant was properly taken to hot shutdown conditions, which were reached at 3:25 a.m. February 7, 1992, with all technical specifications in effect.

Sincerely,

Carl J. Paperiello acting for

A. Bert Davis
Regional Administrator

Enclosure: As Stated

cc w/enclosure:
David P. Hoffman, Vice President -
Nuclear Operations
P. M. Donnelly, Safety and
Licensing Director
DCD/DCB (RIDS)
OC/LFDCB
Resident Inspector, RIII
James R. Padgett, Michigan Public
Service Commission
Michigan Department of
Public Health
Palisades, LPM, NRR
SRI, Big Rock Point

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SRI, Big Rock Point

RIII	RIII	RIII	RIII
Jorgensen/dp 2-7-92	Shafer 2/7/92	Pederson 2/7/92	Miller 2/7/92
RIII	RIII	RIII	RIII
Greenman 2/7/92	Zwolinski 2-7-92	Papiello 2/7/92	Davis 2/7/92

Consumers Power
POWERING MICHIGAN'S PROGRESS
Palisades Nuclear Plant: 27780 Blue Star Memorial Highway, Covert, MI 49043

G B Slade
General Manager

February 6, 1992

Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

DOCKET 50-255 - LICENSE DPR-20 - PALISADES PLANT -
TECHNICAL SPECIFICATION 3.5.3 - REQUEST FOR A TEMPORARY WAIVER OF COMPLIANCE

This letter provides the written documentation of information presented to the NRC by teleconference on February 5, 1992. In the teleconference a temporary waiver of compliance was requested from Technical Specification 3.5.3, which requires:

> "...with the Primary Coolant System at a temperature greater than 325°F and if the system does not satisfy the requirements of Specification 3.5.1 ... the reactor shall be placed in hot standby within 6 hours..."

Technical Specification 3.5.1 requires the Main Steam Isolation Valves (MSIVs) to be operable. Our request was to allow 72 hours time in order to fully evaluate and modify, if possible, the circuitry associated with the closure of the MSIV.

In our oral request, we described the event and addressed the seven points for consideration described in Thomas E Murley's February 22, 1990, memorandum on Temporary Waivers of Compliance. The seven points are further addressed below. We also confirmed that our Plant Review Committee reviewed and approved the request prior to our oral request. Following our request, at 1849 hours, the NRC granted a temporary waiver of compliance of 72 hours from the Technical Specification requirement (3.5.3 action) with the following stipulations: 1) If a proper fix can be achieved (i.e. once the fix is accomplished) the waiver is terminated, or 2) If a proper fix cannot be achieved (i.e. once the determination is made that a fix cannot be achieved) the waiver is terminated. 3) Compensatory measures to be accomplished include: a) Increasing the frequency of high energy line break walkdown surveillance in the affected rooms from weekly to shiftly (every 8 hours); b) Stationing a knowledgeable operator in direct contact with the control room who is able to immediately close the MSIVs manually.

This letter provides the required written response within 24 hours of granting the temporary waiver of compliance. The Plant Review Committee has reconvened and reviewed and approved this written request.

Discussion of the seven points required to be addressed by Mr. Murley's February 22, 1990, memorandum follow:

1. Discussion of the requirements for which a waiver is requested:

   A temporary waiver of compliance is requested to allow a 72 hour time period prior to complying with the requirements of Palisades Technical Specifications 3.5.3 following declaring the Main Steam Isolation Valves(MSIV's) inoperable at 1600 hours on February 5, 1992.

2. Discussion of circumstances surrounding the situation including the need for prompt action, and a description of why the situation could not have been avoided.

   a. Description:

   Technical Specification 3.5.1f requires the MSIVs to be operable and capable of closure whenever the primary coolant is heated above 325°F. At 1600 hours on February 5, 1992, it was determined that both MSIVs were inoperable due to discovery of a design deficiency in the control circuitry for the MSIVs. The design deficiency involves the lack of adequate isolation between class 1E and non-class 1E circuitry, and the lack of adequate isolation between redundant 1E components located in different areas. The deficiency introduces the potential failure of class 1E circuitry to operate to isolate the MSIVs during a high energy line break outside of containment. Specifically, the circuitry may experience a fault due to the high energy line break and disable the common power supply to the 1E and non-1E circuitry thus preventing the 1E circuitry from actuating the solenoids to shut the MSIVs.

   The MSIVs are required to close on a steam line break to prevent the uncontrolled release of radioactivity to the environment, to prevent the rapid uncontrolled cooldown of the primary coolant system, and to limit the release of steam to containment (in the event that the break is inside containment).

   The design basis for the MSIV control circuitry is described in the FSAR Section 7.2.3.8, table 5.2.5, and Appendix 5A.1. Briefly, there are two independent and redundant "sets" of solenoid valves for each MSIV located in the auxiliary building in the vicinity of the main steam lines. The solenoid valves energize to actuate to close the MSIVs in response to an automatic signal or to an operator initiated signal. There is also one "set" of solenoid valves for each MSIV located in the turbine building (which is a mild environment) to assure MSIV closure capability. The solenoid valves in the turbine building are actuated by the same circuitry which actuates the solenoid valves in the auxiliary building.

   The solenoid valves in the auxiliary building provide MSIV closure in the

event of a steam line break in containment and the solenoid valves in the turbine building provide MSIV closure in the event of a steam line break in the auxiliary building. However, engineering reviews have identified that the auxiliary building and turbine building solenoid valves are energized and actuated from circuits which have components located in the auxiliary building which are exposed to a high energy line break outside of containment. If these components fail in such a manner to blow the fuses in the power supply, the MSIV closure solenoids will not function. Based upon this review, the MSIVs were declared inoperable.

b. Need for prompt action:

Technical Specification 3.5.3 requires that the reactor be placed in hot standby within 6 hours if MSIVs are not operable as described in Technical Specification 3.5.1f. We believe that corrective action can be taken to modify the MSIV closure circuitry to ensure that Non-class 1E circuit failures do not prevent the actuation of the 1E circuitry to close the MSIVs in the event of a main steam line break outside of containment. However, to properly design, install, and test this modification will require more than 6 hours. We also believe that suitable compensatory measures are available to justify continued plant operation for 72 hours while this modification is installed. Prompt action with respect to granting this temporary waiver of compliance is necessary to avoid an unnecessary shutdown.

c. Description of why the situation could not have been avoided:

The MSIV closure circuitry is part of the original plant design and predates the current regulatory and industry requirements for electrical isolation between class 1E and non-class 1E circuitry. Our reasearch indicated the solenoid valves in the auxiliary building were installed as part of the initial design in the late 1960's and the solenoid valves in the turbine building were installed in 1973 to provide additional assurance of MSIV closure. Our research indicates that the solenoid valves in the auxiliary building were not required to be environmentally qualified in response to 10CFR50.49 because the solenoid valves in the turbine building were located in a mild environment and it was thought they could perform the MSIV closure function in the event of a high energy line break outside containment. The potential failure of the common power supply was not recognized at that time. Since this failure mode of the 1E circuitry had not been previously recognized, the situation could not have been avoided.

3. Discussion of compensatory actions.

The following compensatory actions have been taken to address the concern about a HELB in the component cooling water (CCW) room area: a) More frequent walkdowns of the area high energy lines have been initiated. The technical specification high energy line surveillance (TS 4.12.3) frequency has been increased from a weekly to a shiftly basis for the CCW room. The surveillance is to identify potential leaks in the high energy lines. If a line leak is identified sufficient time is available under a

leak before break scenario to permit a controlled plant shutdown in accordance with TS 4.12.3a.

b) Since a HELB in the CCW room could prevent the MSIVs from closing from an automatic signal, a knowledgeable person has been stationed at the solenoid valves in the turbine building with direct communication to the control room. These solenoid valves can be manually actuated should the circuit fail.

4. Preliminary evaluation of the safety significance and potential consequences of the proposed request.

The issue, as described above, involves the potential for both MSIVs to remain fully open during a MSLB event outside containment. The significance of such an occurrence is that the potential exists for the blowdown of both steam generators during the event (the SG associated with the broken steam line and the unaffected SG via the crossover piping downstream of the MSIVs). A double SG blowdown MSLB event outside containment is not currently part of the Licensing Basis as described in the FSAR.

The MSLB event is described in Chapter 14.14 of the FSAR. The current analysis of record shows that 2% of the fuel in the reactor core would fail from a single SG blowdown MSLB event (inside or outside containment). The calculated limiting offsite doses given in Table 14.14-6 are 56.08 Rem (2 hr. site boundary thyroid) and 0.23 Rem (2 hr. site boundary whole body). The calculated control room dose given in Table 14.24-2 is <2 Rem (1.44 Rem). The 10 CFR 100 offsite dose limits are 300 Rem (thyroid) and 25 Rem (whole body) and the GDC-19 control room dose limit is 5 Rem (whole body equivalent). Therefore, the current analysis of record is well within all dose limits.

The MSLB analysis as described in Chapter 14.14 of the FSAR is performed to current Standard Review Plan (SRP) requirements. The analysis makes the following major conservative assumptions:

- MSLB occurs with a concurrent loss of offsite power
- The single failure assumed is the loss of one diesel generator
- The most reactive control rod is stuck out of the core
- Bounding End of Cycle kinetics parameters are assumed
- Technical Specifications limiting value of PCS radioactivity concentration is assumed (40 μCi/gm DE I-131)
- Technical Specifications limiting value of secondary coolant radioactivity concentration is assumed (0.1 μCi/gm DE I-131)
- Technical Specification maximum primary to secondary leak rate of 1 gpm is assumed

The current plant operating value for PCS radioactivity concentration is 0.038 μCI/gm DE I-131.

The current plant operating value for secondary cooling radioactivity concentration is 0.0 μCI/gm DE I-131.

The current plant operating leak rate is 0.0 gpm

Given the likelihood of a simultaneous occurrence of all the conditions given above and the current operating conditions, significant margin to the required dose limits exist beyond what is stated in the FSAR

While a double SG blowdown MSLB event outside containment is not currently analyzed as part of the Licensing Basis for Palisades, the significance of this event for a break inside containment has been evaluated previously. In the Safety Evaluation Report (SER) dated February 28, 1986 on the subject "Single Failure Issue for Main Steam Isolation Valves and the Main Feedwater Isolation Valves" for the Palisades Plant, the NRC staff evaluated the scenario of concern. Section 6.1.1 states in part:

> "Clearly, the transient response of the plant may be different for the two steam generator blowdown than that analyzed by CPCo. More rods may experience a short-term DNB condition or they may attain a higher temperature than would occur for a single steam generator blowdown. However, the staff believes that DNB would be restricted to the vicinity of the assumed stuck control rod (some few fuel bundles) and that fuel rod temperatures would at worst be within a few hundred degrees (perhaps 200 F) of previously predicted values. Examination of the 10% assumed fuel clad failure (by the staff), and consideration of the transient power distribution in the vicinity of the postulated stuck rod would lead one to conclude that the 10% failed clad assumption is probably still applicable (and bounding), but plant-specific analyses have not been done to confirm this judgement. Based on this judgement and the previous dose results, the Part 100 siting guidelines are likely still satisfied for this event."

The disposition by the Staff provided above is still valid. This is particularly true for three reasons; 1) the current analysis of record shows only 2% fuel failure (because of the incorporation of the replacement SGs at the start of the current fuel cycle) as compared with 10% assumed above, 2) the fuel failure consequences are now the same for a break inside or outside containment due to the integral flow restrictors included in the outlet nozzles of the replacement SGs and 3) although the dose consequences are more limiting for a break outside containment than one inside containment, fuel failure is not expected to increase to where calculated doses would exceed the required limits.

The relative risk of an MSLB, including failure of one or both MSIVs to close, has traditionally been low relative to total plant risk (<0.1%). However, the consequential failure of the MSIVs to close (loss of necessary equipment due to the event) has not been accounted for. The consequential failure would require a risk analysis in which the MSIVs are assumed to be failed (probability failure = 1.0). Therefore, this occurrence by itself would tend to slightly increase the risk contribution from steam line breaks. However, if we consider the break must be confined to the small section of piping passing through the CCW room of the Auxiliary Building to cause the failure of the MSIVs, then the

probability of the event would tend to be reduced slightly. In addition, consideration of the short time period of plant operation under the requested waiver of compliance would not impact the relative importance of steam line breaks to other plant risks but lower the entire profile relative to its annual basis. Although a plant-specific analysis is not available, it is our judgement that the two beneficial factors would offset the fact that the consequential failure of the MSIVs is not included and, therefore, there is no an increase in risk.

Based on the discussion provided above, the safety significance of the proposed request is minimal and the potential consequences are not significantly different from currently analyzed values. Therefore, the waiver of compliance requested is justified.

5. A discussion which justifies the duration of the request.

A main steam line break or other high energy line break outside containment is a relatively low probability event in plant risk. In granting the 72 hour waiver of compliance, there is no significant increase in the potential risk. Additional time to fully review the options available and complete a modification which would allow the MSIVs to be declared operable, requires adequate time to evaluate, prepare, and accomplish the modification. If it is determined that a modification is not feasible, a plant shutdown will commence immediately.

6. Basis of licensing conclusion that the request doesn't involve significant hazards.

It has been determined that the temporary waiver of compliance does not involve a significant hazards consideration. The 72 hour temporary waiver of compliance does not involve a significant increase in the probability or consequences of an accident previously evaluated. The increased time has no impact on the mechanical properties or operating conditions of the piping and, therefore, cannot affect the probability of the event. Similarly, the consequences of an accident are not significantly affected by increased action time.

The temporary waiver of compliance does not create the possibility of a new or different kind of accident from any previously evaluated. The MSIV electrical controls and the associated TS action statement do not create the accident. The equipment function is important in accident mitigation. Compensatory measures have been put in place to accomplish the mitigation function should the potential accident occur. The additional time provided by the temporary waiver of compliance does not affect the equipment operation and, therefore, there is no affect on the kind of accident nor does it create the possibility of a new accident.

Plant safety margins relevant to the situation are associated with the extent of expected fuel damage and with off-site and control room exposures predicted to result. As discussed in the response to question four above, current analyses of core damage from MSLB with a single steam

generator blowdown concludes that 2% of the fuel clad fails. In the SER dated February 28, 1986, the NRC concluded that the radiological consequences from a double SG blowdown with up to 10% fuel failure should still be within 10CFR100 limits. The SER also judged that fuel failures whether caused by blowdown of one or both steam generators should be bounded by this 10% assumption. The 72 hour temporary waiver of compliance will have no impact on these conclusions. The analyses are unaffected by the action times. Margins of safety, therefore, are not reduced.

7. Basis for conclusion that the request does not involve irreversible environmental consequences.

   It has been determined that the temporary waiver of compliance does not involve any irreversible environmental consequences. During the 72 hour temporary waiver of compliance compensatory measures have been taken to initiate manual action, should it be necessary, to mitigate the effects of a high energy line break outside containment that could render the automatic closure of the MSIVs inoperable. Additional action has also been taken to conduct shiftly walkdowns of the component cooling water room area high energy lines to identify any leakage. The operating conditions for the plant have not been altered by the extension of the action time. The increase in time does not involve an increase in the dose consequences or an increase in the amounts or changes in the types of any radiological or non radiological effluents.

In summary the 72 hour temporary waiver of compliance will permit adequate time to evaluate and, if feasible, prepare for and complete a modification to return the MSIVs to an operable status. If the modification is accomplished or determined to not be feasible, the temporary waiver is considered terminated. As a condition of the temporary waiver appropriate compensatory measures have been taken to assure immediate manual action to close the MSIVs should a leak occur that could potentially affect the automatic closure of the valves.

At 1830 hours, on February 6, 1992, the decision was made to exit the temporary waiver of compliance and commence shutdown. Engineering determined that a modification while at power was impractical.

Gerald B Slade
General Manager

CC Administrator, Region III, USNRC
NRC Resident Inspector - Palisades

Attachments

ATTACHMENT 1

Consumers Power Company
Palisades Plant
Docket 50-255

MSIV ELECTRICAL SCHEME COMPONENT ANALYSIS
PRELIMINARY

February 6, 1992

5 Pages

The following information is a preliminary list which summarizes the various electrical components in the schemes associated with the Main Steam Isolation Valves. Preliminary review indicated each of the two schemes are listed, component-by-component, with a series of questions answered:

- Is the component in a harsh environment?
- EEQ qualified components?
- Component is required in accident analyses for steam line break outside containment.

During the evaluation it was noticed that none of the components are EEQ qualified, therefore, the second question could be skipped.

Reference E-238, sheet 1, 1A and 2 for component location within the schemes.

Scheme W001

This scheme contains components for six types of circuits:

1) Scheme undervoltage detector
2) Main Feedwater Block Valve
3) Mainsteam Isolation Valves
4) Atmospheric Steam Dump Valves
5) Auxiliary Feedwater Pump K-8 Steam Valve
6) Turbine Bypass Valve

The following table summarizes the results of the above questions.

Component ID	Harsh Environment? Location	EEQ?	Needed for Accident?
Scheme Undervoltage Detector			
74-W001	No - Control Room	N/A	Yes
Main Feedwater Block Valve			
HS-0744	No - Control Room	N/A	No
POS-0744	No - Turbine Building	N/A	No
LHT-0744	No - Control Room	N/A	No
SV-0744A	No - Turbine Building	N/A	No
SV-0744B	No - Turbine Building	N/A	No
Main Steam Isolation Valves			
HS-0510A	No - Control Room	N/A	Yes

Component ID	Harsh Environment? Location	EEQ?	Needed for Accident?
HS-0510B	Yes - CCW Room	No	No
SV-0512	Yes - CCW Room	No	No
SV-0510	Yes - CCW Room	No	No
SV-0505B	No - Turbine Building	N/A	Yes
SV-0507B	No - Turbine Building	N/A	Yes
SV-0514	Yes - CCW Room	No	No
SV-0502	Yes - CCW Room	No	No
LPX/E50A	No - Control Room	N/A	Yes
5P-3	No - Control Room	N/A	Yes
POS-0510	Yes - CCW Room	No	No
LHT-0510	No - Control Room	N/A	No
HS-0510C	No - Control Room	N/A	No
0510/TT	No - Control Room	N/A	No
Atmospheric Steam Dump Valves			
SDCR	No - Control Room	N/A	No
386/AST	No - Control Room	N/A	No
SV-0779B	No - Steam Dump Roof Yes - Cables	N/A	No
SV-0779C	No - Steam Dump Roof Yes - Cables	N/A	No
SV-0781B	No - Steam Dump Roof Yes - Cables	N/A	No
SV-0781C	No - Steam Dump Roof Yes - Cables	N/A	No
PS-0779	No - Steam Dump Roof Yes - Cables	N/A	No
SV-0779A	No - Steam Dump Roof Yes - Cables	N/A	No
SV-0781A	No - Steam Dump Roof Yes - Cables	N/A	No
PS-0781	No - Steam Dump Roof Yes - Cables	N/A	No

Component ID	Harsh Environment? Location	EEQ?	Needed for Accident?
POS-0779	Yes - CCW Room	No	No
POS-0781	Yes - CCW Room	No	No
LHT-0779	No - Control Room	N/A	No
LHT-0781	No - Control Room	N/A	No
Auxiliary Feedwater Pump K-8 Steam Valve			
HS-0521	No - Control Room	N/A	No
SV-0521	No - Auxiliary Pump Room	N/A	Yes, but it fails into the "SAFE" position of 'OPEN'
PSZ-0741	No - Control Room	N/A	No
PSYY-0741	No - Bus 1D Switchgear Room	N/A	No
POS-0521	No - Auxiliary Feedwater Pump Room	N/A	No
LHT-0521	No - Control Room	N/A	No
POSX-0521	No - Control Room	N/A	No
Turbine ByPass Valve			
SDCR	No - Control Room	N/A	No
386/AST	No - Control Room	N/A	No
SV-0589B	No - Turbine Building	N/A	No
SV-0589C	No - Turbine Building	N/A	No
PS-0766	No - Turbine Building	N/A	No
SV-0509A	No - Turbine Building	N/A	No
SV-0509B	No - Turbine Building	N/A	No
SV-0589A	No - Turbine Building	N/A	No
PS-0511	No - Turbine Building	N/A	No

Scheme W002

This scheme contains components for four types of circuits:

1) Scheme undervoltage detector
2) Main Feedwater Block Valve
3) Mainsteam Isolation Valves
4) Atmospheric Steam Dump Valves

The following table summarizes the results of the above questions.

Component ID	Harsh Environment? Location	EEQ?	Needed for Accident?
Undervoltage Detector			
74-W002	No - Control Room	N/A	Yes
Main FeedWater Block Valve			
HS-0742	No - Control Room	N/A	No
POS-0742	No - Turbine Building	N/A	No
LHT-0742	No - Control Room	N/A	No
SV-0742A	No - Turbine Building	N/A	No
SV-0742B	No - Turbine Building	N/A	No
Main Steam Isolation Valves			
HS-0501A	No - Control Room	N/A	Yes
HS-0501B	Yes - CCW Room	No	No
SV-0513	Yes - CCW Room	No	No
SV-0508	Yes - CCW Room	No	No
SV-0505A	No - Turbine Building	N/A	Yes
SV-0507A	No - Turbine Building	N/A	Yes
SV-0524	Yes - CCW Room	No	No
SV-0506	Yes - CCW Room	No	No
LPX/E50B	No - Control Room	N/A	Yes
5P-4	No - Control Room	N/A	Yes
POS-0501	Yes - CCW Room	No	No
LHT-0501	No - Control Room	N/A	No

Component ID	Harsh Environment? Location	EEQ?	Needed for Accident?
HS-0501C	No - Control Room	N/A	No
0501/TT	No - Control Room	N/A	No
Atmospheric Steam Dump Valves			
SDCR	No - Control Room	N/A	No
386/AST	No - Control Room	N/A	No
SV-0780B	No - Steam Dump Roof Yes - Cables	N/A	No
SV-0780C	No - Steam Dump Roof Yes - Cables	N/A	No
SV-0782B	No - Steam Dump Roof Yes - Cables	N/A	No
SV-0782C	No - Steam Dump Roof Yes - Cables	N/A	No
PS-0780	No - Steam Dump Roof Yes - Cables	N/A	No
SV-0780A	No - Steam Dump Roof Yes - Cables	N/A	No
SV-0782A	No - Steam Dump Roof Yes - Cables	N/A	No
PS-0782	No - Steam Dump Roof Yes - Cables	N/A	No
POS-0780	Yes - CCW Room	No	No
POS-0782	Yes - CCW Room	No	No
LHT-0780	No - Control Room	N/A	No
LHT-0782	No - Control Room	N/A	No

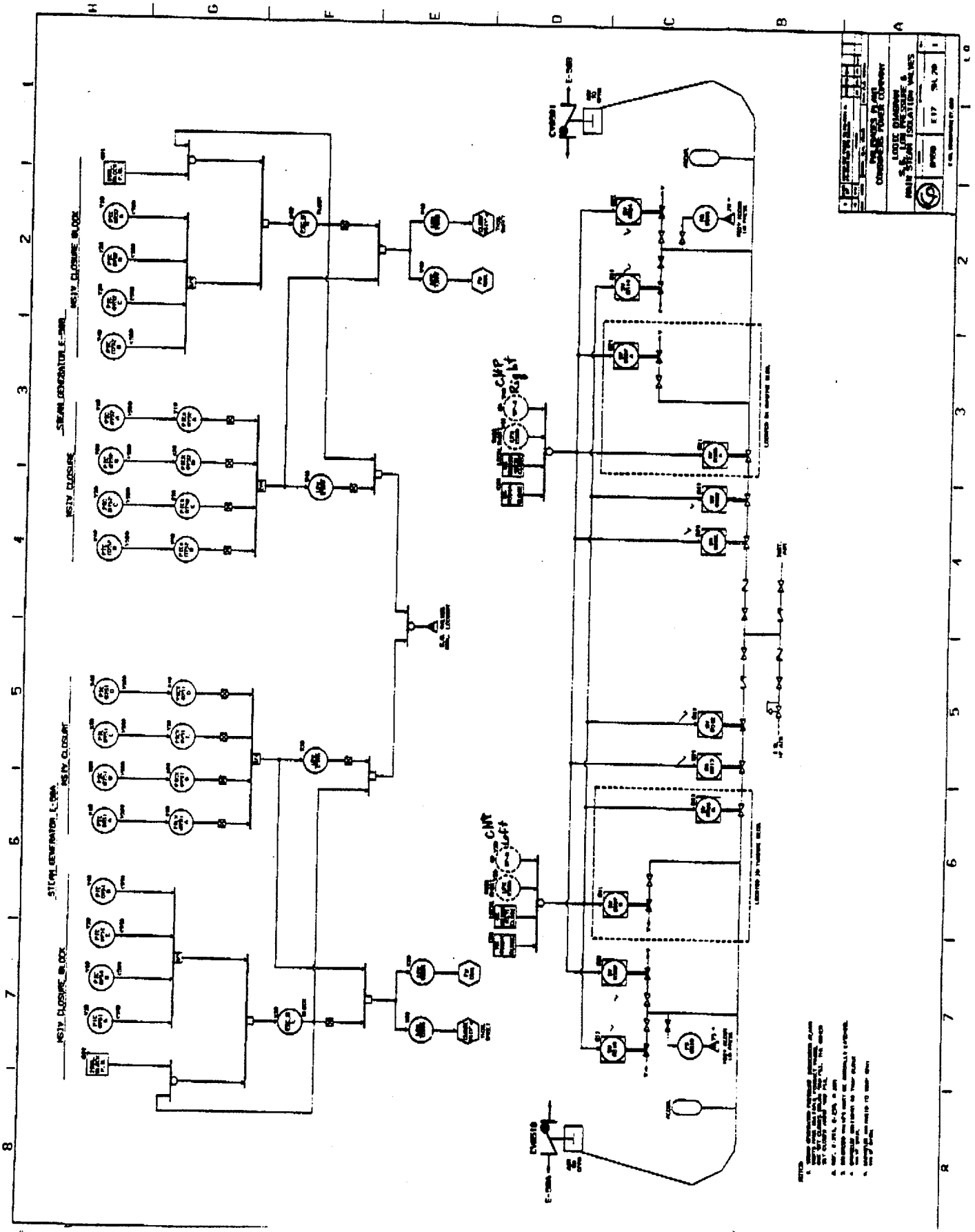
ATTACHMENT 2

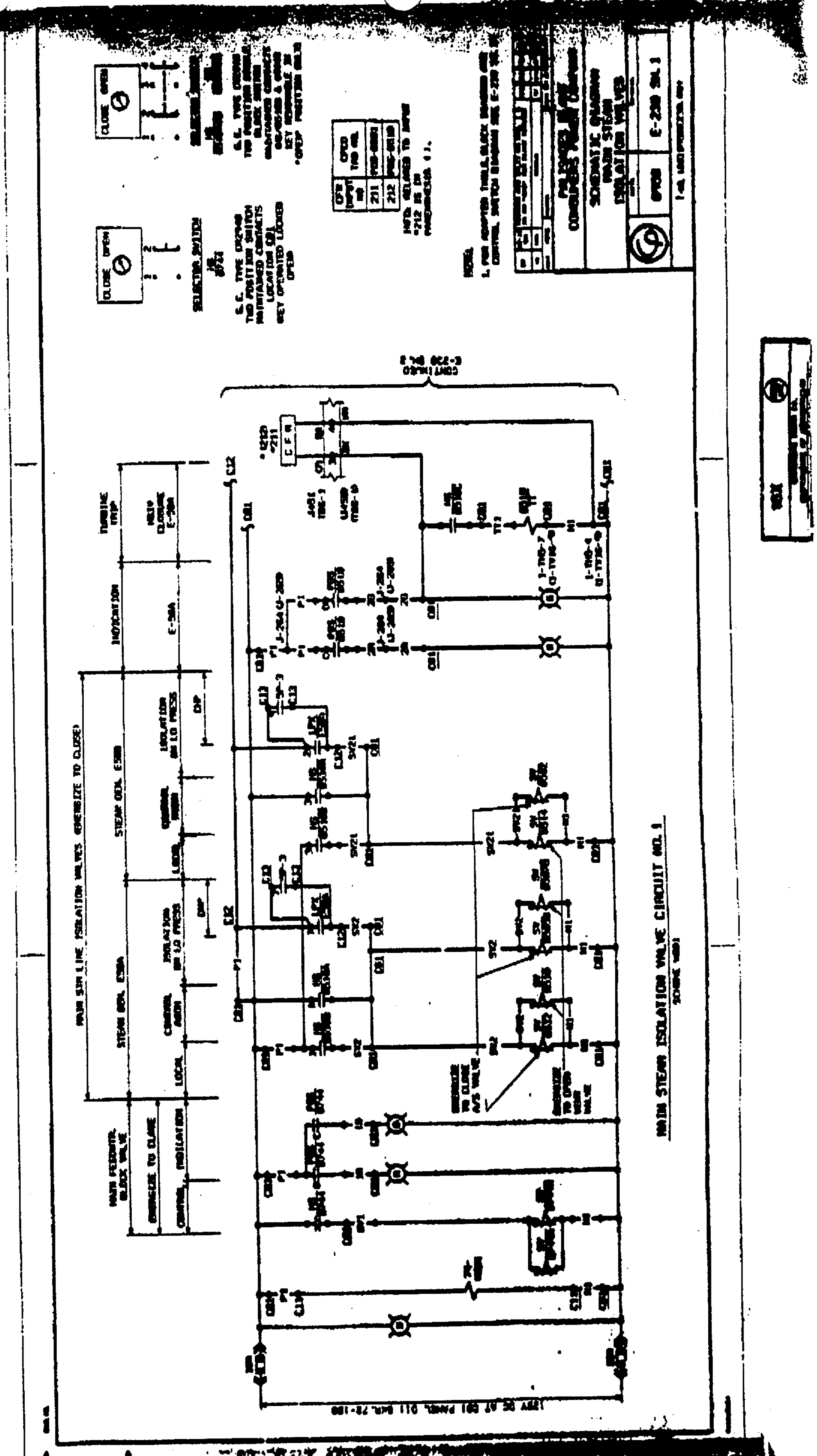
Consumers Power Company
Palisades Plant
Docket 50-255

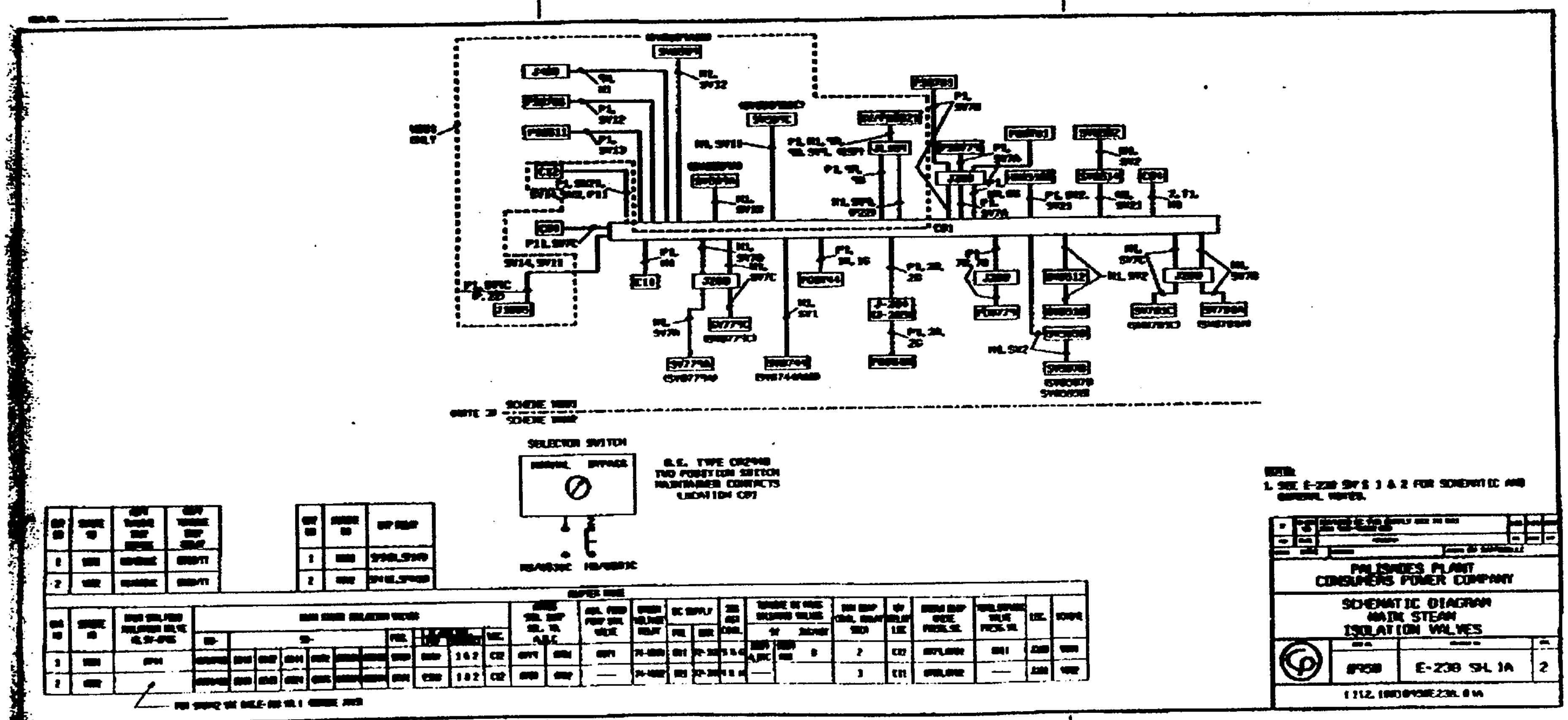
DRAWING NUMBERS E17, SH. 20, E-238 SH. 1, 1A, and 2, M-205 SH. 1, M-232 SH. 1

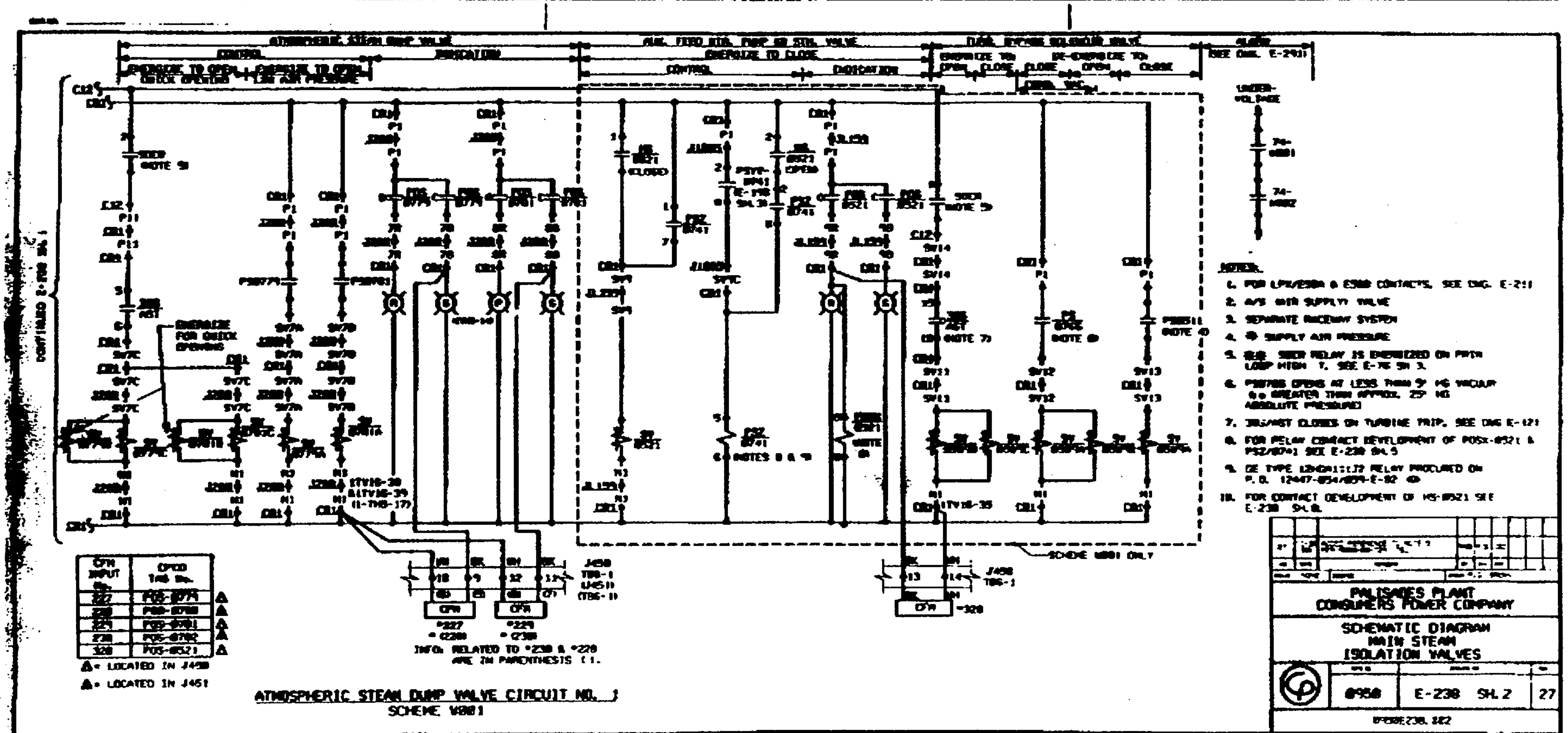
February 6, 1992

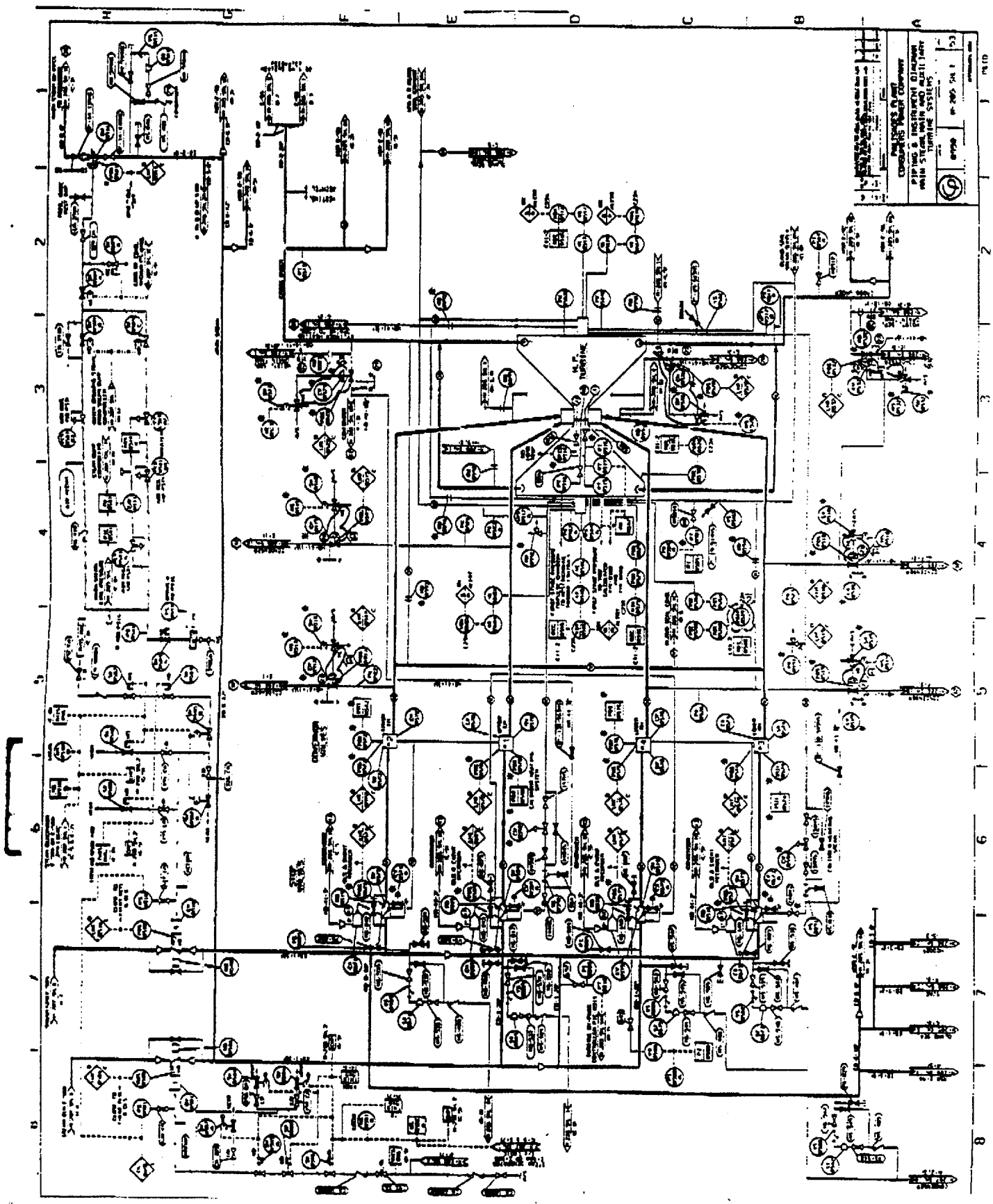
6 Pages

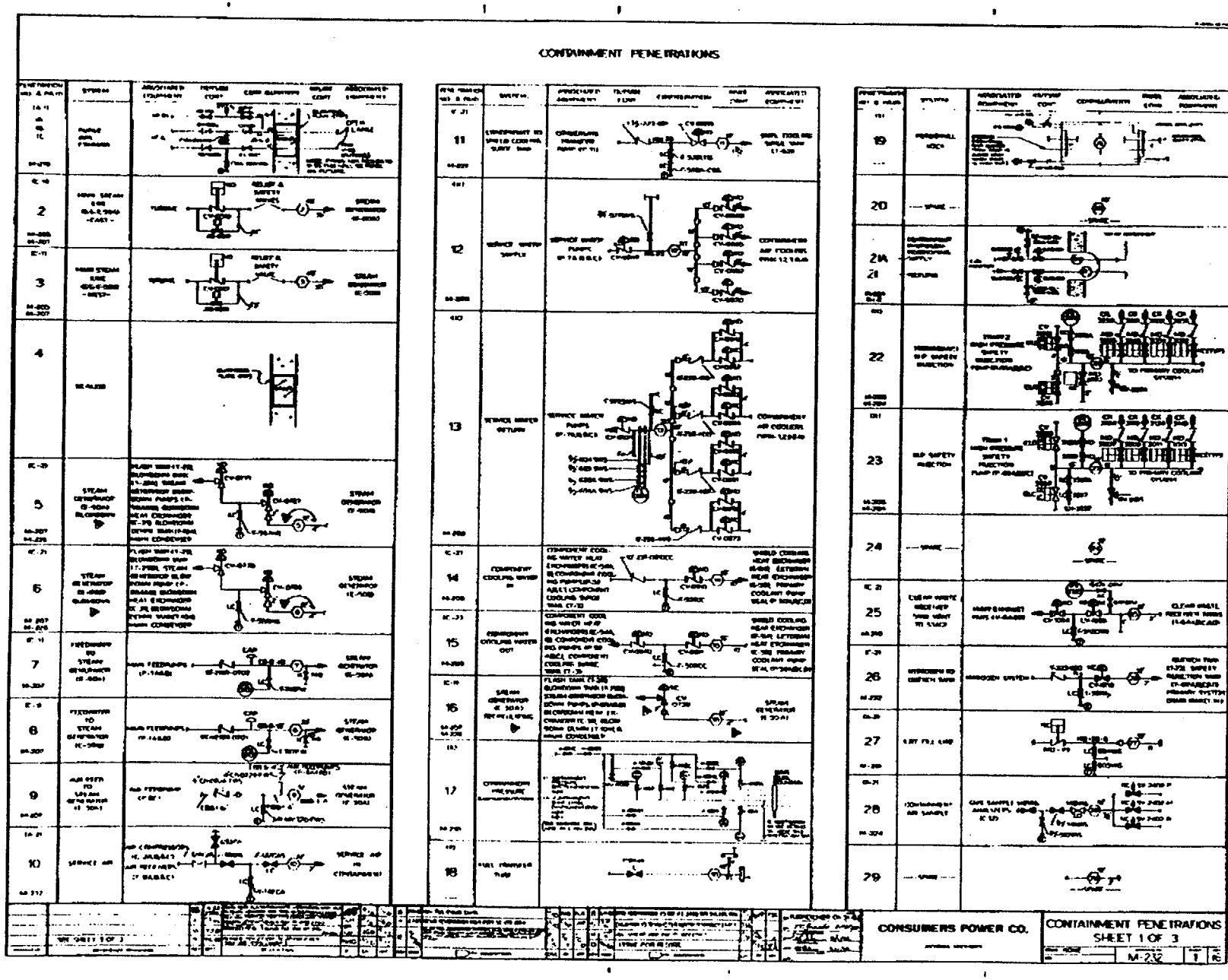



MAIN STEAM ISOLATION VALVE CIRCUIT NO. 1


SELECTOR SWITCH
NORMAL BYPASS
G.E. TYPE CR2940
TWO POSITION SWITCH
MAINTAINED CONTACTS
LOCATION C01
NOTE:
1. SEE E-230 SH'S 1 & 2 FOR SCHEMATIC AND GENERAL NOTES.
PALISADES PLANT
CONSUMERS POWER COMPANY
SCHEMATIC DIAGRAM
MAIN STEAM
ISOLATION VALVES
E-230 SH. 1A
2


ATMOSPHERIC STEAM DUMP VALVE
AUX. FEED WTR. PUMP 8B STM. VALVE
TURB. BYPASS SOLENOID VALVE
ALARM
CONTROL
INDICATION
ENERGIZE TO CLOSE
SEE DWG. E-29
UNDER-VOLTAGE
CONTINUED E-238 SH. 1
SCHEME W001 ONLY
INFO. RELATED TO *230 & *228 ARE IN PARENTHESIS ( ).
LOCATED IN J450
LOCATED IN J451
NOTES:
1. FOR LPX/ESBA & ESBB CONTACTS, SEE DWG. E-211
2. A/S AIR SUPPLY VALVE
3. SEPARATE RACEWAY SYSTEM
4. SUPPLY AIR PRESSURE
5. SBCR RELAY IS ENERGIZED ON PRIM LOOP HIGH T. SEE E-76 SH 3.
6. PS0795 OPENS AT LESS THAN 5" HG VACUUM & a GREATER THAN APPROX. 25" HG ABSOLUTE PRESSURE
7. 386/AST CLOSES ON TURBINE TRIP. SEE DWG E-121
8. FOR RELAY CONTACT DEVELOPMENT OF POSX-0521 & PS2/0741 SEE E-238 SH.5
9. GE TYPE 12HGA11J72 RELAY PROCURED ON P.O. 12447-054/059-E-02
10. FOR CONTACT DEVELOPMENT OF HS-0521 SEE E-238 SH.8
ATMOSPHERIC STEAM DUMP VALVE CIRCUIT NO. 1
SCHEME W001
PALISADES PLANT
CONSUMERS POWER COMPANY
SCHEMATIC DIAGRAM
MAIN STEAM
ISOLATION VALVES
0950
E-238 SH.2
27




CONTAINMENT PENETRATIONS
CONSUMERS POWER CO.
CONTAINMENT PENETRATIONS
SHEET 1 OF 3
M-232