07-206.91

NINE MILE POINT NUCLEAR STATION UNIT 2

OPERATING PROCEDURE

PROCEDURE NO. N2-OP-82

CONTAINMENT ATMOSPHERIC MONITORING

DATE AND INITIALS

APPROVALS	SIGNATURES	REVISION 3	REVISION 4	REVISION 5
Operations Superintendent NMPNS Unit 2 R. G. Smith		12/13/88		
Station Superintendent NMPNS Unit 2 R. B. Abbott		12/13/88		
General Superintendent Nuclear Generation J. L. Willis		12/19/88		

FOR INFORMATION ONLY

Summary of Pages

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Periodic Review, (12/19/90), No Change

NIAGARA MOHAWK POWER CORPORATION

THIS PROCEDURE NOT TO BE USED
AFTER December 1992
SUBJECT TO PERIODIC REVIEW.

*Changes per Section 11.5, AP-2.0   _____   12/29/88

Signed   Date

OPERATING PROCEDURE

PROCEDURE NO. N2-OP-82

TABLE OF CONTENTS

16190

TABLE OF CONTENTS (Cont)

3.0   Electrical Diagrams (Cont.)

4.0   Instruction Manual

            NONE
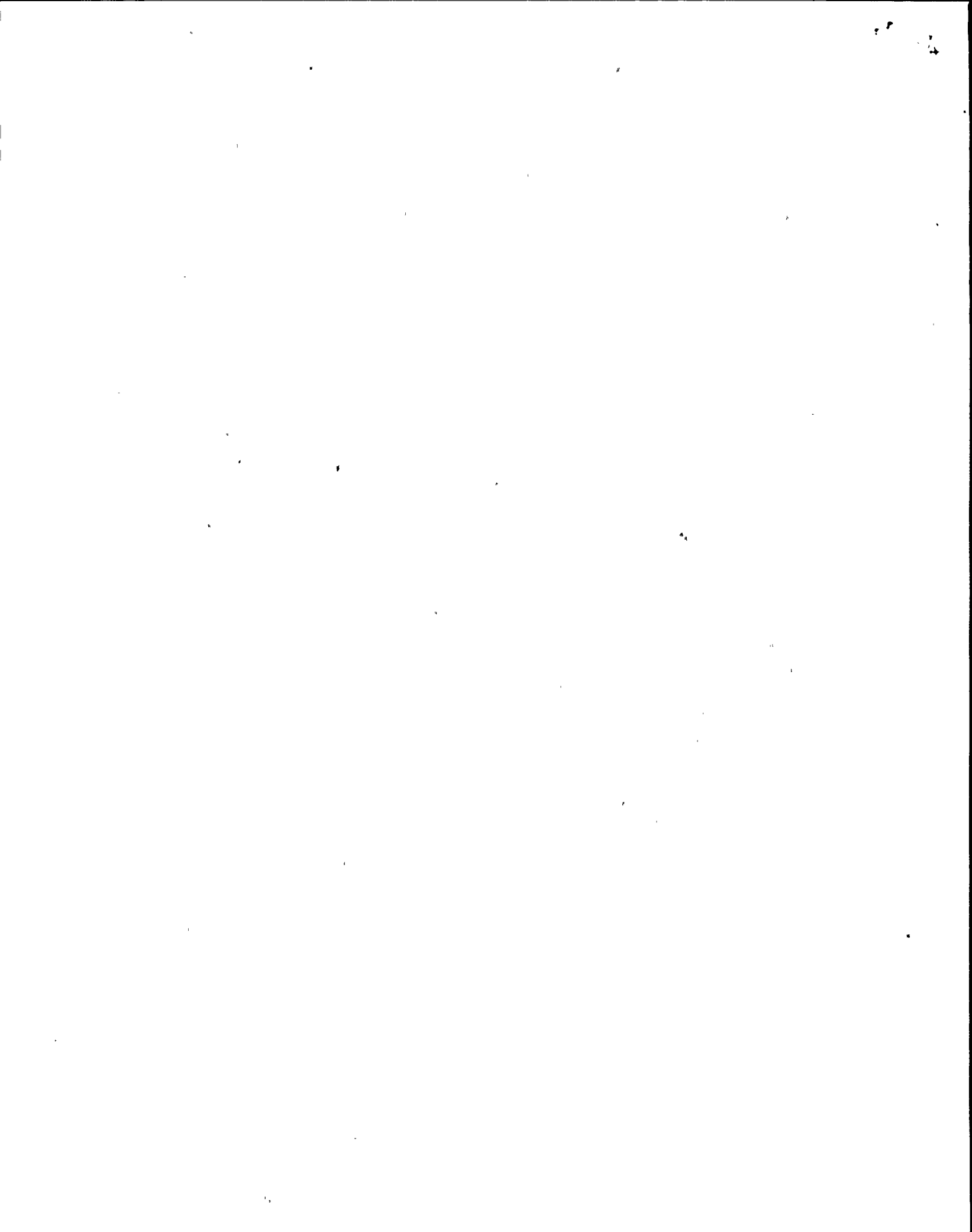
CONTAINMENT ATMOSPHERIC MONITORING

A. **TECHNICAL SPECIFICATIONS**

1.0	3/4.3 Instrumentation
1.1	3.3.2 Isolation Actuation Instrumentation
1.2	3.3.7.5 Accident Monitoring Instrumentation
2.0	3/4.5 Emergency Core Cooling Systems
2.1	3.5.3 Suppression Pool
3.0	3/4.6 Containment Systems
3.1	3.6.1.2 Primary Containment Leakage
3.2	3.6.1.5 Drywell and Suppression Chamber Internal Pressure
3.3	3.6.1.6 Drywell Average Air Temperature
3.4	3.6.2.1 Suppression Pool
3.5	3.6.3 Primary Containment Isolation Valves
3.6	3.6.6.2 Drywell And Suppression Chamber Oxygen Concentration

B. **SYSTEM DESCRIPTION**

The Containment Atmosphere Monitoring System supplies information concerning containment parameters during normal and post accident conditions. Monitored drywell parameters are:

a. Drywell air temperature
b. Drywell hydrogen and oxygen concentration
c. Drywell gaseous and particulate radiation levels
d. Drywell pressure
e. Drywell humidity (only during type "A" containment leak rate test)

Monitored suppression chamber parameters are:

a. Suppression chamber air temperature
b. Suppression chamber hydrogen and oxygen concentration
c. Suppression chamber pressure
d. Suppression chamber humidity (only during type "A" containment leak rate test)
e. Suppression pool water level
f. Suppression pool water temperature
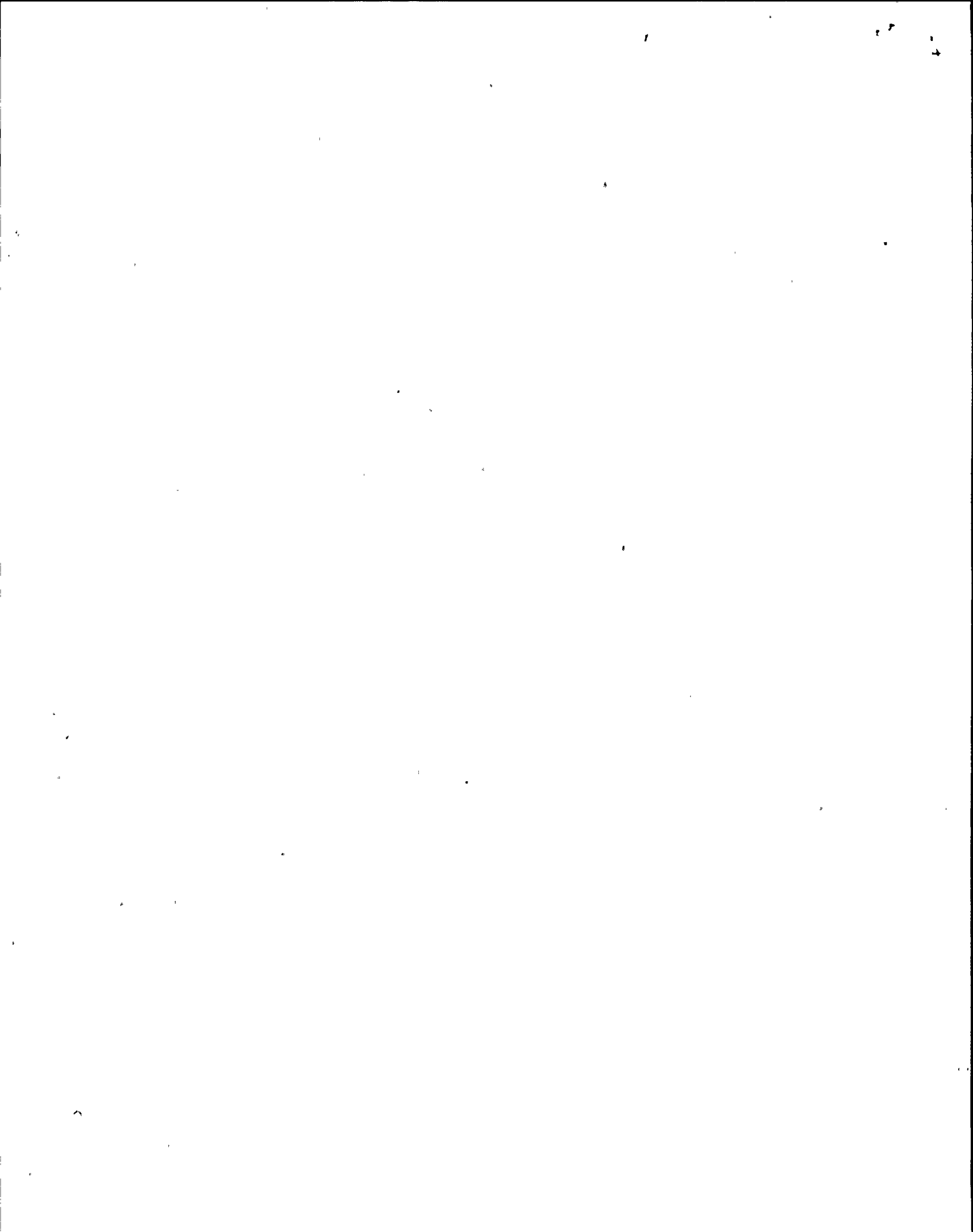
Drywell air temperature is monitored by six Division I and six Division II RTD's. The highest and lowest for each division can be read on temperature indicators TI151 (DIV I High), TI152 (DIV I Low), TI153 (DIV II High), and TI154 (DIV II Low). Division I temperatures are read on panel 873, Division II are read on Panel 875. Each RTD also provides an input to an analog computer point and a temperature recorder.

Suppression chamber air temperature is monitored by three Division I RTD's and three Division II RTD's. In each division, the three temperature signals input to high select instrument and a low select instrument and displayed on Panel 873 (DIV I) and 875 (DIV II).

Division I and Division II hydrogen/oxygen analyzers are provided. In each division, there is a five stream sample (three from the Drywell, two for the suppression chamber) system, controlled by a selector switch providing an input to the analyzer. The selector switch also controls the return to the Drywell or Suppression chamber, depending on the origin. Indication of the outputs of each analyzer is provided in the Control Room on Panels 601 (DIV I) and 898 (DIV II), as well as on the local panels. |TCN-15

Each division is provided with containment isolation valves (inboard and outboard). The valves isolate on LOCA signal. The isolation can be overridden post-LOCA by keylock switches, to provide monitoring capability. Connectins are also provided to the Post Accident Monitoring System.

Division I and Division II radiation monitors are provided. Each monitor draws a sample from two elevations in the drywell, monitors for gaseous and particulate radiatin, and returns the sample to the Drywell. Indication is provided in the control room (Panel 880). Inboard and outboard isolation valves isolate on a LOCA signal. The isolation can be overridden by keylock switches to provide post-accident monitoring capabilities.

Suppression pool water temperature is monitored by 24 RTD type Division I temperature elements and 24 RTD type Division II temperature elements.

In the following discussion, only Division I is described. Unless otherwise indicated, Division II is similar.

Suppression pool temperature elements *TE50A through *TE54A provide temperature signals to associated temperature switches and to a temperature selector switch on panel 2CEC*PNL601 which controls the input to a control room temperature indicator (TI171). The temperature switches actuate on high temperature to energize a control room annunciator and computer point. All of the B temperature elements also supply temperature signals to a control room temperature recorder.

In addition to the above-mentioned functions, 5 Division I (II) temperature elements provide signals to a temperature indicator on remote shutdown panel 2CES*PNL405.

Four Division I (II) suppression pool water temperature elements provide post-accident monitoring of the suppression pool water temperature, and provide temperature signals to a computer point and a temperature selector switch on control room panel 2CEC*PNL601 which enables the operator to select the temperature element he wants to supply temperature signals to a control room temperature indicator (*TI175). In addition to the temperature indicator input, the Division II temperature elements supply temperature signals to respective control room temperature recorders.

The drywell pressure is monitored by two Division I pressure transmitters (*PT1A and *PT2A), a Division I pressure switch (PS173 and indicator PI173), and two Division II pressure transmitters (*PT1B and *PT2B). *PT1A monitors the pressure in the upper section of the drywell and supplies pressure signals to a control room indicator (*PI1A), a computer point, and a pressure switch (*PSH1A) which actuates on high pressure to actuate a control room annunciator and computer point. *PT2A provides provides pressure signals to a computer point, and a pressure indicator (*PI2A).

*PT1B monitors the pressure in the upper portion of the drywell and provides pressure signals to a control room pressure indicator (*PI1B) and recorder (*PR1B), and a pressure switch (*PSH1B) which activates on high pressure to actuate a control room annunciator and computer point. *PT2B monitors the pressure in the lower portion of the drywell and provides a pressure signal to a control room pressure recorder (PR2B).

Two pressure transmitters, one for Division I (*PT7A) and one for Division II (*PT7B) monitor the suppression chamber pressure. *PT7A supplies pressure signals to a control room pressure indicator (*PI7A) and analog computer point. *PT7B supplies pressure signals to a control room pressure recorder (*PR7B).

The suppression pool water level is monitored by two Division I level transmitters (*LT9A and *LT11A) and two Division II level transmitters (*LT9B and *LT11B). *LT9A and *LT11A supply level signals to respective computer points, and level indicators (*LI9A and *LI11A). *LT9B supplies level signals to a control room level recorder (*LR9B), and a control room level indicator (*LI11B).

Containment atmosphere moisture analyzers (2CMS-MT72A thru F) are temporary analyzers and are only installed when containment type "A" leak rate test is conducted. Permanent mounting brackets and electrical hookups are provided inside containment.

The hydrogen analyzers will support the operation of the DBA Recombiner System (OP62). The oxygen analyzer will be used in the Inert and Purge operations and C.A.D. system operations (OP61A).

Local panels 2CMS*PNL66A and 73A are located South Aux. Bldg. El. 240'.

Local panels 2CMS*PNL66B and 73B are located North Aux. Bldg. El. 240'.

C. OPERATING REQUIREMENTS

1.0   Systems

1.1   13.8KV/4160V/600V AC Distribution per N2-OP-71

1.2   Standby and Emergency AC Distribution per N2-OP-72.

1.3   Radiation Monitoring per N2-OP-79.

D. PRECAUTIONS/LIMITATIONS

1.0   In the event of a tubing system leak during a LOCA, the inside of the CMS panels may become filled with radioactive, explosive, or very hot (greater than 270°F) gases. Exercise extreme caution when entering the panel. Request Radiation Protection support to monitor for airborne radioactivity.

2.0   The heated sample compartment is maintained at approximately 275°F when the analyzer system is either in the "Stand-by" or "Analyzer" mode. In order to prevent injury, this compartment should be allowed to cool for a minimum of four hours before performing maintenancce inside, or closely surrounding this area.

3.0   The Hydrogen Sample is calibrated up to 30% and the oxygen sample is calibrated up to 10%. Readings above these limits may not be accurate.

E. START UP PROCEDURE

1.0   Drywell Operation |TCN-15

1.1   Verify System Power Supply Lineup per Table II

1.2   Depress Division 1 and 2 MSIV & Drain Valve Isol Reset pushbutton to reset isolation signals, at P602.

1.3   Rotate Division 1 and 2 Containment Atmos Monitor Manual Isolation pushbutton collars to "PUSH TO RESET" and depress pushbutton. Verify amber light out, at P602.

1.4   Verify Valve Lineup per Table I.

1.5   Place the following keylock control switches in "RESET";

        a.   Containment Atm Monitoring Isol Vlv Override at P873.
        b.   Containment Atm Monitoring Isol Vlv Override at P875.
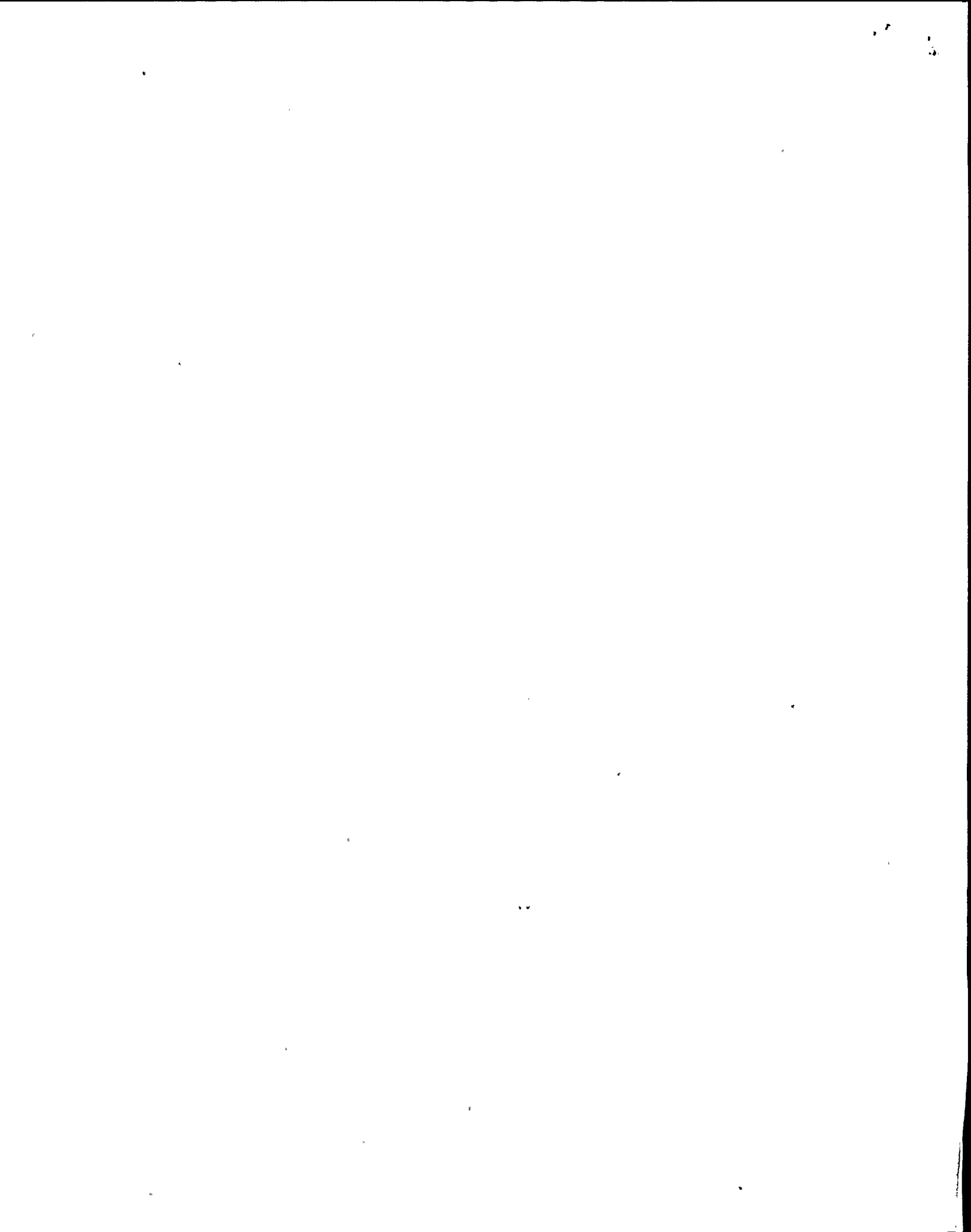
1.6   Place H2/02 Analyzer power switch to "ON" per the following:

a.   Analyzer A, at 2CMS*PNL66A
b.   Analyzer B, at 2CMS*PNL66B

1.7   Place H2/02 Analyzer power switch to "STANDBY" per the following:

a.   Analyzer A, at 2CMS*PNL73A
b.   Analyzer B, at 2CMS*PNL73B

NOTE: The system should remain in the STANDBY mode with heat
         tracing energized for a minimum of 6 hours prior to
         proceeding.

1.8   Place H2/02 Analyzer power switch to "ANALYZE" per the following:

a.   Analyzer A, at 2CMS*PNL73A
b.   Analyzer B, at 2CMS*PNL73B

NOTE: H2 Range Switch should be selected to 0 - 30%.
         02 Range Switch should be selected to 0 - 10%.

1.9   Take the following control switches momentarily to "RESET", |TCN-15
       then place in position 1, 3, or 5:

a.   CMS DIV I Sample Path Selector, at P873
b.   CMS DIV II Sample Path Selector, at P875

1.10   Start Division I H2/02 Analyzer by performing the following at
       P873:

a.   Open Containment Atm Monitoring Hydrogen Analyzer
      Inlet/Outlet Valves 2CMS*SOV64A/2CMS*SOV65A.
b.   Start H2/02 Analyzer Pump 2CMS*P2A.
c.   Shut 2CMS*SOV26C. |TCN-15

1.11   Start DIvision II H2/02 Analyzer by performing the following at
       P875:

a.   Open Containment Atm Monitoring Hydrogen Analyzer
      Inlet/Outlet Valves, 2CMS*SOV64B/2CMS*SOV65B.
b.   Start H2/02 Analyzer Pump 2CMS*P2B.
c.   Shut 2CMS*SOV26D. |TCN-15

1.12   Restore the following INOP status pushbuttons to normal:

a.   CMS MANUALLY OUT OF SER, at P873
b.   CMS MANUALLY OUT OF SER, at P875

F. NORMAL OPERATION

    1.0   Operating Status Checks

           NOTE: Sample path selector switch provides continuous
                    sampling as follows (see Section H.2.0 to change |TCN-15
                    sample sources):
                    N2-OP-82   -5   March 1991

2.0 **Placing 2CMS*CAB10A(B) in Service**

2.1 At P873 (P875) verify the following valves open;

    a.   CONTMT ATM MON DW OUTBD ISOL SUPPLY, CMS*SOV60A(B)

    b.   CONTMT ATM MON DW INBD ISOL SUPPLY, CMS*SOV61A(B)

    c.   CONTMT ATM MON DW OUTBD ISOL RETURN, CMS*SOV62A(B)

    d.   CONTMT ATM MON DW INBD ISOL RETURN, CMS*SOV63A(B)

2.2 Have Rad Protection place 2CMS*CAB10A(B) on line.

2.3 Notify SSS when 2CMS*CAB10A(B) is in service.

F. **NORMAL OPERATION**

1.0 **Operating Status Checks**

    <u>NOTE</u>:   Sample path selector switch provides continuous sampling as follows (see Section H.2.0 to change sample sources):

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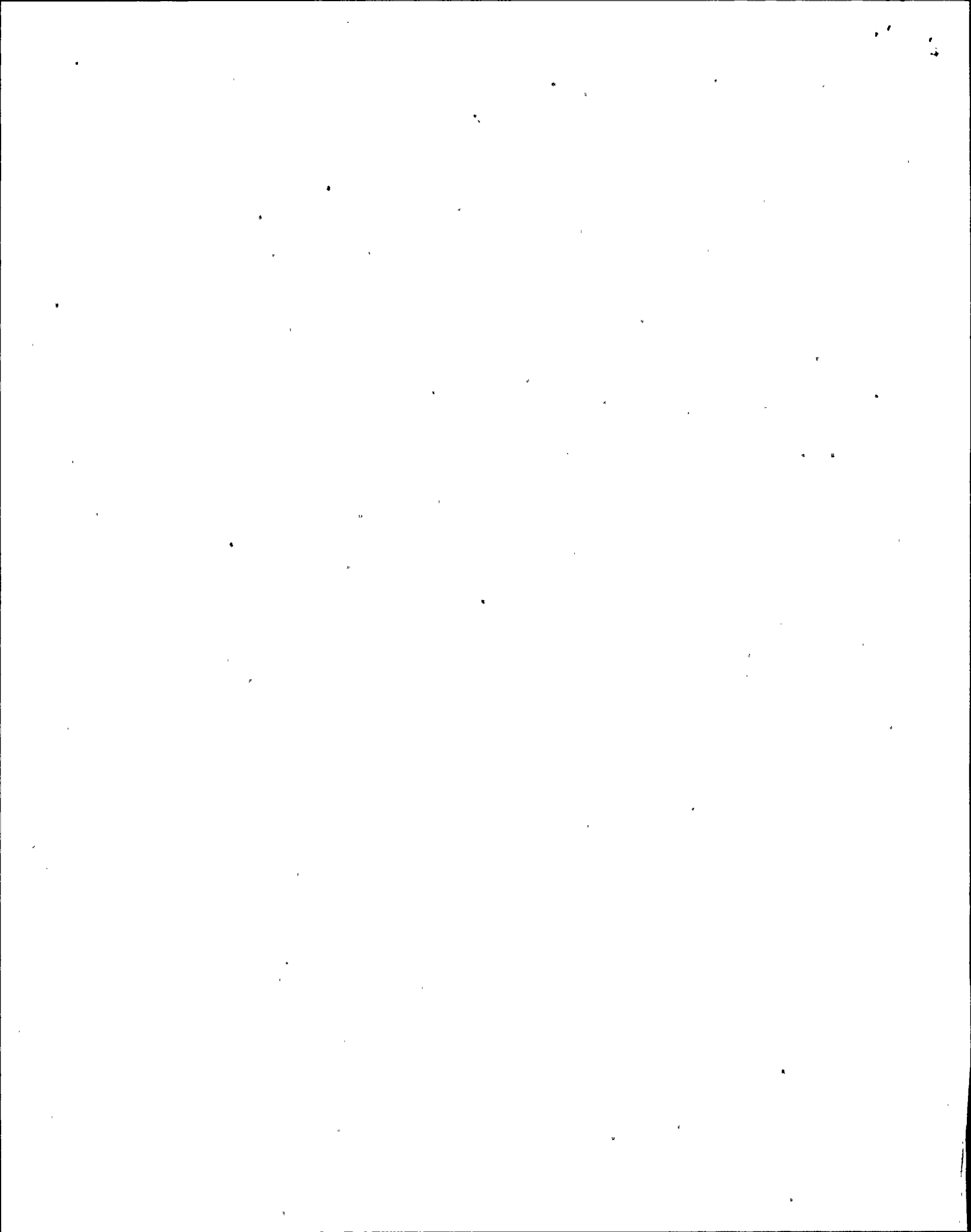
1.0   (Cont'd)

Position 1. Lower Drywell
Position 2. Upper Suppression Chamber
Position 3. Mid Drywell
Position 4. Lower Suppression Chamber
Position 5. Upper Drywell

1.1   Placing the selector switch in auto provides the following |*3
Containment Atmosphere Monitoring automatic sampling cycle, (not
normally used):

<u>CAUTION</u>:

THIS MODE OF OPERATION CAN <u>NOT</u> BE USED UNLESS ALL SOURCE
CONTAINMENT ISOLATION VALVES ARE OPEN.

a.   0-12 minutes, Lower Drywell Sample, the following
occurs:

1.   DW Sample Valve 2CMS*SOV23A(B) opens

2.   DW Sample Return Outbd IV 2CMS*SOV32A(B), opens

b.   12-24 minutes, Upper Suppression Chamber Sample, the
following occurs;

1.   DW Sample Valve 2CMS*SOV23A(B), shuts

2.   DW Sample Return Outbd IV 2CMS*SOV32A(B) shuts

3.   Supp Pool Sample Valve 2CMS*SOV25A(B), opens

4.   Supp Cham Sample Return Outbd IV 2CMS*SOV35A(B),
opens.

c.   24-36 minutes, Mid Drywell Sample, the following
occurs;

1.   Supp Pool Sample Valve 2CMS*SOV25A(B), shuts

2.   Supp Cham Sample Return Outbd IV 2CMS*SOV35A(B),
shuts

3.   DW Sample Valve 2CMS*SOV23C(D), opens

4.   DW Sample Return Outbd IV 2CMS*SOV32A(B), opens.

d.   36-48 minutes, Lower Suppression Chamber Sample, the
following occurs;

1.   DW Sample Valve 2CMS*SOV23C(D), shuts

2.   DW Sample Return Outbd IV 2CMS*SOV32A(B), shuts

3.   Supp Pool Sample Valve 2CMS*SOV25C(D), opens.

4.   Supp Cham Sample Return Outbd IV 2CMS*SOV35A(B),
opens
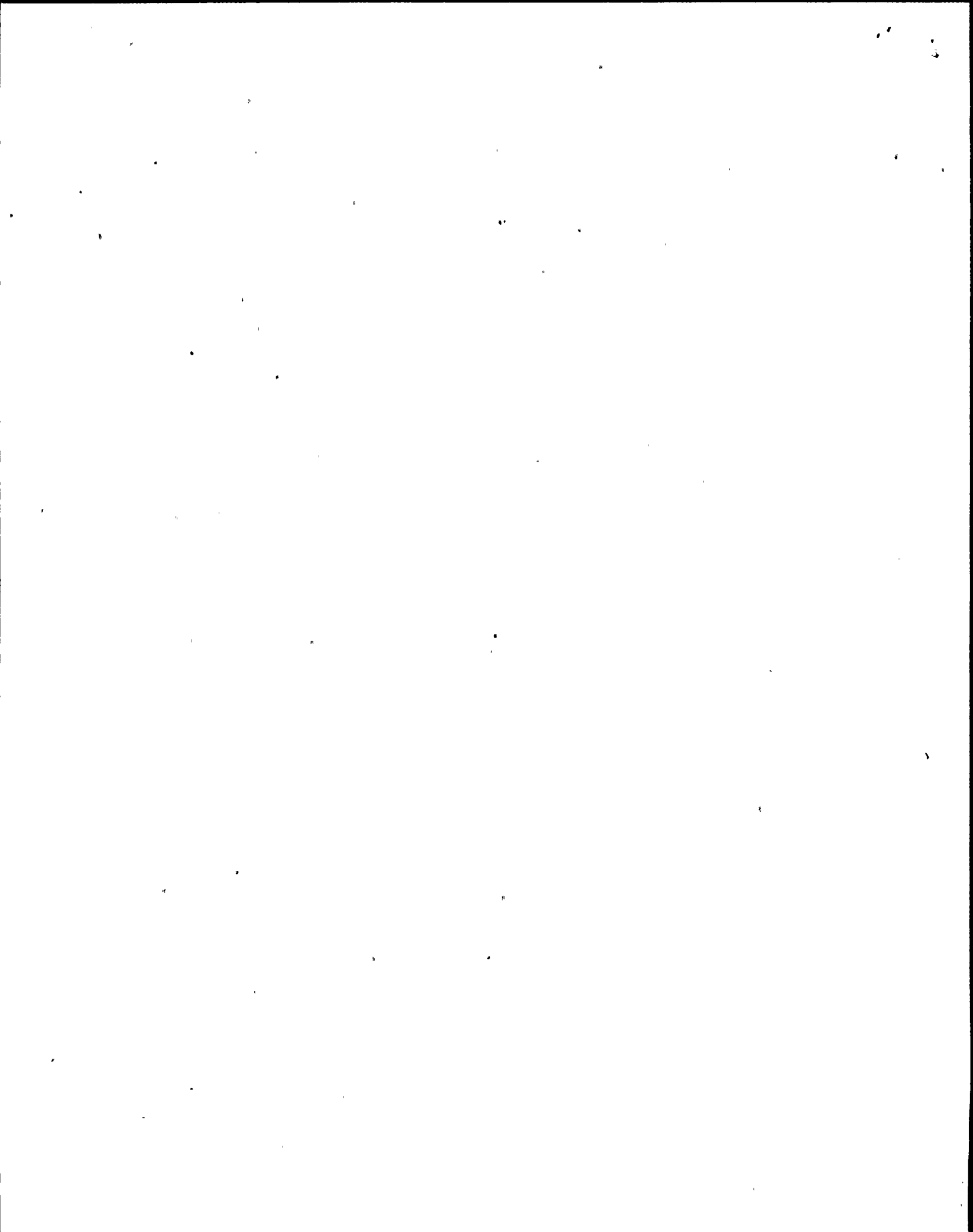
1.1   (Cont'd)

    e.   48-60 minutes, Upper Drywell Sample, the following occurs;

       1.   Supp Pool Sample Valve 2CMS*SOV25C(D), shuts.

       2.   Supp Cham Sample Return Outbd IV 2CMS*SOV35A(B), shuts

       3.   DW Sample Valve 2CMS*SOV23E(F), opens

       4.   DW Sample Return Outbd IV 2CMS*SOV32A(B), opens

G. SHUTDOWN PROCEDURES

1.0 Division 1(2) Shutdown To Inoperable

NOTE: This is performed as allowed per Technical Specifications.

1.1   Depress Division 1(2) CMS MANUALLY OUT OF SER pushbutton, at P873 (P875).

1.2   Stop H2/02 Analyzer Pump CMS*P2A(B), at P873 (P875).

1.2.1   Have Rad Protection shut down the sample pump for CMS*CAB10A(B).

1.3   Place CMS DIV I(II) Sample Path Selector switch to "OFF" at P873 (P875).

1.4   Shut the following at P873, (P875).

    a.   Sample From DW Outbd IV 2CMS*SOV60A(B) (Both VLVS PNL873)

    b.   Sample From DW Inbd IV 2CMS*SOV61A(B) (Both VLVS PNL875)

    c.   DW Sample Return Outbd IV 2CMS*SOV62A(B) (Both VLVS PNL873)

    d.   DW Sample Return Inbd IV 2CMS*SOV63A(B) (Both VLVS PNL875)

    e.   Sample From DW Inbd IV 2CMS*SOV24A(B)

    f.   Sample From DW Outbd IV 2CMS*SOV24C(D)

    g.   Sample From Supp Cham Inbd IV 2CMS*SOV26A(B)

    h.   Sample From Supp Cham Outbd IV 2CMS*SOV26C(D)

    i.   H2/02 Analyzer Inlet/Outlet Valves 2CMS*SOV64A(B)/2CMS*SOV65A(B)

    j.   DW Sample Return Outbd IV 2CMS*SOV32A(B)

    k.   DW Sample Return Inbd IV 2CMS*SOV33A(B)
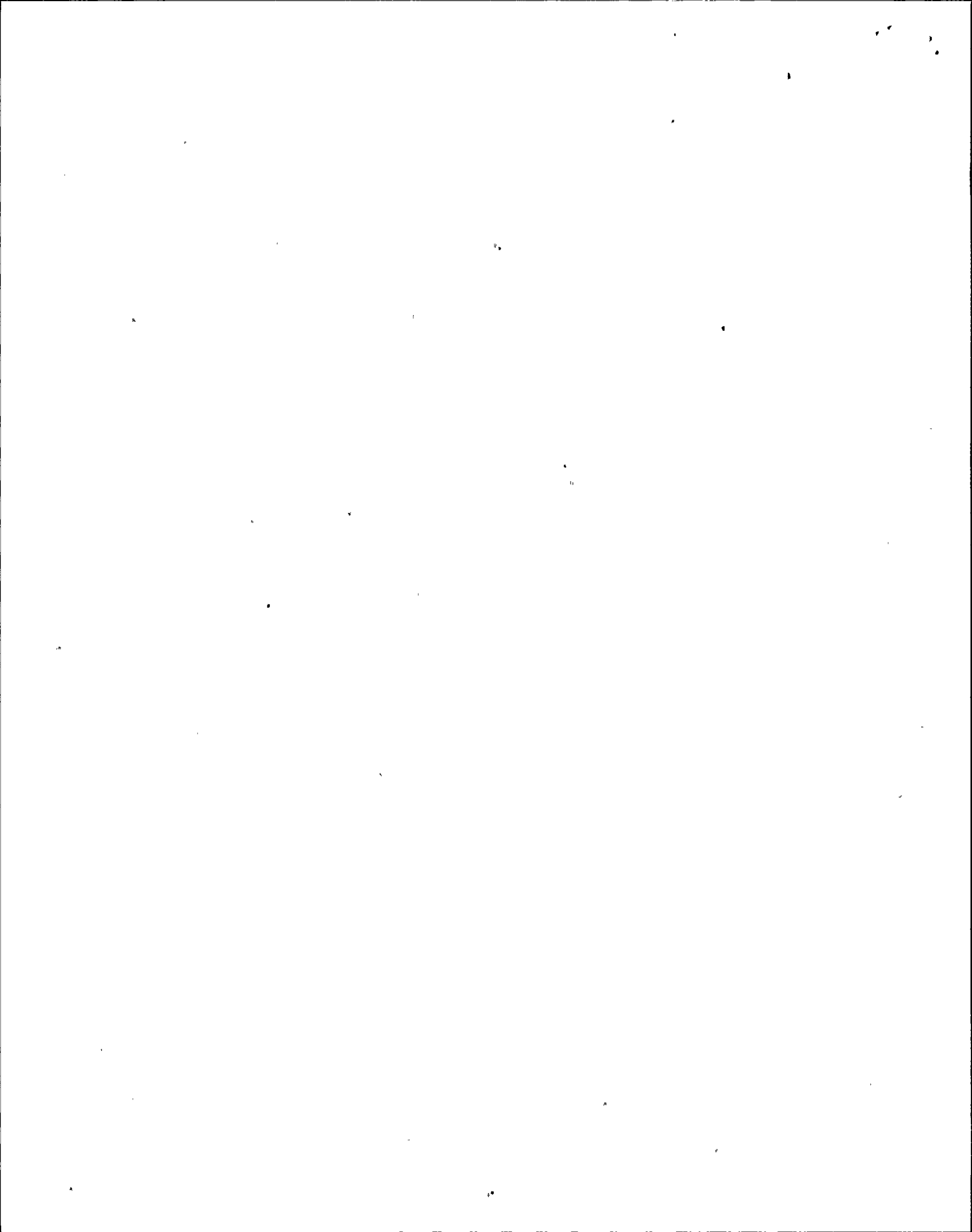
1.4   (Cont.)

     1.   Supp Cham Sample Return Outbd IV 2CMS*SOV35A(B)

     m.   Supp Cham Sample Return Inbd IV 2CMS*SOV34A(B)

1.5   Place H2/O2 Analyzer power switch to "OFF" at 2CMS*PNL73A(B).

1.6   De-energize components as requied per Table II.

H.   OFF NORMAL PROCEDURES

1.0   Post LOCA Containment Atmosphere Monitoring

NOTE: Prior to performing isolation valve override, contact Radiation   Protection Management for support. Air samples and   radiation surveys will be required while LOCA conditions exist.

1.1   Place the following keylock control switches to "OVERRIDE";

     a.   Containment Atmosphere Monitoring Isol Valve Override, at P873.

     b.   Containment Atmosphere Monitoring Isol Valve Override, at P875.

1.2   Place the system in service in accordance with Section E.1.0.

2.0   Changing Sample Sources (Drywell or Suppression Chamber):

2.1   Changing Sample Location(s) from Drywell to Suppression Chamber:

2.1.1   Open the suppression chamber sample source outboard containment isolation valve(s):

     a.   2CMS*SOV26C (DIV I) (see Section H.2.4, Steps 2.4.1, 2.4.2, 2.4.3)

     b.   2CMS*SOV26D (DIV II)

     TCN-15

2.1.2   Place the selector switch(es) in position 2 or 4.

2.1.3   Shut the drywell sample source outboard containment isolation valve(s):

     a.   2CMS*SOV24C (DIV I).
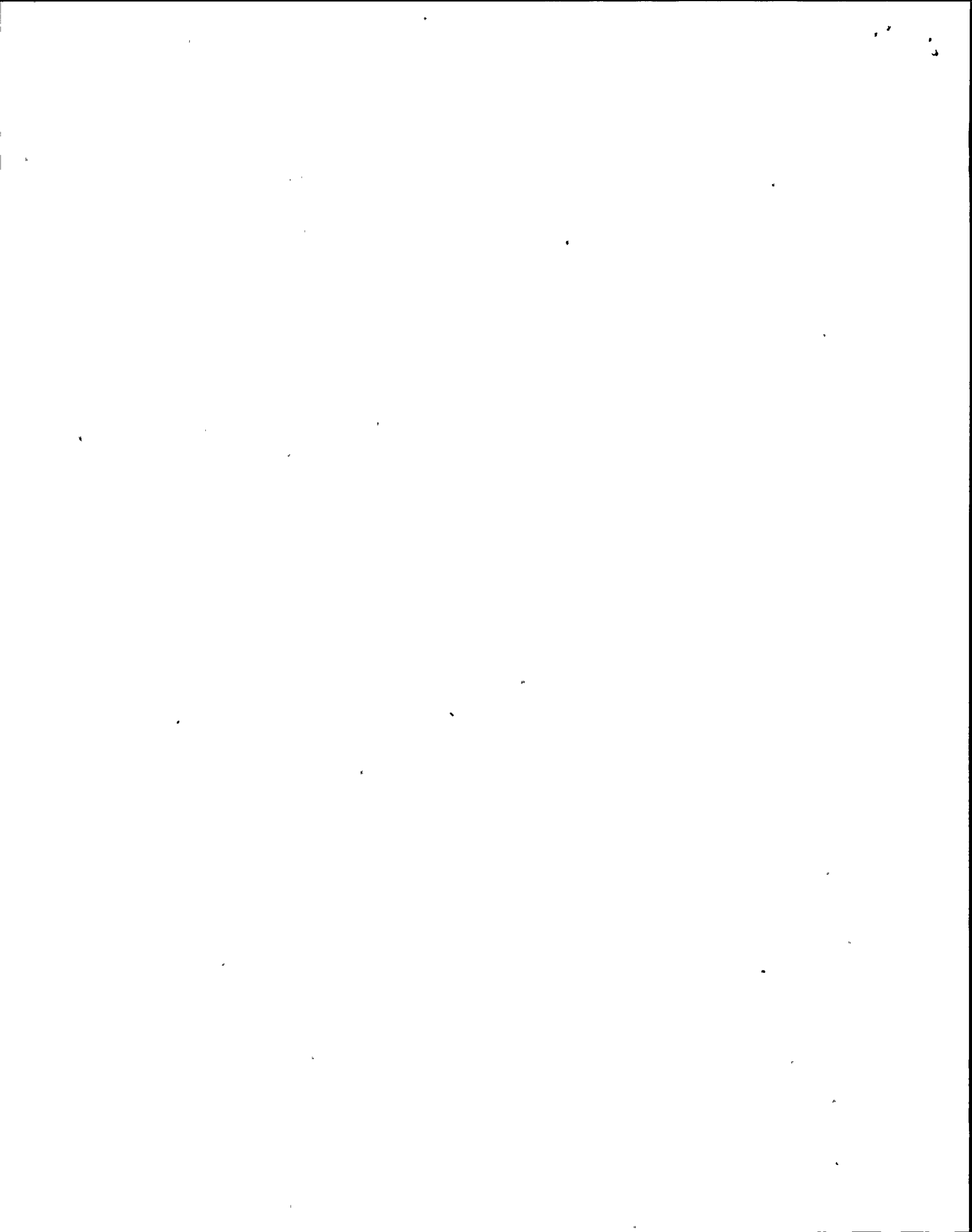
     b.   2CMS*SOV24D (DIV II).

2.2   Changing Sample Location(s) from the Suppression Chamber to the
        Drywell:

2.2.1   Open the drywell sample source outboard containment isolation
        valve(s):

        a.   2CMS*SOV24C (DIV I)

        b.   2CMS*SOV24D (DIV II)

2.2.2   Place the selector switch(es) in position 1, 3 or 5.

2.2.3   Shut the suppression chamber outboard containment isolation
        valve(s):

        a.   2CMS*SOV26C (DIV I) (see Section H.2.4, Steps 2.4.6, 2.4.7,
             2.4.8)

        b.   2CMS*SOV26D (DIV II)

2.3   Containment Atmosphere Monitoring Single Stream Sampling With DW
        Sample Return Inboard I.V. 2CMS*SOV33B Inoperable

        a.   Position CMS Div II Sample Path Selector Switch to 4.

        b.   Open or verify Open the following valves:

             1.   2CMS*SOV24B, DW Sample Inboard Isolation Valve.
             2.   2CMS*SOV24D, DW Sample Outboard Isolation Valve.
             3.· 2CMS*SOV34B, Sample Return to Suppression Pool
                  Isolation Valve Inboard.
             4.   2CMS*SOV35B, Sample Return to Suppression Pool
                  Outboard Isolation Valve.

        c.   Shut CMS*SOV26B.

             NOTE: Issuing yellow holdout on jumper provides for SSS
                       notification, documentation, and Independent
                       Verification to satisfy AP-6.1 Exclusion
                       requirements of Step 1.3.1. | TCN-18

        d.   Issue yellow holdout to SSS for jumper installed.
             Independent Verification for tag placement is required.
             SSS shall sign holdout sheet authorizing placement of
             jumper and tags.

        e.   Place a jumper across contact M1-T1 of relay 62X9-2CMSB02
             in Panel 861 for valve 2CMS*SOV23F DW Sample Valve, and
             verify that 2CMS*SOV23F Opens.

        f.   When no longer required, clear yellow holdout. Independent
             Verification of jumper and tag removal is required. SSS | TCN-18
             shall sign holdout sheet authorizing jumper and tag removal.

2.4   Containment Atmosphere Monitoring with Supp. Pool Sample
        Outboard Isolation Valve 2CMS*SOV26C inoperable.
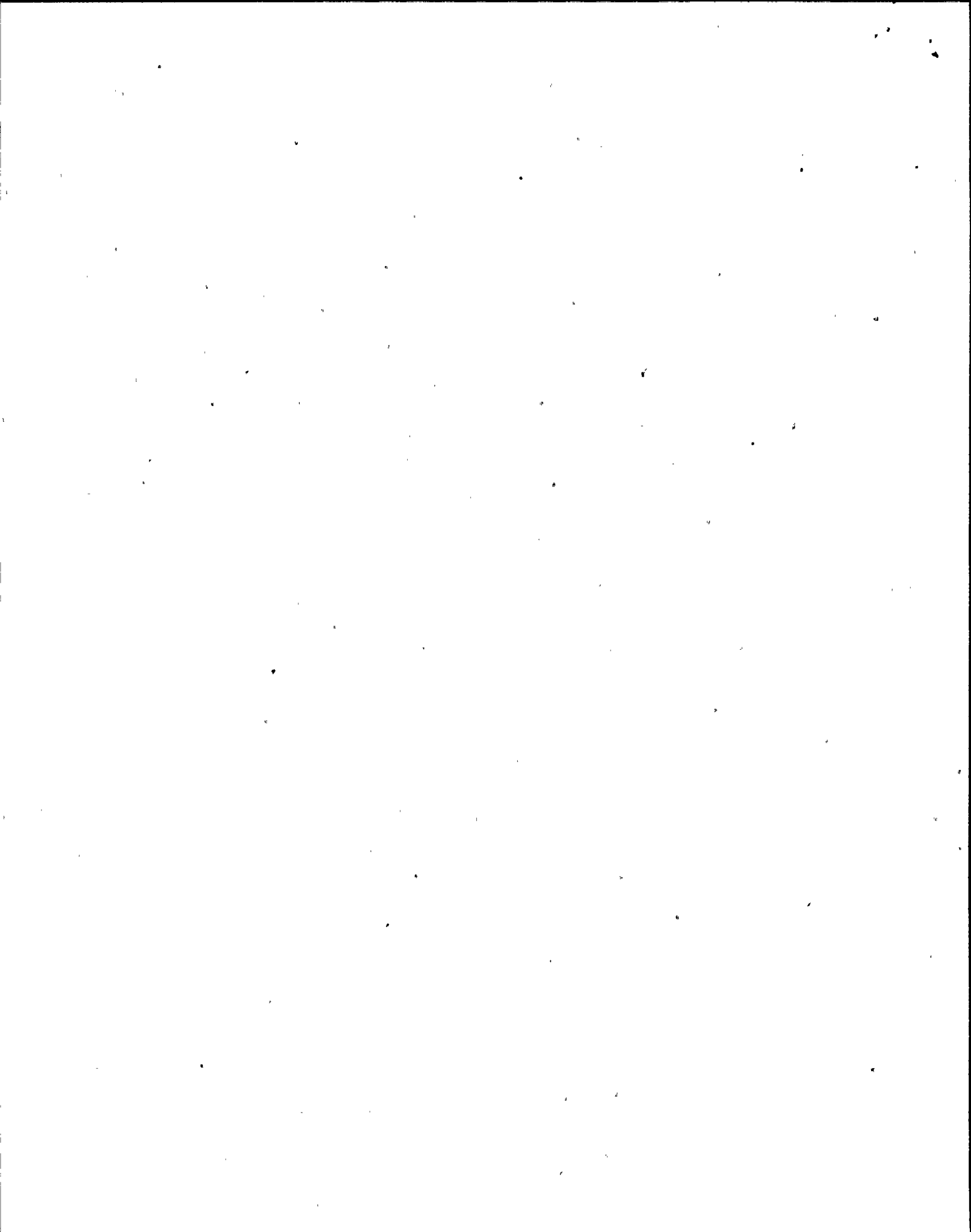
NOTE: Containment Atmosphere Monitoring Supp. Pool Sample Inboard Isolation Valve 2CMS*SOV26A is being maintained in a deactivated, isolated position to comply with T.S. 3.6.3 action a.2. This valve may be opened on an intermittent basis under the administrative controls of this procedure. The inoperability of 2CMS*SOV26C is being tracked under ESL 91-016.

NOTE: This section will only be used to support line up in accordance with Section H.2.1 or H.2.2.

2.4.1 Open 2CMS*SOV26C, Supp. Pool Sample Outboard I.V.

2.4.2 Clear Holdout on 2CMS*SOV26A, Supp. Pool Sample Inboard I.V.

2.4.3 Open 2CMS*SOV26A.

2.4.4 This step has been deleted.

2.4.5 This step has been deleted.

2.4.6 Shut 2CMS*SOV26A, Supp. Pool Sample Inboard I.V.

2.4.7 Shut 2CMS*SOV26C, Supp. Pool Sample Outboard I.V.

2.4.8 Place holdout on 2CMS*SOV26A in the deactivated, isolated position.

3.0 This section has been deleted.

4.0 Division 1(2) Manual Isolation

4.1 Rotate Division 1(2) Containment Atmos Monitor Manual Isolation pushbutton collar to "PUSH TO ISOLATE" and depress pushbutton, at P602.

4.2 Verify the following valves shut at P873 (P875):

a. Sample From DW Outbd IV, 2CMS*SOV60A(B)

b. Sample From DW Inbd IV, 2CMS*SOV61A(B)

c. DW Sample Return Outbd IV, 2CMS*SOV62A(B)

d. DW Sample Return Inbd IV, 2CMS*SOV63A(B)

e. Sample From DW Inbd IV, 2CMS*SOV24A(B)

f. Sample From DW Outbd IV, 2CMS*SOV24C(D)

g. Sample From Supp Cham Inbd IV, 2CMS*SOV26A(B)

h. Sample From Supp Cham Outbd IV, 2CMS*SOV26C(D)

i. DW Sample Return Outbd IV, 2CMS*SOV32A(B)
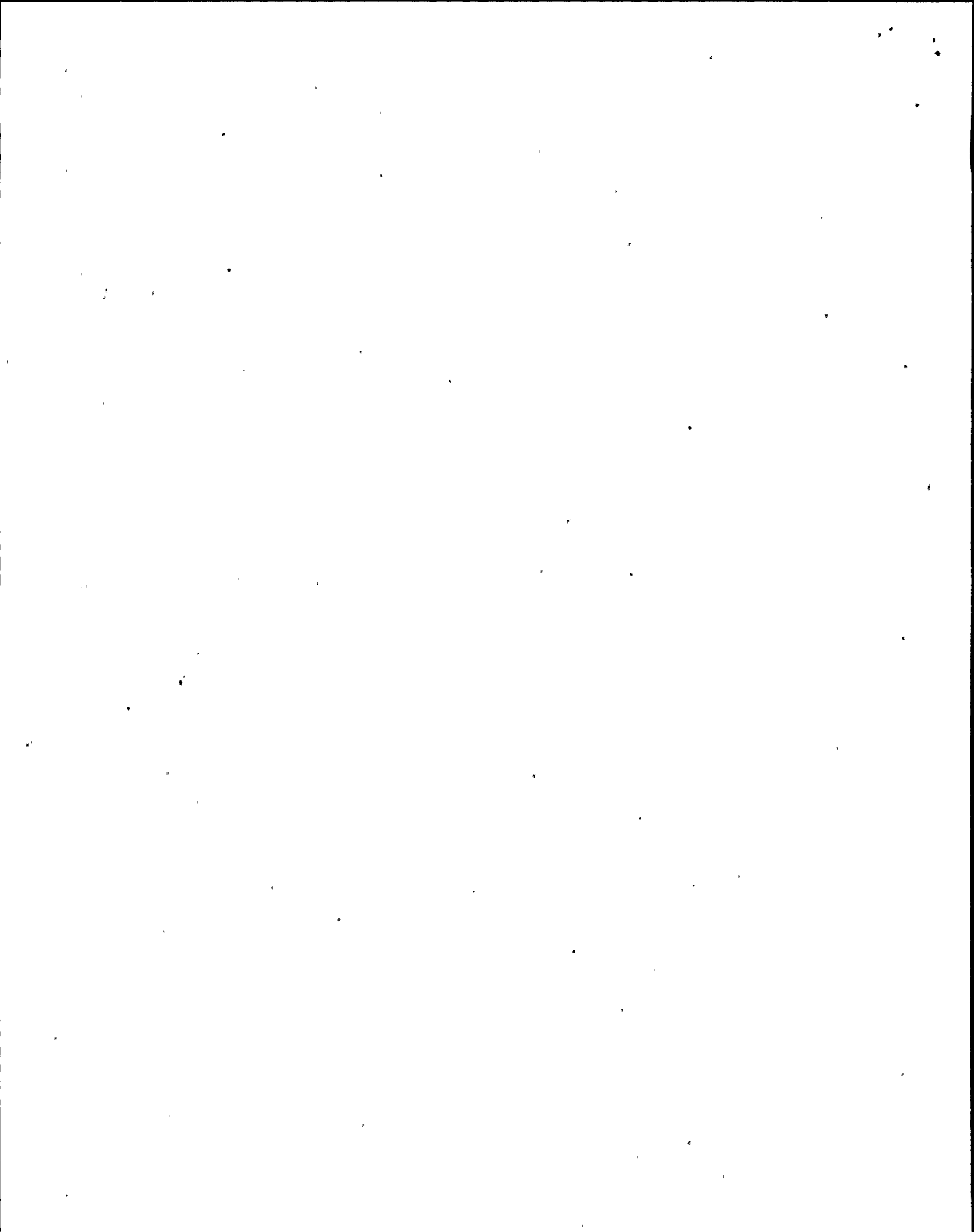
4.2   (Cont)

    j.   DW Sample Return Inbd IV, 2CMS*SOV33A(B)

    k.   Supp Cham Sample Return Outbd IV, 2CMS*SOV35A(B)

    ℓ.   Supp Cham Sample Return Inbd IV, 2CMS*SOV34A(B)

5.0   <u>Post Accident Sampling</u>

<u>NOTE</u>:   This is to support Chemistry procedure N2-CSP-13 for Post Accident Sampling. Position valves as required per Chemistry Tech.

5.1   If a LOCA isolation signal is present (RPV Level 2 or Drywell pressure 1.68 psig), place the following keylock control switches to "OVERRIDE".

    a.   Containment Atmosphere Monitoring Isol Valve Override, at P873.
    b.   Containment Atmosphere Monitoring Isol Valve Override, at P875. |*3

5.2   Position the following valves as required at P873 (P875):

    a.   Sample From DW Inbd IV 2CMS*SOV24A(B)
    b.   Sample From DW Outbd IV 2CMS*SOV24C(D)
    c.   Sample From Supp Cham Inbd IV 2CMS*SOV26A(B)
    d.   Sample From Supp Cham Outbd IV 2CMS*SOV26C(D)
    e.   Hydrogen Analyzer Inlet/Outlet Valves 2CMS*SOV64A(B)/ 2CMS*SOV65A(B)
    f.   DW Sample Return Outbd IV 2CMS*SOV32A(B)
    g.   DW Sample Return Inbd IV 2CMS*SOV33A(B)

5.3   Position the following valves, as required at PAS Sample Panel 2CES*PNL554:

    a.   Contmt Atm Monitoring PAS Supply 2CMS*SOV74A(B)
    b.   Contmt Atm Monitoring PAS Return 2CMS*SOV75A(B)
    c.   Contmt Atm Monitoring PAS Supply 2CMS*SOV76A(B)
    d.   Contmt Atm Monitoring PAS Return 2CMS*SOV77A(B)

5.4   Take CMS DIV I(II) Sample Path Selector switch momentarily to "RESET", then position switch as required to open the associated valve, per the following at P873 (P875):

<u>Switch Position</u>		<u>Associated Valve</u>
a.	1	DW Sample Valve 2CMS* SOV23A(B)
b.	2	Supp Pool Sample Valve 2CMS*SOV25A(B)
c.	3	DW Sample Valve 2CMS* SOV23C(D)
d.	4	Supp Pool Sample Valve 2CMS*SOV25C(D)
e.	5	DW Sample Valve 2CMS* SOV23E(F)
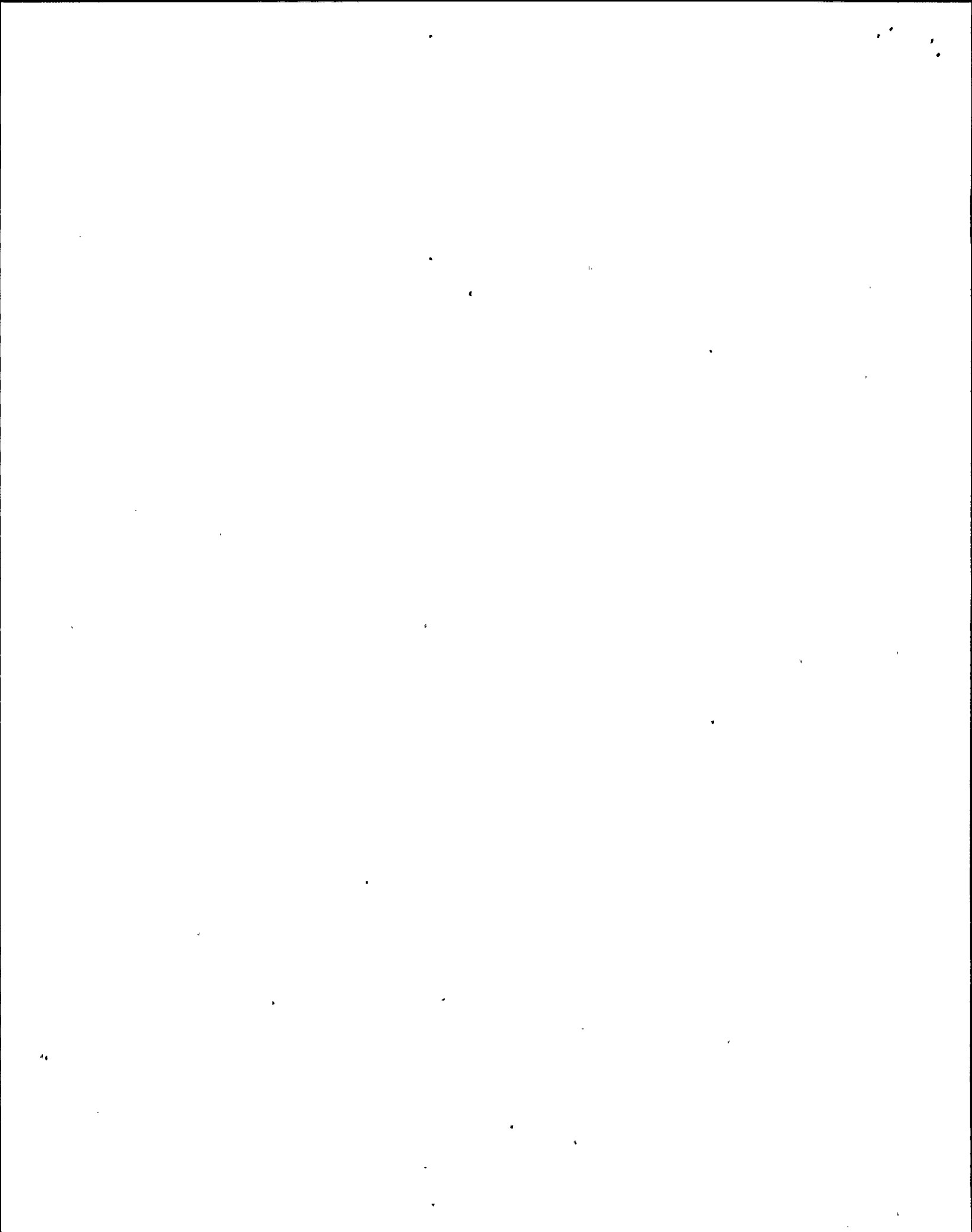
I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

1.0   <u>873301</u>   Division I Containment Atmosphere Monitoring Inoperable

<u>Reflash: No</u>   TCN-13

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+---------------------------+
|                           |
|    DIVISION I             |
|    CONTAINMENT            |
|    ATMOS MONITOR          |
|    INOPERABLE             |
|                           |
|                  873301   |
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873301
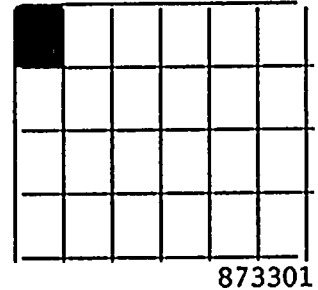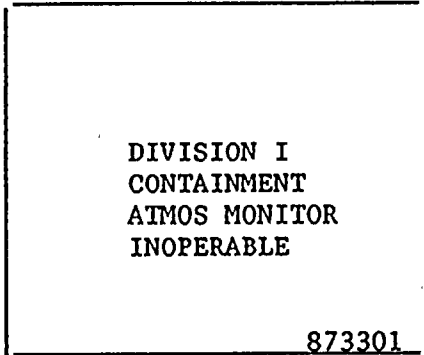
1.1

<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
a. CMSBC05	DIV I CONTMT ATM MONITOR	1) CMS MANUALLY OUT OF SER *2
		2) H2/02 ANAL PMP CMS*P2A
		3) H2 ANAL INLET VLV CMS*SOV64A
		4) H2 ANAL OUT VLV CMS*SOV65A
		5) DW SMPL VLV CMS*SOV23A
		6) DW SMPL VLV CMS*SOV23C
		7) DW SMPLE VLV CMS*SOV23E
		8) SMPL FR DW INBD IV CMS*SOV24A
		9) SMPL FR DW OUTBD IV CMS*SOV24C
		10) SUPP CHM SMPL VLV CMS*SOV25A
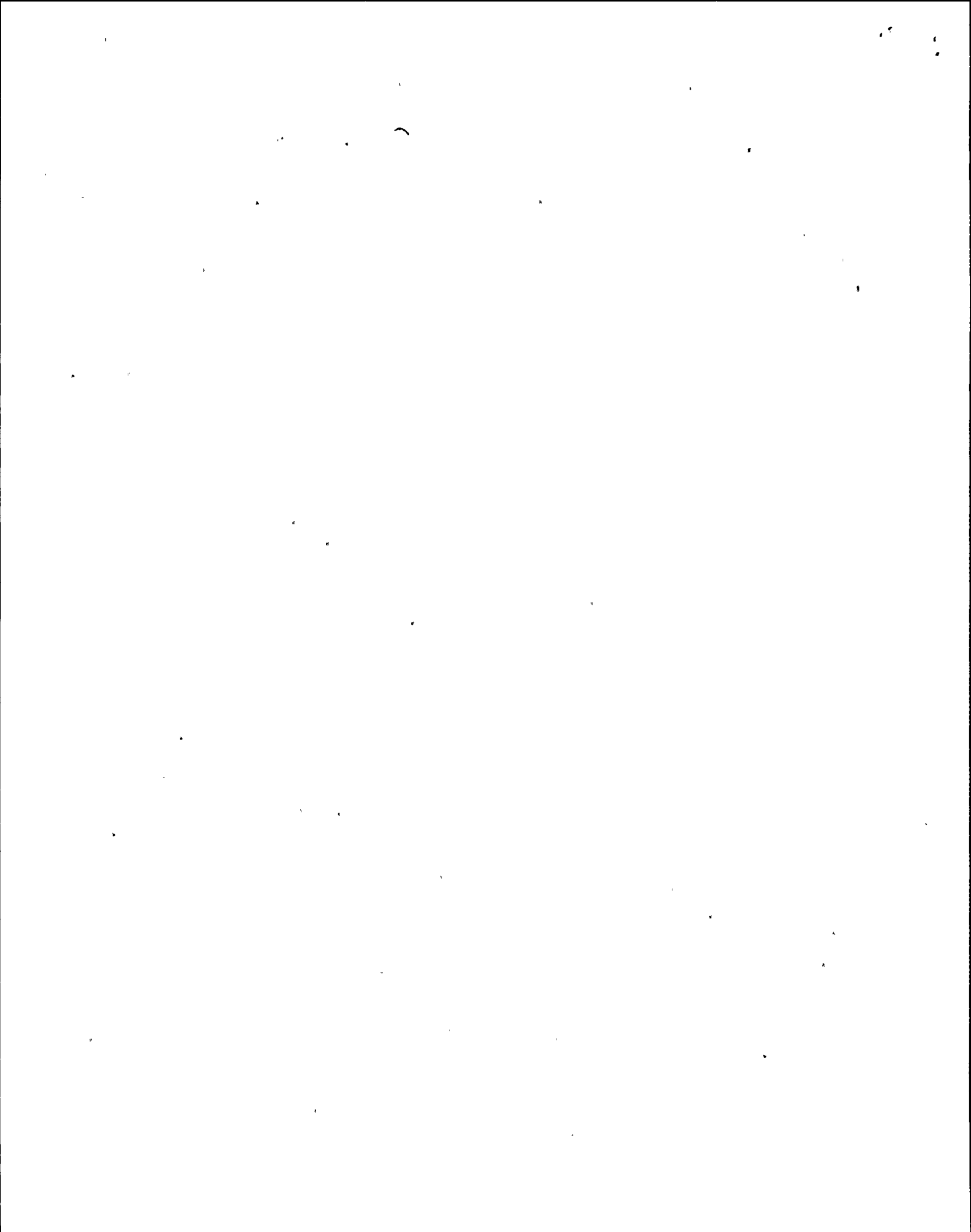
                                                        11) SUPP CHM
                                                            SMPL VLV
                                                            CMS*SOV25C

                                                        12) SMPL FR SUPP
                                                            CHM INBD IV
                                                            CMS*SOV26A

                                                        13) SMPL FR SUPP
                                                            CHM OUTBD IV
                                                            CMS*SOV26C

                                                        14) DW SMPL RTN
                                                            OUTBD IV
                                                            CMS*SOV32A

                                                        15) DW SMPL RTN
                                                            INBD IV
                                                            CMS*SOV33A

                                                        16) SUPP CHM RTN
                                                            INBD IV
                                                            CMS*SOV34A

                                                        17) SUPP CHM RTN
                                                            OUTBD IV
                                                            CMS*SOV35A

1.2   Corrective Action

a.   Refer to the following INOP windows for response.

b.   Refer to Technical Specifications 3.3.7.5, Accident
      Monitoring Instrumentation.

Window	Source	Automatic Response
1) CMS MANUALLY OUT OF SER	CMS Manually Out of Service push-button depressed at P873	None

Corrective Action

a.   Restore switch to the undepressed position as required, at
      P873.

Window	Source	Automatic Response
2) H2/O2 ANAL PMP CMS*P2A	Hydrogen/Oxygen Analyzer Pump P2A 2CMS*P2A, loss of power or control power. As sensed by 74-2CMSA07	Hydrogen/Oxygen Analyzer Pump 2A, 2CMS*P2A trips.
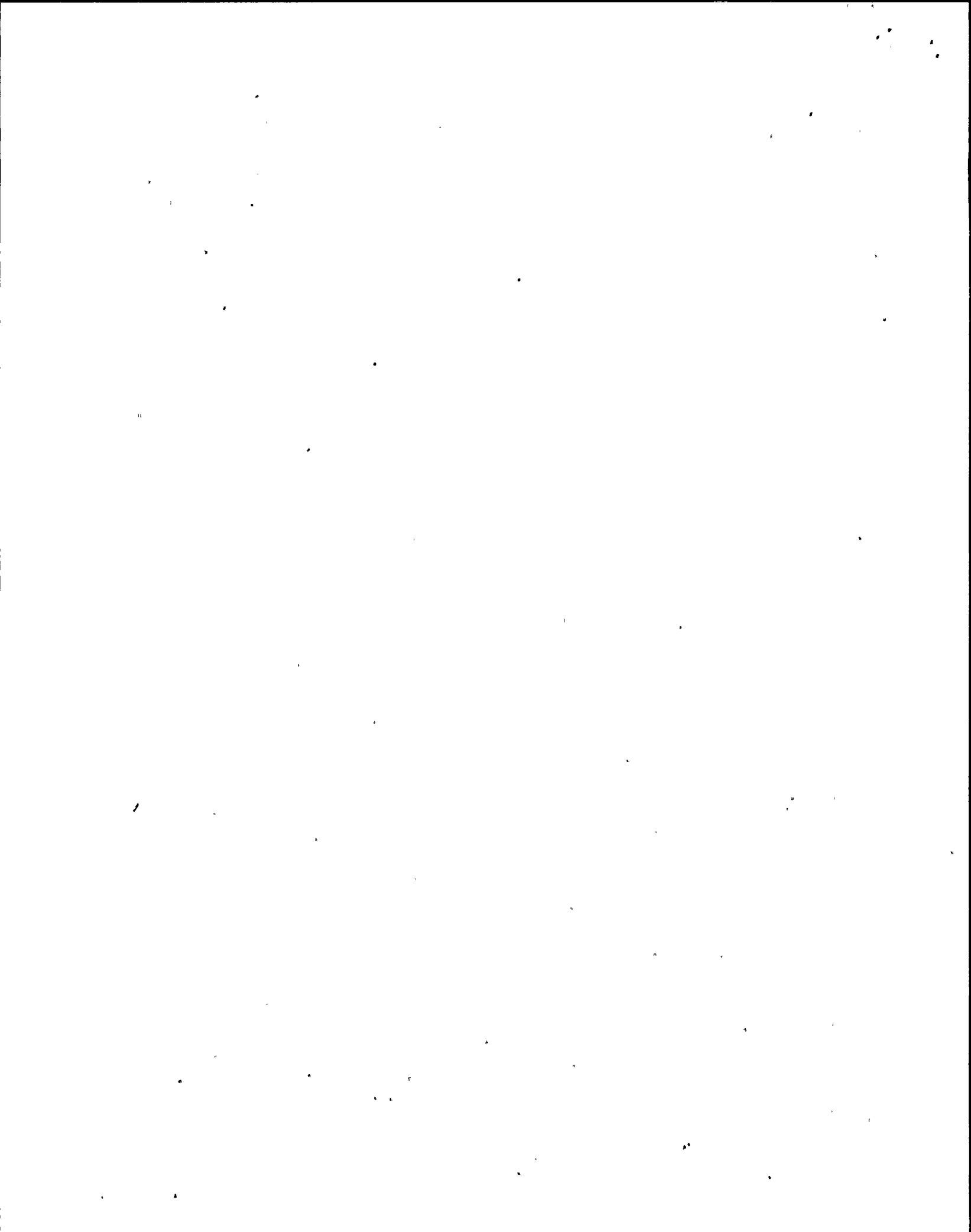
Corrective Action

a.   Verify Hydrogen/Oxygen Analyzer Pump 2A, 2CMS*P2A, power
     supply lineup per Table II, control power fuses installed/
     not blown.

b.   Verify power available to 2EHS*MCC102A

Window	Source	Automatic Response
3) H2 ANAL INLET VLV CMS*SOV64A	H2/02 Analyzer Inlet Valve, 2CMS*SOV64A, loss of power or control power, or valve shut. As sensed by 74-18-2CMSA03.	2CMS*SOV64A fails shut on power loss

Corrective Action

a.   Verify power available to 2SCM*PNL102A and breaker 8 shut.

b.   Verify fuse F19-2CMSA03 installed/not blown at P859.

Window	Source	Automatic Response
4) H2 ANAL OUT VLV CMS*SOV65A	H2/02 Analyzer Outlet Valve, 2CMS*SOV65A, loss of power or control power, or valve shut. As sensed by 74-17-2CMSA03.	2CMS*SOV65A fails shut on power loss

Corrective Action

a.   Verify power available to 2SCM*PNL102A and breaker 8 shut.

b.   Verify fuse F18-2CMSA03 installed/not blown at P859.

Window	Source	Automatic Response
5) DW SMPL VLV CMS*SOV23A	DW Sample Valve, 2CMS*SOV23A, loss of power or control power. As sensed by 74-3-2CMSA03.	2CMS*SOV23A fails shut

Corrective Action

a.   Verify power available to 2SCM*PNL102A and breaker 8 shut.

b.   Verify fuse F4-2CMSA03 installed/not blown at P859.

Window	Source	Automatic Response

6) DW SMPL VLV   DW Sample Valve,   2CMS*SOV23C
    CMS*SOV23C   2CMS*SOV23C, loss   fails shut
                     of power or control
                     power. As sensed
                     by 74-4-2CMSA03.

Corrective Action

a. Verify power available to 2SCM*PNL102A and breaker 8 shut.

b. Verify fuse F5-2CMSA03 installed/not blown at P859.

Window	Source	Automatic Response

7) DW SMPL VLV   DW Sample Valve,   2CMS*SOV23E
    CMS*SOV23D   2CMS*SOV23E,   fails shut
                     loss of power or
                     control power. As
                     sensed by 74-5-
                     2CMSA03

Corrective Action

a. Verify power available to 2SCM*PNL102A and breaker 8 shut.

b. Verify fuse F6-2CMSA03 installed/not blown at P859.

Window	Source	Automatic Response

8) SMPL FR DW   Sample From DW   2CMS*SOV24E
    IMBD IV   Inbd IV,   fails shut
    CMS*SOV24A   2CMS*SOV24A, loss
                     of power or control
                     power. As sensed
                     by 74-6-2CMSA03

Corrective Action

a. Verify power available to 2SCM*PNL102A and breaker 8 shut.

b. Verify fuse F7-2CMSA03 installed/not blown at P859.

Window	Source	Automatic Response

9) SMPL FR DW   Sample From   2CMS*SOV24C
    OUTBD IV   DW Outbd IV,   fails shut
    CMS*SOV24C   2CMS*SOV24C, loss
                     of power or control
                     power. As sensed
                     by 74-7-2CMSA03

Corrective Action

a. Verify power available to 2SCM*PNL102A and breaker 8 shut.

b. Verify fuse F8-2CMSA03 installed/not blown at P859.

Window	Source	Automatic Response
10) SUPP CHM SMPL VLV CMS*SOV25A	Supp Pool Sample Valve, 2CMS*SOV25A, loss of power or control power. As sensed by 74-9-2CMSA03	2CMS*SOV25A fails shut

Corrective Action

a. Verify power available to 2SCM*PNL102A and breaker 8 shut.

b. Verify fuse F10-2CMSA03 installed/not blown at P859.

Window	Source	Automatic Response
11) SUPP CHM SMPL VLV CMS*SOV25C	Supp Pool Sample Valve, 2CMS*SOV25C, loss of power or control power. As sensed by 74-10-2CMSA03.	2CMS*SOV25C fails shut

Corrective Action

a. Verify power available to 2SCM*PNL102A and breaker 8 shut.

b. Verify fuse F11-2CMSA03 installed/not blown at P859.

Window	Source	Automatic Response
12) SMPL FR SUPP CHM INBD IV CMS*SOV26A	Sample From Supp Cham Inbd IV, 2CMS*SOV26A, loss of power or control power. As sensed by 74-11-2CMSA03.	2CMS*SOV26A Fails shut

Corrective Action

a. Verify power available to 2SCM*PNL102A and breaker 8 shut.

b. Verify fuse F12-2CMSA03 installed/not blown at P859.

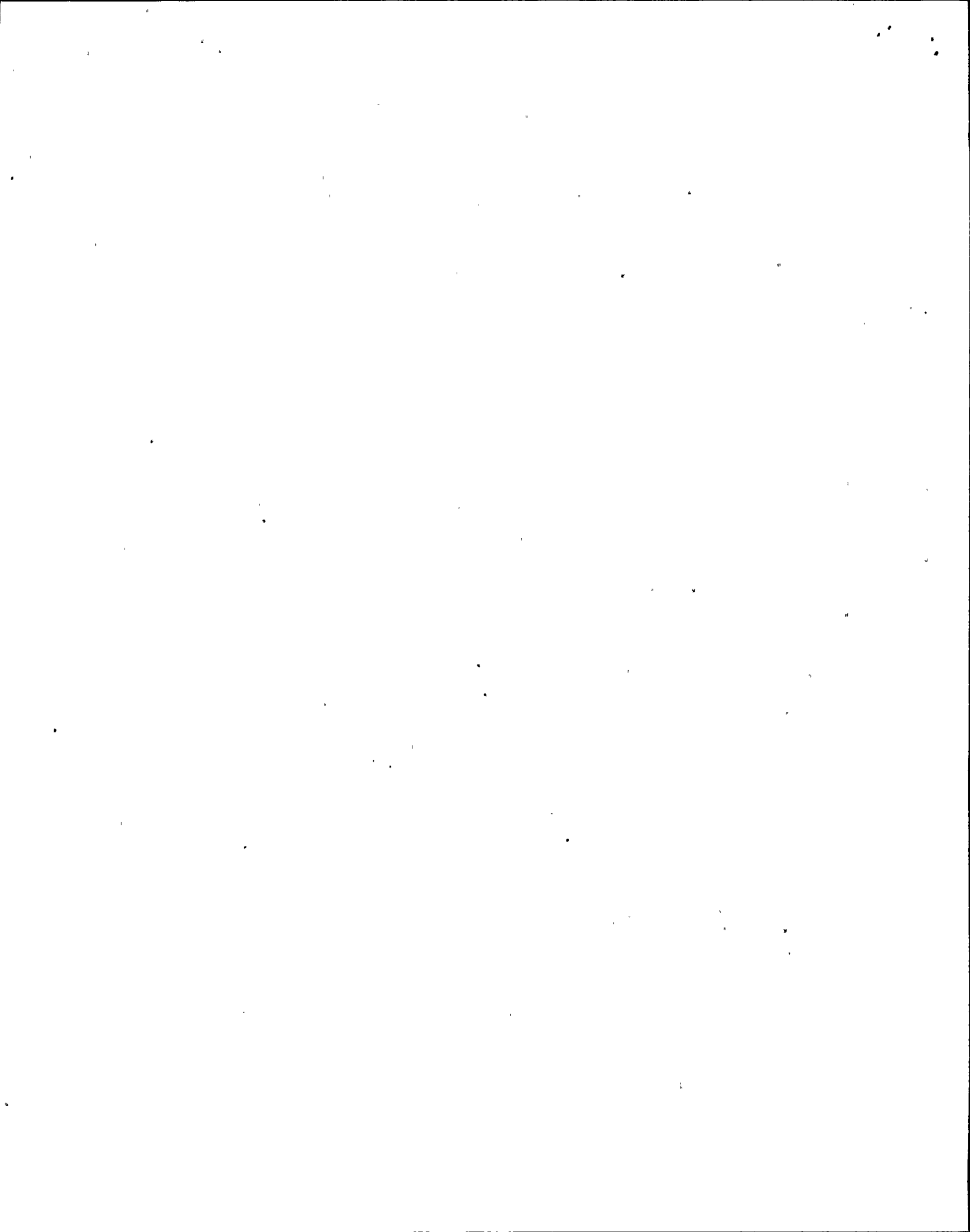| Window	Source	Automatic Response
13) SMPL FR SUPP CHM OUTBD IV CMS*SOV26C	Sample From Supp Cham Outbd IV, 2CMS*SOV26C, loss of power or control power. As sensed by 74-12-2CMSA03.	2CMS*SOV26C fails shut

Corrective Action

a. Verify power available to 2SCM*PNL102A and breaker 8 shut.

b. Verify fuse F13-2CMSA03 installed/not blown at P859.

Window	Source	Automatic Response
14) DW SMPL RTN OUTBD IV CMS*SOV32A	DW Sample Return Outbd IV, 2CMS*SOV32A, loss of power or control power. As sensed by 74-13-2CMSA03	2CMS*SOV32A fails shut

Corrective Action

a. Verify power available to 2SCM*PNL102A and breaker 8 shut.

b. Verify fuse F14-2CMSA03 installed/not blown at P859.

Window	Source	Automatic Response
15) DW SMPL RTN INBD IV CMS*SOV33A	DW Sample Return Inbd IV, 2CMS*SOV33A, loss of power or control power. As sensed by 74-14-2CMSA03.	2CMS*SOV33A fails shut

Corrective Action

a. Verify power available to 2SCM*PNL102A and breaker 8 shut.

b. Verify fuse F15-2CMSA03 installed/not blown at P859.
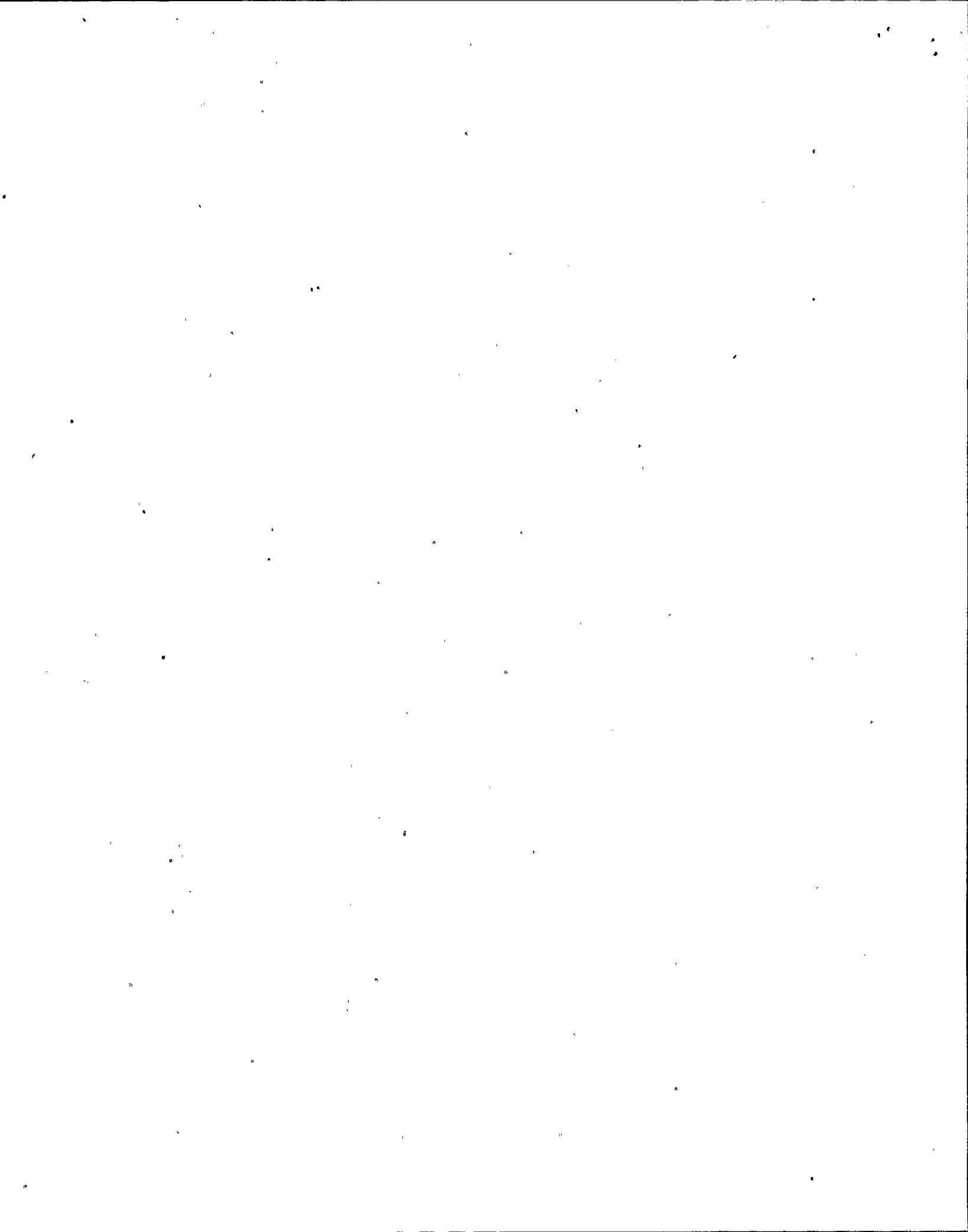
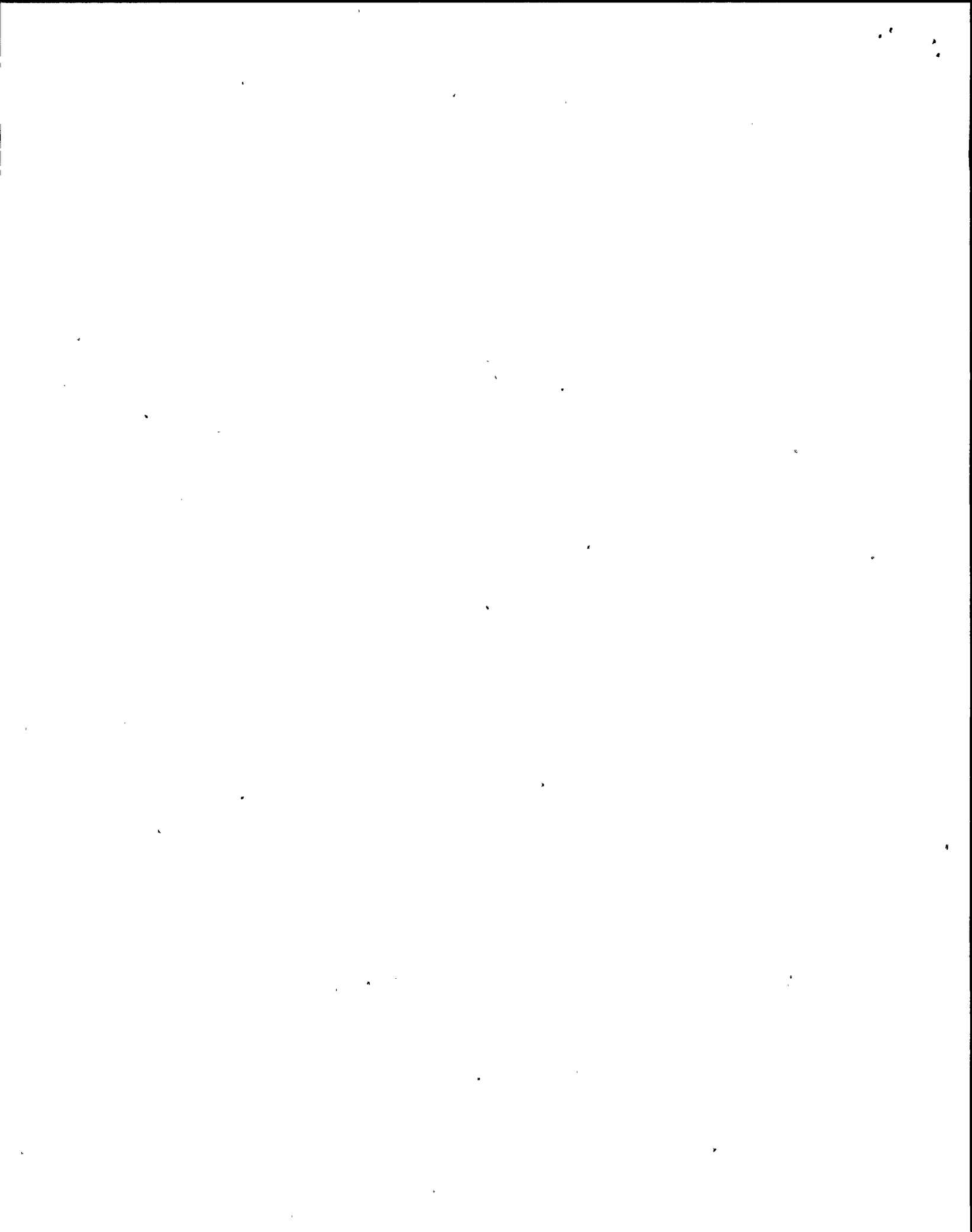| Window	Source	Automatic Response
16) SUPP CHM RTN INBDD IV CMS*SOV34A	Supp Cham Sample Return Inbd IV, 2CMS*SOV34A, loss of power or control power. As sensed 74-15-2CMSA03.	2CMS*SOV34A fails shut

Corrective Action

a. Verify power available to 2SCM*PNL102A and breaker 8 shut.

b. Verify fuse F16-2CMSA03 installed/not blown at P859.

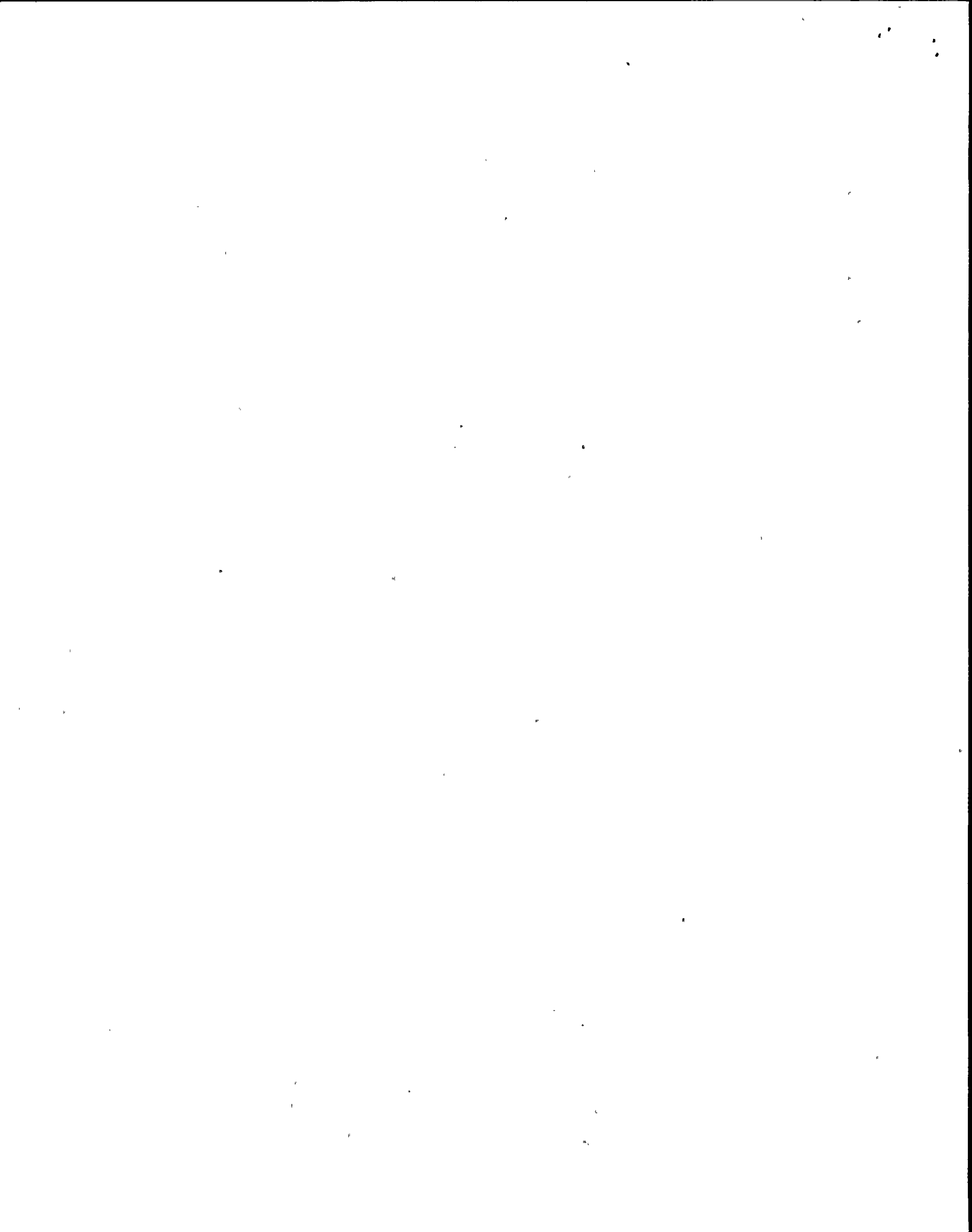| Window	Source	Automatic Response
17) SUPP CHM RTN OUTBD IV CMS*SOV35A	Supp Cham Sample Return Outbd IV, 2CMS*SOV35A, loss of power or control power. As sensed by 74-16-2CMSA03	2CMS*SOV35A fails shut

Corrective Action

a. Verify power available to 2SCM*PNL102A and breaker 8 shut.

b. Verify fuse F17-2CMSA03 installed/not blown at P859.

I. <u>PROCEDURES FOR CORRECTING ALARM CONDITIONS</u> (cont.)

2.0   <u>873302</u>   Division I Containment Atmosphere Monitoring
Hydrogen/Oxygen Analyzer P2A Motor Overload

<u>Reflash: No</u>   TCN-13

```
+-------------------------------+        +--+--+--+--+--+
|                               |        |██|  |  |  |  |
|                               |        +--+--+--+--+--+
|        DIVISION I             |        |  |  |  |  |  |
|        CNMT ATM MON           |        +--+--+--+--+--+
|        H2/02 ANL P2A          |        |  |  |  |  |  |
|        MOT OVERLOAD           |        +--+--+--+--+--+
|                               |        |  |  |  |  |  |
|                      873302   |        +--+--+--+--+--+
+-------------------------------+                873302
```

2.1   <u>Computer Point</u>   <u>Computer Printout</u>   <u>Source</u>

       a.   CMSTC27   H2/02 ANAL PUMP   Hydrogen/Oxygen Analyzer   *2
                       P2A MOT   PUMP 2A, 2CMS*P2A, Motor
                                         Overload. As sensed by
                                         49X-2CMSA07

2.2   <u>Automatic Response</u>

       a.   Hydrogen/Oxygen Analyzer Pump 2A, 2CMS*P2A trips.

2.3   <u>Corrective Action</u>

       a.   Refer to Technical Specifications 3.3.7.5.
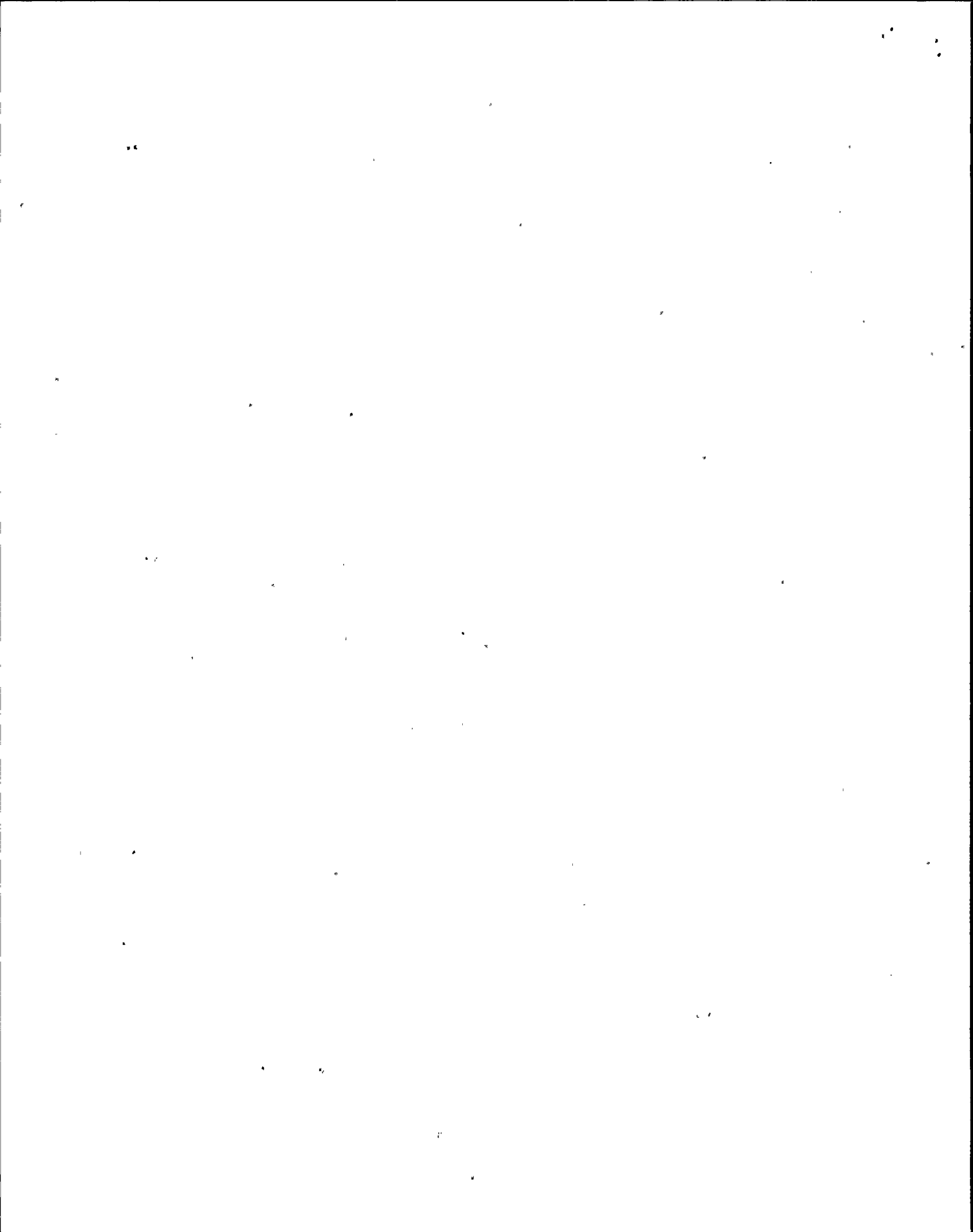
I. <u>PROCEDURES FOR CORRECTING ALARM CONDITIONS</u> (cont.)

3.0   <u>873303</u>   Division I Containment Atmosphere Monitoring
Loss of Coolant Accident Override

<u>Reflash: No</u> |TCN-13

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DIVISION I
CONTAINMENT
ATMOS MONITOR
LOCA OVERRIDE


                873303
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873303
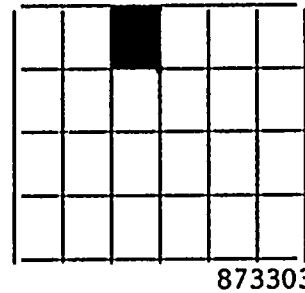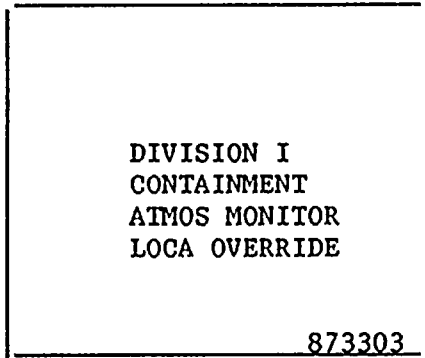
3.1   <u>Computer Point</u>   <u>Computer Printout</u>   <u>Source</u>

     a.   CMSBC03   DIV I CONTMT ATM   Containment Atm |* 2
                           LOCA OR   Monitoring Isol Override
                                                 keylock switch in "OVER-
                                                 RIDE" at P873

3.2   <u>Automatic Response</u>

     a.   NONE

3.3   <u>Corrective Action</u>

     a.   Restore switch to "RESET", as required.
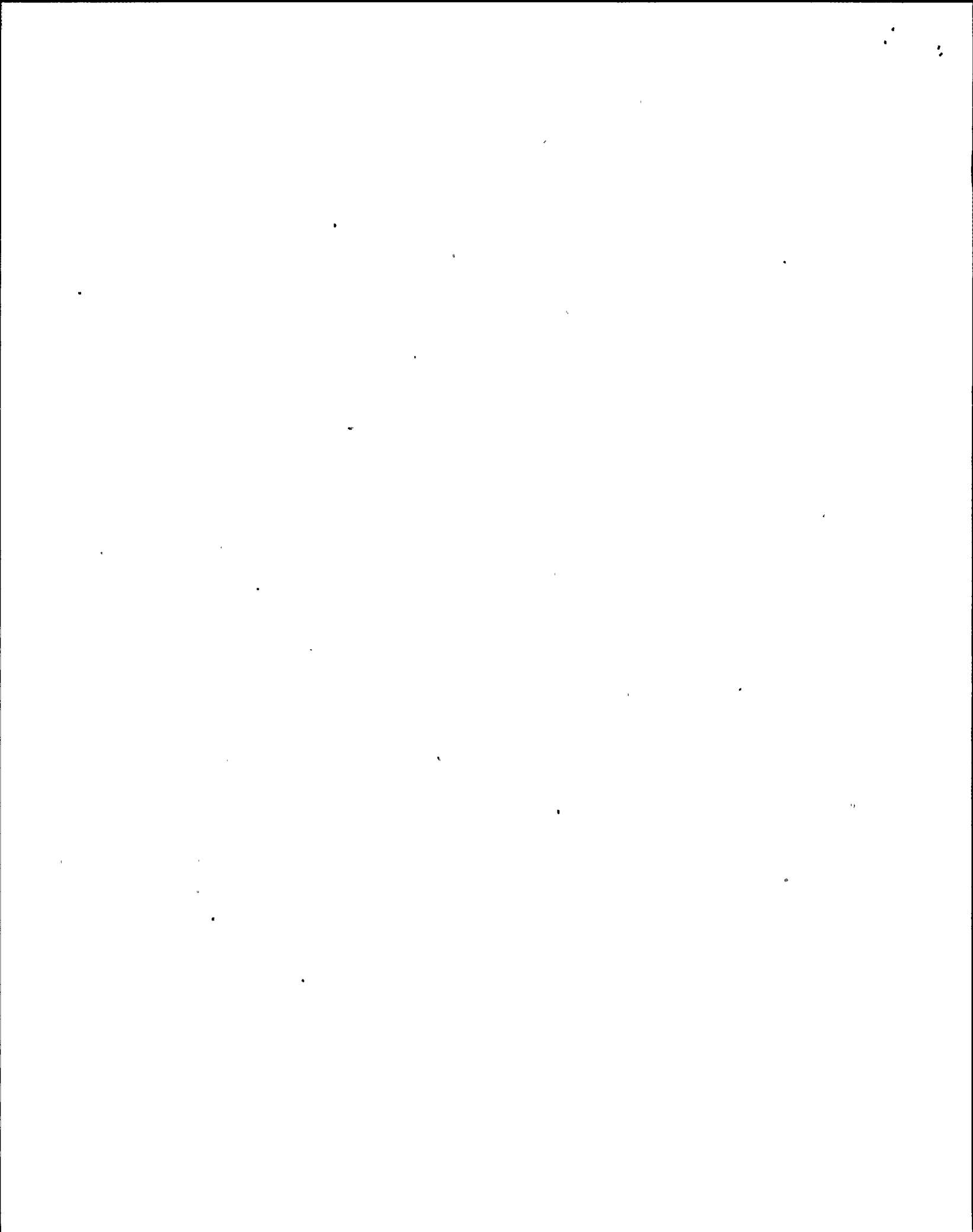
I. PROCEDURES FOR CORRECTING ALARM CONDITIONS (cont.)

4.0   873309   Division I Primary Containment
                  Hydrogen/Oxygen Concentration High

Reflash: Yes

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┌─────────────────────────┐
│                         │
│                         │
│  DIVISION I             │
│  PRIM CONTMT            │
│  H2/02 CONC             │
│  HIGH                   │
│                         │
│              873309     │
└─────────────────────────┘
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873309
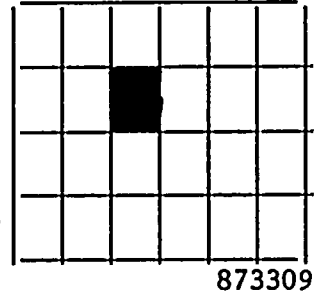
4.1   Computer Point   Computer Printout   Source

       a. CMSAC01   D1 PRIMARY CNMT H2   Drywell or Suppression
                      CONC   Chamber Hydrogen Con-
                                            centration greater than
                                            1.8%. As sensed
                                            by hydrogen
                                            analyzer 2CMS*AIT6A

       b. CMSAC03   D1 PRIMARY CNMT 02   Drywell or Suppression
                      CONC   Chamber Oxygen Con-
                                            centration greater than
                                            3.47%. As sensed by |16009
                                            oxygen analyzer
                                            2CMS*AIT71A

4.2   Automatic Response

       NONE

4.3   Corrective Action

       a. Verify Oxygen/Hydrogen concentrations at 2CEC*PNL601 |16213

       b. Refer to Technical Specifications 3.6.6.2, Drywell and
           Suppression Chamber Oxygen Concentration.

       c. Verify proper operation of Primary Containment Vent, Purge
           and Nitrogen System per N2-OP-61A.

       NOTE: Normal   atmospheric   oxygen   content   is
                  approximately 21%.   An uninerted containment
                  will bring in this annunciator.

       d. Refer to N2-OP-62 Section E.2.0 for post LOCA DBA
           HYDROGEN RECOMBINER Operation, if required.

N2-OP-82   -21   July 1991
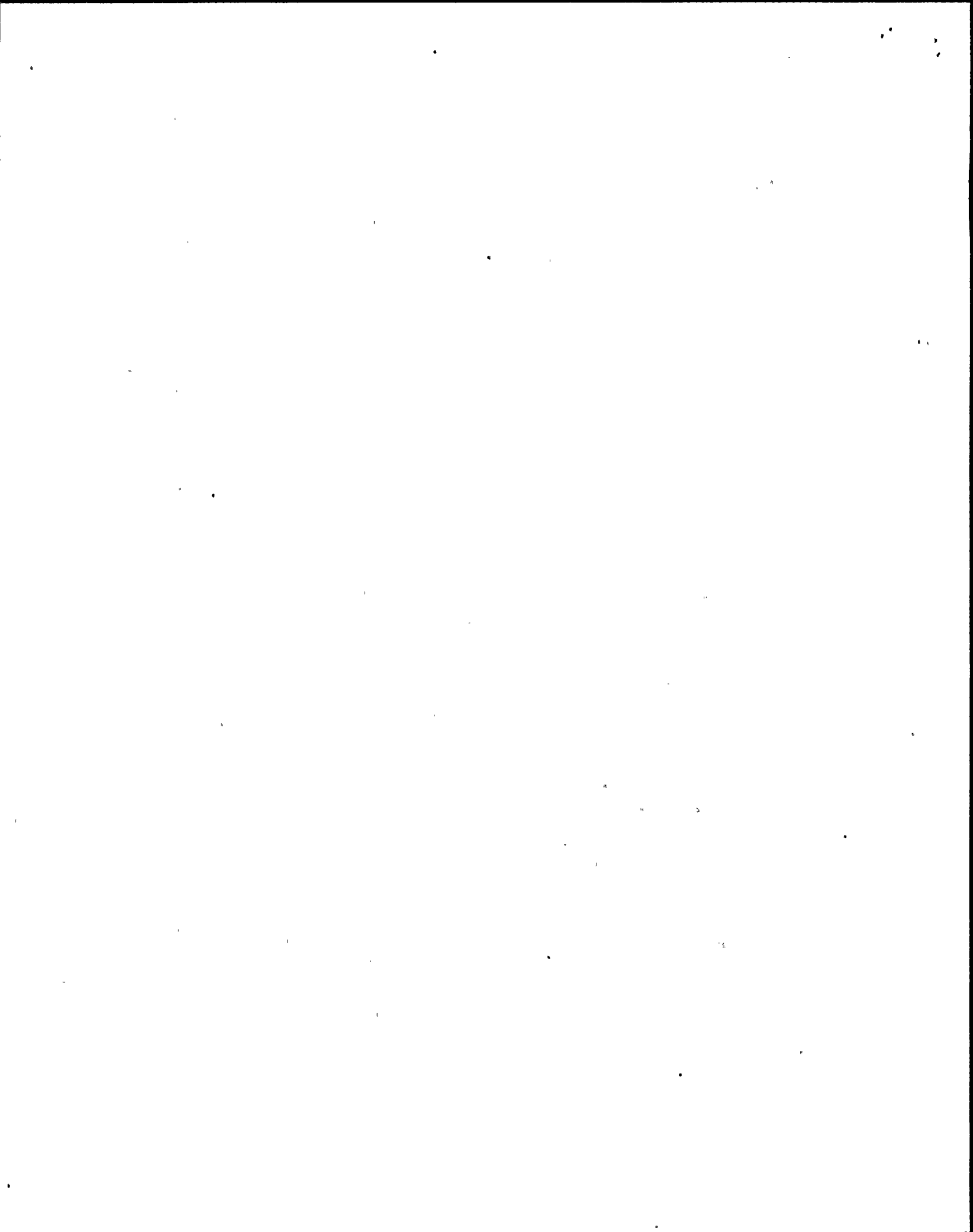
I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

5.0   <u>873310</u>   Division I Containment Atmosphere Monitoring
Drywell Pressure High

<u>Reflash: No</u> |TCN-13

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+-----------------------+
|                       |
|                       |
|   DIVISION I          |
|   CNMT ATM MON        |
|   DRYWELL PRESS       |
|   HIGH                |
|                       |
|              873310   |
+-----------------------+
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873310
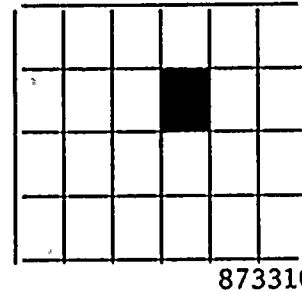
5.1   <u>Computer Point</u>   <u>Computer Printout</u>   <u>Source</u>

     a.   CMSPC01   DIV I DRYWELL PRESS   Drywell pressure greater |*2
than 1.5 psig. As sensed
by 2CMS*PT1A.

5.2   <u>Automatic Response</u>

     NONE

5.3   <u>Corrective Action</u>

     a.   Verify Drywell Absolute Pressure at P873.

     b.   Verify Containment Drywell Press A at P601.

     c.   Refer to Technical Specifications 3.6.1.5, Drywell and
Suppression Chamber Internal Pressure.

     d.   Verify proper operation of Primary Containment Vent, Purge
and Nitrogen System per N2-OP-61A.
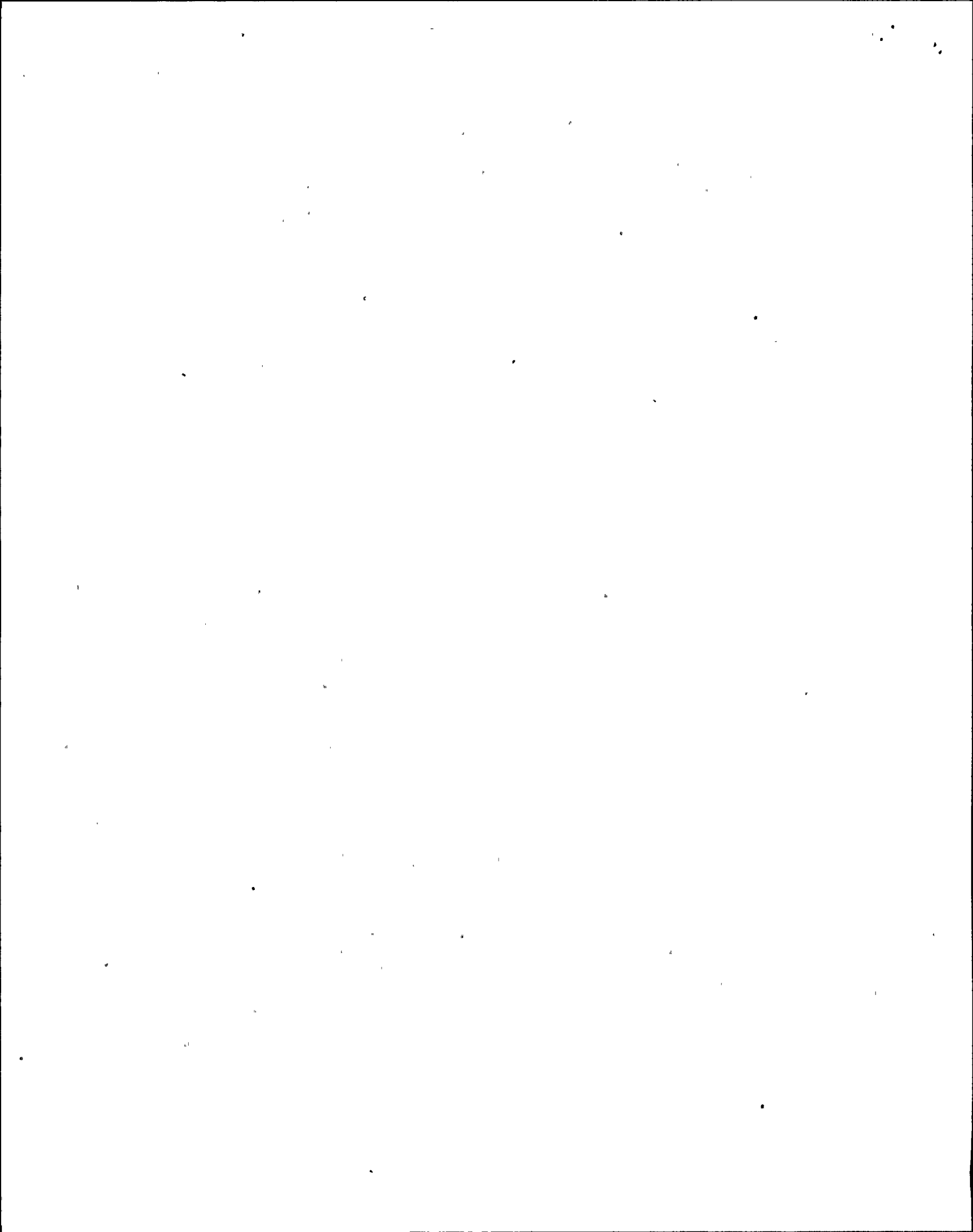
I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

6.0   <u>875101</u>   Division II Containment Atmosphere Monitoring Inoperable

      |TCN-13

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+---------------------------+     +---------------------+
|                           |     |■|  |  |  |  |       |
|                           |     |---------------------|
|   DIVISION II             |     |  |  |  |  |  |       |
|   CONTAINMENT             |     |---------------------|
|   ATMOS MONITOR           |     |  |  |  |  |  |       |
|   INOPERABLE              |     |---------------------|
|                           |     |  |  |  |  |  |       |
|                   875101  |     |               875101|
+---------------------------+     +---------------------+
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6.1

<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
a. CMSBC06	DIV 2 CONMT ATM MONITOR	1. CMS MANUALLY OUT OF SER |*2
		2. H2/02 ANAL PMP CMS*P2B
		3. H2/02 ANAL INLET VLV CMS*SOV64B
		4. H2/02 ANAL OUTLET VLV CMS*SOV65B
		5. DW SMPL VLV CMS*SOV23B
		6. DW SMPL VLV CMS*SOV23D
		7. DW SMPL VLV CMS*SOV23F
		8. SMPL FR DW INBD IV CMS*SOV24B
		9. SMPL FR DW OUTBD IV CMS*SOV24D
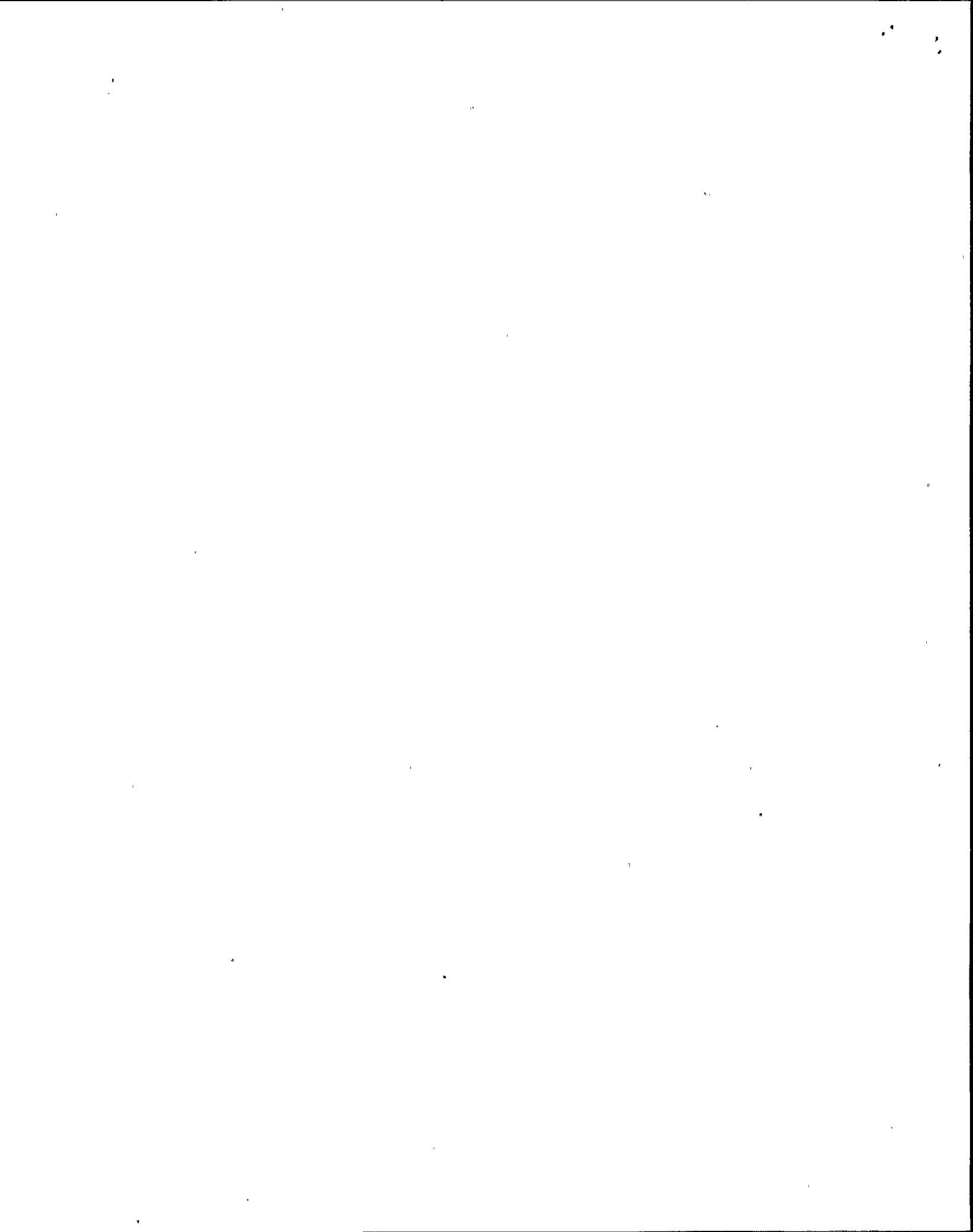
I. PROCEDURES FOR CORRECTING ALARM CONDITIONS (Cont'd.)

6.1   Computer Point   Computer Printout   Source

                                                                10. SUPP CHM
                                                                    SMPL VLV
                                                                    CMS*SOV25B

                                                                11. SUPP CHM
                                                                    SMPL VLV
                                                                    CMS*SOV25D

                                                                12. SMPL FR SUPP
                                                                    CHM INBD IV
                                                                    CMS*SOV26B

                                                                13. SMPL FR SUPP
                                                                    CHM OUTBD IV
                                                                    CMS*SOV26D

   14. DW SMPL RTN
                                                                    OUTBD IV
                                                                    CMS*SOV32B

                                                                15. DW SMPL RTN
                                                                    INBD IV
                                                                    CMS*SOV33B

                                                                16. SUPP CHM RTN
                                                                    INBD IV
                                                                    CMS*SOV34B

                                                                17. SUPP CHM RTN
                                                                    OUTBD IV
                                                                    CMS*SOV35B

6.2   Corrective Action

             a.   Refer to the following INOP windows for response.

             b.   Refer to Technical Specification 3.3.7.5, Accident
                  Monitoring Instrumentation.
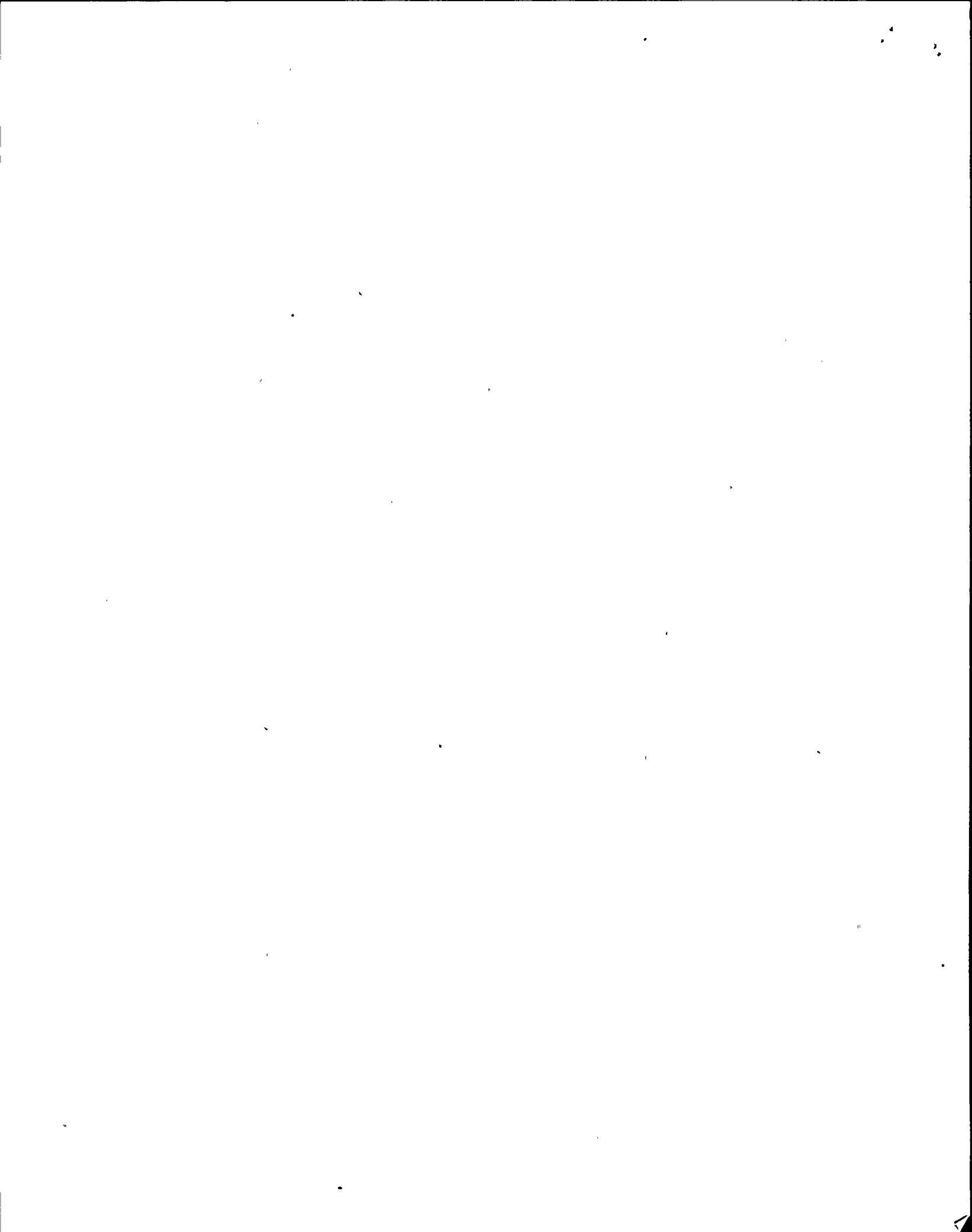
Window	Source	Automatic Response
1) CMS MANUALLY OUT OF SER	CMS MANUALLY OUT OF SERVICE Push-button depressed at P875	None

Corrective Action

a. Restore switch to the undepressed position, as required at P875.

Window	Source	Automatic Response
2) H2/02 ANAL PMP CMS*P2B	Hydrogen/Oxygen Analyzer Pump P2B, 2CMS*P2B, Loss of power. as sensed by 74-2CMSB07	Hydrogen/Oxygen Analyzer Pump 2B, 2CMS*P2B trips.

Corrective Action

a. Verify Hydrogen/Oxygen Analyzer Pump 2B, 2CMS*P2B, power supply lined up per Table II, control power fuses installed/not blown.

b. Verify power available to 2EHS*MCC302.

Window	Source	Automatic Response
3) H2/02 ANAL INLET VLV CMS*SOV64B	H2/02 Analyzer Inlet Valve, 2CMS*SOV64B, loss of power or control power, or valve shut as sensed by 74-18-2CMSB03.	2CMS*SOV64B fails shut on power loss

Corrective Action

a. Verify power available to 2SCM*PNL302B and breaker 5 shut.

b. Verify fuse F19-2CMSB03 installed/not blown at P861.

Window	Source	Automatic Response
4) H2/02 ANAL OUTLET VLV CMS*SOV65B	H2/02 Analyzer Outlet Valve, 2CMS*SOV65B, loss of power of control power, or valve shut as sensed by 74-17-2CMSB03	2CMS*SOV65B fails shut on power loss
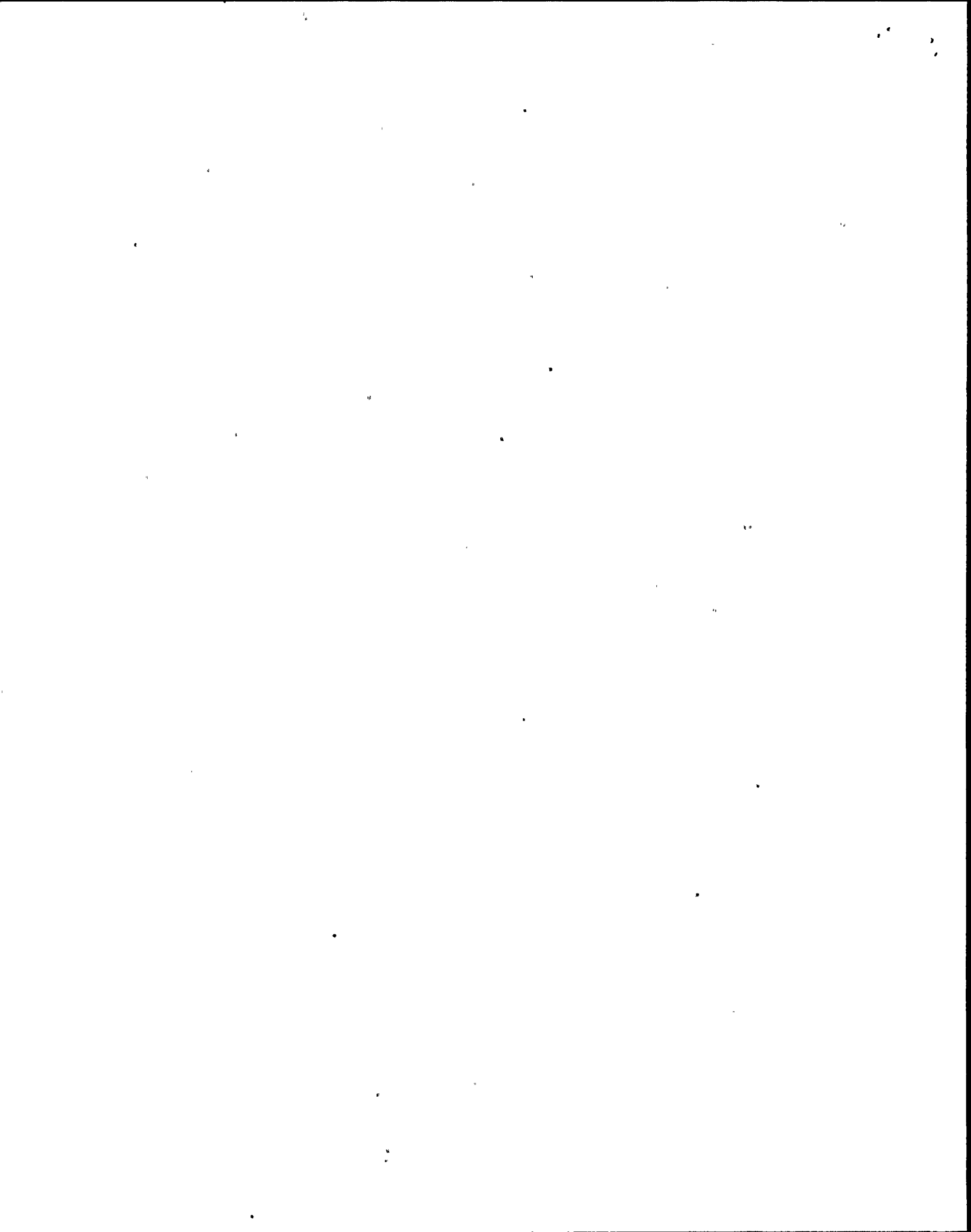
Corrective Action

a. Verify power available to 2SCM*PNL302B and breaker 5 shut.

b. Verify fuse F18 installed/not blown at P861.

Window	Source	Automatic Response
5) DW SMPL VLV CMS*SOV23B	DW Sample Valve, 2CMS*SOV23B, loss of power or control power, as sensed by 74-3-2CMSB03.	CMS*SOV23B fails shut

Corrective Action

a. Verify power available to 2SCM*PNL302B and breaker 5 shut.

b. Verify fuse F4-2CMSB03 installed/not blown at P861.

Window	Source	Automatic Response
6) DW SMPL VLV CMS*SOV23D	DW Sample Valve, 2CMS*SOV23D, loss of power or control power, as sensed by 74-4-2CMSB03.	2CMS*SOV23D fails shut

Corrective Action

a. Verify power available to 2SCM*PNL302B and breaker 5 shut.

b. Verify fuse F5-2CMSB03 installed/not blown at P861.

Window	Source	Automatic Response
7) DW SMPL VLV CMS*SOV23F	DW Sample Valve, 2CMS*SOV23F, loss of power or control power, as sensed by 74-5-2CMSB03.	2CMS*SOV23F fails shut

Corrective Action

a. Verify power available to 2SCM*PNL302B and breaker 5 shut.

b. Verify fuse F6-2CMSB03 installed/not blown at P861.

Window	Source	Automatic Response
8) SMPL FR DW INBD IV CMS*SOV24B	Sample From DW Inbd IV, 2CMS*SOV24B, loss of power or control power as sensed by 74-6-2CMSB03.	2CMS*SOV24B fails shut

Corrective Action

a. Verify power available to 2SCM*PNL302B and breaker 5 shut.

b. Verify fuse F7-2CMSB03 installed/not blown at P861.

Window	Source	Automatic Response
9) SMPL FR DW OUTBD IV CMS*SOV24D	Sample From DW Outbd IV, 2CMS*SOV24D, loss of power or control power, as sensed by 74-7-2CMSB03.	2CMS*SOV24D fails shut

Corrective Action

a. Verify power available to 2SCM*PNL302B and breaker 5 shut.

b. Verify fuse F8-2CMSB03 installed/not blown at P861.

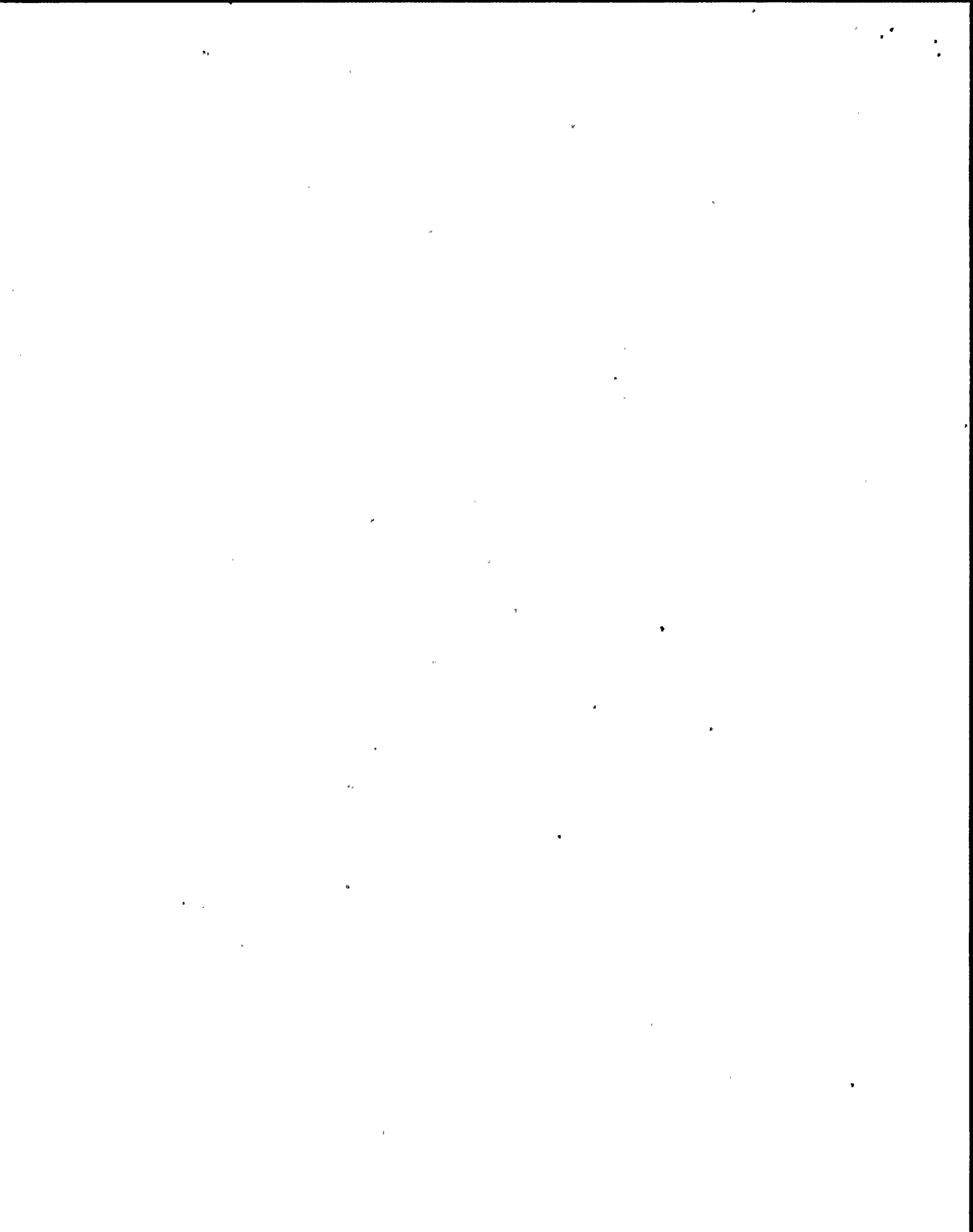| Window	Source	Automatic Response
10) SUPP CHM SMPL VLV CMS*SOV25B	Supp Cham Sample Valve, 2CMS*SOV25B, loss of power or control power, as sensed by 74-9-2CMSB03.	2CMS*SOV25B fails shut

Corrective Action

a. Verify power available to 2SCM*PNL302B and breaker 5 shut.

b. Verify fuse F10-2CMSB03 installed/not blown at P861.

Window	Source	Automatic Response
11) SUPP CHM SMPL VLV CMS*SOV25D	Supp Cham Sample Valve, 2CMS*SOV25D, loss of power or control power, as sensed by 74-10-2CMSB03.	2CMS*SOV25D fails shut

Corrective Action

a. Verify power available to 2SCM*PNL302B and breaker 5 shut.

b. Verify fuse F11-2CMSB03 installed/not blown at P861.

Window	Source	Automatic Response
12) SMPL FR SUPP CHM INBD IV CMS*SOV26B	Sample From Supp Cham Inbd IV, 2CMS*SOV26B, loss of power or control power as sensed by 74-11-2CMSB03.	2CMS*SOV26B fails shut

Corrective Action

a. Verify power available to 2SCM*PNL302B and breaker 5 shut.

b. Verify fuse F12-2CMSB03 installed/not blown at P861.

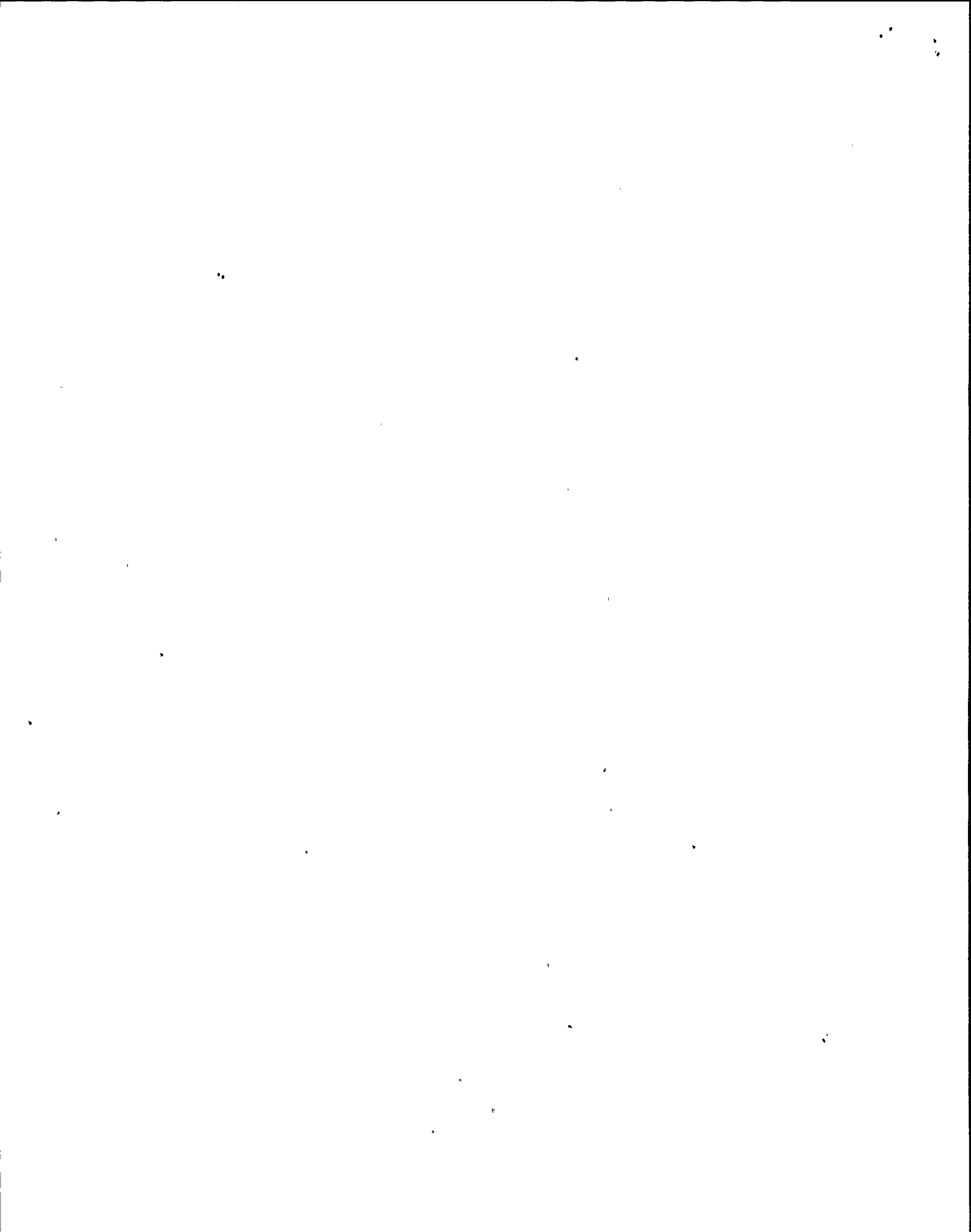| Window	Source	Automatic Response
13) SMPL FR SUPP CHM OUTBD IV CMS*SOV26D	Sample From Supp Cham Outbd 2CMS*SOV26D, loss of power or control power as sensed by 74-12-2CMSB03.	2CMS*SOV26D fails shut

Corrective Action

a. Verify power available to 2SCM*PNL302B and breaker 5 shut.

b. Verify fuse f1302CMSB03 installed/not blown at P861.

Window		Source	Automatic Response
14)	DW SMPL RTN OUTBD IV CMS*SOV32B	DW Sample Return Outbd IV, 2CMS*SOV32B, loss of power or control power, as sensed by 74-13-2CMSB03.	2CMS*SOV32B fails shut

Corrective Action

a.   Verify power available to 2SCM*PNL302B and breaker 5 shut.

b.   Verify fuse F14-2CMSB03 installed/not blown at P861.

Window		Source	Automatic Response
15)	DW SMPL RTN INBD IV CMS*SOV33B	DW Sample Return Inbd IV, 2CMS*SOV33B, loss of power or control power as sensed by 74-14-2CMSB03.	2CMS*SOV33B fails shut

Corrective Action

a.   Verify power available to 2SCM*PNL302B and 5 shut.

b.   Verify fuse F15-2CMSB03 installed/not blown at P861.

Window		Source	Automatic Response
16)	SUPP CHM RTN INBD IV CMS*SOV34B	Supp Cham Return Inbd IV, 2CMS*SOV34B, loss of power or control power as sensed by 74-15-2CMSB03.	2CMS*SOV34B fails shut

Corrective Action

a.   Verify power available to 2CMS*PNL302B and breaker 5 shut.

b.   Verify fuse F16-2CMSB03 installed/not blown at P861.

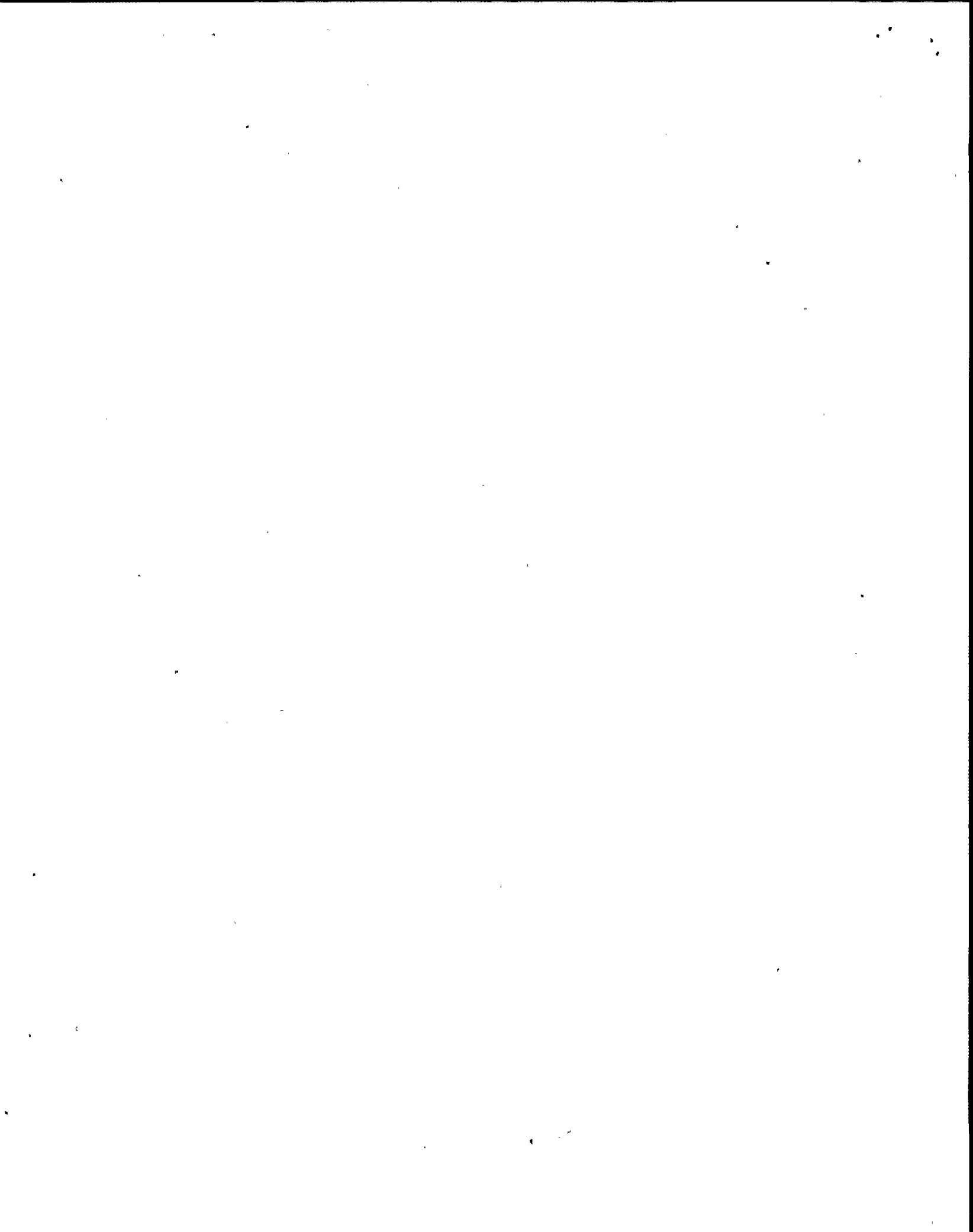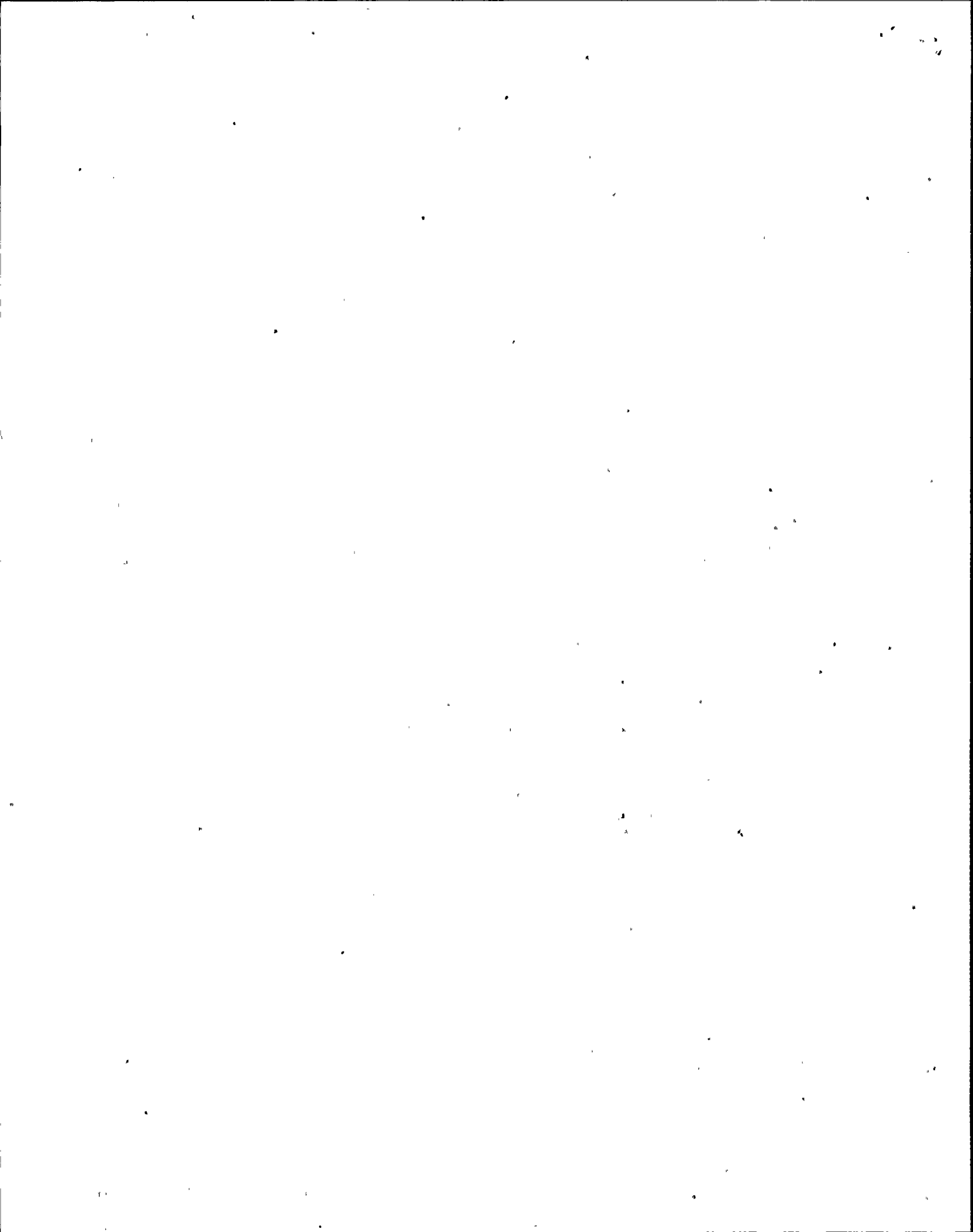| Window	Source	Automatic Response
17) SUPP CHM RTN OUTBD IV CMS*SOV35B	Supp Cham Return Outbd IV, 2CMS*SOV35B, loss of power or control power as sensed by 74-16-2CMSB03.	2CMS*SOV35B fails shut

Corrective Action

a. Verify power available to 2SCM*PNL302B and breaker 5 shut.

b. Verify fuse F17-2CMSB03 installed/not blown at P861.

I. <u>PROCEDURES FOR CORRECTING ALARM CONDITIONS</u> (cont.)

7.0 <u>875102</u> Division II Containment Atmosphere Monitoring
Hydrogen/Oxygen Analyzer P2B Motor Overload

<u>Reflash: No</u> |TCN-1 3

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┌─────────────────────────────┐
│                             │
│      DIVISION II            │
│      CNMT ATM MON           │
│      H2/O2 ANL P2B          │
│      MOT OVERLOAD           │
│                             │
│                    875102   │
└─────────────────────────────┘
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875102

7.1 <u>Computer Point</u>   <u>Computer Printout</u>   <u>Source</u>

a.   CMSTC28   H2/O2 ANAL PUMP   Hydrogen/Oxygen Analyzer |*2
                    P2B MOT   Pump 2B, 2CMS*P2B, motor
                                         overload. As sensed by
                                         49X-2CMSB07.

7.2 <u>Automatic Response</u>

a.   Hydrogen/Oxygen Analyzer Pump 2B, 2CMS*P2B, trips.

7.3 <u>Corrective Action</u>

a.   Refer to Technical Specifications 3.3.7.5
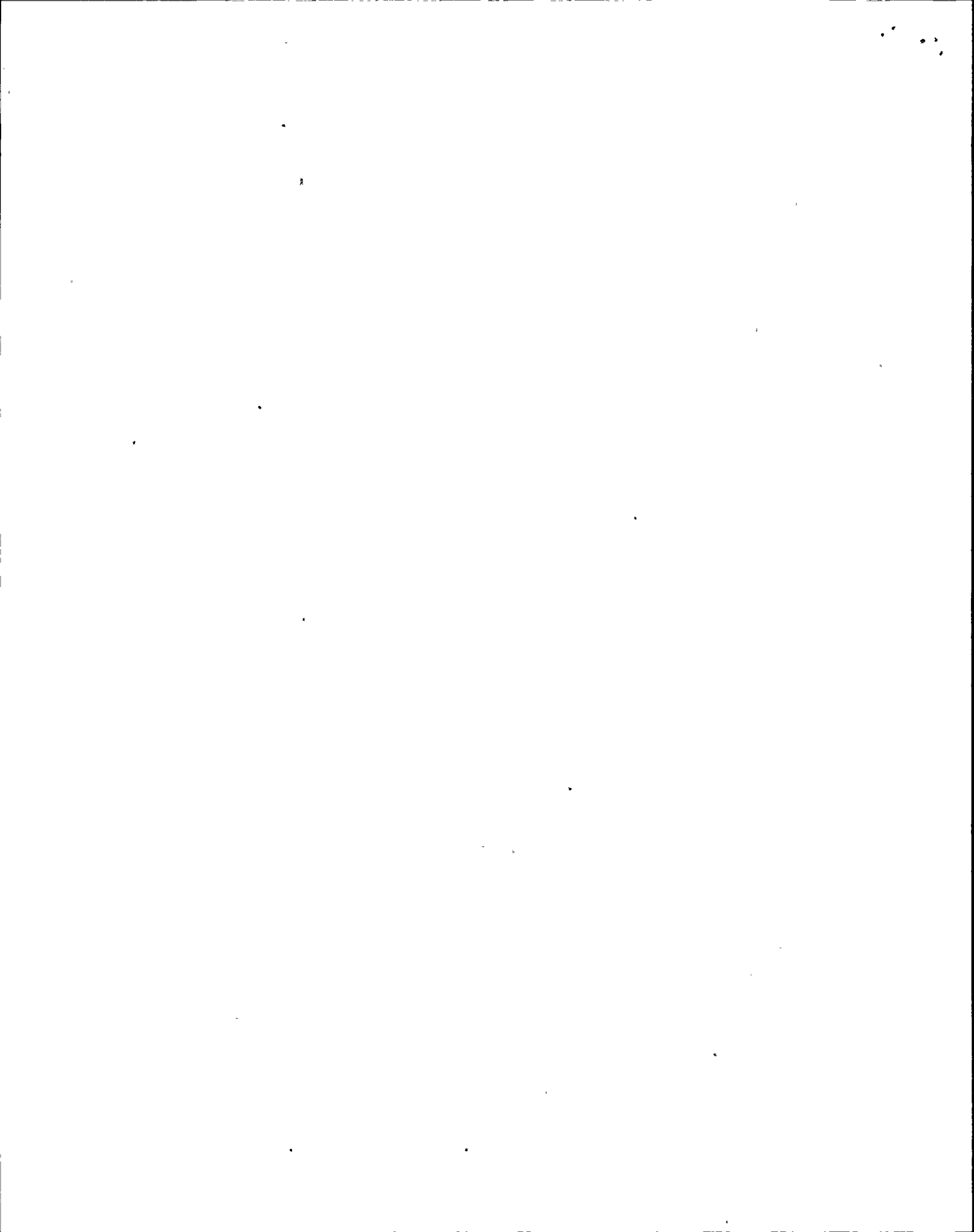
I. <u>PROCEDURES FOR CORRECTING ALARM CONDITIONS</u> (cont.)

8.0   <u>875103</u>   Division II Containment Atmosphere Monitoring
Loss of Coolant Accident Override

<u>Reflash: No</u>

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┌─────────────────────────┐
│                         │
│                         │
│   DIVISION II           │
│   CONTAINMENT           │
│   ATMOS MONITOR         │
│   LOCA OVERRIDE         │
│                         │
│                         │
│                 875103  │
└─────────────────────────┘
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875103
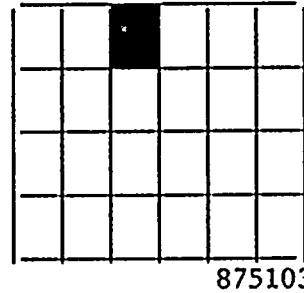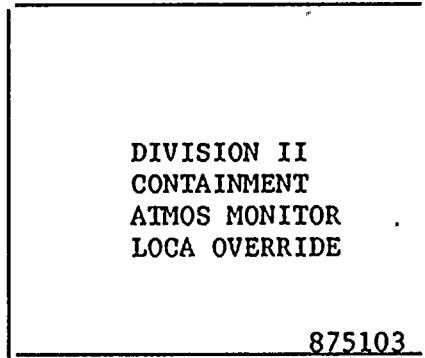
8.1   <u>Computer Point</u>   <u>Computer Printout</u>   <u>Source</u>

     a.   CMSBC04   DIV 2 CONTMT ATM   Containment Atm |*2
                   LOCA OR   Monitoring Isol Override
                                    keylock switch in "OVER-
                                    RIDE" at P875.

8.2   <u>Automatic Response</u>

     NONE

8.3   <u>Corrective Action</u>

     a.   Restore switch to "RESET" at P875.
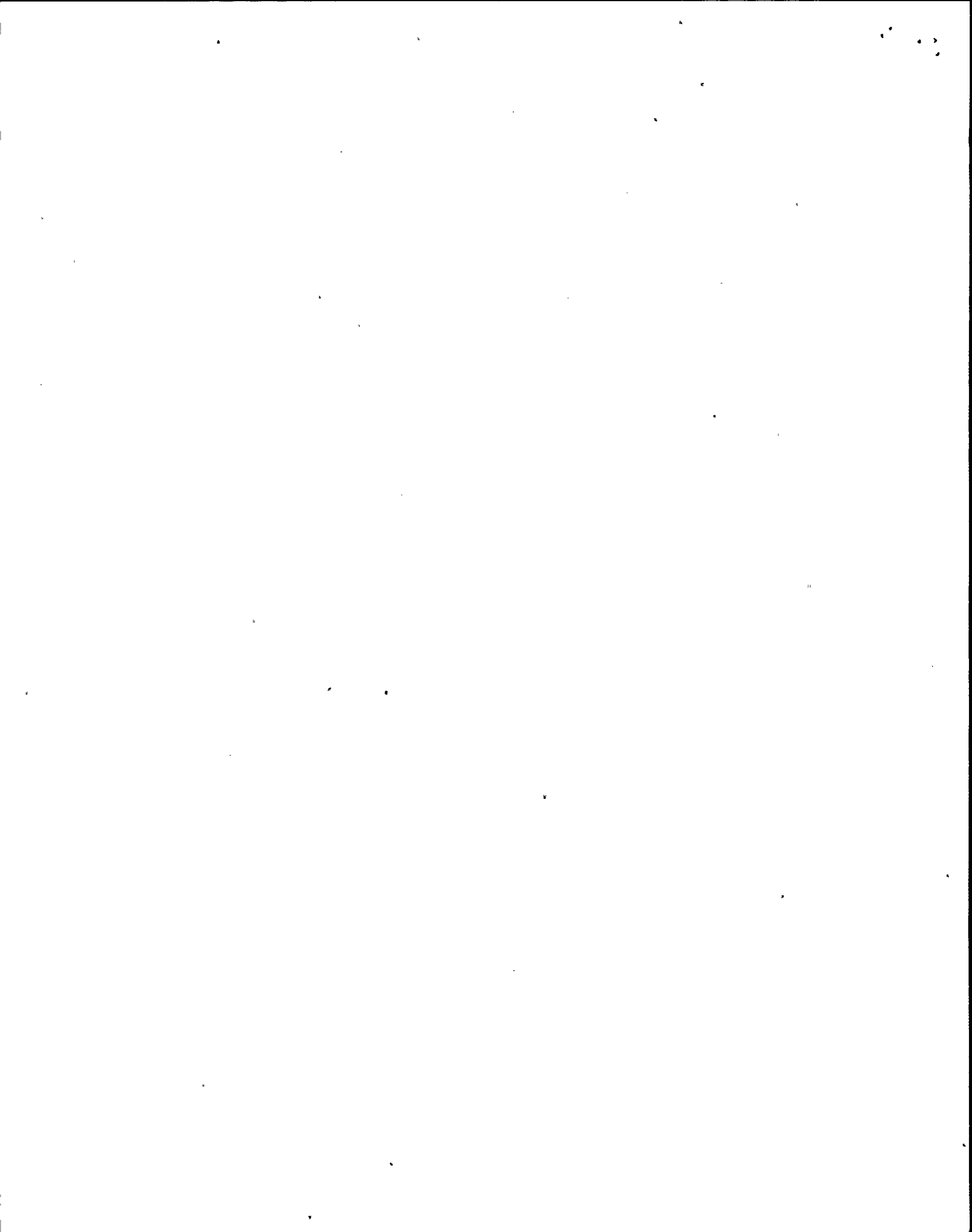
I. PROCEDURES FOR CORRECTING ALARM CONDITIONS (cont.)

9.0   875109   Division II Primary Containment Hydrogen/
                    Oxygen Concentration High

Reflash: Yes

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DIVISION II
PRIM CONTMT
H2/02 CONC
HIGH

                    875109
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875109

9.1   Computer Point   Computer Printout   Source

a. CMSAC02   D2 PRIMARY CNMT H2   Drywell or Suppression
                CONC B   Chamber Hydrogen
                                       Concentration greater
                                       than 1.8%. As
                                       sensed by hydrogen
                                       analyzer 2CMS*AIT6B

b. CMSAC04   D2 PRIMARY CNMT   Drywell or Suppression
                02 CONC   Chamber oxygen
                                       concentration greater
                                       than 3.47%. As | 16009
                                       sensed by oxygen
                                       analyzer 2CMS*AIT71B

9.2   Automatic Response

        NONE

9.3   Corrective Action

        a. Verify Oxygen/Hydrogen concentrations at 2CEC*PNL898.

        b. Refer to Technical Specifications 3.6.6.2, Drywell and
            Suppression Chamber Oxygen Concentration.

        c. Verify proper operation of Primary Containment Vent, Purge
            and Nitrogen System per N2-OP-61A.

        NOTE: Normal atmospheric oxygen content is approximately
                    21%. An uninerted containment will bring in this
                    annunciator.

        d. Refer to N2-OP-62 Section E.2.0 for post LOCA DBA HYDROGEN
            RECOMBINER operation, if required.

1. PROCEDURES FOR CORRECTING ALARM CONDITIONS (cont.)

10.0   875110   Division II Containment Atmosphere Monitoring
                              Drywell Pressure High

Reflash: No

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┌─────────────────────────────┐
│                             │
│   DIVISION II               │
│   CNMT AMT MON              │
│   DRYWELL PRESS            │
│   HIGH                      │
│                             │
│                   875110    │
└─────────────────────────────┘
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875110

10.1   Computer Point   Computer Printout   Source

         a.   CMSPC02   DIV 2 DRYWELL PRESS   Drywell pressure greater   *2
                                                  than 1.5 psig. As sensed
                                                  by 2CMS*PT1B

10.2   Automatic Response

         NONE

10.3   Corrective Action

         a.   Verify Drywell Absolute Pressure at P873.

         b.   Verify Containment Drywell Press B at P601.

         c.   Refer to Technical Specifications 3.6.1.5, Drywell and
              Suppression Chamber Internal Pressure.

         d.   Verify proper operation of Primary Containment Vent, Purge
              and Nitrogen System per N2-OP-61A

TABLE I

VALVE LINEUP

VALVE NO.	DESCRIPTION	REQUIRED POSITION	ACTUAL POSITION	INITIALS & DATE	REMARKS
2CMS*EFV10	CMS Inst Excess Flow Check	Open			P602
2CMS*EFV1A	CMS Inst Excess Flow Check	Open			P602
2CMS*EFV3A	CMS Inst Excess Flow Check	Open			P602
2CMS*EFV1B	CMS Inst Excess Flow Check	Open			P602
2CMS*EFV3B	CMS Inst Excess Flow Check	Open			P602
2CMS*EFV6	CMS Inst Excess Flow Check	Open			P602
2CMS*EFV5A	CMS Inst Excess Flow Check	Open			P602
2CMS*EFV8A	CMS Inst Excess Flow Check	Open			P602
2CMS*EFV9A	CMS Inst Excess Flow Check	Open			P602
2CMS*EFV5B	CMS Inst Excess Flow Check	Open			P602
2CMS*EFV8B	CMS Inst Excess Flow Check	Open			P602
2CMS*EFV9B	CMS Inst Excess Flow Check	Open			P602
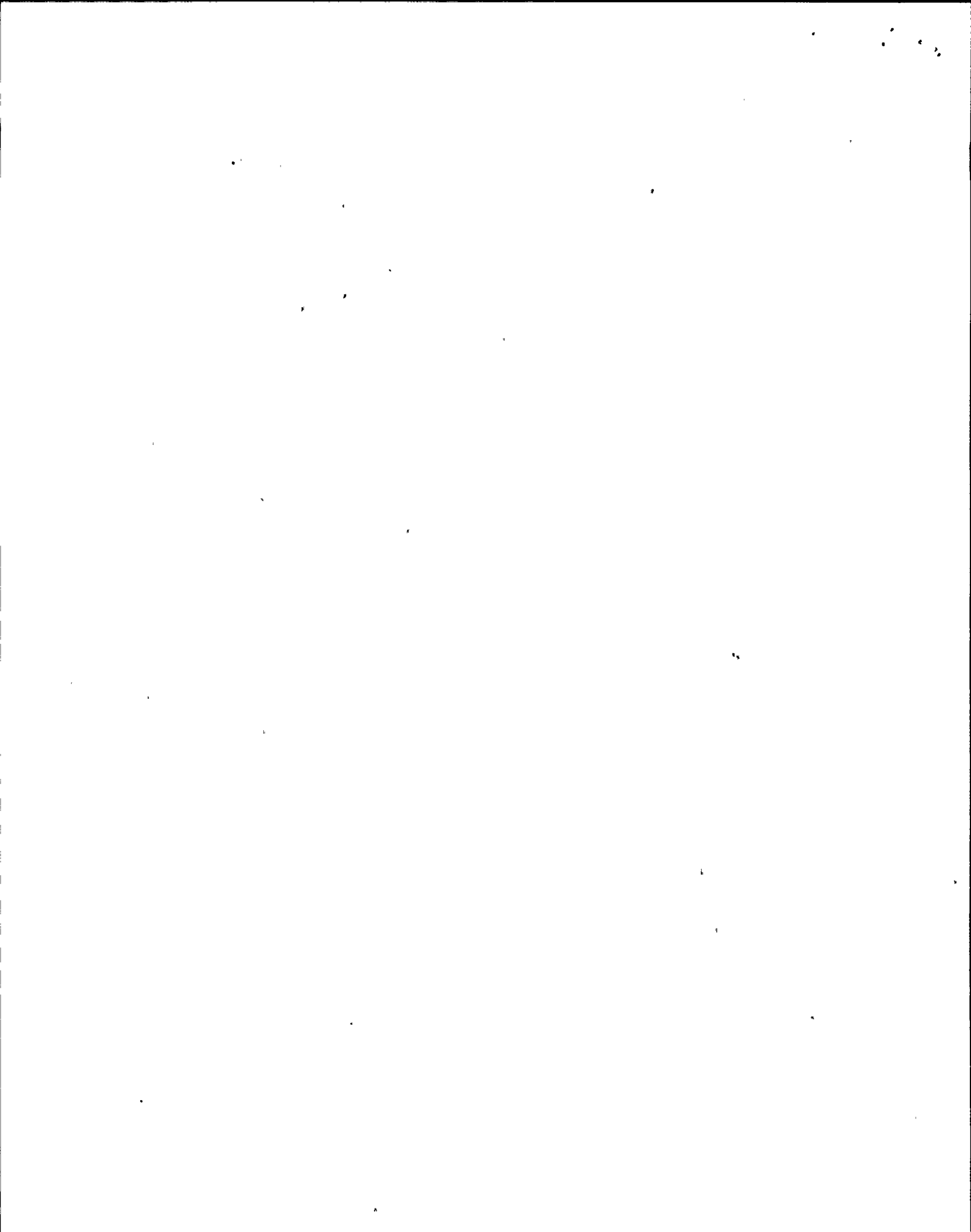
TABLE I

VALVE LINEUP

VALVE NO.	DESCRIPTION	REQUIRED POSITION	ACTUAL POSITION	INITIALS & DATE	REMARKS
2CMS*SOV60A	Sample From DW Outbd IV	Open			P873
2CMS*SOV61A	Sample From DW Inbd IV	Open			P875
2CMS*SOV62A	DW Sample Return Outbd IV	Open			P873
2CMS*SOV63A	DW Sample Return Inbd IV	Open			P875
2CMS*SOV23A	DW Sample Valve	Auto			P873
2CMS*SOV23C	DW Sample Valve	Auto			P873
2CMS*SOV23E	DW Sample Valve	Auto			P873
2CMS*SOV24A	Sample From DW Inbd IV	Open			P873
2CMS*SOV24C	Sample From DW Outbd IV	Open			P873
2CMS*SOV25A	Supp Pool Sample Valve	Auto			P873
2CMS*SOV25C	Supp Pool Sample Valve	Auto			P873
2CMS*SOV26A	Sample From Supp Cham Inbd IV	Open			P873
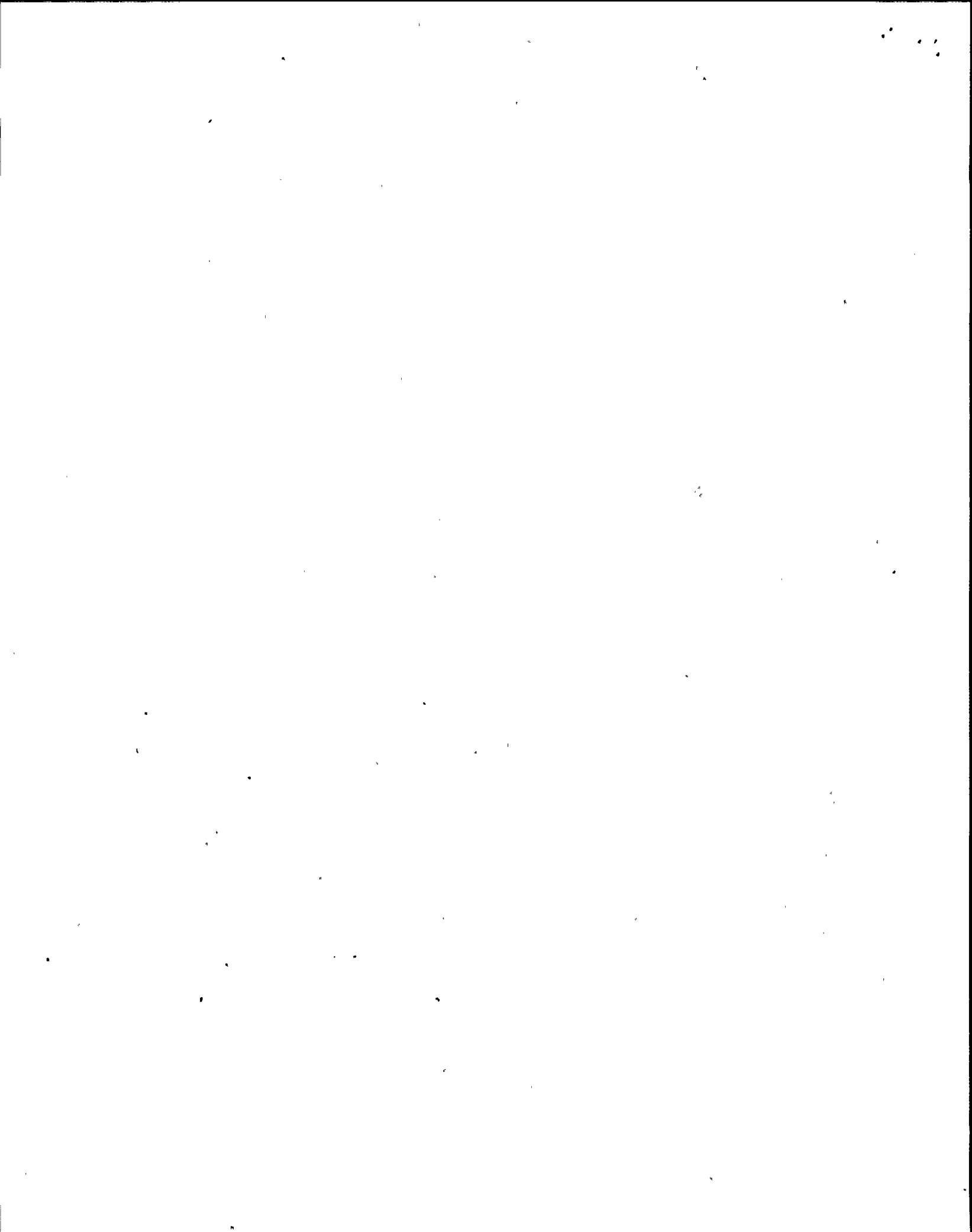
TABLE I

VALVE LINEUP

VALVE NO.	DESCRIPTION	REQUIRED POSITION	ACTUAL POSITION	INITIALS & DATE	REMARKS
2CMS*SOV26C	Sample From Supp Cham Outbd IV	Closed			P873
2CMS*SOV64A	H2/O2 Analyzer Inlet Valve	Auto			P873
2CMS*SOV65A	H2/O2 Analyzer Outlet Valve	Auto			P873
2CMS*SOV32A	DW Sample Return Outbd IV	Auto			P873
2CMS*SOV33A	DW Sample Return Inbd IV	Open			P873
2CMS*SOV35A	Supp Cham Sample Return Outbd IV	Auto			P873
2CMS*SOV34A	Supp Cham Sample Return Inbd IV	Open			P873
2CMS*SOV60B	Sample From DW Outbd IV	Open			P873
2CMS*SOV61B	Sample From DW Inbd IV	Open			P875
2CMS*SOV62B	DW Sample Return Outbd IV	Open			P873
2CMS*SOV63B	DW Sample Return Inbd IV	Open			P875
2CMS*SOV23B	DW Sample Valve	Auto			P875

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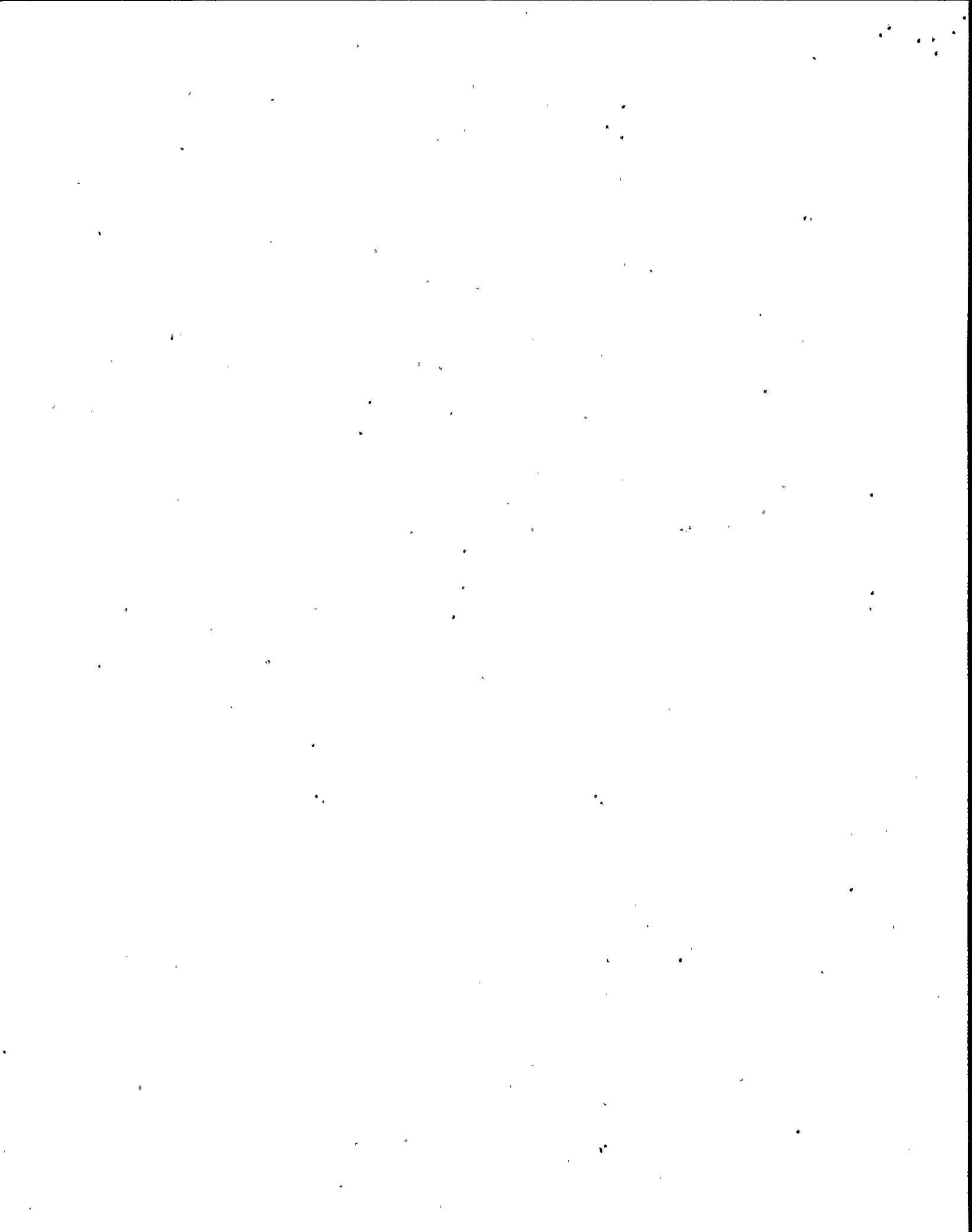
TABLE I

VALVE LINEUP

VALVE NO.	DESCRIPTION	REQUIRED POSITION	ACTUAL POSITION	INITIALS & DATE	REMARKS
2CMS*SOV23D	DW Sample Valve	Auto			P875
2CMS*SOV23F	DW Sample Valve	Auto			P875
2CMS*SOV24B	Sample From DW Inbd IV	Open			P875
2CMS*SOV24D	Sample From DW Outbd IV	Open			P875
2CMS*SOV25B	Supp Cham Sample Valve	Auto			P875
2CMS*SOV25D	Supp Cham Sample Valve	Auto			P875
2CMS*SOV26B	Sample From Supp Cham Inbd IV	Open			P875
2CMS*SOV26D	Sample From Supp Cham Outbd IV	Closed			P875
2CMS*SOV64B	H2/O2 Analyzer Inlet Valve	Auto			P875
2CMS*SOV65B	H2/O2 Analyzer Outlet Valve	Auto			P875
2CMS*SOV32B	DW Sample Return Outbd IV	Auto			P875
2CMS*SOV33B	DW Sample Return Inbd IV	Open			P875

⌐TCN 19
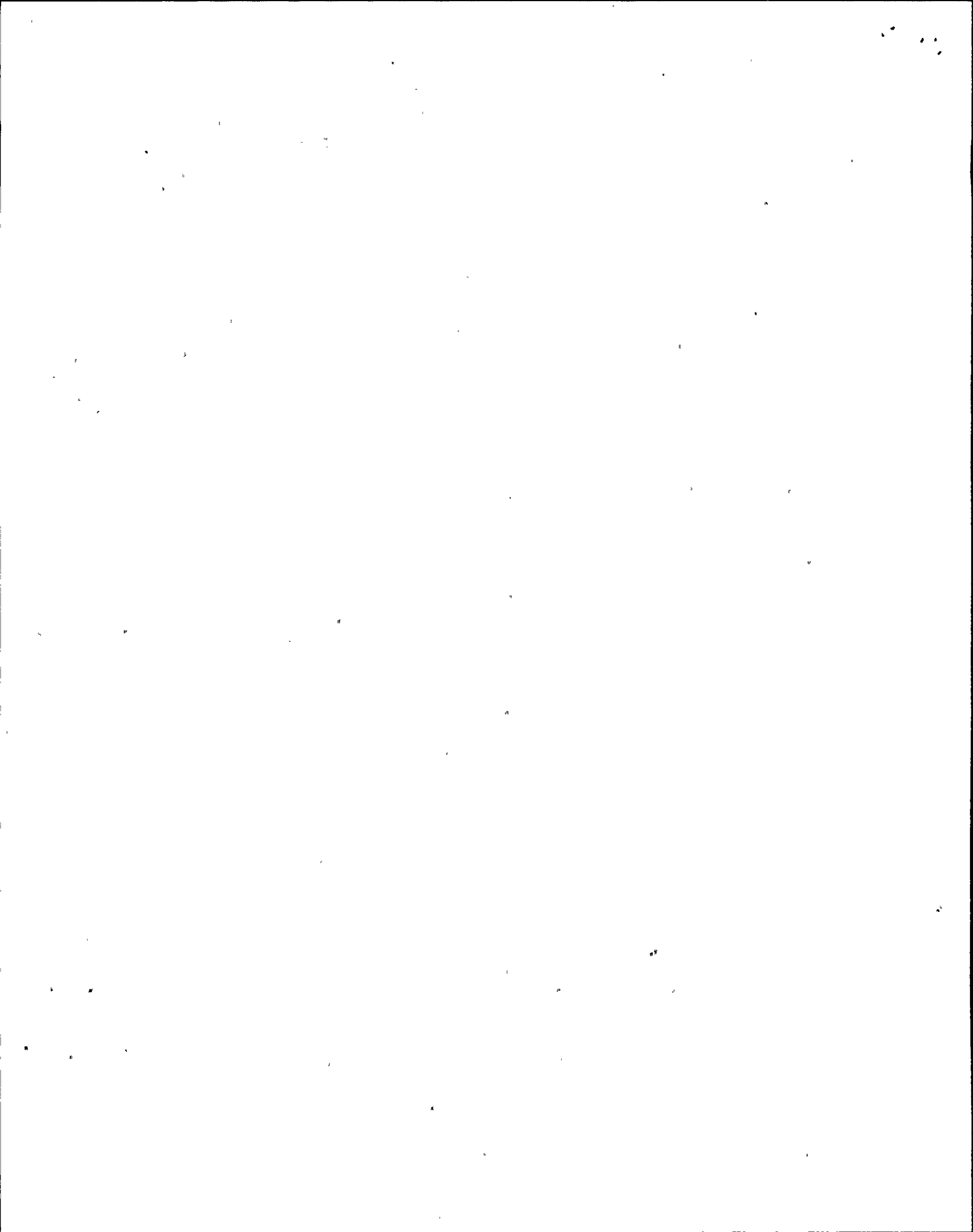
TABLE I

VALVE LINEUP

VALVE NO.	DESCRIPTION	REQUIRED POSITION	ACTUAL POSITION	INITIALS & DATE	REMARKS
2CMS*SOV35B	Supp Cham Return Outbd IV	Auto			P875
2CMS*SOV34B	Supp Cham Return Inbd IV	Open			P875
2CMS*SOV74A	Contmt Atm Monitoring PAS Suction Isol	Shut			2CES*PNL554
2CMS*SOV75A	Contmt Atm Monitoring PAS Return Isol	Shut			2CES*PNL554
2CMS*SOV76A	Contmt Atm Monitoring PAS Suction Isol	Shut			2CES*PNL554
2CMS*SOV77A	Contmt Atm Monitoring PAS Return Isol	Shut			2CES*PNL554
2CMS*SOV74B	Contmt Atm Monitoring PAS Suction Isol	Shut			2CES*PNL554
2CMS*SOV75B	Contmt Atm Monitoring PAS Return Isol	Shut			2CES*PNL554
2CMS*SOV76B	Contmt Atm Monitoring PAS Suction Isol	Shut			2CES*PNL554
2CMS*SOV77B	Contmt Atm Monitoring PAS Return Isol	Shut			2CES*PNL554
2CMS*V1	PI/PS 173 Inst Root Isol	Open			
2CMS*V2A	PI1A Inst Root Isol	Open			
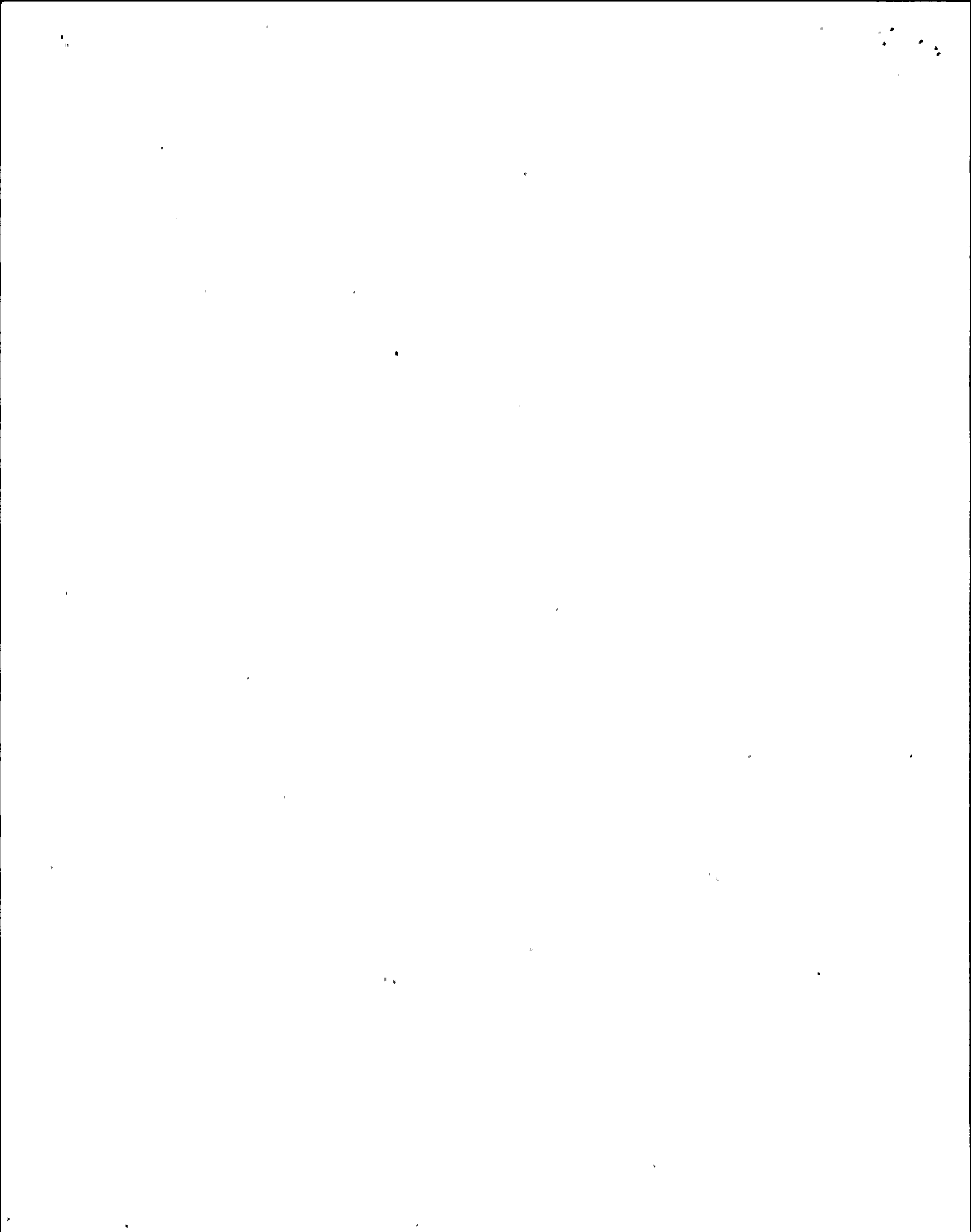
TABLE I

VALVE LINEUP

VALVE NO.	DESCRIPTION	REQUIRED POSITION	ACTUAL POSITION	INITIALS & DATE	REMARKS
2CMS*V70	V1 ILRT Test Conn	Shut			
2CMS*V71	V1 ILRT Test Conn	Shut and Capped			
2CMS*V72A	V2 ILRT Test Conn	Shut			
2CMS*V73A	V2A ILRT Test Conn	Shut and Capped			
2CMS*V40A	Test Conn Upstream Of SOV60A	Shut and Plugged			
2CMS*V62A	Test Conn Downstream Of SOV60A	Shut and Plugged			
2CMS*V60A	RE10A Inlet Isol	Open			
2CMS*V61A	RE10A Outlet Isol	Open			
2CMS*V63A	Test Conn Upstream Of SOV62A	Shut and Plugged			
2CMS*V44A	Test Conn Downstream Of SOV62A	Shut and Plugged			
2CMS*V82	Train A Inboard Suction Manual Isol	Open			
2CMS*V86	Train A Inboard Test Conn	Shut			
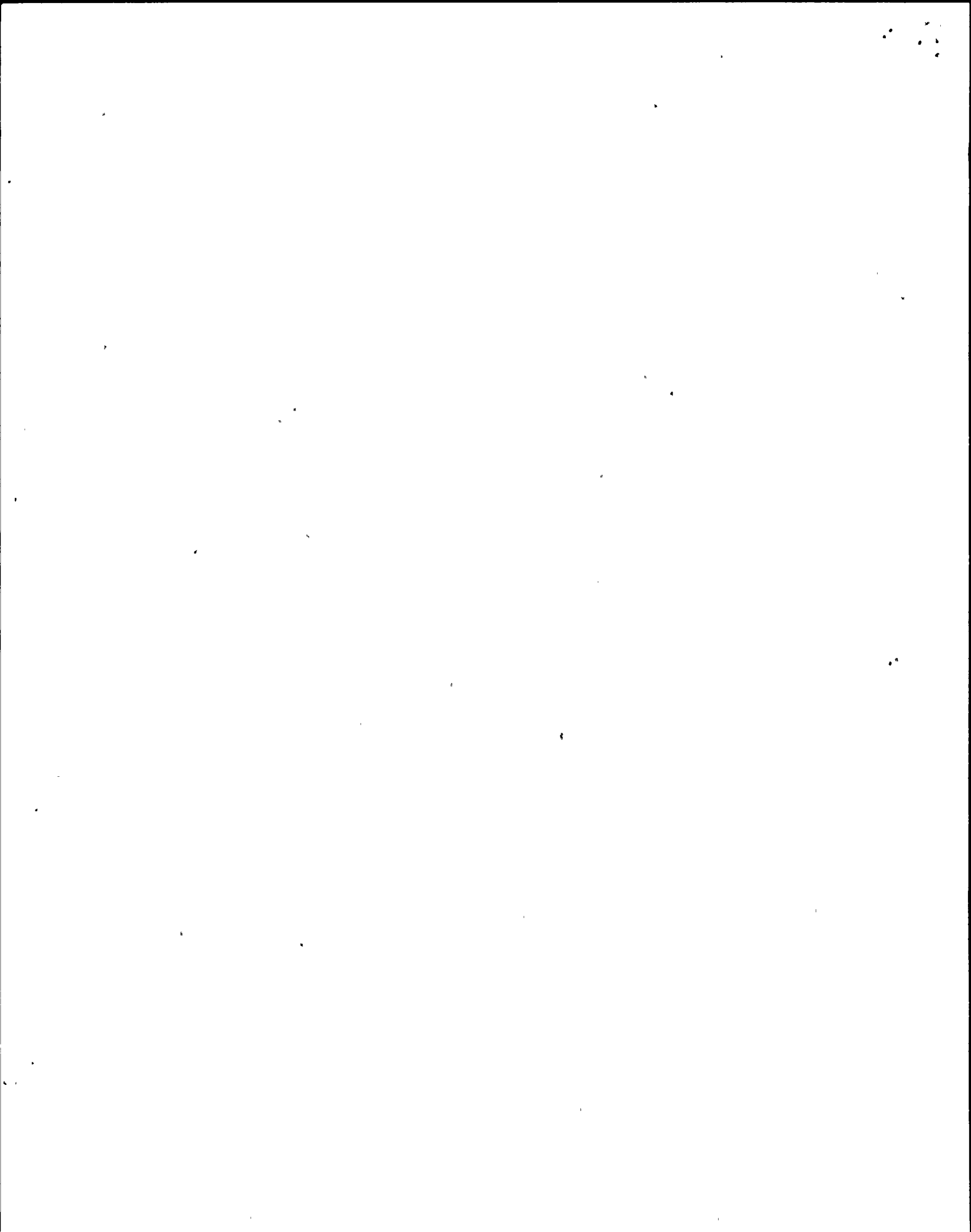
TABLE I

VALVE LINEUP

VALVE NO.	DESCRIPTION	REQUIRED POSITION	ACTUAL POSITION	INITIALS & DATE	REMARKS
2CMS*V87	Train A Inboard Test Conn	Shut and Plugged			
2CMS*V42A	Test Conn Upstream Of SOV24C	Shut and Plugged			
2CMS*V64A	Test Conn Downstream Of SOV24C	Shut and Plugged			
2CMS*V65A	Test Conn Upstream Of SOV32A	Shut and Plugged			
2CMS*V46A	Test Conn Downstream Of SOV32A	Shut and Plugged			
2CMS*V4A	PT2A Inst Root Isol	Open			
2CMS*V74A	V4A ILRT Test Conn	Shut			
2CMS*V75A	V4A ILRT Test Conn	Shut and Capped			
2CMS*V2B	PT1B Inst Root Isol	Open			
2CMS*V72B	V2B ILRT Test Conn	Shut			
2CMS*V73B	V2B ILRT Test Conn	Shut and Capped			
2CMS*V40B	Test Conn Upstream Of SOV60B	Shut and Plugged			
2CMS*V62B	Test Conn Downstream Of SOV60B	Shut and Capped			
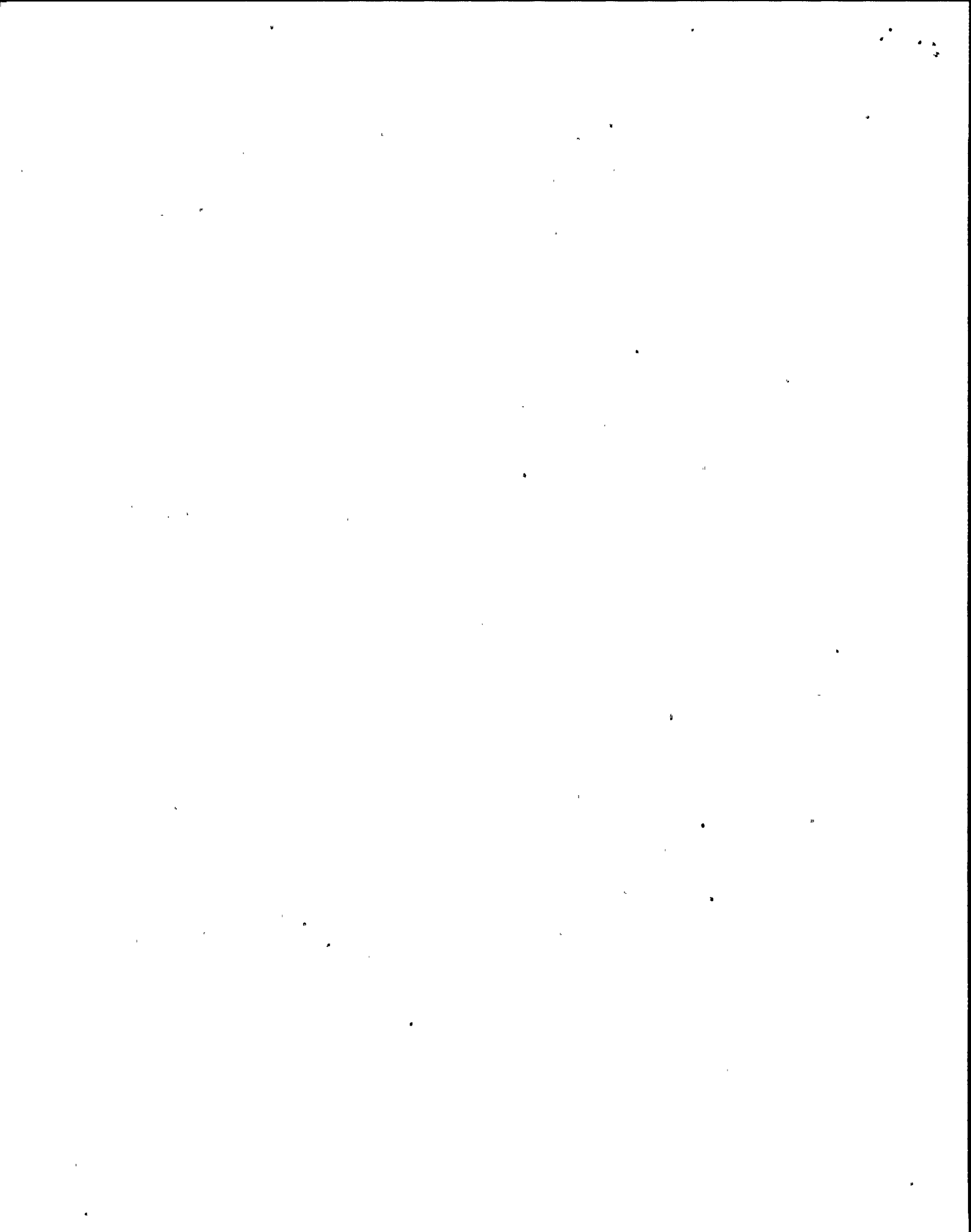
TABLE I

VALVE LINEUP

VALVE NO.	DESCRIPTION	REQUIRED POSITION	ACTUAL POSITION	INITIALS & DATE	REMARKS
2CMS*V60B	RE10B Inlet Isol	Open			
2CMS*V61B	RE10B Outlet Isol	Open			
2CMS*V63B	Test Conn Upstream Of SOV62B	Shut and Plugged			
2CMS*V44B	Test Conn Downstream Of SOV62B	Shut and Plugged			
2CMS*V83	Train B Inboard Suction Manual Isol	Open			
2CMS*V88	Train B Inboard Test Conn	Shut and Plugged			
2CMS*V89	Train B Inboard Test Conn	Shut			
2CMS*V42B	Test Conn Upstream Of SOV24D	Shut and Plugged			
2CMS*V64B	Test Conn Downstream Of SOV24D	Shut and Plugged			
2CMS*V65B	Test Conn Upstream Of SOV32B	Shut and Plugged			
2CMS*V46B	Test Conn Downstream Of SOV32B	Shut and Plugged			
2CMS*V74B	V4B ILRT Test Conn	Shut			
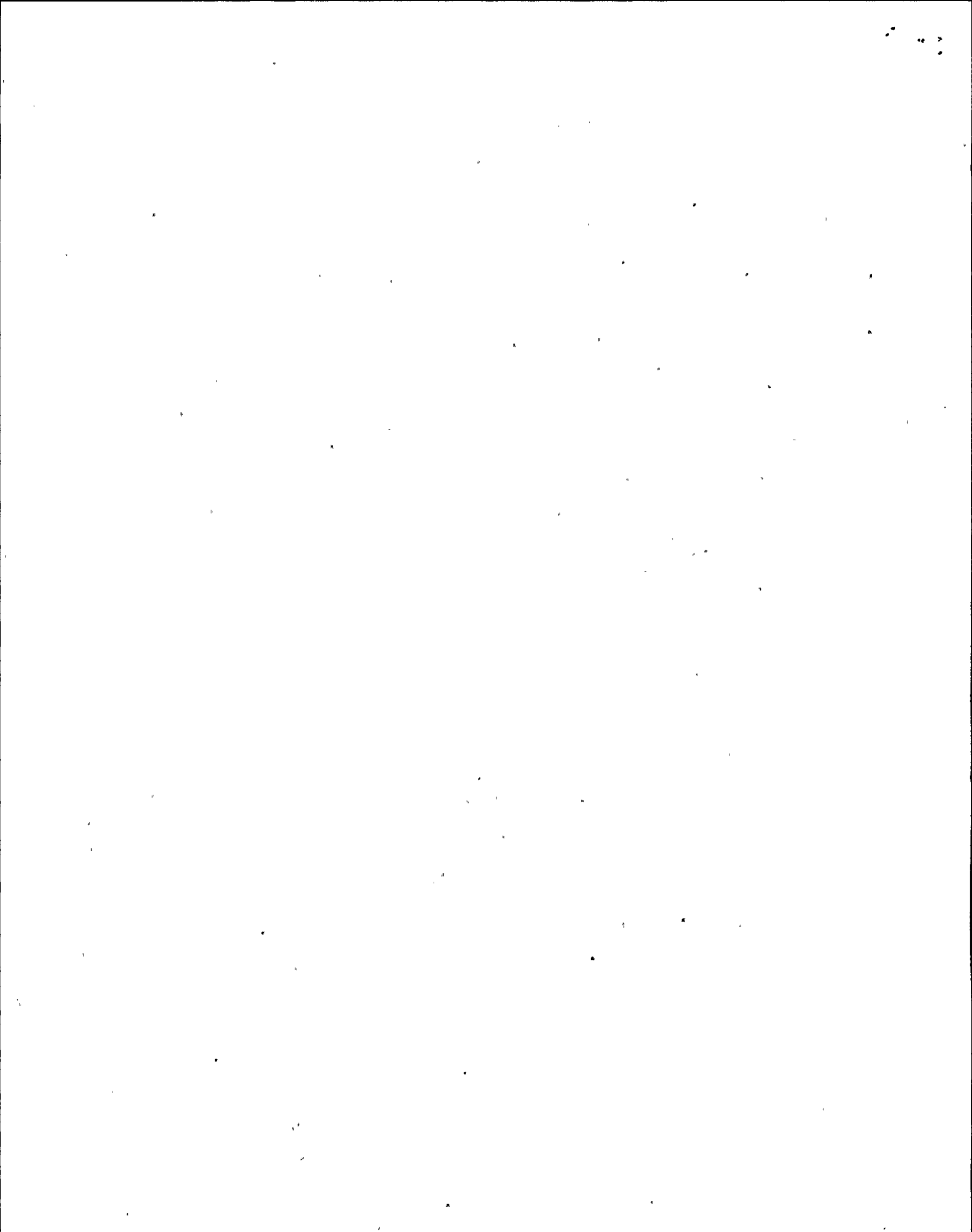
TABLE I

VALVE LINEUP

VALVE NO.	DESCRIPTION	REQUIRED POSITION	ACTUAL POSITION	INITIALS & DATE	REMARKS
2CMS*V75B	V4B ILRT Test Conn	Shut and Capped			
2CMS*V4B	PT2B Inst Root Isol	Open			
2CMS*V11	PT168 Inst Root Isol	Open			
2CMS*V6A	PT7A Inst Root Isol	Open			
2CMS*V68	V11 ILRT Test Conn	Shut			
2CMS*V69	V11 ILRT Test Conn	Shut and Plugged			
2CMS*V76A	V6A ILRT Test Conn	Shut			
2CMS*V77A	V6A ILRT Test Conn	Shut and Plugged			
2CMS*V7A	LT9A/11A/114 Inst Root Isol	Open			
2CMS*V78A	V7A ILRT Test Conn	Shut			
2CMS*V79A	V7A ILRT Test Conn	Shut and Plugged			
2CMS*V84	Train A Inboard Suction Manual Isol	Open			
2CMS*V90	Inboard Test Conn	Shut			
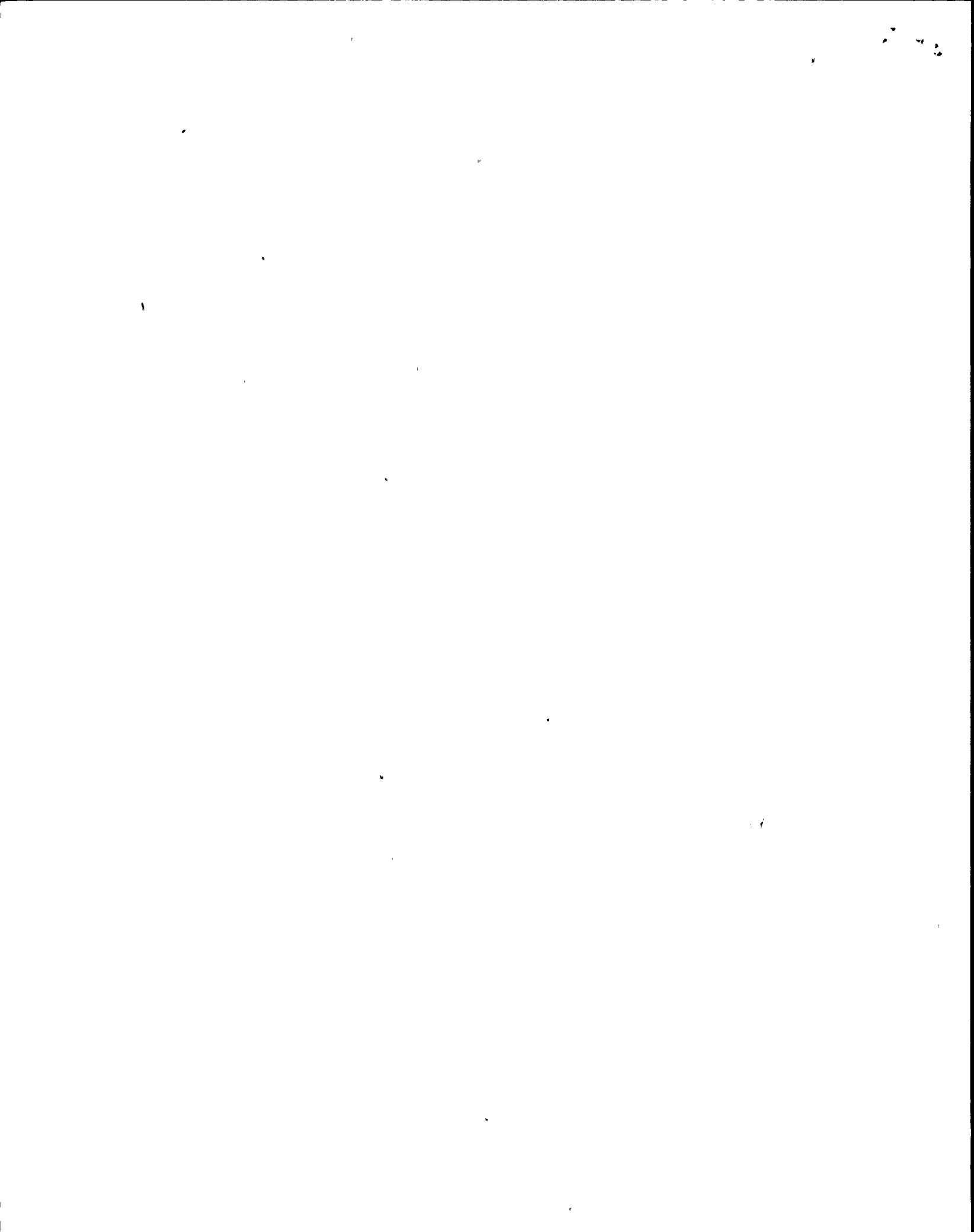
TABLE I

VALVE LINEUP

VALVE NO.	DESCRIPTION	REQUIRED POSITION	ACTUAL POSITION	INITIALS & DATE	REMARKS
2CMS*V91	Outboard Test Conn	Shut			
2CMS*V50A	Test Conn Downstream Of SOV35A	Shut and Plugged			
2CMS*V51A	Test Conn Upstream Of SOV35A	Shut and Capped			
2CMS*V10A	LT9A/11A/114 Inst Root Isol	Open			
2CMS*V80A	V10A ILRT Test Conn	Shut			
2CMS*V81A	V10A ILRT Test Conn	Shut. and Plugged			
2CMS*V48A	Test Conn Upstream Of SOV26C	Shut and Plugged			
2CMS*V49A	Test Conn Downstream Of SOV26C	Shut and Plugged			
2CMS*V6B	PT7B Inst Root Isol	Open			
2CMS*V76B	V6B ILRT Test Conn	Shut			
2CMS*V77B	V6B ILRT Test Conn	Shut and Capped			
2CMS*V7B	LT9B/11B/105 Inst Root Isol	Open			
2CMS*V78B	V7B ILRT Test Conn	Shut			

|TCN- 1
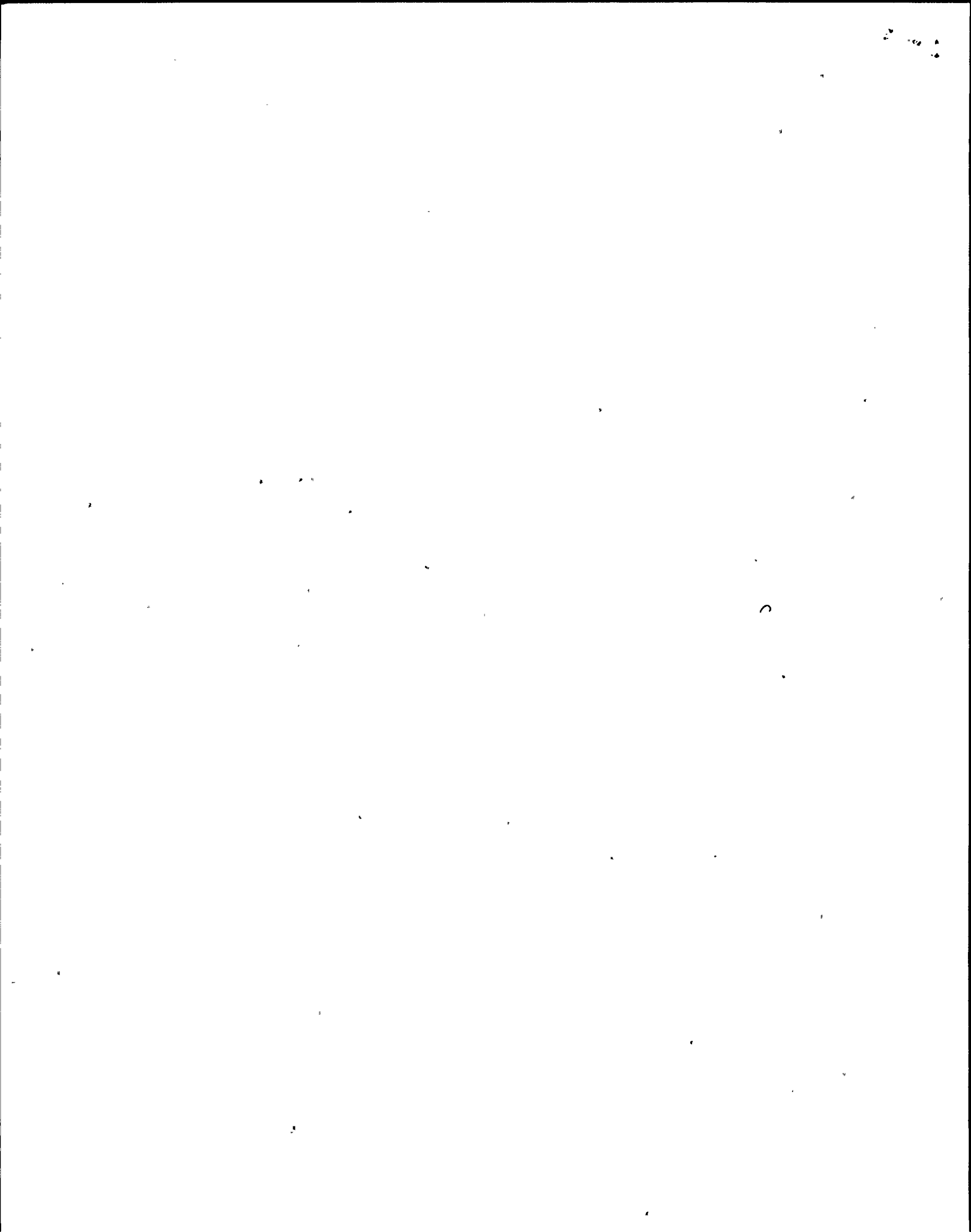
TABLE I

VALVE LINEUP

VALVE NO.	DESCRIPTION	REQUIRED POSITION	ACTUAL POSITION	INITIALS & DATE	REMARKS
2CMS*V79B	V7B ILRT Test Conn	Shut and Plugged			
2CMS*V48B	Test Conn Upstream Of SOV26D	Shut and Plugged			
2CMS*V49B	Test Conn Downstream Of SOV26D	Shut and Plugged			
2CMS*V85	Train B Inboard Suction Manual Isol	Open			
2CMS*V93	Inboard Test Conn	Shut			
2CMS*V50B	Test Conn Downstream Of SOV35B	Shut and Plugged			
2CMS*V51B	Test Conn Upstream Of SOV35B	Shut and Plugged			
2CMS*V10B	LT9B/11B/105 Inst Root Isol	Open			
2CMS*V80B	V10B ILRT Test Conn	Shut			
2CMS*V81B	V10B ILRT Test Conn	Shut and Plugged			
2CMS*V92	Inboard Test Conn	Shut			
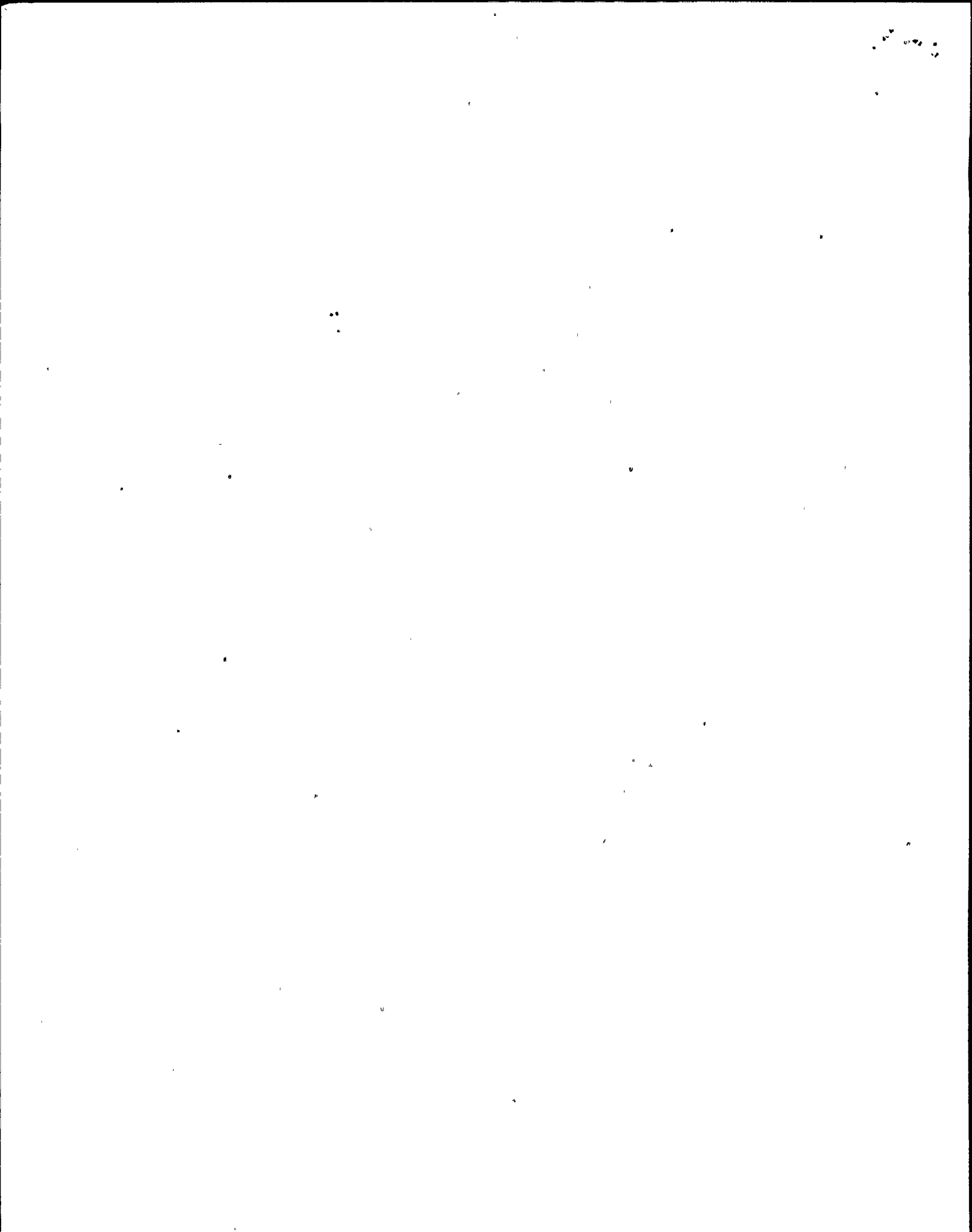
TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	– Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2CMS*MIT 72A thru D	Dewpoint Monitor	2SCA-PNL201	42	OFF			
2CMS*MIT 72E, F	Dewpoint Monitor	2SCA-PNL406	16	OFF			
2CMS*P2A	Hydrogen/Oxygen Analyzer Pump P2A	2EHS*MCC102A	9D	On			
2CMS*P2B	Hydrogen/Oxygen Analyzer Pump P2B	2EHS*MCC302	9A	On			
2CMS*AIT6A/71A	Hydrogen/Oxygen Analyzer A	2SCV*PNL101A	8	On			
2CMS*AIT6B/71B	Hydrogen/Oxygen Analyzer B	2SCV*PNL301B	4	On			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	— Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
—	Analyzer A Control Circuitry	2CMS*PNL66A	1	On			
—	Analyzer B Control Circuitry	2CMS*PNL66B	1	On			
2CMSA02	Division I CMS Cycle Timer	2SCM*PNL102A	7	On			
2CMSB02	Division II CMS Cycle Timer	2SCM*PNL302B	6	On			
2CMSA03	Division I CMS Solenoid Valves	2SCM*PNL102A	8	On			
2CMSB03	Division II CMS Solenoid Valves	2SCM*PNL302B	5	On			
2CMSA04	Division I CMS Inop Circuitry	2SCM*PNL102A	9	On			
2CMSB04	Division II CMS Inop Circuitry	2SCM*PNL302B	7	On			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	— Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2CMSA05	Division I CMS Inop Circuitry	2SCM*PNL102A	16	On			
2CMSB05	Division II CMS Inop Circuitry	2SCM*PNL302B	15	On			
2CMS*SOV74A 2CMS*SOV75A 2CMS*SOV76B 2CMS*SOV77B	Division I CMS PAS Solenoid Valves	2VBS*PNL102A	15	On			
2CMS*SOV74B 2CMS*SOV75B 2CMS*SOV76A 2CMS*SOV77A	Division II CMS PAS Solenoid Valves	2VBS*PNL302B	15	On			
—	CMS Control and Heat Tracing	2EJS*PNL302B	26	On			
—	CMS Control and Heat Tracing	2EJS*PNL103A	25	On			*3
2HTS*PNL001	CMS Control and Heat Tracing	2EJS*PNL103A	19	On			
2HTS*PNL003	CMS Control and Heat Tracing	2EJS*PNL302B	20	On			

S = Suppression Chamber Pressure
in PSIG from CMS*PI7A on P601
or CMS*PR7B on P898

D = Primary Containment inlet N^2
Pressure from 2CPS-PI127 on
P873 (in PSIG)

(S-D)
PSID

S	D	S-D	LEVEL

CAUTION:

WHEN THE QUANTITY (S-D) REACHES
30 PSID PRIMARY CONTAINMENT
WATER LEVEL SHOULD BE CONSIDERED
AT THE VENT ELEVATION (EL. 299 FT.)
DUE TO
1) INSTRUMENT READABILITY AND
2) CENTERLINE OF THE TAP FOR (D)
IS EL. 296 FT.

ENSURE THE SSS IS NOTIFIED AS
THE QUANTITY (S-D) INCREASES
TOWARD 30 PSID.

CONTAINMENT LEVEL (IN FEET OF ELEVATION)

FIGURE 1

N2-OP-82 -49 April 1991