May 19, 1994

MEMORANDUM FOR: Brian K. Grimes, Director
Division of Operating Reactor Support

FROM: Alfred E. Chaffee, Chief
Events Assessment Branch
Division of Operating Reactor Support

SUBJECT: OPERATING REACTORS EVENTS BRIEFING
MAY 18, 1994 - BRIEFING 94-16

On May 18, 1994, we conducted an Operating Reactors Events Briefing (94-16) to inform senior managers from offices of the Commission, AEOD, NRR, and regional offices of selected events that occurred since our last briefing on May 11, 1994. Enclosure 1 lists the attendees. Enclosure 2 presents the significant elements of the discussed events.

Enclosure 3 contains reactor scram statistics for the week ending May 15, 1994. No significant events were identified for input into the NRC Performance Indicator Program.

[original signed by]

Alfred E. Chaffee, Chief
Events Assessment Branch
Division of Operating
Reactor Support

Enclosures: As stated

cc w/enclosures:
See next page

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ID+R-5-1-OPERATING EXPERIENCES
X-Otm-6-meeting
X-Otm-9-1

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DF03

cc:

W. Russell, NRR (12G18)
F. Miraglia, NRR (12G18)
F. Gillespie, NRR (12G18)
Acting ADPR, NRR (12G18)
S. Varga, NRR (14E4)
J. Calvo, NRR (14A4)
G. Lainas, NRR (14H3)
J. Roe, NRR (13E4)
J. Zwolinski, NRR (13H24)
E. Adensam, NRR (13E4)
A. Thadani, NRR (12G18)
B. Sheron, NRR (7D26)
M. Virgilio, NRR (8E2)
S. Rosenberg, NRR (10E4)
C. Rossi, NRR (9A2)
B. Boger, NRR (10H3)
F. Congel, NRR (10E2)
D. Crutchfield, NRR (11H21)
W. Travers, NRR (11B19)
D. Coe, ACRS (P-315)
E. Jordan, AEOD (MN-3701)
G. Holahan, AEOD (MN-9112)
L. Spessard, AEOD (MN-3701)
K. Brockman, AEOD (MN-3206)
S. Rubin, AEOD (MN-5219)
M. Harper, AEOD (MN-9112)
W. Bateman, EDO (17G21)
F. Ingram, PA (2G5)
E. Beckjord, RES (NLS-007)
A. Bates, SECY (16G15)
T. Martin, Region I
R. Cooper, Region I
S. Ebneter, Region II
J. Johnson, Region II
S. Vias, Region II
J. Martin, Region III
E. Greenman, Region III
L. Callan, Region IV
A. Beach, Region IV
K. Perkins, Region IV/WCFO

V. Nerses (PDII-3)
D. Matthews (PDII-3)
J. Clifford (PDIV-3)
T. Quay (PDIV-3)
R. Eaton (PDI-3)
W. Butler (PDI-3)
P. O'Connor (PDIV-1)
W. Beckner (PDIV-1)

bcc: Mr. Sam Newton, Manager
Events Analysis Department
Institute of Nuclear Power Operations
700 Galleria Parkway
Atlanta, GA 30339-5957

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

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Alfred E. Chaffee, Chief
Events Assessment Branch
Division of Operating
Reactor Support

Enclosures: As stated

cc w/enclosures:
See next page

ENCLOSURE 1

LIST OF ATTENDEES

OPERATING REACTORS EVENTS FULL BRIEFING (94-16)

MAY 18, 1994

NAME	OFFICE	NAME	OFFICE
N. FIELDS	NRR	C. THOMAS	NRR
D. SKEEN	NRR	H. RICHINGS	NRR
K. GRAY	NRR	T. YAMADA	NRR
A. CHAFFEE	NRR	J. WING	NRR
E. GOODWIN	NRR	J. HAYES	NRR
J. TAPPERT	NRR	J. CLIFFORD	NRR
R. DENNIG	NRR	M. MARKLEY	NRR
N. HUNEMULLER	NRR	M. SLOSSON	NRR
B. GRIMES	NRR	P. O'CONNOR	NRR
K. NAIDU	NRR	L. WIENS	NRR
L. REYES	NRR	E. BAKER	OCM/IS
J. ROE	NRR	H. ORNSTEIN	AEOD
R. WESSMAN	NRR		

TELEPHONE ATTENDANCE
(AT ROLL CALL)

Regions
Region II
Region III

Resident Inspectors
G. Maxwell (McGuire)
G. Harris (McGuire)
R. Barr (WNP-2)
Grand Gulf

IIT/AIT Team Leaders

Misc.

OPERATING REACTORS EVENTS BRIEFING 94-16

LOCATION: **8 B11**, WHITE FLINT

WEDNESDAY, MAY 18, 1994 11:00 A.M.

MCGUIRE, UNITS 1 AND 2	POTENTIAL CONTROL ROOM HABITABILITY CONCERNS
VARIOUS PLANTS	PROBLEMS WITH SCRAM SOLENOID PILOT VALVES

PRESENTED BY: EVENTS ASSESSMENT BRANCH
DIVISION OF OPERATING REACTOR SUPPORT, NRR

MCGUIRE, UNITS 1 AND 2
POTENTIAL CONTROL ROOM HABITABILITY CONCERNS
APRIL 7, 1994

PROBLEM:
UNUSUAL EVENT WHEN WORKERS WERE EVACUATED FROM AUXILIARY BUILDING BECAUSE OF SOLVENT FUMES.

CAUSE:
INADEQUATE WORK PLANNING, INADEQUATE COMMUNICATION, AND POOR INTEGRATED ASSESSMENT OF THE IMPACT OF WORK ACTIVITIES.

SAFETY SIGNIFICANCE:

FUMES MIGRATED INTO THE CONTROL ROOM. THE FUMES FROM A MORE TOXIC OR FLAMMABLE CHEMICAL COULD IMPACT CONTROL ROOM HABITABILITY.

INADEQUACIES IN LICENSEE'S WORK PLANNING, VERBAL COMMUNICATION, CONTROL ROOM HVAC ARRANGEMENT, AND GUIDANCE IN ADDRESSING CONTROL ROOM HABITABILITY ISSUES.

DISCUSSION:
- ON APRIL 7, 1994, ONCOMING SHIFT SMELLED SOLVENT VAPORS IN CONTROL ROOM. THE CONTROL ROOM WAS PURGED BY TEMPORARILY OPENING DOORS TO THE SERVICE BUILDING. AN UNUSUAL EVENT WAS DECLARED AT 11:20PM.

CONTACT: N. FIELDS, NRR/DORS/EAB
REFERENCE: 10 CFR 50.72 #27057

AIT: NO
SIGEVENT: TBD

- WORKERS HAD BEEN USING CLEANING SOLUTION TO REMOVE ADHESIVE FROM THE "A" TRAIN CONTROL ROOM CHILLER. THE SOLUTION CONTAINING METHYL ISOBUTYL KETONE (HEXONE) HAD BEEN APPROVED BY THE PLANT SAFETY AND HEALTH SERVICES (SHS) ORGANIZATION. HEXONE IS A COMMON INDUSTRIAL ORGANIC SOLVENT. AIR SAMPLES TAKEN AFTER TESTING INDICATED AIR CONCENTRATION OF 9-10 PPM.

- THE ADHESIVE REMOVAL HAD NOT BEEN FORMALLY DOCUMENTED SO NEITHER THE CONTROL ROOM OR SHIFT MAINTENANCE MANAGER HAD BEEN INFORMED.

- AFTER A MAINTENANCE WORKER COMPLAINED OF NAUSEA FROM SOLVENT FUMES A SHS SPECIALIST WAS DISPATCHED TO THE AREA WITH A MULTI-GAS MONITOR TO SAMPLE FOR CARBON DIOXIDE, OXYGEN AND LOWER EXPLOSION LEVEL GASES. THE SHS SPECIALIST WAS UNAWARE OF THE SOLVENT USE.

- AIR SAMPLES TAKEN BY THE SPECIALIST REVEALED NO ABNORMAL READING. NO WORK WAS UNDER WAY AT THE TIME THE SAMPLE WAS TAKEN.

- THE SHS SPECIALIST ORDERED ANOTHER VENTILATION FAN FOR THE WORK AREA AND THEN LEFT THE AREA. THE STRIPPING OPERATION WAS RESUMED.

- A SHORT TIME LATER A SECOND MAINTENANCE WORKER COMPLAINED DIRECTLY TO THE SHS OFFICE THAT THE SOLVENT COULD BE TASTED. THE SHS OFFICE RECOMMENDED THAT THE MAINTENANCE WORKERS EVACUATE THE AREA.

- THE SHS SPECIALIST RETURNED TO THE AREA AND TOOK A SECOND SAMPLE USING A COLORIMETRIC TUBE FOR ACETONE (CALIBRATED FOR USE IN SAMPLING FOR HEXONE). THIS SAMPLE WAS TAKEN APPROXIMATELY TWO HOURS AFTER THE ORIGINAL COMPLAINT WAS MADE AND INDICATED APPROXIMATELY 2-3 PPM.

- THREE POTENTIAL MIGRATION PATHS TO THE CONTROL ROOM FOR THE SOLVENT FUMES WERE INITIALLY IDENTIFIED; HOWEVER, THE MOST LIKELY PATHWAY FROM THE CHILLER AREA TO THE CONTROL ROOM WAS THROUGH THE ELECTRICAL PENETRATIONS ROOMS. (SEE ATTACHED DIAGRAMS.)

FOLLOWUP:

- LICENSEE'S EMERGENCY PLANNING AND OPERATIONS PERSONNEL WILL REVIEW AND/OR REVISE THE EMERGENCY ACTION LEVELS IN THE LICENSEE'S RESPONSE PROCEDURES TO ADDRESS MORE CLEARLY EVACUATION AND TOXIC LIMITS.

- MAINTENANCE PLANNING DEPARTMENT WILL PROVIDE GUIDANCE IN JOB PLANNING ON CHEMICALS. THE SELECTION PROCESS FOR THE CORRECT CHEMICAL FOR A PARTICULAR APPLICATION WILL BE DOCUMENTED.

- THE PLANT WILL ISSUE AN "INFORM BULLETIN" OUTLINING APPROPRIATE CORRECTIVE ACTIONS FOR ADDRESSING THIS TYPE OF EVENT.

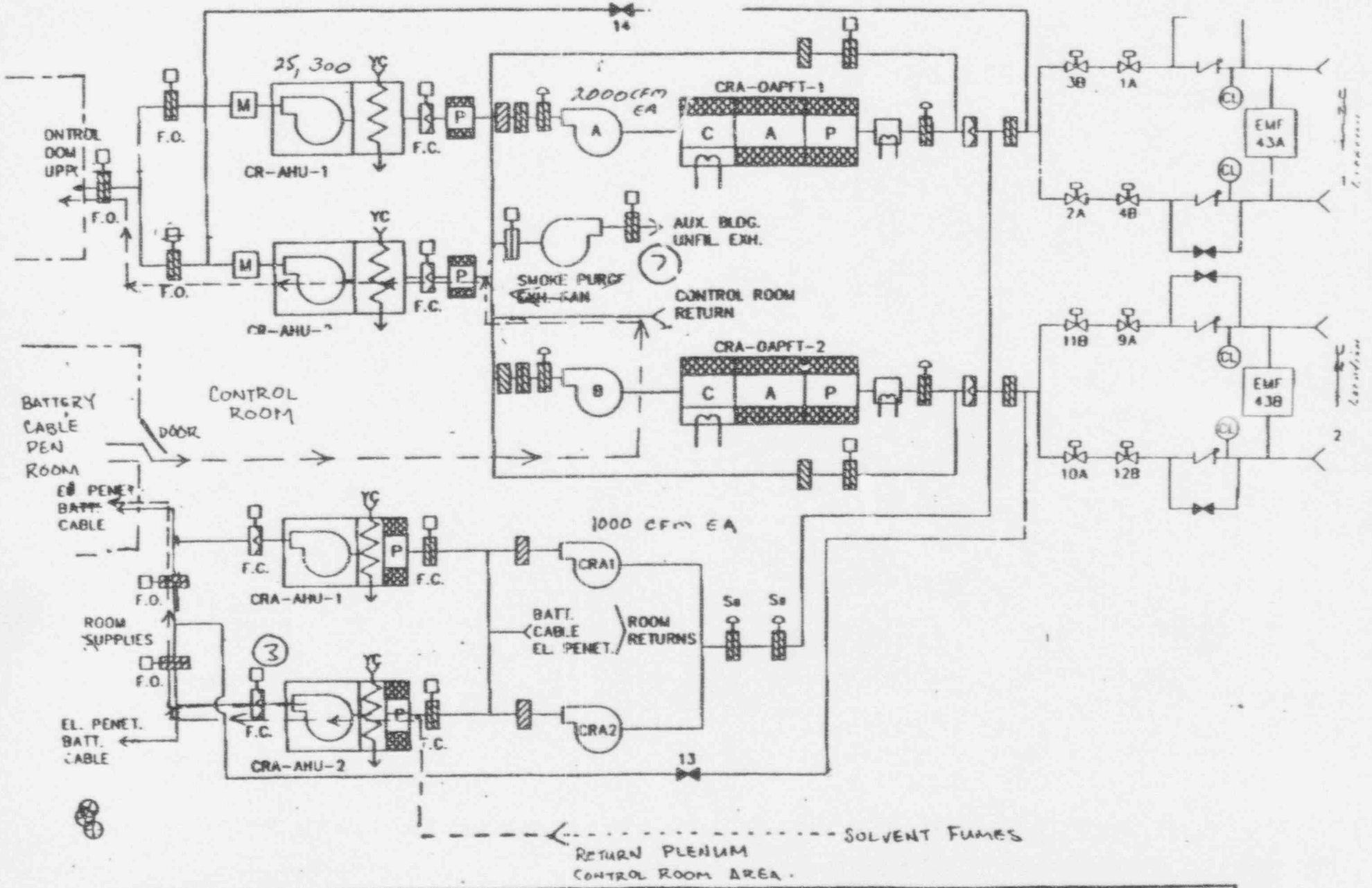
- TRAINING DEPARTMENT WILL EVALUATE THE FEASIBILITY OF MODIFYING THE STATION'S GENERAL EMPLOYEE TRAINING PROGRAM TO ADD/INCREASE EMPHASIS ON INFORMING THE CONTROL ROOM OF POTENTIALLY HAZARDOUS ACTIVITIES.

- OPERATIONS DEPARTMENT WILL EVALUATE PROCEDURE ENHANCEMENT TO PROVIDE GUIDANCE ON WHEN TO MANUALLY ACTUATE CONTROL ROOM ISOLATION AND RECIRC VENTILATION.

- THE ENGINEERING DEPARTMENT WILL CONTINUE ITS EVALUATION OF THE LIKELY MIGRATION PATH OF THE SOLVENT INTO THE CONTROL ROOM.

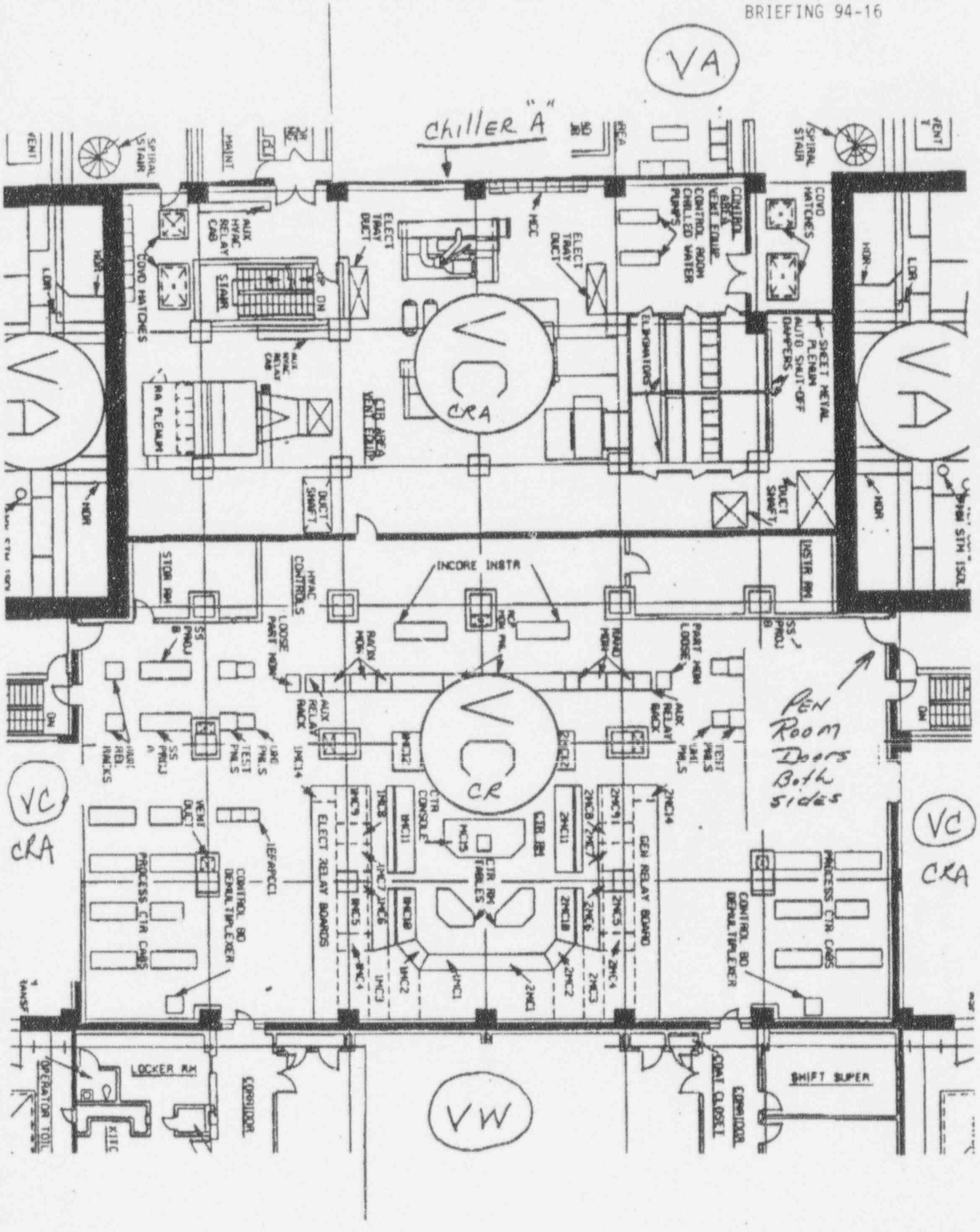
- REGION II IS DRAFTING AN INFORMATION NOTICE DESCRIBING THIS EVENT.

MCGUIRE, UNITS 1 & 2
BRIEFING 94-16



TITLE: CONTROL AREA VENTILATION SYSTEM (VC)	NOTES: SUB SYSTEM	ID NO. MC-PSS-VC-1	DATE 8-26-91
		REF. MC-1576-1	
		DRN. BY ARB	APR. BY DWA
		MEDIA NO. MCPSSVC1.DWG	TRAINING USE ONLY

MCGUIRE, UNITS 1 & 2
BRIEFING 94-16



VARIOUS PLANTS
PROBLEMS WITH SCRAM SOLENOID PILOT VALVES
MARCH 26 & 27, 1994

PROBLEM

A CONTROL ROD AT WNP-2 FAILED TO MOVE DURING SCRAM TESTING. AT PILGRIM, A ROD EXCEEDED THE FULL INSERTION TIME DURING TESTING. GRAND GULF FOUND THAT FIVE CONTROL RODS EXCEEDED TECHNICAL SPECIFICATIONS (TS) FOR START OF MOTION DURING TESTING.

CAUSE

WNP-2 AND PILGRIM PROBLEMS WERE CAUSED BY DEGRADATION OF THE DIAPHRAGMS IN THE SCRAM SOLENOID PILOT VALVES (SSPVs). A THREAD SEALANT CONTAMINATED SSPVs AT GRAND GULF.

SAFETY SIGNIFICANCE

POTENTIAL FOR COMMON MODE FAILURE THAT COULD DELAY CONTROL ROD INSERTION DURING A SCRAM AND POSSIBLY DAMAGE FUEL.

DISCUSSION: WNP-2

- MARCH 26 - DURING INDIVIDUAL CONTROL ROD SCRAM TIME TESTING, A ROD FAILED TO INSERT. FOUR OTHER RODS WERE FOUND WITH SLOWER THAN PREVIOUSLY RECORDED SCRAM TIMES.

- TROUBLESHOOTING DETERMINED THAT THE BUNA-N DIAPHRAGMS IN THE SSPVs OF THE INOPERABLE ROD AND THE FOUR SLOW ONES WERE CRACKED AND BRITTLE.

CONTACT: D. SKEEN, NRR/DORS/EAB
AIT: NO
REFERENCES: MR 5-94-0030, 50.72 #26996, MR 1-94-0048
SIGEVENT: NO

- THE DIAPHRAGMS WERE REPLACED AND THE FIVE RODS WERE TESTED AND RETURNED TO SERVICE.

- ALL CONTROL RODS WERE SCRAM TIME TESTED AND FOUND TO BE WITHIN TS LIMITS, ALTHOUGH SOME HAD SLOWER TIMES THAN HAD BEEN PREVIOUSLY RECORDED.

- INSPECTION OF ALL REMAINING DIAPHRAGMS FOUND SEVERAL WITH SIMILAR BUT LESS SEVERE DEGRADATION.

- THE LICENSEE, IN CONJUNCTION WITH GENERAL ELECTRIC (GE), DETERMINED THAT THE FAILURE OF THE ROD TO MOVE WAS CAUSED BY FAILURE OF BOTH THE PRESSURE AND EXHAUST DIAPHRAGMS IN THE ASSOCIATED SSPV.

- THE UNIT REMAINED AT 58% POWER WHILE THE REST OF THE EXHAUST DIAPHRAGMS WERE REPLACED. ALL CONTROL RODS WERE TESTED ON A WEEKLY BASIS UNTIL THE UNIT ENTERED ITS REFUEL OUTAGE ON APRIL 26, 1994.

FOLLOWUP: WNP-2

- TWO PRECURSORS TO THIS EVENT OCCURRED DURING TESTING IN DECEMBER 1993 AND JANUARY 1994.

- THERMAL AGING AND CONTAMINATION OF SOLENOID OPERATED VALVES (SOVs) WERE DISCUSSED IN NUREG-1275, VOL. 6, WHICH WAS ISSUED IN FEBRUARY 1991.

- NRC BULLETIN 78-14 DISCUSSED THERMAL AGING OF SSPV DIAPHRAGMS AND OTHER BUNA-N COMPONENTS. GE RECOMMENDED A 4 YEAR SERVICE LIFE FOR BUNA-N COMPONENTS IN GUIDANCE ISSUED IN OCTOBER 1993.

- WNP-2 REPORTED HAVING DIAPHRAGM KITS INSTALLED WITH PACKAGE DATES OF 1983, 1987, AND 1990. THE 1990 DIAPHRAGMS WERE THE MOST SEVERELY DEGRADED.

- THE LICENSEE REPORTED THAT THE 1990 DIAPHRAGMS HAD A HIGHER SULFUR AND ZINC CONTENT THAN THE OLDER ONES, WHICH MAY INDICATE A CHANGE IN THE MANUFACTURING PROCESS.

- A SAMPLE OF NEW AND OLD DIAPHRAGMS WAS SENT TO GE FOR MATERIALS ANALYSIS.

DISCUSSION: PILGRIM

- APRIL 18 - WITH THE UNIT AT 58% POWER, DURING SCRAM TIME TESTING, ONE ROD EXCEEDED THE FULL INSERTION TIME LIMIT AND SEVERAL OTHERS EXHIBITED SLOWER THAN PREVIOUSLY MEASURED SCRAM TIMES.

- THE LICENSEE DETERMINED THAT THE 118-E DIAPHRAGM FOR THE ROD THAT EXCEEDED THE FULL INSERTION TIME HAD RUPTURED.

- TESTING OF ALL CONTROL RODS FOUND THAT THREE CONTROL RODS CAUSED THEIR 2X2 ARRAYS TO EXCEED TS LIMITS FOR 10% INSERTION. A TOTAL OF 20 RODS WERE SLOW ENOUGH TO WARRANT REBUILDING THE SSPVs.

- INSPECTION OF THE REMOVED DIAPHRAGMS FOUND THAT SOME WERE HARDENED AND AT LEAST 2 WERE CRACKED.

- APRIL 22 - AFTER FINDING THAT 5 RODS WITH ACCEPTABLE SCRAM TIMES HAD HARDENED DIAPHRAGMS, THE LICENSEE WAS NOT CONFIDENT THAT TEST RESULTS WERE INDICATIVE OF THE CONDITION OF THE DIAPHRAGMS AND THE PLANT WAS SHUT DOWN.

FOLLOWUP: PILGRIM

- ALL OF THE SSPVs WERE REBUILT DURING THE 1991 REFUEL OUTAGE. THE DIAPHRAGM KITS INSTALLED HAD PACKAGE DATES OF 1987 AND 1990.

- THE 1990 DIAPHRAGMS ARE THE MOST SEVERELY DEGRADED.

- THE LICENSEE SENT SOME DIAPHRAGMS TO GE FOR MATERIALS ANALYSIS AND COMPARISON TO THE WNP-2 DIAPHRAGMS.

- VENDOR BRANCH DISCUSSED THIS ISSUE WITH GE DURING A RECENT INSPECTION.

- VERMONT YANKEE REPORTED SEVERAL SLOW RODS DUE TO A VARIETY OF FACTORS ON 4/12/93.

- MAY 11 - GE ISSUED GUIDANCE RECOMMENDING LICENSEES IDENTIFY SSPVS THAT WERE REPLACED OR REFURBISHED WITH DIAPHRAGM KITS OR NEW VALVES WITH ASSEMBLY DATES AFTER EARLY 1989, AND EXAMINE A SAMPLE OF THE DIAPHRAGMS.

- AN INFORMATION NOTICE ALERTING THE INDUSTRY THAT SOME SSPV DIAPHRAGMS MAY NOT FUNCTION TO THE END OF THEIR RECOMMENDED SERVICE LIFE IS BEING DEVELOPED.

DISCUSSION: GRAND GULF

- MARCH 27 - WITH THE UNIT AT 70% POWER, DURING THE FIRST 120 DAY TEST AFTER RESTART, 5 OF THE 26 CONTROL RODS TESTED EXCEEDED THE TS LIMIT FOR START OF MOTION.

- ALTHOUGH RODS WERE STILL WITHIN LIMITS FOR FULL INSERTION, THE LICENSEE CONSERVATIVELY ENTERED A 12-HOUR ACTION STATEMENT TO HOT SHUTDOWN.

- POWER WAS REDUCED TO 60% AND THE UNIT WAS MANUALLY SCRAMMED IN ORDER TO TAKE SCRAM TIME MEASUREMENTS ON OTHER RODS.

- OF THE 176 RODS MONITORED, 49 WERE SLOW. FIVE OF THE 49 WERE SLOW ENOUGH TO BE CONSIDERED TECHNICALLY INOPERABLE.

- SUBSEQUENT INVESTIGATION BY THE LICENSEE, WITH HELP FROM GE AND ASCO, DETERMINED THAT THE SLOW SSPVs SHOWED TRACES OF AN ANAEROBIC THREADLOCKER COMPOUND ON THE SOV DISK AND SEATING SURFACE.

- THE THREADLOCKER IS USED WHEN CONNECTING THE INSTRUMENT AIR LINES TO THE SSPV ASSEMBLY TO PREVENT LEAKAGE.

- ALL 193 SSPVs WERE CLEANED AND NEW REPLACEMENT KITS INSTALLED. THE UNIT WAS RESTARTED AND THE RODS TESTED SATISFACTORY.

FOLLOWUP: GRAND GULF

- EVENTS INVOLVING CONTAMINANTS AFFECTING ELASTOMER COMPONENTS HAVE BEEN REPORTED AT OTHER PLANTS.

  PERRY - 10/06/91 - THREADLOCKER ON VALVE DISK AND SEATS
  BRUNSWICK 2 - 10/93 - THREADLOCKER ON DIAPHRAGM
  PEACH BOTTOM 3 - 11/7/83 - THREADLOCKER ON PLUNGER

- SOME LICENSEES HAVE REPLACED THREADLOCKER WITH TEFLON TAPE TO AVOID POTENTIAL CONTAMINATION PROBLEMS.

- GE HAS ISSUED GUIDANCE RECOMMENDING USE OF TEFLON TAPE ON THE SSPVs.

- TWO PREVIOUS NRC INFORMATION NOTICES (84-53 AND 87-48) DEALT WITH ANAEROBIC ADHESIVE/SEALANTS CAUSING SOV PLUNGERS TO STICK.

- AN INFORMATION NOTICE IS BEING DRAFTED TO ALERT THE INDUSTRY THAT THREAD SEALANTS CAN CAUSE OTHER SOV COMPONENTS TO STICK (DIAPHRAGMS AND SEALS).

FIGURE 1 - SCRAM PILOT SOLENOID VALVES (ENERGIZED)
ASCO HVA-90-405

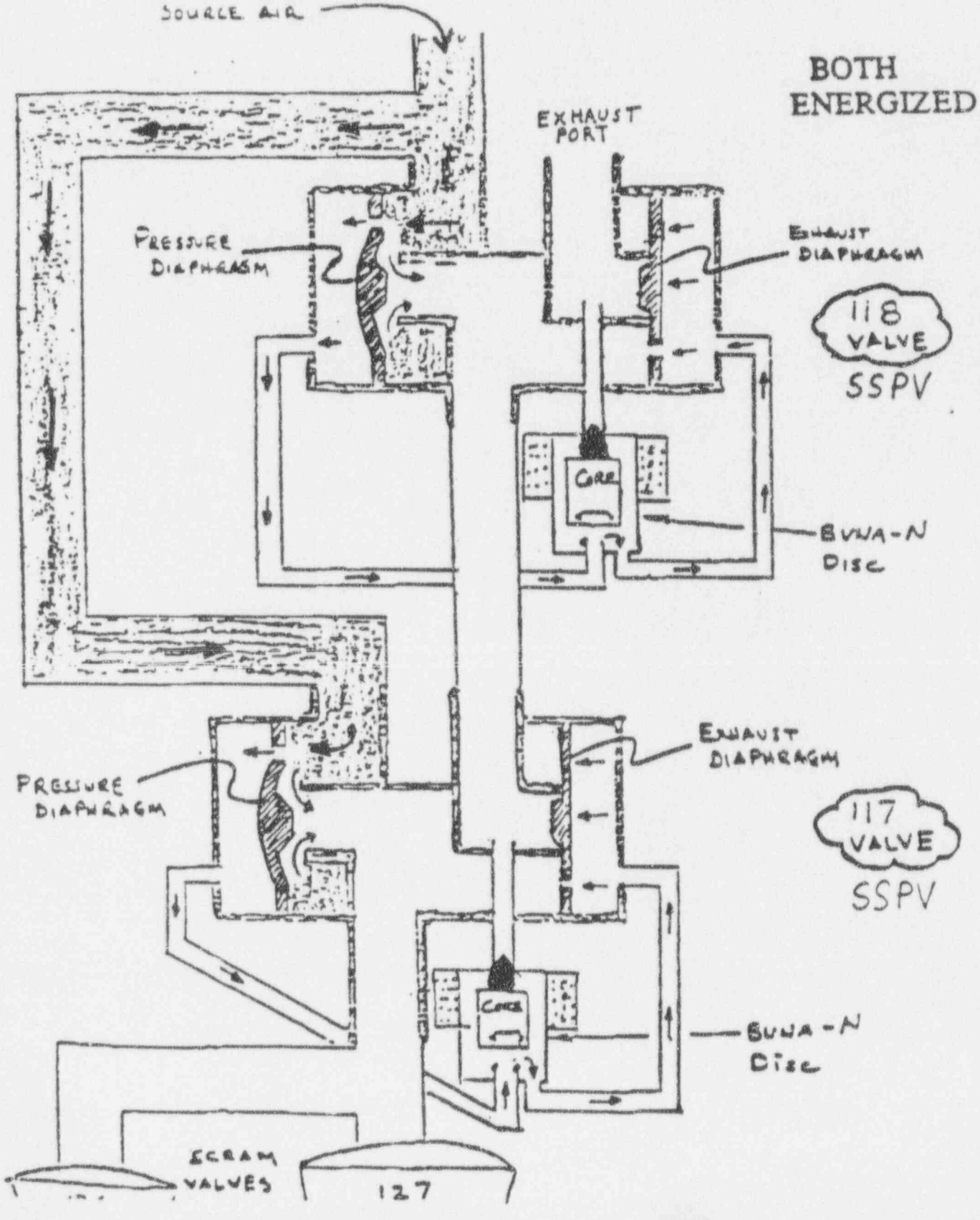
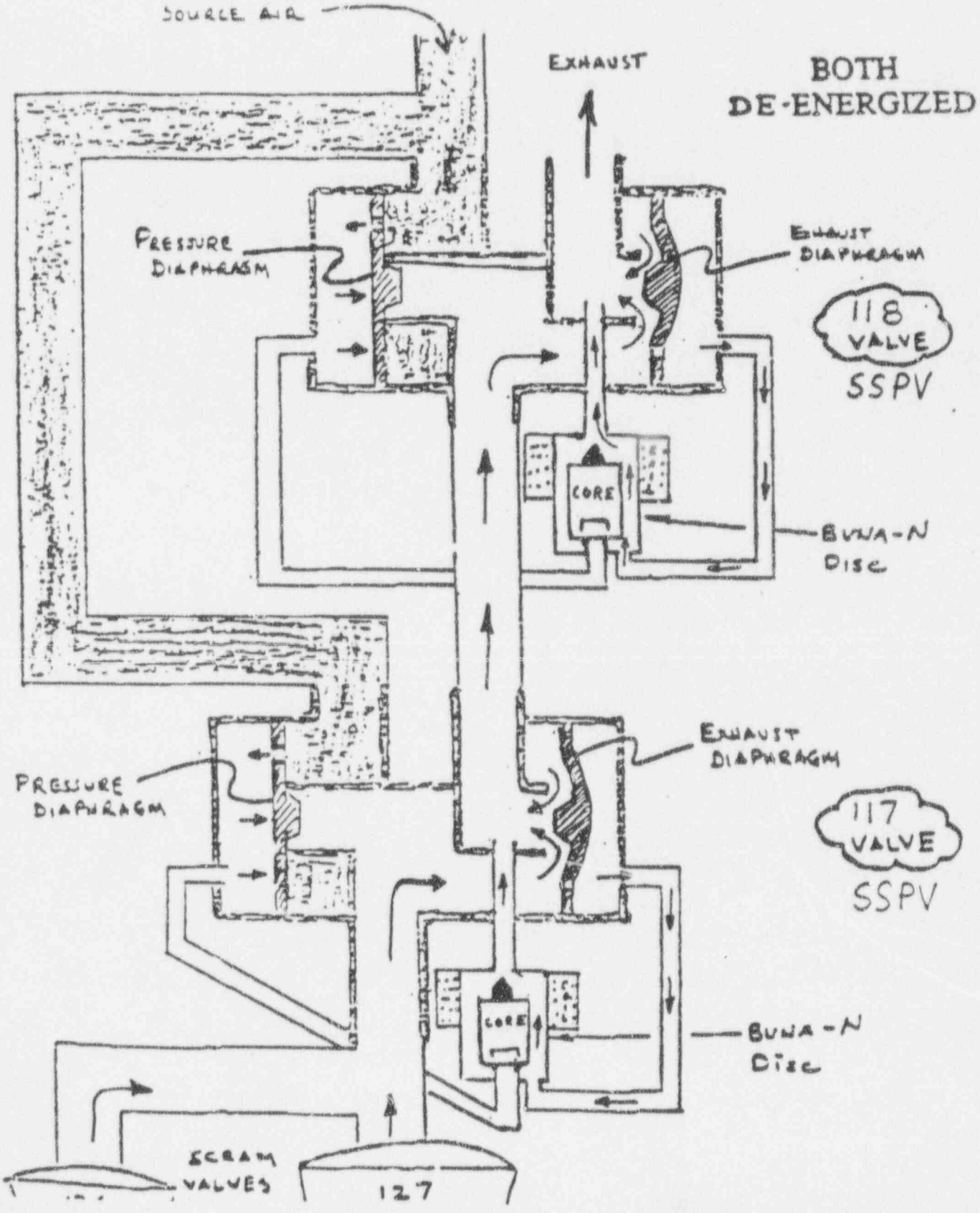


FIGURE 2 - SCRAM PILOT SOLENOID VALVES (DE-ENERGIZED)
ASCO HVA-90-405



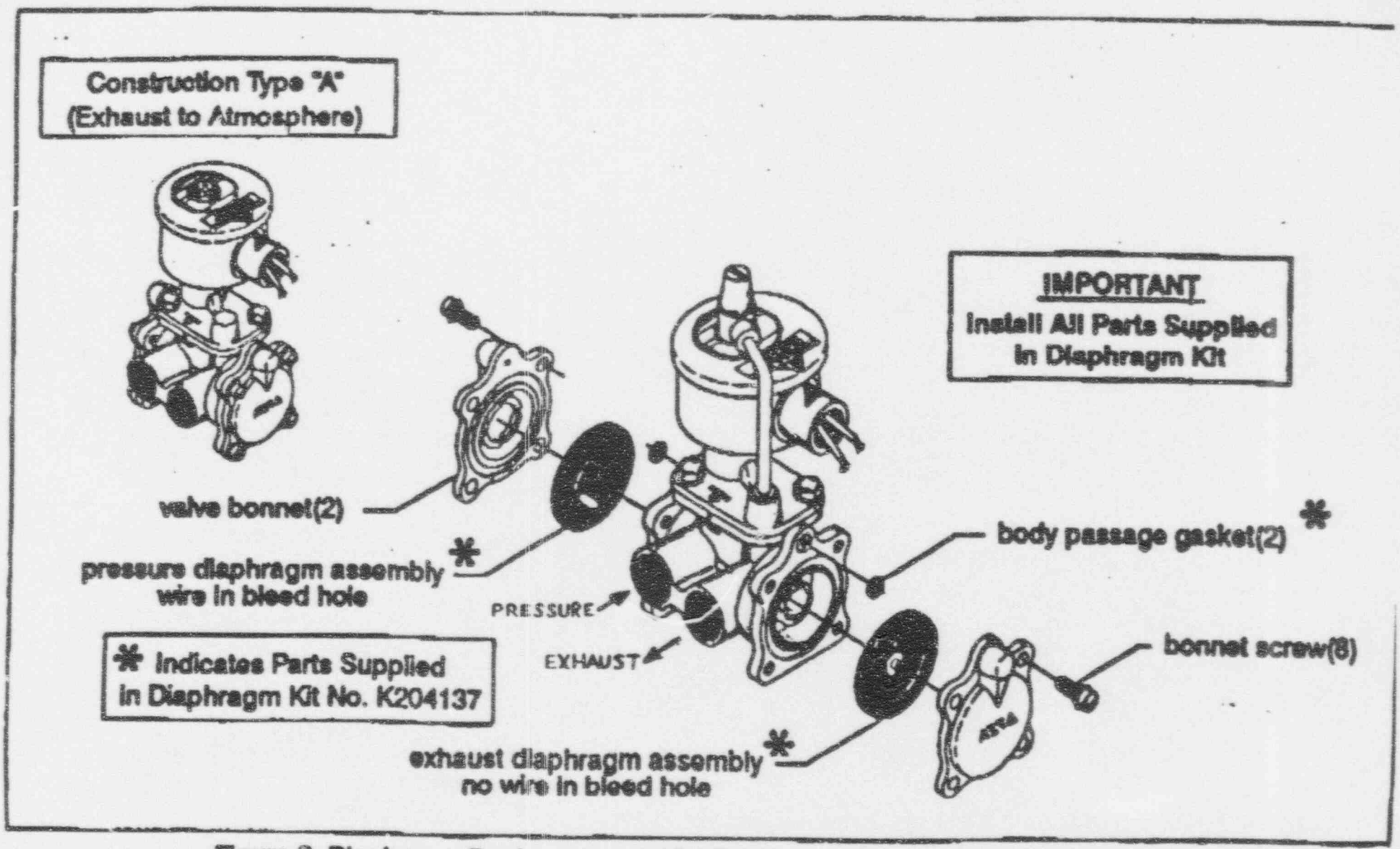


Figure 3. Diaphragm Replacement 1/2" NPT Catalog Nos. HV-90-405-1 or -2.

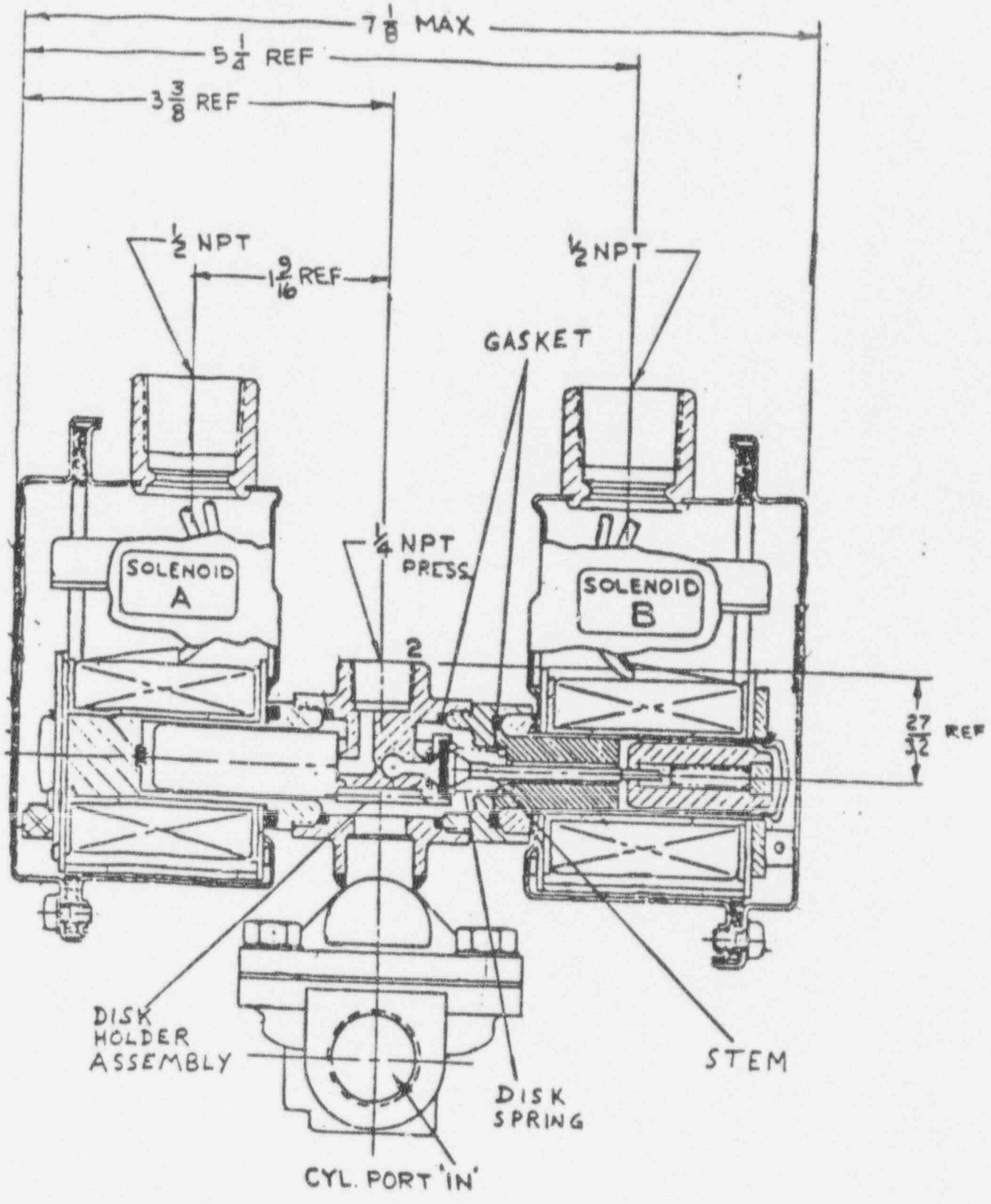


FIGURE 4 - SCRAM PILOT SOLENOID VALVE (UPPER CUTAWAY)
ASCO HV-176-816

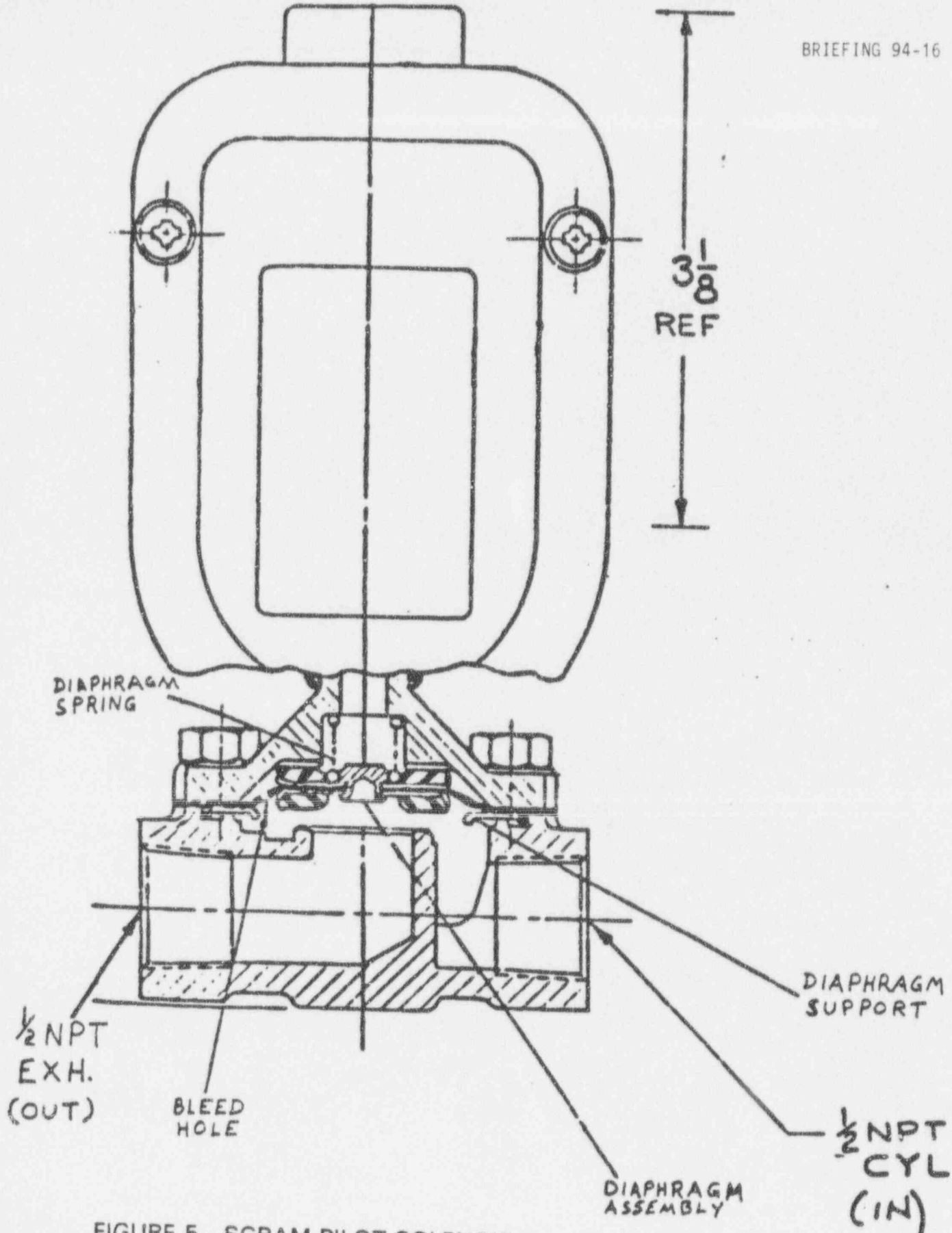


FIGURE 5 - SCRAM PILOT SOLENOID VALVE (LOWER CUTAWAY)
ASCO HV-176-816

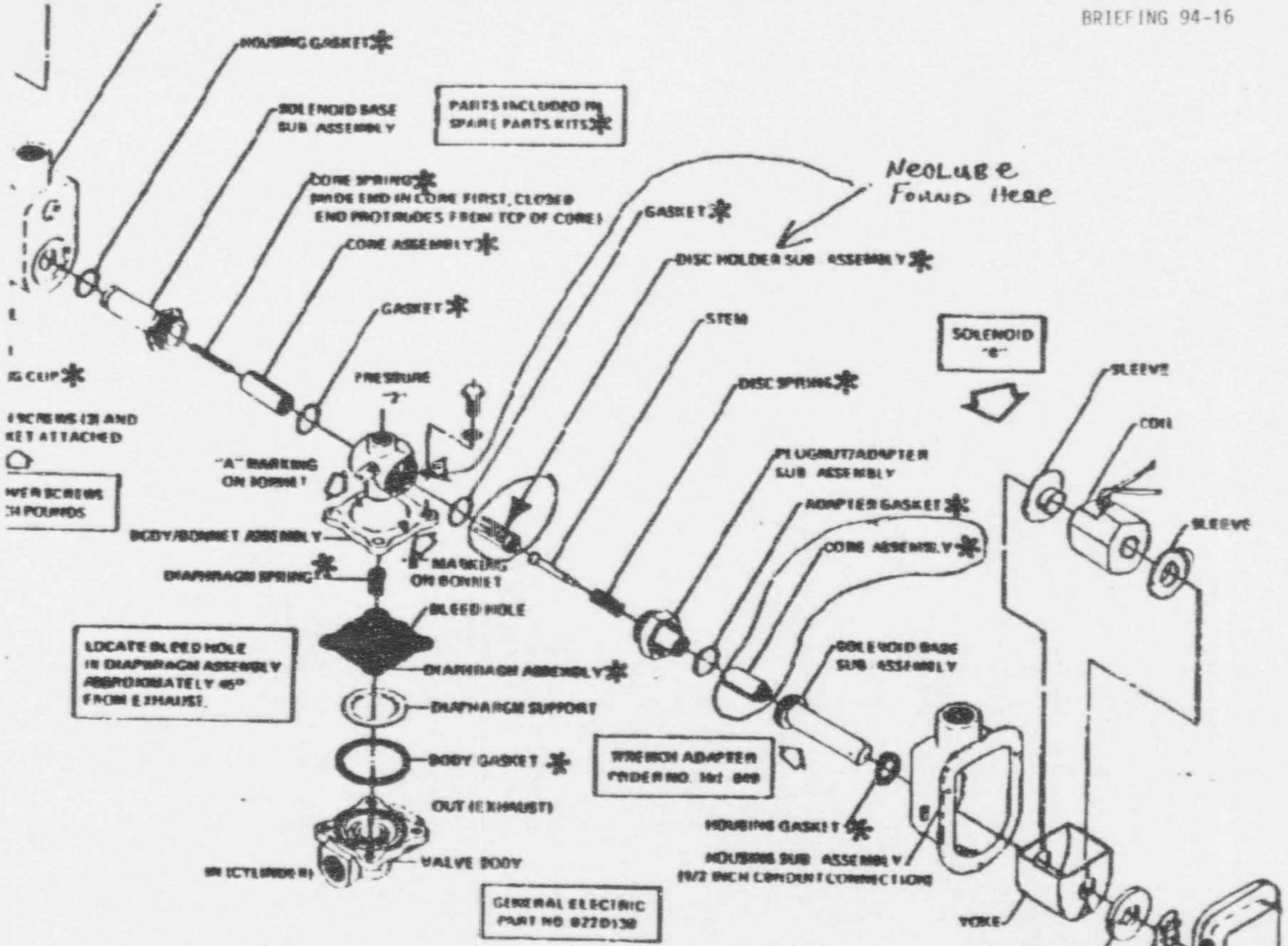


FIGURE 6 - SCRAM PILOT SOLENOID VALVE (EXPLODED VIEW)
ASCO HV-176-816

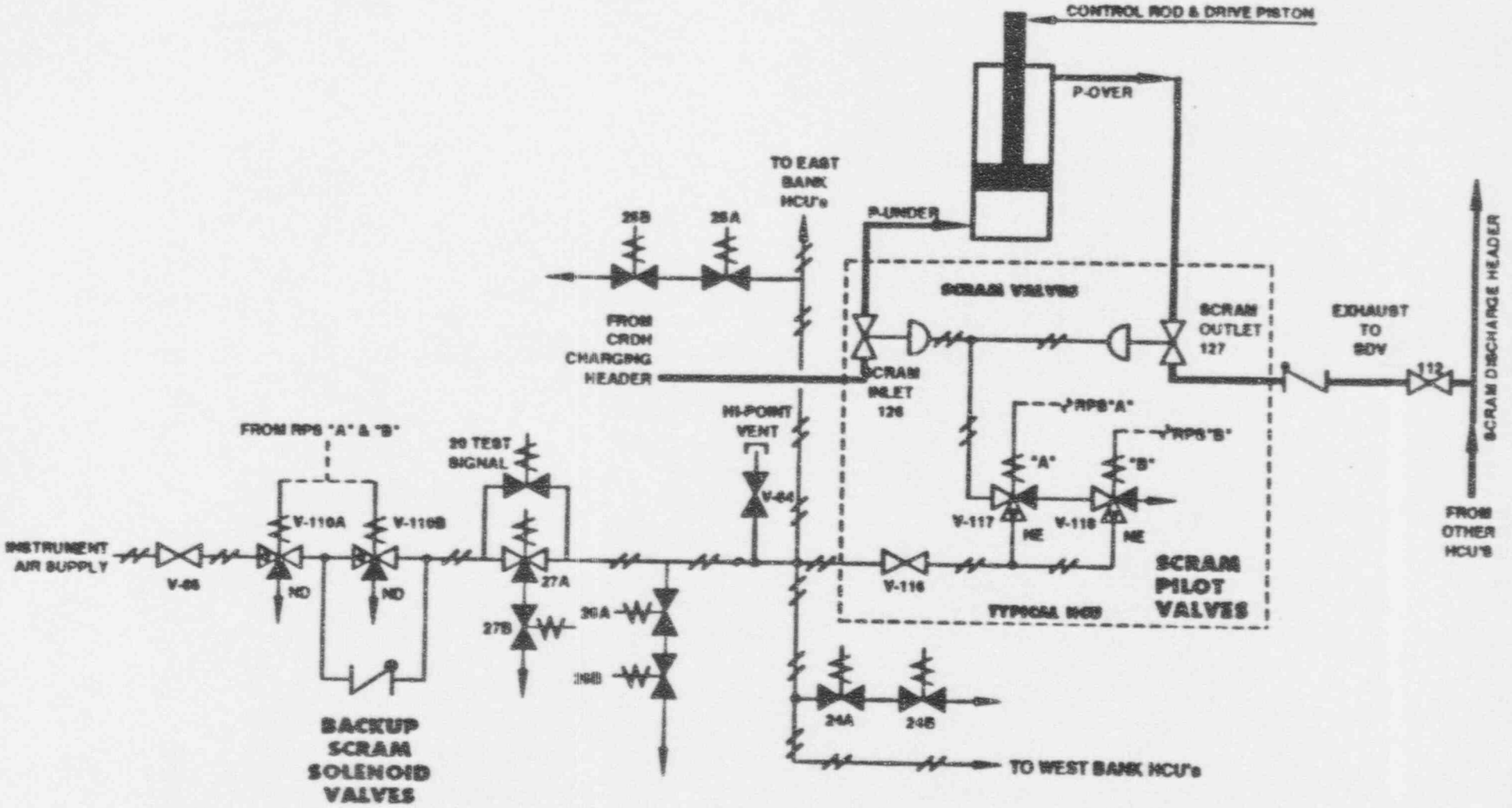


FIGURE 7 - WNP-2 REACTOR PROTECTION SYSTEM INTERFACE WITH CONTROL ROD DRIVE HYDRAULIC SYSTEM

REACTOR SCRAM

Reporting Period: 05/09/94 to 05/15/94

DATE	PLANT & UNIT	POWER	TYPE	CAUSE	COMPLICATIONS	YTD ABOVE 15%	YTD BELOW 15%	YTD TOTAL
05/09/94	HARRIS 1	0	SM	Equipment Failure	NO	0	1	1
05/11/94	SURRY 1	100	SM	Operating Error	NO	1	0	1
05/12/94	MCGUIRE 1	100	SA	Maintenance Error	NO	1	0	1
05/15/94	HOPE CREEK 1	96	SA	Design or Installati	NO	1	0	1
05/15/94	PEACH BOTTOM 2	85	SA	Equipment Failure	NO	1	0	1

Note: Year To Date (YTD) Totals Include Events Within The Calendar Year Indicated By The End Date Of The Specified Reporting Period

COMPARISON OF WEEKLY SCRAM STATISTICS WITH INDUS'RY AVERAGES

PERIOD ENDING
05/15/94

SCRAM CAUSE	NUMBER OF SCRAMS	1994 WEEKLY AVERAGE (YTD)	1993 WEEKLY AVERAGE	1992 WEEKLY AVERAGE	1991* WEEKLY AVERAGE	1990* WEEKLY AVERAGE
POWER GREATER THAN OR EQUAL TO 15%						
EQUIPMENT FAILURE*	1	1.61	1.83	2.62	2.88	3.38
DESIGN/INSTALLATION ERROR*	1	0.10	0.04	-	-	-
OPERATING ERROR*	1	0.26	0.27	0.23	0.58	0.48
MAINTENANCE ERROR*	1	0.36	0.52	0.40	-	-
EXTERNAL*	0	0.10	0.13	-	-	-
OTHER*	0	0.00	0.02	0.23	-	-
Subtotal	4	2.43	2.81	3.48	3.46	3.86
POWER LESS THAN 15%						
EQUIPMENT FAILURE*	1	0.36	0.38	0.40	0.29	0.40
DESIGN/INSTALLATION ERROR*	0	0.05	-	-	-	-
OPERATING ERROR*	0	0.16	0.13	0.13	0.15	0.08
MAINTENANCE ERROR*	0	0.00	0.02	0.06	-	-
EXTERNAL*	0	0.00	0.04	-	-	-
OTHER*	0	0.00	-	0.06	-	-
Subtotal	1	0.57	0.57	0.65	0.44	0.48
TOTAL	5	3.00	3.38	4.13	3.90	4.34

SCRAM TYPE	NO. OF SCRAMS	1994 WEEKLY AVERAGE (YTD)	1993 WEEKLY AVERAGE	1992 WEEKLY AVERAGE	1991 WEEKLY AVERAGE	1990 WEEKLY AVERAGE
TOTAL AUTOMATIC SCRAMS	3	2.23	2.44	3.06	3.25	3.21
TOTAL MANUAL SCRAMS	2	0.78	0.94	1.02	0.65	1.19

TOTALS MAY DIFFER BECAUSE OF ROUNDING OFF

* Detailed breakdown not in database for 1991 and earlier
  - EXTERNAL cause included in EQUIPMENT FAILURE
  - MAINTENANCE ERROR and DESIGN/INSTALLATION ERROR causes included in OPERATING ERROR
  - OTHER cause included in EQUIPMENT FAILURE 1991 and 1990

NOTES

1. PLANT SPECIFIC DATA BASED ON INITIAL REVIEW OF 50.72 REPORTS FOR THE WEEK OF INTEREST. PERIOD IS MIDNIGHT SUNDAY THROUGH MIDNIGHT SUNDAY. SCRAMS ARE DEFINED AS REACTOR PROTECTIVE ACTUATIONS WHICH RESULT IN ROD MOTION, AND EXCLUDE PLANNED TESTS OR SCRAMS AS PART OF PLANNED SHUTDOWN IN ACCORDANCE WITH A PLANT PROCEDURE. THERE ARE 111 REACTORS HOLDING AN OPERATING LICENSE.

2. PERSONNEL RELATED PROBLEMS INCLUDE HUMAN ERROR, PROCEDURAL DEFICIENCIES, AND MANUAL STEAM GENERATOR LEVEL CONTROL PROBLEMS.

3. COMPLICATIONS: RECOVERY COMPLICATED BY EQUIPMENT FAILURES OR PERSONNEL ERRORS UNRELATED TO CAUSE OF SCRAM.

4. "OTHER" INCLUDES AUTOMATIC SCRAMS ATTRIBUTED TO ENVIRONMENTAL CAUSES (LIGHTNING), SYSTEM DESIGN, OR UNKNOWN CAUSE.

OEAB SCRAM DATA

Manual and Automatic Scrams for 1987	435
Manual and Automatic Scrams for 1988	291
Manual and Automatic Scrams for 1989	252
Manual and Automatic Scrams for 1990	226
Manual and Automatic Scrams for 1991	206
Manual and Automatic Scrams for 1992	212
Manual and Automatic Scrams for 1993	175
Manual and Automatic Scrams for 1994 --(YTD 05/15/94)--	58