

From: Richard Skokowski *RSK*
To: Steven Orth
Date: Wed, Nov 30, 2005 3:58 PM
Subject: Fwd: CRs re: tritium leak frm vac brkrs

Release

D-68

From: "NXS@NRC.GOV" <nxs@nrc.gov>
To: "RAS@NRC.GOV" <ras@nrc.gov>
Date: Wed, Nov 30, 2005 3:08 PM
Subject: CRs re: tritium leak frm vac brkrs

****AS REQUIRED, PRINT ISSUE REPORT AND PROVIDE TO YOUR SUPERVISOR****

Note: This is your only notice. You will not have an opportunity to print this confirmation later.

Exelon Nuclear Issue - Statement of Confirmation

Issue #: 00428868 Originator: ALLAN R HAEGER Submit Date: November 30, 2005

Basic Information

Affected Facility: Braidwood
 Discv Date: 11/30/2005 11:50
 How Discovered Code: H02
 Event Date: 11/30/2005 11:50
 Affected Unit: 00
 Affected Sys: --
 Subject: ELEVATED TRITIUM LEVELS IN ON-SITE MONITORING WELLS

CR for current H₃
 activity found adjacent
 to SMILEY ROAD.

Required Information

Condition Description: Elevated levels of tritium have recently been identified in certain on-site groundwater sampling wells. The exact source has not been located nor has the source been determined to be active or historical.

Immediate actions taken: An issue management team has been formed to address this issue. The team will address characterization of the extent of the elevated tritium levels, including the potential for elevated levels off-site; identification and elimination of the source if still active; remediation of the affected areas; communications with government agencies and any potentially affected members of the public; and regulatory interface.

Recommendation for action: The issues management team will address the immediate actions required for this issue. A root cause should be initiated to document the immediate actions, as well as to capture the cause, additional extent of condition investigations, and corrective actions to prevent recurrence. Also, the station's documentation of previous leaks in accordance with 10 CFR 50.75(g) needs to be reviewed.

Supervisor Verbally Contacted: John Moser

Optional Additional Information

What activities, processes, or procedures were involved? The elevated levels were discovered in monitoring wells that were recently installed to provide enhanced ground water monitoring capability.

Why did the condition happen? Unknown. It is believed the source may be from historical vacuum breaker leaks, but this needs to be confirmed.

What are the consequences? Undesired elevated tritium levels on site property. Potential for these elevated levels to have migrated off-site.

Any procedural requirements impacted? None.

Identify any adverse physical conditions: As described above.

List of knowledgeable individuals: John Moser
 Jim Gosnell
 Dale Ambler

Is this a repeat or similar condition? The discovery is part of an expanded sampling program as discussed above.

CR for 1998 leakage from Vacuum Breaker-1.

No ACE OR RCR DONE FOR THIS ISSUE.

11/29/05 11:00 AM 04324

ORIGINATOR

Title : CW Blowdown Vacuum Breaker Leak

Event Date : 12/04/1998

Event Time : 11:00 AM

Discovery Date : 12/04/1998

Discovery Time : 11:00 AM

Unit : 00 Unit Mode : 1

% Power : 100 System : CW

EPW : 0CW000

Location : OFFSITE

OCCURRED/DISCOVERED WHILE PERFORMING :

AR # : 980127750

WR # :

WR TASK # :

SUBV # :

RWT # :

ORIGIN # :

OOS # :

PGE # :

OTHER # :

OTHER DESCRIPTION

PROBLEM DESCRIPTION

POND OF WATER FOUND ON PROPERTY, WITH STANDING WATER IN ROAD DITCH ALONG SMILEY RD.

KNOWLEDGEABLE PERSONS : Joe Timoro

IMMEDIATE ACTION TAKEN

AR WRITTEN MONDAY AFTER SOUTHERN DIV. PR CONTACTED BY NEIGHBOR. SHE SIGHTED LEAKING VACUUM BREAKER FROM THE SOUTH WAS UNAWARE OF THE "POND" TO THE NORTH. CHEMISTRY CONTACTED ENVIRONMENTAL SERVICES. AR STATUS CHANGED TO B1 DUE TO POSSIBLE RELEASE PERMIT VIOLATION.

AR # : 980127750

WR # :

WR TASK # :

TRF/TRA # :

PROCEDURE # :

ER # :

HOLD TAG # :

REJECT TAG # :

ORIGINATOR : Johnson, david m.

EXT : 2476

DEPT : SE

ORIGINATED DATE: 12/05/98

SUPERVISOR

HOW IT HAPPENED

0CW000 VACUUM BREAKER FAILED CAUSING VALVE PIT TO FILL UP AND OVERFLOW TO THE GROUND.

WHY IT HAPPENED

UNKNOWN

A PCR WAS DONE FOR THIS ISSUE.

Page 1 of 1
PIF #: A2000-04281

ORIGINATOR

Title : Failed Circ Water Blowdown Vacuum Breaker Caused Unplanned Flooding Outside of the Power Block

Event Date : 11/06/2000

Event Time : 02:30 PM

Discovery Date : 11/06/2000

Discovery Time : 03:00 PM

Unit : 00 Unit Mode : 1

% Power : System : CW

EPN : 0CW135,0CW136

Location : OTHER

OCCURED/DISCOVERED WHILE PERFORMING :

AR # :

WR # :

WR TASK # :

SURV # :

RWP # :

QRI/RIN # :

OOS # :

PCE # :

OTHER # Followup inspection

OTHER DESCRIPTION

Circ Water blowdown corridor-east of plant

PROBLEM DESCRIPTION

I RECEIVED A CALL FROM THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (BILL POPADAKIS) ABOUT A REPORT OF WATER STANDING IN THE DITCH AT SMILEY ROAD. HE SAID THIS HAS BEEN THERE FOR A WHILE AND WE HAVEN'T HAD ANY RAIN UNTIL TODAY. HE ASKED IF I HAD ANY IDEA WHERE IT MIGHT BE COMING FROM. I SAID I DIDN'T KNOW BUT WOULD LOOK INTO IT AND GET BACK TO HIM. I NOTIFIED CAL WALRATH (2202) OF THE CALL AND SAID I WAS GOING OUT TO LOOK, AND THAT I SUSPECTED IT MAY BE A VACUUM BREAKER PROBLEM ON THE BLOWDOWN LINE. WHEN I APPROACHED THE VACUUM BREAKER (CONTAINING VALVES 0CW135 & 0CW136), I NOTICED WATER POURING OUT FROM THE MANHOLE COVER. THE ENTIRE AREA WAS SATURATED. UPON ARRIVAL BACK AT THE PLANT, I UPDATED THE OCC WITH THE RESULTS. ARRANGEMENT BEGAN TO PUT TOGETHER THE APPROPRIATE WORK PACKAGES AND OPERATING BEGAN LOOKING INTO ISOLATION OF THE BLOWDOWN FLOW.

KNOWLEDGEABLE PERSONS : Louis Rhoden, Carl Dunn, Mark Trushelm, Bill Vandermyde

IMMEDIATE ACTION TAKEN

I NOTIFIED BILL POPADAKIS (IEPA) OF WHAT I HAD FOUND. I EXPLAINED THE SOURCE OF THE WATER AND A DESCRIPTION OF THE AREA. HE STATED THAT HE WOULD NOT NEED ANY WRITTEN FOLLOW UP AT THIS TIME AND SINCE THE WATER WAS CONTAINED IN THE DITCH, WE DID NOT NEED TO SAMPLE. THERE WERE NO NPDES PROBLEMS. I TOLD HIM I WOULD UPDATE HIM WEDNESDAY MORNING. OPERATING FOLLOWED UP BY SHUTTING DOWN BLOWDOWN FLOW.

AR # :

WR # :

WR TASK# :

TIF/TRR # :

PROCEDURE #

ER # :

HOLD TAG # :

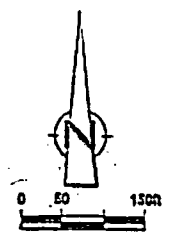
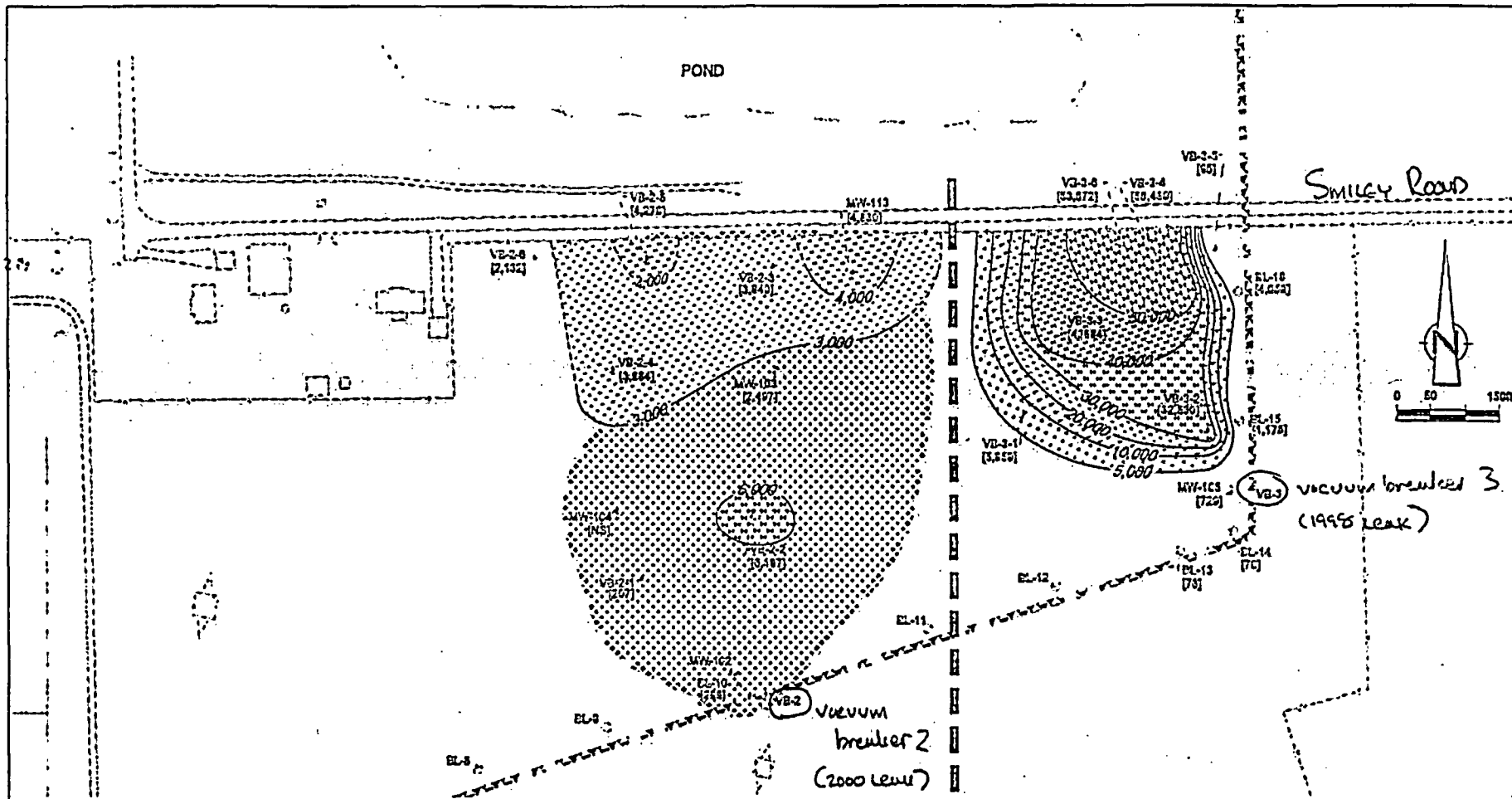
REJECT TAG # :

ORIGINATOR : Joseph Tidmore

EXT : 2299

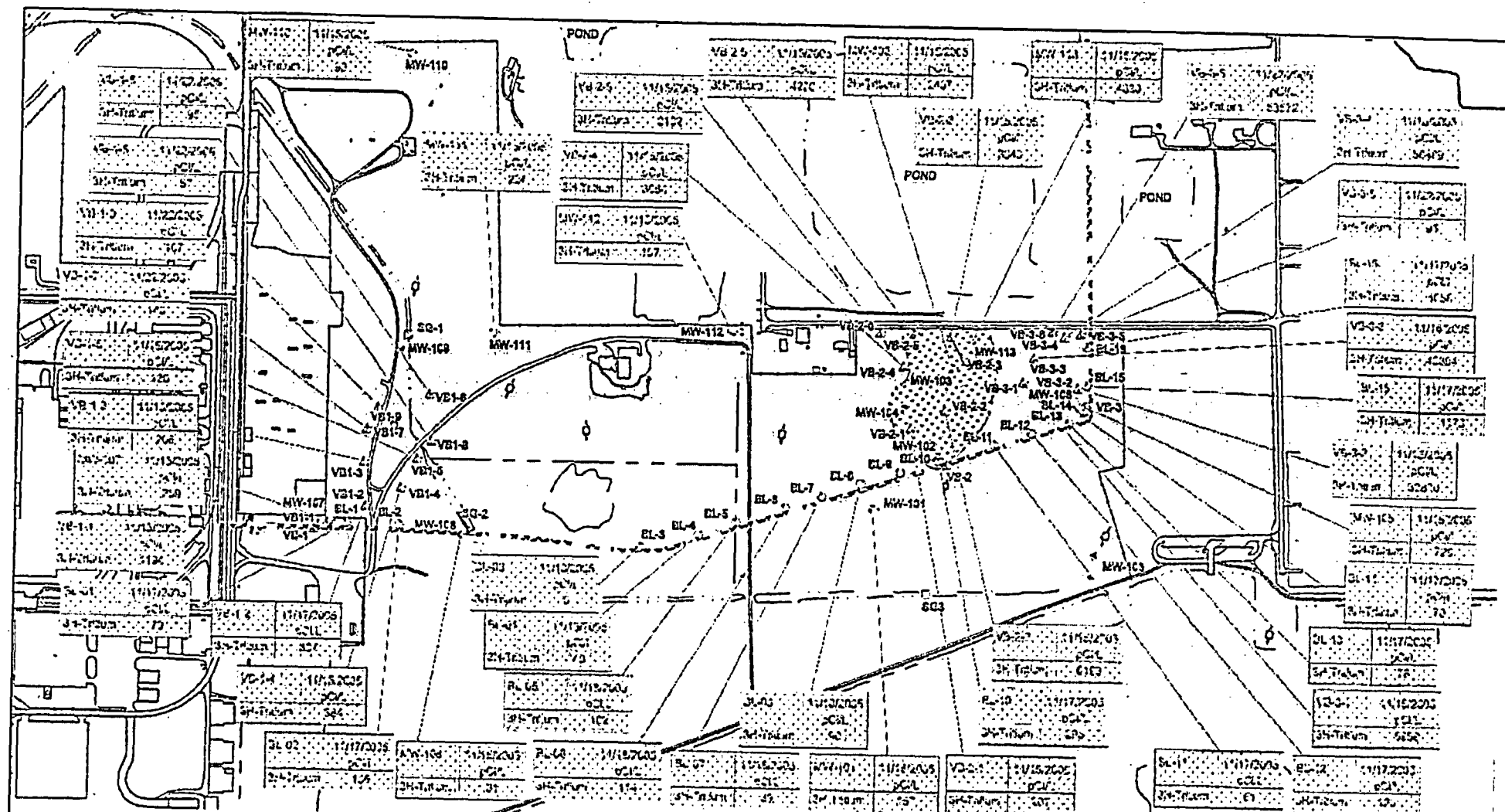
DEPT : CH

ORIGINATED DATE: 11/07/00



- LEGEND:**
- EXISTING FENCE LINE/APPROXIMATE PROPERTY LINE
 - EXISTING PERIMETER DITCH LIMITS
 - FEEDER DITCH
 - ELONG DOWN LINE
 - 2000 SURFACE RELEASE FROM VB#2
 - EXISTING MONITORING WELL LOCATION AND IDENTIFIER
 - STAFF GAUGE LOCATION AND IDENTIFIER
 - VACUUM BREAKER LOCATION AND IDENTIFIER
 - TEMPORARY MONITORING WELL LOCATION AND IDENTIFIER

figure
TRITIUM CONTOURS
NOVEMBER 2005
BRAIDWOOD STATION
Braceville, Illinois



LEGEND:

- EXISTING FENCE LINE/APPROXIMATE PROPERTY LINE
- EXISTING PERIMETER DITCH LIMITS
- FEEDER DITCH
- BLOW DOWN LINE
- 2000 SURFACE RELEASE FROM VB#2
- EXISTING MONITORING WELL LOCATION AND IDENTIFIER
- STAFF GAUGE LOCATION AND IDENTIFIER
- VACUUM BREAKER LOCATION AND IDENTIFIER

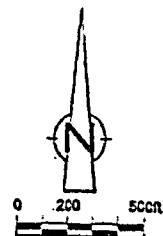
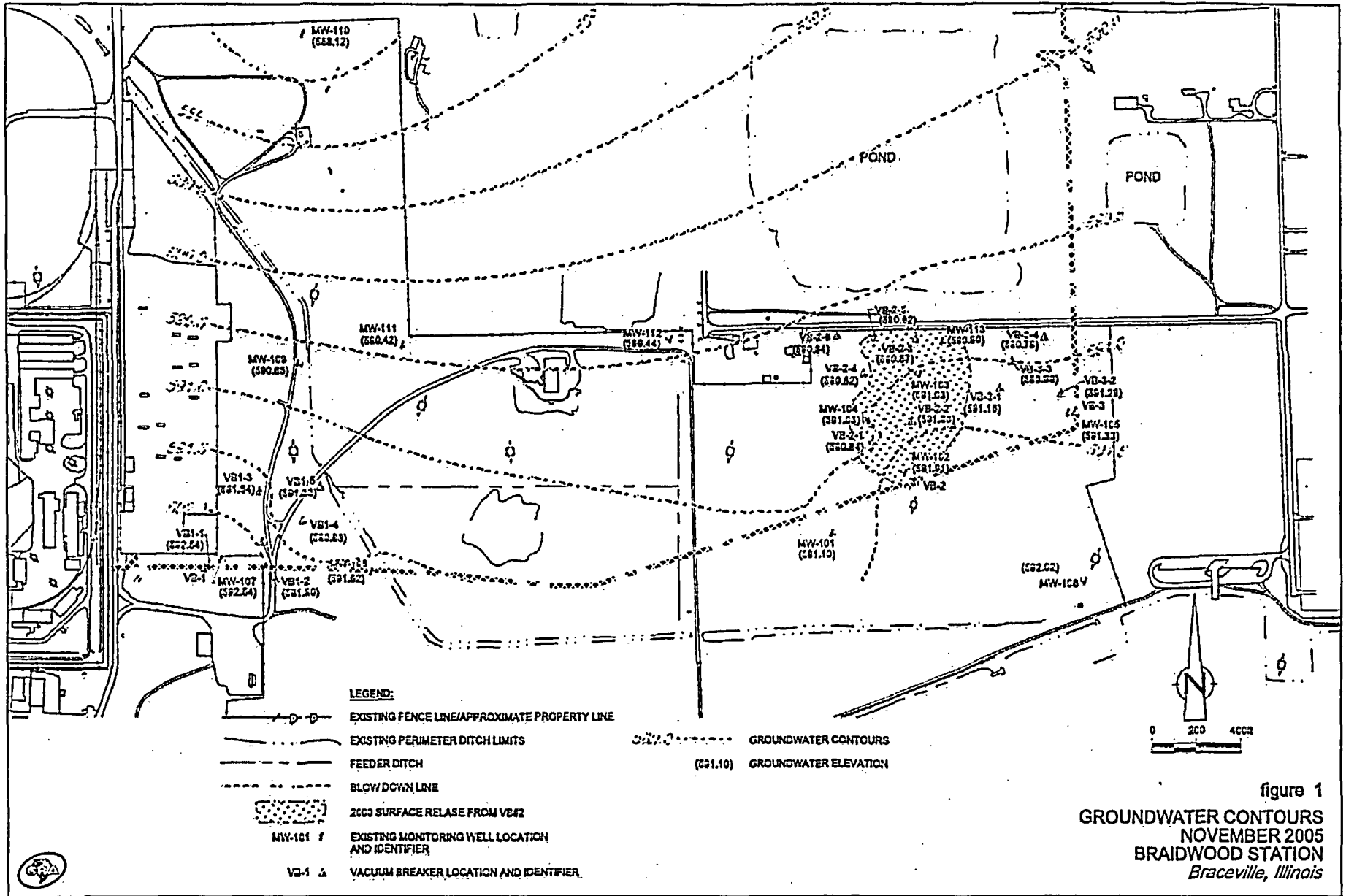


figure 3
 TRITIUM IN GROUNDWATER
 NOVEMBER 2005
 BRAIDWOOD STATION
 Braceville, Illinois



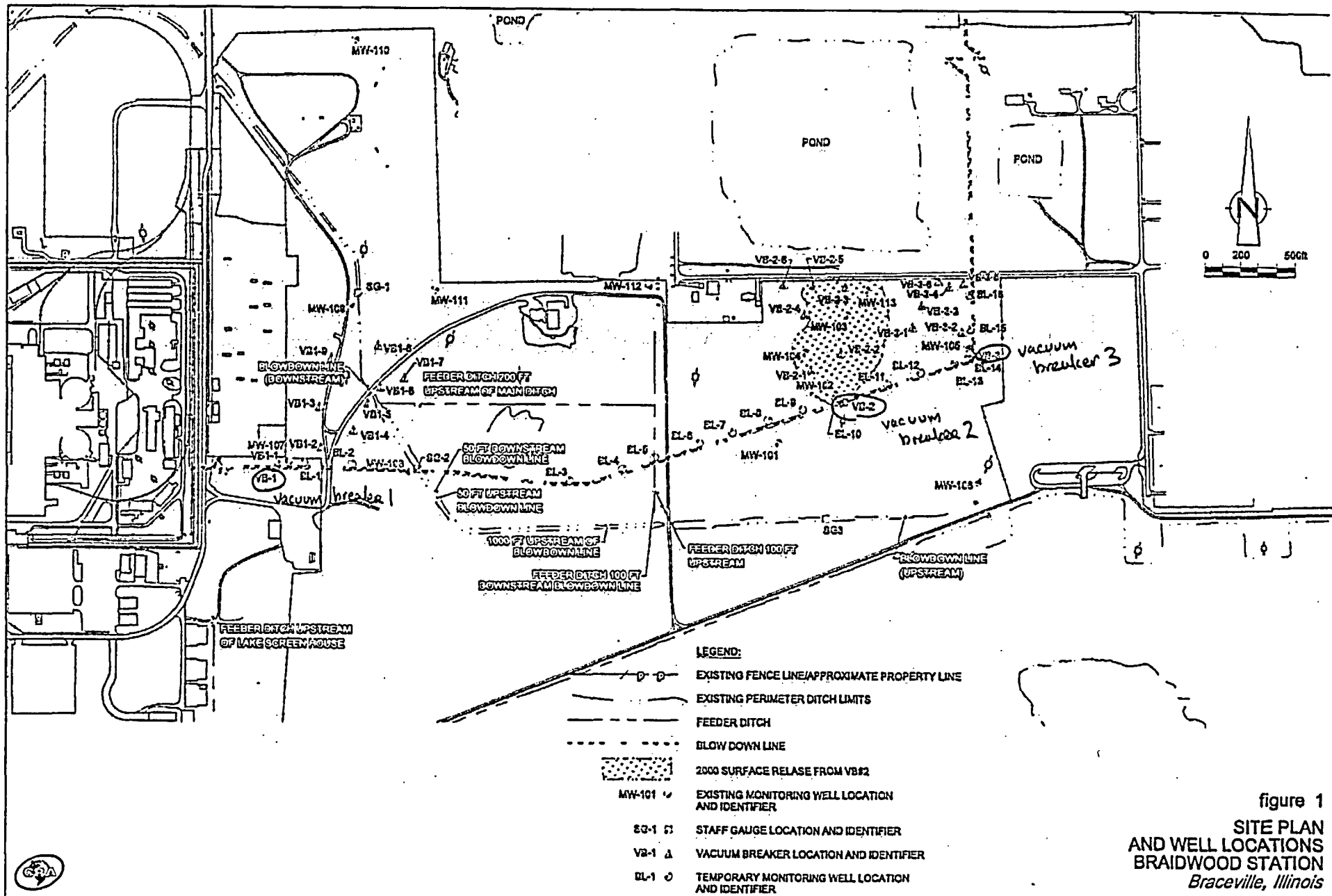
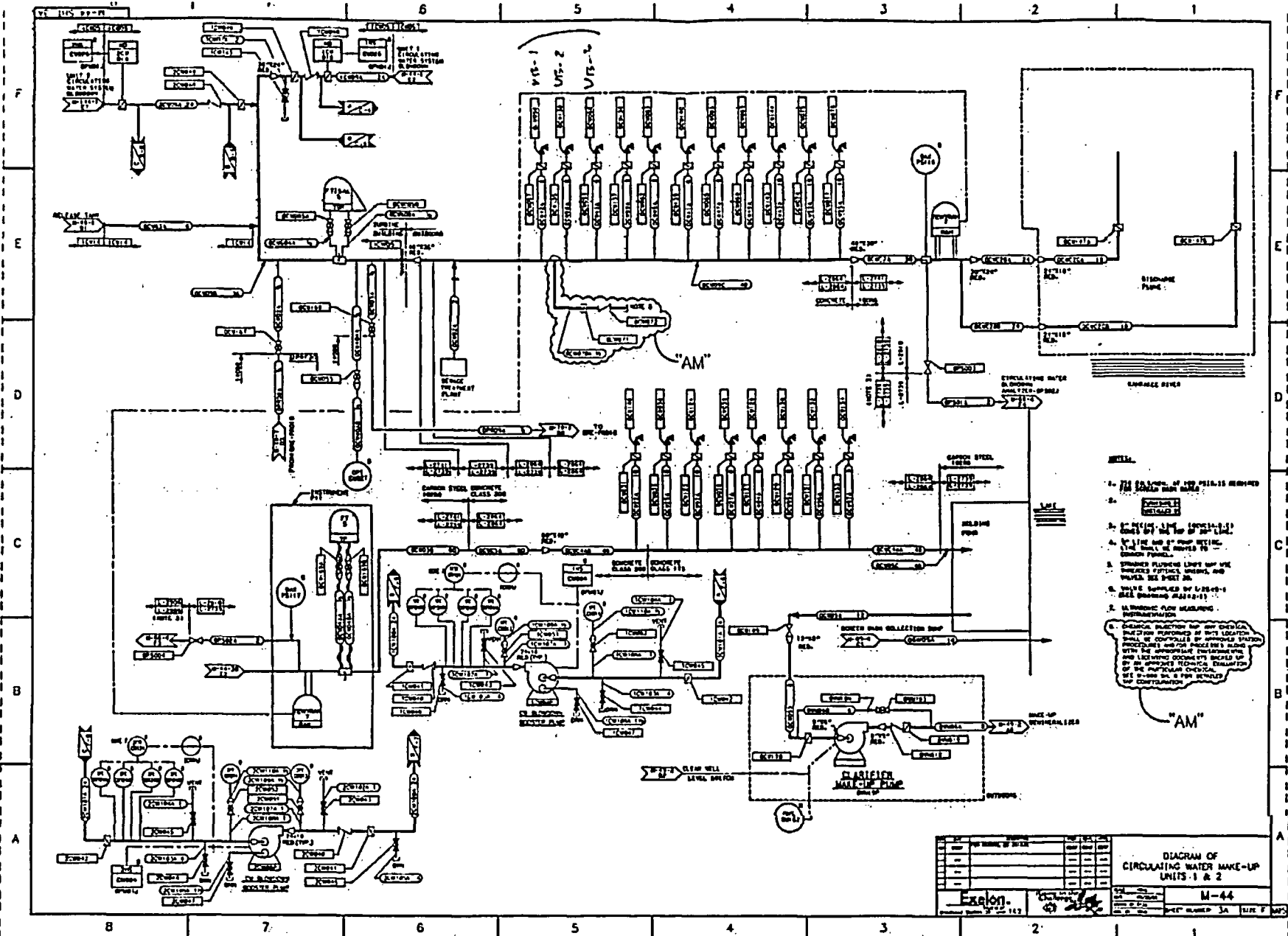


figure 1
 SITE PLAN
 AND WELL LOCATIONS
 BRAIDWOOD STATION
 Braceville, Illinois





- NOTE:**
1. ALL VALVES ON UNIT 1 IS REMOVED
 2. ALL VALVES ARE CLOSED
 3. ALL PIPING LINE (EXCEPT) MADE BY 10" OR 12" LINE
 4. 10" LINE AND 12" PUMP SETTING LINE SHALL BE REMOVED TO COMMON PANEL
 5. STRAINER FILTERS LINE UP AND REMOVED FILTERS AND VALVES BE SET IN
 6. VALVE OPERATED BY 12" LINE SHALL BE SHOWN (PLEASE)
 7. ALL PIPING LINE REMOVED (REINSTALLATION)
- DETAILED INSTRUCTIONS BY THE DESIGNER SHALL BE PROVIDED BY THE LOCATION PROVIDED BY THE OPERATOR. PROCEDURES AND THE PUMP SETTING SHALL BE APPROVED BY THE OPERATOR AND LISTED IN THE OPERATOR'S MANUAL BY AN APPROVED TECHNICAL DRAWING SET 1-100 IN A THE SCOPE OF CONFIRMATION

DIAGRAM OF CIRCULATING WATER MAKE-UP UNITS 1 & 2	
EXALON	M-44
DATE: 11-1-68	BY: [Signature]
SCALE: 1/4" = 1'-0"	SHEET NUMBER: 3A
	SHEET OF: 40

HOW TO SELECT APCO SLOW CLOSING AIR/VACUUM VALVES

STEP ONE:
CHECK PUMP CURVE FOR G.P.M. CAPACITY AT NO HEAD CONDITION.
STEP TWO:
ENTERED CHART WITH G.D.M. TO DETERMINE SIZE

DISCHARGE
VED OR
ED ONLY.

PERIODS
RELEASE

installations.
partment.

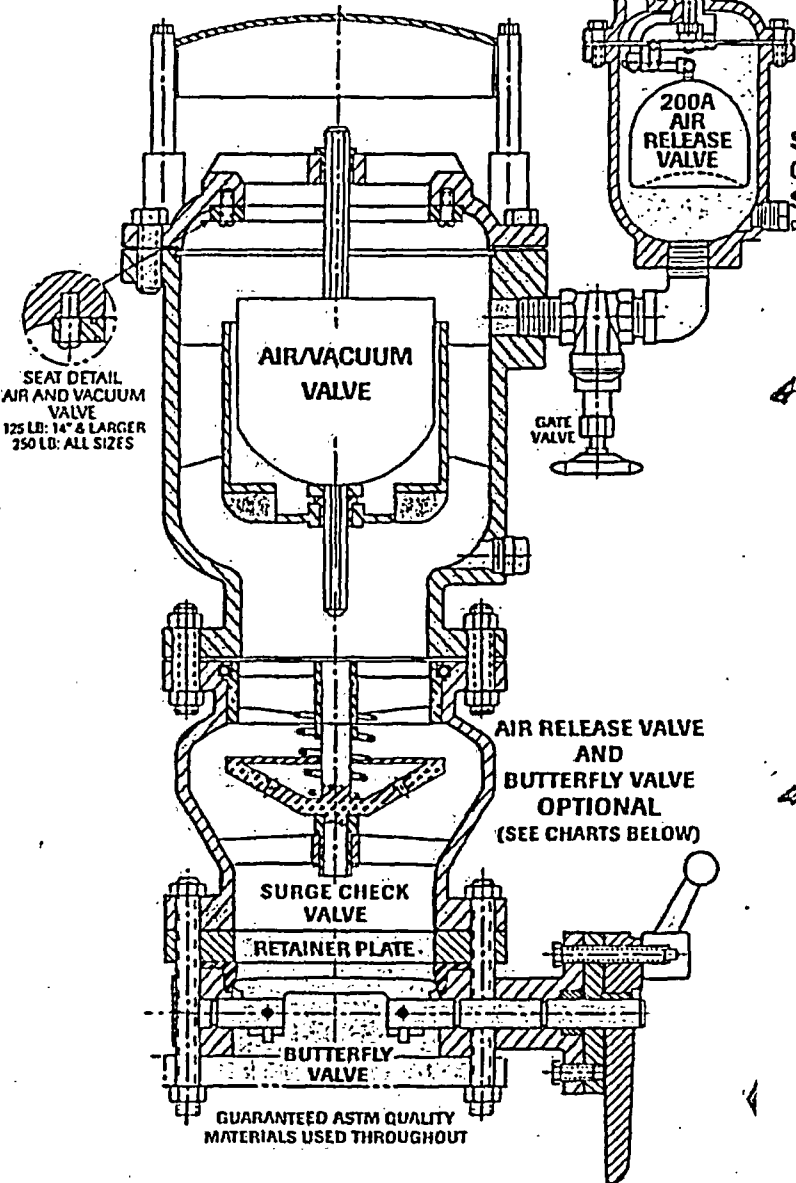
(IONAL)
RELEASE
/E NO.

00A
00A
00A
000
000
000
000
000

contained
already in scr-

← THIS THE "float" VALVE
THAT SEALS THE VACUUM
BREAKER. THIS float
failed causing the
2000 GVENT.

← THIS SURGE VALVE
DID NOT EXIST PRIOR TO
2000. IT WAS ADDED
AS A CORRECTIVE MEASURE
AFTER THE 2000 EVENT
TO PROTECT THE float
VALVE.



- APCO AIR/VACUUM VALVE**
Stainless Steel float and trim, synthetic, non-destructible seat. Positively will not blow shut even at maximum discharge velocities. Regular 125 lb. or 250 lb. flange mates with similar flange on Surge Check Unit.
- APCO SURGE CHECK VALVE**
Bronze trim and Stainless Steel spring for ultimate in protection.

- APCO AIR RELEASE VALVE**
Will open while line is in operation against pressures up to 300 PSI to exhaust small pockets of entrained air. Stainless Steel Concave Float. (Higher pressure valves available.)
- Simplicity of design - no delicate needle valves to fail or need adjustment. Positively will not blow shut.

- REPLACE SHUT-OFF VALVE WITH APCO BUTTERFLY VALVE**
Costs to excavate pipeline trenches can be greatly reduced by using APCO Butterfly Valves for isolation instead of gate valves. APCO Butterfly Valves are economical, reliable and much shorter, permitting a reduction in depth of the trench.

SERIES 1900

AIR/VACUUM VALVE & SURGE CHECK VALVE

VALVE SIZE	MODEL NO.	MAX. DIAM.	HEIGHT	
			125 LB	250 LB
4"	1904	11%	25%	25%
6"	1906	13%	30%	30%
8"	1908	17%	34%	35%
10"	1910	20%	38%	39%
12"	1912	29%	45%	45%
14"	1914	29%	46%	46%
16"	1916	32%	49%	49%

SIZES 3" & SMALLER, SEE BULLETIN 586

SERIES 1700

AIR/VACUUM VALVE, SURGE CHECK VALVE & AIR RELEASE VALVE

MODEL NO.	WIDTH	HEIGHT	
		125 LB	250 LB
1704	19%	27%	28
1706	22%	31%	32%
1708	25%	34%	35%
1710	27%	38%	39%
1712	32%	45%	45%
1714	41%	45%	45%
1716	45%	49%	49%

LARGER SIZES READILY AVAILABLE - CONTACT FACTORY.

SERIES 1300

AIR/VACUUM VALVE, SURGE CHECK VALVE & BUTTERFLY VALVE

MODEL NO.	WIDTH	HEIGHT	
		125 LB	250 LB
1304	15%	28%	29%
1306	18%	34%	34%
1308	23%	40%	41%
1310	25%	45%	45%
1312	28%	54%	54%
1314	31%	55%	55%
1316	33%	60%	60%

SERIES 1200

AIR/VACUUM VALVE, SURGE CHECK VALVE, AIR RELEASE & BUTTERFLY VALVE

MODEL NO.	WIDTH	HEIGHT	
		125 LB	250 LB
1204	19%	30%	30%
1206	22%	35%	36%
1208	25%	41%	42%
1210	27%	45%	46%
1212	32%	50%	50%
1214	41%	52%	52%
1216	45%	55%	55%

SLOW CLOSING AIR/VACUUM VALVES

From: Richard Skokowski
To: Gregory Roach
Date: Wed, Nov 30, 2005 4:18 PM
Subject: Re: CW Blowdown vacuum breakers

thanks

>>> Gregory Roach 11/30/05 4:17 PM >>>

Rick,

A quick synopsis with a copy of 2000 root cause CAPR's and 2005 IR response to NRC inquiry to follow.

In 2000 the licensee experienced a failure of the #2 vacuum breaker(VB) in the CW blowdown system which resulted in flooding of the area in the vicinity of the VB. The licensee determined that the VB failed to due to fatigue failure (# of cycles over lifetime) of the valve float assembly. This was exacerbated by the lack of surge protection for the float assembly which seals the valve shut when the piping is full of water. A water hammer appears to have damaged the unprotected float preventing it from sealing shut, allowing an estimated 3 million gallons of water to escape. The CAPR's included installing a surge protection feature on the VB's and modifying the preventative maintenance program for the VB's.

In May 2005 the licensee identified a 20 dpm leak from the pilot valve of VB-1. Tritium contamination was limited to the VB-1 well which is in the vicinity of the switchyard with no tritium leaving the site boundaries. The escape path for the water through the pilot valve is significantly smaller than that of the main valve, hence the much smaller release of water. Following NRC inquiry, the licensee responded that the elastomer components in the pilot valves are subjected to higher pressures and are subject to the corrosive effects of the raw water they are exposed to. The licensee's response to the NRC RIO inquiry stated that they were making additional modifications to their PM program and again increased the rate of visual inspections.

CAPR's and IR to follow.

Greg

CC: Steven Orth

From: Richard Skokowski
To: Nirodh Shah
Date: Wed, Nov 30, 2005 4:26 PM
Subject: Re: Tritium Contacts

Thanks

>>> Nirodh Shah 11/30/05 4:25 PM >>>
Rick, here are the people that Bwd contacted re: the tritium:

IEMA: Asst. Director Wright
Cecil Settles (no title provided)
Mike Parker, Nuclear Facilities Mgr. (Cecil's boss)
Rich Allen, Environmental Manager

Corinne Gordon, Illinois District Representative (i.e., State Congresswoman)
Tom Dahl, Illinois State Senator

Mayor of Braidwood

The licensee did not contact county officials or the mayor of Godley. The licensee was in the process of contacting the IEPA and should get the names to us by the morning.

thanks..N

CC: Roland Lickus; Steven Orth