CONTAINMENT DEBRIS WALKDOWN PACKAGE WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-005A SHEET 1 OF 3

DATE:	10/09/2003	AREA:	LOOP 4 (LOOP D)	RWP NO.:	8010
		ELEV:	702'		

INSPECTORS:	C. G. WALLS, MIKE SOLLIE

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-040C, SH. 1, REV. B (NOTES ONLY) *	
Tools:	590955-040C, SH. 4, REV. B *	
Drawings	47W2500-4, REV. 2	
Flashlights		
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	REACTOR COOLANT INTERIM LEG (CROSSOVER LEG)
	* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS CWalls Date: 10/09/03

Checked By: MIKE SOLLIE Mike Sollie Date: 10/31/03

APPROXIMATE INSULATION VOLUME:

AT LOOP: (START FROM STEAM GENERATOR NOZZLE)

$V = [\pi(42^2 - 36.31^2)/4 \times 6] + [\pi(44^2 - 37.5^2)/4 \times \pi(47.5)(40°)/180°]$

$+ [\pi(47^2 - 36.31^2)/4 \times 34.91] + [\pi(44^2 - 36.31^2)/4 \times (53.0 - 34.91 + 2.5 + 2.75)]$

$+ [\pi(44^2 - 37.5^2)/4 \times \pi(51.25)(90°)/180°] + [\pi(44^2 - 36.31^2)/4 \times 43.31]$

$+ [\pi(49^2 - 42^2)/4 \times \pi(44.25)(90°)/180°] + [\pi(49^2 - 37.62^2)/4 \times (9.75-2.38)]$

$= 145410(1/12^3) = 84.15 FT^3$

AT VALVES & CAP:

$V = (3)[\pi 5^2/4 \times 9.75] + [\pi 5.5^2/4 \times 9.75] + (10.75^2 \times 6.44) = 1551(1/12^3) = 0.90 FT^3$

TOTAL VOLUME = $84.15 + 0.90 = 85.05 FT^3$

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-005A SHEET 3 OF 3

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
N/A	LOOP 4	702'	5	RC INTERIM LEG	SEE CALC	SEE CALC	RMI	SEE CALC	85.05	S.S.	STD	N/A	N/A

CONTAINMENT DEBRIS WALKDOWN PACKAGE WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-005B SHEET 1 OF 9/10 nw

DATE:	10/22/2003	AREA:	LOOP 4	RWP NO.:	8010
		ELEV:	702'		

INSPECTORS:	C. G. WALLS, FRANK C. YAO

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-031C, SH. 4, REV. 0 *	
Tools:	590955-032C, SH. 4, REV. D *	
Drawings	590955-033C, SH. 4, REV. A *	
Flashlights		
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	REACTOR COOLANT PUMP
	* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 10/22/03

Checked By: FRANK C. YAO Date: 10/22/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-005B SHEET 2 OF 8/18 Max

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
N/A	LOOP 4	702'	5	REACTOR COOLANT PUMP	SEE CALC	SEE CALC	RMI	SEE CALC	83.45	S.S.	STD	N/A	N/A

APPROXIMATE INSULATION VOLUME:

AT PUMP: (CONSIDER INSULATION THICKENESS = 2.75")

$V = [\pi(87.5^2 - 82^2)/4 \times 121.6] + [\pi(82^2 - 44^2)/4 \times 2.75] - 3(55.54)(121.6)$

$- 3[(244 - 55.54) \times 36.83] - (\pi 17.69^2 \times 2.75) = 55588(1/12^3) = 32.17 FT^3$

AT COOLANT NOZZLE COVER:

$V = (44.5 \times 46 \times 2.75) + 2(27.25 \times 44.5 \times 2.75) + 2(40.5 \times 27.5 \times 2.75)$

$+ 2(18.5 \times 27.5 \times 2.75) - (\pi 17.69^2 \times 2.75) = 18519(1/12^3) = 10.8 FT^3$

AT SUPPORTS: (SEE VIEWS A-A & L-L)

$V = 2[(48 \times 36.83 \times 2.75) + 2(36.83 \times 21.25 \times 2.75) + 2(48 \times 24 \times 2.75)$

$- 2(\pi 14^2 \times 2.75) + \pi[10.5^2 - 7^2]10] = 28080(1/12^3) = 16.25 FT^3$

AT SUPPORT: (SEE VIEW K-K)

$V = 2(48 \times 18.75 \times 2.75) + 2(36.83 \times 18.85 \times 2.75) - 2(\pi 14^2 \times 2.75)$

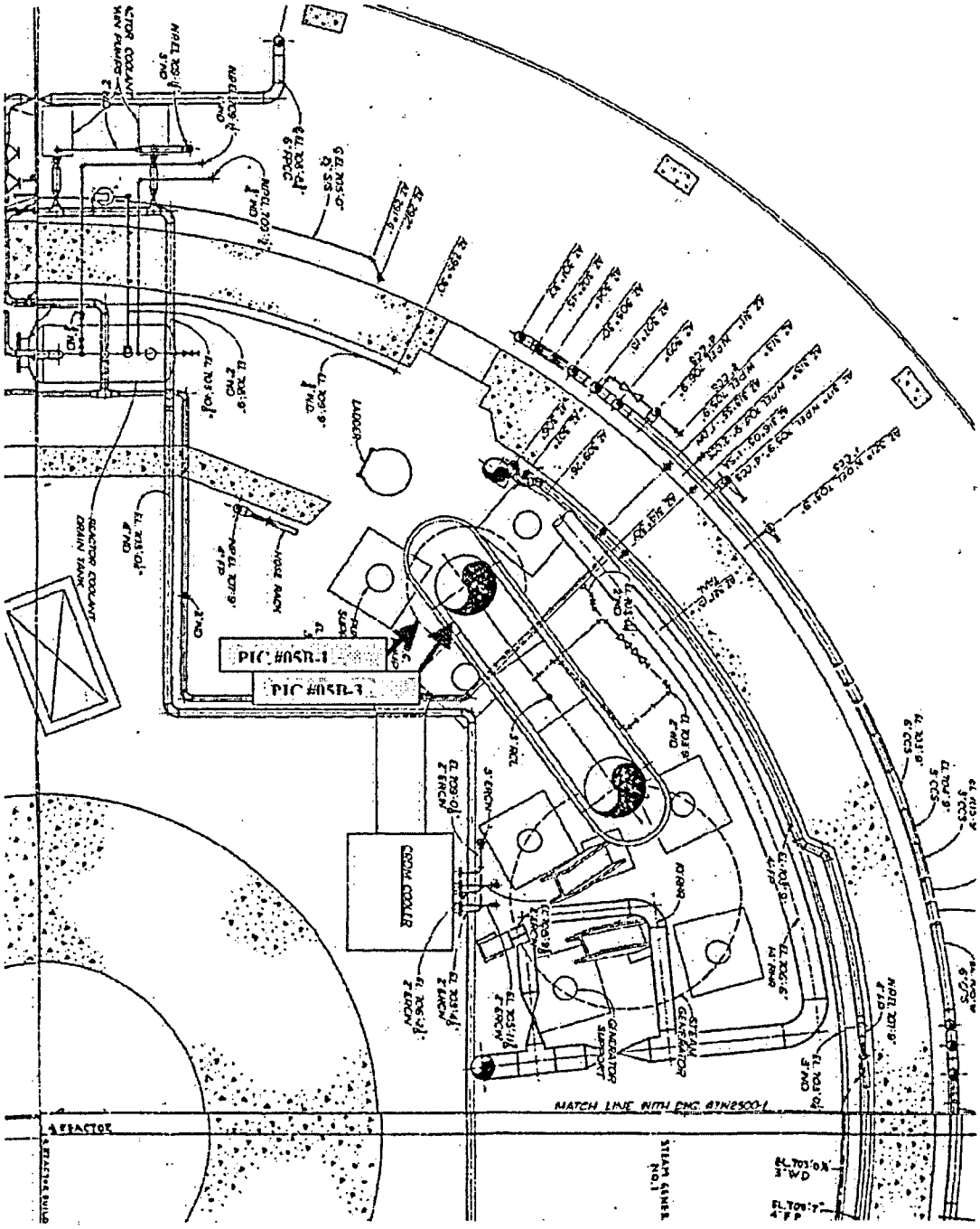
$+ \pi[10.5^2 - 7^2]10 = 7307(1/12^3) = 4.23 FT^3$

TOTAL VOLUME = 32.17 + 10.8 + 16.25 + 4.23 = 63.45 FT^3

47W2500-4
QUAD-IV
E. 702' TO 710'

WB1-DWD-005B

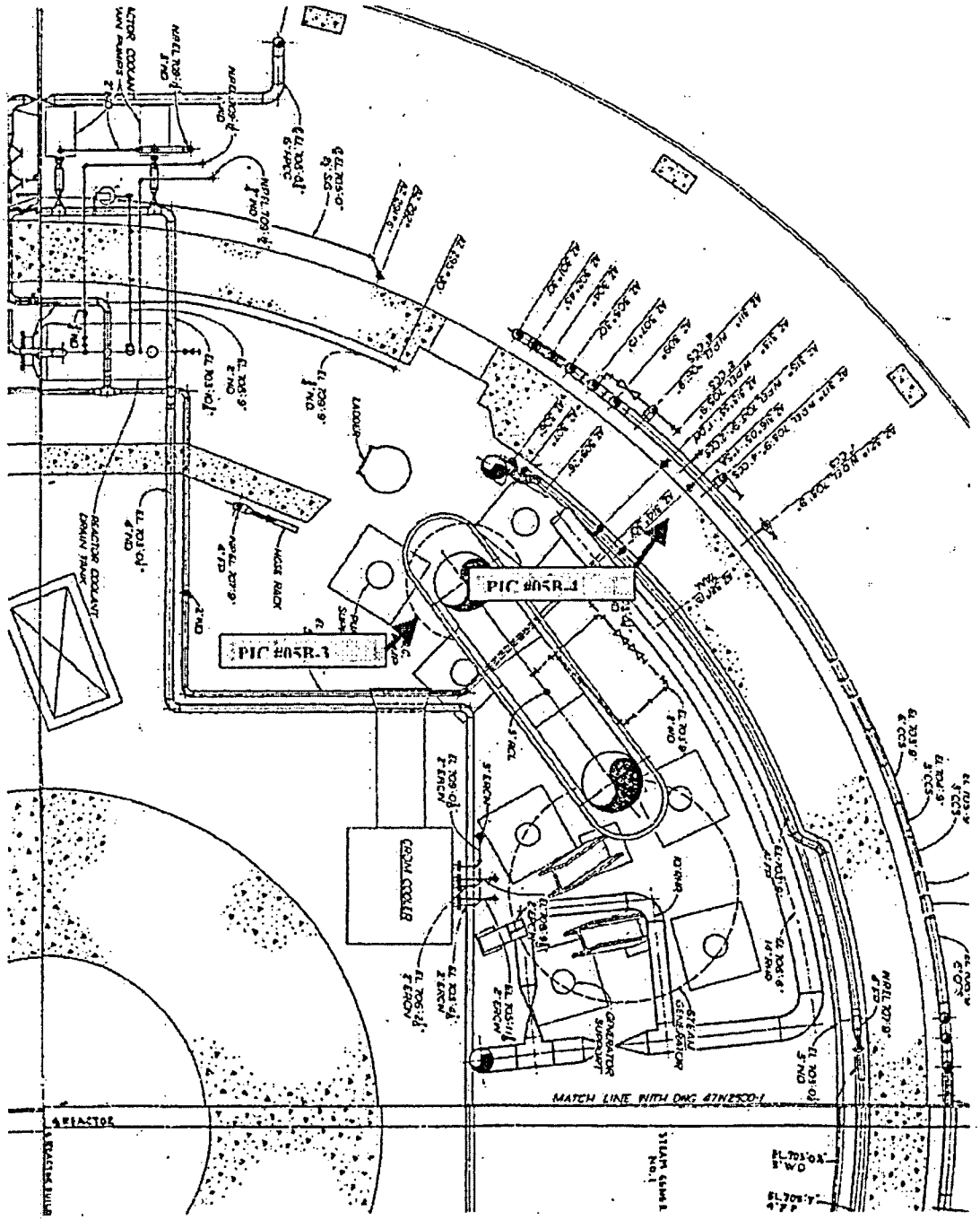
SHEET 4 OF 10

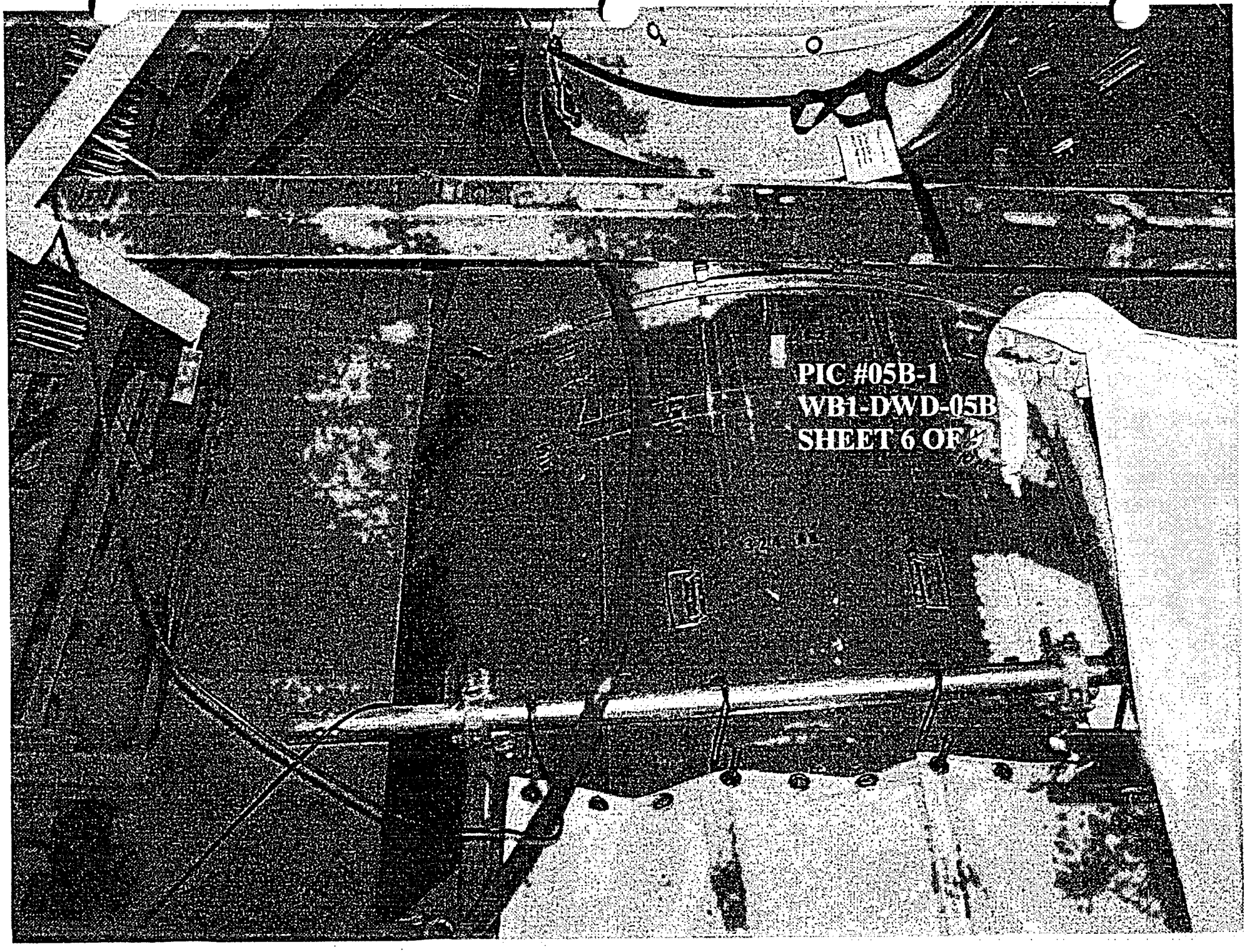


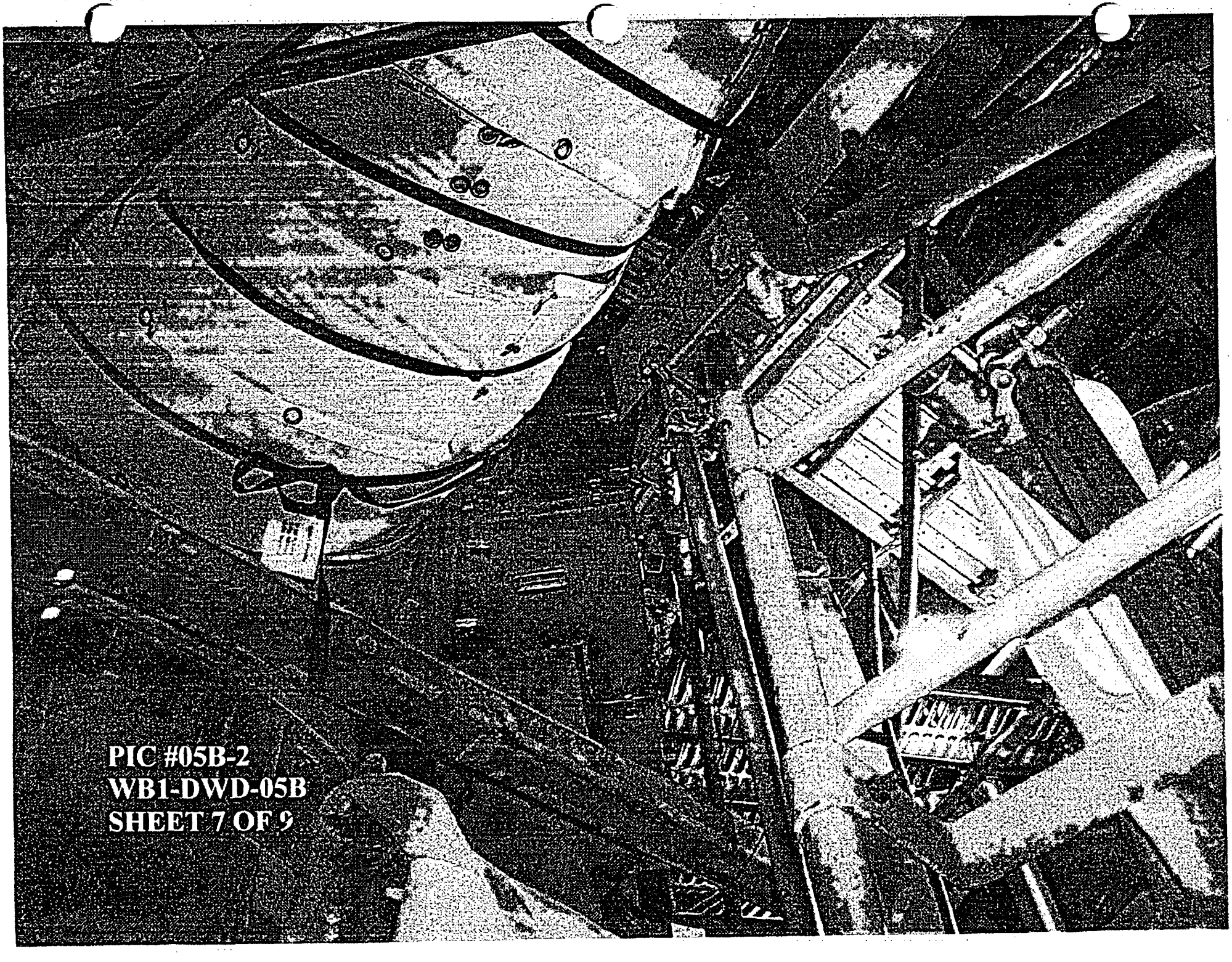
47W2500-4
QUAD-IV
E. 702' TO 710'

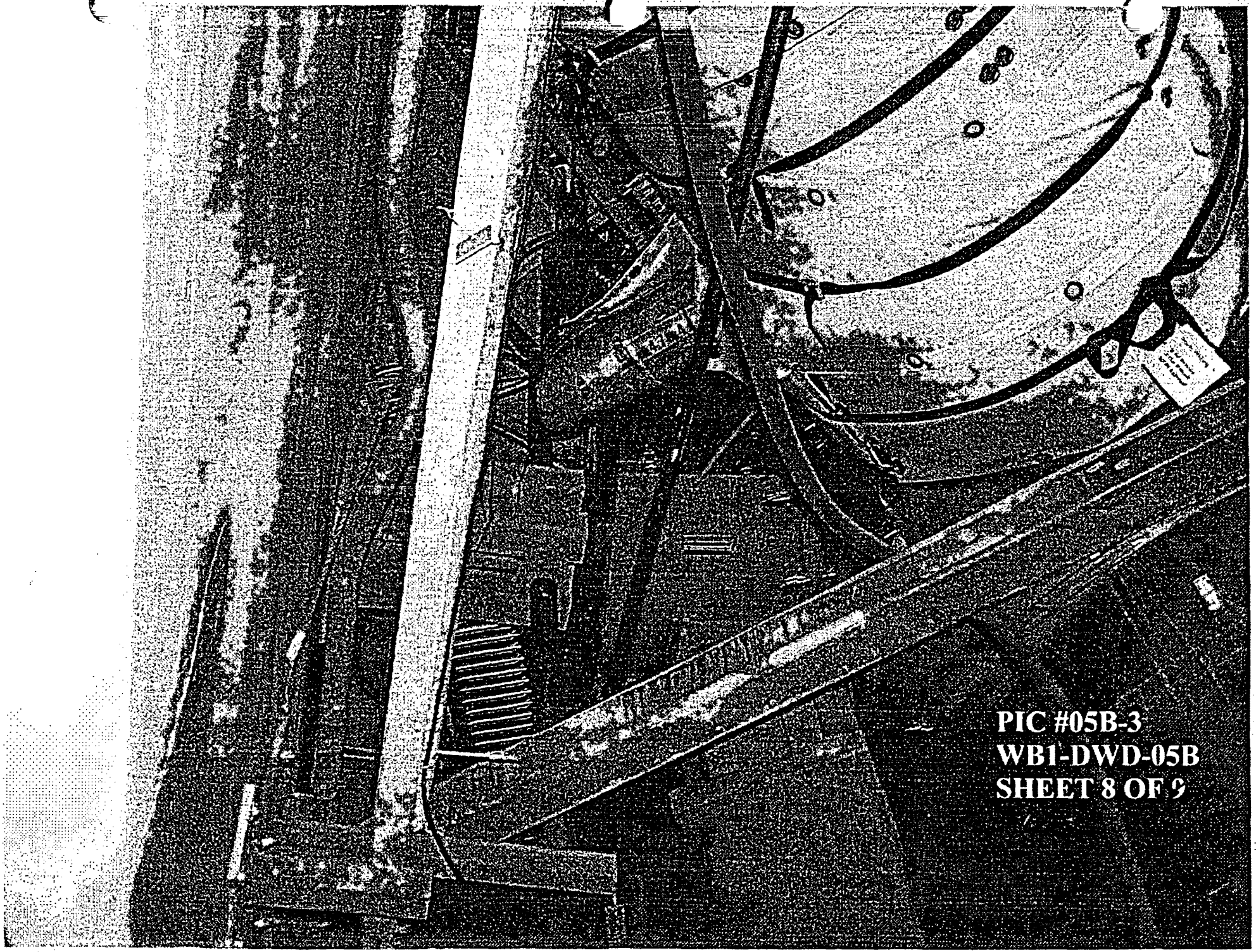
WB1-DWD-005B

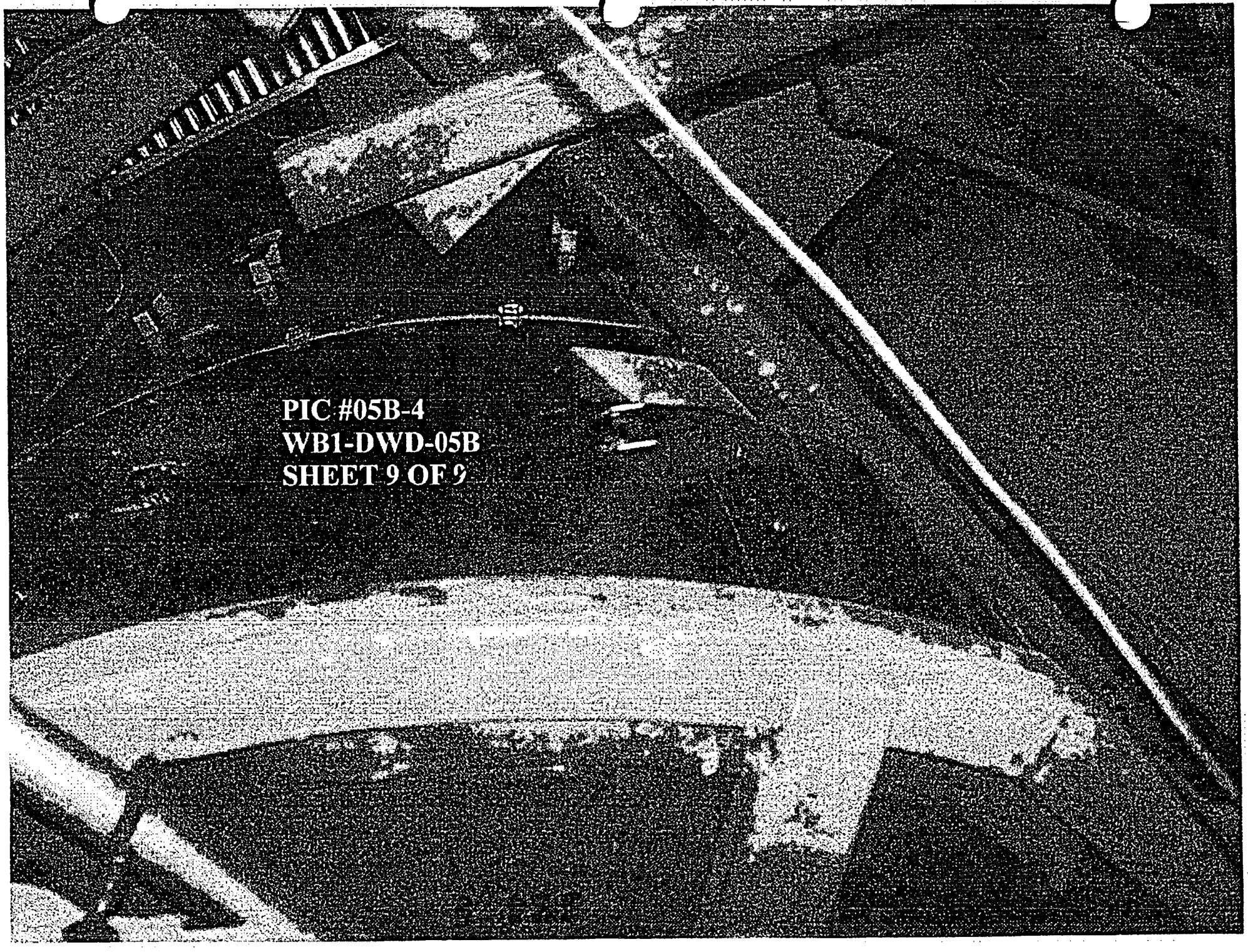
SHEET 5 OF 8/10




PIC #05B-1
WB1-DWD-05B
SHEET 6 OF 9


PIC #05B-2
WB1-DWD-05B
SHEET 7 OF 9


PIC #05B-3
WB1-DWD-05B
SHEET 8 OF 9

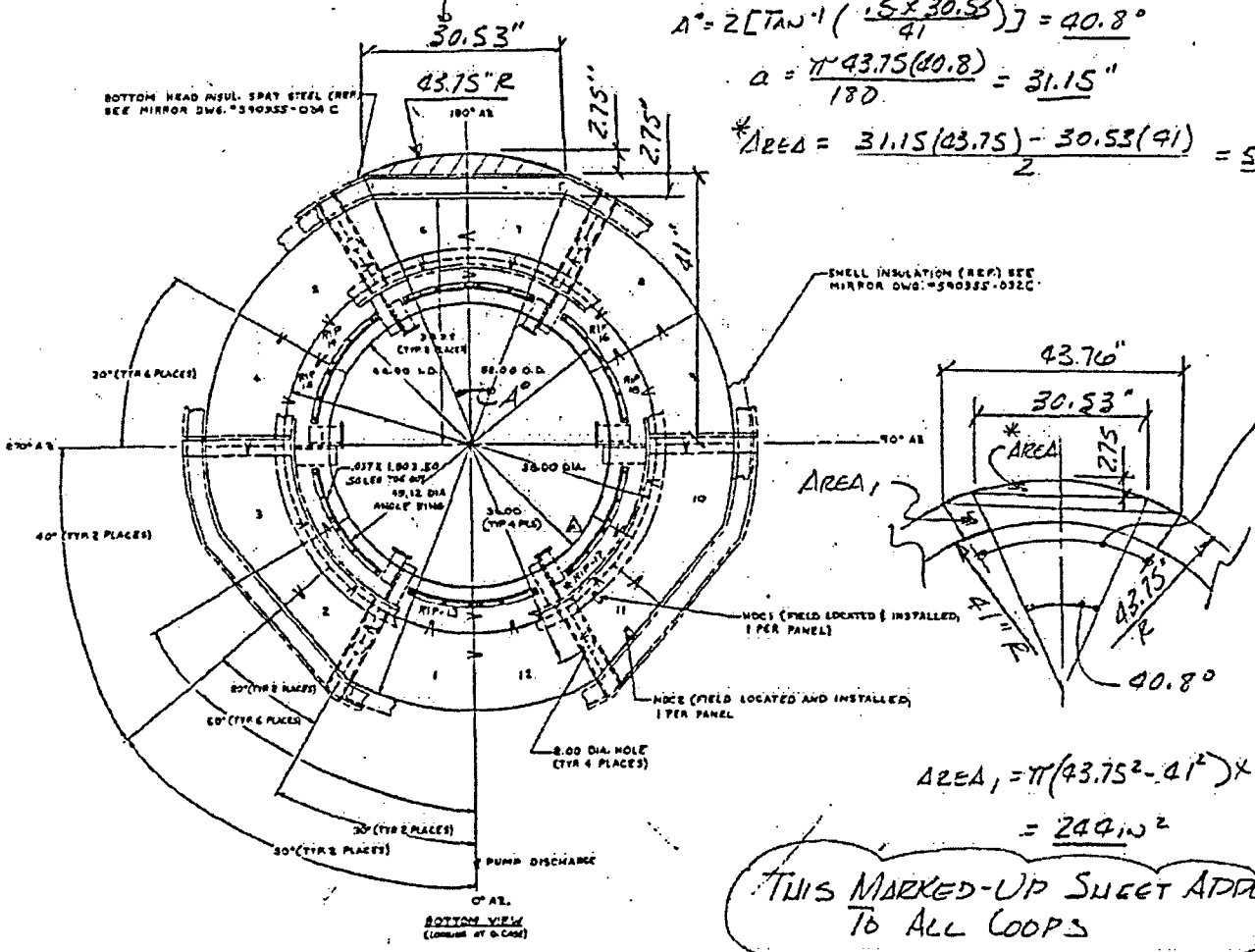

PIC #05B-4
WB1-DWD-05B
SHEET 9 OF 9

$C = 2[2(2.75)(43.75) - 2.75^2]^{1/2}$

$A^\circ = 2[\tan^{-1}(\frac{.5 \times 30.53}{41})] = 40.8^\circ$

$a = \frac{\pi\, 43.75(40.8)}{180} = 31.15''$

$^*\text{Area} = \frac{31.15(43.75) - 30.53(41)}{2} = 55.54\,in^2$



$2[\sin^{-1}(\frac{.5 \times 43.76}{43.75})] = 60^\circ$

NOTES
1) ALL PANELS ARE FASTENED TOGETHER WITH SCREWS EXCEPT TRIP WHICH ARE PROVIDED WITH BUCKLES
2) INSULATION TO BE INSTALLED IN NUMERICAL SEQUENCE.
3) 531 TO PREFIX ALL PANEL NUMBERS
4) ARROWS INDICATE DIRECTION OF D-CASE LAPPING
5) ALL AZIMUTHS ARE PUMP AZIMUTHS.
6) THIS DRAWING WAS TRACED AND COMPILED FROM WESTINGHOUSE DWG'S. 6181940, 1168968 SHTS. 1&2, 1168920 SHTS. 1&2, 1168981 SHTS. 1&2 AND TVA DWG'S. 48N611, 48N612 REV 5, 48N613 & 48N615 REV 2.
7) 100% STAINLESS STEEL

EXAMPLE MARK NUMBER
531 — PANEL NUMBER, LOOP NUMBER, DWG. NUMBER

$\text{AREA}_1 = \pi(43.75^2 - 41^2) \times (\frac{60}{180})$

$= 244\,in^2$

THIS MARKED-UP SHEET APPLIES TO ALL LOOPS

REF DWG. 590355-031C GENERAL ARRANGEMENT

REACTOR COOLANT PUMP BOTTOM HEAD DEVELOPMENT
TVA-WATTS BAR UNIT 1 - LOOP #1

Mirror Insulation
Diamond Power
Babcock & Wilcox

MARK No.	PDCN No.
RIP-17	F-K5174-AA-30

REVISIONS	
4	INCORPORATED AS-BUILT CONDITIONS PER CUSTOMER BUTTLED PDCN'S AND MIRROR WALL DOWEL.

WBI-DWD-005B
PG 10 A OF 10 A

CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-005C SHEET 1 OF 34 CBW 10/27/03

DATE:	10/27/2003	AREA:	LOOP 4	RWP NO.:	8010
		ELEV:	702'		

INSPECTORS:	C. G. WALLS, MIKE SOLLIE

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-043C, REV. A *	
Tools:	47W465-207, REV. D	
Drawings		
Flashlights		
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	RC INTERIM LEG DRAIN
	* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS CGWalls Date: 10/27/03

Checked By: MIKE SOLLIE Mike Sollie Date: 10/31/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-005C SHEET 2 OF 4

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
0600200-13-12	LOOP 4	702'	5	INTERIM LEG DRAIN	2.38	1.92	RMI	3.8125	0.99	S.S.	STD	N/A	10" OD INSULATION
0600200-13-12	LOOP 4	702'	5	INTERIM LEG DRAIN	2.38	12.92	RMI	2.8125	4.11	S.S.	STD	N/A	8" OD INSULATION

APPROXIMATE INSULATION LENGTH:

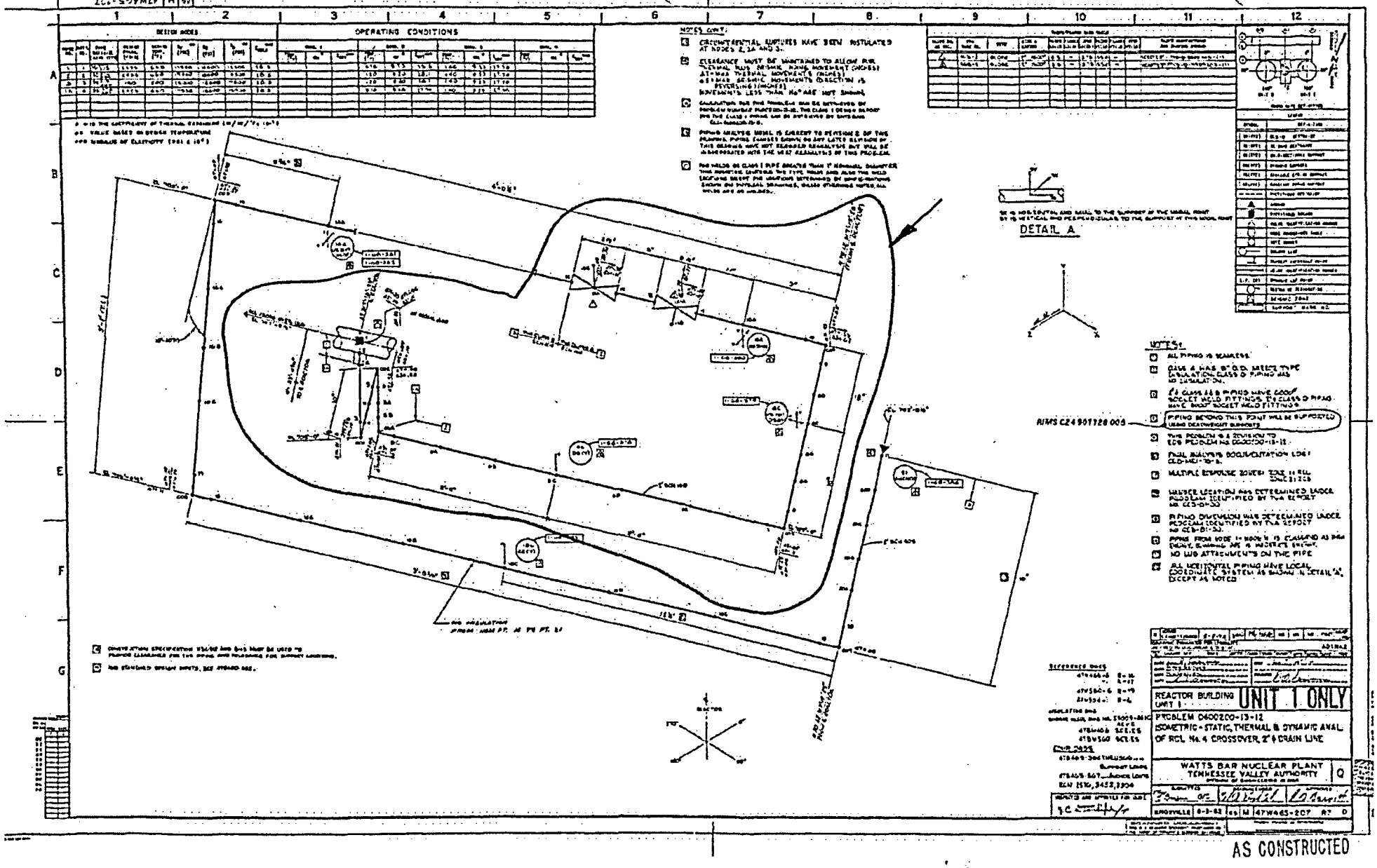
STARTING FROM RC INTERIM LOOP:

AT 10" OD INSULATION:

LENGTH = 11.44 + 11 = 23(1/12) = 1.92FT

AT 8" OD INSULATION:

LENGTH = 18 + 21 + 60 + 36 + 20 = 155(1/12) = 12.92FT



WBI-DWD-005C
PG 4 OF 4

CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-005D SHEET 1 OF 8

DATE:	10/23/2003	AREA:	LOOP 4 (AZ 270^0 TO AZ 0^0) LOWER COMPART	RWP NO.:	8010
		ELEV:	702		

INSPECTORS:	FRANK C YAO, MIKE CALDWELL

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	47W2500-4	
Tools:	CONTRACT 93NNS-75645C DRAWING 590955-110C REV. A	
Drawings	DCN 32667-22C	
Flashlights		
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	**Verify installation of insulation** as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any **undocumented** insulation.
3	Inspect and determine longitudinal **seam location** and **band spacing** if necessary.
4	Document any **irregularities** of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any **undocumented fibrous insulation (e.g., within rupture restraints).**
6	Inspect and mark up cable tray drawings to show location of **fire barriers** (vertical and horizontal).
7	Inspect the area for any **weak components** that could be dislodged by jet and that could be transported to sump.
8	Inspect any **equipment insulation** in the area.
9	Inspect and document the general **cleanliness** of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	MIN-K WASTE DISPOSAL PIPE

Prepared By: FRANK C YAO Date: 10/23/03

Checked By: MIKE CALDWELL Date: 10/23/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

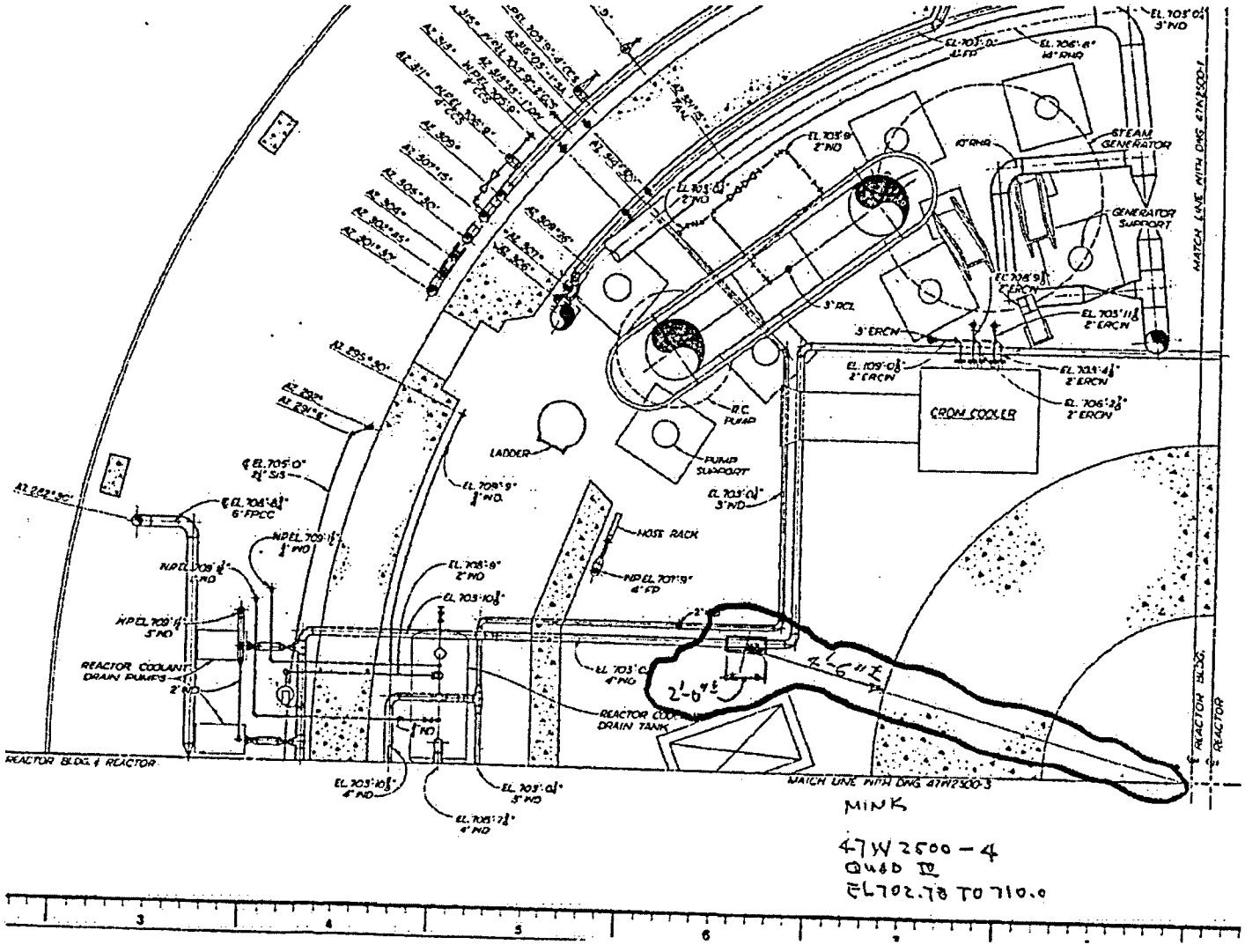
WALKDOWN PACKAGE#: WB1-DWD-005D SHEET 2 OF 8

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
N/A	LOOP 4	702	5	MIN K TO WASTE DISP LINE	4 50	2.00	MIN-K	SEE CALC	0.053	NA	NA	NA	WRAP AROUND 4" PIPE

CALCULATION

CALCULATE TOTAL MIN-K VOLUME

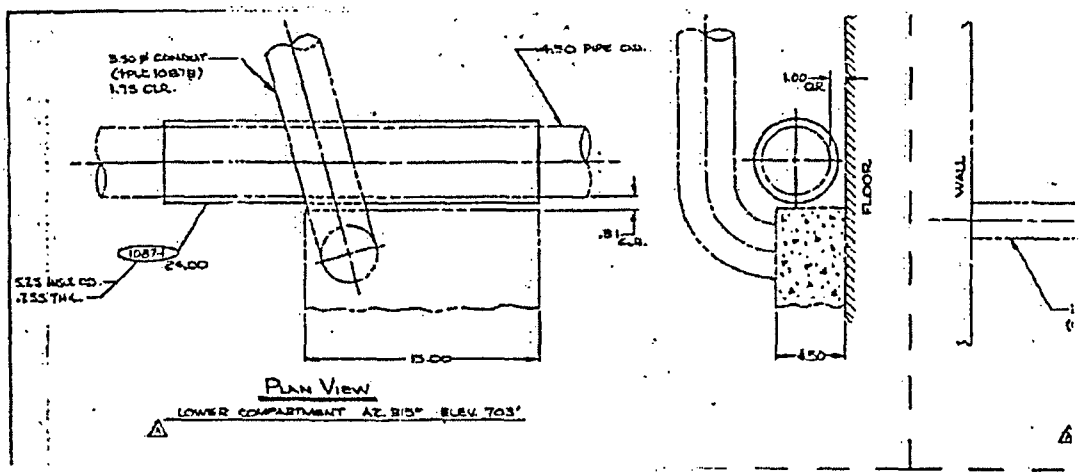
PIPE OD	INS TH	TOTAL DIA	NET INSULATION AREA (SQ IN)	LENGTH (IN)	TOTAL CU IN	TOTAL CU FT
4.5	0.255	5.01	3.809	24	91.422	0.053

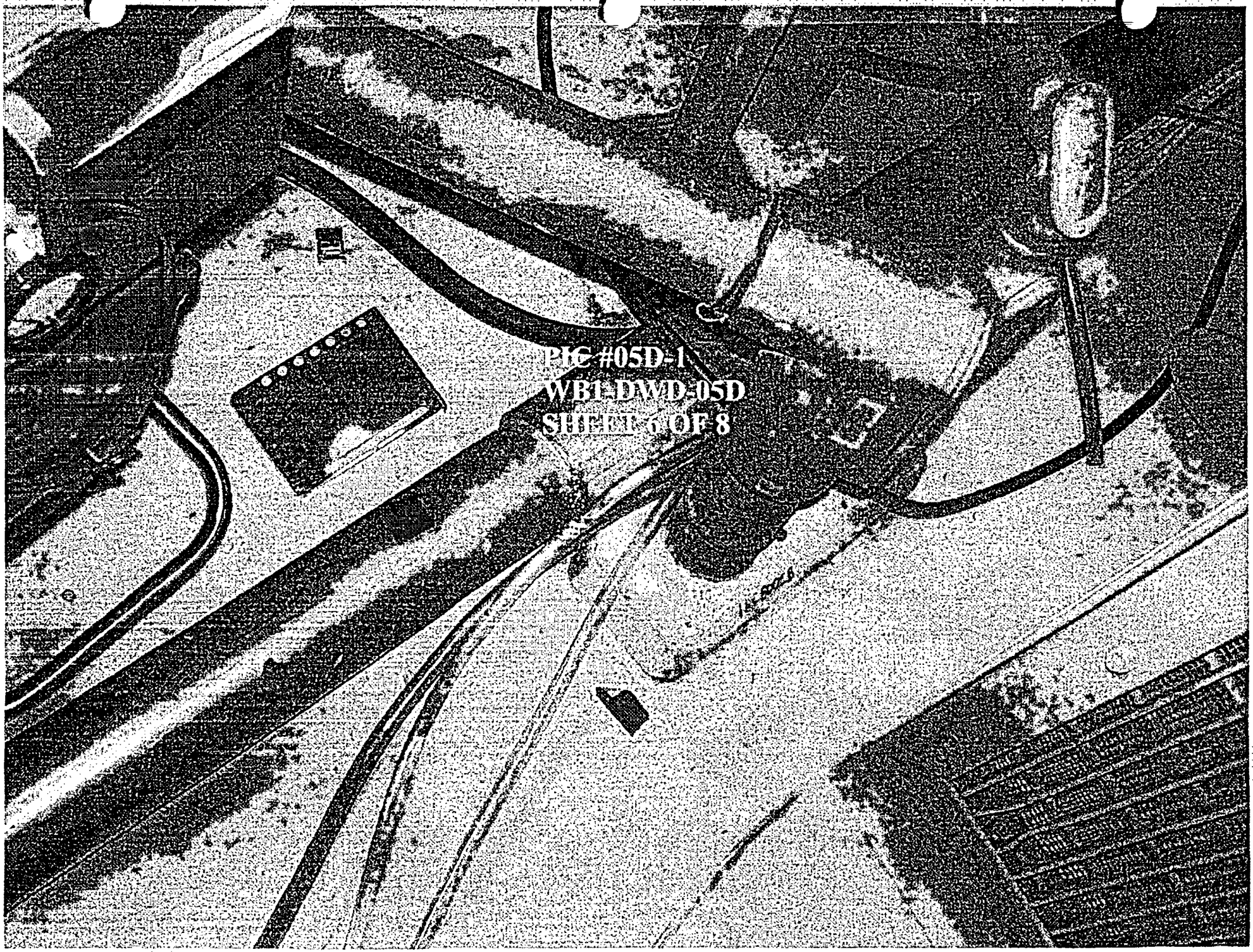


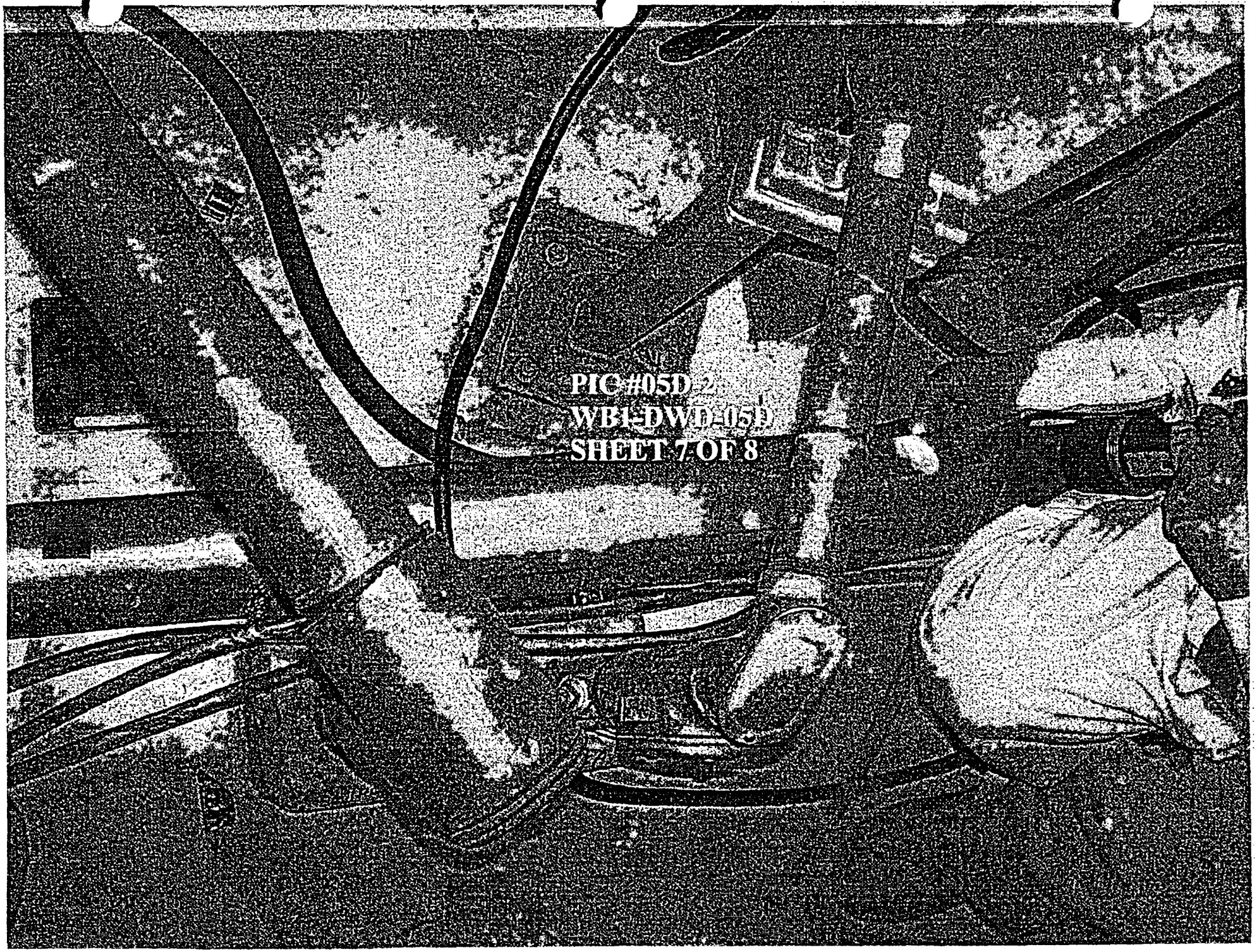
WB1-DWD-005D

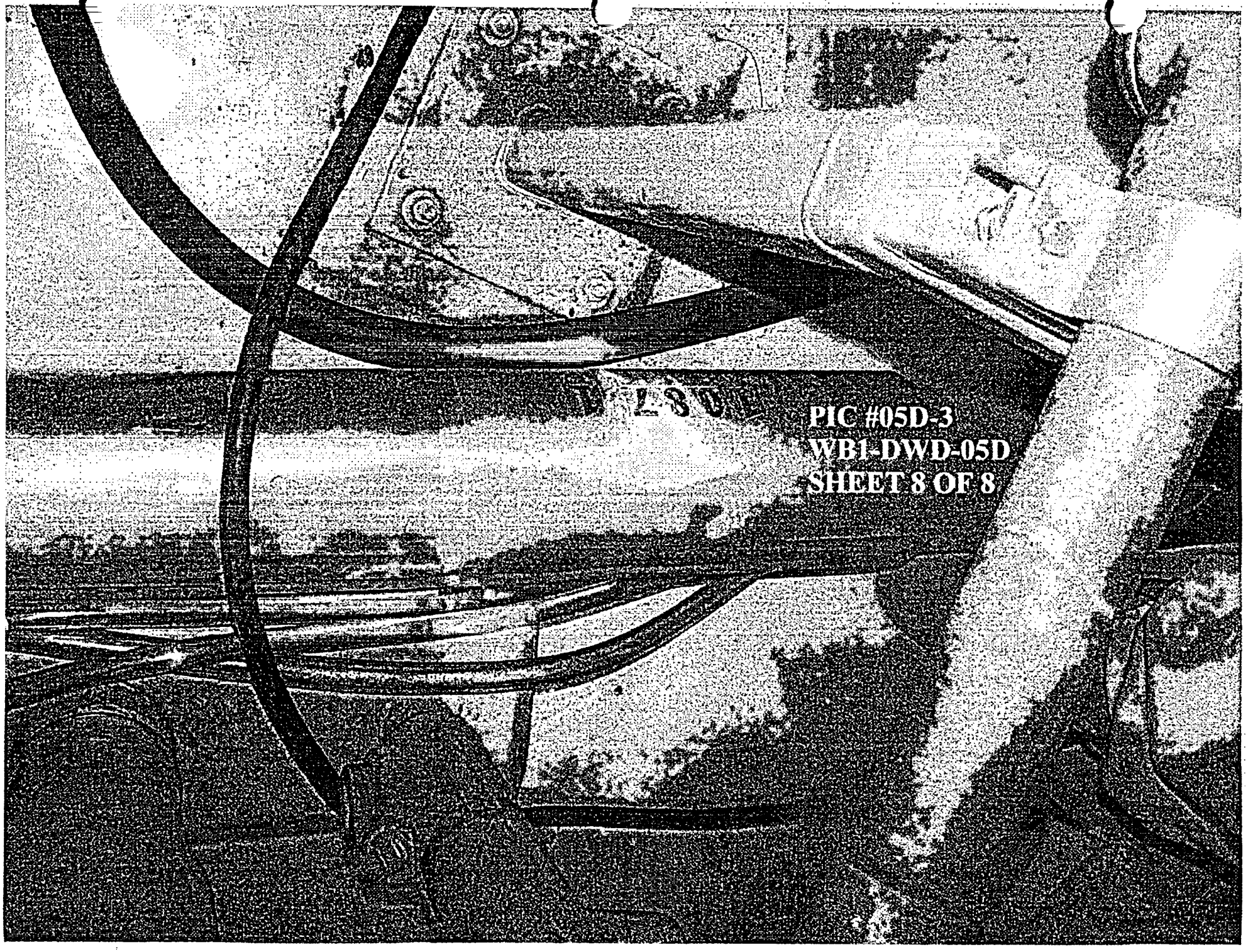
SHEET 4 OF 8

FROM DRAWING 590955-110C
CONTRACT 93NNS-75645C




PIC #05D-1
WB1-DWD-05D
SHEET 6 OF 8


PIC #05D 2
WB1-DWD-05D
SHEET 7 OF 8


PIC #05D-3
WB1-DWD-05D
SHEET 8 OF 8

CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-005E SHEET 1 OF 14

DATE:	11/01/2003	AREA:	LOOP 4 (AZ 270° TO 0°)	RWP NO.:	8010
		ELEV:	702		

INSPECTORS:	FRANK C YAO, MIKE CALDWELL

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	47W2500-4	
Tools:		
Drawings		
Flashlights		
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	TIE WRAPS, TAGS, AND LABELS
	PENETRATIONS

Prepared By: C. G. WALLS Date: 11/1/03

Checked By: MIKE CALDWELL Date: 11/1/03

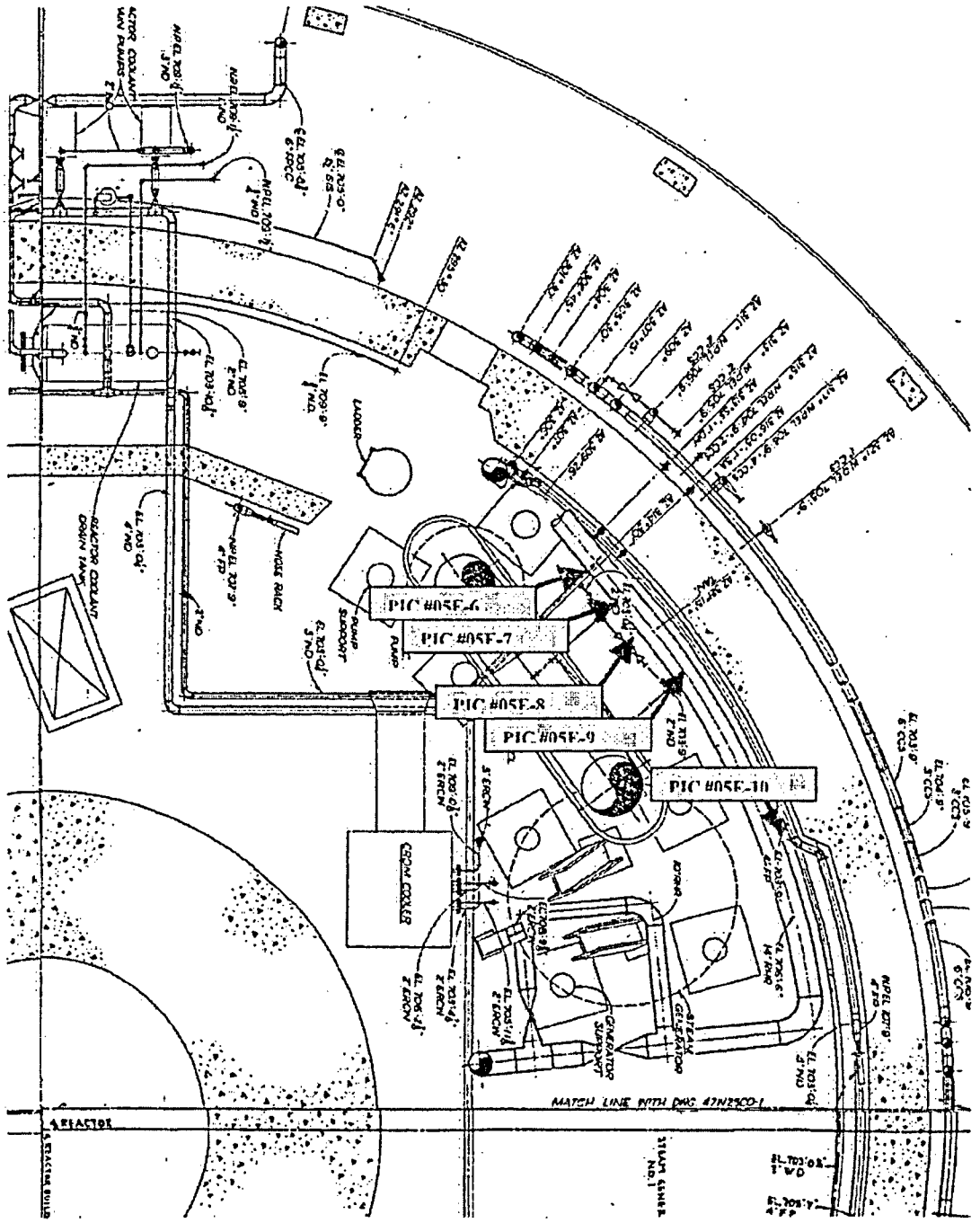
WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-005E SHEET 2 OF 14

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
N/A	LOOP 4	702	5	TAGS, LABELS, & SIGNS	NA	NA	NA	NA	NA	NA	NA	NA	SEE REPORT FOR COMMENTS

47W2500-4
QUAD-IV
E. 702' TO 710'

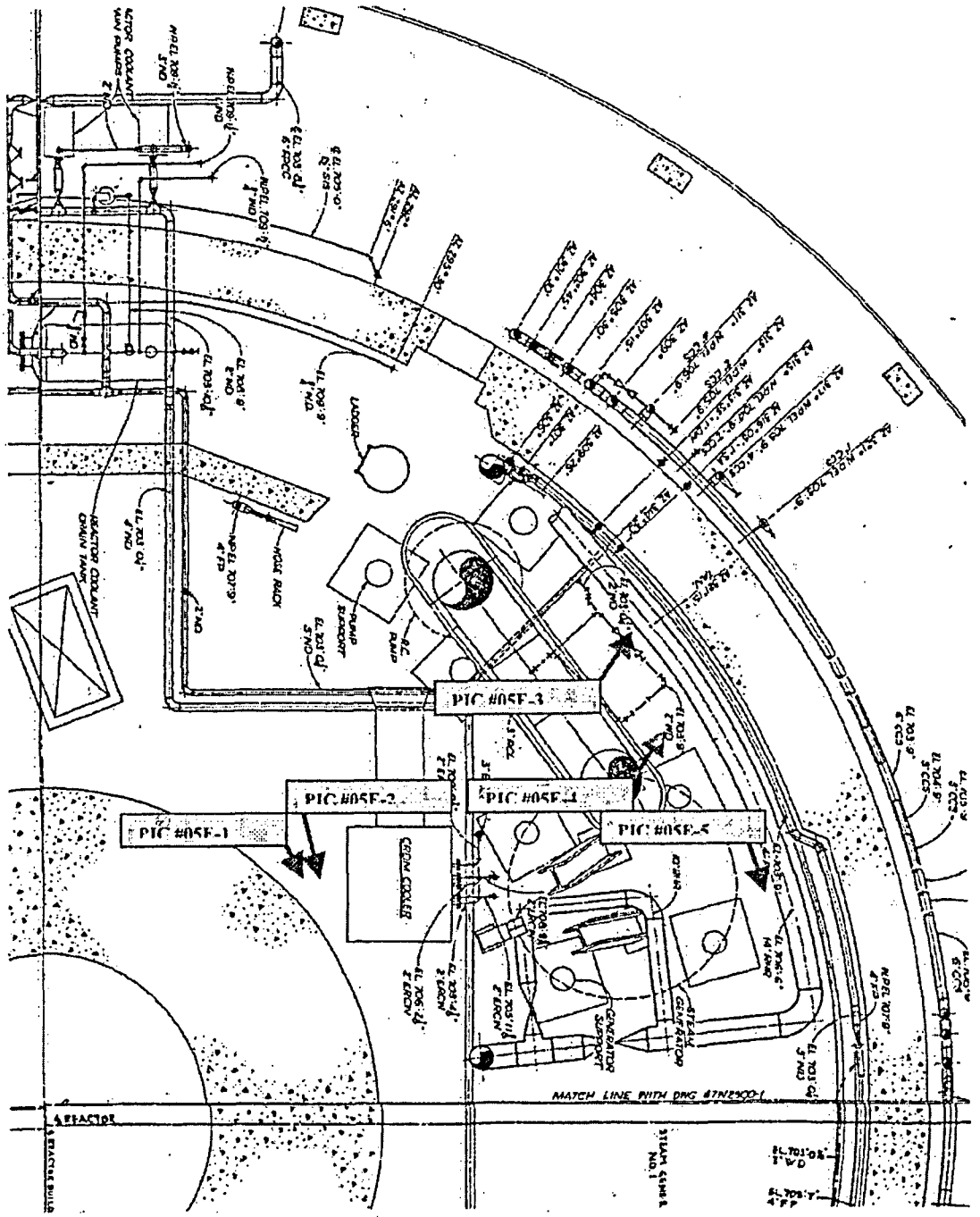
WB1-DWD-005E

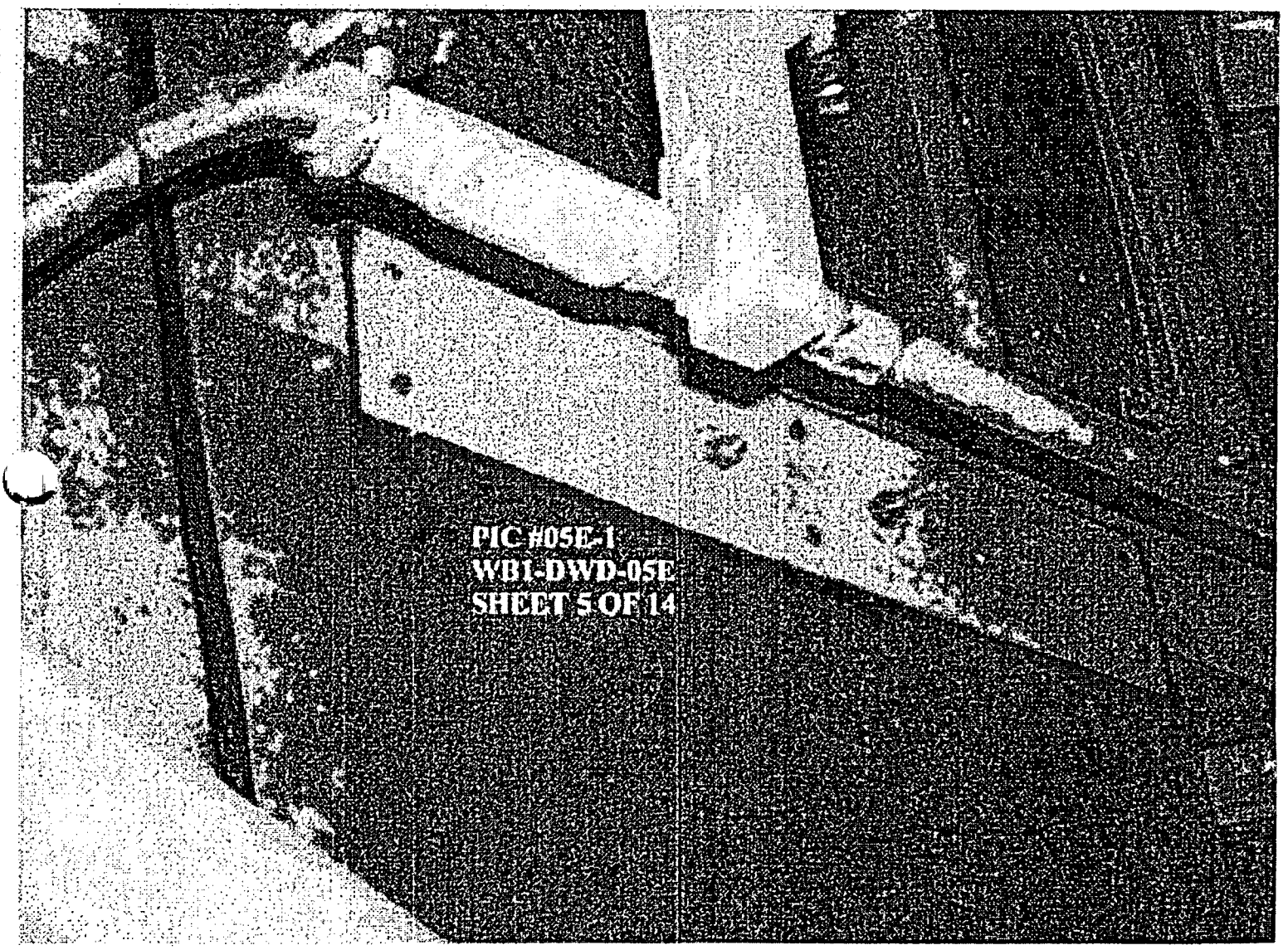


47W2500-4
QUAD-IV
E. 702' TO 710'

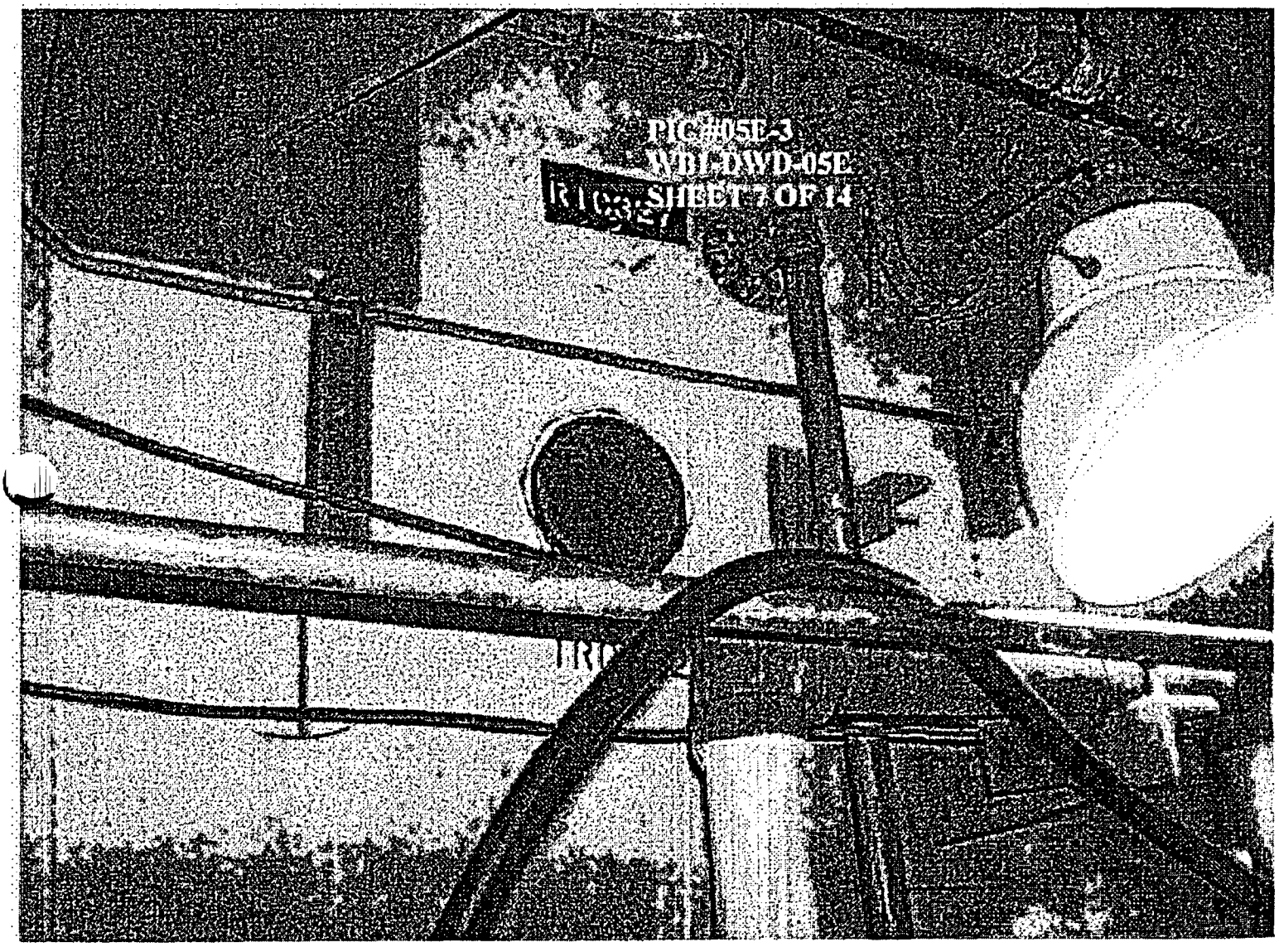
WB1-DWD-005E

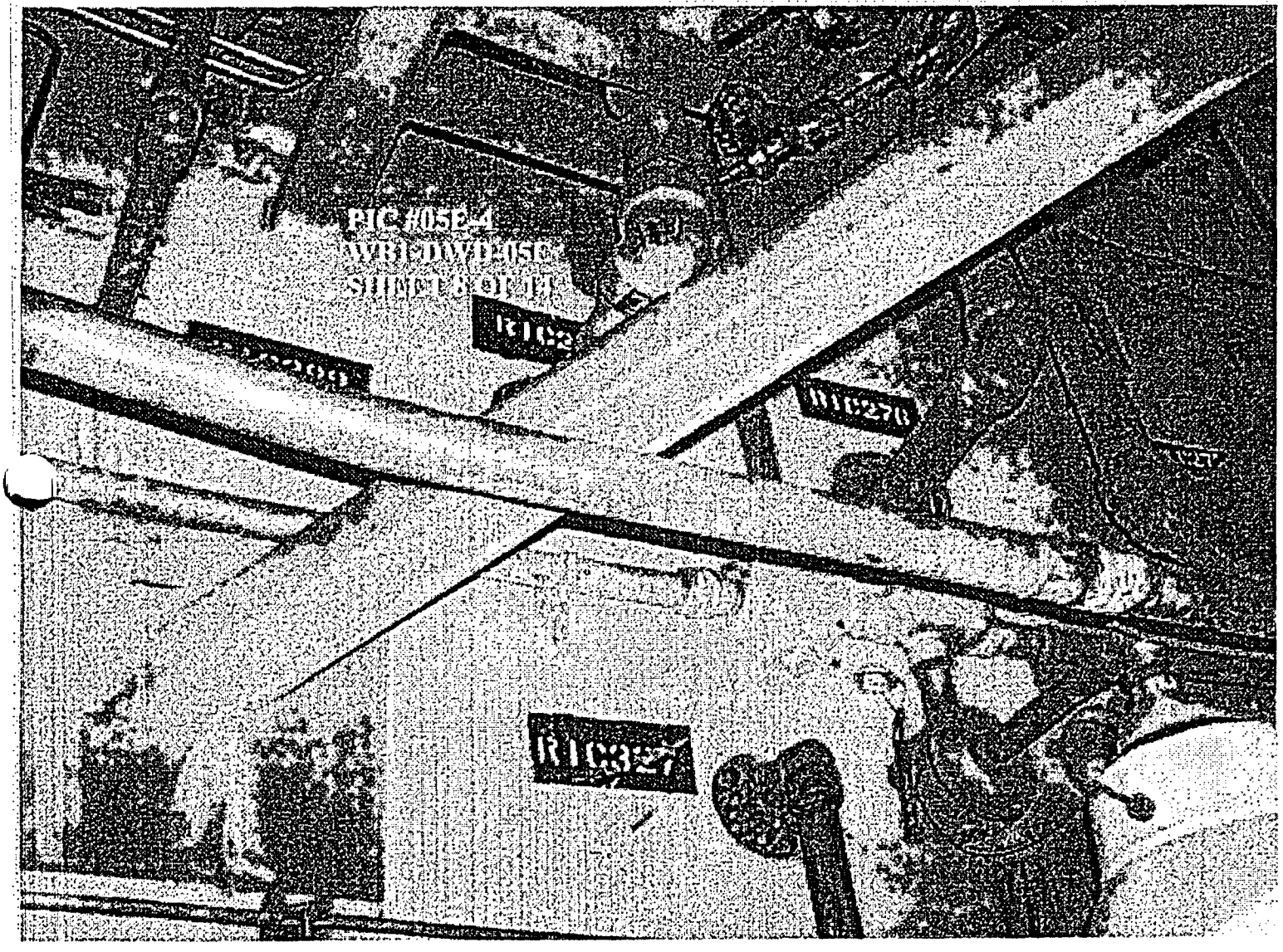
SHEET 4 OF 14



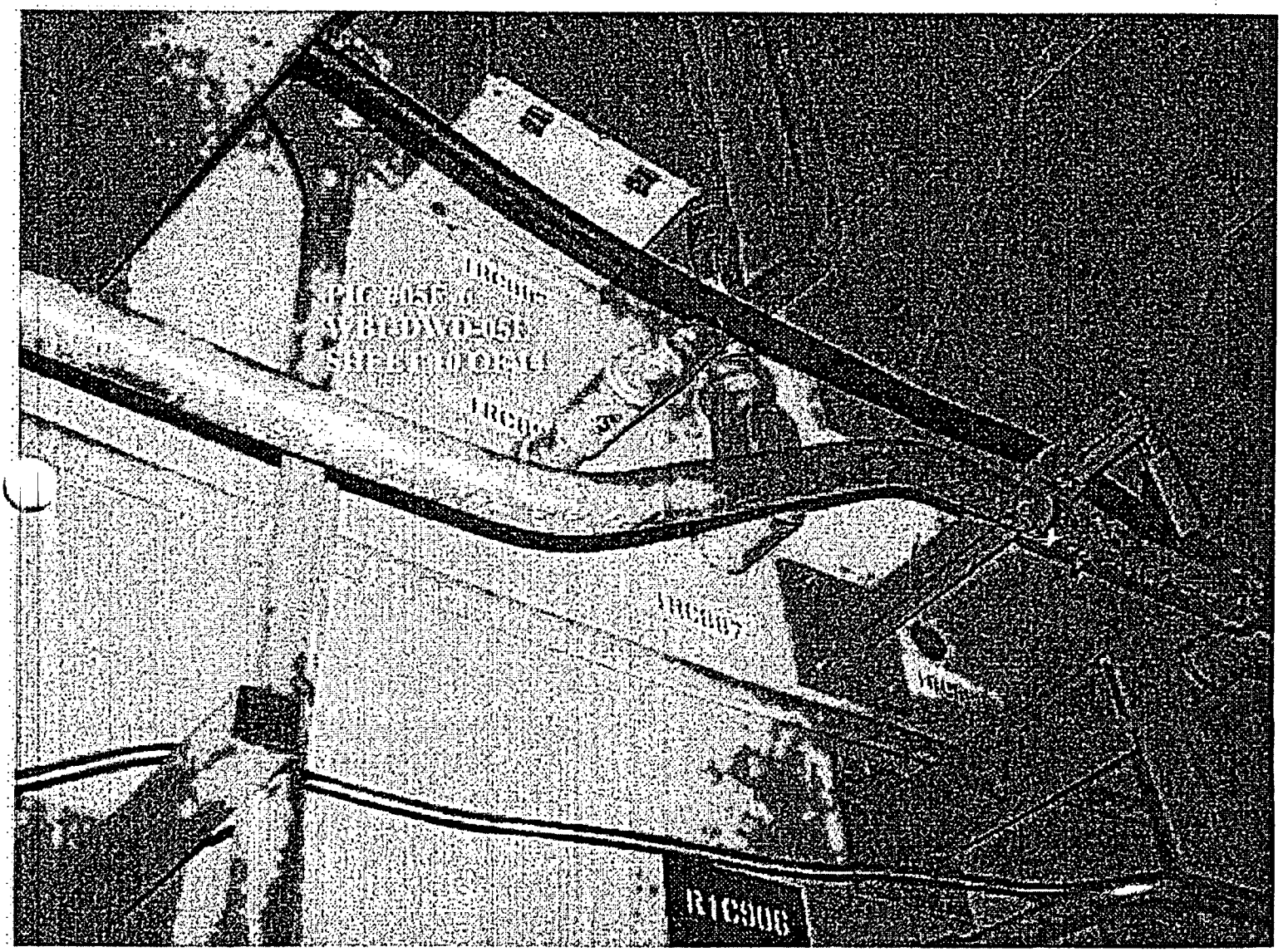

PIC #05E-1
WB1-DWD-05E
SHEET 5 OF 14

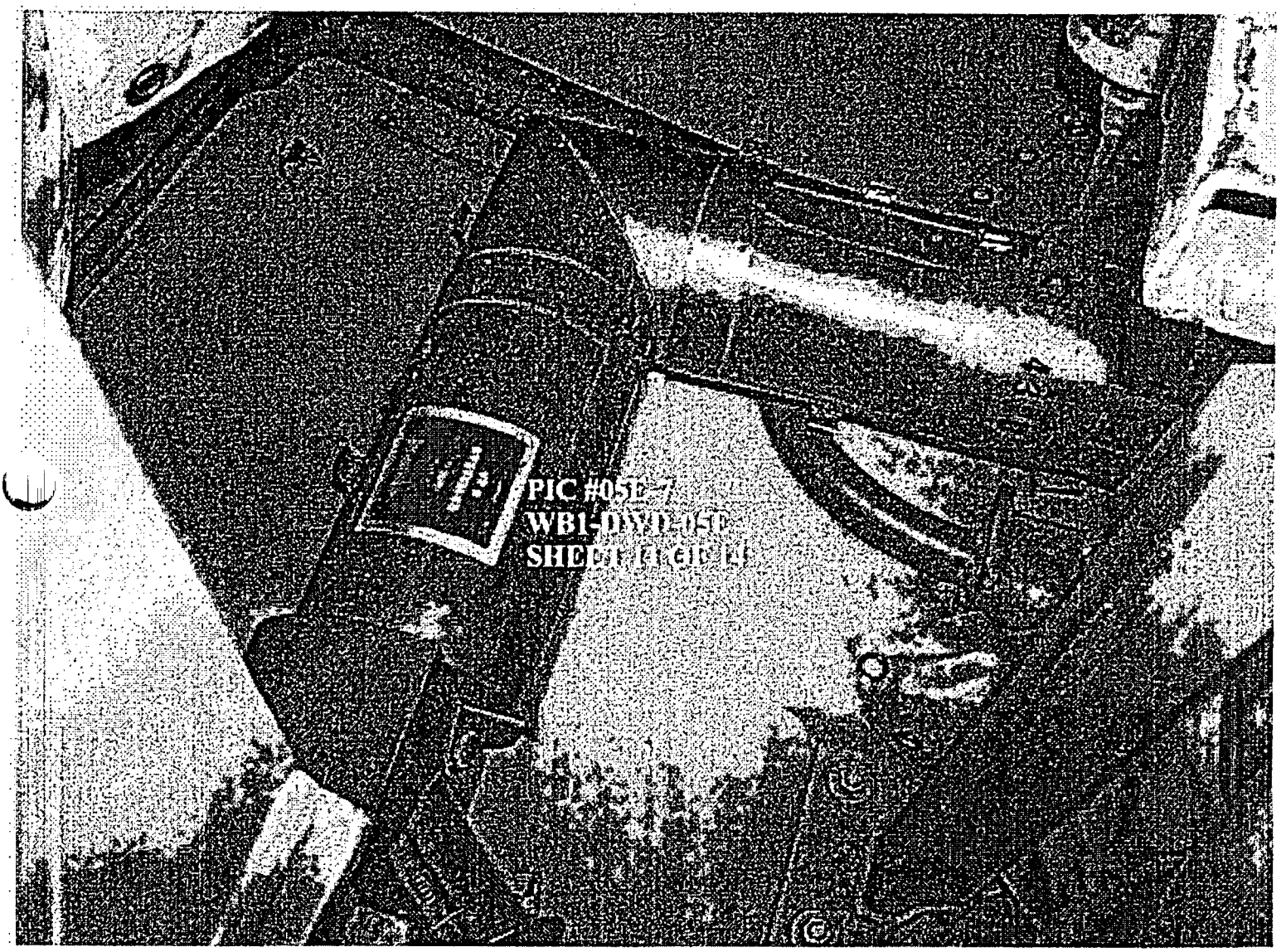
PIC #05E
WB1-DWD-05
SHEET 6 OF 8

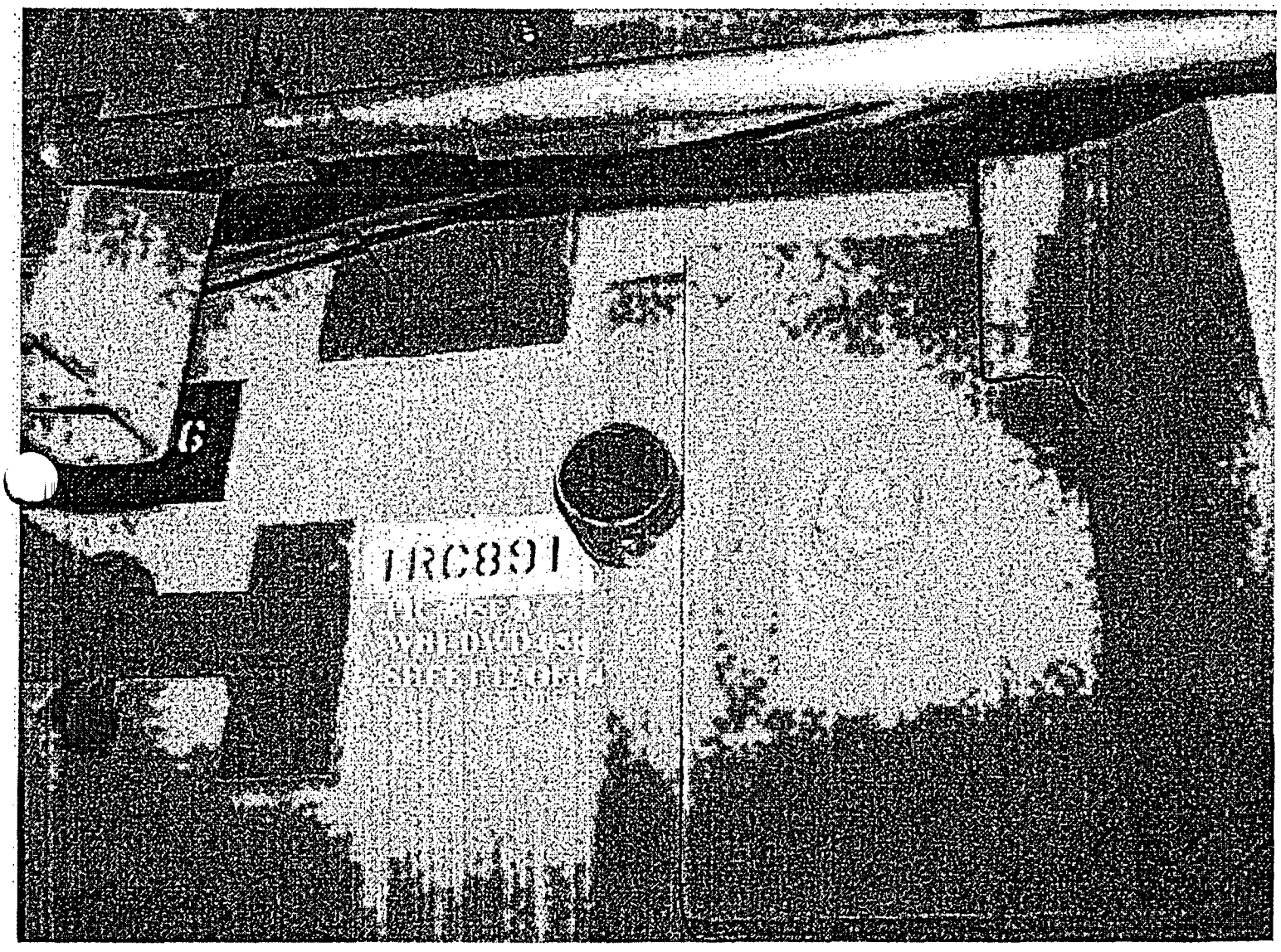

PIC#05E-3
WB1-DWD-05E
SHEET 7 OF 14

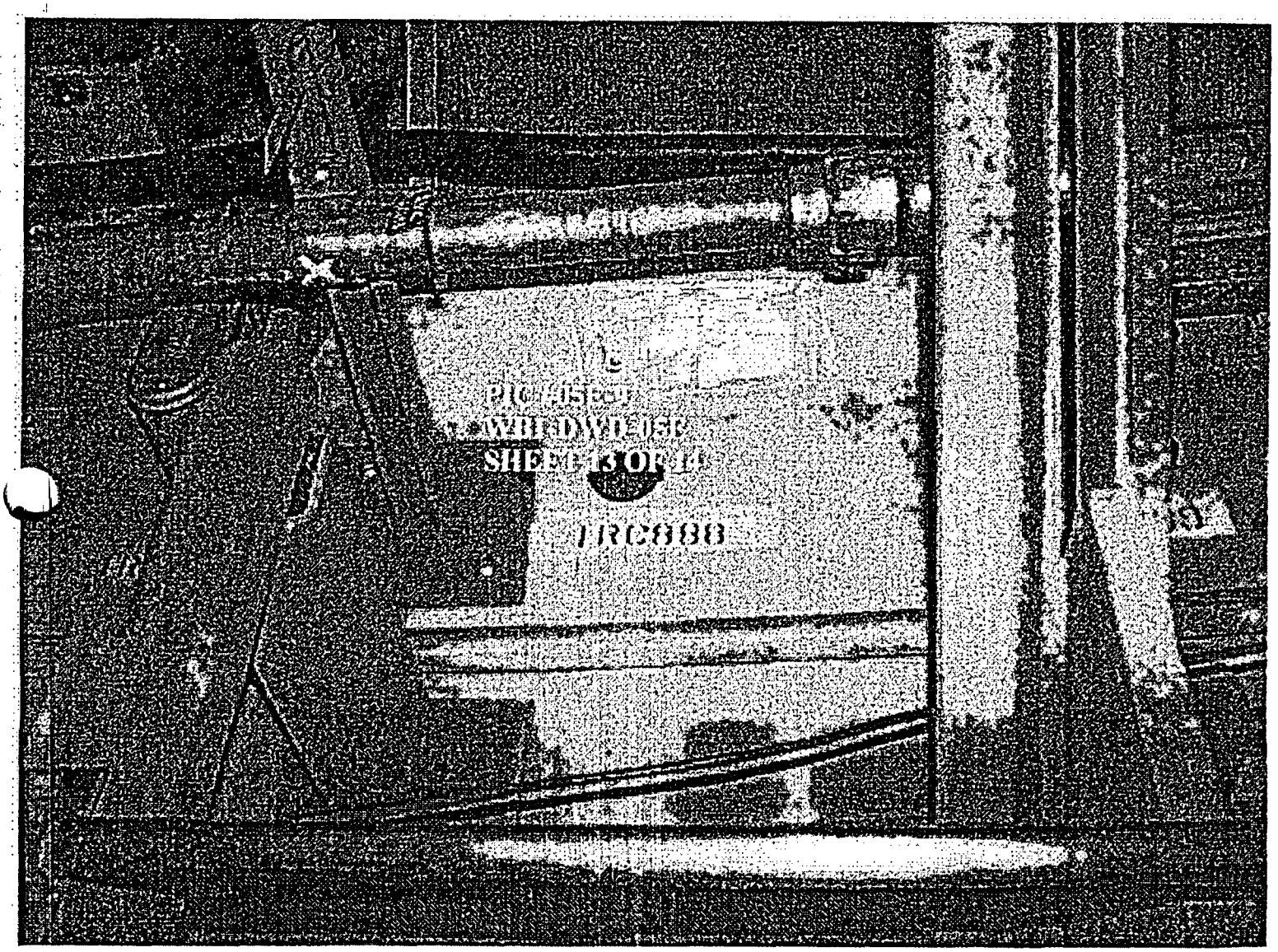

RIC #05E-4
AVB1DWT-056
SHEET 8 OF 11

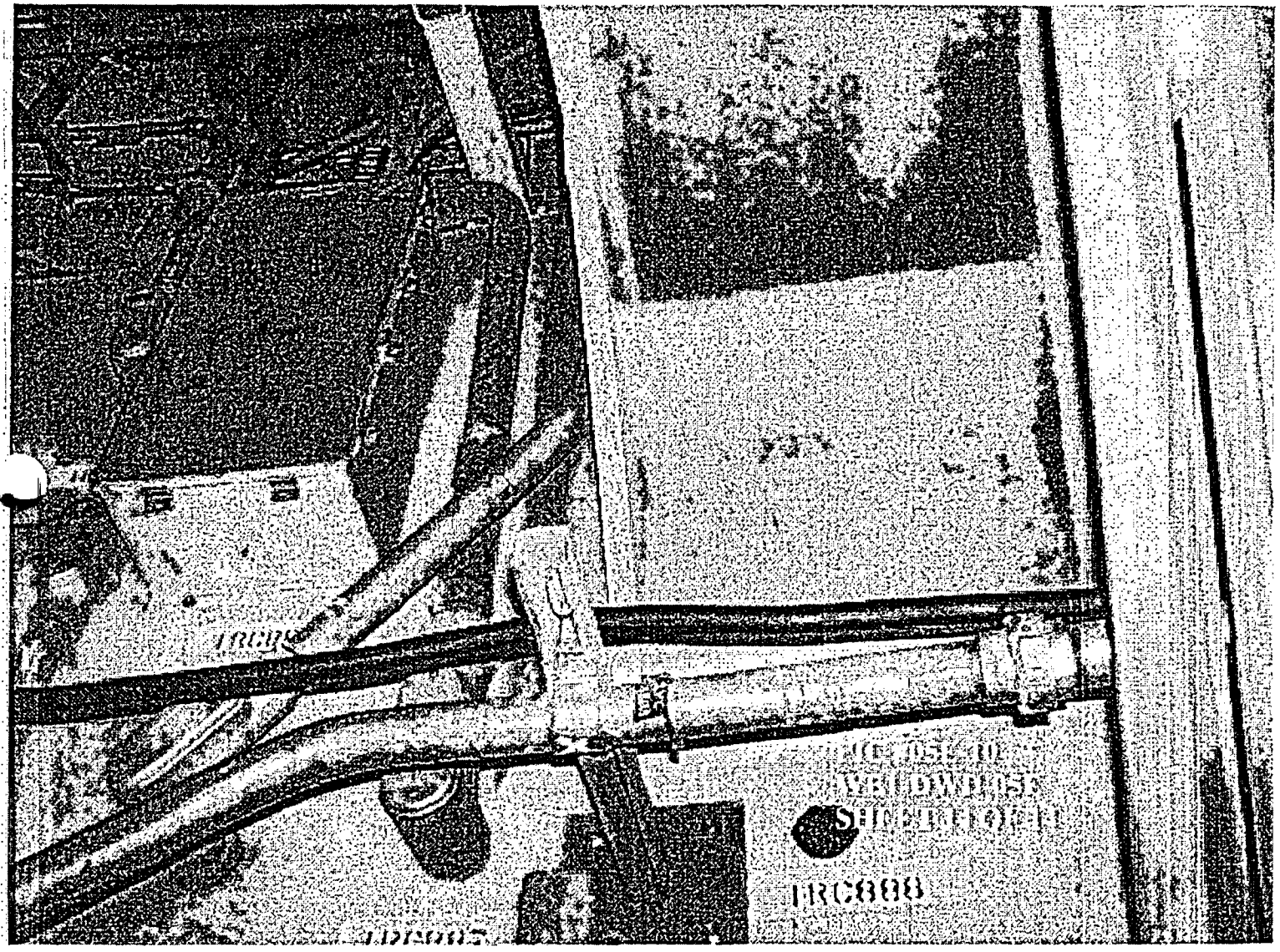
SHEET 9 OF 14




PIC #05E-7
WB1-DWT-05E


6
TRC891


SHEET 3 OF 4
1RC888


IRC888

CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-005F SHEET 1 OF 7

DATE:	11/04/2003	AREA:	LOOP 4	RWP NO.:	8010
		ELEV:	702'		

INSPECTORS:	C. G. WALLS, FRANK C. YAO

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-064C, SH. 1, REV. D *	
Tools:	590955-064C, SH. 2, REV. D *	
Drawings	590955-048C, SH. 13, REV. D *	
Flashlights	47W432-215, REV. G	
Ladders	1-47W432-215A, REV. 0	
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	**Verify installation of insulation** as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any **undocumented** insulation.
3	Inspect and determine longitudinal **seam location** and **band spacing** if necessary.
4	Document any **irregularities** of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any **undocumented fibrous insulation (e.g., within rupture restraints).**
6	Inspect and mark up cable tray drawings to show location of **fire barriers** (vertical and horizontal).
7	Inspect the area for any **weak components** that could be dislodged by jet and that could be transported to sump.
8	Inspect any **equipment insulation** in the area.
9	Inspect and document the general **cleanliness** of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

COMMENTS
10"/14" RESIDUAL HEAT REMOVAL & 6" SAFETY INJECTION LINE
CONTINUED ON WALKDOWN PACKAGE NO. WB1-DWD-019H.
* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 11/04/03

Checked By: FRANK C.YAO Date: 11/04/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-005F SHEET 2 OF 7

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
0600200-03-C1	LOOP 4	702'	5	RESIDUAL HEAT REMOVAL	14.00	58.75	RMI	2	41.02	S.S.	STD	N/A	18" OD INSULATION
0600200-03-01	LOOP 4	702'	5	RESIDUAL HEAT REMOVAL	14.00	5.00	RMI	1	1.64	S.S.	STD	N/A	16" OD INSULATION
0600200-03-01	LOOP 4	702'	5	RESIDUAL HEAT REMOVAL	14.00	1.83	RMI	1.75	1.10	S.S.	STD	N/A	17.5" OD INSULATION
0600200-03-01	LOOP 4	702'	5	RESIDUAL HEAT REMOVAL	10.75	15.67	RMI	2.125	9.35	S.S.	STD	N/A	15" OD INSULATION
0600200-03-01	LOOP 4	702'	5	RESIDUAL HEAT REMOVAL	14.00	3.13	RMI	12	21.31	S.S.	STD	N/A	36" OD INSULATION (VALVE)
0600200-03-01	LOOP 4	702'	5	RESIDUAL HEAT REMOVAL	10.75	2.75	RMI	11.125	14.60	S.S.	STD	N/A	33" OD INSULATION (VALVE)
0600200-03-01	LOOP 4	702'	5	RESIDUAL HEAT REMOVAL	1.05	1.13	RMI	1.475	0.09	S.S.	STD	N/A	4" OD INSULATION
0600200-03-01	LOOP 4	702'	5	RESIDUAL HEAT REMOVAL	1.05	2.21	RMI	2.475	0.42	S.S.	STD	N/A	6" OD INSULATION
0600200-03-01	LOOP 4	702'	5	RESIDUAL HEAT REMOVAL	6.53	2.91	RMI	0.6875	0.32	S.S.	STD	N/A	8" OD INSULATION
0600200-03-01	LOOP 4	702'	5	RESIDUAL HEAT REMOVAL	6.53	2.05	RMI	8.6875	5.95	S.S.	STD	N/A	24" OD INSULATION

APPROXIMATE INSULATION LENGTH:

STARTING FROM CRANE WALL:

AT 18" OD INSULATION (14" PIPING): LENGTH = (2 X 7.8) + 9 + 36.09 + 16.5 + 29.09 + 3.79 + π(21)(45°/180°) + (87.09 + 64.5 + 184.25 - 11) + π(21)(91°/180°) + 34 + 14 + 18.75 + 18.97 + 18.06 + π(21)(90°/180°) + 3 + 36 + 21.12 + 23.12 = 705(1/12) = 58.75FT

AT 16" OD INSULATION (14" PIPING): LENGTH = π(21)(63.73°/180°) + 13 + 3.75 + π(21)(45°/180°) + 3 = 60(1/12) = 5.00FT

AT 17.5" OD INSULATION (14" PIPING): LENGTH = 21.88(1/12) = 1.83FT

AT 15" OD INSULATION (10.75 PIPING): LENGTH = 3 + 61 + 2[π(15)(90°/180°)] + 47.5 + 29 = 188(1/12) = 15.67FT

AT 38" OD INSULATION (VALVE 1-FCV-74-1): LENGTH = 37.5(1/12) = 3.13FT

AT 33" OD INSULATION (VALVE 1-FCV-74-9): LENGTH = 33(1/12) = 2.75FT

AT 4" OD INSULATION (3/4" DRAINS): LENGTH = 6.5 + 3 + 4 = 13.5(1/12) = 1.13FT

AT 6" OD INSULATION (3/4" DRAIN VALVES): LENGTH = (2 X 7.25) + (2 X 6) = 26.5(1/12) = 2.21FT

AT 6" SAFETY INJECTION LINE:

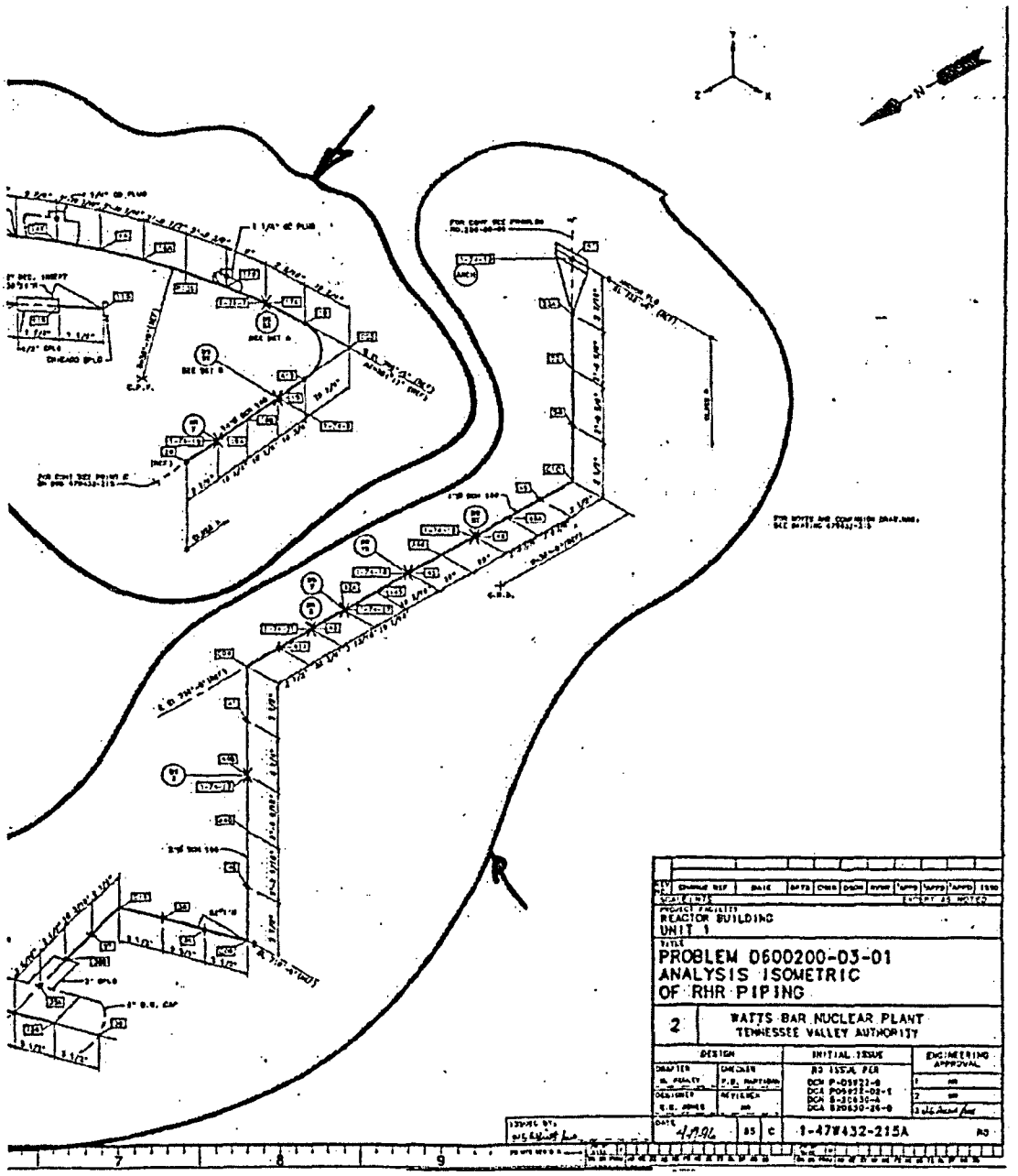
8" OD INSULATION: LENGTH = 2[π(9)(45°/180°)] + 20.75 = 34.89(1/12) = 2.91FT

24" OD INSULATION (VALVE): LENGTH = 24.5(1/12) = 2.05FT

CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-005F

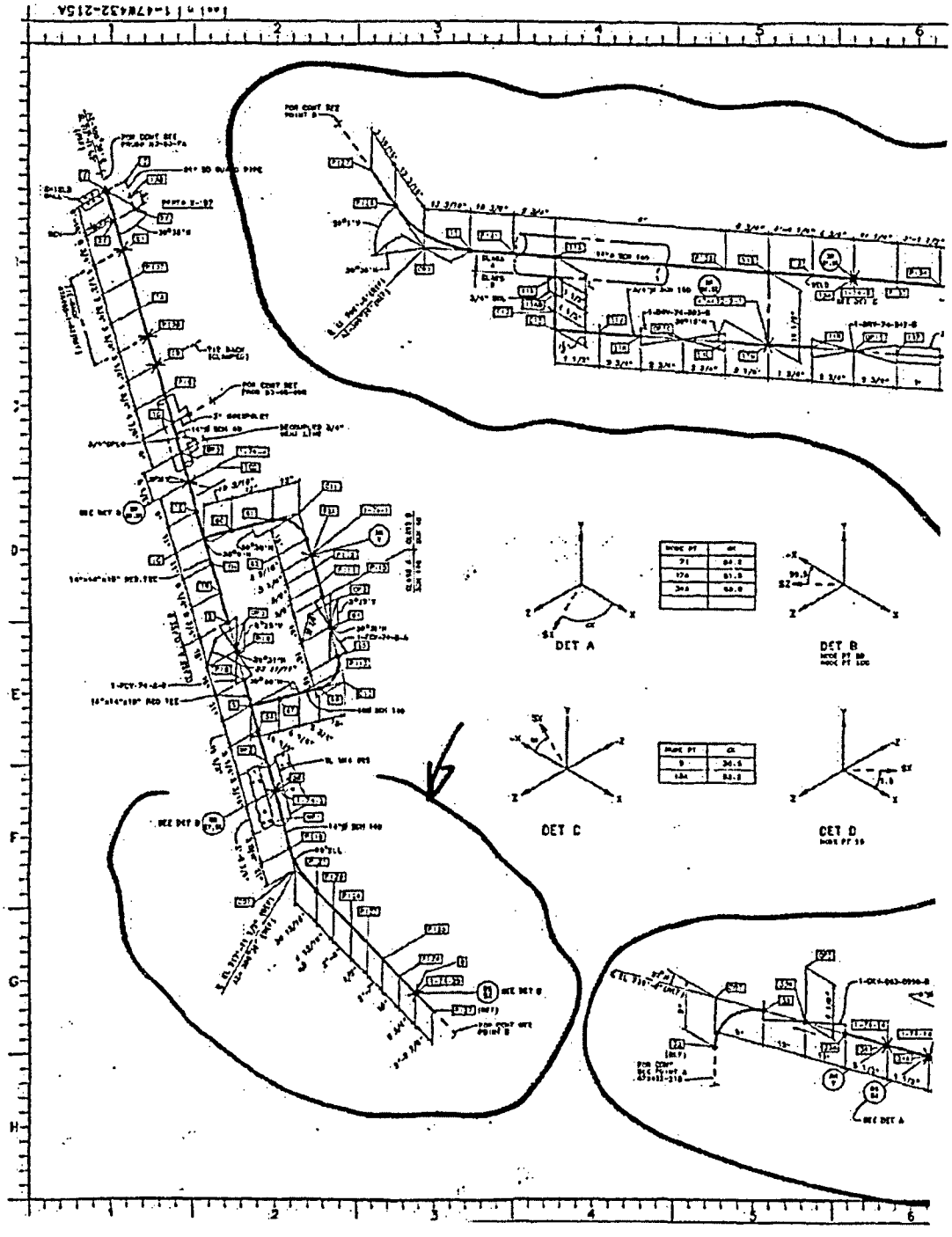
EXCERPT FROM DRAWING 1-47W432-215A



CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-005F

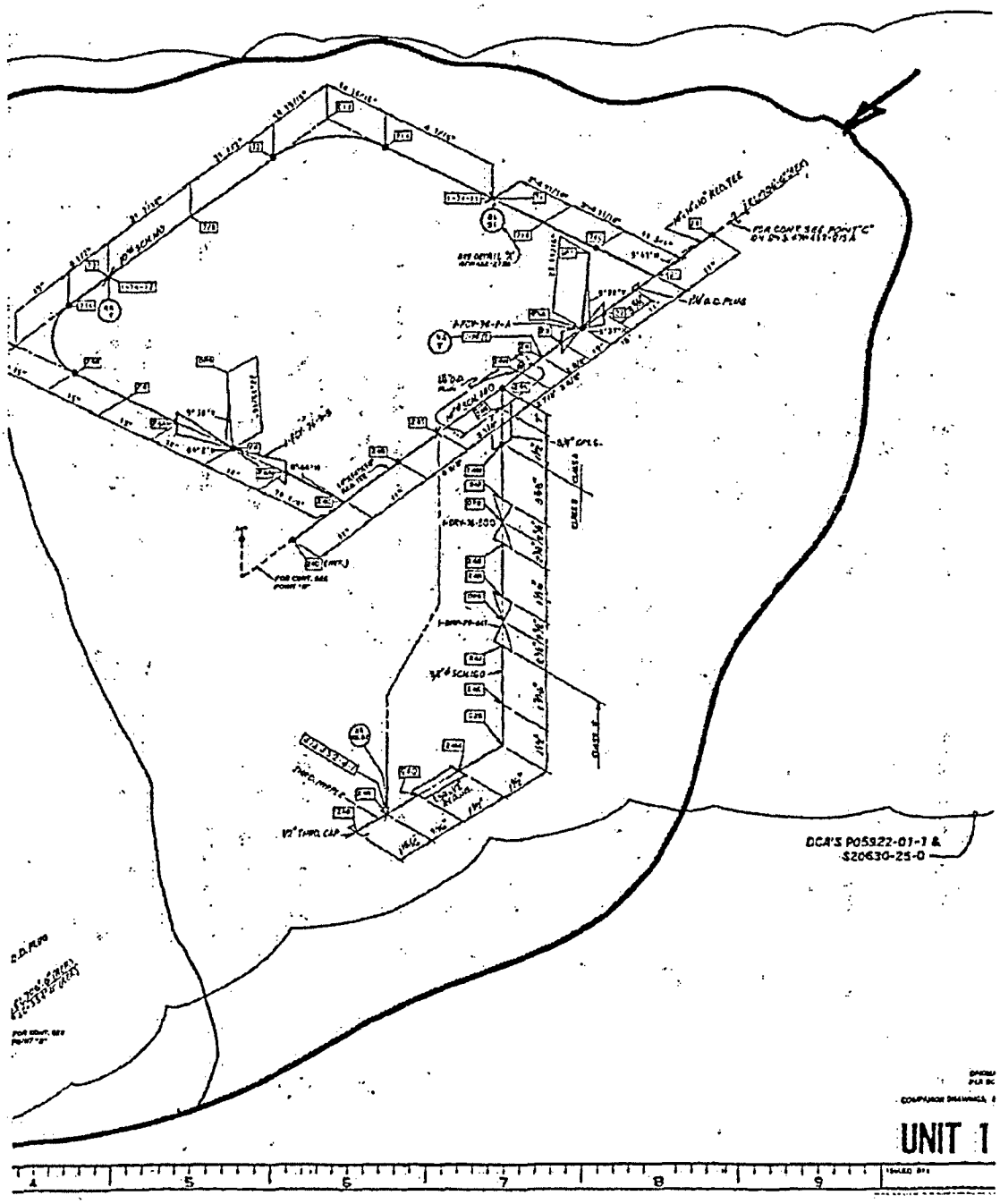
EXCERPT FROM DRAWING 1-47W432-215A



CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-005F

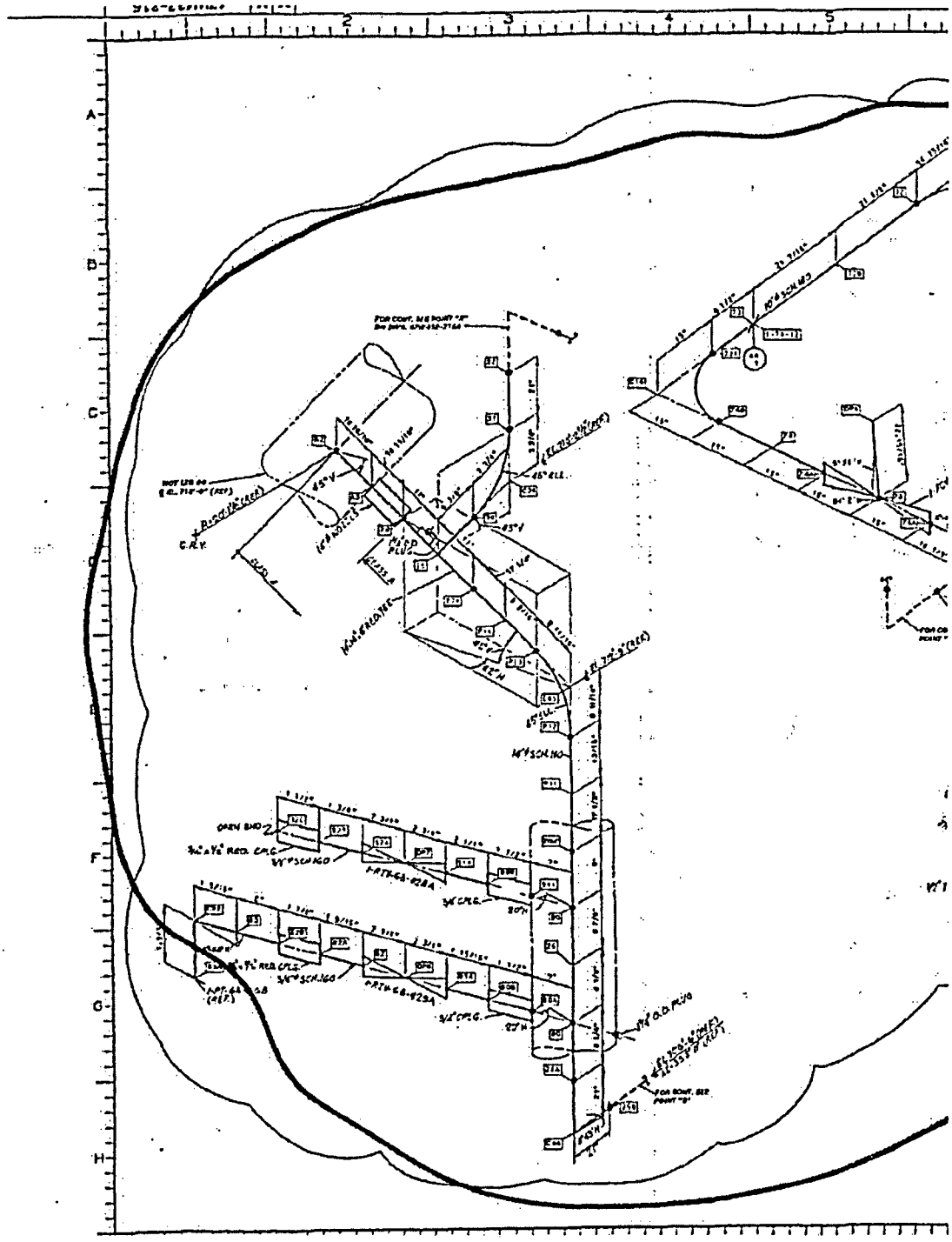
EXCERPT FROM DRAWING 47W432-215



CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-005F

EXCERPT FROM DRAWING 47W432-215



CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-005G SHEET _1__ OF _3__

DATE:	11/25/2003	AREA:	LOOP 4	RWP NO.:	8010
		ELEV:	702		

INSPECTORS:	FRANK C YAO, MIKE CALDWELL

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	47W2500-4	1-47W243-6
Tools:		1-47W243-7
Drawings		1-47W243-8
Flashlights		47W331-1
Ladders		DCN NO W-32667-C
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

COMMENTS

CONTAINMENT VESSEL PENETRATIONS

Cal-Sil in penetration sleeves, open to inside of crane wall

Prepared By: FRANK C YAO Date: 11/25/03

Checked By: MIKE CALDWELL Date: 11/25/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-005G SHEET 2 OF 3

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
N/A	RACEWAY	702	1	CALCIUM SILICATE	SEE CALC	SEE CALC	CALCIUM SILICATE	SEE CALC	56.790	NA	NA	NA	SEE CALCULATION

CALCIUM SILICATE IN PENETRATION

VOLUME OF CAL SILICATE (RACEWAY)

PIPE OUTSIDE DIAMETER = D
LENGTH FROM STEEL CONTAINMENT TO INS CRANE WALL = L
OUTSIDE DIAMETER OF INSULATION = D'
THICKNESS OF INSULATION = T

PEN NO	D(IN)	T(IN)	D'=D+2T	NET INSUL. XSECTION A(SQ IN)	L (FT)	V (CU FT)
X-13D	32.0	3.5	39.0	390.344	15.635	42.38
X-12D	16.0	2.5	21.0	145.299	14.281	14.41
TOTAL=						56.79

CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-006A SHEET 1 OF 9

DATE:	10/22/2003	AREA:	LOOP 1	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, MIKE SOLLIE

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-001C, SH. 1, REV. C *	
Tools:	590955-001C, SH. 2, REV. B *	
Drawings	590955-002C, SH. 1 REV. C *	
Flashlights	590955-003C, SH. 1 REV. B *	
Ladders	590955-004C, SH. 1 REV. C *	
Cameras	590955-005C, SH. 1 REV. A *	
Binoculars	590955-006C, SH. 1 REV. D *	
Tape measure	590955-104C, SH. 1, REV. A *	
Sample bags	590955-104C, SH. 2, REV. A *	
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	**Verify installation of insulation** as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any **undocumented** insulation.
3	Inspect and determine longitudinal **seam location** and **band spacing** if necessary.
4	Document any **irregularities** of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any **undocumented fibrous insulation (e.g., within rupture restraints)**.
6	Inspect and mark up cable tray drawings to show location of **fire barriers** (vertical and horizontal).
7	Inspect the area for any **weak components** that could be dislodged by jet and that could be transported to sump.
8	Inspect any **equipment insulation** in the area.
9	Inspect and document the general **cleanliness** of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	STEAM GENERATOR
	* TVA CONTRACT NO. 93NNS-75645C
	NOTE: THIS WALKDOWN PACAKAGE COVERS INSULATIONS AREA OF STEAM GENERATOR UP TO ELEVATION 745'-0". SEE WALKDOWN PACKAGE NO. WB1-DWD-010B FOR UPPER AREA.

Prepared By: C. G. WALLS CWalls Date: 10/22/03

Checked By: MIKE SOLLIE Mike Sollie Date: 10/3/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-006A SHEET 2 OF 9

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
N/A	LOOP 1	716'	6	STEAM GENERATOR	SEE CALC	SEE CALC	RMI	SEE CALC	215.60	S.S.	STD	N/A	N/A
N/A	LOOP 1	716'	6	STEAM GENERATOR	SEE CALC	SEE CALC	RMI	SEE CALC	0.66	S.S.	STD	N/A	AT ROOT VALVES

APPROXIMATE INSULATION VOLUME:

AT BOTTOM PORTION:

$V = \pi(71.5^2 - 68.83^2) \times (35 + 17.4)$

$+ (1/3)\pi 41.54[71.5^2 + 22^2 + (71.5)(22)] - (1/3)\pi 41.54[68.83^2 + 19.33^2 + (68.83)(19.33)]$

$+ [\pi(22/2)^2 \times 2.67] - (2)[\pi(53/2)^2 \times 2.67] - (2)[\pi(36.62/2)^2 \times 2.67]$

$- (4)[20 \times (18.75 + 15.5/\cos 40°) \times 2.67] = 68612(1/12^3) = 39.7 FT^3$

AT COOLANT INLET/OUTLET NOZZLE COVERS:

$V = (2)[\pi(28^2 - 21^2) \times 2.67] + (2)[\pi(28^2 - 25.33^2) \times 3.77] = 8828(1/12^3) = 5.11 FT^3$

AT MANHOLE COVERS:

$V = (2)[\pi 19.33^2 \times 2.67] + (2)[\pi(22^2 - 19.33^2) \times 11] = 13911(1/12^3) = 8.05 FT^3$

AT UPPER PORTION:

$V = [\pi(73.045^2 - 70.375^2)] \times 228.69] - [\pi(51.5/2)^2 \times 2.67]$

$- (2)[22 \times 61.5 \times 2.67] = 262331(1/12^3) = 151.82 FT^3$

AT HANDHOLE/SLUDGE LANCE/BLOWDOWN LINE COVERS:

$= (2)[66.23 \times 27.33 \times 2.67] + (4)[66.23 \times 4.33 \times 2.67]$

$+ (4)[21.99 \times 4.33 \times 2.67] = 13746(1/12^3) = 7.96 FT^3$

AT FEEDWATER NOZZLE COVER:

$V = \pi(17.75^2 - 15.08^2) \times 18.55 = 5109(1/12^3) = 2.96 FT^3$

TOTAL VOLUME AT SG = 39.7 + 5.11 + 8.05 + 151.82 + 7.96 + 2.96 = $215.6 FT^3$

AT 3/4" ROOT VALVE:

$V = \pi(7^2 - 1.06^2)/4 \times 7.95 = 299(1/12^3) = 0.18 FT^3$

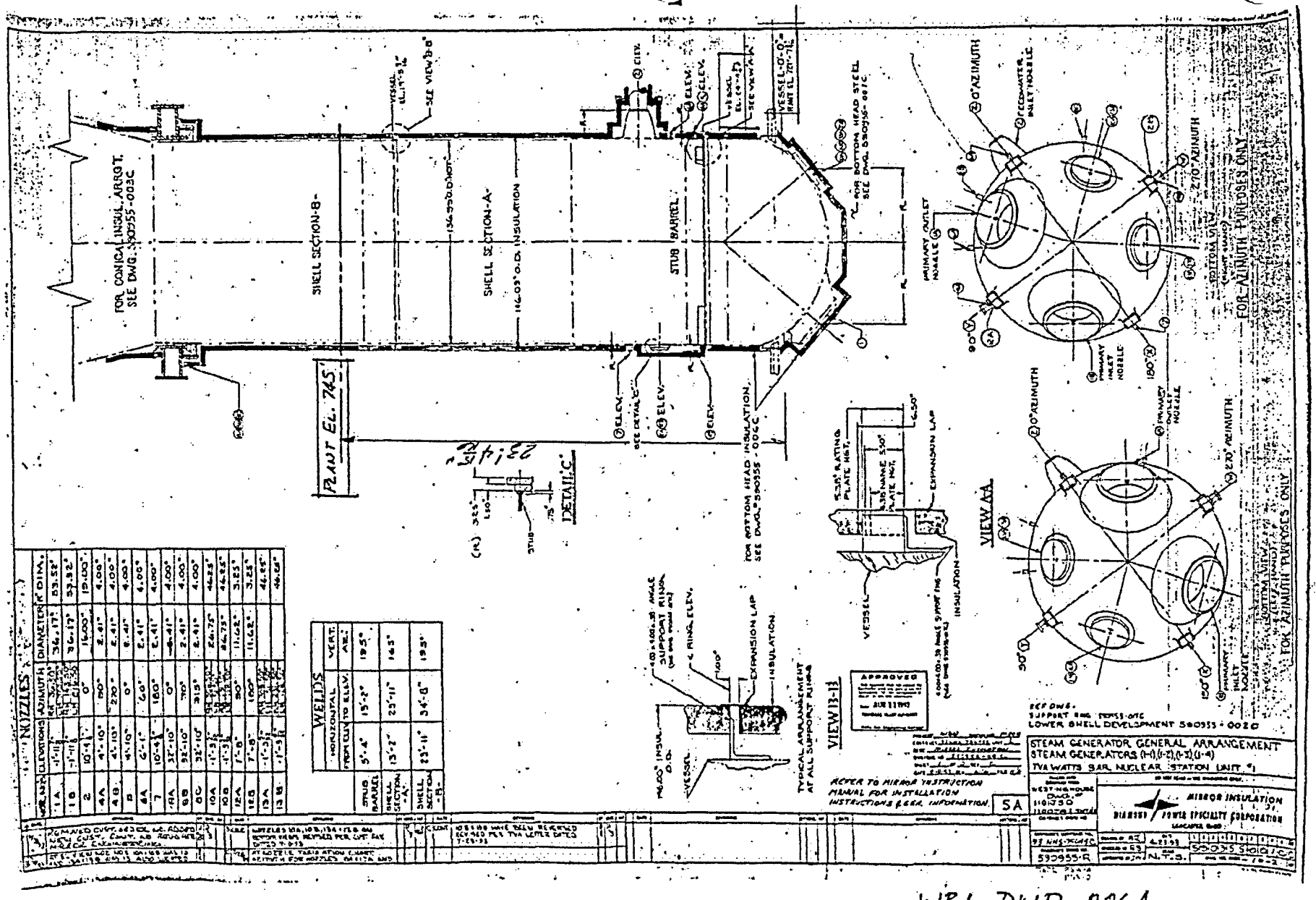
AT 1" ROOT VALVE (SEE DWG 590955-104C, SH. 1):

$V = [\pi(5^2 - 1.32^2)/4 \times 11.12] + [\pi(7^2 - 1.32^2)/4 \times 7] = 463.1(1/12^3) = 0.27 FT^3$

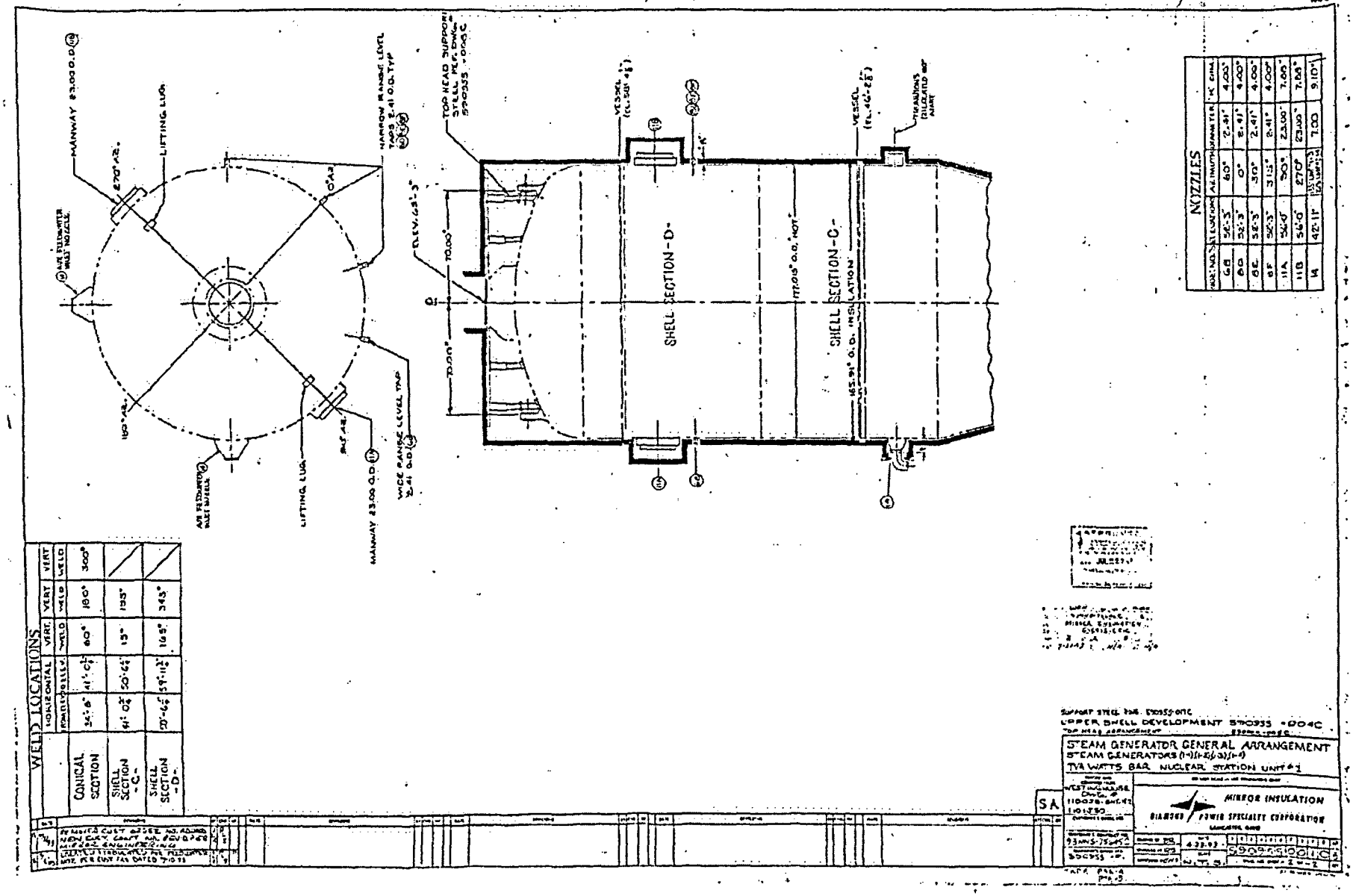
AT 1" ROOT VALVE (SEE DWG 590955-104C, SH. 2):

$V = [\pi(5^2 - 1.32^2)/4 \times 5.2] + [\pi(7^2 - 1.32^2)/4 \times 7] = 355(1/12^3) = 0.21 FT^3$

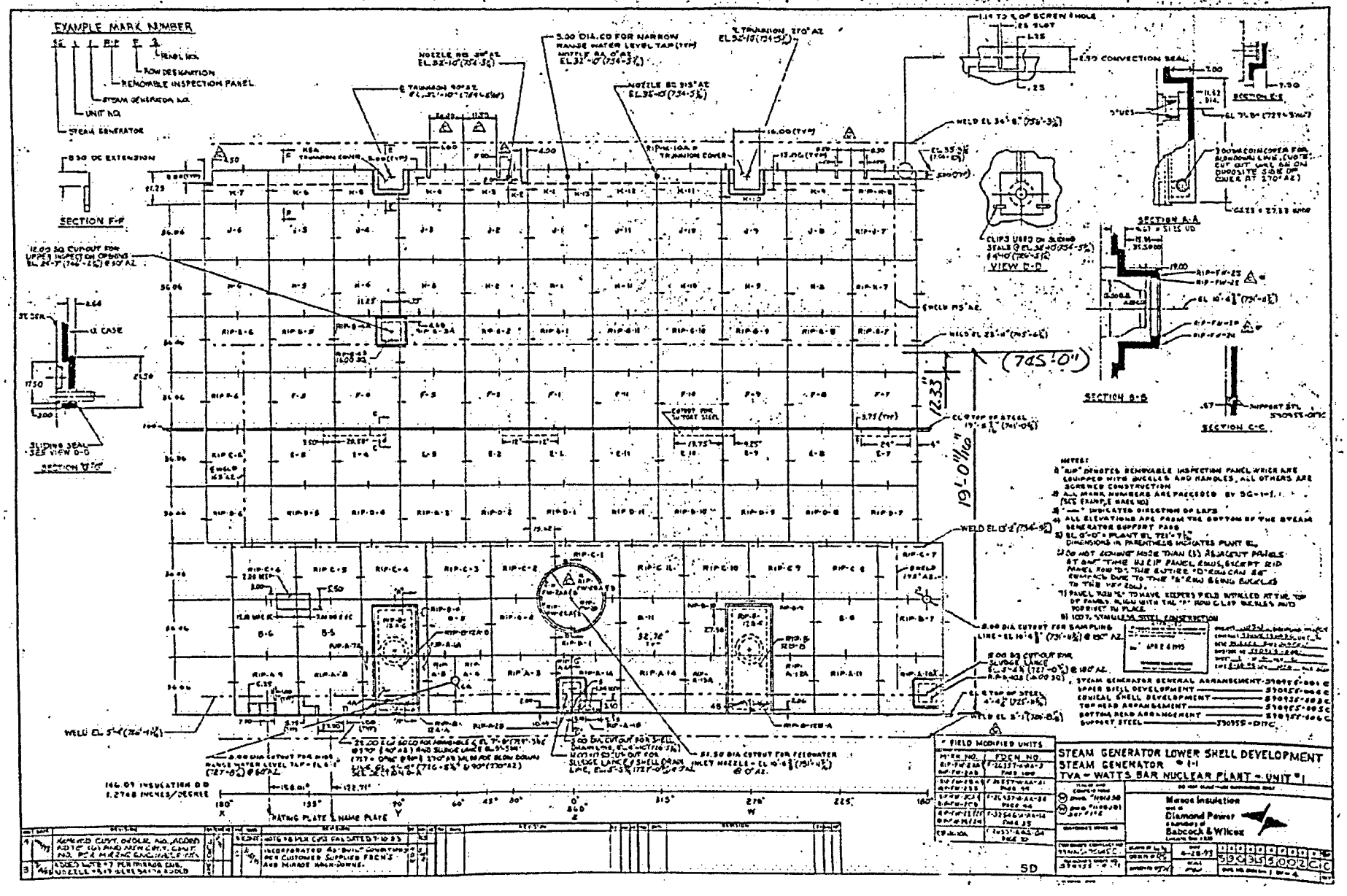
TOTAL VOLUME AT VALVES = 0.18 + 0.27 + 0.21 = $0.66 FT^3$



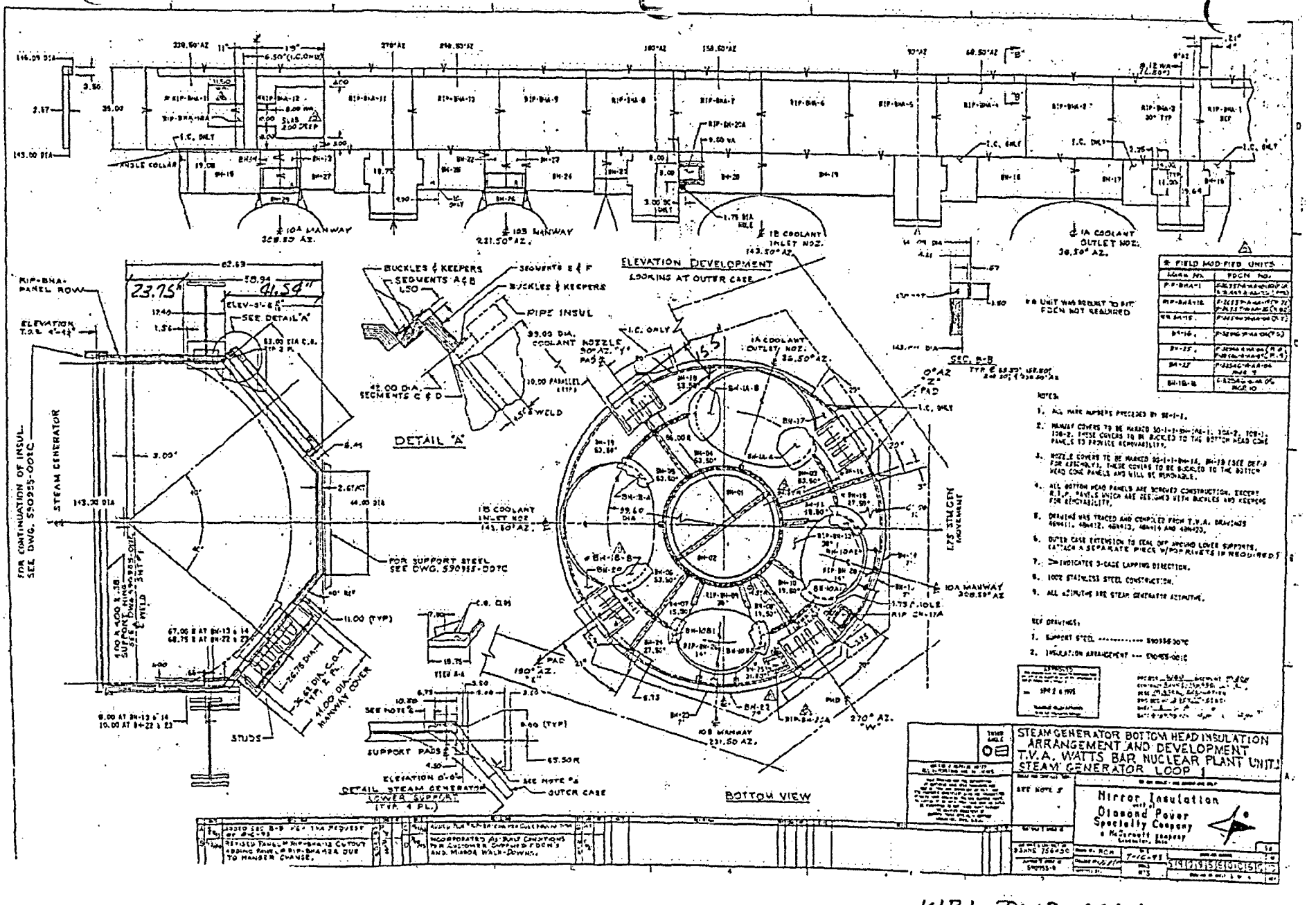
WB1-DWD-006A
Pg 4 of 9



WBI-DWD-006A
PG 5 OF 9

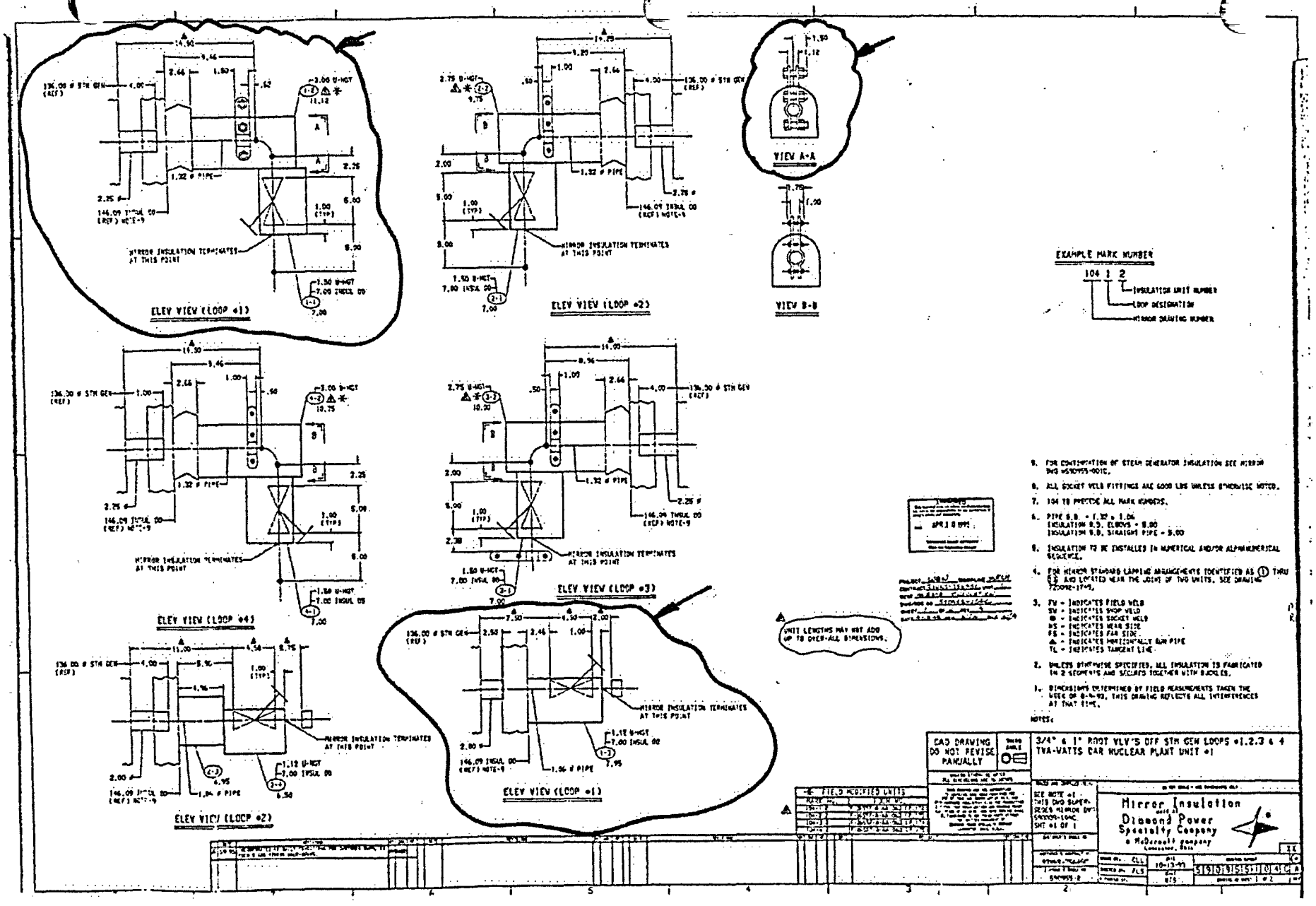


WBI-DWD-006A
PG 6 OF 9

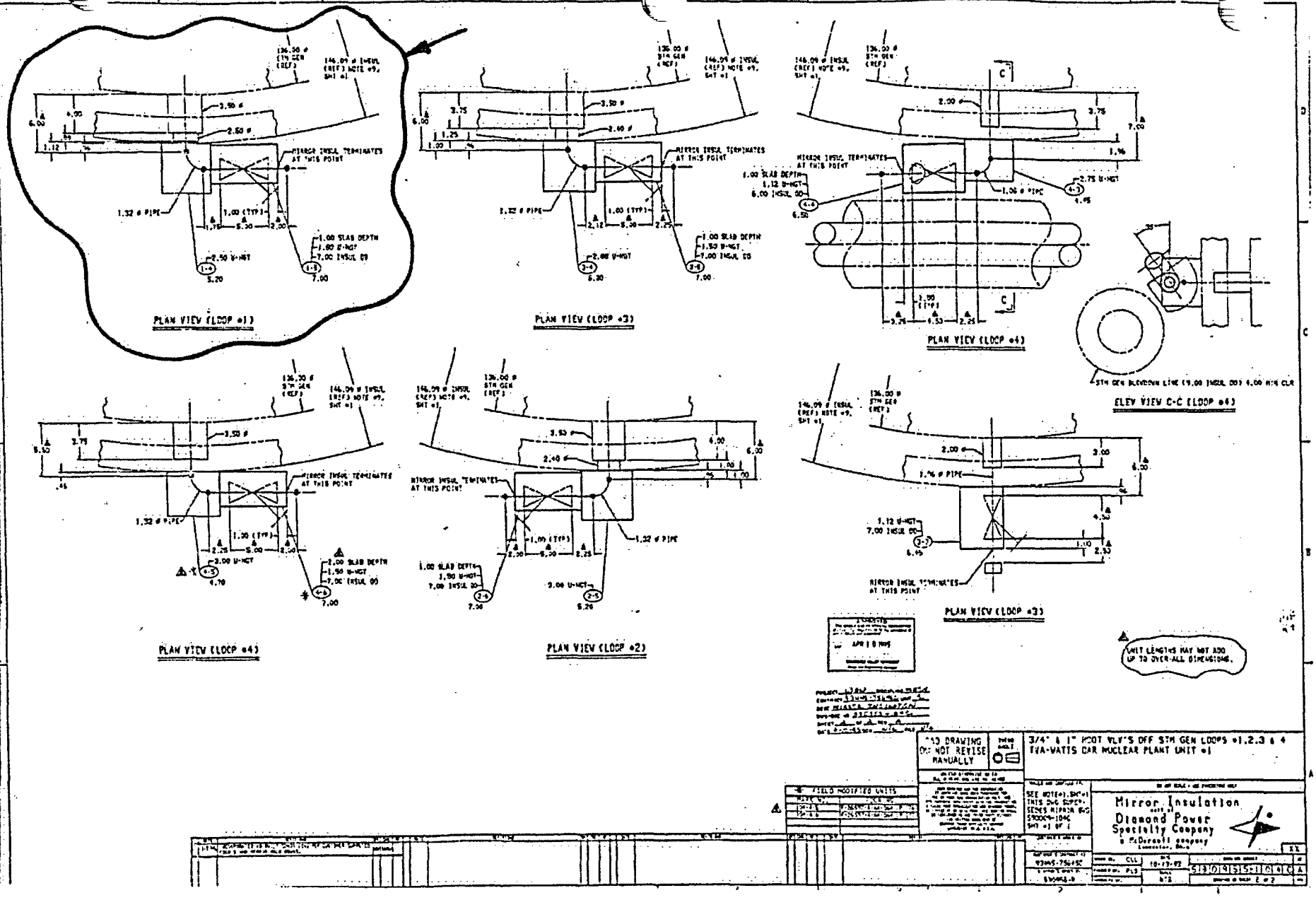


WB1-DWD-006A

PG. 7 OF 9



NBI-DWD-006A
PG 8 OF 9



WBI-DWD-006A
PG 9 of 9

CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-006B SHEET 1 OF 34 CGW 10/23/03

DATE:	10/23/2003	AREA:	LOOP 1	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, MIKE SOLLIE

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-058C, SH. 1, REV. D *	
Tools:	590955-059C, REV. B *	
Drawings	47W401-208, REV. D	
Flashlights	590955-082C, REV. 0	
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	16" FEEDWATER PIPING
	* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS CGWalls Date: 10-23-03

Checked By: MIKE SOLLIE [illegible] Date: 11/9/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-006B SHEET 2 OF 4

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
0600200-02-01	LOOP 1	716'	6	FEEDWATER	16.00	24.10	RMI	2.5	24.32	S.S.	STD	N/A	21" OD INSULATION
0600200-02-01	LOOP 1	716'	6	FEEDWATER	16.00	10.59	RMI	0.5	1.91	S.S.	STD	N/A	17" OD INSULATION
0600200-02-01	LOOP 1	716'	6	FEEDWATER	SEE CALC	SEE CALC	RMI	SEE CALC	0.42	S.S.	STD	N/A	AT 1.85" OD LINE
0600200-02-01	LOOP 1	716'	6	FEEDWATER	SEE CALC	SEE CALC	RMI	SEE CALC	0.26	S.S.	STD	N/A	AT 1" LINE
0600200-02-01	LOOP 1	716'	6	FEEDWATER	30.25	0.50	MINERAL WOOL	2	0.70	N/A	STD	N/A	AT PENETRATION # X-12A

APPROXIMATE INSULATION LENGTH:

STARTING FROM LOOP 1 STEAM GENERATOR:

AT 21" OD INSULATION:

LENGTH = $(1/4)[\pi(24)(90°/180°)] + \pi(24)(45°/180°) + 14.66 + 35.12 + (113.75 - 7.5 - 10)$

$+ (3/4)[\pi(24)(90°/180°)] + 32.25 + \pi(24)(90°/180°) + 16.12 = 289(1/12) = 24.1$FT

AT 17" OD INSULATION:

LENGTH = $\pi(24)(45°/180°) + 16 + (3/4)[\pi(24)(90°/180°) + 17 + \pi(24)(45°/180°)$

$7.75 + 10 + (1/4)[\pi(24)(90°/180°)] = 127(1/12) = 10.59$FT

AT 1.88" OD LINE:

VOLUME = $[\pi(6^2 - 1.88^2)/4 \times (6 + 6.75)] + [\pi(8^2 - 1.88^2)/4 \times 8.13]$

$= 712(1/12)^3 = 0.42$FT^3

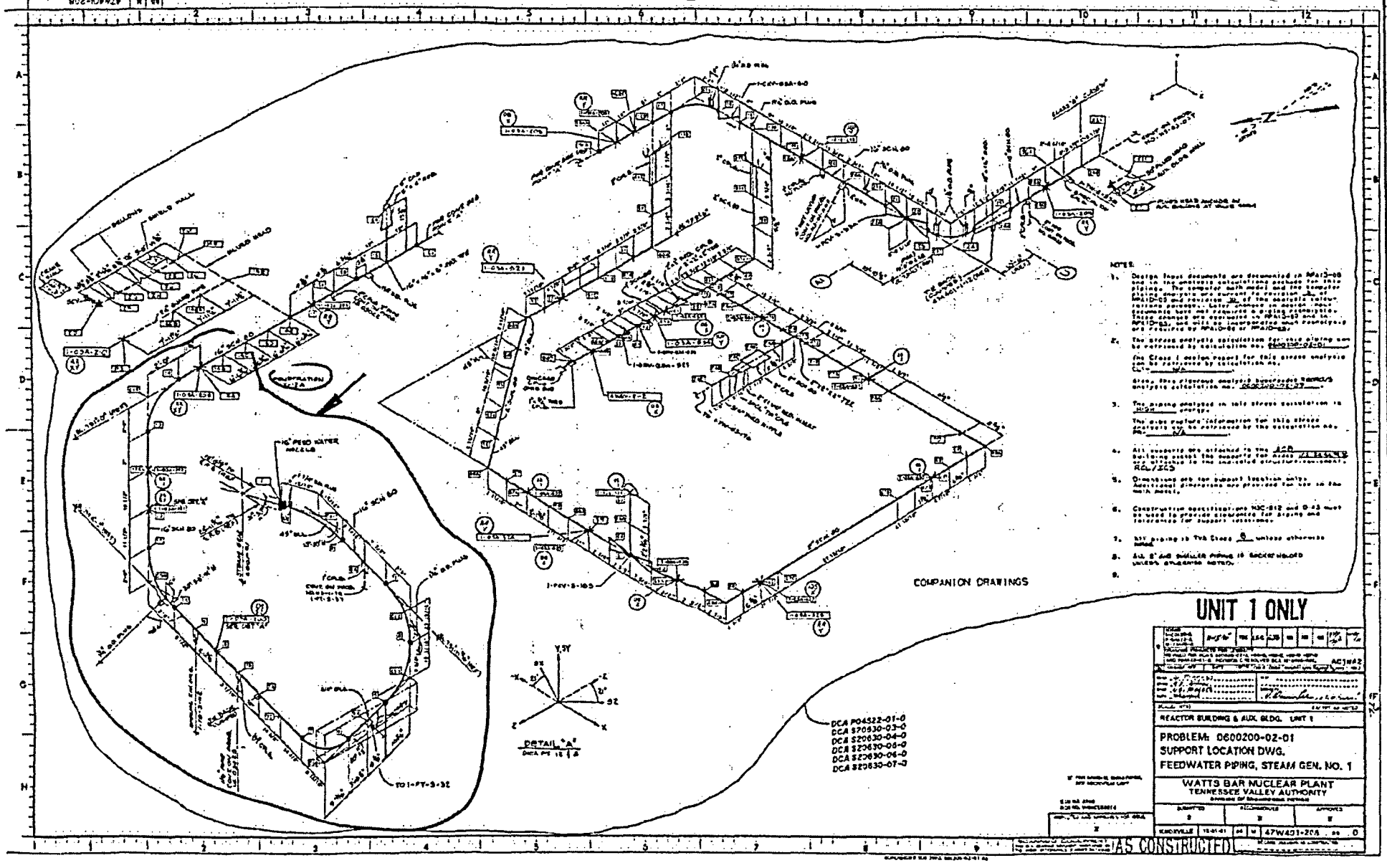
AT 1" LINE (SEE DWG. 590955-059C):

VOLUME = $[\pi(5^2 - 1.32^2)/4 \times 5] + [\pi(8^2 - 1.32^2)/4 \times 7]$

$= 434(1/12)^3 = 0.26$FT^3

AT PENETRATION #X-12A (MINERAL WOOL INSULATION) (SEE DWG. 590955-082C):

LENGHT = $(2 \times 3") = 6(1/12) = 0.5$FT



WBI-DWD-006B
PG 4 OF 4

CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-006C SHEET 1 OF 4

DATE:	10/29/2003	AREA:	LOOP 1 (AZ 0°-90°)	RWP NO.:	8010
		ELEV:	716		

INSPECTORS:	FRANK C YAO, MIKE CALDWELL

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	47W2500-5	
Tools:		
Drawings		
Flashlights		
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	**Verify installation of insulation** as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any **undocumented** insulation.
3	Inspect and determine longitudinal **seam location** and **band spacing** if necessary.
4	Document any **irregularities** of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any **undocumented fibrous insulation (e.g., within rupture restraints)**.
6	Inspect and mark up cable tray drawings to show location of **fire barriers** (vertical and horizontal).
7	Inspect the area for any **weak components** that could be dislodged by jet and that could be transported to sump.
8	Inspect any **equipment insulation** in the area.
9	Inspect and document the general **cleanliness** of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	PICTURE #06-1-PAINT CONDITION

Prepared By: FRANK C YAO Date: 10/29/03

Checked By: MIKE CALDWELL Date: 10/29/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

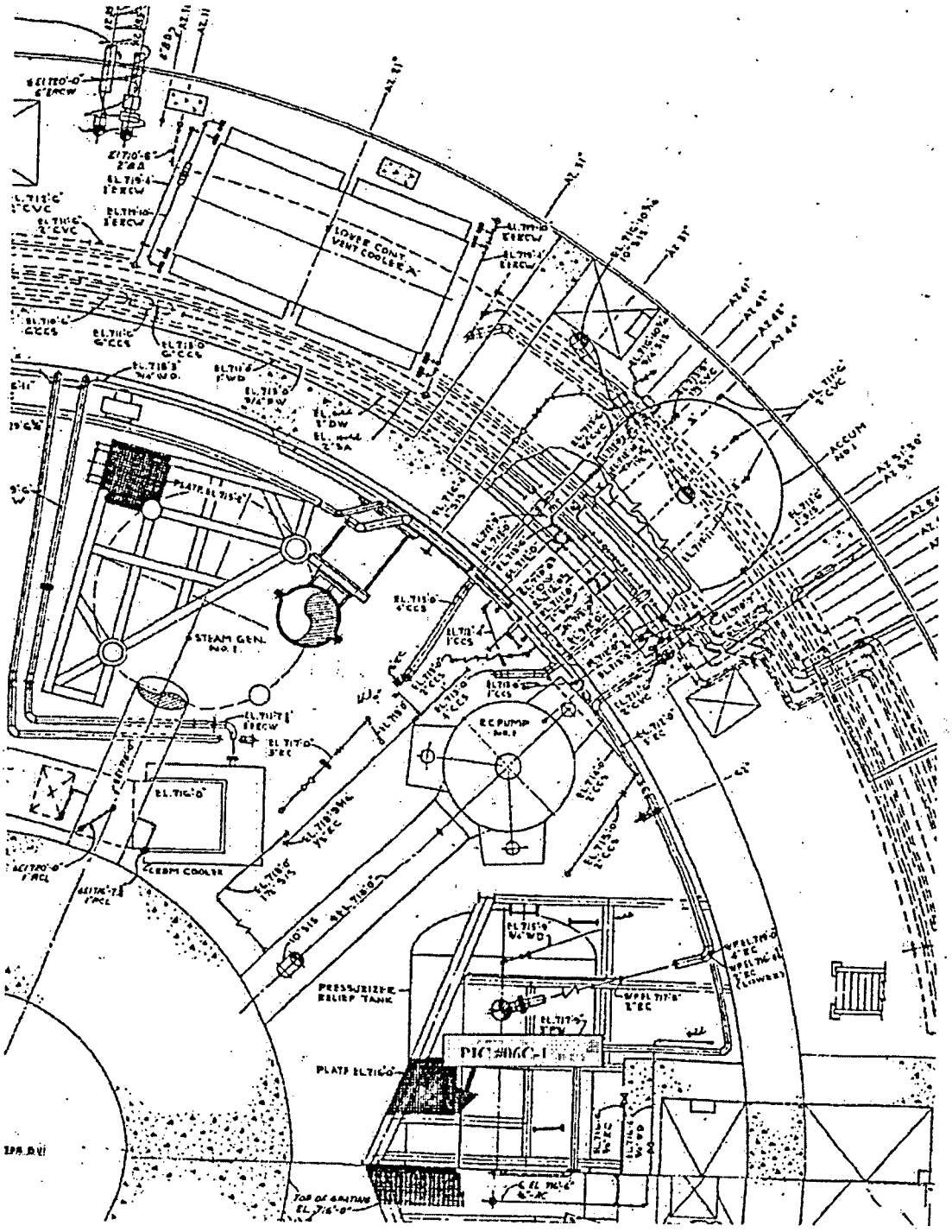
WALKDOWN PACKAGE#: WB1-DWD-006C SHEET 2 OF 4

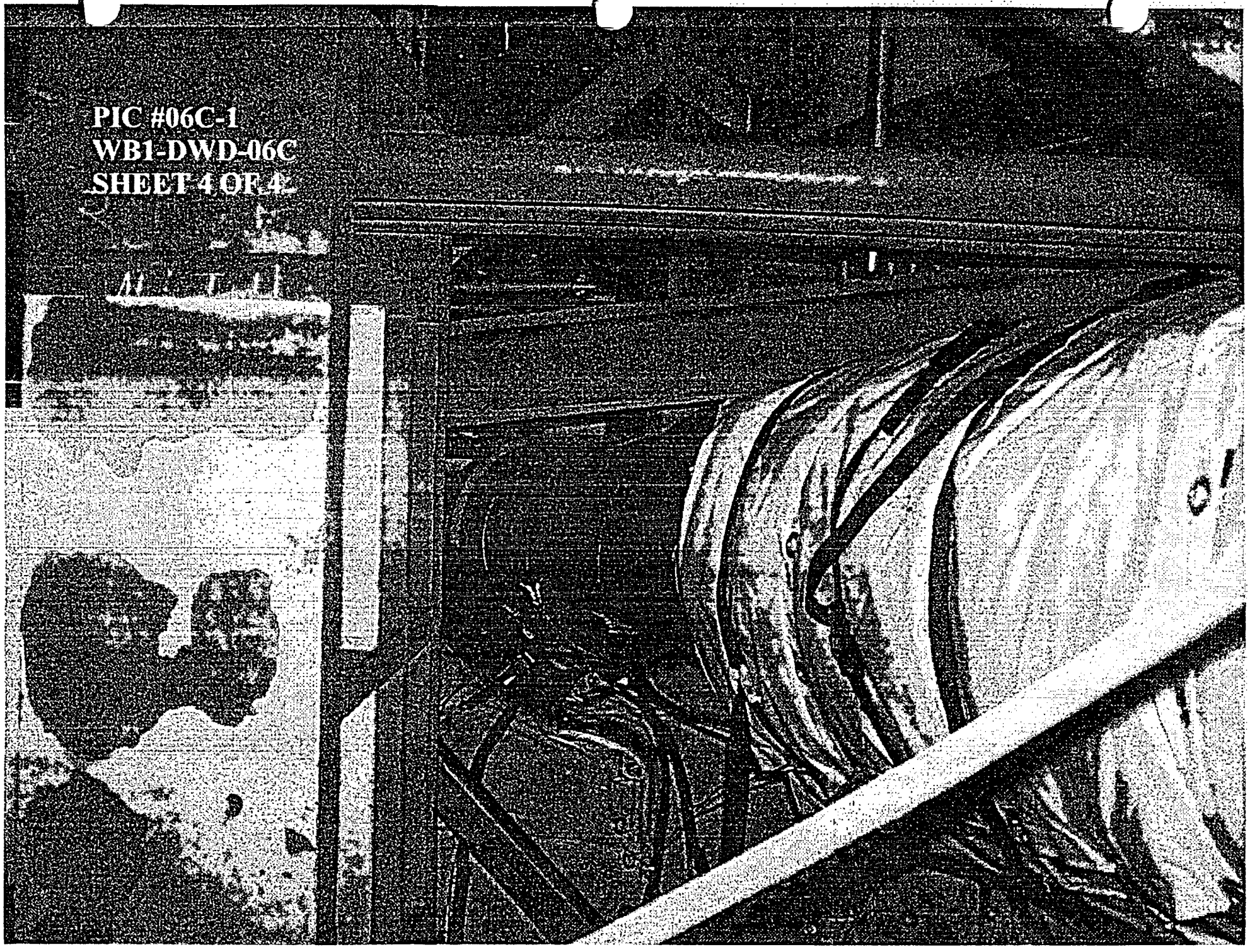
PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
N/A	LOOP 1	715	6	PAINT CHIP	NA	NA	NA	NA	0.000	NA	NA	NA	SEE PAINT INSPECTION REPORT

47W2500-5
QUAD I
EL 710 TO 720.0

WB1-DWD-06C

SHEET 3 OF 4




PIC #06C-1
WB1-DWD-06C
SHEET 4 OF 4

CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-006D SHEET 1 OF 20

DATE:	11/17/2003	AREA:	LOOP 1 (AZ 0°-90°)	RWP NO.:	8010
		ELEV:	716		

INSPECTORS:	FRANK C YAO, MIKE CALDWELL

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	47W2500-5	JB-293-4557-B
Tools:		45N862-10
Drawings		45N862-11
Flashlights		DCN 11727-D
Ladders		1-FOR-304-1
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	CONDUIT 3M-M20C RADIANT SHIELD
	PICTURE 06D-1
	PICTURE 06D-2
	PICTURE 06D-3
	PICTURE 06D-4
	PICTURE 06D-5
	PICTURE 06D-6
	PICTURE 06D-7
	PICTURE 06D-8
	PICTURE 06D-9
	PICTURE 06D-10
	PICTURE 06D-11
	PICTURE 06D-12
	SAMPLE OF 3M-M20C PROVIDED BY TVA, 3/16" THICK NOMINAL
	JB-293-4557-B, JB-293-6347-A

Prepared By: FRANK C YAO Date: 11/17/03

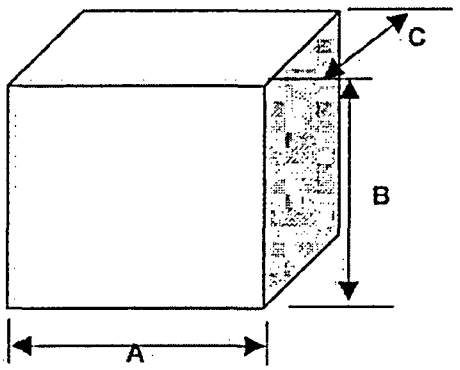
Checked By: MIKE CALDWELL Date: 11/17/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-006D SHEET 2 OF 20

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
N/A	LOOP 1	716	6	CONDUIT 3M-M20C INSULATION	1.315	N/A	3M-M20C	0.1875	2.348	N/A	N/A	N/A	SEE CALCULATION
N/A	LOOP 1	716	6	CONDUIT 3M-M20C INSULATION	1.900	N/A	3M-M20C	0.1875	1.425	N/A	N/A	N/A	SEE CALCULATION
N/A	LOOP 1	716	6	CONDUIT 3M-M20C INSULATION	2.375	N/A	3M-M20C	0.1875	1.696	N/A	N/A	N/A	SEE CALCULATION
N/A	LOOP 1	716	6	CONDUIT 3M-M20C INSULATION	N/A	N/A	N/A	N/A	0.516	N/A	N/A	N/A	JUNCTION BOXES SEE CALCULATION
N/A	LOOP 1	716	6	CONDUIT 3M-M20C INSULATION	N/A	N/A	N/A	N/A	2.310	N/A	N/A	N/A	SUPPORT SEE CALCULATION

AREA 06 3M-M20C RADIANT SHIELD CALCULATION
JB-293-4557-B AND JB-293-6347-A



SURFACE AREA CALCULATION OF JUNCTION BOX JB-293-4557-B (SIZE: 12X14X6)

FOR ONE LAYER JB-293-4557-B (SIZE: 12X14X6)

A (IN)	B(IN)	C(IN)	2(AxB+AxC +BxC) SQ IN	SQ FT	ADD 20% WRAP
12	14	6	648	4.5	5.4

PER NOTE 1A OF DRAWING 1-47W243-6, 3 LAYERS OF M20C SHALL BE PROVIDED.

TOTAL AREA FOR 3 LAYERS	SQ FT	THICKNESS	TOTAL VOL (CU FT)
	16.2	0.188	0.253

SURFACE AREA CALCULATION OF JUNCTION BOX JB-293-6347-A (SIZE: 12X12X8)

FOR ONE LAYER JB-293-6347-A (SIZE: 12X12X8)

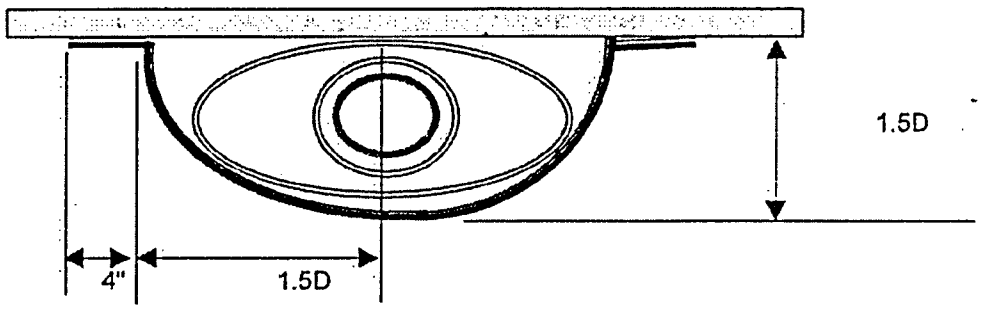
A (IN)	B(IN)	C(IN)	2(AxB+AxC +BxC) SQ IN	SQ FT	ADD 20% WRAP
12	12	8	672	4.67	5.6

PER NOTE 1A OF DRAWING 1-47W243-6, 3 LAYERS OF M20C SHALL BE PROVIDED.

TOTAL AREA FOR 3 LAYERS	SQ FT	THICKNESS	TOTAL VOL (CU FT)
	16.8	0.188	0.263

TOTAL INSULATION VOLUME FOR TWO BOXES (CU FT) =	0.516

AREA 06 3M-M20C RADIANT SHIELD CALCULATION
AREA 06- 3M-M20C RADIANT SHIELD CALCULATION
1" DIAMETER CONDUIT (OUTSIDE DIA = 1.315")
1 1/2" DIA. CONDUIT (OUTSIDE DIA = 1.9")
2" DIAMETER CONDUIT (OUTSIDE DIA. = 2.375")
3 LAYERS 3M-M20C FOR CONDUIT PER NOTE 1A DRAWING 1-47W243-6
DETAIL C-8 AND NOTE 6 DRAWING 1-47W243-8 SPECIFIES 3 LAYERS WRAP.

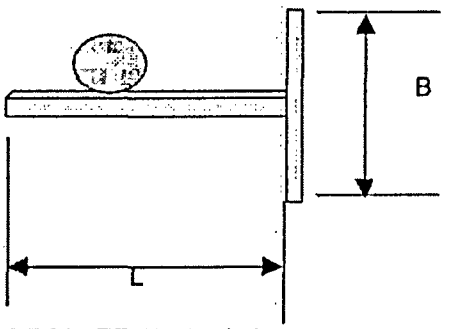


D=DIAMETER OF CONDUIT IN IN"
FIRST LAYER TIGHTLY AROUND CONDUIT
SECOND LAYER IS 1.5D DIAMTER CIRCLEX1.2
THIRD LAYER IS 1.5D RADIUS HALF CIRCLE + 8"

1" DIA CONDUIT LENGTH =(90/2 + 15 + 10)= 70'				1 1/2" LENGTH = 5/2+15+30/2 = 32.5'			
1" DIA. CONDUIT PER LIN FT	D(IN)	PERIMTER (IN)	A(SQ IN) PER LIN FT	1 1/2" DIA. CONDUIT PER LIN FT	D(IN)	PERIMTER (IN)	A(SQ IN) PER LIN FT
1ST LAYER	1.315	4.13	49.57	1ST LAYER	1.9	5.97	71.63
2ND LAYER	1.9725	7.44	89.23	2ND LAYER	2.85	10.74	128.93
3RD LAYER	3.945	14.20	170.36	3RD LAYER	5.7	16.95	203.44
TOTAL SQ IN PER LIN FT			309.17	TOTAL SQ IN PER LIN FT			404.00
CU FT OF 3M-M20C (3/16" THICK)			0.0335	CU FT OF 3M-M20C (3/16" THICK)			0.0438
CONDUIT LENGTH IN THIS AREA =			70	CONDUIT LENGTH IN THIS AREA =			32.5
TOTAL CU FT OF INSULATION =			2.348	TOTAL CU FT OF INSULATION =			1.425

2" CONDUIT LENGTH= 65/2=32.5			
2" DIA. CONDUIT PER LIN FT	D(IN)	PERIMTER (IN)	A(SQ IN) PER LIN FT
1ST LAYER	2.375	7.46	89.54
2ND LAYER	3.5625	13.43	161.16
3RD LAYER	7.125	19.19	230.30
TOTAL SQ IN PER LIN FT			481.00
CU FT OF 3M-M20C (3/16" THICK)			0.0522
CONDUIT LENGTH IN THIS AREA =			32.5
TOTAL CU FT OF INSULATION =			1.696

AREA 06 3M-M20C RADIANT SHIELD CALCULATION



ASSUME A=12" WITH 2x2 SQ TUBE, BASE PLATE SIZE = 9x9
TWO LAYERS OF 3M FIRE BARRIER M20C FOR SUPPORT
COVER BASE PLATE 6" ALL AROUND.

COVERED AREA (ONE LAYER)

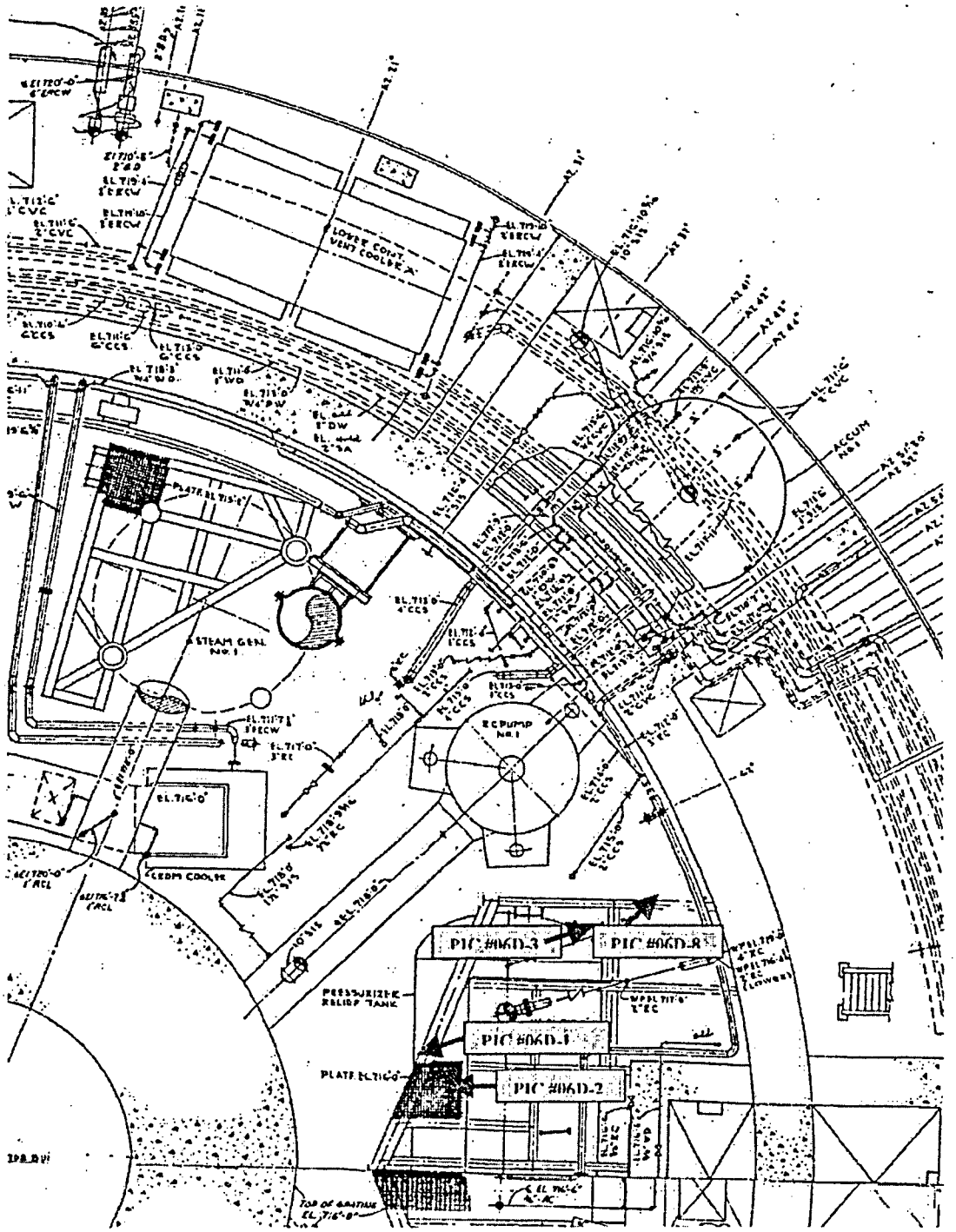
	B+6+6	B+6+6	A (IN)	A (SQ FT)
BASE PLATE =	21	21	441	3.06
	L	4xWIDTH		
CANTILEVER MEM =	12	8	96	0.67
SUB TOTAL				3.73
PLUS ENDS ETC 10%				0.373
ONE LAYER TOTAL=				4.10
TWO LAYERS = 2XTOTAL =				8.20
EACH SUPPORT M20C FOR 3/16" THICK IN CU FT =				0.128

ASSUME SUPPORT SPACING IS 10 FT CONDUIT
NUMBER OF SUPPORTS FOR 1" DIA. CONDUIT=70/10 + 1= 8
NUMBER OF SUPPORTS FOR 1 1/2" DIA. CONDUIT=32.5/10 + 1= 5
NUMBER OF SUPPORTS FOR 2" DIA. CONDUIT=32.5/10 + 1= 5
NUMBER OF SUPPORTS TOTAL = 18
TOTAL CU FT OF 3M-M20C FOR SUPPORTS = 2.31

47W2500-5
QUAD I
EL 710 TO 720.0

WB1-DWD-006D

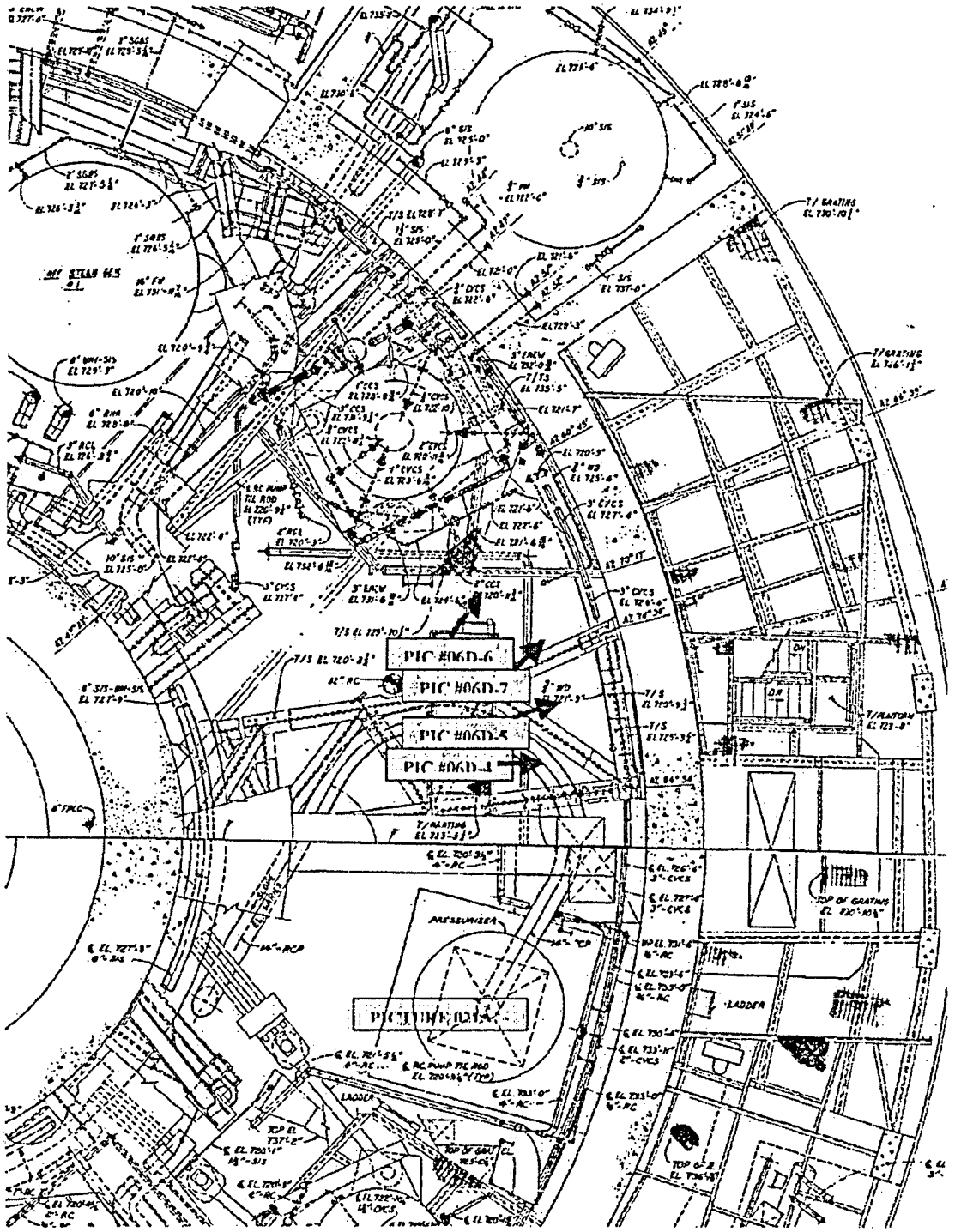
SHEET 6 OF 20



47W2500-9
QUAD I
EL 720 TO 737.0

WB1-DWD-006D

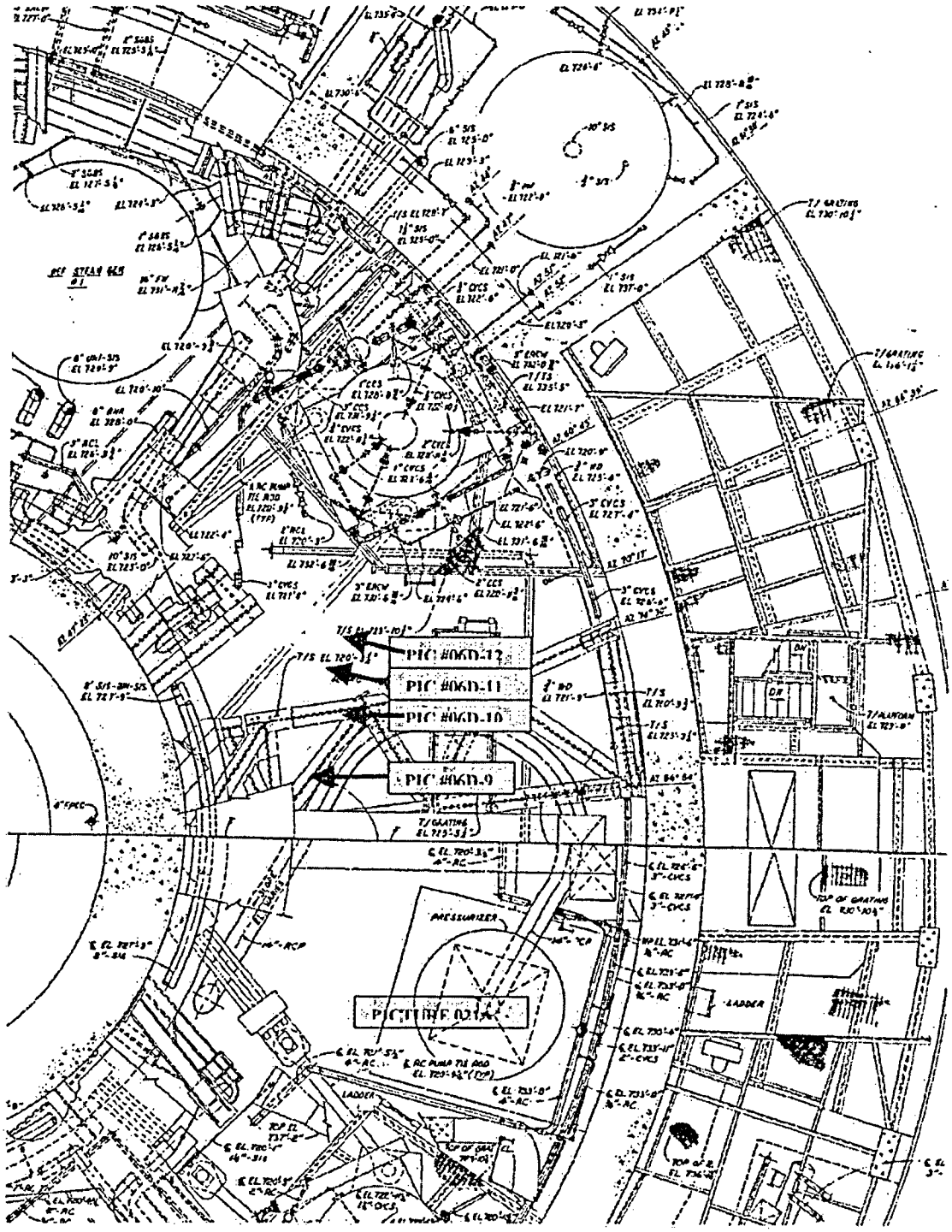
SHEET 7 OF 20

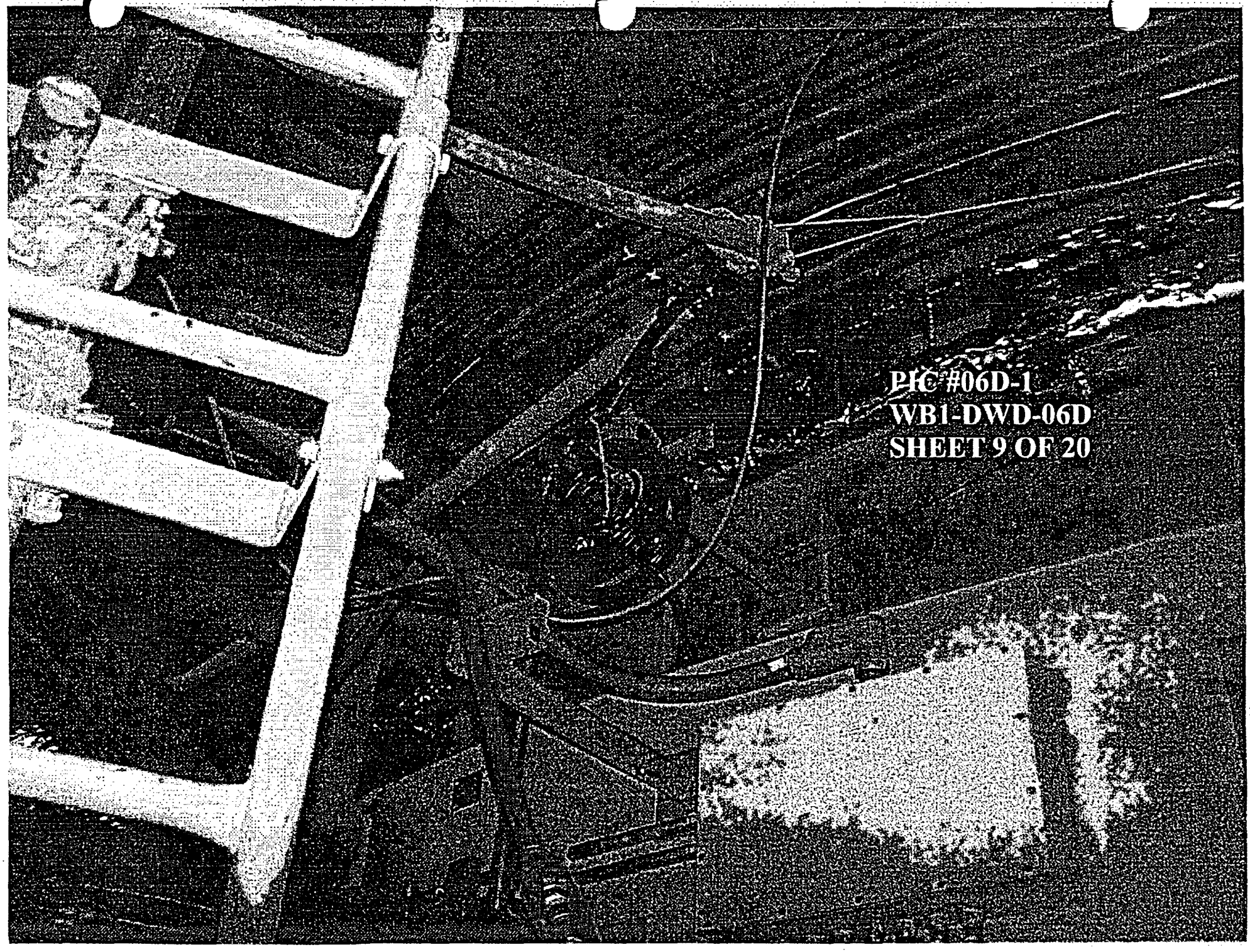


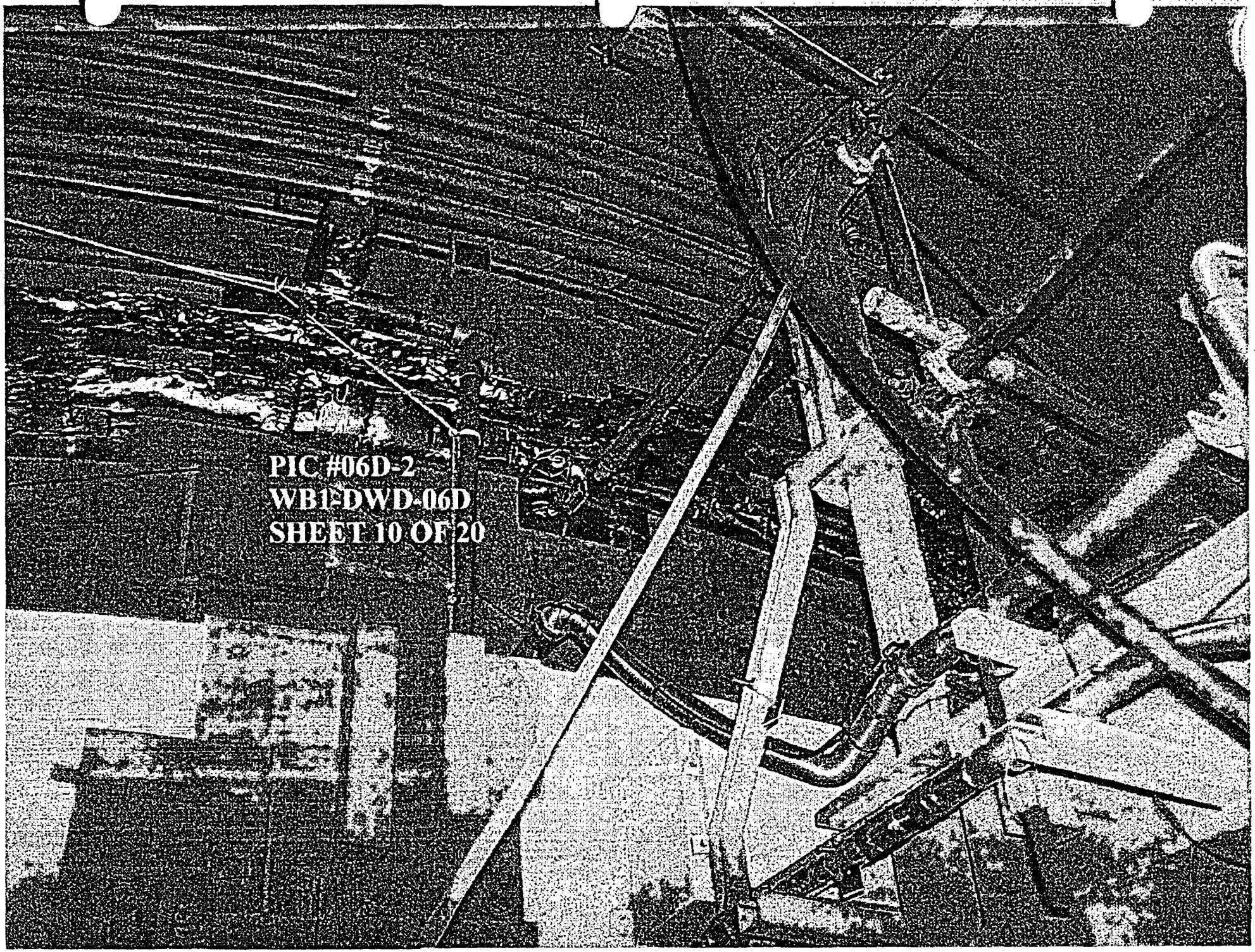
47W2500-9
QUAD I
EL 720 TO 737.0

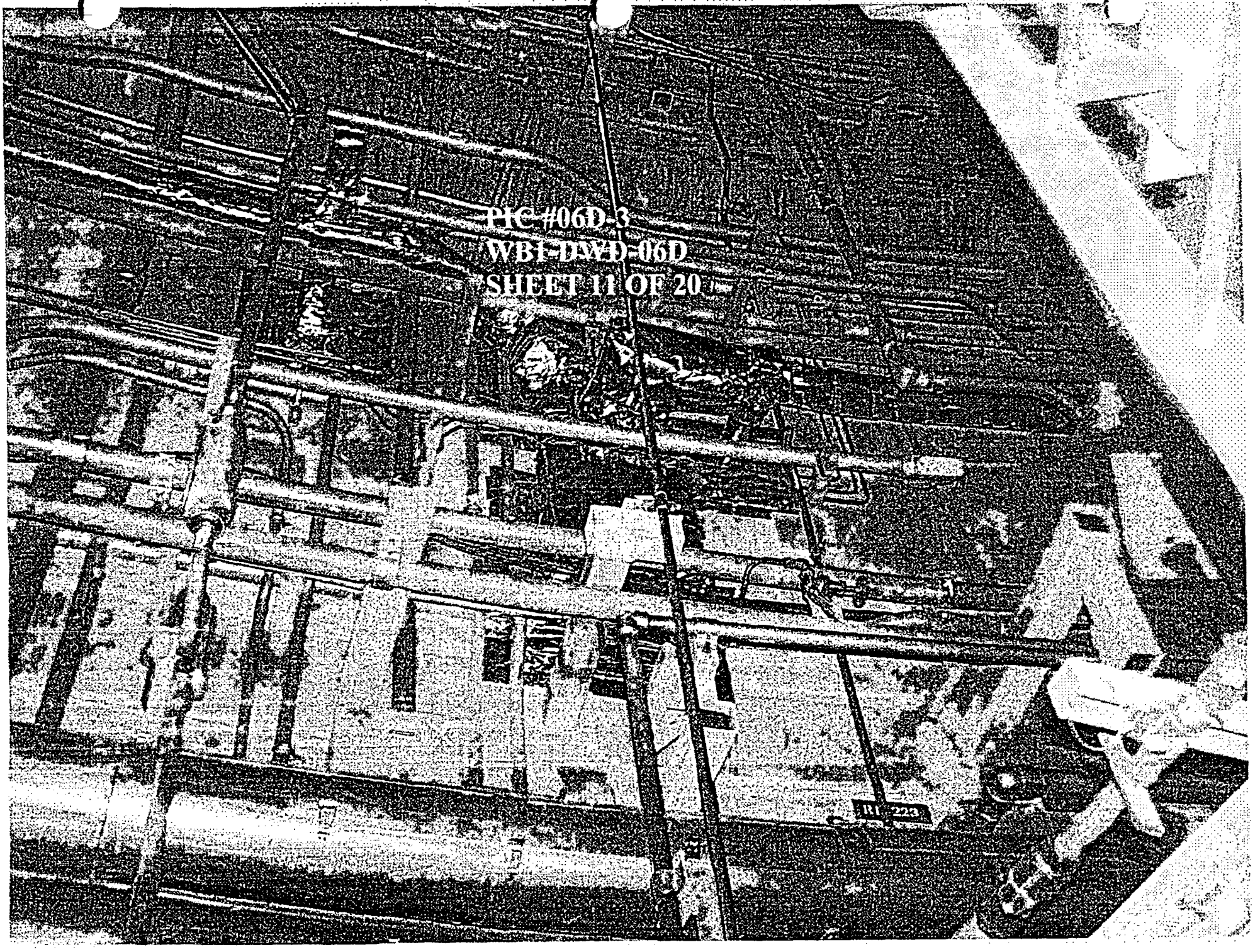
WB1-DWD-006D

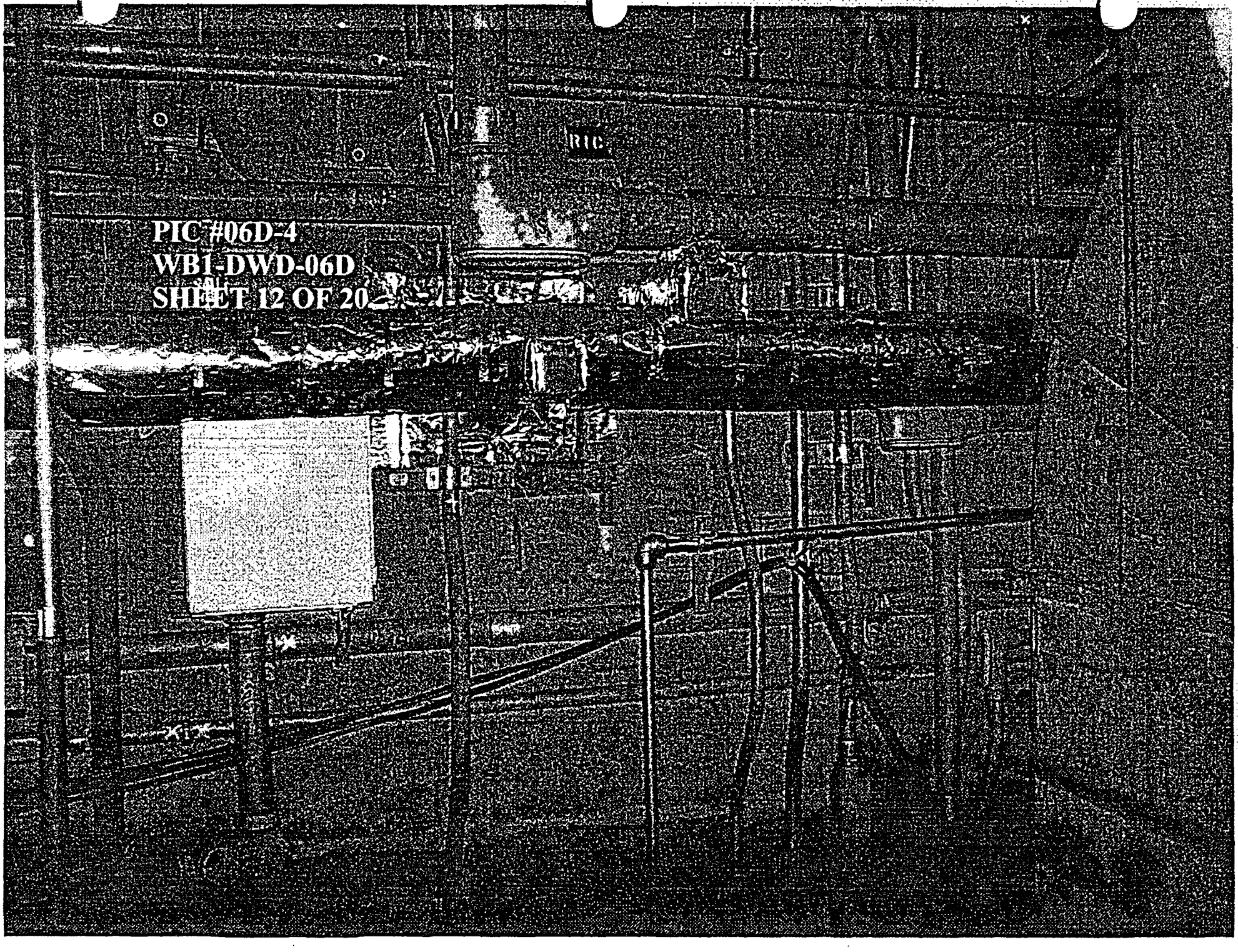
SHEET 8 OF 20

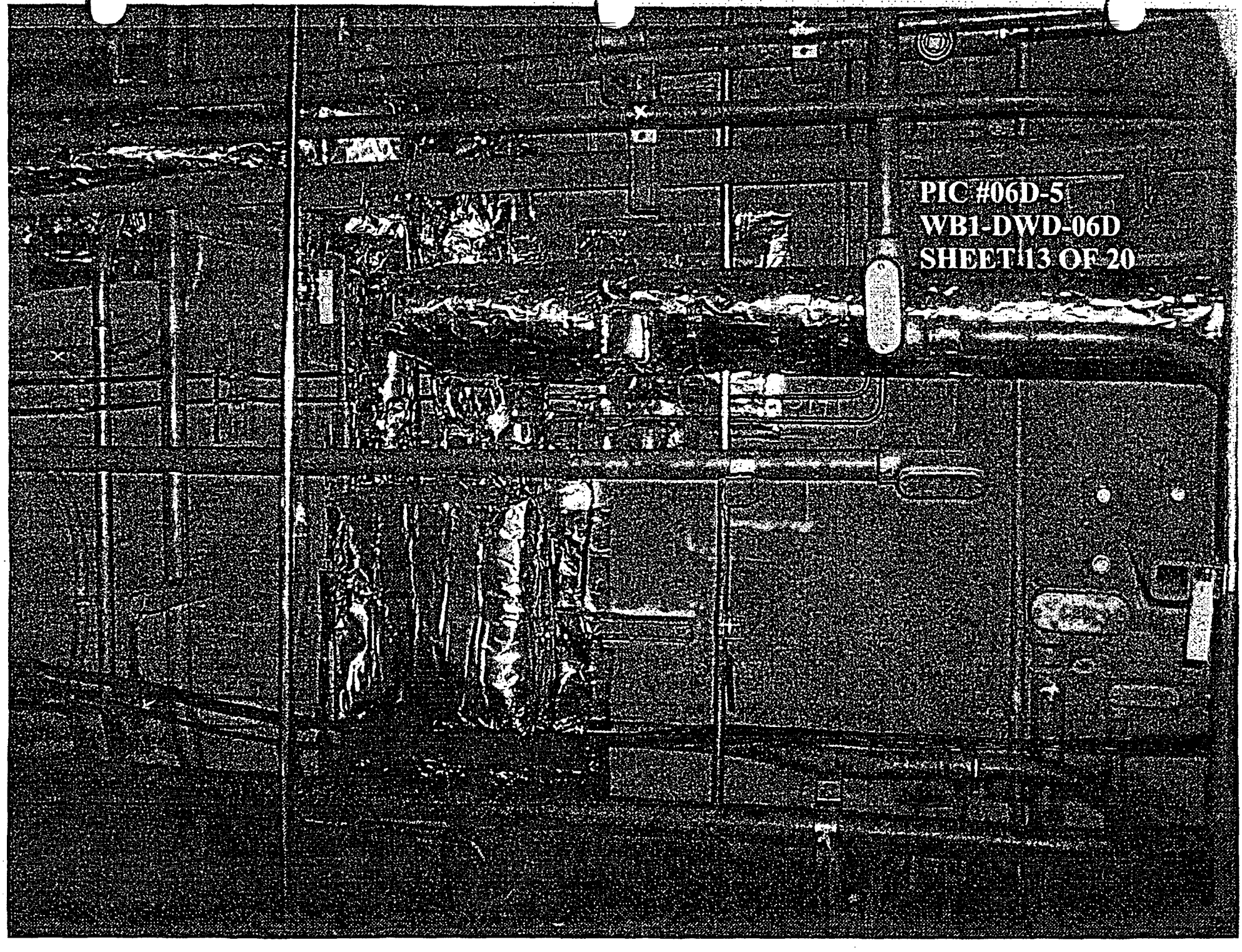


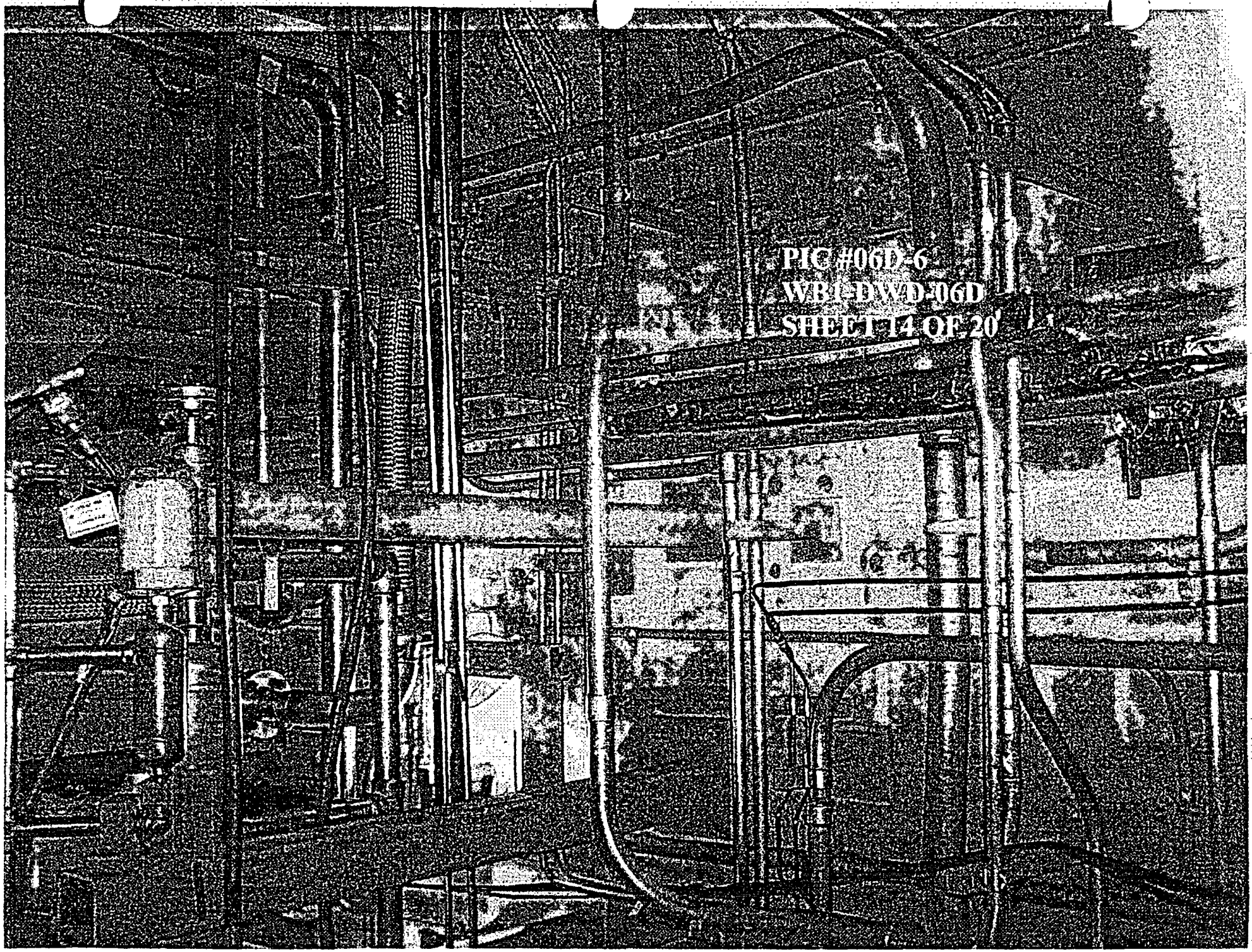

PIC #06D-1
WB1-DWD-06D
SHEET 9 OF 20

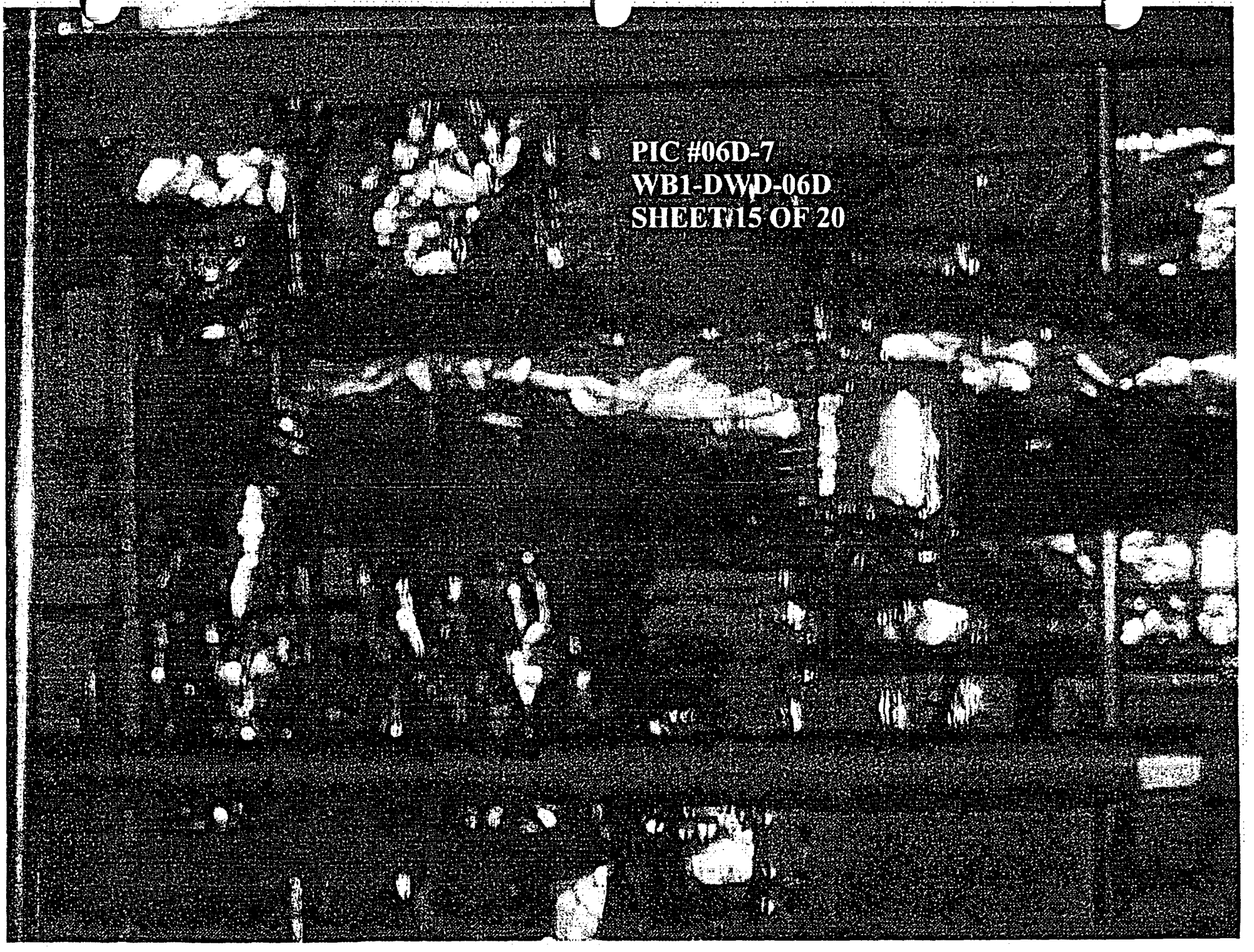

PIC #06D-2
WB1-DWD-06D
SHEET 10 OF 20

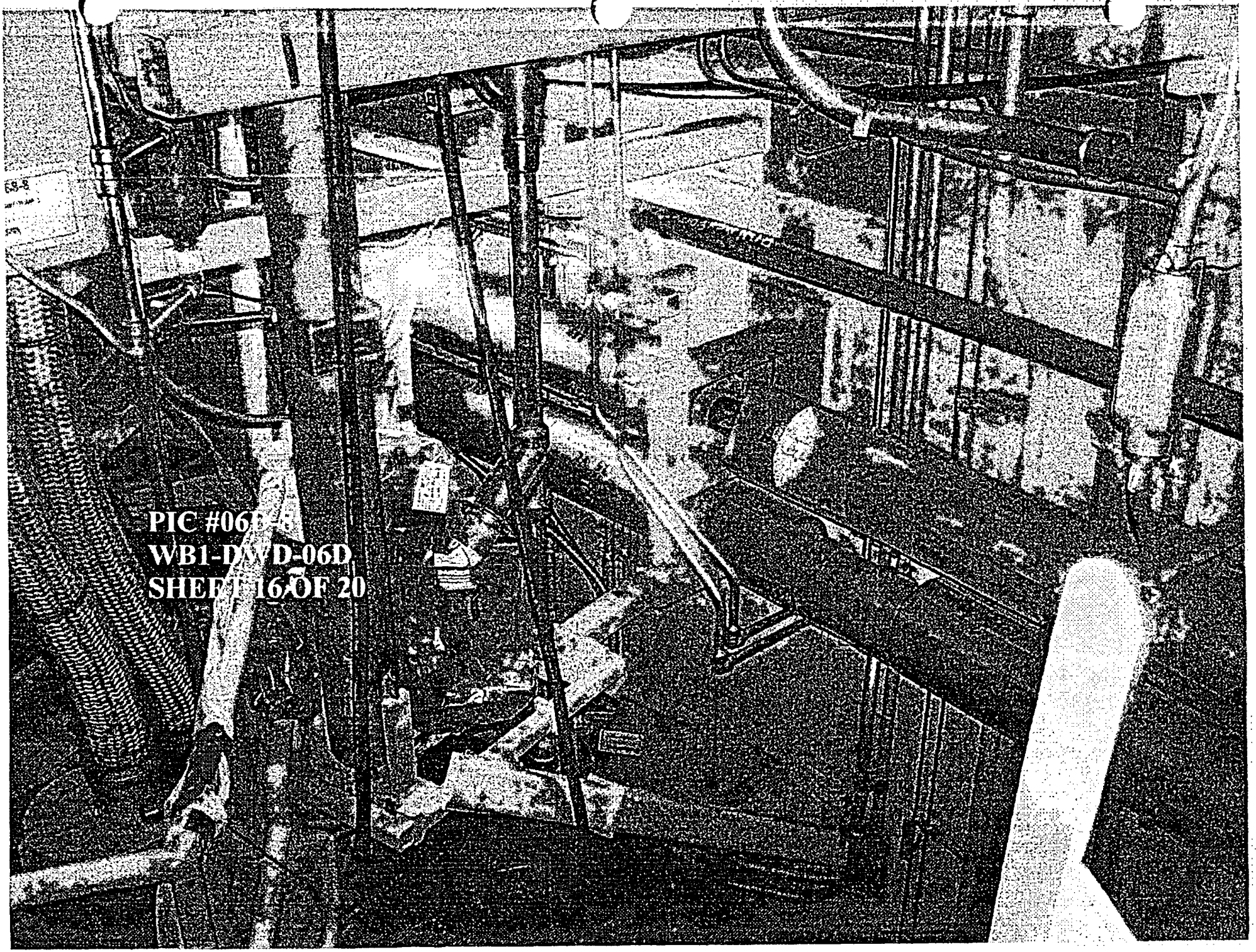

PIC #06D-3
WB1-DWD-06D
SHEET 11 OF 20

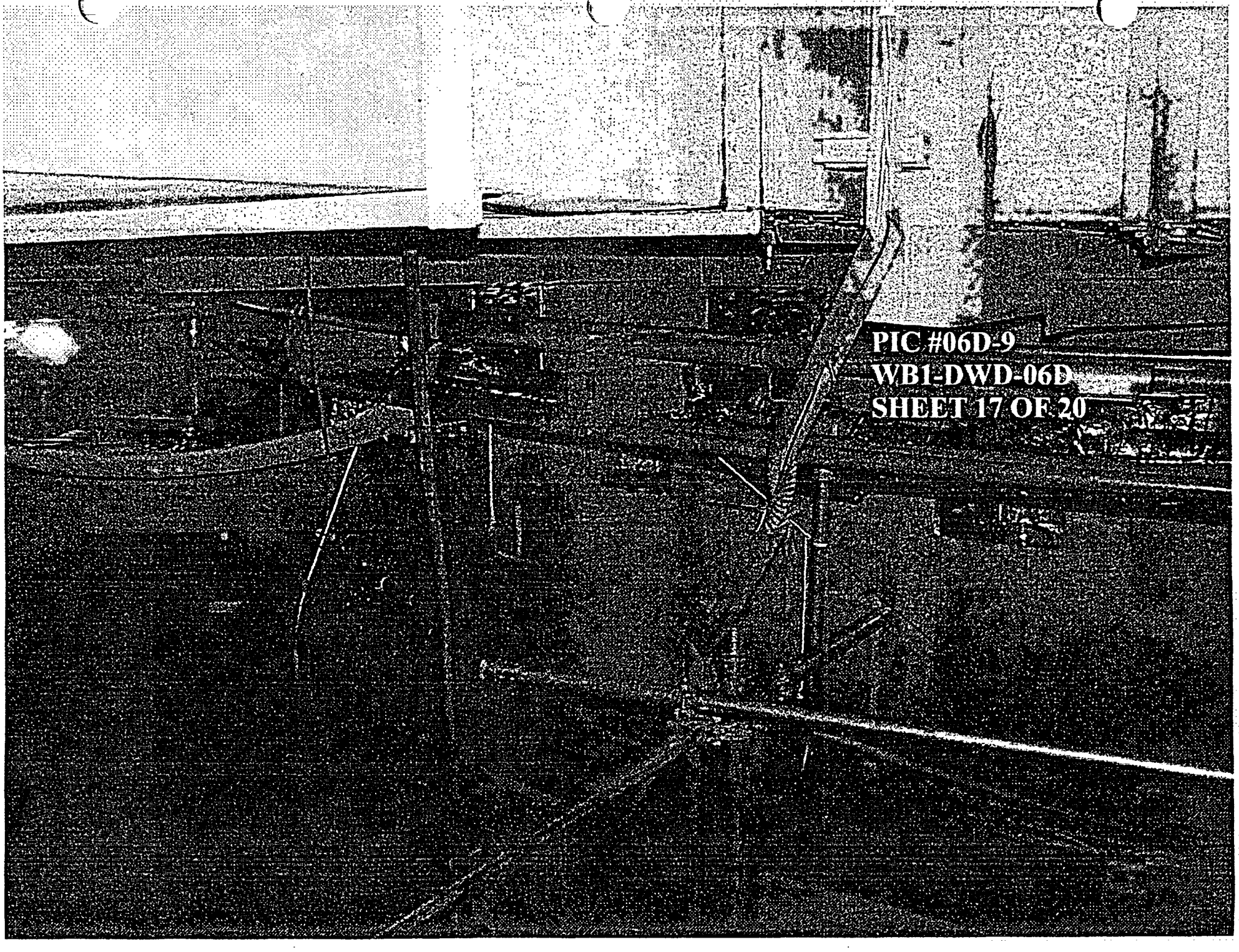

PIC #06D-4
WB1-DWD-06D
SHEET 12 OF 20

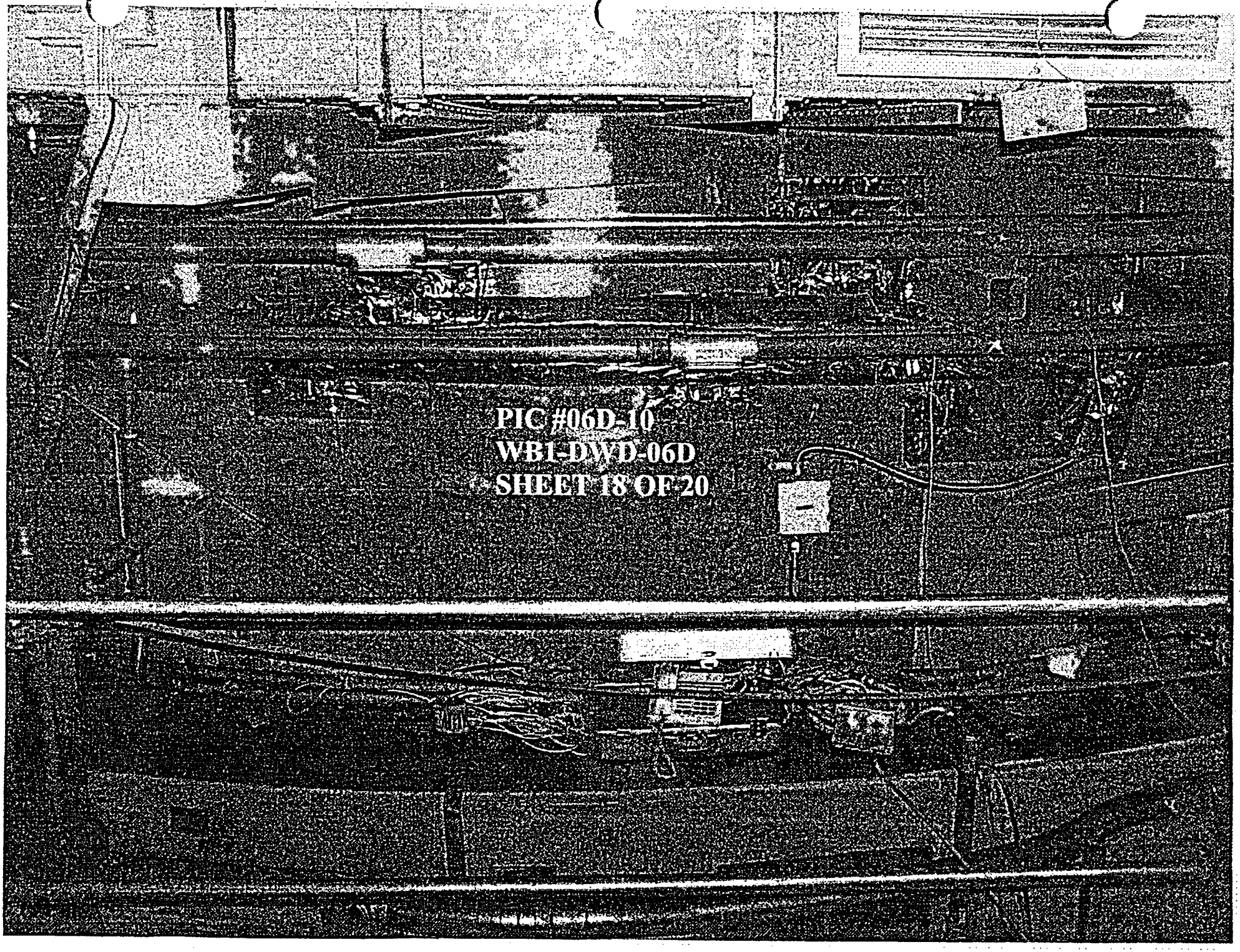

PIC #06D-5
WB1-DWD-06D
SHEET 13 OF 20

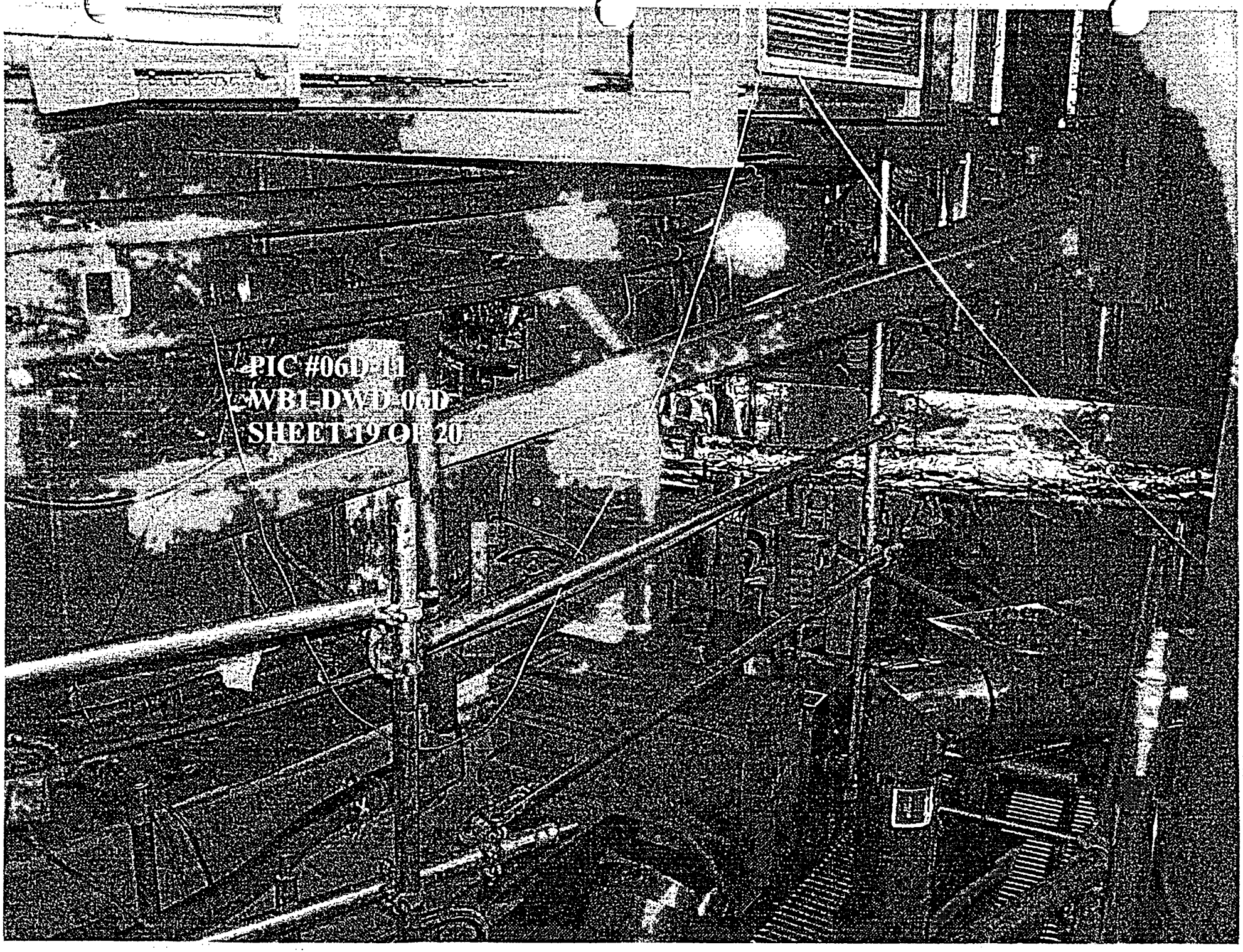

PIC #06D-6
WB1-DWD-06D
SHEET 14 OF 20

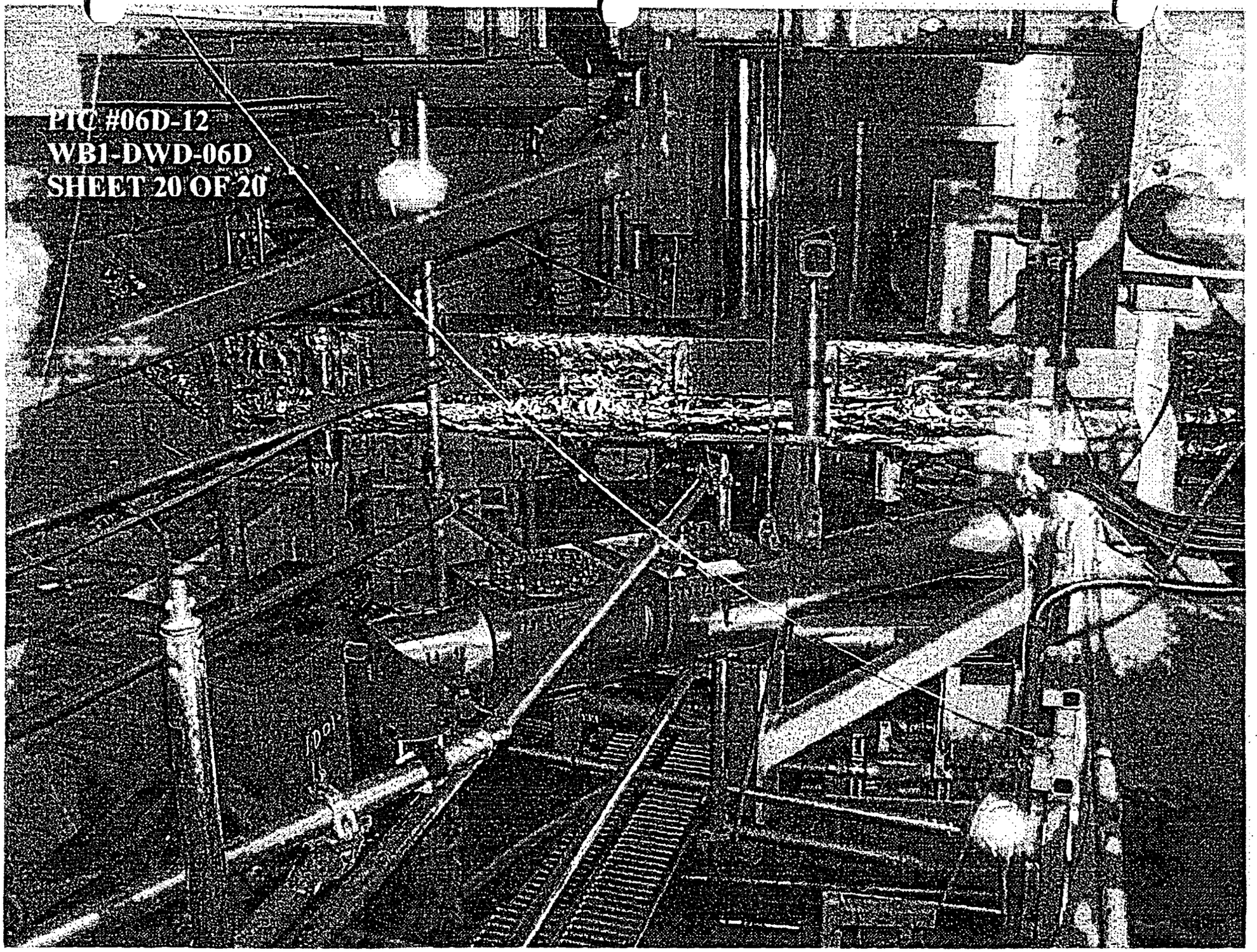

PIC #06D-7
WB1-DWD-06D
SHEET 15 OF 20


PIC #06D-8
WB1-DWD-06D
SHEET 16 OF 20


PIC #06D-9
WB1-DWD-06D
SHEET 17 OF 20


PIC #06D-10
WB1-DWD-06D
SHEET 18 OF 20


PIC #06D-11
WB1-DWD-06D
SHEET 19 OF 20


PIC #06D-12
WB1-DWD-06D
SHEET 20 OF 20

CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-006E SHEET 1 OF 10

DATE:	10/23/2003	AREA:	LOOP 1 (AZ 0 TO 90)	RWP NO.:	8010
		ELEV:	710-720		

INSPECTORS:	FRANK C YAO, MIKE CALDWELL

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	47W2500-5	
Tools:		
Drawings		
Flashlights		
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	LABELS, TIE WRAP, TAGS

Prepared By: FRANK C YAO Date: 10/23/03

Checked By: MIKE CALDWELL Date: 10/23/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

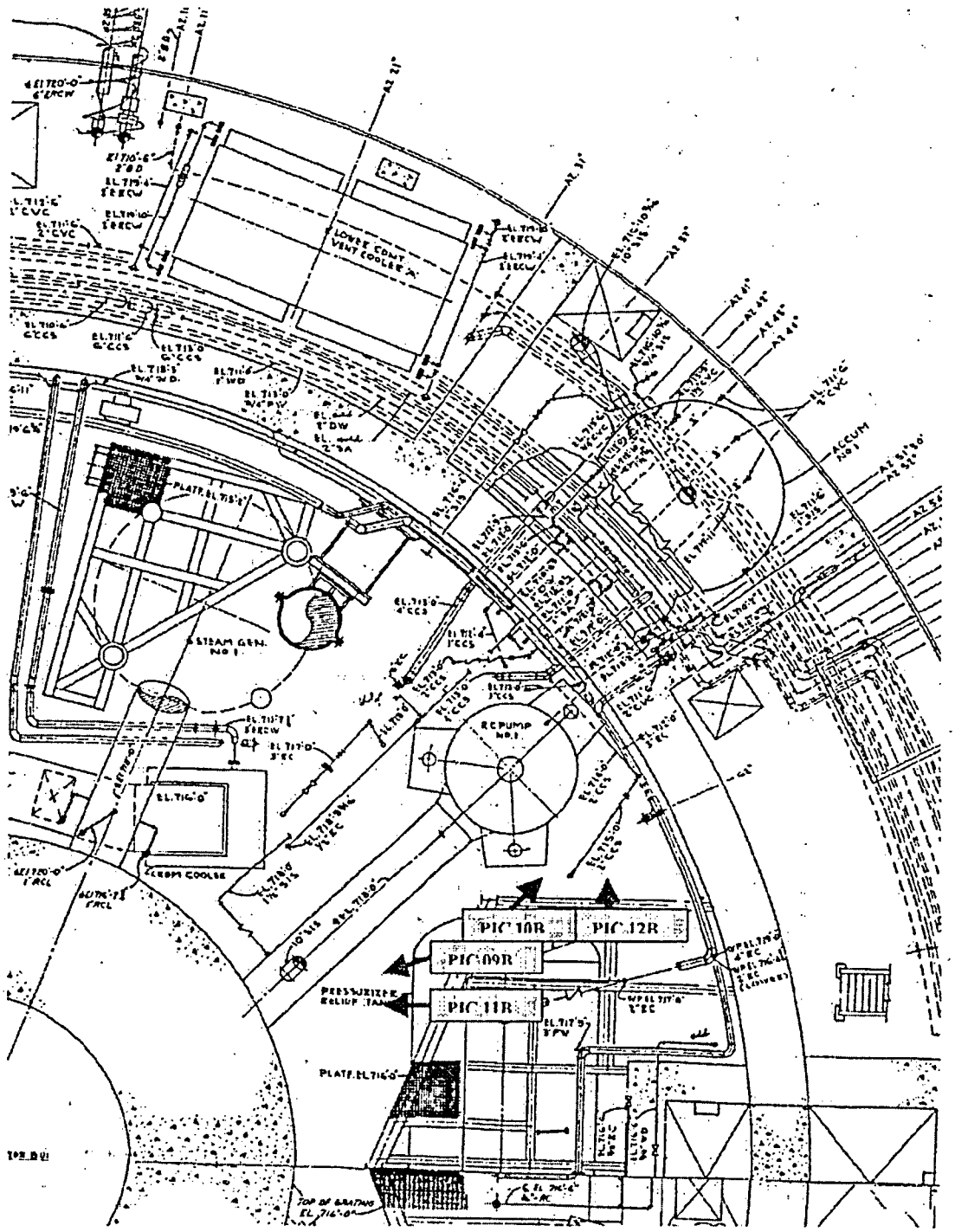
WALKDOWN PACKAGE#: WB1-DWD-006E SHEET 2 OF 10

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
N/A	LOOP 1	710-720	6	LABELS, TAGS, AND TIE WRAPS	NA	NA	NA	NA	NA	NA	NA	NA	SEE REPORT FOR COMMENTS

47W2500-5
QUAD I
EL 710 TO 720.0

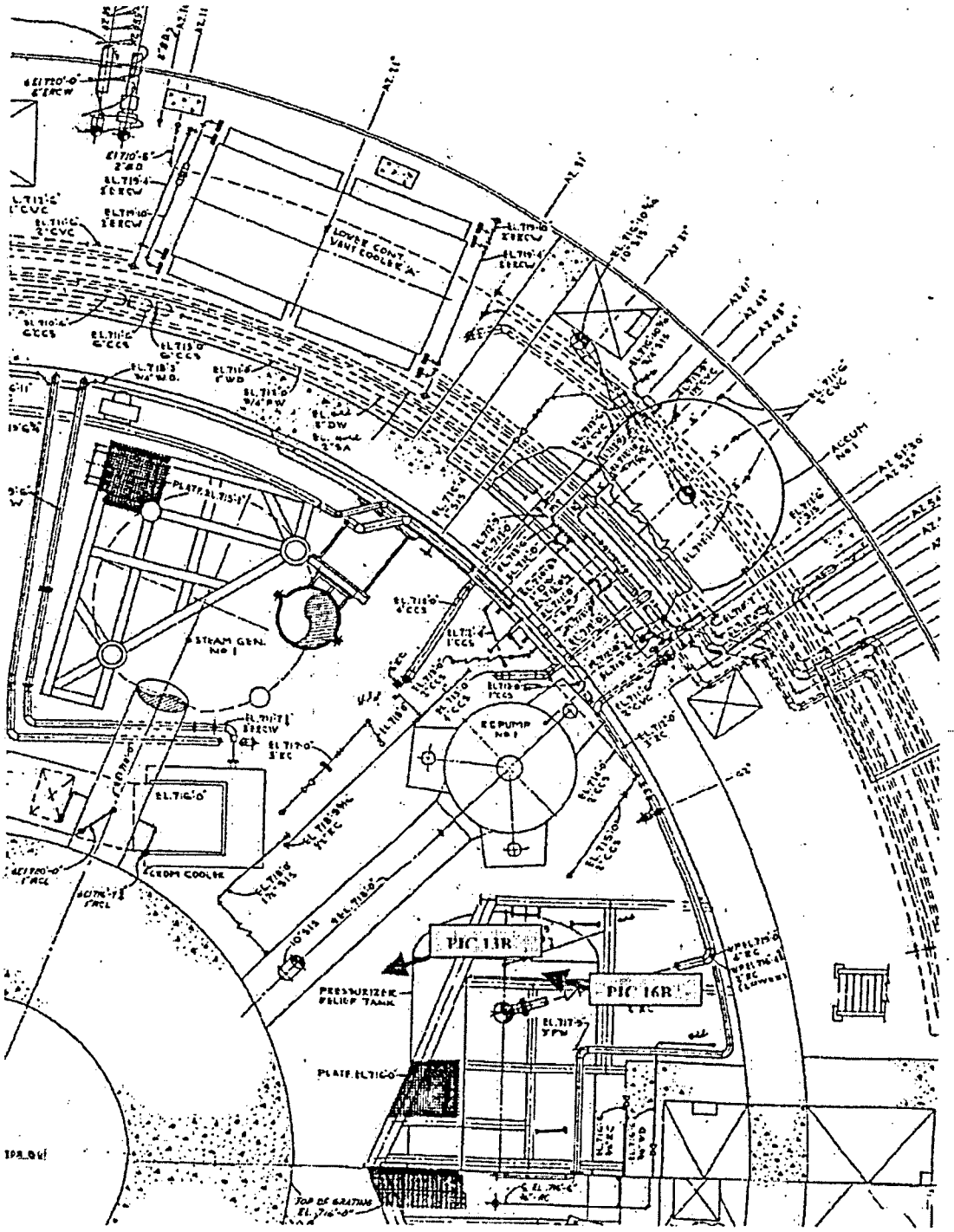
WB1-DWD-006E

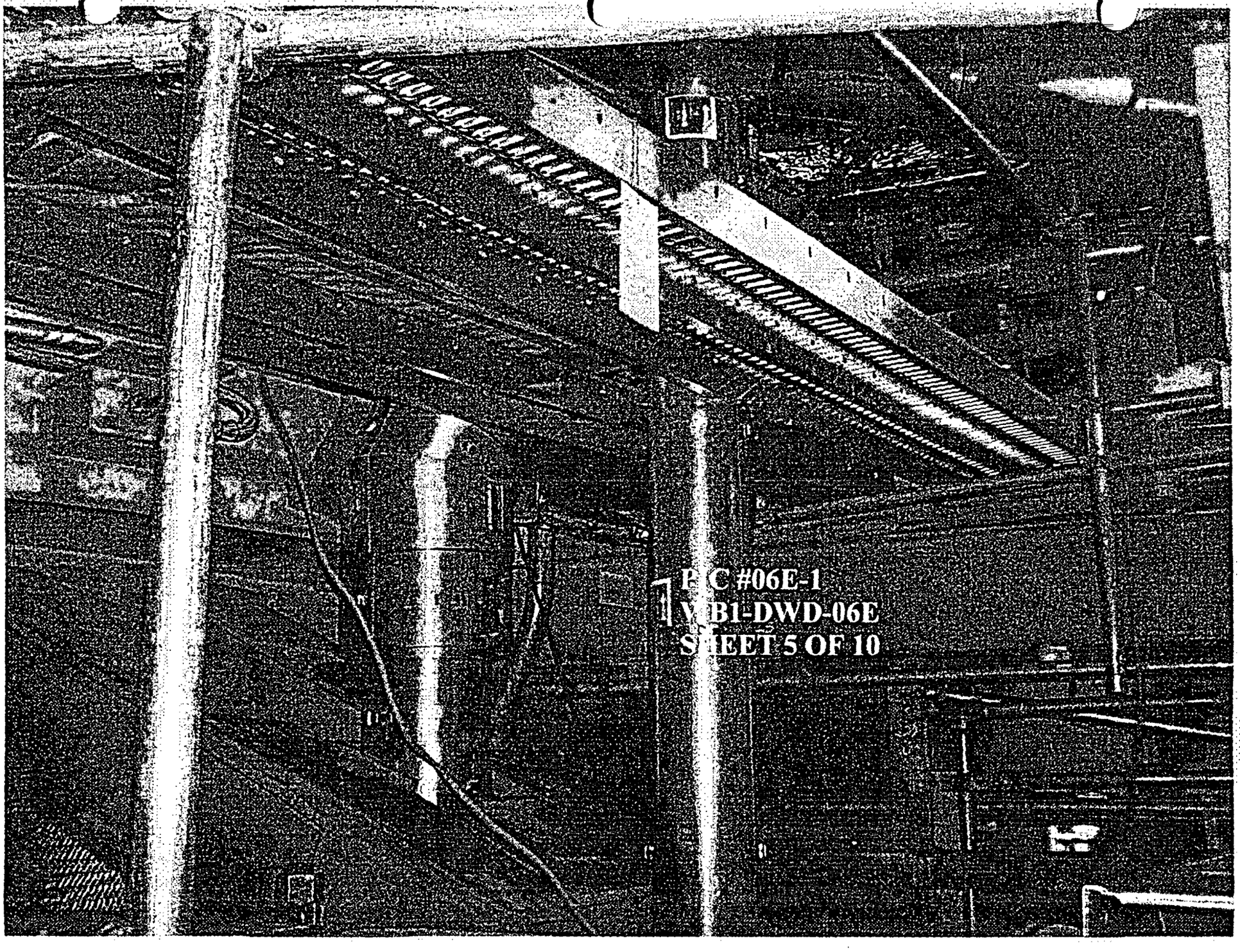
SHEET 3 OF10

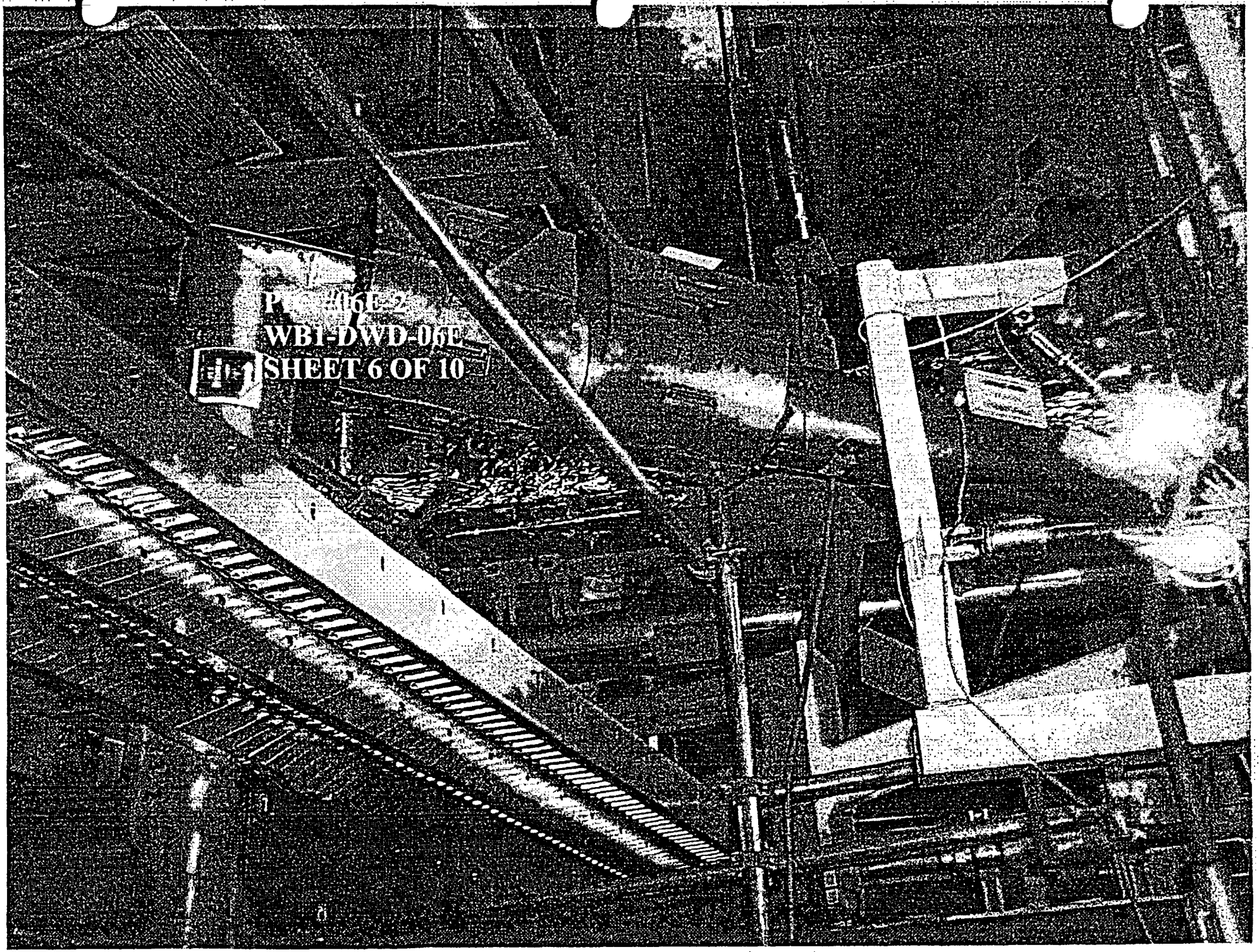


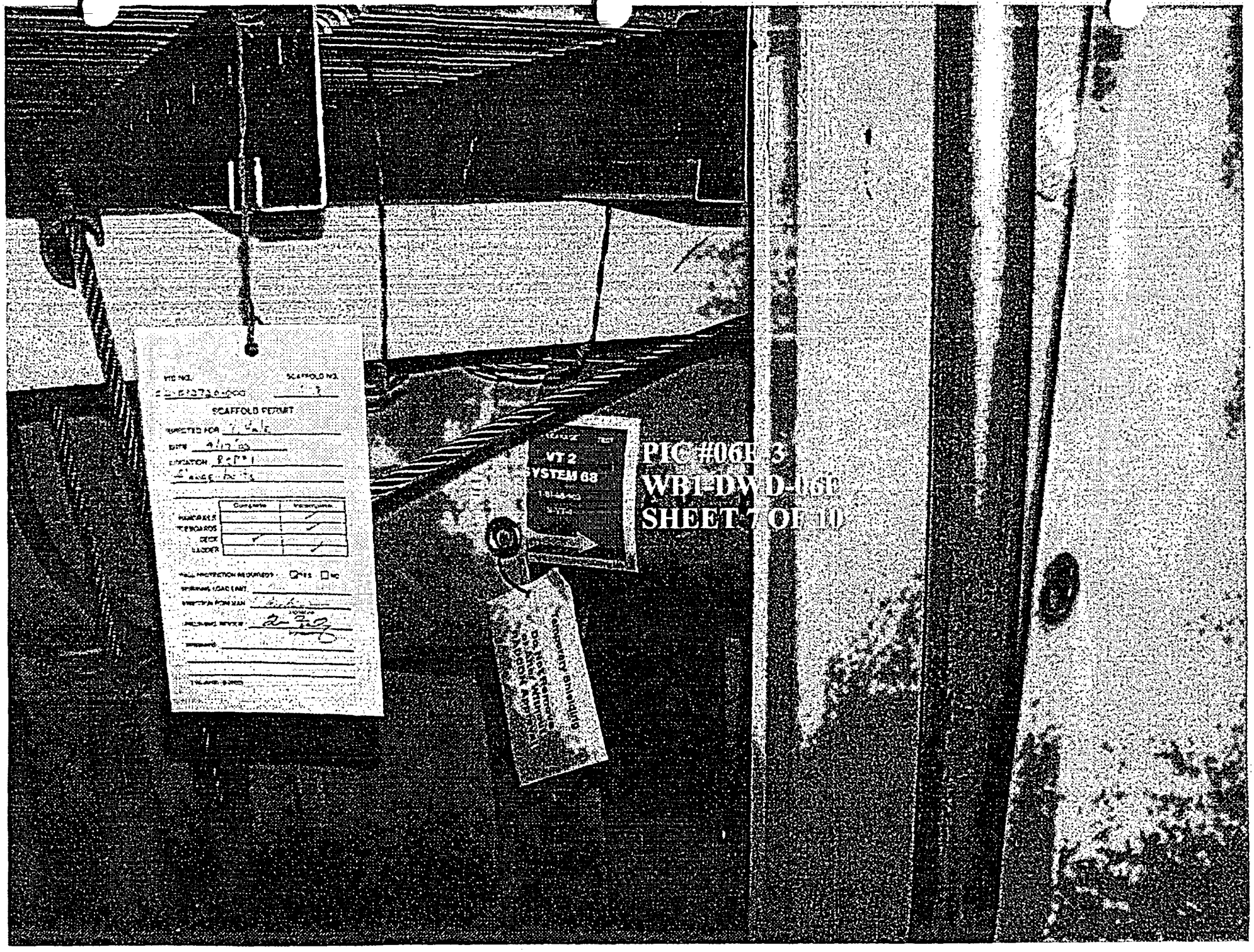
47W2500-5
QUAD I
EL 710 TO 720.0

WB1-DWD-006E

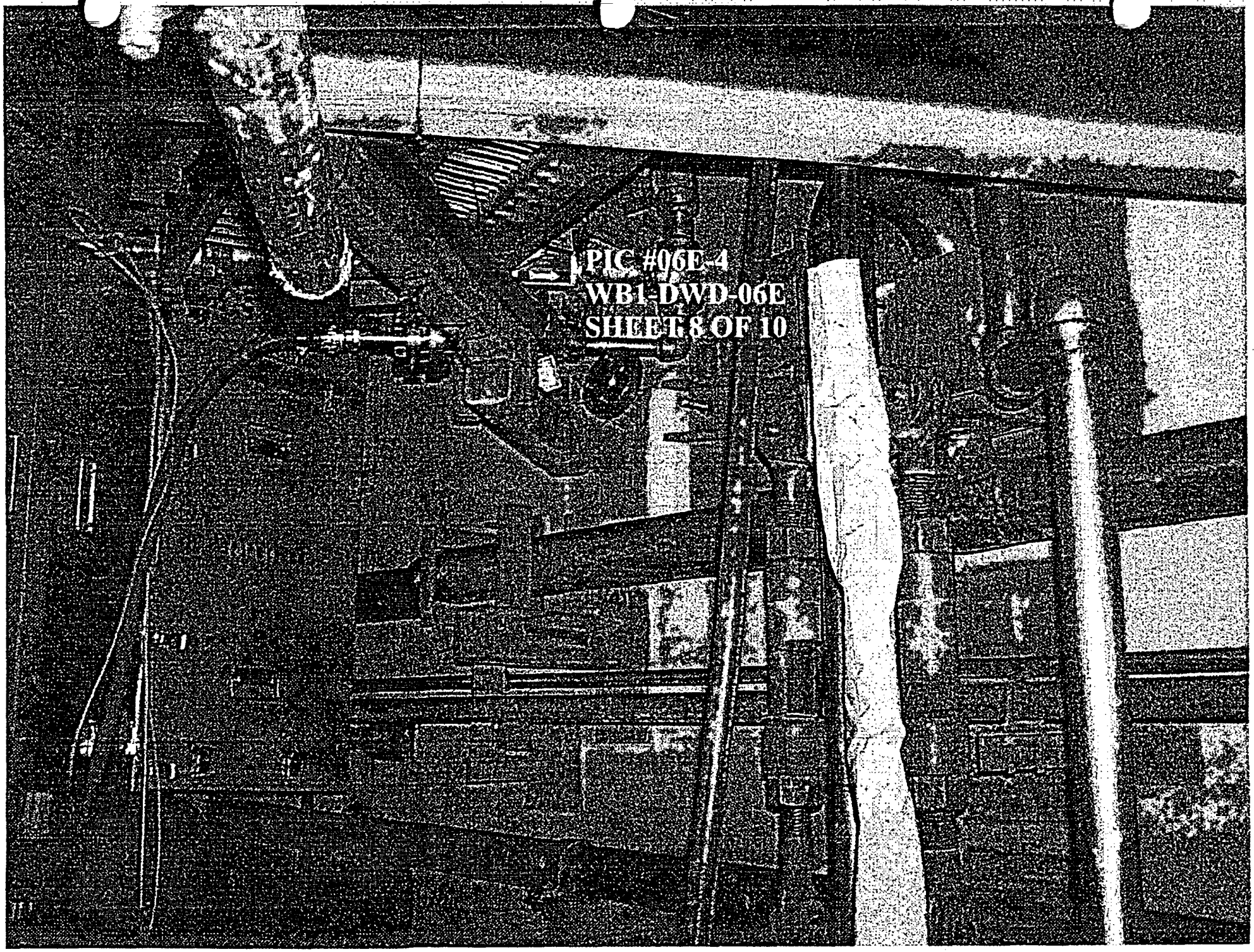


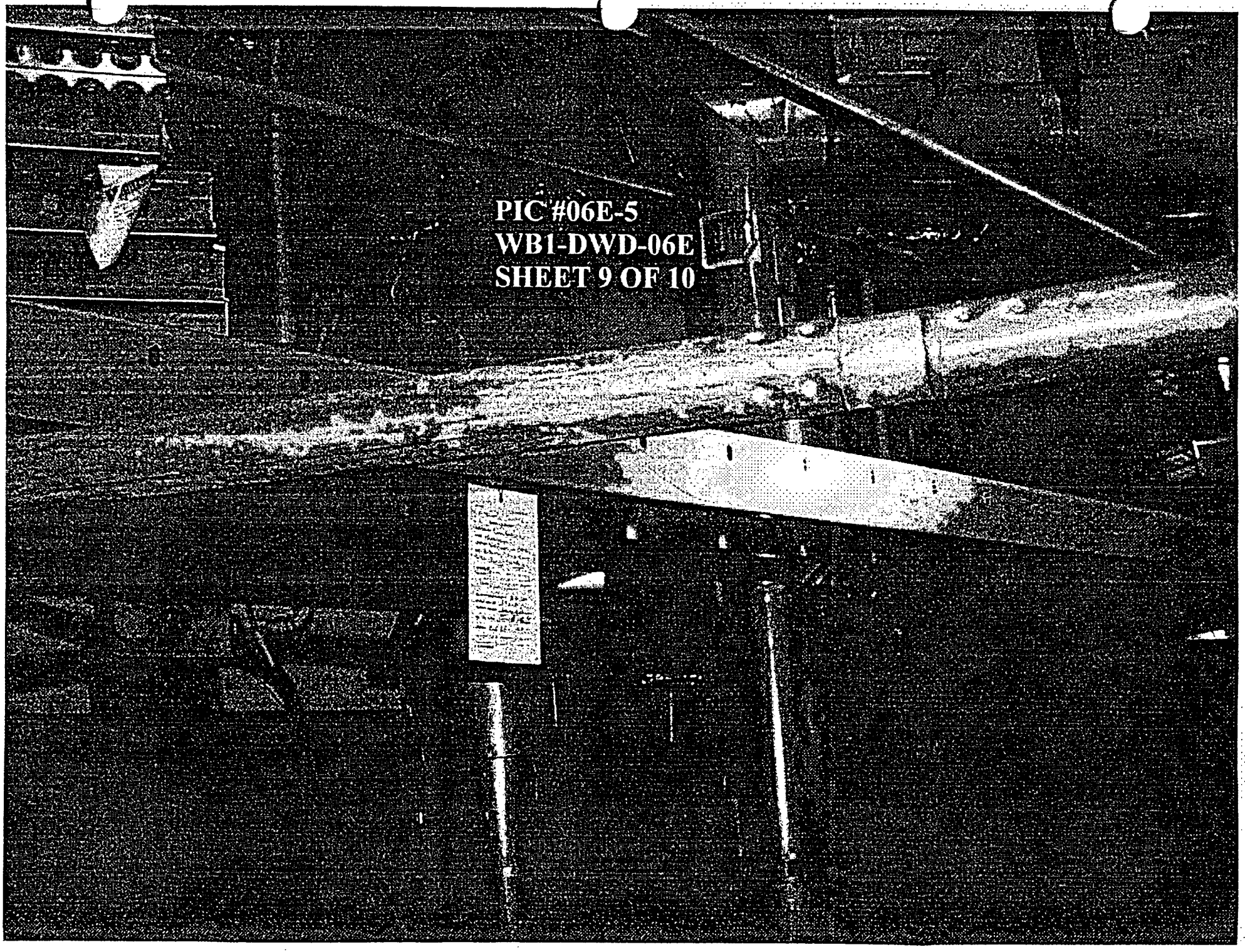

PIC #06E-1
VB1-DWD-06E
SHEET 5 OF 10

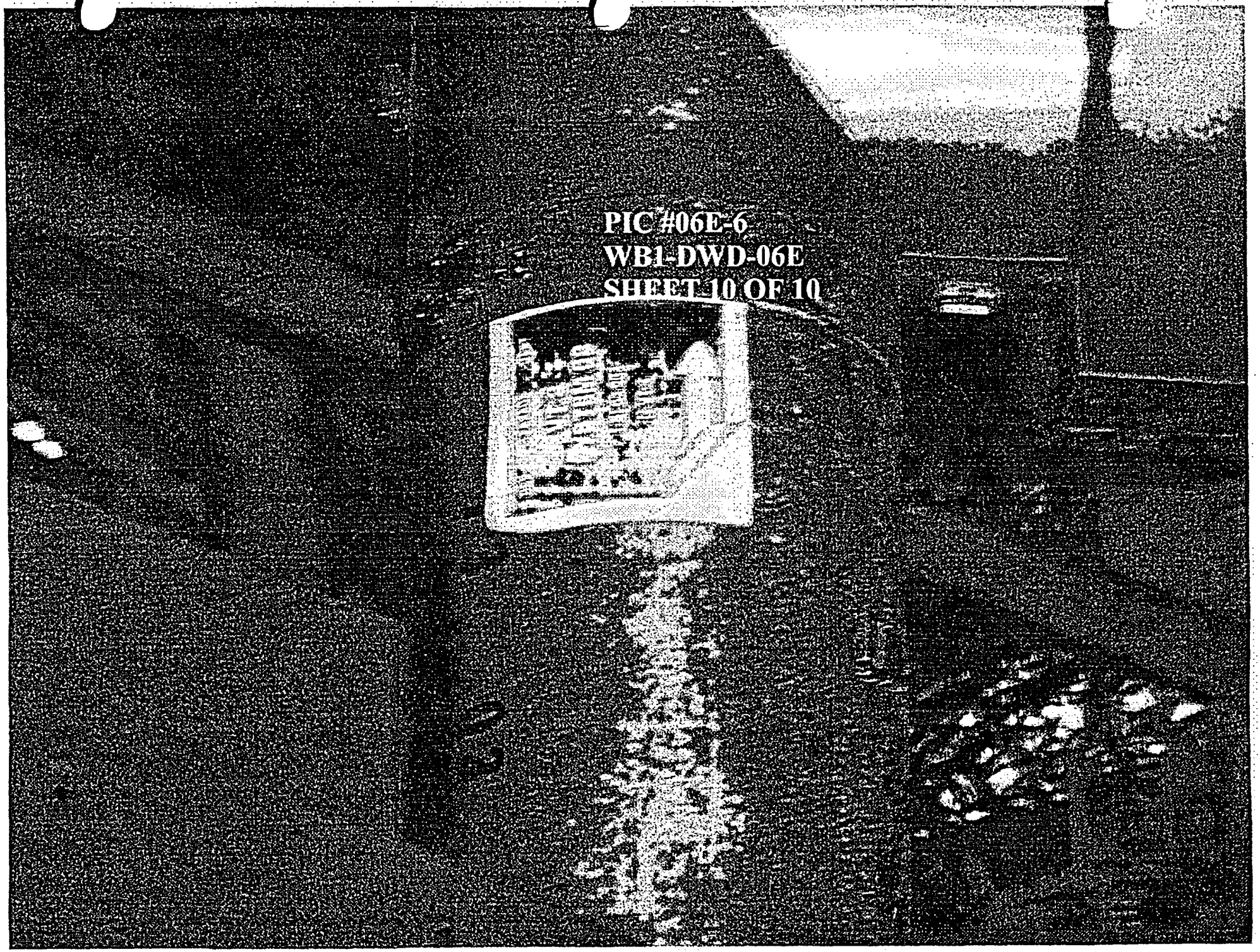

P #06E-2
WB1-DWD-06E
SHEET 6 OF 10



PIC #06F-3
WB1-DWD-060
SHEET 7 OF 10


PIC #06E-4
WB1-DWD-06E
SHEET 8 OF 10


PIC #06E-5
WB1-DWD-06E
SHEET 9 OF 10


PIC #06E-6
WB1-DWD-06E
SHEET 10 OF 10

CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-006F SHEET 1 OF 4

DATE:	10/30/2003	AREA:	LOOP 1	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, FRANK C. YAO

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-068C, SH. 1, REV. D *	
Tools:	590955-068C, SH. 2, REV. B *	
Drawings	590955-068C, SH. 3, REV. D *	
Flashlights	47W465-206, REV. E	
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	4" PRESSURIZER SPRAY LINE AT RC COLD LEG LOOP 1
	CONTINUED ON WALKDOWN PACKAGE NO. WB1-DWD-023B
	* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 10/30/03

Checked By: FRANK C. YAO Date: 10/30/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-006F. SHEET 2 OF 4

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
0600200-13-02	LOOP 1	716'	6	4" PRESSURIZER SPRAY LINE	4.50	43.40	RMI	2.75	18.88	S.S.	STD	N/A	10" OD INSULATION
0600200-13-02	LOOP 1	716'	6	4" PRESSURIZER SPRAY LINE	4.50	1.21	RMI	0.75	0.10	S.S.	STD	N/A	6" OD INSULATION
0600200-13-02	LOOP 1	716'	6	4" PRESSURIZER SPRAY LINE	4.50	0.67	MIN-K	1.5	0.13	S.S.	STD	N/A	7.5" OD INSULATION
0600200-13-02	LOOP 1	716'	6	4" PRESSURIZER SPRAY LINE	4.50	1.21	RMI	7.75	2.51	S.S.	STD	N/A	20" OD INSULATION
0600200-13-02	LOOP 1	716'	6	3/4" PRESSURIZER SPRAY BYPASS LINE	1.05	5.17	RMI	2.975	1.35	S.S.	STD	N/A	7" OD INSULATION
0600200-13-02	LOOP 1	716'	6	3/4" PRESSURIZER SPRAY BYPASS LINE	1.05	4.34	RMI	1.475	0.35	S.S.	STD	N/A	4" OD INSULATION
0600200-13-02	LOOP 1	716'	6	3/4" PRESSURIZER SPRAY BYPASS LINE	1.05	0.50	RMI	3.35	0.16	S.S.	STD	N/A	7.5" OD INSULATION

WALKDOWN PACKAGE NO. WBI-DWD-006F SHEET 3 OF 4

APPROXIMATE INSULATION LENGTH:

STARTING FROM RC COLD LEG LOOP 1 TO 6" PRESSURIZER SPRAY LINE:

AT 10" OD INSULATION:

LENGTH = 2.5 + π(6)(90°/180°) + 134.25 + π(6)(90°/180°) + 4.12 + 11.91 + 36 + 8.56 + 36.03 + (40 - 5) + π(6)(90°/180°) + (140 - 8 - 4.5) + π(6)(90°/180°) + 31.12 + 11.69 + π(6)(90°/180°) + 7.5 + 25.97 = 520(1/12) = 43.4FT

AT 6" OD INSULATION:

LENGTH = 23.44 + 23.44 = 46.88(1/12) = 3.91FT

AT 7.5" OD MIN-K INSULATION:

LENGTH = 8(1/12) = 0.67FT

AT 20" OD INSULATION:

LENGTH = 14.5(1/12) = 1.21FT

AT 7" OD INSULATION (AT 1.05" PRESS SPRAY BY-PASS PIPING):

LENGTH = 4.75 + 3 + 2.5 + 40.88 + 2.5 + 7.5 = 62(/12) = 5.17FT

AT 4" OD INSULATION (AT 1.05" PRESS SPRAY BY-PASS PIPING):

LENGTH = 3 + 2.5 + 5 + 13.8 + 16.45 + 5 + 2.5 + 3.25 = 52(1/12) = 4.34FT

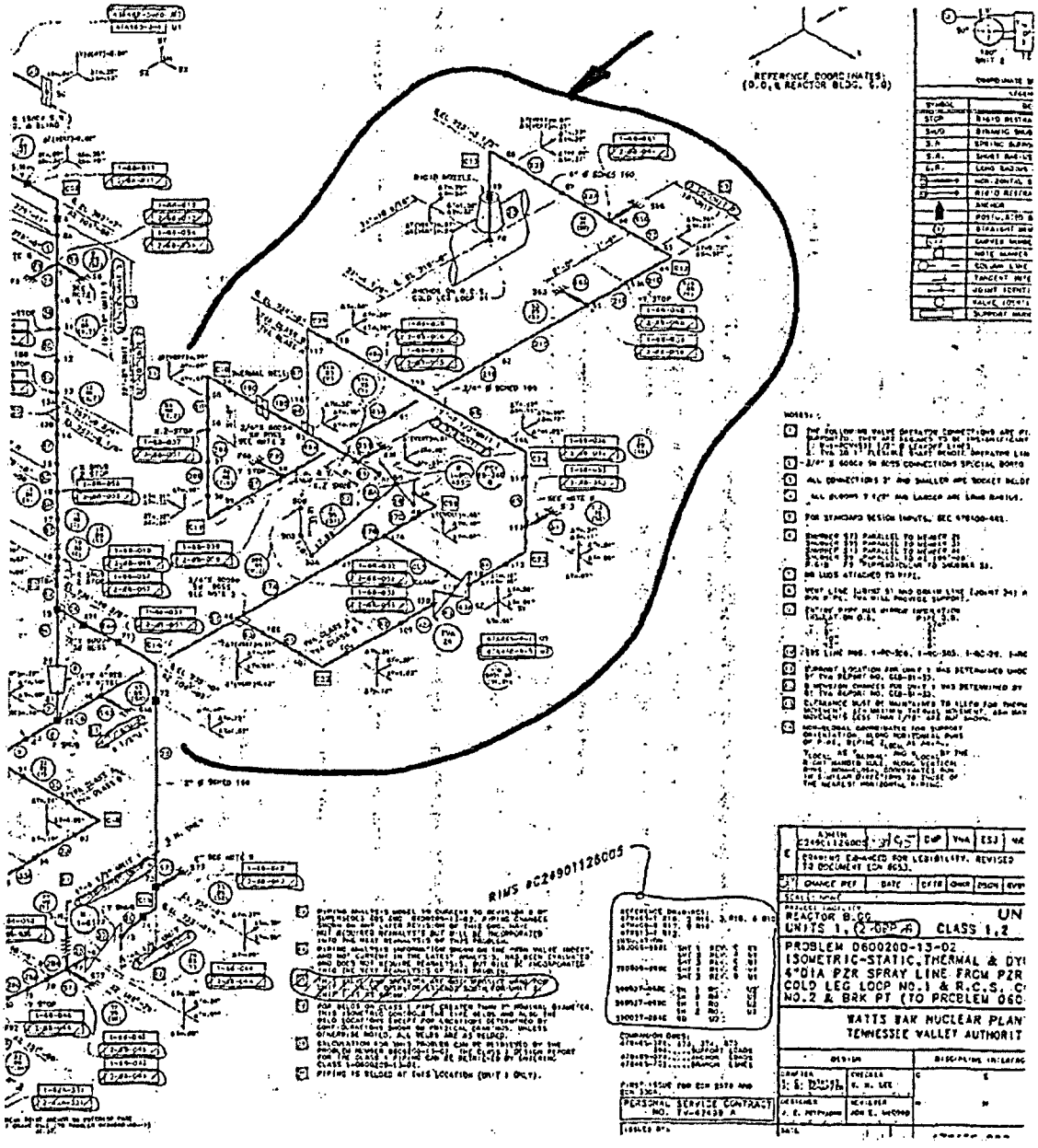
AT 7.5 OD INSULATION (1.05" PRESS SPRAY BY-PASS PIPING):

LENGTH = 6.0(1/12) = 0.5FT

CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-006F **SHEET 4 OF 4**

EXCERPT FROM DRAWING 47W465-206



CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-006G SHEET 1 OF 3

DATE:	10/09/2003	AREA:	LOOP 1	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, FRANK C. YAO

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-041C, SH. 1, REV. C *	
Tools:	47W2500-5, REV. 2	
Drawings		
Flashlights		
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

COMMENTS

REACTOR COOLANT HOT LEG

* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 10/9/03

Checked By: FRANK C. YAO Date: 10/9/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-006G SHEET 2 OF 3

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
N/A	LOOP 1	716'	6	HOT LEG	SEE CALC	SEE CALC	RMI	SEE CALC	69.55	S.S.	STD	N/A	N/A

APPROXIMATE INSULATION VOLUME:

AT LOOP: (START FROM STEAM GENERATOR NOZZLE)

$V = [\pi(42^2 - 36.75^2)/4 \times 8.5] + [\pi(46^2 - 36.5^2)/4 \times \pi(54)(50°)/180°]$

$+ [\pi(46^2 - 34^2)/4 \times (2 + 2.12)] + [\pi(43^2 - 34^2)/4 \times (155.69 - 2.12)]$

$= 11846(1/12^3) = 68.56 FT^3$

AT RHR & SAMPLING LINES:

$V = [\pi(18^2 - 6.63^2)/4 \times 6] + [\pi 7^2/4 \times 9.75] = 1695(1/12^3) = 0.99 FT^3$

TOTAL VOLUME = 68.56 + 0.99 = $69.55 FT^3$

CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-006H SHEET 1 OF 3

DATE:	10/09/2003	AREA:	LOOP 1	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, FRANK C. YAO

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-042C, SH. 1, REV. C *	
Tools:	47W2500-5, REV. 2	
Drawings		
Flashlights		
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	REACTOR COOLANT COLD LEG
	* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 10/9/03

Checked By: FRANK C. YAO Date: 10/9/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-006H SHEET 2 OF 3

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
N/A	LOOP 1	716'	6	COLD LEG	SEE CALC	SEE CALC	RMI	SEE CALC	55.34	S.S.	STD	N/A	N/A

APPROXIMATE INSULATION VOLUME:

AT LOOP: (START FROM REACTOR COOLANT PUMP NOZZLE)

$V = [\pi(39^2 - 32.25^2)/4 \times (223.5 - 3)] + [\pi(40^2 - 33^2)/4 \times 3]$

$+ [\pi(40^2 - 33^2)/4 \times \pi(40)(22°)/180°] + [\pi(40^2 - 33^2)/4 \times 4.19]$

$= 90659(1/12^3) = 53.44 FT^3$

AT ACCUMULATOR & BORON INJECTION LINES:

$V = [\pi(27^2 - 15.9^2)/4 \times (44.75 - (39/2 \cos 45°)]/2$

$+ [\pi(9^2 - 1.9^2)/4 \times 1] = 3273(1/12^3) = 1.90 FT^3$

TOTAL VOLUME $= 53.44 + 1.90 = 55.34 FT^3$

CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-006J SHEET 1 OF 3 4 10/30/03

DATE:	10/30/2003	AREA:	LOOP 1	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, MIKE SOLLIE

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-047C, SH. 1, REV. A *	
Tools:	1-47W435-217B, REV. 0	
Drawings		
Flashlights		
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	1 ½" BORON INJECTION AT RC COLD LEG LOOP 1
	* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS *CGWalls* Date: 10/30/03

Checked By: MIKE SOLLIE *Mike Sollie* Date: 11/9/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-006J SHEET 2 OF 4

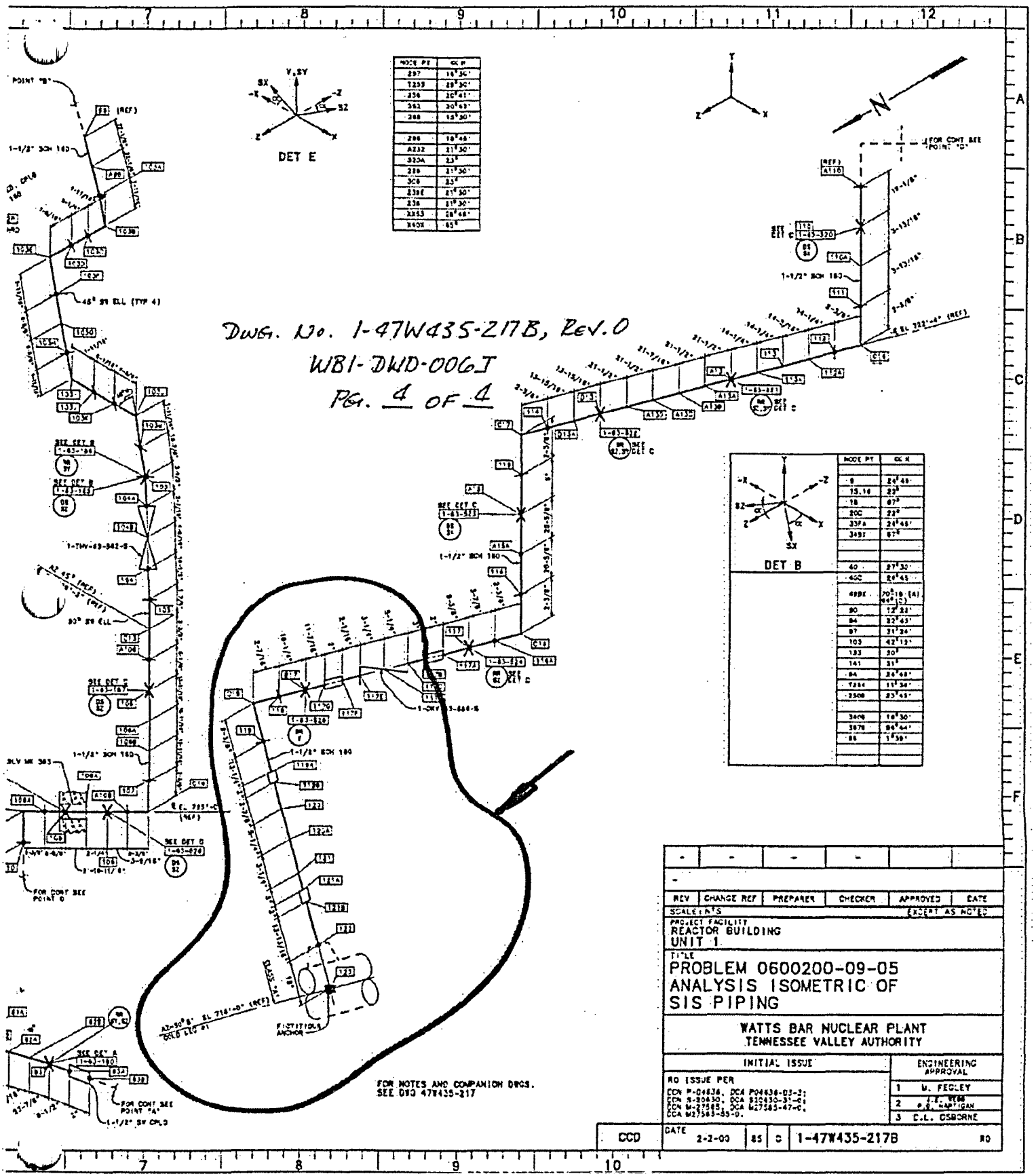
PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
0600200-09-05	LOOP 1	716'	6	BORON INJECTION	1.90	5.65	RMI	2.55	1.40	S.S.	STD	N/A	7" OD INSULATION
0600200-09-05	LOOP 1	716'	6	BORON INJECTION	1.90	0.96	RMI	7.6	1.51	S.S.	STD	N/A	9.5" OD INSULATION

APPROXIMATE INSULATION LENGTH:

START FROM RC COLD LEG:

AT 7" OD INSULATION: LENGTH = 38.8 + 5 + 16 + 8 = 67.8(1/12) = 5.65FT

AT 9.5" OD INSULATION: LENGTH = 11.5(1/12) = 0.96FT


DWG. NO. 1-47W435-217B, REV. 0
WBI-DWD-006J
PG. 4 OF 4
DET E
DET B
FOR NOTES AND COMPANION DWGS. SEE DWG 47W435-217
REV
CHANGE REF
PREPARER
CHECKER
APPROVED
DATE
SCALE: NTS
EXCEPT AS NOTED
PROJECT FACILITY
REACTOR BUILDING
UNIT 1
TITLE
PROBLEM 0600200-09-05
ANALYSIS ISOMETRIC OF
SIS PIPING
WATTS BAR NUCLEAR PLANT
TENNESSEE VALLEY AUTHORITY
INITIAL ISSUE
ENGINEERING APPROVAL
M. FEGLEY
D.L. OSBORNE
CCD
DATE
2-2-00
1-47W435-217B
R0
PROCADAM MAINTAINED DRAWING

CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-006K SHEET 1 OF 4

DATE:	10/31/2003	AREA:	LOOP 1	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, FRANK C. YAO

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-046C, SH. 1, REV. D *	
Tools:	1-47W435-260C, REV. 0	
Drawings		
Flashlights		
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	10" ACCUMULATOR INJECTION (SIS) LINE AT COLD LEG LOOP 1
	* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 10/31/03

Checked By: FRANK C. YAO Date: 10/31/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-006K SHEET 2 OF 4

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
0600200-09-01	LOOP 1	716'	6	ACCUMULATOR INJECTION	10.75	2.36	RMI	0.795	0.47	S.S.	STD	N/A	12.34" OD INSULATION
0600200-09-01	LOOP 1	716'	6	ACCUMULATOR INJECTION	10.75	16.42	RMI	3.125	15.53	S.S.	STD	N/A	17" OD INSULATION
0600200-09-01	LOOP 1	716'	6	ACCUMULATOR INJECTION	10.75	2.65	MIN-K	1.25	0.87	S.S.	STD	N/A	13.25" OD INSULATION
0600200-09-01	LOOP 1	716'	6	ACCUMULATOR INJECTION	10.75	5.09	RMI	9.635	21.81	S.S.	STD	N/A	30" OD INSULATION
0600200-09-01	LOOP 1	716'	6	ACCUMULATOR INJECTION	10.75	0.57	RMI	6.126	1.29	S.S.	STD	N/A	23" OD INSULATION

APPROXIMATE INSULATION LENGTH:

START FROM RC COLD LEG:

AT 12.34" OD INSULATION: LENGTH = 3.5 + π(15)(45°/180°) + 13 = 28.3(1/12) = 2.36FT

AT 17" OD INSULATION:

LENGTH = 13.75 + π(15)(90°/180°) + 3 + 2 + π(15)(67.42°/180°)

+ (177.12 - 9.75- 31.75) = 197(1/12) = 16.42FT

AT 13.25" OD INSULATION W/ MIN-K:

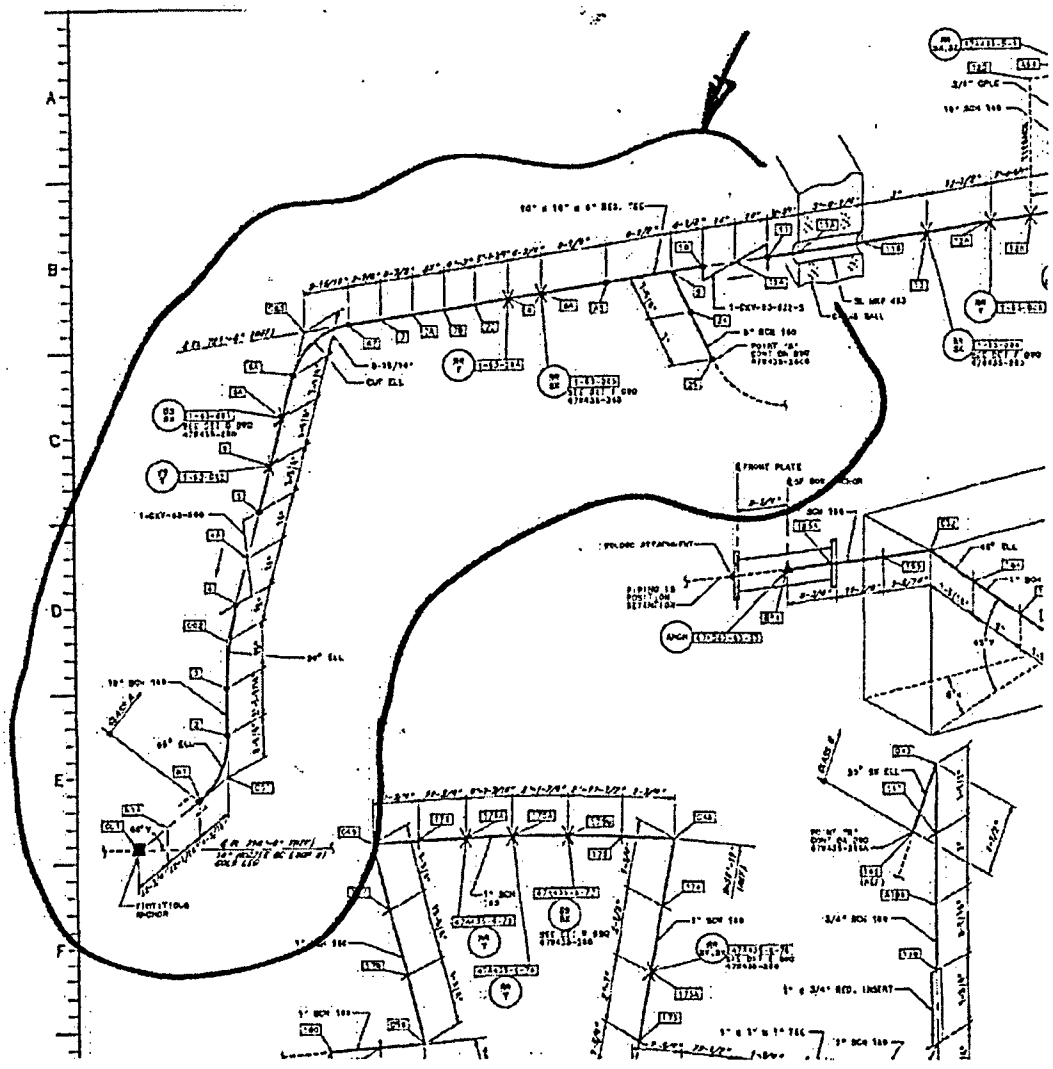
LENGTH = 31.75(1/12) = 2.65FT

AT 30" OD INSULATION (VALVE #'S 8948A & 8956A): LENGTH = 29 + 32 = 61(1/12) = 5.09FT

AT 23" OD INSULATION: LENGTH = 6.75(1/12) = 0.57FT

CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-006K
EXCERPT FROM DRAWING 1-47W435-260C



CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-006L SHEET 1 OF 4

DATE:	10/31/2003	AREA:	LOOP 1	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, FRANK C. YAO

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-048C, SH. 1, REV. C *	
Tools:	1-47W435-260C, REV. 0	
Drawings		
Flashlights		
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	6" LOWHEAD SAFETY INJECTION
	CONTINUED ON WALKDOWN PACKAGE NO's WB1-DWD-006K & -016D.
	* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 10/31/03

Checked By: FRANK C. YAO Date: 10/31/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-006L SHEET 2 OF 4

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
0600200-09-01	LOOP 1	716'	6	LOWHEAD SAFETY INJECTION	6.63	7.94	RMI	2.6875	4.34	S.S.	STD	N/A	12" OD INSULATION

APPROXIMATE INSULATION LENGTH:

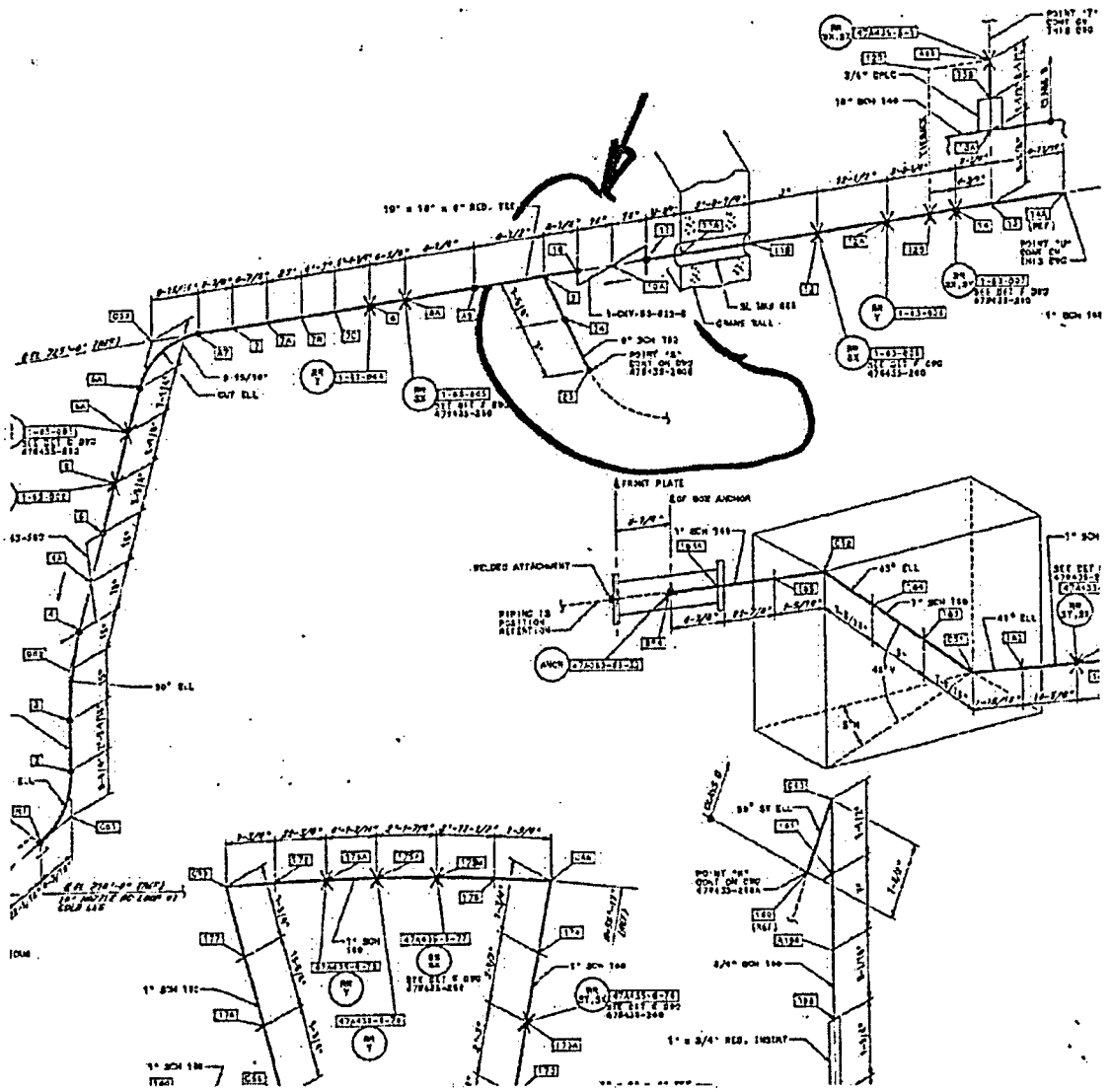
START FROM 10" ACCUMULATOR LINE TO CRANE WALL:

AT 12" OD INSULATION: LENGTH = $2.75 + \pi(9)(81°/180°) + 43.75 + 36 = 95.23(1/12) = 7.94$FT

CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-006L **SHEET 4 OF 4**

EXCERPT FROM DRAWING 1-47W435-260C



CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-006M SHEET 1 OF 3

DATE:	11/03/2003	AREA:	LOOP 1	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, FRANK C. YAO

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-064C, SH. 3, REV. D *	
Tools:		
Drawings		
Flashlights		
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

COMMENTS

6"/8" RESIDUAL HEAT REMOVAL

CONTINUED ON WALKDOWN PACKAGE NO. WB1-DWD-016E.

* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 11/3/03

Checked By: FRANK C. YAO Date: 11/3/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-006M SHEET 2 OF 3

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
N/A	LOOP 1	716'	6	RESIDUAL HEAT REMOVAL	6.63	3.50	RMI	3.6875	2.90	S.S.	STD	N/A	14" OD INSULATION
N/A	LOOP 1	716'	6	RESIDUAL HEAT REMOVAL	6.63	2.09	RMI	0.6875	0.23	S.S.	STD	N/A	8" OD INSULATION
N/A	LOOP 1	716'	6	RESIDUAL HEAT REMOVAL	6.63	2.17	RMI	9.6875	7.48	S.S.	STD	N/A	26" OD INSULATION
N/A	LOOP 1	716'	6	RESIDUAL HEAT REMOVAL	6.63	26.50	RMI	9.6875	102.56	S.S.	STD	N/A	11" OD INSULATION
N/A	LOOP 1	716'	6	RESIDUAL HEAT REMOVAL	6.63	1.10	MIN-K	0.9375	0.22	S.S.	STD	N/A	10.5" OD INSULATION

APPROXIMATE INSULATION LENGTH:

START FROM RC HOT LEG LOOP 1:

AT 14" OD INSULATION (6" PIPING): LENGTH = $\pi(9)(45°/180°) + 3 + \pi(9)(45°/180°) + 10.62$

$+ \pi(9)(90°/180°) = 42(1/12) = 3.5$FT

AT 8" OD INSULATION (6" PIPING): LENGTH = 14.5" + 10.5 = 25(1/12) = 2.09FT

AT 26" OD INSULATION (1-CK-63-641-5, 6" PIPING): LENGTH = 26(1/12) = 2.17FT

AT 11" OD INSULATION (8" PIPING):

LENGTH = $\pi(12)(90°/180°) + 8.41 + 7.09 + \pi(12)(90°/180°) + 6.88 + 6.25 + 55.09$

$+ 36.09 + 19 + 32.96 + (3 \times 36.09) = 318(1/12) = 26.5$FT

AT 10.5" OD MIN-K INSULATION (8" PIPING):

LENGTH = $(22.62 - 9.5)(1/12) = 1.10$FT

CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-006N SHEET 1 OF 4

DATE:	11/05/2003	AREA:	LOOP 1	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, FRANK C. YAO

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-073C, SH. 1, REV. E *	
Tools:	590955-073C, SH. 2, REV. D *	
Drawings	47W406-321, REV. E	
Flashlights		
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any **undocumented** insulation.
3	Inspect and determine longitudinal **seam location** and **band spacing** if necessary.
4	Document any **irregularities** of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any **undocumented fibrous insulation (e.g., within rupture restraints).**
6	Inspect and mark up cable tray drawings to show location of **fire barriers** (vertical and horizontal).
7	Inspect the area for any **weak components** that could be dislodged by jet and that could be transported to sump.
8	Inspect any **equipment insulation** in the area.
9	Inspect and document the general **cleanliness** of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	3" NORMAL CHARGING LINE
	CONTINUED ON WALKDOWN PACKAGE NO's WB1-DWD-006H & -007M.
	* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 11/05/03

Checked By: FRANK C. YAO Date: 11/05/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-006N SHEET 2 OF 4

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
0600200-08-11	LOOP 1	716'	6	NORMAL CHARGING	3.50	54.50	RMI	2.75	20.44	S.S.	STD	N/A	9" OD INSULATION
0600200-08-11	LOOP 1	716'	6	NORMAL CHARGING	3.50	0.89	RMI	1.5	0.15	S.S.	STD	N/A	6.5" OD INSULATION
0600200-08-11	LOOP 1	716'	6	NORMAL CHARGING	3.50	2.50	RMI	2	0.60	S.S.	STD	N/A	7.5" OD INSULATION

APPROXIMATE INSULATION LENGTH:

START FROM RC COLD LEG LOOP I:

AT 9" OD INSULATION (3" PIPING): LENGTH = 88 + 2[π(4.5)(90°/180°)] + 3 + 3.62 + 2.75

+ 57.25 + π(4.5)(45°/180°) + 85.5 + (33.5 - 4) + 3 + 26.38 + (3 x 23.5) + 23

+ 24.79 + 19.25 + (2 x 25.38) + (2 x 25.53) + 25.8 + 4.5 + (3 x 20.81) + 4.75

= 654(1/12) = 54.5FT

AT 6.5" OD INSULATION (3" PIPING): LENGTH = 10.69(1/12) = 0.89FT

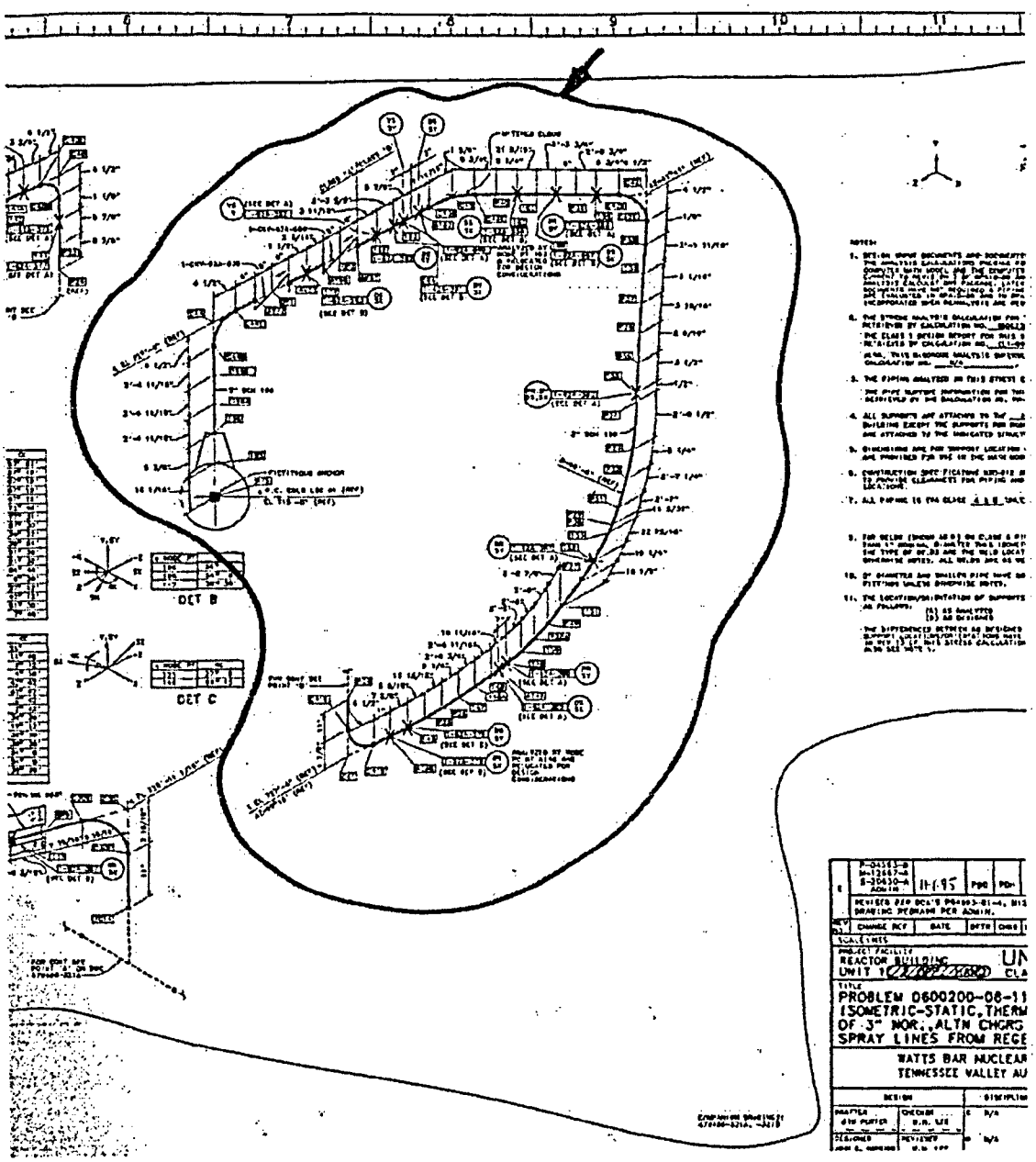
AT 7.5" OD INSULATION (3" PIPING): LENGTH = 30(1/12) = 2.5FT

CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WBI-DWD-006N

SHEET 4 OF 4

EXCERPT FROM DRAWING 47W406-321



CONTAINMENT DEBRIS WALKDOWN PACKAGE WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-006P SHEET 1 OF 7

DATE:	11/18/2003	AREA:	LOOP 1	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, FRANK C. YAO

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-088C, SH. 1, REV. B *	
Tools:	590955-088C, SH. 2, REV. B *	
Drawings	47W400-208, REV. C	
Flashlights	1-47W400-208A, REV. 0	
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	1"/2"/3"/4" STEAM GENERATOR BLOWDOWN LINE (LOOP 1)
	CONTINUED ON WALKDOWN PACKAGE NO. WB1-DWD-014P.
	* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 11/18/03

Checked By: FRNAK C YAO Date: 11/18/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-006P SHEET 2 OF 7

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
0600200-07-01	LOOP 1	716'	6	STEAM GENERATOR BLOWDOWN	3.50	41.67	RMI	2.25	11.76	S.S.	STD	N/A	8" OD INSULATION
0600200-07-01	LOOP 1	716'	6	STEAM GENERATOR BLOWDOWN	4.50	28.75	RMI	2.25	9.53	S.S.	STD	N/A	9" OD INSULATION
0600200-07-01	LOOP 1	716'	6	STEAM GENERATOR BLOWDOWN	4.50	3.01	RMI	0.75	0.26	S.S.	STD	N/A	6" OD INSULATION
0600200-07-01	LOOP 1	716'	6	STEAM GENERATOR BLOWDOWN	1.35	0.59	RMI	3.325	0.20	S.S.	STD	N/A	8" OD INSULATION
0600200-07-01	LOOP 1	716'	6	STEAM GENERATOR BLOWDOWN	1.33	1.22	RMI	3.335	0.41	S.S.	STD	N/A	8" OD INSULATION
0600200-07-01	LOOP 1	716'	6	STEAM GENERATOR BLOWDOWN	1.31	0.75	RMI	2.345	0.14	S.S.	STD	N/A	6" OD INSULATION
0600200-07-01	LOOP 1	716'	6	STEAM GENERATOR BLOWDOWN	1.30	1.13	RMI	3.35	0.38	S.S.	STD	N/A	8" OD INSULATION
0600200-07-01	LOOP 1	716'	6	STEAM GENERATOR BLOWDOWN	2.91	0.29	RMI	2.045	0.06	S.S.	STD	N/A	7" OD INSULATION

APPROXIMATE INSULATION LENGTH:

START FROM STEAM GENERATOR NOZZLE AS SHOWN ON DWG. NO. 590955-088C, SH. 1:

AT 8" OD INSULATION (3" PIPING):

LENGTH = 3 + 12 + 7[π(4.5)(90°/180°)] + 76 + 36.75 + 36.5 + 79.5

+ 31 + 2.5 + 9.12 + 3.88 + 6.88 + 42.5 + 43 + 40 + 6 + [π(4.5)(45°/180°)]

+ 14.5 + 3.5 = 500(1/12) = 41.67FT

AT 9" OD INSULATION (4" PIPING):

LENGTH = 74.12 + 3[π(6)(90°/180°)] + 10.69 + 3[π(6)(45°/180°)] + 59.5 + 59.25

+ 24 + 41.5 + 5.82 + 27.66 = 345(1/12) = 28.75FT

AT 6" OD INSULATION (4" PIPING): LENGTH = 36.09(1/12) = 3.01FT

AT 8" OD INSULATION (1.35" OD PIPING & VLV 1-VTV-01B-894): LENGTH = 7(1/12) = 0.59FT

AT 8" OD INSULATION (1.33" OD PIPING & VLV'S 1-DRV-01B-902, -906):

LENGTH = 7.62 + 7 = 14.62(1/12) = 1.22FT

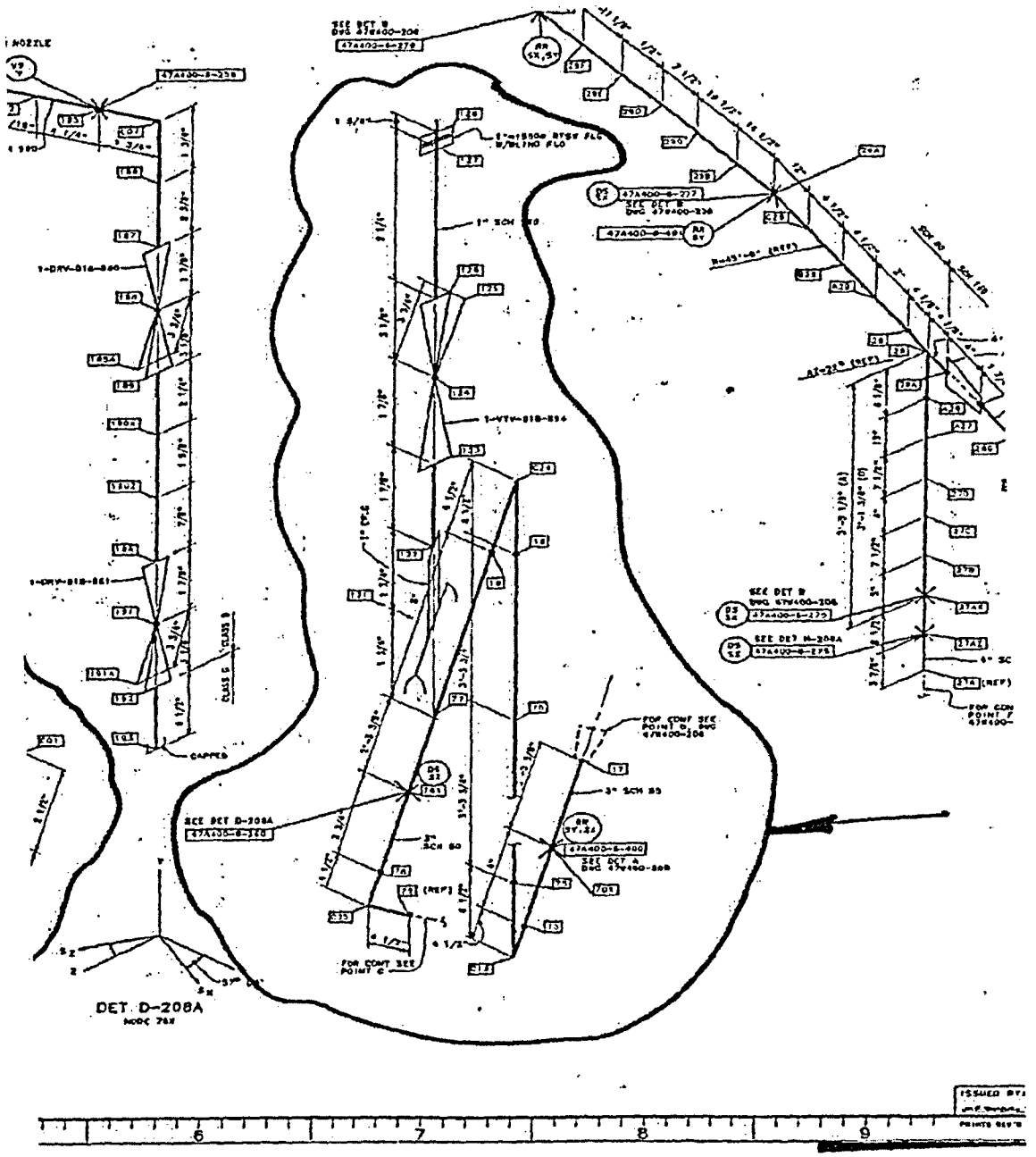
AT 6" OD INSULATION (1.31" OD PIPING): LENGTH = 9(1/12) = 0.75FT

AT 8" OD INSULATION (1.30" OD PIPING/VALVE): LENGTH = 7 + 6.47 = 13.47(1/12) = 1.13FT

AT 7" OD INSULATION (2.91" OD TIEBACK SUPPORT): LENGTH = 3.38(1/12) = 0.29FT

CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

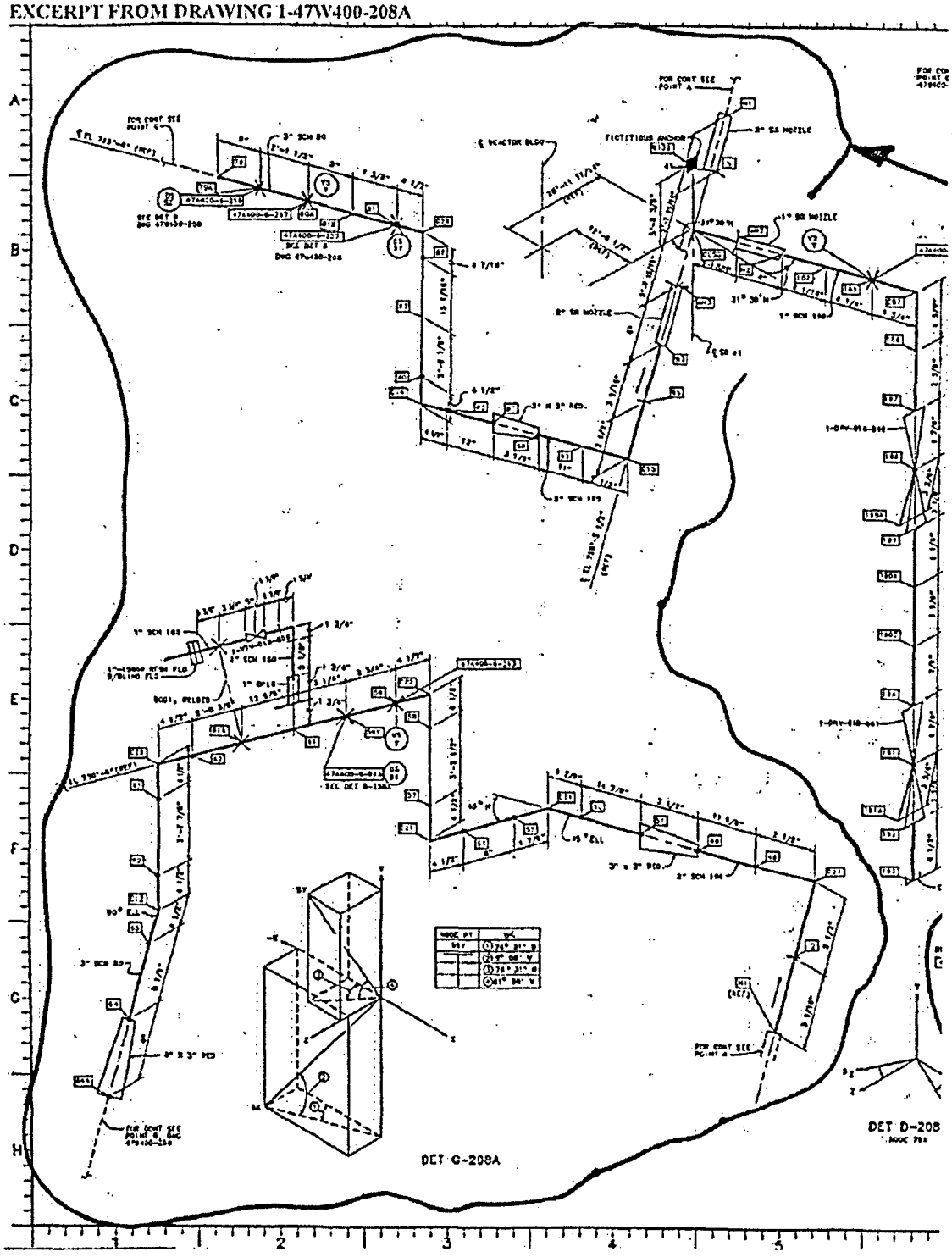
WALKDOWN PACKAGE NO. WB1-DWD-006P
EXCERPT FROM DRAWING 1-47W400-208A



CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-006P

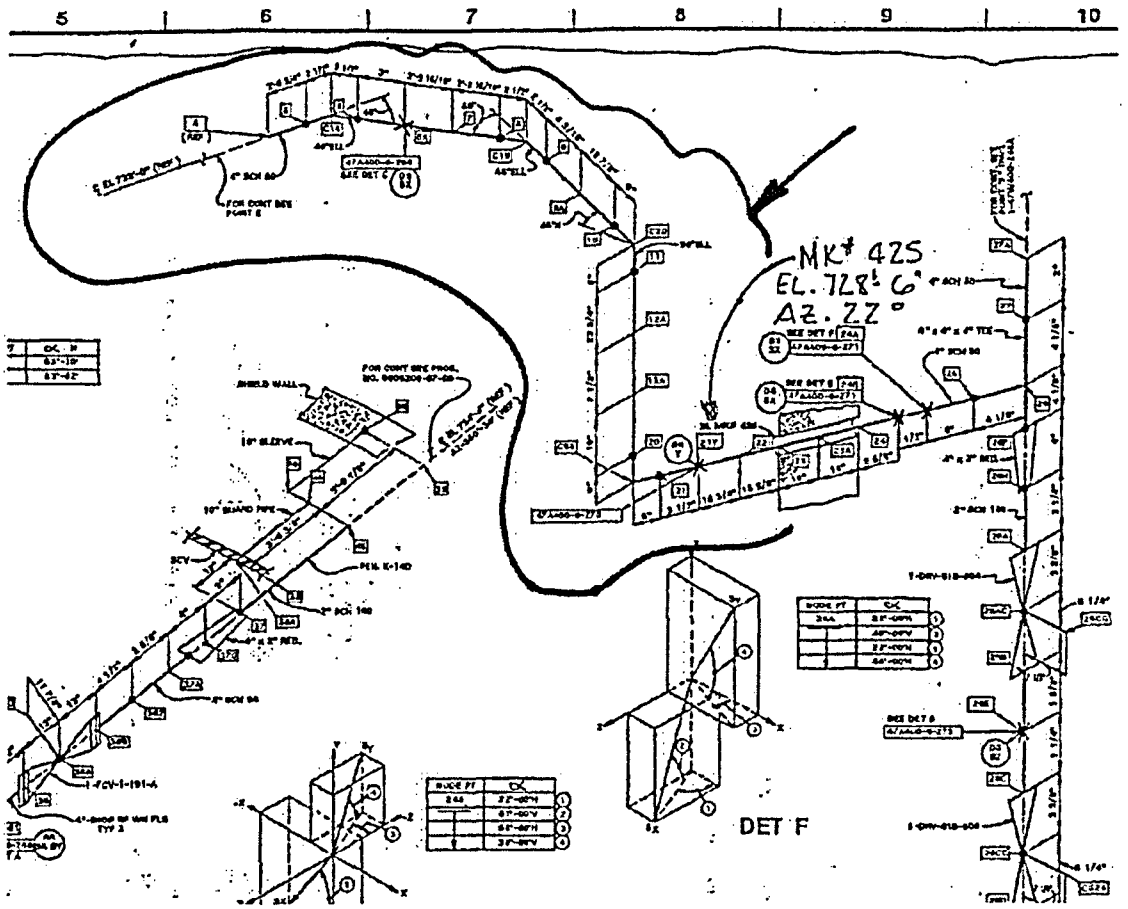
EXCERPT FROM DRAWING 1-47W400-208A



CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-006P

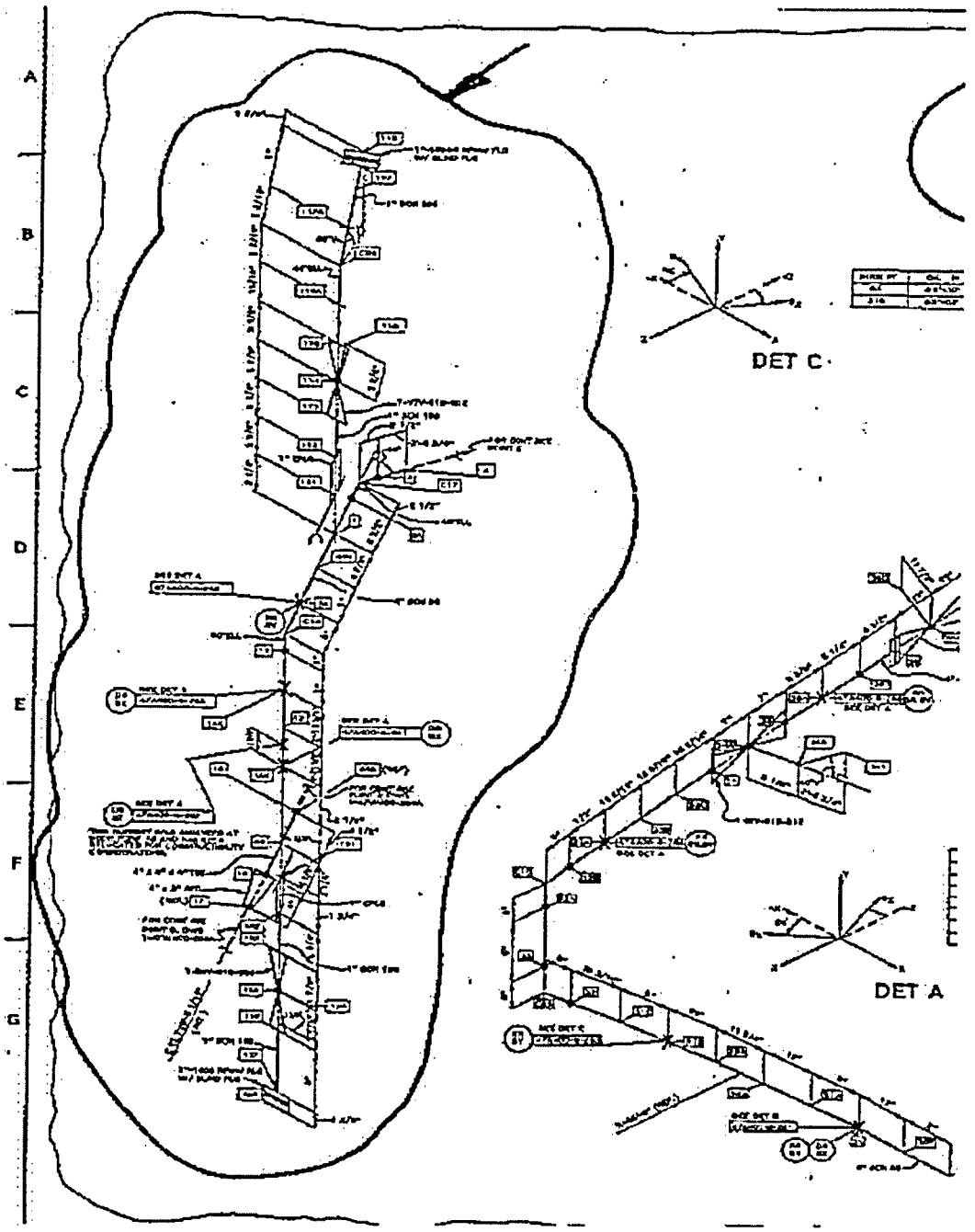
EXCERPT FROM DRAWING 47W400-208



CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-006P

EXCERPT FROM DRAWING 47W400-208



CONTAINMENT DEBRIS WALKDOWN PACKAGE WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-006P SHEET 1 OF 7

DATE:	11/18/2003	AREA:	LOOP 1	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, FRANK C. YAO

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-088C, SH. 1, REV. B *	
Tools:	590955-088C, SH. 2, REV. B *	
Drawings	47W400-208, REV. C	
Flashlights	1-47W400-208A, REV. 0	
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	1"/2"/3"/4" STEAM GENERATOR BLOWDOWN LINE (LOOP 1)
	CONTINUED ON WALKDOWN PACKAGE NO. WB1-DWD-014P.
	* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 11/18/03

Checked By: FRNAK C YAO Date: 11/18/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-006P SHEET 2 OF 7

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
0600200-07-01	LOOP 1	716'	6	STEAM GENERATOR BLOWDOWN	3.50	41.67	RMI	2.25	11.76	S.S.	STD	N/A	8" OD INSULATION
0600200-07-01	LOOP 1	716'	6	STEAM GENERATOR BLOWDOWN	4.50	28.75	RMI	2.25	9.53	S.S.	STD	N/A	9" OD INSULATION
0600200-07-01	LOOP 1	716'	6	STEAM GENERATOR BLOWDOWN	4.50	3.01	RMI	0.75	0.26	S.S.	STD	N/A	6" OD INSULATION
0600200-07-01	LOOP 1	716'	6	STEAM GENERATOR BLOWDOWN	1.35	0.59	RMI	3.325	0.20	S.S.	STD	N/A	8" OD INSULATION
0600200-07-01	LOOP 1	716'	6	STEAM GENERATOR BLOWDOWN	1.33	1.22	RMI	3.335	0.41	S.S.	STD	N/A	8" OD INSULATION
0600200-07-01	LOOP 1	716'	6	STEAM GENERATOR BLOWDOWN	1.31	0.75	RMI	2.345	0.14	S.S.	STD	N/A	6" OD INSULATION
0600200-07-01	LOOP 1	716'	6	STEAM GENERATOR BLOWDOWN	1.30	1.13	RMI	3.35	0.38	S.S.	STD	N/A	8" OD INSULATION
0600200-07-01	LOOP 1	716'	6	STEAM GENERATOR BLOWDOWN	2.91	0.29	RMI	2.045	0.06	S.S.	STD	N/A	7" OD INSULATION

APPROXIMATE INSULATION LENGTH:

START FROM STEAM GENERATOR NOZZLE AS SHOWN ON DWG. NO. 590955-088C, SH. 1:

AT 8" OD INSULATION (3" PIPING):

LENGTH = 3 + 12 + 7[π(4.5)(90°/180°)] + 76 + 36.75 + 36.5 + 79.5

+ 31 + 2.5 + 9.12 + 3.88 + 6.88 + 42.5 + 43 + 40 + 6 + [π(4.5)(45°/180°)]

+ 14.5 + 3.5 = 500(1/12) = 41.67FT

AT 9" OD INSULATION (4" PIPING):

LENGTH = 74.12 + 3[π(6)(90°/180°)] + 10.69 + 3[π(6)(45°/180°)] + 59.5 + 59.25

+ 24 + 41.5 + 5.82 + 27.66 = 345(1/12) = 28.75FT

AT 6" OD INSULATION (4" PIPING): LENGTH = 36.09(1/12) = 3.01FT

AT 8" OD INSULATION (1.35" OD PIPING & VLV 1-VTV-01B-894): LENGTH = 7(1/12) = 0.59FT

AT 8" OD INSULATION (1.33" OD PIPING & VLV'S 1-DRV-01B-902, -906):

LENGTH = 7.62 + 7 = 14.62(1/12) = 1.22FT

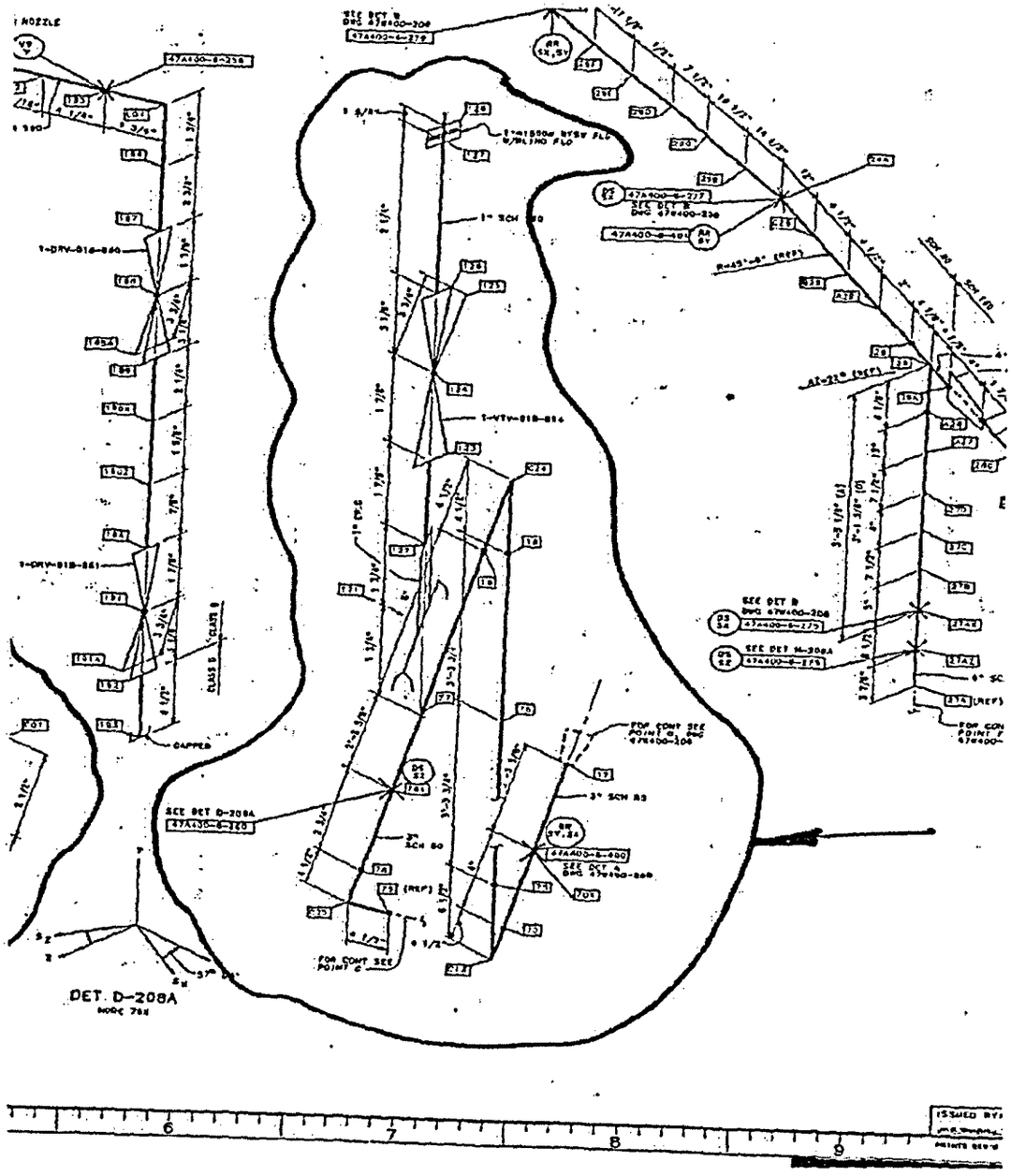
AT 6" OD INSULATION (1.31" OD PIPING): LENGTH = 9(1/12) = 0.75FT

AT 8" OD INSULATION (1.30" OD PIPING/VALVE): LENGTH = 7 + 6.47 = 13.47(1/12) = 1.13FT

AT 7" OD INSULATION (2.91" OD TIEBACK SUPPORT): LENGTH = 3.38(1/12) = 0.29FT

CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

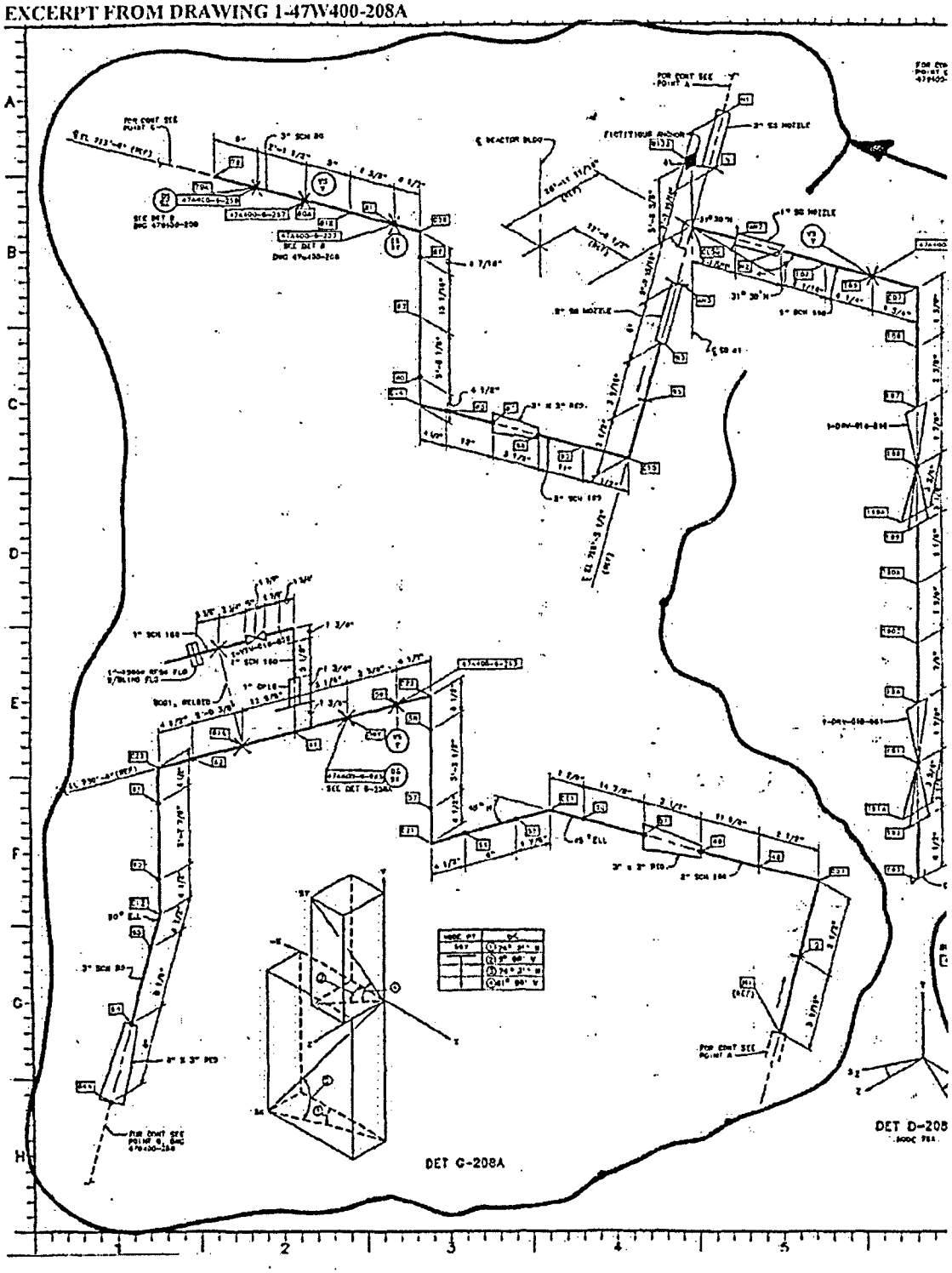
WALKDOWN PACKAGE NO. WB1-DWD-006P SHEET 4 OF 7
EXCERPT FROM DRAWING 1-47W400-208A



CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-006P

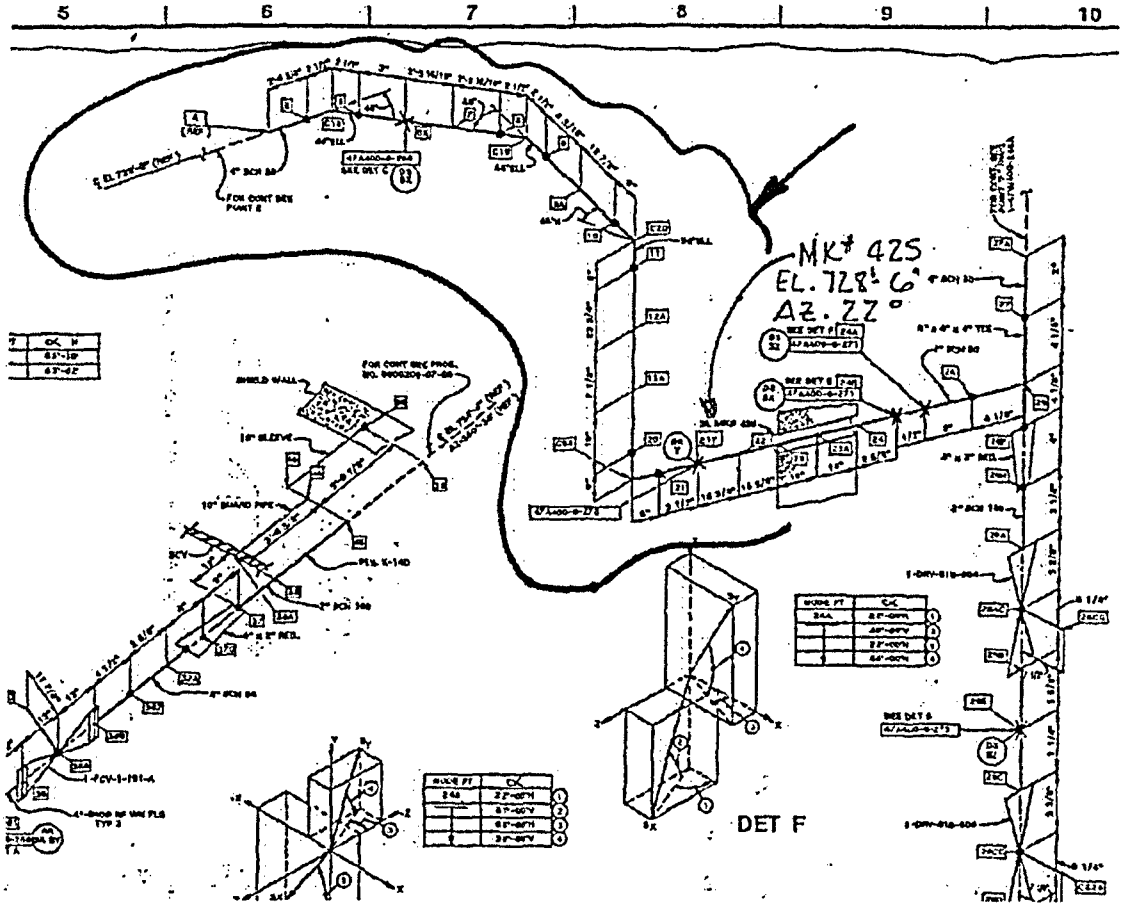
EXCERPT FROM DRAWING 1-47W400-208A



CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-006P

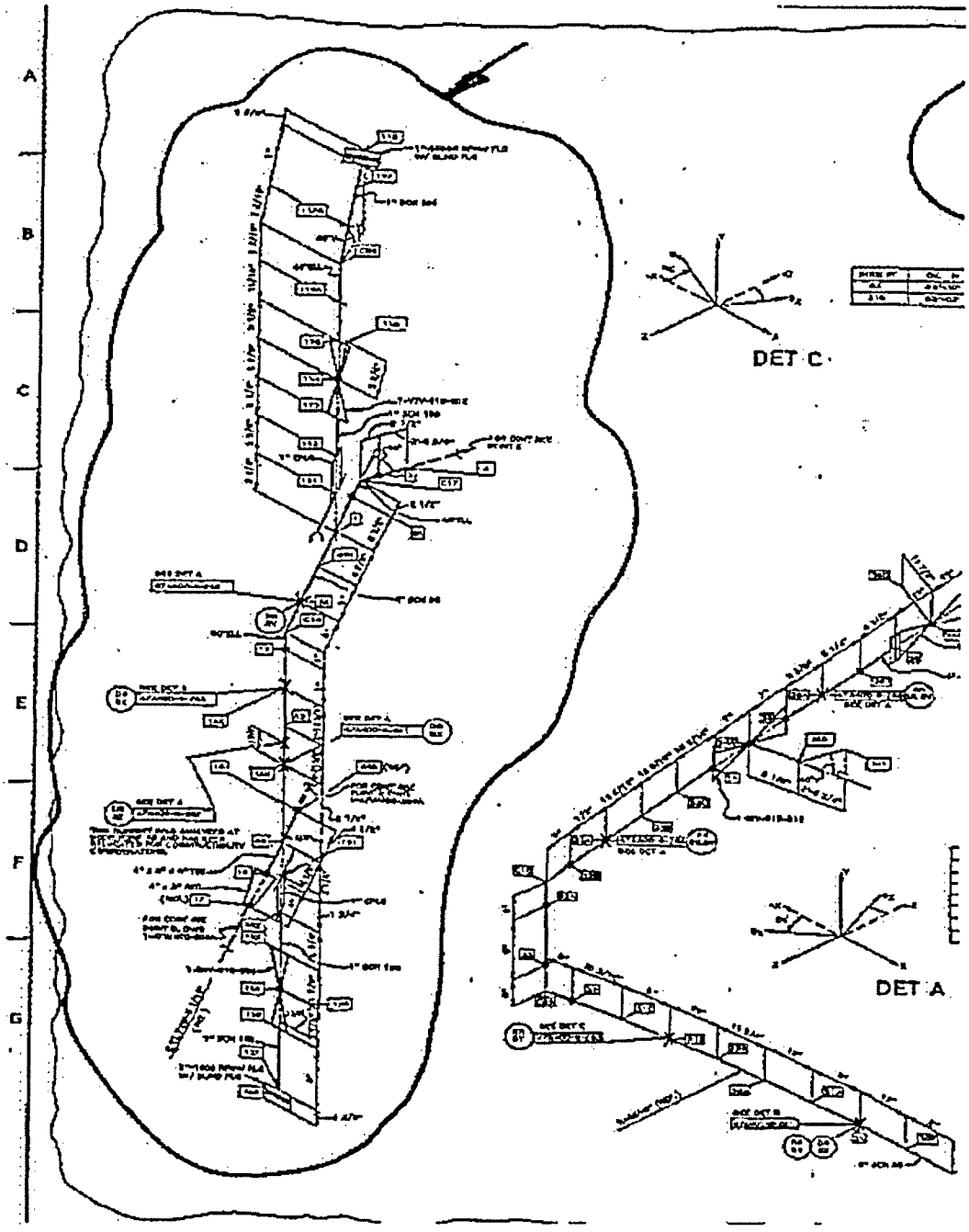
EXCERPT FROM DRAWING 47W400-208



CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-006P

EXCERPT FROM DRAWING 47W400-208



CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-006Q SHEET 1 OF 4

DATE:	11/25/2003	AREA:	LOOP1 AZ (0° TO 90°)	RWP NO.:	8010
		ELEV:	716		

INSPECTORS:	FRANK C. YAO, MIKE CALDWELL

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-110C, SH. 1, REV. A *	
Tools:		
Drawings		
Flashlights		
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	MIN-K INSULATION

Prepared By: FRANK C. YAO Date: 11/25/03

Checked By: MIKE CALDWELL Date: 11/25/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-006Q SHEET 2 OF 4

PROBLEM NUMBER	LOCATION	ELEV,	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
NA	LOOP 1	716'	6	MIN-K	NA	NA	MIN-K	3.38	0.944	NA	NA	NA	N/A

CALCULATION

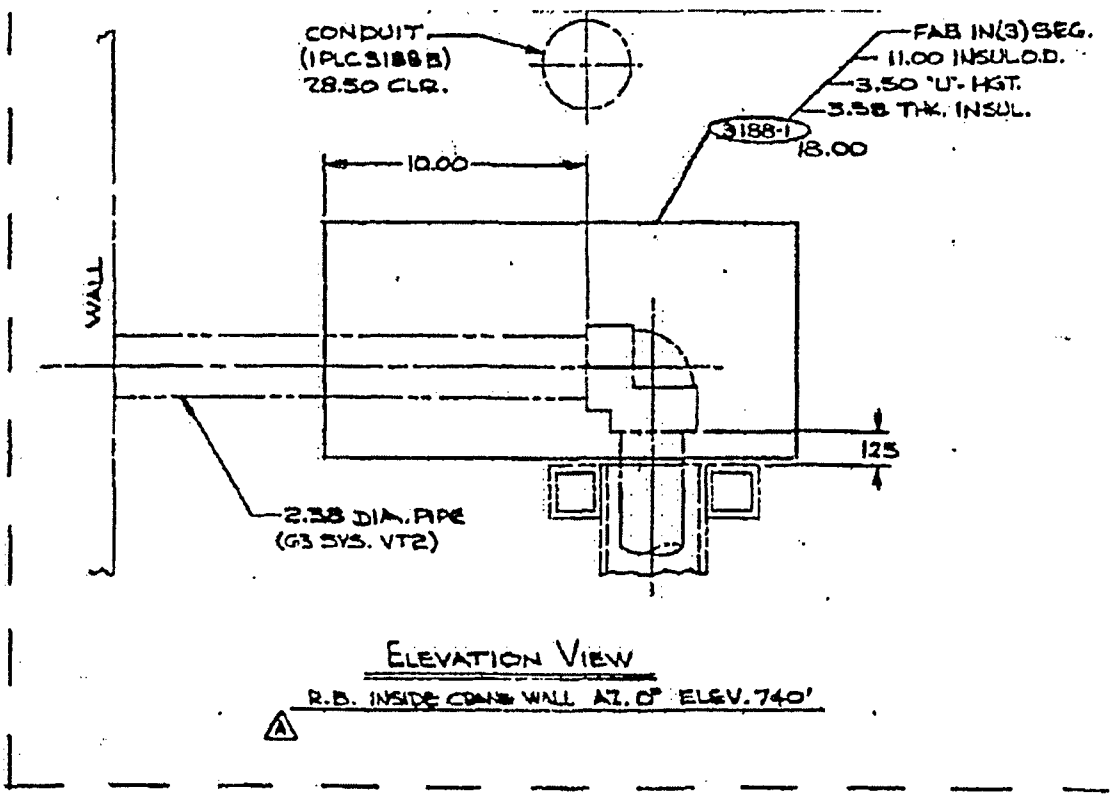
CALCULATE TOTAL MIN-K VOLUME

PIPE OD	APPRX. INS TH	TOTAL DIA	NET INSULATION AREA (SQ IN)	LENGTH (IN)	TOTAL CU IN	TOTAL CU FT
2.38	3.38	11.00	90.585	18	1630.522	0.944

CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-006Q

EXCERPT FROM DRAWING 590955-110-C



CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-006R SHEET 1 OF 4

DATE:	01/06/2004	AREA:	LOOP 1	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, FRANK C. YAO

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-074C, SH. 1, REV. C *	
Tools:	590955-074C, SH. 2, REV. D *	
Drawings	47W406-321B, REV. 0	
Flashlights		
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	3" ALTERNATE CHARGING LINE
	CONTINUED ON WALKDOWN PACKAGE NO's WB1-DWD-009L & -007S.
	* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 01/06/04

Checked By: FRANK C YAO Date: 01/06/04

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-006R SHEET 2 OF 4

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
0600200-08-11	LOOP 1	716'	6	3" ALTERNATE CHARGING	3.50	44.09	RMI	2.75	16.53	S.S.	STD	N/A	9" OD INSULATION
0600200-08-11	LOOP 1	716'	6	3" ALTERNATE CHARGING	3.50	1.83	MIN-K	1.25	0.24	S.S.	STD	N/A	6" OD INSULATION

APPROXIMATE INSULATION LENGTH:

FROM HGR. I-62A-354 TO HGR. I-62A-349:

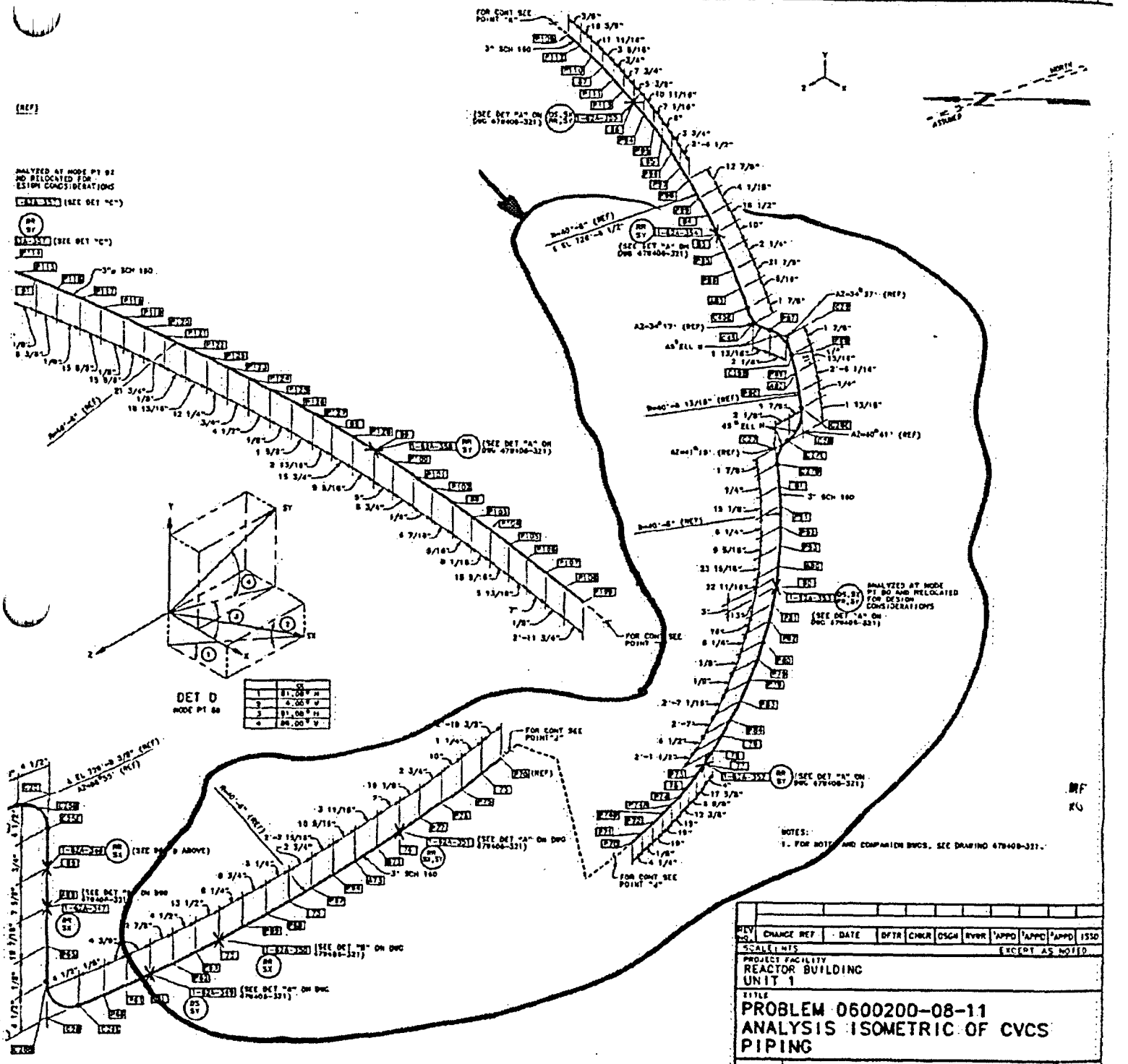
AT 9" OD INSULATION (3" PIPING): LENGTH = 29.45 + (4 X 1.54) + 4[π(4.5)(45°/180°)]

+ (2 X 23.19) + 24.64 + 25.64 + 24 + 17 + (5 X 26.22) + 18 + (22 - 14)

+ (2 X 26.78) + 19.56 + (2 X 20.11) + 25.94 + 19.09 + 18.5 + 7.5

= 529(1/12) = 44.09FT

AT 6" OD MIN-K INSULATION (3" PIPING): LENGTH = 22(1/12) = 1.83FT



REV NO.	CHANGE REF	DATE	DFTR	CHKR	DSGN	RVWR	APPD	APPD	APPD	ISSD

SCALE: NTS — EXCEPT AS NOTED

PROJECT FACILITY: REACTOR BUILDING UNIT 1

TITLE: PROBLEM 0600200-08-11 ANALYSIS ISOMETRIC OF CVCS PIPING

2 — WATTS BAR NUCLEAR PLANT, TENNESSEE VALLEY AUTHORITY

DESIGN		INITIAL ISSUE	ENGINEERING APPROVAL
DRAFTER: P.B. DANIELS	CHECKER: P.D. HARTIGAN	RO ISSUE PER: DCN P-04593-B, DCA P04593-03-3, DCN S-20630-A, DCA S20630-23-0	1 MR
DESIGNER: E.E. JONES	REVIEWER: MR		2 MR
			J.J.G. Adair/gkA

ISSUED BY: Ethel D. Weik — DATE: 10-6-95 — BS — C — 1-47W406-321B — RO

PROCADAM MAINTAINED DRAWING

CONFIGURATION CONTROL DRAWING

ATTACHMENT J:

WALKDOWN PACKAGES

BINDER 2

AREAS 7 - 13

CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-007A SHEET 1 OF 11

DATE:	10/22/2003	AREA:	LOOP 2	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, MIKE SOLLIE

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-001C, SH. 1, REV. C *	
Tools:	590955-001C, SH. 2, REV. B *	
Drawings	590955-002C, SH. 2, REV. C *	
Flashlights	590955-003C, SH. 2, REV. C *	
Ladders	590955-004C, SH. 2, REV. D *	
Cameras	590955-005C, SH. 2, REV. A *	
Binoculars	590955-006C, SH. 2, REV. C *	
Tape measure	590955-104C, SH. 1, REV. A *	
Sample bags	590955-104C, SH. 2, REV. A *	
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	**Verify installation of insulation** as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any **undocumented** insulation.
3	Inspect and determine longitudinal **seam location** and **band spacing** if necessary.
4	Document any **irregularities** of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any **undocumented fibrous insulation (e.g., within rupture restraints).**
6	Inspect and mark up cable tray drawings to show location of **fire barriers** (vertical and horizontal).
7	Inspect the area for any **weak components** that could be dislodged by jet and that could be transported to sump.
8	Inspect any **equipment insulation** in the area.
9	Inspect and document the general **cleanliness** of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	STEAM GENERATOR
	* TVA CONTRACT NO. 93NNS-75645C
	NOTE: THIS WALKDOWN PACAKAGE COVERS INSULATIONS AREA OF STEAM GENERATOR UP TO ELEVATION 745'-0". SEE WALKDOWN PACKAGE NO. WB1-DWD-011B FOR UPPER AREA.

Prepared By: C. G. WALLS *C G Walls* Date: 10/22/03

Checked By: MIKE SOLLIE *Mike Sollie* Date: 10/3/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-007A SHEET 2 OF 11

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
N/A	LOOP 2	716'	7	STEAM GENERATOR	SEE CALC	SEE CALC	RMI	SEE CALC	215.60	S.S.	STD	N/A	N/A
N/A	LOOP 2	716'	7	STEAM GENERATOR	SEE CALC	SEE CALC	RMI	SEE CALC	0.67	S.S.	STD	N/A	AT ROOT VALVES

APPROXIMATE INSULATION VOLUME:

AT BOTTOM PORTION:

$V = \pi(71.5^2 - 68.83^2) \times (35 + 17.4)$

$+ (1/3)\pi 41.54[71.5^2 + 22^2 + (71.5)(22)] - (1/3)\pi 41.54[68.83^2 + 19.33^2 + (68.83)(19.33)]$

$+ [\pi(22/2)^2 \times 2.67] - (2)[\pi(53/2)^2 \times 2.67] - (2)[\pi(36.62/2)^2 \times 2.67]$

$- (4)[20 \times (18.75 + 15.5/\cos 40°) \times 2.67] = 68612(1/12^3) = 39.7 FT^3$

AT COOLANT INLET/OUTLET NOZZLE COVERS:

$V = (2)[\pi(28^2 - 21^2) \times 2.67] + (2)[\pi(28^2 - 25.33^2) \times 3.77] = 8828(1/12^3) = 5.11 FT^3$

AT MANHOLE COVERS:

$V = (2)[\pi 19.33^2 \times 2.67] + (2)[\pi(22^2 - 19.33^2) \times 11] = 13911(1/12^3) = 8.05 FT^3$

AT UPPER PORTION:

$V = [\pi(73.045^2 - 70.375^2)] \times 228.69] - [\pi(51.5/2)^2 \times 2.67]$

$- (2)[22 \times 61.5 \times 2.67] = 262331(1/12^3) = 151.82\ FT^3$

AT HANDHOLE/SLUDGE LANCE/BLOWDOWN LINE COVERS:

$= (2)[66.23 \times 27.33 \times 2.67] + (4)[66.23 \times 4.33 \times 2.67]$

$+ (4)[21.99 \times 4.33 \times 2.67] = 13746(1/12^3) = 7.96 FT^3$

AT FEEDWATER NOZZLE COVER:

$V = \pi(17.75^2 - 15.08^2) \times 18.55 = 5109(1/12^3) = 2.96 FT^3$

TOTAL VOLUME AT SG = 39.7 + 5.11 + 8.05 + 151.82 + 7.96 + 2.96 = $215.6 FT^3$

AT 3/4" ROOT VALVE:

$V = [\pi(5^2 - 1.06^2)/4 \times 4.95] + [\pi(7^2 - 1.06^2)/4 \times 6.5] = 338(1/12^3) = 0.2 FT^3$

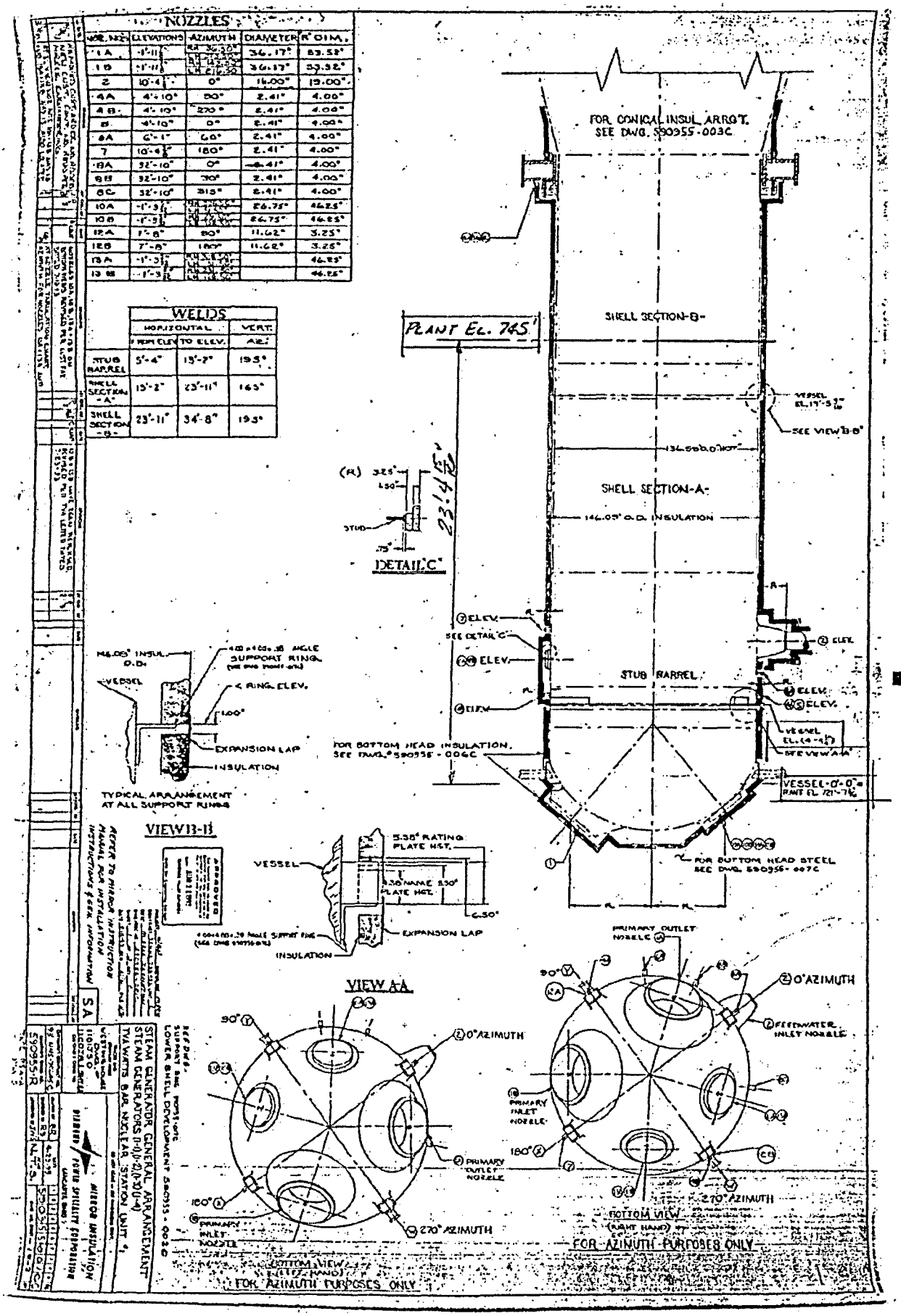
AT 1" ROOT VALVE (SEE DWG 590955-104C, SH. 1):

$V = [\pi(5^2 - 1.32^2)/4 \times 9.75] + [\pi(7^2 - 1.32^2)/4 \times 7] = 438(1/12^3) = 0.26 FT^3$

AT 1" ROOT VALVE (SEE DWG 590955-104C, SH. 2):

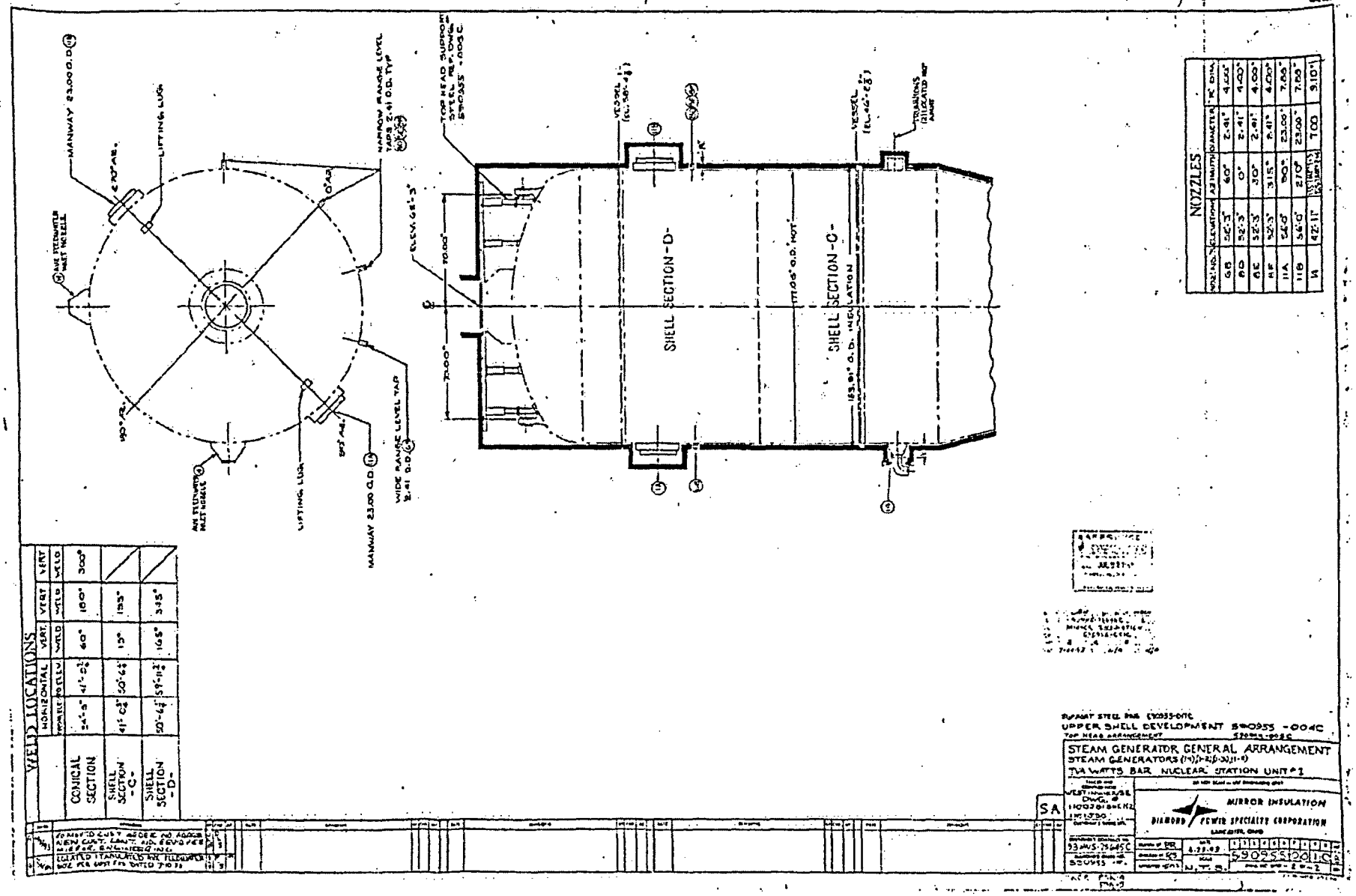
$V = [\pi(5^2 - 1.32^2)/4 \times 5.2] + [\pi(7^2 - 1.32^2)/4 \times 7] = 355(1/12^3) = 0.21 FT^3$

TOTAL VOLUME AT VALVES = 0.2 + 0.26 + 0.21 = $0.67 FT^3$

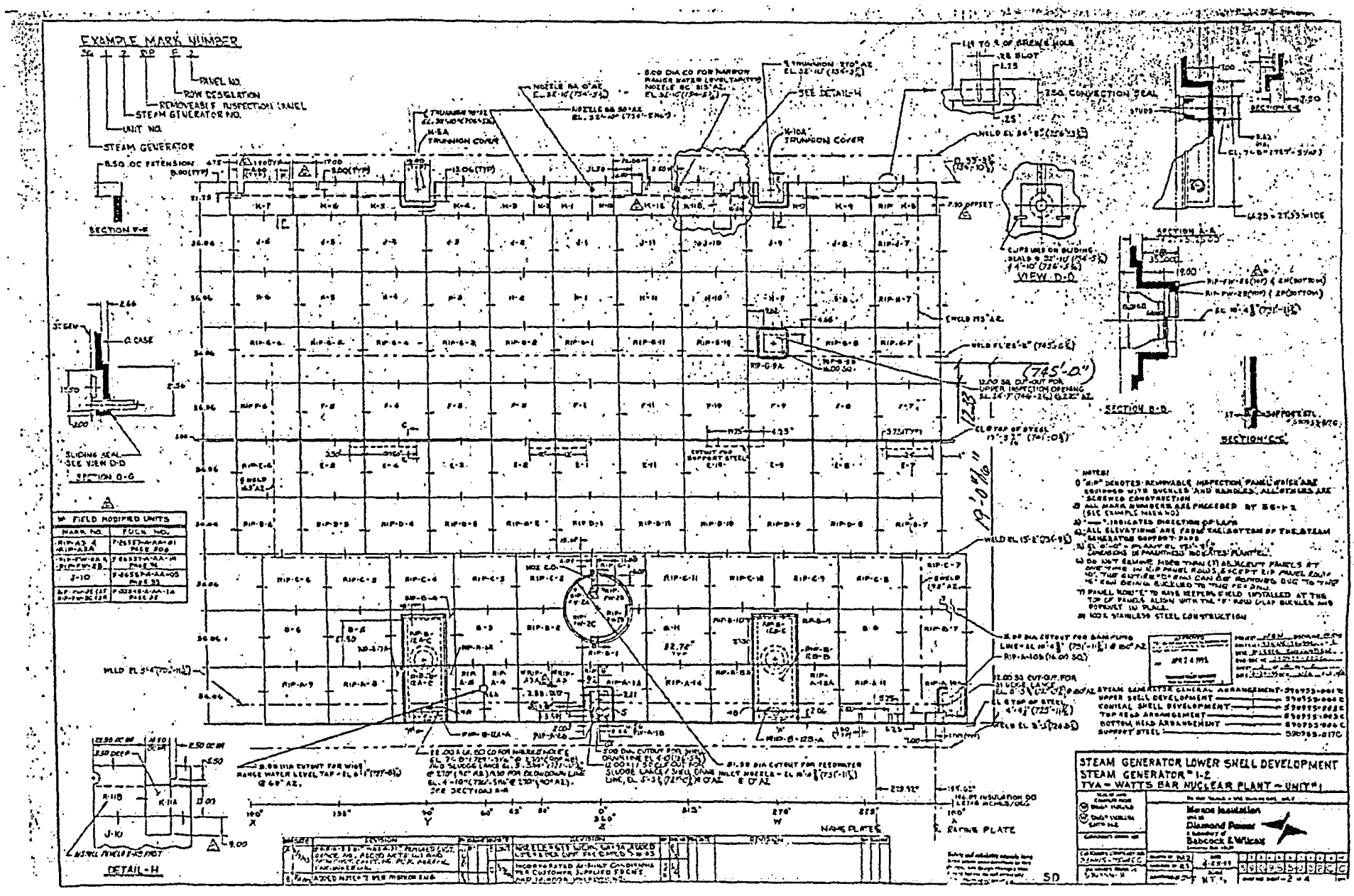


WBI-DWD-007A
PG 2 OF 11

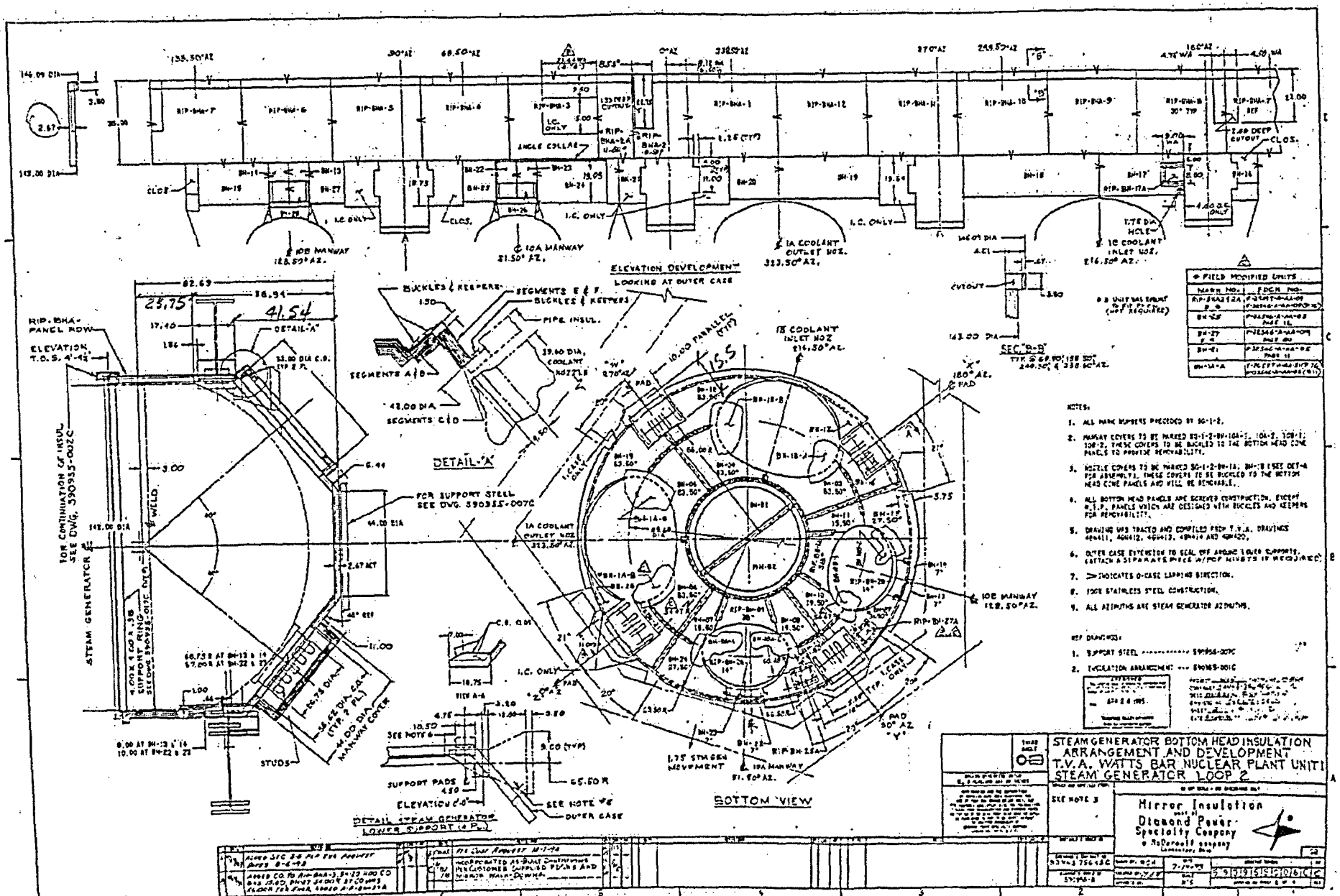
WB1-DWD-007A
PG 5 OF 11



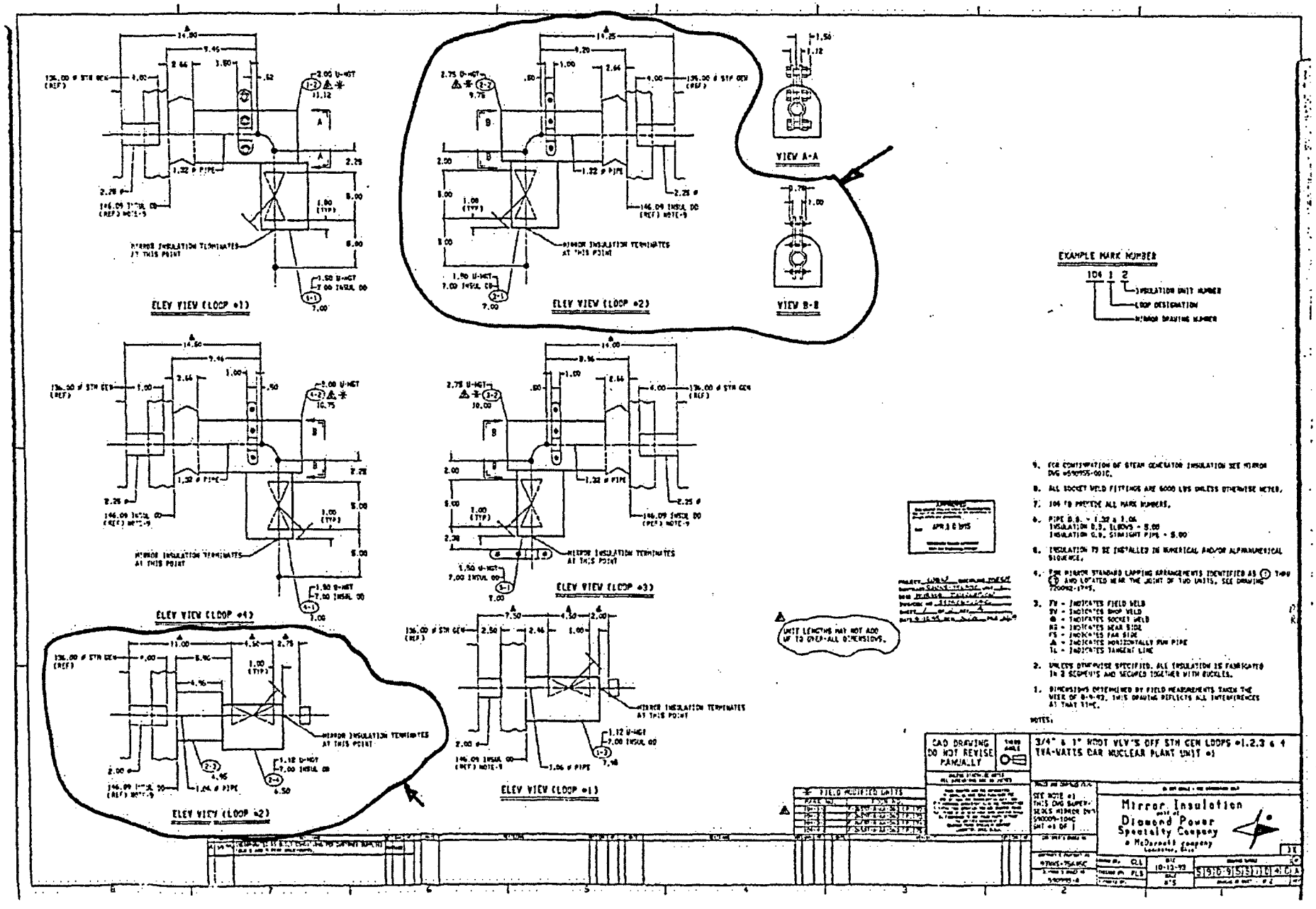
WBI-DWD-007A
Pg 6 of 11



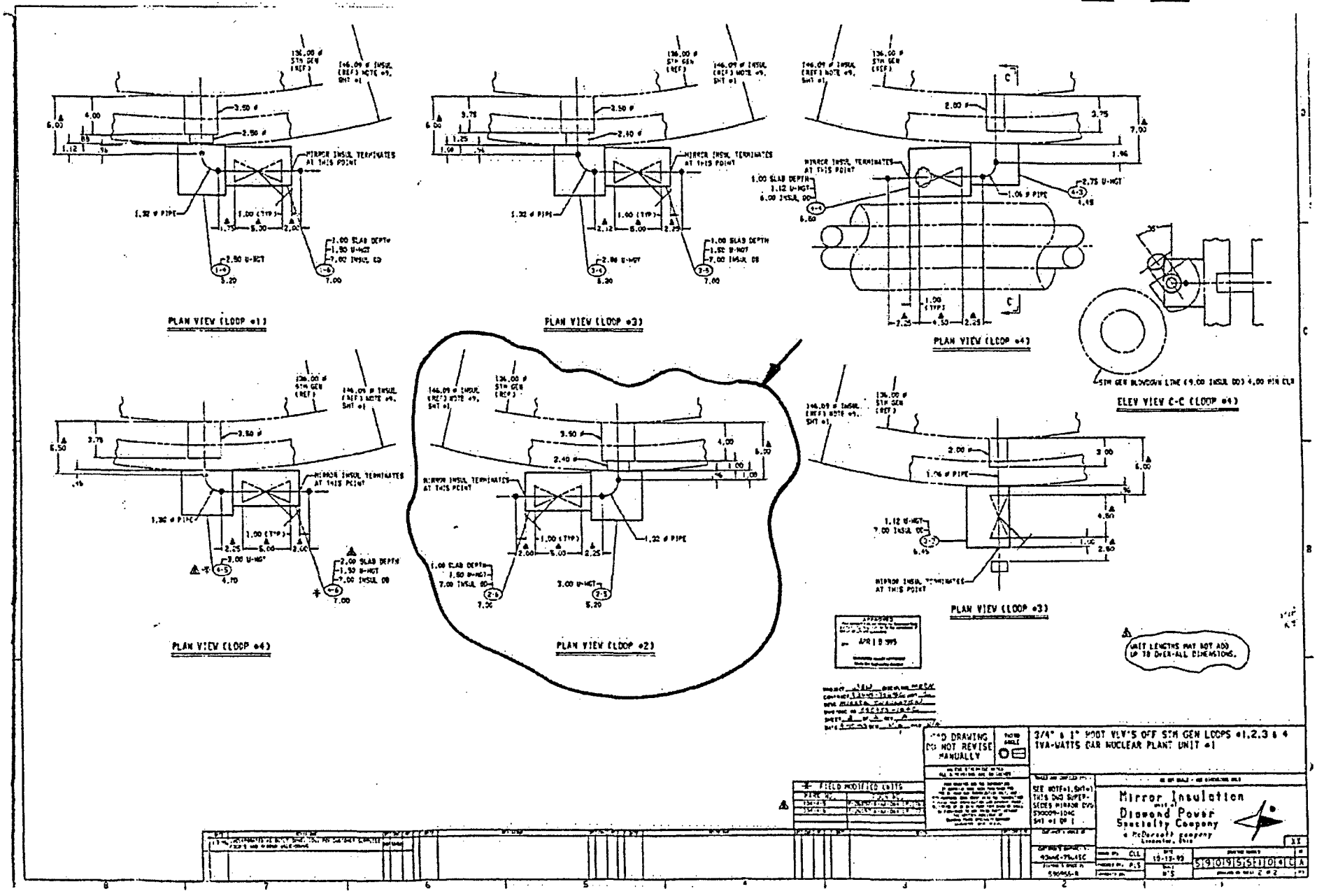
WBI-DWD-007A
PG 7 OF 11



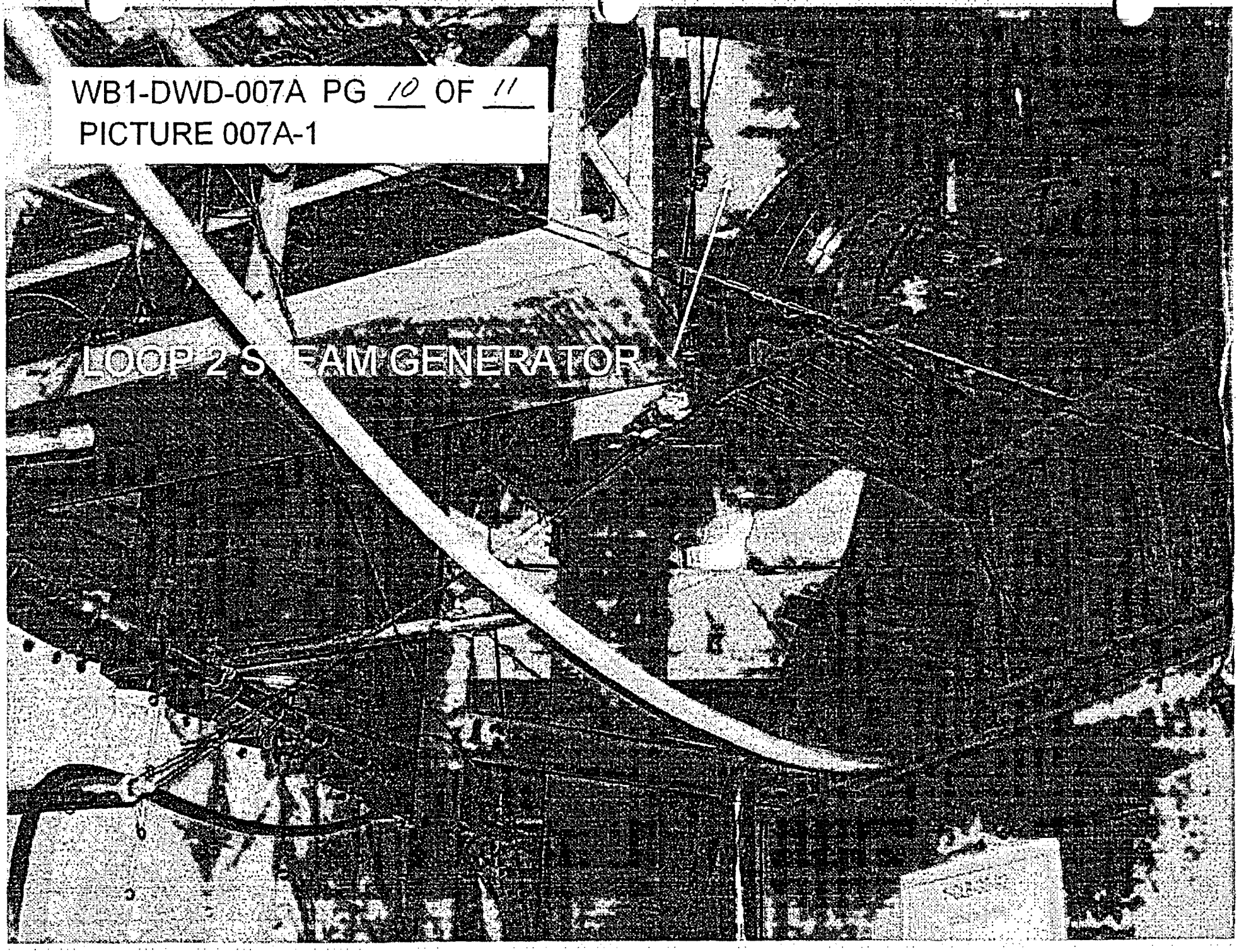
WB1-DWD-0074
PG 8 OF 11



WB1-DWD-007A
PG 9 OF 11



WB1-DWD-007A PG 10 OF 11
PICTURE 007A-1



WB1-DWD-007A PG 11 OF 11
PICTURE 007A-2

CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-007B SHEET 1 OF 4

DATE:	11/17/2003	AREA:	07	RWP NO.:	8010
		ELEV:	APPROX. 716		

INSPECTORS:	FRANK C YAO, MIKE CALDWELL

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	47W2500-9 & 47W2500-10	1-FOR-304-1
Tools:		45N862-10
Drawings		45N862-11
Flashlights		45N862-12
Ladders		DCN 11727-D
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify **installation of insulation** as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any **undocumented** insulation.
3	Inspect and determine longitudinal **seam location** and **band spacing** if necessary.
4	Document any **irregularities** of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any **undocumented fibrous insulation (e.g., within rupture restraints).**
6	Inspect and mark up cable tray drawings to show location of **fire barriers** (vertical and horizontal).
7	Inspect the area for any **weak components** that could be dislodged by jet and that could be transported to sump.
8	Inspect any **equipment insulation** in the area.
9	Inspect and document the general **cleanliness** of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	MIN-K-WR, SGBD SAMPLE LINE
	CONDUIT 1PM8020D
	CONDUIT 1PM8021D
	CONDUIT 1PM8022D
	1VC4057A
	1VC4431B
	SEE PACKAGE WB1-DWD-006D FOR TYPICAL 3M-M20C FIREWRAP PHOTOGRAPHS.

Prepared By: FRANK C YAO Date: 11/17/03

Checked By: MIKE CALDWELL Date: 11/17/03

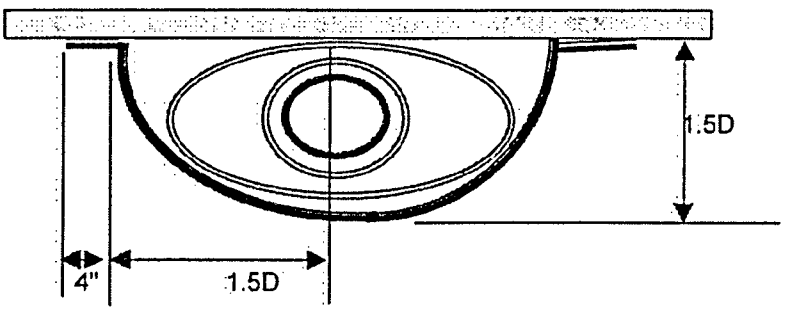
WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-007B SHEET 2 OF 4

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
N/A	LOOP 2	716	7	CONDUIT 3M-M20C INSULATION	1.900	50.00	3M-M20C	0.1875	2.192	NA	NA	NA	SEE CALCULATION
N/A	LOOP 2	716	7	CONDUIT 3M-M20C INSULATION	2.375	70.00	3M-M20C	0.1875	3.653	NA	NA	NA	SEE CALCULATION
N/A	LOOP 2	716	7	CONDUIT 3M-M20C INSULATION	NA	NA	3M-M20C	NA	1.790	NA	NA	NA	SUPPORT INSULATION SEE CALCULATION

AREA 07 3M-M20C RADIANT SHIELD CALCULATION

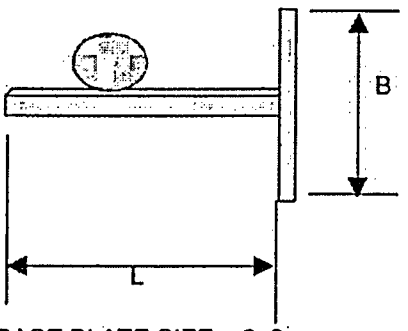
1" DIAMETER CONDUIT (OUTSIDE DIA = 1.315")
1 1/2" DIA. CONDUIT (OUTSIDE DIA = 1.9")
2" DIAMETER CONDUIT (OUTSIDE DIA. = 2.375")
3 LAYERS 3M-M20C FOR CONDUIT PER NOTE 1A DRAWING 1-47W243-6
DETAIL C-8 AND NOTE 6 DRAWING 1-47W243-8 SPECIFIES 3 LAYERS WRAP.



D=DIAMETER OF CONDUIT IN IN"
FIRST LAYER TIGHTLY AROUND CONDUIT
SECOND LAYER IS 1.5D DIAMTER CIRCLEX1.2
THIRD LAYER IS 1.5D RADIUS HALF CIRCLE + 8"

1 1/2" LENGTH =15+30/2+20 = 50'				2" CONDUIT LENGTH=25+ 65/2+25/2=70			
1 1/2" DIA. CONDUIT PER LIN FT	D(IN)	PERIMTER (IN)	A(SQ IN) PER LIN FT	2" DIA. CONDUIT PER LIN FT	D(IN)	PERIMTER (IN)	A(SQ IN) PER LIN FT
1ST LAYER	1.9	5.97	71.63	1ST LAYER	2.375	7.46	89.54
2ND LAYER	2.85	10.74	128.93	2ND LAYER	3.5625	13.43	161.16
3RD LAYER	5.7	16.95	203.44	3RD LAYER	7.125	19.19	230.30
TOTAL SQ IN PER LIN FT			404.00	TOTAL SQ IN PER LIN FT			481.00
CU FT OF 3M-M20C (3/16" THICK)			0.0438	CU FT OF 3M-M20C (3/16" THICK)			0.0522
CONDUIT LENGTH IN THIS AREA =			50	CONDUIT LENGTH IN THIS AREA			70
TOTAL CU FT OF INSULATION =			2.192	TOTAL CU FT OF INSULATION =			3.653

AREA 07 3M-M20C RADIANT SHIELD CALCULATION



ASSUME A=12" WITH 2x2 SQ TUBE, BASE PLATE SIZE = 9x9
TWO LAYERS OF 3M FIRE BARRIER M20C FOR SUPPORT
COVER BASE PLATE 6" ALL AROUND.

COVERED AREA (ONE LAYER)

	B+6+6	B+6+6	A (IN)	A (SQ FT)
BASE PLATE =	21	21	441	3.06
	L	4xWIDTH		
CANTILEVER MEM =	12	8	96	0.67
SUB TOTAL				3.73
PLUS ENDS ETC 10%				0.373
ONE LAYER TOTAL=				4.10
TWO LAYERS = 2XTOTAL =				8.20
EACH SUPPORT M20C FOR 3/16" THICK IN CU FT =				0.128

ASSUME SUPPORT SPACING IS 10 FT CONDUIT
NUMBER OF SUPPORTS FOR 1 1/2" DIA. CONDUIT=50/10 + 1= 6
NUMBER OF SUPPORTS FOR 2" DIA. CONDUIT=70/10 + 1= 8
NUMBER OF SUPPORTS TOTAL = 14
TOTAL CU FT OF 3M-M20C FOR SUPPORTS = 1.79

CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-007C SHEET 1 OF ~~4~~ 5 CGW 10/23/03

DATE:	10/23/2003	AREA:	PRESSURIZER/LOOP 2	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, MIKE SOLLIE

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	47W2500-6, REV. 2	
Tools:	47W2500-10, REV.2	
Drawings	47W304-1, REV. 9	
Flashlights	590955-067C, SH. 2, REV. C	
Ladders	590955-067C, SH. 1, REV. C	
Cameras	590955-067C, SH. 2, REV. C	
Binoculars	47W465-221, REV. C	
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	PRESSURIZER SURGE LINE
	* TVA CONTRACT NO. 93NNS-75645C
	SMALL PORTION OF THIS LINE RUNS IN AREA 6, BUT IS EVALUATED IN THIS WALKDOWN PACKAGE.

Prepared By: C. G. WALLS CGWalls Date: 10/23/03

Checked By: MIKE SOLLIE Mike Sollie Date: 10/23/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-007C SHEET 2 OF 5

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
0600200-13-01	LOOP 2	716'	7	PRESSURIZER SURGE LINE	14.00	34.40	RMI	4.5	62.48	S.S.	STD	N/A	23" OD INSULATIONS
0600200-13-01	LOOP 2	716'	7	PRESSURIZER SURGE LINE	14.00	7.67	RMI	0.5	1.21	S.S.	STD	N/A	15" OD INSULATIONS
0600200-13-01	LOOP 2	716'	7	PRESSURIZER SURGE LINE	14.00	3.34	RMI	1	1.09	S.S.	STD	N/A	16" OD INSULATIONS
0600200-13-01	LOOP 2	716'	7	PRESSURIZER SURGE LINE	14.00	3.01	RMI	2.5	2.71	S.S.	STD	N/A	19" OD INSULATIONS
0600200-13-01	LOOP 2	716'	7	PRESSURIZER SURGE LINE	14.00	8.67	RMI	1.5	4.40	S.S.	STD	N/A	17" OD INSULATIONS

APPROXIMATE INSULATION LENGTH:

STARTING FROM LOOP 2 RC HOT LEG TO PRESSURIZER:

AT 23" OD INSULATION:

LENGTH = (1/2)[π(70)(90°/180°)] + 6 + (2/3)[π(70)(90°/180°)] + π(70)(90°/180°)

+ 18 + (3 X 36.03) + (1/3)[π(70)(90°/180°)] + 5.75 = 413(1/12) = 34.4FT

AT 15" OD INSULATION:

LENGTH = (1/2)[π(70)(90°/180°)] + (1/3)[π(70)(90°/180°)] = 92(1/12) = 7.67FT

AT 16" OD INSULATION:

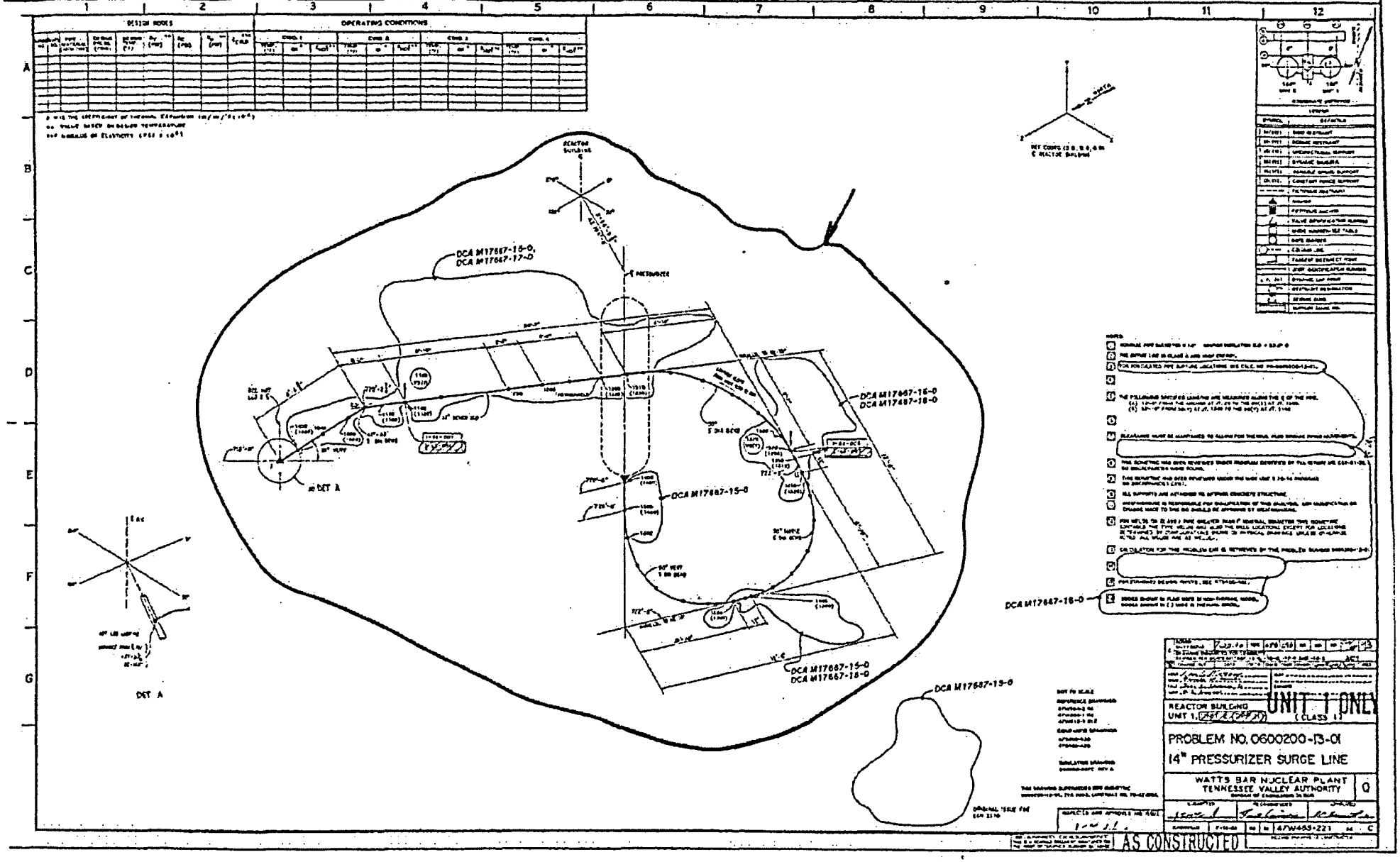
LENGTH = 2 X 20 = 40(1/12) = 3.34FT

AT 19" OD INSULATION:

LENGTH = 36.04 = 3.01FT

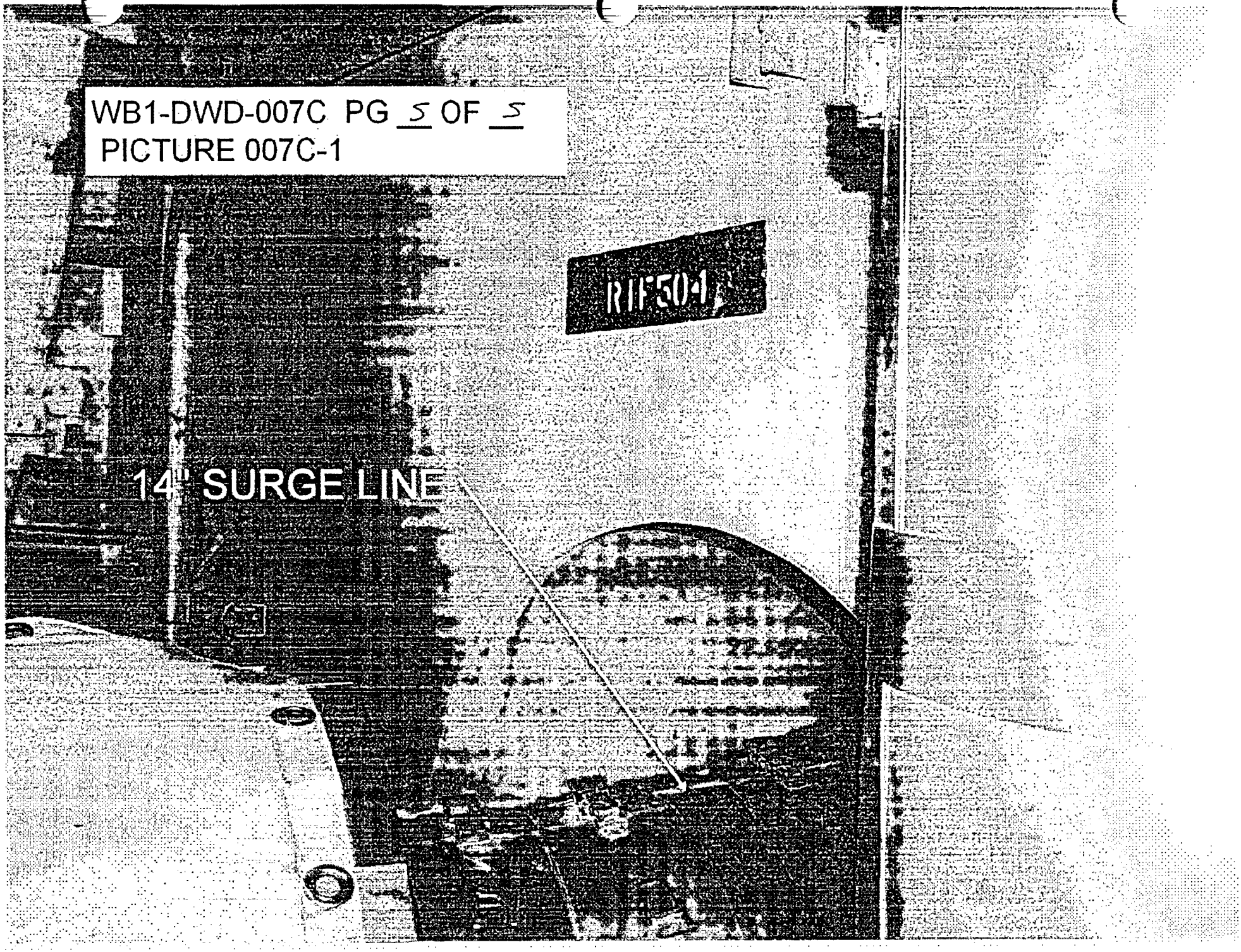
AT 17" OD INSULATION:

LENGTH = 27.06 + 8.5 + 22.56 + (2/3)[π(70)(41.8°/180°)] + 11.21 = 104 = 8.67FT



WB1-DWD-007C
PG 4 OF 5

WB1-DWD-007C PG 5 OF 5
PICTURE 007C-1



CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-007D SHEET 1 OF 34 10/23/03

DATE:	10/23/2003	AREA:	LOOP 2	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, MIKE SOLLIE

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-058C, SH. 1, REV. D *	
Tools:	590955-058C, SH. 2, REV. C *	
Drawings	590955-059C, REV. B *	
Flashlights	47W401-209, REV. D	
Ladders	590955-082C, REV. 0	
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	16" FEEDWATER PIPING
	* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 10/23/03

Checked By: MIKE SOLLIE Date: 11/9/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-007D SHEET 2 OF 4

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
0600200-02-02	LOOP 2	716'	7	FEEDWATER	16.00	18.50	RMI	2.5	18.67	S.S.	STD	N/A	21" OD INSULATION
0600200-02-02	LOOP 2	716'	7	FEEDWATER	16.00	0.80	RMI	2	0.63	S.S.	STD	N/A	20" OD INSULATION
0600200-02-02	LOOP 2	716'	7	FEEDWATER	16.00	1.59	MIN-K	1	0.59	S.S.	STD	N/A	18" OD INSULATION
0600200-02-02	LOOP 2	716'	7	FEEDWATER	16.00	10.84	RMI	0.5	1.95	S.S.	STD	N/A	17" OD INSULATION
0600200-02-02	LOOP 2	716'	7	FEEDWATER	SEE CALC	SEE CALC	RMI	SEE CALC	0.42	S.S.	STD	N/A	AT 1.88" OD LINE
0600200-02-02	LOOP 2	716'	7	FEEDWATER	SEE CALC	SEE CALC	RMI	SEE CALC	0.27	S.S.	STD	N/A	AT 1" LINE
0600200-02-02	LOOP 2	716'	7	FEEDWATER	30.25	0.50	MINERAL WOOL	2	0.70	N/A	STD	N/A	AT PENETRATION # X-12B

APPROXIMATE INSULATION LENGTH:

STARTING FROM LOOP 2 STEAM GENERATOR:

AT 21" OD INSULATION:

LENGTH = (1/4)[π(24)(90°/180°)] + π(24)(45°/180°) + 11.09 + 36.09 + 17.37 + 7.5

+ 29.13 + 30 + (3/4)[π(24)(90°/180°)] + (31.25 - 7) + (1/4)[π(24)(90°/180°)]

= 222(1/12) = 18.5FT

AT 20" OD INSULATION:

LENGTH = (1/4)[π(24)(90°/180°)] = 9.5(1/12) = 0.8FT

AT 18" OD MIN-K INSULATION:

LENGTH = (1/2)[π(24)(90°/180°)] = 19(1/12) = 1.59FT

AT 17" OD INSULATION:

LENGTH = π(24)(45°/180°) + 14.5 + (3/4)[π(24)(90°/180°)] + 14.25 +

+ π(24)(45°/180°) + 7.75 + 10 + 8 + (1/4)[π(24)(90°/180°)] = 130(1/12) = 10.84FT

AT 1.88" OD LINE:

VOLUME = [π(6² - 1.88²)/4 x (6 + 6.75)] + [π(8² - 1.88²)/4 x 8.13]

= 712(1/12)³ = 0.42FT³

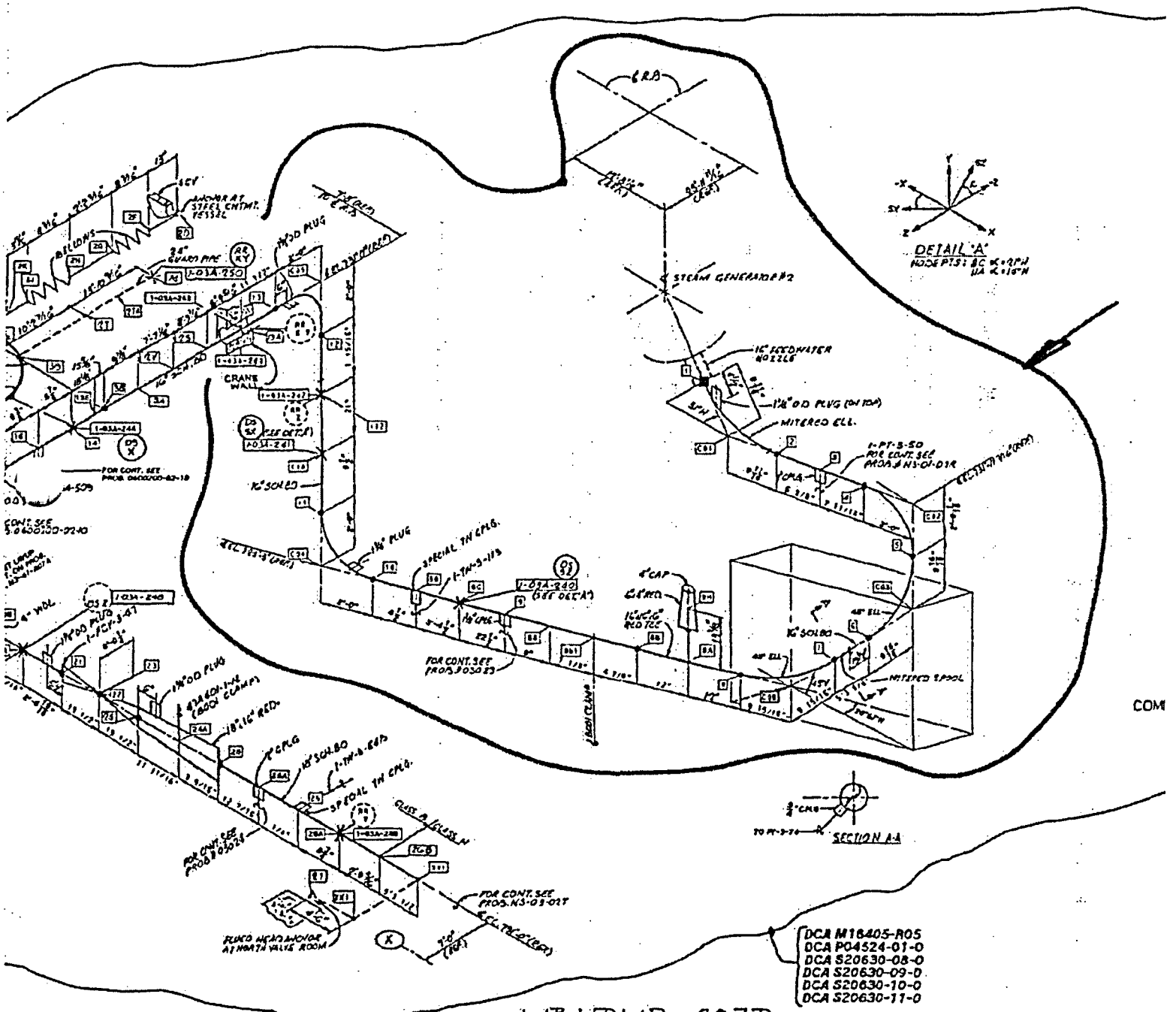
AT 1" LINE (SEE DWG. 590955-059C):

VOLUME = [π(5² - 1.32²)/4 x 5.12] + [π(8² - 1.32²)/4 x 7]

= 464(1/12)³ = 0.27FT³

AT PENETRATION #X-12B (MINERAL WOOL INSULATION) (SEE DWG. 590955-082C):

LENGHT = (2 x 3") = 6(1/12) = 0.5FT



DCA M16405-R05
DCA P04524-01-0
DCA S20630-08-0
DCA S20630-09-0
DCA S20630-10-0
DCA S20630-11-0

WBI-DWD-007D
PG 4 OF 4
DWG. No. 47W1401-209 REV. D

CONTAINMENT DEBRIS WALKDOWN PACKAGE WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-007E SHEET 1 OF 4

DATE:	10/30/2003	AREA:	LOOP 2	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, FRANK C. YAO

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-068C, SH. 1, REV. D *	
Tools:	590955-068C, SH. 2, REV. B *	
Drawings	590955-068C, SH. 3, REV. D *	
Flashlights	47W465-206, REV. E	
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	4" PRESSURIZER SPRAY LINE AT RC COLD LEG LOOP 2
	CONTINUED ON WALKDOWN PACKAGE NO. WB1-DWD-023B
	* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 10/30/03

Checked By: FRANK C.YAO Date: 10/30/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-007E SHEET 2 OF 4

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
0600200-13-02	LOOP 2	716'	7	4" PRESSURIZER SPRAY LINE	4.50	32.67	RMI	2.75	14.21	S.S.	STD	N/A	10" OD INSULATION
0600200-13-02	LOOP 2	716'	7	4" PRESSURIZER SPRAY LINE	4.50	1.21	RMI	7.75	2.51	S.S.	STD	N/A	20" OD INSULATION
0600200-13-02	LOOP 2	716'	7	3/4" PRESSURIZER SPRAY BYPASS LINE	1.05	0.42	RMI	2.975	0.11	S.S.	STD	N/A	7" OD INSULATION
0600200-13-02	LOOP 2	716'	7	3/4" PRESSURIZER SPRAY BYPASS LINE	1.05	8.42	RMI	1.475	0.68	S.S.	STD	N/A	4" OD INSULATION

APPROXIMATE INSULATION LENGTH:

STARTING FROM RC COLD LEG LOOP 2 TO 6" PRESSURIZER SPRAY LINE:

AT 10" OD INSULATION:

LENGTH = 18 + π(6)(90°/180°) + 36 + π(6)(90°/180°) + 127 + π(6)(90°/180°)

+ 60.75 + 10.5 + 4.5 + 10 + 27 + 8.5 + π(6)(90°/180°) + 6.5 + 10.22

+ 34.9 = 392(1/12) = 32.67FT

AT 20" OD INSULATION:

LENGTH = 14.5(1/12) = 1.21FT

AT 7" OD INSULATION (AT 1.05" PIPING):

LENGTH = 5(1/12) = 0.42FT

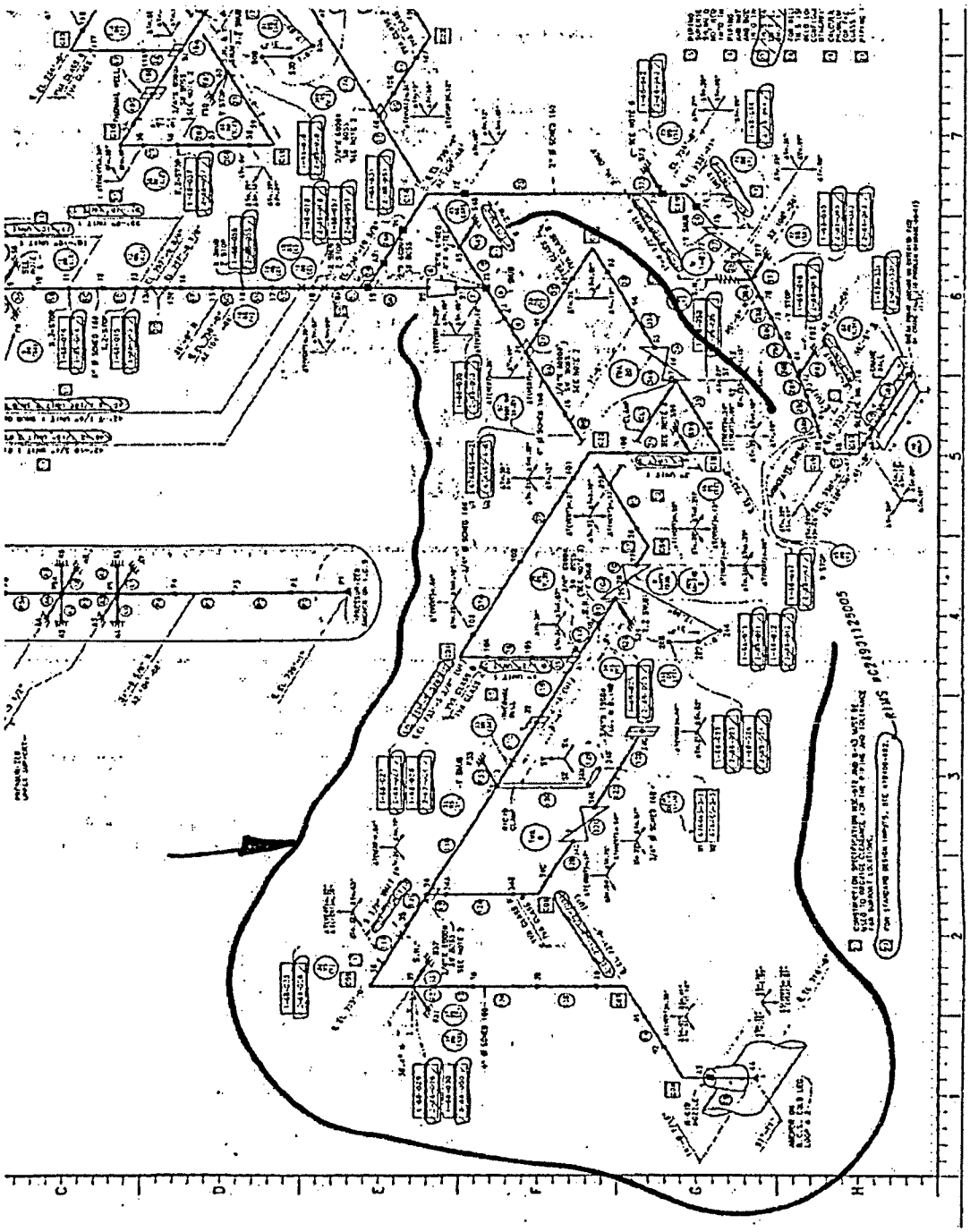
AT 4" OD INSULATION (AT 1.05" PRESS SPRAY BY-PASS PIPING):

LENGTH = 3 + 2.5 + 36 + 5.5 + 2.5 + 2.5 + 10 + 33.75 + 2.5 + 2

= 101(1/12) = 8.42FT

CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-007E **SHEET 4 OF 4**
EXCERPT FROM DRAWING 47W465-206



CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-007F SHEET 1 OF 6

DATE:	10/09/2003	AREA:	LOOP 2	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, FRANK C. YAO

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-041C, SH. 1 (NOTES ONLY), REV. C *	
Tools:	590955-041C, SH. 2, REV. B *	
Drawings	590955-048C, SH. 13, REV. D *	
Flashlights	47W2500-6, REV. 2	
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	REACTOR COOLANT HOT LEG
	* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 10/9/03

Checked By: FRANK C. YAO Date: 10/9/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-007F SHEET 2 OF 6

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
N/A	LOOP 2	716'	7	HOT LEG	SEE CALC	SEE CALC	RMI	SEE CALC	74.60	S.S.	STD	N/A	N/A
N/A	LOOP 2	716'	7	HOT LEG	SEE CALC	SEE CALC	RMI	SEE CALC	8.15	S.S.	STD	N/A	AT 6" SAFETY INJECTION

APPROXIMATE INSULATION VOLUME & LENGTH:

AT LOOP: (START FROM STEAM GENERATOR NOZZLE)

$V = [\pi(42^2 - 34^2)/4 \times 4.5] + [\pi(46^2 - 34^2)/4 \times 5]$

$+ [\pi(46^2 - 36.5^2)/4 \times \pi(54)(50°)/180°] + [\pi(46^2 - 34^2)/4 \times (2 + 2.22)]$

$+ [\pi(43^2 - 34^2)/4 \times (155.69 - 2.22 + 1.66)] = 122544(1/12^3) = 70.92 FT^3$

AT PRESSURIZER SURGE LINES:

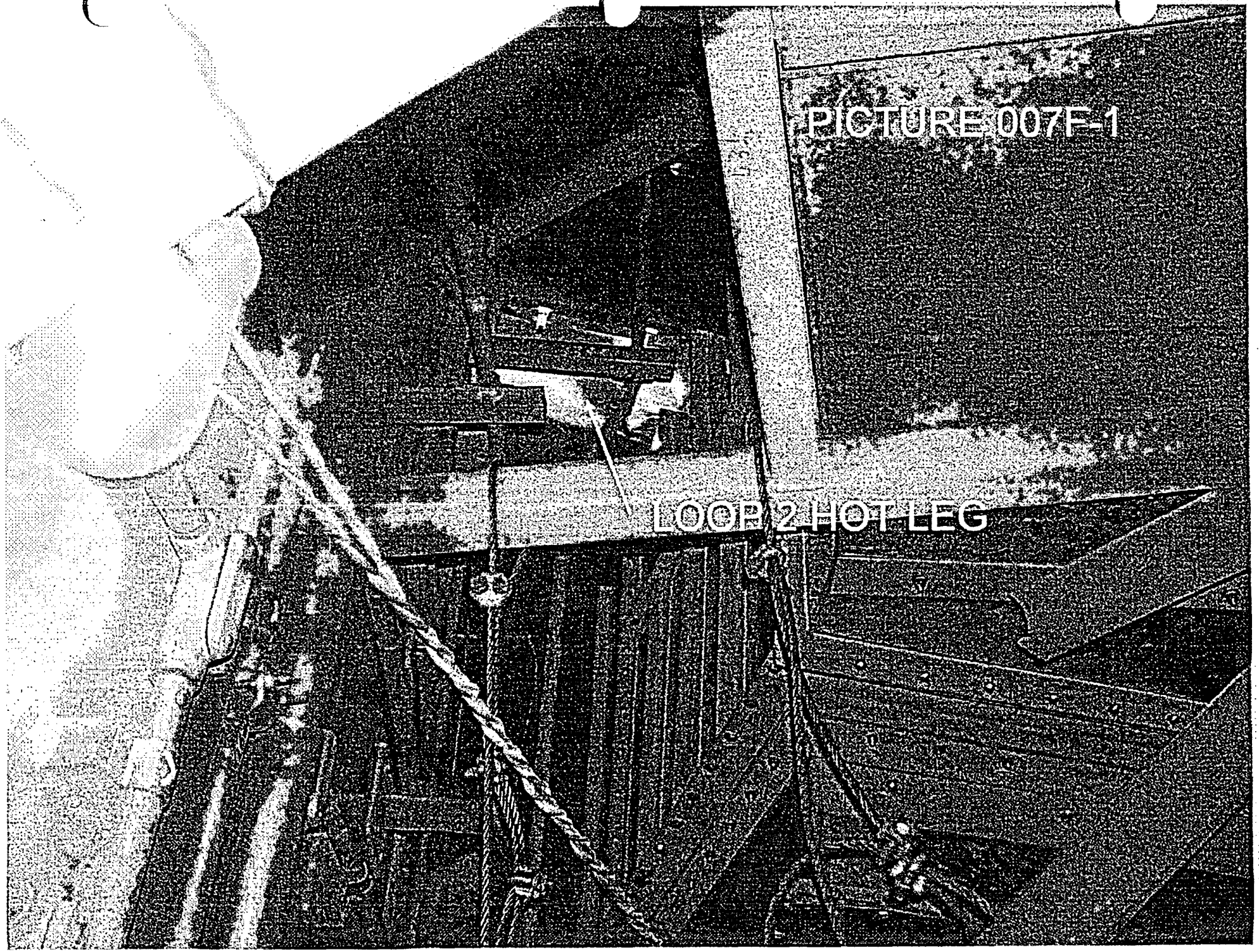
$V = [\pi(18^2 - 6.63^2)/4 \times 6] + [\pi(27^2 - 14^2)/4 \times 12] = 6343(1/12^3) = 3.68 FT^3$

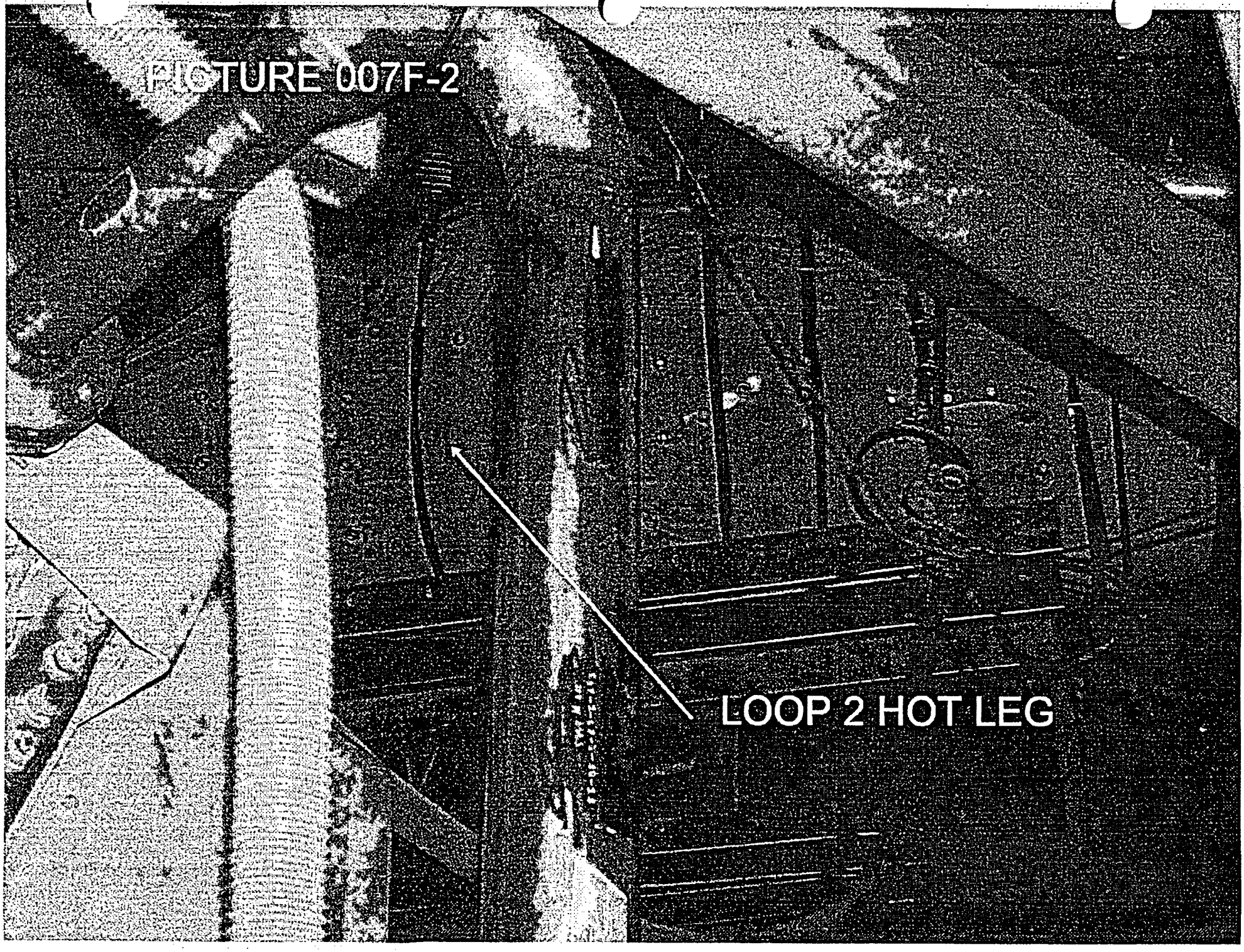
TOTAL VOLUME = $70.92 + 3.68 = 74.60 FT^3$

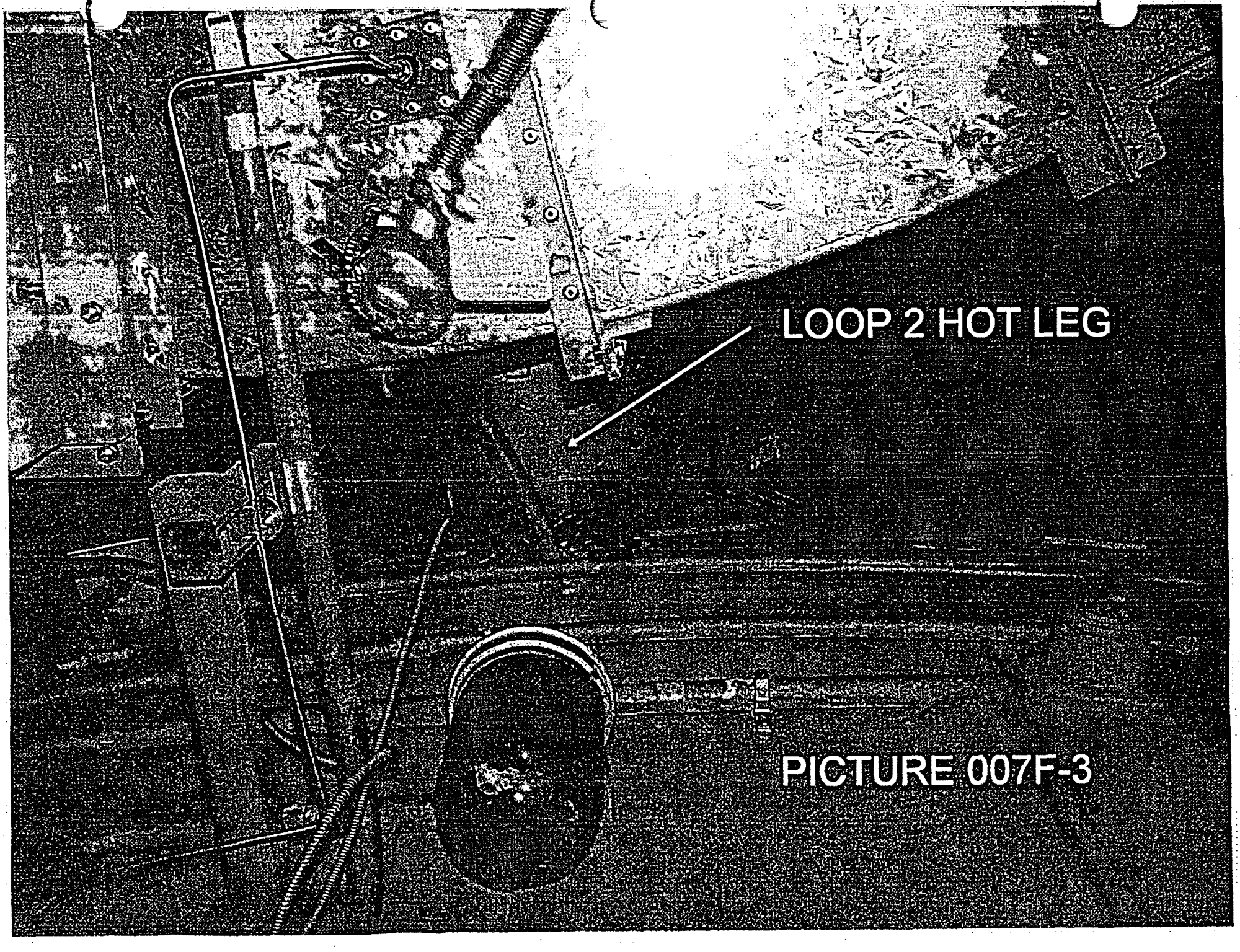
AT SAFETY INJECTION LINE:

$V = [\pi(12^2 - 6.63^2)/4 \times (16 + 36.09 + 23.75)] + [\pi(21^2 - 6.63^2)/4 \times 26]$

$= 14067(1/12^3) = 8.15 FT^3$


PICTURE 007F-1
LOOP 2 HOT LEG


PICTURE 007F-2
LOOP 2 HOT LEG


LOOP 2 HOT LEG
PICTURE 007F-3

CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-007G SHEET 1 OF 5

DATE:	10/09/2003	AREA:	LOOP 2	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, FRANK C. YAO

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-042C, SH. 1, REV. C (NOTES ONLY) *	
Tools:	590955-042C, SH. 2, REV. D *	
Drawings	47W2500-6, REV. 2	
Flashlights		
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

COMMENTS

REACTOR COOLANT COLD LEG

* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 10/9/03

Checked By: FRANK C. YAO Date: 10/9/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-007G SHEET 2 OF 5

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
N/A	LOOP 2	716'	7	COLD LEG	SEE CALC	SEE CALC	RMI	SEE CALC	55.42	S.S.	STD	N/A	N/A

APPROXIMATE INSULATION VOLUME:

AT LOOP: (START FROM REACTOR COOLANT PUMP NOZZLE)

$V = [\pi(39^2 - 32.25^2)/4 \times (225 - 3.05-3)] + [\pi(40^2 - 33^2)/4 \times (3 + 1.97)]$

$+ [\pi(40^2 - 33^2)/4 \times \pi(40)(22°)/180°] + [\pi(40^2 - 33^2)/4 \times 4.19]$

$= 92546(1/12^3) = 53.56 FT^3$

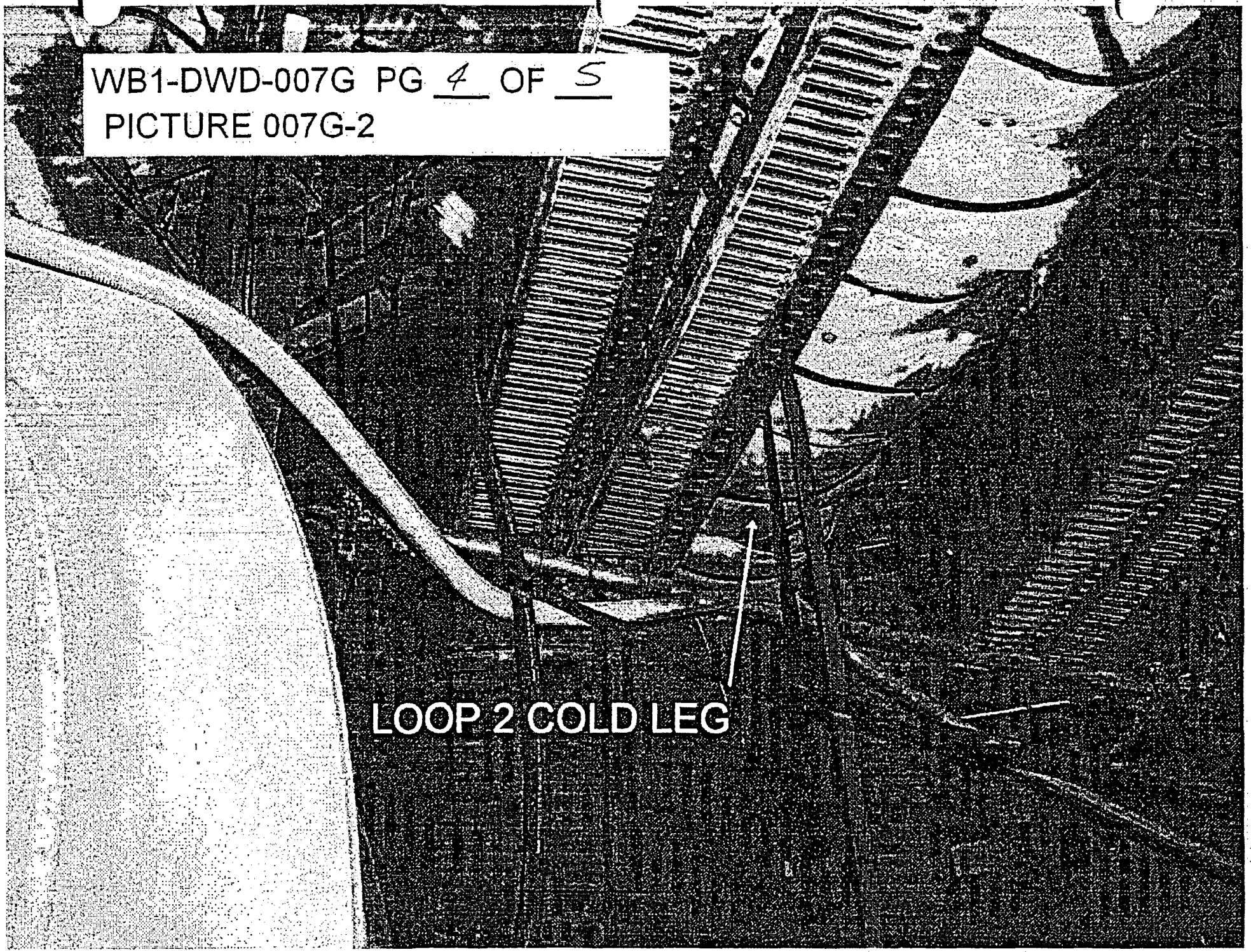
AT ACCUMULATOR INJECTION LINE:

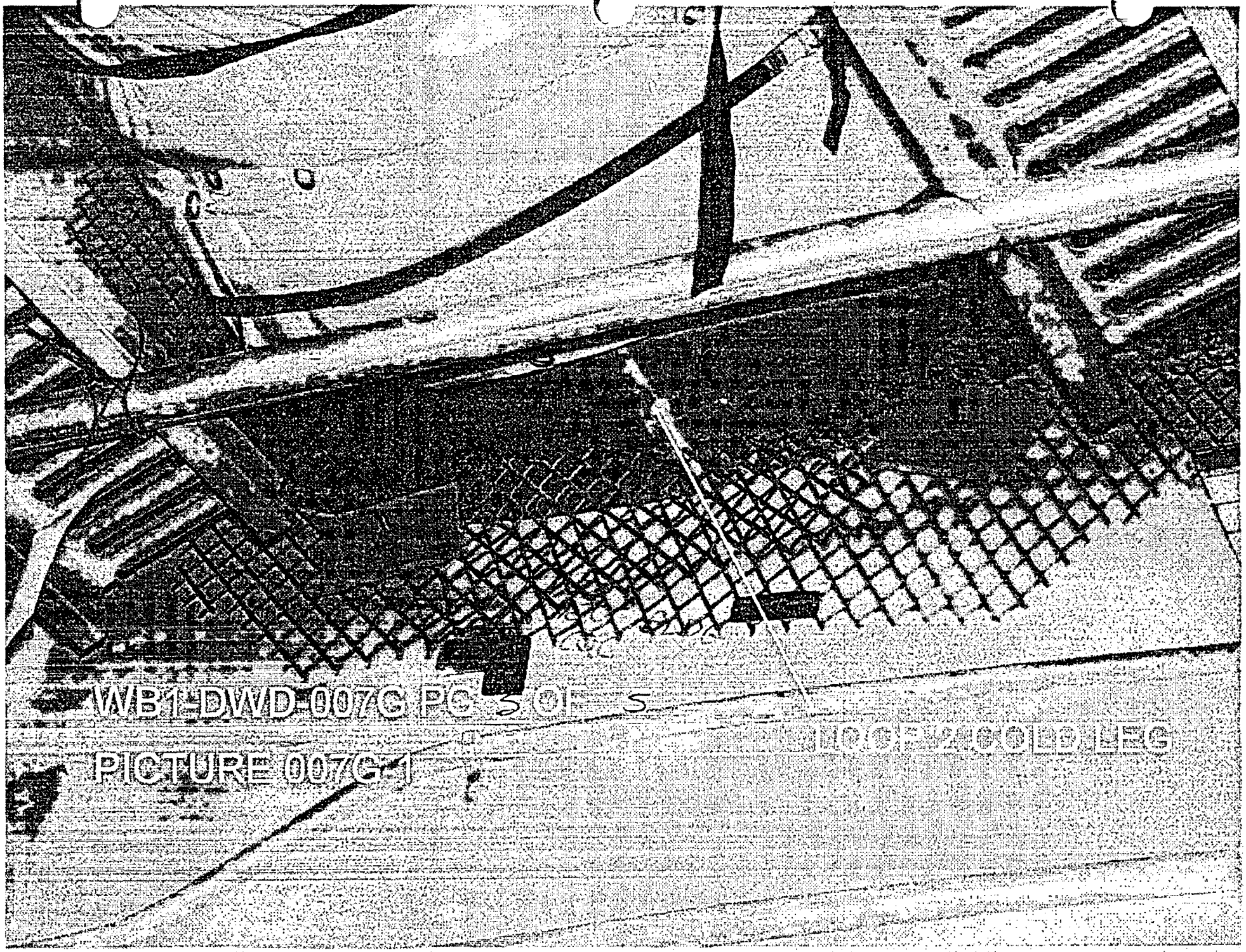
$V = [\pi(27^2 - 15.9^2)/4 \times (44.75 - (39/2 \cos 45°)]/2 = 3212(1/12)^3 = 1.86 FT^3$

TOTAL VOLUME = 53.56 + 1.86 = $55.42 FT^3$

WB1-DWD-007G PG 4 OF 5

PICTURE 007G-2




WB1-DWD-007G PG 5 OF 5
PICTURE 007G-1
NO. 1 COLD LEG

CONTAINMENT DEBRIS WALKDOWN PACKAGE WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-007H SHEET 1 OF 3

DATE:	10/30/2003	AREA:	LOOP 2	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, MIKE SOLLIE

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-047C, SH. 1, REV. A *	
Tools:	47W435-216A	
Drawings		
Flashlights		
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	1 ½" BORON INJECTION AT RC COLD LEG LOOP 2
	* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS CGWalls Date: 10/30/03

Checked By: MIKE SOLLIE Mike Sollie Date: 10/30/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-007H SHEET 2 OF 3

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
0600200-09-06	LOOP 2	716'	7	BORON INJECTION	1.90	3.94	RMI	2.55	0.98	S.S.	STD	N/A	7" OD INSULATION
0600200-09-06	LOOP 2	716'	7	BORON INJECTION	1.90	1.08	RMI	7.6	1.70	S.S.	STD	N/A	9.5" OD INSULATION

APPROXIMATE INSULATION LENGTH:

START FROM RC COLD LEG:

AT 7" OD INSULATION: LENGTH = 4.5 + 5 + 1.62 + 36.09 = 47.21(1/12) = 3.94FT

AT 9.5" OD INSULATION: LENGTH = 13.03(1/12) = 1.09FT

CONTAINMENT DEBRIS WALKDOWN PACKAGE WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-007J SHEET 1 OF 4

DATE:	10/31/2003	AREA:	LOOP 2	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, FRANK C. YAO

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-046C, SH. 1, REV. D *	
Tools:	590955-046C, SH. 2, REV. C *	
Drawings	47W435-220, REV. D	
Flashlights		
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

COMMENTS

10" ACCUMULATOR INJECTION (SIS) LINE AT COLD LEG LOOP 2

* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 10/31/03

Checked By: FRANK C. YAO Date: 10/31/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-007J SHEET 2 OF 4

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
0600200-09-02	LOOP 2	716'	7	ACCUMULATOR INJECTION	10.75	17.75	RMI	3.125	18.79	S.S.	STD	N/A	17" OD INSULATION
0600200-09-02	LOOP 2	716'	7	ACCUMULATOR INJECTION	10.75	4.98	RMI	9.625	21.31	S.S.	STD	N/A	30" OD INSULATION
0600200-09-02	LOOP 2	716'	7	ACCUMULATOR INJECTION	10.75	0.96	RMI	0.625	0.15	S.S.	STD	N/A	12" OD INSULATION
0600200-09-02	LOOP 2	716'	7	ACCUMULATOR INJECTION	10.75	1.24	RMI	1.625	0.54	S.S.	STD	N/A	14" OD INSULATION

APPROXIMATE INSULATION LENGTH:

START FROM RC COLD LEG:

AT 17" OD INSULATION:

LENGTH = 2.5 + π(15)(45°/180°) + 12.25 + (1/2)π(15)(90°/180°) + 32.09

+ 3 + π(15)(82.05°/180°) + 3 + 36.03 + 36.03 + 19.5 + 22.75

= 213(1/12) = 17.75FT

AT 30" OD INSULATION (VALVE #'S 8948B & 8956B): LENGTH = 29.72 + 30 = 59.72(1/12) = 4.98FT

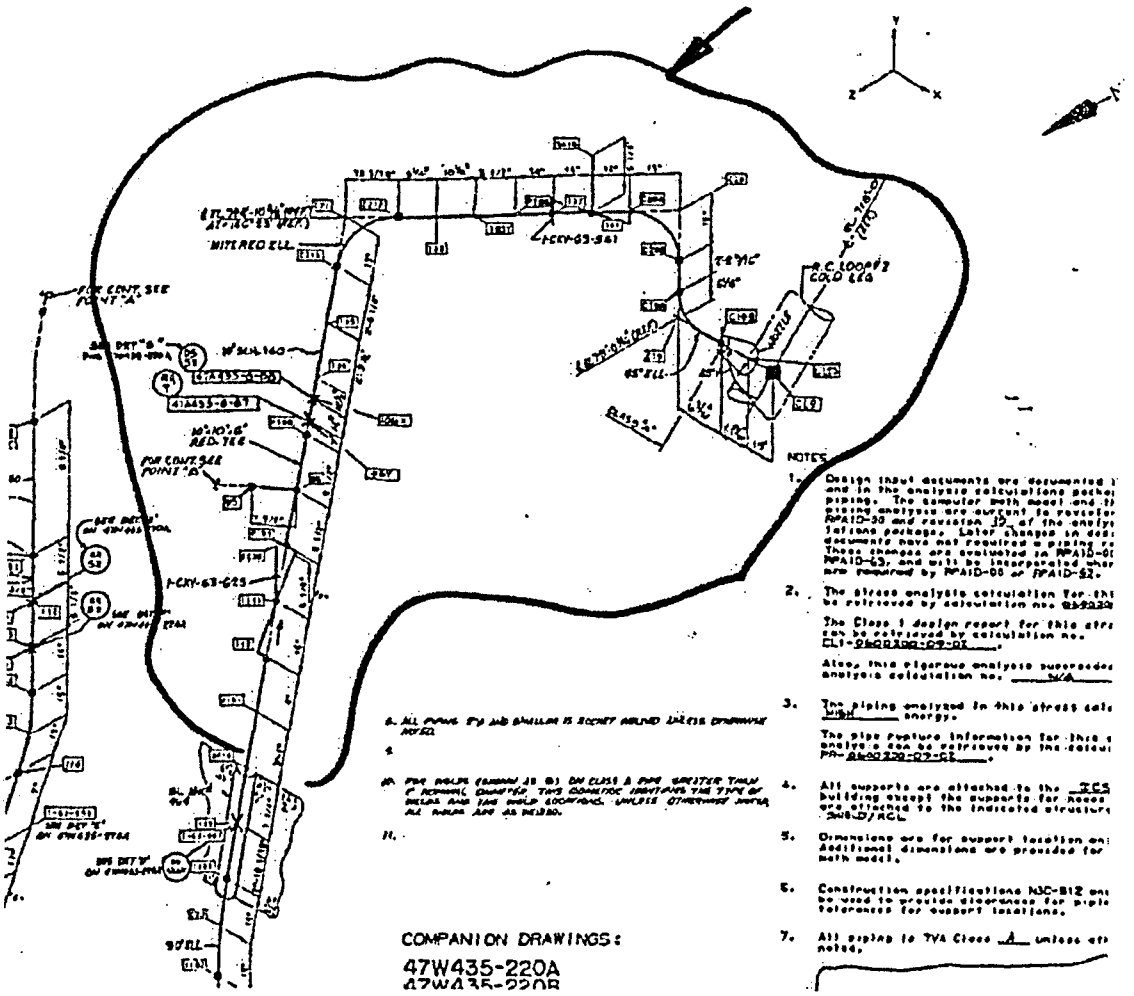
AT 12" OD INSULATION: LENGTH = 11.5(1/12) = 0.96FT

AT 14" OD INSULATION: LENGTH = (1/2)π(15)(90°/180°) + 3 = 14.79(1/12) = 1.24FT

CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-007J **SHEET 4 OF 4**

EXCERPT FROM DRAWING 47W435-220



CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-007K SHEET 1 OF 4

DATE:	11/03/2003	AREA:	LOOP 2	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, FRANK C.YAO

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-048C, SH. 1, REV. C *	
Tools:	590955-048C, SH. 4, REV. B *	
Drawings	47W435-220, REV. D	
Flashlights		
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	6" LOWHEAD SAFETY INJECTION
	CONTINUED ON WALKDOWN PACKAGE NO's WB1-DWD-007J & -017B.
	* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 11/3/03

Checked By: FRANK C. YAO Date: 11/3/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-007K SHEET 2 OF 4

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
060020C-09-02	LOOP 2	716'	7	LOWHEAD SAFETY INJECTION	6.63	9.75	RMI	2.6875	5.32	S.S.	STD	N/A	12" OD INSULATION

APPROXIMATE INSULATION LENGTH:

START FROM RC COLD LEG:

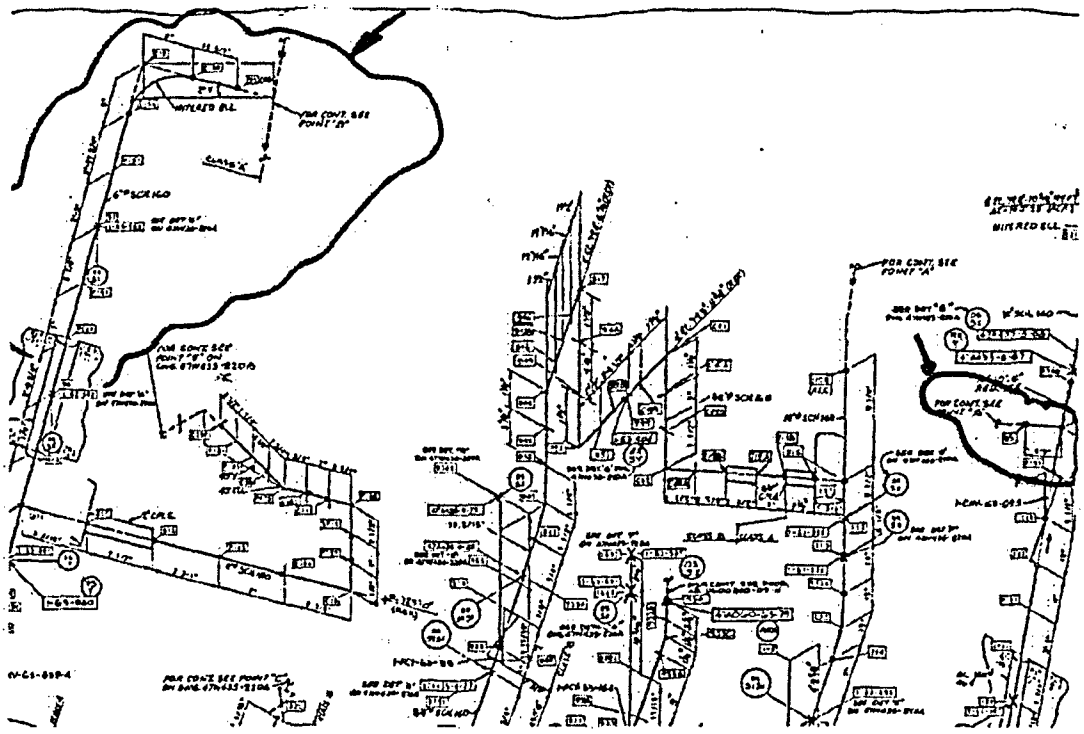
AT 12" OD INSULATION:

$$\text{LENGTH} = 5.5 + \pi(9)(87°/180°) + 24.82 + 36.09 + 7 + 29.15 = 117(1/12) = 9.75\text{FT}$$

CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-007K

EXCERPT FROM DRAWING 47W435-220



CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-007L SHEET 1 OF 3

DATE:	11/04/2003	AREA:	LOOP 2	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, FRANK C. YAO

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-064C, SH. 3, REV. D *	
Tools:	590955-064C, SH. 7, REV. D *	
Drawings		
Flashlights		
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	**Verify installation of insulation** as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any **undocumented** insulation.
3	Inspect and determine longitudinal **seam location** and **band spacing** if necessary.
4	Document any **irregularities** of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any **undocumented fibrous insulation (e.g., within rupture restraints)**.
6	Inspect and mark up cable tray drawings to show location of **fire barriers** (vertical and horizontal).
7	Inspect the area for any **weak components** that could be dislodged by jet and that could be transported to sump.
8	Inspect any **equipment insulation** in the area.
9	Inspect and document the general **cleanliness** of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	8" RESIDUAL HEAT REMOVAL
	CONTINUED ON WALKDOWN PACKAGE NO's. WB1-DWD-017C & -008J.
	* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 11/4/03

Checked By: FRANK C. YAO Date: 11/4/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-007L SHEET 2 OF 3

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
N/A	LOOP 2	716'	7	RESIDUAL HEAT REMOVAL	3.63	31.25	RMI	1.1875	7.94	S.S.	STD	N/A	11" OD INSULATION
N/A	LOOP 2	716'	7	RESIDUAL HEAT REMOVAL	8.53	2.74	MIN-K	0.5625	0.31	S.S.	STD	N/A	9.75" OD MIN-K INSULATION

APPROXIMATE INSULATION LENGTH:

STARTING FROM INSTRUMENT ROOM WALL TO LOOP 3 AREA:

AT 11" OD INSULATION (8" PIPING): LENGTH = $(6 \times 36.09) + 29.56 + 2[\pi(12)(90°/180°)]$

$+ 5.62 + 6.12 + 16.5 + (4 \times 15.68) = 375(1/12) = 31.25$FT

AT 9.75" OD MIN-K INSULATION (8" PIPING): LENGTH = $(2 \times 16.44)(1/12) = 2.74$FT

CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-007M SHEET 1 OF 4

DATE:	11/05/2003	AREA:	LOOP 2	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, FRANK C. YAO

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-073C, SH. 1, REV. E *	
Tools:	590955-073C, SH. 2, REV. D *	
Drawings	590955-073C, SH. 3, REV. D *	
Flashlights	47W406-321, REV. E	
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	3" NORMAL CHARGING LINE
	CONTINUED ON WALKDOWN PACKAGE NO's WB1-DWD-006N & -017D.
	* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 11/05/03

Checked By: FRANK C. YAO Date: 11/05/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-007M SHEET 2 OF 4

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
0600200-08-11	LOOP 2	716'	7	NORMAL CHARGING	3.50	26.92	RMI	2.75	10.09	S.S.	STD	N/A	9" OD INSULATION
0600200-08-11	LOOP 2	716'	7	NORMAL CHARGING	3.50	1.82	RMI	0.5	0.08	S.S.	STD	N/A	4.5" OD INSULATION
0600200-08-11	LOOP 2	716'	7	NORMAL CHARGING	3.50	0.84	RMI	1	0.08	S.S.	STD	N/A	5.5" OD MIN-K INSULATION
0600200-08-11	LOOP 2	716'	7	NORMAL CHARGING	3.50	3.17	RMI	0.75	0.22	S.S.	STD	N/A	5" OD INSULATION

APPROXIMATE INSULATION LENGTH:

START FROM LOOP 1 AREA:

AT 9" OD INSULATION (3" PIPING): LENGTH = $5[\pi(4.5)(90°/180°)] + 2.5 + (2 \times 24.66)$

$+ 3.5 + 32.28 + 4 + (2 \times 21.6) + 36.03 + 16.84 + 15.78 + 24.25$

$+ (2 \times 24.62) + 5.25 + 4.75 = 323(1/12) = 26.92$FT

AT 4.5" OD INSULATION (3" PIPING): LENGTH = $(2 \times 11.5) = 23(1/12) = 1.92$FT

AT 5.5" OD MIN-K INSULATION (3" PIPING): LENGTH = $\pi(4.5)(90°/180°) + 1.36 + 1 = 10(1/12)$

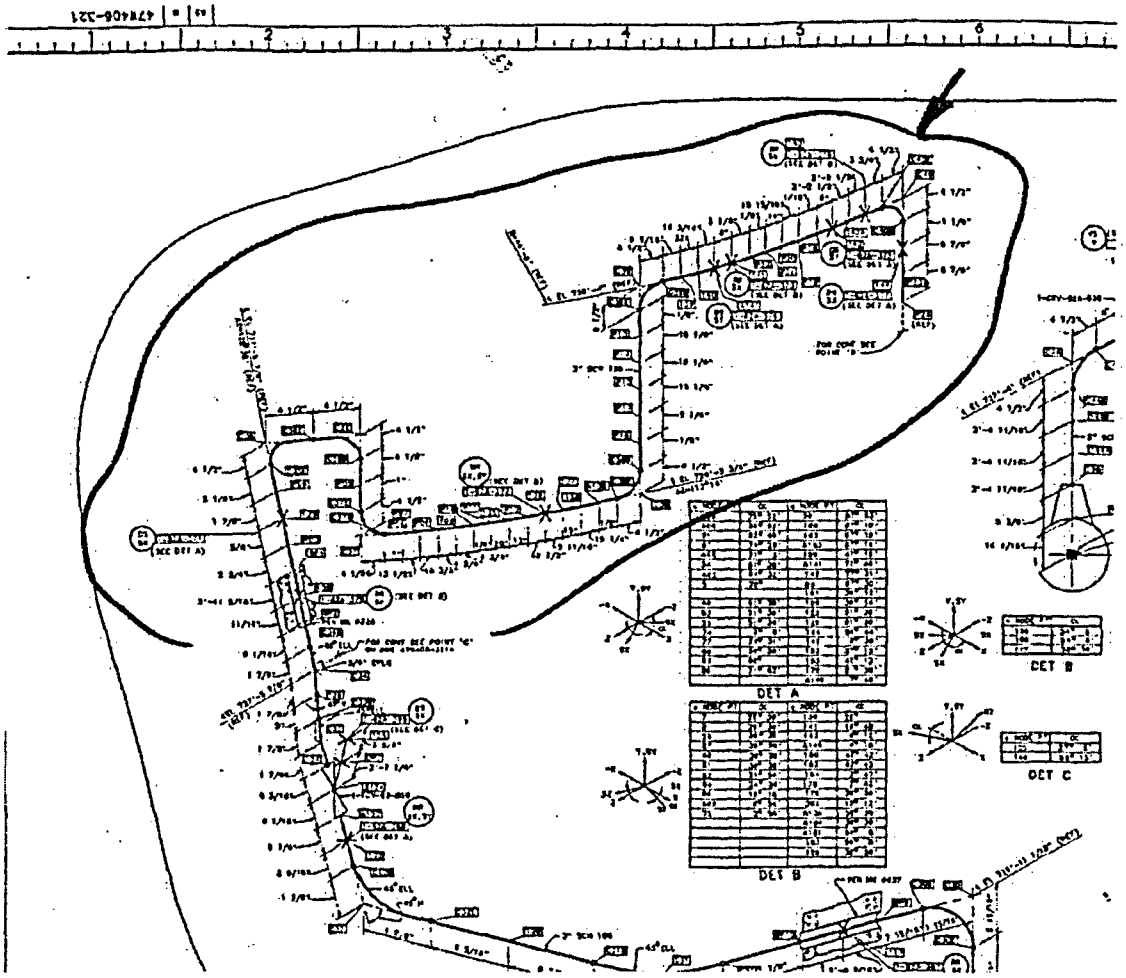
$= 0.84$FT

AT 5" OD INSULATION (3" PIPING IN CRANE WALL SLEEVE): LENGTH = $(5 \times 7.6) = 38(1/12) = 3.17$FT

CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-007M

EXCERPT FROM DRAWING 47W406-321



CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-007N SHEET 1 OF 5

DATE:	11/05/2003	AREA:	LOOP 2	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, FRANK C. YAO

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-077C, SH. 1, REV. B *	
Tools:	590955-077C, SH. 2, REV. C *	
Drawings	590955-077C, SH. 3, REV. B *	
Flashlights	1-47W406-322A, REV. 0	
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	1" EXCESS LETDOWN LINE
	CONTINUED ON WALKDOWN PACKAGE NO's WB1-DWD-008K & -017E.
	* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 11/05/03

Checked By: FRANK C. YAO Date: 11/05/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-007N SHEET _2_ OF _5_

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
0600200-08-12	LOOP 2	716'	7	EXCESS LETDOWN	1.32	39.67	RMI	2.34	7.41	S.S.	STD	N/A	6" OD INSULATION
0600200-08-12	LOOP 2	716'	7	EXCESS LETDOWN	1.32	3.87	MIN-K	2.34	0.72	S.S.	STD	N/A	6" OD INSULATION
0600200-08-12	LOOP 2	716'	7	EXCESS LETDOWN	1.32	6.75	RMI	1.84	0.86	S.S.	STD	N/A	5" OD INSULATION
0600200-08-12	LOOP 2	716'	7	EXCESS LETDOWN	1.32	0.59	RMI	0.84	0.02	S.S.	STD	N/A	3" OD INSULATION

APPROXIMATE INSULATION LENGTH:

STARTING FROM LOOP 3 AREA:

AT 6" OD INSULATION: LENGTH = 2 + 2.5 + 3.5 + 27.75 + 18 + 8 + (2 X 20.75) + 24 + 27.97 + 26.97 + 26.81 + 2 + 4 + 2 + 13.5 + 4 + (58.5 - 8.5) + 4 + 48.5 + 4 + (25.88 - 3.72) + 4 + (60 - 6.75) + 4 + (38.62 - 2.75 - 15.88* - 16.75*) + 4 + (34.25 - 13.75*) + 4 + 5.75 + 12.63 = 476(1/12) = 39.67FT

AT 6" OD MIN-K INSULATION: LENGTH = 15.88 + 16.75 + 13.75 = 46.38(1/12) = 3.87FT

AT 5" OD INSULATION: LENGTH = 4 + 7 + 7 + 5.5 + 8.5 + 3.72 + 6.75 + (5 X 7.6) = 81(1/12) = 6.75FT

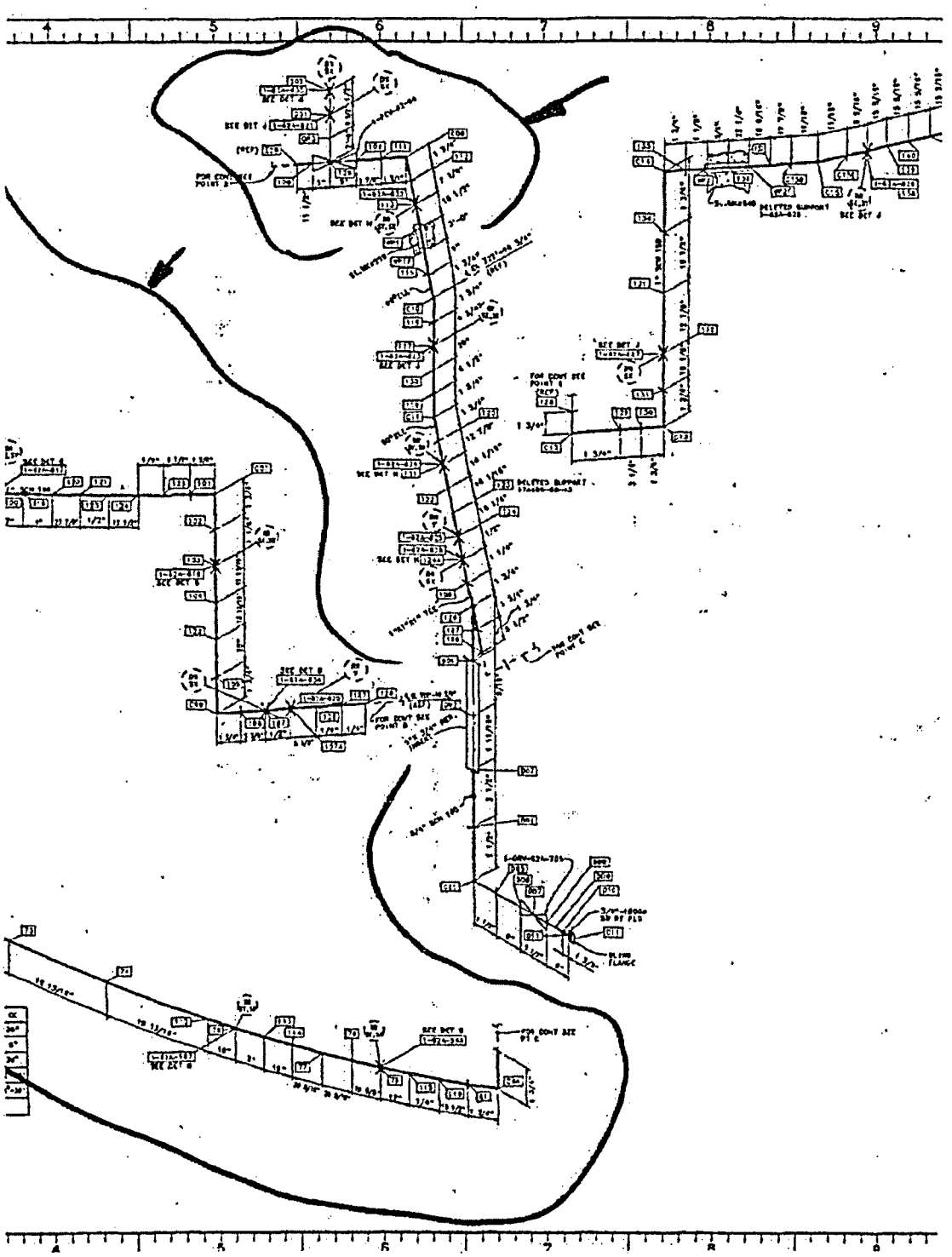
AT 3" OD INSULATION: LENGTH = 7(1/12) = 0.59FTFT

* MIN-K INSULATION

CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

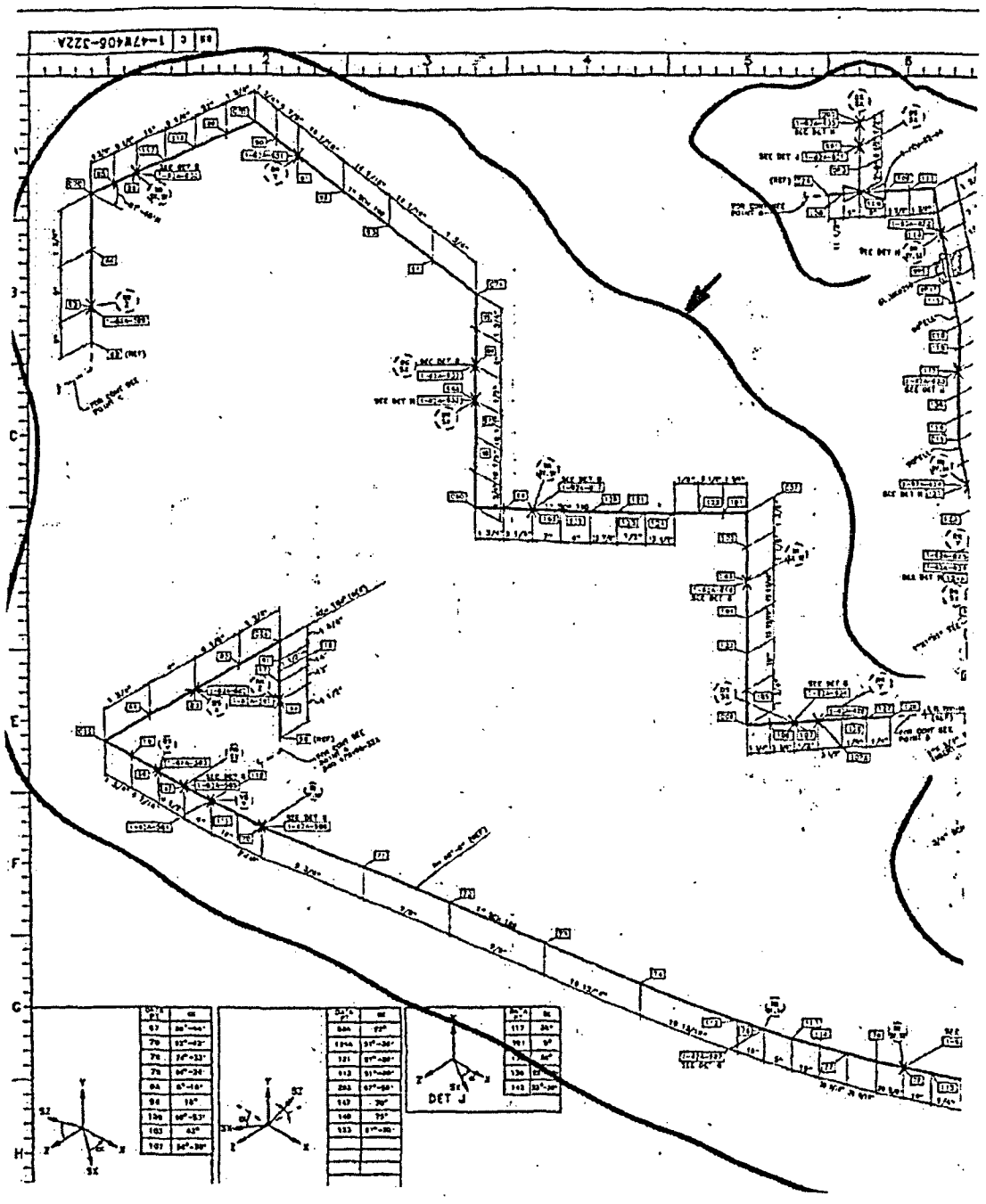
WALKDOWN PACKAGE NO. WB1-DWD-007N

EXCERPT FROM DRAWING 1-47W406-322A



CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-007N
EXCERPT FROM DRAWING 1-47W406-322A



CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-007P SHEET 1 OF 5

DATE:	11/19/2003	AREA:	LOOP 2	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, FRANK C. YAO

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-088C, SH. 1, REV. B *	
Tools:	590955-088C, SH. 4, REV. A *	
Drawings	590955-088C, SH. 5, REV. B *	
Flashlights	47W400-209, REV. E	
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

COMMENTS

1"/2"/3"/4" STEAM GENERATOR BLOWDOWN LINE (LOOP 2)

CONTINUED ON WALKDOWN PACKAGE NO. WB1-DWD-015D.

* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 11/19/03

Checked By: FRNAK C YAO Date: 11/19/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-007P SHEET 2 OF 5

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
0600200-07-02	LOOP 2	716'	7	STEAM GENERATOR BLOWDOWN	3.50	35.25	RMI	2.25	9.95	S.S.	STD	N/A	8" OD INSULATION
0600200-07-02	LOOP 2	716'	7	STEAM GENERATOR BLOWDOWN	4.50	28.59	RMI	2.25	9.47	S.S.	STD	N/A	9" OD INSULATION
0600200-07-02	LOOP 2	716'	7	STEAM GENERATOR BLOWDOWN	4.50	3.50	RMI	1.25	0.55	S.S.	STD	N/A	7" OD INSULATION
0600200-07-02	LOOP 2	716'	7	STEAM GENERATOR BLOWDOWN	1.31	1.67	RMI	2.845	0.43	S.S.	STD	N/A	7" OD INSULATION
0600200-07-02	LOOP 2	716'	7	STEAM GENERATOR BLOWDOWN	1.31	0.73	RMI	2.345	0.14	S.S.	STD	N/A	6" OD INSULATION
0600200-07-02	LOOP 2	716'	7	STEAM GENERATOR BLOWDOWN	1.31	0.59	RMI	3.345	0.20	S.S.	STD	N/A	8" OD INSULATION
0600200-07-02	LOOP 2	716'	7	STEAM GENERATOR BLOWDOWN	2.88	0.28	RMI	2.06	0.06	S.S.	STD	N/A	7" OD INSULATION

APPROXIMATE INSULATION LENGTH:

START FROM STEAM GENERATOR NOZZLE:

AT 8" OD INSULATION (3" PIPING): LENGTH = 14.38 + 8[π(4.5)(90°/180°)] + 45.75 + 55.5 + 50 + 1 + 22.25 + 20.25 + 5.12 + 44 + (43.12 - 2.5) + 40.5 + 5.75 + [π(4.5)(45°/180°)] + 15.62 + 2.25 = 423(1/12) = 35.25FT

AT 9" OD INSULATION (4" PIPING): LENGTH = 74.38 + 3[π(6)(90°/180°)] + 10.75 + 3[π(6)(45°/180°)] + 59.25 + 61 + 23.25 + 41.25 + 1.12 + 8.31 + 6.31 + 14.5 = 343(1/12) = 28.59FT

AT 7" OD INSULATION (4" PIPING): LENGTH = 2(21)(1/12) = 3.5FT

AT 7" OD INSULATION (1" PIPING/VLV): LENGTH = 6.62 + 7 + 6.38 = 20(1/12) = 1.67FT

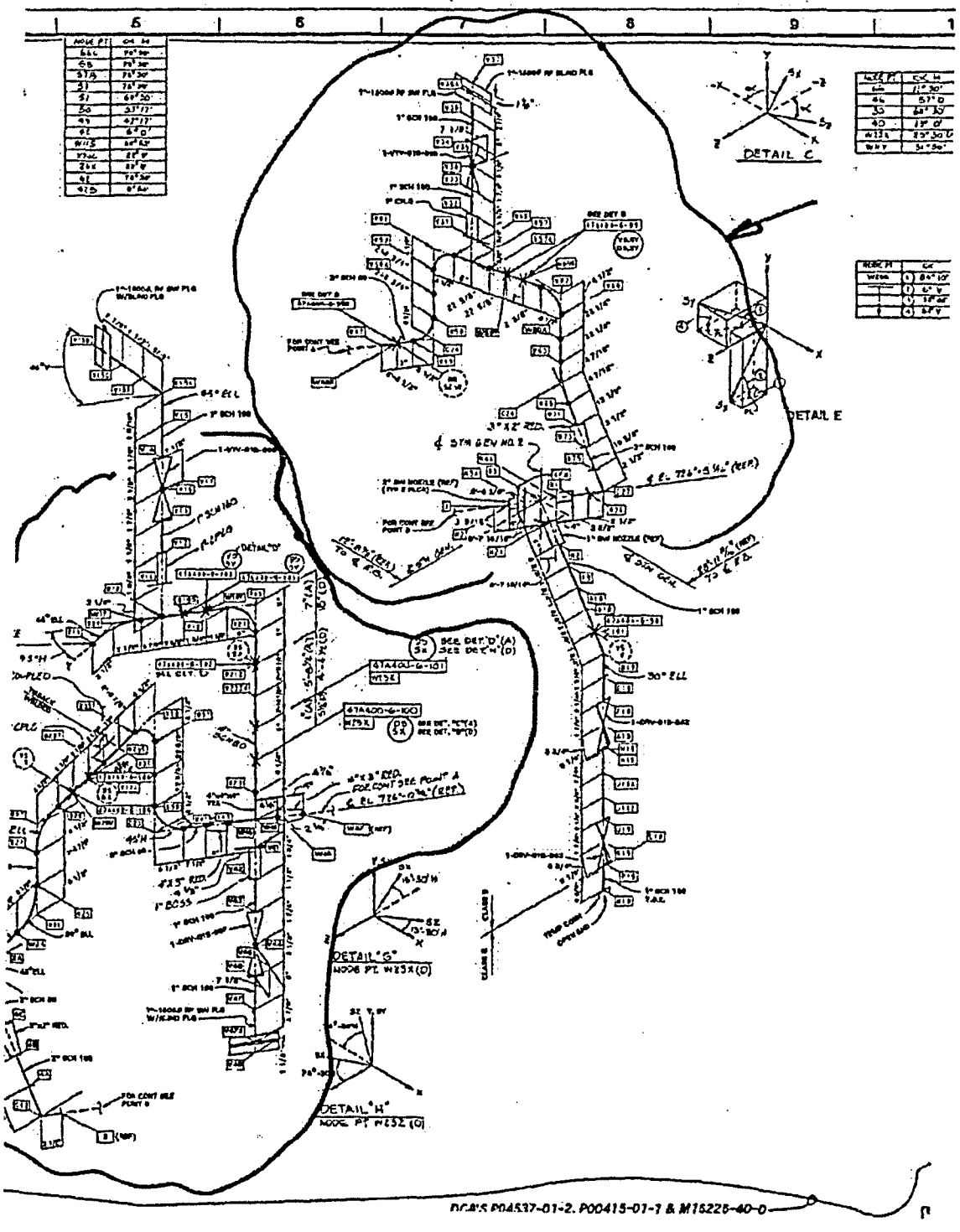
AT 6" OD INSULATION (1.31" OD PIPING): LENGTH = 8.75(1/12) = 0.73FT

AT 8" OD INSULATION (1.31" OD PIPING): LENGTH = 7(1/12) = 0.59FT

AT 7" OD INSULATION (2.88" OD TIEBACK SUPPORT): LENGTH = 3.25(1/12) = 0.28FT

CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-007P
EXCERPT FROM DRAWING 47W400-209

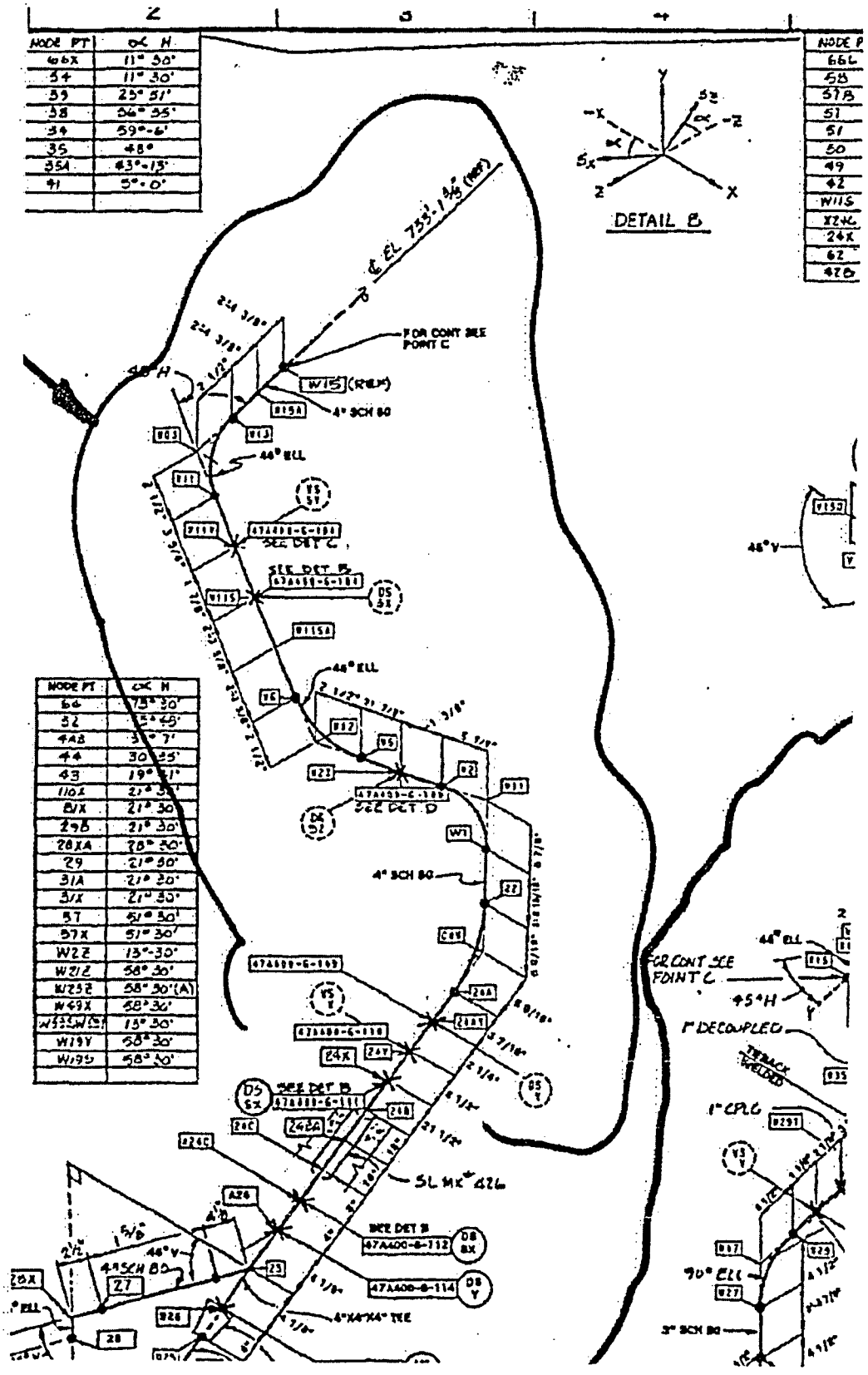


DCA'S P04537-01-2, P00415-01-1 & M15225-40-0

CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WBI-DWD-007P

EXCERPT FROM DRAWING 47W400-209



CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-007Q SHEET 1 OF 4

DATE:	11/04/2003	AREA:	LOOP 2 (AZ 90°-180°)	RWP NO.:	8010
		ELEV:	720-737		

INSPECTORS:	FRANK C YAO, MIKE CALDWELL

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	47W2500-10	45N862-10
Tools:		45N862-11
Drawings		DCN 11727-D
Flashlights		1-FOR-304-1
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	CONDUIT 1PM8026E

Prepared By: FRANK C YAO Date: 11/4/03

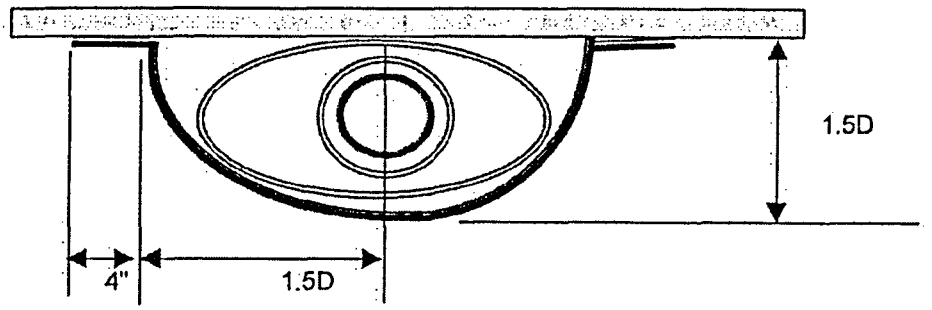
Checked By: MIKE CALDWELL Date: 11/4/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-007Q SHEET 2 OF 4

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
N/A	LOOP 2	720-737	7	CONDUIT INSULATION 3M RADIANT	1.315	45.00	3M20C	SEE CALC	1.510	NA	NA	NA	SEE CALCULATION
N/A	LOOP 2	720-737	7	SUPPORT	NA	NA	NA	SEE CALC	0.770	NA	NA	NA	SEE CALCULATION

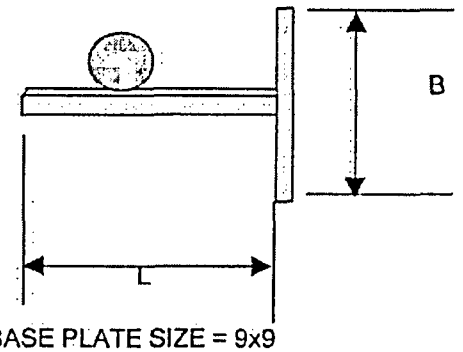
AREA 11 3M-M20C RADIANT SHIELD CALCULATION
1" DIA. CONDUIT (OUTSIDE DIA = 1.315")
3 LAYERS 3M-M20C FOR CONDUIT PER NOTE 1A DRAWING 1-47W243-6
DETAIL C-8 AND NOTE 6 DRAWING 1-47W243-8 SPECIFIES 3 LAYERS WRAP.



D=DIAMETER OF CONDUIT IN IN"
FIRST LAYER TIGHTLY AROUND CONDUIT
SECOND LAYER IS 1.5D DIAMTER CIRCLEX1.2
THIRD LAYER IS 1.5D RADIUS HALF CIRCLE + 8"

1" LENGTH = 90/2 =45'			
1" DIA. CONDUIT PER LIN FT	D(IN)	PERIMTER (IN)	A(SQ IN) PER LIN FT
1ST LAYER	1.315	4.13	49.57
2ND LAYER	1.9725	7.44	89.23
3RD LAYER	3.945	14.20	170.36
TOTAL SQ IN PER LIN FT			309.17
CU FT OF 3M-M20C (3/16" THICK)			0.0335
CONDUIT LENGTH IN THIS AREA =			45
TOTAL CU FT OF INSULATION =			1.510

AREA 11 3M-M20C RADIANT SHIELD CALCULATION



ASSUME A=12" WITH 2x2 SQ TUBE, BASE PLATE SIZE = 9x9
TWO LAYERS OF 3M FIRE BARRIER M20C FOR SUPPORT
COVER BASE PLATE 6" ALL AROUND.

COVERED AREA (ONE LAYER)

	B+6+6	B+6+6	A (IN)	A (SQ FT)
BASE PLATE =	21	21	441	3.06
	L	4xWIDTH		
CANTILEVER MEM =	12	8	96	0.67
SUB TOTAL				3.73
PLUS ENDS ETC 10%				0.373
ONE LAYER TOTAL=				4.10
TWO LAYERS = 2XTOTAL =				8.20
EACH SUPPORT M20C FOR 3/16" THICK IN CU FT =				0.128

ASSUME SUPPORT SPACING IS 10 FT CONDUIT
NUMBER OF SUPPORTS FOR 1" DIA. CONDUIT=45/10 + 1= 6
NUMBER OF SUPPORTS TOTAL = 6
TOTAL CU FT OF 3M-M20C FOR SUPPORTS = 0.77

CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

R 12/3/03

WALKDOWN PACKAGE NO. WB1-DWD-007~~E~~ SHEET 1 OF 6

DATE:	10/27/2003	AREA:	LOOP 2	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, MIKE SOLLIE

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-072C, SH. 1, REV. C *	
Tools:	590955-072C, SH. 2, REV. C *	
Drawings	47W406-328, REV. E	
Flashlights	1-47W406-328A, REV. 0	
Ladders	1-47W406-328B, REV. 0	
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

COMMENTS

3" LETDOWN LINE AT RC LOOP 3 INTERIM LEG

CONTINUED TO WALKDOWN PACKAGE NO's WB1-DWD-008C & -024A.

* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 10/27/03

Checked By: MIKE SOLLIE Date: 11/9/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-007R SHEET 2 OF 6

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
0600200-08-10	LOOP 2	716'	7	LETDOWN LINE	3.50	2.17	RMI	4.25	1.56	S.S.	STD	N/A	12" OD INSULATION
0600200-08-10	LOOP 2	716'	7	LETDOWN LINE	3.50	47.50	RMI	3.25	22.73	S.S.	STD	N/A	10" OD INSULATION
0600200-08-10	LOOP 2	716'	7	LETDOWN LINE	3.50	4.29	RMI	2.25	1.21	S.S.	STD	N/A	8" OD INSULATION
0600200-08-10	LOOP 2	716'	7	LETDOWN LINE	3.50	3.09	RMI	1.5	0.51	S.S.	STD	N/A	6.5" OD INSULATION
0600200-08-10	LOOP 2	716'	7	LETDOWN LINE	3.50	0.59	MIN-K	0.75	0.04	S.S.	STD	N/A	AT MIN-K INSULATION

MAC 12/3/03

APPROXIMATE INSULATION LENGTH:

AT 12" OD INSULATION:

LENGTH = 12 + 13.5 = 26(1/12) = 2.17FT

AT 10" OD INSULATION:

LENGTH = (67.25 - 17.03) + 172.25 + 13.84 + 10.5 + 8.5 + (72.12 - 37) + 7.5

+ 9 + 35 + π(4.5)(90°/180°) + 5.5 + 12.25 + 4.25 + π(4.5)(45°/180°)

+ 24.75 + π(4.5)(45°/180°) + 31 + π(4.5)(45°/180°) + 5 + 3

+ π(4.5)(90°/180°) + 8.5 + π(4.5)(90°/180°) + 8.75 + π(4.5)(90°/180°)

+ 58.75 + π(4.5)(90°/180°) + 13.5 + π(4.5)(45°/180°) + 3 = 570(1/12) = 47.5FT

AT 8" OD INSULATION:

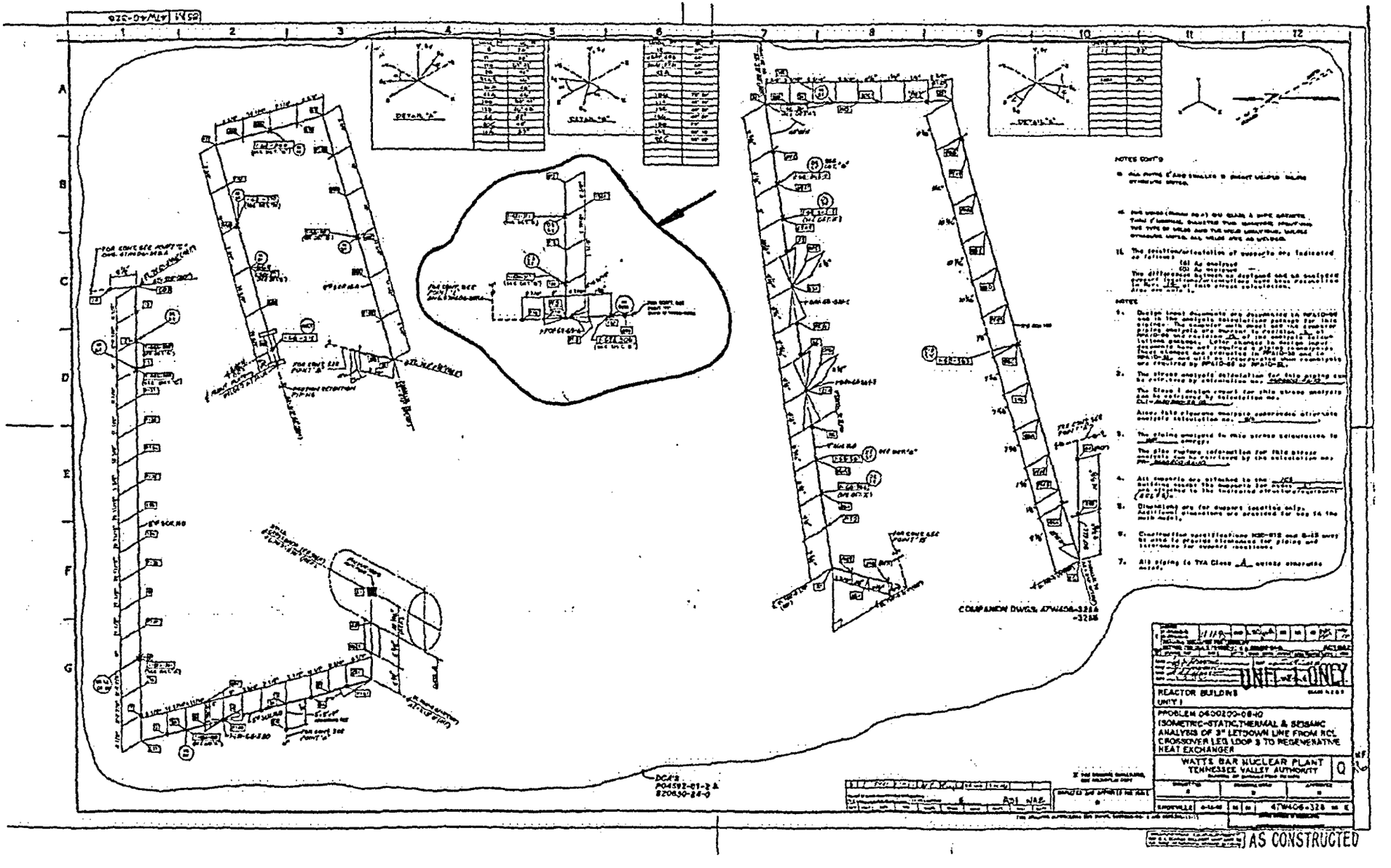
LENGTH = 12.38 + (3 X 13) = 51.38(1/12) = 4.29FT

AT 6.5 OD INSULATION:

LENGTH = 37(1/12) = 3.09FT

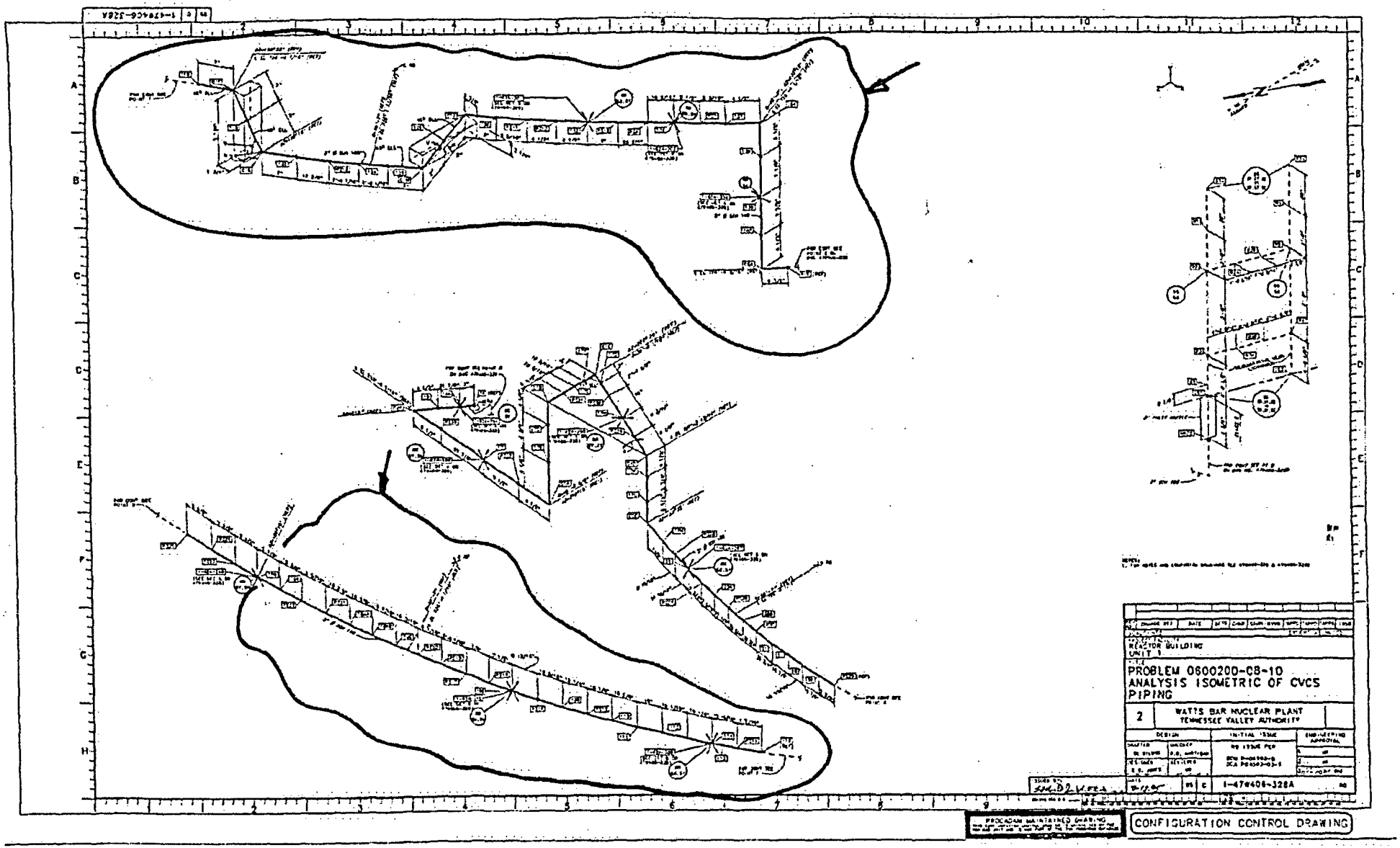
AT MIN-K INSULATION (.750" THICK):

LENGTH = 7(1/12) = 0.59FT

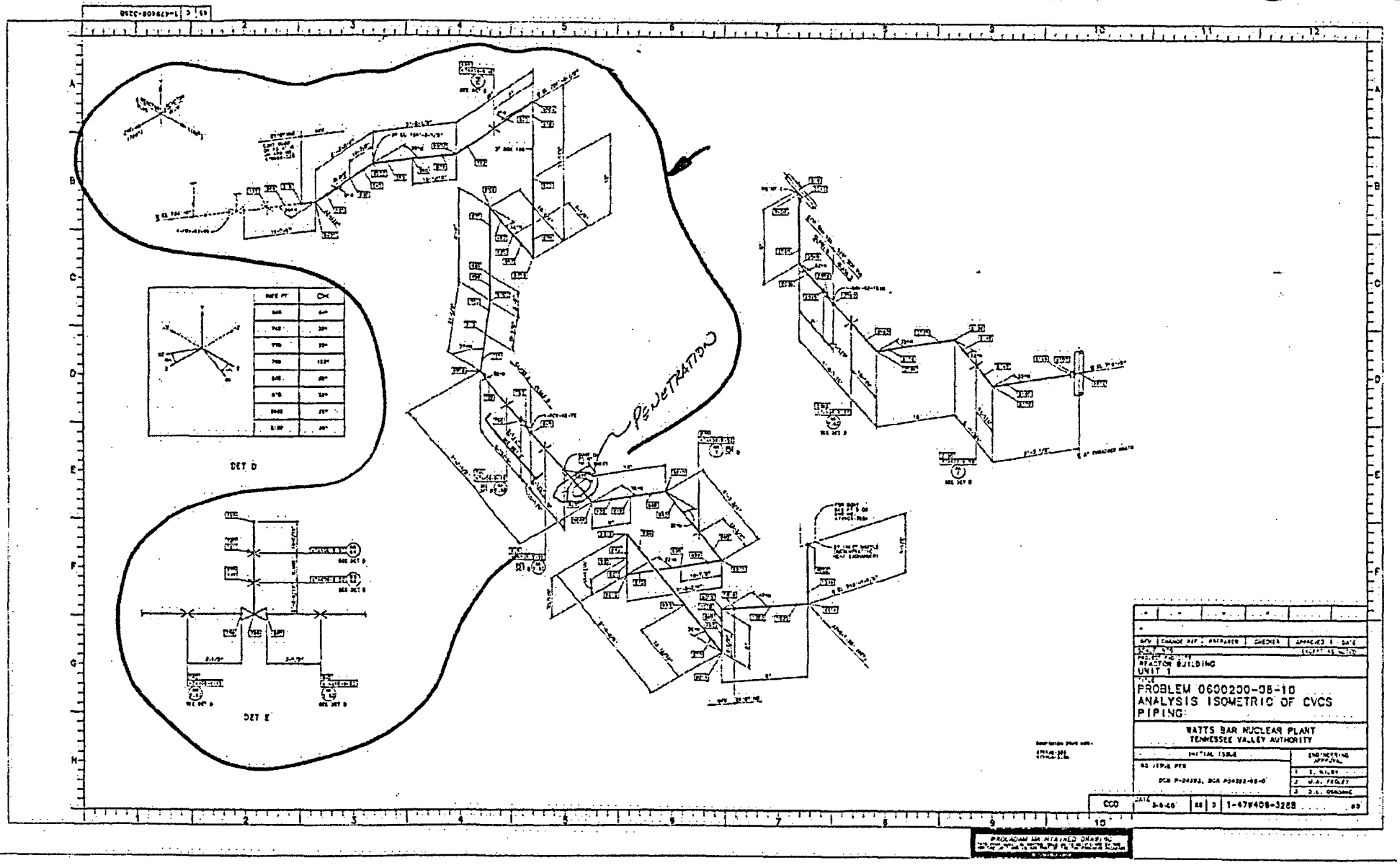


WBI-DWD-007 ER
12/3/03

PG. 4 OF 6



WBI-DWD-007ER
PG. 5 OF 6
MK 12/3/07



WBI-DWD-007ER
PG. 6 OF 6 MDK
12/1/07

CONTAINMENT DEBRIS WALKDOWN PACKAGE WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-007S SHEET 1 OF 6

DATE:	01/06/2004	AREA:	LOOP 2	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, FRANK C. YAO

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-074C, SH. 1, REV. C *	
Tools:	590955-074C, SH. 2, REV. D *	
Drawings	590955-074C, SH. 3, REV. C *	
Flashlights	47W406-321A, REV. 0	
Ladders	47W406-321B, REV. 0	
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	3" ALTERNATE CHARGING LINE
	CONTINUED ON WALKDOWN PACKAGE NO's WB1-DWD-006R & -017F.
	* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 01/06/04

Checked By: FRANK C YAO Date: 01/06/04

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-007S SHEET 2 OF 6

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
0600200-08-11	LOOP 2	716'	7	3" ALTERNATE CHARGING	3.50	25.09	RMI	2.75	9.41	S.S.	STD	N/A	9" OD INSULATION
0600200-08-11	LOOP 2	716'	7	3" ALTERNATE CHARGING	3.50	1.25	RMI	0.5	0.05	S.S.	STD	N/A	4.5" OD INSULATION
0600200-08-11	LOOP 2	716'	7	3" ALTERNATE CHARGING	3.50	3.04	RMI	0.75	0.21	S.S.	STD	N/A	5" OD INSULATION

APPROXIMATE INSULATION LENGTH:

FROM HGR. I-62A-349 TO CRANE WALL:

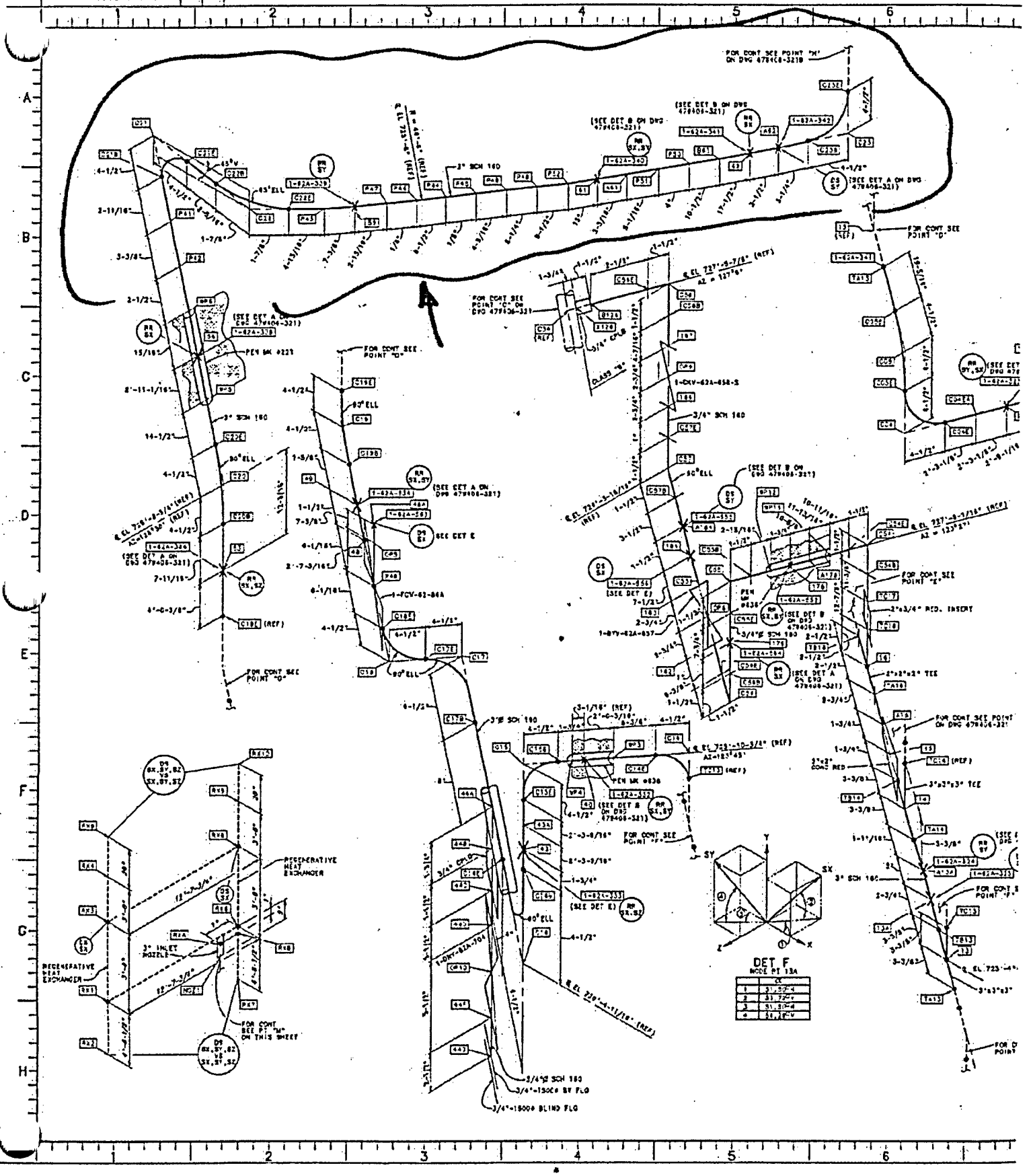
AT 9" OD INSULATION (3" PIPING): LENGTH = 5.75 + 4[π(4.5)(90°/180°)] + 1 + 14 + 1 + (2 X 23.94) + 23.24 + 18.15 + 18.69 + 5.5 + 21 + 4 + 19.12 + 11.82 + 21.84 + 18.03 + 13 + 8 + 8 + [π(4.5)(45°/180°)] + 2.25 + 5.75 = 301(1/12) = 25.09FT

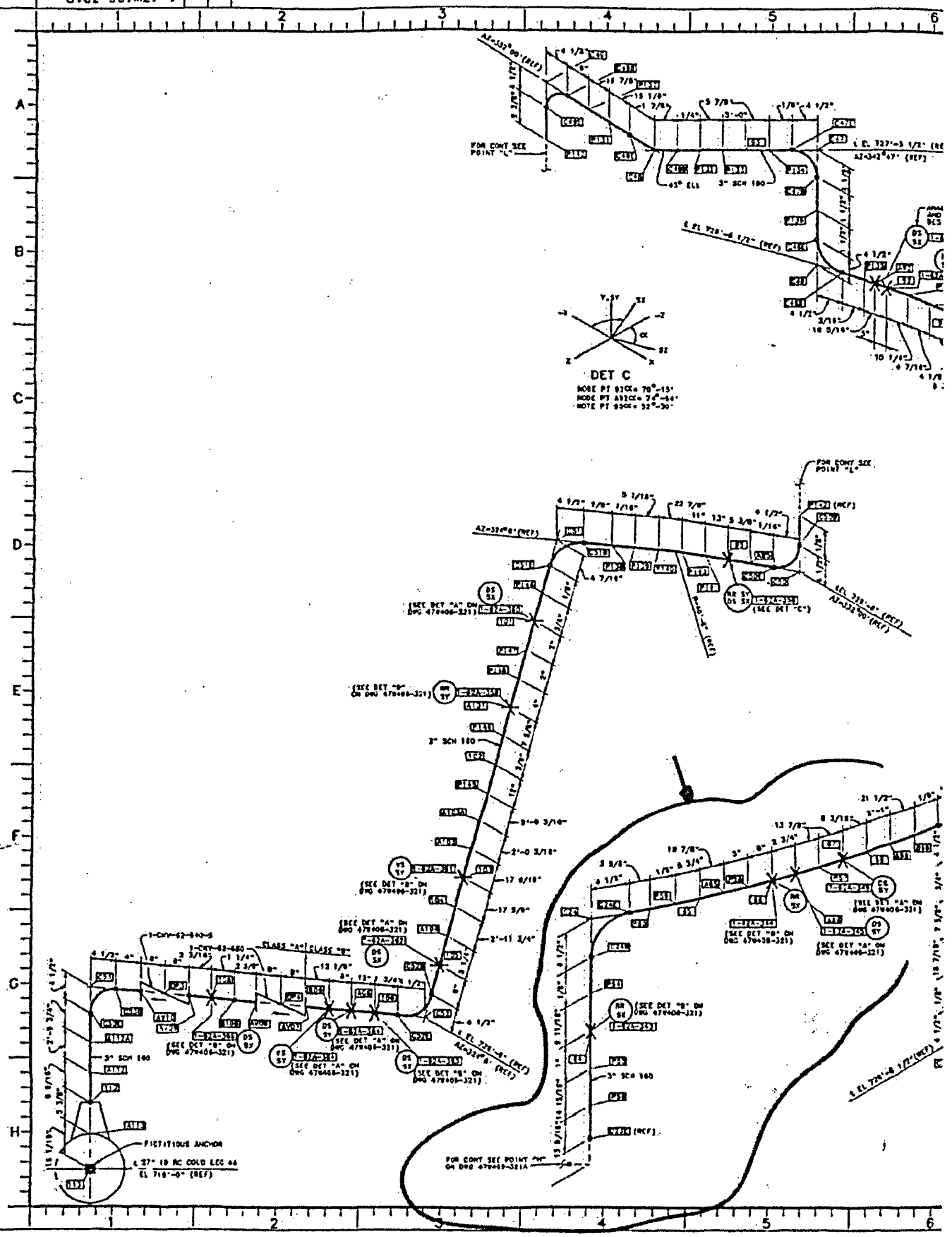
AT 4.5" OD INSULATION (3" PIPING): LENGTH = 6.38 + [π(4.5)(90°/180°)] + 1.5 = 14.95(1/12) = 1.25FT

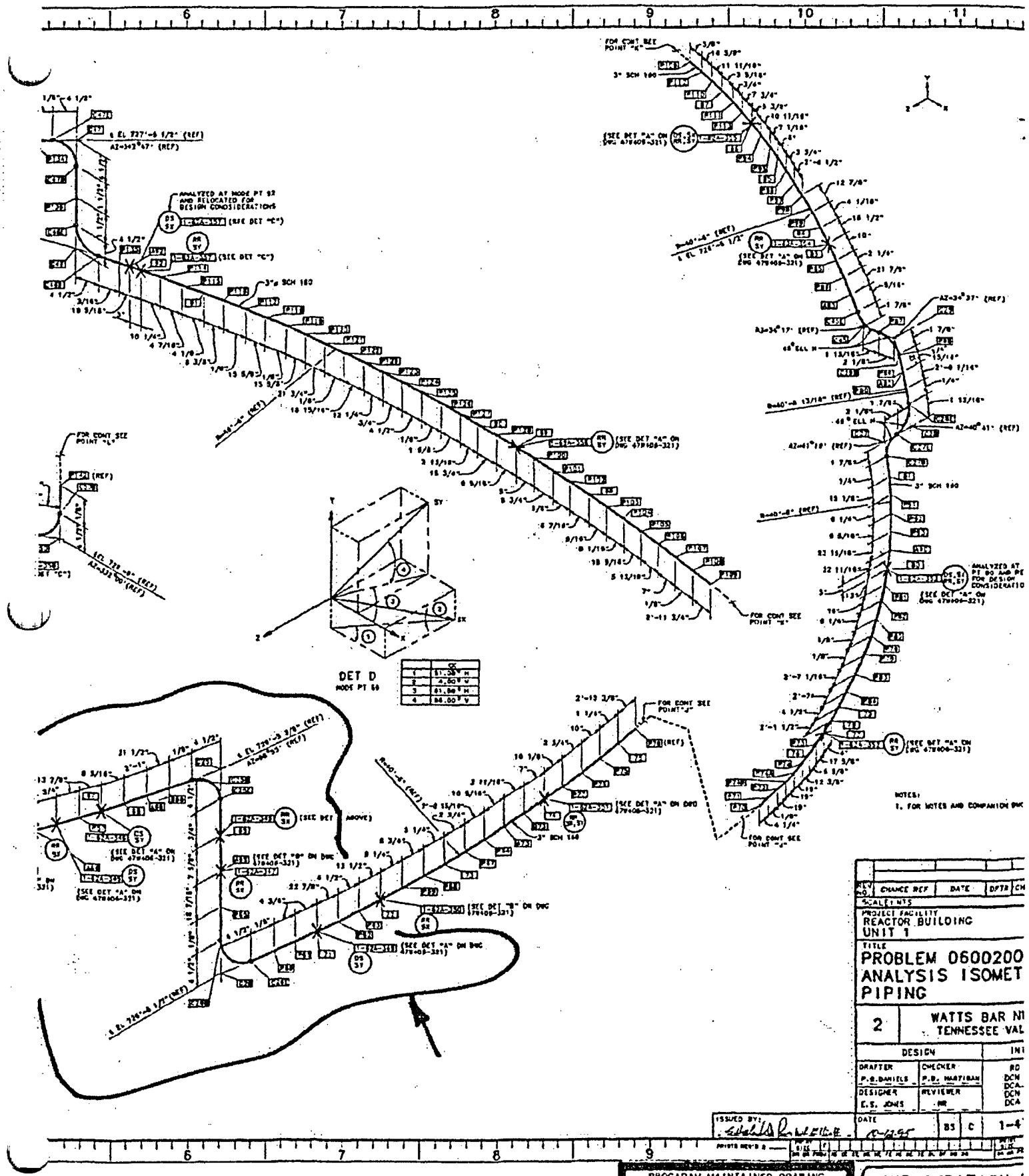
AT 5" OD INSULATION (3" PIPING): LENGTH = (3 X 12.16)(1/12) = 3.04FT

DWG. No. 47W406-321A, REV. 0 WBI-DWD-0075

PG 4 OF 6




DET C
FOR CONT SEE POINT "L"
3" SCH 160
FICTITIOUS ANCHOR
FOR CONT SEE POINT "M" ON DWG 479406-321A


DET D
NODE PT 68
NOTES:
1. FOR NOTES AND COMPANION DWG
REACTOR BUILDING
UNIT 1
PROBLEM 0600200
ANALYSIS ISOMET
PIPING
WATTS BAR N
TENNESSEE VAL
DESIGN
DRAFTER
P.B. DANIELS
CHECKER
P.B. MARTIBAN
DESIGNER
E.S. JONES
REVIEWER
PROCADAM MAINTAINED DRAWING
CONFIGURATION

CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-008A SHEET 1 OF 10

DATE:	10/22/2003	AREA:	LOOP 3	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, MIKE SOLLIE

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-001C, SH. 1, REV. C *	
Tools:	590955-001C, SH. 2, REV. B *	
Drawings	590955-002C, SH. 3 REV. C *	
Flashlights	590955-003C, SH. 3 REV. B *	
Ladders	590955-004C, SH. 3 REV. B *	
Cameras	590955-005C, SH. 3 REV. A *	
Binoculars	590955-006C, SH. 3 REV. C *	
Tape measure	590955-104C, SH. 1, REV. A *	
Sample bags	590955-104C, SH. 2, REV. A *	
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

COMMENTS

STEAM GENERATOR

* TVA CONTRACT NO. 93NNS-75645C

NOTE: THIS WALKDOWN PACAKAGE COVERS INSULATIONS AREA OF STEAM GENERATOR UP TO ELEVATION 745'-0". SEE WALKDOWN PACKAGE NO. WB1-DWD-012B FOR UPPER AREA.

Prepared By: C. G. WALLS Date: 10/22/03

Checked By: MIKE SOLLIE Date: 10/31/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-008A SHEET 2 OF 10

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
N/A	LOOP 3	716'	8	STEAM GENERATOR	SEE CALC	SEE CALC	RMI	SEE CALC	215.60	S.S.	STD	N/A	N/A
N/A	LOOP 3	716'	8	STEAM GENERATOR	SEE CALC	SEE CALC	RMI	SEE CALC	0.62	S.S.	STD	N/A	AT ROOT VALVES

APPROXIMATE INSULATION VOLUME:

AT BOTTOM PORTION:

$V = \pi(71.5^2 - 68.83^2) \times (35 + 17.4)$

$+ (1/3)\pi 41.54[71.5^2 + 22^2 + (71.5)(22)] - (1/3)\pi 41.54[68.83^2 + 19.33^2 + (68.83)(19.33)]$

$+ [\pi(22/2)^2 \times 2.67] - (2)[\pi(53/2)^2 \times 2.67] - (2)[\pi(36.62/2)^2 \times 2.67]$

$- (4)[20 \times (18.75 + 15.5/\cos 40°) \times 2.67] = 68612(1/12^3) = 39.7 FT^3$

AT COOLANT INLET/OUTLET NOZZLE COVERS:

$V = (2)[\pi(28^2 - 21^2) \times 2.67] + (2)[\pi(28^2 - 25.33^2) \times 3.77] = 8828(1/12^3) = 5.11 FT^3$

AT MANHOLE COVERS:

$V = (2)[\pi 19.33^2 \times 2.67] + (2)[\pi(22^2 - 19.33^2) \times 11] = 13911(1/12^3) = 8.05 FT^3$

AT UPPER PORTION:

$V = [\pi(73.045^2 - 70.375^2)] \times 228.69] - [\pi(51.5/2)^2 \times 2.67]$

$- (2)[22 \times 61.5 \times 2.67] = 262331(1/12^3) = 151.82\ FT^3$

AT HANDHOLE/SLUDGE LANCE/BLOWDOWN LINE COVERS:

$= (2)[66.23 \times 27.33 \times 2.67] + (4)[66.23 \times 4.33 \times 2.67]$

$+ (4)[21.99 \times 4.33 \times 2.67] = 13746(1/12^3) = 7.96 FT^3$

AT FEEDWATER NOZZLE COVER:

$V = \pi(17.75^2 - 15.08^2) \times 18.55 = 5109(1/12^3) = 2.96 FT^3$

TOTAL VOLUME AT SG = 39.7 + 5.11 + 8.05 + 151.82 + 7.96 + 2.96 = $215.6 FT^3$

AT 3/4" ROOT VALVE:

$V = \pi(7^2 - 1.06^2)/4 \times 6.45 = 243(1/12^3) = 0.15 FT^3$

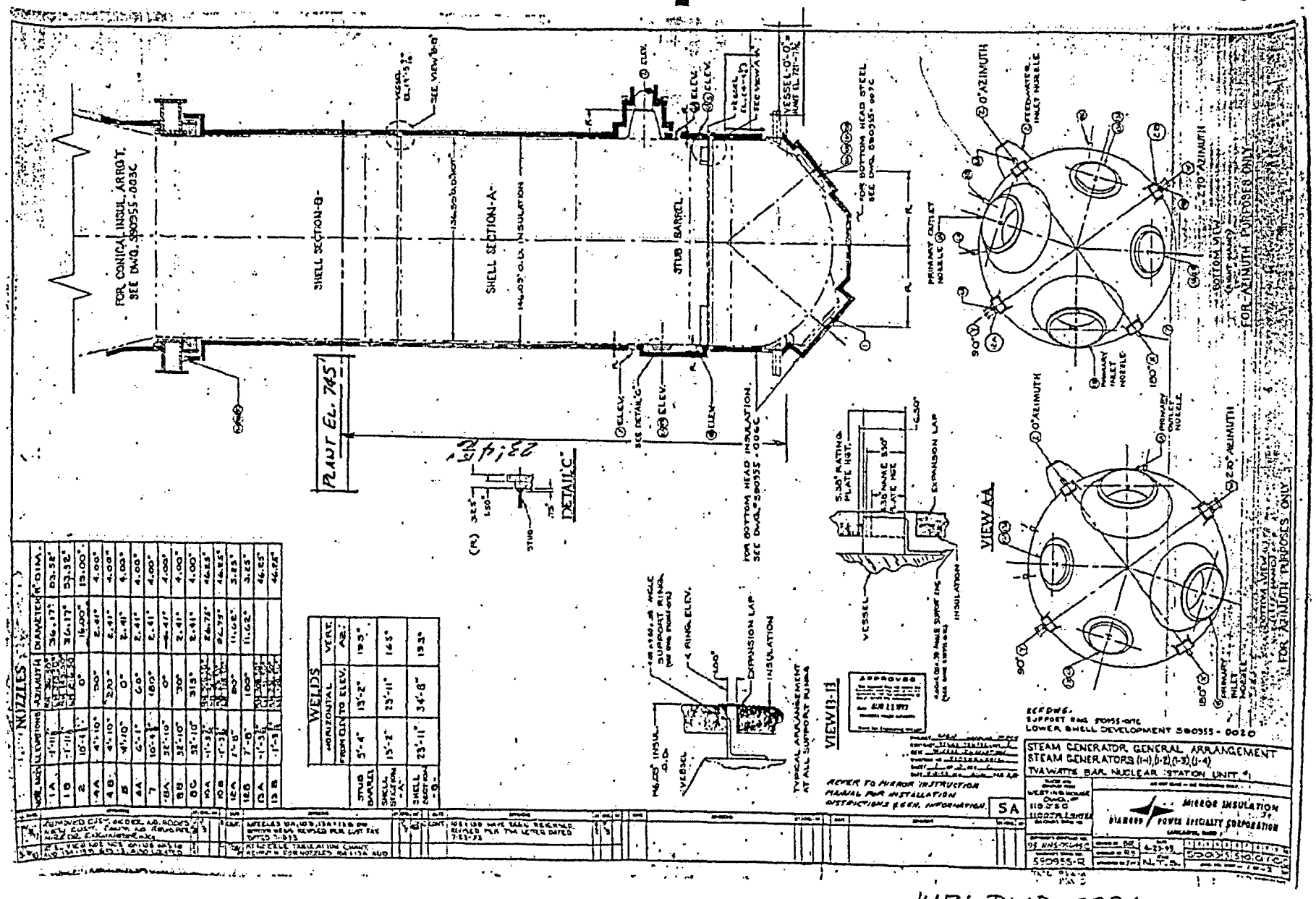
AT 1" ROOT VALVE (SEE DWG 590955-104C, SH. 1):

$V = [\pi(5^2 - 1.32^2)/4 \times 10] + [\pi(7^2 - 1.32^2)/4 \times 7] = 443(1/12^3) = 0.26 FT^3$

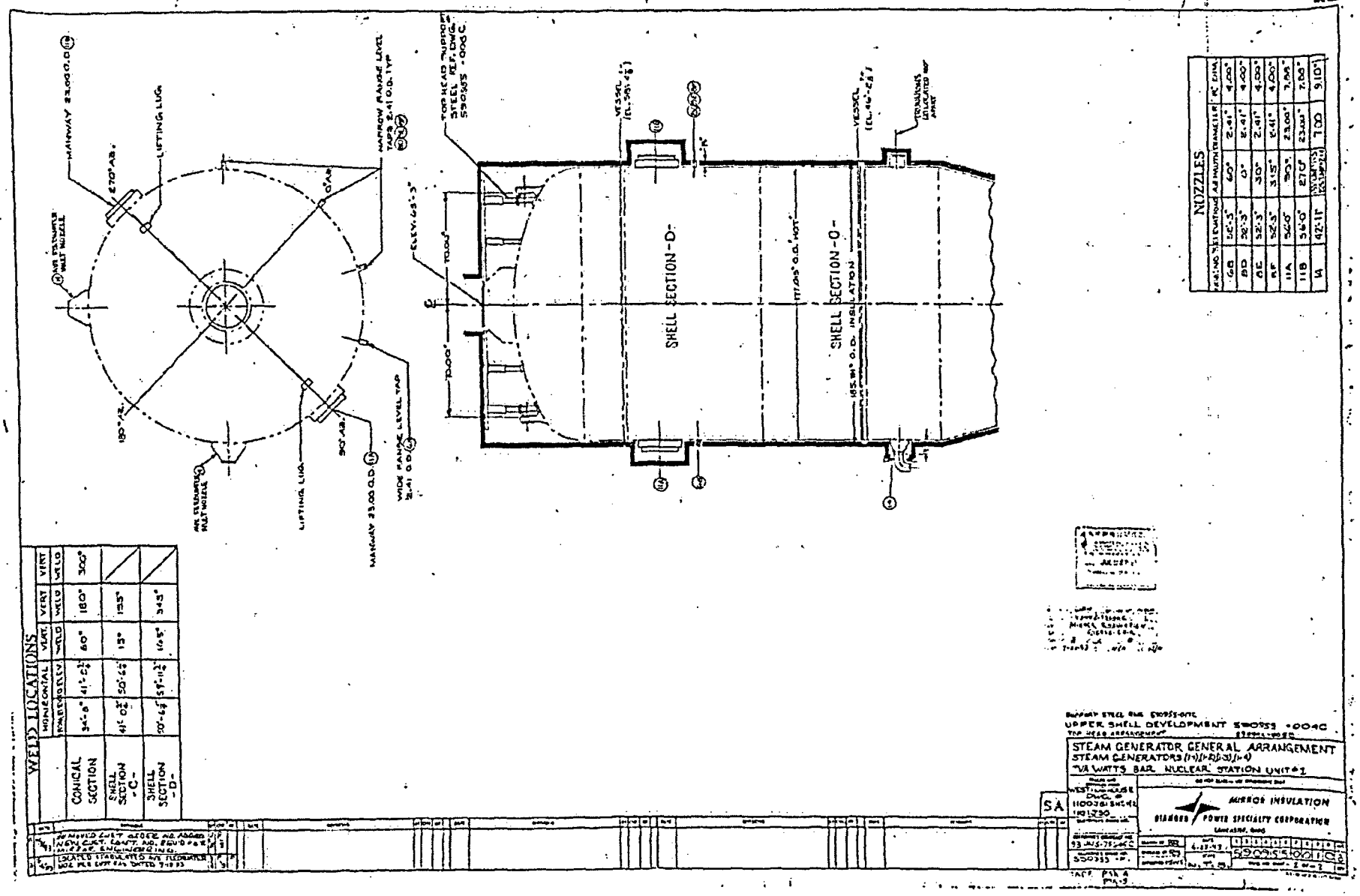
AT 1" ROOT VALVE (SEE DWG 590955-104C, SH. 2):

$V = [\pi(5^2 - 1.32^2)/4 \times 5.2] + [\pi(7^2 - 1.32^2)/4 \times 7] = 355(1/12^3) = 0.21 FT^3$

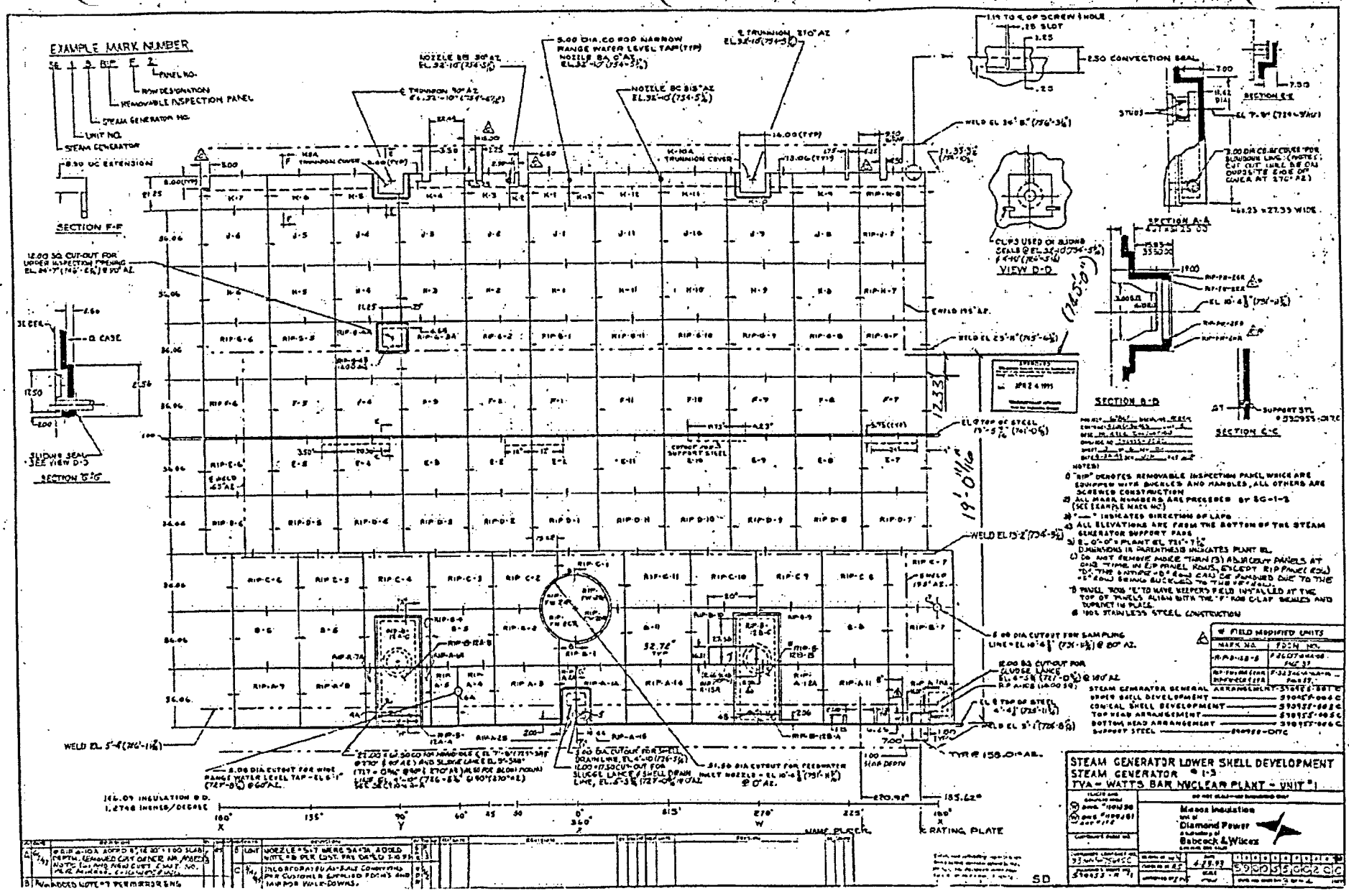
TOTAL VOLUME AT VALVES = 0.15 + 0.26 + 0.21 = $0.62 FT^3$



WBI-DWD-008A
PG 4 OF 10

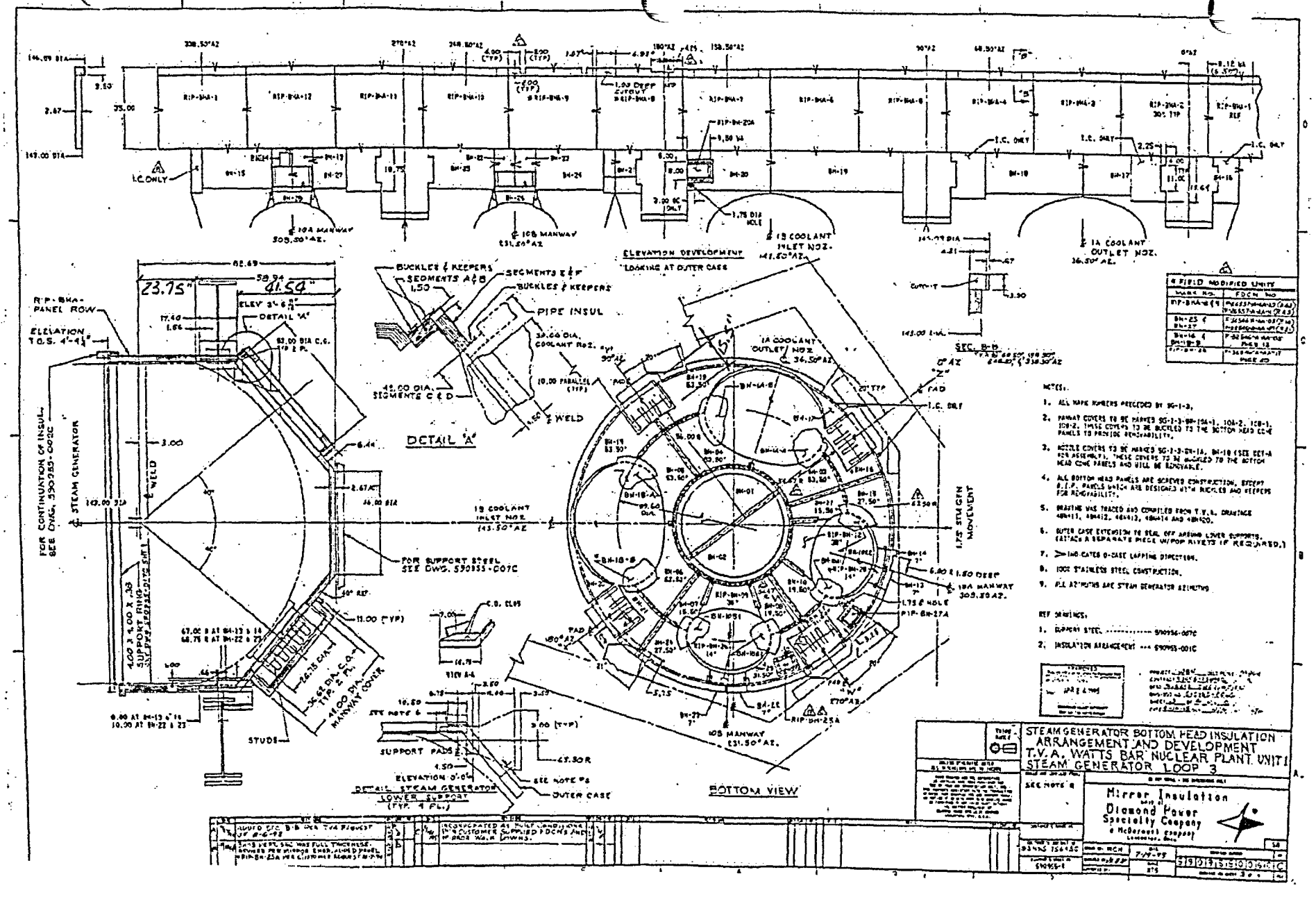


WB1-DWD-008A
PG 5 OF 10

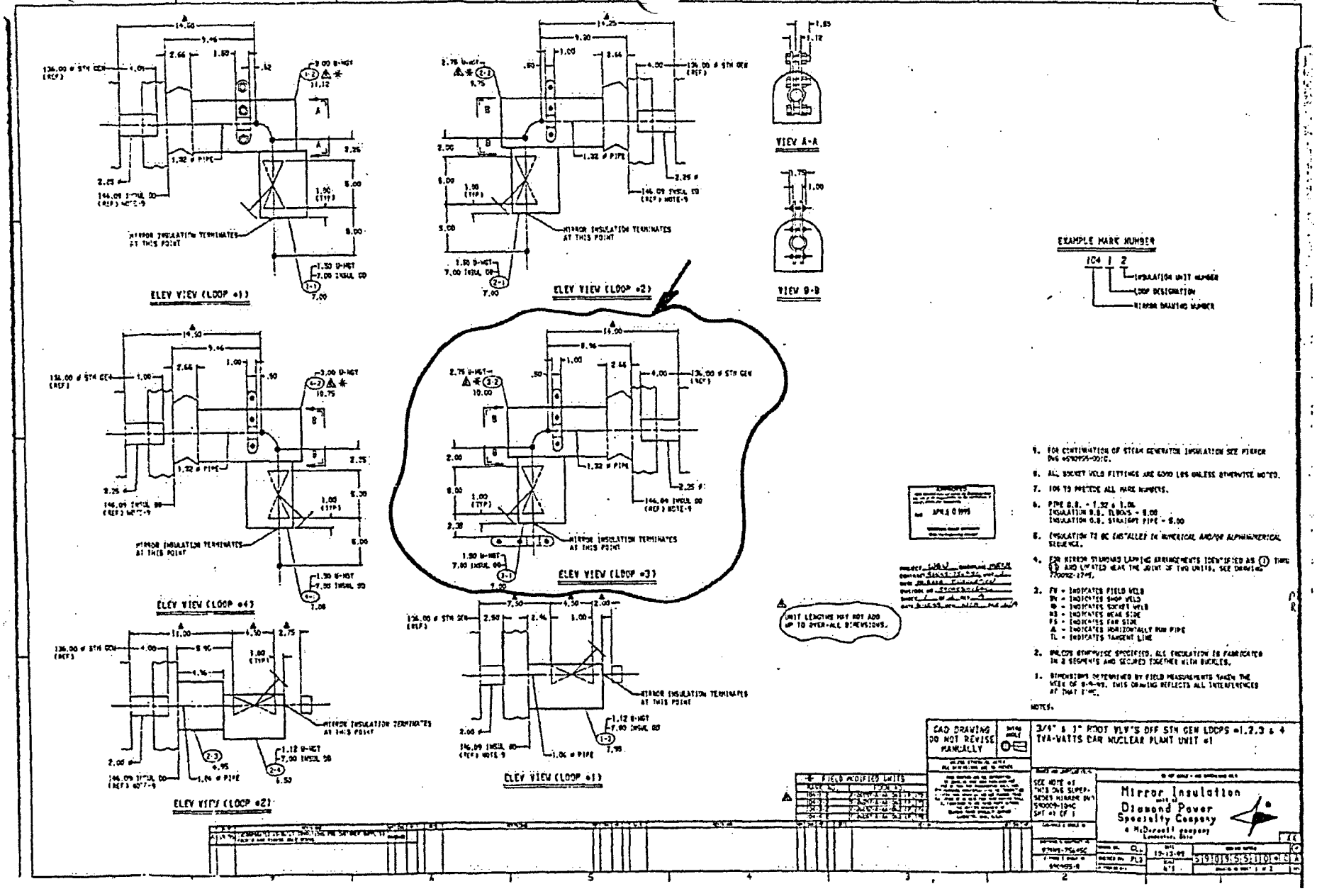


WB1-DWD-008A

PG 6 OF 10

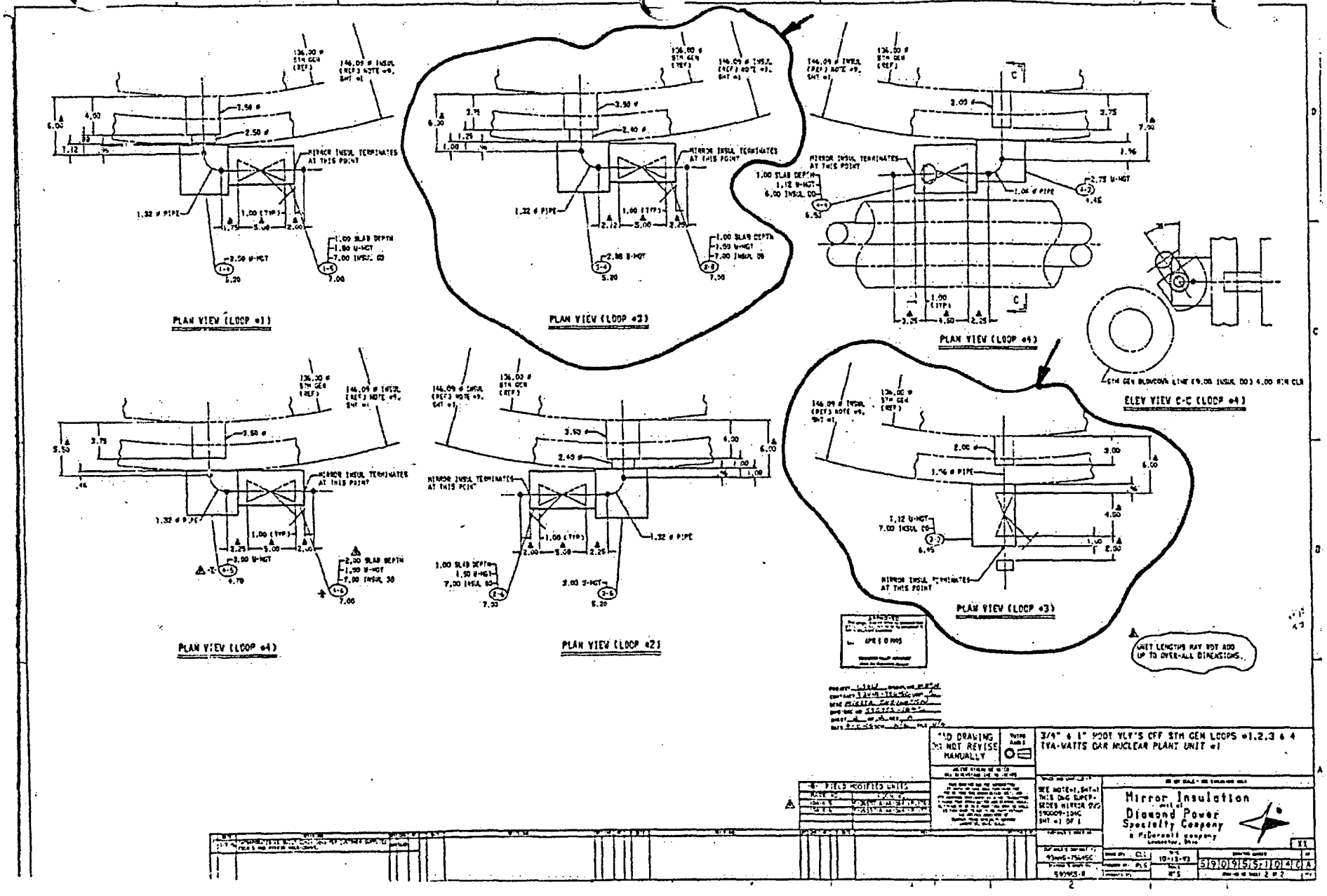


WBI-DWD-008A
PG 7 OF 10



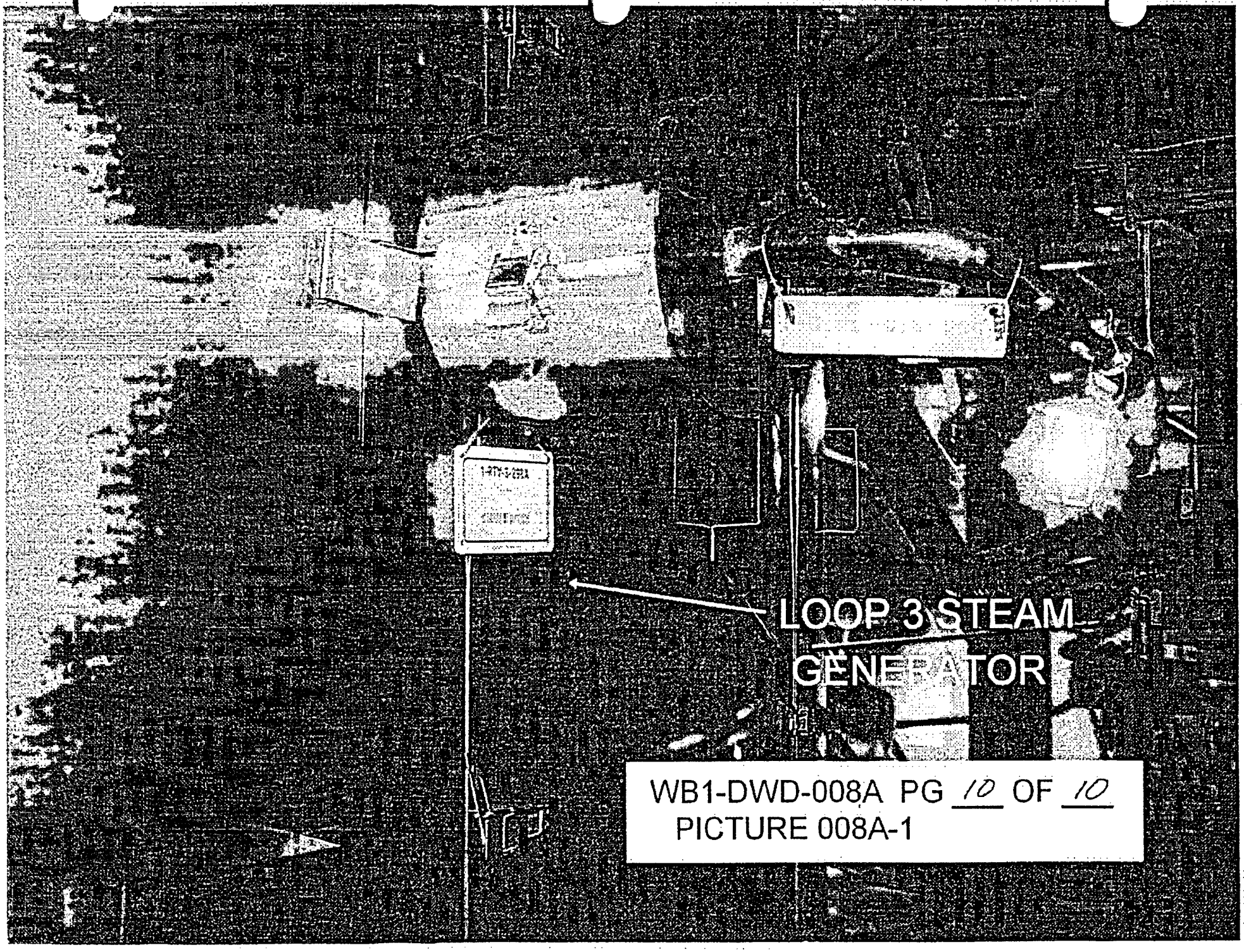
WB1-DWD-008A

PG 8 OF 10



WBI-DWD-008A

PG 9 OF 10



WB1-DWD-008A PG 10 OF 10
PICTURE 008A-1

CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-008B SHEET 1 OF 34 10/23/03

DATE:	10/23/2003	AREA:	LOOP 3	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, MIKE SOLLIE

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-058C, SH. 1, REV. D *	
Tools:	590955-058C, SH. 3, REV. C *	
Drawings	590955-059C, REV. B *	
Flashlights	47W401-210, REV. D	
Ladders	590955-082C, REV. 0	
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	16" FEEDWATER PIPING
	* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 10/23/03

Checked By: MIKE SOLLIE Date: 11/4/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-008B SHEET 2 OF 4

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
0600200-02-03	LOOP 3	716'	8	FEEDWATER	16.00	19.42	RMI	2.5	19.60	S.S.	STD	N/A	21" OD INSULATION
0600200-02-03	LOOP 3	716'	8	FEEDWATER	16.00	1.09	RMI	2	0.86	S.S.	STD	N/A	19" OD INSULATION
0600200-02-03	LOOP 3	716'	8	FEEDWATER	16.00	6.34	RMI	0.5	1.14	S.S.	STD	N/A	17" OD INSULATION
0600200-02-03	LOOP 3	716'	8	FEEDWATER	SEE CALC	SEE CALC	RMI	SEE CALC	0.35	S.S.	STD	N/A	AT 1.88" OD LINE
0600200-02-03	LOOP 3	716'	8	FEEDWATER	SEE CALC	SEE CALC	RMI	SEE CALC	0.24	S.S.	STD	N/A	AT 1" LINE
0600200-02-03	LOOP 3	716'	8	FEEDWATER	30.25	0.50	MINERAL WOOL	2	0.70	N/A	STD	N/A	AT PENETRATION # X-12C

APPROXIMATE INSULATION LENGTH:

STARTING FROM LOOP 3 STEAM GENERATOR:

AT 21" OD INSULATION:

LENGTH = (1/2)[π(24)(60°/180°)] + (1/2)[π(24)(90°/180°) + (22.75 - 7.5 - 3)

+ π(24)(90°/180°) + 73.25 + π(24)(90°/180°) + (1/4)[π(24)(90°/180°) + (15 + 13)

= 241(1/12) = 20.07FT

AT 17" OD INSULATION:

LENGTH = (1/2)[π(24)(60°/180°)] + (1/2)[π(24)(90°/180°) + 7.5

+ (3/4)[π(24)(90°/180°) = 7.87 = 81.35(1/12) = 6.78FT

AT 1.88" OD LINE:

VOLUME = [π(6^2 - 1.88^2)/4 x (6 + 6)] + [π(7^2 - 1.88^2)/4 x 8.25]

= 601$(1/12)^3$ = 0.35FT^3

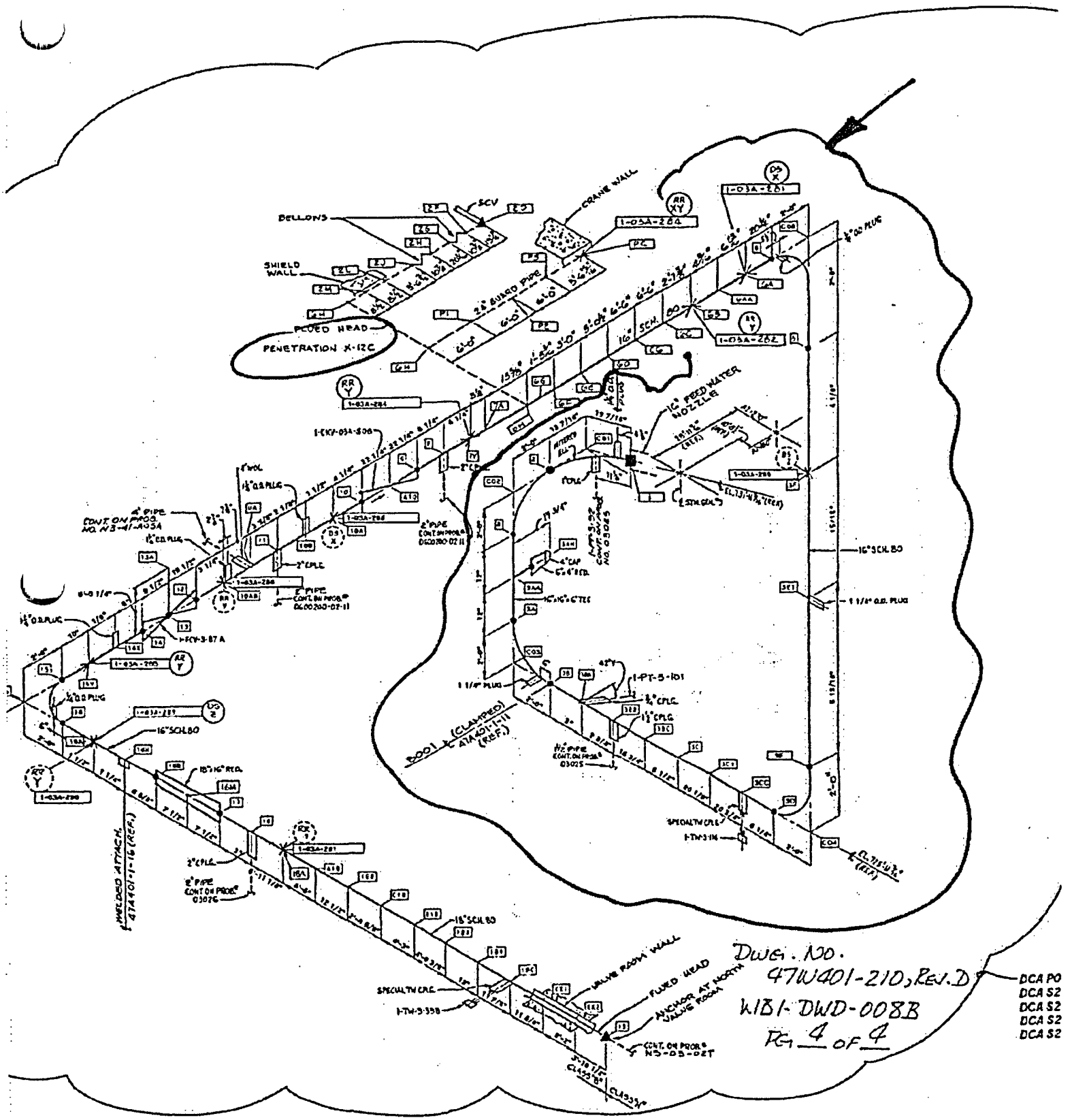
AT 1" LINE (SEE DWG. 590955-059C):

VOLUME = [π(5^2 - 1.32^2)/4 x 2.5] + [π(6^2 - 1.32^2)/4 x 7]

= 235$(1/12)^3$ = 0.14FT^3

AT PENETRATION #X-12C (MINERAL WOOL INSULATION) (SEE DWG. 590955-082C):

LENGHT = (2 x 3") = 6(1/12) = 0.5FT


BELLOWS
SCV
CRANE WALL
SHIELD WALL
FLOED HEAD
PENETRATION X-12C
16" FEED WATER NOZZLE
16" SCH. 80
VALVE ROOM WALL
FLOED HEAD
ANCHOR AT NORTH VALVE ROOM
SPECIALTY CPLG.
DWG. NO.
47W401-210, REV. D
W181-DWD-008B
PG. 4 OF 4
DCA P0
DCA S2
DCA S2
DCA S2
DCA S2

CONTAINMENT DEBRIS WALKDOWN PACKAGE WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-008C SHEET 1 OF 5

DATE:	10/27/2003	AREA:	LOOP 3	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, MIKE SOLLIE

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-072C, SH. 1, REV. C *	
Tools:	47W406-328, REV.E	
Drawings	1-47W406-328A, REV.0	
Flashlights		
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	3" LETDOWN LINE AT RC LOOP 3 INTERIM LEG
	CONTINUED TO WALKDOWN PACKAGE NO's WB1-DWD-004C & -007R
	* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 10/27/03

Checked By: MIKE SOLLIE Date: 11/9/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-008C SHEET 2 OF 5

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
0600200-08-10	LOOP 3	716'	8	LETDOWN LINE	3.50	38.50	RMI	3.25	15.43	S.S.	STD	N/A	10" OD INSULATION

APPROXIMATE INSULATION LENGTH:

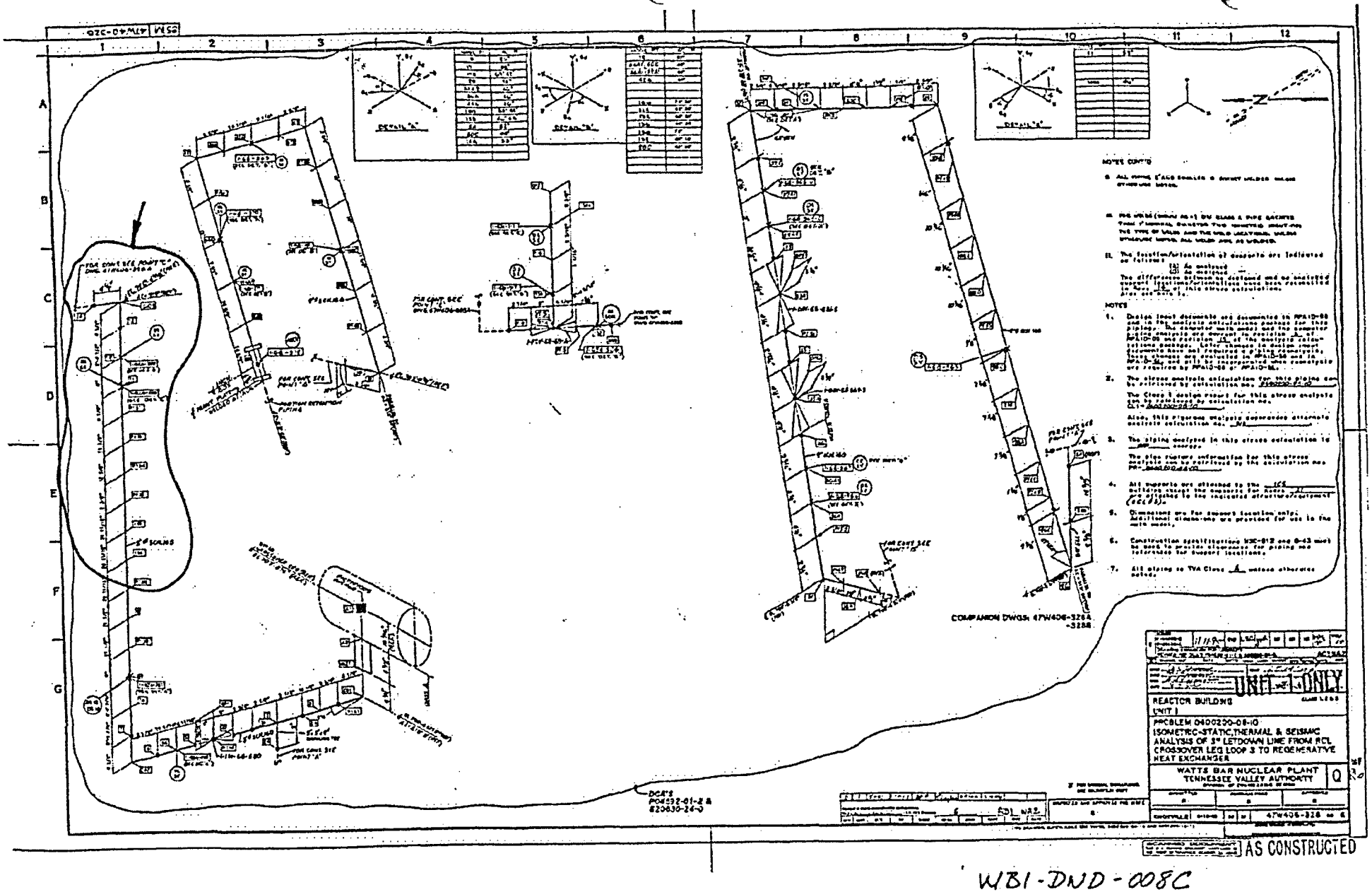
AT 10" OD INSULATION:

LENGTH = 119.56 + π(4.5)(90°/180°) + 28.5 + π(4.5)(90°/180°) + 17.38 + 5

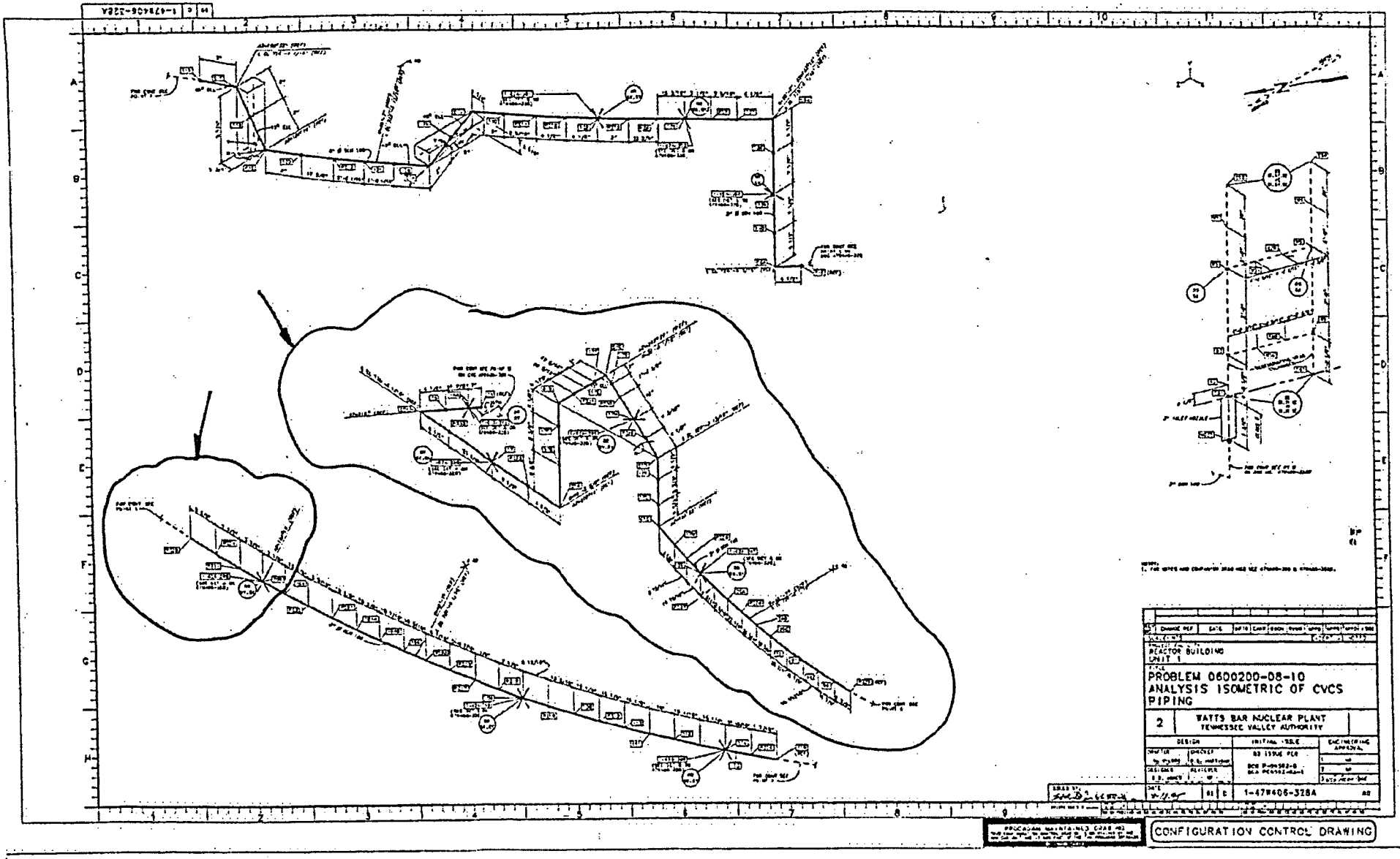
+ π(4.5)(90°/180°) + 3 + π(4.5)(90°/180°) + 38 + π(4.5)(90°/180°)

+ 42 + π(4.5)(90°/180°) + 2.5 + π(4.5)(90°/180°)

+ (166.31 - 7.75 - 2.5) = 462(1/12) = 38.5FT



WBI-DND-008C
PG. 4 OF 5



WBI-DWD-008C
PG 5 OF 5

CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-008D SHEET 1 OF 4

DATE:	11/20/2003	AREA:	LOOP 3	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, FRANK C. YAO

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-041C, SH. 1 (NOTES ONLY), REV. C *	
Tools:	590955-041C, SH. 3, REV. C *	
Drawings	47W2500-7, REV. 2	
Flashlights		
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	REACTOR COOLANT HOT LEG
	* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 11/20/03

Checked By: FRANK C. YAO Date: 11/20/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-008D SHEET 2 OF 4

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
N/A	LOOP 3	716'	8	HOT LEG	SEE CALC	SEE CALC	RMI	SEE CALC	49.69	S.S.	STD	N/A	N/A

APPROXIMATE INSULATION VOLUME:

AT LOOP: (START FROM STEAM GENERATOR NOZZLE)

$V = [\pi(42^2 - 36.25^2)/4 \times 6]$

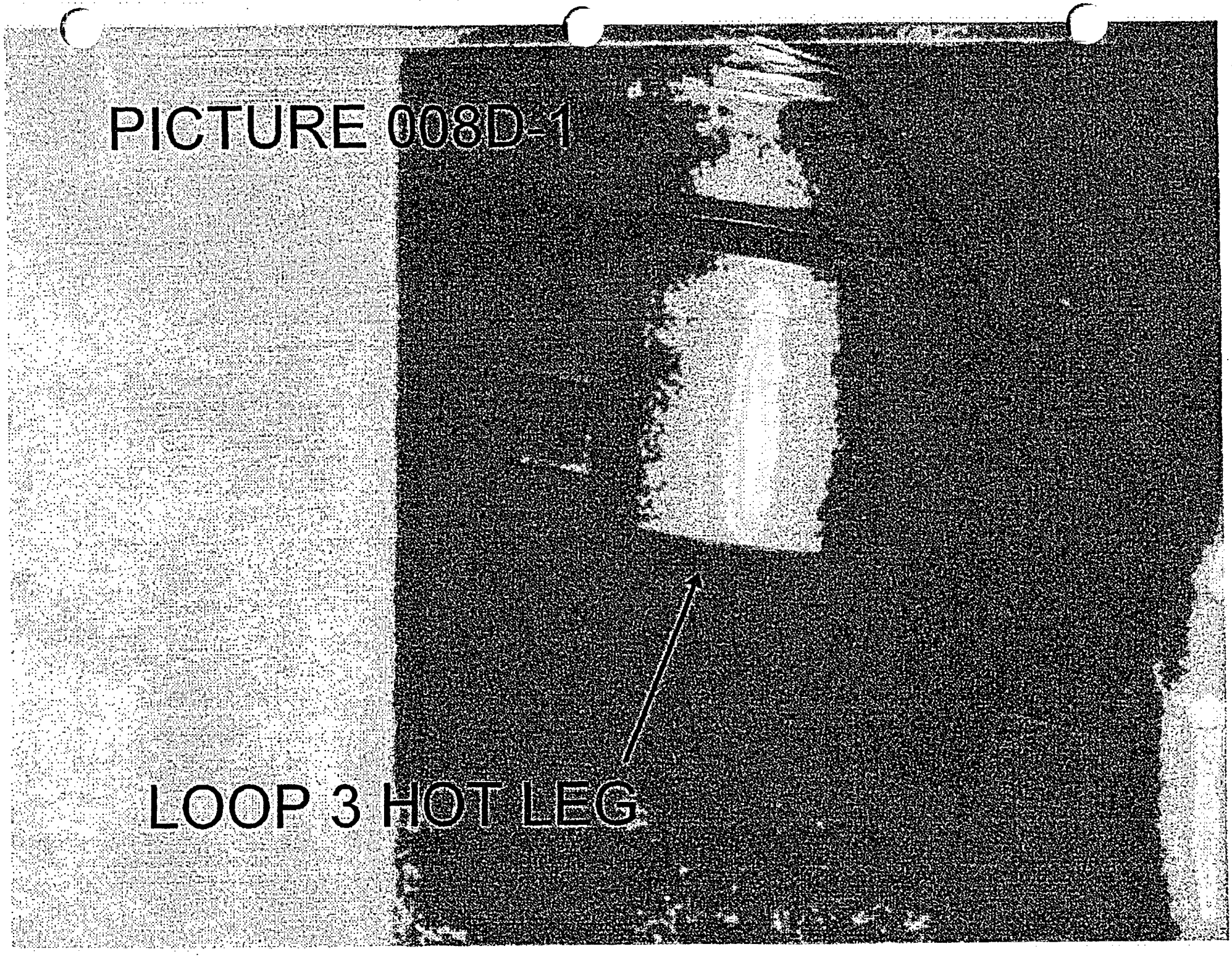
$+ [\pi(46^2 - 36.5^2)/4 \times \pi(54)(50°)/180°] + [\pi(46^2 - 34^2)/4 \times (2 + 2.12)]$

$+ [\pi(43^2 - 34^2)/4 \times (155.69 - 2.12 + 1.66)] = 84489(1/12^3) = 48.90 FT^3$

AT RHR & SAMPLING LINES:

$V = [\pi(18^2 - 6.63^2)/4 \times 6] + [\pi 7^2/4 \times 9.75] = (1/12^3) = 0.99 FT^3$

TOTAL VOLUME = $48.90 + 0.99 = 49.89 FT^3$


PICTURE 008D-1
LOOP 3 HOT LEG

CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-008E SHEET 1 OF 5

DATE:	10/09/2003	AREA:	LOOP 3	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, FRANK C. YAO

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-042C, SH. 1, REV. C (NOTES ONLY) *	
Tools:	590955-042C, SH. 3, REV. B *	
Drawings	47W2500-7, REV. 2	
Flashlights		
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

COMMENTS

REACTOR COOLANT COLD LEG

* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 10/9/03

Checked By: FRANK C. YAO Date: 10/9/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-008E SHEET 2 OF 5

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
N/A	LOOP 3	716'	8	COLD LEG	SEE CALC	SEE CALC	RMI	SEE CALC	54.98	S.S.	STD	N/A	N/A

APPROXIMATE INSULATION VOLUME:

AT LOOP: (START FROM REACTOR COOLANT PUMP NOZZLE)

$V = [\pi(39^2 - 32.25^2)/4 \times (223 - 3.05 - 3)] + [\pi(40^2 - 33^2)/4 \times (3 + 1.97)]$

$+ [\pi(40^2 - 33^2)/4 \times \pi(40)(22°)/180°] + [\pi(40^2 - 33^2)/4 \times 4.19]$

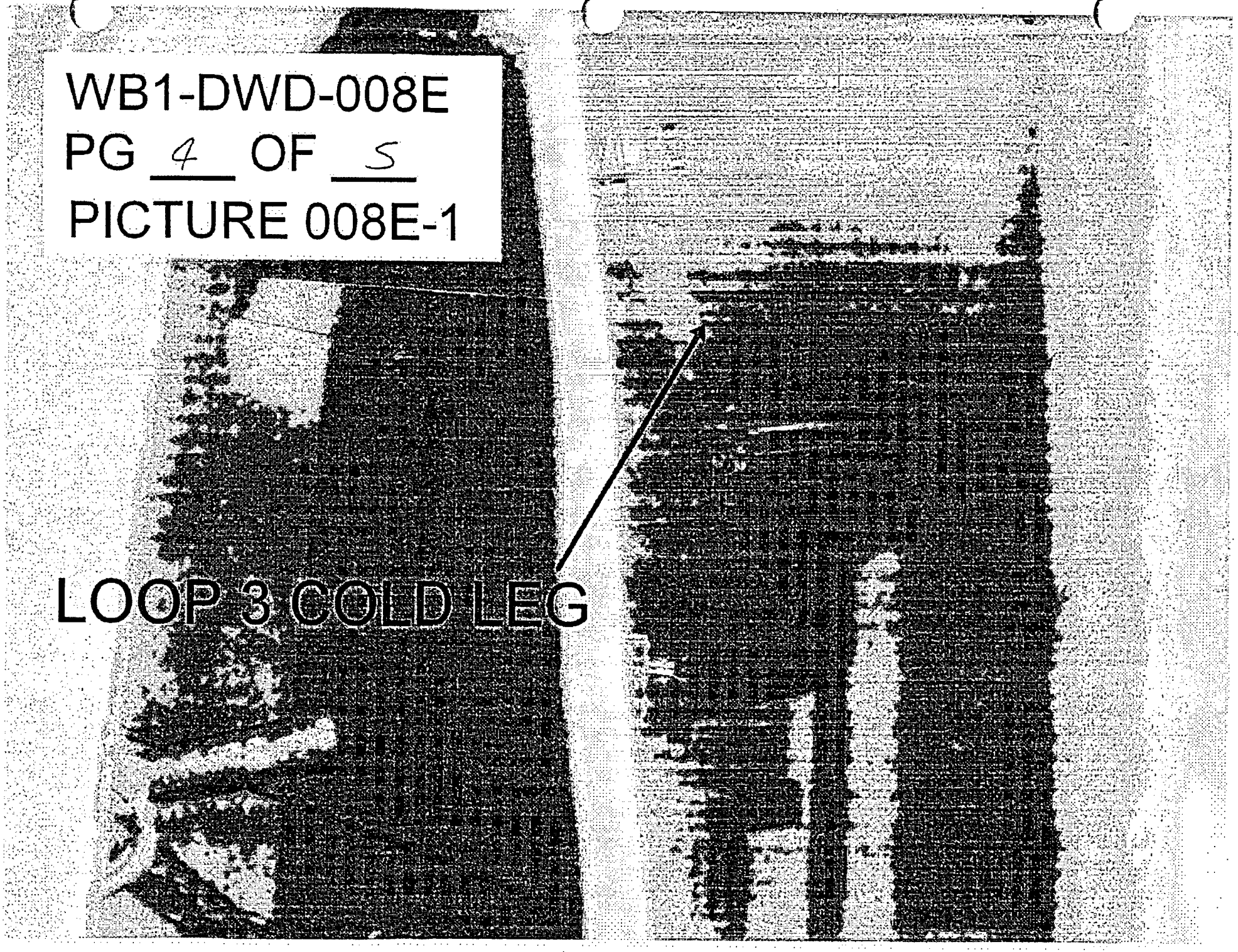
$= 91789(1/12^3) = 53.12 FT^3$

AT ACCUMULATOR INJECTION LINE:

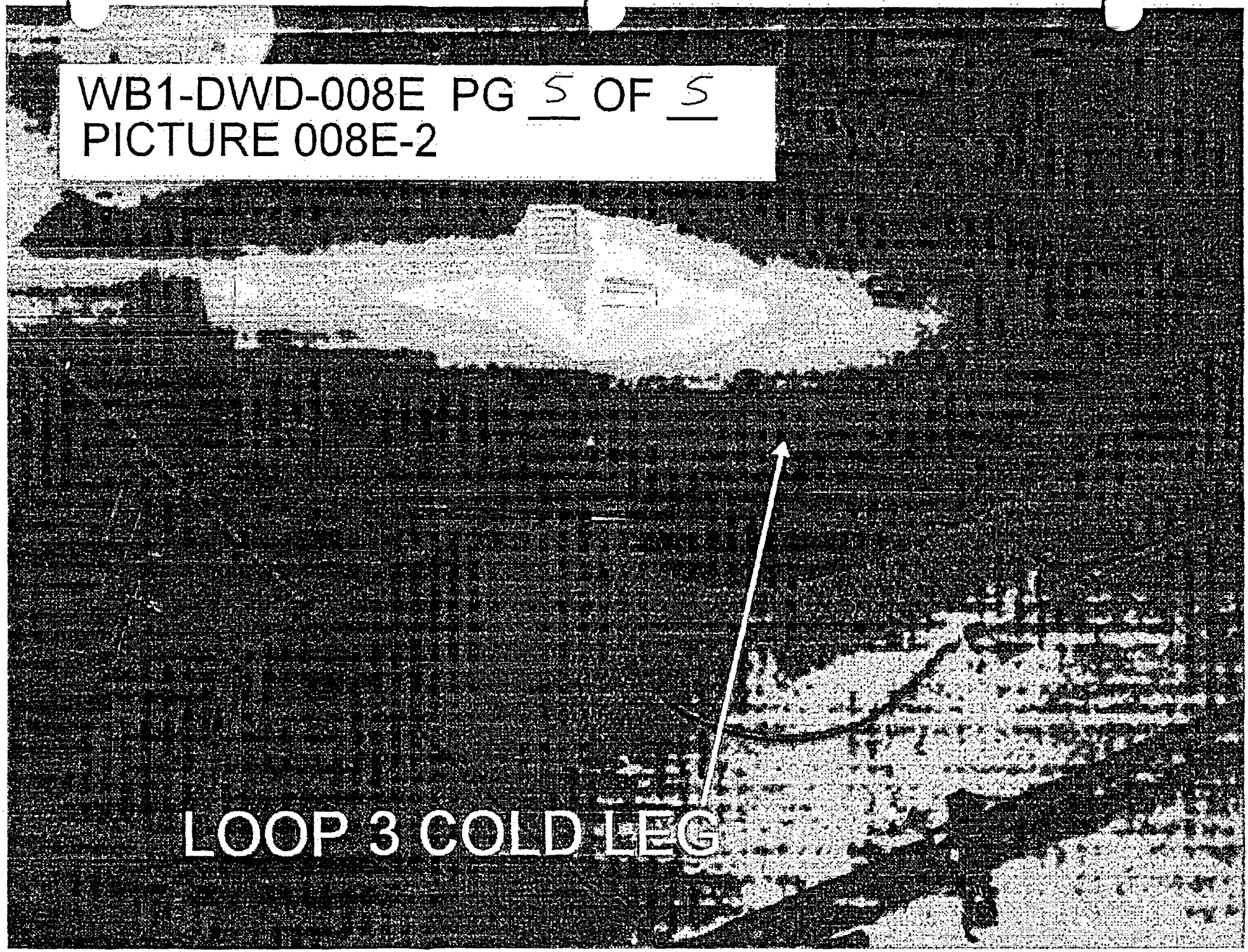
$V = [\pi(27^2 - 15.9^2)/4 \times (44.75 - (39/2 \cos 45°)]/2 = 3212(1/12)^3 = 1.86 FT^3$

TOTAL VOLUME = $53.12 + 1.86 = 54.98 FT^3$

WB1-DWD-008E
PG 4 OF 5
PICTURE 008E-1



WB1-DWD-008E PG 5 OF 5
PICTURE 008E-2



CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-008F SHEET 1 OF 34 10/30/03

DATE:	10/30/2003	AREA:	LOOP 3	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, MIKE SOLLIE

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-047C, SH. 1, REV. A *	
Tools:	590955-047C, SH. 2, REV. A *	
Drawings	47W435-216, REV. C	
Flashlights		
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	**Verify installation of insulation** as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any **undocumented** insulation.
3	Inspect and determine longitudinal **seam location and band spacing** if necessary.
4	Document any **irregularities** of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any **undocumented fibrous insulation (e.g., within rupture restraints)**.
6	Inspect and mark up cable tray drawings to show location of **fire barriers** (vertical and horizontal).
7	Inspect the area for any **weak components** that could be dislodged by jet and that could be transported to sump.
8	Inspect any **equipment insulation** in the area.
9	Inspect and document the general **cleanliness** of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	1 ½" BORON INJECTION AT RC COLD LEG LOOP 3
	* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 10/30/03

Checked By: MIKE SOLLIE Date: 11/4/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-008F SHEET 2 OF 4

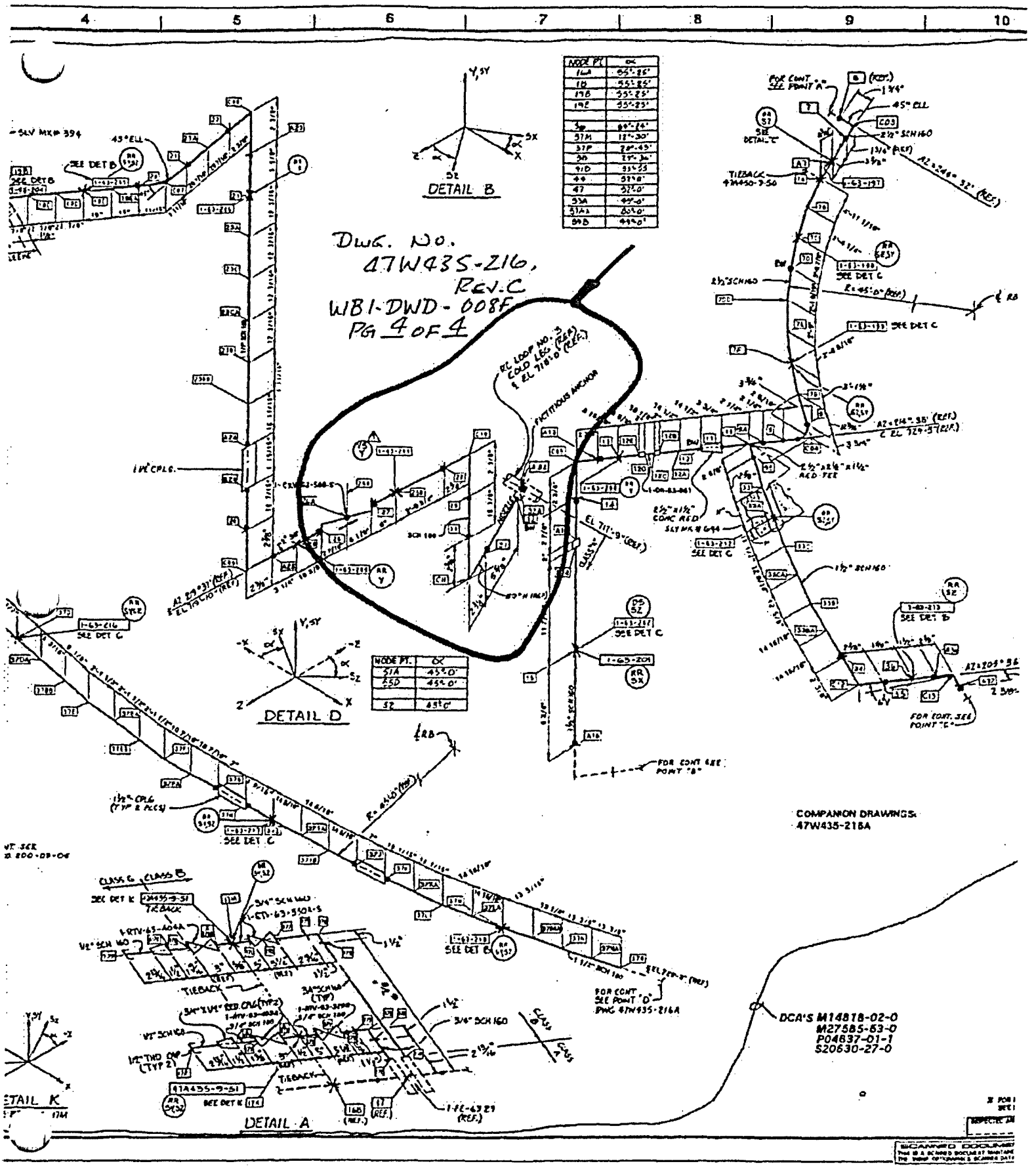
PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
0600200-09-C6	LOOP 3	716'	8	BORON INJECTION	1.90	5.20	RMI	2.55	1.29	S.S.	STD	N/A	7" OD INSULATION
0600200-09-06	LOOP 3	716'	8	BORON INJECTION	1.90	0.96	RMI	7.8	1.51	S.S.	STD	N/A	9.5" OD INSULATION

APPROXIMATE INSULATION LENGTH:

START FROM RC COLD LEG:

AT 7" OD INSULATION: LENGTH = 1.75 + 5 + 18.25 + 5 + 25 + 3.5 + 3.75 = 62.3(1/12) = 5.20FT

AT 9.5" OD INSULATION: LENGTH = 11.5(1/12) = 0.96FT


4
5
6
7
8
9
10
DETAIL B
DETAIL D
DETAIL A
DETAIL K
Dwg. No.
47W435-216,
Rev. C
WB1-DWD-008F
PG 4 OF 4
RC LOOP NO. 3
COLD LEG (REF)
℄ EL 718'-0" (REF.)
FICTITIOUS ANCHOR
EL 717'-9" (REF.)
FOR CONT SEE POINT "A"
FOR CONT SEE POINT "B"
FOR CONT SEE POINT "D" DWG 47W435-216A
FOR CONT. SEE POINT "E"
COMPANION DRAWINGS:
47W435-218A
DCA'S M14818-02-0
M27585-63-0
P04837-01-1
S20630-27-0
SCANNED DOCUMENT

CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-008G SHEET 1 OF 4

DATE:	10/31/2003	AREA:	LOOP 3	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, FRANK C. YAO

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-046C, SH. 1, REV. D *	
Tools:	590955-046C, SH. 3, REV. E *	
Drawings	1-47W435-220C, REV. 0	
Flashlights		
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

COMMENTS
10" ACCUMULATOR INJECTION (SIS) LINE AT COLD LEG LOOP 3
* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 10/31/03

Checked By: FRANK C. YAO Date: 10/31/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-008G SHEET 2 OF 4

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
0600200-09-02	LOOP 3	716'	8	ACCUMULATOR INJECTION	10.75	17.25	RMI	3.125	16.32	S.S.	STD	N/A	17" OD INSULATION
0600200-09-02	LOOP 3	716'	8	ACCUMULATOR INJECTION	10.75	5.18	RMI	9.625	22.16	S.S.	STD	N/A	30" OD INSULATION
0600200-09-02	LOOP 3	716'	8	ACCUMULATOR INJECTION	10.75	1.07	RMI	0.625	0.17	S.S.	STD	N/A	12" OD INSULATION
0600200-09-02	LOOP 3	716'	8	ACCUMULATOR INJECTION	10.75	1.82	RMI	0.375	0.17	S.S.	STD	N/A	11.5" OD INSULATION

APPROXIMATE INSULATION LENGTH:

START FROM RC COLD LEG:

AT 17" OD INSULATION:

$$\text{LENGTH} = \pi(15)(45°/180°) + \pi(15)(45°/180°) + 3 + 10 + 6.25 + \pi(15)(127°/180°)$$

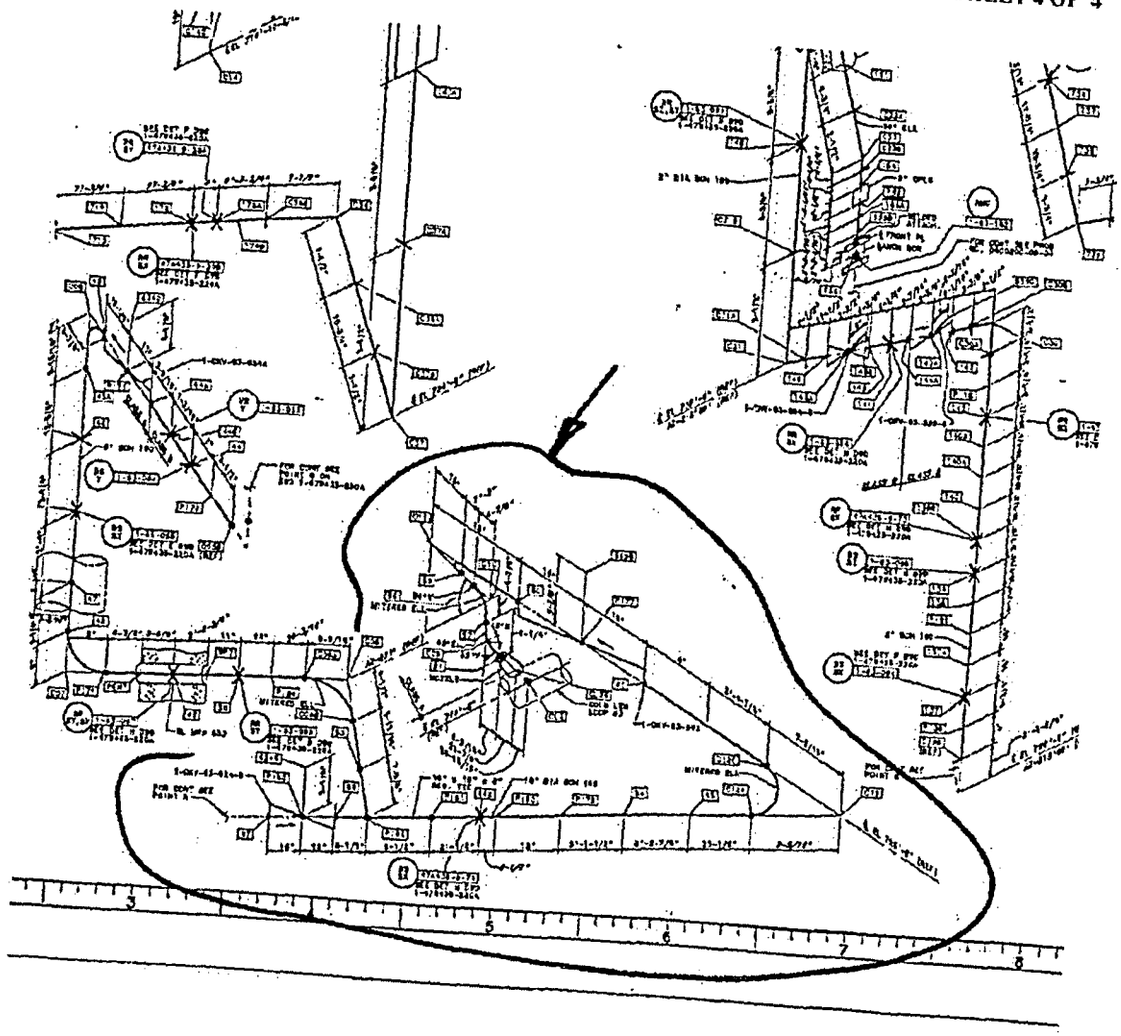
$$+ (116.25 - 3) + 17 = 207(1/12) = 17.25\text{FT}$$

AT 30" OD INSULATION (VALVE #'S 8948C & 8956C): LENGTH = 30.12 + 32 = 62.12(1/12) = 5.18FT

AT 12" OD INSULATION: LENGTH = 12.75(1/12) = 1.07FT

AT 11.5" OD INSULATION: LENGTH = $\pi(15)(83.31°/180°)$ = 21.82(1/12) = 1.82FT

CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1
WALKDOWN PACKAGE NO. WB1-DWD-008G
EXCERPT FROM DRAWING 1-47W435-220C



CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-008H SHEET 1 OF 4

DATE:	11/03/2003	AREA:	LOOP 3	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, FRANK C. YAO

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-048C, SH. 1, REV. C *	
Tools:	590955-048C, SH. 5, REV. D *	
Drawings	1-47W435-220A, REV. 0	
Flashlights	1-47W435-220C, REV. 0	
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

COMMENTS

6" LOWHEAD SAFETY INJECTION

CONTINUED ON WALKDOWN PACKAGE NO's WB1-DWD-018A & -008G.

* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 11/3/03

Checked By: FRANK C. YAO Date: 11/3/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-008H SHEET 2 OF 4

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
06002C0-09-02	LOOP 3	716'	8	LOWHEAD SAFETY INJECTION	6.63	2.53	RMI	2.6875	1.38	S.S.	STD	N/A	12" OD INSULATION
06002C0-09-02	LOOP 3	716'	8	LOWHEAD SAFETY INJECTION	6.63	4.26	RMI	0.6875	0.47	S.S.	STD	N/A	8" OD INSULATION

APPROXIMATE INSULATION LENGTH:

STARTING FROM CRANE WALL:

AT 12" OD INSULATION:

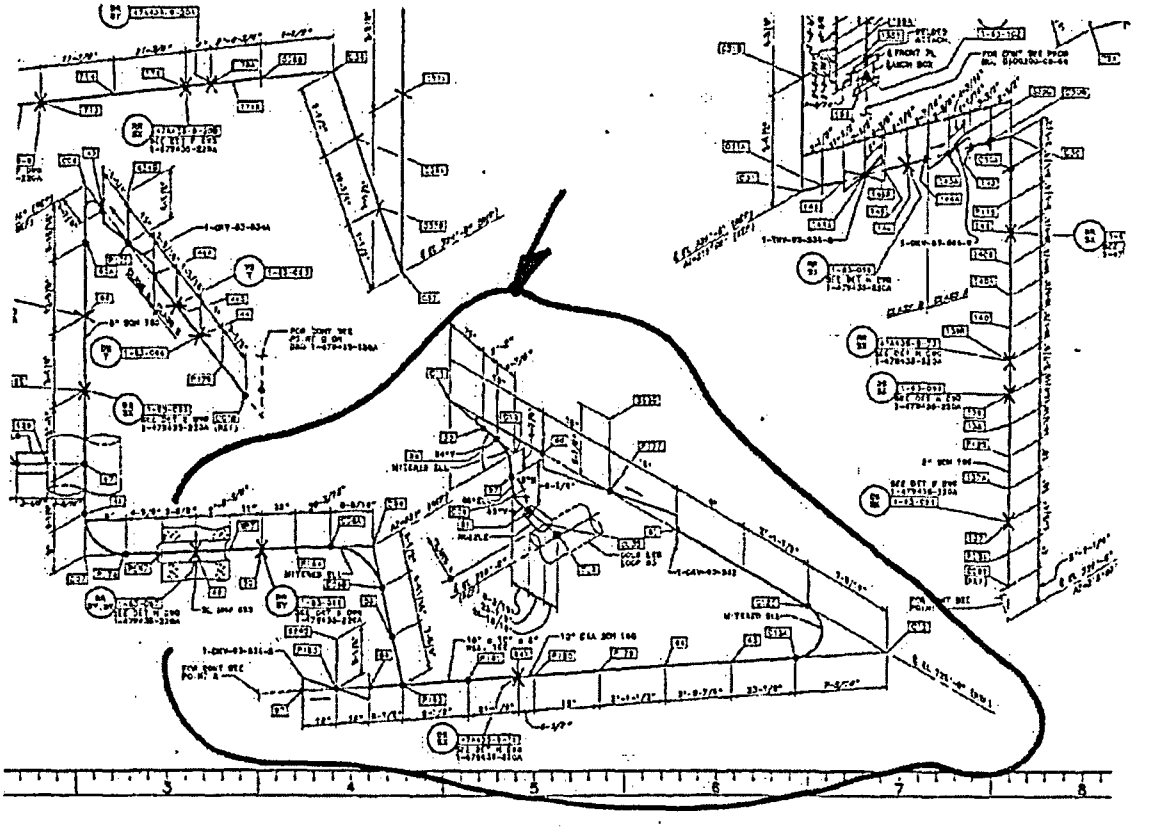
LENGTH = 15.88 + .75 + π(9)(87°/180°) = 30.3(1/12) = 2.53FT

AT 8" OD INSULATION:

LENGTH = (5 X 5.5) + 3.44 + 20.12 = 51.06(1/12) = 4.26FT

CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-008H
EXCERPT FROM DRAWING 1-47W435-220C



CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-008J SHEET 1 OF 3

DATE:	11/04/2003	AREA:	LOOP 3	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, FRANK C. YAO

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-064C, SH. 3, REV. D *	
Tools:	590955-064C, SH. 7, REV. D *	
Drawings		
Flashlights		
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	6"/8" RESIDUAL HEAT REMOVAL
	CONTINUED ON WALKDOWN PACKAGE NO. WB1-DWD-007L.
	* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 11/4/03

Checked By: FRANK C. YAO Date: 11/4/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-008J SHEET 2 OF 3

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
N/A	LOOP 3	716'	8	RESIDUAL HEAT REMOVAL	8.63	6.09	RMI	1.1875	1.55	S.S.	STD	N/A	11" OD INSULATION
N/A	LOOP 3	716'	8	RESIDUAL HEAT REMOVAL	6.63	2.17	RMI	9.6875	7.48	S.S.	STD	N/A	26" OD INSULATION (VALVE)
N/A	LOOP 3	716'	8	RESIDUAL HEAT REMOVAL	6.63	3.75	RMI	0.6875	0.41	S.S.	STD	N/A	8" OD INSULATION
N/A	LOOP 3	716'	8	RESIDUAL HEAT REMOVAL	6.63	2.67	RMI	3.6875	2.22	S.S.	STD	N/A	14" OD INSULATION

APPROXIMATE INSULATION LENGTH:

STARTING FROM LOOP 2 AREA TO RC HOT LEG LOOP 3:

AT 11" OD INSULATION (8" PIPING): LENGTH = (3 x 15.68) + 8 + 17.5 = 73(1/12) = 6.09FT

AT 26" OD INSULATION (VALVE 1-CKV-63-644): LENGTH = 26(1/12) = 2.17FT

AT 8" OD INSULATION (6" PIPING): LENGTH = $\pi(9)(90°/180°) + 6.75 + 24.12 = 45(1/12) = 3.75$FT

AT 14" OD INSULATION (6" PIPING): LENGTH = $5.5 + 2[\pi(9)(45°/180°)] + 6 + 6 = 32(1/12) = 2.67$FT

CONTAINMENT DEBRIS
WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-008K SHEET 1 OF 6

DATE:	11/04/2003	AREA:	LOOP 3	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, FRANK C. YAO

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-077C, SH. 1, REV. B *	
Tools:	590955-077C, SH. 2, REV. C *	
Drawings	47W406-322, REV. B	
Flashlights	1-47W406-322A, REV. 0	
Ladders		
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	1" EXCESS LETDOWN LINE
	CONTINUED ON WALKDOWN PACKAGE NO's WB1-DWD-007N & -008E.
	* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 11/4/03

Checked By: FRANK C. YAO Date: 11/4/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-008K SHEET 2 OF 6

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
0600200-08-12	LOOP 3	716'	8	EXCESS LETDOWN	1.32	42.84	RMI	2.34	8.00	S.S.	STD	N/A	6" OD INSULATION
0600200-08-12	LOOP 3	716'	8	EXCESS LETDOWN	1.32	0.63	RMI	2.84	0.16	S.S.	STD	N/A	7" OD INSULATION (VALVE)
0600200-08-12	LOOP 3	716'	8	EXCESS LETDOWN	1.32	6.17	RMI	1.84	0.78	S.S.	STD	N/A	5" OD INSULATION
0600200-08-12	LOOP 3	716'	8	EXCESS LETDOWN	1.05	0.78	RMI	1.975	0.10	S.S.	STD	N/A	5" OD INSULATION
0600200-08-12	LOOP 3	716'	8	EXCESS LETDOWN	1.05	0.46	RMI	2.475	0.09	S.S.	STD	N/A	6" OD INSULATION (VALVE)

APPROXIMATE INSULATION LENGTH:

STARTING FROM RC COLD LEG LOOP 3:

AT 6" OD INSULATION: LENGTH = 5.25 + 4 + 5.5 + 6.88 + (53 - 9.4 - 7.69)

+ 4 + (75.75 - 6.5) + 4 + (112.75 - 6) + 4 + 14.5 + 4 + 2.25 + 13.25 + (2 X 27.63)

+ 25.75 + 28.87 + 34.25 + (2 X 15.31) + 5.75 + 4.5 + 2 + 4 + 3 + (32.06 - 6)

+ 4 + 5.5 + 2.56 + 2 = 514(1/12) = 42.84FT

AT 7" OD INSULATION: LENGTH = 7.5(1/12) = 0.63FT

AT 5" OD INSULATION: LENGTH = 9.41 + 7.69 + 6.5 + 6 + 7 + 8 + 8 + 7 + 8.38 + 6

= 74(1/12) = 6.17FT

AT 3/4" LINE:

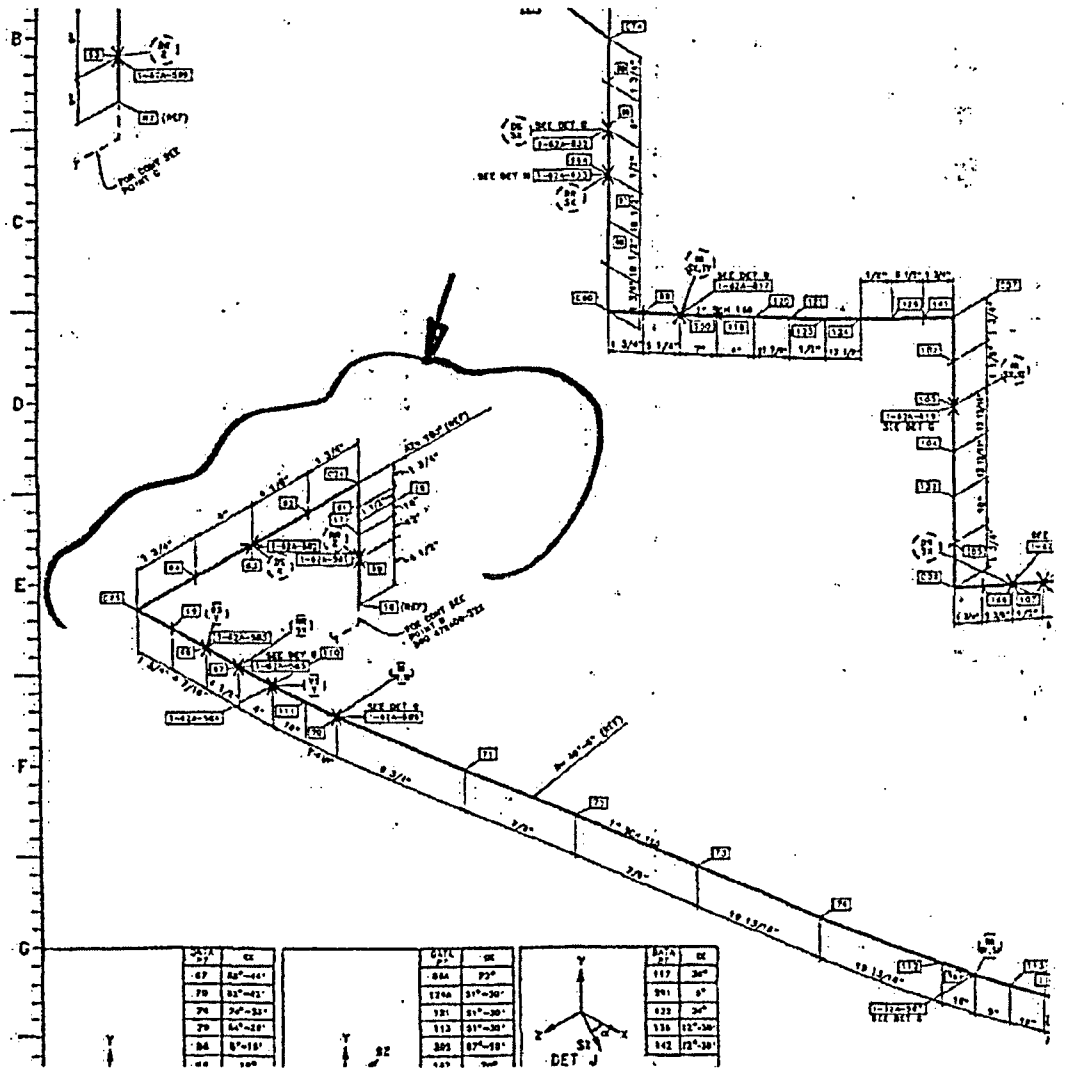
5" OD INSULATION: LENGTH = 5.75 + 3.56 = 9.31(1/12) = 0.78FT

6" OD INSULATION: LENGTH = 5.5(1/12) = 0.46FT

CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-008K

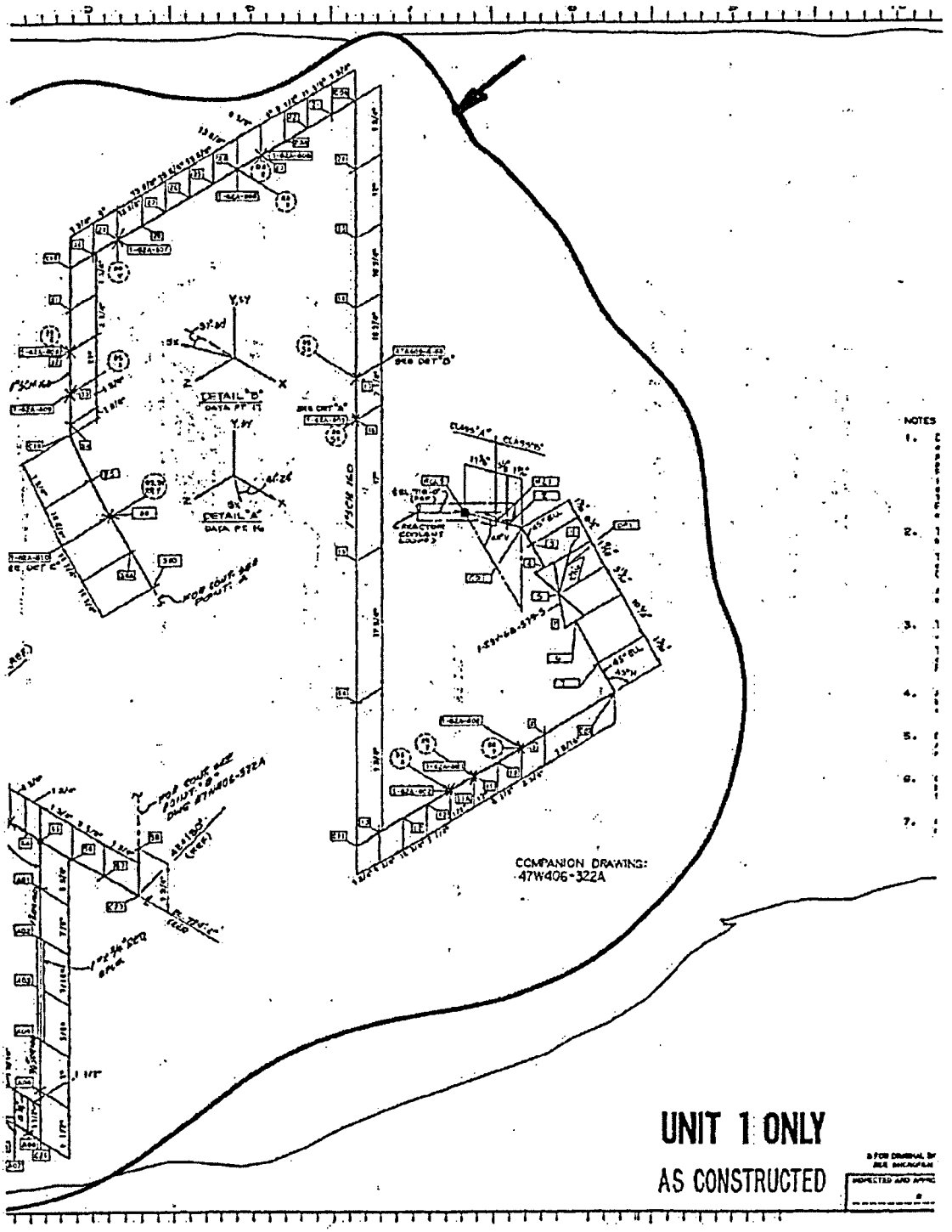
EXCERPT FROM DRAWING 1-47W406-322A



CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

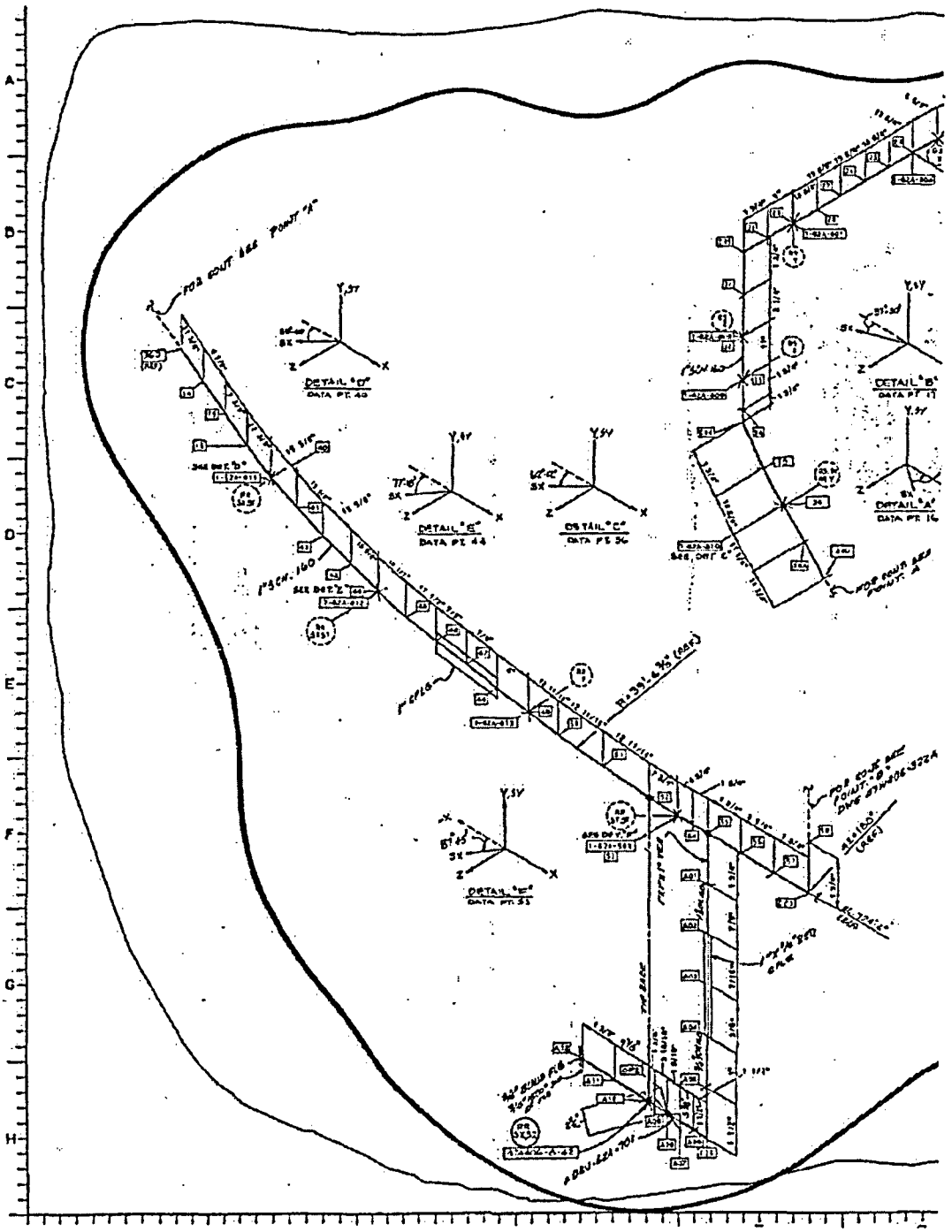
WALKDOWN PACKAGE NO. WB1-DWD-008K

EXCERPT FROM DRAWING 1-47W406-322



CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-008K
EXCERPT FROM DRAWING 1-47W406-322



CONTAINMENT DEBRIS WALKDOWN PACKAGE WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-008L SHEET 1 OF 6

DATE:	11/19/2003	AREA:	LOOP 3	RWP NO.:	8010
		ELEV:	716'		

INSPECTORS:	C. G. WALLS, FRANK C. YAO

REF. MATERIALS:	Piping & Equipment Drawings:	Cable Tray Drawings:
	590955-088C, SH. 1, REV. B *	
Tools:	590955-088C, SH. 10, REV. B *	
Drawings	590955-088C, SH. 11, REV. B *	
Flashlights	47W400-210, REV. C	
Ladders	1-47W400-210A, REV. 0	
Cameras		
Binoculars		
Tape measure		
Sample bags		
Pens/markers		

INSPECTION LIST:

ITEM NO.	DESCRIPTION
1	Verify installation of insulation as documented in existing plant drawings and/or documentation.
2	Inspect and mark up layout drawings to show any undocumented insulation.
3	Inspect and determine longitudinal seam location and band spacing if necessary.
4	Document any irregularities of the general condition of the piping insulation.
5	Inspect and mark up layout drawings to show any undocumented fibrous insulation (e.g., within rupture restraints).
6	Inspect and mark up cable tray drawings to show location of fire barriers (vertical and horizontal).
7	Inspect the area for any weak components that could be dislodged by jet and that could be transported to sump.
8	Inspect any equipment insulation in the area.
9	Inspect and document the general cleanliness of the area.
10	Inspect and verify any fibrous materials inside electrical components and cabinets

	COMMENTS
	1"/2"/3"/4" STEAM GENERATOR BLOWDOWN LINE (LOOP 3)
	CONTINUED ON WALKDOWN PACKAGE NO. WB1-DWD-015E.
	* TVA CONTRACT NO. 93NNS-75645C

Prepared By: C. G. WALLS Date: 11/19/03

Checked By: FRNAK C YAO Date: 11/19/03

WATTS BAR NUCLEAR PLANT UNIT 1 WALK DOWN RESULTS

WALKDOWN PACKAGE#: WB1-DWD-008L SHEET 2 OF 6

PROBLEM NUMBER	LOCATION	ELEV.	AREA	DESCRIPTION	OD (IN)	LENGTH (FT)	INSULATION TYPE	INSULATION THICKNESS (IN)	INSULATION VOLUME (FT3)	JACKET MATERIAL	BUCKLE TYPE	STRAP TYPE	COMMENTS
0600200-07-03	LOOP 3	716'	8	STEAM GENERATOR BLOWDOWN	3.50	44.92	RMI	2.25	12.68	S.S.	STD	N/A	8" OD INSULATION
0600200-07-03	LOOP 3	716'	8	STEAM GENERATOR BLOWDOWN	4.50	21.42	RMI	2.25	7.10	S.S.	STD	N/A	9" OD INSULATION
0600200-07-03	LOOP 3	716'	8	STEAM GENERATOR BLOWDOWN	4.50	3.17	RMI	1.25	0.50	S.S.	STD	N/A	7" OD INSULATION
0600200-07-03	LOOP 3	716'	8	STEAM GENERATOR BLOWDOWN	1.31	1.75	RMI	2.845	0.45	S.S.	STD	N/A	7" OD INSULATION
0600200-07-03	LOOP 3	716'	8	STEAM GENERATOR BLOWDOWN	1.31	0.75	RMI	2.345	0.14	S.S.	STD	N/A	6" OD INSULATION
0600200-07-03	LOOP 3	716'	8	STEAM GENERATOR BLOWDOWN	1.31	1.11	RMI	3.345	0.38	S.S.	STD	N/A	8" OD INSULATION
0600200-07-03	LOOP 3	716'	8	STEAM GENERATOR BLOWDOWN	2.88	0.28	RMI	2.08	0.06	S.S.	STD	N/A	7" OD INSULATION

APPROXIMATE INSULATION LENGTH:

START FROM STEAM GENERATOR NOZZLE:

AT 8" OD INSULATION (3" PIPING): LENGTH = 15.38 + 4[π(4.5)(45°/180°)] + 6

+ 7[π(4.5)(90°/180°)] + 39.75 + 43 + 44.75 + 17.5 + 36.09 + 31.91

+ 5.5 + .75 + 59.62 + 61.12 + 31.12 + 41.75 + 16.5 + 23.88 = 539(1/12) = 44.92FT

AT 9" OD INSULATION (4" PIPING): LENGTH = 20.25 + 29.38 + 4[π(6)(90°/180°)]

+ 51 + 56 + 46 + 12.5 + 3.75 = 257(1/12) = 21.42FT

AT 7" OD INSULATION (4" PIPING): LENGTH = 2(19)(1/12) = 3.17FT

AT 8" OD INSULATION (1.31" OD PIPING/VLV): LENGTH = 3(7)(1/12) = 1.75FT

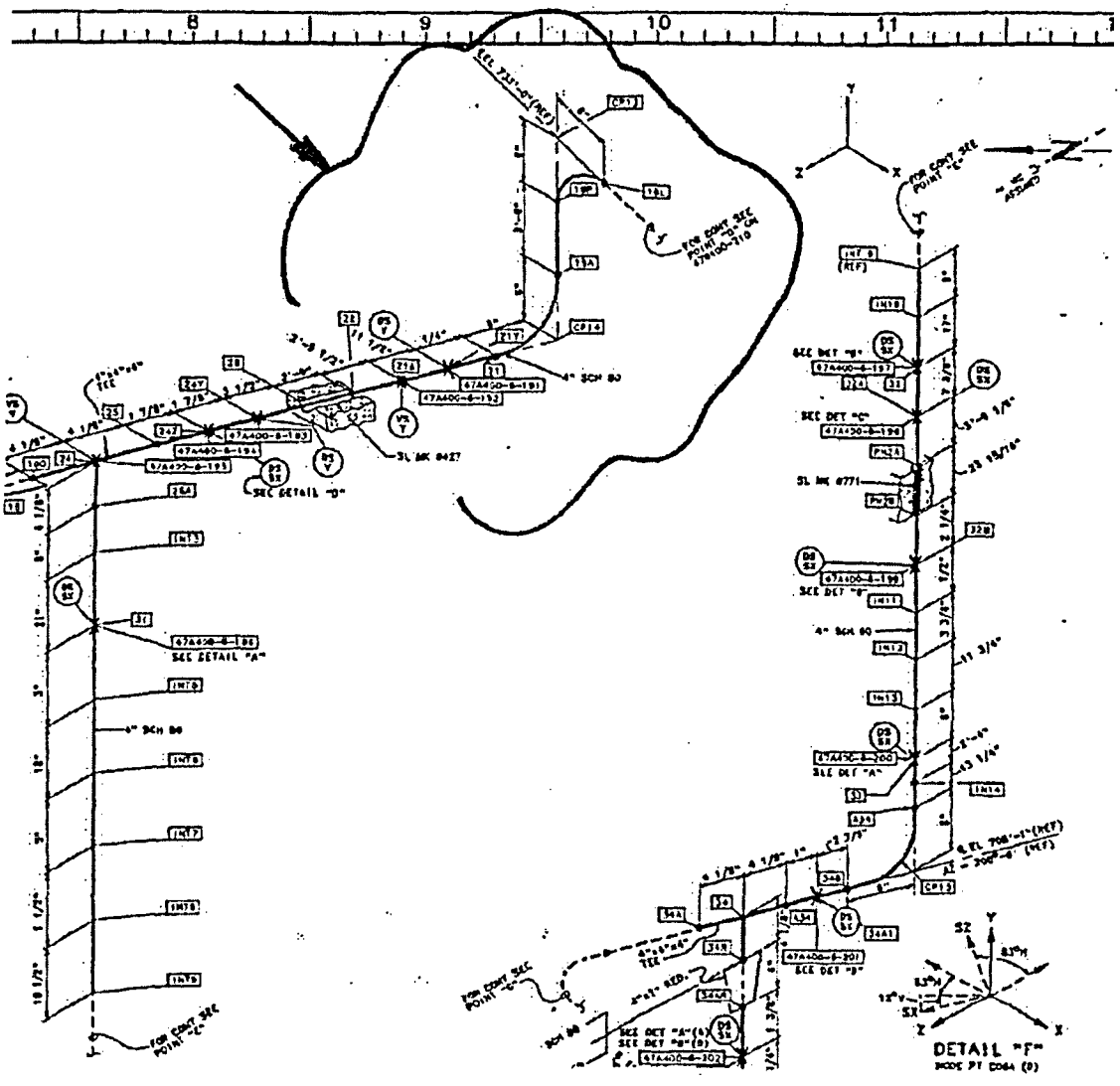
AT 6" OD INSULATION (1" PIPING): LENGTH = 9(1/12) = 0.75FT

AT 8" OD INSULATION (1" PIPING/VLV): LENGTH = 7 + 6.32 = 13.32(1/12) = 1.11FT

AT 7" OD INSULATION (2.88" OD TIEBACK SUPPORT): LENGTH = 3.25(1/12) = 0.28FT

CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

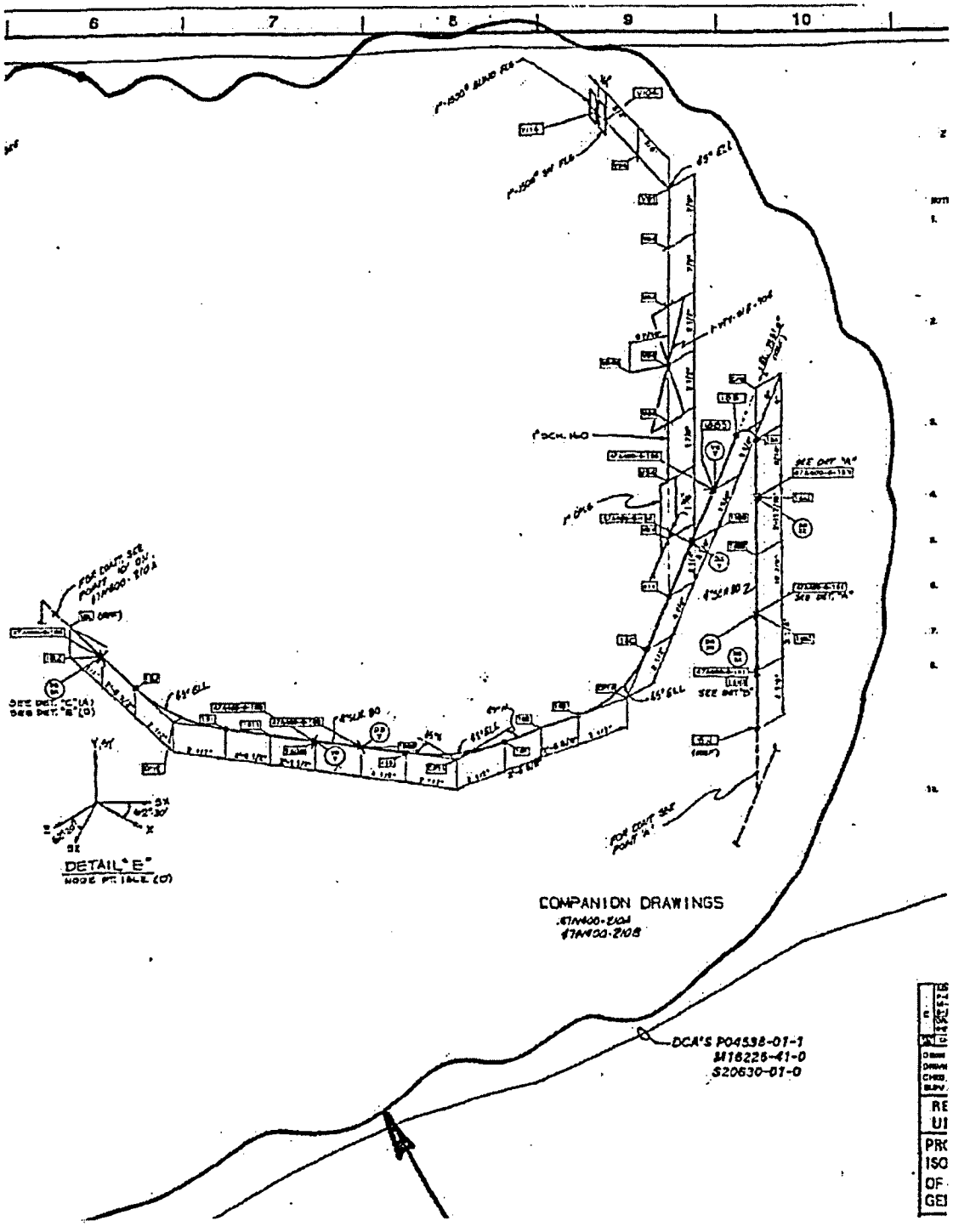
WALKDOWN PACKAGE NO. WB1-DWD-008L
EXCERPT FROM DRAWING 1-47W400-210A



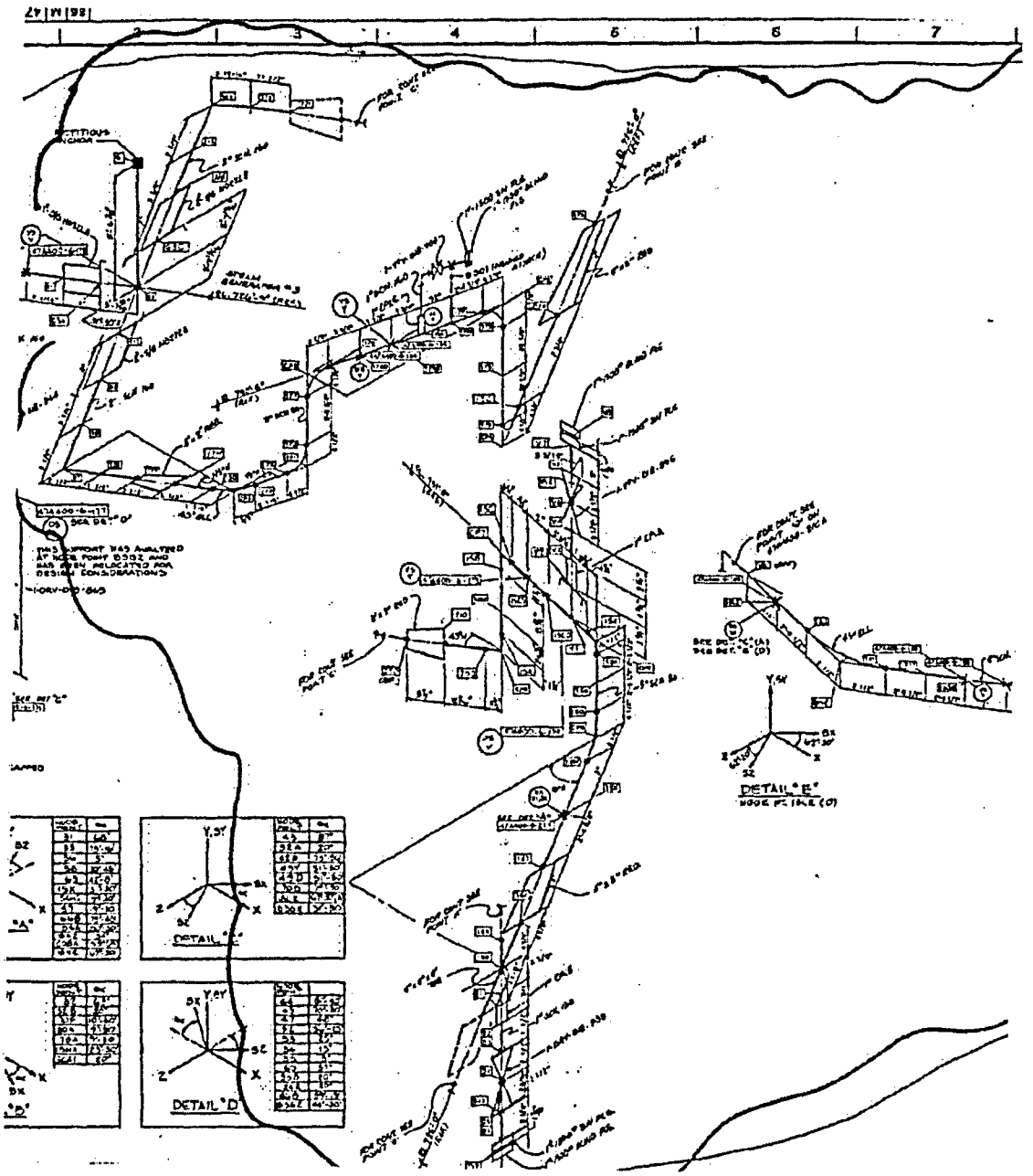
CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-008L

EXCERPT FROM DRAWING 47W400-210



CONTAINMENT DEBRIS WALKDOWN PACKAGE
WATTS BAR N. P. UNIT 1

WALKDOWN PACKAGE NO. WB1-DWD-008L

EXCERPT FROM DRAWING 47W400-210