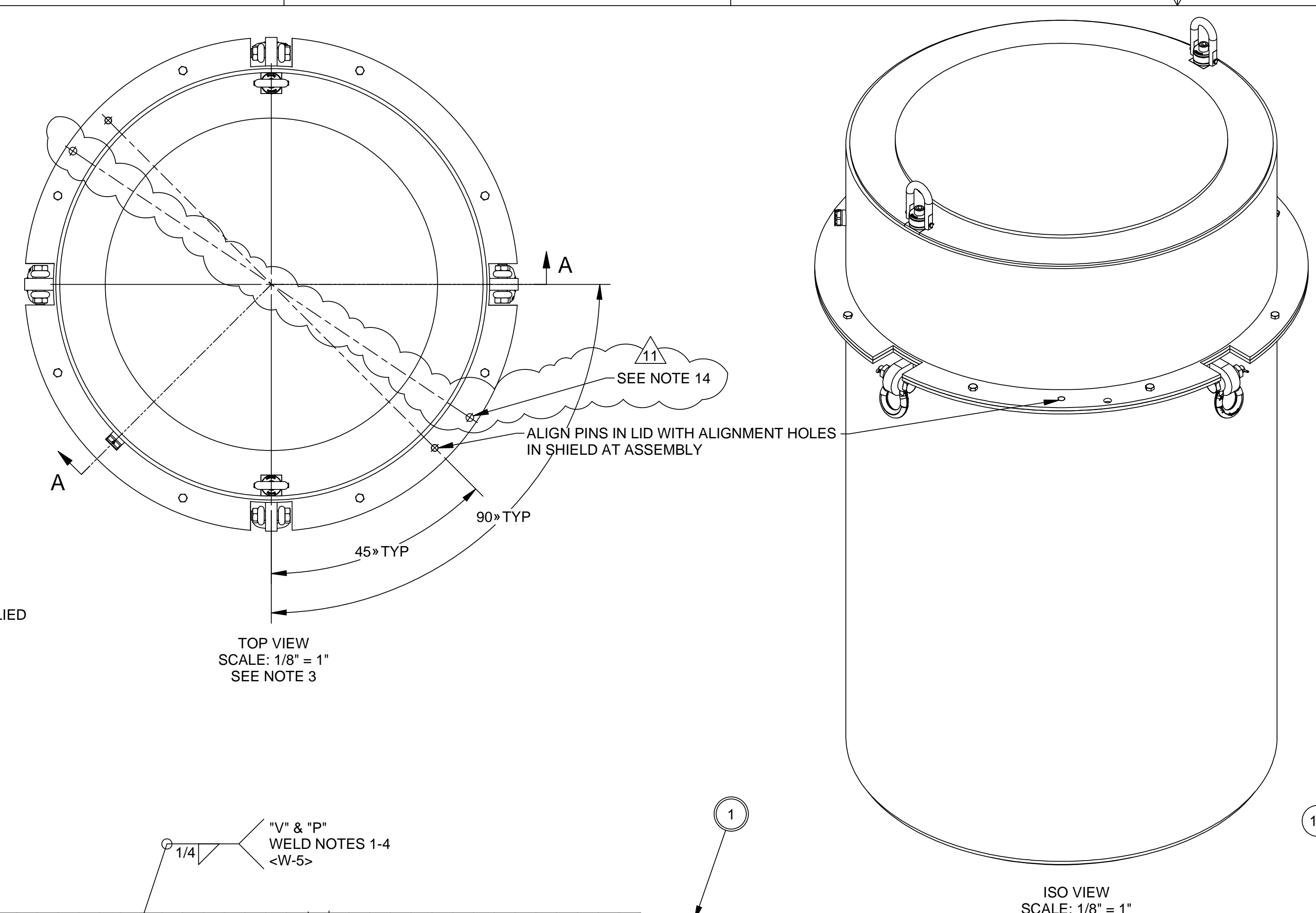
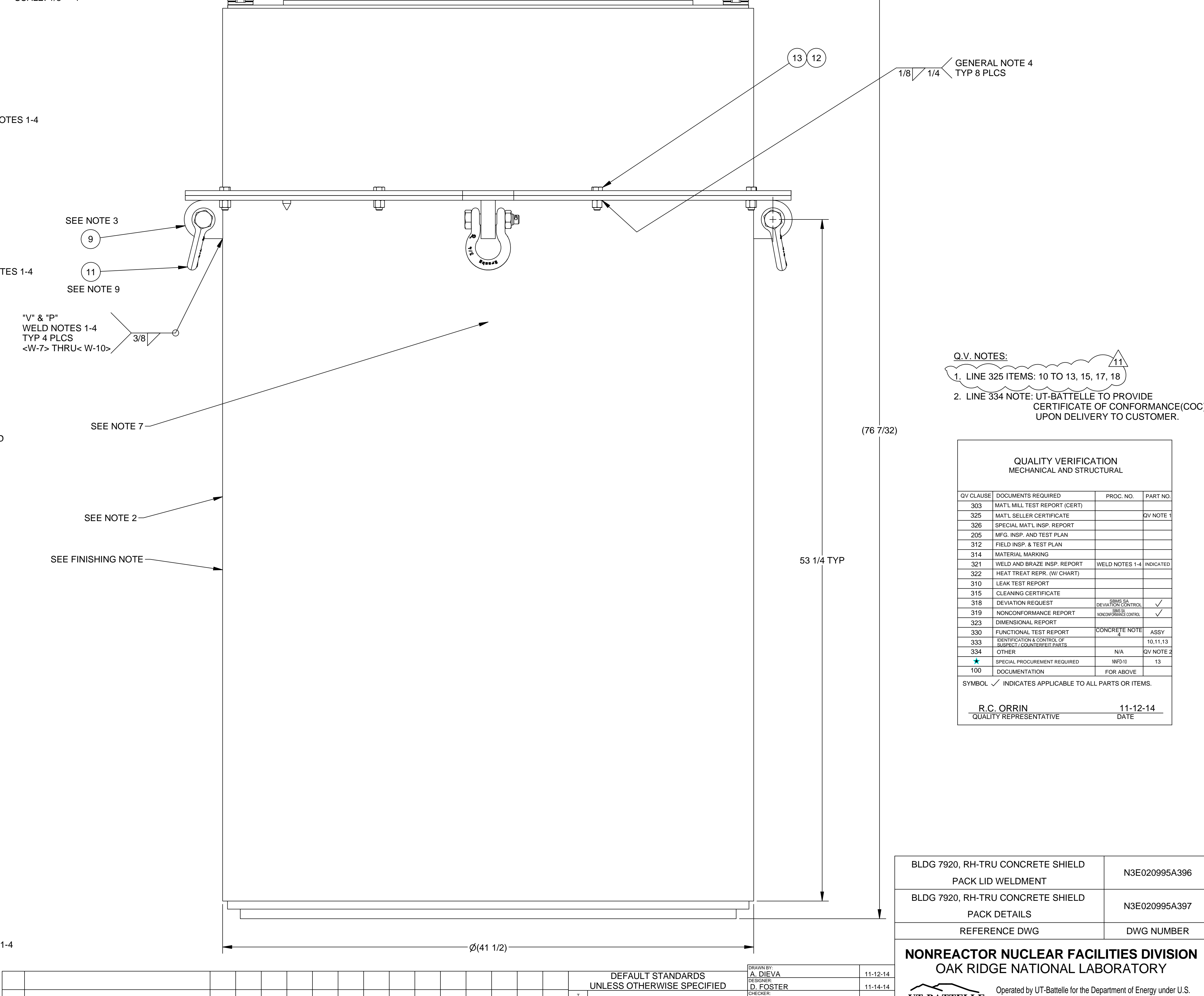
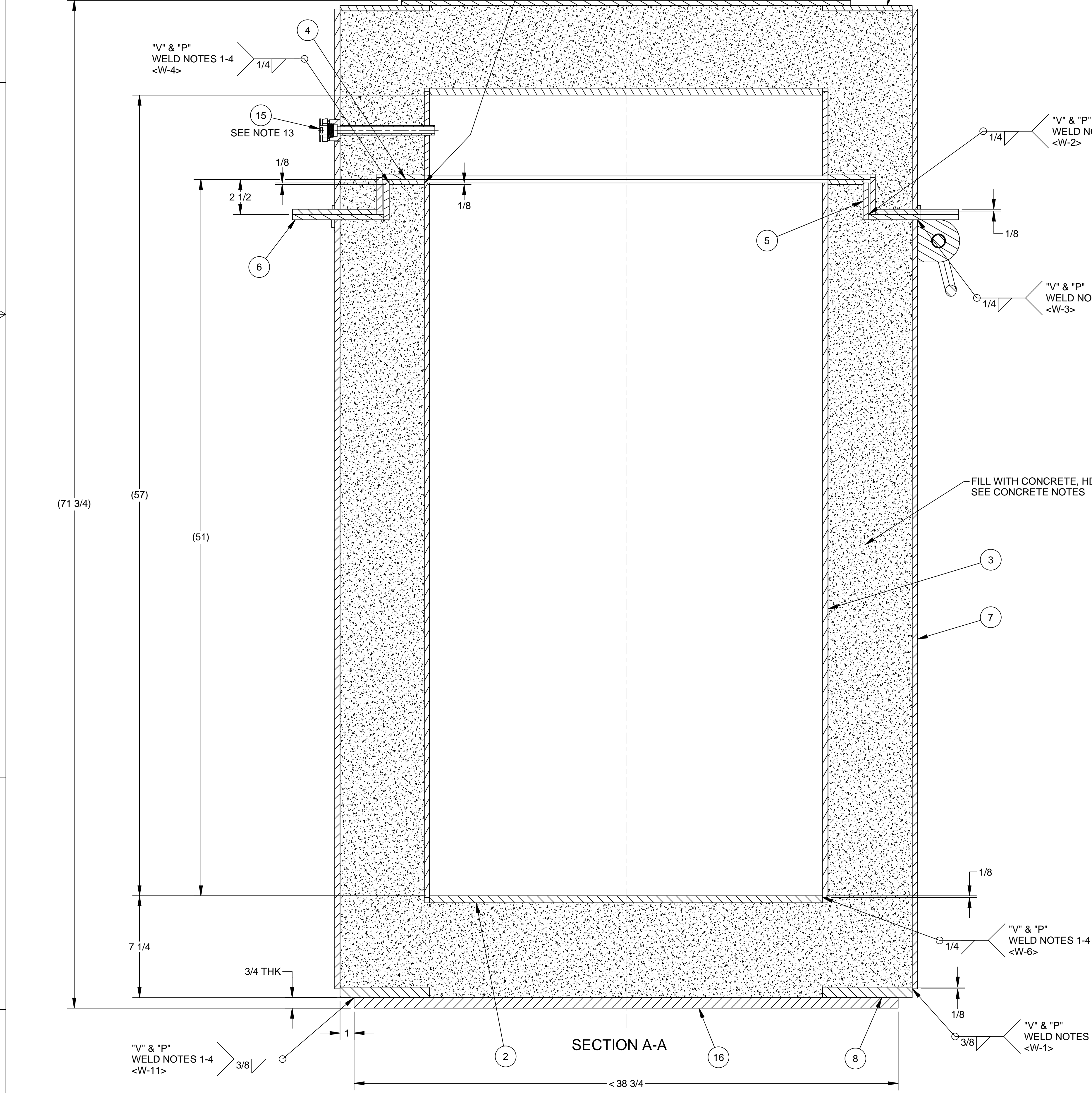


- CONCRETE NOTES:**
1. CONCRETE MIXING AND PLACING SHALL BE IN ACCORDANCE WITH ACI-318. THE MIXING DESIGN, MIXING AND PLACEMENT SHALL BE SUCH TO ASSURE PROPER FILL OF ALL VOIDS AND CONSOLIDATION WITHOUT SEGREGATION THAT COULD DEGRADE SHIELDING PROPERTIES.
 2. WHEN FULLY CURED THE CONCRETE DENSITY SHALL BE 230pcf +/- 10%.
 3. CONCRETE SHALL BE MINIMUM 28-DAY STRENGTH OF 3000 PSI. MAXIMUM AGGREGATE SIZE 3/8 INCH AND AIR ENTRAINMENT OF 2% +/- 1%.
 4. SHIELD PACK ASSEMBLY SHALL BE WEIGHED USING CALIBRATED SCALE PRIOR TO CONCRETE PLACEMENT AND A MINIMUM OF 7 DAYS AFTER CONCRETE PLACEMENT. WEIGHTS SHALL BE RECORDED.
 5. SHIELD PACK ASSEMBLY MUST HAVE A MINIMUM CONCRETE THICKNESS OF 4 1/2" WITHIN THE ANNULUS OF THE BODY & LID.
- FINISHING NOTE:**
1. APPLY PRIMER AND FLAT WHITE EPOXY PAINT AFTER SURFACE PREPARATION ACCORDING TO MANUFACTURER'S RECOMMENDATION. COVER ENTIRE PART.
- WELD NOTES:**
1. ALL CARBON STEEL WELDS PER AWS D1.1
 2. <W> INDICATES WELD IDENTIFICATION NUMBER. NO WELD SEQUENCE IMPLIED
 3. WELD INSPECTION:
"V" - VISUAL PER AWS D1.1
"P" - DYE PENETRANT PER AWS D1.1
 4. UNLESS OTHERWISE SPECIFIED, WELD SIZES TO BE EQUAL TO THICKNESS OF THE THINNEST OF THE TWO MATERIALS JOINED.



ITEM	QTY	DESCRIPTION	NOTE	MATERIAL / VENDOR	MFG. PN / DET. DWG #
1	1	LID WELDMENT	8		
2	1	CASK INNER SHIELD BOTTOM		STEEL, ASTM A36	N3E020995A396
3	1	CASK INNER SHIELD		STEEL, ASTM A36	N3E020995A397
4	1	CASK TOP PLATE OUTER SHIELD #2		STEEL, ASTM A36	N3E020995A397
5	1	CASK OUTER SHIELD #2		STEEL, ASTM A36	N3E020995A397
6	1	CASK TOP PLATE OUTER SHIELD #1	3	STEEL, ASTM A36	N3E020995A397
7	1	CASK OUTER SHIELD #1	7	STEEL, ASTM A36	N3E020995A397
8	1	CASK OUTER SHIELD #1 BOTTOM		STEEL, ASTM A36	N3E020995A397
9	4	SHACKLE MOUNTING BRACKET		STEEL, ASTM A36	N3E020995A397
10	2	SWIVEL HOIST RING, 5/8-11 UNC X 2 LG BOLT, 4000# W.L.			1016920
11	4	BOLT TYPE ANCHOR SHACKLE	1.9	CROSBY INC.	1019524
12	8	HEX NUT, BLACK OXIDE, GRADE 5 STEEL 1/2-13	4.6	MCMMASTER CARR	95479A121
13	8	HEX HEAD SCREW, ZINC PLATED, GRADE 5 STEEL, 1/2-13 UNC X 1.5\" LG.	11	FASTENAL	0137545
14					
15	1	NUCFIL-0190S DIRECT SAMPLE FILTER	5.13	NUCFIL	NFT-0190S
16	1	BOTTOM COVER PLATE	12	STEEL, ASTM A36	
17	1	LOCK, 3/8\" DIA.	14.15	BEST ACCESS	41B782 OR EQUIVALENT
18	1	MULTI-LOCK DEVICE (T.I.D., TAMPER INDICATING DEVICE)	14.16	CAMBRIDGE SECURITY SEAL	CBL10264

- GENERAL NOTES:**
1. CROSBY GROUP, 2801 DAWSON RD., TULSA, OK 74110, (918) 832-0940
 2. ALL OUTSIDE SURFACES TO BE FREE FROM OPEN SEAMS, CRACKS OR OXIDE INCLUSIONS IN THE WELDS.
 3. WELD ITEM # 9 (TYP 4 PLCS), IN RELATIVE POSITION TO CUTOUTS IN ITEM # 6.
 4. AFTER NUT IS TIGHT WELD NUT TO SHIELD PLATE ON TWO SIDES 180° APART.
 5. WWW.NFTINC.COM
 6. WWW.MCMMASTER.COM
 7. MANUFACTURER SHALL STENCIL A SEQUENTIAL SERIAL NUMBER WITH A CONTRASTING COLORED PAINT ON TWO SIDES, 180 DEGREES APART. THE MINIMUM LETTER HEIGHT IS 1.5 INCHES. SERIAL NUMBER SHALL BE THE P.O. NUMBER, FOLLOWED BY A HYPHEN AND A THREE DIGIT SEQUENTIAL NUMBER BEGINNING WITH -001. (E.G., 0806XX-001). ADDITIONAL INFORMATION SHALL INCLUDE THE FOLLOWING:
A) TARE EMPTY WEIGHT _____
B) GROSS WEIGHT _____
 8. MANUFACTURER SHALL STENCIL ON LID "LID LIFT ONLY" WITH A CONTRASTING COLORED PAINT ON TWO SIDES 180 DEGREES APART BESIDE EACH LID HOIST RING; THE MINIMUM LETTER HEIGHT IS 1.5 INCHES.
 9. LIFT SHIELD PACK ASSEMBLY WITH THE BOLT TYPE ANCHOR SHACKLES (ITEM 11) ONLY.
- GENERAL NOTES: CONT.**
10. REFERENCE DESIGN ANALYSIS CALCULATION, NNFD-7920-DAC-2017-002, FOR LIFT CAPACITY. (12,000 LBS)
 11. WWW.FASTENAL.COM
 12. ITEM 16 TO BE WELDED IN PLACE AFTER CONCRETE POUR.
 13. VENT FILTER, ITEM 15, TO BE INSTALLED AND TORQUED TO 15 LBS-FT.
 14. INSERT ITEM 17 & 18, LOCK & T.I.D. INTO HOLE AND SECURE AS REQUIRED.
 15. WWW.BESTACCESS.COM
 16. WWW.CAMBRIDGESEALS.COM



- Q.V. NOTES:**
1. LINE 325 ITEMS: 10 TO 13, 15, 17, 18
 2. LINE 334 NOTE: UT-BATTELLE TO PROVIDE CERTIFICATE OF CONFORMANCE (COC) UPON DELIVERY TO CUSTOMER.

QV CLAUSE	DOCUMENTS REQUIRED	PRD. NO.	PART NO.
303	MAT'L. TEST REPORT (CERT)		
325	MAT'L. SELLER CERTIFICATE		QV NOTE 1
326	SPECIAL MAT'L. INSP. REPORT		
305	WFLD INSP. AND TEST PLAN		
312	FIELD INSP. & TEST PLAN		
314	MATERIAL MARKING		
321	WELD AND BRACE INSP. REPORT		WELD NOTES 1-4 INDICATED
322	HEAT TREAT REPR. (W/ CHART)		
310	LEAK TEST REPORT		
315	CLEANING CERTIFICATE		
318	DEFINITION REQUEST		
319	NONCONFORMANCE REPORT		
323	DIMENSIONAL REPORT		
330	FUNCTIONAL TEST REPORT		CONCRETE NOTE 4 ASSY
333	SUPPLIER CERTIFICATE OF CONFORMANCE		10.11.13
334	OTHER	N/A	QV NOTE 2
*	SPECIAL PROCUREMENT REQUIRED	NFS/16	13
100	DOCUMENTATION		FOR ABOVE

SYMBOL: ✓ INDICATES APPLICABLE TO ALL PARTS OR ITEMS

R. C. ORRIN
QUALITY REPRESENTATIVE

11-12-14
DATE

BLDG 7920, RH-TRU CONCRETE SHIELD PACK LID WELDMENT	N3E020995A396
BLDG 7920, RH-TRU CONCRETE SHIELD PACK DETAILS	N3E020995A397
REFERENCE DWG	DWG NUMBER

NONREACTOR NUCLEAR FACILITIES DIVISION
OAK RIDGE NATIONAL LABORATORY

UT-BATTELLE
Operated by UT-Battelle for the Department of Energy under U.S. Government contract DE-AC05-00OR22725 Oak Ridge, Tennessee

BLDG 7920, RH-TRU CONCRETE SHIELD PACK ASSEMBLY

RH-TRU SHIELD PACK

1	48	49	50	PLANT	BLDG.	FL.	SHEET	OF	CLASS
3	M	E	U	ORNL	7920	1	1	1	U

SCALE AS NOTED

ID K9104B11

N3E020995A395

RH-TRU CONCRETE SHIELD PACK ASSEMBLY

SCALE: 1/4" = 1"

ASSY DWG: N3E020995A410

<W-11> LAST

NO REPRESENTATION OR WARRANTY, EXPRESSED OR IMPLIED, IS MADE AS TO THE ACCURACY, COMPLETENESS OR USEFULNESS OF THE INFORMATION OR STATEMENTS CONTAINED IN THESE DRAWINGS, OR THAT THE USE OR DISCLOSURE OF ANY INFORMATION, APPARATUS, METHOD OR PROCESS DISCLOSED IN THESE DRAWINGS MAY NOT INFRINGE PRIVATE RIGHTS OF OTHERS. NO LIABILITY IS ASSUMED WITH RESPECT TO THE USE OF, OR FOR DAMAGES RESULTING FROM THE USE OF, ANY INFORMATION, APPARATUS, METHOD OR PROCESS DISCLOSED IN THESE DRAWINGS. DRAWINGS MADE AVAILABLE FOR INFORMATION TO BROTHER ARE NOT TO BE USED FOR OTHER PURPOSES, AND ARE TO BE RETURNED UPON REQUEST OF THE FORWARDING CONTRACTOR.

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NUMBER OR LETTER FOR ELEVATION, SECTION, OR DETAIL IS SHOWN.

DRAWING ON WHICH ELEVATION, SECTION, OR DETAIL IS SHOWN.

REV	DESCRIPTION	BY	DSNR	CHK	DR	TL	ESDH	REQ	FAC	DATE	SR1	SR2	SR3	SR4	QR
E	NNFD-7920-DCN-156	AD	NMS	SHR	N/A	N/A	NMS	WKK	AWS	7/30/19	N/A	N/A	N/A	N/A	TER
D	NNFD-7920-DCN-139	AD	NMS	DJK	N/A	N/A	NMS	N/A	AWS	1/11/18	N/A	N/A	N/A	N/A	TER
C	NNFD-7920-DCN-134	AD	NMS	DJK	N/A	N/A	NMS	N/A	AWS	1/16/17	N/A	N/A	N/A	N/A	TER
B	THRU NNFD-7920-DCN-130	AD	NMS	DJK	N/A	N/A	NMS	N/A	AWS	9/13/17	N/A	N/A	N/A	N/A	GEC
A	NNFD-7920-DCN-114	AD	NMS	LBG	N/A	N/A	NMS	N/A	AWS	4/6/17	N/A	N/A	N/A	N/A	GEC

REVISION OR ISSUE PURPOSE

REVISION APPROVALS

DEFAULT STANDARDS UNLESS OTHERWISE SPECIFIED

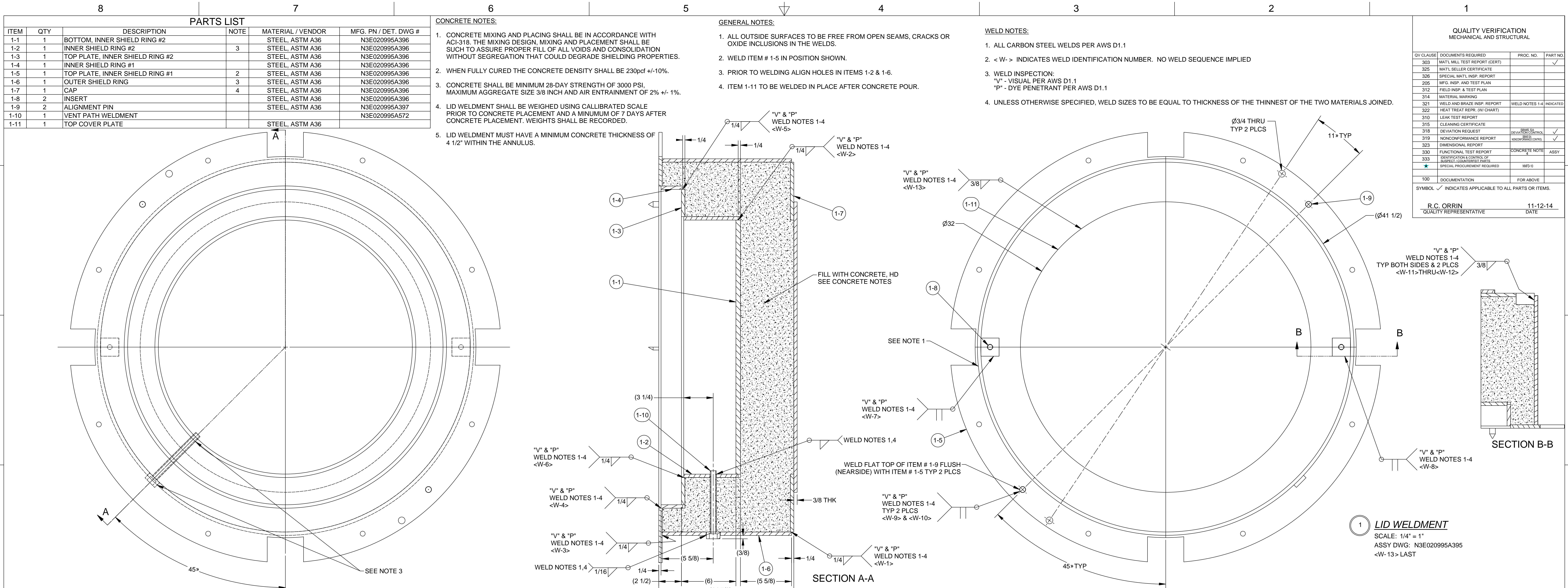
FRACTIONS 1/84 XX DECIMALS 1 0.01 XXX DECIMALS 0.0005 ANGLES 0°-30° BREAK SHARP EDGES 1/64 MAX. FINISH = 125 RMS

ALL DIMENSIONS ARE IN INCHES

WHENEVER A MANUFACTURER'S NAME OR CATALOG NUMBER IS INDICATED, AN APPROVED EQUAL MAY BE SUBSTITUTED

THIS DRAWING CREATED IN ACCORDANCE WITH ANSI Y14.5M - 1994

DATE	APPROVALS
11-22-14	J. DIEVA
11-14-14	D. FOSTER
11-13-14	L.B. GORMAN
11-14-14	D. FOSTER
11-13-14	A.W. SMITH



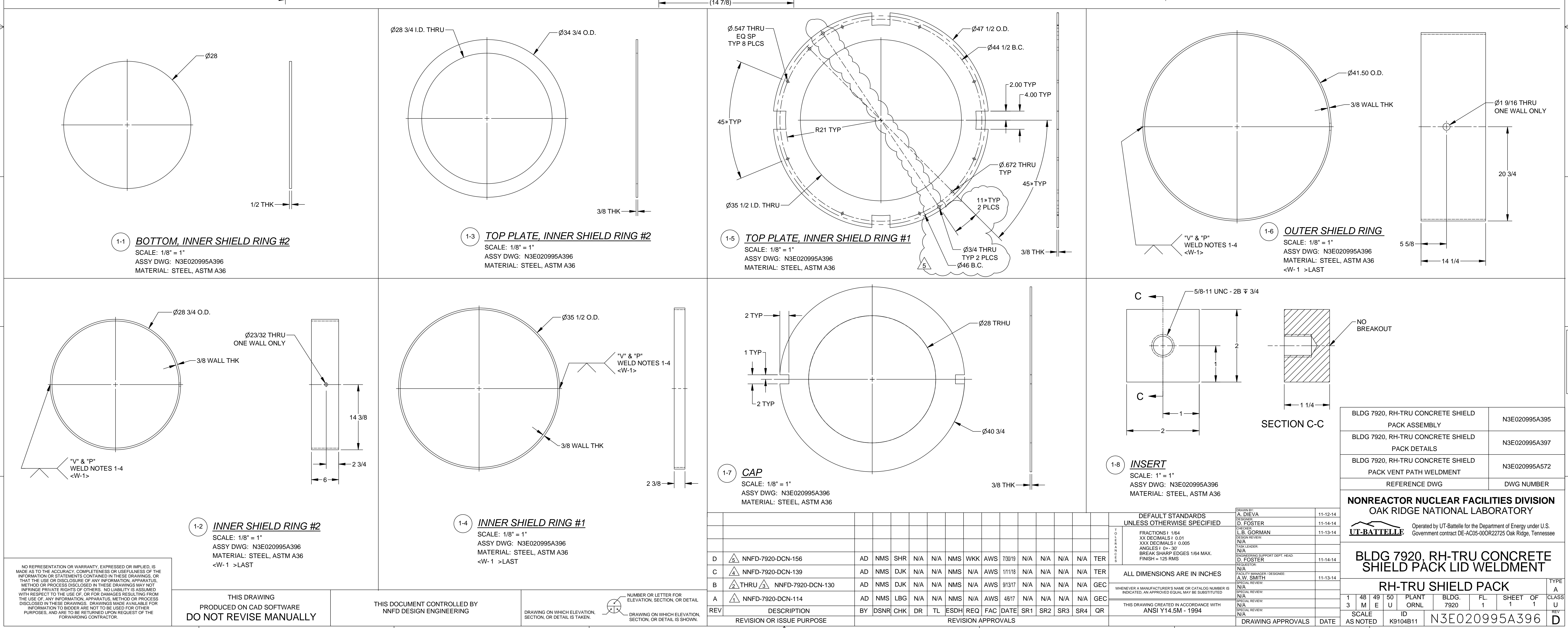
PARTS LIST					
ITEM	QTY	DESCRIPTION	NOTE	MATERIAL / VENDOR	MFG. PN / DET. DWG #
1-1	1	BOTTOM, INNER SHIELD RING #2		STEEL, ASTM A36	N3E020995A396
1-2	1	INNER SHIELD RING #2	3	STEEL, ASTM A36	N3E020995A396
1-3	1	TOP PLATE, INNER SHIELD RING #2		STEEL, ASTM A36	N3E020995A396
1-4	1	INNER SHIELD RING #1		STEEL, ASTM A36	N3E020995A396
1-5	1	TOP PLATE, INNER SHIELD RING #1	2	STEEL, ASTM A36	N3E020995A396
1-6	1	OUTER SHIELD RING		STEEL, ASTM A36	N3E020995A396
1-7	1	CAP	4	STEEL, ASTM A36	N3E020995A396
1-8	2	INSERT		STEEL, ASTM A36	N3E020995A396
1-9	2	ALIGNMENT PIN		STEEL, ASTM A36	N3E020995A397
1-10	1	VENT PATH WELDMENT		STEEL, ASTM A36	N3E020995A572
1-11	1	TOP COVER PLATE		STEEL, ASTM A36	

- CONCRETE NOTES:**
1. CONCRETE MIXING AND PLACING SHALL BE IN ACCORDANCE WITH ACI-318. THE MIXING DESIGN, MIXING AND PLACEMENT SHALL BE SUCH TO ASSURE PROPER FILL OF ALL VOIDS AND CONSOLIDATION WITHOUT SEGREGATION THAT COULD DEGRADE SHIELDING PROPERTIES.
 2. WHEN FULLY CURED THE CONCRETE DENSITY SHALL BE 230pcf +/-10%.
 3. CONCRETE SHALL BE MINIMUM 28-DAY STRENGTH OF 3000 PSI, MAXIMUM AGGREGATE SIZE 3/8 INCH AND AIR ENTRAINMENT OF 2% +/- 1%.
 4. LID WELDMENT SHALL BE WEIGHED USING CALIBRATED SCALE PRIOR TO CONCRETE PLACEMENT AND A MINIMUM OF 7 DAYS AFTER CONCRETE PLACEMENT. WEIGHTS SHALL BE RECORDED.
 5. LID WELDMENT MUST HAVE A MINIMUM CONCRETE THICKNESS OF 4 1/2" WITHIN THE ANNULUS.
- GENERAL NOTES:**
1. ALL OUTSIDE SURFACES TO BE FREE FROM OPEN SEAMS, CRACKS OR OXIDE INCLUSIONS IN THE WELDS.
 2. WELD ITEM # 1-5 IN POSITION SHOWN.
 3. PRIOR TO WELDING ALIGN HOLES IN ITEMS 1-2 & 1-6.
 4. ITEM 1-11 TO BE WELDED IN PLACE AFTER CONCRETE POUR.
- WELD NOTES:**
1. ALL CARBON STEEL WELDS PER AWS D1.1
 2. <W- > INDICATES WELD IDENTIFICATION NUMBER. NO WELD SEQUENCE IMPLIED
 3. WELD INSPECTION:
"V" - VISUAL PER AWS D1.1
"P" - DYE PENETRANT PER AWS D1.1
 4. UNLESS OTHERWISE SPECIFIED, WELD SIZES TO BE EQUAL TO THICKNESS OF THE THINNEST OF THE TWO MATERIALS JOINED.

QUALITY VERIFICATION MECHANICAL AND STRUCTURAL			
REV CLAUSE	DOCUMENTS REQUIRED	PROC. NO.	PART NO.
303	MAT'L MTL TEST REPORT (CERT)		
305	MAT'L SELLER CERTIFICATE		
306	SPECIAL MAT'L INSP. REPORT		
305	MFG. INSP. AND TEST PLAN		
312	FIELD INSP. & TEST PLAN		
314	MATERIAL MARKING		
321	WELD AND BRAZE INSP. REPORT	WELD NOTES 1-4	INDICATED
322	HEAT TREAT REPR. RW CHART		
310	LEAK TEST REPORT		
315	CLEANING CERTIFICATE		
318	DEVIATION REQUEST		
318	NONCONFORMANCE REPORT		
323	CONFORMANCE REPORT		
330	FUNCTIONAL TEST REPORT	CONCRETE NOTE	ASSY
333	DEFINITION & LISTING OF SUBJECT GOVERNMENT STANDARDS		
	SPECIAL PROCUREMENT REQUIRED		
100	DOCUMENTATION	FOR ABOVE	

R.C. ORRIN
QUALITY REPRESENTATIVE

11-12-14
DATE



REV	DESCRIPTION	BY	DSNR	CHK	DR	TL	ESDH	REQ	FAC	DATE	SR1	SR2	SR3	SR4	QR
D	NNFD-7920-DCN-156	AD	NMS	SHR	N/A	N/A	NMS	WKK	AW5	7/30/19	N/A	N/A	N/A	N/A	TER
C	NNFD-7920-DCN-139	AD	NMS	DJK	N/A	N/A	NMS	N/A	AW5	1/11/18	N/A	N/A	N/A	N/A	TER
B	THRU NNFD-7920-DCN-130	AD	NMS	DJK	N/A	N/A	NMS	N/A	AW5	9/13/17	N/A	N/A	N/A	N/A	GEC
A	NNFD-7920-DCN-114	AD	NMS	LBG	N/A	N/A	NMS	N/A	AW5	4/6/17	N/A	N/A	N/A	N/A	GEC

BLDG 7920, RH-TRU CONCRETE SHIELD		N3E020995A396
PACK ASSEMBLY		
BLDG 7920, RH-TRU CONCRETE SHIELD		N3E020995A397
PACK DETAILS		
BLDG 7920, RH-TRU CONCRETE SHIELD		N3E020995A572
PACK VENT PATH WELDMENT		
REFERENCE DWG		DWG NUMBER

NONREACTOR NUCLEAR FACILITIES DIVISION
OAK RIDGE NATIONAL LABORATORY

UT-BATTELLE
Operated by UT-Battelle for the Department of Energy under U.S. Government contract DE-AC05-00OR22725 Oak Ridge, Tennessee

BLDG 7920, RH-TRU CONCRETE SHIELD PACK LID WELDMENT

RH-TRU SHIELD PACK

1	48	49	50	PLANT	BLDG.	FL.	SHEET	OF	CLASS
3	M	E	U	ORNL	7920	1	1	1	U

SCALE AS NOTED
ID K9104B11
N3E020995A396

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NUMBER OR LETTER FOR
ELEVATION, SECTION, OR DETAIL

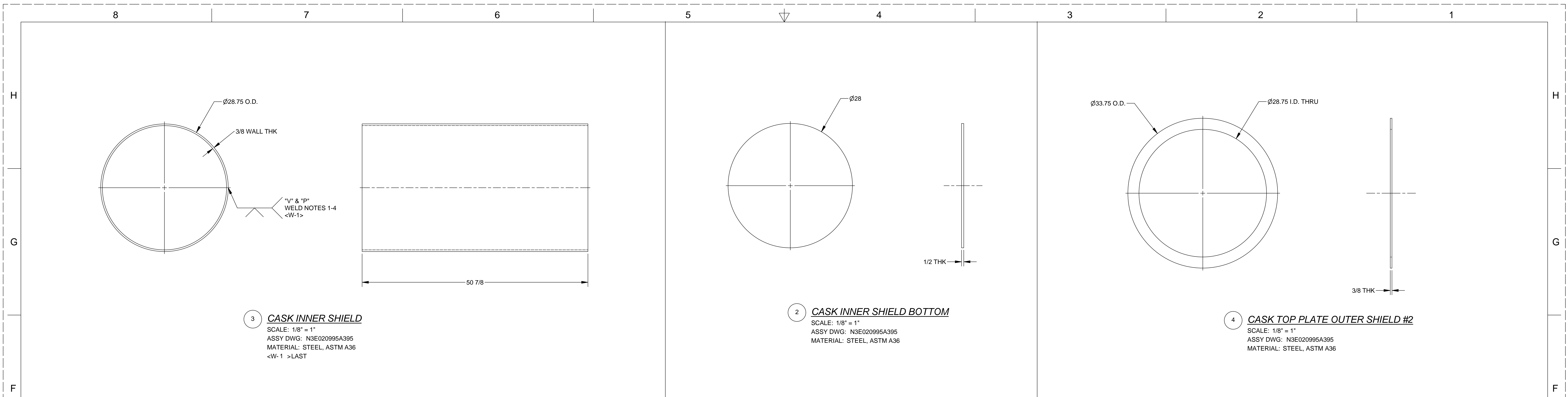
DRAWING ON WHICH ELEVATION,
SECTION, OR DETAIL IS SHOWN.

REV	DESCRIPTION	BY	DSNR	CHK	DR	TL	ESDH	REQ	FAC	DATE	SR1	SR2	SR3	SR4	QR
D	NNFD-7920-DCN-156	AD	NMS	SHR	N/A	N/A	NMS	WKK	AW5	7/30/19	N/A	N/A	N/A	N/A	TER
C	NNFD-7920-DCN-139	AD	NMS	DJK	N/A	N/A	NMS	N/A	AW5	1/11/18	N/A	N/A	N/A	N/A	TER
B	THRU NNFD-7920-DCN-130	AD	NMS	DJK	N/A	N/A	NMS	N/A	AW5	9/13/17	N/A	N/A	N/A	N/A	GEC
A	NNFD-7920-DCN-114	AD	NMS	LBG	N/A	N/A	NMS	N/A	AW5	4/6/17	N/A	N/A	N/A	N/A	GEC

REV	DESCRIPTION	BY	DSNR	CHK	DR	TL	ESDH	REQ	FAC	DATE	SR1	SR2	SR3	SR4	QR
D	NNFD-7920-DCN-156	AD	NMS	SHR	N/A	N/A	NMS	WKK	AW5	7/30/19	N/A	N/A	N/A	N/A	TER
C	NNFD-7920-DCN-139	AD	NMS	DJK	N/A	N/A	NMS	N/A	AW5	1/11/18	N/A	N/A	N/A	N/A	TER
B	THRU NNFD-7920-DCN-130	AD	NMS	DJK	N/A	N/A	NMS	N/A	AW5	9/13/17	N/A	N/A	N/A	N/A	GEC
A	NNFD-7920-DCN-114	AD	NMS	LBG	N/A	N/A	NMS	N/A	AW5	4/6/17	N/A	N/A	N/A	N/A	GEC

DEFAULT STANDARDS UNLESS OTHERWISE SPECIFIED		DATE
FRACTIONS 1/84 XX DECIMALS 1 0.01 XXX DECIMALS 0.0005 ANGLES 0°-30° BREAK SHARP EDGES 1/64 MAX. FINISH = 125 RMS		11-12-14
ALL DIMENSIONS ARE IN INCHES		11-14-14
WHENEVER A MANUFACTURER'S NAME OR CATALOG NUMBER IS INDICATED, AN APPROVED EQUAL MAY BE SUBSTITUTED		11-14-14
THIS DRAWING CREATED IN ACCORDANCE WITH ANSI Y14.5M - 1994		11-14-14

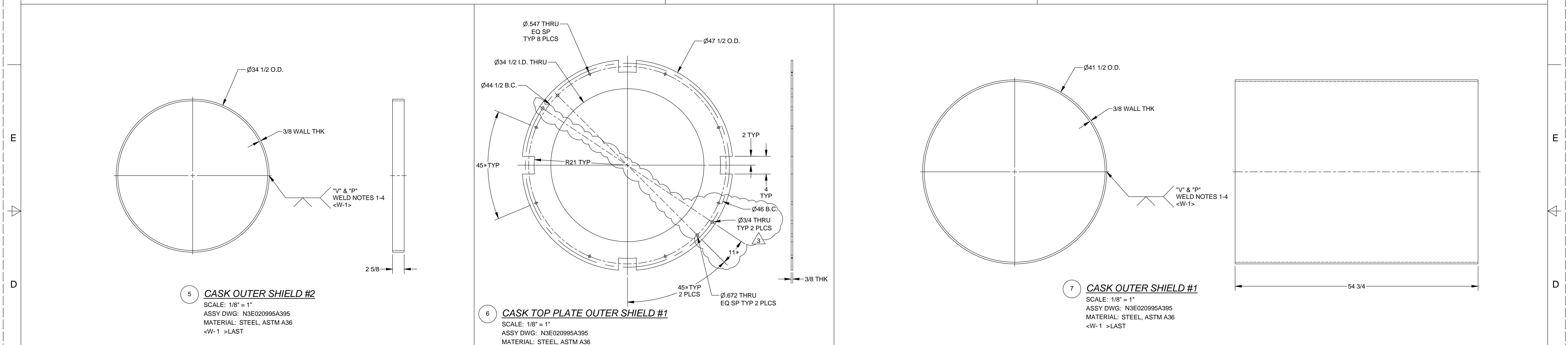
DRAWING APPROVALS		DATE
DESIGNED BY	A. CHEVA	11-12-14
DRAWN BY	D. FOSTER	11-14-14
CHECKED BY	L.B. GORMAN	11-13-14
APPROVED BY	N/A	
DESIGNED BY	N/A	
DRAWN BY	N/A	
CHECKED BY	N/A	
APPROVED BY	N/A	



3 CASK INNER SHIELD
SCALE: 1/8" = 1"
ASSY DWG: N3E020995A395
MATERIAL: STEEL, ASTM A36
<W-1 >LAST

2 CASK INNER SHIELD BOTTOM
SCALE: 1/8" = 1"
ASSY DWG: N3E020995A395
MATERIAL: STEEL, ASTM A36

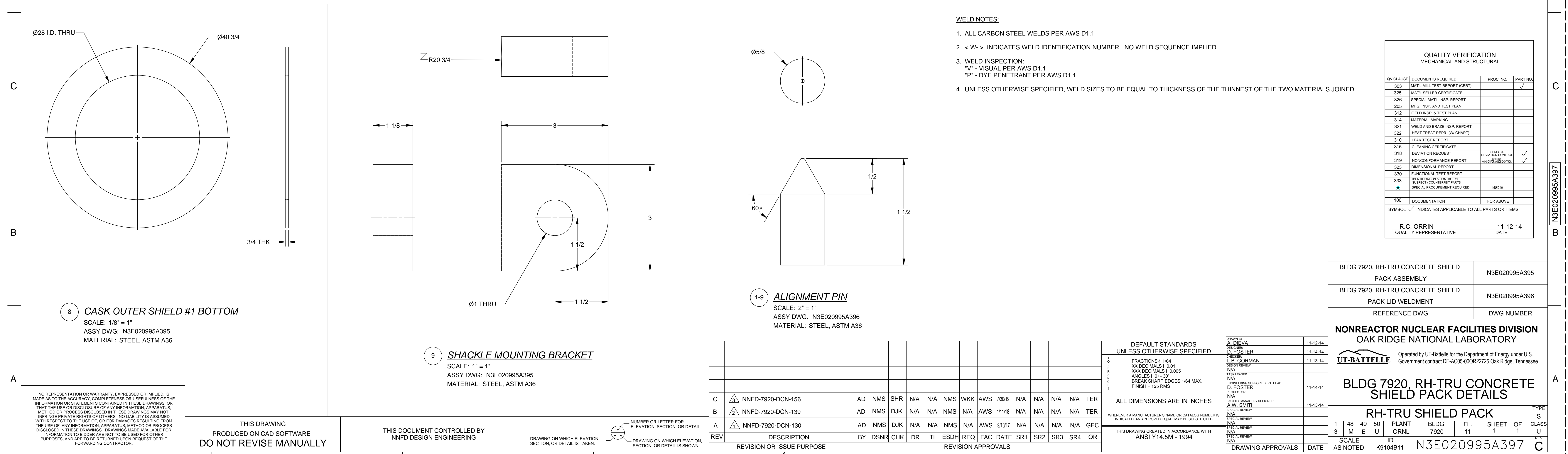
4 CASK TOP PLATE OUTER SHIELD #2
SCALE: 1/8" = 1"
ASSY DWG: N3E020995A395
MATERIAL: STEEL, ASTM A36



5 CASK OUTER SHIELD #2
SCALE: 1/8" = 1"
ASSY DWG: N3E020995A395
MATERIAL: STEEL, ASTM A36
<W-1 >LAST

6 CASK TOP PLATE OUTER SHIELD #1
SCALE: 1/8" = 1"
ASSY DWG: N3E020995A395
MATERIAL: STEEL, ASTM A36

7 CASK OUTER SHIELD #1
SCALE: 1/8" = 1"
ASSY DWG: N3E020995A395
MATERIAL: STEEL, ASTM A36
<W-1 >LAST



8 CASK OUTER SHIELD #1 BOTTOM
SCALE: 1/8" = 1"
ASSY DWG: N3E020995A395
MATERIAL: STEEL, ASTM A36

9 SHACKLE MOUNTING BRACKET
SCALE: 1" = 1"
ASSY DWG: N3E020995A395
MATERIAL: STEEL, ASTM A36

1-9 ALIGNMENT PIN
SCALE: 2" = 1"
ASSY DWG: N3E020995A396
MATERIAL: STEEL, ASTM A36

WELD NOTES:

1. ALL CARBON STEEL WELDS PER AWS D1.1
2. <W-> INDICATES WELD IDENTIFICATION NUMBER. NO WELD SEQUENCE IMPLIED
3. WELD INSPECTION:
"V" - VISUAL PER AWS D1.1
"P" - DYE PENETRANT PER AWS D1.1
4. UNLESS OTHERWISE SPECIFIED, WELD SIZES TO BE EQUAL TO THICKNESS OF THE THINNESS OF THE TWO MATERIALS JOINED.

QV CLAUSE	DOCUMENTS REQUIRED	PROC. NO.	PART NO.
303	MATL. MFG. TEST REPORT (CERT)		✓
325	MATL. SELLER CERTIFICATE		✓
326	SPECIAL MATL. INSP. REPORT		
205	MFG. INSP. AND TEST PLAN		
312	FIELD INSP. & TEST PLAN		
314	MATERIAL MARKING		
321	WELD AND BRAZE INSP. REPORT		
322	HEAT TREAT INSP. (IF DRAWN)		
310	LEAK TEST REPORT		
315	CLEANING CERTIFICATE		
318	DEVIATION REQUEST	DATE/REASON	✓
319	NONCONFORMANCE REPORT	DATE/REASON	✓
323	DIMENSIONAL REPORT		
330	FUNCTIONAL TEST REPORT		
333	NONFUNCTIONAL TEST REPORT		
★	SUBJECT TO DISCREPANT FINDING		
	SPECIAL PROCEDURE REQUIRED	WFS:	
100	DOCUMENTATION	FOR ABOVE	

SYMBOL ✓ INDICATES APPLICABLE TO ALL PARTS OR ITEMS.

R.C. ORRIN
QUALITY REPRESENTATIVE

DATE: 11-12-14

BLDG 7920, RH-TRU CONCRETE SHIELD PACK ASSEMBLY	N3E020995A395
BLDG 7920, RH-TRU CONCRETE SHIELD PACK LID WELDMENT	N3E020995A396
REFERENCE DWG	DWG NUMBER

NONREACTOR NUCLEAR FACILITIES DIVISION
OAK RIDGE NATIONAL LABORATORY

UT-BATTELLE Operated by UT-Battelle for the Department of Energy under U.S. Government contract DE-AC05-00OR22725 Oak Ridge, Tennessee

BLDG 7920, RH-TRU CONCRETE SHIELD PACK DETAILS

RH-TRU SHIELD PACK

1	48	49	50	PLANT	BLDG.	FL.	SHEET	OF	CLASS	TYPE
3	M	E	U	ORNL	7920	11	1	1	U	S

SCALE AS NOTED: ID K9104B11

SCALE: N3E020995A397

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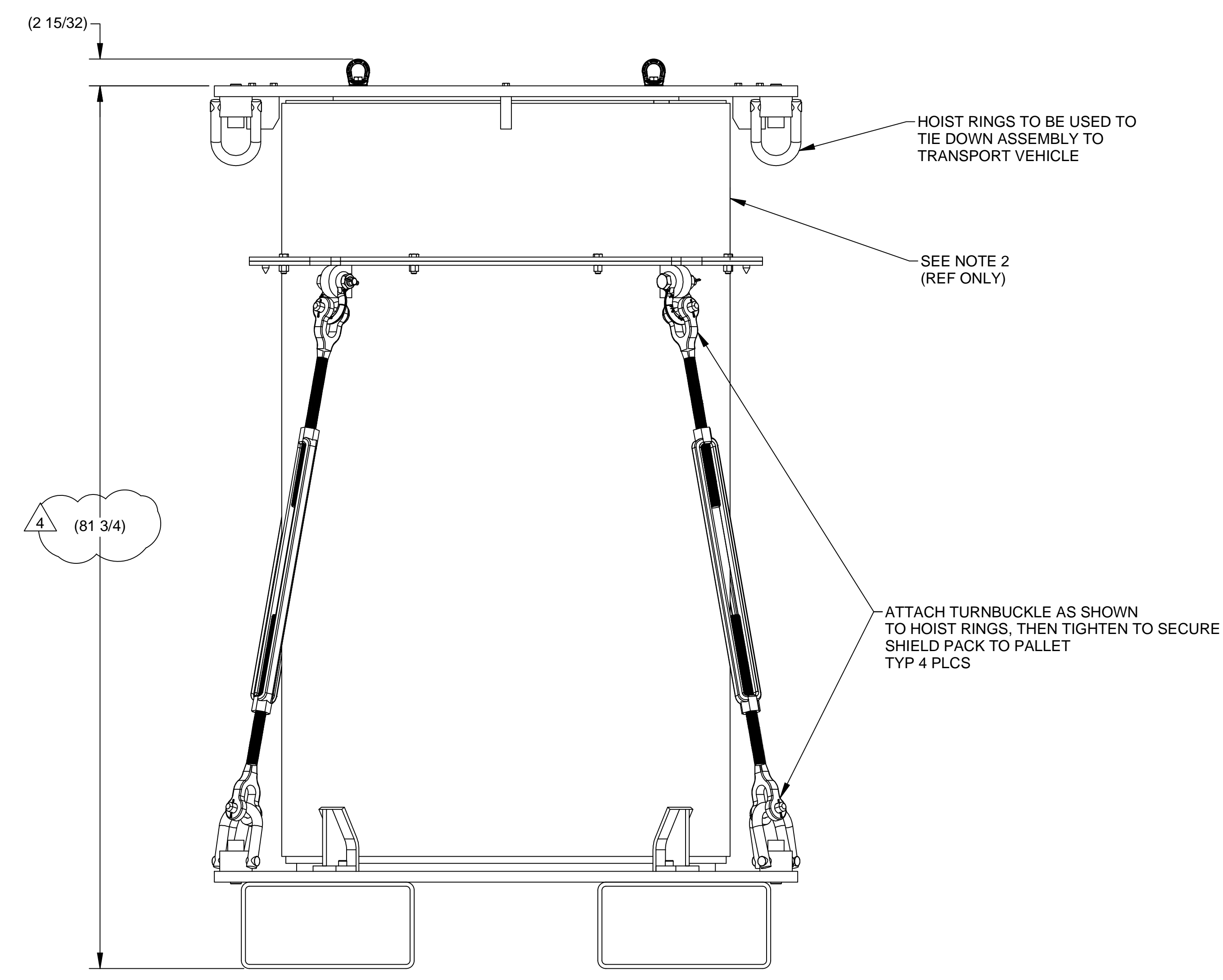
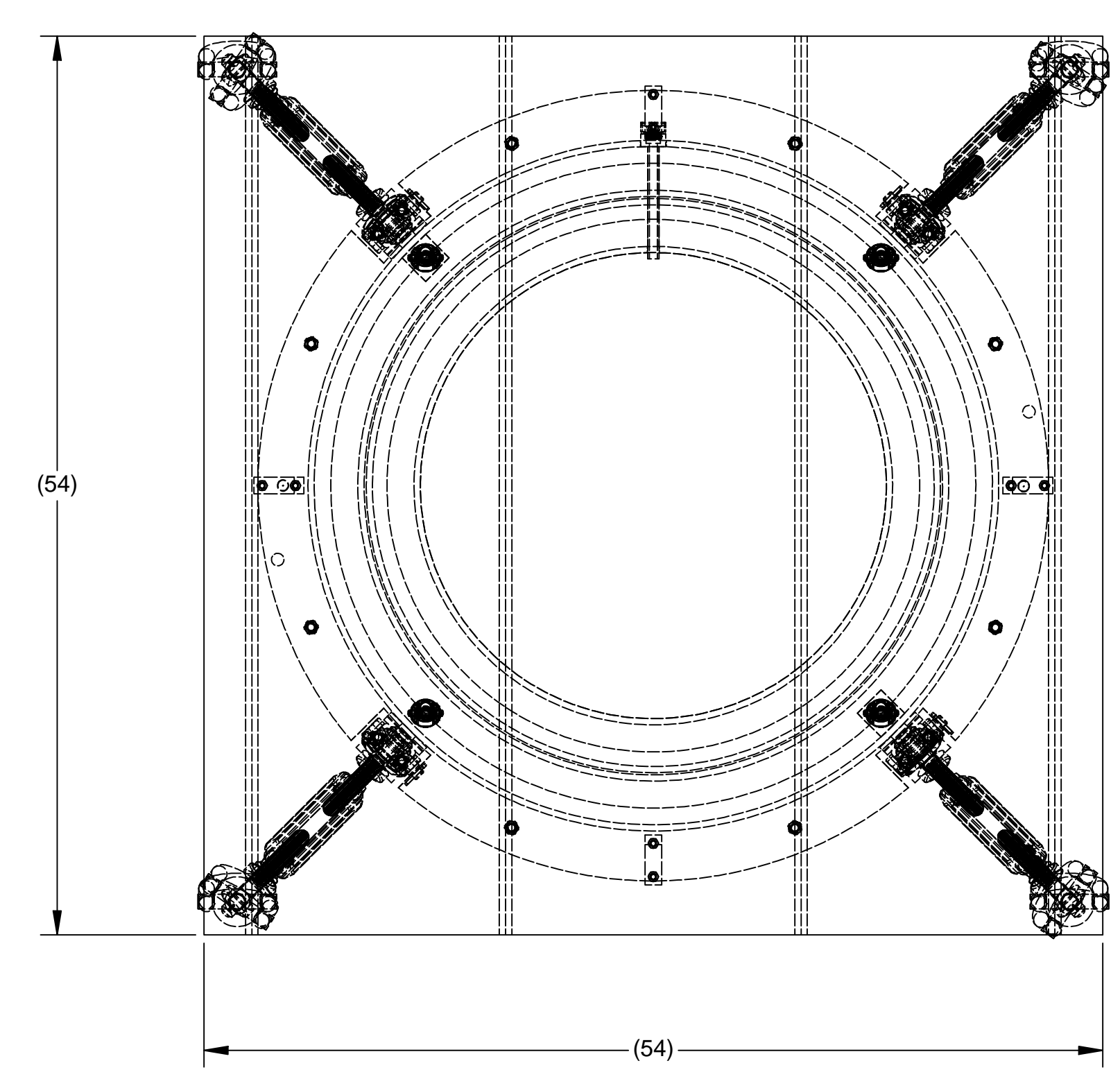
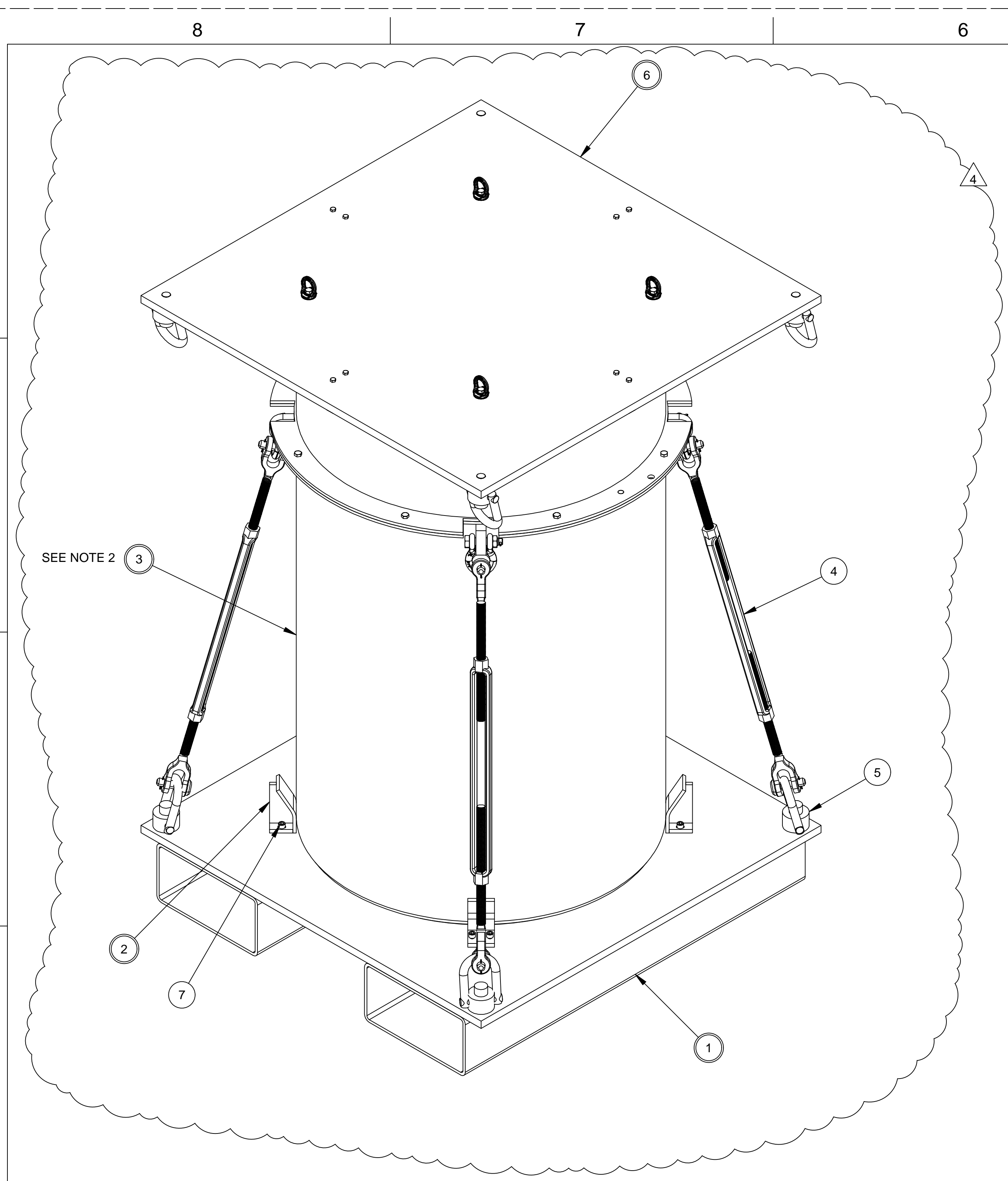
NUMBER OR LETTER FOR
ELEVATION, SECTION, OR DETAIL

REV	DESCRIPTION	BY	DSNR	CHK	DR	TL	ESDH	REQ	FAC	DATE	SR1	SR2	SR3	SR4	QR
A	NNFD-7920-DCN-130	AD	NMS	DJK	N/A	N/A	NMS	N/A	AW5	1/11/18	N/A	N/A	N/A	N/A	TER
B	NNFD-7920-DCN-139	AD	NMS	DJK	N/A	N/A	NMS	N/A	AW5	1/11/18	N/A	N/A	N/A	N/A	TER
C	NNFD-7920-DCN-156	AD	NMS	SHR	N/A	N/A	NMS	WKK	AW5	7/30/19	N/A	N/A	N/A	N/A	TER

REVISION	DATE	BY	CHK	DR	TL	ESDH	REQ	FAC	DATE	SR1	SR2	SR3	SR4	QR

REVISION	DATE	BY	CHK	DR	TL	ESDH	REQ	FAC	DATE	SR1	SR2	SR3	SR4	QR

N3E020995A397



PARTS LIST						
ITEM	QTY	DESCRIPTION	NOTE	MATERIAL / VENDOR	MFG. PN / DET. DWG #	
1	1	PALLET, SHIELD PACK WELDMENT			N3E020995A473	
2	4	GUIDE BRACKET WELDMENT			N3E020995A473	
3	1	RH-TRU CONCRETE SHIELD PACK ASSEMBLY	2,3		N3E020995A395	
4	4	JAW & JAW TURNBUCKLE, 1 X 24	1	CROSBY GROUP	HG228, #1032858	
5	4	UNC SWIVEL HOIST RING, WLL = 10,000 LBS	1	CROSBY GROUP	HR-125 - 1016964	
6	1	TOP FIXTURE ASSEMBLY	3		N3E020995A473	
7	8	S.H.C.S., 1/2-13 UNC X 1.25' LG		STEEL		

- GENERAL NOTES:
- CROSBY GROUP, 2801 DAWSON RD., TULSA, OK 74110, (918) 832-0940
 - RH-TRU CONCRETE SHIELD PACK ASSEMBLY SHOWN FOR REFERENCE ONLY.
 - THE MAXIMUM GROSS WEIGHT TO BE LESS THAN OR EQUAL TO 12,000 LBS WITHOUT THE TOP FIXTURE ASSEMBLY, ITEM 6.

QUALITY VERIFICATION MECHANICAL AND STRUCTURAL			
QV CLAUSE	DOCUMENTS REQUIRED	PROC. NO.	PART NO.
303	MAT'L MTL TEST REPORT (CERT)		
325	MAT'L SELLER CERTIFICATE		4, 5, 7
326	SPECIAL MAT'L INSP. REPORT		
206	MFG. INSP. AND TEST PLAN		
312	FIELD INSP. & TEST PLAN		
314	MATERIAL MARKING		
321	WELD AND BRAZE INSP. REPORT		
322	HEAT TREAT REPR. (W/ CHART)		
313	LEAK TEST REPORT		
315	CLEANING CERTIFICATE		
318	DEVIATION REQUEST		
319	NONCONFORMANCE REPORT		
323	DIMENSIONAL REPORT		
330	FUNCTIONAL TEST REPORT		5
333	IDENTIFIED CORRECTIVE ACTION (CA) REPORT		4, 5
	SPECIAL PROCEDURE REQUIRED		
100	DOCUMENTATION	FOR ABOVE	

SYMBOL ✓ INDICATES APPLICABLE TO ALL PARTS OR ITEMS.

R.C. ORRIN
QUALITY REPRESENTATIVE

6/23/15
DATE

SHIELD PACK PALLET & SHIPPING FIXTURE ASSEMBLY
SCALE: 1/8" = 1"

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NUMBER OR LETTER FOR
ELEVATION, SECTION, OR DETAIL

REV	DESCRIPTION	BY	DSNR	CHK	DR	TL	ESDH	REQ	FAC	DATE	SR1	SR2	SR3	SR4	QR
B	△ NNFD-7920-DCN-139	AD	NMS	DJK	N/A	N/A	NMS	N/A	AWS	1/11/18	N/A	N/A	N/A	N/A	TER
A	△ THRU △ NNFD-7920-DCN-130	AD	NMS	DJK	N/A	N/A	NMS	N/A	AWS	9/13/17	N/A	N/A	N/A	N/A	GEC

DEFAULT STANDARDS
UNLESS OTHERWISE SPECIFIED

FRACTIONS 1/8"
XX DECIMALS 1 0.01
XXX DECIMALS 0.0005
ANGLES 1 0° - 30°
BREAK SHARP EDGES 1/64 MAX.
FINISH = 125 RMS

ALL DIMENSIONS ARE IN INCHES

WHENEVER A MANUFACTURER'S NAME OR CATALOG NUMBER IS INDICATED, AN APPROVED EQUAL MAY BE SUBSTITUTED

THIS DRAWING CREATED IN ACCORDANCE WITH
ANSI Y14.5M - 1994

DESIGNED BY	DATE
A. DIEVA	6/24/15
D. FOSTER	6/25/15
L.B. SORMAN	6/24/15
D. FOSTER	6/25/15
A.W. SMITH	6/25/15

BLDG 7920, RH-TRU CONCRETE SHIELD PACK ASSEMBLY	N3E020995A395
BLDG 7920, SHIELD PACK PALLET & SHIPPING FIXTURE ASSEMBLY & WELDMENTS	N3E020995A473
REFERENCE DWG	DWG NUMBER

NONREACTOR NUCLEAR FACILITIES DIVISION
OAK RIDGE NATIONAL LABORATORY

Operated by UT-Battelle for the Department of Energy under U.S. Government contract DE-AC05-00OR22725 Oak Ridge, Tennessee

BLDG 7920, SHIELD PACK PALLET & SHIPPING FIXTURE ASSEMBLY

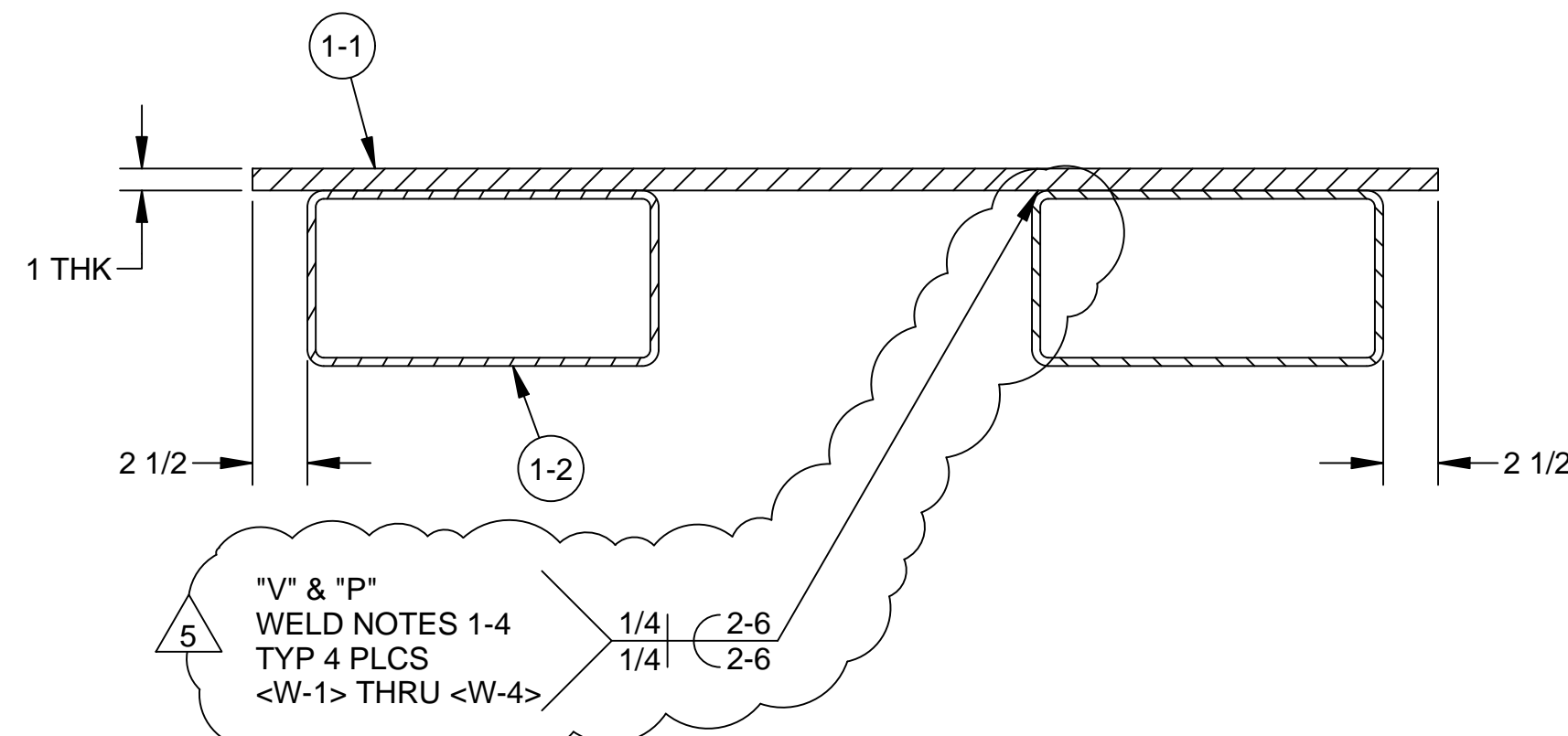
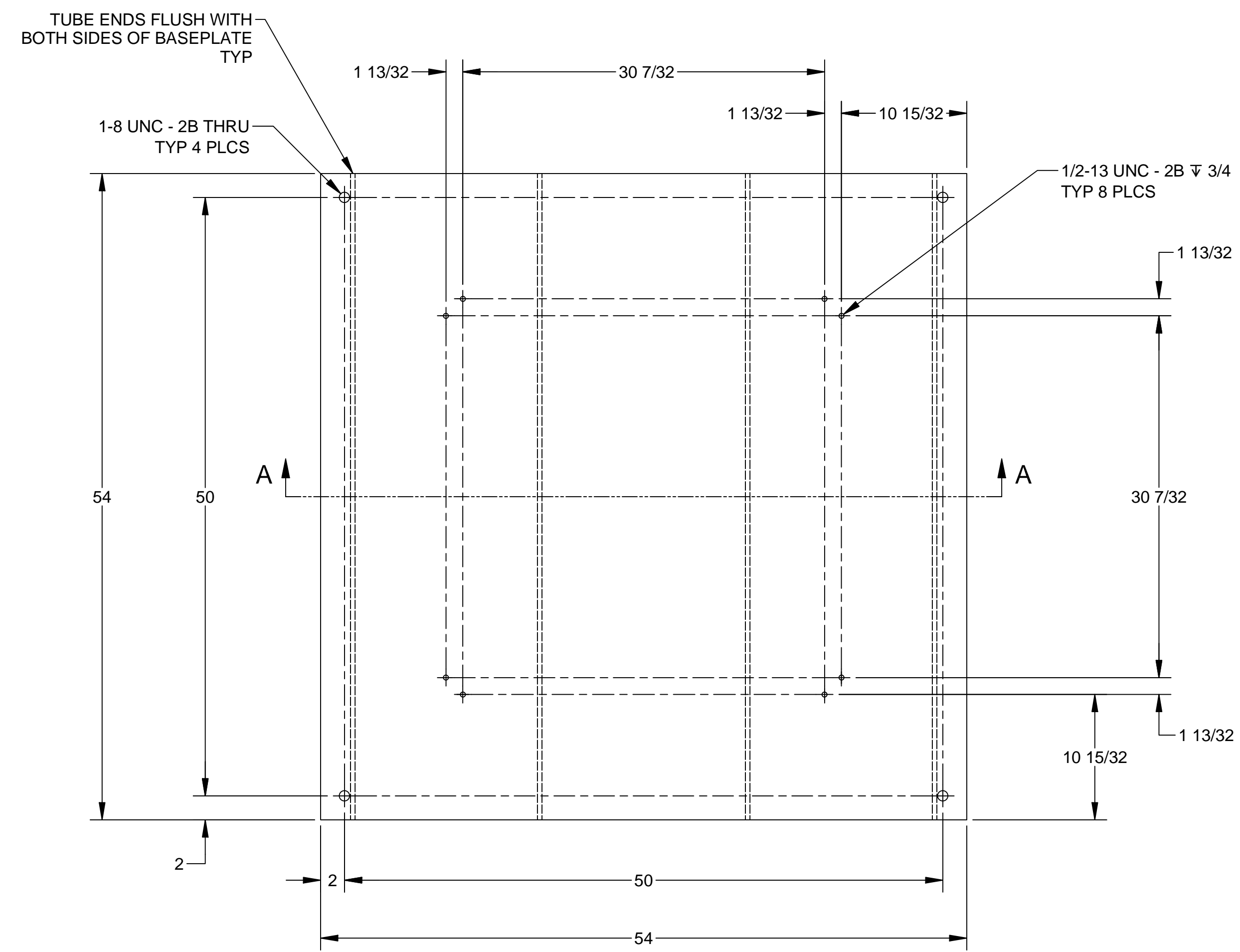
RH-TRU

1	48	49	50	PLANT	BLDG.	FL.	SHEET	OF	CLASS
3	M	E	U	ORNL	7920	1	1	1	U

SCALE AS NOTED ID K9104B11 N3E020995A472

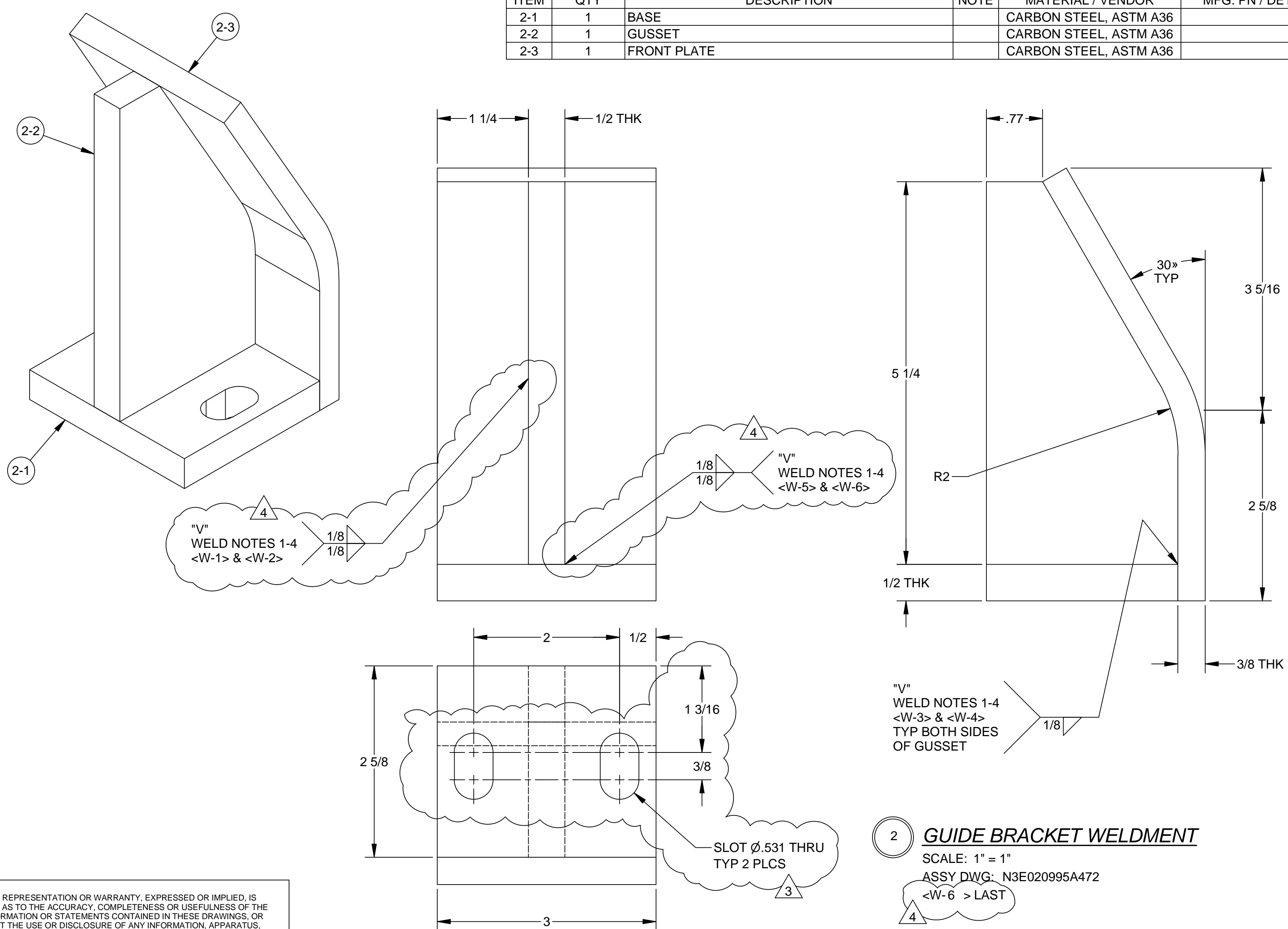
N3E020995A472

PARTS LIST					
ITEM	QTY	DESCRIPTION	NOTE	MATERIAL / VENDOR	MFG. PN / DET. DWG #
1-1	1	BASEPLATE, FIXTURE		CARBON STEEL, ASTM A36	N3E020995A474
1-2	2	TUBE, 16 X 8 X 54" LG, 3/8" THK WALL		CARBON STEEL, ASTM A36	N3E020995A474



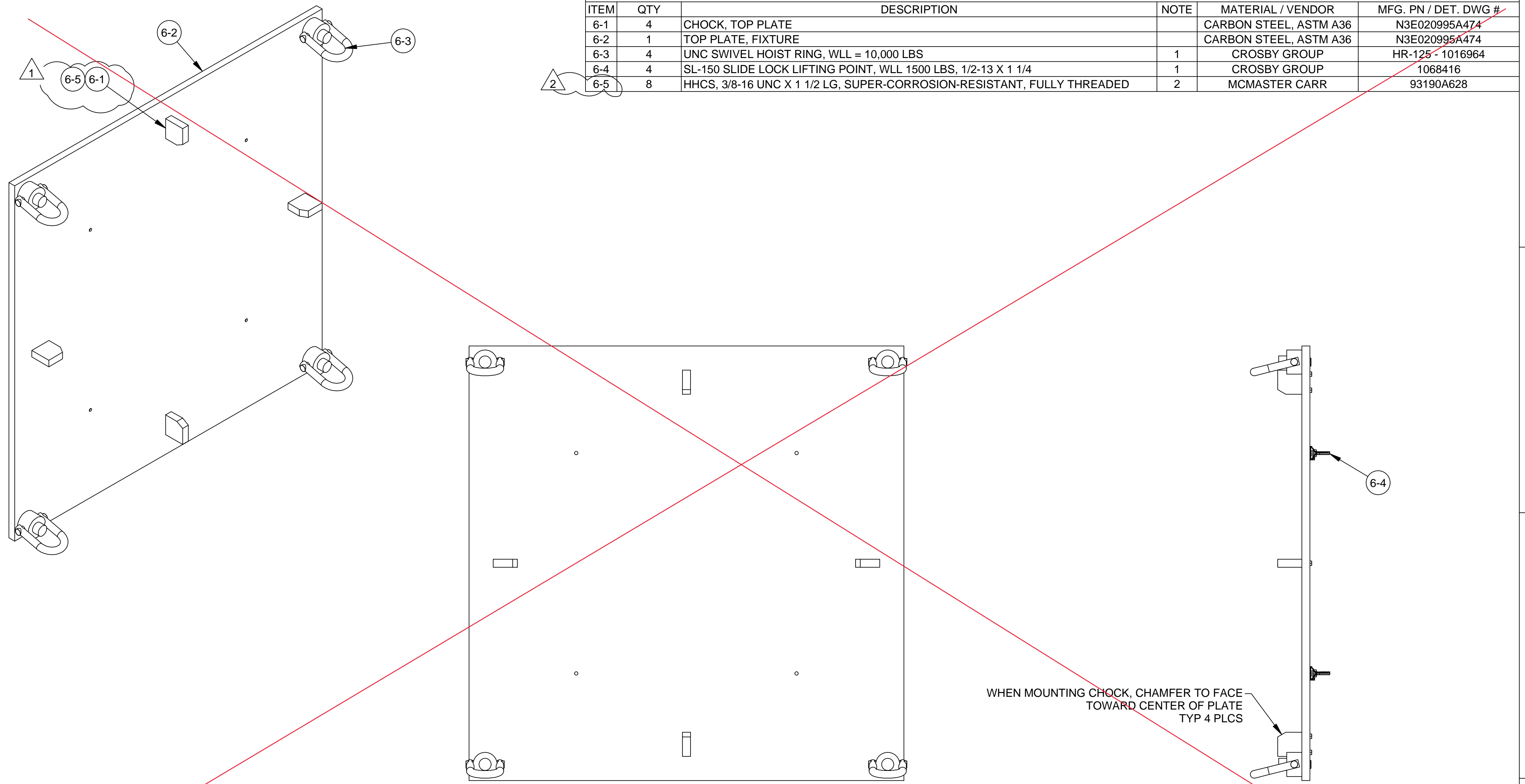
1 **PALLET SHIELD PACK WELDMENT**
SCALE: 1/8" = 1"
ASSY DWG: N3E020995A472
<W-4 > LAST

PARTS LIST					
ITEM	QTY	DESCRIPTION	NOTE	MATERIAL / VENDOR	MFG. PN / DET. DWG #
2-1	1	BASE		CARBON STEEL, ASTM A36	
2-2	1	GUSSET		CARBON STEEL, ASTM A36	
2-3	1	FRONT PLATE		CARBON STEEL, ASTM A36	



2 **GUIDE BRACKET WELDMENT**
SCALE: 1" = 1"
ASSY DWG: N3E020995A472
<W-6 > LAST

PARTS LIST					
ITEM	QTY	DESCRIPTION	NOTE	MATERIAL / VENDOR	MFG. PN / DET. DWG #
6-1	4	CHOCK, TOP PLATE		CARBON STEEL, ASTM A36	N3E020995A474
6-2	1	TOP PLATE, FIXTURE		CARBON STEEL, ASTM A36	N3E020995A474
6-3	4	UNC SWIVEL HOIST RING, WLL = 10,000 LBS		CROSBY GROUP	HR-125-1016964
6-4	4	SL-150 SLIDE LOCK LIFTING POINT, WLL 1500 LBS, 1/2-13 X 1 1/4		CROSBY GROUP	1068416
6-5	8	HHCS, 3/8-16 UNC X 1 1/2 LG, SUPER-CORROSION-RESISTANT, FULLY THREADED		MCMaster CARR	93190A628



6 **TOP FIXTURE ASSEMBLY**
SCALE: 1/8" = 1"
ASSY DWG: N3E020995A472

DO NOT QUOTE

GENERAL NOTES:

- CROSBY GROUP, 2801 DAWSON RD., TULSA, OK 74110, (918) 832-0940.
- WWW.MCMaster.COM

WELD NOTES:

- ALL CARBON STEEL WELDS PER AWS D1.1
- < W - > INDICATES WELD IDENTIFICATION NUMBER. NO WELD SEQUENCE IMPLIED
- WELD INSPECTION:
"V" - VISUAL PER AWS D1.1
"P" - DYE PENETRANT PER AWS D1.1
- UNLESS OTHERWISE SPECIFIED, WELD SIZES TO BE EQUAL TO THICKNESS OF THE THINNEST OF THE TWO MATERIALS JOINED.

Q.V. NOTES:

- ITEMS: 6-3 THRU 6-5

QUALITY VERIFICATION MECHANICAL AND STRUCTURAL			
QV CLASS	DOCUMENTS REQUIRED	PROC. NO.	PART NO.
303	MAT'L MILL TEST REPORT (CERT)	1.2	
305	MAT'L SELLER CERTIFICATE	QV NOTE	
306	SPECIAL MAT'L INSP. REPORT		
205	MFG. INSP. AND TEST PLAN		
312	FIELD INSP. & TEST PLAN		
314	MATERIAL MARKING		
321	WELD AND BRAZE INSP. REPORT	WELD NOTES 1-4	INDICATED
322	HEAT TREAT REPR. (W/CHART)		
310	LEAK TEST REPORT		
315	CLEANING CERTIFICATE		
318	DEVIATION REQUEST		
319	NONCONFORMANCE REPORT		
323	DIMENSIONAL REPORT		
330	FUNCTIONAL TEST REPORT		
333	IDENTIFICATION NUMBER OF SUBMITTAL/CONSTRUCTION		
334	SPECIAL PROCUREMENT REQUIRED		
100	DOCUMENTATION	FOR ABOVE	

SYMBOL ✓ INDICATES APPLICABLE TO ALL PARTS OR ITEMS.
R.C. ORRIN 6/23/15
QUALITY REPRESENTATIVE DATE

BLDG 7920, SHIELD PACK PALLET & SHIPPING FIXTURE ASSEMBLY	N3E020995A472
BLDG 7920, SHIELD PACK PALLET & SHIPPING FIXTURE DETAILS	N3E020995A474
REFERENCE DWG	DWG NUMBER

NONREACTOR NUCLEAR FACILITIES DIVISION
OAK RIDGE NATIONAL LABORATORY
UT-BATTELLE
Operated by UT-Battelle for the Department of Energy under U.S. Government contract DE-AC05-00OR22725 Oak Ridge, Tennessee

BLDG 7920, SHIELD PACK PALLET & SHIPPING FIXTURE ASSEMBLY & WELDMENTS
RH-TRU

1	48	49	50	PLANT	BLDG.	FL.	SHEET	OF	CLASS
3	M	E	U	ORNL	7920	1	1	1	U
SCALE		AS NOTED		ID	N3E020995A473				
DRAWING APPROVALS		DATE							

REV	DESCRIPTION	BY	DSNR	CHK	DR	TL	ESDH	REQ	FAC	DATE	SR1	SR2	SR3	SR4	QR
B	THRU NNFD-7920-DCN-130	AD	NMS	DJK	N/A	N/A	NMS	N/A	AWS	9/13/17	N/A	N/A	N/A	N/A	GEC
A	NNFD-7920-DCN-114	AD	NMS	LBG	N/A	N/A	NMS	N/A	AWS	48/17	N/A	N/A	N/A	N/A	GEC

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DRAWING ON WHICH ELEVATION,
SECTION, OR DETAIL IS SHOWN.

DEFAULT STANDARDS
UNLESS OTHERWISE SPECIFIED

FRACTIONS 1/8
XX DECIMALS 1 0.01
XXX DECIMALS 0.0005
ANGLES 0+ 30°
BREAK SHARP EDGES 1/64 MAX.
FINISH = 125 RMS

ALL DIMENSIONS ARE IN INCHES

WHENEVER A MANUFACTURER'S NAME OR CATALOG NUMBER IS INDICATED, AN APPROVED EQUAL MAY BE SUBSTITUTED

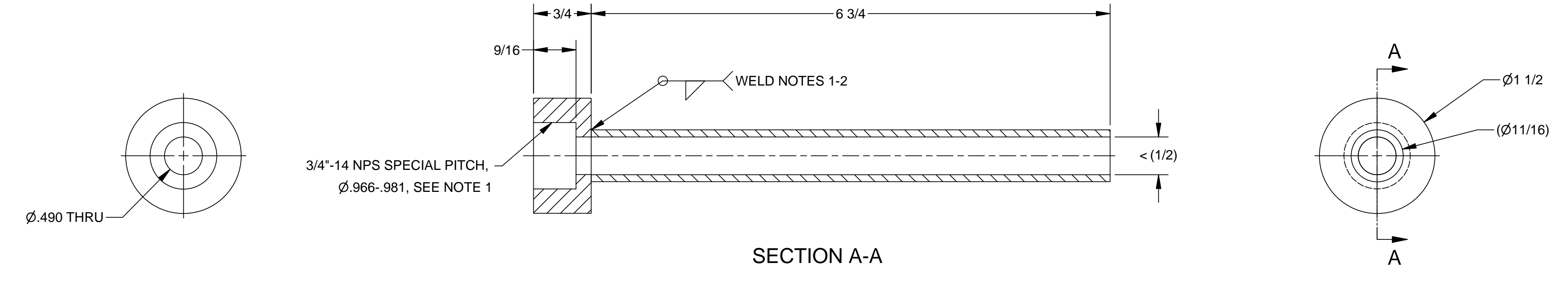
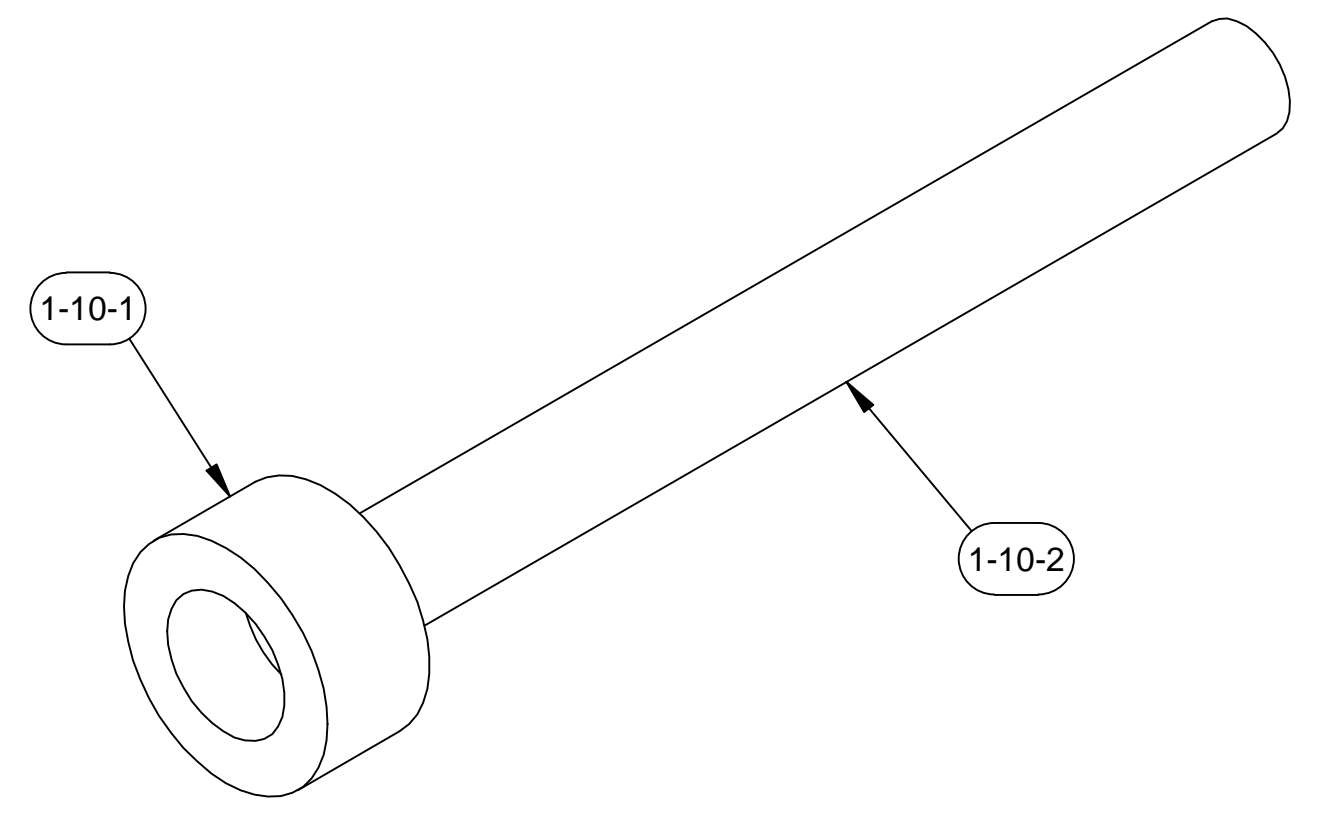
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ANSI Y14.5M - 1994

N3E020995A473

TYPE
A
CLASS
U

8 7 6 5 4 3 2 1

PARTS LIST					
ITEM	QTY	DESCRIPTION	NOTE	MATERIAL / VENDOR	MFG. PN / DET. DWG #
1-10-1	1	HALF COUPLING	1	CARBON STEEL	
1-10-2	1	PIPE, 3/8 NPS SCH 40		CARBON STEEL	



1-10 VENT PATHWAY WELDMENT
SCALE: 1" = 1"
ASSY DWG: N3E020995A396

- GENERAL NOTES:**
1. THREADS TO MATCH THREADS OF NUCFIL-019DS DIRECT SAMPLE FILTER. SEE NFD DWG #05190004, REV 15. WWW.NFTINC.COM
 2. UNLESS OTHERWISE SPECIFIED, WELD SIZES TO BE EQUAL TO THICKNESS OF THE THINNEST OF THE TWO MATERIALS JOINED.
- WELD NOTES:**
1. ALL CARBON STEEL WELDS PER AWS D1.1

QUALITY VERIFICATION MECHANICAL AND STRUCTURAL		
QV CLAUSE	DOCUMENTS REQUIRED	PROC. NO. PART NO.
303	MAT'L MTL TEST REPORT (CERT)	1-10
325	MAT'L SELLER CERTIFICATE	
326	SPECIAL MAT'L INSP. REPORT	
325	WFL INSP. AND TEST PLAN	
312	FIELD INSP. & TEST PLAN	
314	MATERIAL MARKING	
321	WELD AND BRACE INSP. REPORT	NOTES 1-2 INDICATED
322	HEAT TREAT REPR. (W/ CHART)	
310	LEAK TEST REPORT	
315	CLEANING CERTIFICATE	
318	DEVIATION REPORT	PROCESS CONTROL ✓
319	NONCONFORMANCE REPORT	APPROPRIATE CONTROL ✓
323	DIMENSIONAL REPORT	
330	FUNCTIONAL TEST REPORT	
333	CERTIFICATION CONTROL OF SURFACE CHARACTERISTICS	
*	SPECIAL PROCUREMENT REQUIRED	WFL-2
100	DOCUMENTATION	FOR ABOVE

SYMBOL ✓ INDICATES APPLICABLE TO ALL PARTS OR ITEMS.

GREG E. CHITWOOD 4/6/17
QUALITY REPRESENTATIVE DATE

NUCFIL-019DS DIRECT SAMPLER FILTER #05190004 REV 15
DETAIL
BLDG 7920, RH-TRU CONCRETE SHIELD PACK LID WELDMENT N3E020995A396
REFERENCE DWG DWG NUMBER

NONREACTOR NUCLEAR FACILITIES DIVISION
OAK RIDGE NATIONAL LABORATORY
Operated by UT-Battelle for the Department of Energy under U.S. Government contract DE-AC05-00OR22725 Oak Ridge, Tennessee

UT-BATTELLE

BLDG 7920, RH-TRU CONCRETE SHIELD PACK WELDMENT
RH-TRU SHIELD PACK

1	48	49	50	PLANT	BLDG.	FL.	SHEET	OF	TYPE
3	M	E	U	ORNL	7920	1	1	1	A

SCALE AS NOTED K910MB11 N3E020995A572 0

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REV	DESCRIPTION	BY	DSNR	CHK	DR	TL	ESDH	REQ	FAC	DATE	SR1	SR2	SR3	SR4	QR

REVISION APPROVALS	DATE

DEFAULT STANDARDS UNLESS OTHERWISE SPECIFIED

FRACTIONS 1/84
XX DECIMALS 1 0.01
XXX DECIMALS 0.005
ANGLES 1 0+ 30°
BREAK SHARP EDGES 1/64 MAX.
FINISH = 125 RMS

ALL DIMENSIONS ARE IN INCHES

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DRAWING APPROVALS	DATE

8 7 6 5 4 3 2 1