Entergy Operations

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January 15, 1991

2CAN019103

U. S. Nuclear Regulatory Commission
Document Control Desk
Mail Station P1-137
Washington, DC 20555

SUBJECT: Arkansas Nuclear One - Unit 2
Docket No. 50-368
License No. NPF-6
Response to the NRC Request
for Additional Information on the Inservice
Inspection Program for Arkansas Nuclear One,
Unit 2 (TAC No. 75836)

Gentlemen:

In letter 2CAN019005 (dated January 12, 1990), Entergy Operations submitted a summary of the second 10-year interval for the Inservice Inspection (ISI) Program for Arkansas Nuclear One, Unit 2 (ANO-2). During the review of this submittal, the NRC determined that additional information and/or clarification was required to complete the review and evaluation. The request for the additional information was transmitted to Entergy Operations in letter dated June 7, 1990 (2CNA069002).

The purpose of this letter is to provide the information and/or clarification requested in letter 2CNA069002. The format of this submittal is that the specific request is stated first and Entergy Operations' response is provided immediately after the request.

2.A. REQUEST

Provide an itemized listing of the welds/components subject to examination during the second 10-year interval for each system.

RESPONSE

An itemized listing of the welds and components subject to examination during the second 10-year interval is provided in Attachment 1. Attachment 1 is contained in the enclosed notebook.

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PDR ADOCK 05000368
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A047 1/3

2.B. REQUEST

Provide isometric and/or component drawings showing the welds, components, and supports that Section XI of the ASME Code requires to be examined during the second 10-year interval. The isometric/component drawings, along with the requested weld/component listing, will permit the staff to determine if the extent of ISI examinations meets the applicable Code requirements.

RESPONSE

Isometric drawings with the corresponding ISI drawing number are provided in Attachment 2.

2.C. REQUEST

Discuss the specific exemptions applied during the second 10-year interval.

RESPONSE

The following exemptions have been applied:

IWB-1220 - Class 1 Components

(a) Connections to the reactor coolant pressure boundary of such size that rupture is within the capacity of the makeup system.

(b) (1) Piping NPS 1 inch and smaller, except for the steam generator tubing. (The steam generator tube surveillance is performed in accordance with ANO-2 Technical Specification 4.4.5 per IWB-2413.)

(2) Components and their connections in piping of NPS 1 inch and smaller.

(c) Reactor Vessel head connections and associated piping, NPS 2 inch and smaller, made inaccessible by CRD penetrations.

IWC-1220 - Class 2 Components

The exemptions per IWC-1221 are applied for components within the Shutdown Cooling, Safety Injection, and Containment Spray Systems.

The exemptions per IWC-1222 are applied for components within other Class 2 systems.

For piping support members and components encased in concrete, IWC-1230 has been applied.

IWD-1220 - Class 3 Components

The exemptions of IWD-1220.1 and IWD-1220.2 have been applied for Class 3 systems as allowed.

2.D. REQUEST

Provide a list of the Section XI ASME Code Cases that have been incorporated into the ISI Program Plan for the Arkansas Nuclear One, Unit 2, second 10-year interval. USNRC Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1," Revision 7, lists the Section XI ASME Code Cases that are acceptable for application in the inservice inspection of components and their supports for water-cooled nuclear power plants.

RESPONSE

Attachment 3 provides a listing of the Code Cases in Regulatory Guide 1.147, Revision 7, that are to be utilized for the second 10-year ISI interval for ANO-2. If, during the interval, other Code Cases previously approved by the NRC are to be utilized, they will be appropriately referenced in the applicable procedures and will be included in a future revised ISI program submittal. Many of the Code Cases in Regulatory Guide 1.147 have been incorporated into the 1986 Code and are, therefore, not included in the listing. Additionally, the recently approved Code Case regarding the IWF Component Support Sampling Plan is utilized for component supports selection. When the Code Case has been published, a relief request will be submitted in accordance with 10 CFR 50.55a(g)(5).

2.E. REQUEST

Provide a list of the ultrasonic calibration standards being used during the second 10-year interval ISI at Arkansas Nuclear One, Unit 2. This list should include the calibration standard identifications, material specifications, and sizes.

RESPONSE

A copy of the controlling procedure for calibration standards is provided in Attachment 4. The procedure includes a listing of the calibration standards, identifying the material specifications, size, and weight.

2.F. REQUEST

Augmented examinations have been established by the NRC when added assurance of structural reliability is deemed necessary. Examples of documents which may require augmented examinations are:

(1) High Energy Fluid Systems, Protection Against Postulated Piping Failures in Fluid Systems Outside Containment, Branch Technical Position ASB 3-1;

(2) USNRC Regulatory Guide 1.150, Ultrasonic Testing of Reactor Vessel Welds During Preservice and Inservice Examinations;

(3) I&E Bulletin 79-17, Pipe Cracks in Stagnant Borated Water Systems at PWR Plants.

Address these and any other augmented examinations which may have been incorporated in the Arkansas Nuclear One, Unit 2, Second 10-year Interval Inservice Inspection Program Plan.

RESPONSE

Augmented examinations for the second 10-year interval include the following:

(NOTE: These examinations are not included in the component listing.)

- Internal Handling Fixture Tripod and Turn Buckle: NUREG-0602, Control Of Heavy Loads

- Reactor Coolant Pump Studs: INPO SOER-81-12

- Critical Piping: SAR 10.3.2.1

- Reactor Coolant Pump Motor Flywheels: Regulatory Guide 1.14 and ANO-2 Technical Specification 4.4.10

- Thermal Stresses in Piping Connected to Reactor Coolant Systems: NRC Bulletin 88-08

Other regulatory or vendor recommended requirements, including Branch Technical Position ASB 3.1, Regulatory Guide 1.150 and NRC Bulletin 79-17, are being reviewed to identify additional augmented examinations. These items will be included in a future revised ISI Program submittal.

2.G. REQUEST

Relief Request 1 - Relief is requested from the ASME Code-required surface examination of Class 1 piping welds 06-001, 06-002, 07-001, 07-002, 09-001, 09-002, 11-001, 11-002, 13-001, 13-002, 15-001, and 15-002 because they are inside the primary shield wall and are inaccessible for O.D. surface examinations. The Licensee has proposed the use of ultrasonic techniques, from the I.D. surface, to examine the outside surface of the subject welds in lieu of the Code-required surface examination.

This proposal could be considered acceptable provided that the Licensee meets the following conditions:

(1) The remote volumetric examination includes the entire weld volume and heat affected zone instead of only the inner one-third of the weld as required by the Code.

(2) The ultrasonic testing instrumentation and procedures are demonstrated to be capable of detecting O.D. surface-connected defects in the circumferential orientation in a laboratory test block. The defects should be cracks and not machined notches.

Provide a discussion of the above conditions and verify that they will be met.

2.H. REQUEST

Relief Request 2 - Relief is requested from performing the inservice volumetric examination from the nozzle side of all branch piping nozzle welds to the main coolant piping. The staff has recently noted significant improvements in the techniques being used for volumetric examinations from the branch connection side of the Class 1 welds. List the specific welds for which relief is requested and the percentage of the Code-required volumetric examination that can and will be performed for each of the subject welds, and discuss what efforts Arkansas Power and Light Company has made to perform the Code-required volumetric examination from the branch connection side of the subject welds.

2.I. REQUEST

The relief requests were submitted in two different formats. The relief requests submitted in the tabular format (ASME CLASS-1 AND -2 COMPONENTS NDE INSERVICE INSPECTION RELIEF REQUESTS FOR ANO-2 BASED ON ASME SECTION XI-1986 CODE) should be revised as several relief requests in a format similar to Relief Requests 1 and 2 (e.g., one for each Examination Category). Since the relief requests in the table are in the form of a summary, adequate descriptive and detailed technical information is not provided.

When revising these relief requests, the justification should include the following as a minimum:

(1) Section XI Code Examination Category, Code Item Number, and Code-required examination;

(2) Section XI Code requirement from which relief is requested;

(3) identification of the specific welds/components for which relief is requested, including the percentage of the Code-required examinations that can and will be completed on each weld/component;

(4) proposed alternative examinations planned
(a) in lieu of the Section XI requirements, or
(b) to supplement Section XI partial examinations;

(5) technical discussion which demonstrates that the Code requirement is impractical (drawings, sketches, or photographs may be used).

Appendix F, Article F-3000, "Substitute Examinations or Tests" of the 1989 Edition of the ASME Code Section XI may also be used for guidance when preparing the relief requests.

2.G. RESPONSE
2.H.
2.I. These three items requested additional information on the Relief Requests included in our January 12, 1990, submittal. Due to recent organizational changes within Entergy Operations, particularly the establishment of a Nondestructive Examination group, we believe that further review of modifications and advances in examination techniques is warranted prior to requesting relief for the second 10-year interval and providing additional information on previously requested relief. We propose that a future submittal, by the end of the first inspection period (March 26, 1993), will provide the detailed relief requests. At that time, the format of the relief requests will be consistent with your recommendations.

It should be noted that these relief requests are not required for the first inspection period.

ADDITIONAL INFORMATION

Snubber Inspection

ANO-2 Technical Specification 4.7.8 addresses the visual and functional inspections of the snubbers. We are currently pursuing a clarification, by a technical specification change, to state that the inspections would be in accordance with the specified surveillance in Technical Specification 4.7.8 in lieu of Technical Specification 4.0.5 (ISI). We believe this approach more adequately complies with the requirements of 10 CFR than an ISI Program Relief Request. Integrally-welded attachments to snubber supports will continue to be included within the scope of the ISI Program, but snubber inspections will be performed under a separate program.

Relief Requests for First 10-year Inspection Interval

As a result of a review of the examinations included in the first 10-year inspection interval, relief from certain Code requirements were identified. In accordance with 10 CFR 50.55a(g)(5), these relief requests are submitted in Attachment 5.

We believe the information provided in this submittal will allow the Staff to complete its review and evaluation of the ANO-2 ISI Program. Should you have any questions regarding this issue, please contact me.

Very truly yours,

James J. Fisicaro

James J. Fisicaro
Manager, Licensing

JJF/RWC/kdr
Attachments

cc: Mr. Robert Martin
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LIST OF ATTACHMENTS

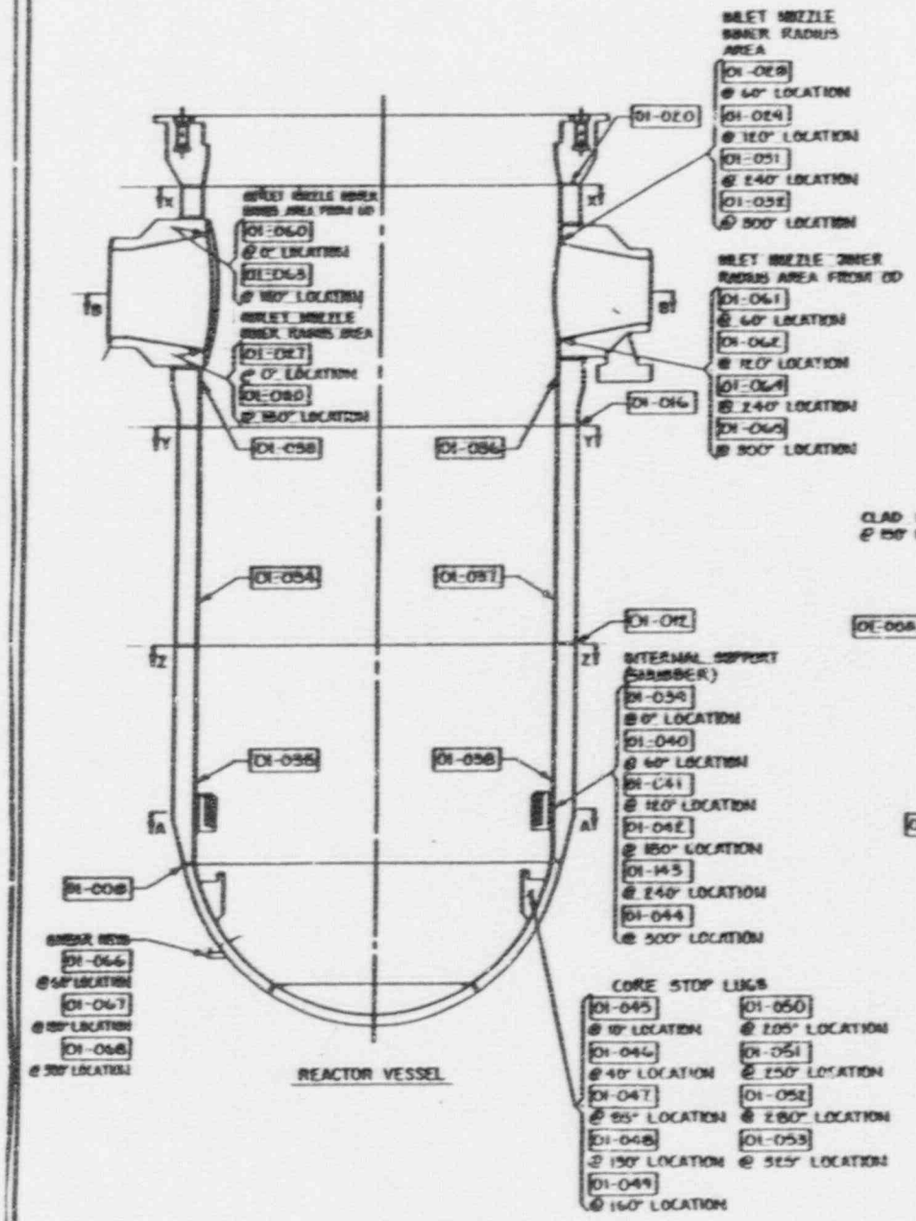
Attachment 1	Itemized Listing of Welds and Components
Attachment 2	Isometric Drawings
Attachment 3	Code Cases Utilized in ISI Program
Attachment 4	Procedure 1092.193 - Administrative Control of Inservice Inspection (ISI) Calibration Standards
Attachment 5	First 10-Year Interval Relief Requests

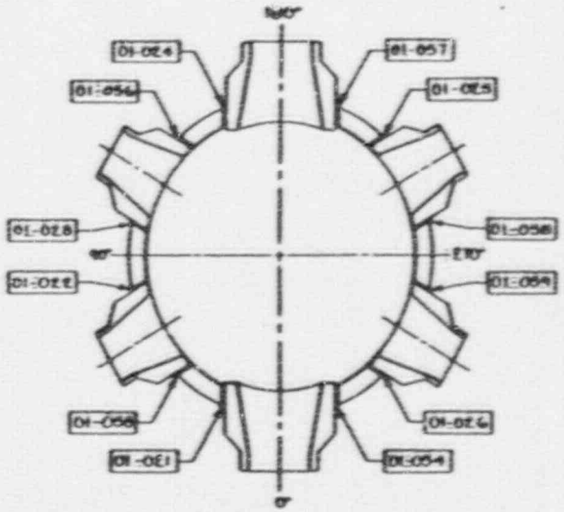
ATTACHMENT 1

ITEMIZED LISTING OF WELDS AND COMPONENTS

ATTACHMENT 2

ISOMETRIC DRAWINGS





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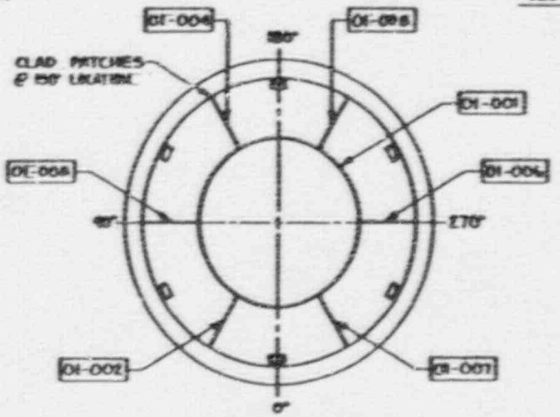


SECTION A – A

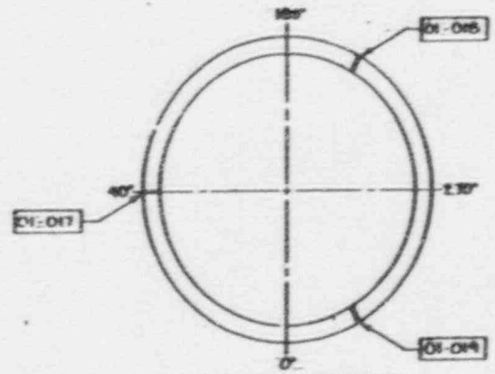
0		ISSUED PER ISI			
NO.	DATE	REVISION	BY	CHK'D	APPROVED

SCALE: NONE DESIGN: CE DRAWN: S. BROCK

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

REACTOR VESSEL
WELD DESIGNATIONS
ZONE 01

DRAWING NO. ISI – 201 REV. 0



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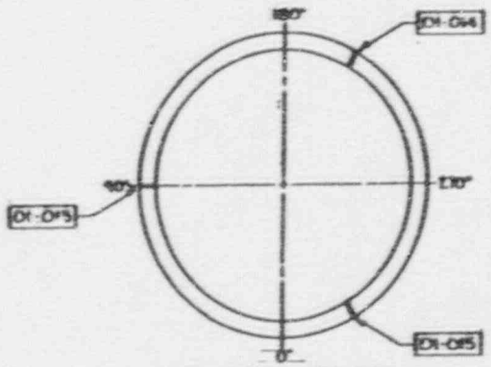
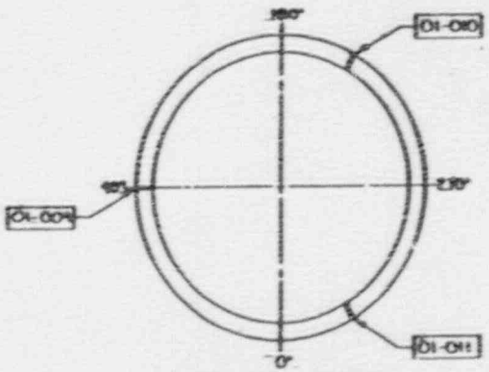
SECTION X-X



MIDDLE SHELL SEGMENT
SECTION Y-Y



LOWER SHELL SEGMENT
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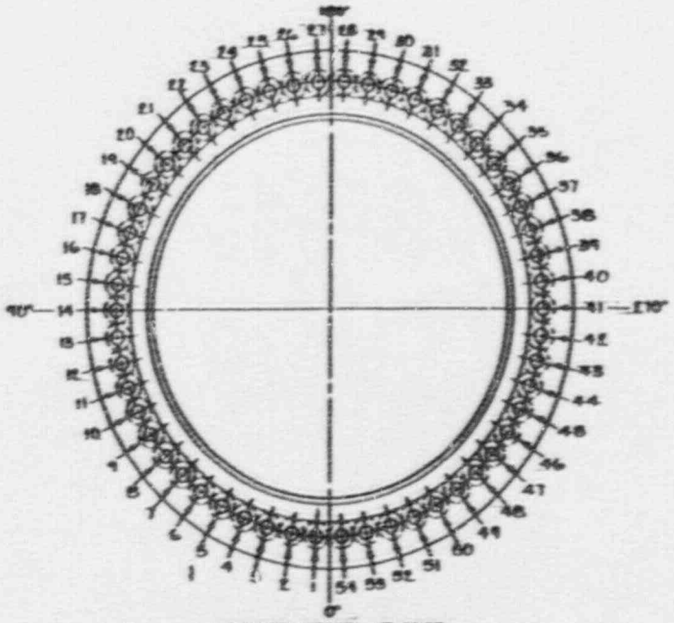

REACTOR VESSEL FLANGE
PLAN VIEW

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8	01-L-8	35	01-L-35
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NO.	DATE	REVISION	BY	CHK'D	APPD
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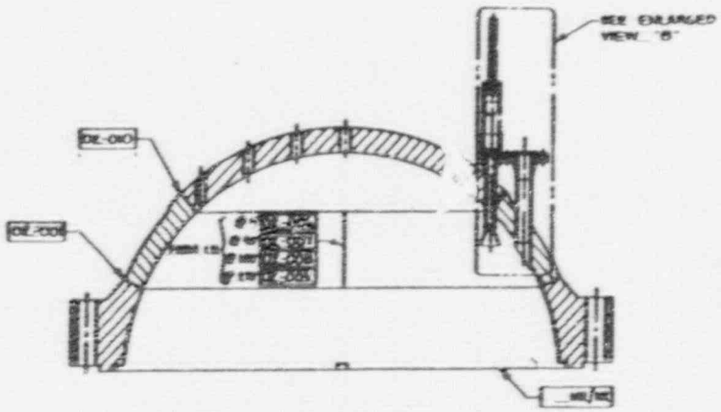
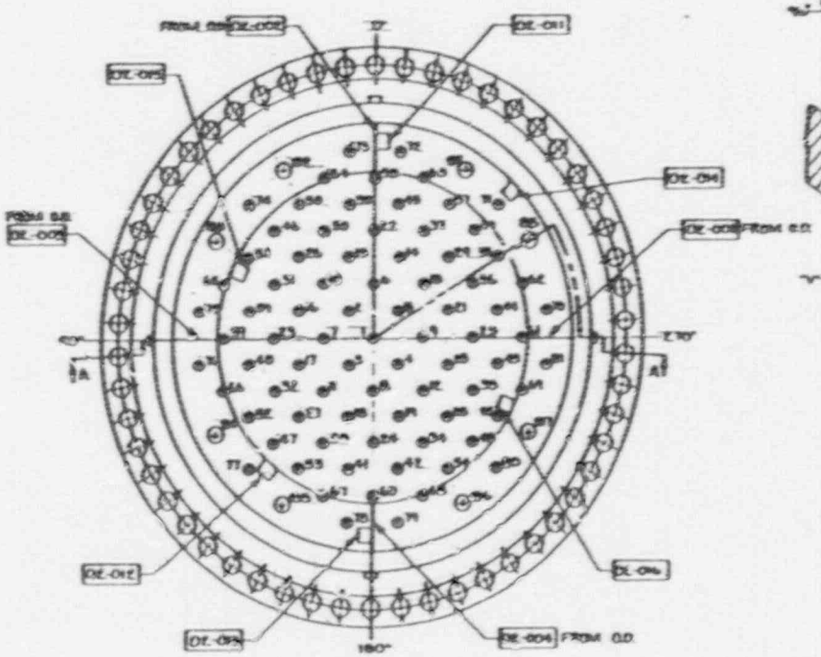
SCALE: NONE DESIGN: CE DRAWN: K. SMITH

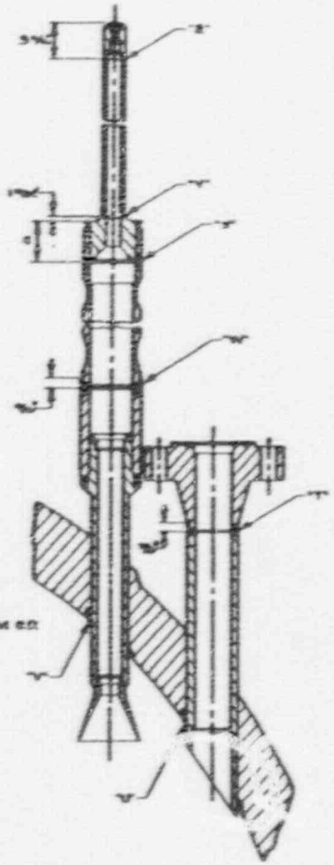
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

REACTOR VESSEL
WELD DESIGNATIONS
ZONE 01

DRAWING NO. ISI-201 REV. 0







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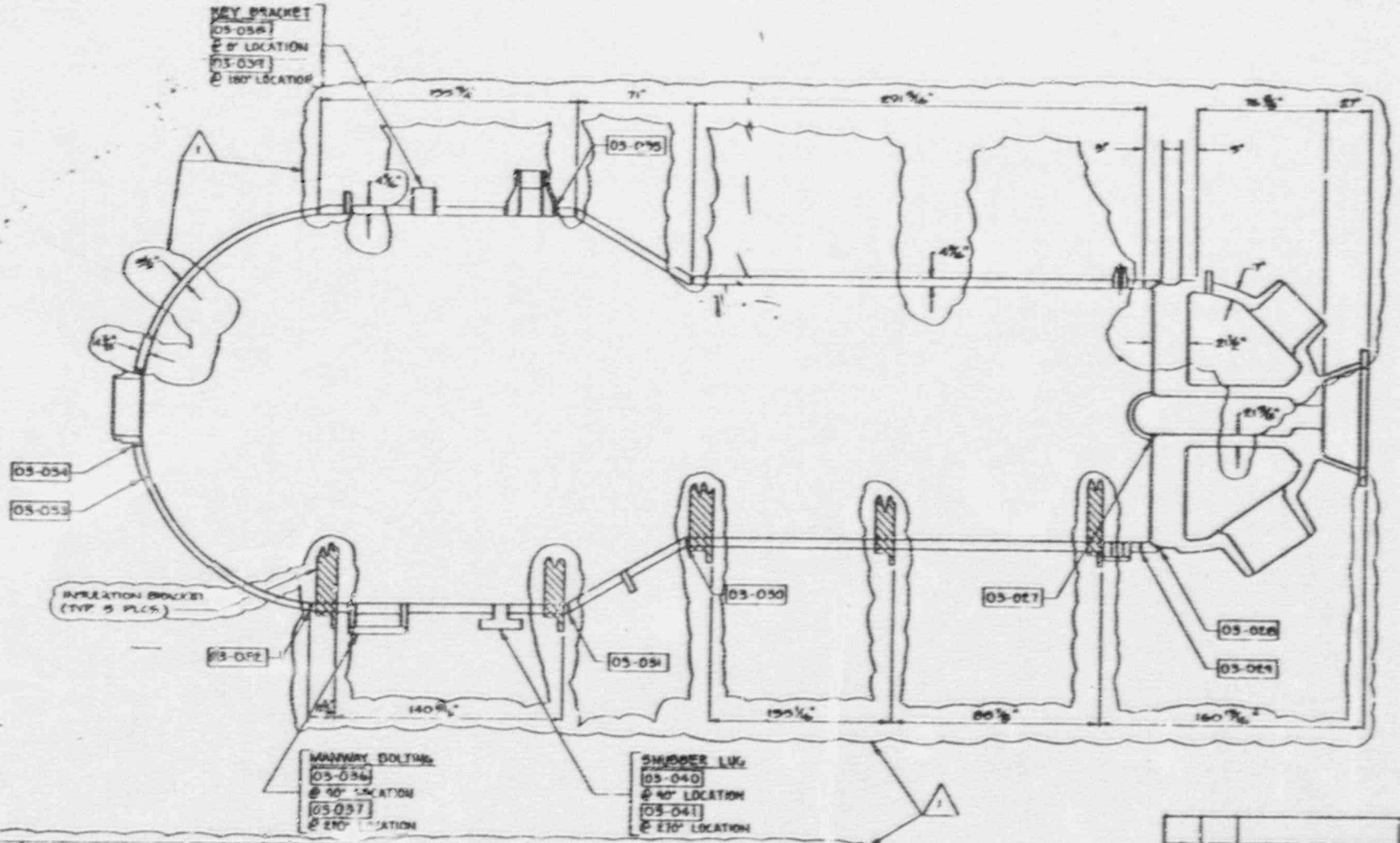
REV.	DATE	REVISIONS	BY	CHK'D	APPD
0	7/8/83	ISSUED PER ISI	BB		

SCALE: NONE DESIGN: CE DRAWN: G. BRAND

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

CLOSURE HEAD
WELD DESIGNATIONS
ZONE 02

DRAWING NO. ISI - 202 REV. 0



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05-002	15°	05-015	10 5/16"	05-055	10 5/16"
05-003	15°	05-016	10 5/16"		
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05-009	15°	05-029	10 5/16"		
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05-011	15°	05-031	10 5/16"		
05-012	15°	05-032	10 5/16"		
05-013	10 5/16"	05-033	10 5/16" DOWN & 10 3/16" UP		

NO	DATE	REVISION	BY	CHK	APPR
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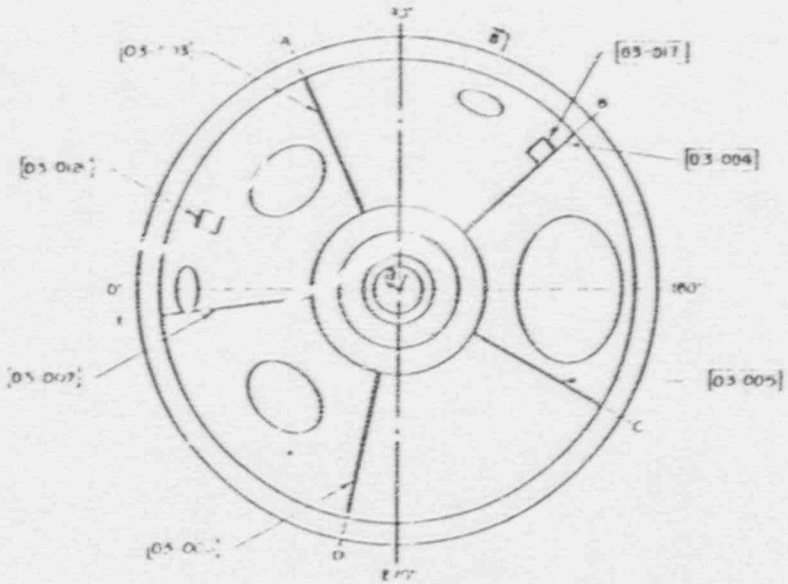
0	5/4/82	ISSUED PER ISI	BB	[illegible]	[illegible]

SCALE NONE DESIGN CE DRAWN B. BRIDGE

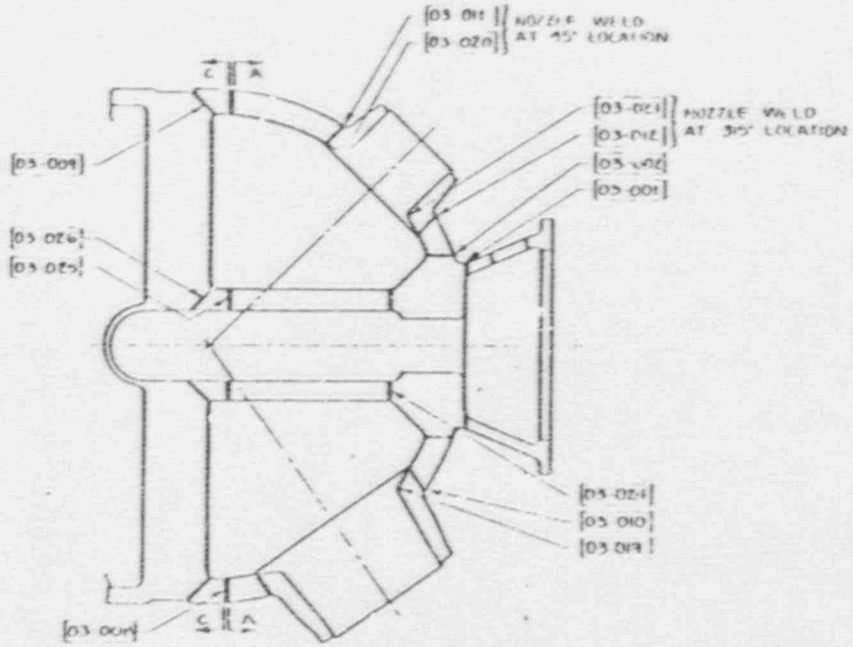
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

STEAM GENERATOR
AREA DESIGNATIONS
ZONE 03

DRAWING NO. ISI-203 REV. 1

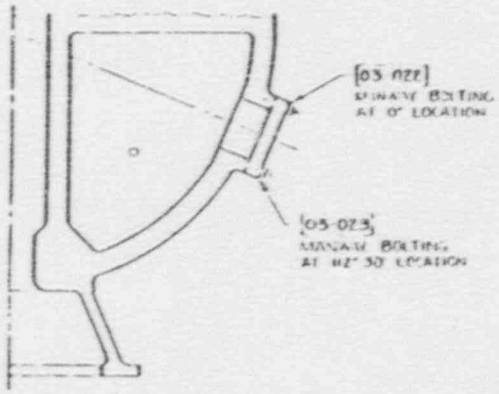


SECTION A-A

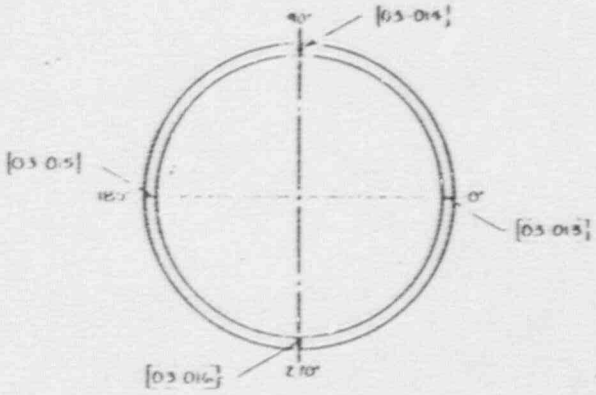


SECTIONAL ELEVATION

FOR INFORMATION ONLY
THIS DOCUMENT IS NOT CONTROLLED
INFORMATION WITH A CONTROLLED DOCUMENT



SECTION B-B



SECTION C-C

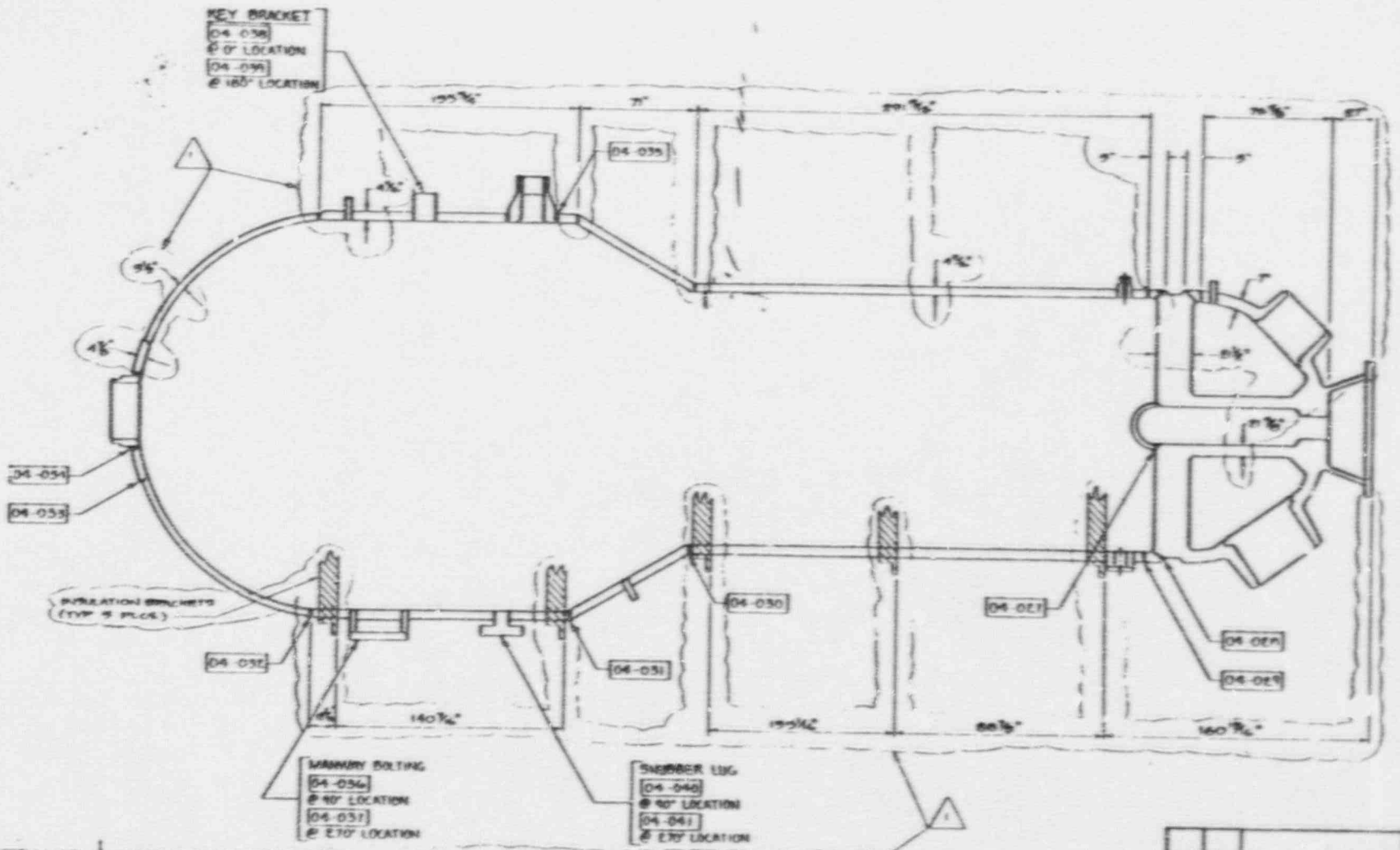
LOWER EXTENSION RING

D	ISSUED PER ISI	88	

CONSUMERS POWER CO. LIGHT COMPANY
BIG ROCKS NUCLEAR SITE
UNIT 2

STEAM GENERATOR
WELD DESIGNATIONS
ZONE 03

DRAWING NO. ISI-203 REV. 0



DIAM NO	WELD PREP REQUIRED EACH SIDE OF WELD
05-001	18"
05-002	18"
05-003	18"
05-004	18"
05-005	18"
05-006	18"
05-007	18"
05-008	18"
05-009	18"
05-010	18"
05-011	18"
05-012	18"
05-013	10 3/4"

DIAM NO	WELD PREP REQUIRED EACH SIDE OF WELD
05-014	10 3/4"
05-015	10 3/4"
05-016	10 3/4"
05-017	29 1/4"
05-018	29 1/4"
05-019	29 1/4"
05-020	44"
05-021	10 3/4"
05-022	10 3/4"
05-023	10 3/4"
05-024	10 3/4"
05-025	10 3/4"
05-026	10 3/4"
05-027	10 3/4" DIAMETER 10 3/4" UP

DIAM NO	WELD PREP REQUIRED EACH SIDE OF WELD
05-028	10 3/4"
05-029	10 3/4"

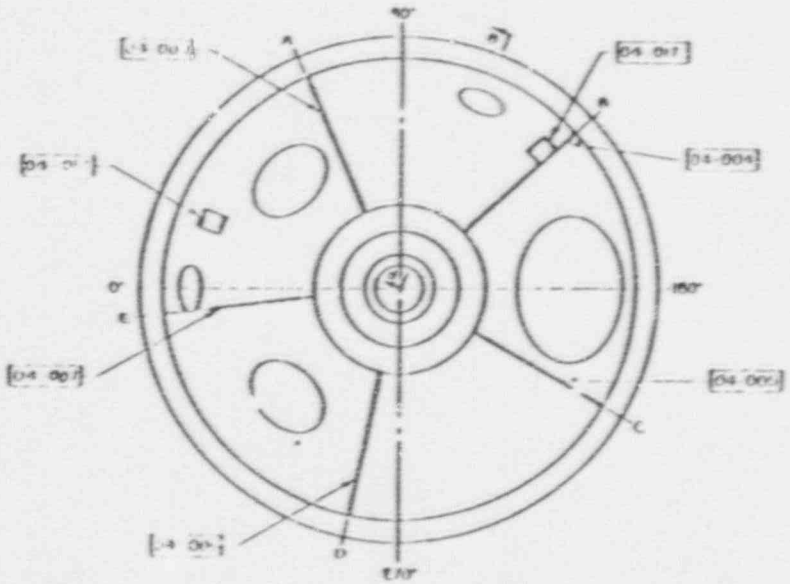
REV	DATE	REVISION	BY	CHK	APPD
1	[illegible]	REVISED ISI-04-01 (REF)	[illegible]	[illegible]	[illegible]
0	[illegible]	ISSUED PER ISI	BB	[illegible]	[illegible]

SCALE NONE | DESIGN CE | DRAWN [illegible]

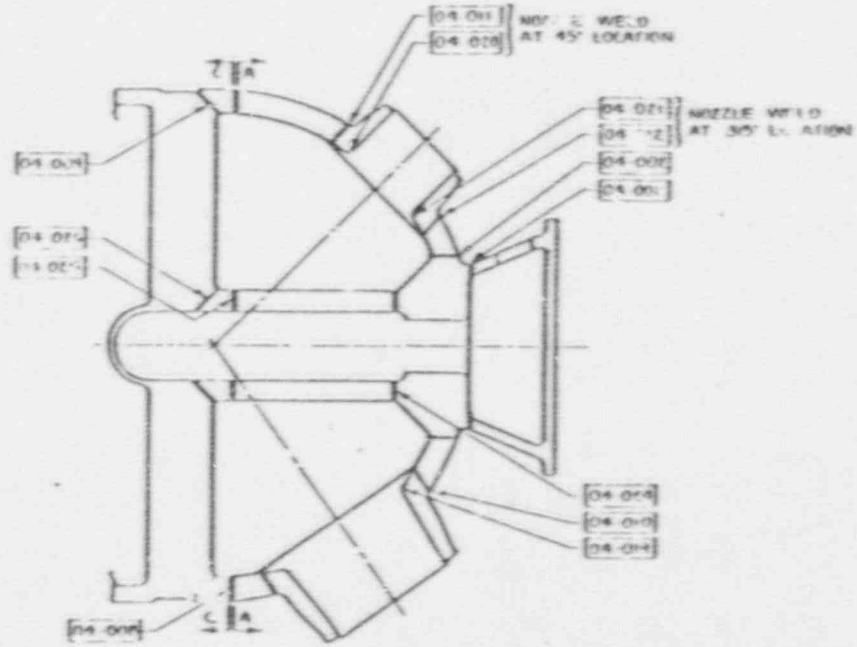
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

STEAM GENERATOR
AREA DESIGNATIONS
ZONE 04

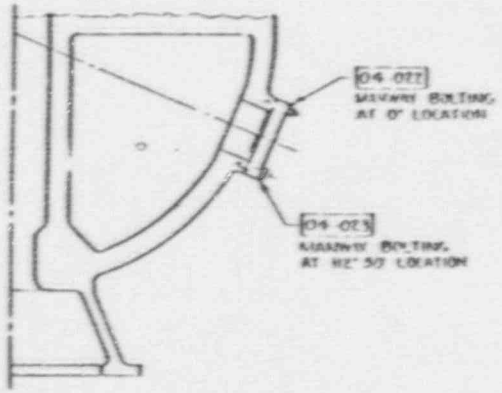
DRAWING NO: ISI - 204 | REV: 1



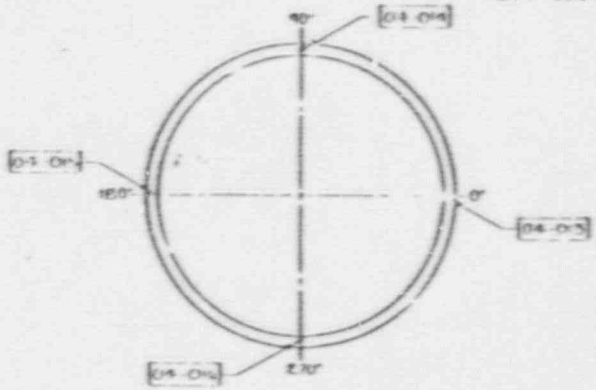
SECTION A-A



SECTIONAL ELEVATION



SECTION B-B



SECTION C-C

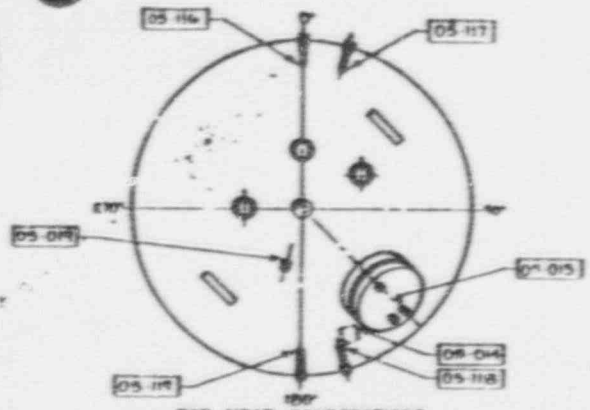
LOWER EXTENSION RING

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

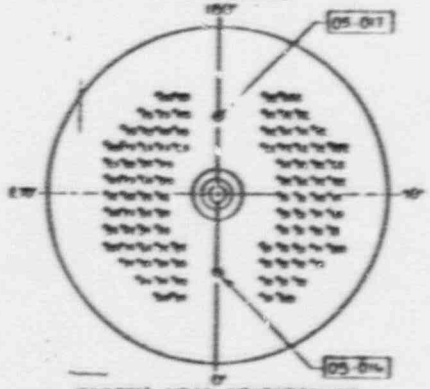
STEAM GENERATOR
WELD DESIGNATIONS
ZONE 04

ISI - 204

0



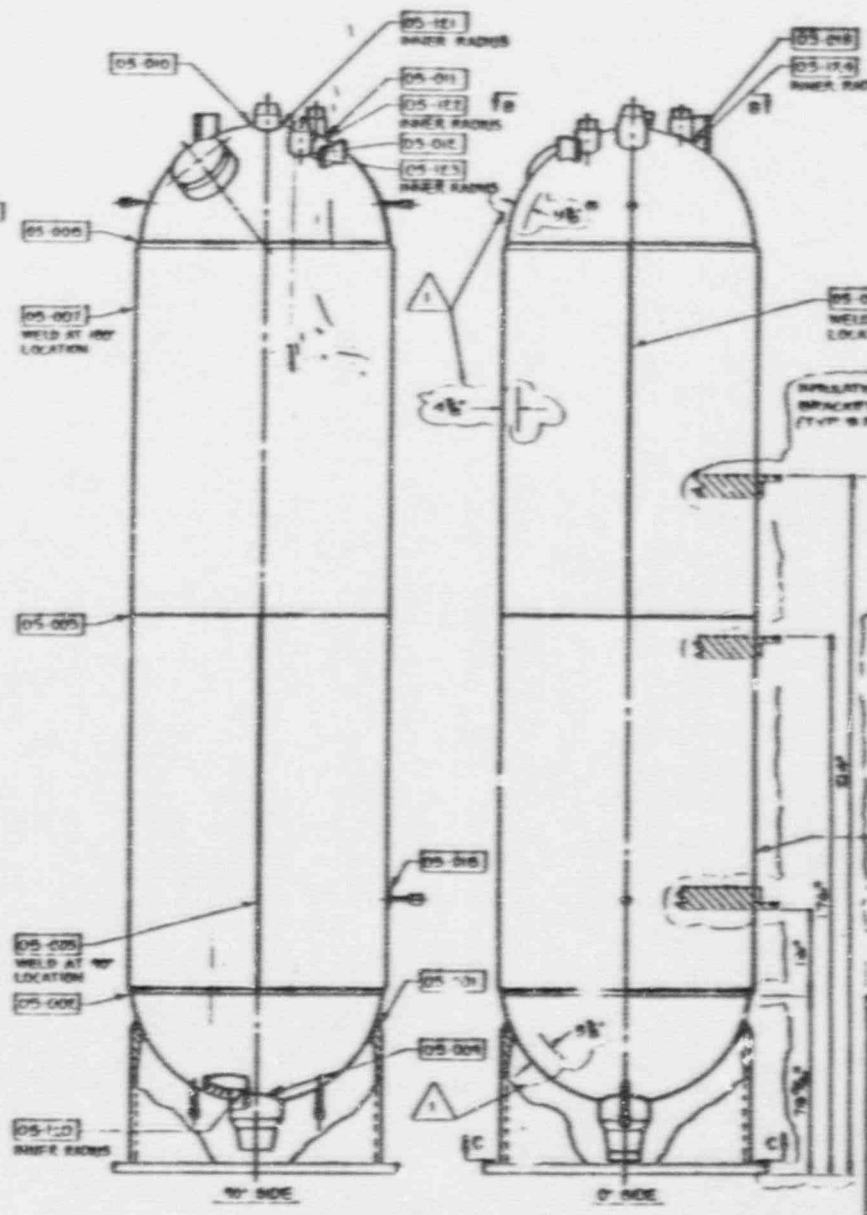
TOP HEAD PENETRATIONS
SECTION B-B



BOTTOM HEAD PENETRATIONS
SECTION C-C

HEATER CONNECTION WELD DESIGNATIONS

[illegible]	05-010	[illegible]	05-090	[illegible]	05-080	AA4	05-110
[illegible]	011	[illegible]	091	[illegible]	081	AA5	111
[illegible]	012	[illegible]	092	[illegible]	082	BB1	112
[illegible]	013	[illegible]	093	[illegible]	083	BB2	113
[illegible]	014	[illegible]	094	[illegible]	084	BB3	114
[illegible]	015	[illegible]	095	[illegible]	085	BB4	05-115
[illegible]	016	[illegible]	096	[illegible]	086		
[illegible]	017	[illegible]	097	[illegible]	087		
[illegible]	018	[illegible]	098	[illegible]	088		
[illegible]	019	[illegible]	099	[illegible]	089		
[illegible]	020	[illegible]	100	[illegible]	090		
[illegible]	021	[illegible]	101	[illegible]	091		
[illegible]	022	[illegible]	102	[illegible]	092		
[illegible]	023	[illegible]	103	[illegible]	093		
[illegible]	024	[illegible]	104	[illegible]	094		
[illegible]	025	[illegible]	105	[illegible]	095		
[illegible]	026	[illegible]	106	[illegible]	096		
[illegible]	027	[illegible]	107	[illegible]	097		
[illegible]	028	[illegible]	108	[illegible]	098		
[illegible]	05-029	[illegible]	05-109	[illegible]	05-099		



PRESSURIZER ELEVATION

SYMBOL	WELD WIDTH REQUIRED EACH SIDE OF WELD
05-001	[illegible]
05-002	[illegible] DOWN & [illegible] UP
05-003	[illegible]
05-004	[illegible]
05-005	[illegible]
05-006	[illegible]
05-007	[illegible]
05-008	[illegible] DOWN & [illegible] UP
05-009	[illegible] OUT & ALL AROUND NOZZLE
05-010	[illegible] OUT & ALL AROUND NOZZLE
05-011	[illegible] OUT & ALL AROUND NOZZLE
05-012	[illegible] OUT & ALL AROUND NOZZLE
05-013	[illegible] OUT & ALL AROUND NOZZLE
05-014	[illegible] OUT & ALL AROUND NOZZLE

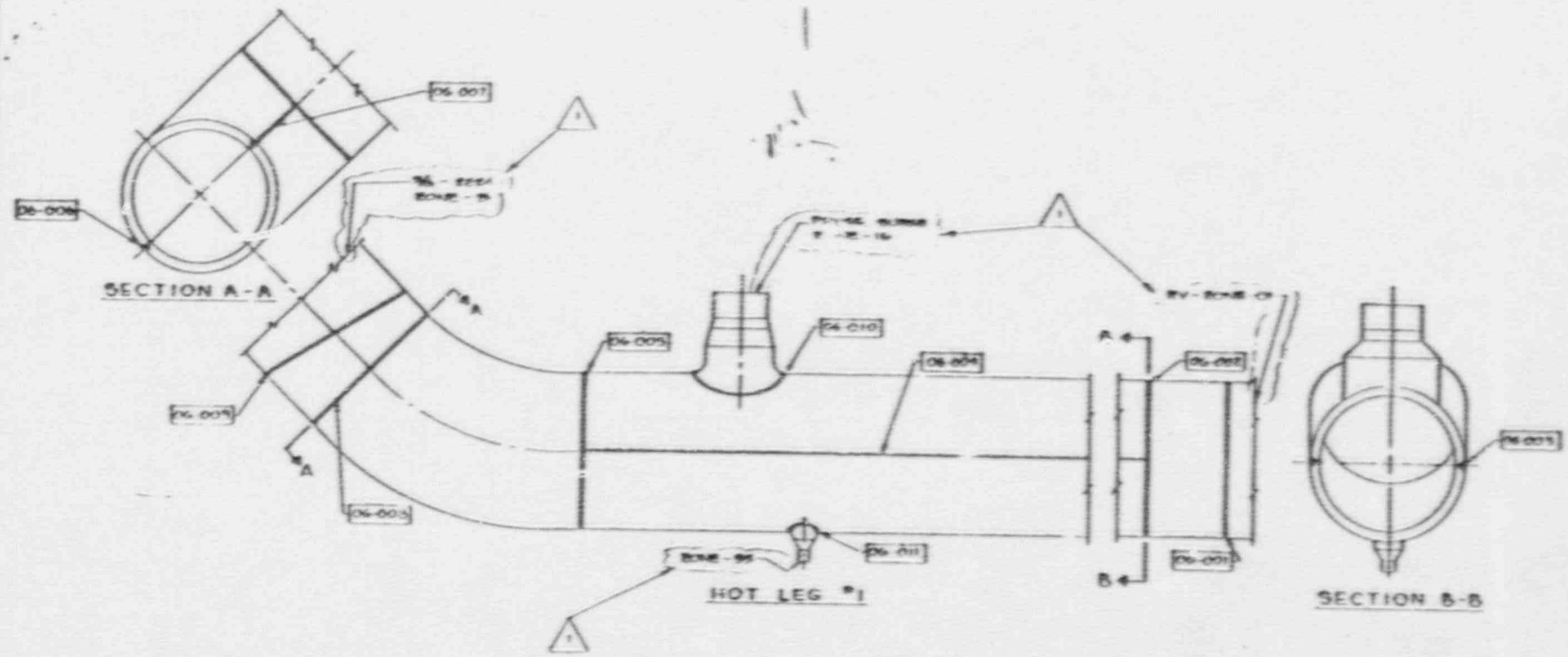
1	[illegible]	AS BUILT INFORMATION	[illegible]	[illegible]
0	[illegible]	ISSUED PER ISI	[illegible]	[illegible]
NO.	DATE	REVISION	BY	CHK

SCALE NONE | DESIGN [illegible] | DRAWN [illegible]

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

PRESSURIZER WELD DESIGNATIONS
ZONE 05

DRAWING NO. ISI - 205 | REV. 1

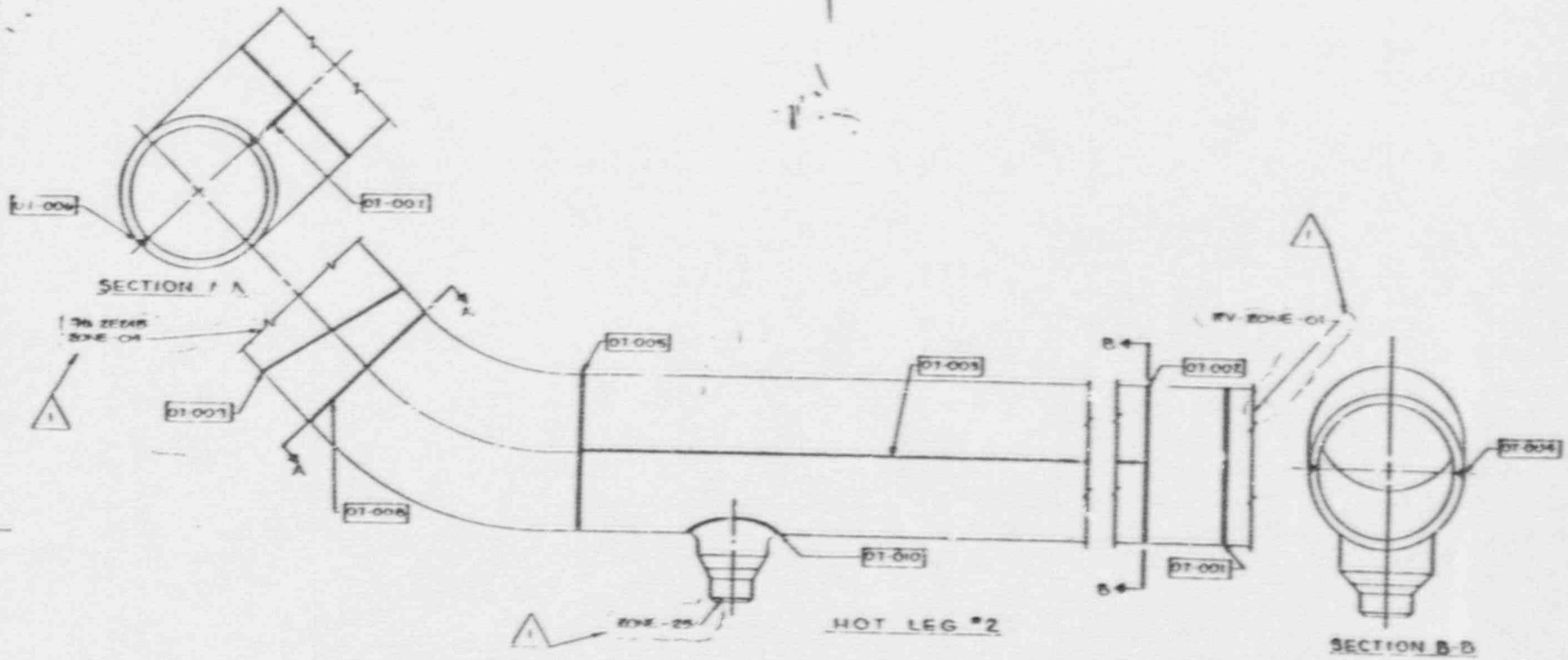


ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

HOT LEG STEAM GEN. #1
TO REACTOR VESSEL
ZONE-06

ISI-206

REV. 1



1		AS-BUILT ISOMETRICS				
0	12/83	ISSUED PER ESQ				
NO	DATE	REVISION	BY			

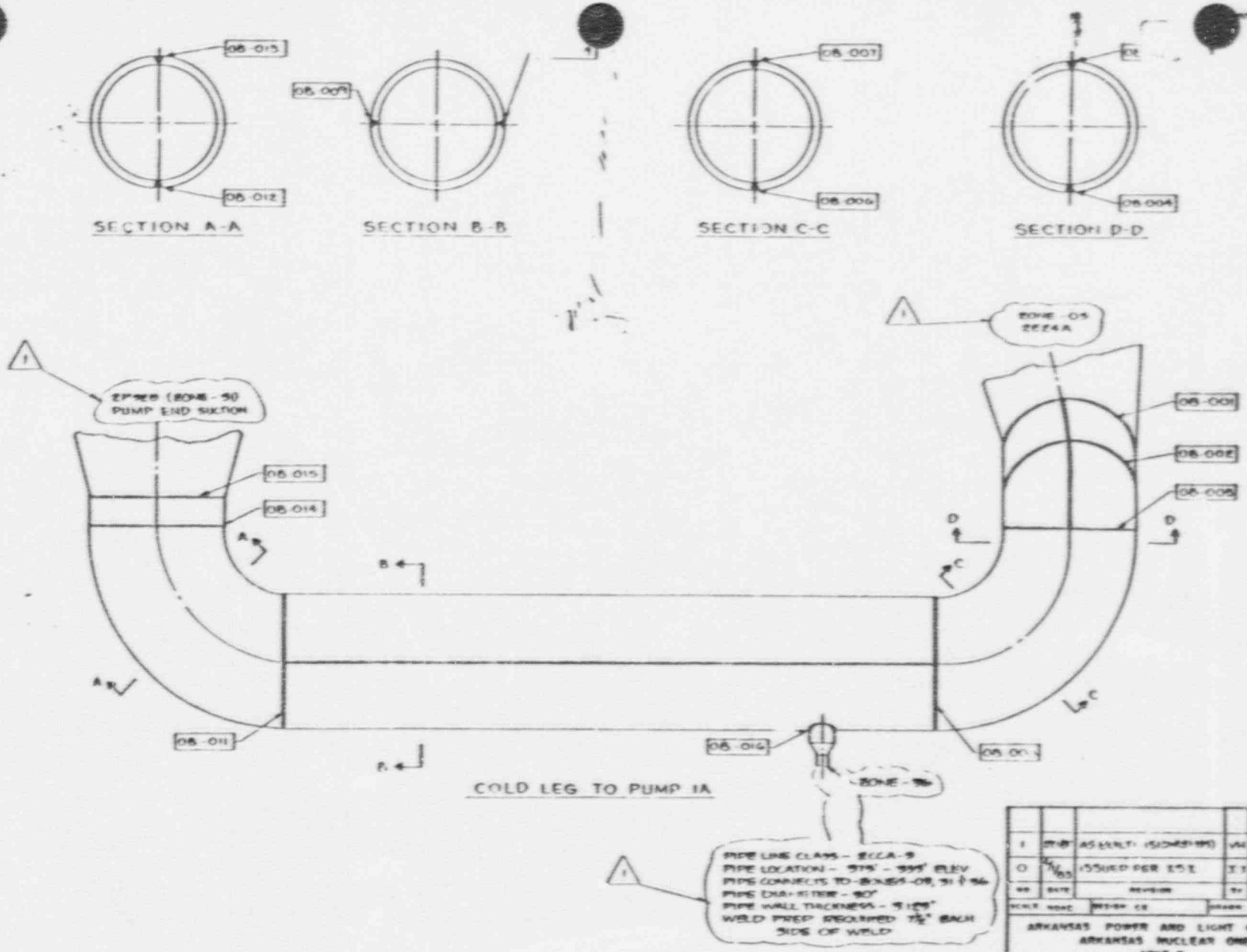
PLAN NONE

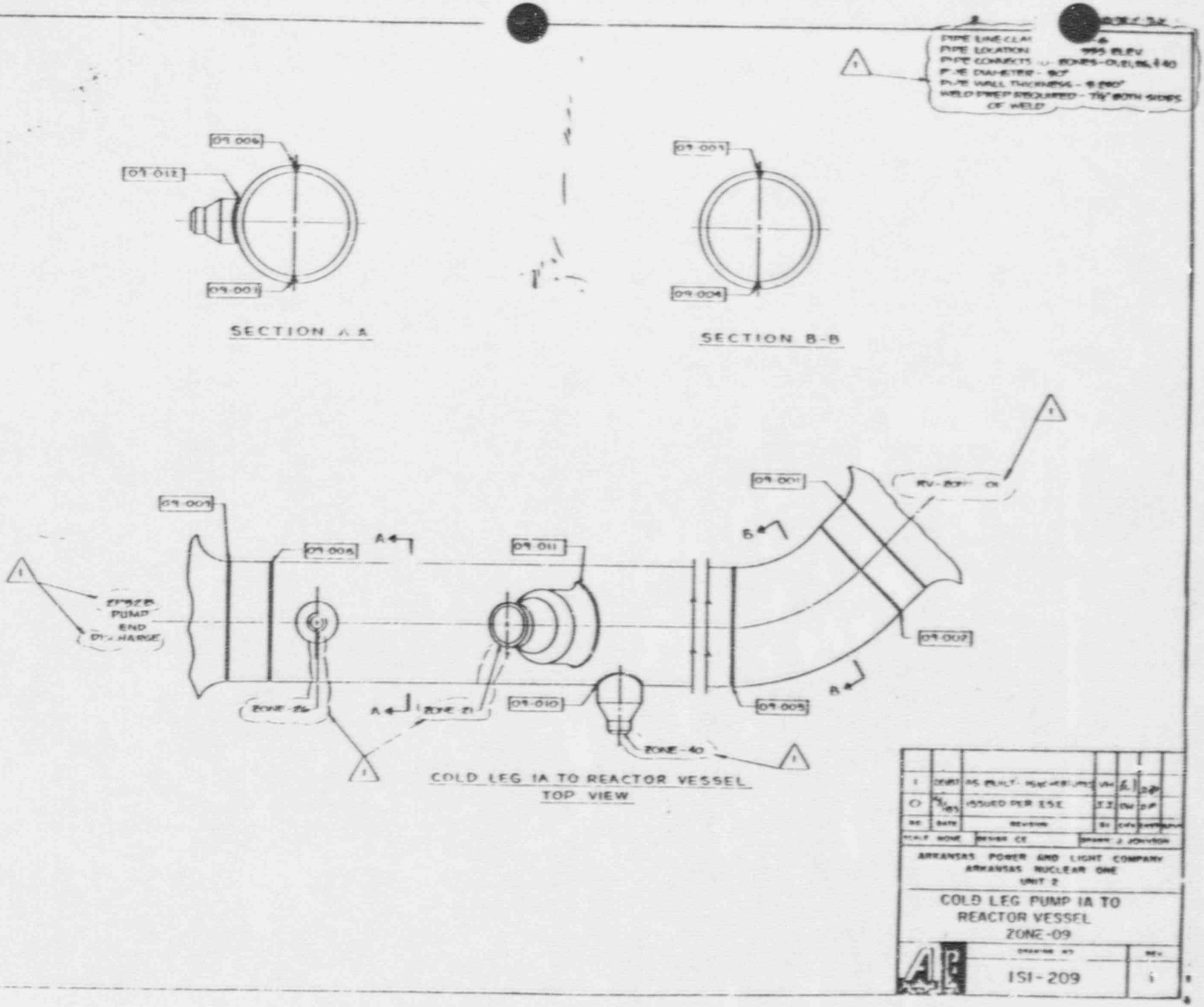
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

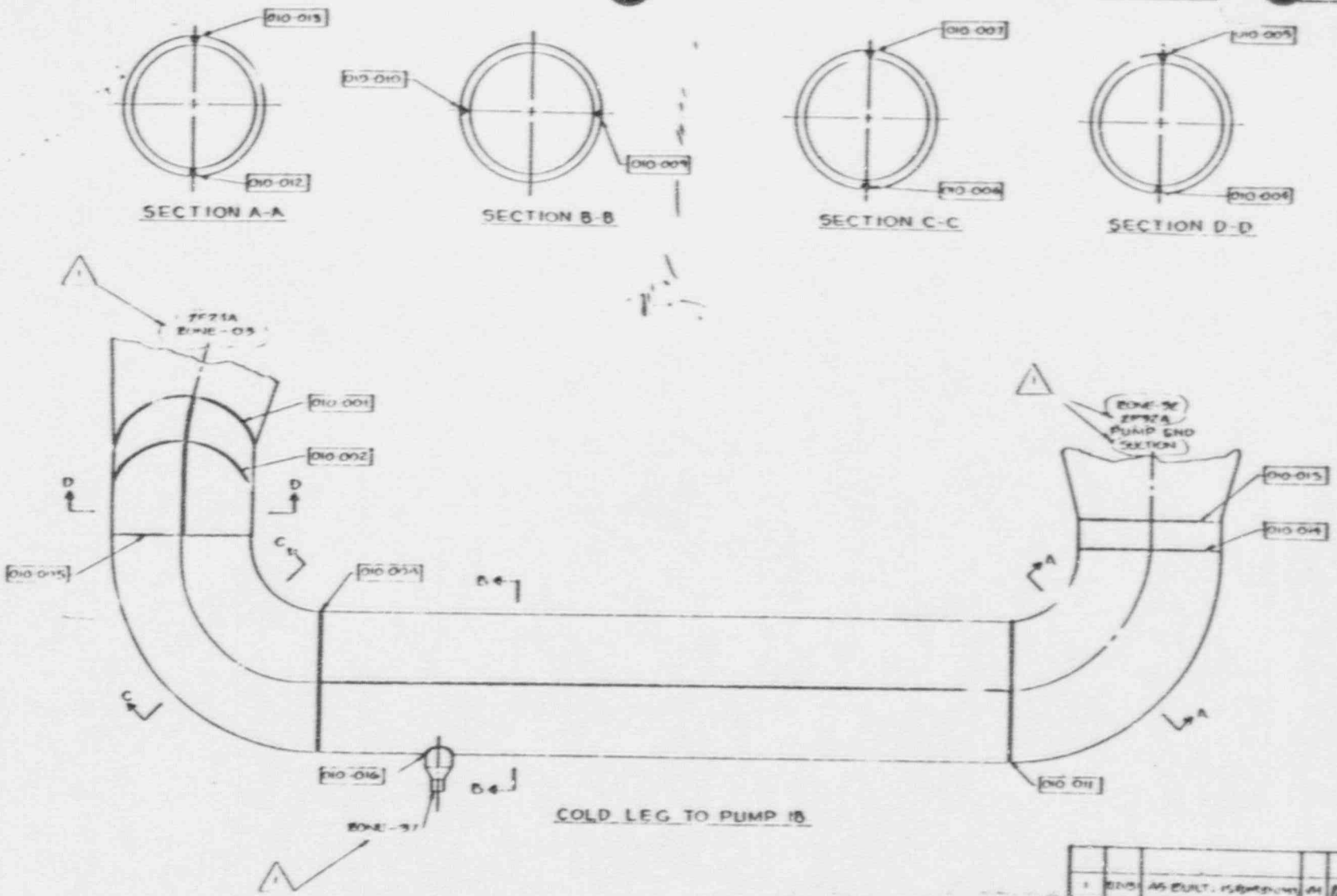
COLD LEG STEAM GEN. #2
TO REACTOR VESSEL
ZONE-07

DRAWING NO: ISI-207

REV: 1


08-015
08-012
SECTION A-A
08-009
SECTION B-B
08-007
08-006
SECTION C-C
08-004
SECTION D-D
ZONE (ZONE-50
PUMP END SUCTION
08-015
08-014
08-011
ZONE-05
ZZ24A
08-001
08-002
08-003
08-014
COLD LEG TO PUMP 1A
PIPE LINE CLASS - ECCA-9
PIPE LOCATION - 375' - 395' ELEV
PIPE CONNECTS TO
PIPE DIAMETER - 30"
PIPE WALL THICKNESS -
WELD PREP REQUIRED
SIDE OF WELD
AS BUILT
ISSUED FOR ISI
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2
COLD LEG STEAM GEN. #1
TO PUMP 1A
ZONE-08
ISI-203


PIPE LINE CLASS
PIPE LOCATION
PIPE CONNECTS
PIPE DIAMETER - 30"
PIPE WALL THICKNESS
WELD PREP REQUIRED - 7½" BOTH SIDES OF WELD
09-006
09-012
09-008
SECTION A-A
09-009
09-004
SECTION B-B
09-009
09-006
A
09-011
09-001
B
09-007
09-005
09-010
ZONE-26
ZONE-21
ZONE-40
PUMP END DISCHARGE
COLD LEG 1A TO REACTOR VESSEL
TOP VIEW
ISSUED PER ESE
AS BUILT
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2
COLD LEG PUMP 1A TO
REACTOR VESSEL
ZONE-09
ISI-209



PIPE LINE CLASS – ECCA-3
PIPE LOCATION – 335' – 336' ELEV.
PIPE CONNECTS TO – BONES 03, 96, 97
PIPE DIAMETER – 30"
PIPE WALL THICKNESS – 1.0"
WELD PREP REQUIRED – 7.0" EACH SIDE OF WELD

NO	DATE	REVISION	BY	CHK	APPD
1	12/13/	AS BUILT. ISOMETRICS	JM	EJ	[illegible]
0	[illegible]	ISSUED PER ISI	JJ	DM	DP

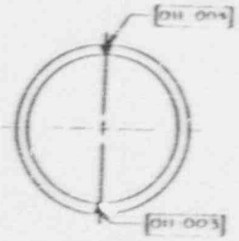
SCALE NONE | DESIGN CE | DRAWN J. JOHNSTON

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

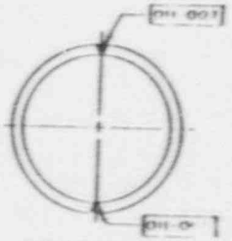
COLD LEG STEAM GEN. #1
TO PUMP 1B
ZONE-10

DRAWING NO: ISI-210 | REV: 1

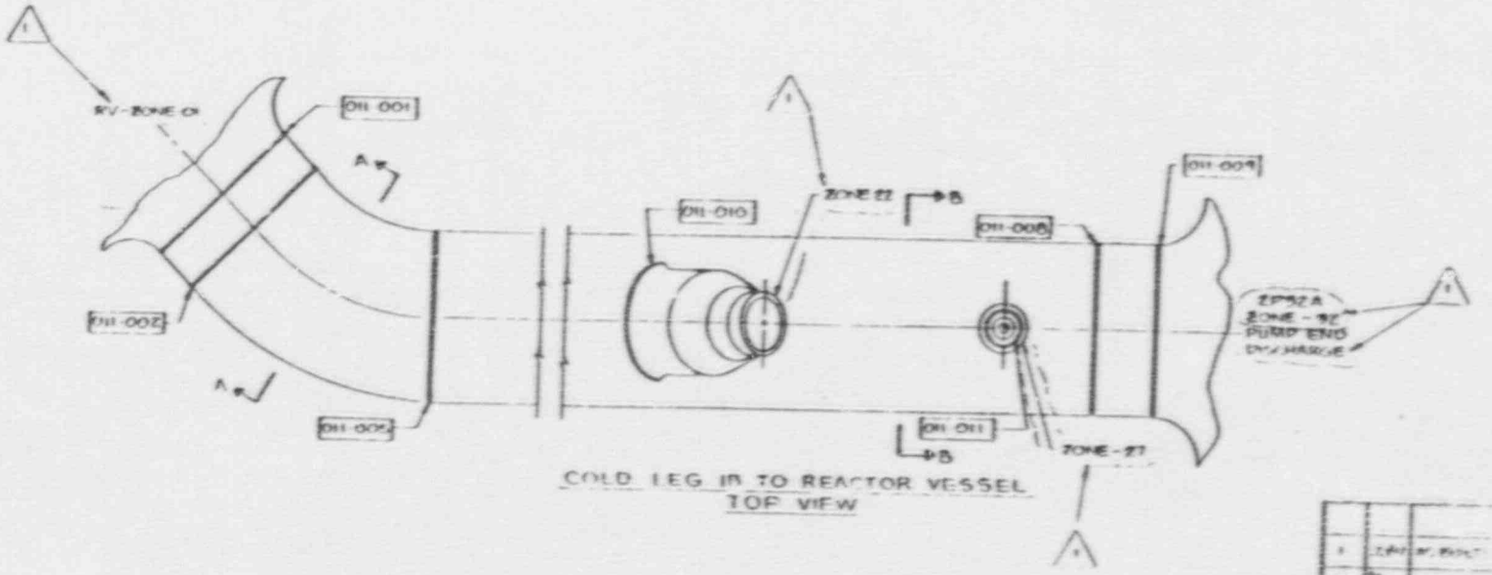
PIPE UP — SCCA-4
PIPE LO — 4MT-995' ELEV
PIPE CONNECTS TO - BONES-01, 02 & 21
PIPE DIAMETER - 30"
PIPE WALL THICKNESS - 1.250"
WELD PREP REQUIRED - 7/8" EACH SIDE OF WELD



SECTION A-A



SECTION B-B



COLD LEG IB TO REACTOR VESSEL
TOP VIEW

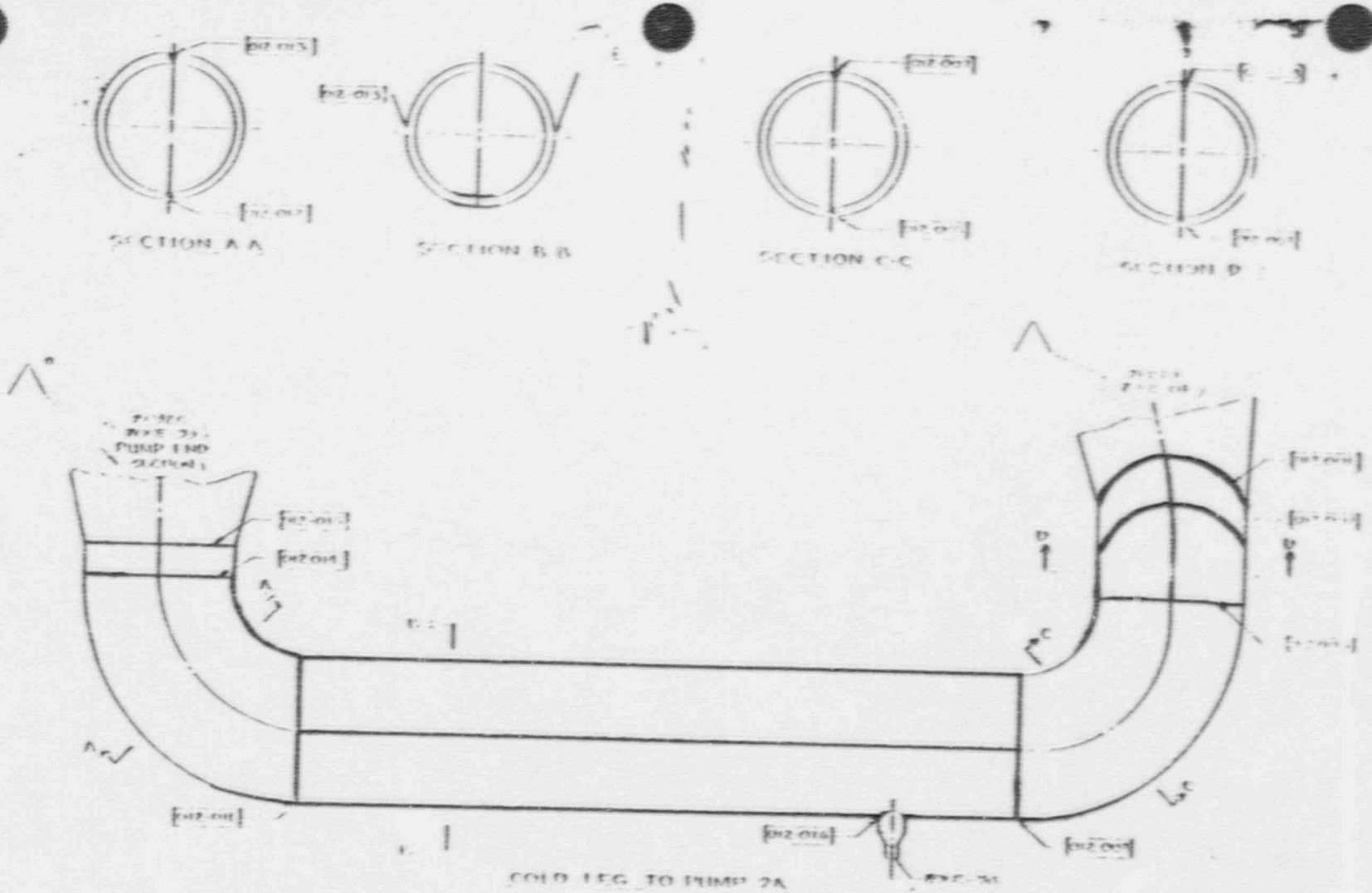
1	12/87	[illegible]	[illegible]	[illegible]	[illegible]
0	7/1/85	ISSUED FOR USE	[illegible]	[illegible]	[illegible]
NO	DATE	REVISION	BY	[illegible]	[illegible]

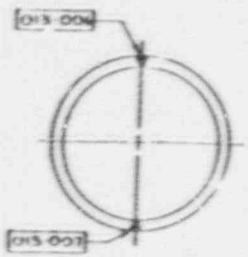
UNIT NONE — DRAWN CE — STAMP & CHARGE

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

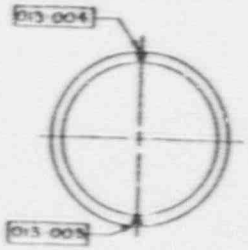
COLD LEG PUMP IB TO
REACTOR VESSEL
ZONE-11

DRAWING NO: ISI-211 — REV: 1

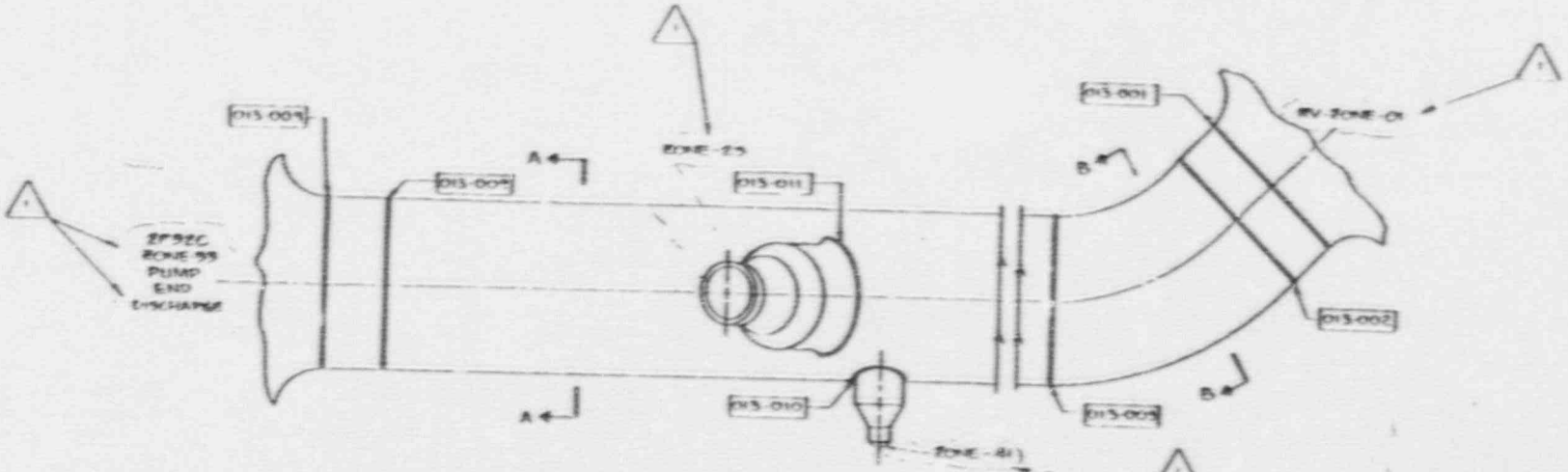

SECTION A-A
SECTION B-B
SECTION C-C
SECTION D
PUMP END
COLD LEG TO PUMP 2A
ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2
COLD LEG STEAM GEN #2
TO PUMP 2A
2CNF-12



SECTION A-A



SECTION B-B



COLD LEG 2A TO REACTOR VESSEL
TOP VIEW

PIPE LINE CLASS - BCCA-R
PIPE LOCATION - 95'-99'4" ELEV
PIPE CONNECTS TO - ZONES-01,01,99,&41
PIPE DIAMETER - 30"
PIPE WALL THICKNESS - 0.850"
WELD PREP REQUIRED - 7/16" EACH SIDE OF WELD

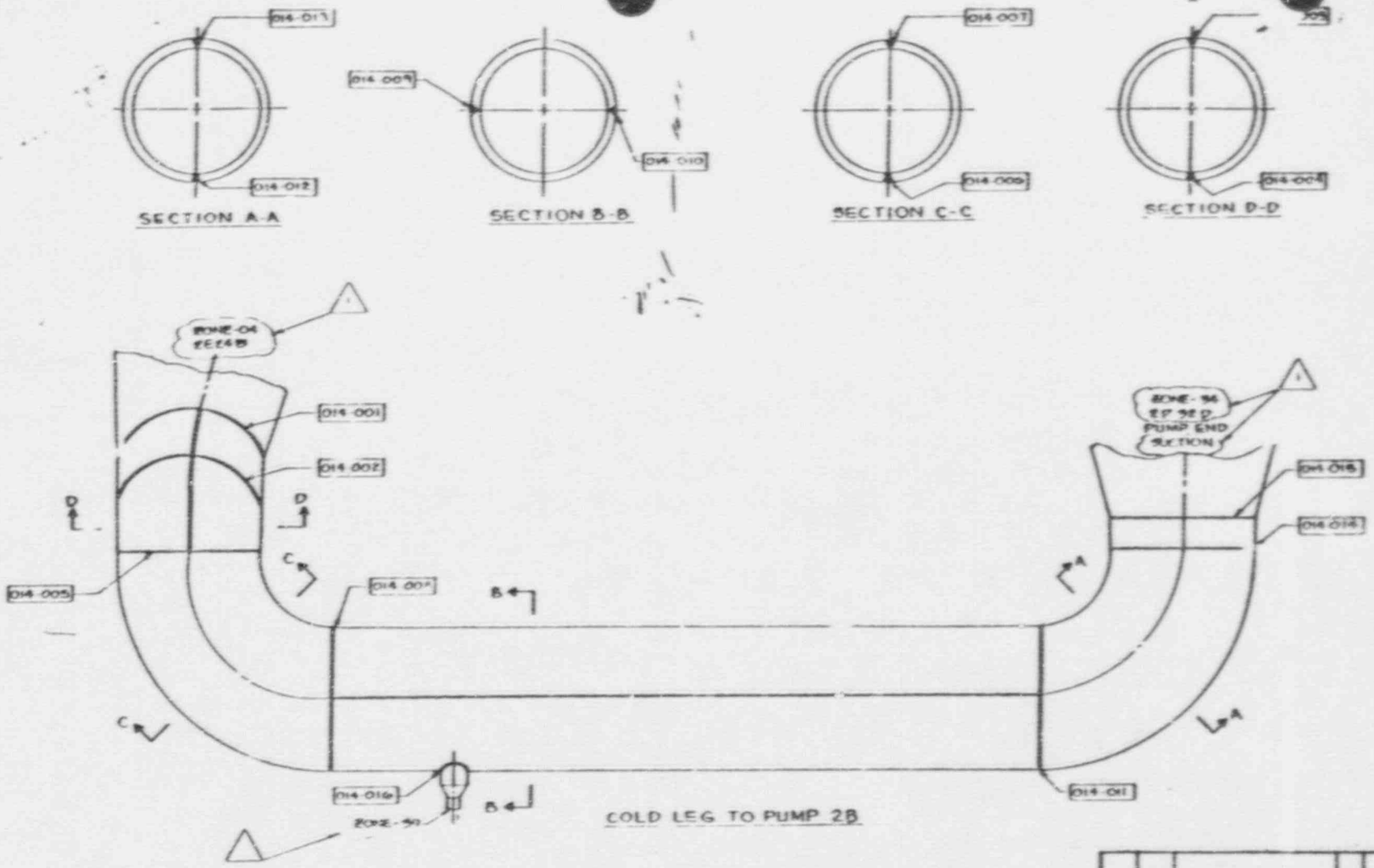
1	[illegible]	AS-BUILT - [illegible]	[illegible]	[illegible]	
0	5/1/83	ISSUED PER I&E	[illegible]	[illegible]	
NO.	DATE	REVISION	BY	[illegible]	

SCALE NONE | DESIGN CO | DRAWN J. [illegible]

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

COLD LEG PUMP 2A TO
REACTOR VESSEL
ZONE-13

DRAWING NO. ISI-213 | REV 1



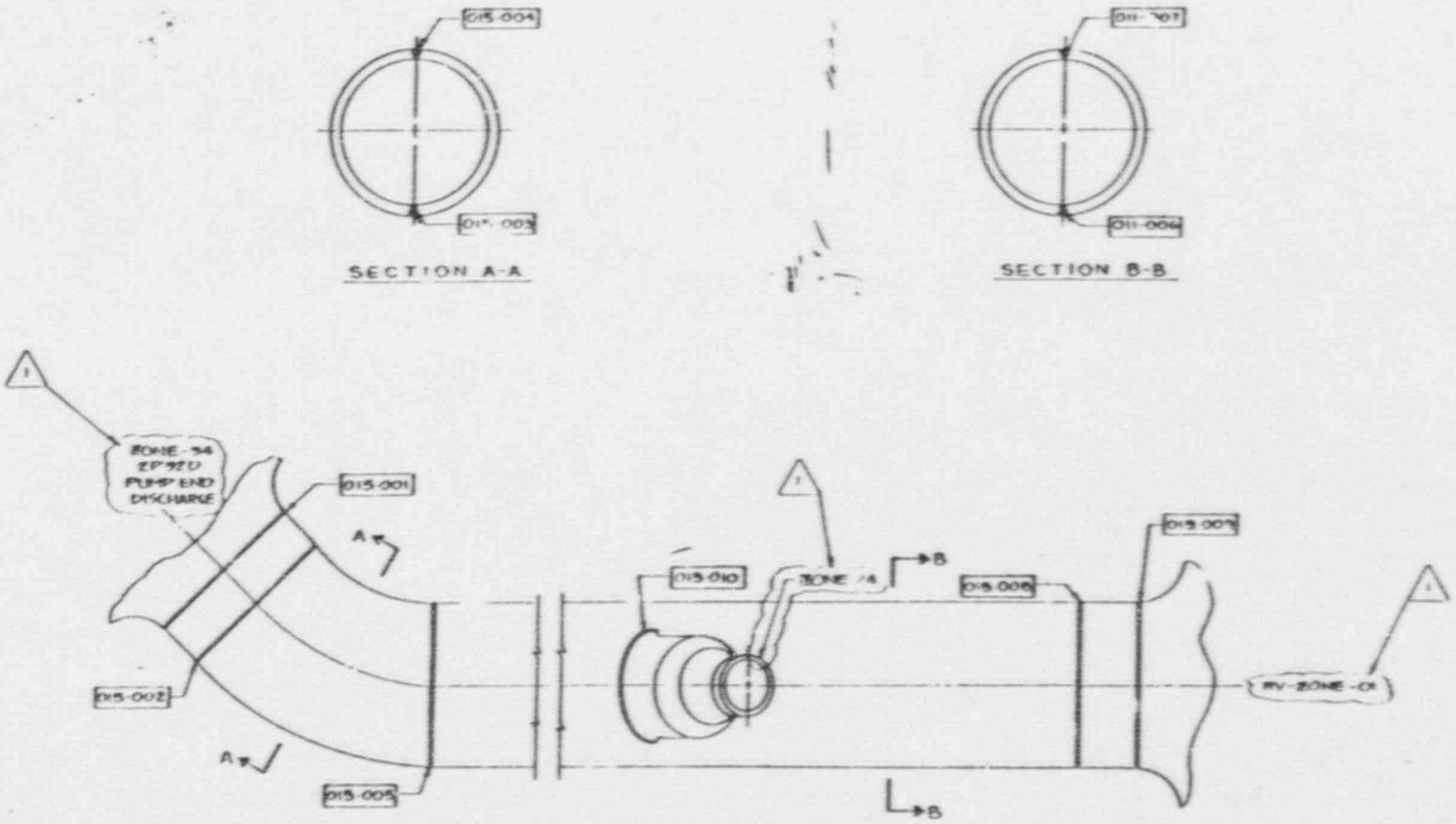
PIPE LINE CLASS - B/A-9
PIPE LOCATION - 97'-9" ELEV.
PIPE CONNECTS TO ZONES-04, 14, & 50
PIPE DIAMETER - 30"
PIPE THICKNESS - 0.5"
WELD PREP REQUIRED 7.0" EACH SIDE OF WELD

1		AS-BUILT - 1984			
0		ISSUED PER ISI			
NO.	DATE	REVISION	BY	CHK	

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

COLD LEG STEAM GEN #2
TO PUMP 2B
ZONE-14

DRAWING NO: ISI-214
REV: 1



PIPE LINE CLASS - ECCA-10
PIPE LOCATION - 5'N' - 595' BL TV
PIPE CONNECTS TO - ZONES 01, 04 & 34
PIPE DIAMETER - 30"
PIPE WALL THICKNESS - .9 250"
WELD PREP REQUIRED - 7½" EACH
SIDE OF WELD

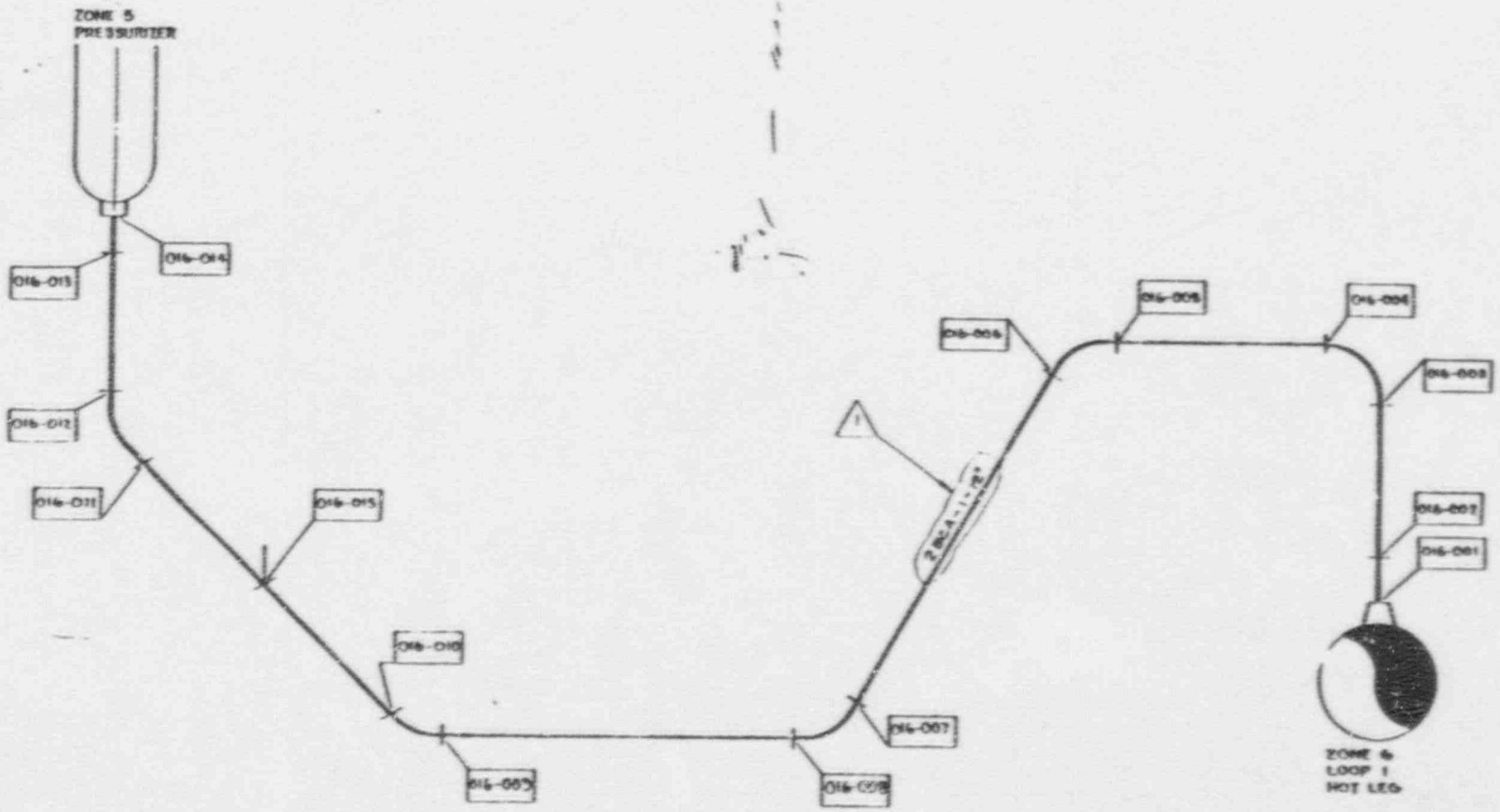
1	[illegible]	AS BUILT ISOMETRICS	[illegible]	[illegible]		
0	[illegible]	ISSUED FOR ISI	[illegible]	DW	DP	
NO	DATE	REVISION	BY	CHK	[illegible]	

SCALE NONE | DESIGN CE | DRAWN J. JOHNSON

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

COLD LEG PUMP 2B TO
REACTOR VESSEL
ZONE-15

DRAWING NO: ISI-215 | REV: 1



1

PIPE LINE CLASS - 2BCA-1
PIPE LOCATION - 400'-3½" ELEV
PIPE CONNECTS TO - 2CH6-05 & 06
PIPE DIAMETER - 12"
PIPE WALL THICKNESS - 1.125"
WELD PREP REQUIRED 5½" EACH SIDE OF WELD

1	[illegible]	AS BUILT [illegible]	[illegible]	[illegible]
0	[illegible]	REVISED PER [illegible]	[illegible]	[illegible]
NO	DATE	REVISION	BY	[illegible]

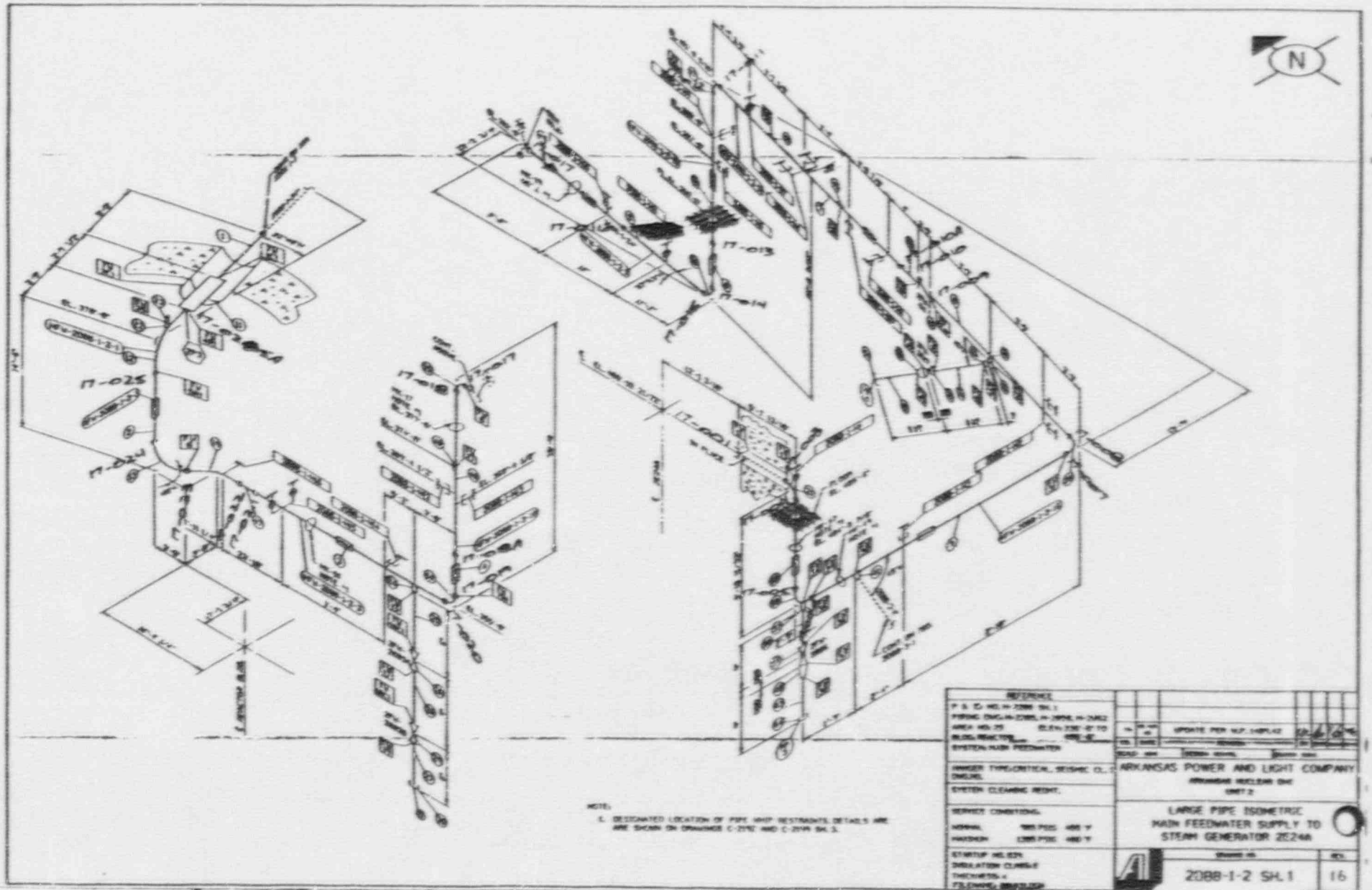
SCALE NONE | DESIGN [illegible] | DRAWN [illegible]

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

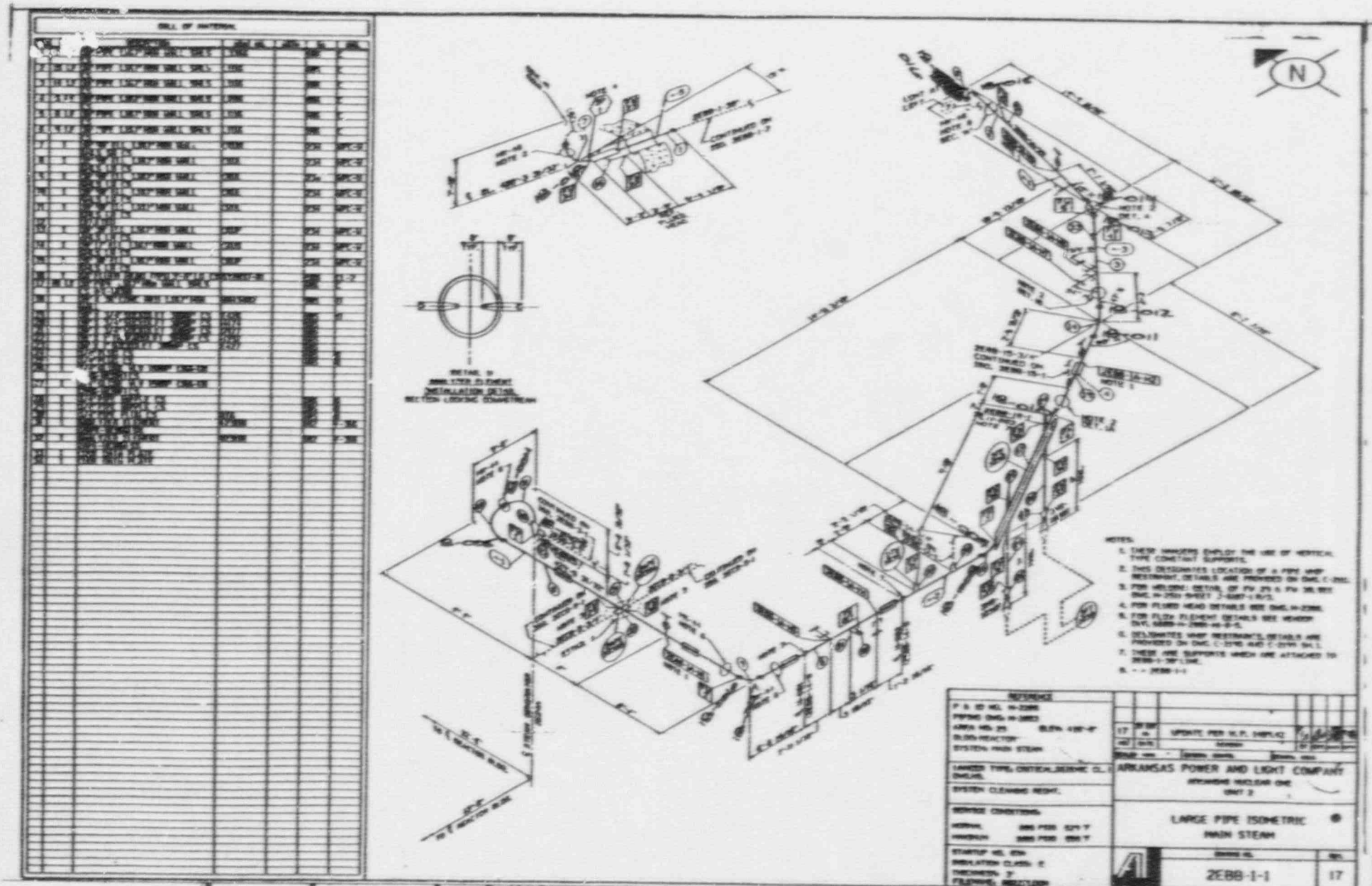
SURGE LINE
(ZONE 16)

ISI-216

REV. 1

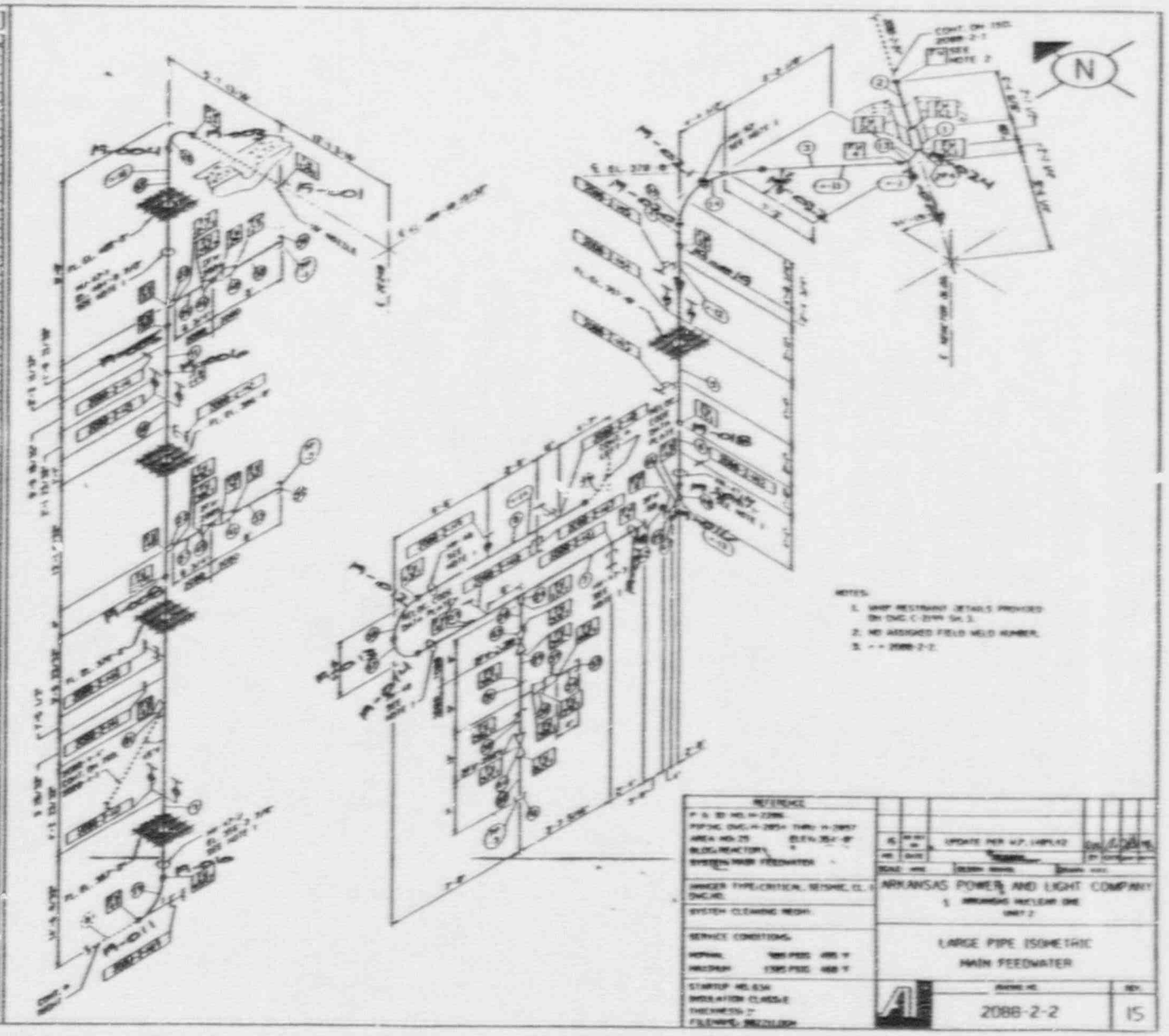

N
IT-025
IT-013
IT-014
IT-001
REFERENCE
SYSTEM: MAIN FEEDWATER
HANGER TYPE: VERTICAL, SEISMIC CL. 2
SYSTEM CLEANING REQUIRED
SERVICE CONDITIONS
NORMAL
MAXIMUM
STARTUP HELIUM
INSULATION CLASS
THICKNESS
TESTING REQUIRED
UPDATE PER N.F. 1-HP-1-12
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2
LARGE PIPE ISOMETRIC
MAIN FEEDWATER SUPPLY TO
STEAM GENERATOR 2E24A
2088-1-2 SH.1
16
NOTE:
1. DESIGNATED LOCATION OF PIPE WHIP RESTRAINTS. DETAILS ARE ARE SHOWN ON DRAWINGS C-2192 AND C-2191 SH.3.

ISI-217

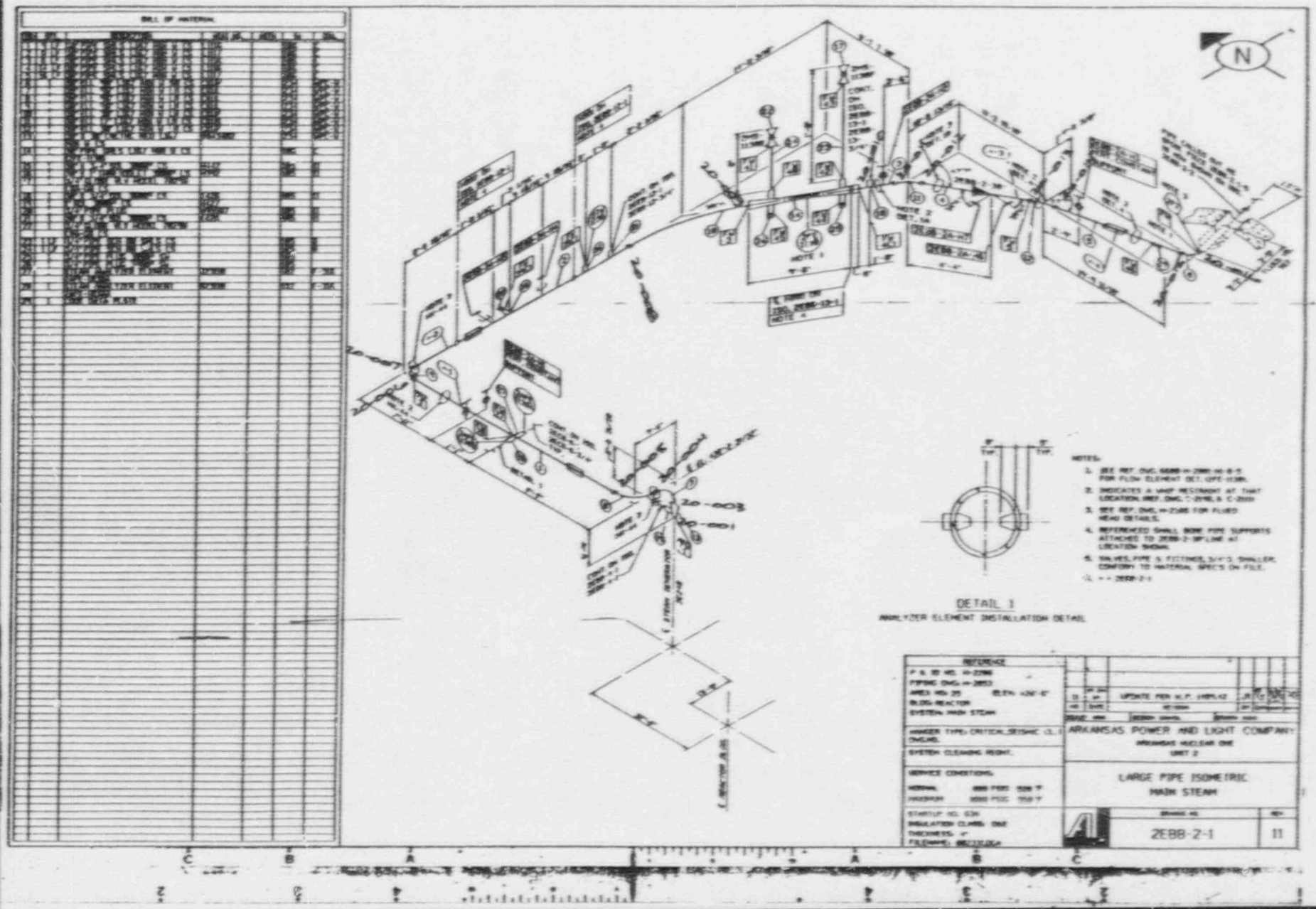

BILL OF MATERIAL
N
DETAIL D
INSULATION ELEMENT
INSTALLATION DETAIL
SECTION CONTINUE DOWNSTREAM
NOTES:
1. THESE HANGERS EMPLOY THE USE OF VERTICAL TYPE CONSTANT SUPPORTS.
2. THIS DESIGNATES LOCATION OF A PIPE WHIP RESTRAINT. DETAILS ARE PROVIDED ON DWG. C-2XC.
3. FOR HOLDER DETAIL OF FV 2[illegible] & FV 3[illegible] SEE DWG. H-2XH-[illegible] SHEET 2-SHEET-1-[illegible].
4. FOR FLUID HEAD DETAILS SEE DWG. H-2XH.
5. FOR FLOW ELEMENT DETAILS SEE HEADER DWG. [illegible]
6. DESIGNATES WHIP RESTRAINTS. DETAILS ARE PROVIDED ON DWG. C-2XH AND C-2XH SH.1.
7. THESE ARE SUPPORTS WHICH ARE ATTACHED TO 2EBB-1-3P LINE.
8. - - 2EBB-1-1
REFERENCE
LARGE TYPE CRITICAL/SEISMIC CL. I DWG.
SYSTEM CLEANING REQ'T.
SERVICE CONDITIONS
NORMAL
MAXIMUM
STARTUP HIS. ITEM
INSULATION CLASS: E
THICKNESS: 3"
FLEXIBLE INSULATION
UPDATE PER U.F. HIPLAN
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2
LARGE PIPE ISOMETRIC
MAIN STEAM
2EBB-1-1
17

ISI-218

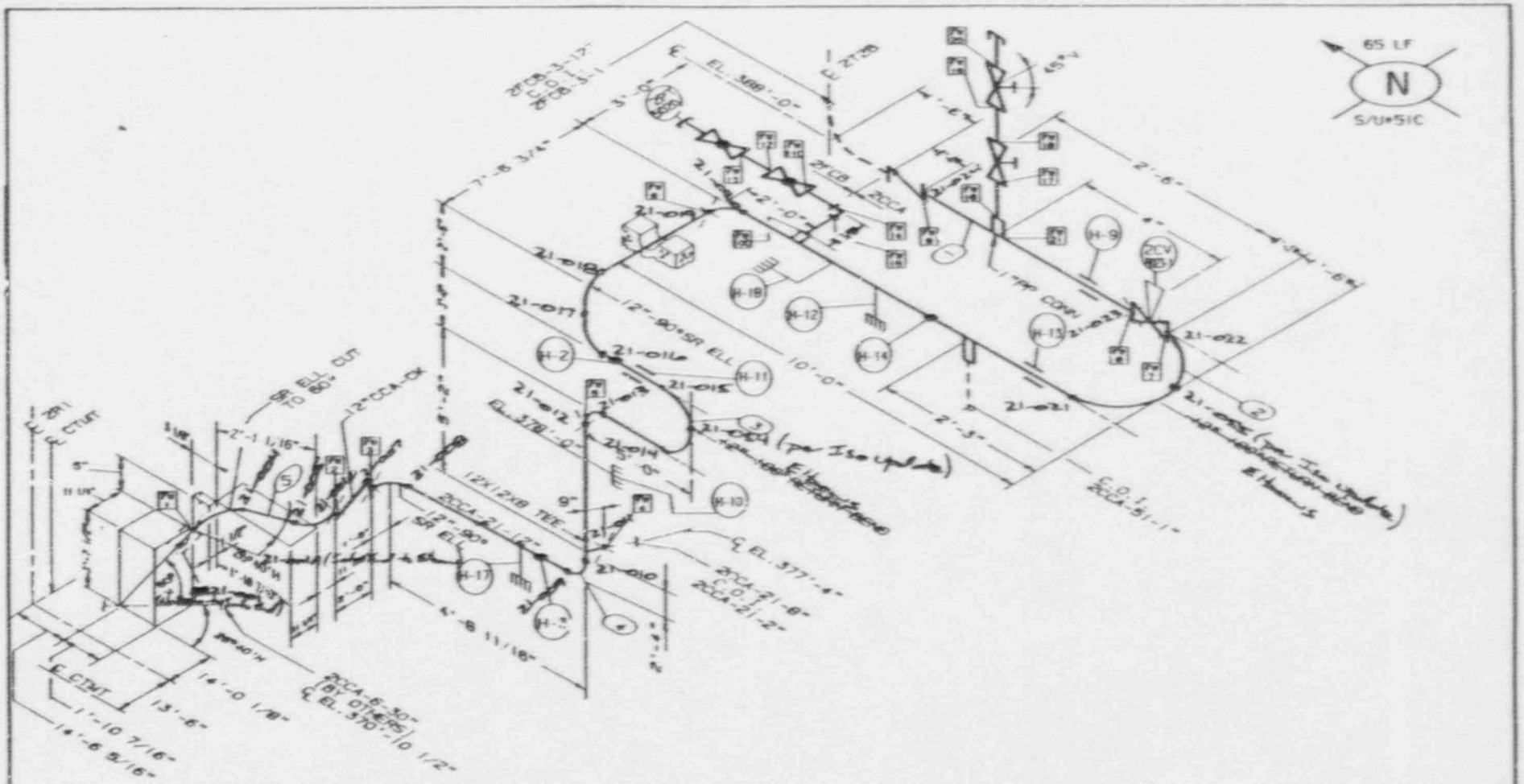
BILL OF MATERIAL

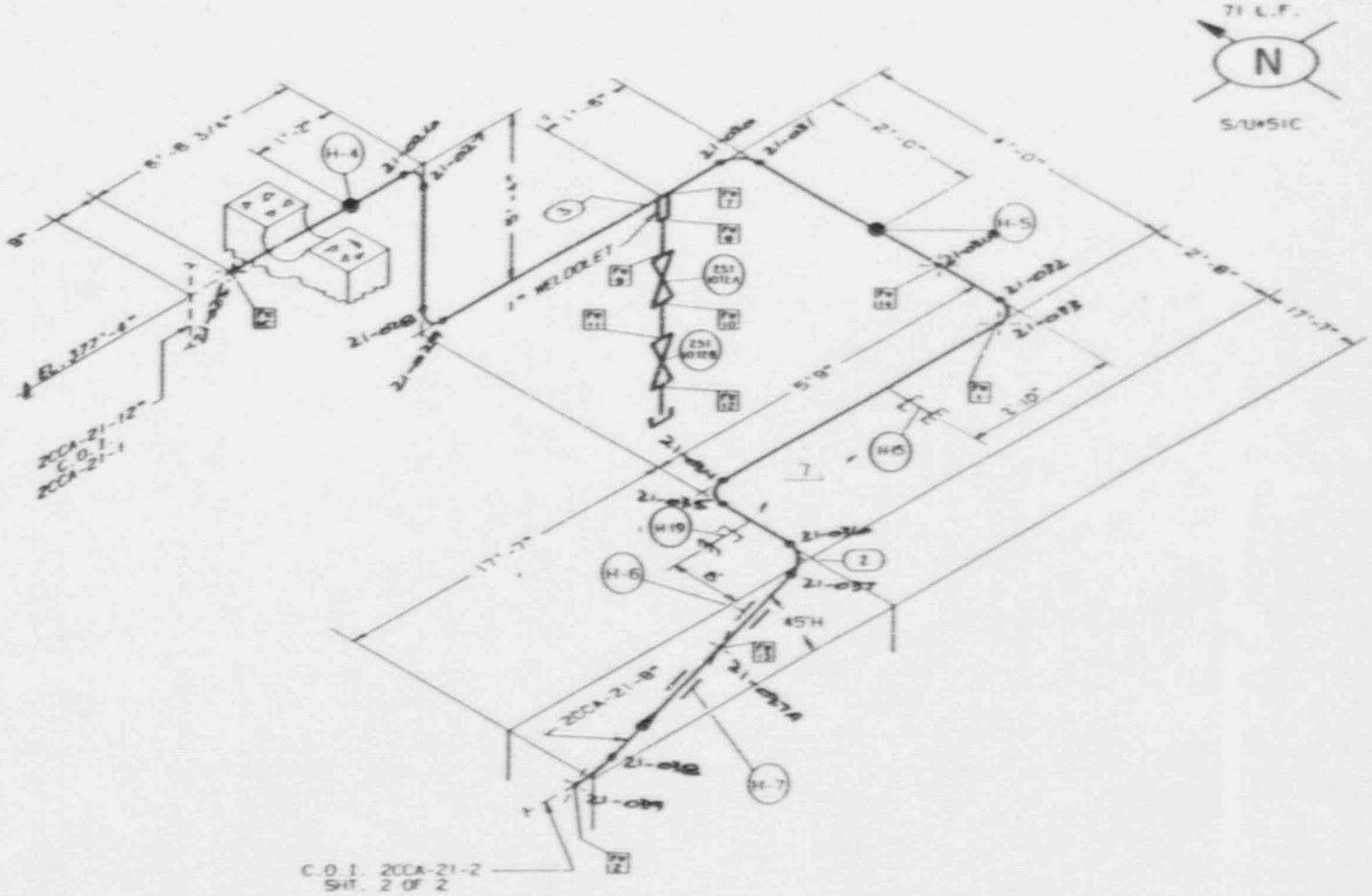


ISI-219


BILL OF MATERIAL
N
DETAIL 1
ANALYZER ELEMENT INSTALLATION DETAIL
NOTES:
1. SEE REF. DWG. 6688-H-2061-H-8-5 FOR FLOW ELEMENT DET. OFF-GOM.
2. INDICATES A HNGR RESTRAINT AT THAT LOCATION. REF. DWG. 1-2416, & C-2501
3. SEE REF. DWG. H-2586 FOR FLUED HEAD DETAILS.
4. REFERENCED SMALL BORE PIPE SUPPORTS ATTACHED TO 2EBB-2-SP LINE AT LOCATION SHOWN.
5. VALVES, PIPE & FITTINGS, 3/4"Ø, SMALLER, CONFORM TO MATERIAL SPEC'S ON FILE.
REFERENCE
P & ID NO. H-2066
PIPING DWG. H-2013
AREA NO. 25
BLDG: REACTOR
SYSTEM: MAIN STEAM
HANGER TYPE: CRITICAL, SEISMIC (3, 1 ONLY)
SYSTEM CLEANING REQMT.
SERVICE CONDITIONS
NORMAL
MAXIMUM
STARTUP NO. 03A
INSULATION CLASS: ONE
THICKNESS: 4"
FILENAME:
UPDATE PER W.P. 1HPL42
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2
LARGE PIPE ISOMETRIC
MAIN STEAM
2EBB-2-1
11

ISI-220


65 LF
N
S/U*SIC
EL. 389'-0"
12"-90° SR ELL
10'-0"
2'-6"
2'-3"
1"TYP CONN
12X12X8 TEE
12"-90° SR ELL
EL. 370'-0"
EL. 377'-4"
2CCA-21-8"
2CCA-21-2"
2CCA-21-12"
2CCA-21-10
2CCA-21-9
2CCA-21-11
2CCA-21-15
2CCA-21-16
2CCA-21-17
2CCA-21-18
2CCA-21-22
2CCA-21-23
2CCA-21-21
2CCA-21-14
2CCA-21-13
2CCA-21-4
2CCA-21-3
2CCA-21-1
2CCA-21-2
2CCA-21-8
2CCA-21-9
2CCA-21-10
2CCA-21-11
2CCA-21-12
2CCA-21-13
2CCA-21-14
2CCA-21-15
2CCA-21-16
2CCA-21-17
2CCA-21-18
2CCA-21-22
2CCA-21-23
2CCA-21-21



ITEM	QTY	DESCRIPTION	HEAT NO	ASTM	GRD
10	1	1" WELDOLET 6000# S.W. SA-182	HT.# 00635		F-316
9	1	1" CAP 6000# SCR'D SA-182			F-316
8	2	1" MK.-CCA-01 1500# VALVE WESTON HYD.	S/N:1078; S/N:1109		
7	1	1"X4" PEXTE SCH. 160 PIPE SA-312			TP-316
6	2	1"X4" PEXPE SCH. 160 PIPE SA-312	HT.# 739506		TP-316
5	1	8" CCA-01 P.O.#M-21122-A; ANCHOR DARLING	SN 1N-083		
4	1	3" CCA-01 P.O.#M-2112-A; VELAN	S/N 2307		
3	1	PIPE SPOOL MARK NO. S12CCA-21-2-3			
2	1	PIPE SPOOL MARK NO. S12CCA-21-2-2			
1	1	PIPE SPOOL MARK NO. S12CCA-21-2-1			

BILL OF MATERIAL

STARTUP NO | INSULATION CLASS | THICK

REFERENCE

P&ID NO. M-2232
PIPING DWG. M-2055; M-2056
AREA NO. 25 ELEV.
BLDG. REACTOR BLDG.
SYS. SAFETY INJECTION SYSTEM

HANGER TYPE
DWG NO.

SYS CLEANING REQMT

SERVICE CONDITIONS
NORMAL ____ PSIG ____ °F
MAXIMUM ____ PSIG ____ °F

HT	DATE	REVISION	BY	CHK	ENGR	APP
7	7/5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

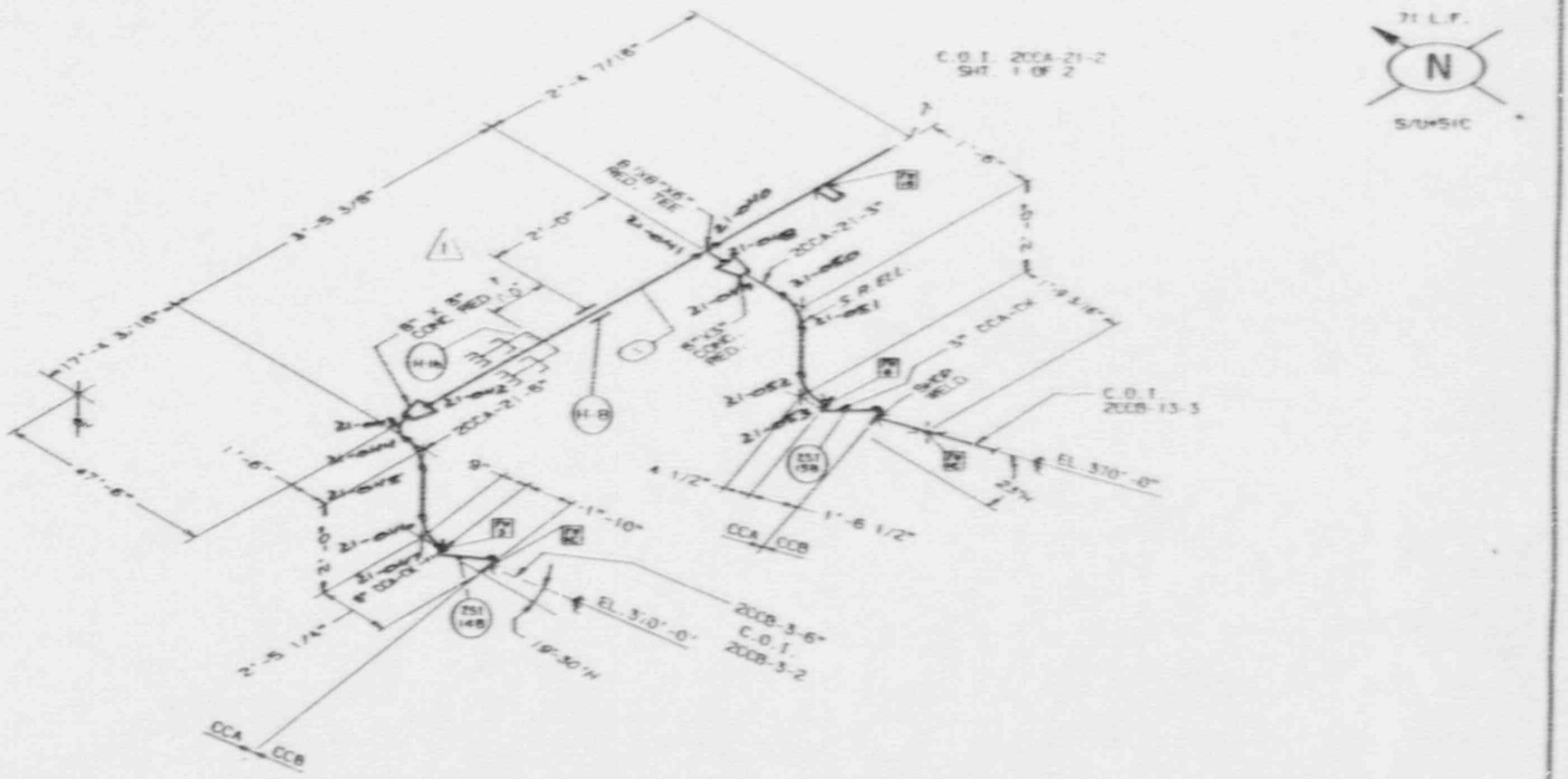
SCALE | DESIGN | DRAWN

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETRIC
SAFETY INJECTION

DRAWING NO. 2CCA-21-2 REV. 7

iSI-221



ITEM	QTY	DESCRIPTION	HEAT NO	ASTM	GRD

BILL OF MATERIAL

STARTUP NO | INSTALLATION CLASS

REFERENCE

P.I.D. NO. M-2232
PIPING DWG. M-2056, M-2058
AREA NO. 25 ELEV.
BLDG. REACTOR BLDG.
SYS. SAFETY INJECTION SYSTEM

NO	DATE	REVISIONS	BY	CHK		

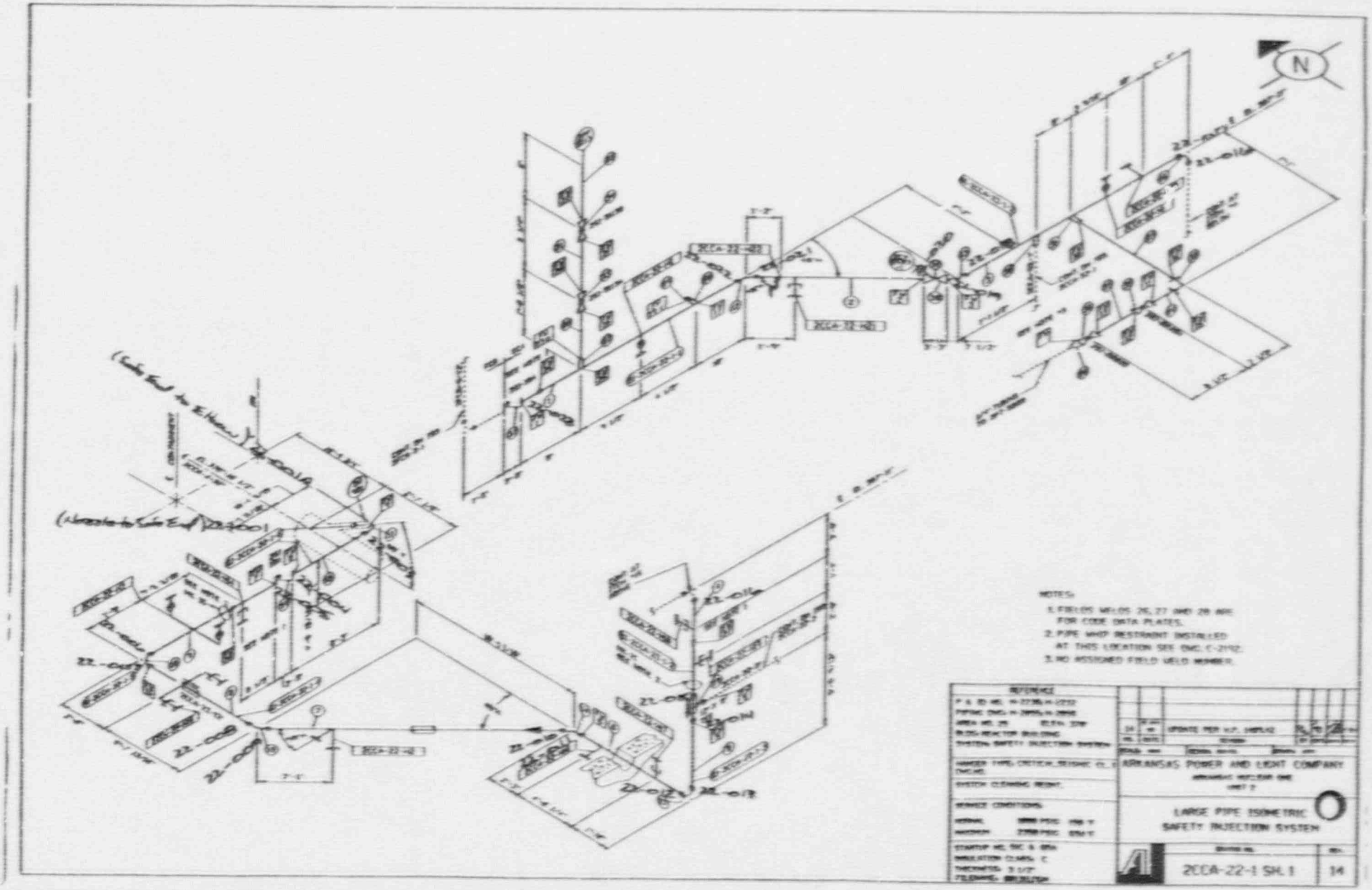
DRAWN

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETRIC
SAFETY INJECTION SYSTEM

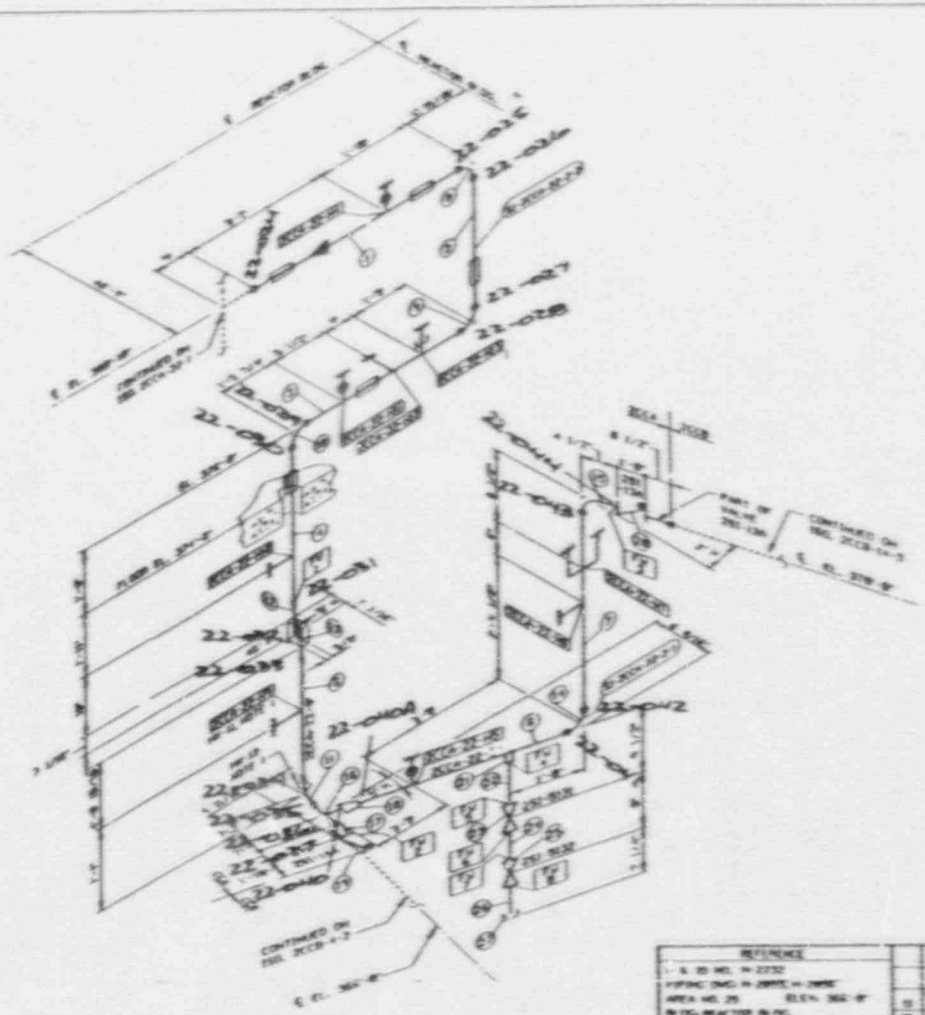
DRAWING NO. 2CCA-21-2 REV. 1

ISI-221


N
NOTES:
1. FIELD WELDS 26, 27 AND 28 ARE FOR CODE DATA PLATES.
2. PIPE WHIP RESTRAINT INSTALLED AT THIS LOCATION SEE DWG. C-2112.
3. NO ASSIGNED FIELD WELD NUMBER.
ARKANSAS POWER AND LIGHT COMPANY
UNIT 2
LARGE PIPE ISOMETRIC
SAFETY INJECTION SYSTEM
2CCA-22-1 SH.1
14

ISI-222

BILL OF MATERIAL



NOTES:
1. FOR WHIP RESTRAINT DETAILS HK-11 & HK-12, SEE DWG. C-2192.

REFERENCE
I. & D. NO. M-2232
PIPING DWG. M-2085E, M-2086E
AREA NO. 25 ELEV. 360'-0"
BLDG. REACTOR BLDG.
SYSTEM SAFETY INJECTION SYSTEM
HANGER TYPE: CRITICAL SEISMIC CL. I
DWG. NO.
SYSTEM CLEANING REQMT.
SERVICE CONDITIONS
NORMAL 2000 PSIG 150°F
MAXIMUM 2750 PSIG 650°F
STARTUP NO. 50
INSULATION CLASS: C
THICKNESS: 3"
FILENAME: 8001L02H

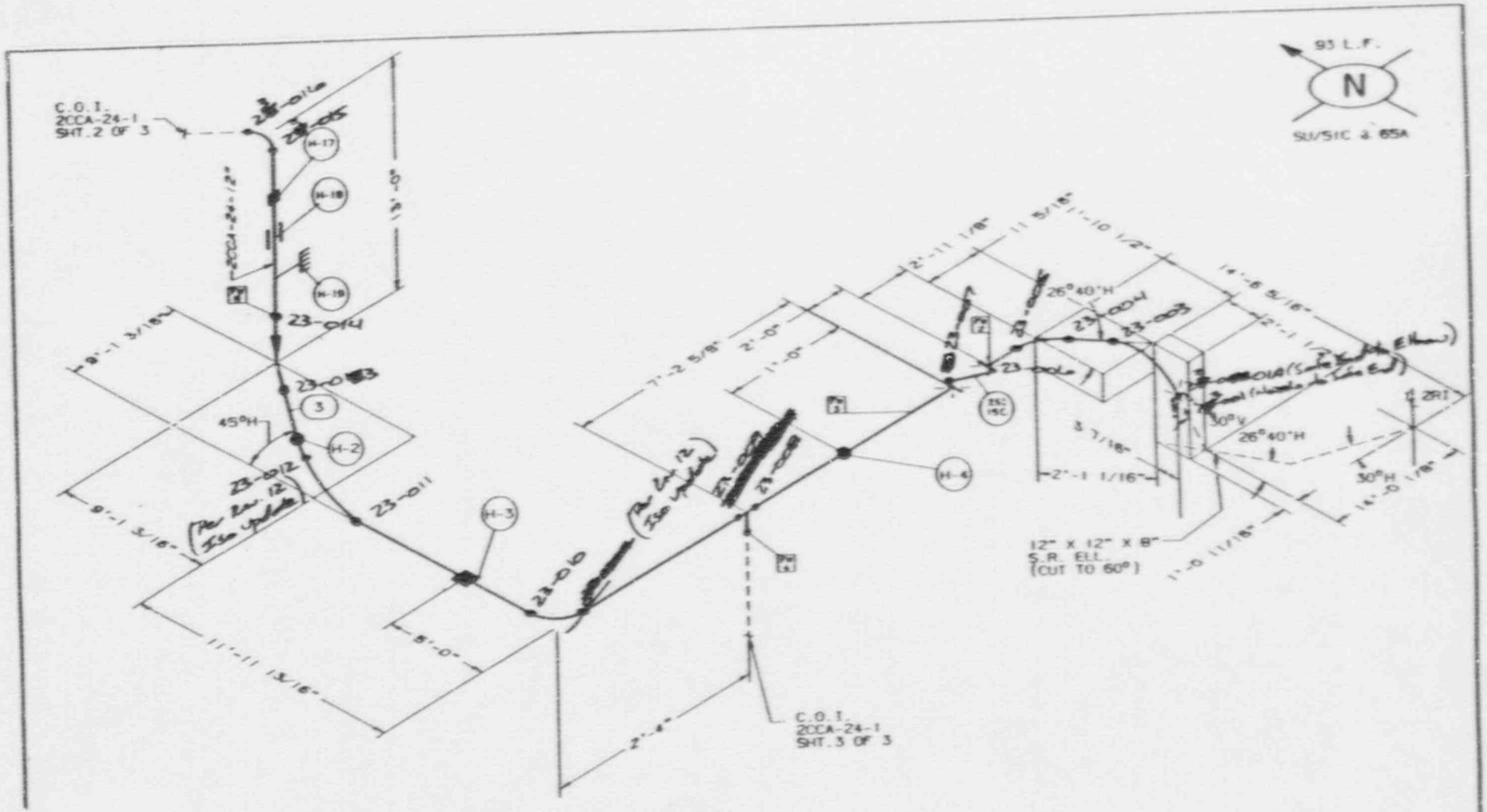
REV.	DATE	REMARKS	BY	CHK'D	APP'D
11	[illegible]	UPDATE PER V.P. 1-HPL-12	[illegible]	[illegible]	[illegible]

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETRIC
SAFETY INJECTION SYSTEM

DRAWING NO. 2CCA-22-2 REV. 11

ISI-222



ITEM	QTY	DESCRIPTION	HEAT NO	ASTM	GRD
13	1	1" 6000# SA-182 S.W. HALF CPLG.	QS		
11	1	1"x4" PE X TE SCH. 160 SA-312 PIPE	M52038		
10	1	1" 6000# SCREWED CAP SA-182	QTY		P-316
9	4	1" WK CCA-OS VALVES; P.O. M-21140; S/N: 11909, 11912, 11913, 11941; WESTON HYD.	739506		TP-316
8	4	1"x8" P.E. XP & SCH. 160 SA-312 PIPE			
7	1	12" 2CV-5043-2(CCA-01) P.O. M-23570-A; S/N: 1N-080; SR. 4354-01; ANCHOR DARLING			
6	2	12" CCA-OX; P.O. M-21120-C; S/N: 6-626, 6-628; ATWOOD MORRILL			
5	1	PIPE SPOOL MARK NO. S1-2CCA-24-1-5			
4	1	PIPE SPOOL MARK NO. S1-2CCA-24-1-4			
3	1	PIPE SPOOL MARK NO. S1-2CCA-24-1-3			
2	1	PIPE SPOOL MARK NO. S1-2CCA-24-1-2			
1	1	PIPE SPOOL MARK NO. S1-2CCA-24-1-1			

BILL OF MATERIAL

STARTUP NO | INSULATION CLASS | THICK

REFERENCE

P&I.D. NO. M-2230; M-2232
PIPING DWG M-2056; M-2055
AREA NO 25 ELEV
BLDG REACTOR BUILDING
SYS SAFETY INJECTION SYSTEM

HANGER TYPE
DWG NO

SYS CLEANING REQMT

SERVICE CONDITIONS
NORMAL PSIG °F
MAXIMUM PSIG °F

NO	DATE	REVISION	BY	CHK	APPR
11	10/28/81	RESHAPE FOR PROPER QUALITY	CRD	VRH	

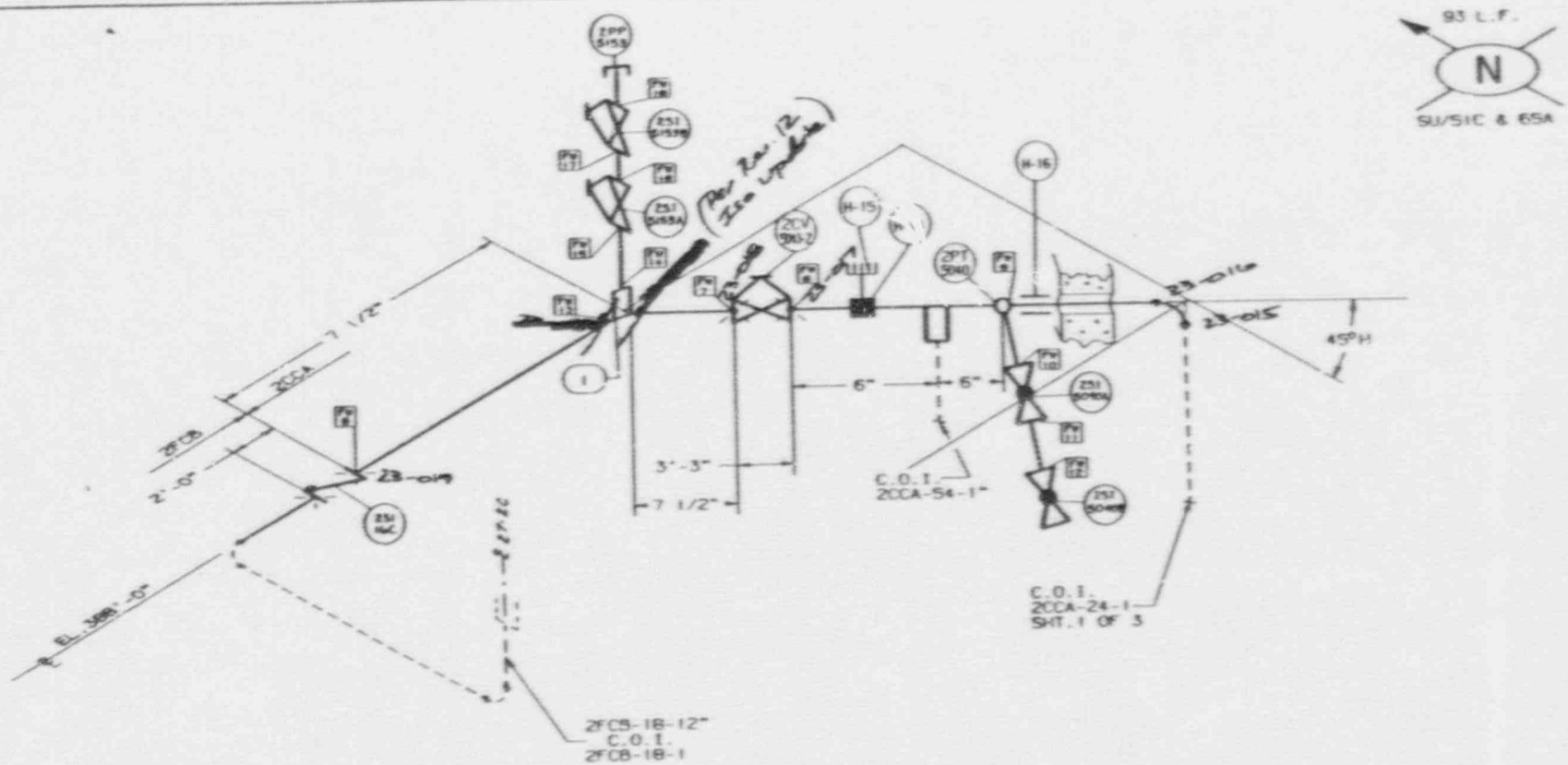
SCALE NONE DESIGN BECHTEL CHECK INTRELL

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETRIC
SAFETY INJECTION SYSTEM

DRAWING NO 2CCA-24-1 REV 11

ISI-223



ISI-223

REFERENCE	
P&I.D. NO.	M-2230; M-2232
PIPING DWG.	M-2056; M-2055
AREA NO.	25 ELEV
BLDG.	REACTOR BUILDING
SYS.	SAFETY INJECTION SYSTEM
HANGER TYPE	
DWG. NO.	
SYS. CLEANING REQMT.	
SERVICE CONDITIONS	
NORMAL	PSIG °F

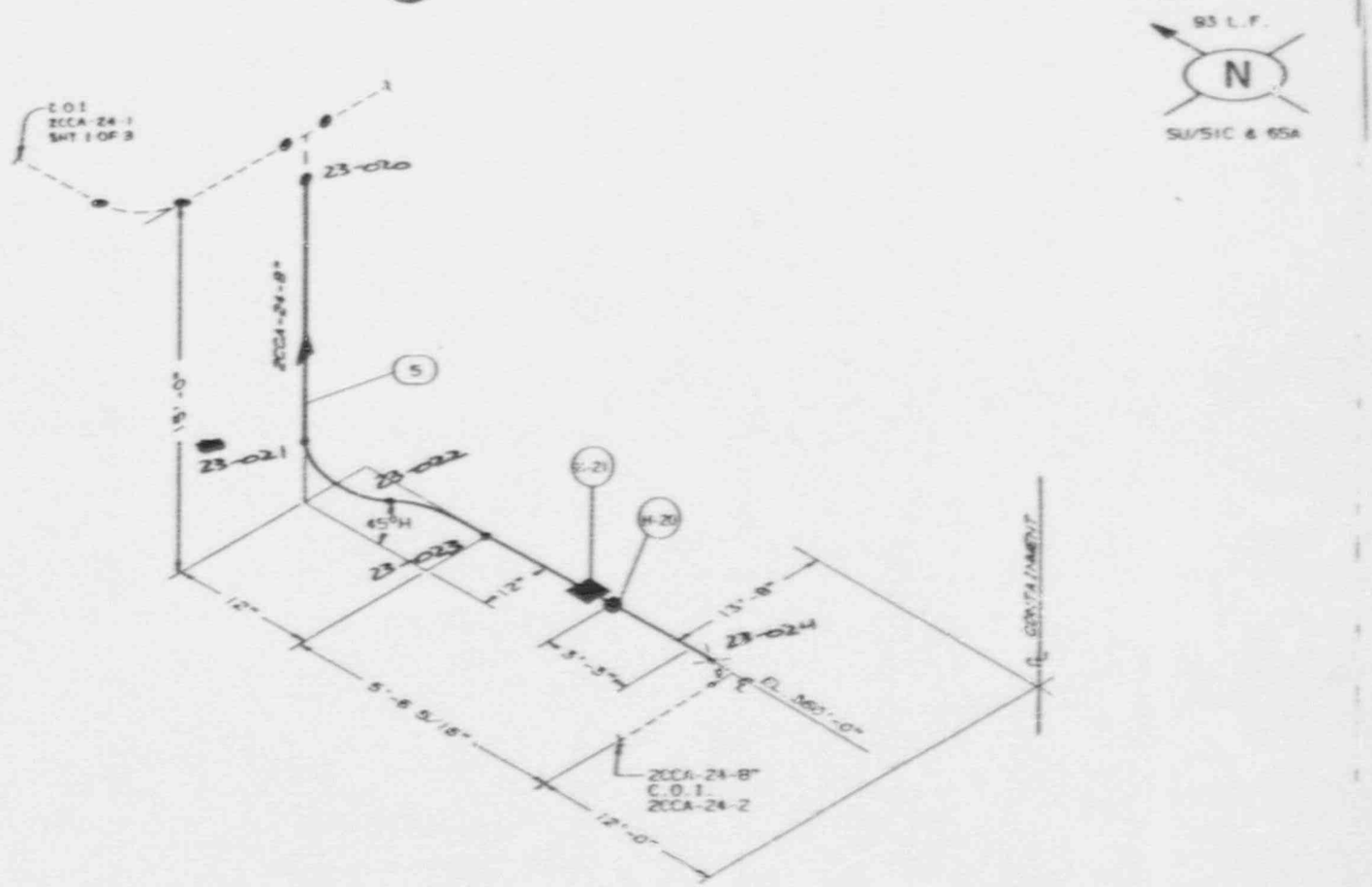
NO.	DATE	REVISION	BY	CHK	APPD
0		ORIGINAL REDRAWN FOR QUALITY	CMD	WF	

SCALE: NONE DESIGN: BECHTEL DRAWN: TAPELL

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETRIC
SAFETY INJECTION SYSTEM

DRAWING NO. REV.



ITEM	QTY	DESCRIPTION	HEAT NO.	ASTM	GRD

BILL OF MATERIAL

STARTUP NO. | INSULATION CLASS | THICK

REFERENCE

P&ID NO. M-2330;M-2232
PIPING DWG M-2056;M-2085
AREA NO. 29 ELEV
BLDG REACTOR BUILDING
SYS SAFETY INJECTION SYSTEM

HANGER TYPE
DWG NO.

SYS CLEANING REQMT

SERVICE CONDITIONS
NORMAL PSIG °F
MAXIMUM PSIG °F

NO.	DATE	REVISION	BY	CHK	APPR
0		ISSUED FOR APPROVAL			

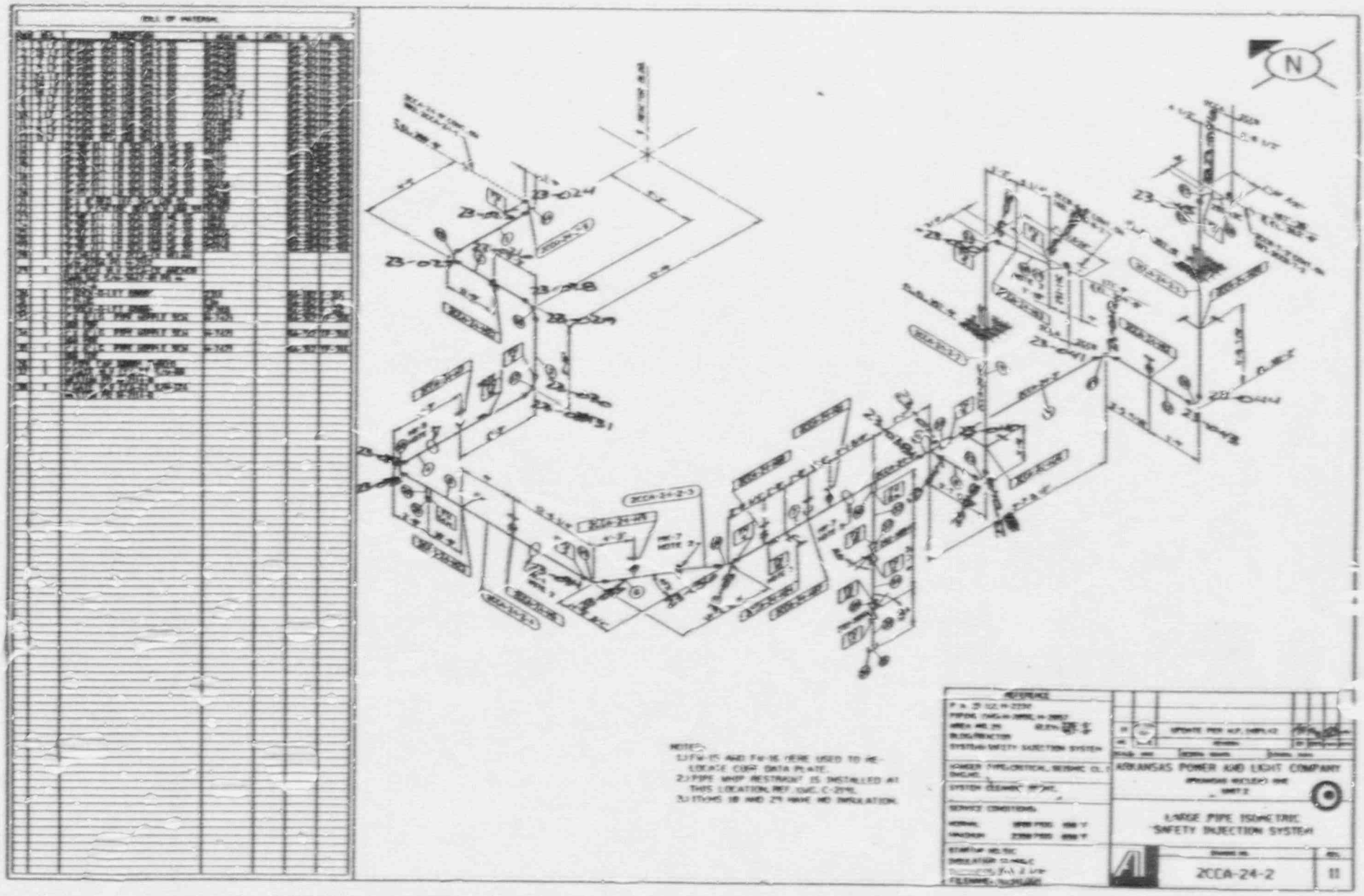
SCALE NONE DRAWN BECHTEL DESIGN TAPELL

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

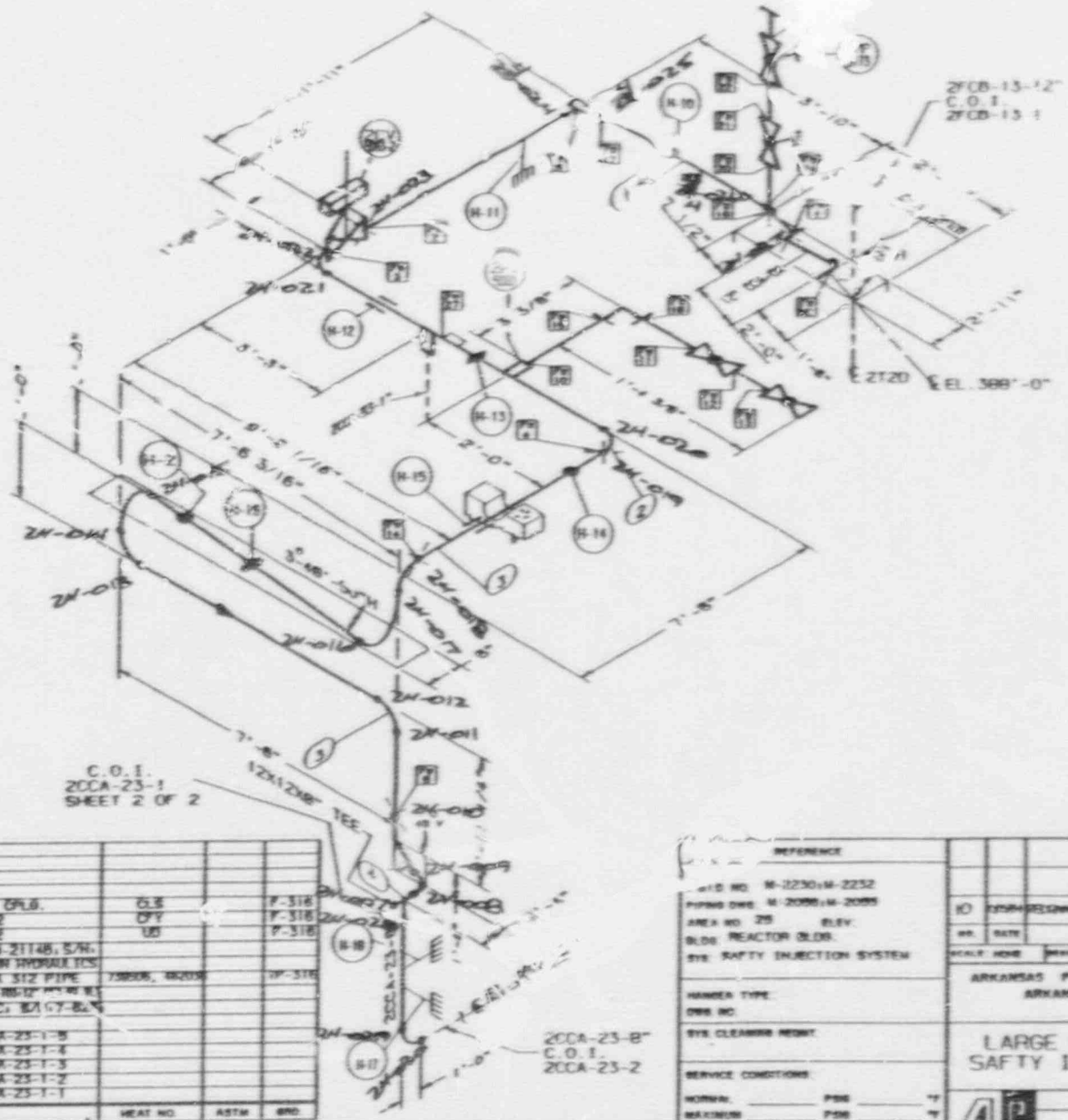
LARGE PIPE ISOMETRIC
SAFETY INJECTION SYSTEM

DRAWING NO. 2CCA-24-1 REV 0

ISI-223


BILL OF MATERIAL
N
NOTES:
1.) FW-15 AND FW-16 WERE USED TO RE-
LOCATE CORP DATA PLATE.
2.) PIPE WHIP RESTRAINT IS INSTALLED AT
THIS LOCATION, REF. IWC C-2596.
3.) ITEMS 18 AND 29 HAVE NO INSULATION.
ARKANSAS POWER AND LIGHT COMPANY
UNIT 2
LARGE PIPE ISOMETRIC
SAFETY INJECTION SYSTEM
2CCA-24-2
11

ISI-223



ITEM	QTY.	DESCRIPTION	HEAT NO.	ASTM	GRD.
12	1	1" 6000# SA-182, S.W. HALF CPLG.	OLE		F-316
11	1	1" 6000# SCREWED CAP SA-182	OTY		F-316
10	1	1" 6000# S.W. 90° ELL SA-182	UB		F-316
9	4	1" WK.CCA-86 VALVES, P.O. W-21148, S/N: 1903, 1897, 1833, 1813, WESTON HYDRAULICS			
8	6	1"X 8" P.E.XP.E. SCH 160 SA 312 PIPE	73890R, 8620R		316
7	1	12" [illegible], P.O. [illegible]			
6	2	12" CCA-CR, P.O. HW-2112-DC, [illegible] 4-826, ATWOOD MORRILL			
5	1	PIPE SPOOL MARK NO. S1-2CCA-23-1-5			
4	1	PIPE SPOOL MARK NO. S1-2CCA-23-1-4			
3	1	PIPE SPOOL MARK NO. S1-2CCA-23-1-3			
2	1	PIPE SPOOL MARK NO. S1-2CCA-23-1-2			
1	1	PIPE SPOOL MARK NO. S1-2CCA-23-1-1			

BILL OF MATERIAL

STARTUP NO. | INSULATION CLASS | THICK

REFERENCE
P&ID NO. M-2230,M-2232
PIPING DWG. M-2086,M-2085
AREA NO. 25 ELEV.
BLDG. REACTOR BLDG.
SYS. SAFTY INJECTION SYSTEM

HANGER TYPE:
DWG NO.
SYS. CLEANING MEDIA:

SERVICE CONDITIONS:
NORMAL: PSIG °F
MAXIMUM: PSIG °F

NO.	DATE	REVISION	BY	CHK	APPROVAL
10	[illegible]	[illegible]	[illegible]	[illegible]	

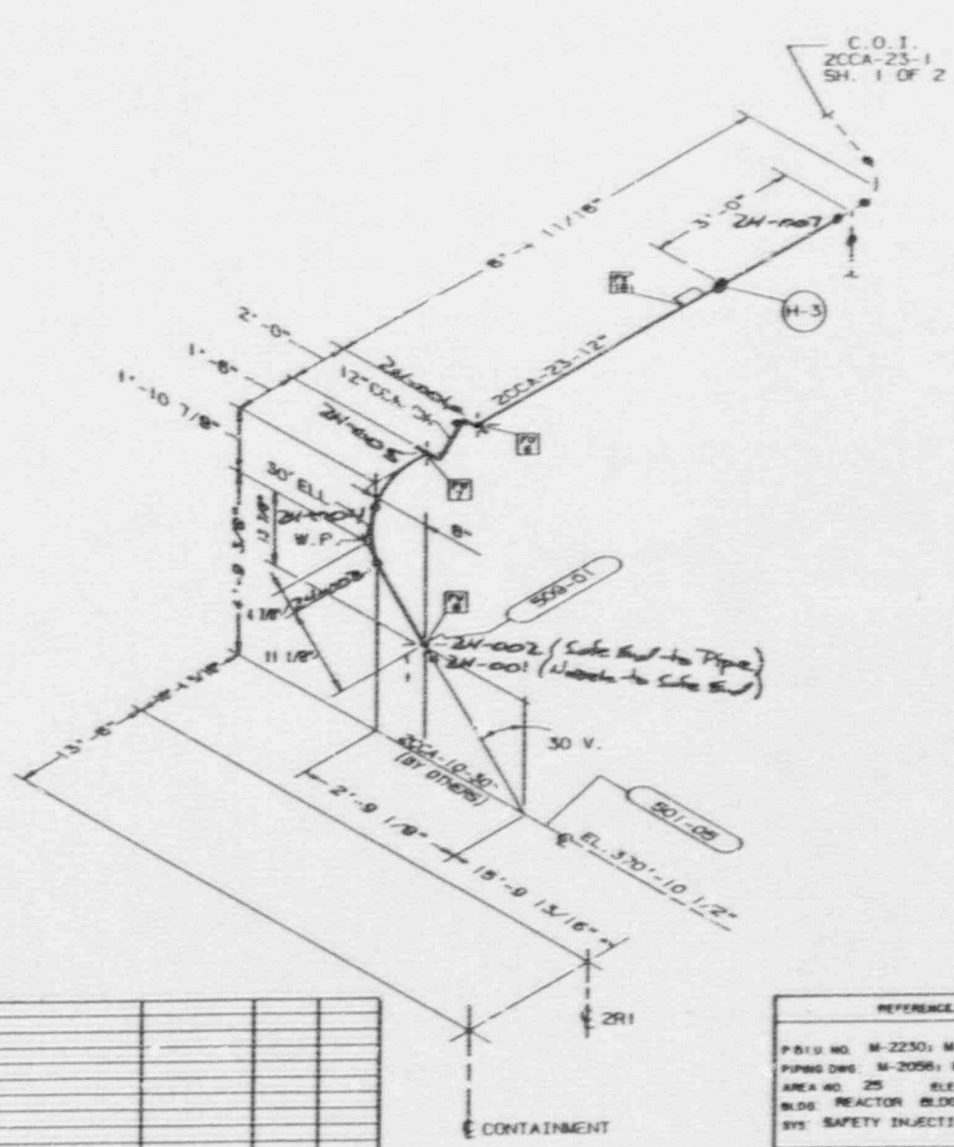
SCALE NONE | DESIGN: [illegible] | DRAWN: [illegible]

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETRIC
SAFTY INJECTION SYSTEM

DRAWING NO. 2CCA-23-1 REV. 10

ISI-224



ITEM	QTY.	DESCRIPTION	HEAT NO.	ASTM	GRD.

BILL OF MATERIAL

STARTUP NO. | INSULATION CLASS | THICK.

REFERENCE

P&I'S NO. M-2230; M-2232
PIPING DWG. M-2056; M-2055
AREA NO. 25 ELEV.
BLDG. REACTOR BLDG.
SYS. SAFETY INJECTION SYSTEM

HANGER TYPE
DWG. NO.
SYS. CLEANING REQMT

SERVICE CONDITIONS
NORMAL ____ PSIG ____ °F
MAXIMUM ____ PSIG ____ °F

NO.	DATE	REVISION	BY	CHK'D	APPROVED
D	5/15/84	RECONFIGURED/QUALITY	CRD	VA	

SCALE: NONE | DESIGN: MECHTEL | DRAWN: TAPELL

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETRIC
SAFETY INJECTION SYSTEM

DRAWING NO. 2CCA-23-1 REV. 0

ISI-224

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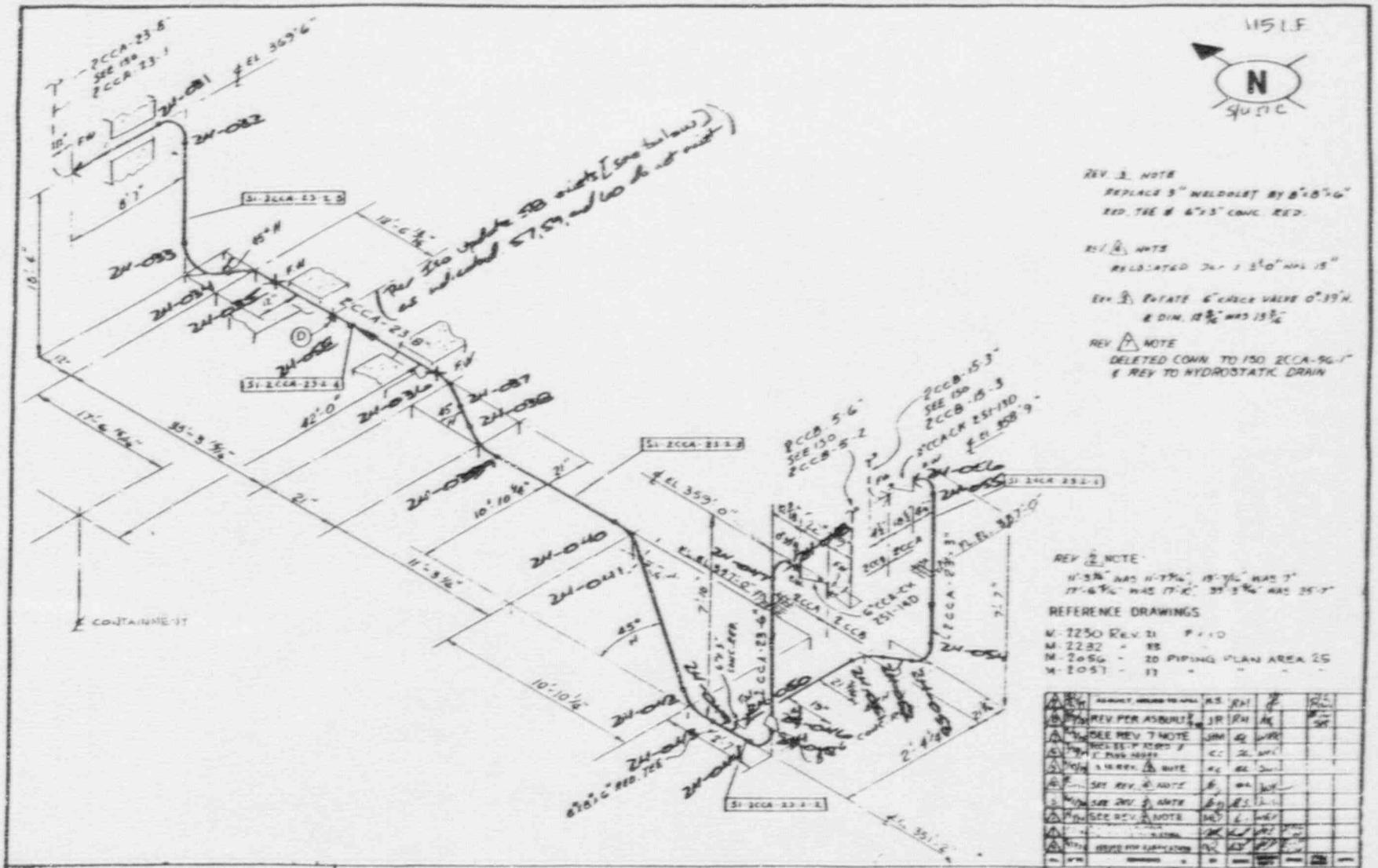
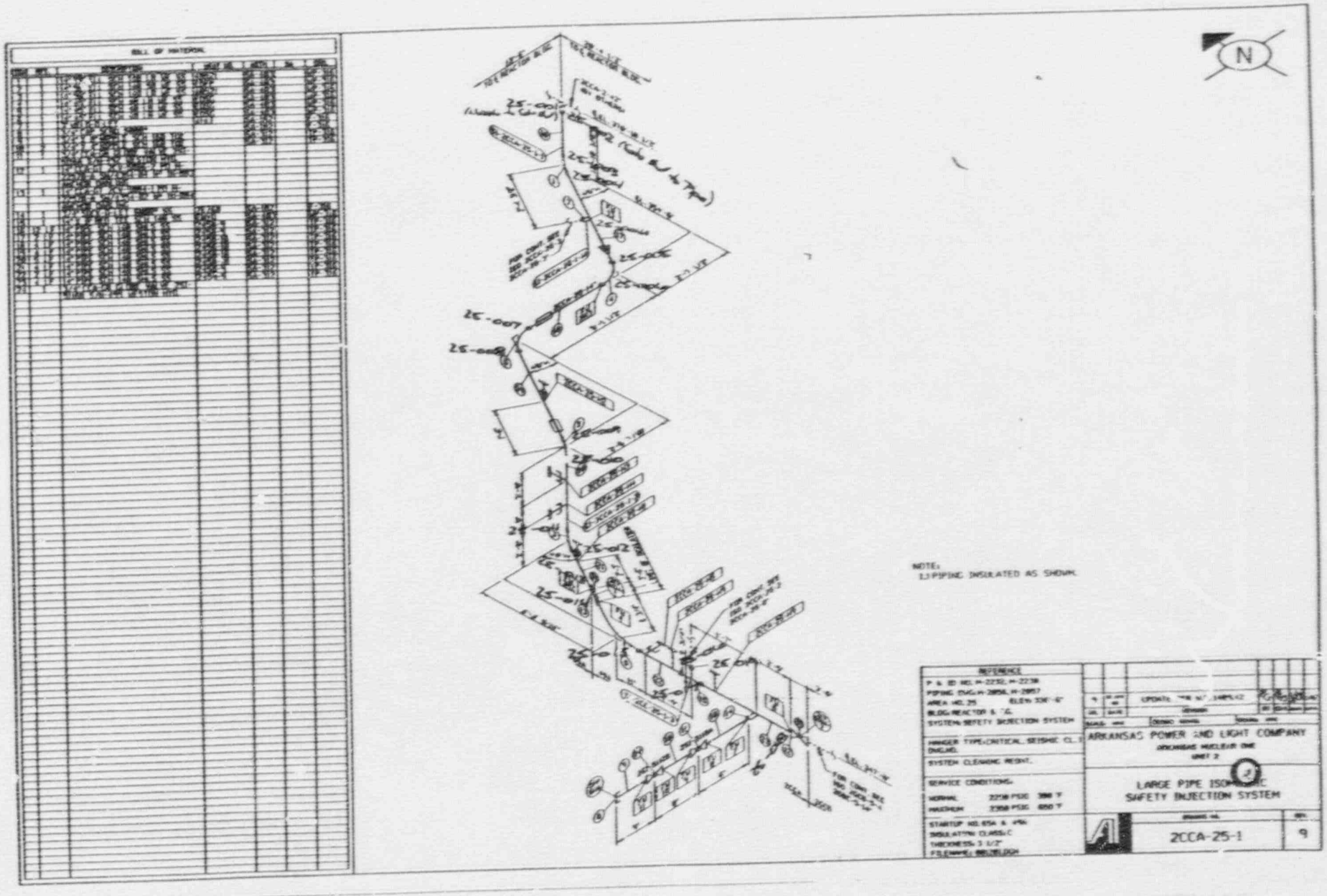


BILL OF MATERIAL

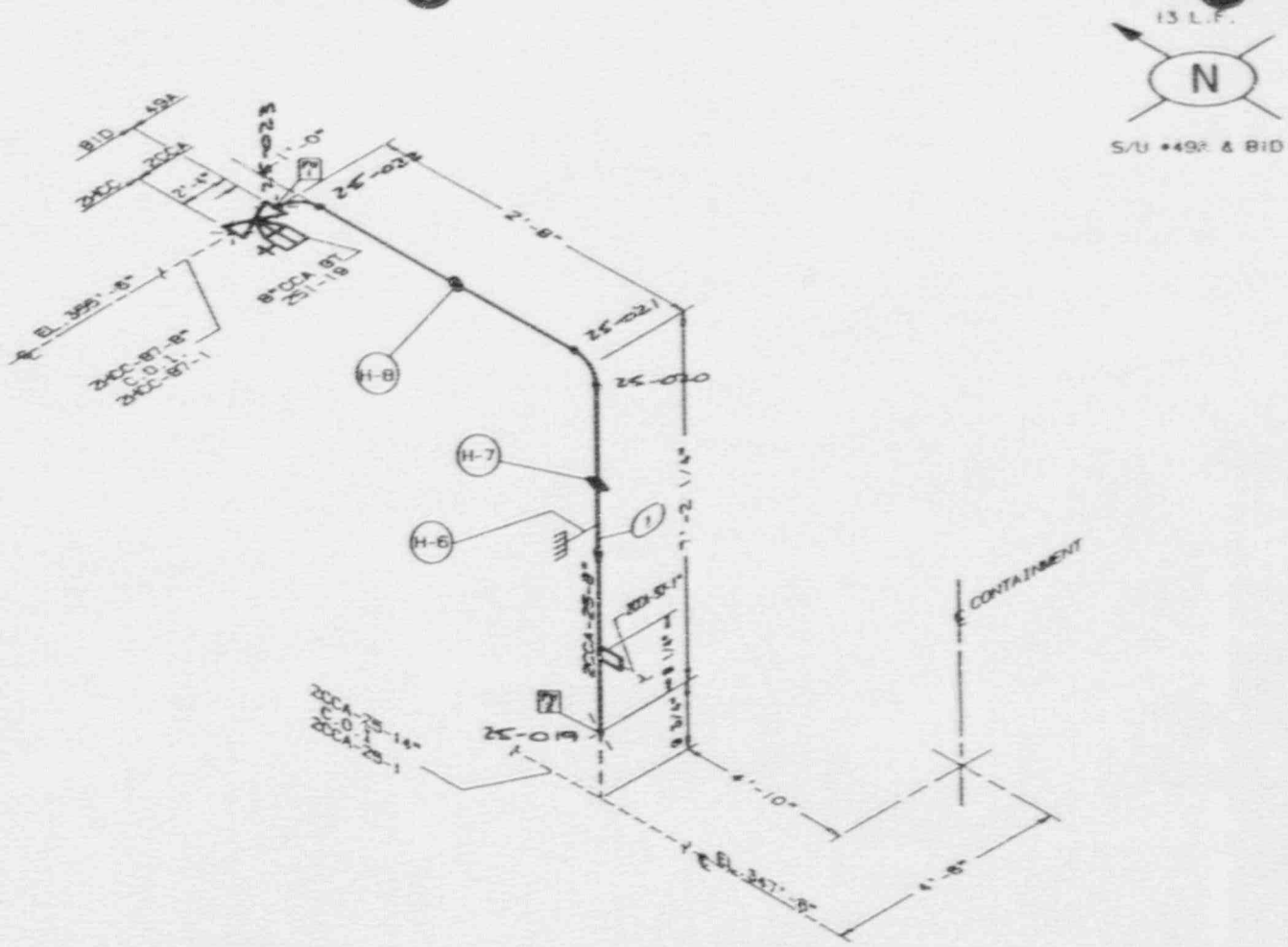
ITEM	DESCRIPTION	QTY
1	PIPE SPOOL MARK NO. SI-2CCA-23-2-1	1
2	SI-2CCA-23-2-2	1
3	SI-2CCA-23-2-3	1
4	SI-2CCA-23-2-4	1
5	SI-2CCA-23-2-5	1
6	3" CCA-CK	1
7	6" CCA-CK	1

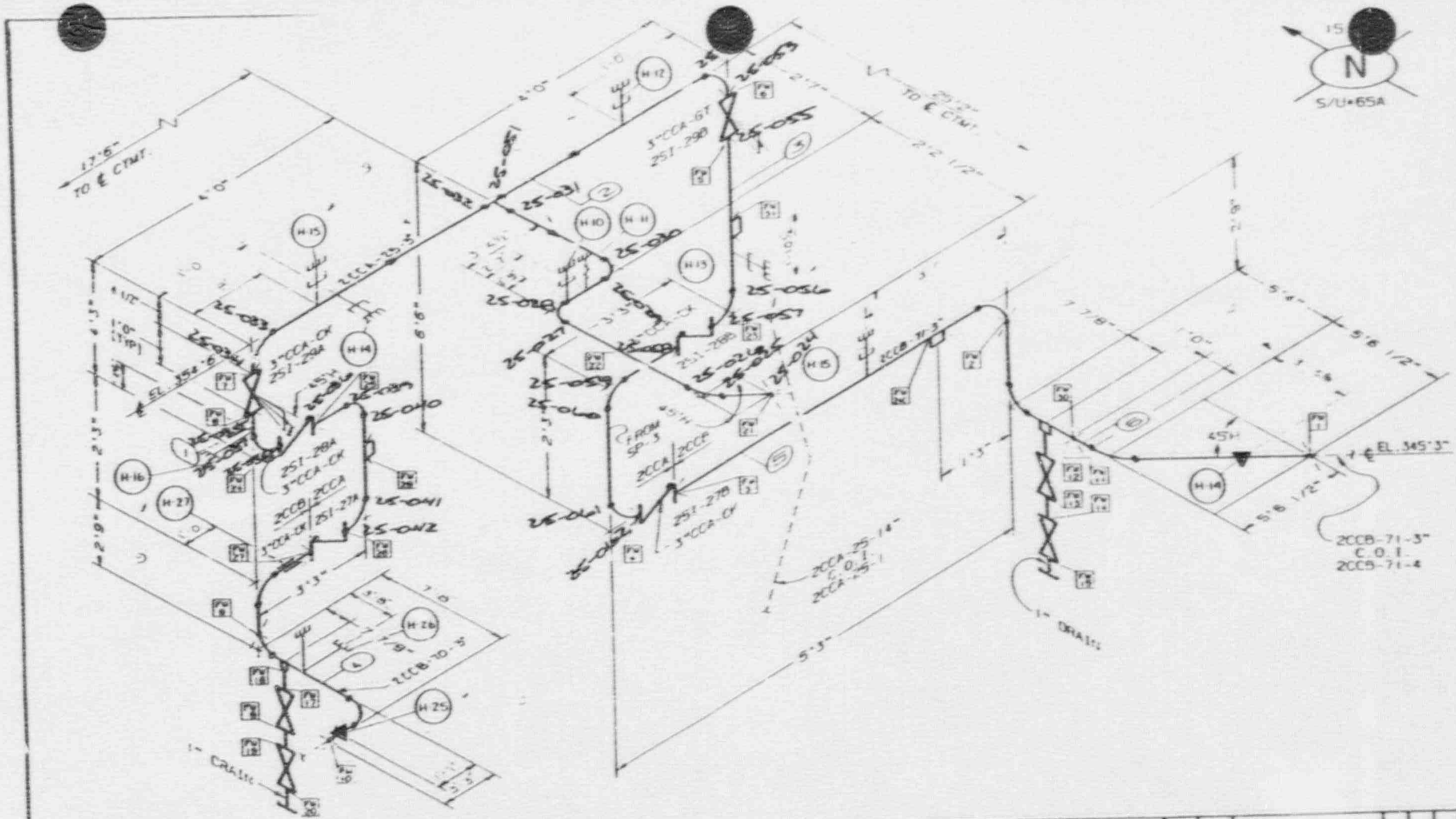
ISI-224

I certify that the image contained on this frame was made in the normal and regular course of business, on the date stated below and that it is an accurate reproduction of


BILL OF MATERIAL
N
NOTE:
1.) PIPING INSULATED AS SHOWN.
REFERENCE
P & ID NO. M-2232, M-2238
PIPING DWG. M-2856, M-2857
AREA NO. 35 ELEV. 336'-6"
BLDG. REACTOR & T.G.
SYSTEM SAFETY INJECTION SYSTEM
HANGER TYPE: CRITICAL, SEISMIC CL. I
ENGING.
SYSTEM CLEANING REQMT.
SERVICE CONDITIONS:
NORMAL 2250 PSIG 386 °F
MAXIMUM 2350 PSIG 650 °F
STARTUP NO. 65A & 4PA
INSULATION CLASS: C
THICKNESS: 3 1/2"
FILLERMAL MILLBLOCK
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2
LARGE PIPE ISOMETRIC
SAFETY INJECTION SYSTEM
2CCA-25-1
9

ISI-225


13 L.F.
N
S/U #492 & BID
BID 492A
2CCA
2CCC
2'-4"
1'-0"
2'-8"
2'-0"
2'-0"
2'-0



					F316
12	2	1" 6000# THD CAP SA182			
11	4	1" MK CCA-GT VALVE P.C.M-2114B S.N.1734, 938, 1732, 1107, WESTON HYDRAULICS			
			739506		F316
10	2	1"X4" PE X TE SCH160 PIPE SA312	739506		F316
9	4	1"X4" PE X PE SCH160 PIPE SA312			
8	4	3"CCA-CK, P.O. M-21127-C, S/N 11596, 11594, 11582, 1595, WESTON HYDRAULICS			
7	1	PIPE SPOOL MARK NO. SI-2CCA-25-3-6			
6	1	PIPE SPOOL MARK NO. SI-2CCA-25-3-5			
5	1	PIPE SPOOL MARK NO. SI-2CCA-25-3-4			
4	2	3"CCA-GT; TAG# 2SI-29A, 2SI-29B; S/N 12315, 12316. P.O. #M-21122-C WESTON HYDRAULICS			
3	1	PIPE SPOOL MARK NO. SI-2CCA-25-3-3			
2	1	PIPE SPOOL MARK NO. SI-2CCA-25-3-2			
	1	PIPE SPOOL MARK NO. SI-2CCA-25-3-1			
ITEM	QTY	DESCRIPTION	HEAT NO	ASTM	GRD

BILL OF MATERIAL

STARTUP NO	INSULATION CLASS	THICK

REFERENCE

P&ID M-2230
PIPING DWG M-2057
AREA NO 25 ELEV
BLDG REACTOR BUILDING
SYS SAFETY INJECTION SYSTEM

HANGER TYPE
DWG NO

SYS CLEANING REQMT

SERVICE CONDITIONS
NORMAL ______ PSIG ______ °F
MAXIMUM ______ PSIG ______ °F

NO	DATE	REVISION	BY	CHK
8				

SCALE NONE | DESIGN BECHTEL | DRAWN IMPELL

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

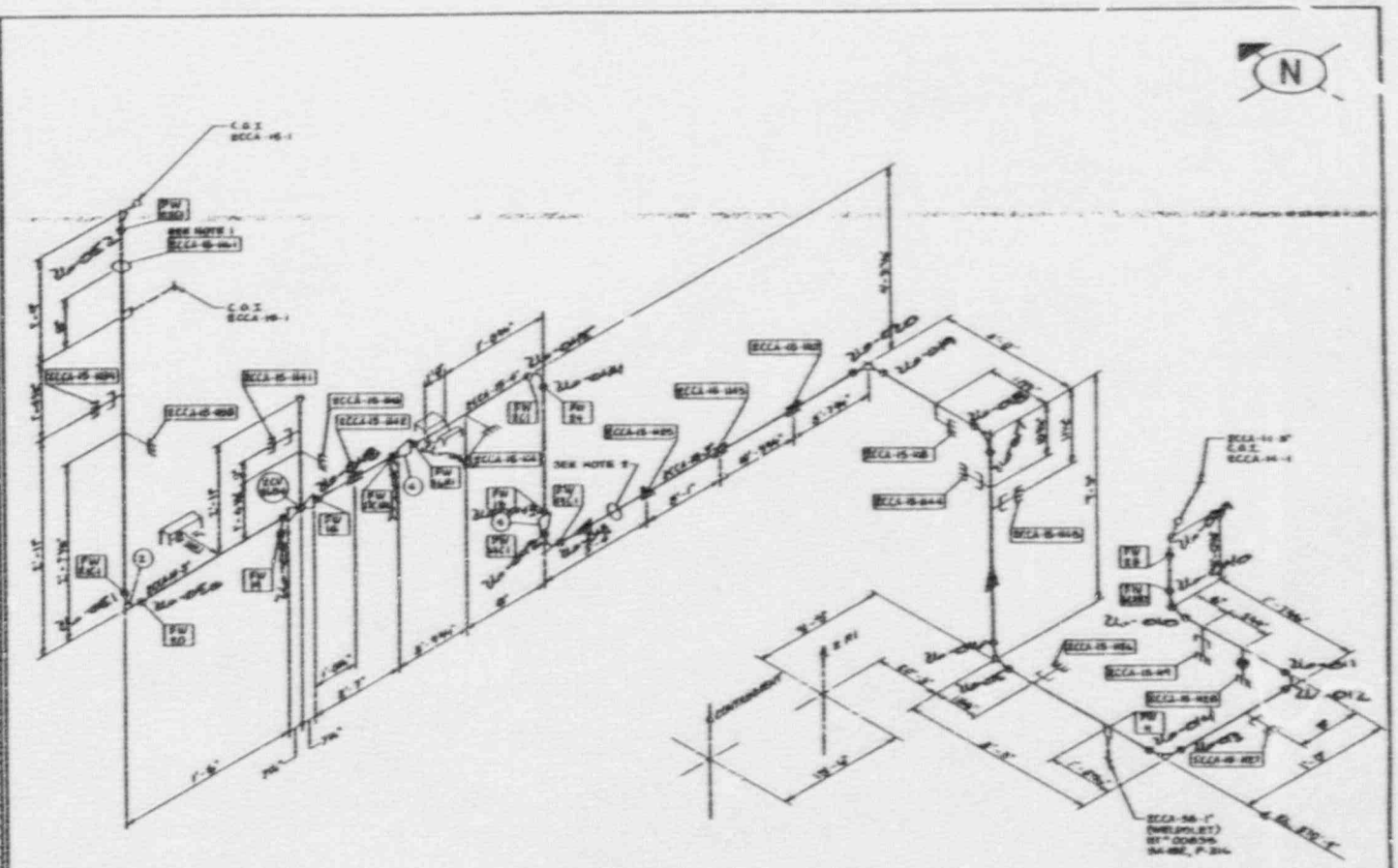
LARGE PIPE ISOMETRIC
SAFETY INJECTION SYSTEM

DRAWING NO	REV
2CCA-25-3	9

ISI-225

BILL OF MATERIAL

ITEM NO.	DESCRIPTION	PART NO.	MATL	QTY	DWG.
1	[illegible]			[illegible]	[illegible]
2	[illegible]			[illegible]	[illegible]
3	[illegible]			[illegible]	[illegible]



BILL OF MATERIAL

NOTES:

1. HIGH ENERGY PIPE WHIP RESTRAINT
2. A WHIP RESTRAINT IS AT THIS LOCATION. (REF. DWG. C-2146, & C-2111)

REFERENCE

ARKANSAS POWER AND LIGHT COMPANY

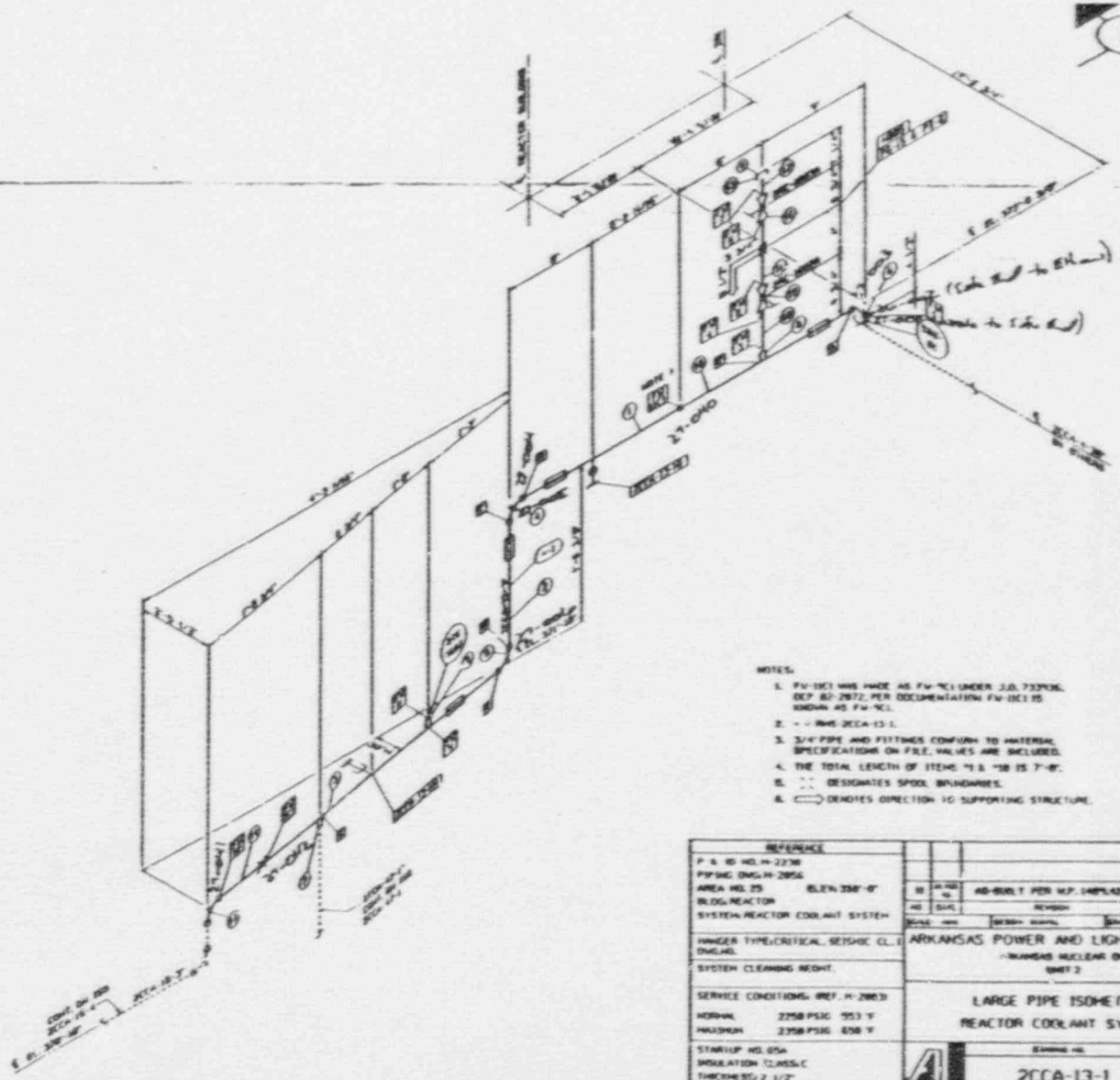
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETRIC
REACTOR MISC. SYSTEM

2CCA—15—2

ISI-226

BILL OF MATERIAL



NOTES:

1. FW-1101 WAS MADE AS FW-901 UNDER J.O. 73370K, DCP 82-2872, PER DOCUMENTATION FW-1101 IS KNOWN AS FW-901.
2. - - RMS 2CCA-13-1.
3. 3/4" PIPE AND FITTINGS CONFORM TO MATERIAL SPECIFICATIONS ON FILE, VALVES ARE INCLUDED.
4. THE TOTAL LENGTH OF ITEMS 9 & 10 IS 7'-8".
5. :: DESIGNATES SPOOL BOUNDARIES.
6. ⟹ DENOTES DIRECTION TO SUPPORTING STRUCTURE.

REFERENCE	
P & ID NO. M-2238	
PIPING DWG. M-2856	
AREA NO. 25	ELEV. 338'-6"
BLDG. REACTOR	
SYSTEM REACTOR COOLANT SYSTEM	
HANGER TYPE CRITICAL, SEISMIC CL. I ONLY	
SYSTEM CLEANING REQMT.	
SERVICE CONDITIONS REF. M-2883	
NORMAL	2250 PSIG 553 °F
MAXIMUM	2350 PSIG 650 °F
STARTUP NO. 05A	
INSULATION CLASS C	
THICKNESS 2 1/2"	
FILENAME: 8K5E0L0GH	

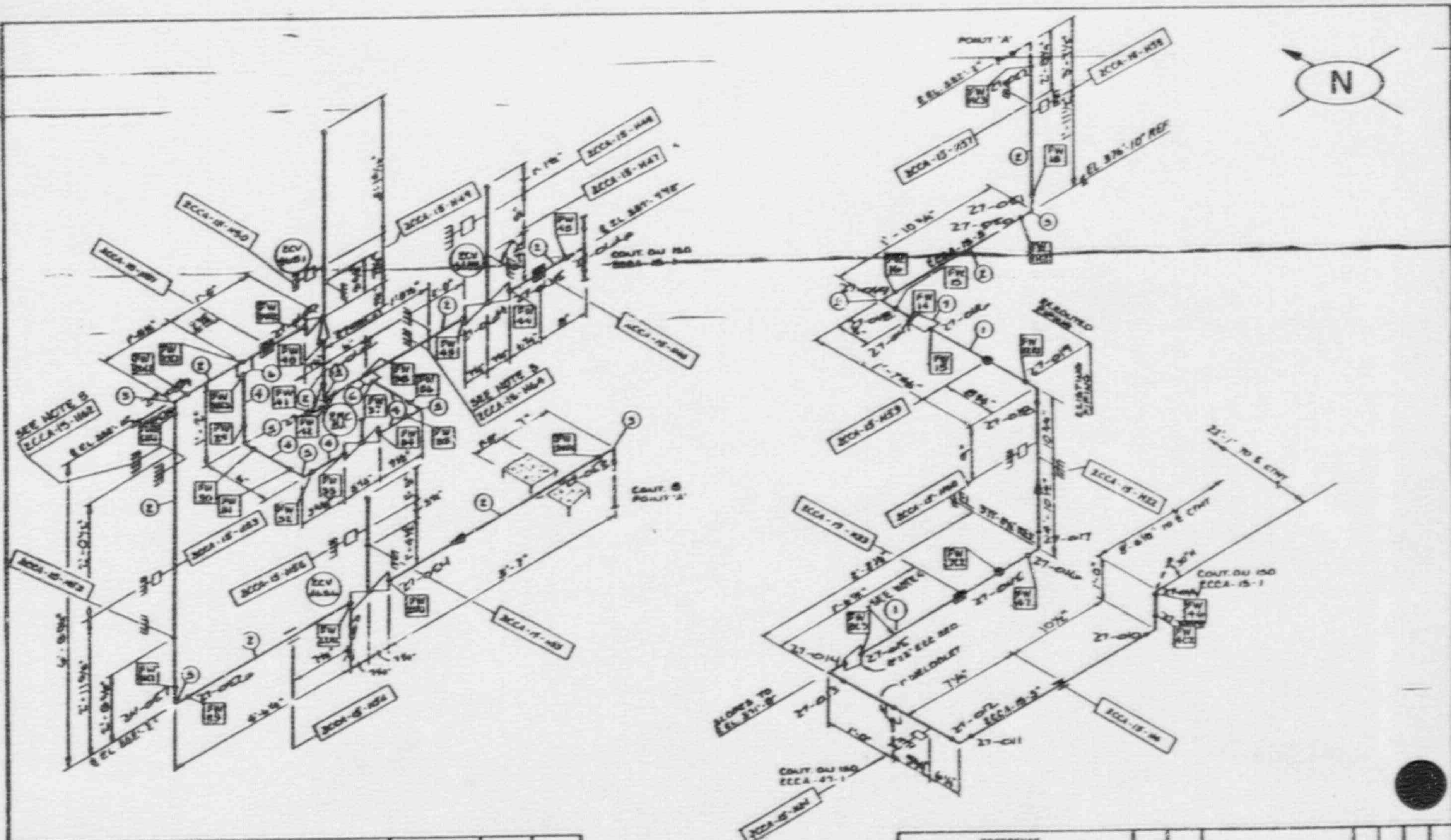
NO	DATE	REVISION	BY	CHK	APPD
11	4-4-83	AS-BUILT PER W.P. 14PPL42			

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETRIC
REACTOR COOLANT SYSTEM

DRAWING NO. 2CCA-13-1 REV. 11

ISI-227



ITEM	QTY	DESCRIPTION	HEAT NO	ASTM	GRD
7	1	4"x2" REDUCER SEAMLESS (NOTE 4)		SA 403	WP 304
6	5	1" 6000# WELDOLET		SA 182	F 304
5	2	1" 6000# 90° SOCKETWELD ELBOW		SA 182	F 304
4	5'	1" SS PIPE SEAMLESS SCH 160		SA 312	TP 304
3	6	2" 90° EL SEAMLESS SCH 160		SA 403	WP 304
2	23'	2" SS PIPE SEAMLESS SCH 160		SA 312	TP 304
1	9'	4" SS PIPE SEAMLESS SCH 160		SA 312	TP 304

BILL OF MATERIAL

NOTES:

1. BILL OF MATERIALS FOR REROUTED PIPING ONLY.
2. SCHEDULE TO MATCH PIPE.
3. THIS DRAWING INCLUDES PIPING PREVIOUSLY SHOWN ON 2CCA-15-2, REV 2.
4. FIELD TO REMOVE EXISTING 4x4x2 TEE AND REPLACE WITH A STRAIGHT PIECE OF PIPING.
5. HIGH ENERGY PIPE WHIP RESTRAINTS

STARTUP NO. | INSULATION CLASS: C THICK 2"-2½"

REFERENCE

P&I.D NO. M-2230
PIPING DWG.
AREA NO. 25 ELEV. 357'-0" 376'-6" 405'-0"
BLDG: CONTAINMENT
SYS: REACTOR MISC.

HANGER TYPE:
DWG NO.

SYS. CLEANING REQMT. M-2105.8

SERVICE CONDITIONS:
NORMAL 2250 PSIG 553 °F
MAXIMUM 2350 PSIG 600 °F

NO.	DATE	REVISION	BY	CHK	SUPV
0	12-8-80	ISSUED AS BUILT DCP 80-2172	DG	TW	

SCALE: NONE | DESIGN: E. VAUGHAN | DRAWN: T. LUDLOW

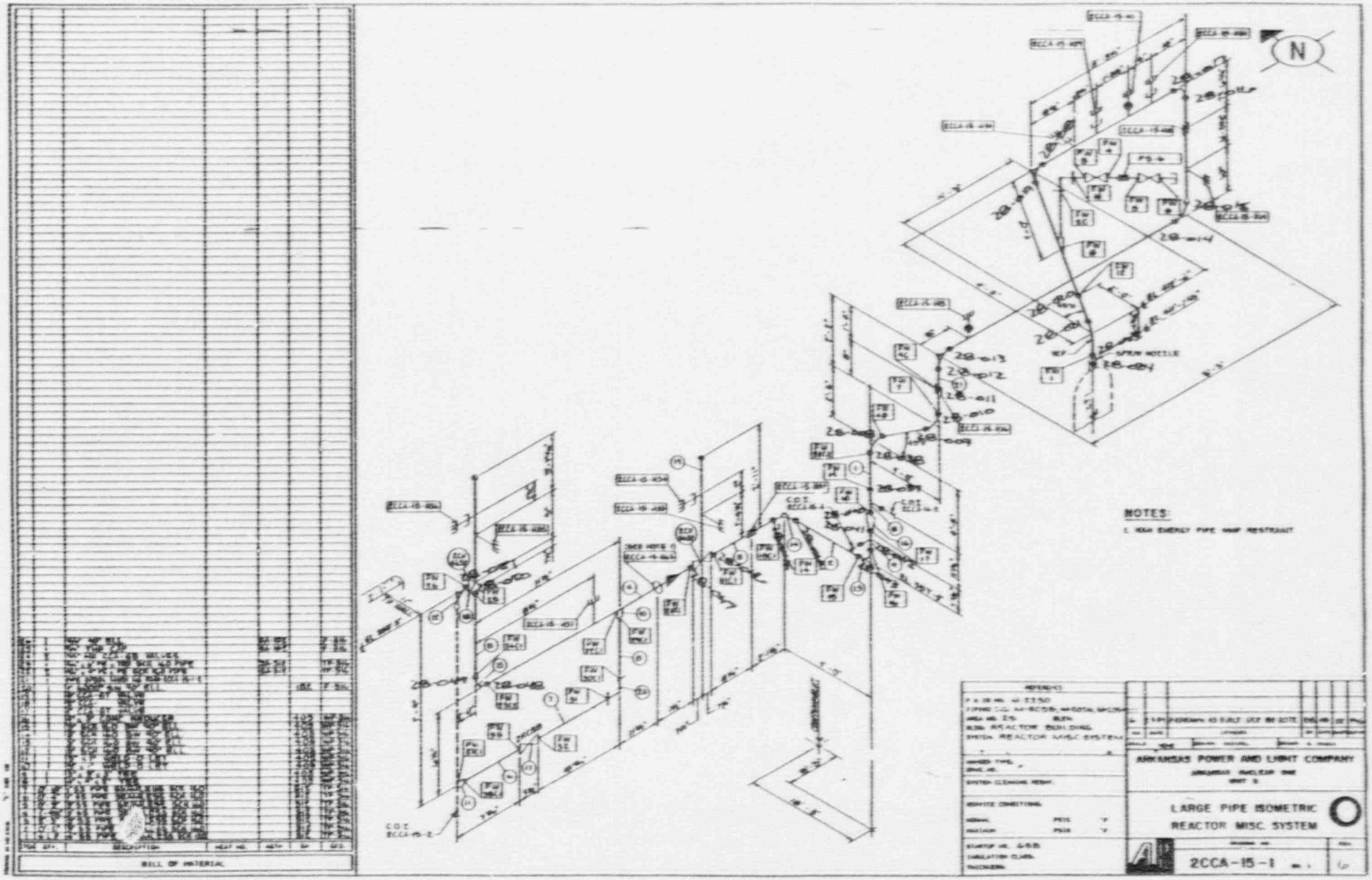
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC - CONTAINMENT BLDG.
REACTOR MISC. SYSTEM

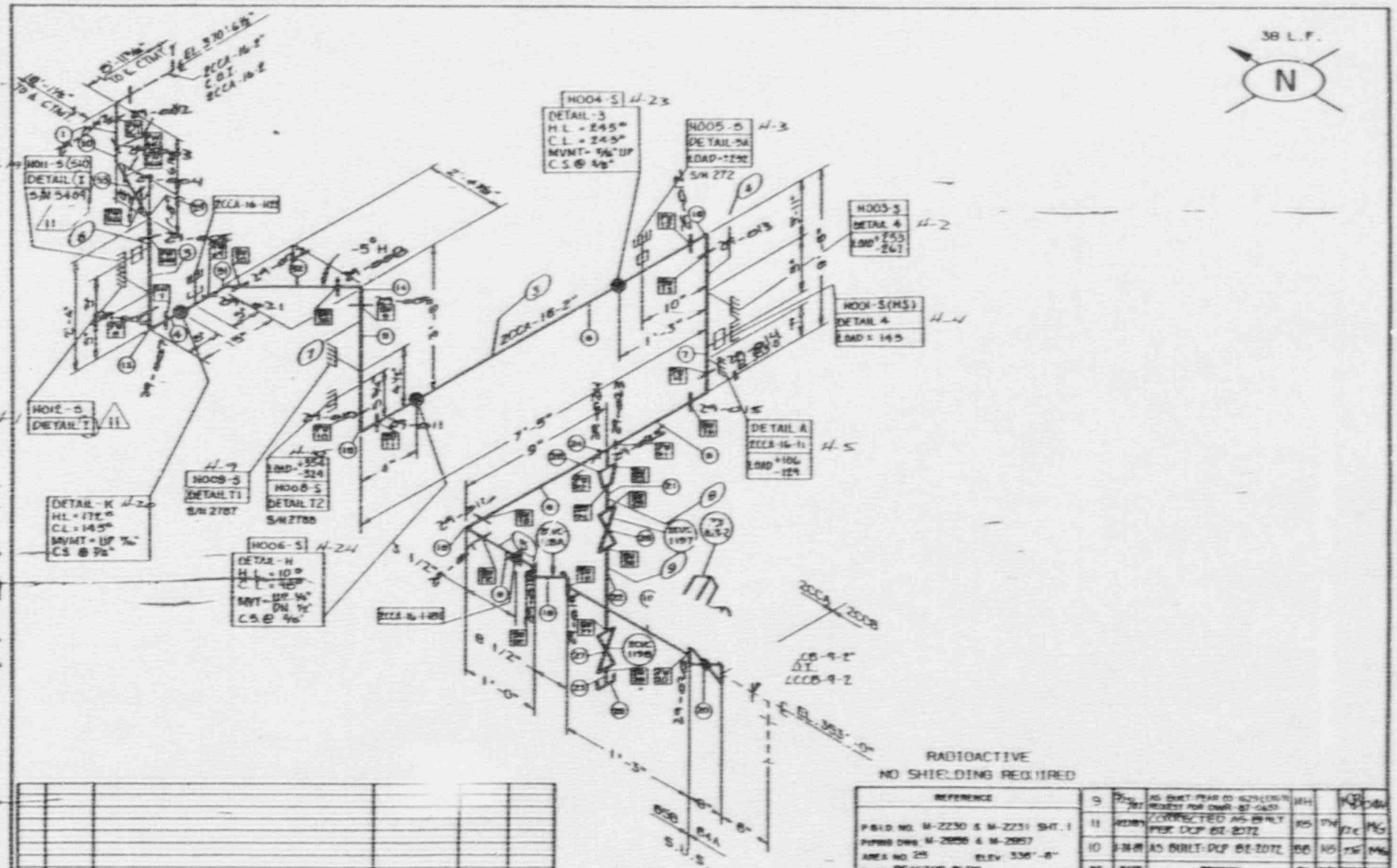
AP&L

DRAWING NO. 2CCA-15-4 REV. 0

ISI-227


BILL OF MATERIAL
NOTES:
1. HIGH ENERGY PIPE WHIP RESTRAINT
N
SPRAY NOZZLE
REF
C.O.T.
ARKANSAS POWER AND LIGHT COMPANY
LARGE PIPE ISOMETRIC
REACTOR MISC. SYSTEM
2CCA-15-1

ISI-228



ITEM	QTY.	DESCRIPTION	HEAT NO.	ASTM	GRD.

BILL OF MATERIAL

STARTUP NO. 04A INSULATION CLASS: C THICK: 2 1/2"

REFERENCE

P&ID NO. M-2230 & M-2231 SHT. 1
PIPING DWG. M-2856 & M-2857
AREA NO. 25 ELEV. 336'-8"
BLDG. REACTOR BLDG.
SYS. CHEMICAL & VOLUME CONTROL

HANGER TYPE NUC. SEIS. CL. 1 (H)
DWG. NO. M-2805 THRU -10.

SYS. CLEANING REQMT.
- M-2257

SERVICE CONDITIONS:
NORMAL 2250 PSIG 140 °F
MAXIMUM 2350 PSIG 200 °F

NO.	DATE	REVISION	BY	CHK	APPD
9	[illegible]	AS BUILT (PER CD 1629 (DBT) REQUEST FOR DWR-87-0450)	MH		KR
11	[illegible]	CORRECTED AS-BUILT PER DCP 87-2072	RS	TW	TC
10	[illegible]	AS BUILT: DCP 87-2072	RB	RS	TC

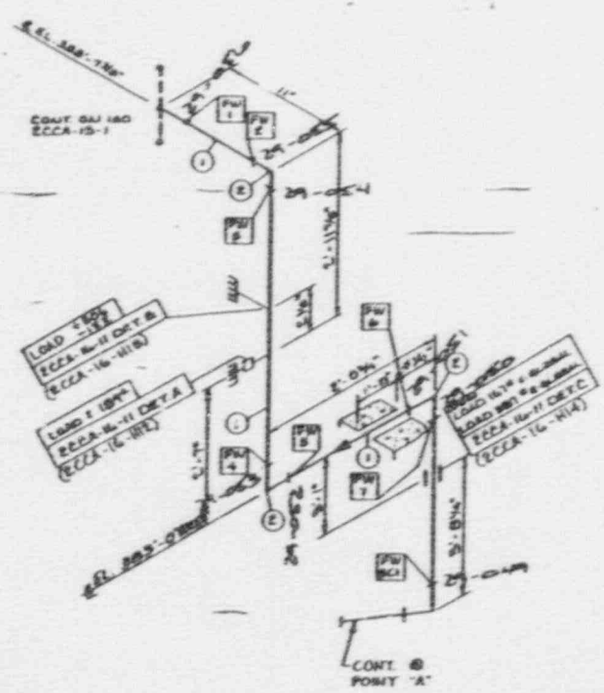
SCALE: NONE DRAWN: RECHTER DRAWN: SUPELL

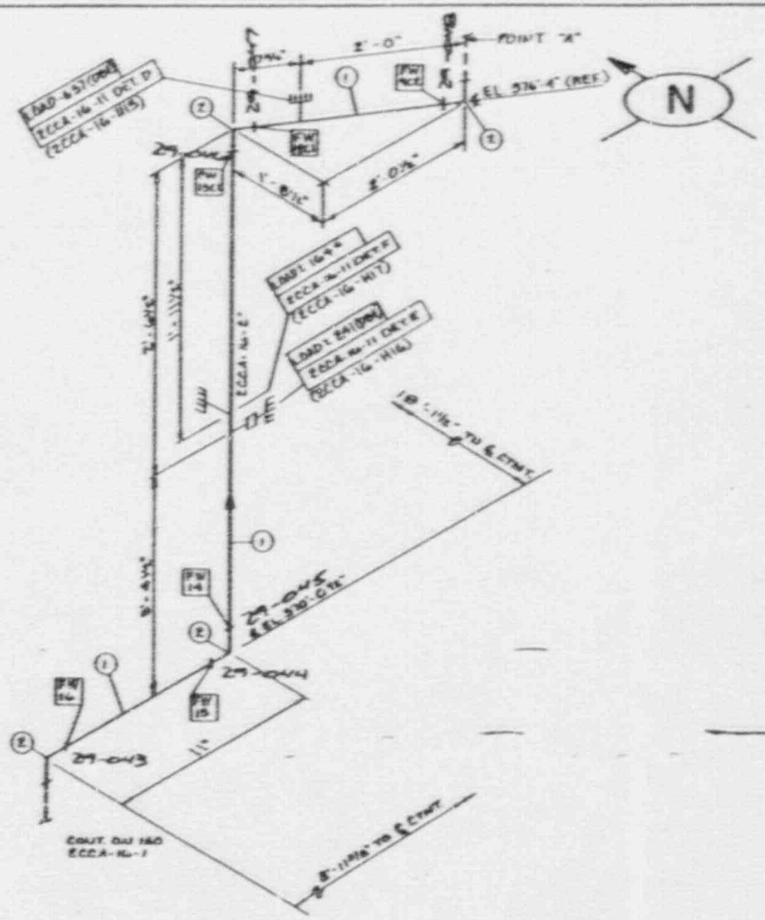
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SMALL PIPE ISOMETRIC
CHEMICAL & VOLUME CONTROL SYSTEM

DRAWING NO. 2CCA-16-1 REV. 11

ISI-229





ITEM	QTY.	DESCRIPTION	HEAT NO.	ASTM	GRD.
2	8	2" 6000# 90° SOCKETWELD ELBOW		SA 182	F316
1	64'	2" A.S. PIPE SEAMLESS SCH 160		SA 312	TP316

BILL OF MATERIAL

STARTUP NO.

INSULATION CLASS: C THICK: 2½"

REFERENCE

P.&I.D. NO. M-2250
PIPING DWG.
AREA NO. 25 ELEV. 357'-0" / 376'-4" / 405'-6"
BLDG: CONTAINMENT
SYS: CHEMICAL & VOLUME CONTROL

HANGER TYPE:
DWG. NO.

SYS. CLEANING REQMT.
M-2105B

SERVICE CONDITIONS:

NORMAL	2250	PSIG	160	°F
MAXIMUM	2350	PSIG	200	°F

NO.	DATE	REVISION	BY	CHK	APPD
0	12-14-86	56613 AS BUILT DUP			

SCALE: NONE DESIGN: G. VAUGHAN DRAWN: C. LUELLEN

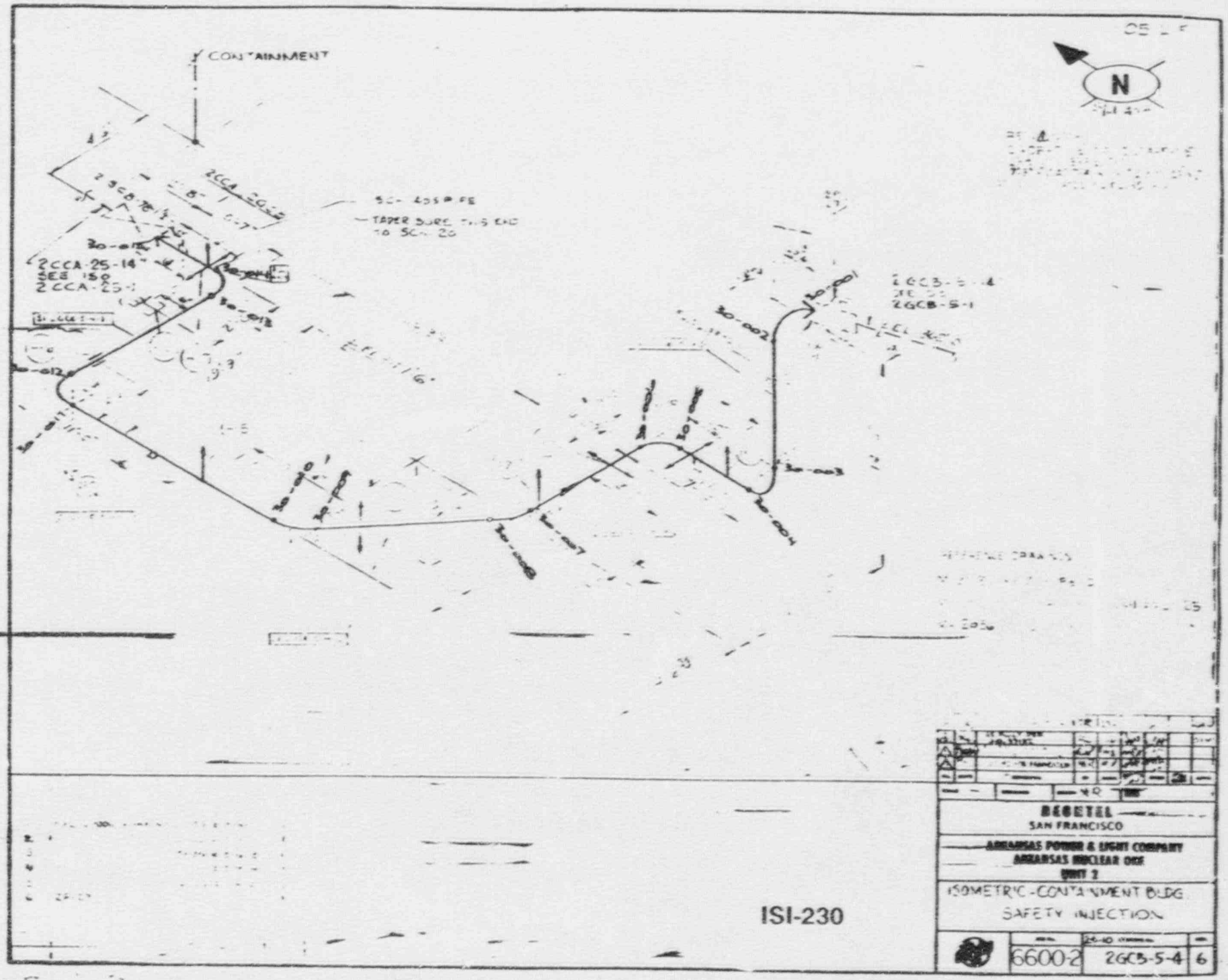
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SMALL PIPE ISOMETRIC
CONTAINMENT BUILDING

DRAWING NO. 2CCA-16-2 REV. 0

C B A A C

ISI 220



ISI-230

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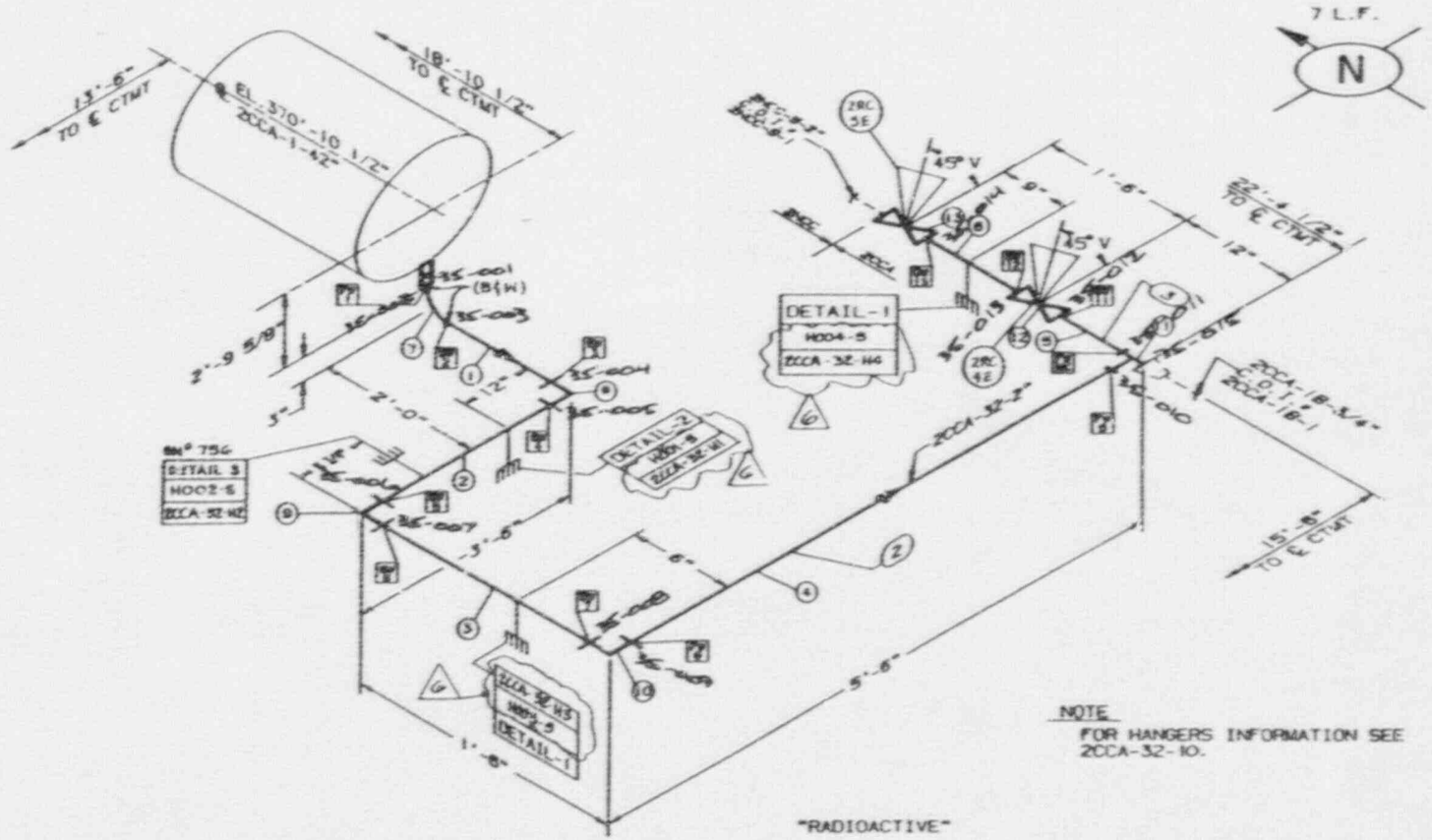


NOTE
FOR HANGERS INFORMATION SEE 2CCA-32-10.

ITEM	QTY.	DESCRIPTION	HEAT NO.	ASTM	GRD.
13	1	2" 1500# S.W. CCA-8T	S/N 978	WEST	1973
12	1	2" 1500# S.W. CCA-8T	S/N 945	WEST	1973
11	1	2" 6000# S.W. TEE	B.W.	SA-182	F-316
10	1	2" 6000# S.W. 90° ELL	YF	SA-182	F-316
9	1	2" 6000# S.W. 90° ELL	YF	SA-182	F-316
8	1	2" 6000# S.W. 90° ELL	YF	SA-182	F-316
7	1	2" 6000# S.W. 90° ELL	C7149	SA-182	F-316
6	21 F	2" SMLS SCH. 160 PIPE	454386	SA-312	TP-316
5	11 F	2" SMLS SCH. 160 PIPE	454386	SA-312	TP-316
4	6 F	2" SMLS SCH. 160 PIPE	454386	SA-312	TP-316
3	21 F	2" SMLS SCH. 160 PIPE	454386	SA-312	TP-316
2	11 F	2" SMLS SCH. 160 PIPE	454386	SA-312	TP-316
1	21 F	2" SMLS SCH. 160 PIPE	454386	SA-312	TP-316

BILL OF MATERIAL

STARTUP NO. 85A | INSULATION CLASS C | THICK. 2 1/2"

REFERENCE

P&ID NO. M-2230
PIPING DWG. M-2866
AREA NO. 25 ELEV. 347'-0"
BLDG. REACTOR BLDG.
SYS. REACTOR COOLANT DRAIN

HANGER TYPE HUC SEIS. CL. I (H)
DWG. NO. M-2808 THRU-2810

SYS. CLEANING REQMT.
M-2257

SERVICE CONDITIONS
NORMAL 2250 PSIG 611 °F
MAXIMUM 2350 PSIG 650 °F

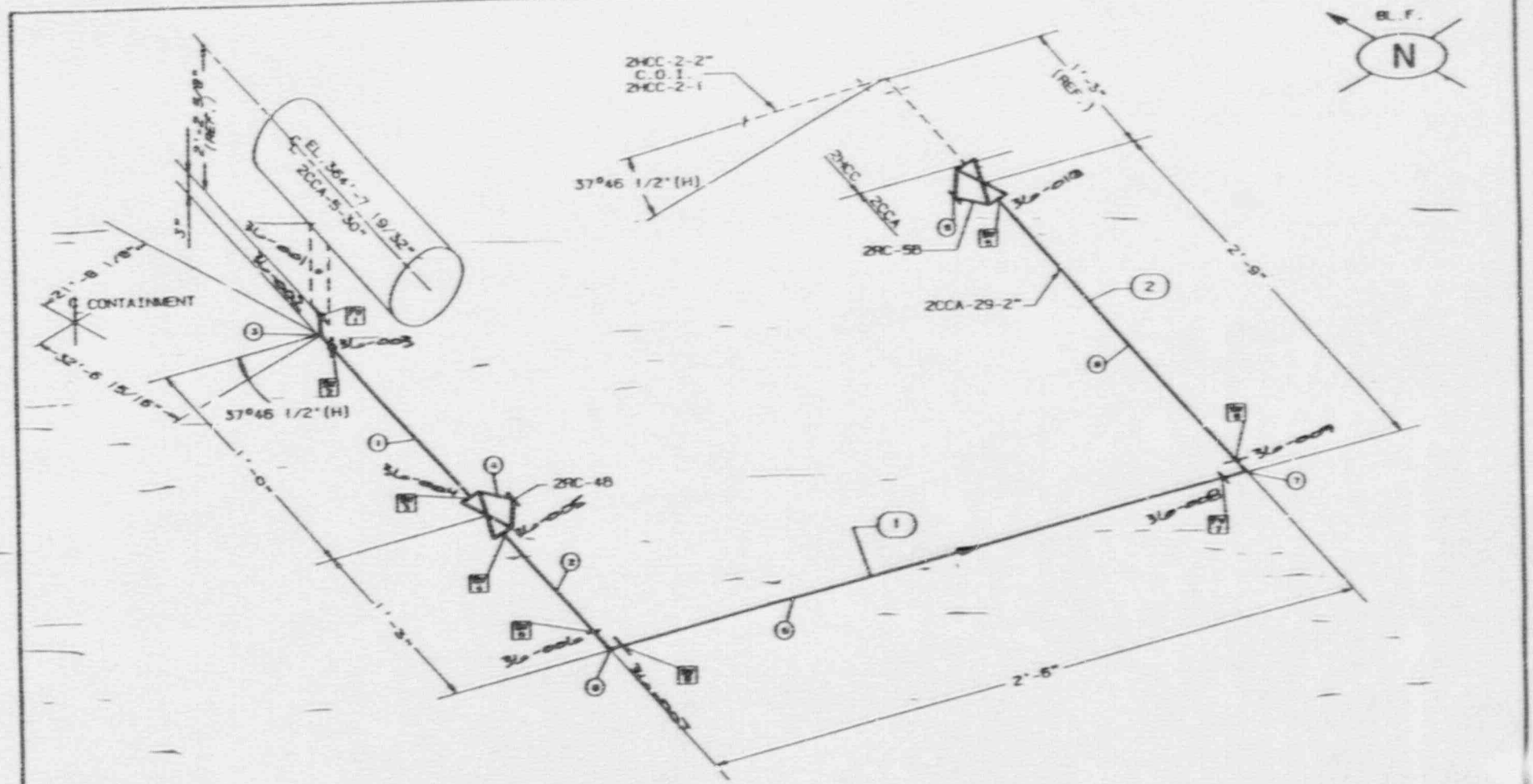
NO.	DATE	REVISION	BY	CHK'D	APP'D
5	7/16/87	AS-BUILT: PCF 85-2160	LWD	PR	[illegible]
4	[illegible]	AS-BUILT: PEAR 85-1012	TR	PW	[illegible]
6	[illegible]	AS BUILT: PEAR 85-0312	[illegible]	[illegible]	[illegible]

SCALE NONE | DESIGN BECHTEL | DRAWN DRESS

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SMALL PIPE ISOMETRIC
REACTOR COOLANT DRAIN SYSTEM

DRAWING NO. 2CCA-32-1 | REV. 6



ITEM	QTY.	DESCRIPTION	HEAT NO.	ASTM	GRD.
9	3LF	2" SMLS SCH. 160 PIPE SA-312	454386	SA-312	TP-316
8	3LF	2" SMLS SCH. 160 PIPE SA-312	454386	SA-312	TP-316
7	1	2" 6000# S.W. 90°ELL. SA-182	1R	SA-182	F-316
6	1	2" 6000# S.W. 90°ELL. SA-182	1R	SA-182	F-316
5	1	2" 1500# S.W. CCA-BT HYD	S/N 082	WESTON	1975
3	1	2" 1500# S.W. CCA-BT HYD.	S/N 947	WESTON	1975
4	1	2" 1500# S.W. CCA-BT HYD.	C-7149		SP-316
2	1	2" 6000# BW 90°ELL. SA-403	462386		TP-316
2	3LF	2" SMLS SCH. 160 PIPE SA-312	454386		TP-316
1	1LF	2" SMLS SCH. 160 PIPE SA-312	454386		TP-316

BILL OF MATERIAL

STARTUP NO. 695A | INSULATION CLASS: C THICK: 2 1/2"

REFERENCE

P.B.I.D. NO. M-2230
PIPING DWG. M-2856
AREA NO. 25 ELEV. 357'-0"
BLDG. REACTOR BUILDING
SYS. REACTOR COOLANT SYSTEM

HANGER TYPE NUC. SEIS. CL. I(H)
DWG. NO. NO SUPPORTS REQUIRED

SYS. CLEANING REQMT.
M-2237

SERVICE CONDITIONS

NORMAL	2250 PSIG	553 °F
MAXIMUM	2350 PSIG	650 °F

NO.	DATE	REVISION	BY	CHK	APPR
4		FOR AS-BUILT REDRAWN TO IMPROVED QUALITY			

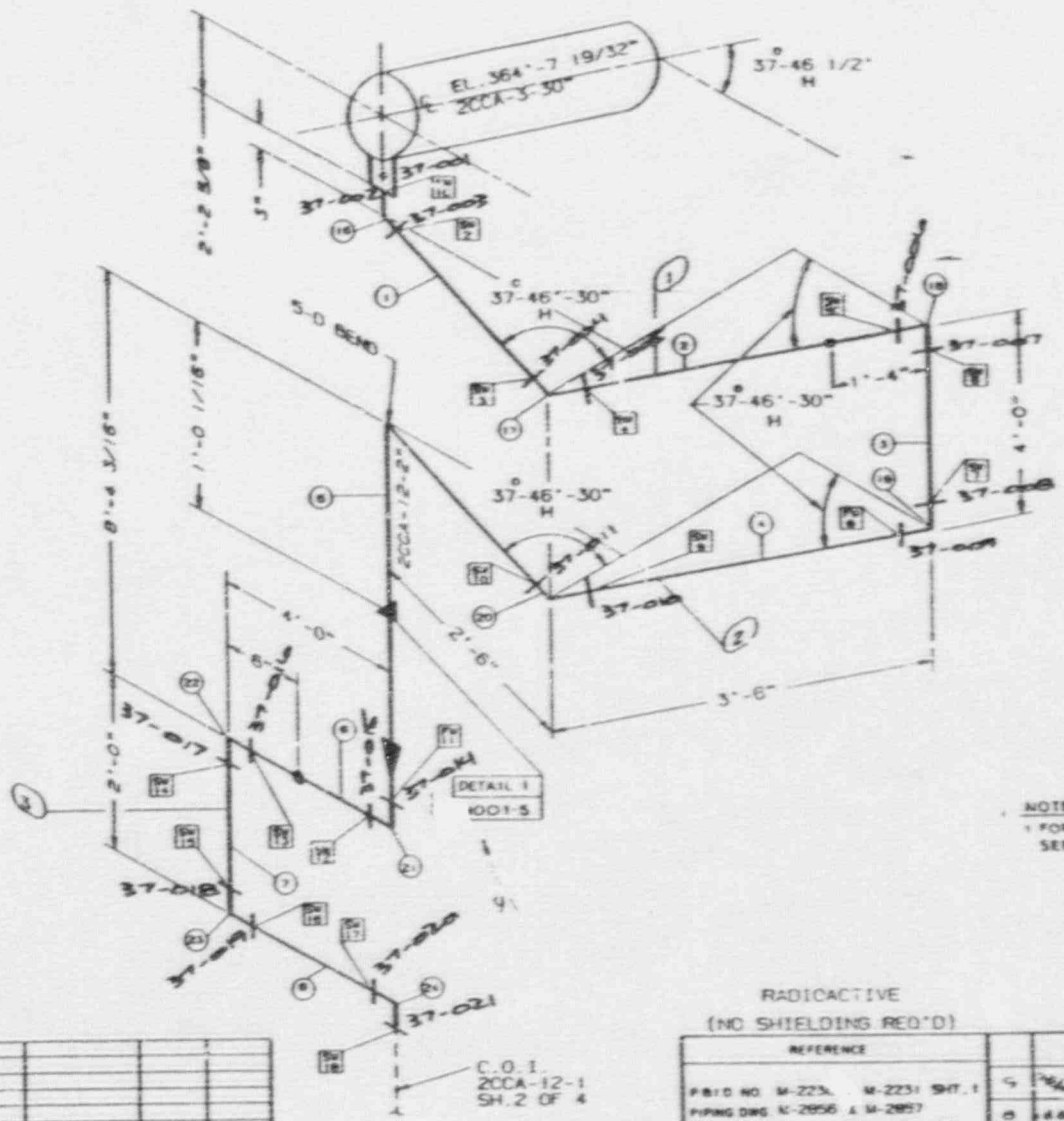
SCALE: NONE | DESIGN: BECHTEL | DRAWN: IMP

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SMALL PIPE ISOMETRIC
REACTOR COOLANT SYSTEM

2CCA-29-1 | REV. 4

ISI-226



NOTES

1. FOR PIPE SUPPORT DETAILS SEE ISO 2CCA-12-10

RADIOACTIVE
(NO SHIELDING REQ'D)

ITEM	QTY.	DESCRIPTION	HEAT NO	ASTM	GRD

BILL OF MATERIAL

STARTUP NO. 65A 64A | INSULATION CLASS C | THICK 2 1/2"

REFERENCE

P&I'D NO. M-2234, M-2231 SHT. 1
PIPING DWG NO. M-2856 & M-2857
AREA NO. 25 ELEV 338'-6"
BLDG REACTOR BLDG.
SYS. REACTOR COOLANT SYSTEM

HANGER TYPE NUC. SEIS. CL. 1 (H)
DWG NO. M-2806 THRU-10

SYS. CLEANING REQMT
M-2237

SERVICE CONDITIONS

NORMAL	2250	PSIG	563	°F
MAXIMUM	2350	PSIG	650	°F

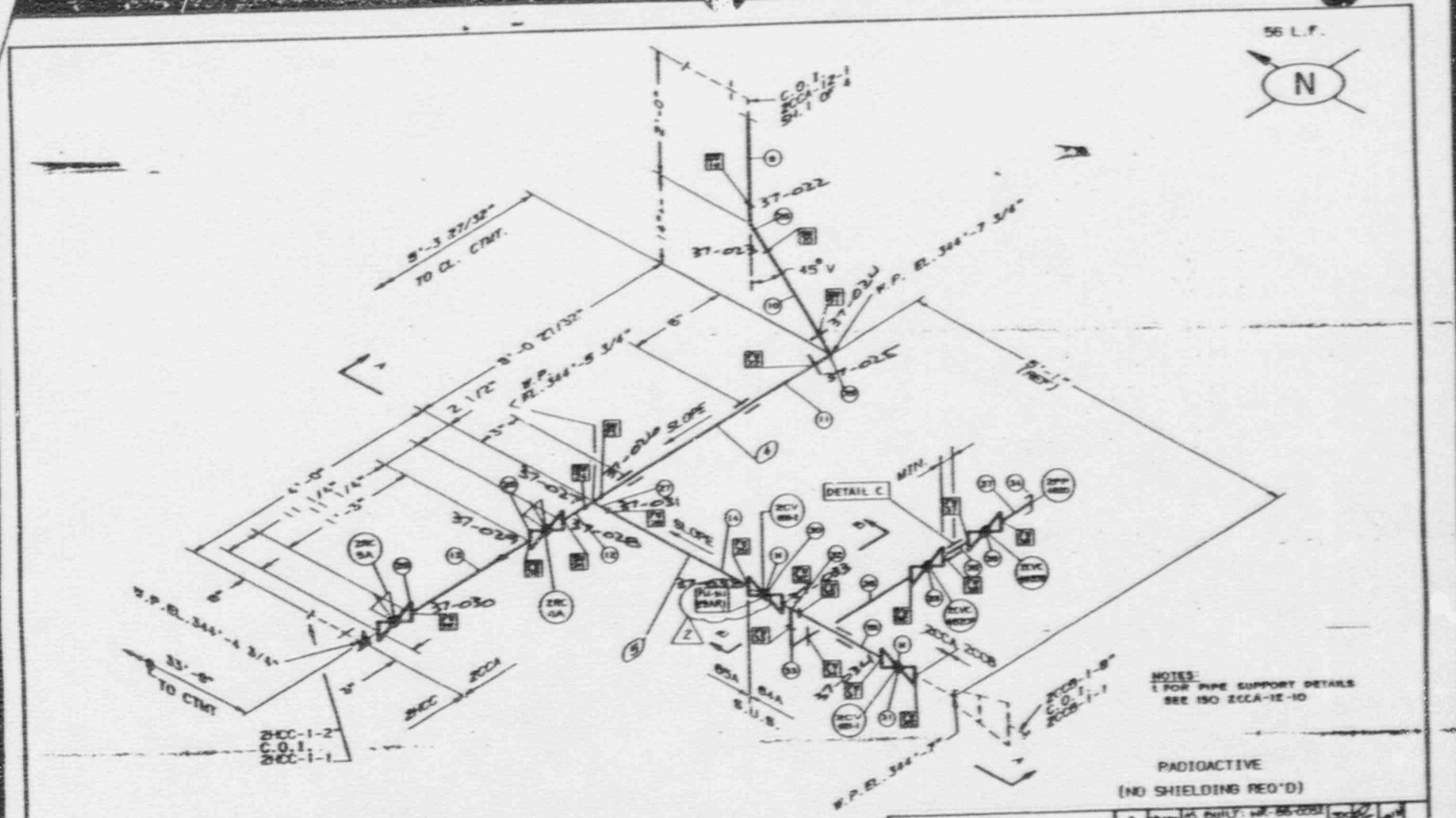
NO.	DATE	REVISION	BY	CHK	APPROVAL
9	7-8-86	AS BUILT - 2nd 86-06 CTR	VH		
8	3-8-84	RE-ISSUED FOR APPROVAL QUALITY AS BUILT	AC		

SCALE NONE | DESIGN REDITE | DRAWN INFELL

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SMALL PIPE ISOMETRIC
REACTOR COOLANT SYSTEM

DRAWING NO. 2CCA-12-1 | REV. -9



RADIOACTIVE

(NO SHIELDING REQ'D)

REFERENCE
P&I'D NO. M-2230 & M-2231 SH. 1
PIPING DWG. M-2856 & M-2857
AREA NO. 25 ELEV. 336'-6"
BLDG. REACTOR BLDG.
SYS. REACTOR COOLANT SYSTEM
HANGER TYPE NUC. SEIS. CL. 1(H)
DWG. NO. M-2806 THRU -10
SYS. CLEANING REQMT. M-2237
SERVICE CONDITIONS:
NORMAL 2250 PSIG 553 °F
MAXIMUM 2350 PSIG 650 °F

NO.	DATE	REVISION	BY	CHK	APPR	
2		AS BUILT: NF-86-0057 ID.# 00723529				
1		AS-BUILT: PWR 86-0606				
0		AS-BUILT PWR 85-0171				

SCALE: NONE DRAWN: MICHAEL CHECKED: SAFRELL

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SMALL PIPE ISOMETRIC
REACTOR COOLANT SYSTEM

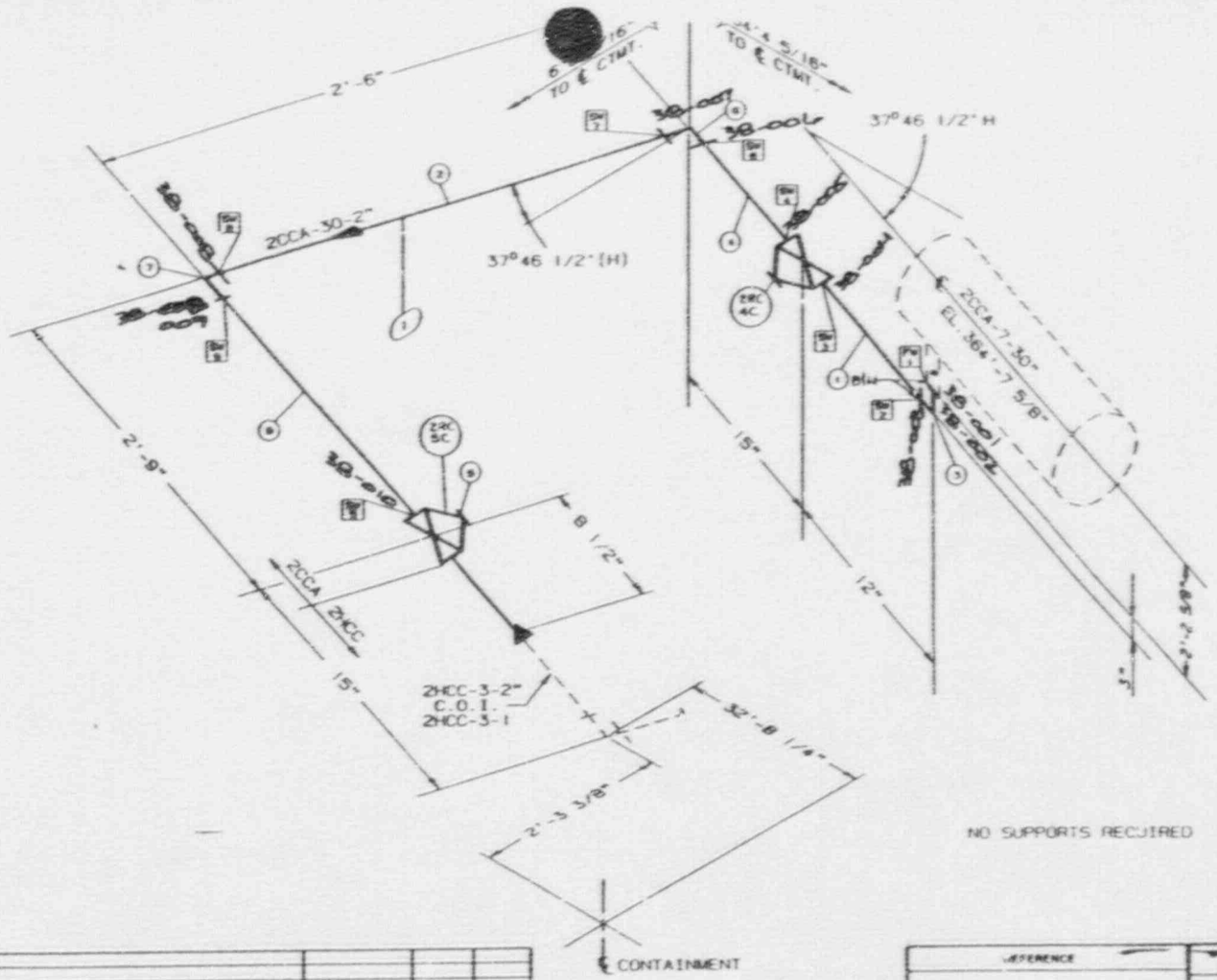
DRAWING NO. 2CCA-12-1 REV. 2

ITEM	QTY.	DESCRIPTION	HEAT NO.	ASTM	GRD.

BILL OF MATERIAL

STARTUP NO. 65A 64A INSULATION CLASS: C THICK: 2 1/2"

ISI-237



ITEM	QTY.	DESCRIPTION	HEAT NO.	ASTM	GRD
9	3 LF	2" SML.S. SCH. 160 PIPE SA-312	454396		TP-316
8	2 LF	2" SML.S. SCH. 160 PIPE SA-312	454395		TP-316
7	1	2" 6000+ S.W. 90° ELL SA-182	GR		F-316
6	1	2" 6000+ S.W. 90° ELL SA-182	IR		F-316
5	1	2" 1500+ CCA-GT HYD.	S/N 991	WESTON	1973
4	1	2" 1500+ CCA-GT HYD.	S/N 975	WESTON	1973
3	1	2" 6000+ BUTT. 90° ELL SA-403	C-7149		WP-316
2	3 LF	2" SML.S. SCH. 160 PIPE SA-312	454396		TP-316
1	1 LF	2" SML.S. SCH. 160 PIPE SA-312	454396		TP-316

BILL OF MATERIAL

STARTUP NO. 65A | INSULATION CLASS C | THICK 2 1/2"

REFERENCE

P&I.D NO. M-2230
PIPING DWG M-2856
AREA NO. 25 ELEV. 357'-0"
BLDG. REACTOR BUILDING
SYS. REACTOR COOLANT SYSTEM

HANGER TYPE NUC. SEIS. CL. I(H)
DWG NO. M-2806, 7, 8, 10

SYS CLEANING REQMT
M-2237

SERVICE CONDITIONS
NORMAL 2250 PSIG 561 °F
MAXIMUM 2350 PSIG 850 °F

NO.	DATE	REVISION	BY
1		[illegible]	

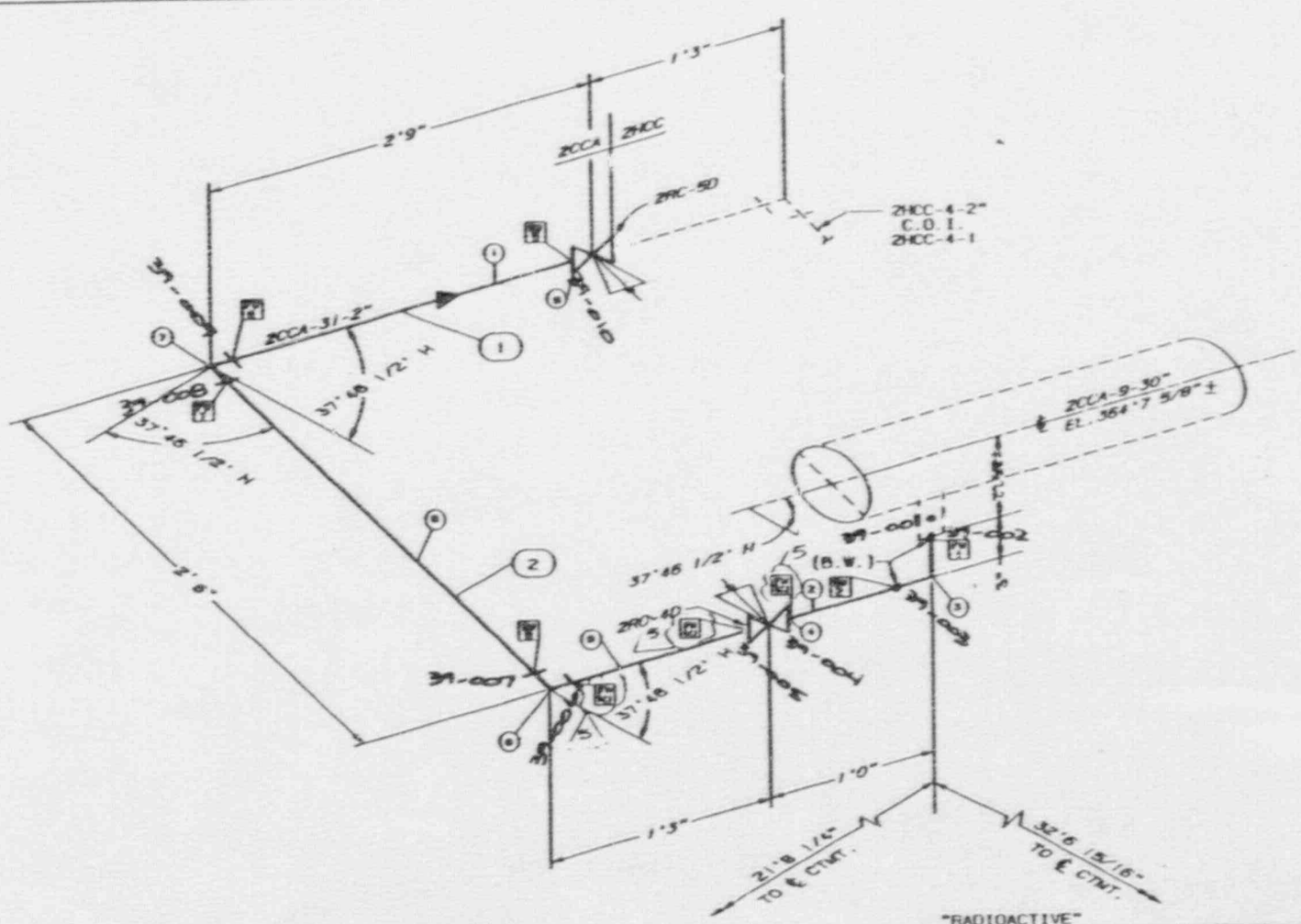
SCALE NONE | DESIGN BECHTEL | DRAWN

ARKANSAS POWER AND LIGHT C
ARKANSAS NUCLEAR ONE
UNIT 2

SMALL PIPE ISOMET
REACTOR COOLANT SY

DRAWING NO.
2CCA-30-1

ISI-238



"RADIOACTIVE"

ITEM	QTY.	DESCRIPTION	HEAT NO.	ASTM	GRD.
9	2LF	2" SM.S. SCH. 160 PIPE	EP5373	SA 312	TP-316
8	3LF	2" SM.S. SCH. 160 PIPE SA-312	464396		TP-316
7	1	2" 6000# S.W. 90 ELL SA-182	TR		F-316
6	1	2" 6000# S.W. 90 ELL SA-182	TR		F-316
5	1	2" 1500# S.W. CCA-9T WESTON HYD. 1973	S/N 888		
4	1	2" 150# S.W. CCA-9T WESTON HYD. 1973	484 884	SA 182	F-316
3	1	2" SCH. 160 S.W. 90 ELL SA-403	C-7149		WP-316
2	11.F	2" SM.S. SCH. 160 PIPE SA-312	464396		TP-316
1	3LF	2" SM.S. SCH. 160 PIPE SA-312	464396		TP-316

BILL OF MATERIAL

STARTUP NO. 65A | INSULATION CLASS: C | THICK: 2 1/2"

REFERENCE

P.&I.D. NO. M-2250
PIPING DWG. M-2858
AREA NO. 25 ELEV. 357'-0"
BLDG. REACTOR BUILDING
SYS. REACTOR COOLANT SYSTEM

HANGER TYPE: NUC. SEIS. CL. 1 (H)
DWG. NO. NO SUPPORTS REQ'D

SYS. CLEANING REQMT.
M-2257

SERVICE CONDITIONS:
NORMAL 2250 PSIG 653 °F
MAXIMUM 2350 PSIG 650 °F

NO.	DATE	REVISION	BY	CHK	APPROVAL
5	5/87	AS BUILT WR-85-061 3.0" 776KBQ			
4	12/84	REDRAWN FROM CONUT			

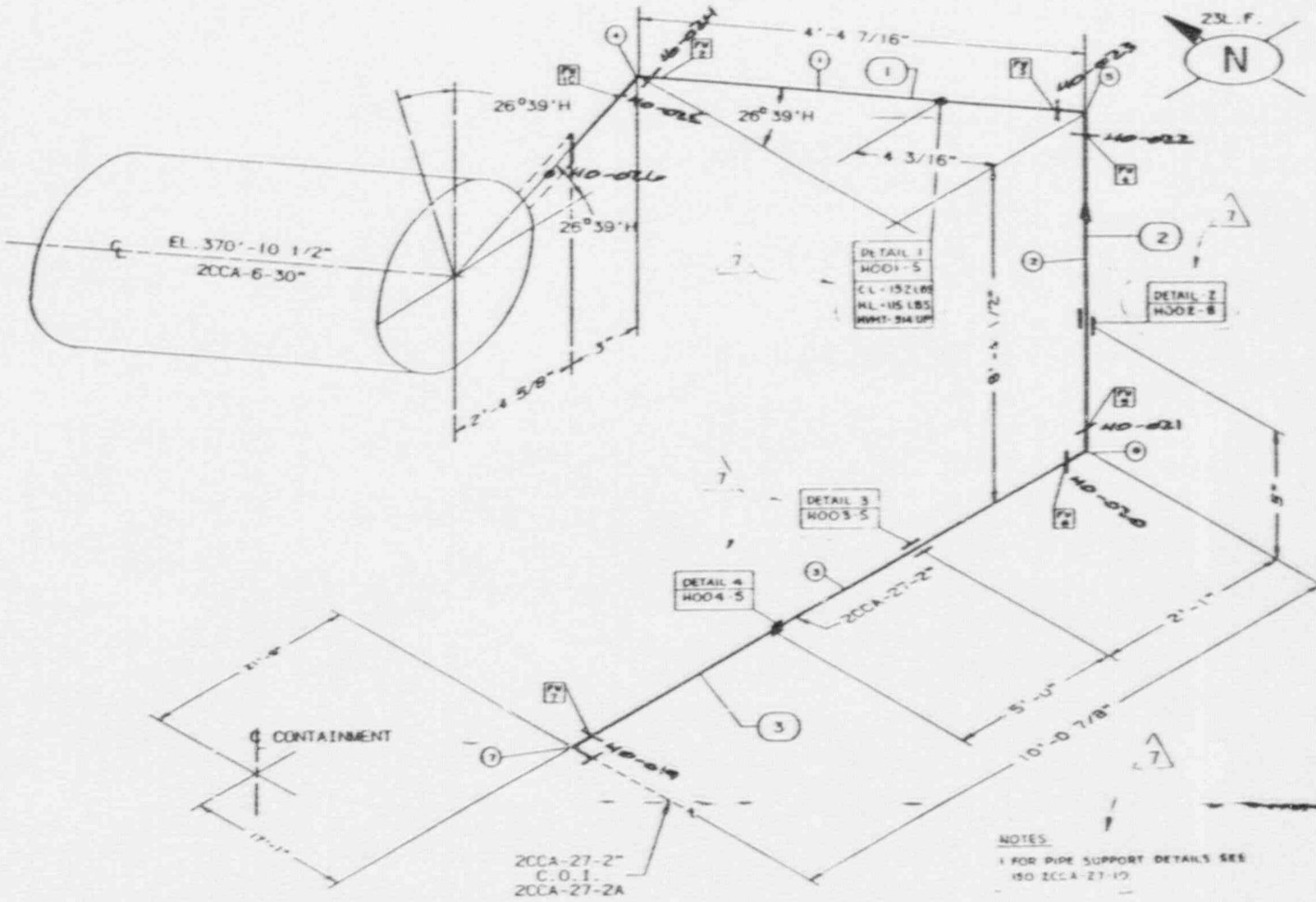
SCALE: NONE | DESIGN: BECHTEL | DRAWN: INFELL

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SMALL PIPE ISOMETRIC
REACTOR COOLANT SYSTEM

DRAWING NO. 2CCA-31-1 | REV. 5

ISI-239



NOTES

1 FOR PIPE SUPPORT DETAILS SEE ISO 2CCA-27-13

ITEM	QTY	DESCRIPTION	HEAT NO	ASTM	GRD
7	1	2" 6000# BW 90° ELL. SA-403	C-7149		WP-316
6	1	2" 6000# BW 90° ELL. SA-403	C-7149		WP-316
5	1	2" 6000# BW 90° ELL. SA-403	C-7149		WP-316
4	1	2" 6000# BW 90° ELL. SA-403	C-7149		WP-316
3	10LF	2" SWLS SCH. 160 PIPE SA-312	480979		TP-316
2	9LF	2" SWLS SCH. 160 PIPE SA-312	2PS416		TP-316
1	8LF	2" SWLS SCH 160 PIPE SA-312	480979		TP-316

BILL OF MATERIAL

STARTUP NO. 85A INSULATION CLASS C THICK 2 1/2"

REFERENCE

P&ID NO. M-2230
PIPING DWG M-2856 & M-2857
AREA NO 25 ELEV 336'-6"
BLDG REACTOR BUILDING
SYS REACTOR COOLANT SYSTEM

HANGER TYPE NUC. SEIS. CL. I(H)
DWG NO. M-2808 THRU -10

SYS CLEANING REQMT
M-2237

SERVICE CONDITIONS

NORMAL	2250	PSIG	200	°F
MAXIMUM	2350	PSIG	650	°F

NO	DATE	REVISION	BY	CHK	ENGR	APP
5						

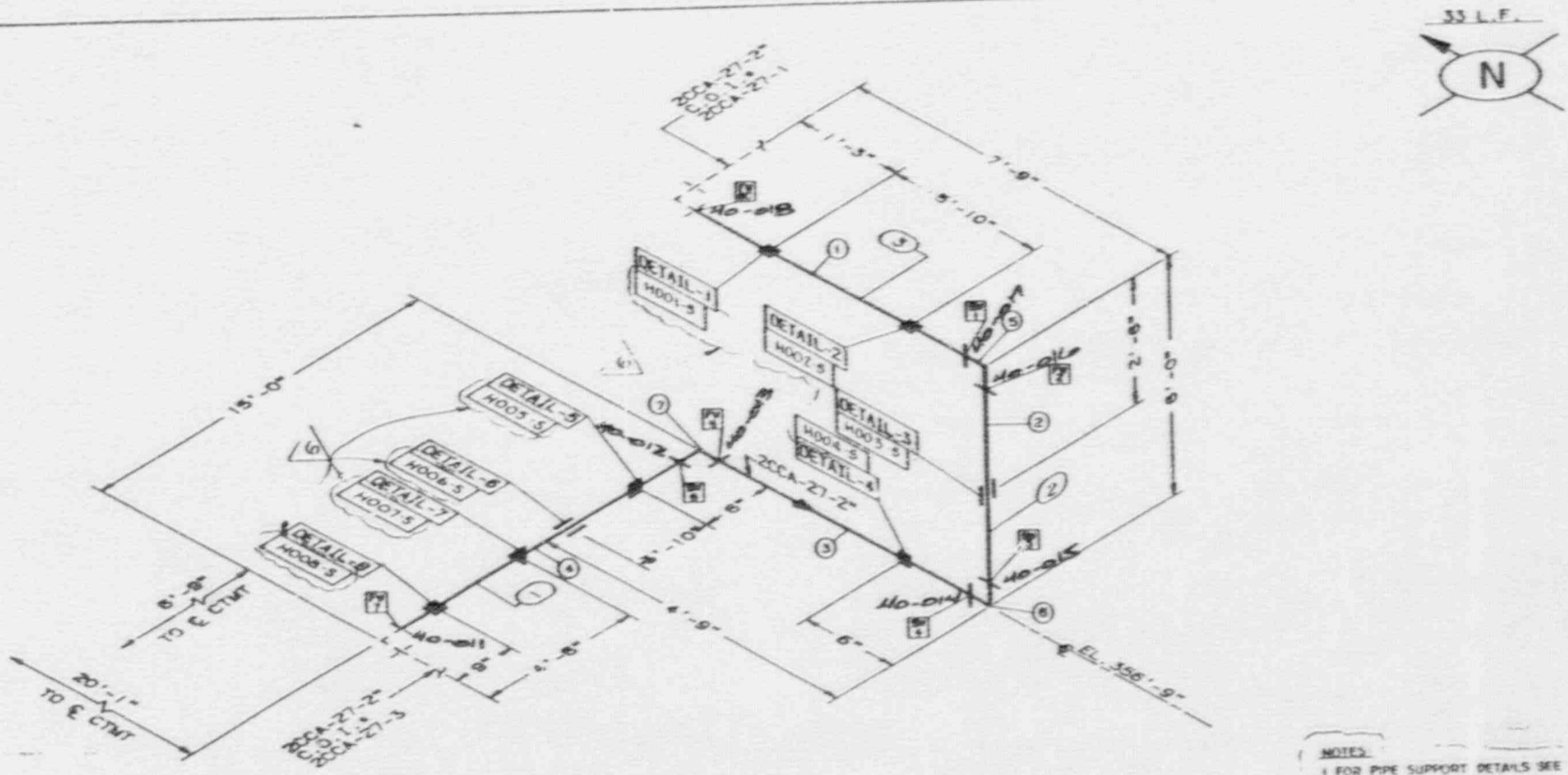
SCALE NONE DESIGN BECHTEL DRAWN IMPELL

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SMALL PIPE ISOMETRIC
REACTOR COOLANT SYSTEM

DRAWING NO 2CCA-27-1 REV 7

ISI-240



RADIOACTIVE ~~NO~~
SHIELDING REQ'D.

NOTES:
1. FOR PIPE SUPPORT DETAILS SEE ISO 2CCA-27-11 & 2CCA-27-12

6

ITEM	QTY.	DESCRIPTION	HEAT NO.	ASTM	GRD.
7	1	2½" 6000# SW 90° ELL.	C-7148	SA-403	WP-316
6	1	2½" 6000# SW 90° ELL.	C-7148	SA-403	WP-316
5	1	2½" 6000# SW 30° ELL.	C-7148	SA-403	WP-316
4	19FT.	2½" SMLS SCH. 160 PIPE	433821	SA-312	TP-316
3	8FT.	2½" SMLS SCH. 160 PIPE	430979	SA-312	TP-316
2	8FT.	2½" SMLS SCH. 160 PIPE	480979	SA-312	TP-316
1	8FT.	2½" SMLS SCH. 160 PIPE	398418	SA-312	TP-316

BILL OF MATERIAL

STARTUP NO 85A | INSULATION CLASS C THICK 2 1/2"

REFERENCE

P&ID NO M-2230 & M-2231, SHT. 1
PIPING DWG M-2856 & M-2857
AREA NO 25 ELEV 336'-6"
BLDG REACTOR BLDG.
SYS CHEMICAL VOLUME CONTROL

HANGER TYPE NUC. SEIS CL. I (H)
DWG NO M-2806 THRU-10

SYS CLEANING REQMT M-2237

SERVICE CONDITIONS
NORMAL 2250 PSIG 200 °F
MAXIMUM 2350 PSIG 450 °F

NO	DATE	REVISION	BY	CHK	APPROVAL
2	7/86	AS BUILT PER EC 06072	TJE	WH	JRC
5	7/86	REVISION FOR IMPROVED QUALITY	TJK	JRC	JRC

SCALE NONE | DESIGN MICHEL | DRAWN TAPELL

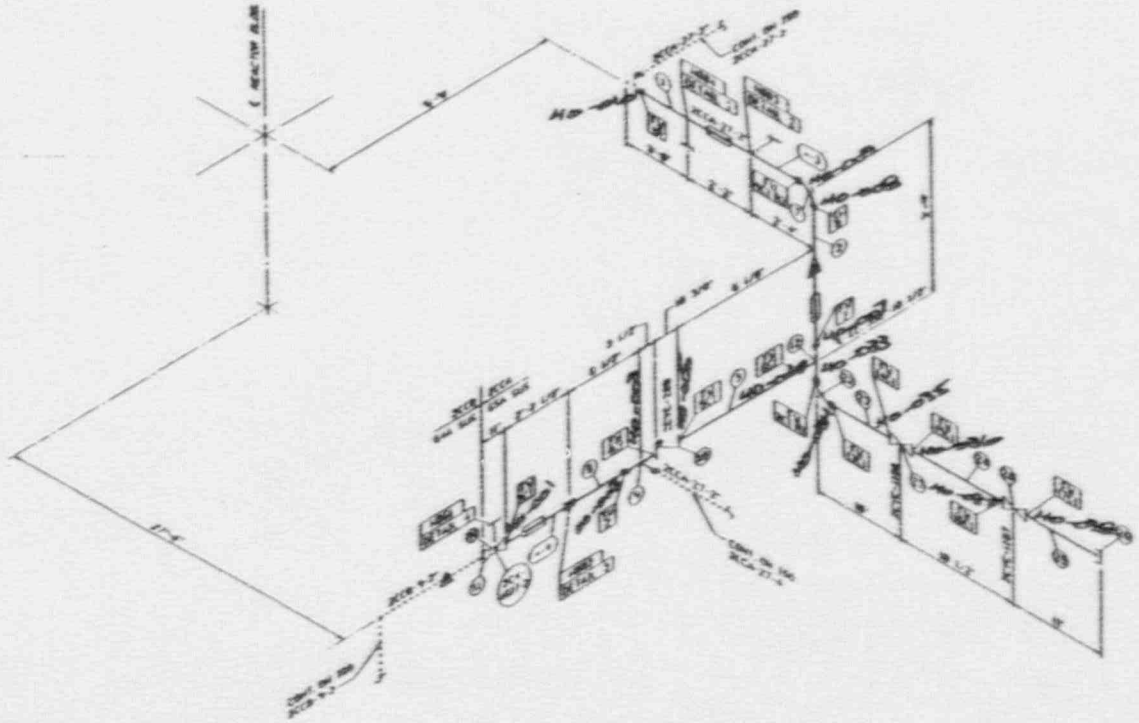
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SMALL PIPE ISOMETRIC
CHEMICAL VOLUME CONTROL SYSTEM

2CCA-27-2 | 6

ISI-240

BILL OF MATERIAL


N
℄ REACTOR BLDG
HD
CONN ON SIM 2CCA-27-2
CONN ON SIM 2CCA-27-4
2CCA-27-2
2CCA-27-4
2CCA-27-1
2CCA-27-5
2CCA-27-3
2CCA-6
2CCA-6
2CCA-6

BILL OF MATERIAL

ITEM	QTY.	DESCRIPTION	MATL NO.	REV	WT.	TOTAL
1		PIPING				
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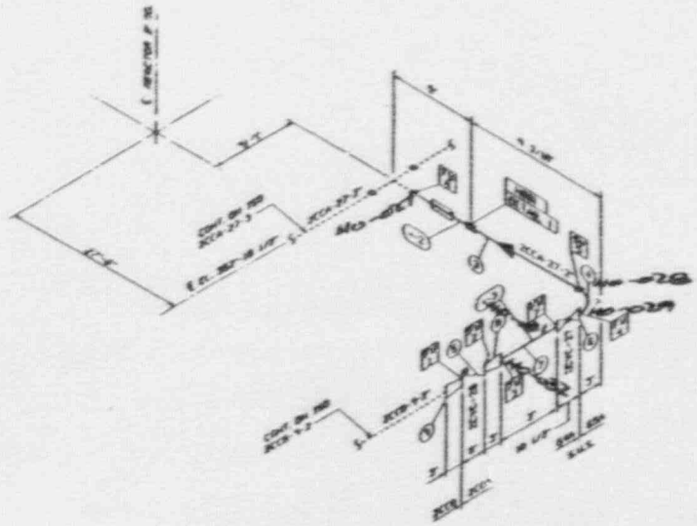
3	11					
4	1					
5						
6						
7						
8	1					
9						
10	11					
11	1					


N
℄ REACTOR
9'-7"
CONT. BY PIPE
2CCA-27-3
2CCA-27-3
2CCA-27-7
2CCB-9-7
2CCB-9-2
2CCB-27-1
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NOTES:
1. ++ 2CCA-27-4.
2. FOR PIPE SUPPORT DETAILS SEE DRAWING 2CCA-27-13.

REFERENCE
P & ID NO. M-2231
PIPING DWG. M-2858 & M-2857
AREA 20, 25 ELEV. 338'-6"
BLDG. REACTOR
SYSTEM CHEMICAL & VOL. CONTROL

HANGER TYPE CRITICAL SEISMIC CL. I
DWG NO. M-2886 THRU 10
SYSTEM CLEANING REQMT. M-2237

SERVICE CONDITIONS REF. M-2863
NORMAL 2250 PSIG 280 °F
MAXIMUM 2350 PSIG 650 °F

STARTUP NO. 65A
INSULATION CLASS C
THICKNESS 2 1/2"
FILENAME: 0837SL02H

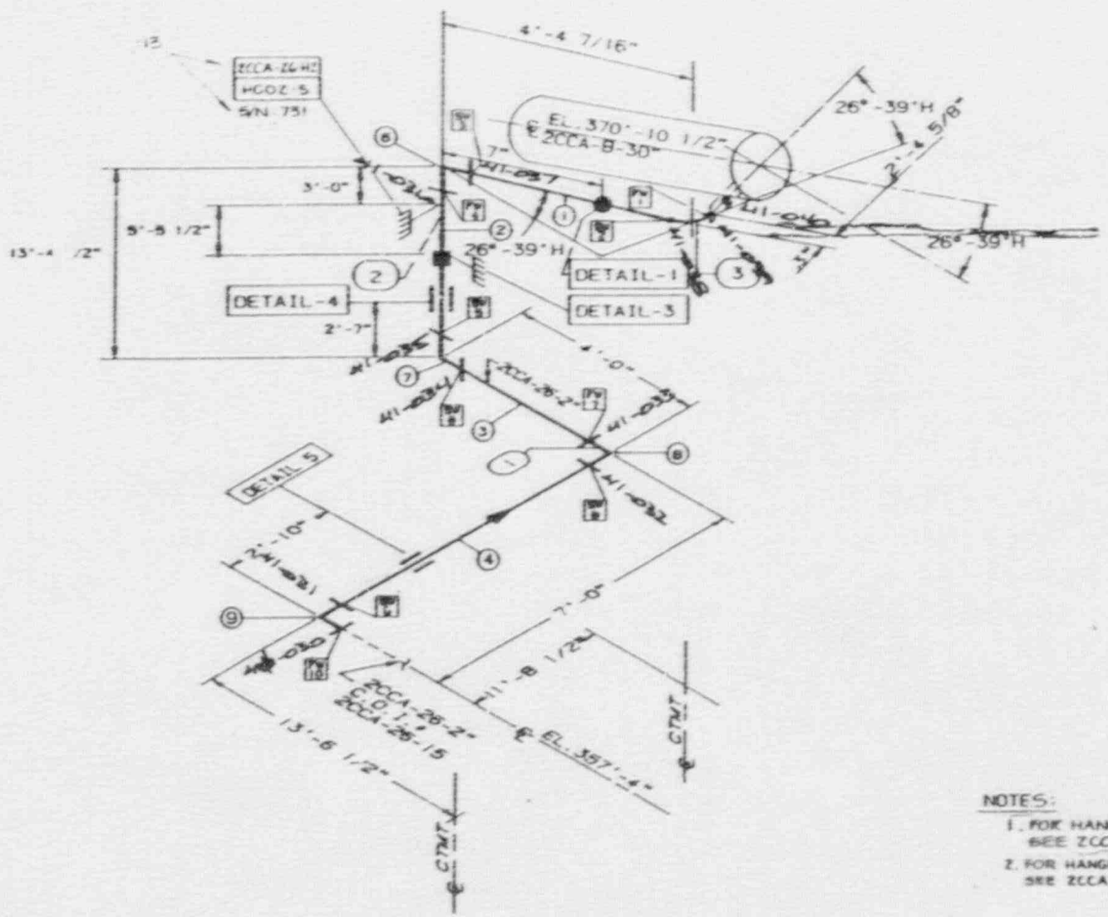
NO.	DATE	REVISION	BY	CHK	APPR
10	[illegible]	AS-BUILT PER W.P. 14891/12	JR	[illegible]	[illegible]

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SMALL PIPE ISOMETRIC
CHARGING INLET
FROM REGEN. HEAT EXCHANGER

DRAWING NO. 2CCA-27-4
REV. 10

ISI-240



NOTES:

1. FOR HANGER DETAILS 1,2 & 3, SEE 2CCA-26-15.
2. FOR HANGER DETAILS 4 & 5, SEE 2CCA-26-11.

ITEM	QTY	DESCRIPTION		HEAT NO	ASTM	GRD
9	1	2"SCH. 160 BW 90° ELL.	SA-403	C-7149		WP-316
8	1	2"SCH. 160 BW 90° ELL.	SA-403	C-7149		WP-316
7	1	2"SCH. 160 BW 90° ELL.	SA-403	C-7149		WP-316
6	1	2"SCH. 160 BW 90° ELL.	SA-403	C-7149		WP-316
5	1	2"SCH. 160 BW 90° ELL.	SA-403	C-7149		WP-316
4	7LF	2"SMLS SCH. 160 PIPE	SA-312	454396		TP-316
3	4LF	2"SMLS SCH. 160 PIPE	SA-312	454396		TP-316
2	14LF	2"SMLS SCH. 160 PIPE	SA-312	454396		TP-316
1	9LF	2"SMLS SCH. 160 PIPE	SA-312	454396		TP-316

BILL OF MATERIAL

STARTUP NO. 85A | INSULATION CLASS C THICK 2 1/2"

REFERENCE

P&ID NO. M-2230 & M-2231 SHT. 1
PIPING DWG. M-2856 & M-2857
AREA NO. 25 ELEV. 338'-8"
BLDG. REACTOR BLDG.
SYS. CHEMICAL & VOLUME CONTROL

HANGER TYPE NUC. SEIS. CL. II(H)
DWG. NO. M-2806 THRU-10

SYS. CLEANING REQMT M-2237

SERVICE CONDITIONS
NORMAL 2250 PSIG 200 °F
MAXIMUM 2350 PSIG 550 °F

NO.	DATE	REVISION	BY	CHK	ENGR	APPR
13	8/13/87	AS BUILT: DCP 86 2160	CJD	WH		JT
12	7/29/86	AS BUILT: PEAR 83 1629	TR	PW	SJ	JAH
11	3/12/86	REDRAWN FOR IMPROVED QUALITY	TK	PAG		PAG

SCALE: NONE DESIGN: BECHTEL DRAWN: SMELL

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SMALL PIPE ISOMETRIC
CHEMICAL & VOLUME CONTROL SYSTEM

DRAWING NO. 2CCA-26-14 REV. 13

ISI-241

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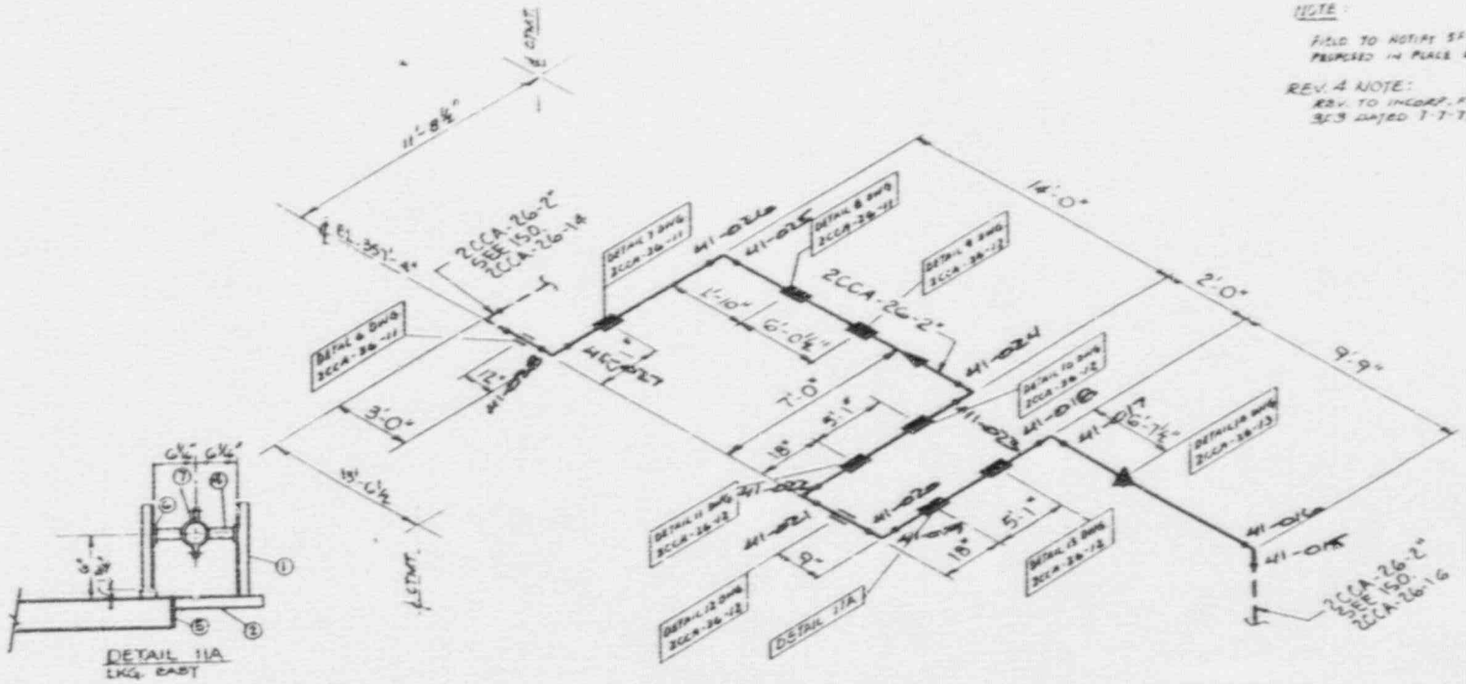
50LF

N

NOTE:

FIELD TO NOTIFY SFHO WHEN BLINDS ARE PROPOSED IN PLACE OF BUTT WELD FITTINGS

REV. 4 NOTE:
REV. TO INCORP. FIELD AS BUILT COND. SCB DATED 7-7-77



ITEM	QTY	DESCRIPTION	HEAT NO.	ASTM	GRD.
7	1	PIPE CLAMP			
6	2	3/8" R. (TO SUIT)			
5	1	6 1/4" x 10 1/2" x 1/2" R			
4	2	2" SCH. 160 PIPE LTG			
3	1	4 WF 13 LTS			
2	1	3/8" x 1/4" LTG			
1	2				

HANGER BILL OF MATERIAL

PRIORITY

NOTES

8. ALL DIMENSIONS WITHIN ± 3" FOR CRITICAL, NUCLEAR AND SEISMIC I AND ± 6" FOR NON-CRITICAL CLASS II CAN BE REWORKED WITHOUT SFHO APPROVAL.
7. ⇒ – DENOTES DIRECTION TO SUPPORTING STRUCTURE.
6. SW/2 – SHOP WELD NO.
5. FW/2 – FIELD WELD NO.
4. B/2 – BEND NO.
3. (4) – STEM NO.
2. [SPOOL NO.] – SPOOL NO.
~~SPOOL NO. TO BE ENCIRCLED IN 3" GOTHIC CHARACTERS USING NON-CHLORIDE PAINT ON EACH SPOOL AT APPROX. 18" INTERVALS.~~
1. ✱ – DENOTES FIELD FIT UP TO BE USED WITH FIELD WELD SYMBOL, SPECIFYING THAT A MIN. OF 6" RANDOM SURPLUS PIPE SHALL BE LEFT BY FAB. SHOP AT EACH JOINT MARKED FW/1 ✱ THIS SURPLUS SHALL BE CUT TO FIT BY FIELD.

STARTUP NO. 65A | INSULATION CLASS C | THICK 2 1/2"

RADIOACTIVE

REFERENCE
P&I.D NO. M-2230 & M-2231 SHT.1
PIPING DWG. M-2856 & M-2857
AREA NO. 25 ELEV. 336'-6"
BLDG. CONTAINMENT
SYS. CHEMICAL & VOLUME CONTROL
HANGER TYPE NUC. SEIS. CL. I (4)
DWG. NO.
SYS. CLEANING REQ'D.
SERVICE CONDITIONS. (REF. M-2083)
NORMAL 2250 PSIG @ 200 °F
MAXIMUM 2350 PSIG @ 650 °F

NO.	DATE	REVISIONS	BY	CHKD	APPD	ENGR	ENGR	DATE
4	7-7-77	AS BUILT ISSUED TO UPDATE	N.S.					
3	3-3-77	OFF. REV. 2 NOTE ADDED						
2	7-1-76	ADDED FIT DWG.						
1	3-1-76	ADDED NO. OF ANCHORS, REVISED SPT. TYPE, ADDED DETAIL 13						
0	12-1-75	ISSUED FOR PLUMBING & FIRE PROTECTION PER "BLD. REVIEW"	H.D.					

DRAWN | DESIGNED | DRAWN

BECHTEL
SAN FRANCISCO

ARKANSAS POWER & LIGHT
ARKANSAS NUCLEAR ONE
UNIT 2

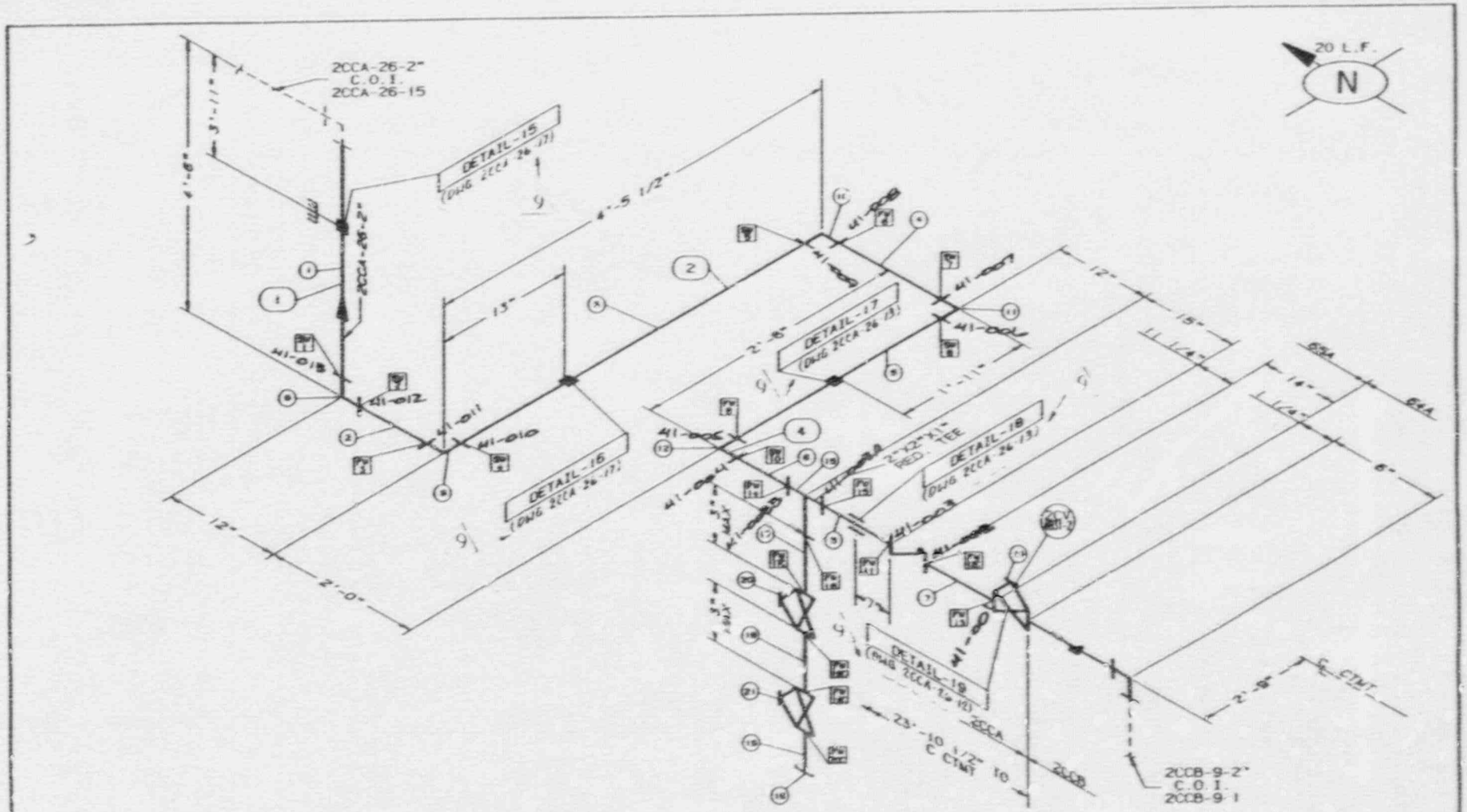
SMALL PIPE IN CONTAINMENT BUILDING

JOB NO.	DRAWING NO.	REV.
6600-2	2CCA-2615	5

ISI-241

I certify that the image contained on this frame was made in the normal and regular course of business, on the date stated below and that it is an accurate reproduction of the document submitted to Micrographics.

1 6 X



ITEM	QTY	DESCRIPTION	HEAT NO	ASTM	GRD

BILL OF MATERIAL

NOTE:
1) FOR HANGER INFORMATION SEE 2CCA-26-17; 2CCA-26-12 AND 2CCB-26-13

STARTUP NO 64A 65A INSULATION CLASS C THICK 2 1/2"

REFERENCE

P&ID NO M-2230 & M-2231 SHT. C
PIPING DWG M-2856 & M-2857
AREA NO 25 ELEV 338'-6"
BLDG REACTOR BUILDING
SYS CHEMICAL & VOLUME CONTROL

HANGER TYPE NUC. SEIS. CL. 1(H)
DWG NO M-2JOK, 7, 8, 10

SYS CLEANING HEDNT
M-2237

SERVICE CONDITIONS
NORMAL 2250 PSIG 200 °F
MAXIMUM 2350 PSIG 400 °F

NO	DATE	REVISION	BY	CHKD	DISTRIBUTION
8					

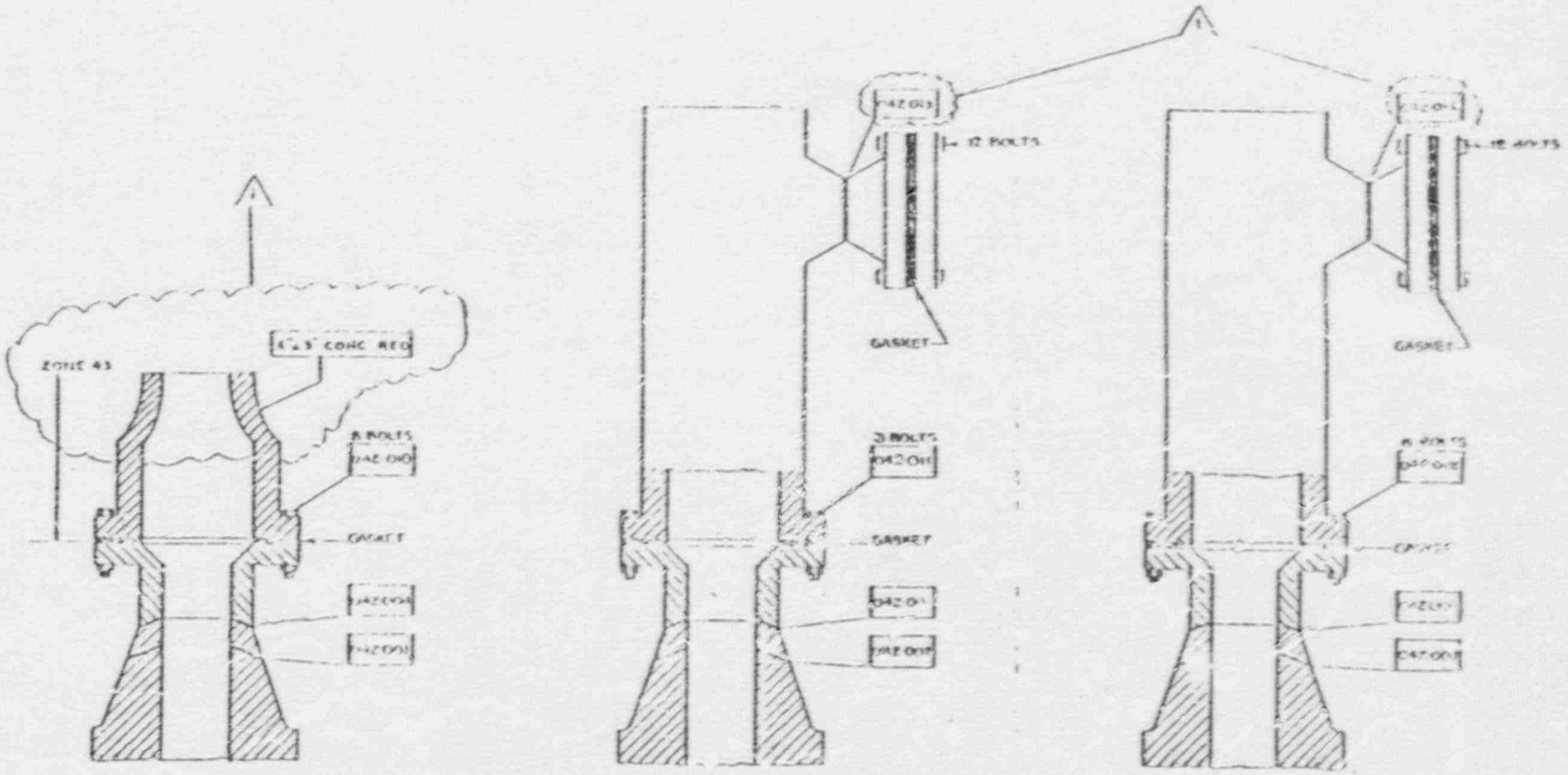
SCALE NONE DRAWN SECHVEL BRANCH: INPOLL

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SMALL PIPE ISOMETRIC
CHEMICAL & VOLUME CONTROL

CALCULATION NO. 2CCA-26-16 SEQ. 9

ISI-241



6" VALVE
2FO 4632

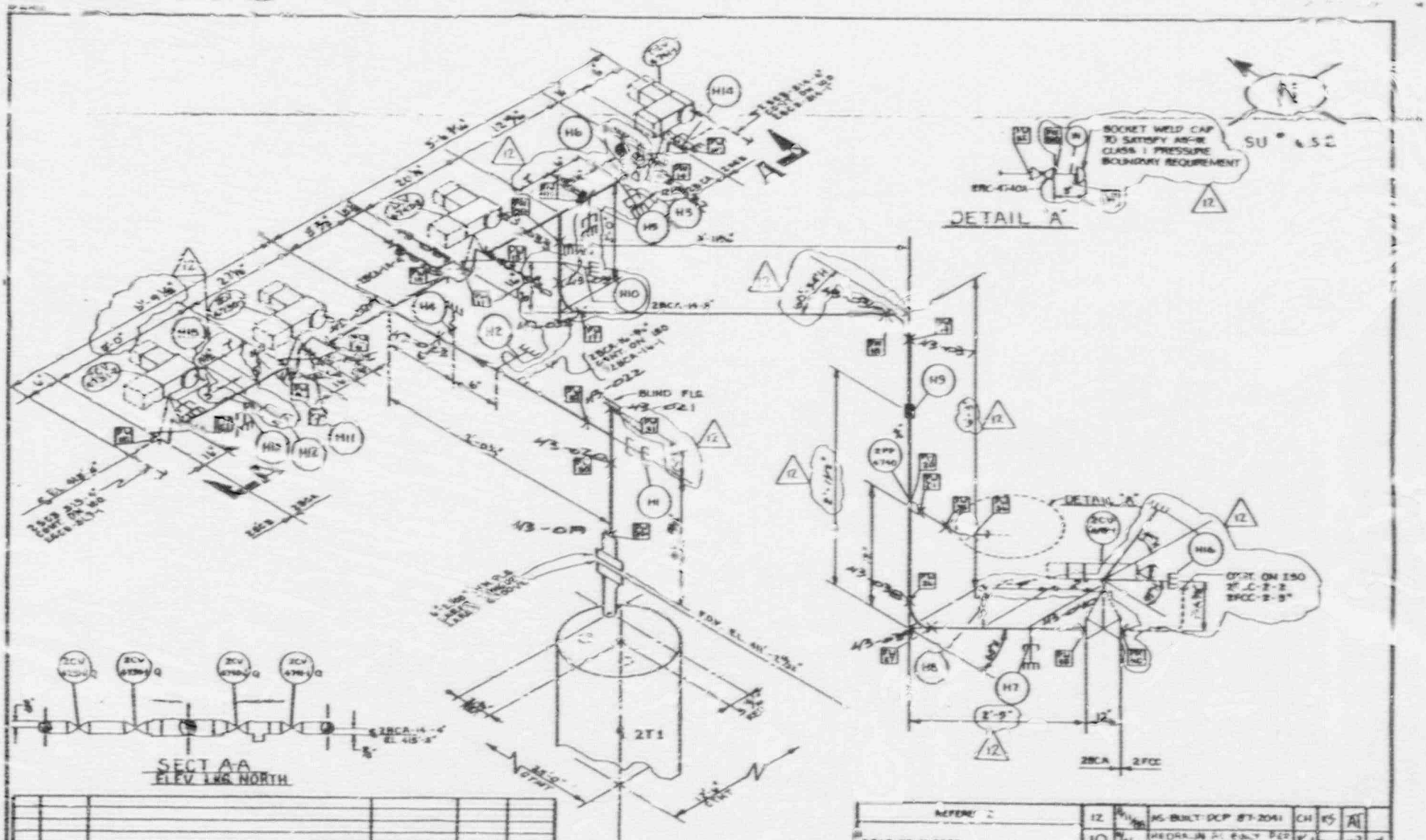
6" VALVE
2HSV 4633

6" VALVE
2HSV 4634

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

PRESSURE SAFETY NOZZLES
TO VALVES (CLASS II)
(ZONE 43)

ISI-242



ITEM	QTY.	DESCRIPTION	HEAT NO.	ASTM	GRD.

BILL OF MATERIAL

STARTUP NO. | INSULATION CLASS: | THICK:

REFERENCE:

P&ID NO. M-2230

PIPING DWG. N-2054

SYS. CLEANING / DWT.

SERVICE CONDITIONS:

NORMAL: PDE:

MAXIMUM: PSIG:

NO.	DATE	REVISIONS	BY	CHK	ENGR	APPR
12		AS-BUILT DCP 87-2041	CH	RS	AI	
10		DCP 4-2155	CJ	DLC	KP	
11		AS BUILT PEAR 82-1629	TK	DW		DWJ

SCALE: NONE | DESIGN: | DRAWN: K. WHITCAR

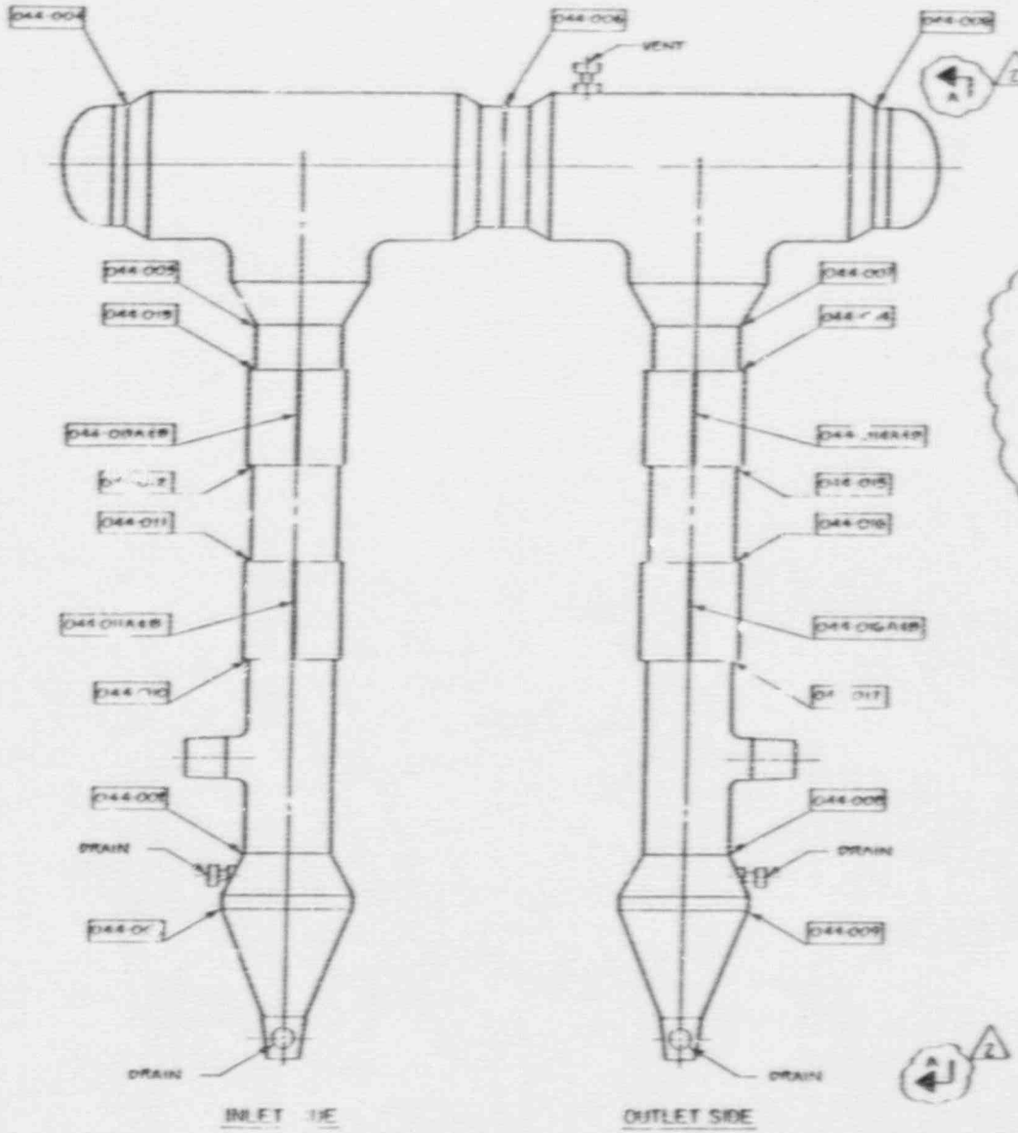
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

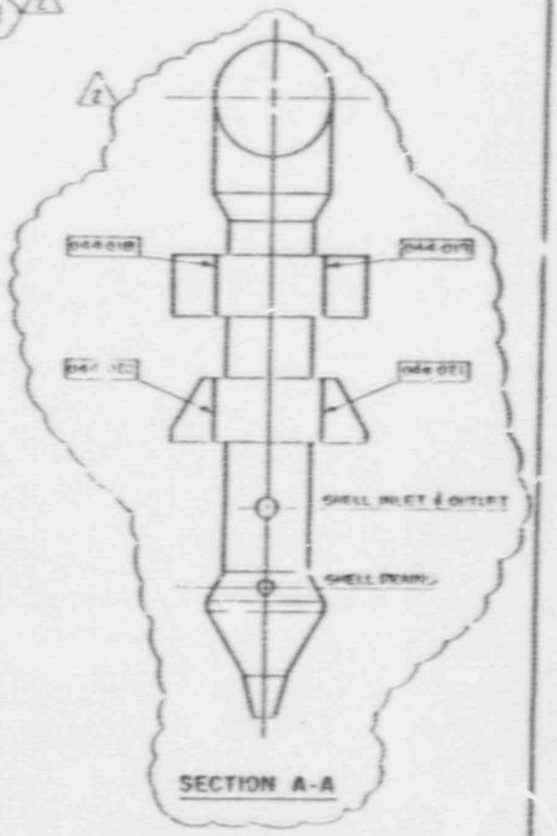
ISOMETRIC CONTAINMENT BUILDING REACTOR COOLANT SYSTEM

DRAWING NO. 2BCA-14-1 SH. 1 OF 2 | REV. 12

ISI-243

COMPONENT CLASS -
COMPONENT LOCATION -
COMPONENT CONNECTS TO -
WELD PREP REQUIRED - EACH
SIDE OF WELD





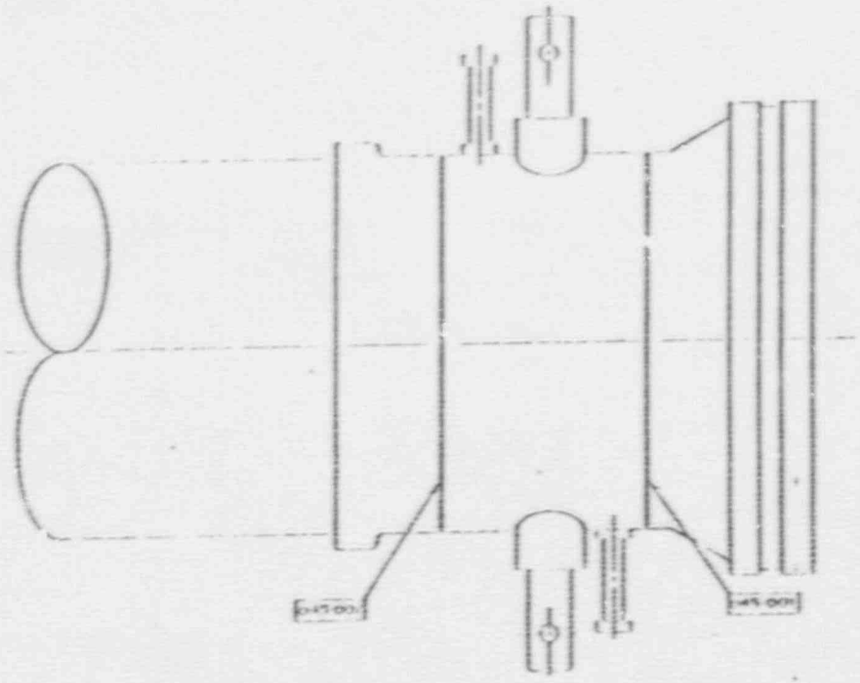
REV	DATE	REVISION	DRAWN	CHECKED	APPROVED
2		AS BUILT - ISSUED FOR RECORDS			
1		AS BUILT - ISSUED FOR REVIEW			
0		ISSUED FOR REVIEW			

SCALE NONE DESIGN DRAWN

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

REGENERATIVE HEAT EXCHANGER
AREA DESIGNATIONS
ZONE -1

DRAWING NO. ISI-244 REV. 2



ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LETDOWN HEAT EXCHANGER
TUBE SIDE WELD DESIGNATION
(ZONE 45)

ISI-245

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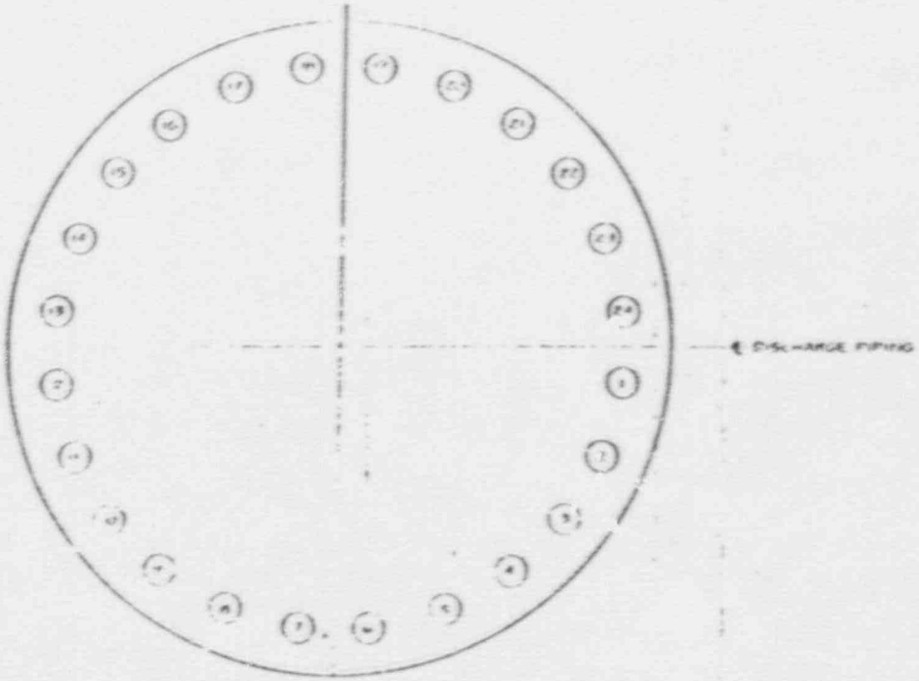

BOLTING PATTERN
TOP VIEW

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LPSI PUMP A
2P-60A
(ZCP-45)

ISI-245

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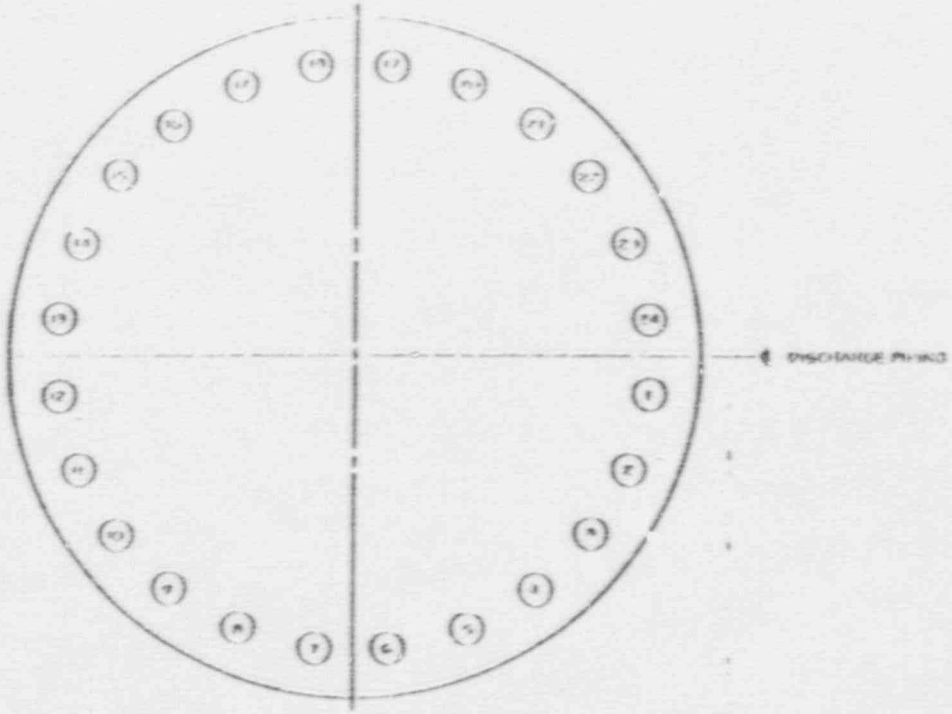

BOLTING PATTERN

TOP VIEW

ARKANSAS POWER AND LIGHT COMPANY

ARKANSAS NUCLEAR ONE

UNIT 2

LPSI PUMP B

2P-60B

(ZONE 4T)

ISI-247

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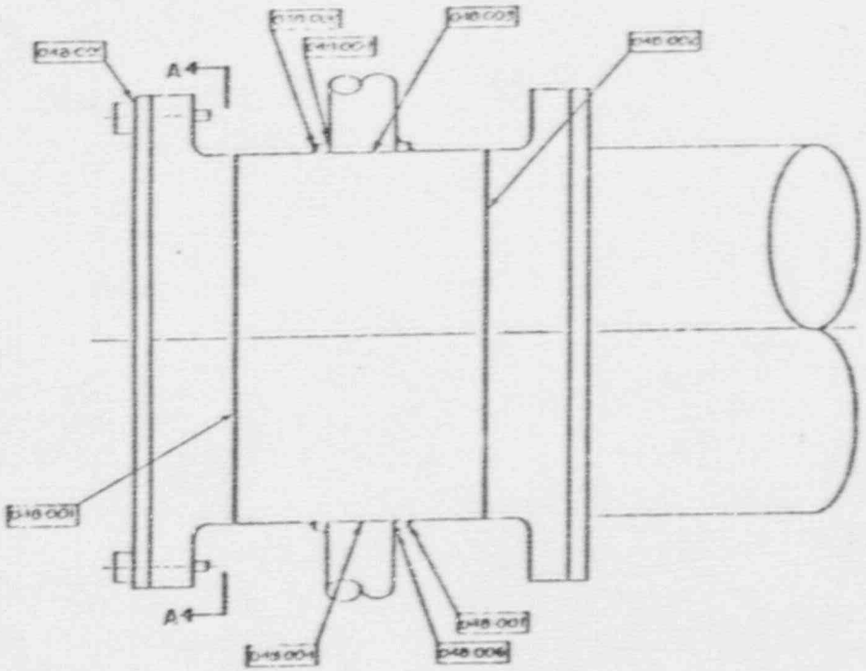
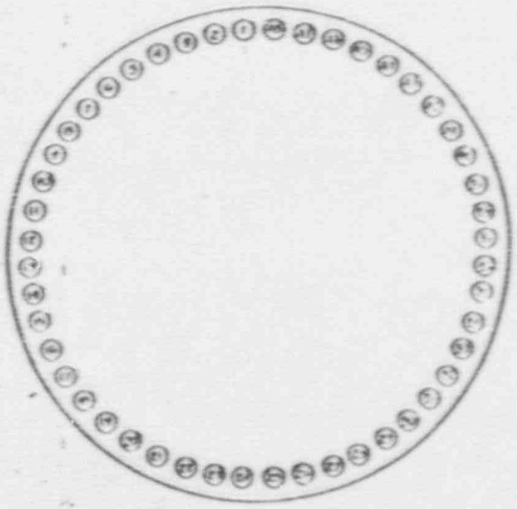


ITEM NO. 2E-35A



VIEW A-A

NO	DATE	REVISION	BY	CHK	APPD
0	7-30-[illegible]	ISSUED FOR REVIEW	[illegible]	[illegible]	[illegible]

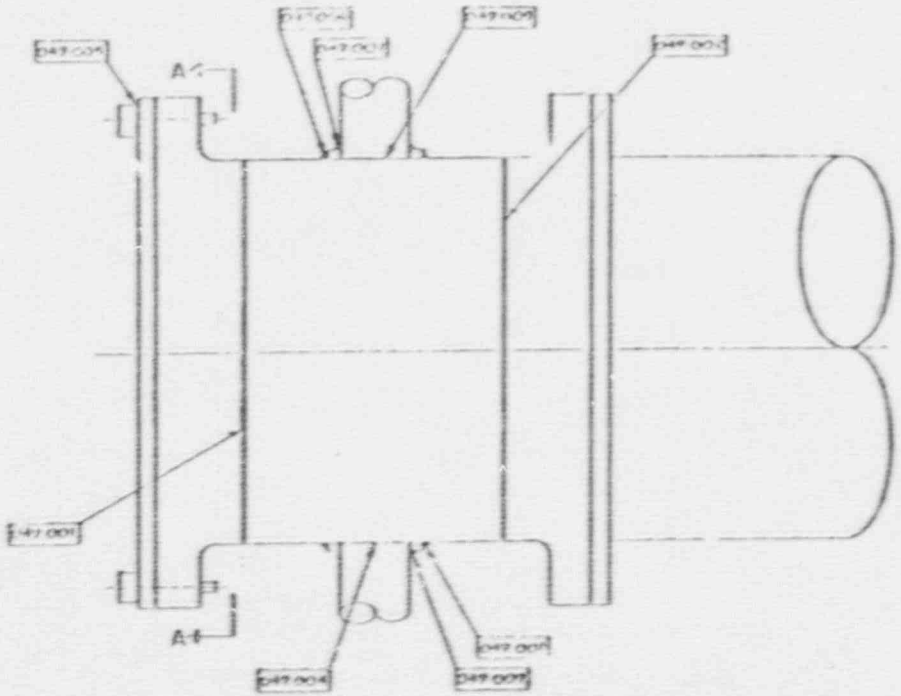
SCALE NONE

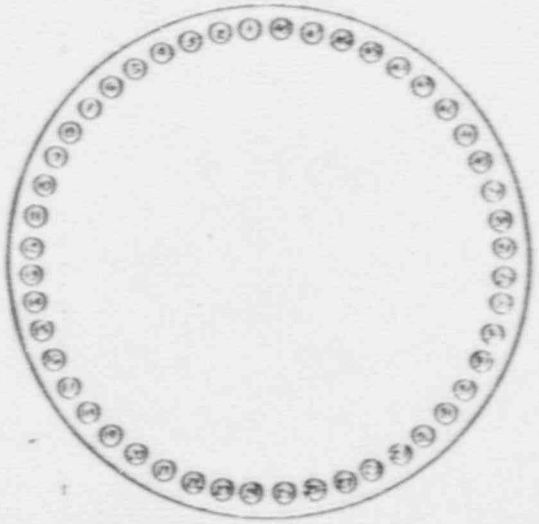
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SHUTDOWN COOLING HEAT
EXCHANGER A AREA DESIGNATIONS
(ZONE 49)

DRAWING NO. ISI-249

REV 0





VIEW A-A

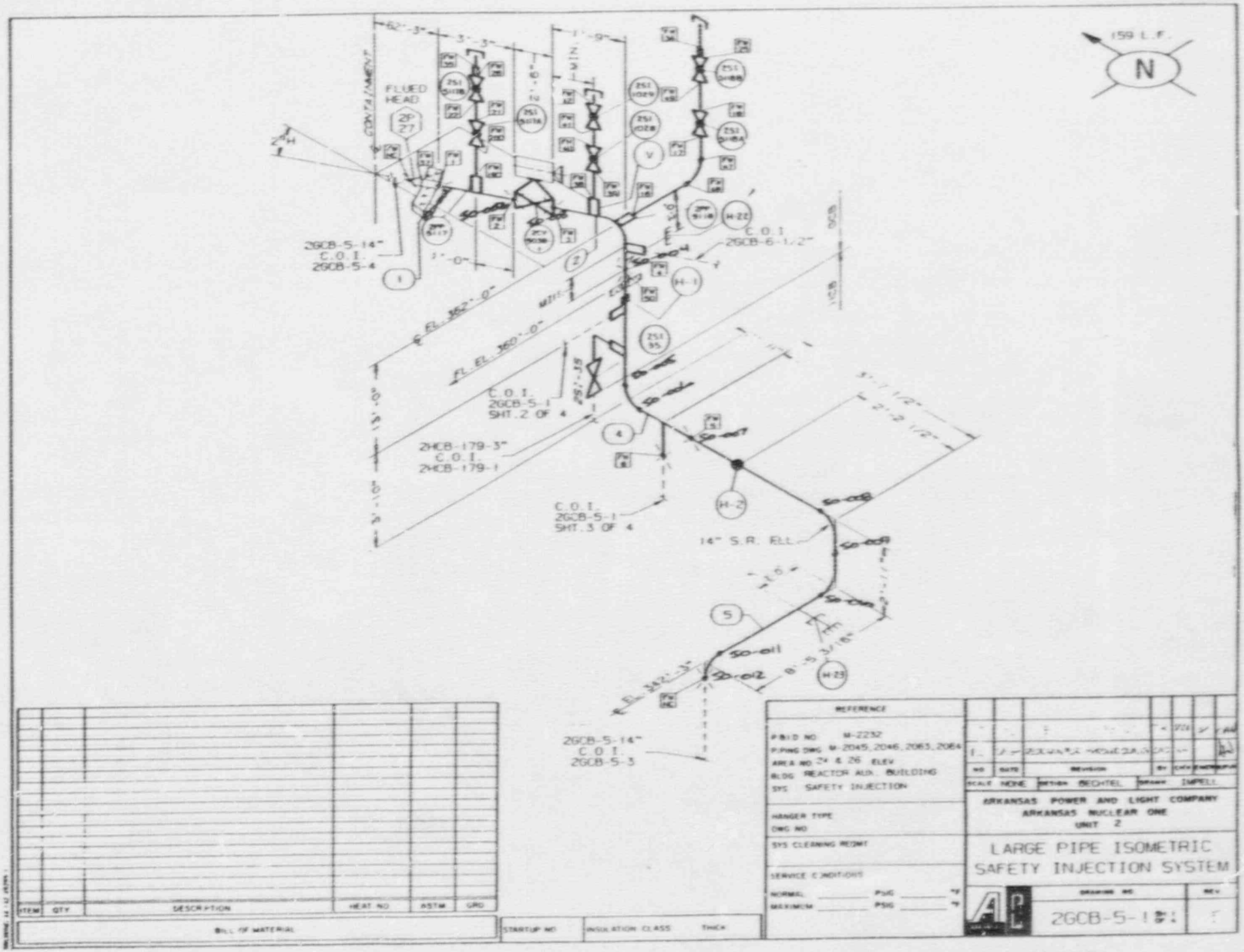
0		SOLD PER ECO				
NO	DATE	REVISION	BY	CHK	ENG	APP

SCALE NONE | DRAWN C.K. | DRAWN 5-16-79

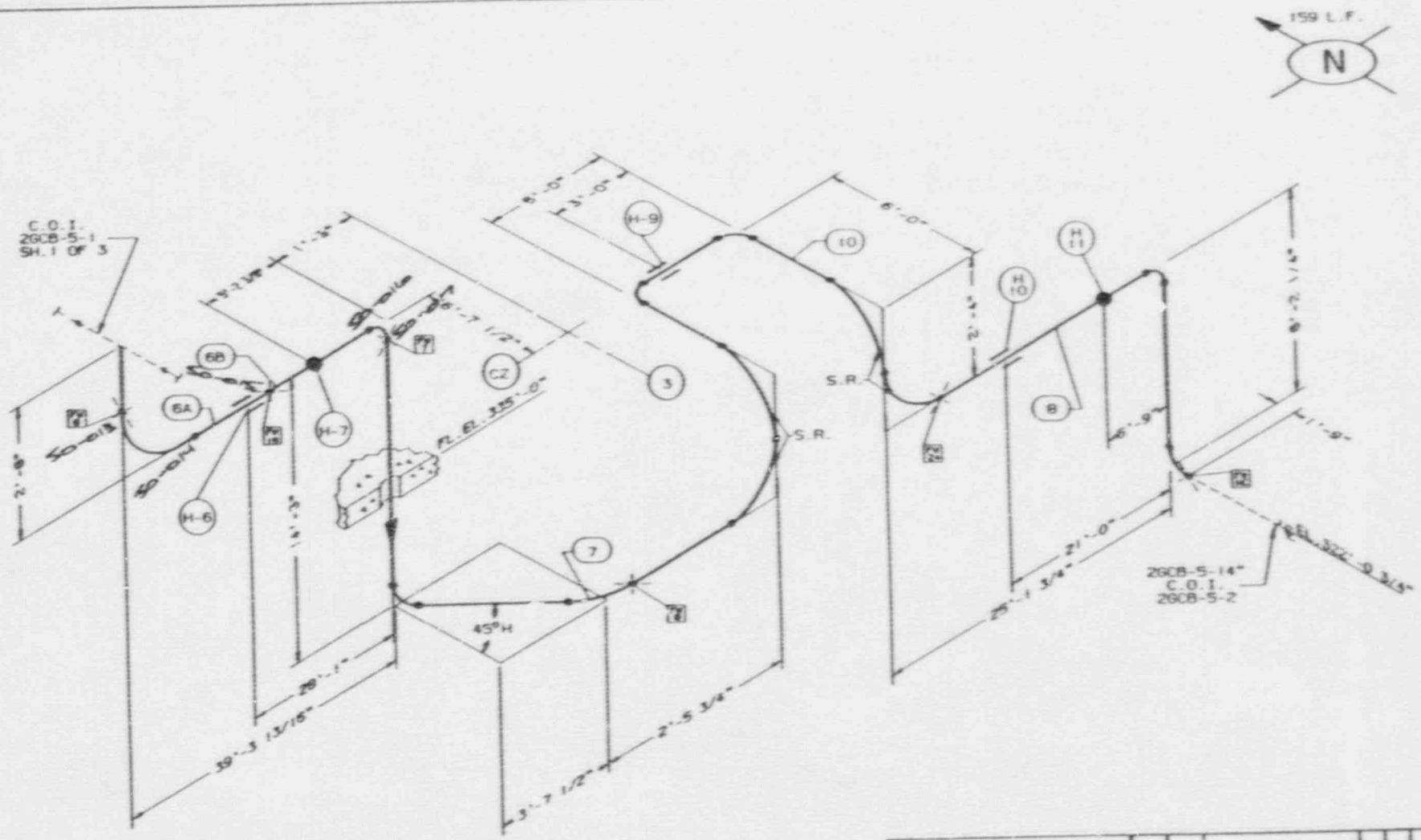
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SHUTDOWN COOLING HEAT
EXCHANGER B AREA DESIGNATIONS
(ZONE 42)

DRAWING NO. ISI-249 | REV. 0


159 L.F.
N
FLUED HEAD
2P 27
CONTAINMENT
2GCB-5-14"
C.O.I.
2GCB-5-4
C.O.I.
2GCB-6-1/2"
EL. 362'-0"
FL. EL. 360'-0"
C.O.I.
2GCB-5-1
SHT. 2 OF 4
2HCB-179-3"
C.O.I.
2HCB-179-1
C.O.I.
2GCB-5-1
SHT. 3 OF 4
14" S.R. ELL
EL. 362'-3"
2GCB-5-14"
C.O.I.
2GCB-5-3
REFERENCE
P&ID NO M-2232
PIPING DWG M-2045, 2046, 2063, 2064
AREA NO 24 & 26 ELEV
BLDG REACTOR AUX. BUILDING
SYS SAFETY INJECTION
HANGER TYPE
DWG NO
SYS CLEANING REQMT
SERVICE CONDITIONS
NORMAL PSIG
MAXIMUM PSIG
SCALE NONE
BECHTEL
IMPELL
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2
LARGE PIPE ISOMETRIC
SAFETY INJECTION SYSTEM
2GCB-5-1
ITEM
QTY
DESCRIPTION
HEAT NO
ASTM
GRD
BILL OF MATERIAL
STARTUP NO
INSULATION CLASS
THICK

ISI-250



ITEM	QTY.	DESCRIPTION	HEAT NO.	ASTM	GRD

BILL OF MATERIAL

STARTUP NO | INSULATION CLASS | THICK

REFERENCE

P&I D NO. M-2232
PIPING DWG. M-2045, 2046, 2063, 2064
AREA NO. 24 & 26 ELEV.
BLDG. REACTOR AUX. BUILDING
SYS. SAFETY INJECTION

HANGER TYPE
DWG. NO.

SYS. CLEANING REQMT.

SERVICE CONDITIONS

NORMAL _____ PSIG _____ °F
MAXIMUM _____ PSIG _____ °F

NO.	DATE	REVISION	BY	CHK	APPD
C	3/1/84	RECOMPUTE HANGER QUALITY CODE	VG		

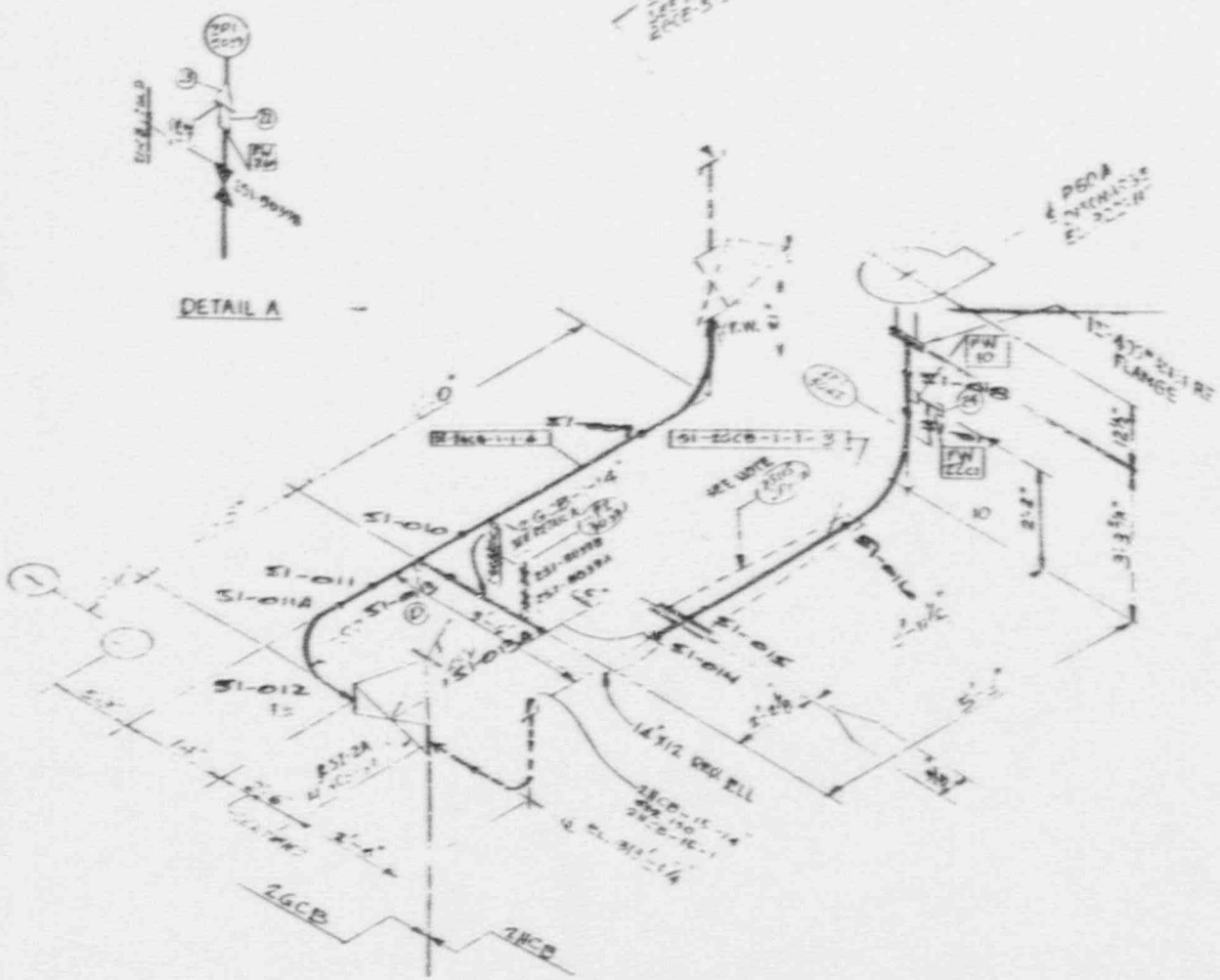
SCALE NONE DESIGN RECHTEL DRAWN ISPELL

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETRIC
SAFETY INJECTION SYSTEM

DRAWING NO. 2GCB-5-1 SH 2 REV. C

ISI-250



REV. 2 NOTE: S/U SHD

DELETED F.W. # ... #2 TO ... AS FABRICATED BY GR. ...

REV. 3 NOTE:
ADD ... SUPPORT ...
RELOCATED W/ ...
... SPOOL ...
GRINNELL TO FABRICATE NEW ...

REV. 5 NOTES:
ADDED DWG'S ... 2'-2⅛" & 2'-11½" FOR SPOOLS NO. 3 ... R ELL WAS L.R. ELL REVISION WAS MADE PER STRESS REQUIREMENT. GRINNELL TO MODIFY SPOOL #4

NOTE:
TEMPORARY STARTUP STRAINERS REMOVED DURING NORMAL OPERATION

REFERENCE DRAWINGS
M-2232 REV. 23 PAID
M-2346 ...

BILL OF MATERIAL

IT. #	DESCRIPTION	QUAN.
1	PIPE SPOOL MARK: SI-26CB-1-1-1	1
2	PIPE SPOOL MARK: SI-26CB-1-1-2	1
3	4"x3"x3" ST	1
4	5/8"-11 LG. BOLT STUD SA-193 GR B7	16
	5/8" HVY HEX NUT SA-194 GR 2H	
5	FLEXITALLIC GASKET STYLE CG-95	1
		4
7	PIPE SPOOL MARK: SI-26CB-1-1-3	1
8	" " " : SI-26CB-1-1-4	1
22	3/4" 3000# S.S. S.W. COUPLING A-182	1
23	3/4" PIPE x 3/8" TUBING ADAPTER SS	1
24	3/4" 3000# S.S. SW CAP, SA-182, GR F304	
	HT # 6K	1

10

BECHTEL
SAN FRANCISCO

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC - CONTAINMENT AUX BLDG
SAFETY INJECTION

6600-2	26CB-1-1	10

17x22

ISI-251

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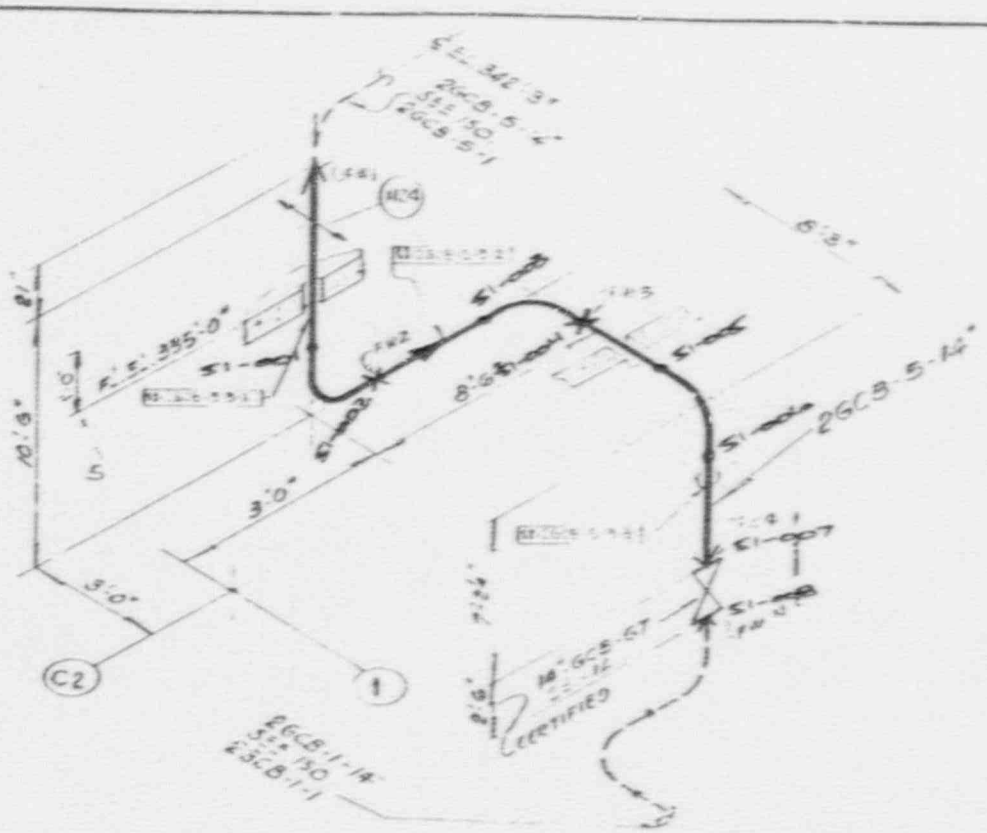

BILL OF MATERIAL

ITEM	DESCRIPTION
1	PIPE SPOOL
2	PIPE SPOOL
3	PIPE SPOOL
4	
5	
6	
7	

REFERENCE DRAWINGS

M-2231 REV. 3 P & I.D.

M-2046 " 11 PIPING PLAN

M-2044 " 11 " " " 26

4					
3					
2					
1					
0					

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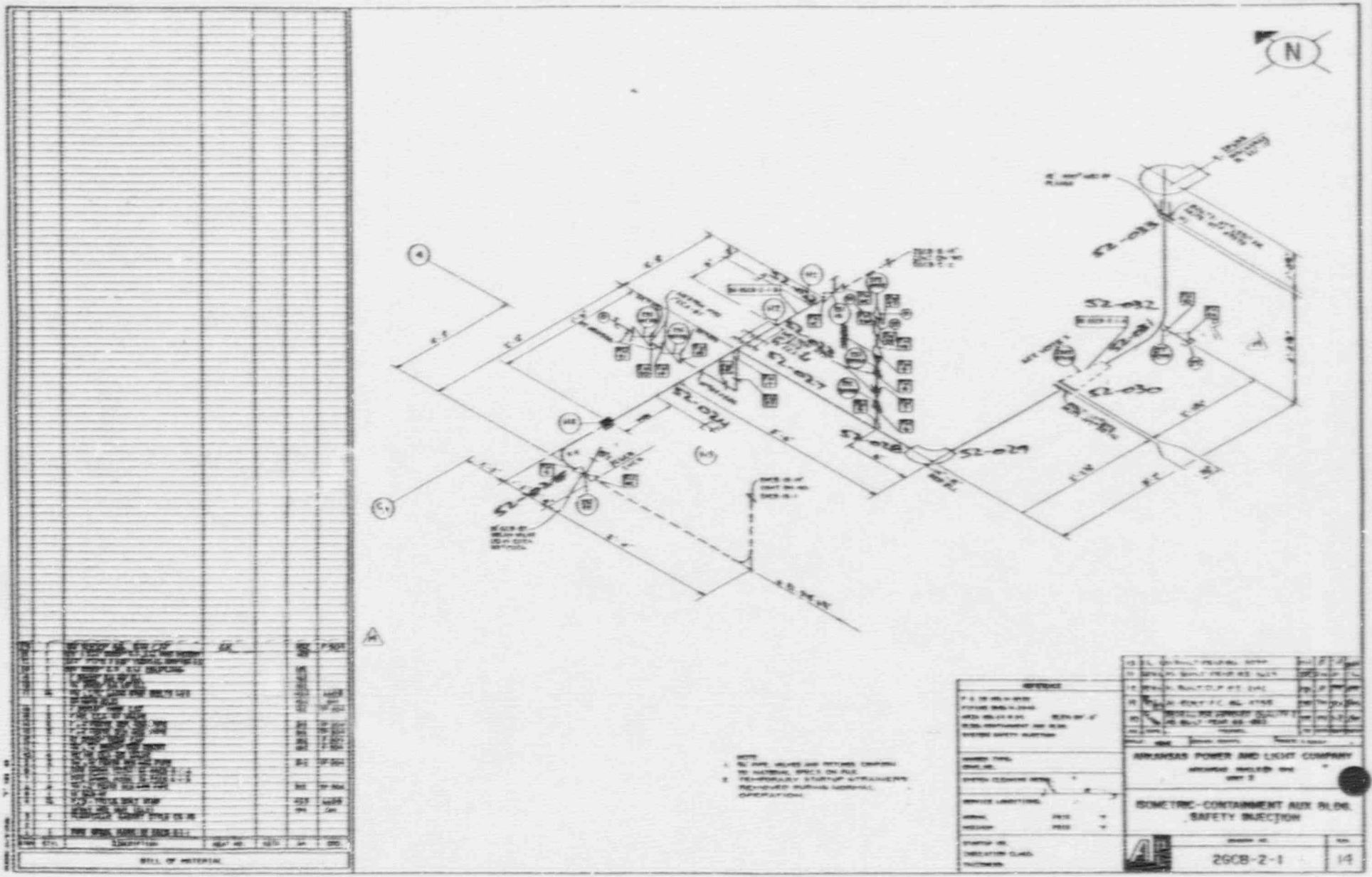
SAN FRANCISCO

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

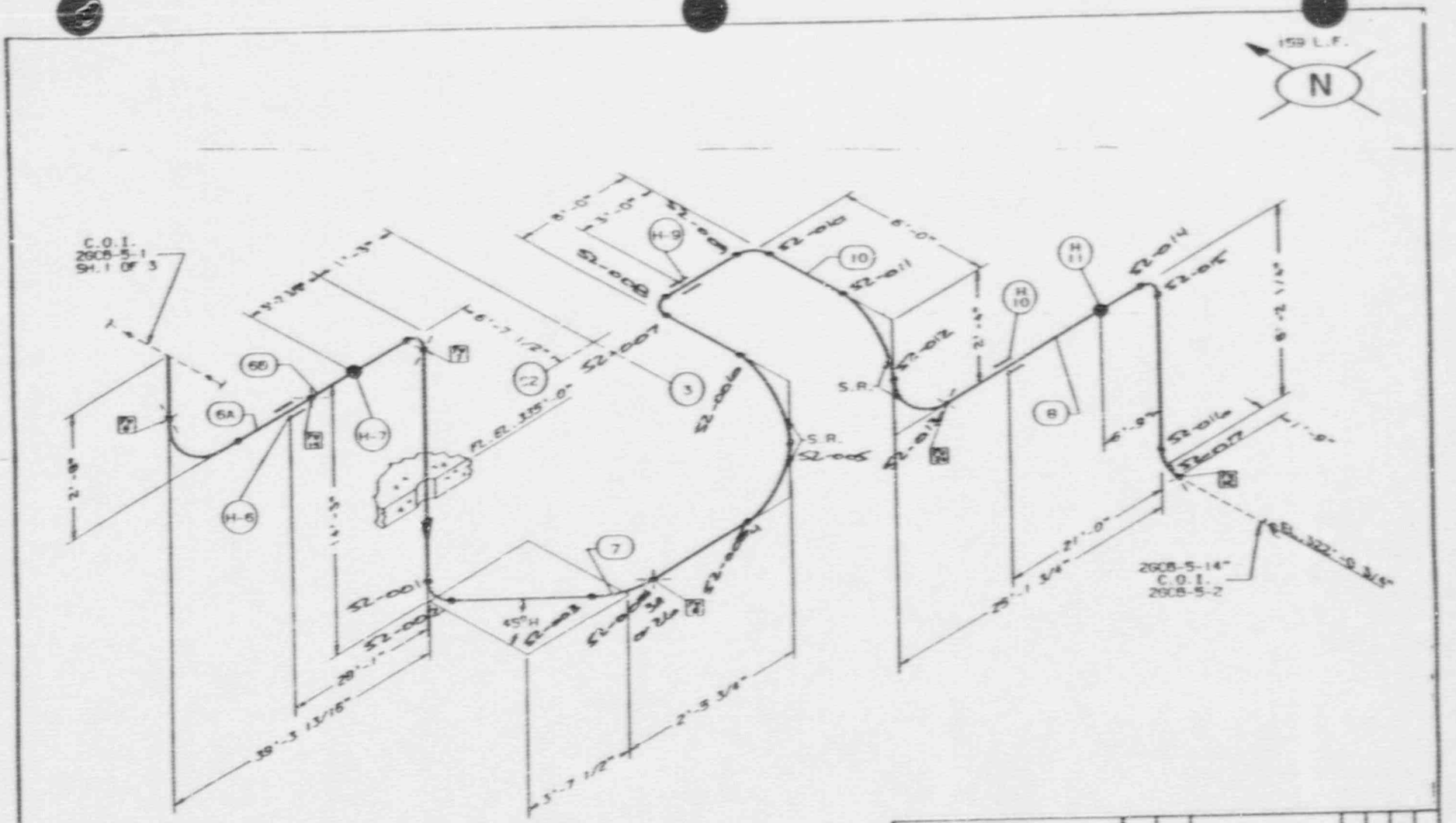
ISOMETRIC - CONTAINMENT AUX. BLDG.
SAFETY INJECTION

6600-2	2GCB-5-3	5

17x22


N
BILL OF MATERIAL
ARKANSAS POWER AND LIGHT COMPANY
ISOMETRIC-CONTAINMENT AUX BLDG.
SAFETY INJECTION
29CB-2-1
14

ISI-252



ITEM	QTY	DESCRIPTION	HEAT NO	ASTM	GRD

BILL OF MATERIAL

STARTUP NO | INSULATION CLASS | THICK

REFERENCE

P.&I.D. NO. W-2232
PIPING DWG. W-2045, 2048, 2053, 2054
AREA NO. 24 & 26 ELEV.
BLDG. REACTOR AUX. BUILDING
SYS. SAFETY INJECTION

HANGER TYPE
DWG NO
SYS CLEANING REQ'MT

SERVICE CONDITIONS
NORMAL ____ PSIG ____ °F
MAXIMUM ____ PSIG ____ °F

NO.	DATE	REVISION	BY	CHK

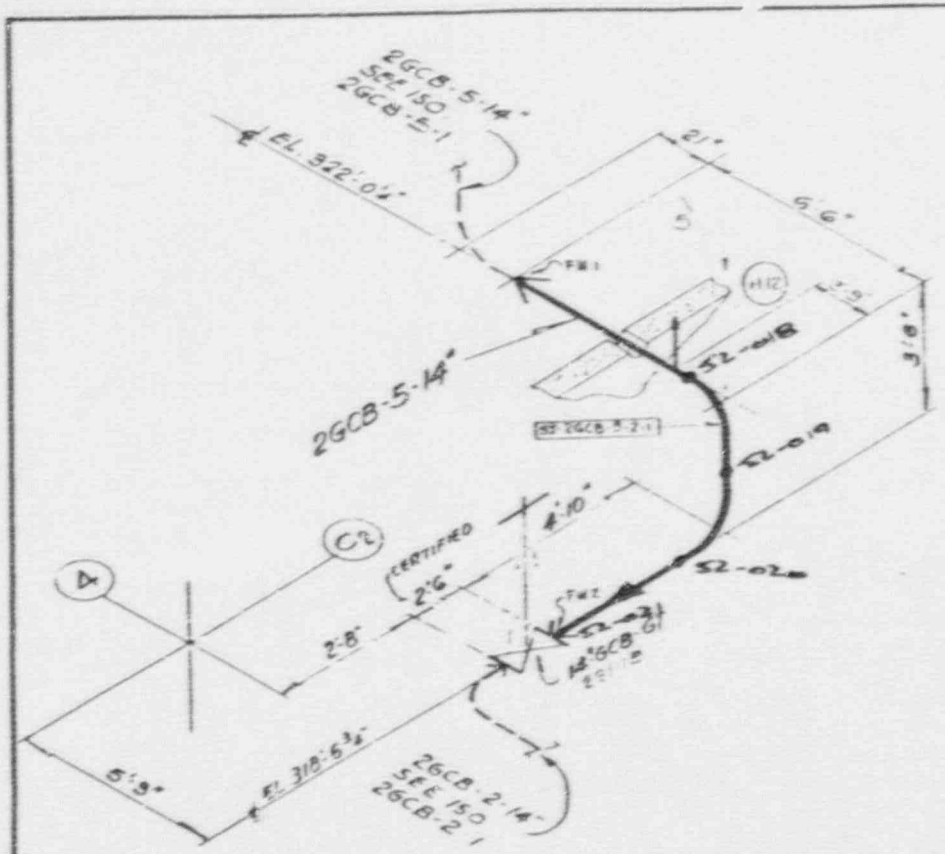
SCALE NONE | DESIGN BECHTEL | DRAWN BECHTEL

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETRIC
SAFETY INJECTION SYSTEM

DRAWING NO 2GCB-5-1 | REV C

ISI-252



18-L.F.

N

S/U 51D & 49A

REV 1 NOTE:

REV. 0 TO 1: ELIMINATED PART NUMBER 2GCB-2-1. REVISED LIST AND ISOMETRIC RE-ISSUED FOR FABRICATION.

REFERENCE DRAWINGS

M-2032 REV 13 P&ID

M 2046 - 15 PIPING PLAN AREA 24-R

BILL OF MATERIAL

ITEM NO	DESCRIPTION	QUAN
1	PIPE SPOOL NO 52-GCB-5-2-1	1
2	DELETED ITEM NO 2	
3	14" GCB-GT	1
4	DELETED ITEM NO 4	
5	DELETED ITEM NO 5	

5		ISSUED FOR FABRICATION			
4		REVISED PER RFC 1425			
3		REVISED PER RFC 1425			
2		REVISED PER RFC 1425			
1		REVISED PER RFC 1425			
0		ISSUED FOR FABRICATION			

BECHTEL
SAN FRANCISCO

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC - CONTAINMENT AUX. BLDG.
SAFETY INJECTION

6600-2	2GCB-5-2	5

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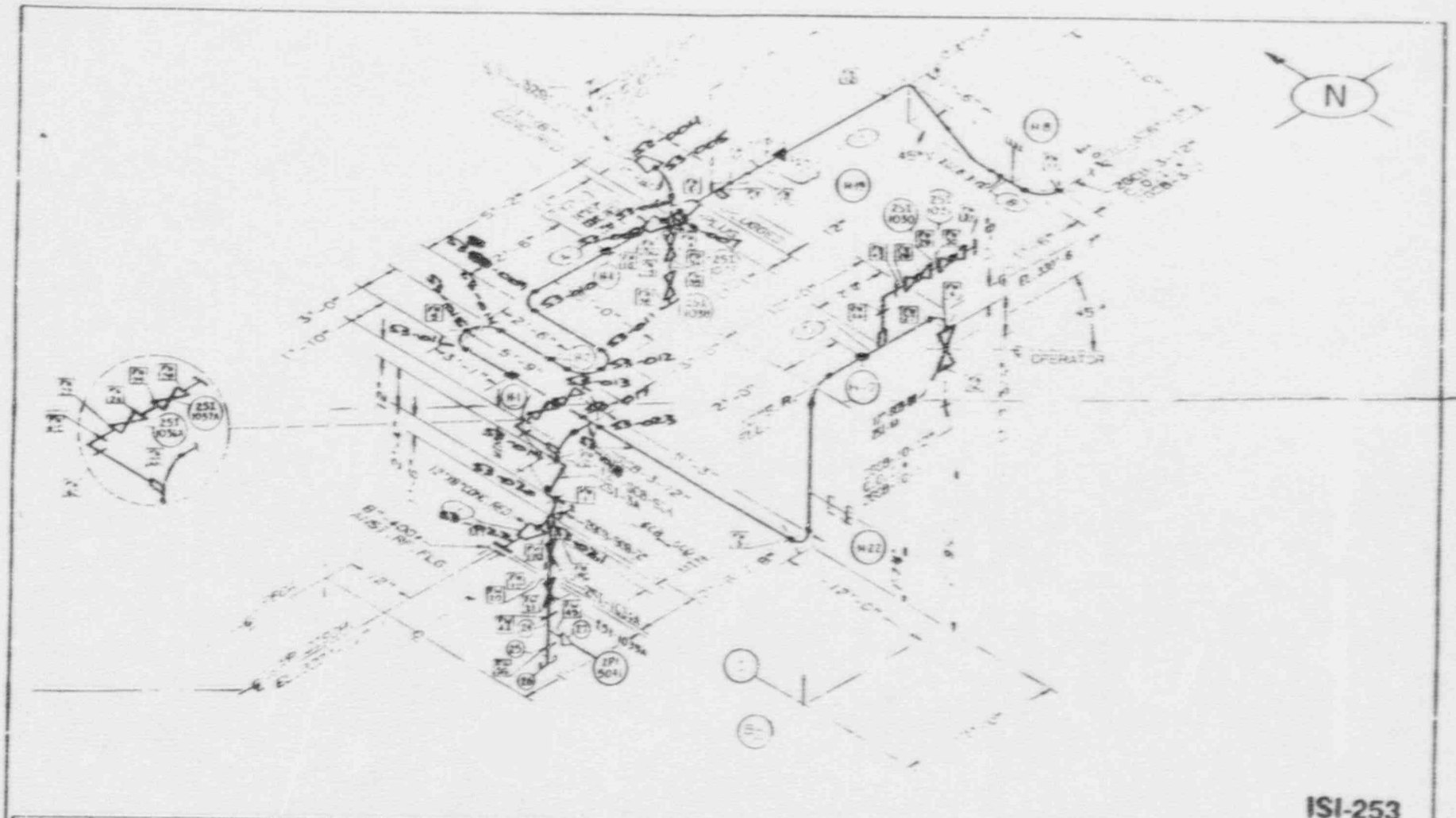


ISI-253

ITEM	QTY	DESCRIPTION	HEAT NO	ASTM	GRD

BILL OF MATERIAL

STARTUP NO | INSULATION CLASS | THICK

REFERENCE

PIPING NO
PIPING DWG
AREA
BLDG REACTOR ACN BLDG
SYS

HANGER TYPE
DWG NO

SYS CLEANING REQMT

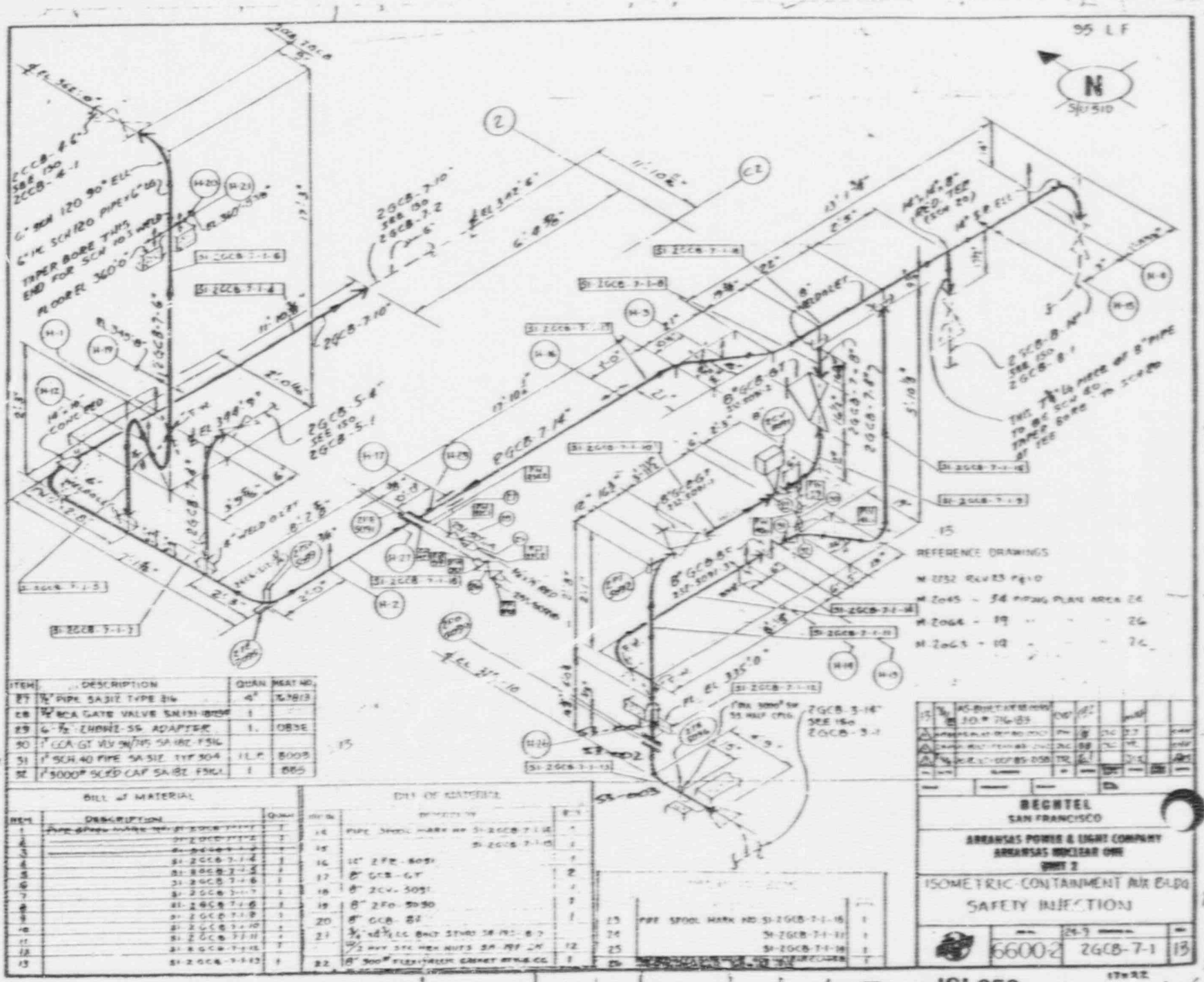
SERVICE CONDITIONS
NORMAL PSIG °F
MAXIMUM PSIG °F

NO	DATE	REVISION	BY	CHK	ENGRG	APP

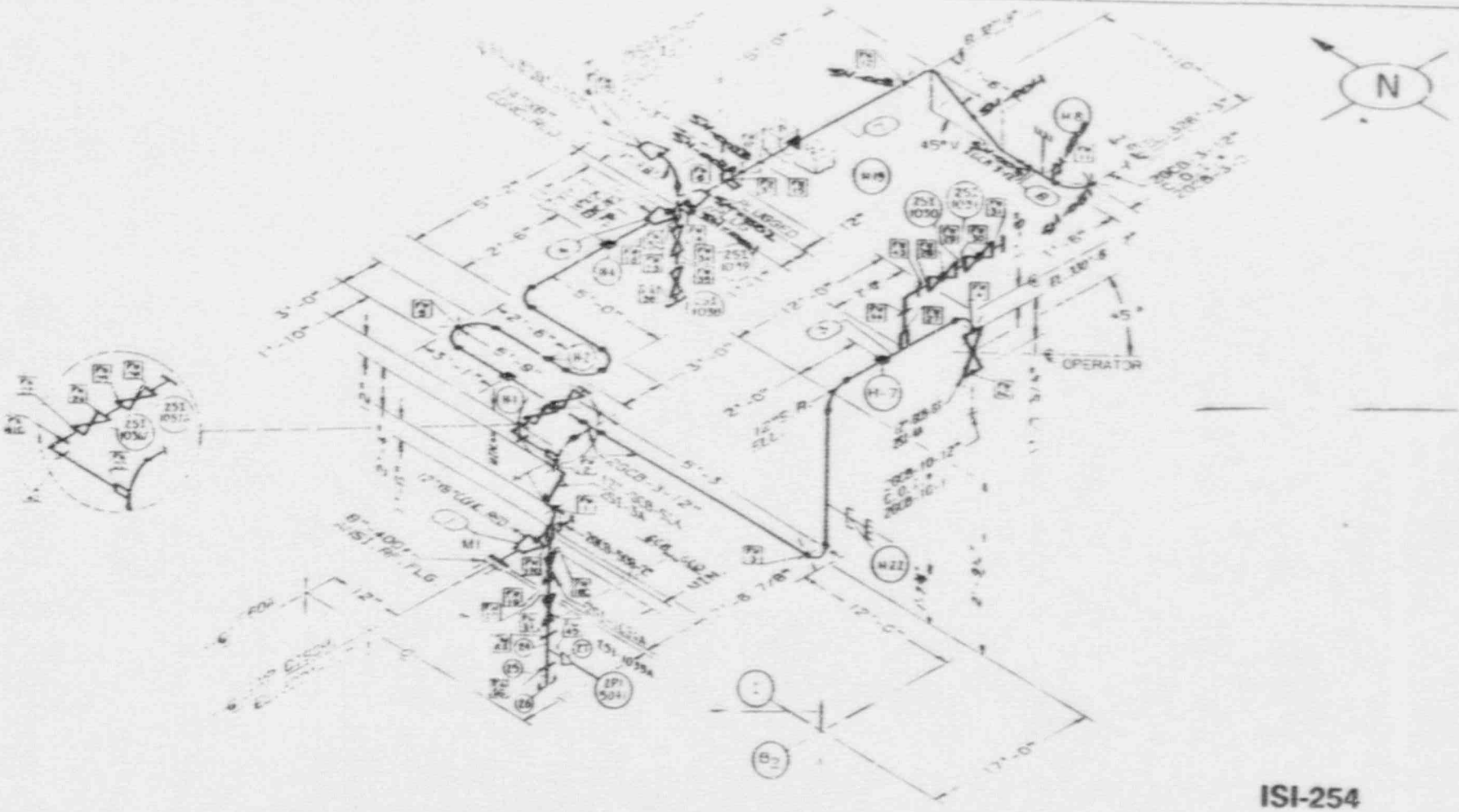
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

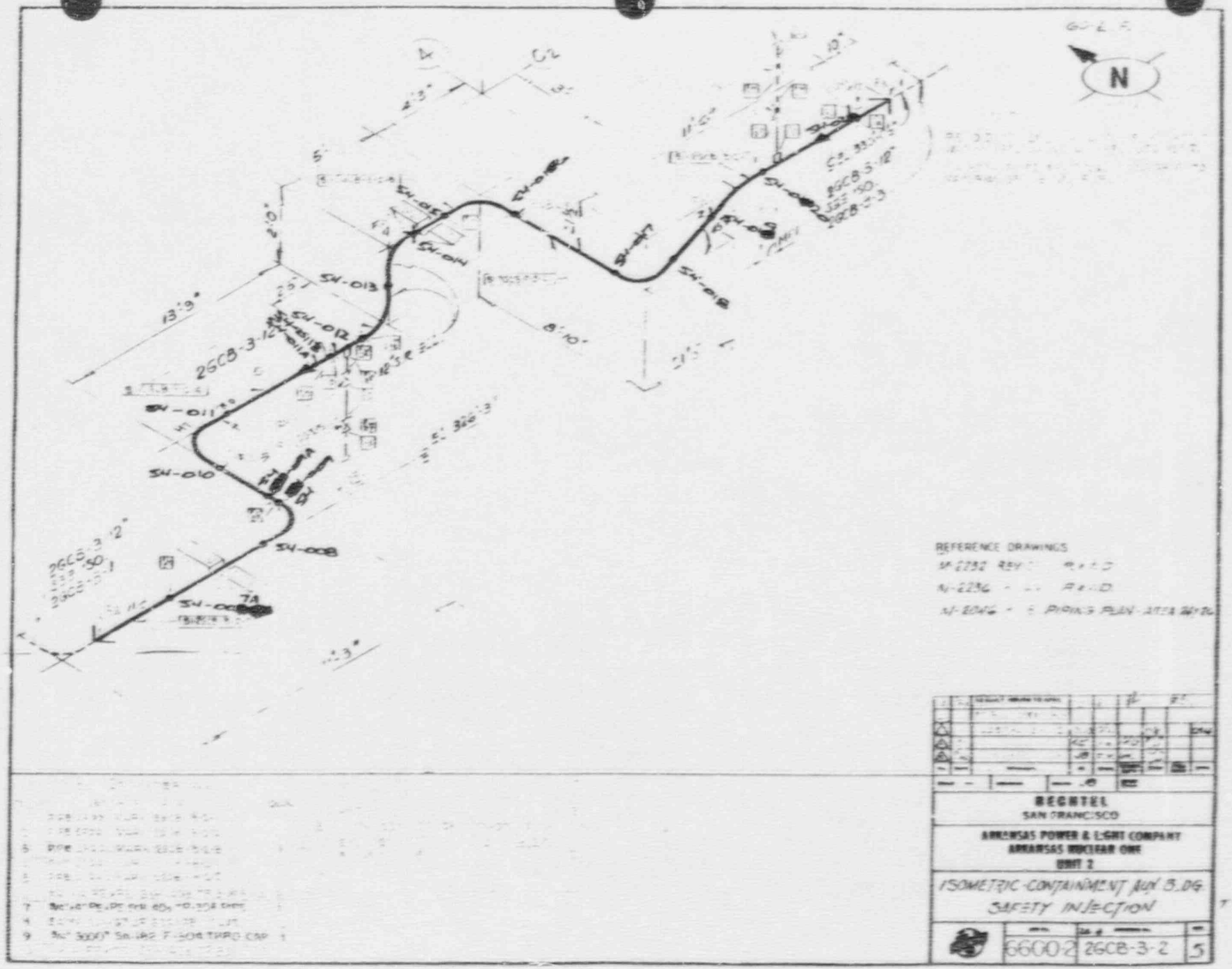
LARGE PIPE ISOMETRIC
SAFETY INJECTION

DRAWING NO 2GCB-3-1 REV -


95 LF
N
REFERENCE DRAWINGS
M-2052 REV 23 FQ-10
M-2065 - 54 PIPING PLAN AREA 24
M-2064 - 19 " " " 26
M-2063 - 12 " " " 26
BECHTEL
SAN FRANCISCO
ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2
ISOMETRIC-CONTAINMENT AUX BLDG
SAFETY INJECTION
6600-2
2GCB-7-1
13
BILL OF MATERIAL
BILL OF MATERIAL

ISI-253


N
OPERATOR
45°
H-8
H-19
H-7
H-22
H-1
H-4
H-5
H-6
M1
B2
8" 400# ASTM RF FLG
12" ELBOW
12" 90° ELBOW
12" 90° ELBOW
2PT 504
TSI 1039A
TSI 1039
TSI 1050
TSI 1051
TSI 1052
TSI 1053
TSI 1054
TSI 1055
2GCB-3-12"
2GCB-10-12"
2GCB-10-12"
12" R.
12" R.
45°
5'-0"
3'-0"
1'-10"
2'-6"
5'-0"
12'-0"
3'-0"
2'-0"
5'-3"
12'-0"
12'-0"
12'-0



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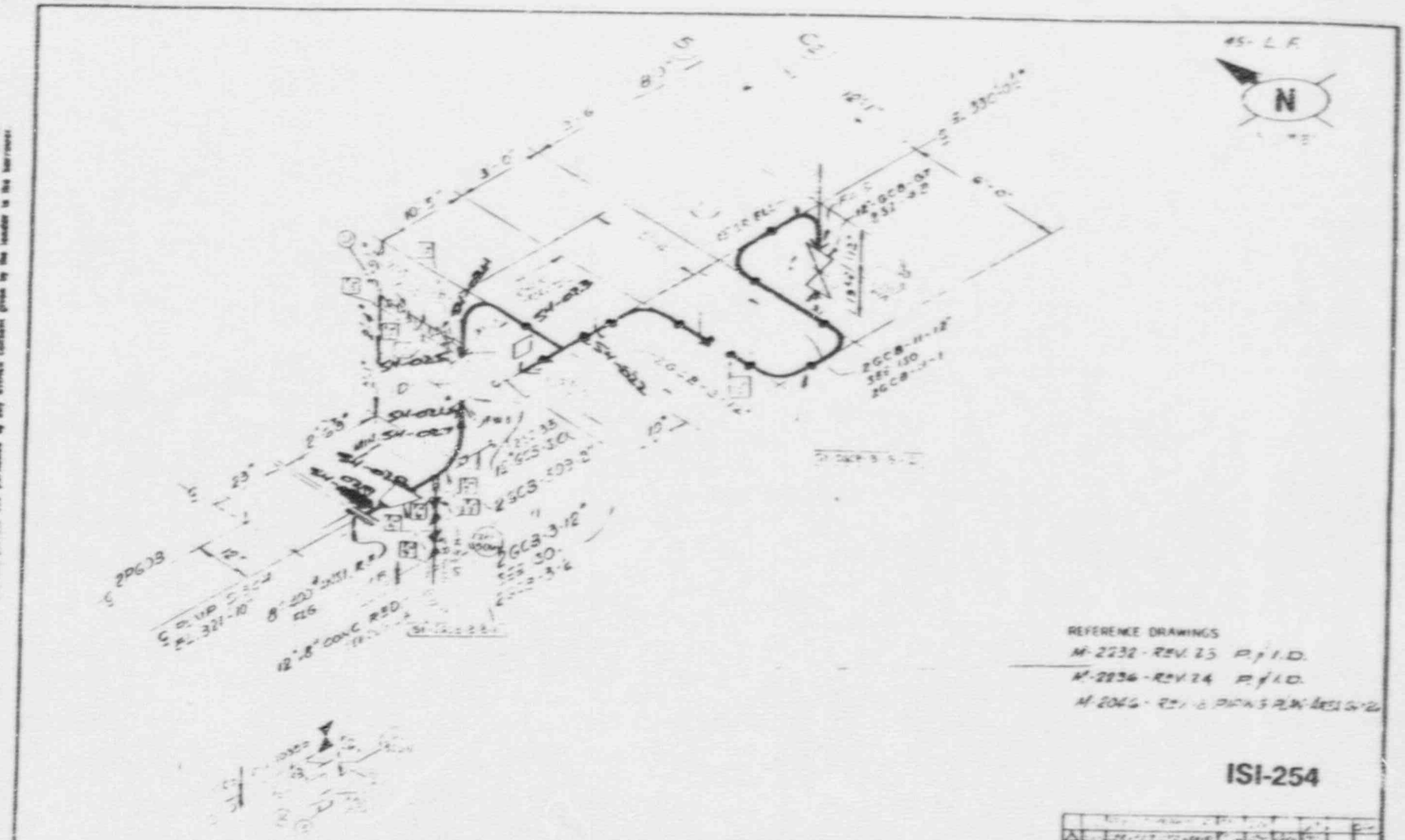
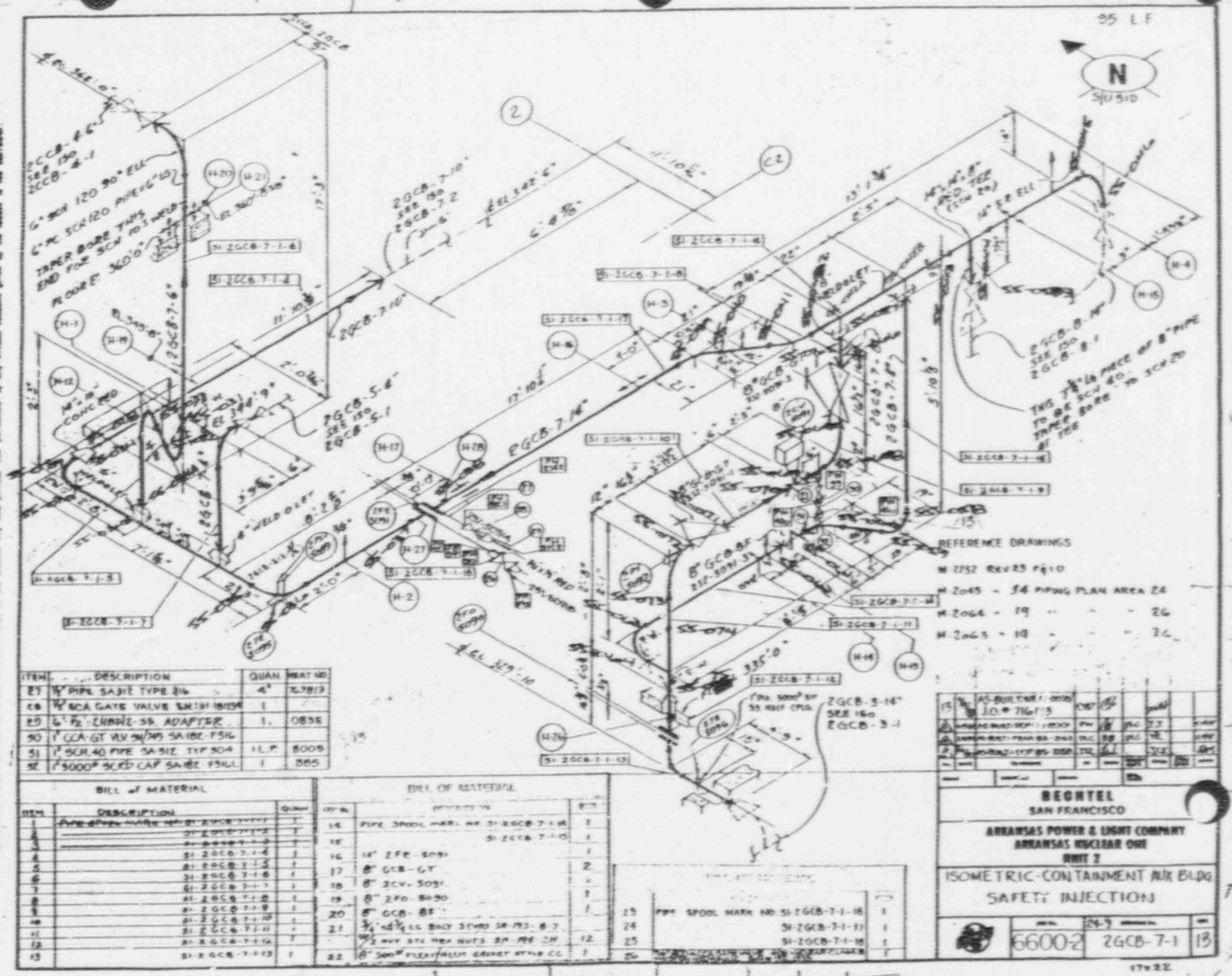


BECHTEL SAN FRANCISCO	
ARKANSAS POWER & LIGHT COMPANY ARKANSAS NUCLEAR ONE UNIT 2	
ISOMETRIC - CONTAINMENT AUX BLDG SAFETY INJECTION	
6600-2	2GCB-3-3



ITEM	DESCRIPTION	QUAN	HEAT NO
27	½" PIPE SA312 TYPE 316	4'	76781B
28	½" BCA GATE VALVE SA181	1	
29	6" ½" CHARIZ-SS ADAPTER	1.	0838
30	1" GCA-GT VLV SA/345 SA182-F316		
31	1" SCH.40 PIPE SA312 TYP 304	1 L.F.	8005
32	1" 5000# SCRD CAP SA182 F316L	1	385

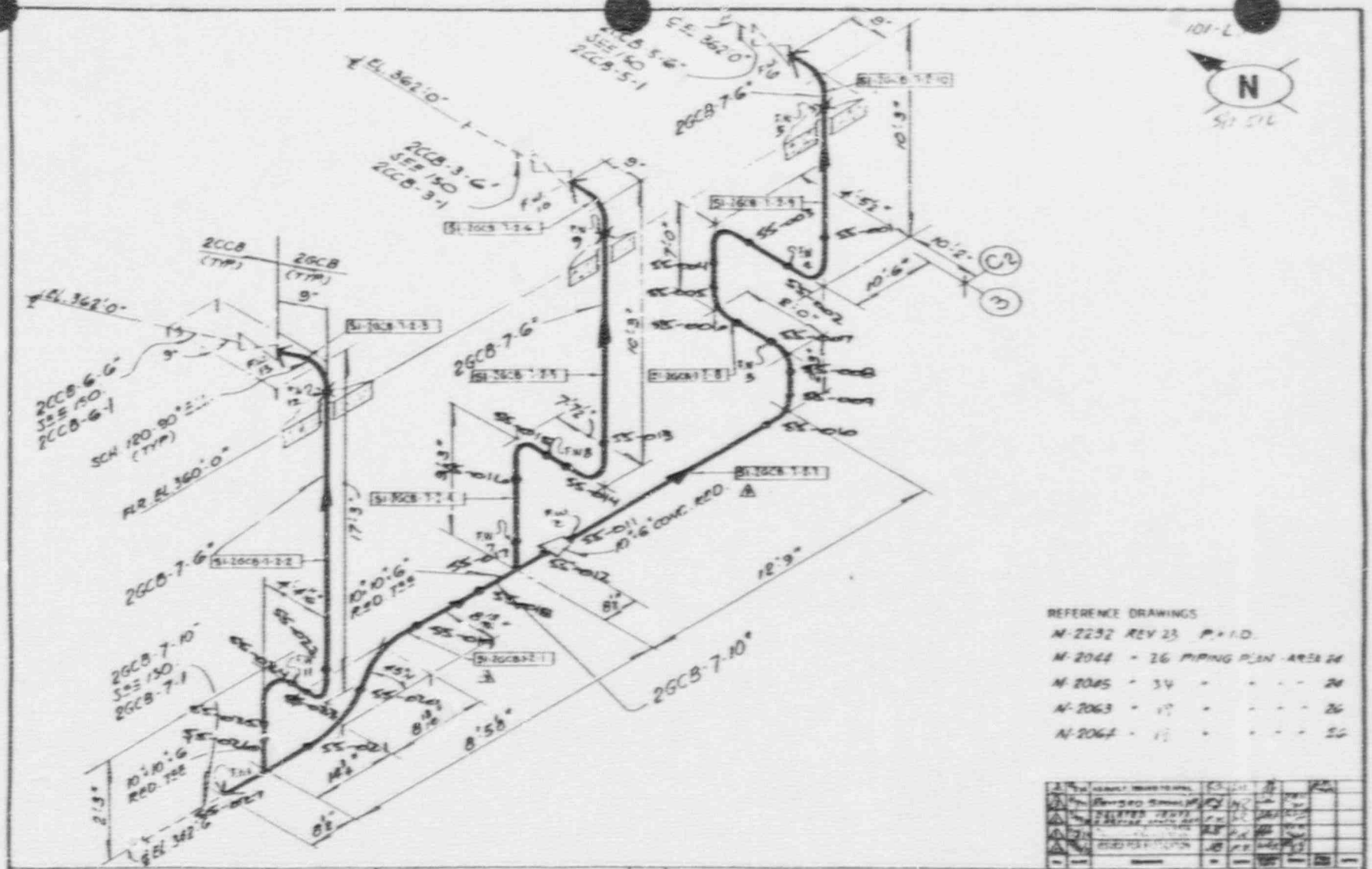
BILL of MATERIAL

ITEM	DESCRIPTION	QUAN
1	PIPE SPOOL MARK NO SI-2GCB-7-1-1	1
2	SI-2GCB-7-1-2	1
3	SI-2GCB-7-1-3	1
4	SI-2GCB-7-1-4	1
5	SI-2GCB-7-1-5	1
6	SI-2GCB-7-1-6	1
7	SI-2GCB-7-1-7	1
8	SI-2GCB-7-1-8	1
9	SI-2GCB-7-1-9	1
10	SI-2GCB-7-1-10	1
11	SI-2GCB-7-1-11	1
12	SI-2GCB-7-1-12	1
13	SI-2GCB-7-1-13	1

BILL OF MATERIAL

ITEM	DESCRIPTION	QTY
14	PIPE SPOOL MARK NO SI-2GCB-7-1-14	1
15	SI-2GCB-7-1-15	1
16	14" 2FE-5091	1
17	8" GCB-GT	2
18	8" 2CV-5091	1
19	8" 2FO-8090	1
20	8" GCB-BF	1
21	¾" x 4¾ LG BOLT STUDS SA193-B7	
	¾ HVY STL HEX NUTS SA194 2H	12
22	8" 300# FLEXITALLIC GASKET STYLE CG	1
23	PIPE SPOOL MARK NO SI-2GCB-7-1-16	1
24	SI-2GCB-7-1-17	1
25	SI-2GCB-7-1-18	1
26		1

ISI-255



REFERENCE DRAWINGS

N-2232 REV 23 P+I.D.
N-2044 - 26 PIPING PLAN - AREA 24
N-2045 - 34 - - - - 24
N-2063 - 19 - - - - 26
N-2064 - 11 - - - - 26

BILL OF MATERIAL		
ITEM	DESCRIPTION	QUAN
1	PIPE SPOOL MARK: 2GCB-7-2-1	1
2	PIPE SPOOL MARK: 2GCB-7-2-2	1
3	PIPE SPOOL MARK: 2GCB-7-2-3	1
4	PIPE SPOOL MARK: 2GCB-7-2-4	1
5	PIPE SPOOL MARK: 2GCB-7-2-5	1
6	PIPE SPOOL MARK: 2GCB-7-2-6	1
7	PIPE SPOOL MARK: 2GCB-7-2-7	1
8	PIPE SPOOL MARK: 2GCB-7-2-8	1
9	PIPE SPOOL MARK: 2GCB-7-2-9	1
10	PIPE SPOOL MARK: 2GCB-7-2-10	1

ISI-255

BECHTEL
SAN FRANCISCO

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC - CONTAINMENT AUX BLDG
SAFETY INJECTION

6600-2 | 2GCB-7-2

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16 X

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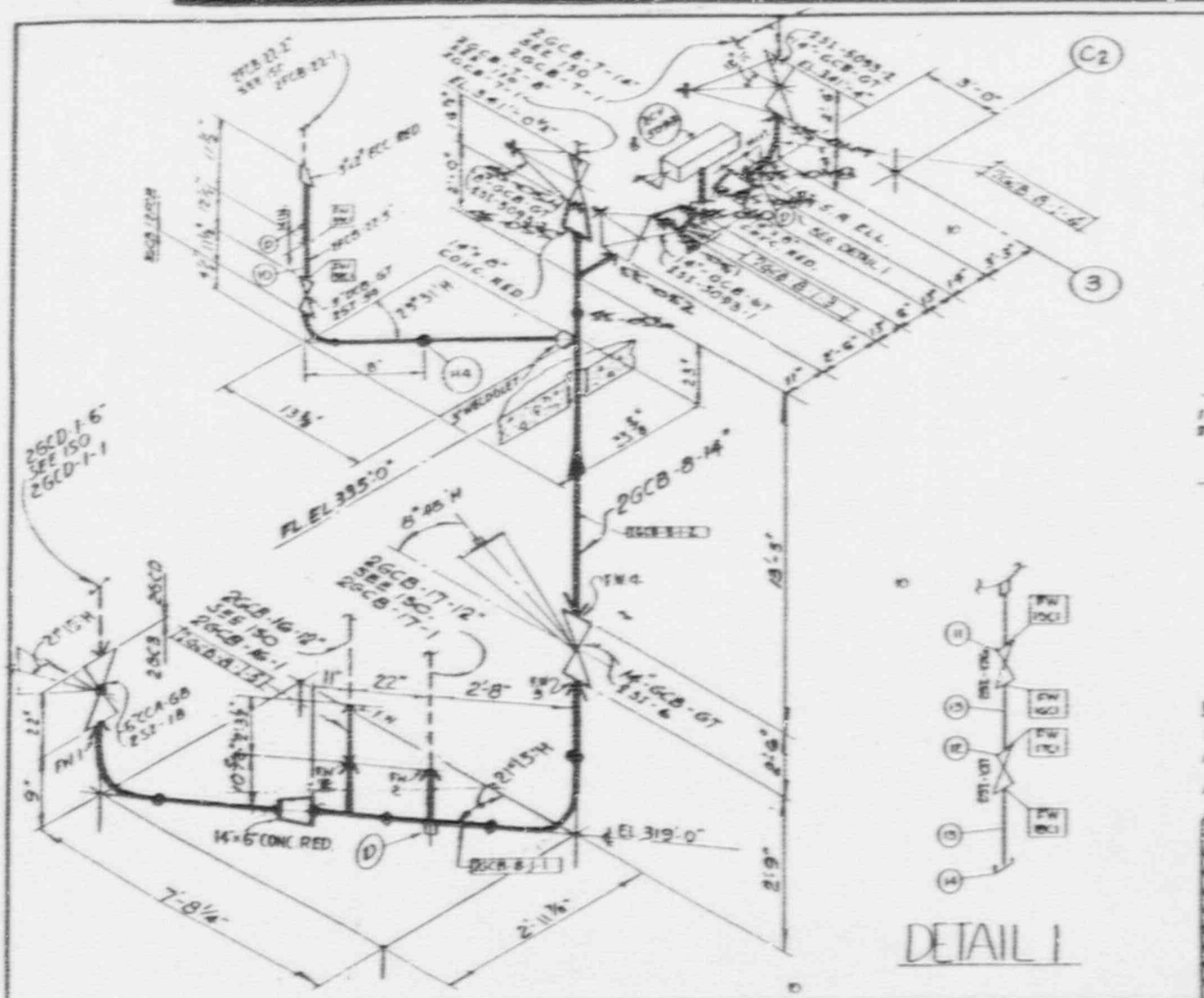
DATE 10-11-77



REV. 1 NOTE:

REV'D PIPING 4 LIN. FT. ADD SPOOL 4 FW NO'S ISSUED FOR CONSTRUCTION.

REV. 2 NOTE:

ADDED CONT. (NO 2GCB-17-1), REVISED PIPING ABOVE EL. 335'-0" & ADDED 8"-GCB-GT, 2-14"-GCB-GT DIM 13'-5" WAS 13'-9"

REV. 3 NOTE:

1. ADDED SPOOL MARKS.
2. ITT GRINNELL TO FABRICATE NEW SPOOL 2GCB-8-1-5

REV. 4 NOTE

PLUGGED 2GCB-8-½". ADDED MANUAL VALVE NO. ½. UP-DATED B/M.

REFERENCE DRAWINGS

M-2232 REV. 23 P&I.D.
M-2236 " 24 " "
M-2045 " 34 PIPING PLAN AUX BLDG
M-2046 " 18 " " " 24

Bill Of Material		
ITEM	DESCRIPTION	QUAN.
1	PIPE SPOOL MARK: 2GCB-8-1-1	1
2	PIPE SPOOL MARK: 2GCB-8-1-2	1
3	14"-GCB-GT	3
4	8"-BCV-3098	1
5	8"-GCB-GT	1
6	PIPE SPOOL MARK: 2GCB-8-1-3	1
7	" " " 2GCB-8-1-4	1
8	" " " 2GCB-8-1-5	1
9	6" GCB-GB	1
10	3/8" SCHED 40 SMLS PIPE A 312 TP 304 HT & AGG 304	
11	1" GCA-GT VALVE SPV 756 SA 182 F316 SMLS	1
12	1" GCA-GT VALVE SPV 862 SA 182 F316 SMLS	1
13	1" SCH 40 SS SMLS PIPE HT & AGG 304 SA 312 TYPE 304L	REF
14	1" 6000# SCREWED CAP SS SA 182 F316 SMLS	1

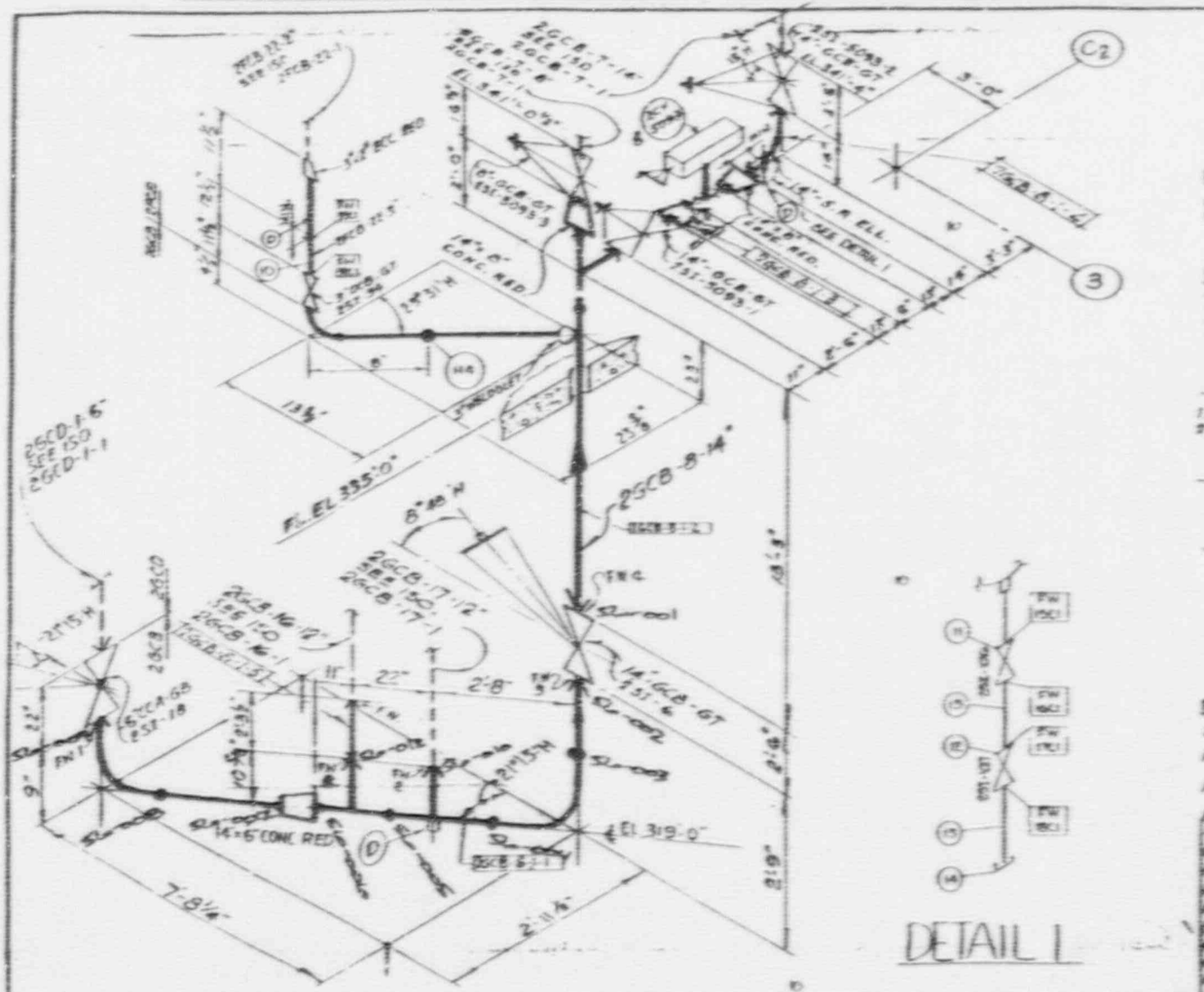
BECHTEL
SAN FRANCISCO

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC - CONTAINMENT AUX. BLDG.
SAFETY INJECTION

6600-2 2GCB-8-1

ISI-255



Bill Of Material		
ITEM NO.	DESCRIPTION	QUAN.
1	PIPE SPOOL MARK: 2GCB-8-1-1	1
2	PIPE SPOOL MARK: 2GCB-8-1-2	1
3	14"-GCB-GT	3
4	8"-BCV-5093	1
5	8"-GCB-GT	1
6	PIPE SPOOL MARK: 2GCB-8-1-3	1
7	" " " 2GCB-8-1-4	1
8	" " " 2GCB-8-1-5	1
9	6"-GCB-GB	1
10	[illegible]	
11	1"CCA-GT VALVE SN 756 SA 182 F-316	1
12	1"CCA-GT VALVE SN 862 SA 182 F-316	1
13	[illegible] 40 SS SMLS PIPE 47" MAGNET	REF
	SA 312 TYPE 316L	
14	1" 6000# SCREWED CAP SS SA 182 F-316	1

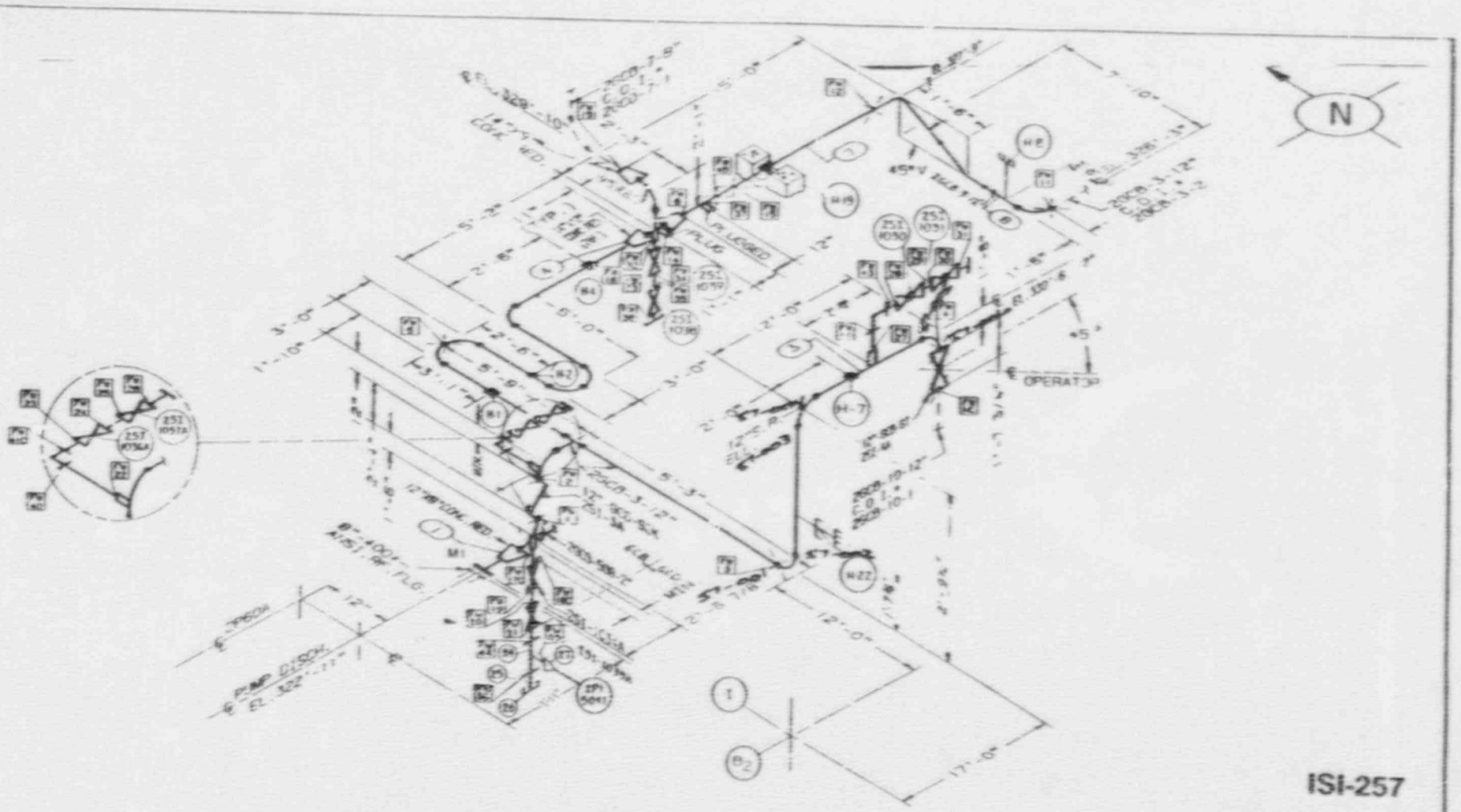
ISI-256

BECHTEL
SAN FRANCISCO

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC - CONTAINMENT AUX. BLDG.
SAFETY INJECTION

6600-2 | 2GCB-8-1



ITEM	QTY	DESCRIPTION	HEAT NO	ASTM	GRD

BILL OF MATERIAL

STARTOP NO | INSULATION CLASS | THICK

REFERENCE

P&ID NO M-2232 & M-2258
PIPING DWG M-2045 & M-2046
AREA NO 24 & 26 ELEV
BLDG REACTOR AUX FLOOR
SYS SAFETY INJECTION

HANGER TYPE
DWG NO

SYS CLEANING REQMT

SERVICE CONDITIONS
NORMAL ____ PSIG ____ °F
MAXIMUM ____ PSIG ____ °F

NO	DATE	REVISION	BY	CHK	APPROVED
1		[illegible]			
0		[illegible]			

SCALE NONE | DESIGN MICHTEL | DRAWN SHELL

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETRIC
SAFETY INJECTION

DRAWING NO 2GCB-3-1 | REV 15

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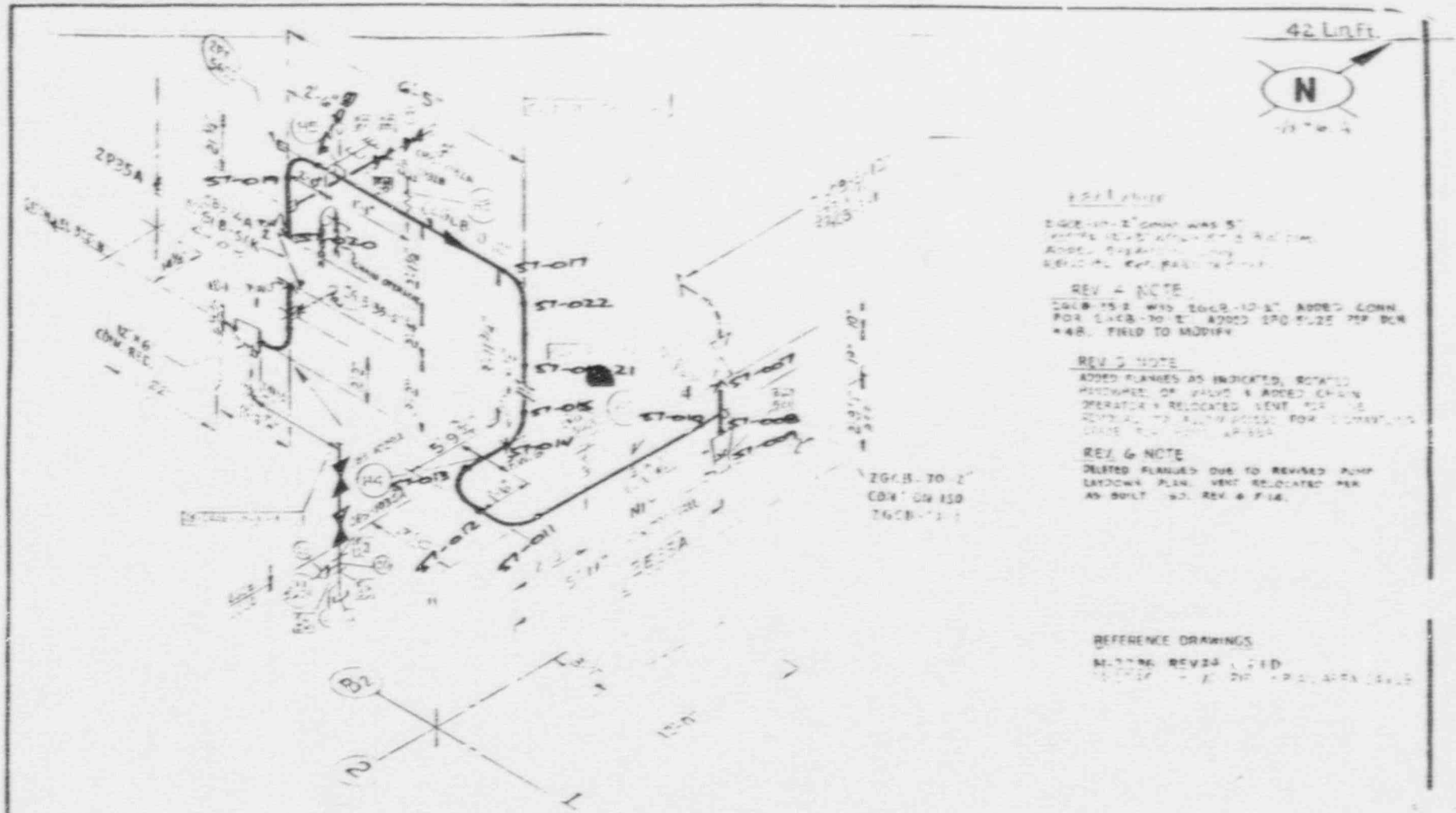

REV 4 NOTE

2GCB-10-2" CONN WAS 3"
ADDED FLANGE
REVISED REF DWG

REV 3 NOTE

2GCB-15-2 WAS 2GCB-12-2" ADDED CONN
FOR 1GCB-10-2" ADDED 2PO-9125 PER BCN
#48. FIELD TO MODIFY

REV 2 NOTE

ADDED FLANGES AS INDICATED, ROTATED
POSITIONER OF VALVE & ADDED CHAIN
OPERATOR & RELOCATED VENT PER
REVISED TO ALLOW ACCESS FOR
CLOSE ... APPROX

REV 6 NOTE

DELETED FLANGES DUE TO REVISED PUMP
LAYDOWN PLAN. VENT RELOCATED PER
AS BUILT NO. REV 4 & 5.

REFERENCE DRAWINGS

MISSING REV24 ...
...

BILL OF MATERIAL

ITEM	DESCRIPTION	REQD
1	PIPE SPOOL MARK CS-2GCB-10-1-1	1
	[illegible]	
3	PIPE SPOOL MARK CS-2GCB-10-1-8	1
	[illegible]	
5	[illegible] BOLT STUD SE [illegible]	12
	[illegible]	
7	1" GCB-3 CK	1
8	2PO-9625	
9	[illegible]	1
20	1" 3000# SS SW TEE A-182	1
21	[illegible]	1
22	1" BLIND SS THREADED HYD CAP	1
23	1" PIPE x 3/8" TUBING ADAPTER SS	1

Reference
Zone T5

ISI-257

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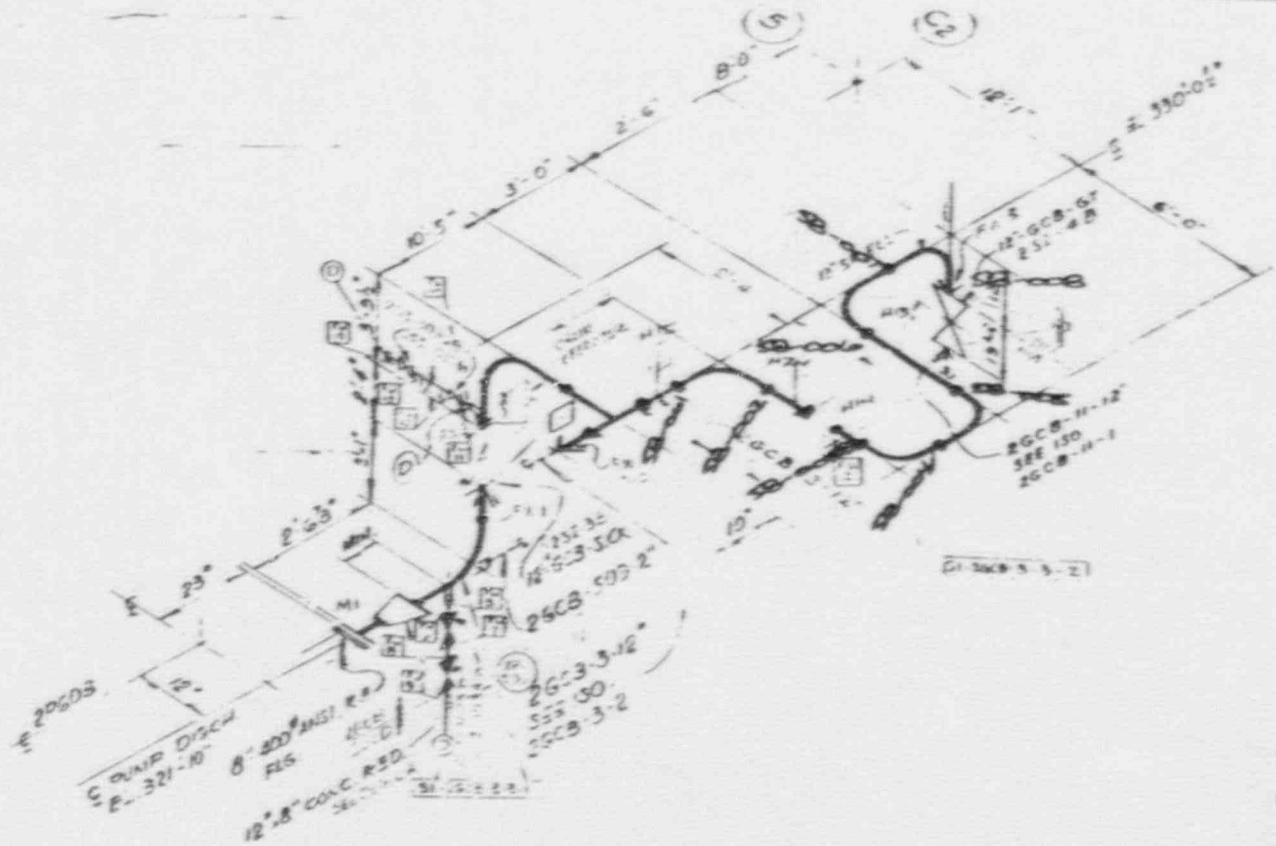
N
REFERENCE DRAWINGS
M-2232 - REV. 23 P&I.D.
M-2236 - REV. 14 P&I.D.
M-2046 - REV. 8 PIPING PLAN-ELEV. 317'-2"
2GCB-3-3-2
2GCB-3-3-12"
2GCB-3-3-50
2GCB-3-3-2"
2GCB-H-12"
2GCB-H-1
12"-GCB-5"
2GCB-3-3-50A
2GCB-3-3-2"
2GCB
2GCB
2GCB

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REV. 9 NOTE
DELETED FLANGES DUE TO REVISED PUMP LAYDOWN PLAN REV PER AS-BUILT ISO. REV 1 F-15

47 Lin.ft.

N

5/8" G1A

ADDED FLANGES FOR REMOVAL OF SPOOL TO CLEAR ACCESS FOR DISMANTLING OF 2P01E. ADDED CHAIN OPERATOR AS SHOWN

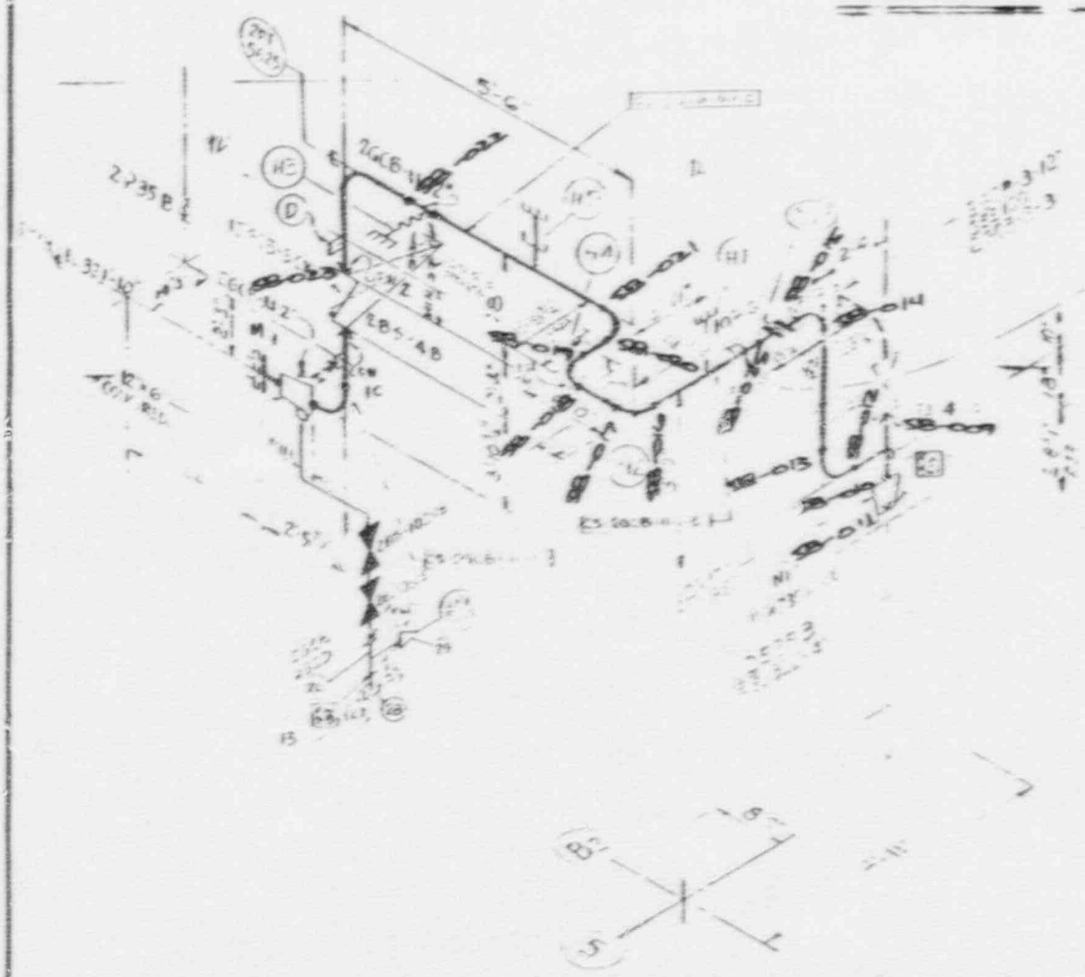
REV 1 NOTE

REV 4 NOTE

REV 5 NOTE
DELETED CONN TO INC. 26CB-11-1" RSUB & ADDED QUAN OF ITEM # 7

REV 6 NOTE

REFERENCE DRAWINGS



Bill Of Material

Item	Description	Qual.
1	PIPE SPOOL MARK CS 26CB-11-1	1
2	PIPE SPOOL MARK CS 26CB-11-2	1
3	PIPE SPOOL MARK CS 26CB-11-3	1
4	FLGD TALLIC GASKET 316 SS SP	1
5	5/8-8 UNC BOLT STUD SA 193 GR B7 HEAVY HEX NUT SA 194 GR 2H	12
7	12" GCB. S CH	1
7	3FO-5-0.56	1
25	3/4 x 0" C.S. THREADED PIPE CAP A 105	1
29	PIPE-C.S. TUBE-C. REDUCER	1

Reference
Zone 76

ISI-258

3		REV. 9 NOTE			
2		REV. 9 NOTE			
1		REV. 9 NOTE			
0		REV. 6 NOTE			
		REV. 5 NOTE			

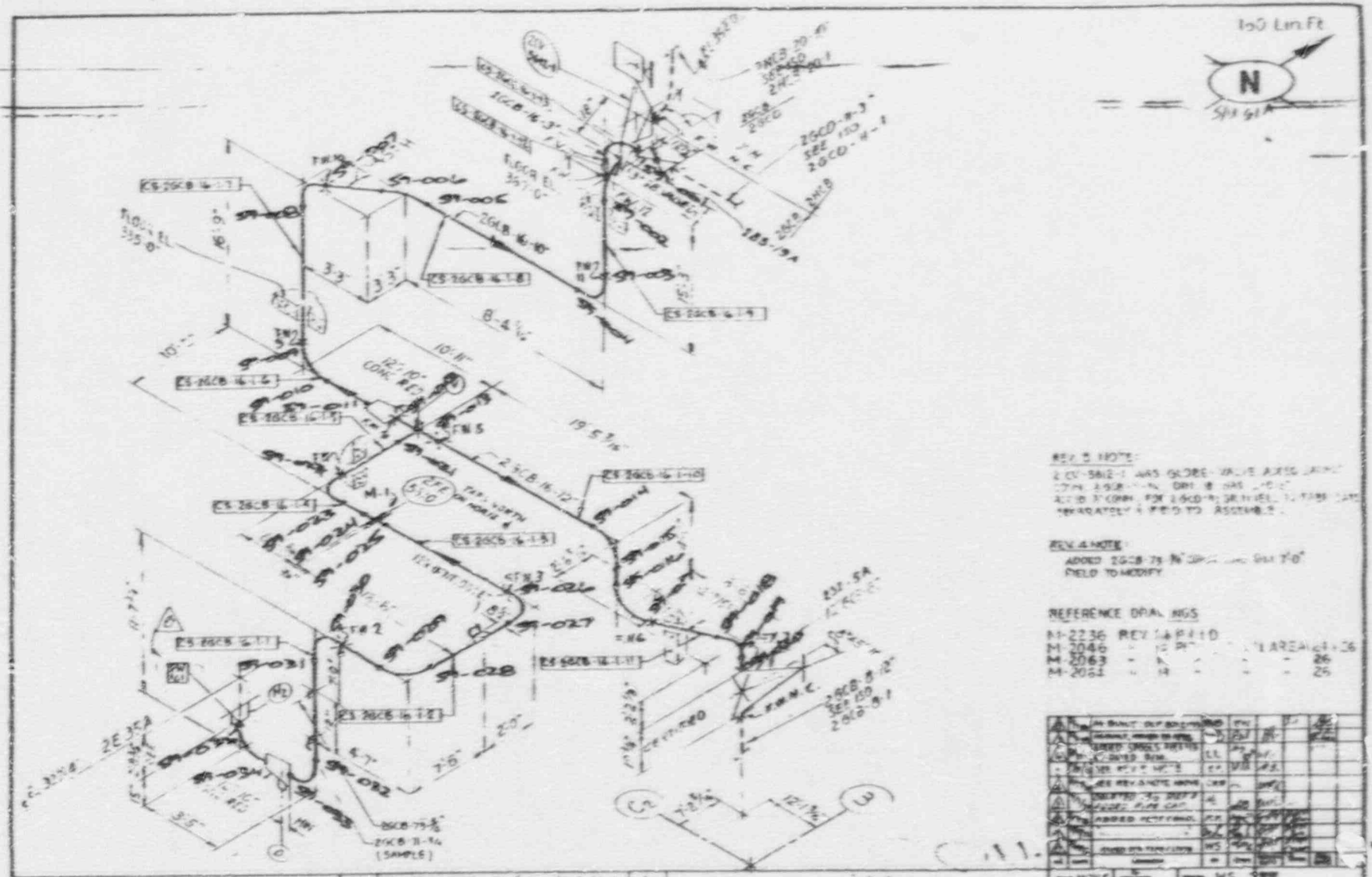
BECHTEL
SAN FRANCISCO

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC - CONTAINMENT AUX BUILDING
CONTAINMENT SPRAY

6600-2 26CB-11-1

17x22



BILL OF MATERIAL

ITEM NO.	DESCRIPTION	QUANT.
1	PIPE SPOOL MARK: CS-2GCB-16-1-1	1
2	PIPE SPOOL MARK: CS-2GCB-16-1-2	1
3	PIPE SPOOL MARK: CS-2GCB-16-1-3	1
4	PIPE SPOOL MARK: CS-2GCB-16-1-4	1
5	PIPE SPOOL MARK: CS-2GCB-16-1-5	1
6	PIPE SPOOL MARK: CS-2GCB-16-1-6	1
7	PIPE SPOOL MARK: CS-2GCB-16-1-7	1
8	PIPE SPOOL MARK: CS-2GCB-16-1-8	1
9	PIPE SPOOL MARK: CS-2GCB-16-1-9	1
10	PIPE SPOOL MARK: CS-2GCB-16-1-10	1
11	PIPE SPOOL MARK: CS-2GCB-16-1-11	1
12	2FB-3610	1
13	2CV-5612-1	1
14	12" GCB-69	1
15	3" GCB-68	1
16	PIPE SPOOL MARK: CS-2GCB-16-1-12	1
17	PIPE SPOOL MARK: CS-2GCB-16-1-13	1

ISI-259

BECHTEL
SAN FRANCISCO

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC - CONTAINMENT AUX. BUILDING
CONTAINMENT SPRAY

6600-2 | 2GCB-16-1 | 8

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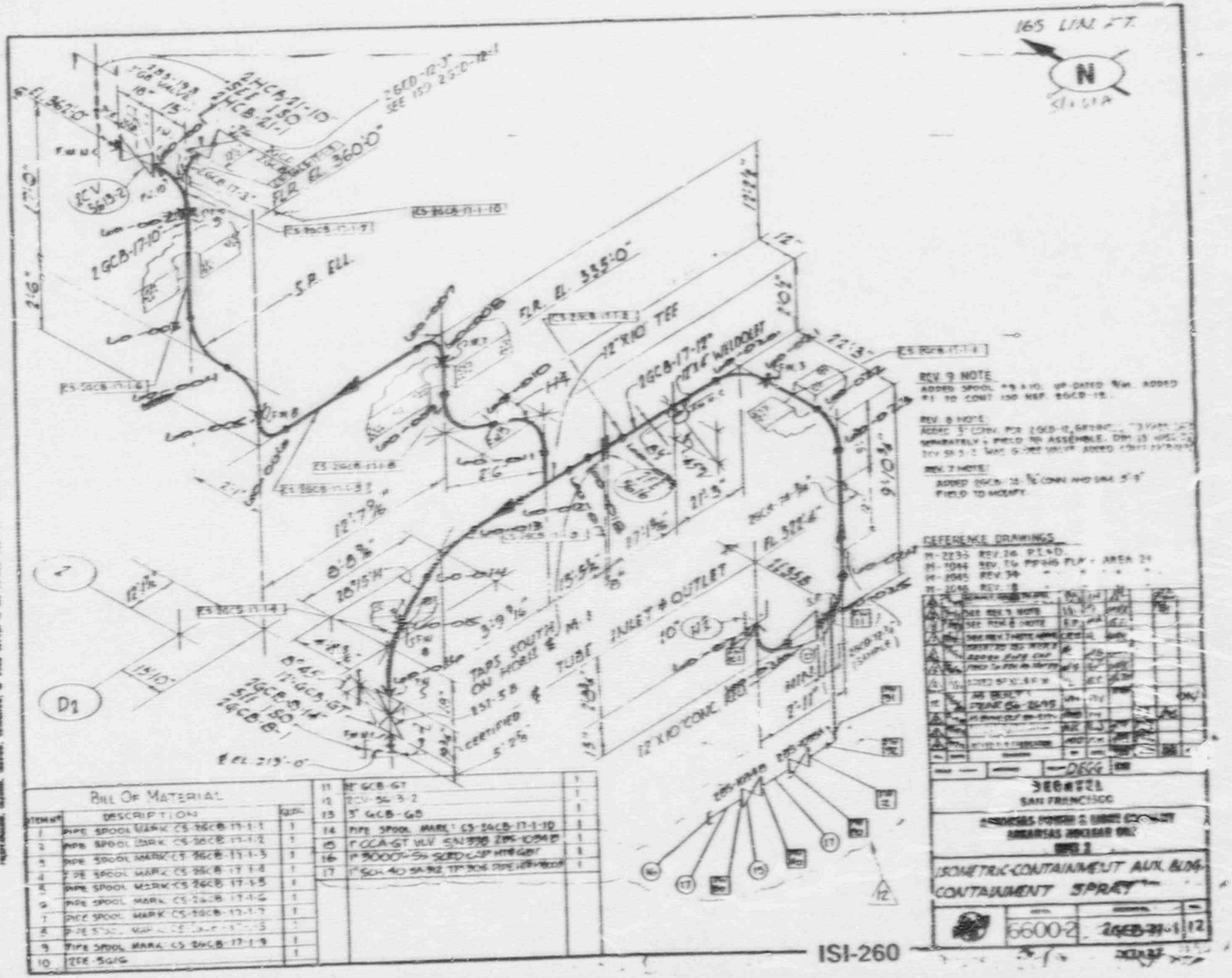
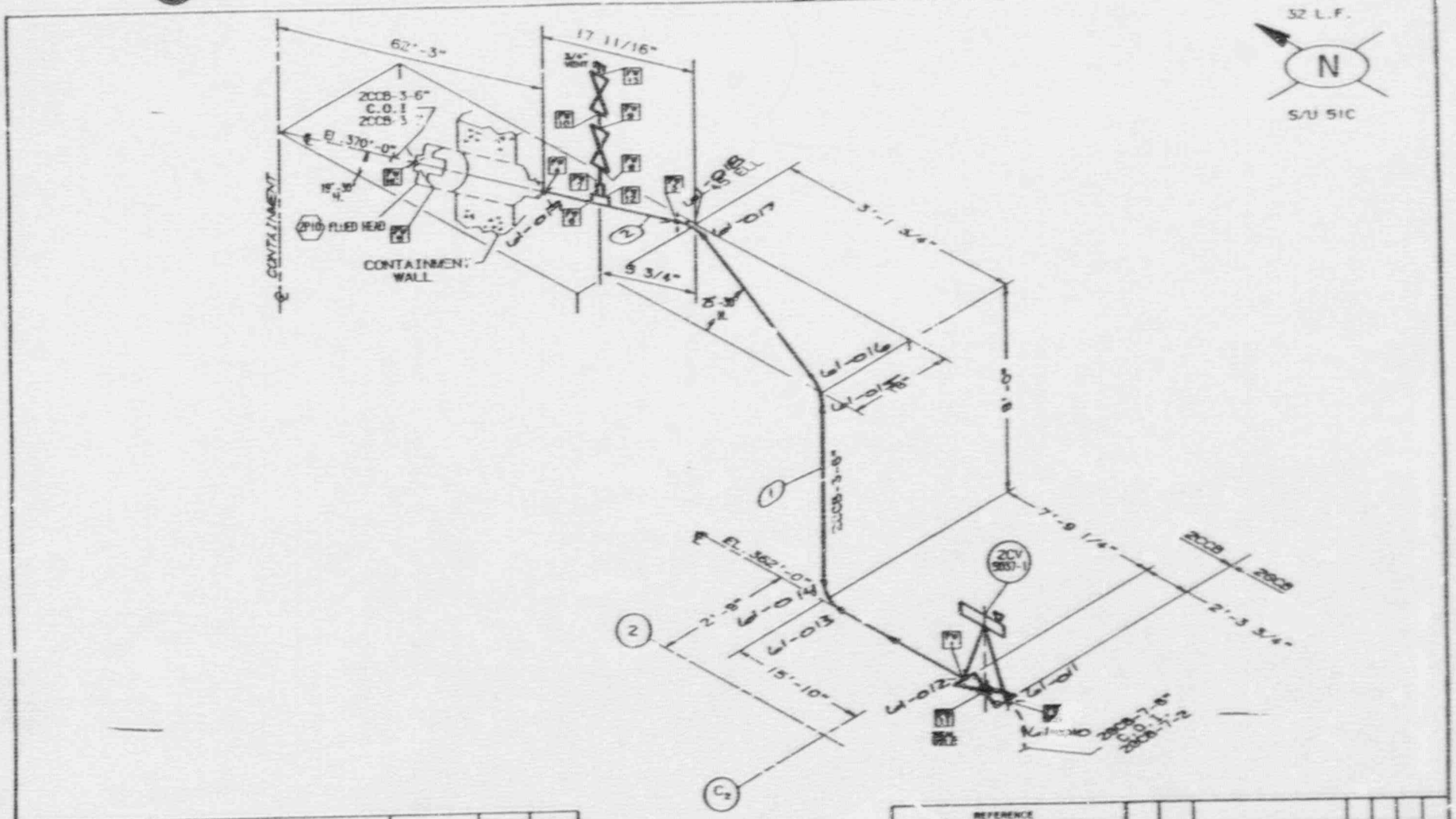

165 LIN. FT.
N
SIGMA
FLR. EL. 360'-0"
S.P. FILL
FLR. EL. 335'-0"
12"X10" TEE
2GCB-17-12"
12"X10" WELDOLET
TAPS SOUTH ON HORIZ. M.
INLET & OUTLET TUBE
12"X10" CONC. RED.
EL. 219'-0"
REV 9 NOTE
REV. 8 NOTE
REV 7 NOTE
REFERENCE DRAWINGS
BILL OF MATERIAL
ITEM Nº DESCRIPTION QUAN.
1 PIPE SPOOL MARK CS-2GCB-17-1-1 1
2 PIPE SPOOL MARK CS-2GCB-17-1-2 1
3 PIPE SPOOL MARK CS-2GCB-17-1-3 1
4 PIPE SPOOL MARK CS-2GCB-17-1-4 1
5 PIPE SPOOL MARK CS-2GCB-17-1-5 1
6 PIPE SPOOL MARK CS-2GCB-17-1-6 1
7 PIPE SPOOL MARK CS-2GCB-17-1-7 1
8 PIPE SPOOL MARK CS-2GCB-17-1-8 1
9 PIPE SPOOL MARK CS-2GCB-17-1-9 1
10 2SE-5G/G 1
11 8" GCB-GT 1
12 2CV-5613-2 1
13 3" GCB-GB 1
14 PIPE SPOOL MARK: CS-2GCB-17-1-10 1
15 1" GCA-GT VLV SN 338 ZPK-10968 1
16 1" 3000# SW SCRD CAP HTB GBY 1
17 1" SCH 40 SA-312 TP 304 PIPE 1
SEARGENT & LUNDY
SAN FRANCISCO
ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2
ISOMETRIC-CONTAINMENT AUX. BLDG.
CONTAINMENT SPRAY
66002
2GCB-17-1
12

ISI-260



ITEM	QTY.	DESCRIPTION	HEAT NO.	ASTM	GRD
9	1	1"X 3/4" 6000+ A-182 RED. INSERT			F316
8	1	1 1/2"X 1" 6000+ A-182 RED. INSERT.			F316
7	1	3/4" 6000+ SA-182 THRD. CAP			F316
6	2	3/4" MK OCA-38 VALVE			TP316
5	1	3/4"X 4" PIPE SCH. 160 PIPE SA-312			TP316
4	2	3/4"X 4" PIPE SCH. 160 PIPE SA-312			
3	1	6" 2CV-9037-1 S/N 1 SS			
2	1	SPOOL PIECE MK-S1-2CCB-3-1-2			
1	1	SPOOL PIECE MK-S1-2CCB-3-1-1			

BILL OF MATERIAL

STARTUP NO. | INSULATION CLASS. | THICK

REFERENCE

P.&I.D. NO. M-2232
PIPING DWG. M-2044
AREA NO. Z4 ELEV.
BLDG. REACTOR AUX.
SYS. SAFETY INJECTION SYSTEM

HANGER TYPE
DWG. NO.

SYS. CLEANING REQMT.

SERVICE CONDITIONS
NORMAL ____ PSIG ____ °F
MAXIMUM ____ PSIG ____ °F

INT.	DATE	REVISION	BY	CHK	SUPERVISOR
6	10/86	REDRAWN FOR IMPROVED QUALITY	CAD	VR	

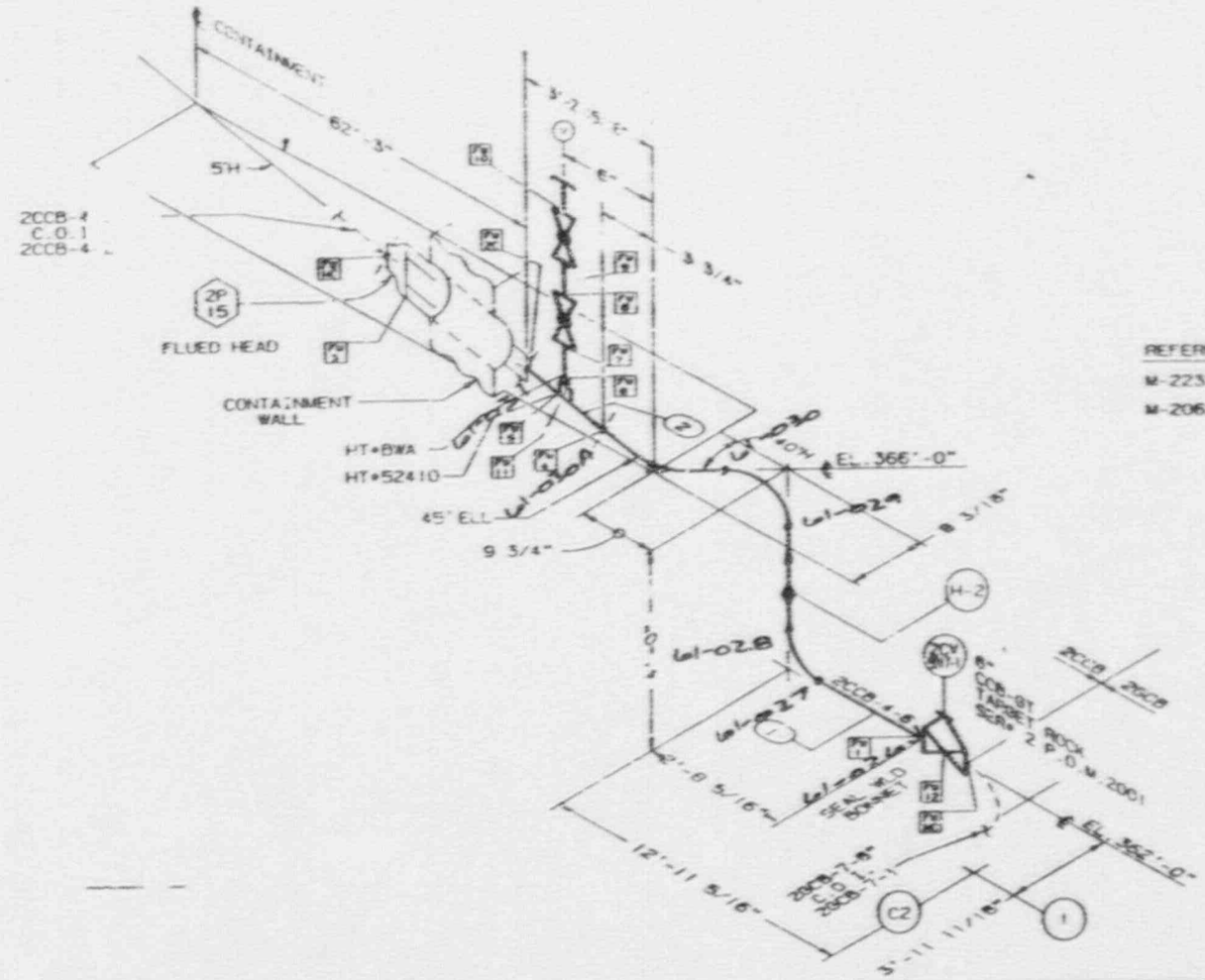
SCALE NONE | DESIGN JECHER | DRAWN SMELL

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETRIC
SAFETY INJECTION SYSTEM

DRAWING NO. 2CCB-3-1 | REV. 6

ISI-261



REFERENCE DRAWINGS

M-2232 REV. 9 P & I.D.

M-2063 REV. 9 PIPING PLAN AREA 26

ITEM	QTY.	DESCRIPTION	HEAT NO.	ASTM	GRD.
9	1	1"x3/4"-6000# RED. INSERT A-182			316
8	1	1 1/2"X1"-6000# RED. INSERT A-182			316
7	1	3/4"-6000# SA-182 THD. CAP			316
6	2	3/4" NPT. CCA-GB VALVES			316
5	1	3/4"X4" PEXTE S/160 SA-312 PIPE			316
4	2	3/4"X4" PEXPE S/160 SA-312 PIPE			316
3	1	6" 2CV-8317-1			
2	1	SPOOL PIECE MK. S.-2CCB-4-1-2			
	1	SPOOL PIECE MK. S.-2CCB-4-1-1			

BILL OF MATERIAL

STARTUP NO. | INSULATION CLASS | THICK

REFERENCE

P.&I.D. NO. M-2232
PIPING DWG. M-2063
AREA NO. 26 ELEV.
BLDG. CLEAN WASTE TANKS
SYS. SAFETY INJECTION SYSTEM

HANGER TYPE
DWG. NO.

SYS. CLEANING PRIOR

SERVICE CONDITIONS
NORMAL ____ PSIG ____ °F
MAXIMUM ____ PSIG ____ °F

NO.	DATE	REVISION	BY	CHK	ENG	APP
6	10/84	REDRAWN FOR IMPROVED QUALITY CAD	VH			

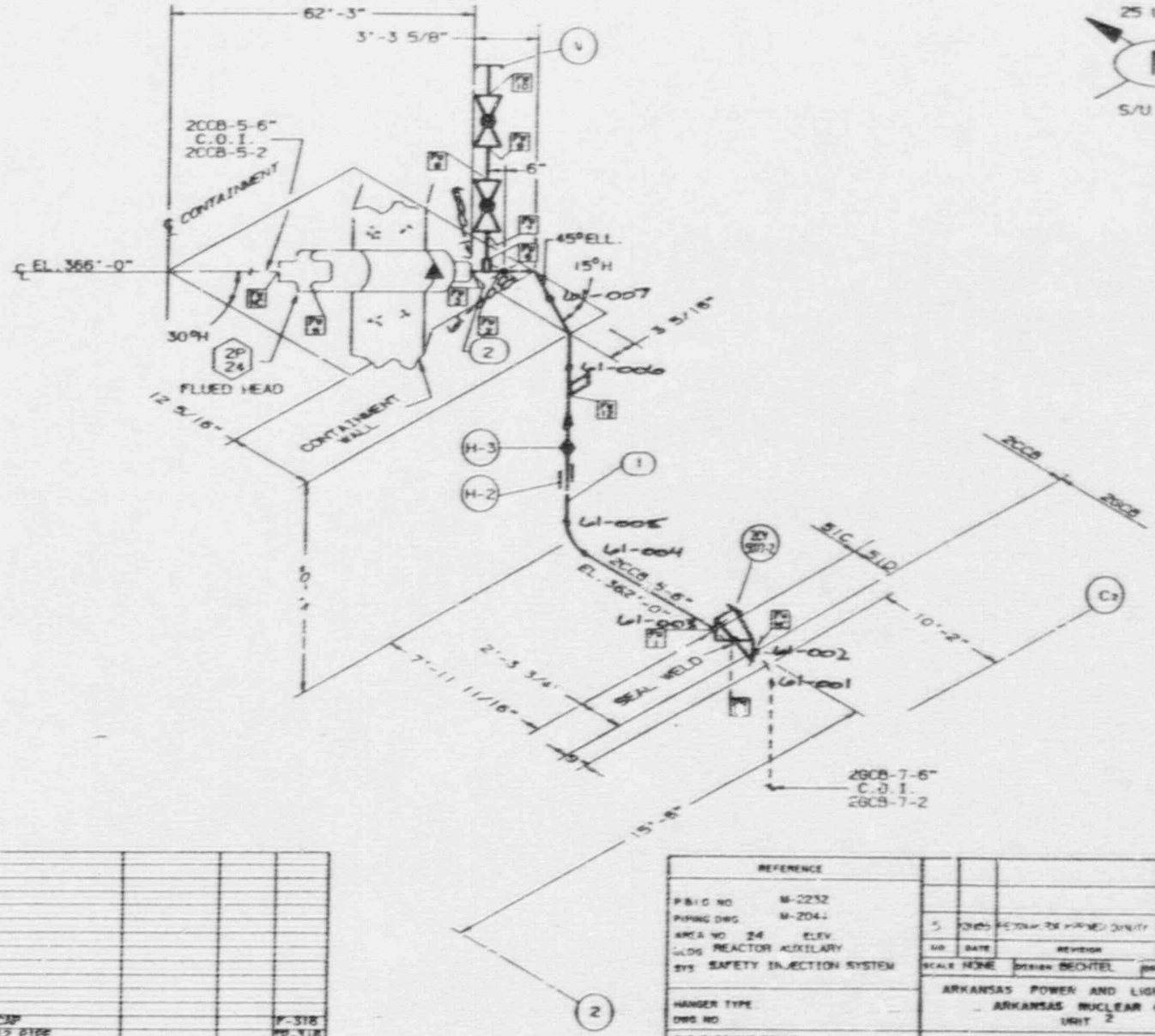
SCALE NONE | DESIGN BECHTEL | DRAWN LAPELL

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETRIC
SAFETY INJECTION SYSTEM

DRAWING NO. 2CCB-4-1 | REV. 6

ISI-261



ITEM	QTY	DESCRIPTION	HEAT NO	ASTM	GRD
7	2	3/4" BK.CCA-DB			
6B	1	3/4" 800# SCH.160, THRD.CAP			TP-316
5	1	3/4"x4"P.E.SCH.160 SA-312 PIPE			TP-316
4	2	3/4"x4"P.E.SCH.160 SA-312 PIPE			TP-316
3	1	8"2CV-5077 S/N.4, TARGET ROCK			
2	1	SPOOL PIECE MK.SI-2CCB-5-1-2			
1	1	SPOOL PIECE MK.SI-2CCB-5-1-1			

BILL OF MATERIAL

STARTUP NO | INSULATION CLASS | THICK

REFERENCE

P&I D NO M-2232
PIPING DWG. M-2041
AREA NO 24 ELEV
BLDG REACTOR AUXILARY
SYS SAFETY INJECTION SYSTEM

HANGER TYPE
DWG NO

SYS CLEANING REQMT

SERVICE CONDITIONS
NORMAL PSIG °F
MAXIMUM PSIG °F

NO	DATE	REVISION	BY	CHK	ENGR	SUPV
5	10/85	RESTORE REVISED QUALITY	CAC			

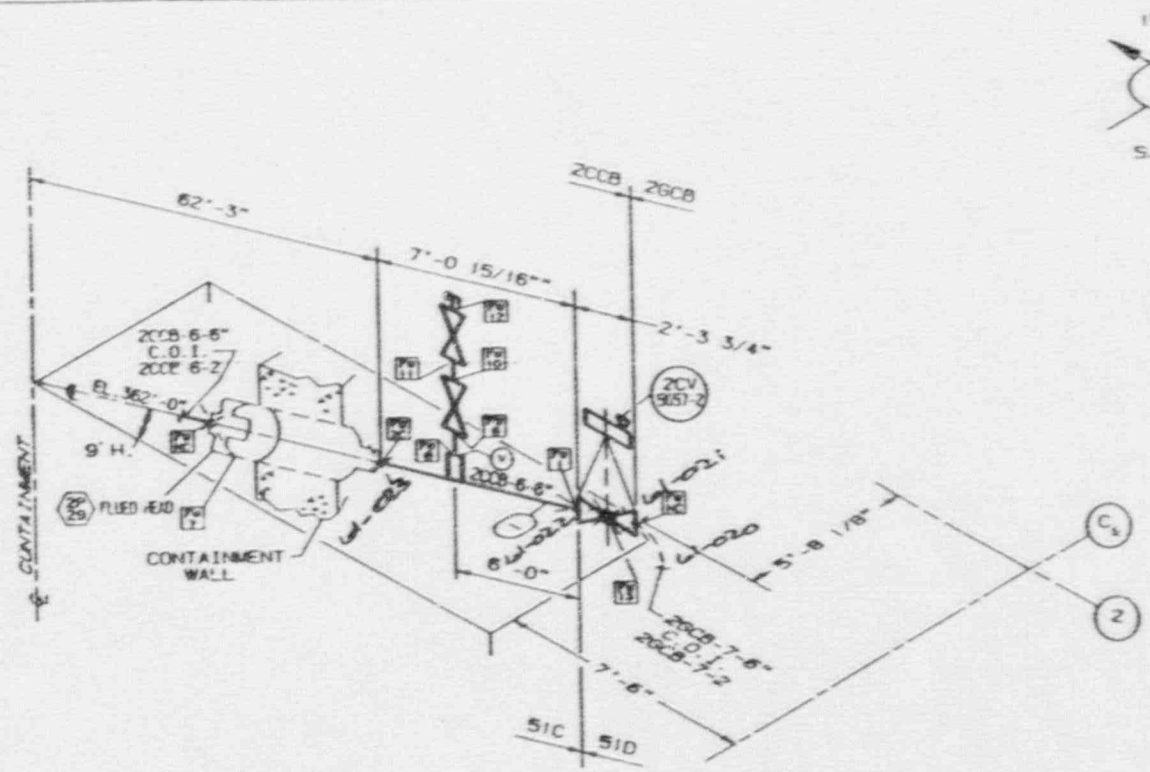
SCALE NONE DESIGN BECHTEL DRAWN IMPELL

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE SYSTEM
SAFETY INJECTION SYSTEM

DRAWING NO. 2CCB-5-1 REV. 5

ISI-261



ITEM	QTY	DESCRIPTION	HEAT NO.	ASTM	GRD
6	1	3/4" 6000# THRD. CAP SA-182			TP-316
5	1	3/4"X 4" PE X TE SCH. 160 PIPE SA-312			TP-316
4	2	3/4" 6K. 2CA-68 VALVES			
3	2	3/4"X 4" PE X PE SCH. 160 PIPE SA-312			TP-316
	1	6" 2CV-9051-2			
		SPOOL PIECE 6K. 51-2CCB-6-1-1			

BILL OF MATERIAL

STARTUP NO. | INSULATION CLASS | THICK

REFERENCE

P&I'D NO. M-2232
PIPING DWG. M-2063
AREA NO. 28 ELEV. 362'-0"
BLDG. REACTOR AUX.
SYS. SAFETY INJECTION

HANGER TYPE
JOB NO.
2nd CLEANING METHOD

SERVICE CONDITIONS
NORMAL ____ PSIG ____ °F
MAXIMUM ____ PSIG ____ °F

NO.	DATE	REVISION	BY	CHK	APPROVED
5		REDRAWN/REVISED QALITY			

SCALE NONE | DESIGN | DRAWN | CHECK

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETRIC
SAFETY INJECTION SYSTEM

DRAWING NO. 2CCB-6-1 | REV. 5

ISI-261

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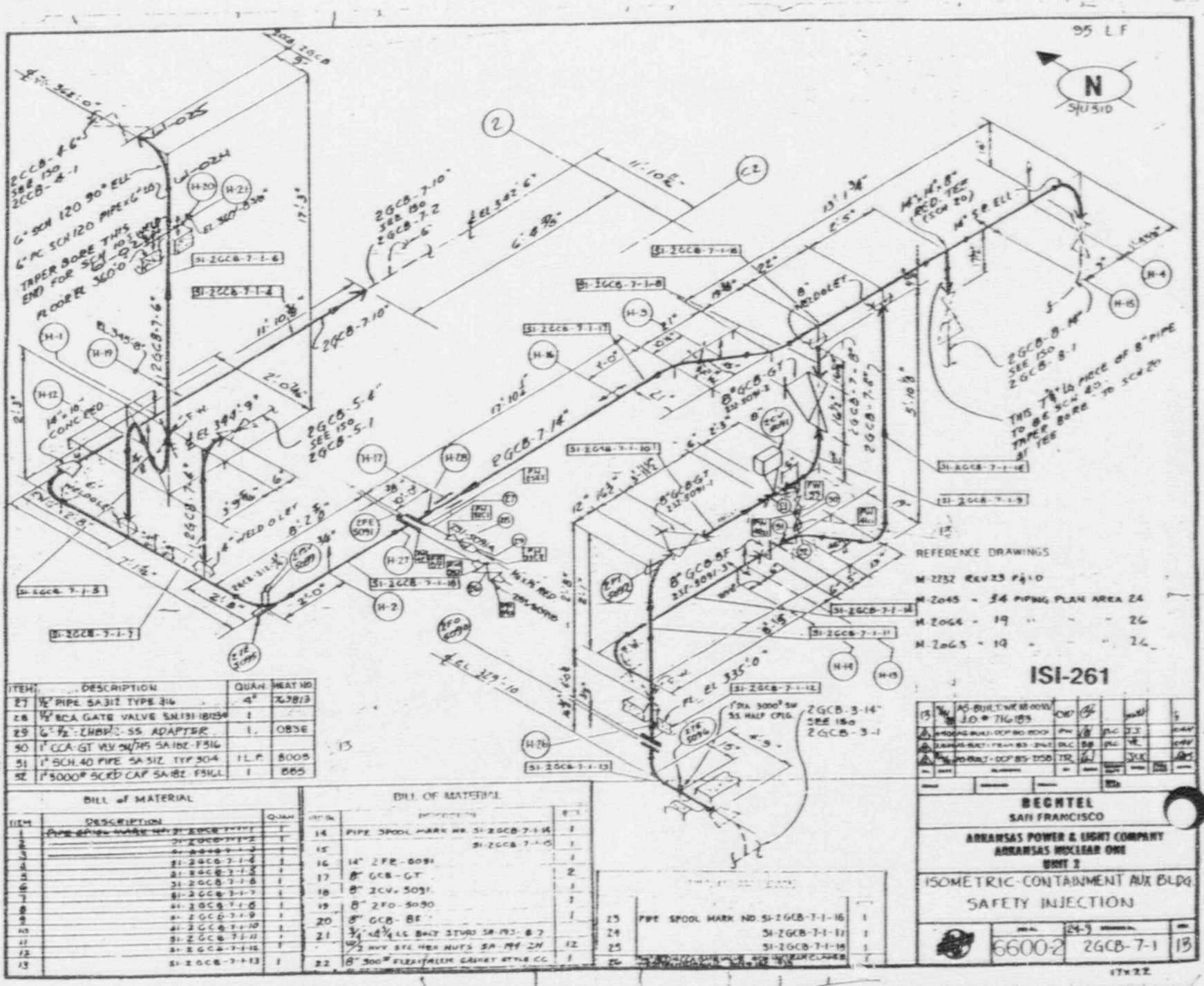

ITEM	DESCRIPTION	QUAN.	HEAT NO.
27	1/2" PIPE SA312 TYPE 316	4"	763813
28	1/2" BCA GATE VALVE SN.131-181254	1	
29	6"-1/2" ZHBR SS ADAPTER	1.	0836
30	1" CCA-GT VLV 94/745 SA182-F316		
31	1" SCH.40 PIPE SA312 TYP 304	1 L.F.	8005
32	1" 3000# SCRD CAP SA182 F316L	1	885

BILL of MATERIAL

ITEM	DESCRIPTION	QUAN
1	PIPE SPOOL MARK NO. SI-2GCB-7-1-1	1
2	SI-2GCB-7-1-2	1
3	SI-2GCB-7-1-3	1
4	SI-2GCB-7-1-4	1
5	SI-2GCB-7-1-5	1
6	SI-2GCB-7-1-6	1
7	SI-2GCB-7-1-7	1
8	SI-2GCB-7-1-8	1
9	SI-2GCB-7-1-9	1
10	SI-2GCB-7-1-10	1
11	SI-2GCB-7-1-11	1
12	SI-2GCB-7-1-12	1
13	SI-2GCB-7-1-13	1

BILL OF MATERIAL

ITEM	DESCRIPTION	QUAN.
14	PIPE SPOOL MARK NO. SI-2GCB-7-1-14	1
15	SI-2GCB-7-1-15	1
16	14" 2FE-5091	1
17	8" GCB-GT	2
18	8" 2CV-5091	1
19	8" 2FO-5090	1
20	8" GCB-BF	1
21	3/4"-x-3 3/4" LG BOLT STUD SA193-B7	
	3/4" HVY STL HEX NUTS SA194 2H	12
22	8" 300# FLEXITALLIC GASKET STYLE CG	1
23	PIPE SPOOL MARK NO. SI-2GCB-7-1-16	1
24	SI-2GCB-7-1-17	1
25	SI-2GCB-7-1-18	1
26	[illegible]	1

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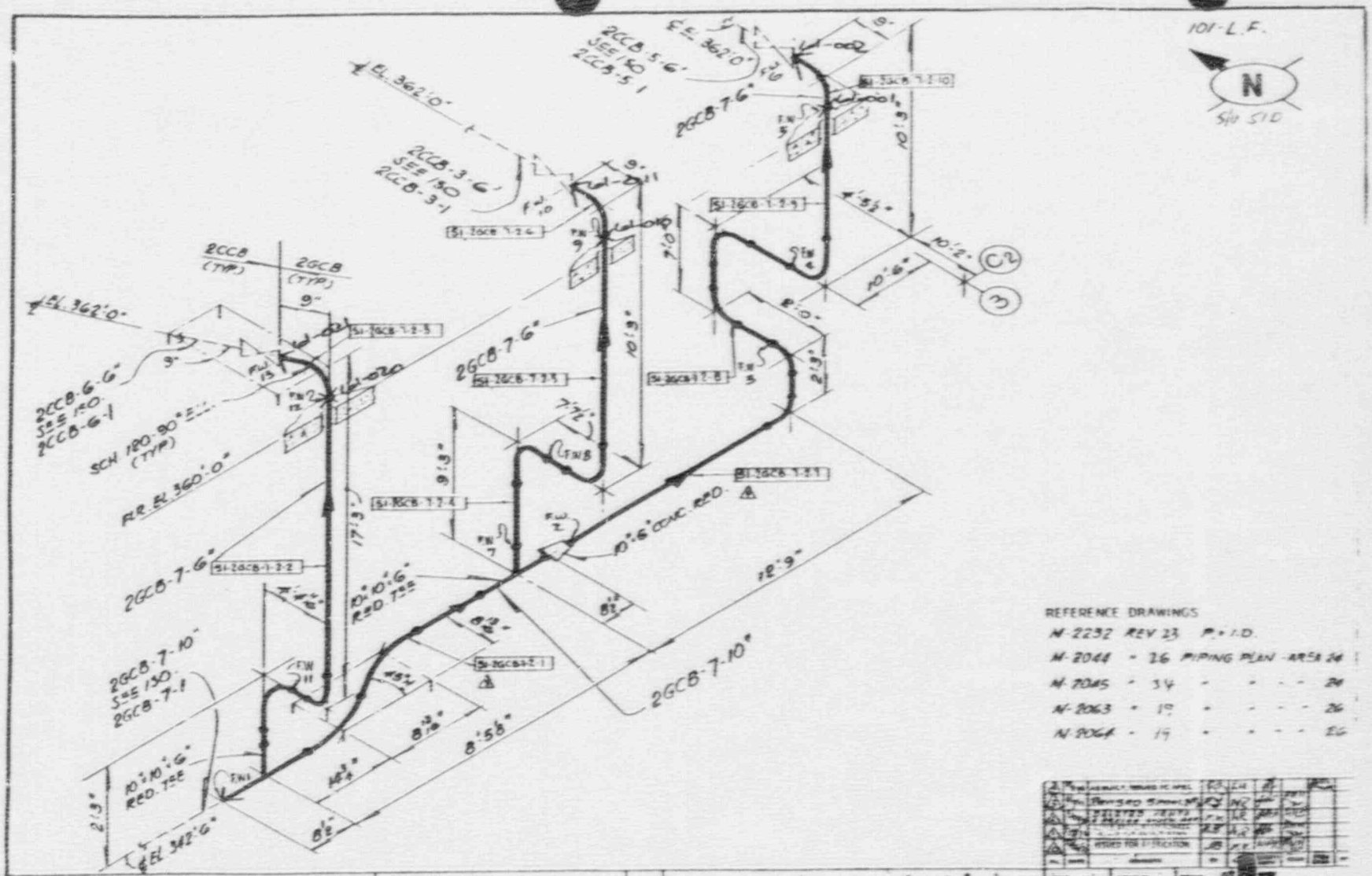


REFERENCE DRAWINGS

M-2232	REV 23	P.+I.D.		
M-2044	- 26	PIPING PLAN	- AREA 24	
M-2045	- 34	-	- - -	24
M-2063	- 19	-	- - -	26
M-2064	- 19	-	- - -	26

BILL OF MATERIAL

ITEM	DESCRIPTION	QUAN
1	PIPE SPOOL MARK: 2GCB-7-2-1	1
2	PIPE SPOOL MARK: 2GCB-7-2-2	1
3	PIPE SPOOL MARK: 2GCB-7-2-3	1
4	PIPE SPOOL MARK: 2GCB-7-2-4	1
5	PIPE SPOOL MARK: 2GCB-7-2-5	1
6	PIPE SPOOL MARK: 2GCB-7-2-6	1
7	PIPE SPOOL MARK: 2GCB-7-2-7	1
8	PIPE SPOOL MARK: 2GCB-7-2-8	1
9	PIPE SPOOL MARK: 2GCB-7-2-9	1
10	PIPE SPOOL MARK: 2GCB-7-2-10	1

ISI-261

BECHTEL
SAN FRANCISCO

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC - CONTAINMENT AUX BLD
SAFETY INJECTION

6600-2 | 2GCB-7-2

16X

I certify that the image contained on this film was made in the normal and regular course of business, on the date stated below and that it is an accurate reproduction of the document charted on Micrographics

36 Lin Ft.

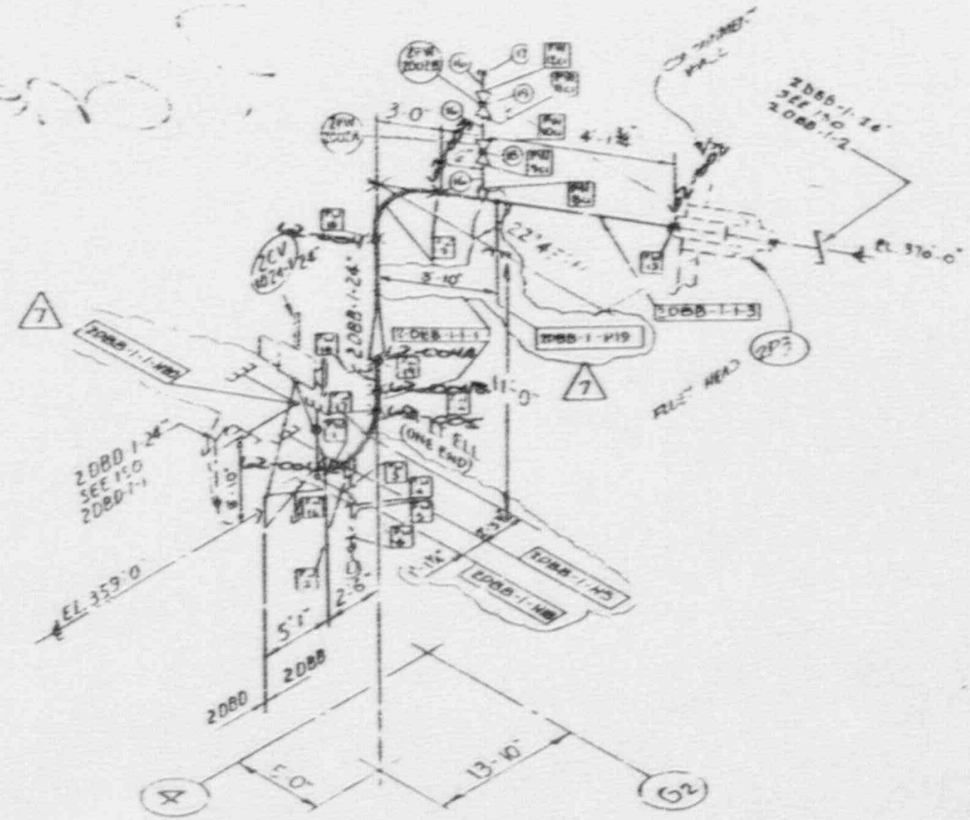
N

SYU 63

REV. NOTE:

PIPING CONTINUED TO RM. 2F2 BY ANELL TO RELOCATE NEW SPOOL. 36 L.F. WAS 12 L.F.

NOTE: 7 TURNS WERE ADDED FOR REPAIR OF LEAK. POSITION OF SPACE OF PIPE & FITTINGS.



REFERENCE DRAWINGS

M-2206 REV. 22 P&ID
M-2032 - 35 PLAN - PLAN AREA 2F
M-2033 - 37 " " " 23

BILL OF MATERIAL		
ITEM NO.	DESCRIPTION	QUAN.
1	PIPE SPOOL 2DBB-1-1-3	1
2		1
3		1
4		2
5		1
6		
7		
8		
9		
10		1
11		1
12		1
13		

BILL OF MATERIAL		
ITEM NO.	DESCRIPTION	QUAN.
2		
3		
16		
17		
18		
19		

ISI-262

7				
6				
5				
4				
3				
2				
1				
NO.	DATE	REVISIONS	BY	CHK

NONE — WGS

BECHTEL
SAN FRANCISCO

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC - TURBINE AUX. BLDG.
MAIN FEEDWATER

2DBB-1-1 | 7

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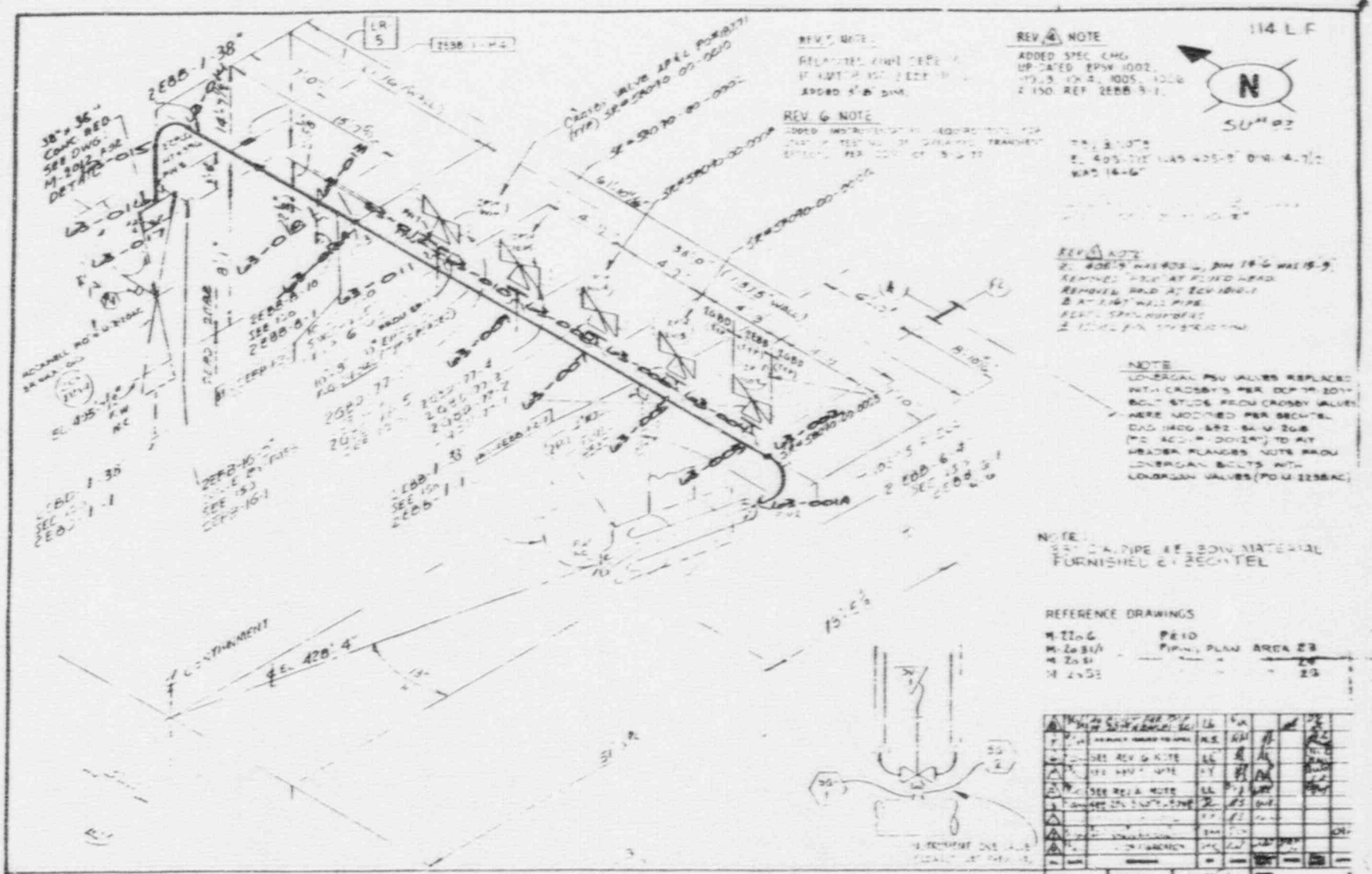

BECHTEL
SAN FRANCISCO

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC TURBINE AUX. BLDG
MAIN STEAM

6600-2 | 2EBB-1-2

ISI-263

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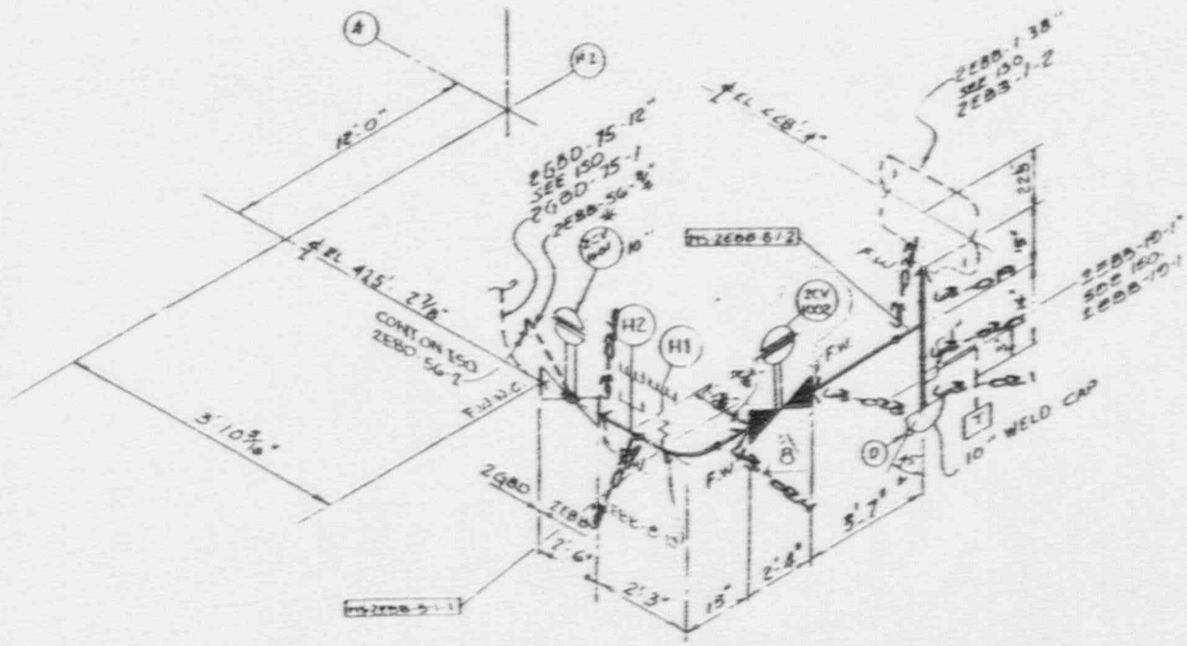

REFERENCE DRAWINGS

M-2206 REV 22 P&ID

M-2031 - 28 PIPING PLAN AREA C3

1	PIPE SPOOL MARK: MS-2EBB-8-1-1
2	-2
3	10" 2CV 1002
4	10" 2EBB-GT W/LIMITORQUE OPR'SO
5	2CV-1002

/8\

4		AS-BUILT PER BN 2017	TTR			
3		AS-BUILT PER BN 1425				
2		AS-BUILT PER BN 1017				
1						

BECHTEL
SAN FRANCISCO

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC - TURBINE AUX. BLDG.
MAIN STEAM

	6600-2	2EBB-8-1	8

ISI-263

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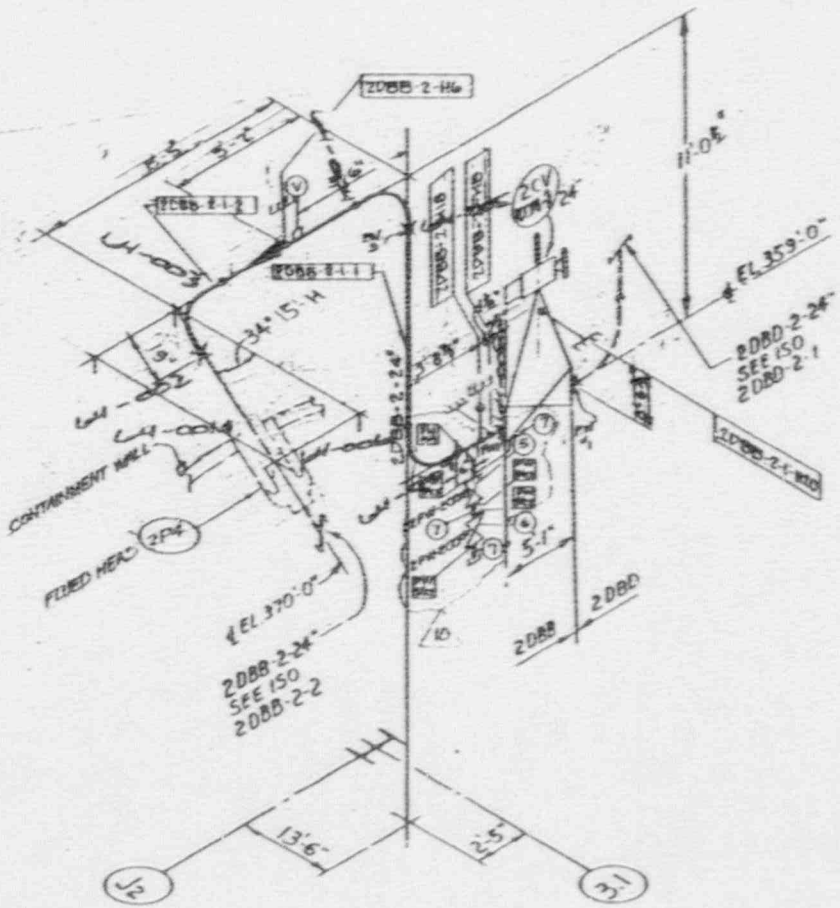

25 Lin Ft.

N

SNU 63

REV. 1 NOTE:
ADD'L. UP MAT'L, SPOOL 105, P.W. 105; ISSUED FOR CONST.

REV. 2 NOTE:
19" WAS 18 3/4", ADDED 10 3/16" PIPE SPOOL GRINNELL TO FABRICATE AND TO ISSUE SPOOL PC. NO. & 25 L.F. WAS 36 L.F.

REV 10 NOTE:
PER PEAR 87-8019 TW-4 WAS CHANGED TO PW-53. THIS REV. NOTE SHALL BE DELETED AT THE NEXT REV. OF THIS ISO.

10

REFERENCE DRAWINGS

M-2206 REV.22 P.&I.D.
M-2032 " 33 PIPING PLAN AREA 23
M-2033 " 37 " " " 23

BILL OF MATERIAL

ITEM NO.	DESCRIPTION	QUAN.
1	PIPE SPOOL MARK 2DBB-2-1-1	1
2	PIPE SPOOL MARK 2DBB-2-1-2	1
3	24" 2CV-1074	1
4	PIPE SPOOL MARK - 2DBB-2-1-3	1
5	1" CBA-GT VALVE 6/N41TAS 2TW-2000	1
6	1" CBA-GT VALVE 6/N54TAS 2TW-2000	1
7	1" SCH. 80 SMLS PIPE, SA-106 GR. B, HT # 6479 10	21 L.F.

10	AS BUILT/PEAR 87-8019	STC	KBS		
3	RE-ISSUED FOR INA-A	TPC			
2	AS BUILT/PEAR 87-0107	CW		DLC	
1	ISSUED FOR CONSTRUCTION	VTG			
NO.	REVISION	BY	CHKD	APPD	DATE

NONE WBS

BECHTEL
SAN FRANCISCO

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC - TURBINE AUX. BLD'G
MAIN FEEDWATER

6600-2 | 2DBB-2-1 | 10

ISI-264

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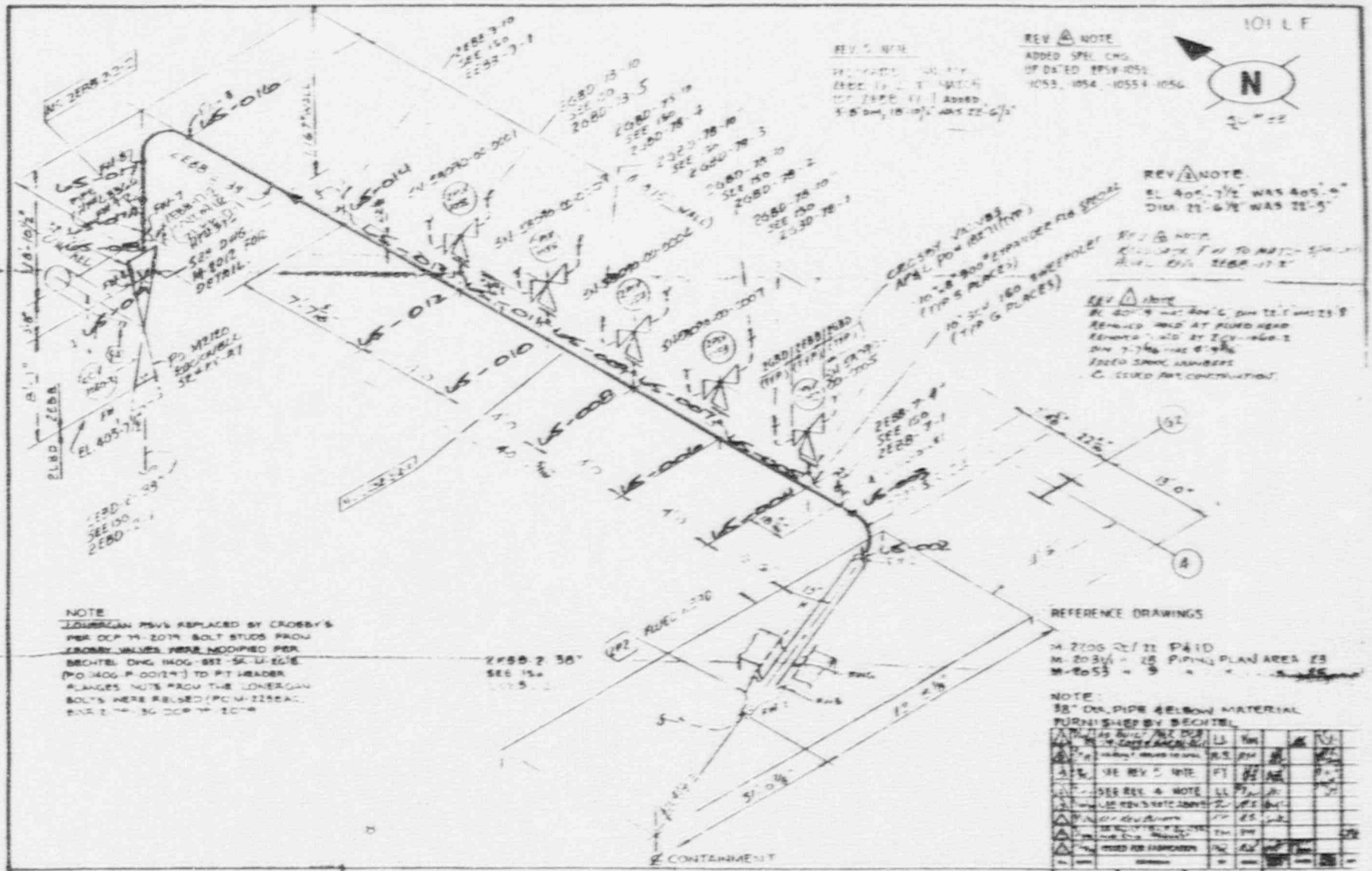

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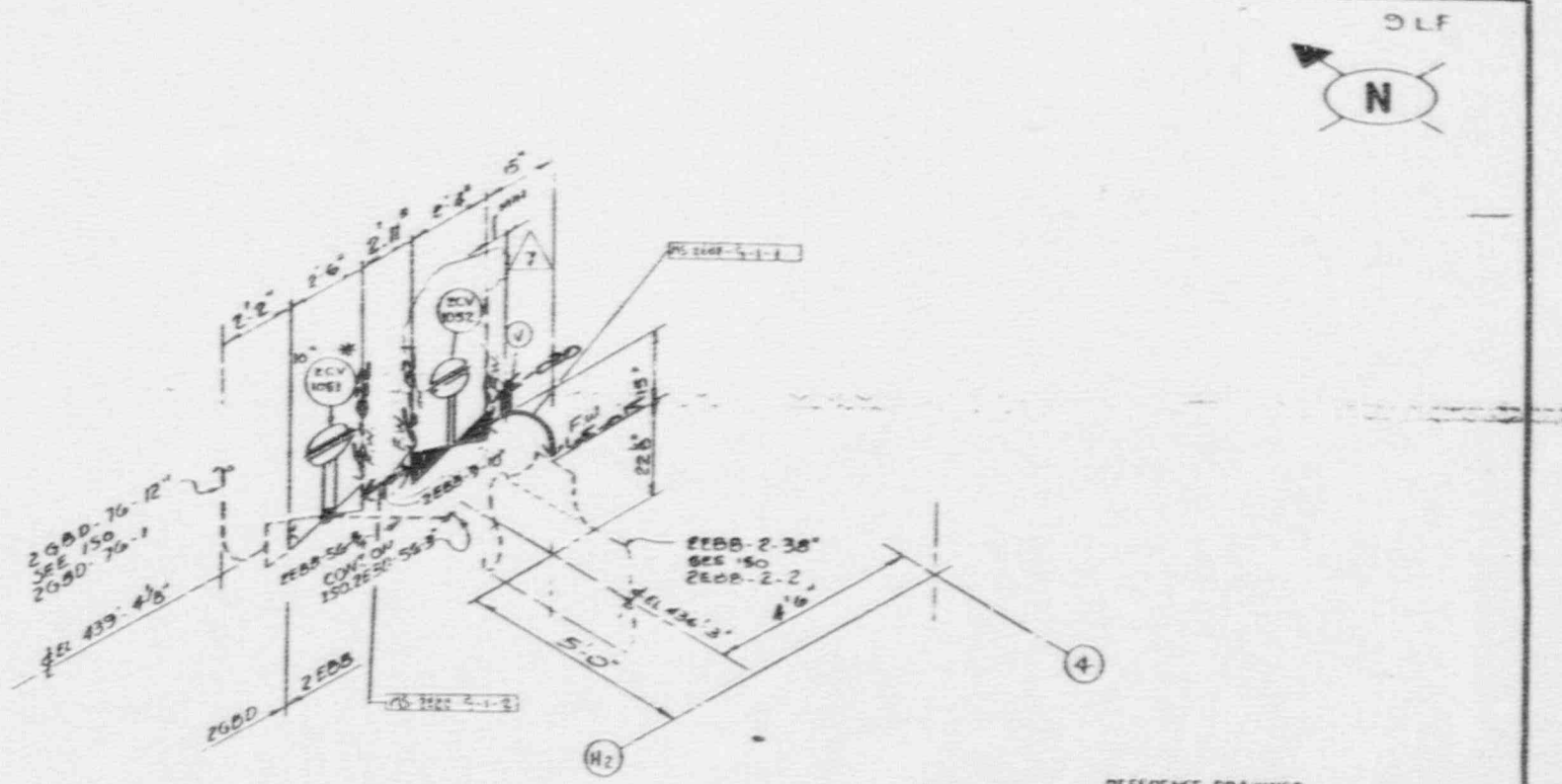


REFERENCE DRAWINGS
M-2206 REV 22 P&ID
M-2031/3 + 2 PIPING PLAN AREA E3

BILL OF MATERIAL

1	Pipe Spool Mark: MS 2002-3-1-1	1
2	-2	
3	ZCV-1051	
4	18" SBB GT W/LIMITORQUE OPR	1
5	ZCV-1052	

7

BECHTEL
SAN FRANCISCO

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

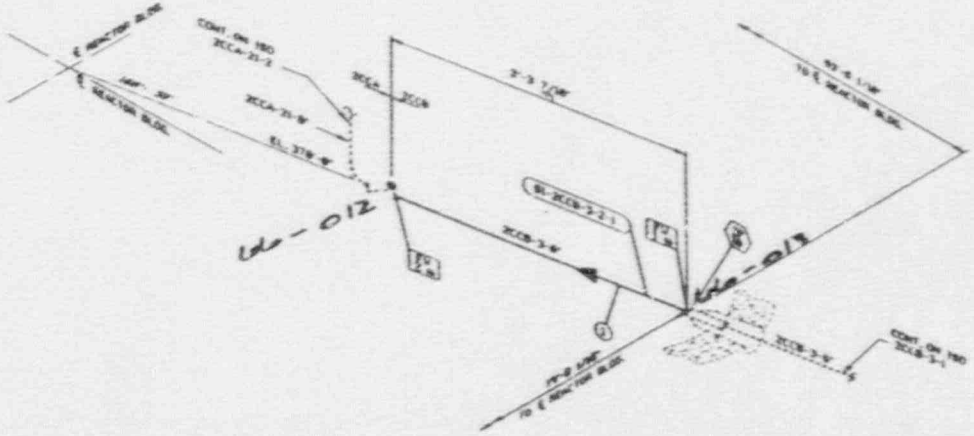
ISOMETRIC - TURBINE AUX BLDG.
MAIN STEAM

66002 2EBB-3-1 7

ISI-265

BILL OF MATERIAL

ITEM	QTY.	DESCRIPTION	MAT'L NO.	WEIGHT	LN	TOTAL
1	3.167	36" PIPE SCH. 120 SMLS. BE	1013-5-2		312	1,316



REFERENCE
P & ID NO. M-2232
PIPING DWG. M-2085
AREA NO. 75 ELEV. 378'-8"
BLDG. REACTOR
SYSTEM: SAFETY INJECTION

HANGER TYPE: CRITICAL, SEISMIC CL. I
ENGINE. N/A
SYSTEM CLEANING REQMT.

SERVICE CONDITIONS:
NORMAL 150 PSIG 150°F
MAXIMUM 2350 PSIG 350°F

STARTUP NO. SIC
INSULATION CLASS: N/A
THICKNESS: N/A
FLEXIBLE: SOLIDOM

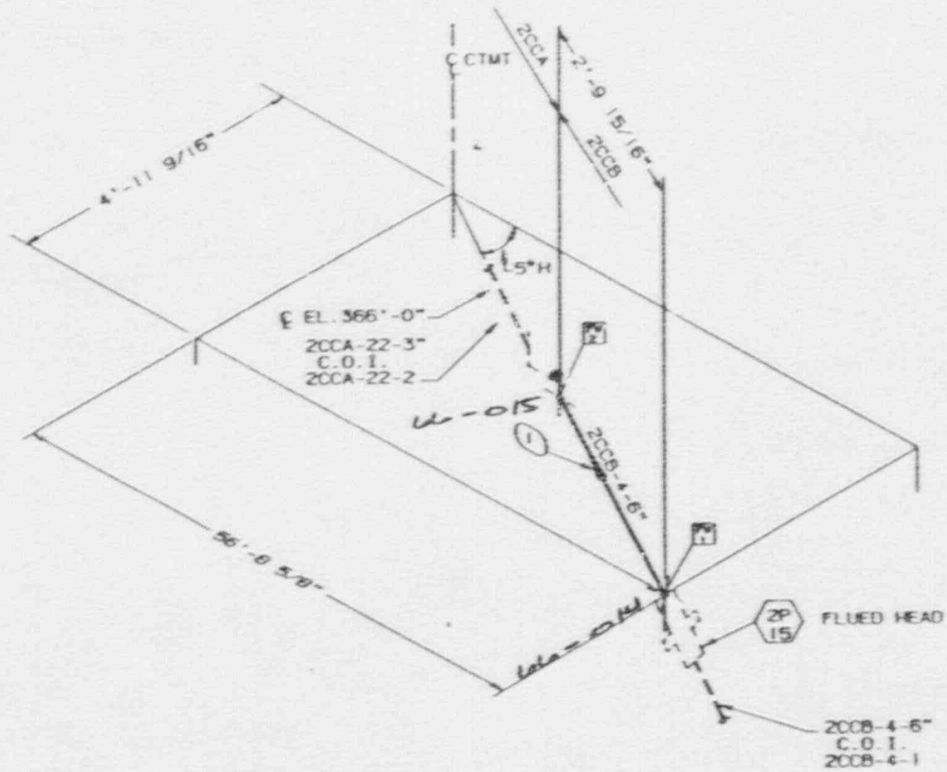
REV. NO.	DATE	REMARKS	BY
5		UPDATE PER N.F. HMPL.12	

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETRIC
SAFETY INJECTION SYSTEM

DRAWING NO. 2CCB-3-2 REV. 6

ISI-266



ITEM	QTY	DESCRIPTION	HEAT NO	ASTM	GRD
1	1	PIPE SPOOL S: 2CCB-4-2-1			

BILL OF MATERIAL

STARTUP NO | INSULATION CLASS | THICK

REFERENCE

P.&I.D. NO M-2232
PIPING DWG M-2095
AREA NO 25 ELEV 366'-0"
BLDG REACTOR
SYS SAFETY INJECTION

HANGER TYPE NONE REQUIRED
DWG NO

SYS CLEANING REQMT

SERVICE CONDITIONS
NORMAL ____ PSIG ____ °F
MAXIMUM ____ PSIG ____ °F

NO.	DATE	REVISION	BY
5		REDRAWN FOR IMPROVED QUALITY	TR

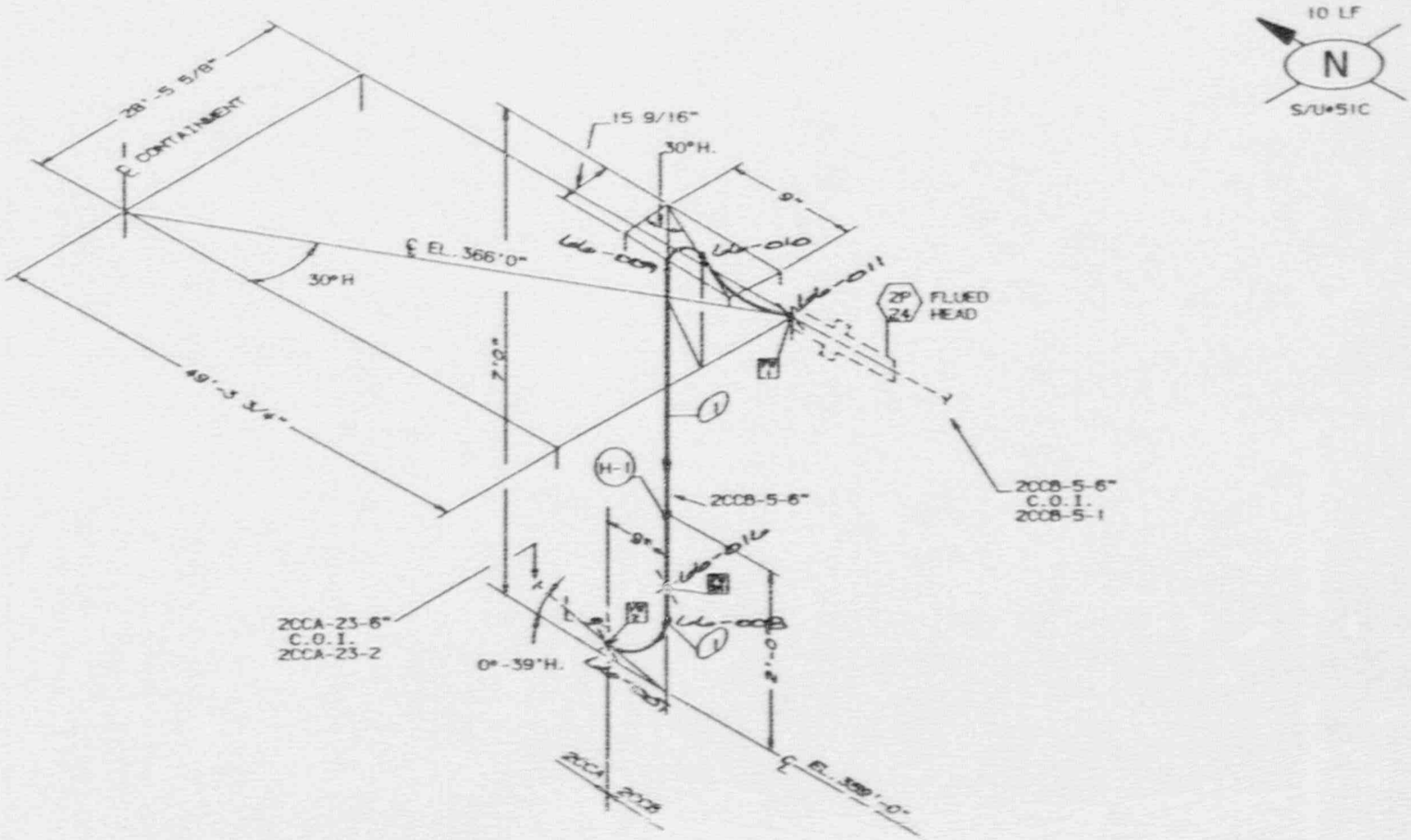
SCALE: REVISION: DRAWN:

ARKANSAS POWER AND LIGHT C
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETR
SAFETY INJECTION S

DRAWING NO
2CCB-4-2

ISI-266



ITEM	QTY.	DESCRIPTION	HEAT NO.	ASTM	GRD.
1	1	PIPE SPOOL S: 2CCB-5-2-1			

BILL OF MATERIAL

STARTUP NO. | INSULATION CLASS: | THICK.

REFERENCE

P&I.D. NO. M-2232
PIPING DWG. M-2088
AREA NO. 2P ELEV.
BLDG. REACTOR
SYS. SAFETY INJECTION

HANGER TYPE: SPRING HANGER
DWG. NO.

SYS. CLEANING REQMT.

SERVICE CONDITIONS:
NORMAL _____ PSIG _____ °F
MAXIMUM _____ PSIG _____ °F

NO.	DATE	REVISIONS	BY	CHK	APPROVAL
4		REVISION HOLD HANGER CONFIG.	CKD		

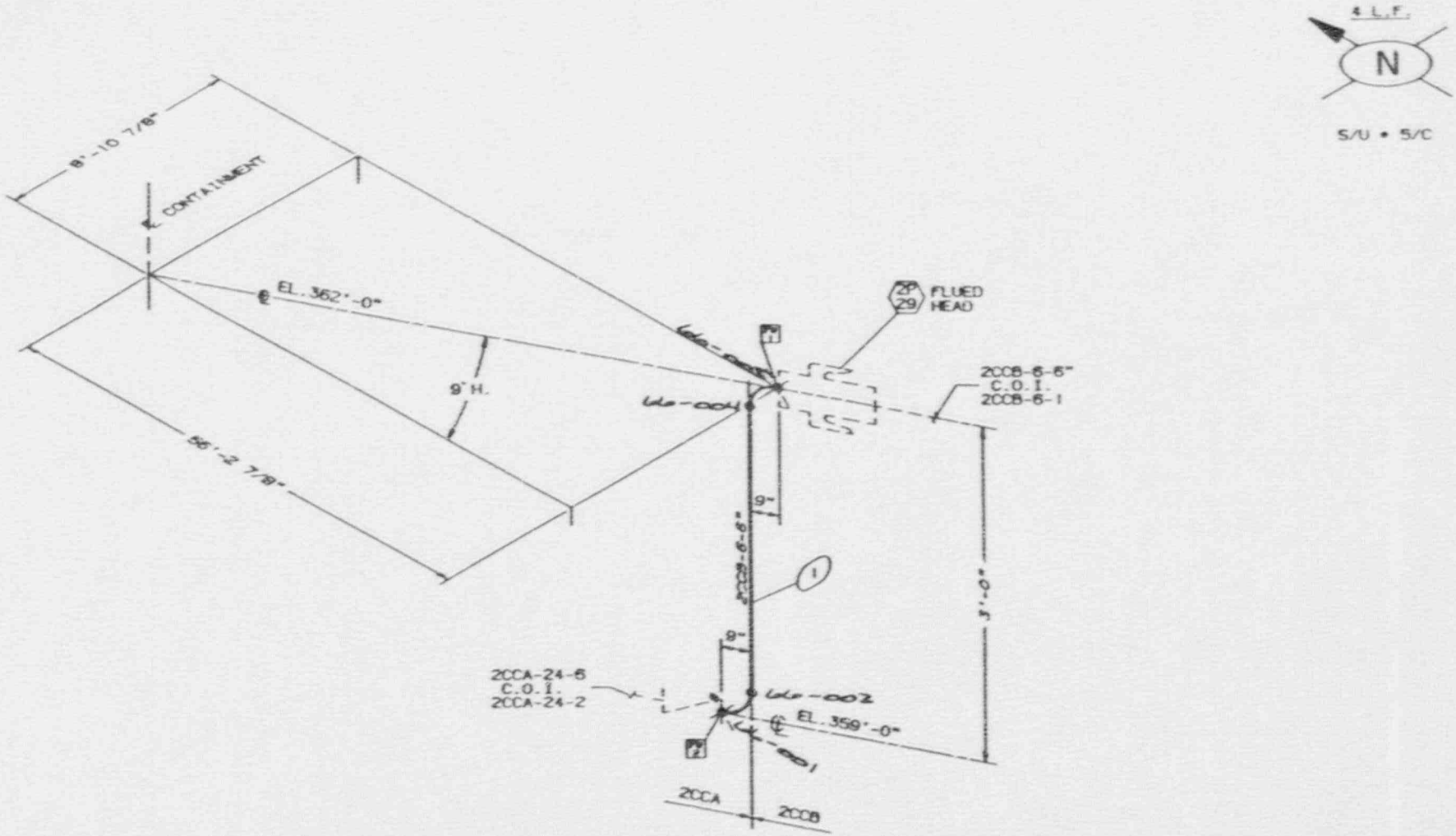
SCALE NONE | DESIGN MOORE | DRAWN TURELL

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETRIC
SAFETY INJECTION SYSTEM

DRAWING NO. 2CCB-5-2 | REV. 4

ISI-266



ITEM	QTY.	DESCRIPTION	HEAT NO.	ASTM	GRD.
1	1	PIPE SPOOL SI-2CCB-6-2-1			

BILL OF MATERIAL

STARTUP NO. | INSULATION CLASS | THICK.

REFERENCE

P.&I.D. NO. M-2232
PIPING DWG. M-2CCB
AREA NO. 25 ELEV.
BLDG. REACTOR BLDG.
SYS. SAFETY INJECTION SYSTEM

HANGER TYPE
DWG. NO.
SYS. CLEANING REQMT.

SERVICE CONDITIONS
NORMAL ____ PSIG ____ °F
MAXIMUM ____ PSIG ____ °F

NO.	DATE	REVISION	BY	CHK	SUPT	QA
3	5/24/84	RECORDWING FOR IMPROVED QUALITY	CAD			

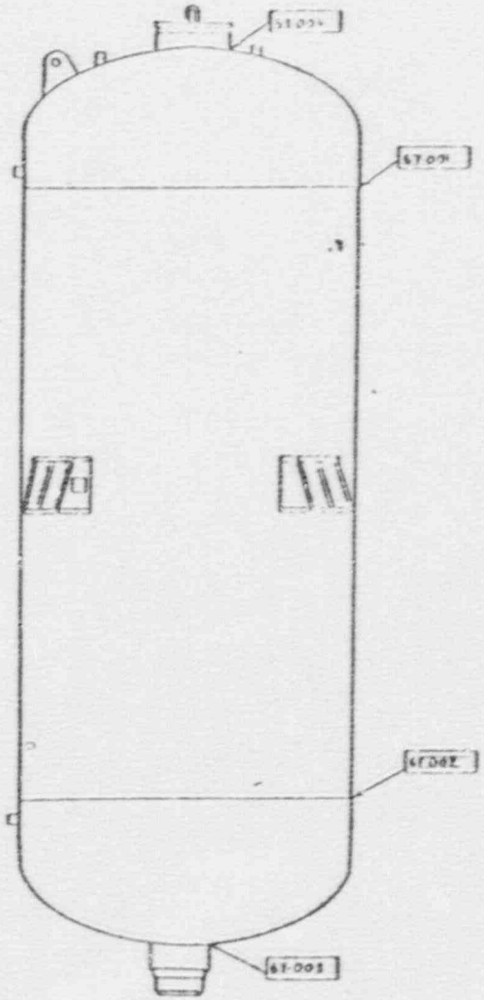
SCALE: NONE DESIGN: BECHTEL DRAWN: BECHTEL

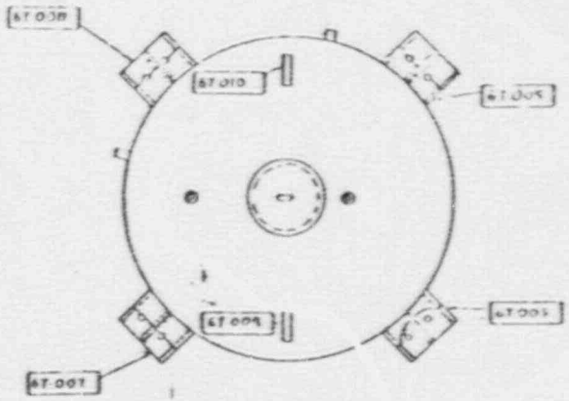
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETRIC
SAFETY INJECTION SYSTEM

DRAWING NO. 2CCB-6-2 REV. 3

ISI-266



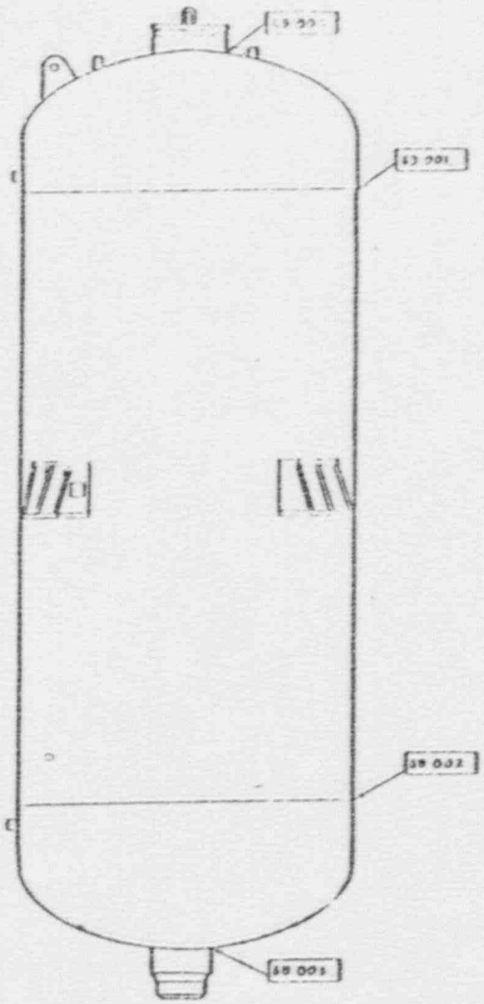


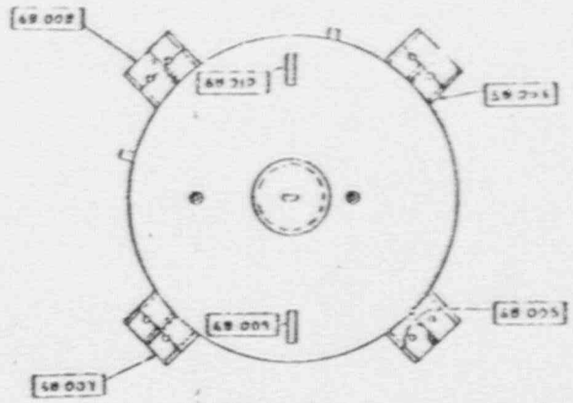
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SAFETY INJECTION TANK (2T2A)

ZONE - 67

DRAWING NO	REV
1SI-267	0





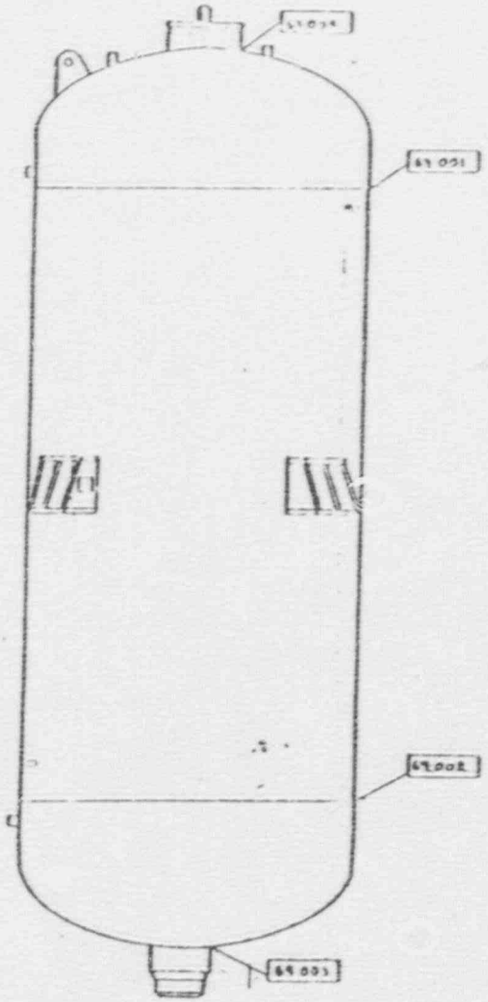
0		ISSUED AS BUILT		

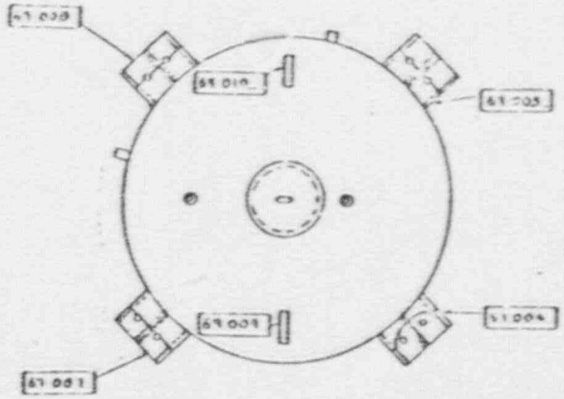
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SAFETY INJECTION TANK (2T28)

ZONE - 68

DRAWING NO	REV
ISI - 268	0





0	4-29-74	ISSUED AS BUILT		
NO	DATE	REVISION	BY	CHK

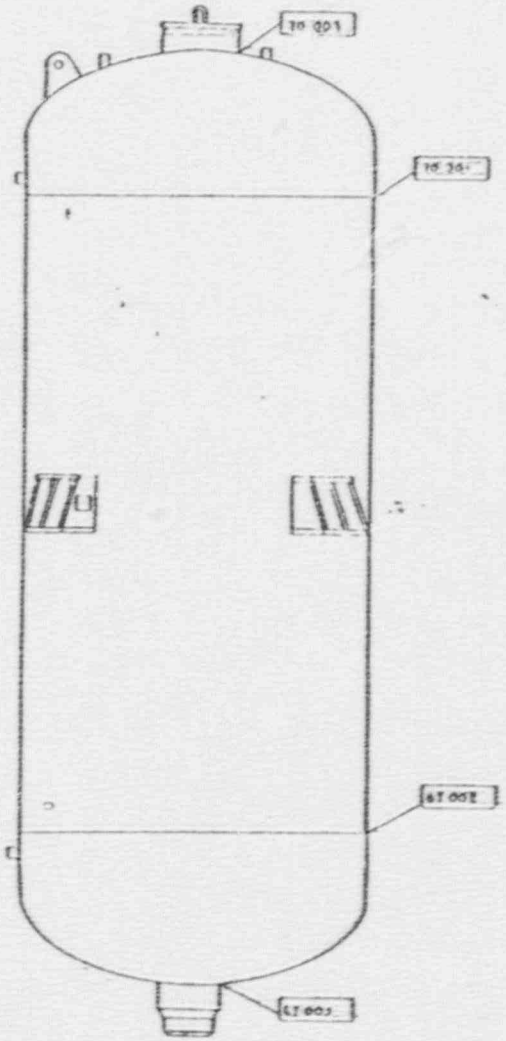
SCALE NONE | DESIGN C.E. | DRAWN D.BRISCOE

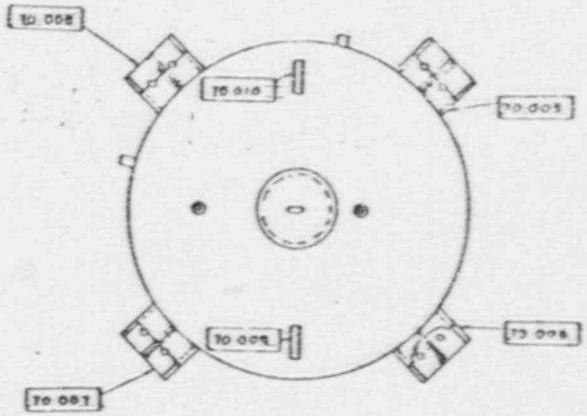
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SAFETY INJECTION TANK (2T2C)

ZONE - 69

	DRAWING NO	REV
	1SI - 269	0





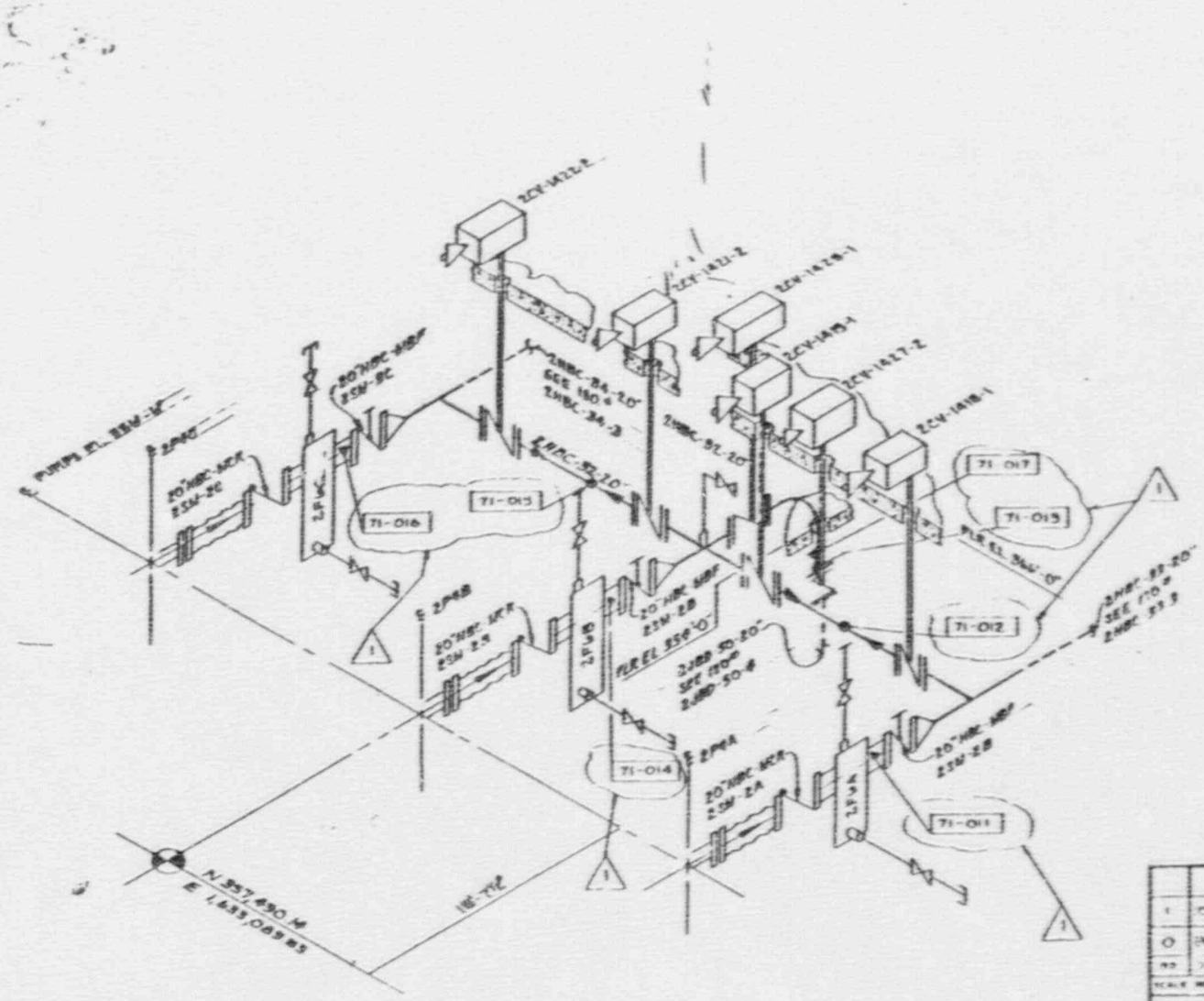
0		ISSUED AS BUILT ISSUE		
NO.	DATE	REVISION	BY	CHK.

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SAFETY INJECTION TANK (2T20)

ZONE - 70

DRAWING NO. ISI - 270 REV. 0



1		AS BUILT - SCHEMATIC			
0		ISSUED PER ISI			
NO	DATE	REVISION	BY		

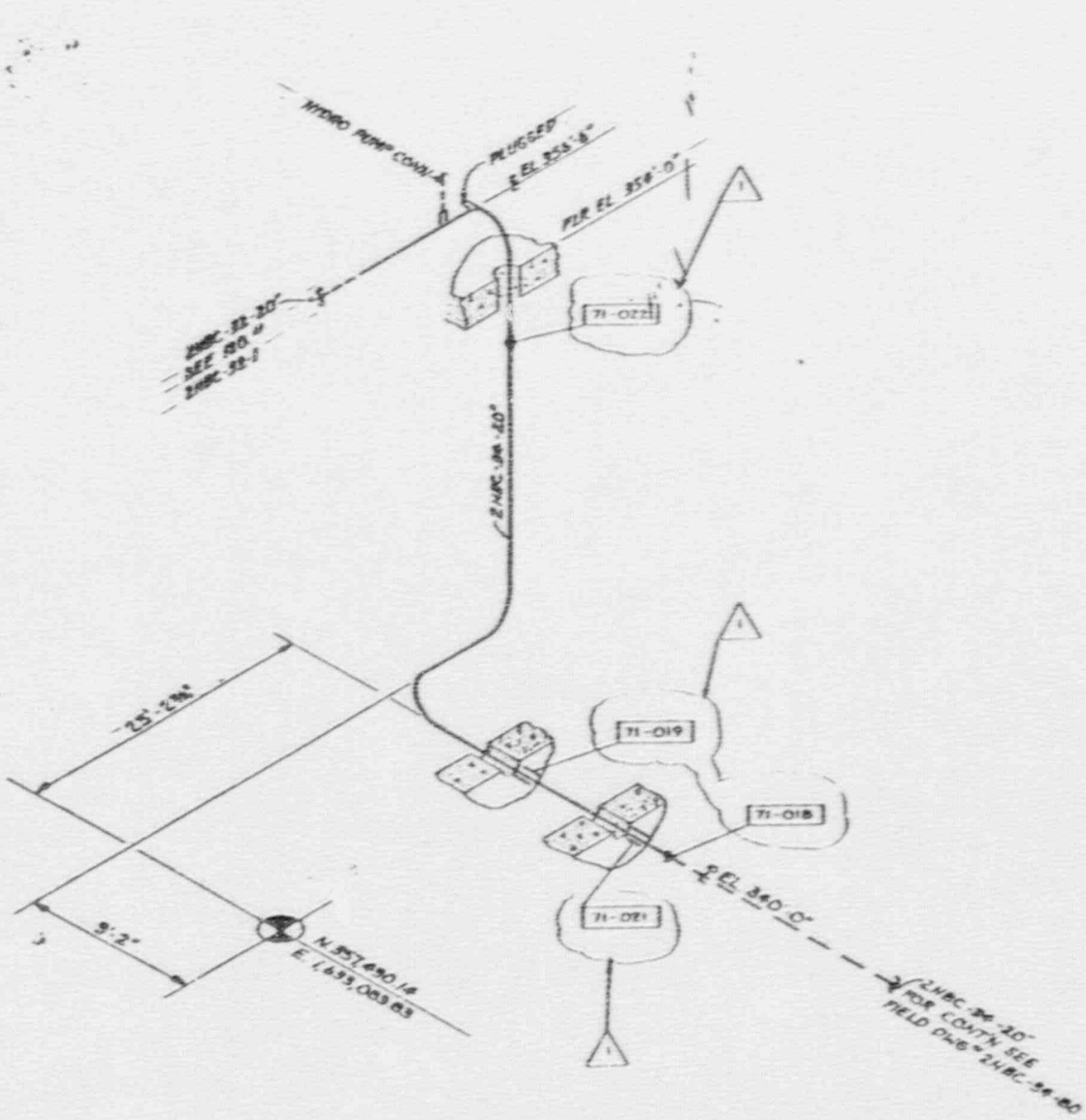
SCALE NONE

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER HEADER
ZONE-71

DRAWING NO: ISI-271H

REV: 1



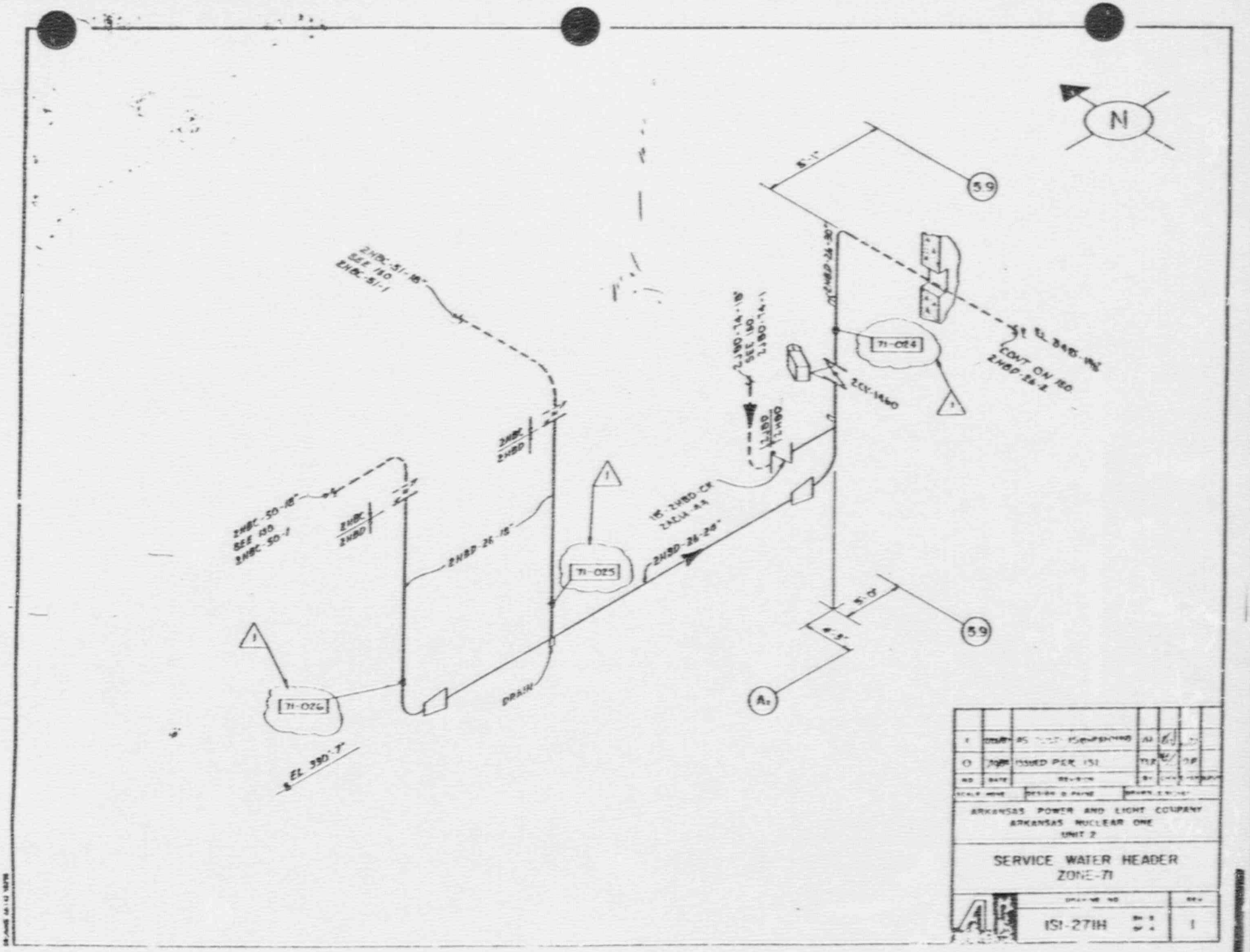
1		ADDS BOLT IS			
0		ISSUED FOR ISI			
REV	DATE	REVISION	BY		

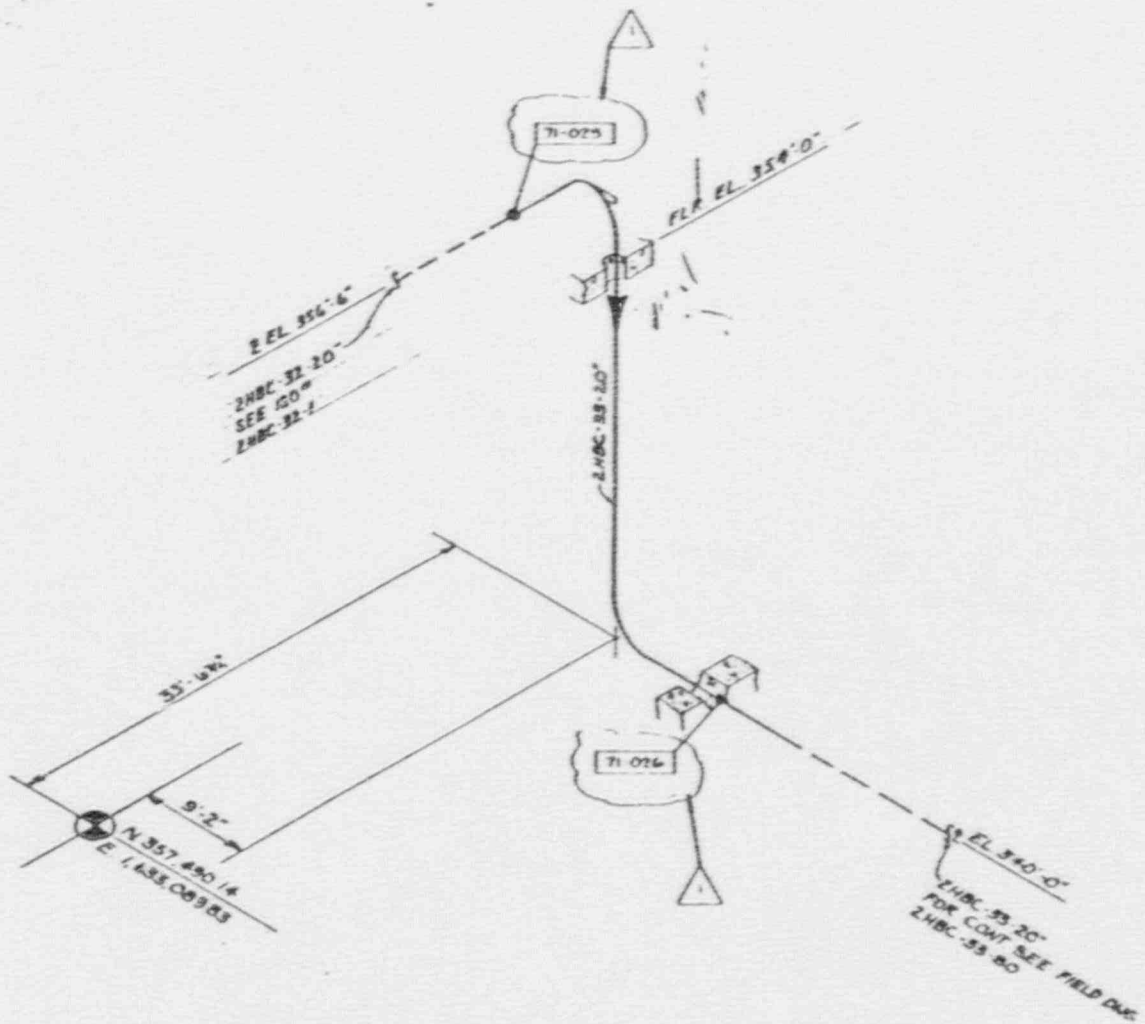
SCALE NONE | DESIGN J. PAYNE | DRAWN K. MOSLEY

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER HEADER
ZONE-71

DRAWING NO: ISI-271H | REV: 1


N
71-024
71-025
71-026
2HBD-24-30"
2HBD-26-18"
2HBD-26-24"
2HBC-51-18"
SEE 130
2HBC-51-1
2HBC-50-18"
SEE 130
2HBC-50-1
2HBC
2HBD
2CV-1480
DRAIN
EL 390'-7"
CONT ON 130
2HBD-26-2
5.9
A2
ISSUED PER ISI
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2
SERVICE WATER HEADER
ZONE-71
ISI-271H
1



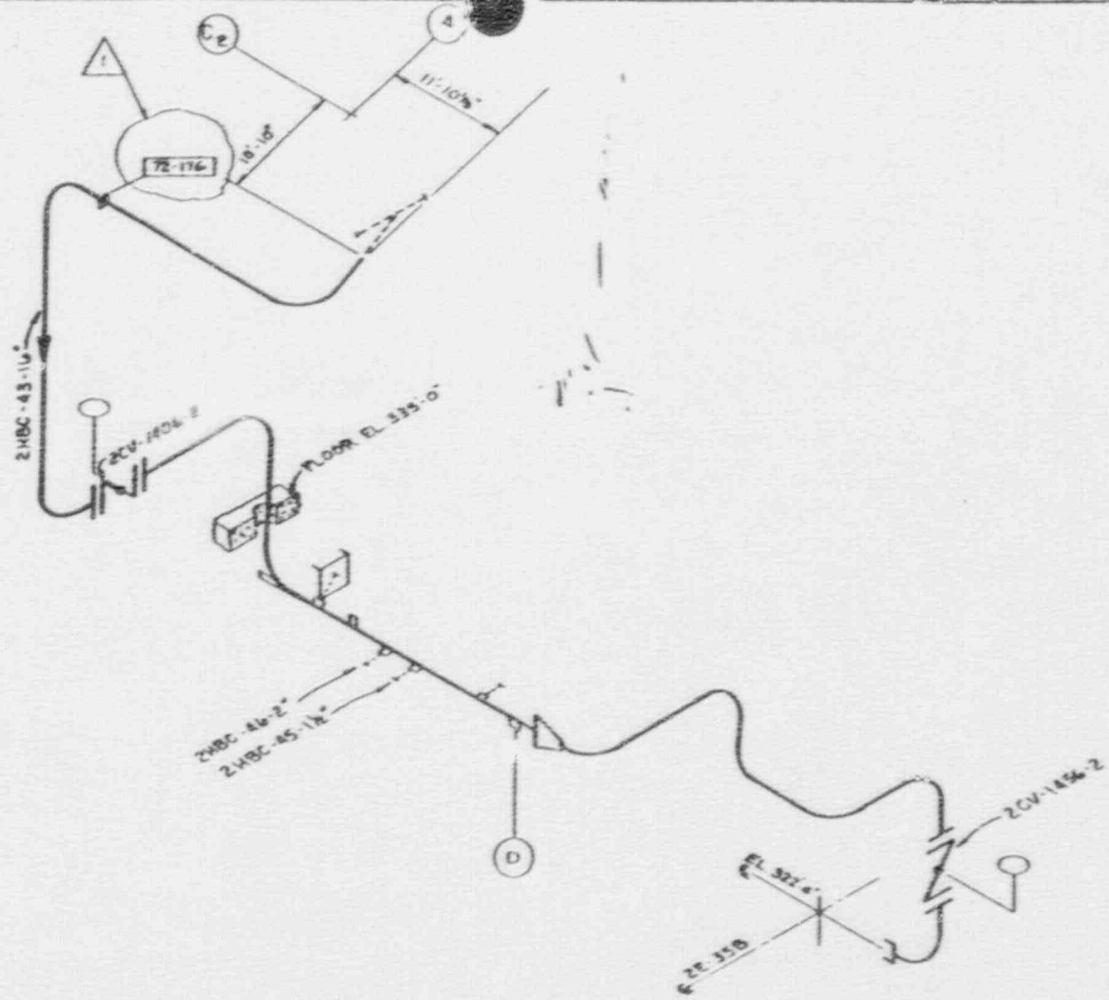
NO	DATE	REVISION			
1	[illegible]	AS BUILT: [illegible]	[illegible]	[illegible]	[illegible]
0	[illegible]	[illegible]ED PER ISI	TLR	[illegible]	[illegible]

SCALE NONE | DESIGN [illegible] | DRAWN [illegible]

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER HEADER
ZONE-71

DRAWING NO: ISI-271H | REV: 1



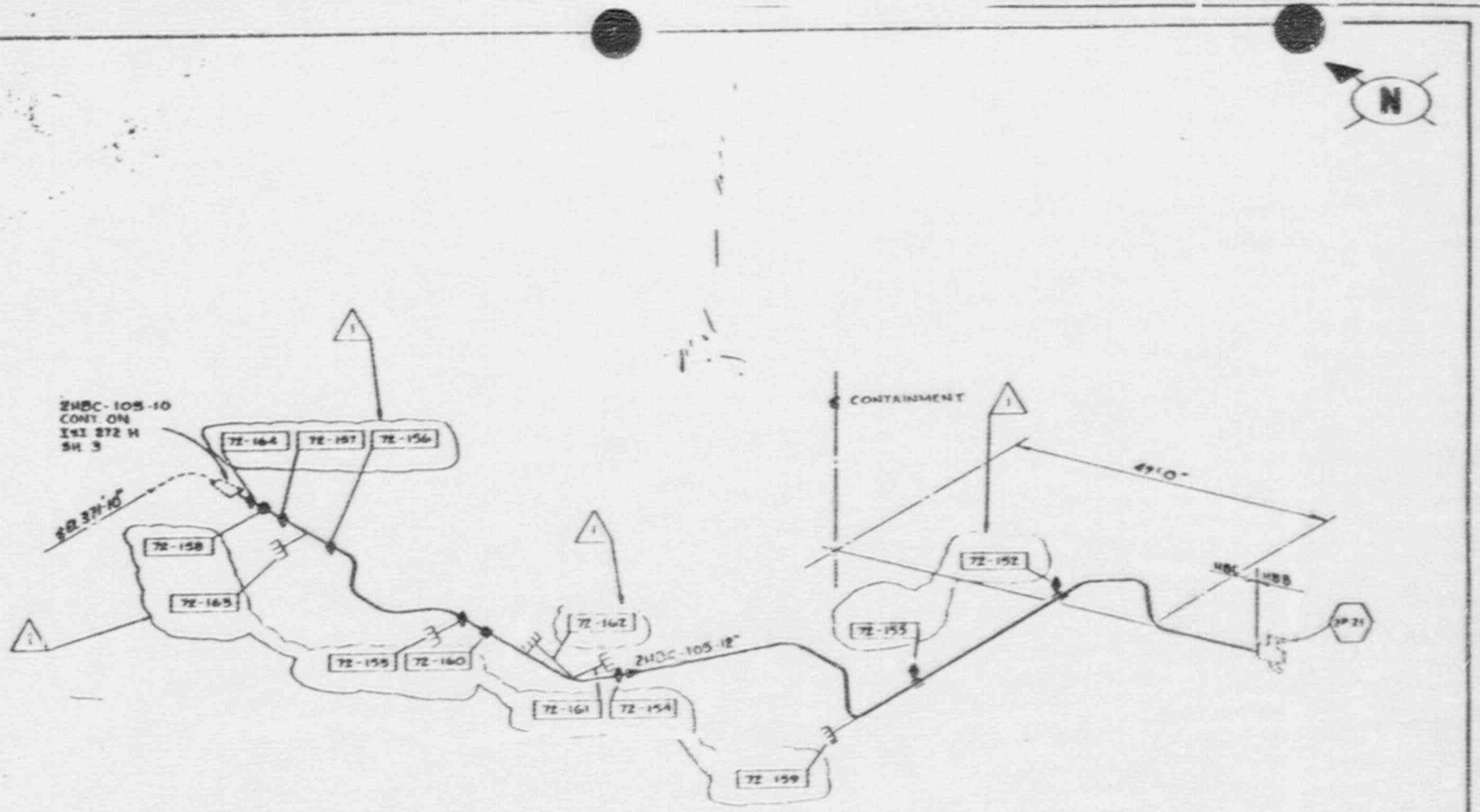
NO	DATE	REVISION	BY	CHK	ENG	APP
1	[illegible]	AS BUILT INCORPORATED	[illegible]	[illegible]	[illegible]	[illegible]
0	7/1/78	ISSUED FOR ISI	[illegible]	[illegible]	[illegible]	[illegible]

SCALE NONE | DESIGN & PLANNING | DRAWN & DESIGNED

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER BRANCHES
ZONE 72

DRAWING NO: ISI-272H | REV: 1



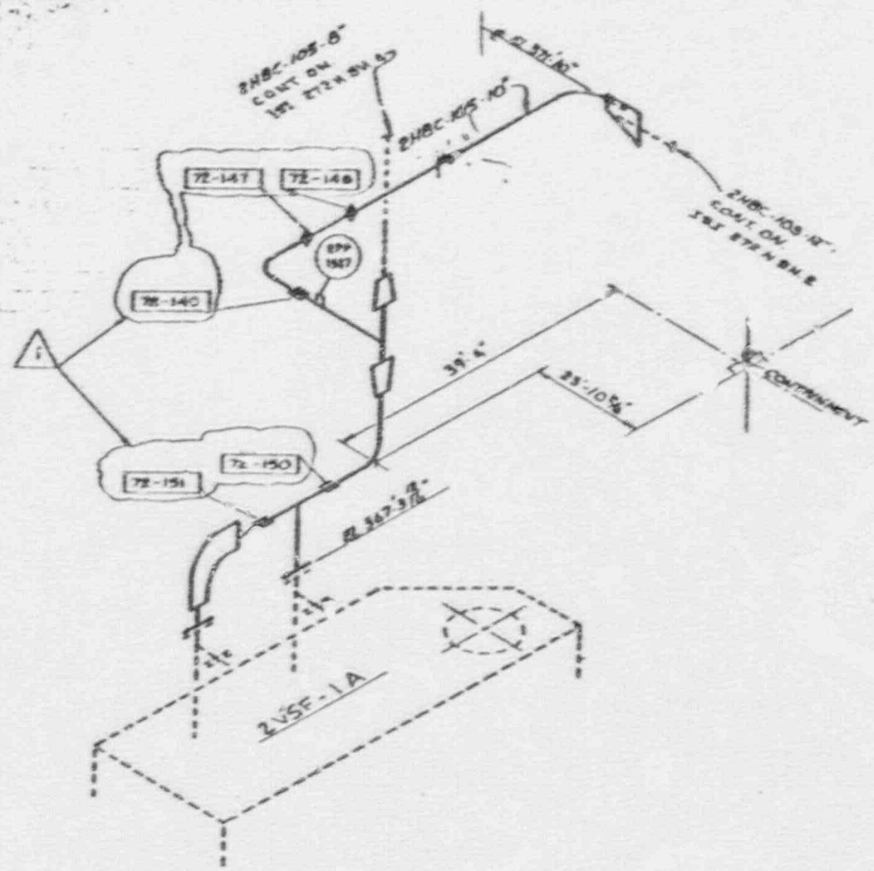
NO	DATE	REVISION	BY	CHK'D	APP
0	7/84	ISSUED PER ISI			

SCALE NONE | DRAWN & PAINT | DRAWN & VERIFIED

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER BRANCHES
ZONE - 72

DRAWING NO: 1SI - 272H | REV: 1



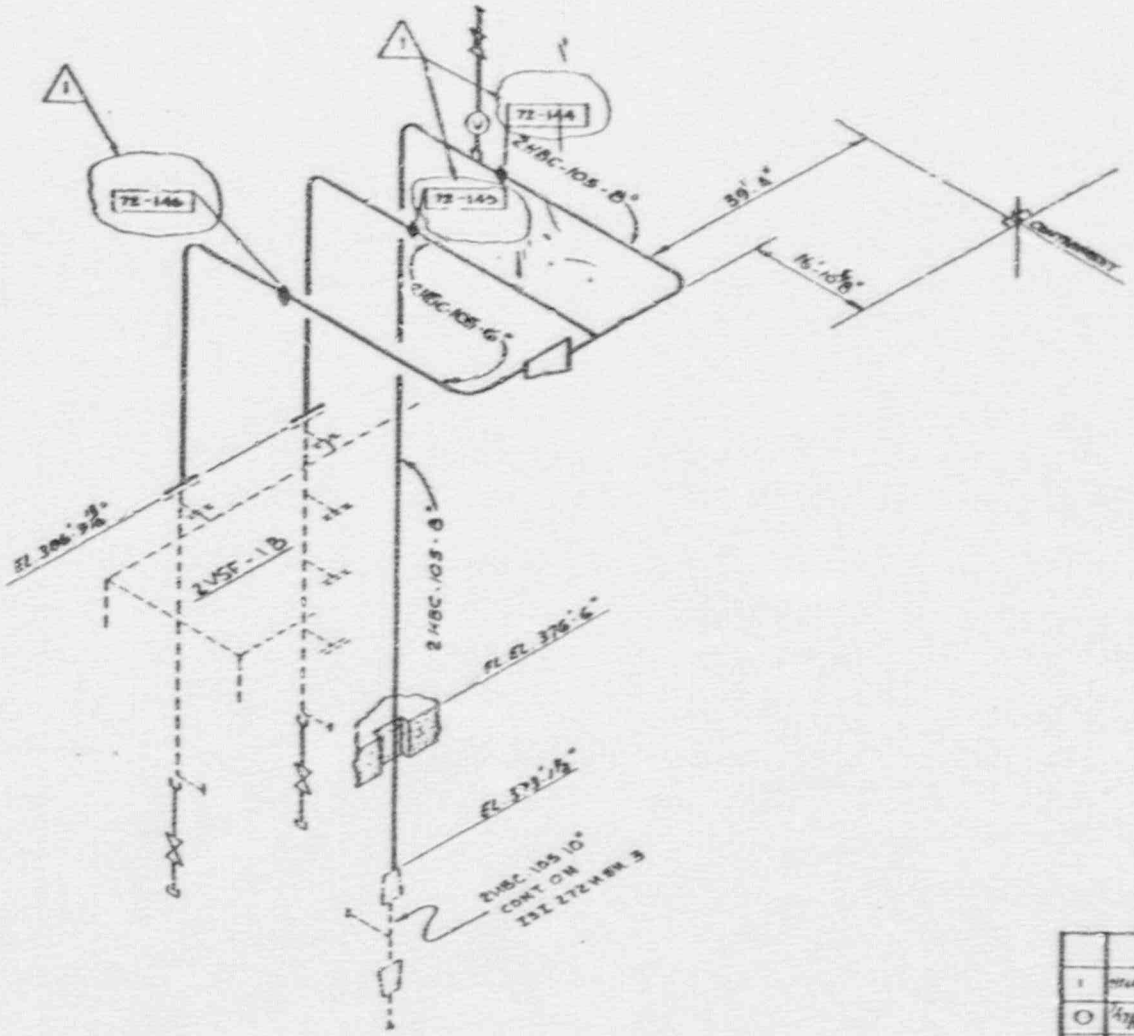
1	2-7-89	AS BUILT (CHANGE-1408)			
0		ISSUED PER ISI			
REV	DATE	REVISION	BY		

SCALE NONE | DESIGNED [illegible] | DRAWN K BINSTEAD

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER BRANCHES
ZONE-72

DRAWING NO: ISI-272 H | SHT 3 OF 25 | REV 1



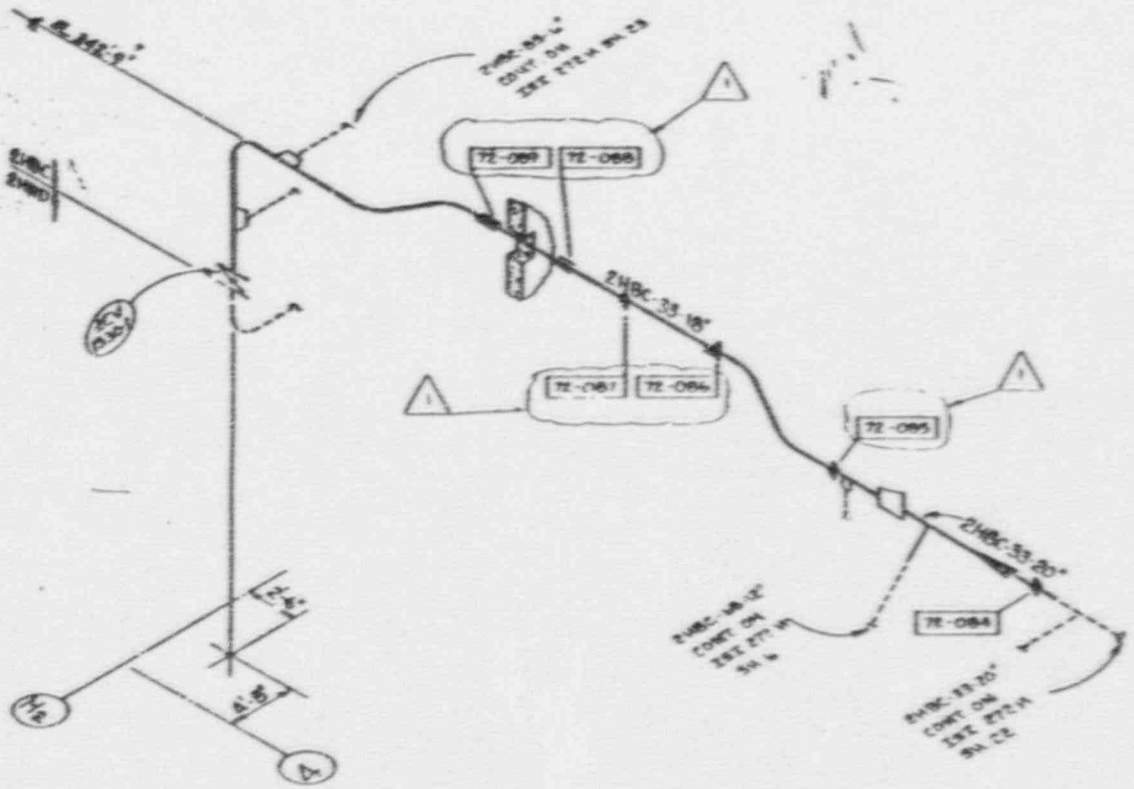
NO	DATE	REVISION	BY	CHK	APPROVED
1	11/1/81	AS BUILT - ISSUED FOR			
0	4/7/80	ISSUED PER			

SCALE NONE | DESIGN B. FALVE | DRAWN B. WHITEAR

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER BRANCHES
ZONE 72

DRAWING NO: ISI-272H | REV: 1



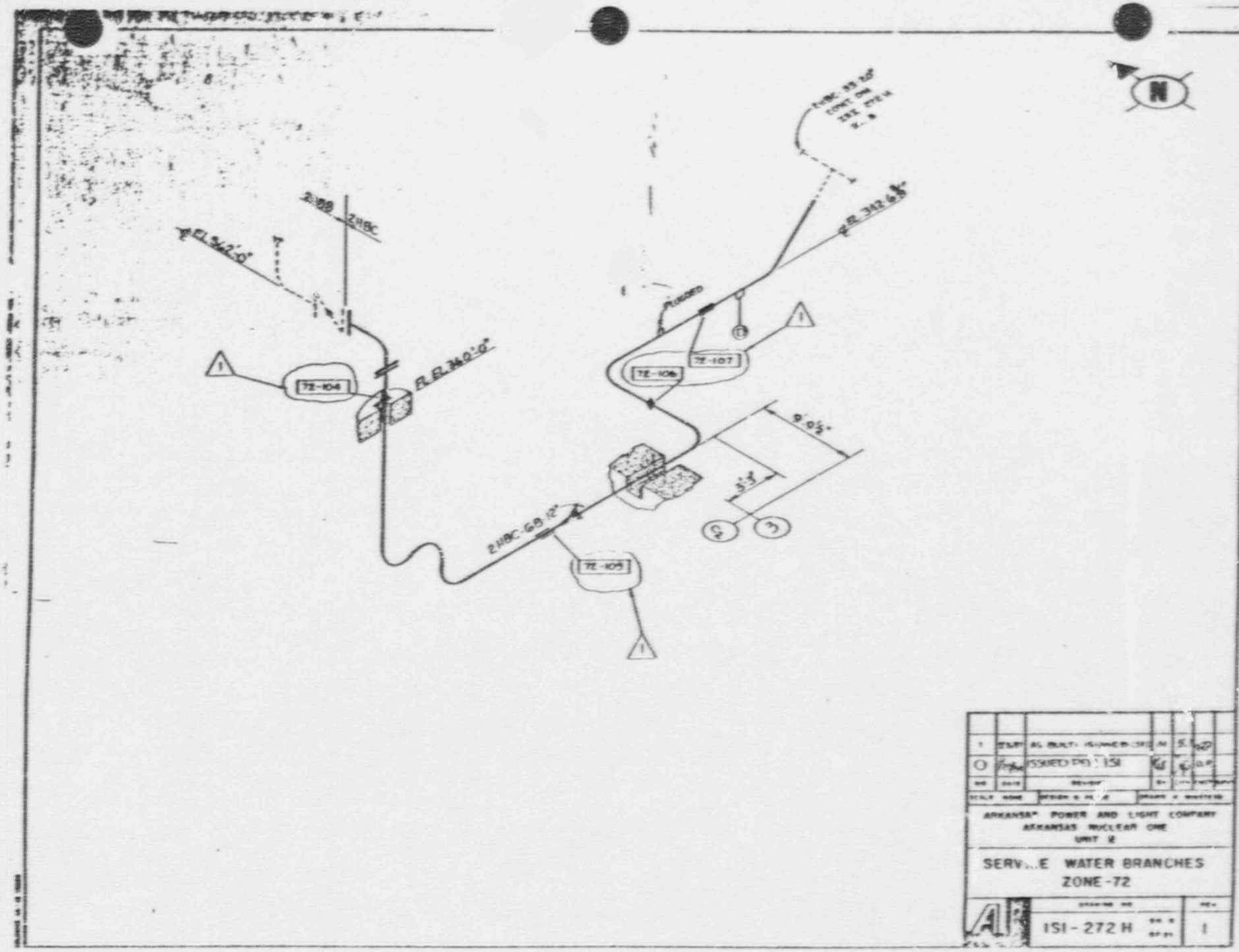
1		AS BUILT - IS-BUILT REVISION		
0		ISSUED PER ISI		
NO	DATE	REVISION	BY	CHK'D

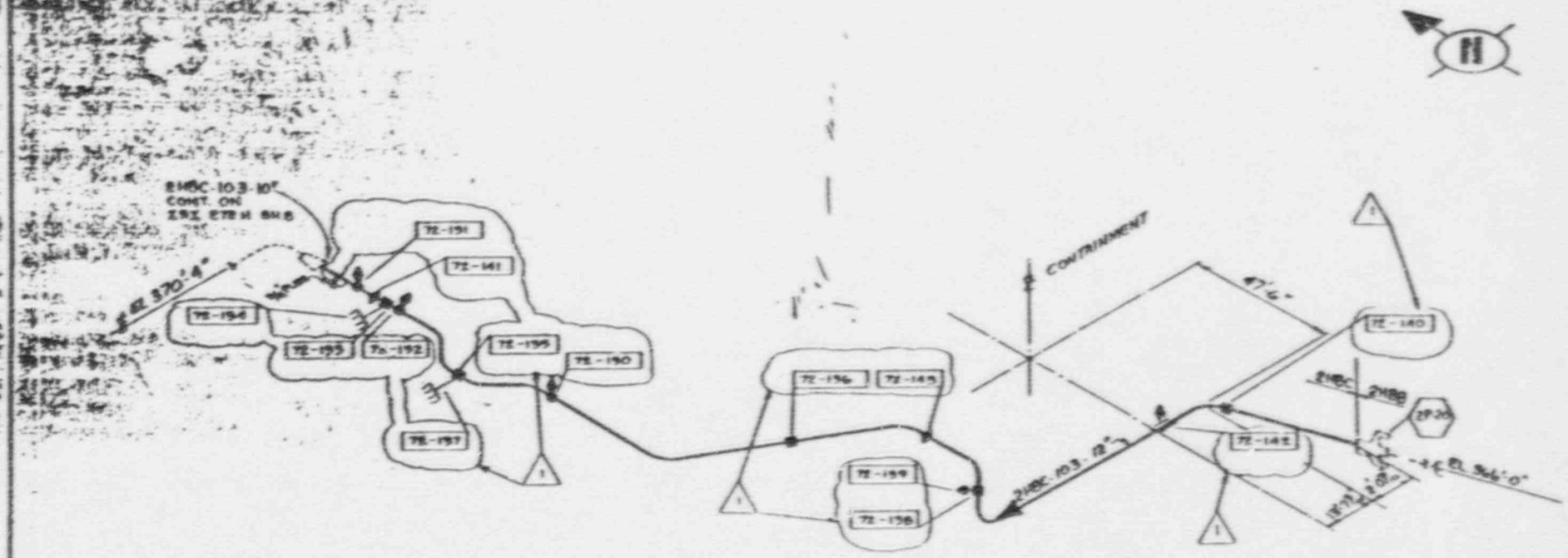
SCALE NONE | DESIGN & PLANE | DRAWN & WRITTEN

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER BRANCHES
ZONE-72

DRAWING NO: ISI-272H | REV: 1


N
2HBC
2HBC
FL EL 342'-0"
FL EL 340'-0"
72-104
1
FLOOD
72-107
72-106
1
FL EL 342'-6"
9'-0½"
3'-3"
2HBC-68'-12"
72-105
1
ISSUED FOR ISI
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2
SERV...E WATER BRANCHES
ZONE-72
ISI-272 H
1



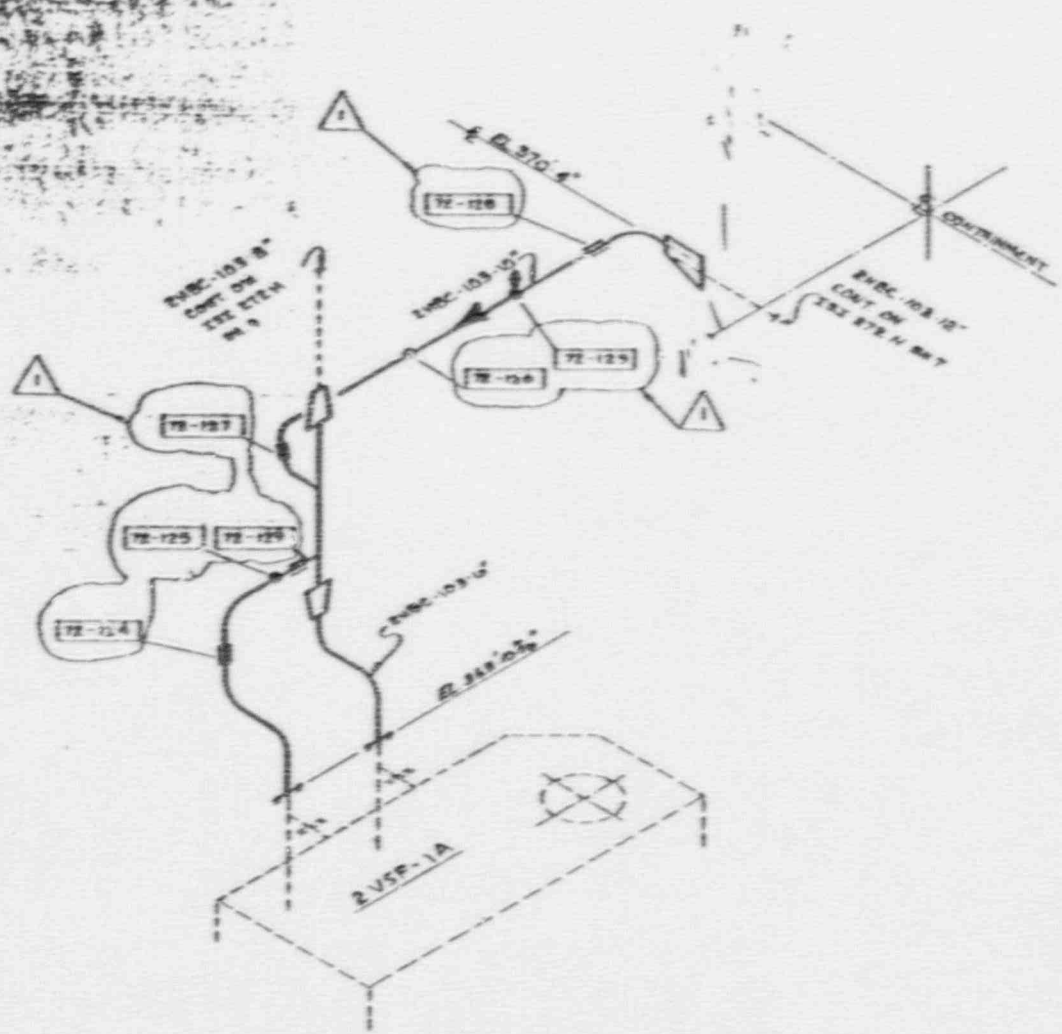
1		AS BUILT -		
0		ISSUED PER ISI		
NO	DATE	REVISION	BY	

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER BRANCHES
ZONE -72

DRAWING NO: ISI-272H

REV: 1



1		AS SUILT: ISI-SHEET		
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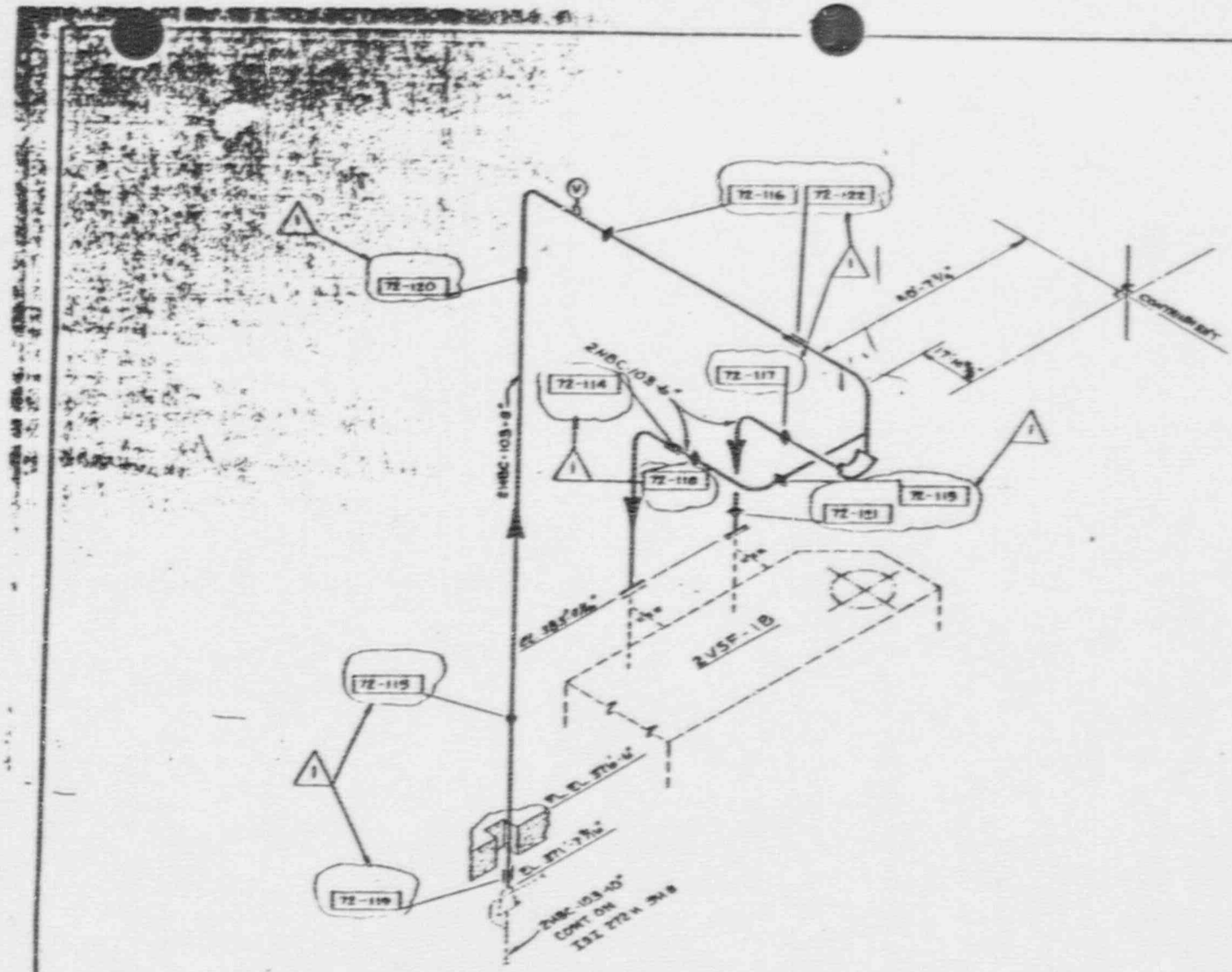
NO	DATE	REVISION	BY	CHK'D

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER BRANCHES
ZONE-72

DRAWING NO: ISI-272H

REV: 1



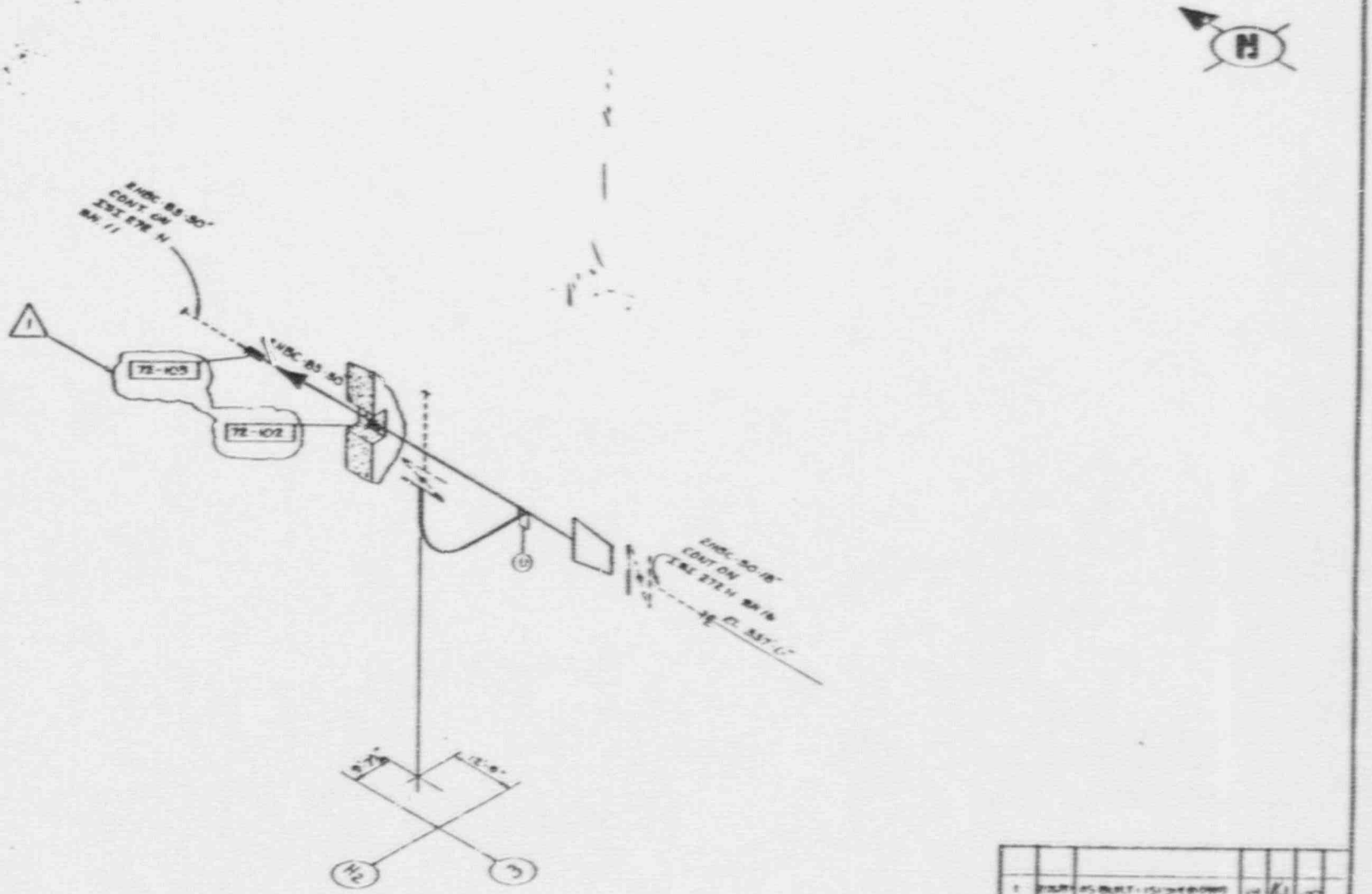
NO	DATE	REVISION	BY	CHK'D	APPROVED
1		AS BUILT - ISI 272 H			
0	7/9	ISSUED PER ISI			

SCALE NONE — DESIGN D. JONES — DRAWN A. WILLIAMS

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER BRANCHES
ZONE -72

DRAWING NO: ISI - 272H — REV: 1



1		AS-BUILT - ISI SHEET			
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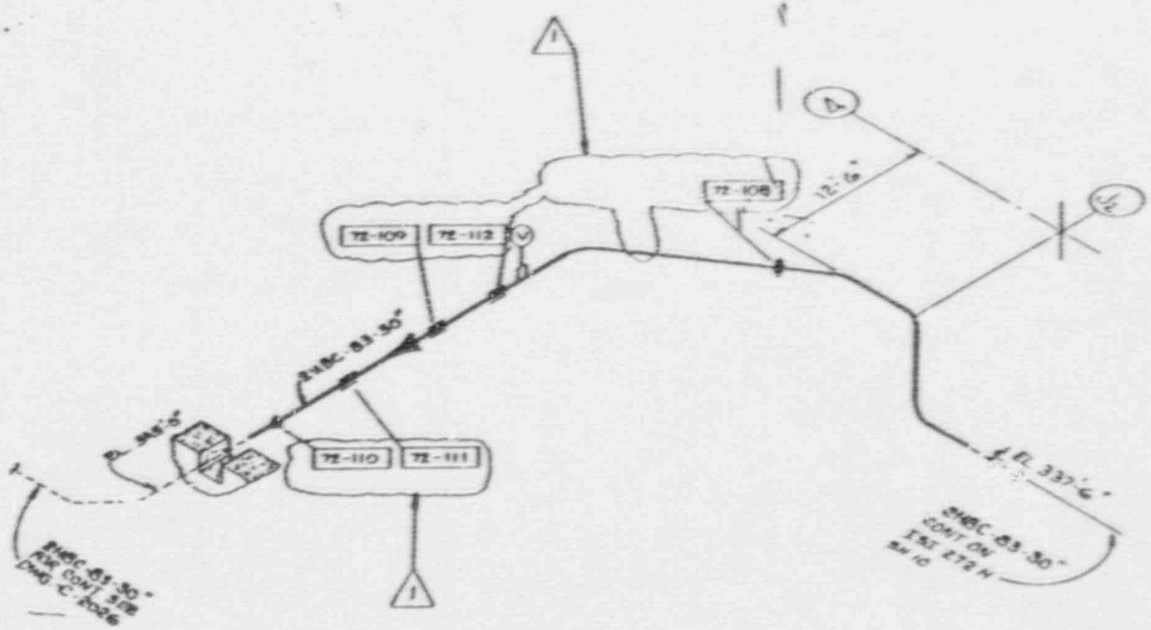
NO	DATE	REVISION			

SCALE NONE

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER BRANCHES
ZONE-72

DRAWING NO		REV.
ISI-272H		1



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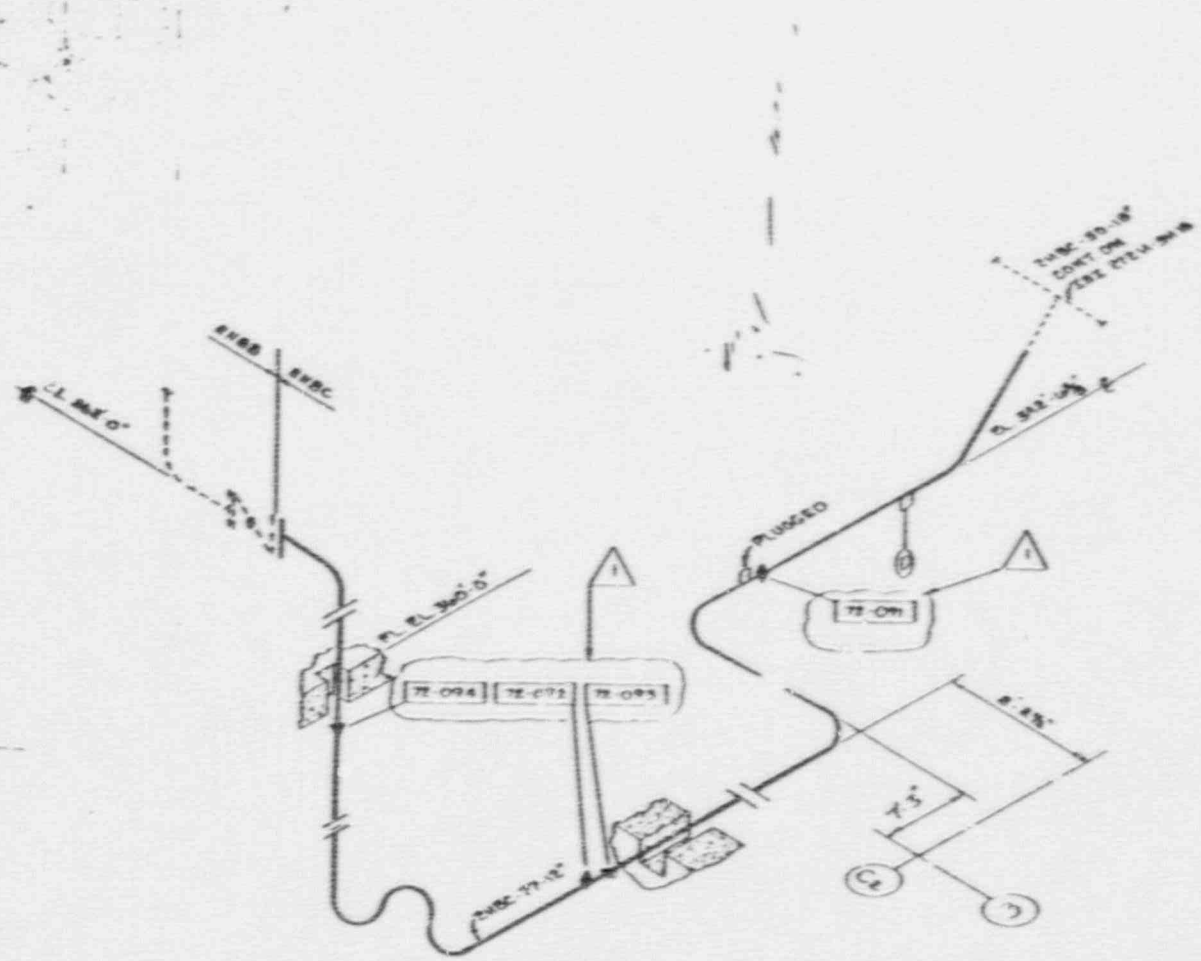
NO	DATE	REVISION	BY	

SCALE NONE | DESIGN 3 PHASE | DRAWN A. A. STEVENS

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER BRANCHES
ZONE-72

DRAWING NO: ISI-272H | REV: 1



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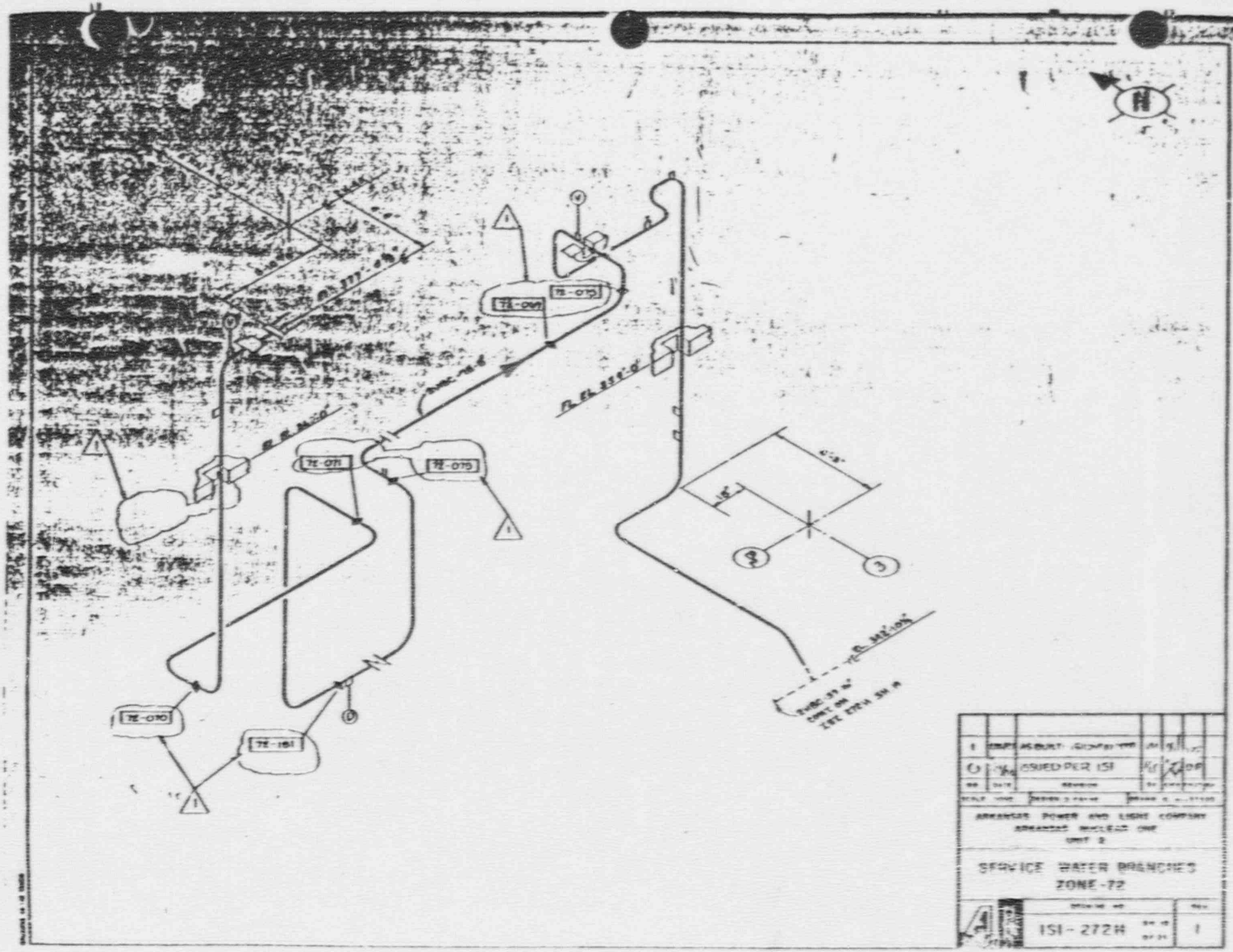
NO	DATE	REVISION	BY		

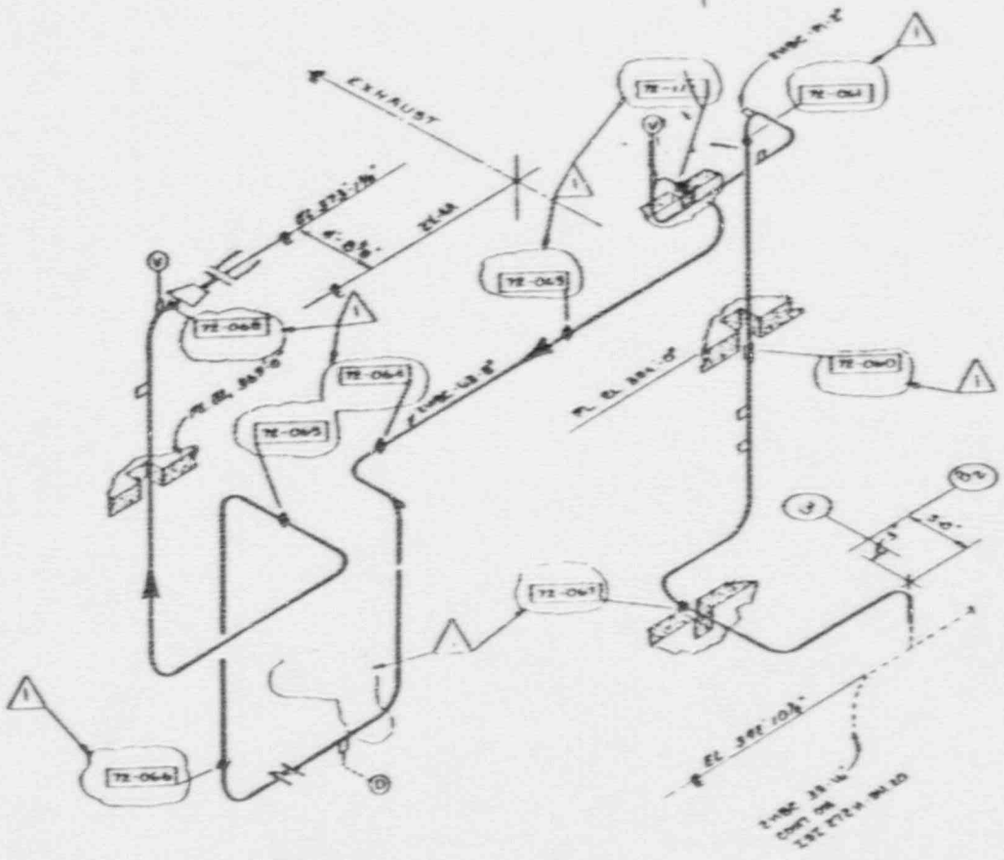
SCALE NONE | DESIGN D. PARKER | DRAWN K. KNISTEAD

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER BRANCHES
ZONE -72

DRAWING NO: ISI-272H | REV: 1


72-010
72-011
72-015
72-016
72-017
72-018
ISSUED PER ISI
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2
SERVICE WATER BRANCHES
ZONE-72
ISI-272H
1

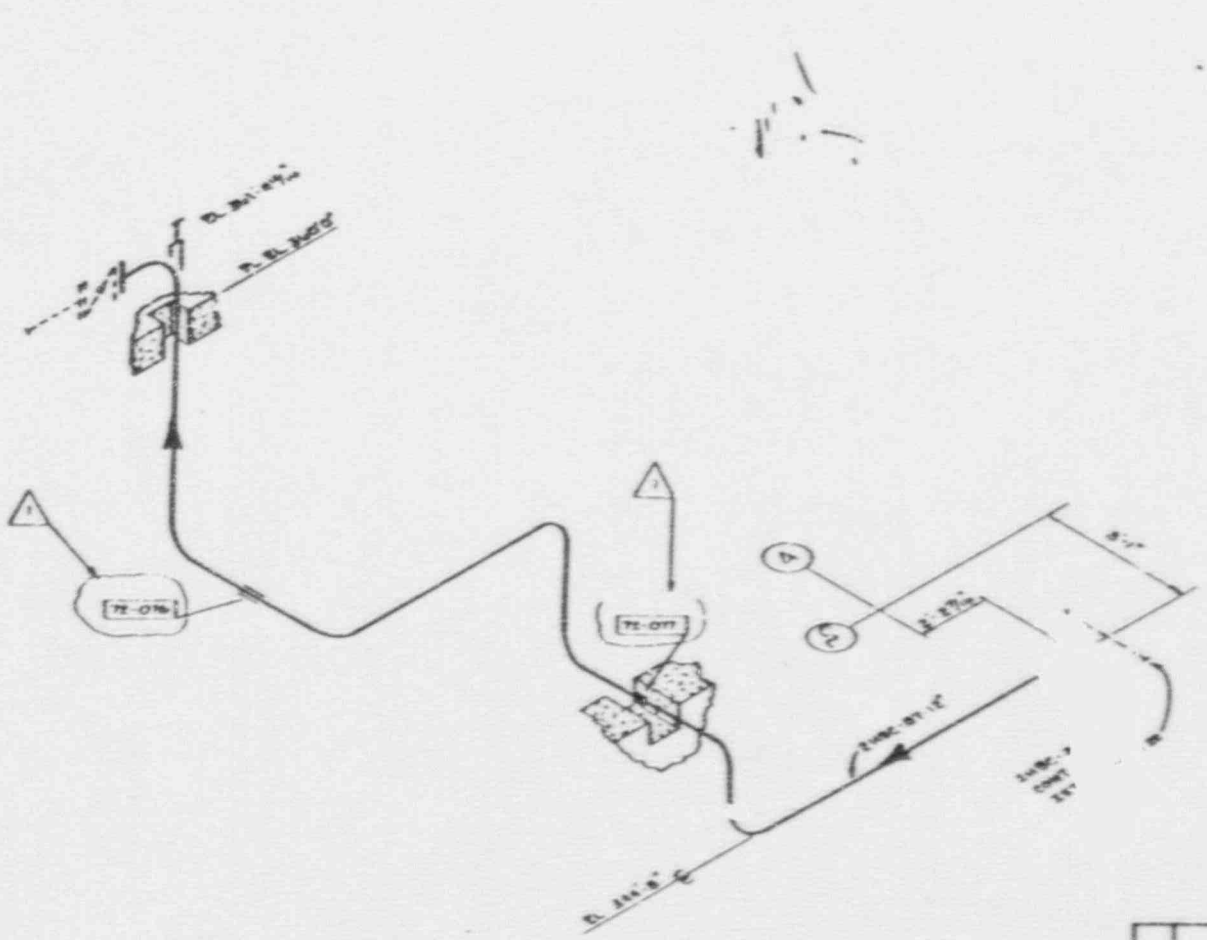


1		AS BUILT		
0		VARIFIER 151		
NO	DATE	REVISION	BY	CHK

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER BRANCHES
ZONE-72

DRAWING NO. 151-272H REV. 1

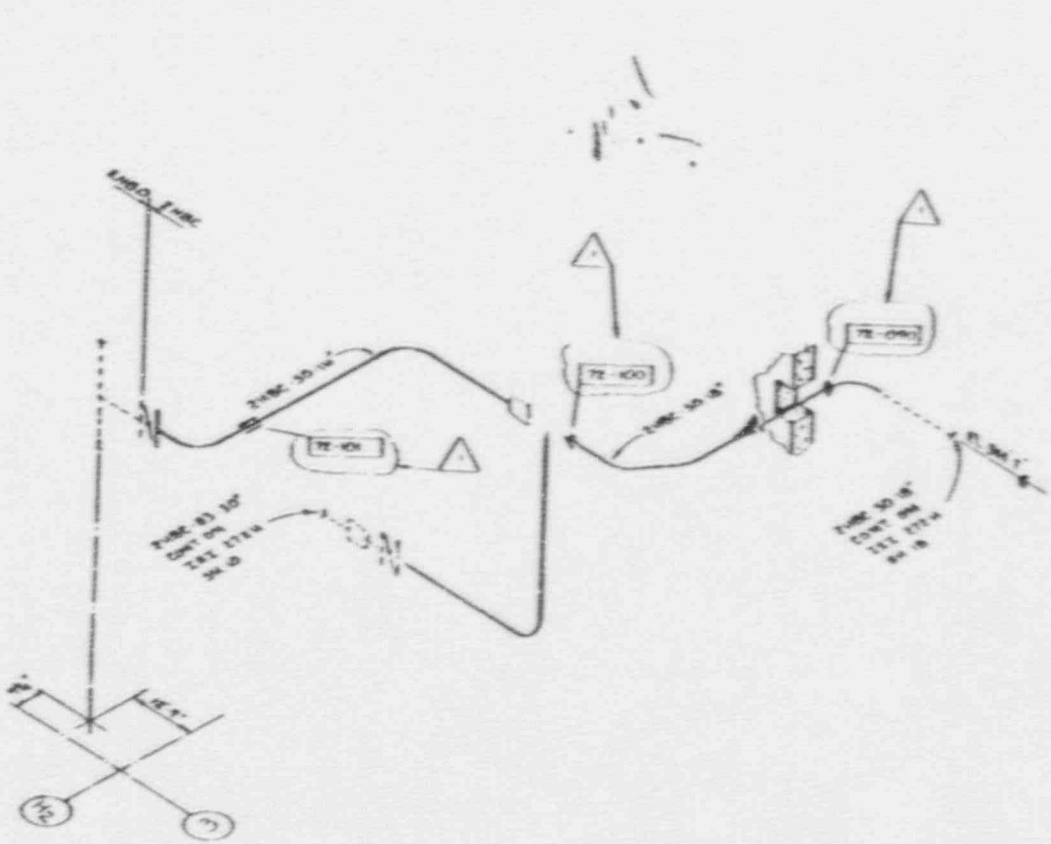


ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER BRANCHES
ZONE-72

ISI-272H

1

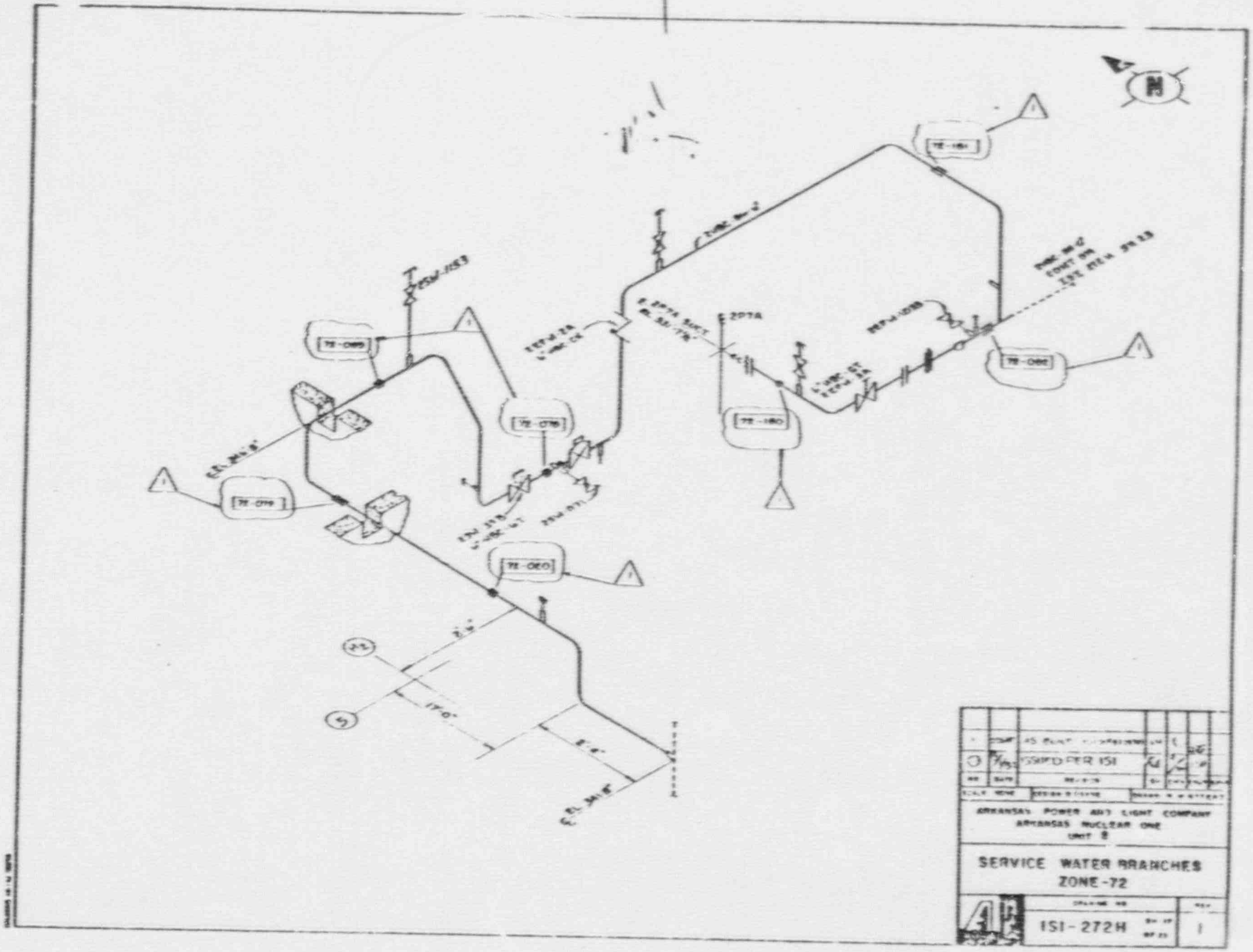


ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

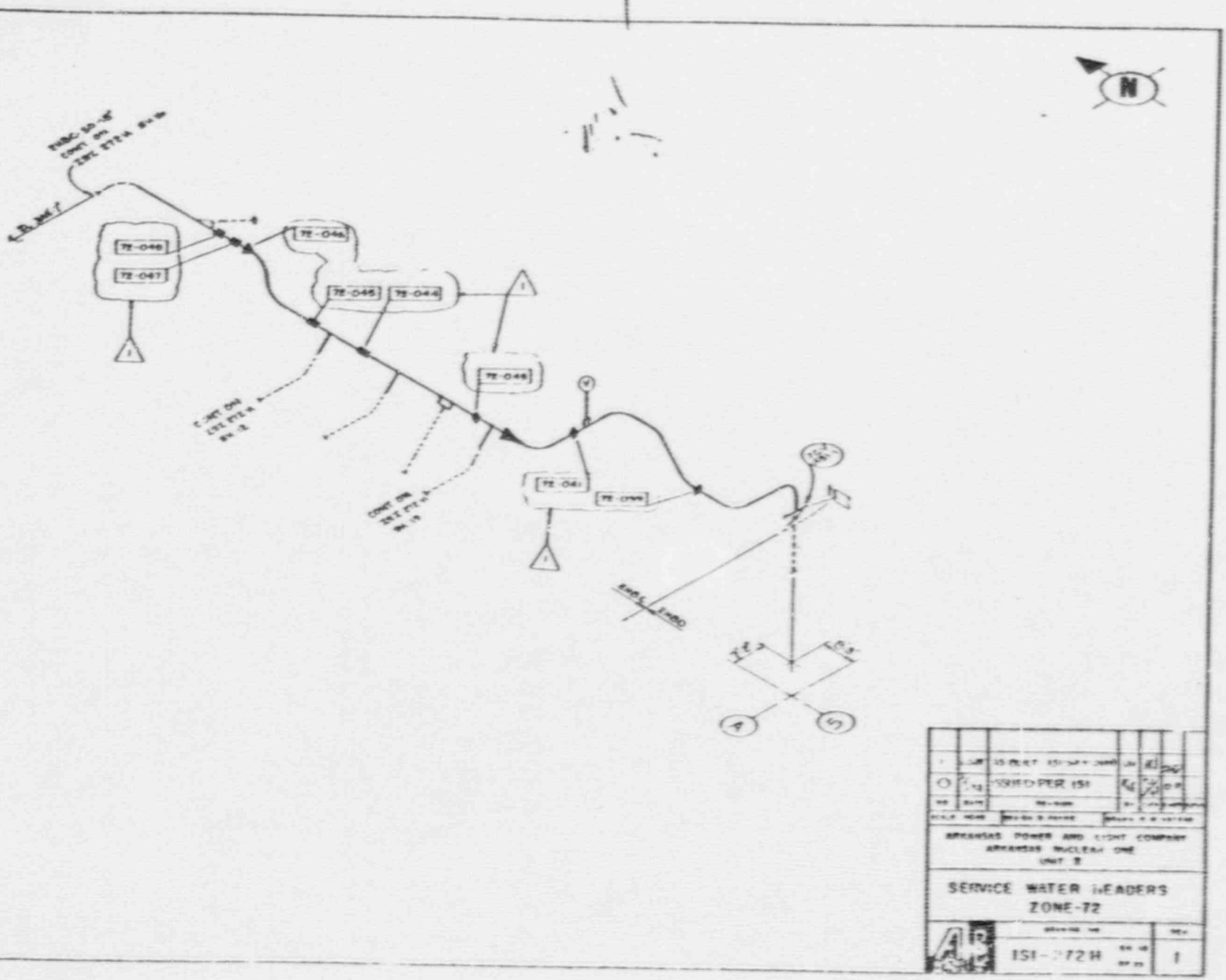
SERVICE WATER BRANCHES
2-NE-72

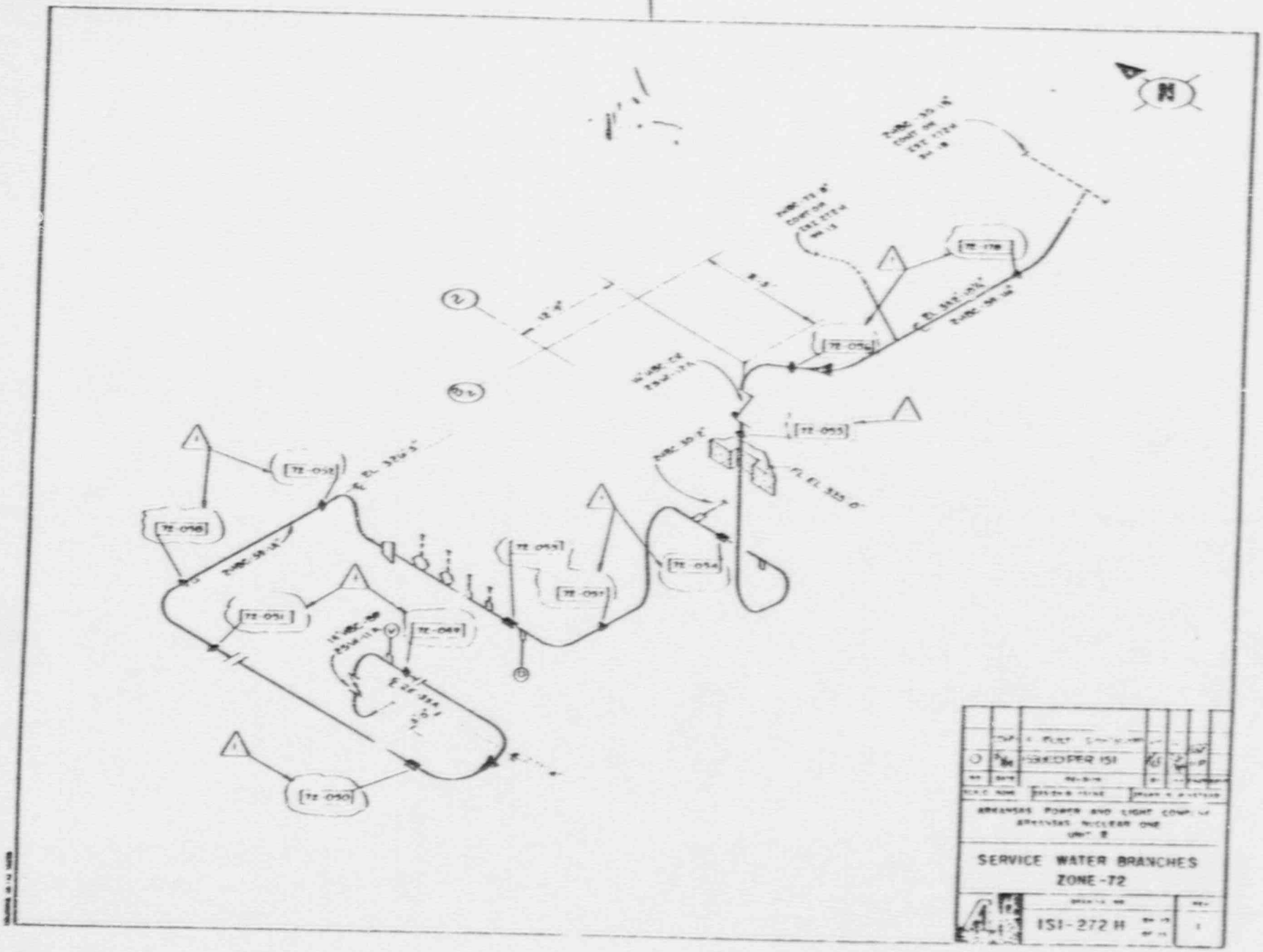
ISI-272H

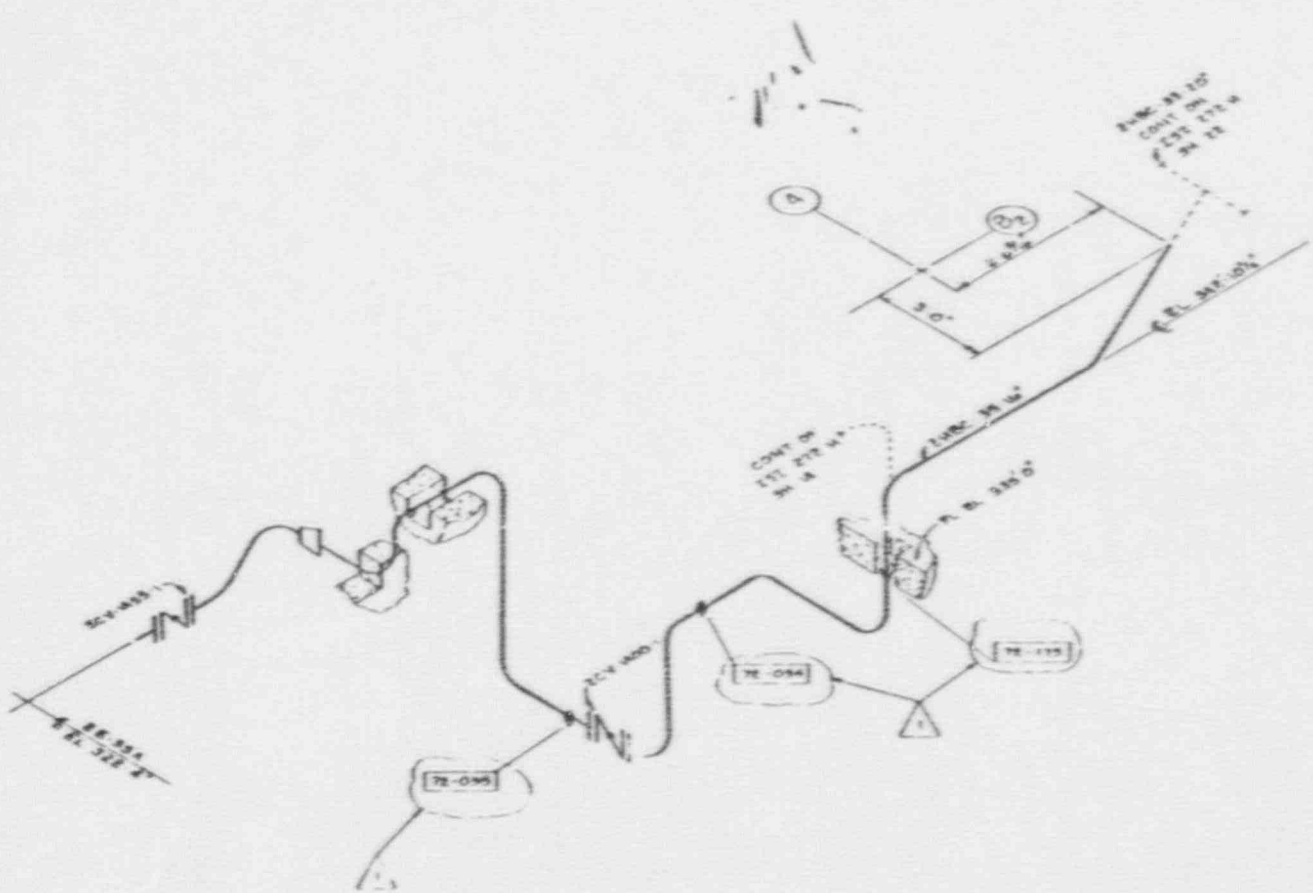
1



2SW-1153
TE-C165
TE-C176
TE-C179
TE-C180
TE-161
TE-160
TE-C182
2PTA
17'-0"
5'-6"
SERVICE WATER BRANCHES
ZONE-72
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2
ISSUED FOR ISI
ISI-272H
1


N
72-046
72-045
72-044
72-048
72-041
72-039
A
S
ISI-OPER ISI
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2
SERVICE WATER HEADERS
ZONE-72
ISI-272H
1


N
2
72-056
72-055
72-054
72-053
72-052
72-051
72-050
72-049
72-048
72-047
72-046
FL EL 335.6
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2
SERVICE WATER BRANCHES
ZONE -72
ISI-272 H

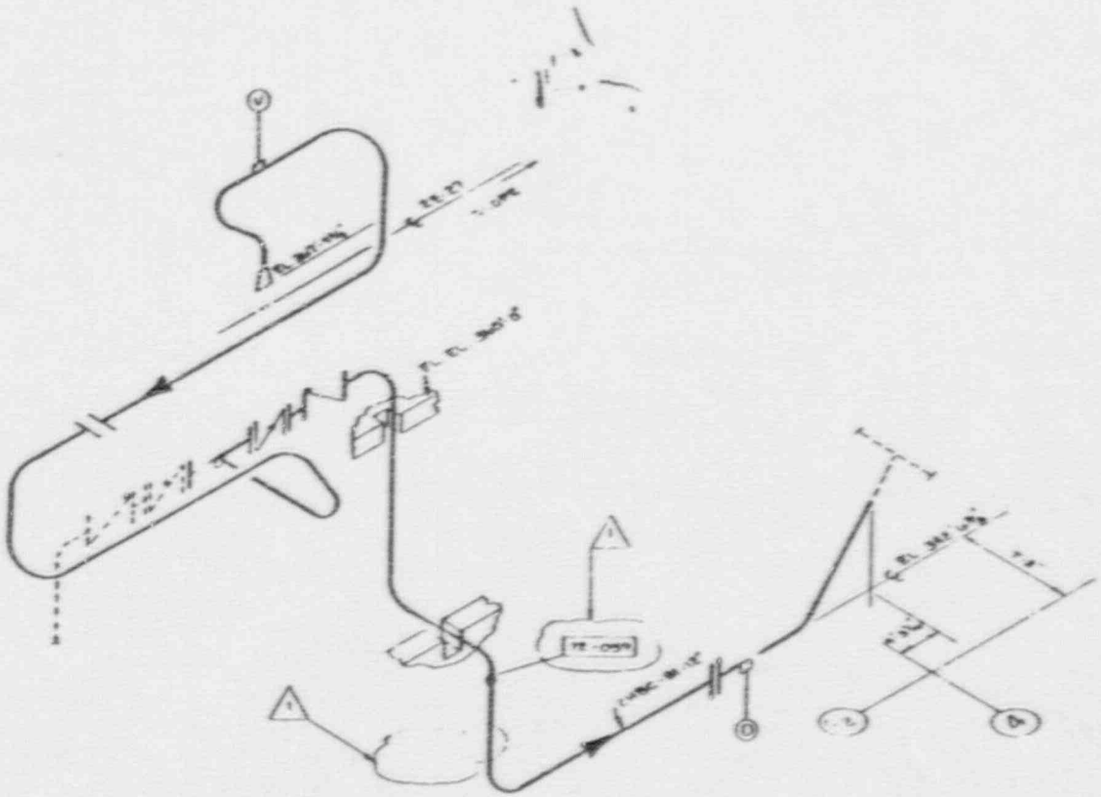


ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER BRANCHES
ZONE-72

ISI-272H

1

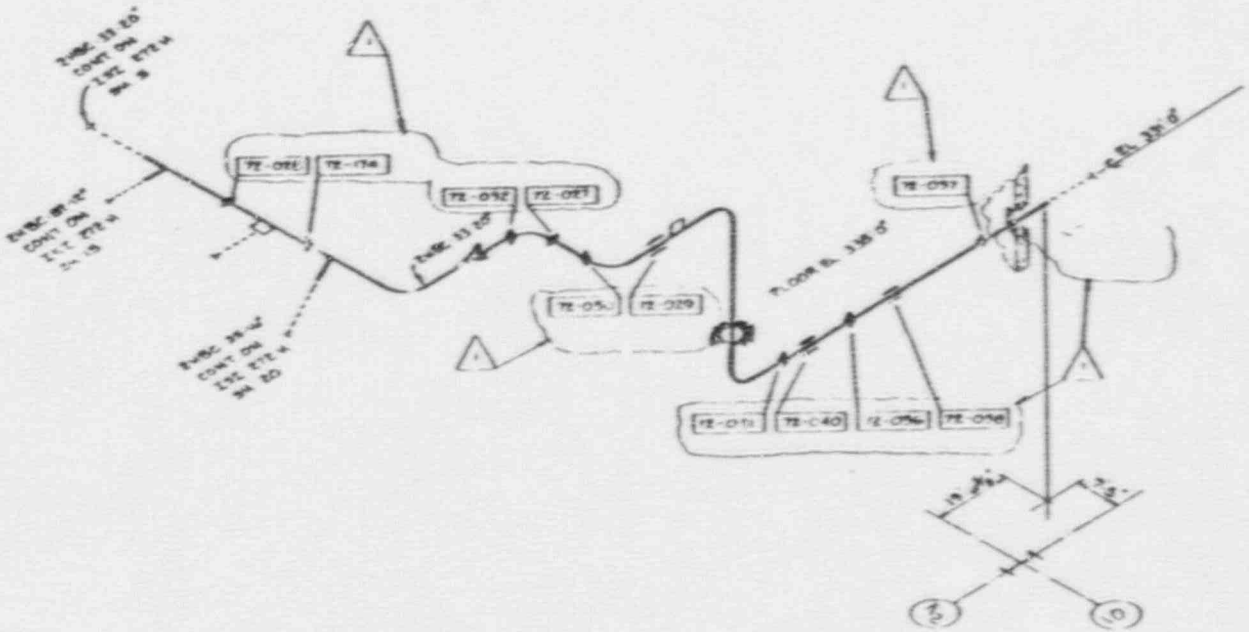


ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER BRANCHES
ZONE-72

1SI-272H

1

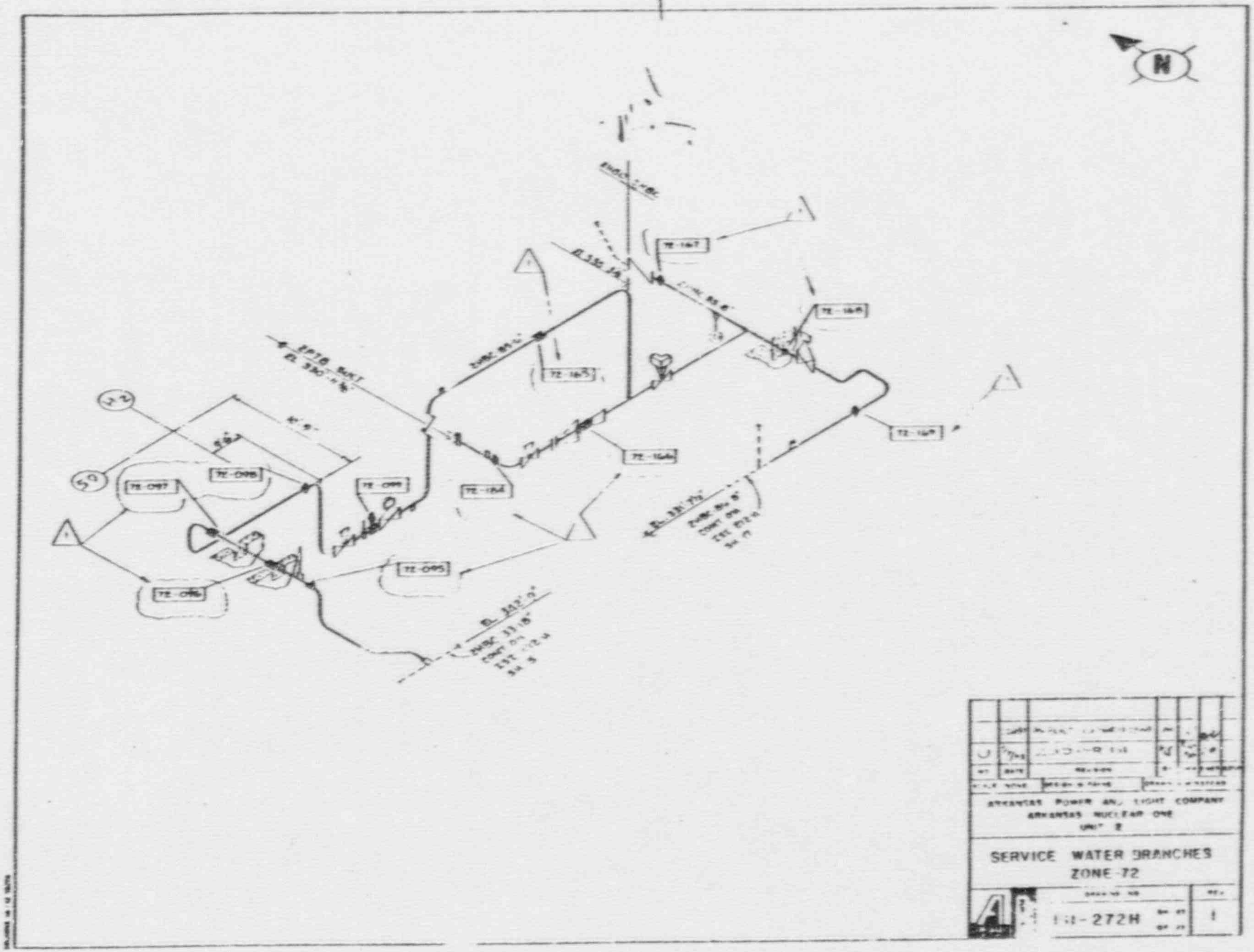


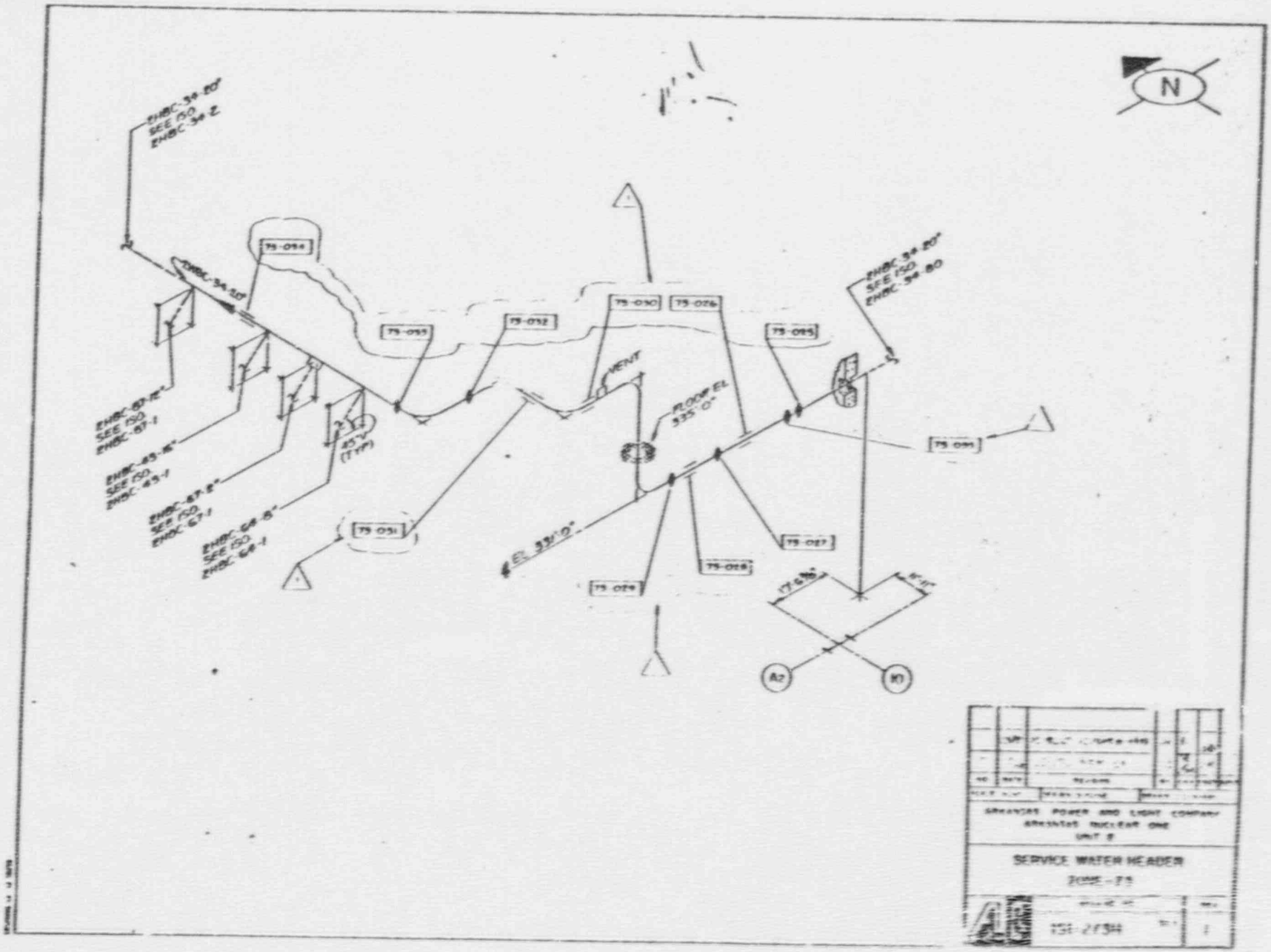
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

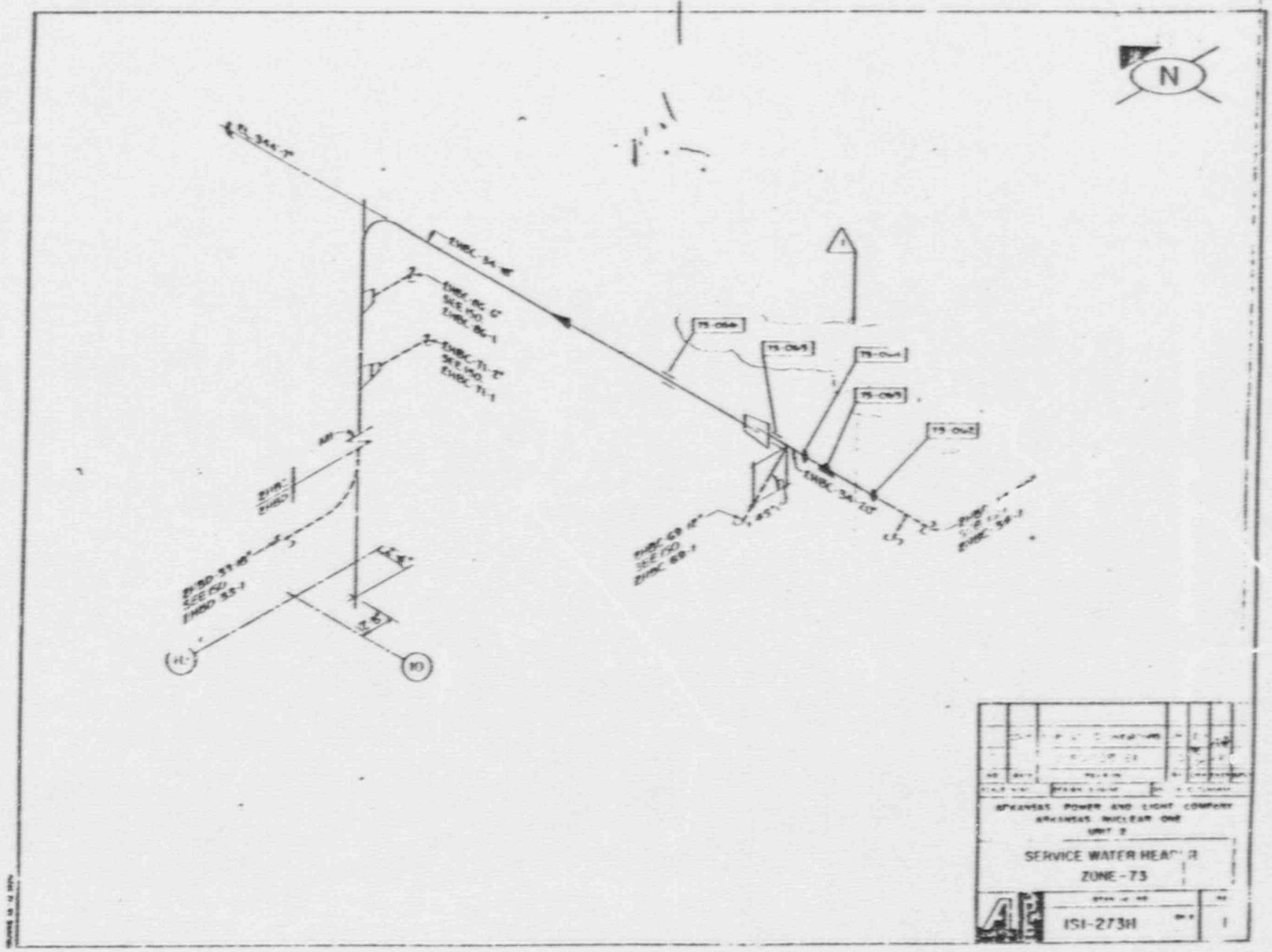
SERVICE WATER BRANCHES
ZONE-72

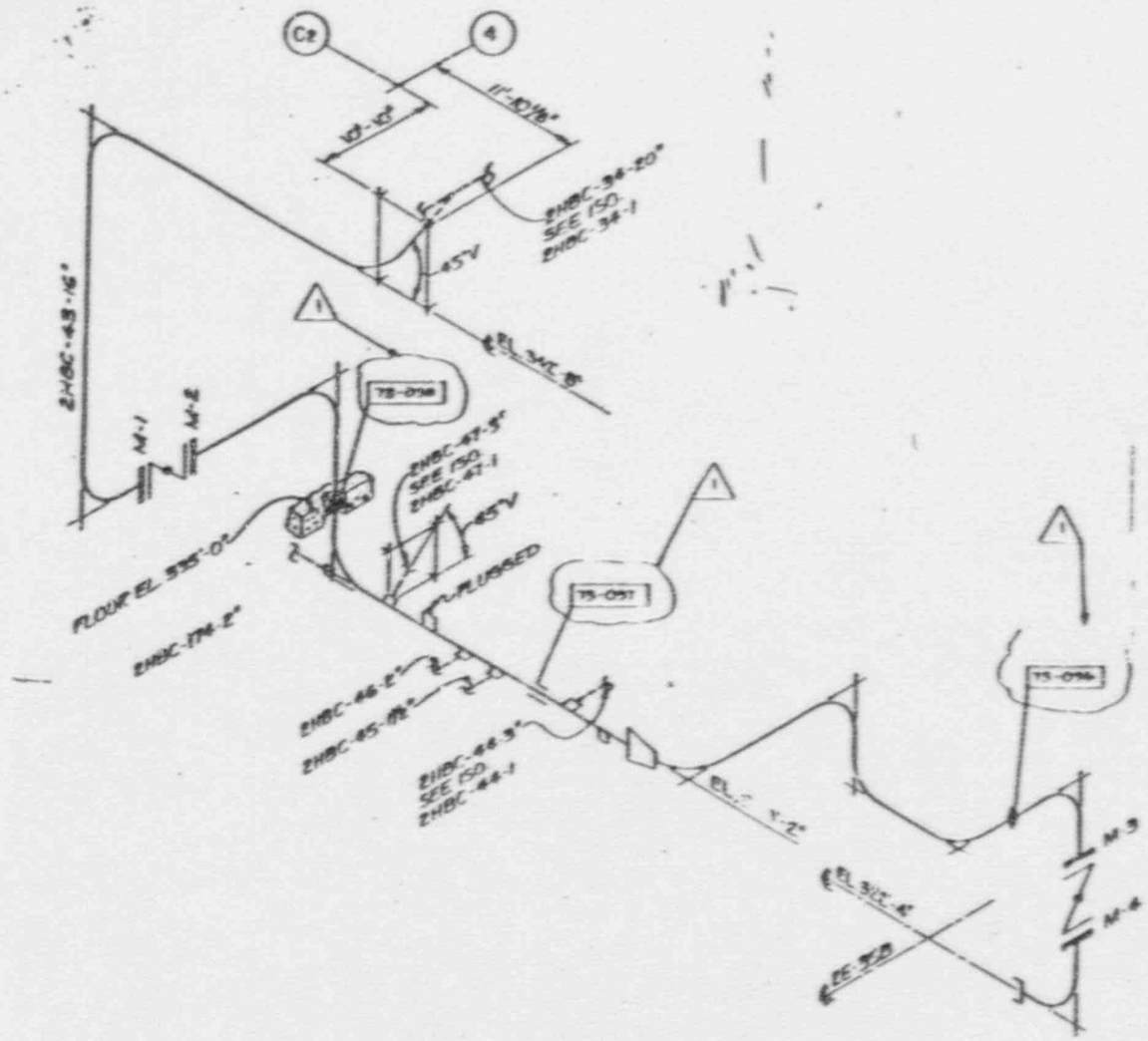
ISI-272H

1


N
72-167
72-168
72-165
72-169
72-164
72-184
72-099
72-098
72-097
72-095
72-096
EL 330'-4⅝"
SERVICE WATER BRANCHES
ZONE-72
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2
-272H


N
EHBC-34-50"
SEE ISO
EHBC-34-2
EHBC-34-50"
75-054
75-055
75-052
75-030
75-026
75-025
EHBC-34-50"
SEE ISO
EHBC-34-50
EHBC-50-12"
SEE ISO
EHBC-51-1
EHBC-45-16"
SEE ISO
EHBC-45-1
EHBC-67-2"
SEE ISO
EHBC-67-1
EHBC-68-15"
SEE ISO
EHBC-68-1
45°
(TYP)
VENT
FLOOR EL
335'-0"
75-031
EL 335'-0"
75-029
75-028
75-027
75-031
17'-0"
A2
B0
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2
SERVICE WATER HEADER
ZONE - 75
1


N
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2
SERVICE WATER HEADER
ZONE - 73
ISI-273H



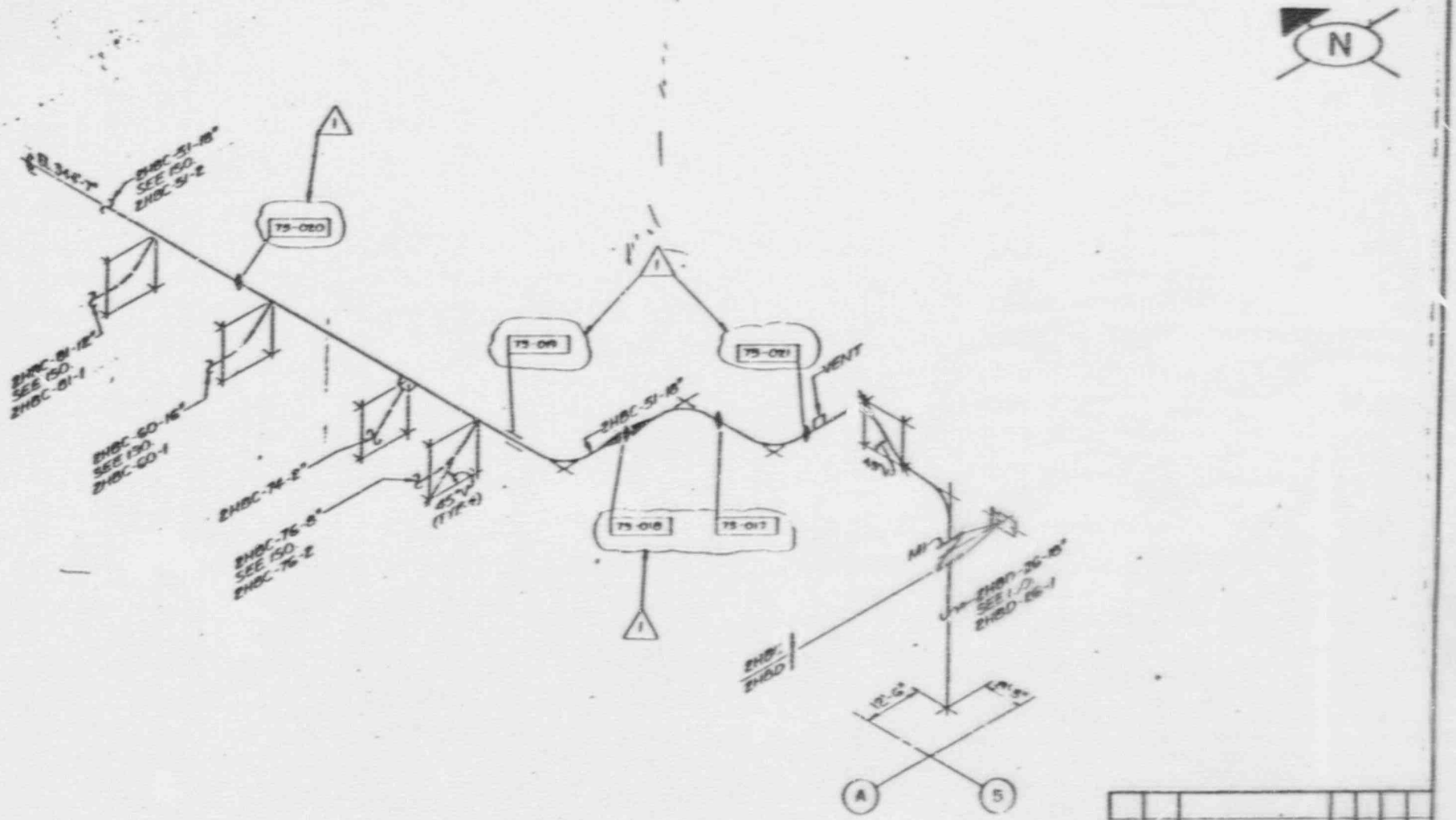
1		AS BUILT ISI-DWG REVISIONS			
0		ISSUED PER ISI			
NO	DATE	REVISION	BY		

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER HEADER
ZONE-73

DRAWING NO: ISI-273H

REV: 1



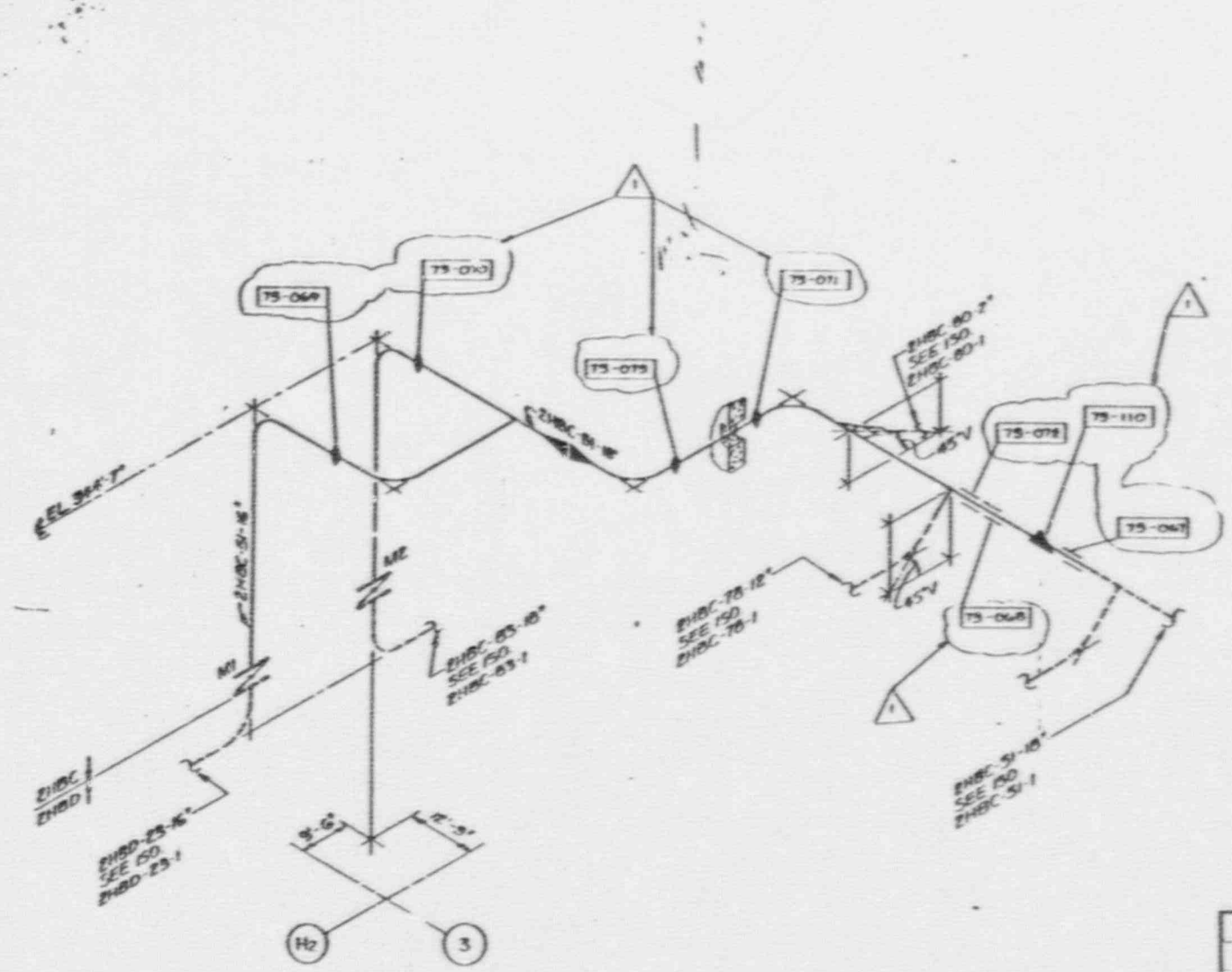
1		AS BUILT - ISI			
0		ISSUED PER ISI			
NO	DATE	REVISION	BY		

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER HEADER
ZONE-73

ISI-273H

REV 1



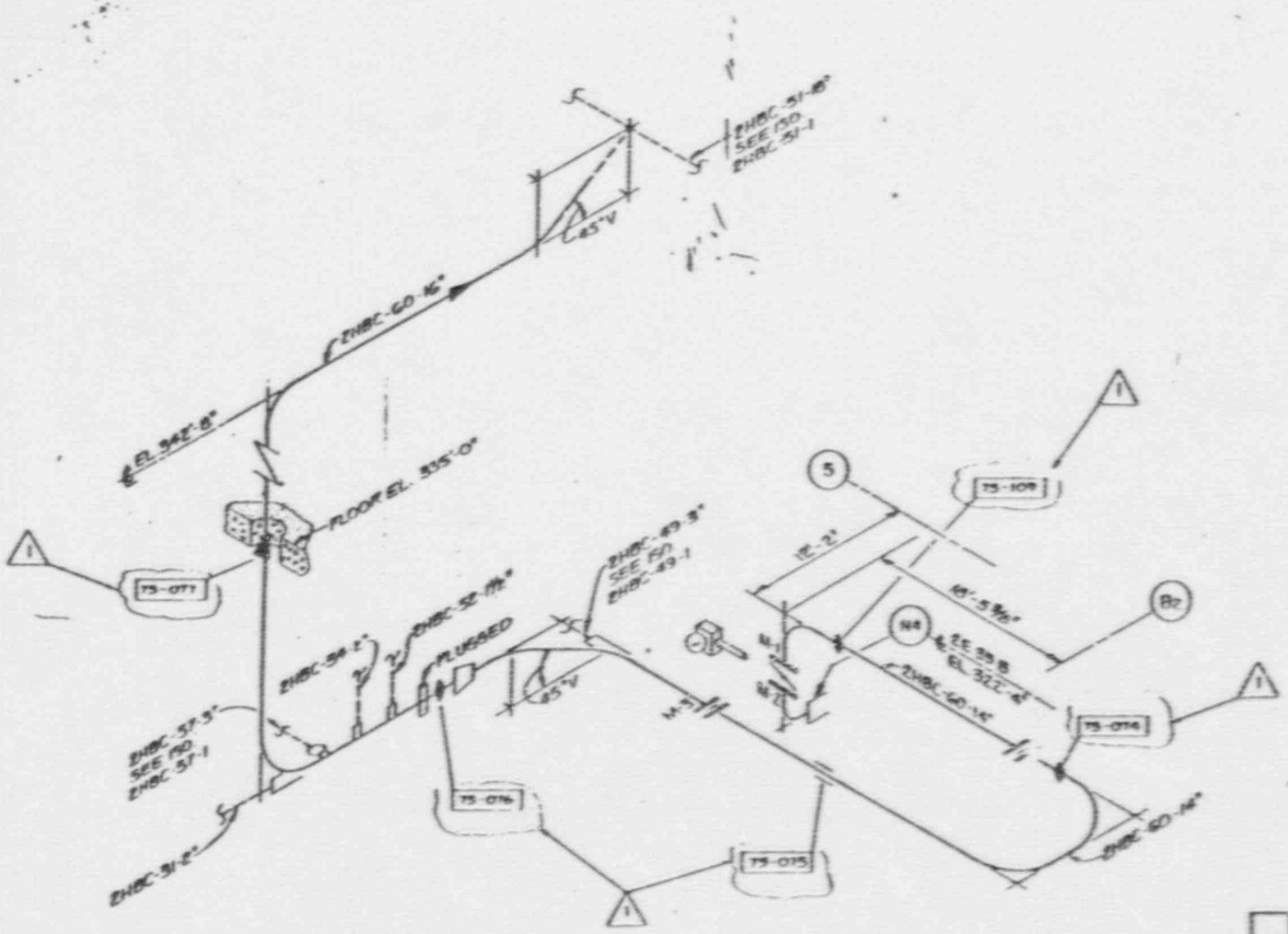
1		AS-BUILT - ISSUED PER ISI			
0		ISSUED PER ISI			
NO	DATE	REVISION	BY	CHK	APPROVED

SCALE NONE | DESIGN B. PAYNE | DRAWN C. BURNSIDE

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER HEADER
ZONE-73

DRAWING NO. ISI-273H | REV. 1

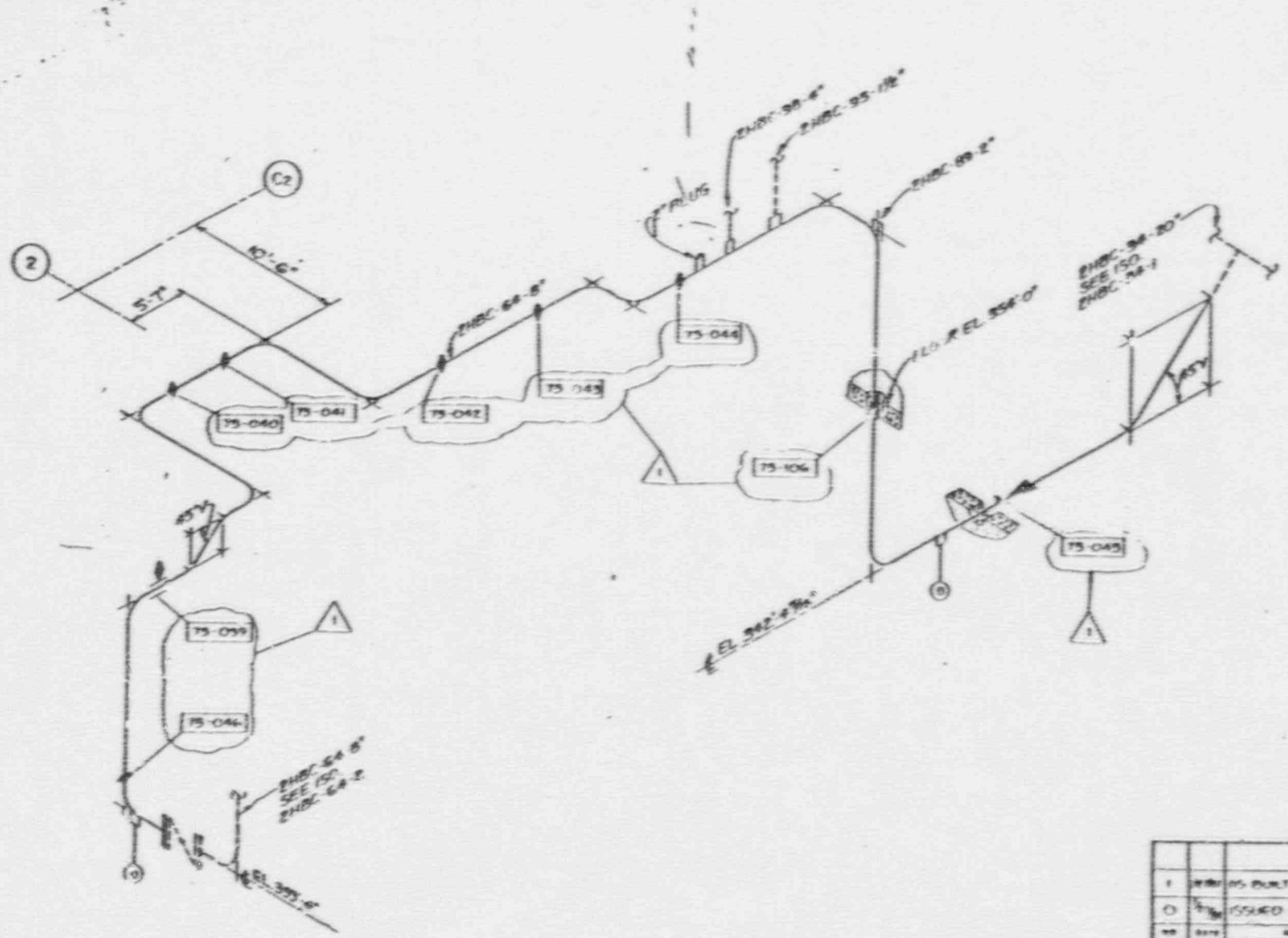


1		AS BUILT - ISIM			
0		ISSUED PER ISI			
NO	DATE	REVISION			

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER HEADER
ZO[illegible]-77

DRAWING NO. ISI-273H REV. 1



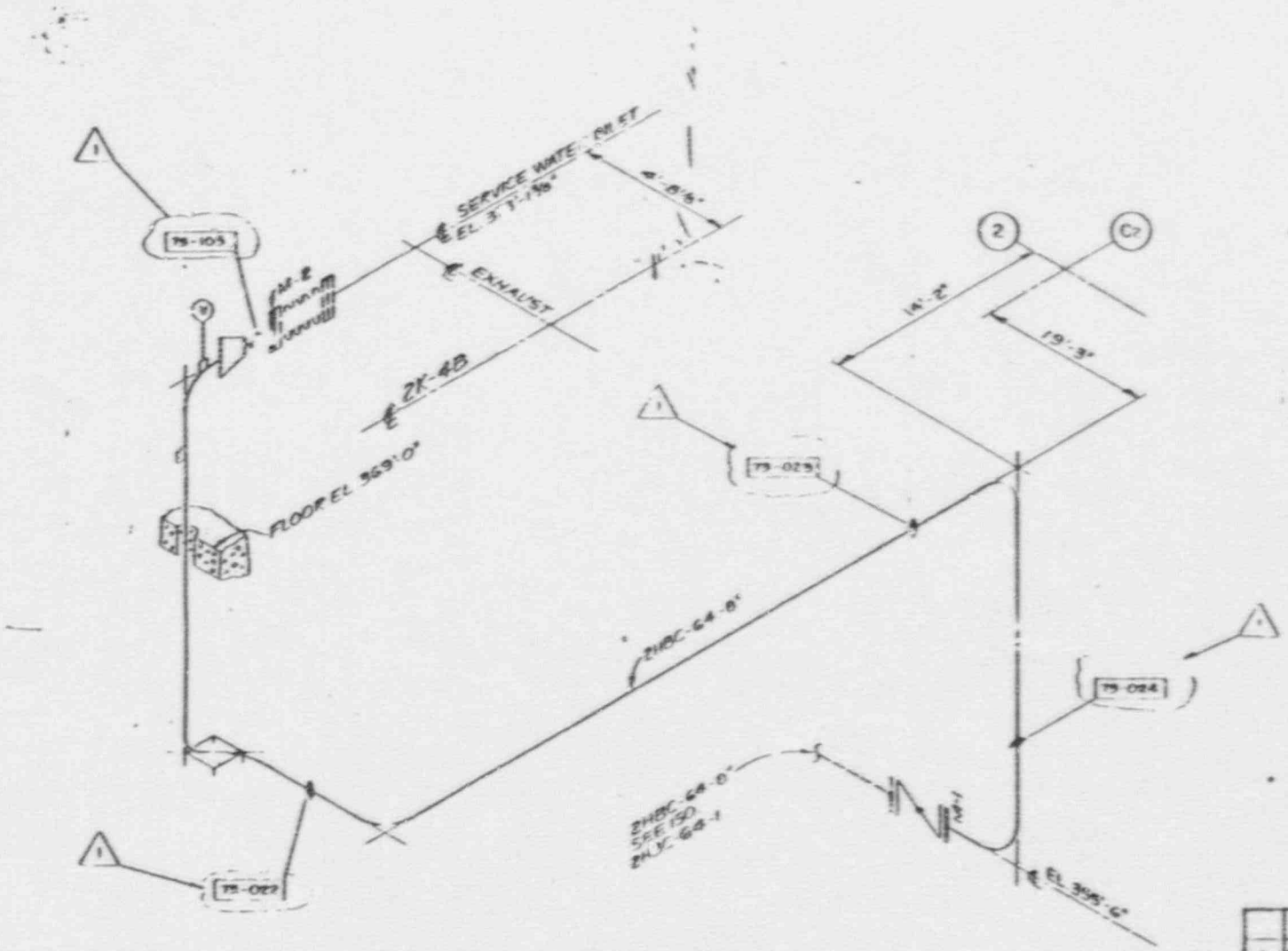
1		RS BOLT-ON [illegible]			
0		ISSUED PER ISI			
NO	DATE	REVISION			

SCALE NONE | DESIGN [illegible] | DRAWN [illegible]

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER HEADER
ZONE-73

DRAWING NO. ISI-273H | REV. 1



1		AS BUILT - ISOMETRIC			
0		ISSUED FOR ISI			
NO	DATE	REVISION	BY		

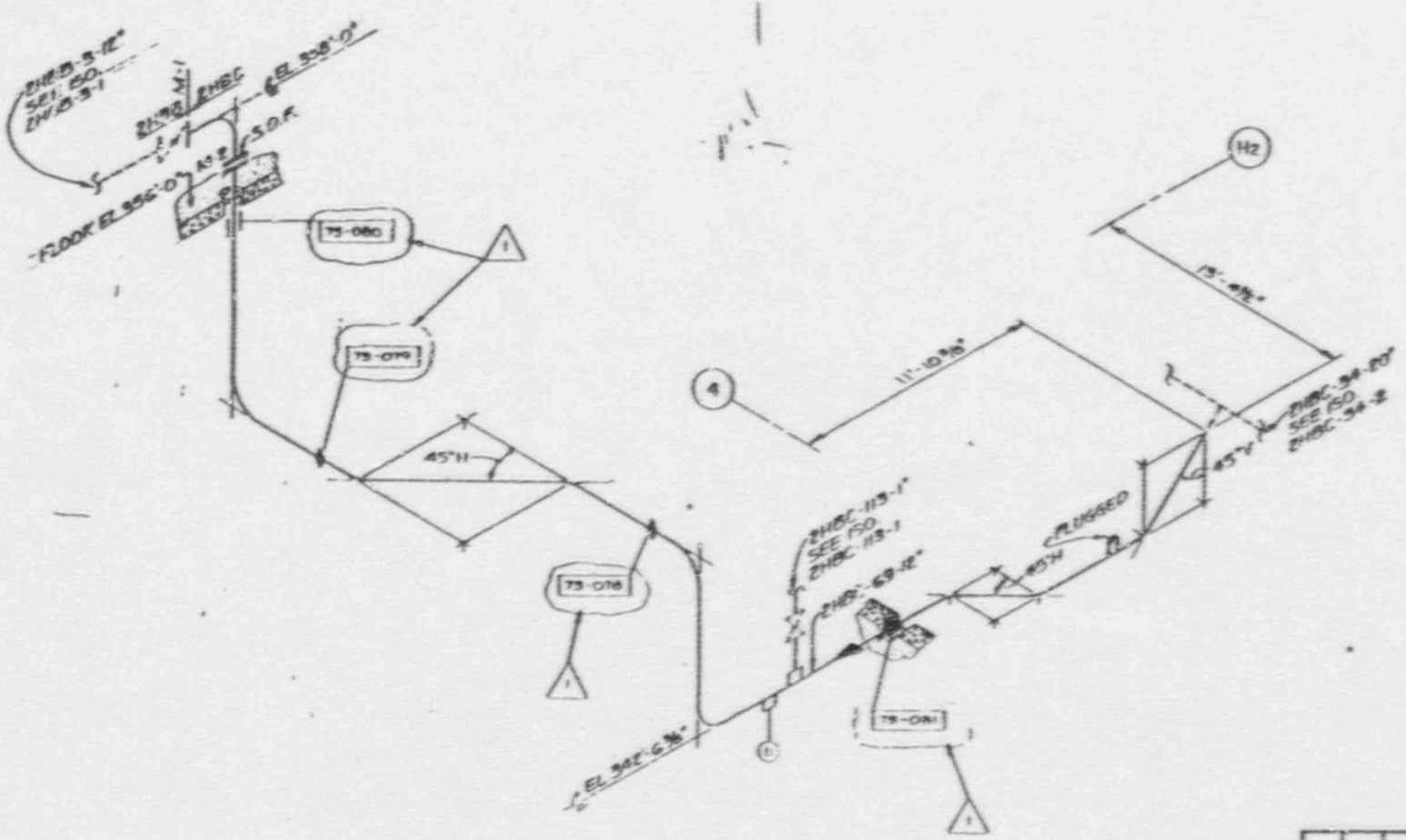
SCALE NONE | DESIGN E. HAYNE | DRAWN C. SUTLIFF

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER HEADER
ZONE - 73

DRAWING NO. ISI-27.'H

REV.



1		AS BUILT		
0		ISSUED PER ISI		
NO	DATE	REVISION	BY	

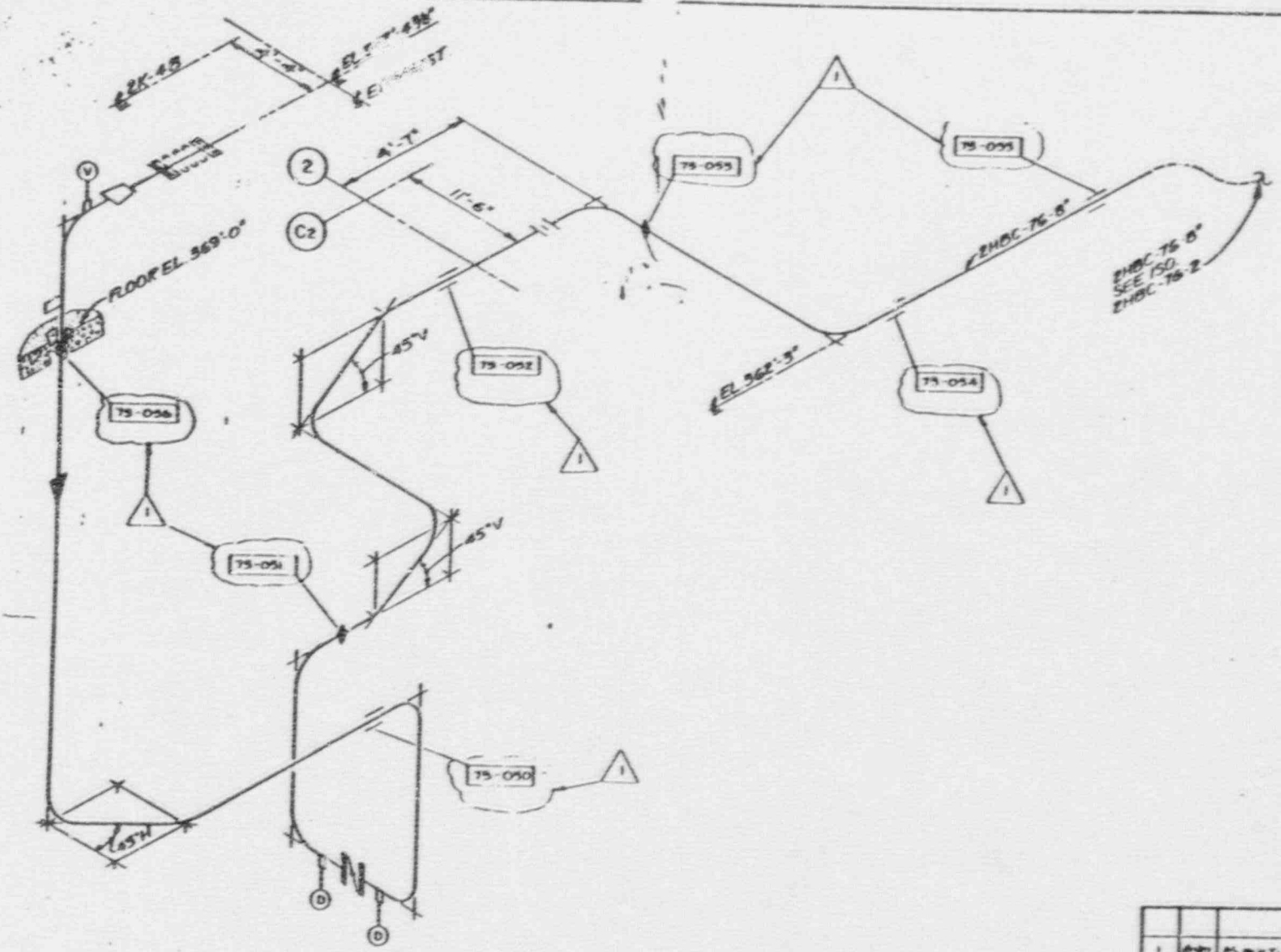
SCALE NONE

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER HEADER
ZONE-73

DRAWING NO: ISI-273H

REV: 1



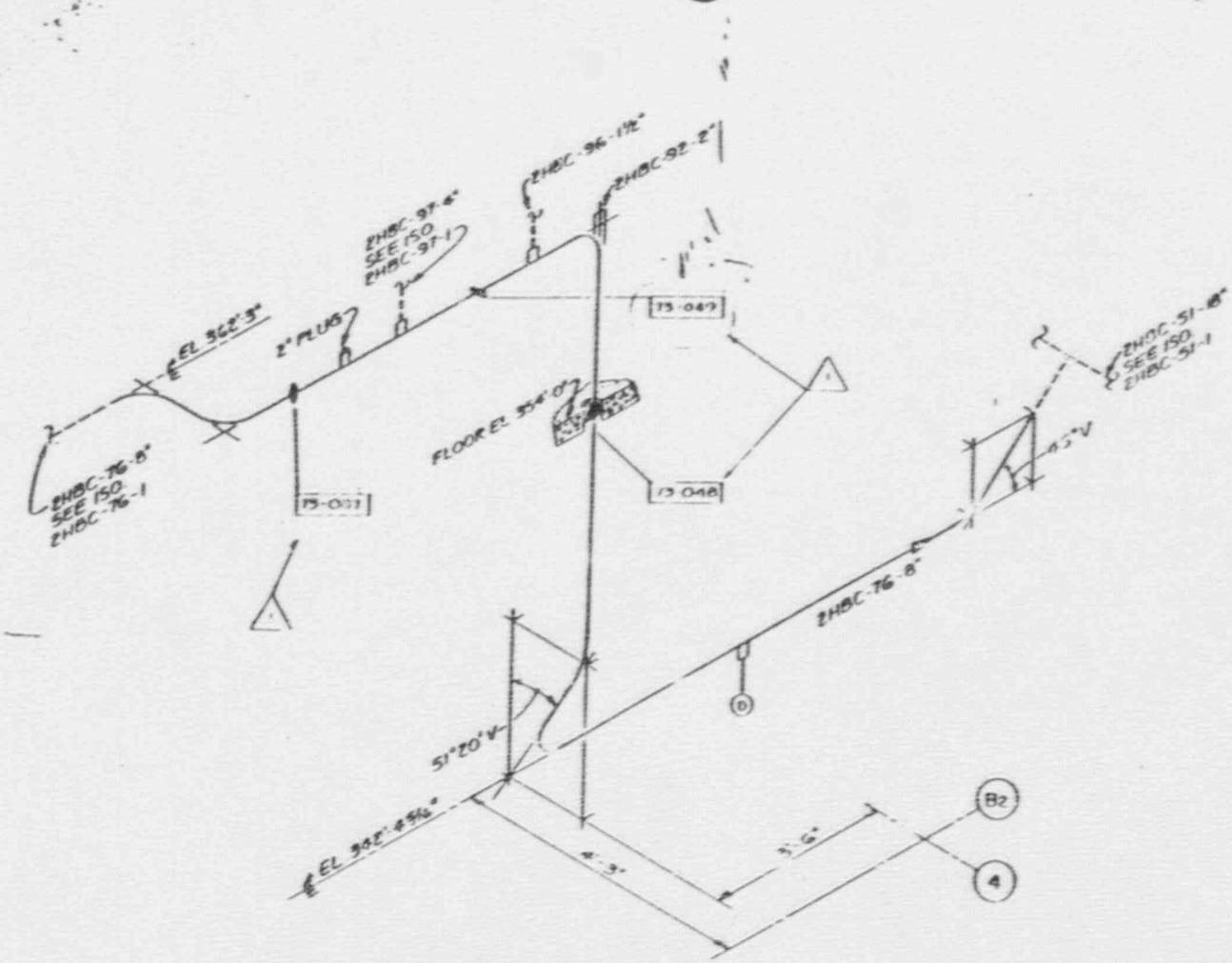
1		AS BUILT SECTIONING			
0		ISSUED FOR ISI			
NO	DATE	REVISION	BY	CHK	

SCALE NONE | DESIGN & DRAWN | CHK'D

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER HEADER
ZONE-73

DRAWING NO. ISI-273H | REV.



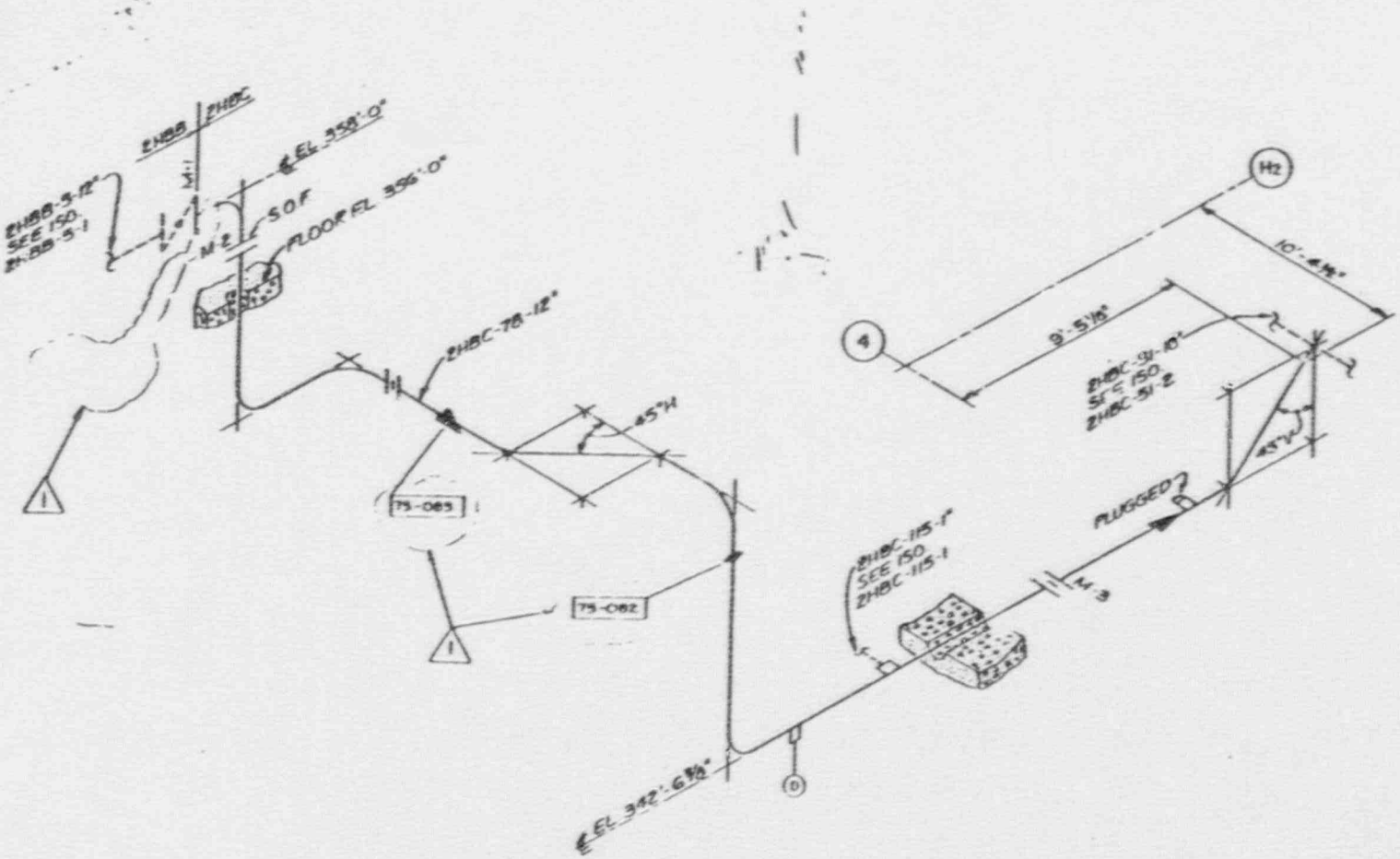
NO	DATE	REVISIONS	BY	CHK	APPROVED
1	10-1-87	AS BUILT REVISIONS			
0	12/1/78	ISSUED PER ISI			

SCALE NONE | DESIGN & REVIEW | DRAWN C. DUNAGAN

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER HEADER
ZONE-73

DRAWING NO. ISI-273H



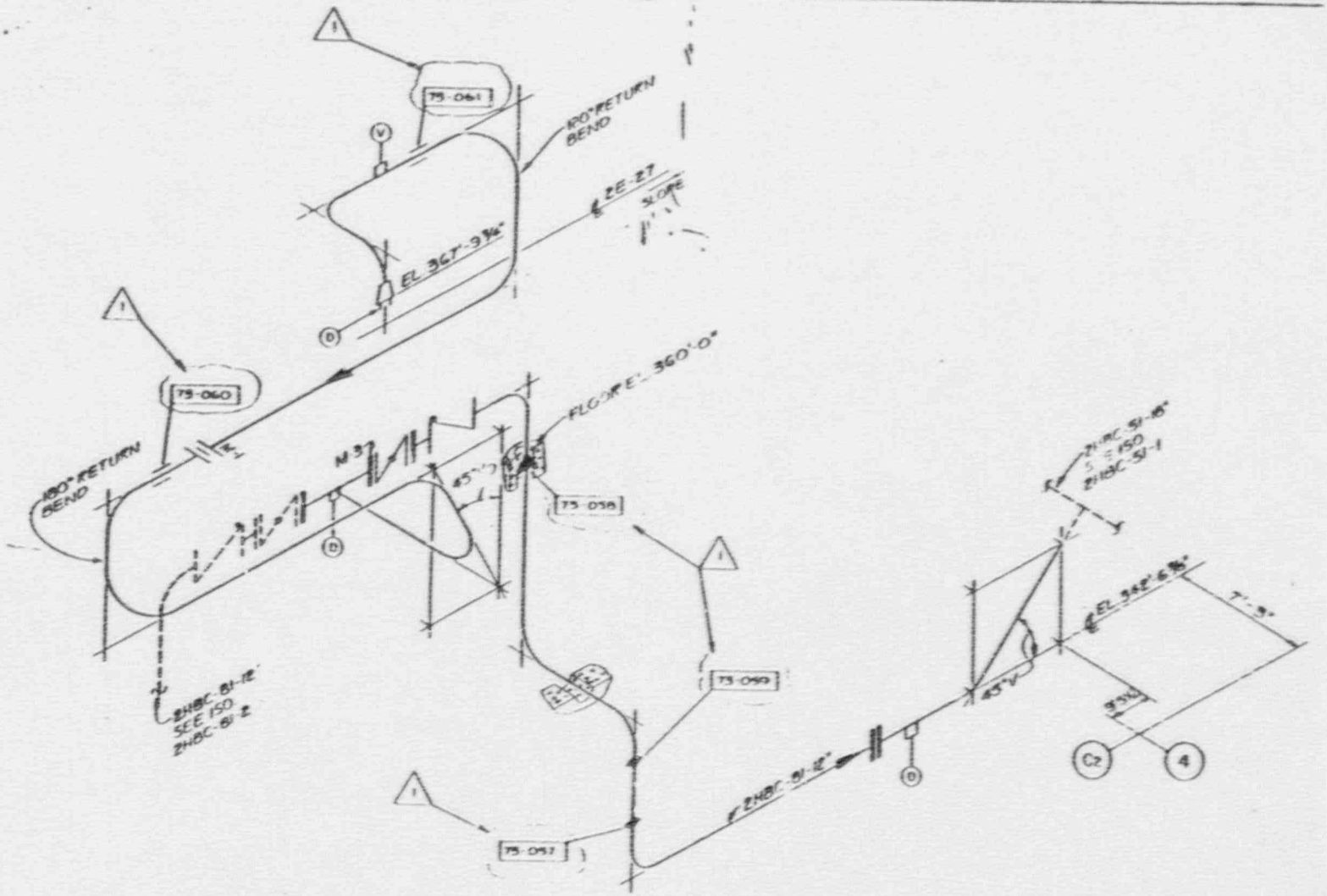
1	5/5/87	AS BUILT ISI (DWG DATA)	JM	EJ	
0	7/16/84	ISSUED PER ISI	CWD		D.R.
NO	DATE	REVISION	BY	CHK'D	APPD

SCALE NONE

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER HEADER
ZONE-73

DRAWING NO. ISI-273H REV. 1



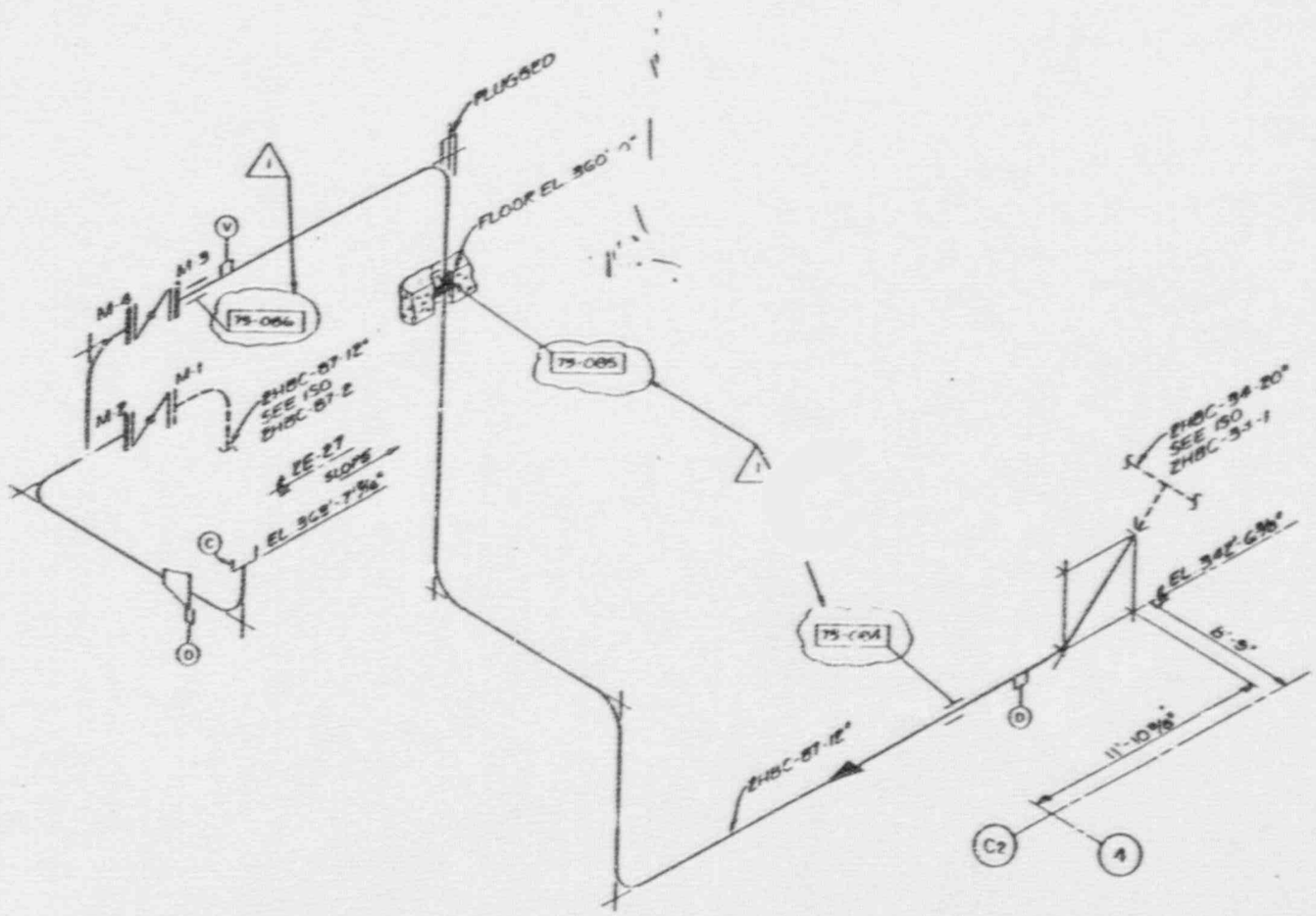
NO	DATE	REVISION	BY	CHK	APPROVAL
1	7-27-81	ADDED INLET ISO (ZHBC-81-0408)	AU		RC
0	3-26-81	ISSUED FOR ISI			DP

SCALE NONE | DESIGN D. PAYNE | DRAWN C. SUNDAY

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER HEADER
ZONE-73

DRAWING NO: ISI-273H | REV:



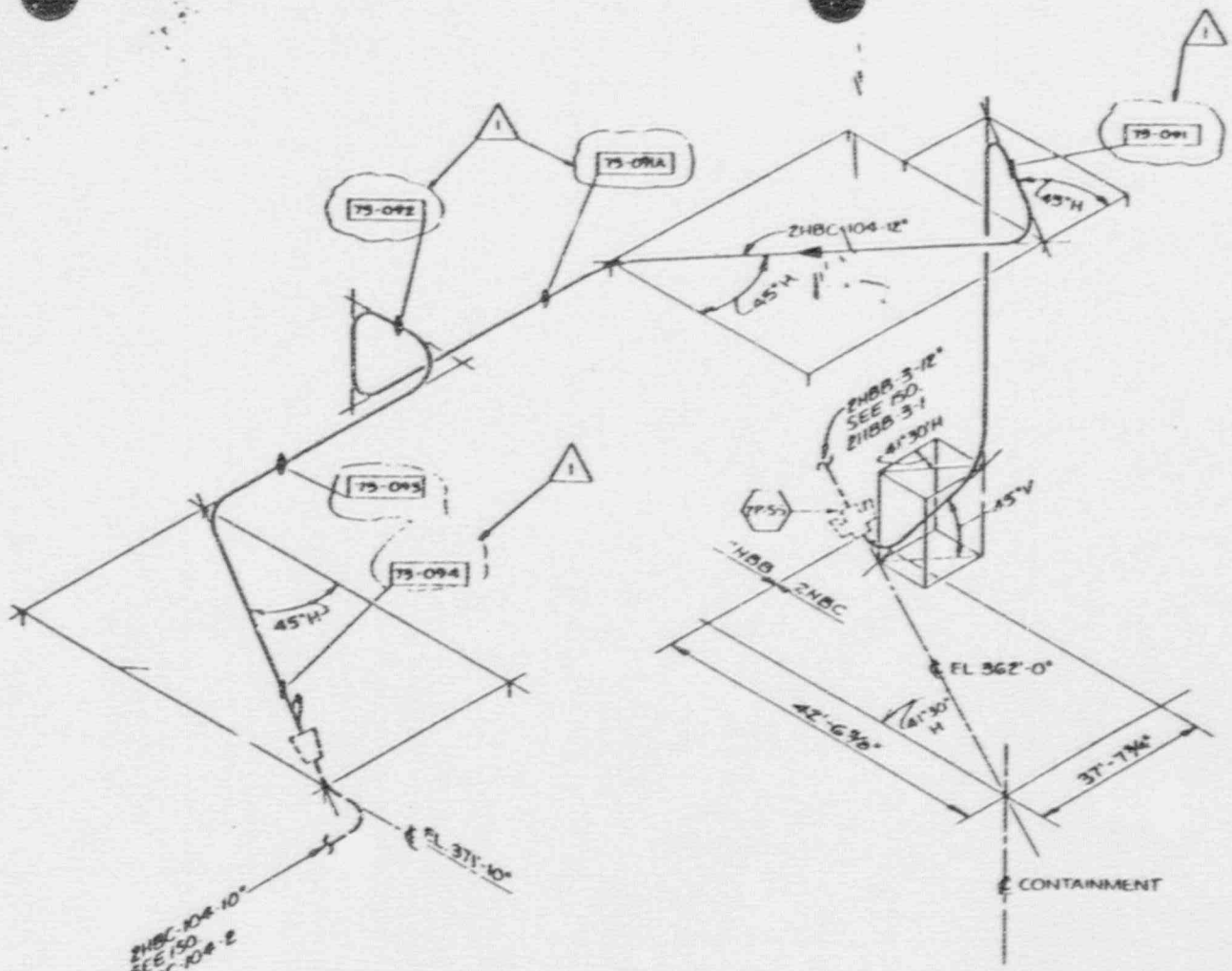
NO	DATE	REVISION	BY	CHK	APPROVAL
1	10/17	AS BUILT FIELD MARKUP	VN	RB	
0	12/94	ISSUED PER ISI	CVD		DP

SCALE NONE | DESIGN B. NOME | DRAWN C. DUNAWAY

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER HEADER
ZONE-73

DRAWING NO: ISI-273H | REV: 1



NO	DATE	REVISION	BY	CHK	APPROVED
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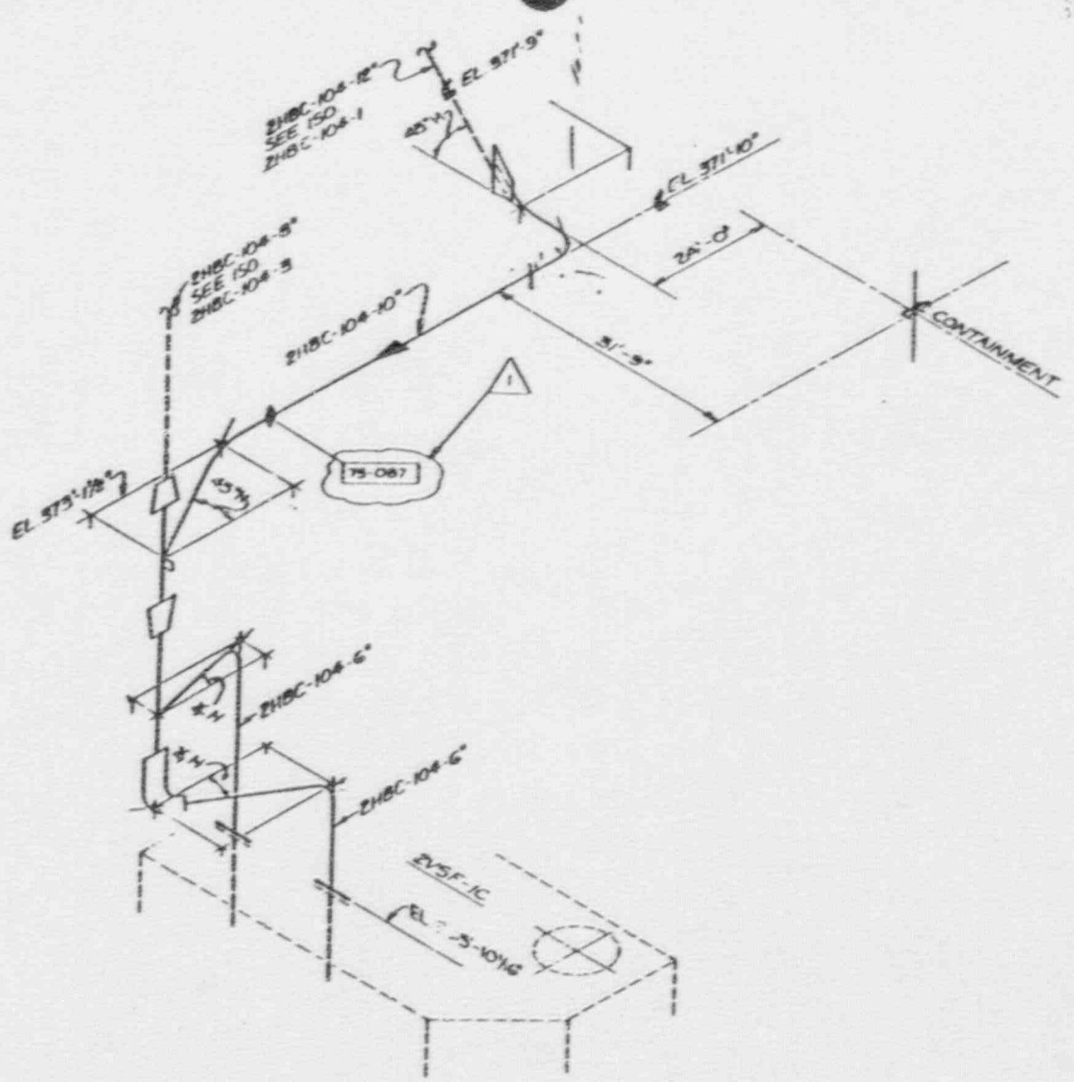
0	[illegible]	ISSUED PER ISI	CVD	[illegible]	[illegible]

SCALE NONE | DESIGN [illegible] | DRAWN [illegible]

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER HEADER
ZONE-73

DRAWING NO. ISI-273H | REV. 1



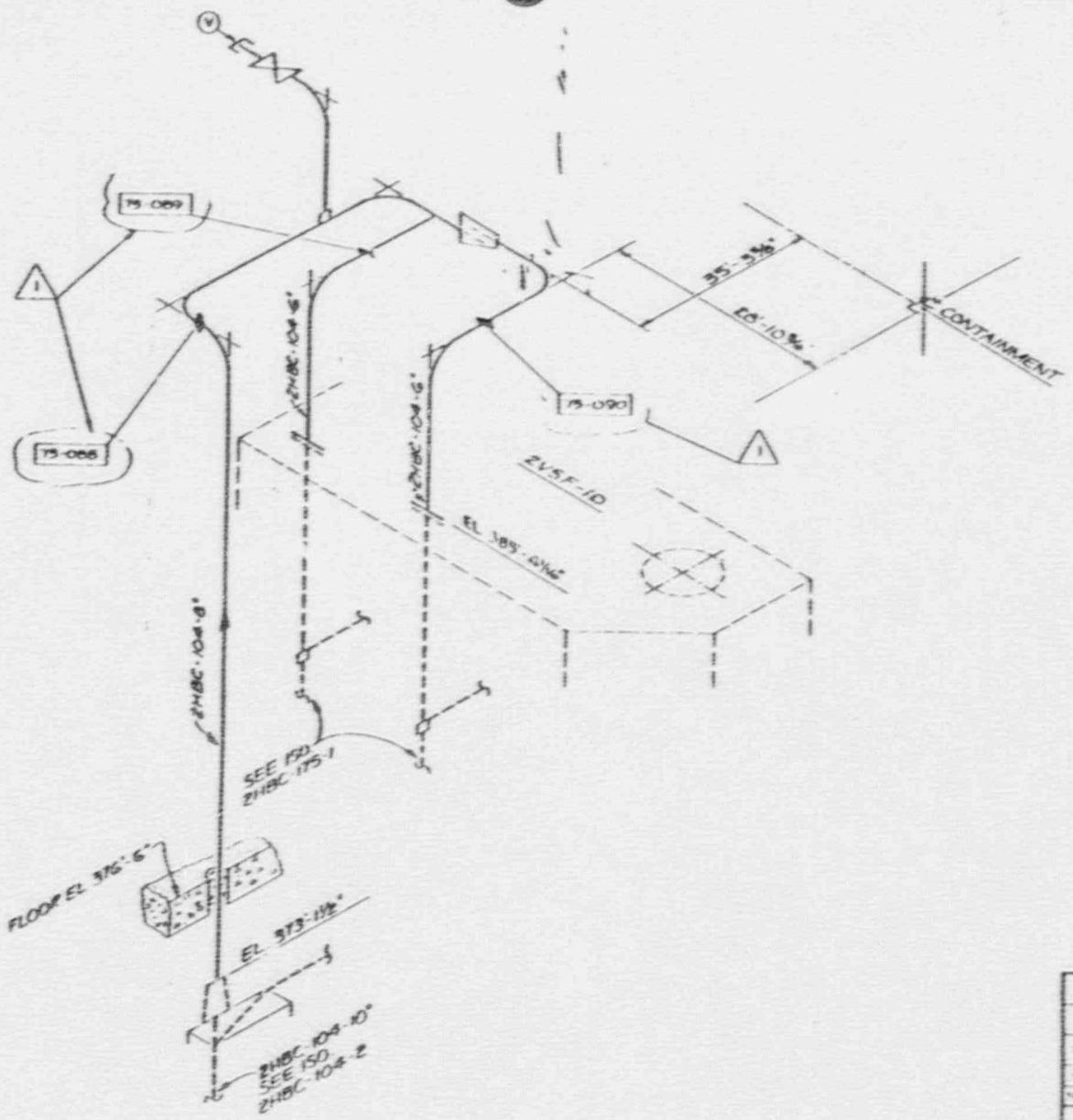
NO	DATE	REVISION	BY	CHK	ENGR	SUPV
1	10-27-87	AS BUILT 10/DK75/0408	WR	BJ		
0	7/7/86	ISSUED PER ISI	CLD			D.P.

SCALE NONE | DESIGN B. PAYNE | DRAWN C. BUNKERS

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER HEADER
ZONE-7J

DRAWING NO: ISI-273H | REV: 1

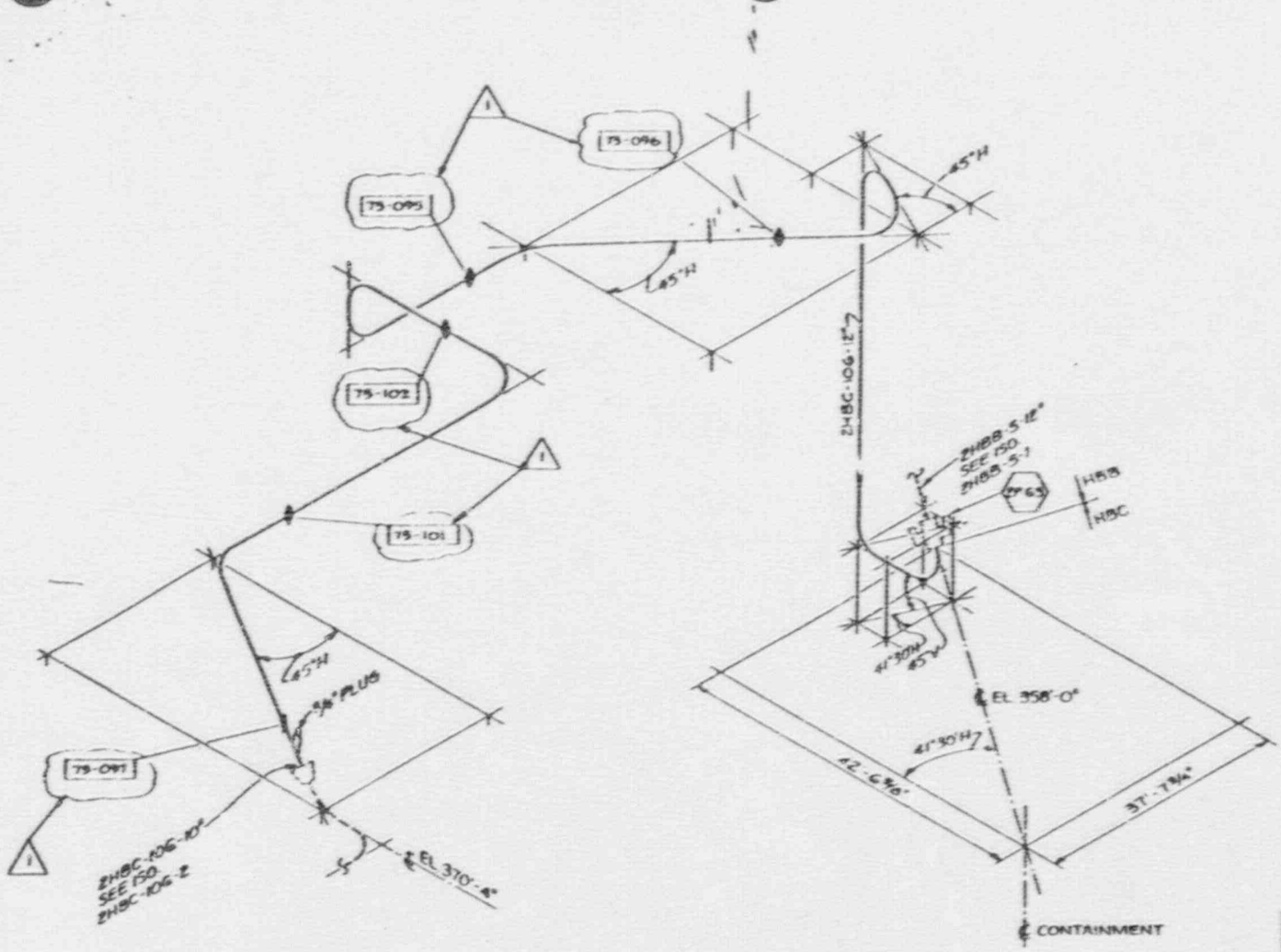


NO	DATE	REVISION	BY	CHK	APP
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0	[illegible]	ISSUED FOR ISI	[illegible]	[illegible]	[illegible]

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER HEADER
ZONE - 73

ISI-277-1



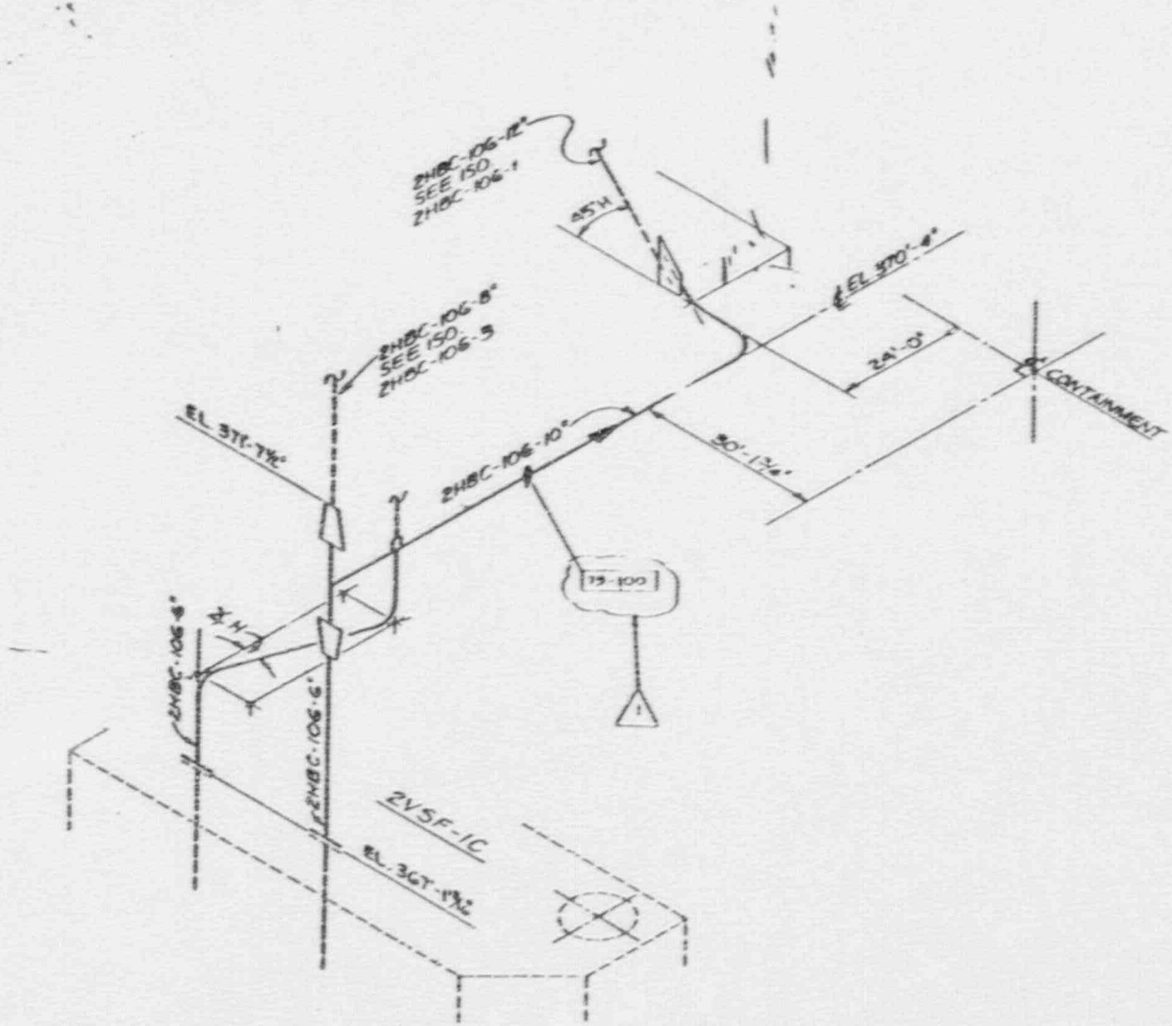
NO	DATE	REVISION	BY	CHK	ENGR	APPR
1	9/15/81	AS BUILT - REVISIONS BY ORDER	LHB	[illegible]	[illegible]	
0	7/1/84	ISSUED PER ISI	CVD	[illegible]	D.P.	

SCALE NONE — DESIGNED L. PRINE — DRAWN C. [illegible]

ARKANSAS POWER AND LIGHT CO. ART
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER HEADER
ZONE-73

DRAWING NO: ISI-27311 — REV: 1



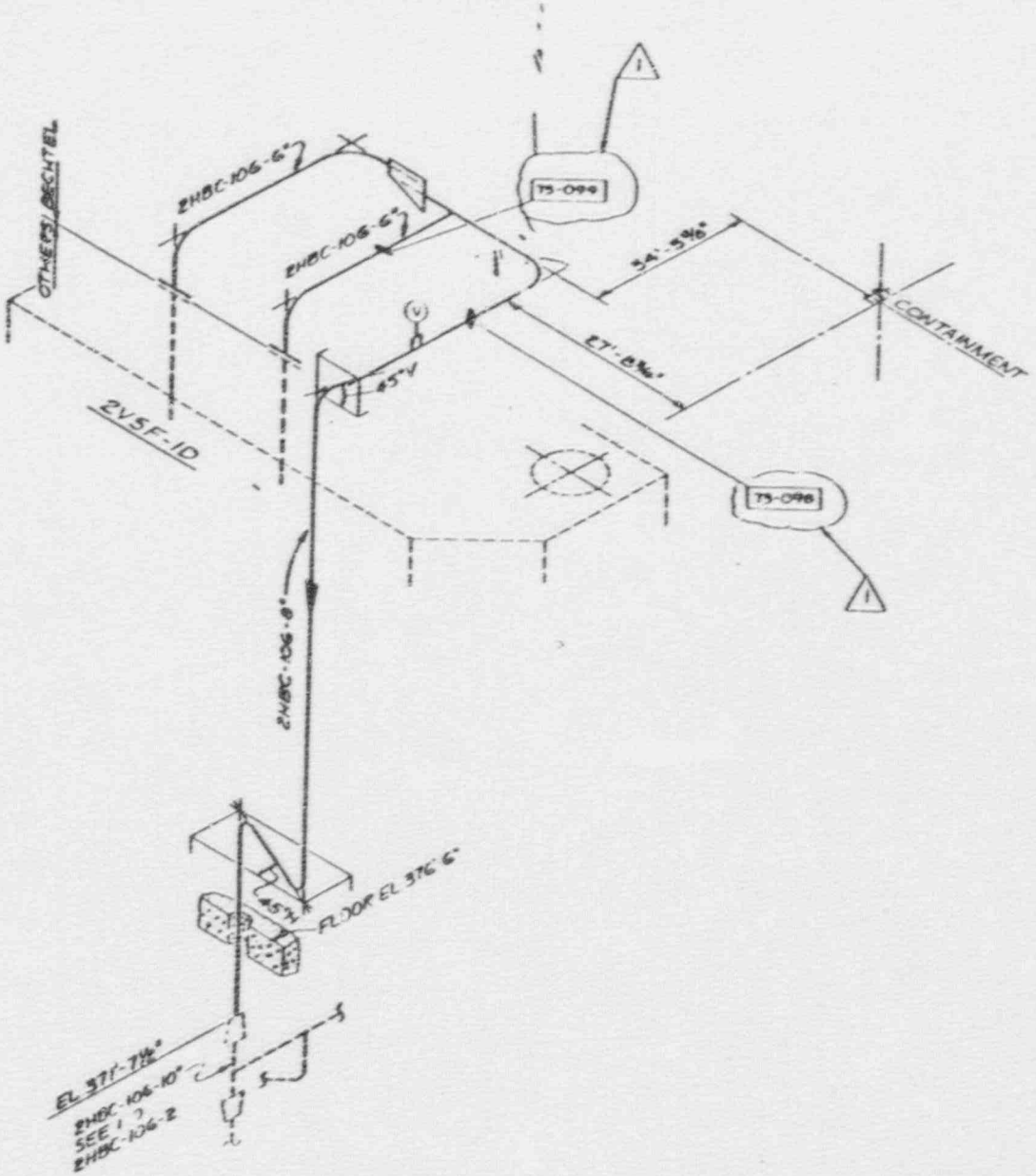
NO	DATE	REVISION	BY	CHK	APPD
1	11-5-87	AS BUILT: ISI(DWG B-0109)	VHK	[illegible]	[illegible]
0	8/1/82	ISSUED PER ISI	CVO	[illegible]	DP

SCALE NONE | DESIGN B. PAYNE | DRAWN C. DUNAWAY

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER HEADER
ZONE - 73

DRAWING NO: ISI-273H | REV: 1



NO	DATE	REVISION	BY	CHK	APPROVAL
1	7/31	AS BUILT			
0	7/1/84	ISSUED PER ISI			

SCALE NONE

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SERVICE WATER HEADER
ZONE-13

DRAWING NO ISI-273H

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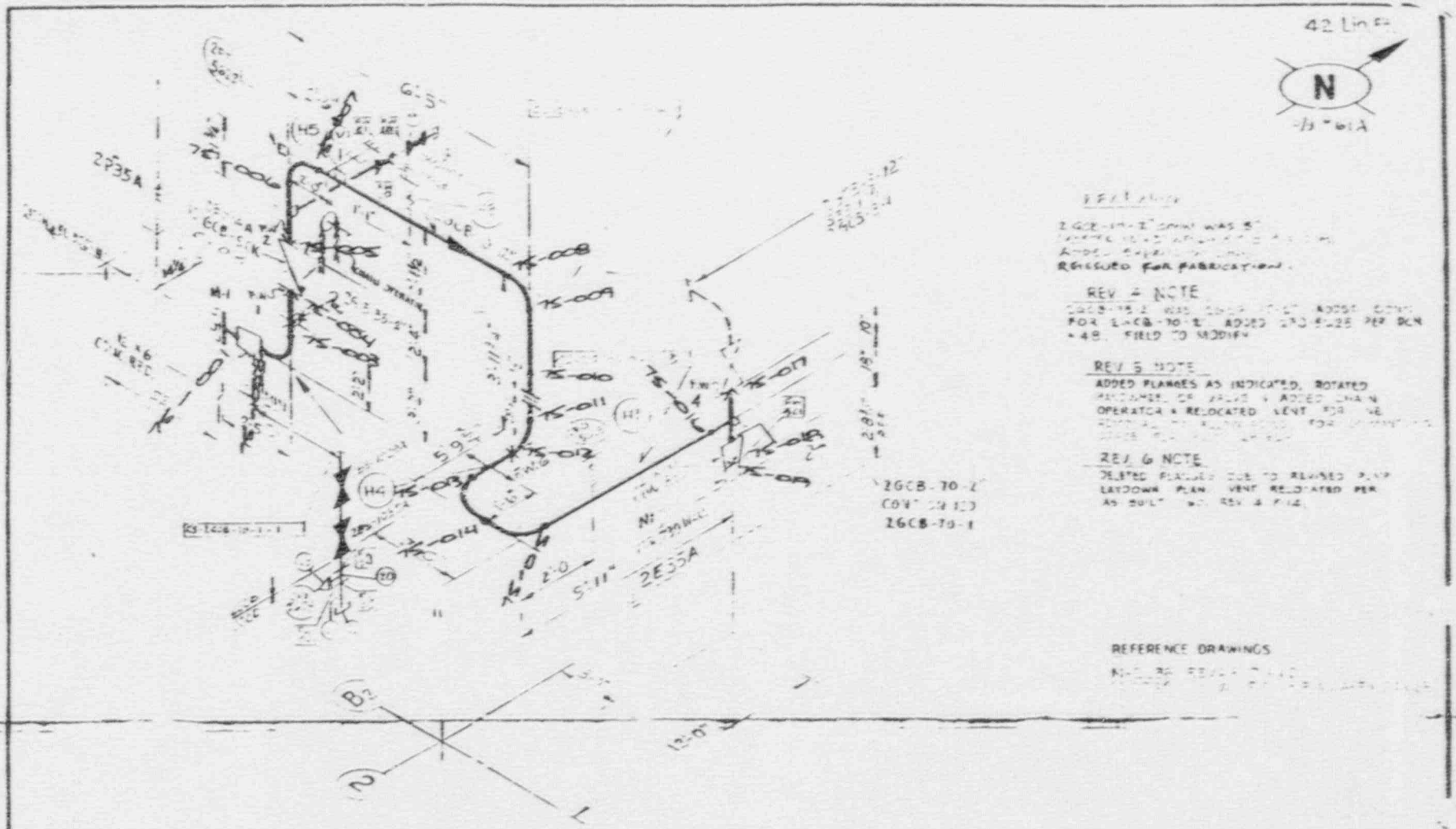

REV A NOTE

2GCB-70-2 DRAW WAS B
ADDED
RELEASED FOR FABRICATION.

REV 4 NOTE

2GCB-75-2 WAS
FOR 2-GCB-70-2 ADDED
PER DCN
FIELD TO MODIFY

REV 5 NOTE

ADDED FLANGES AS INDICATED. ROTATED
OPERATOR & RELOCATED VENT FOR

REV 6 NOTE

DELETED FLANGES DUE TO REVISED PUMP
LAYDOWN PLAN. VENT RELOCATED PER
AS BUILT

REFERENCE DRAWINGS

7	18" GCB - 5 CK		1
8	CPD-8-2B		
9	1" GCA SP VLV		1

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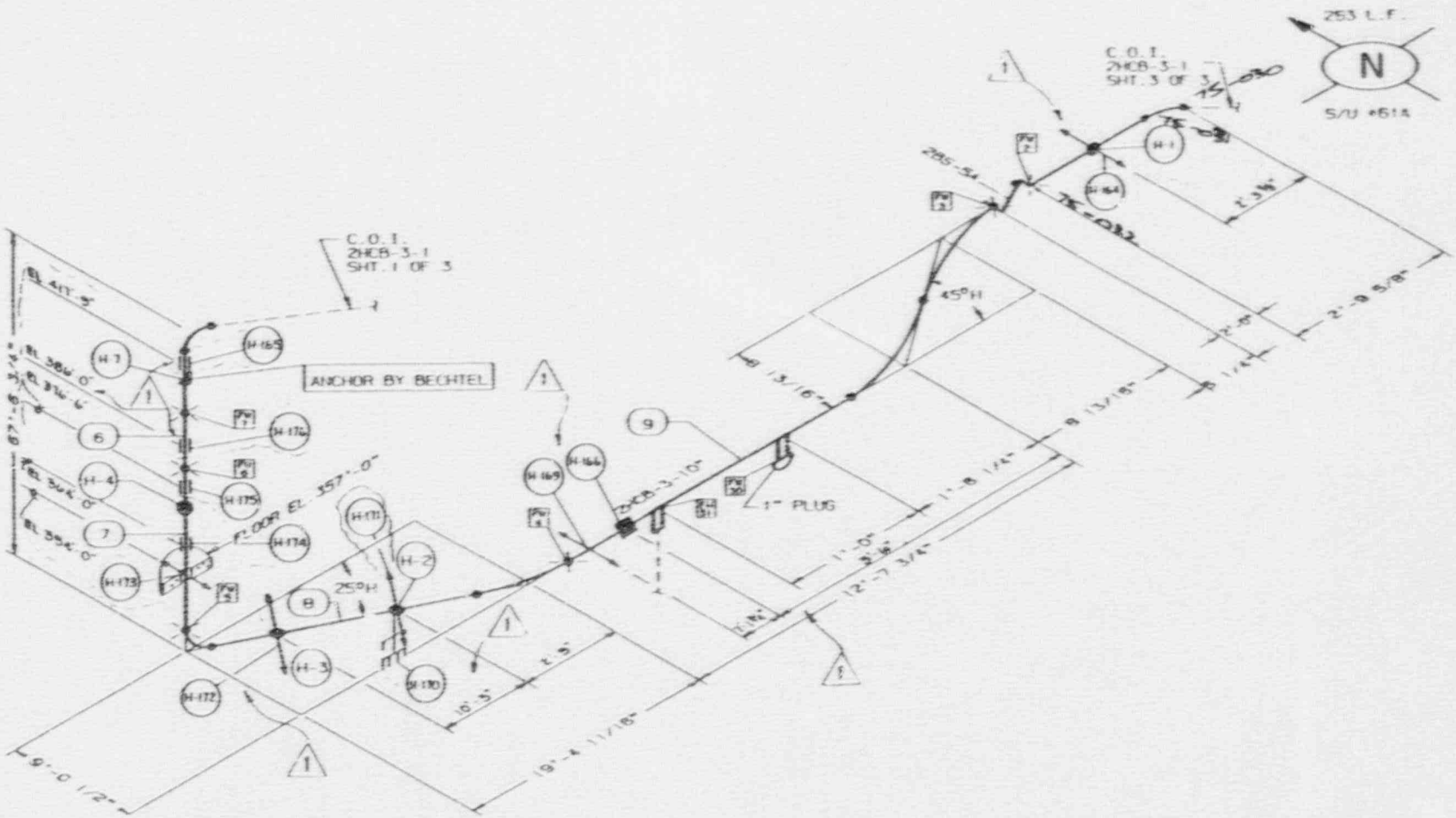
ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC - CONTAINMENT AUX. BUILDING
CONTAINMENT SPRAY

66002	2GCB-10-1	11

ISI-275



ITEM	QTY	DESCRIPTION	HEAT NO	ASTM	GRD

BILL OF MATERIAL

STARTUP NO | INSULATION CLASS | THICK

REFERENCE

P&ID NO M-2236
PIPING DWG M-2054 THRU M-2058
AREA NO 25 ELEV
BLDG REACTOR BUILDING
SYS CONTAINMENT SPRAY

HANGER TYPE
DWG NO

SYS CLEANING REQMT

SERVICE CONDITIONS
NORMAL ____ PSIG ____ °F
MAXIMUM ____ PSIG ____ °F

NO	DATE	REVISION	BY	CHK'D	APPR'D	APPR'D
0						

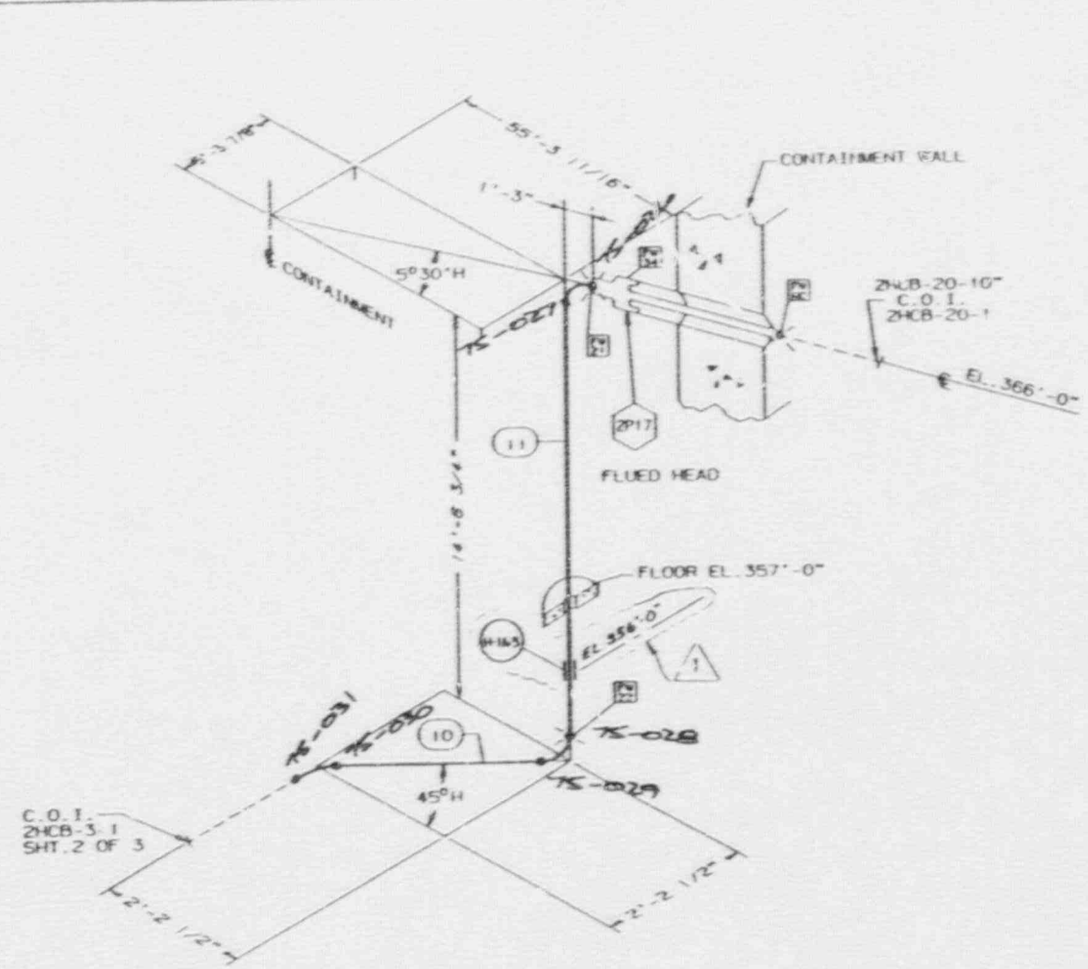
SCALE NONE DESIGN BECHTEL DRAWN LAPELL

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETRIC
CONTAINMENT SPRAY SYSTEM

DRAWING NO. 2HCB-3-1 REV. 1

ISI-275



ITEM	QTY	DESCRIPTION	HEAT NO	ASTM	GRD

BILL OF MATERIAL

STARTUP NO | INSULATION CLASS | THICK

REFERENCE

P&I D NO. M-2236
PIPING DWG. M-2054 THRU M-2058
AREA NO. 25 ELEV
BLDG. REACTOR BUILDING
SYS CONTAINMENT SPRAY

HANGER TYPE
DWG NO.

SYS CLEANING REQMT

SERVICE CONDITIONS
NORMAL _____ PSIG _____ °F
MAXIMUM _____ PSIG _____ °F

NO.	DATE	REVISION	BY	CHK	ENGR	SUPV
1		AS-BUILT PER RI 4623	TR	DW		
0	2/14/84	REDRAWN FOR HARDWARE QUALITY				

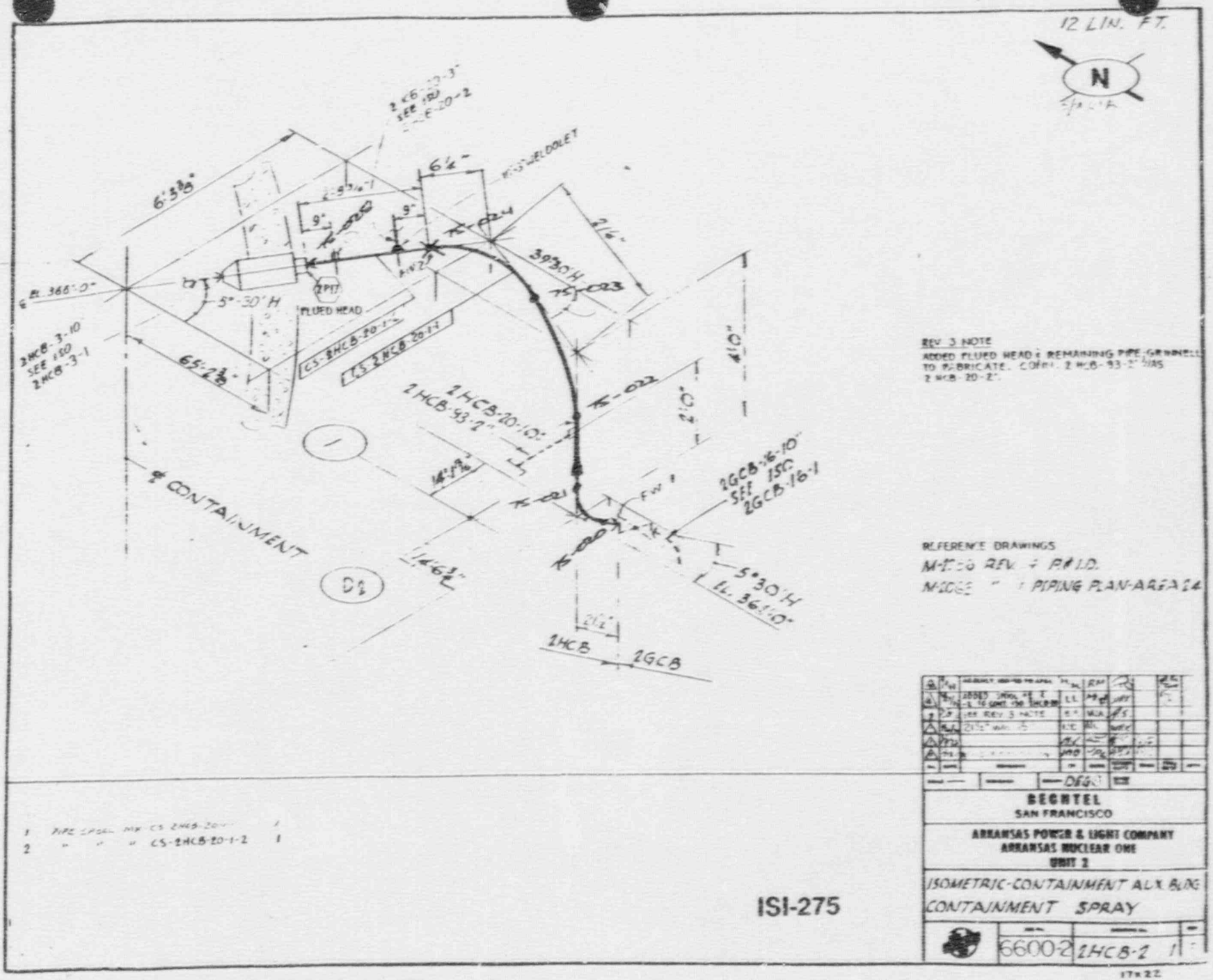
SCALE NONE DESIGN BECHTEL DRAWN SNELL

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETRIC
CONTAINMENT SPRAY SYSTEM

DRAWING NO. 2HCB-3-1 SHT 2 OF 3 REV. 1

ISI-275



REV 3 NOTE
ADDED FLUED HEAD & REMAINING PIPE-GRINNELL TO FABRICATE. CONN. 2 HCB-93-2" TO 2 HCB-20-2".

REFERENCE DRAWINGS
M-2C60 REV. 4 P&I.D.
M-2C66 " 1 PIPING PLAN-AREA 24

1	PIPE SPOOL MK CS 2HCB-20-1	1
2	" " " CS-2HCB-20-1-2	1

ISI-275

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ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC-CONTAINMENT AUX. BLDG
CONTAINMENT SPRAY

6600-2 2HCB-2 1

17x22

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1 2 3 4 5

1.6 X

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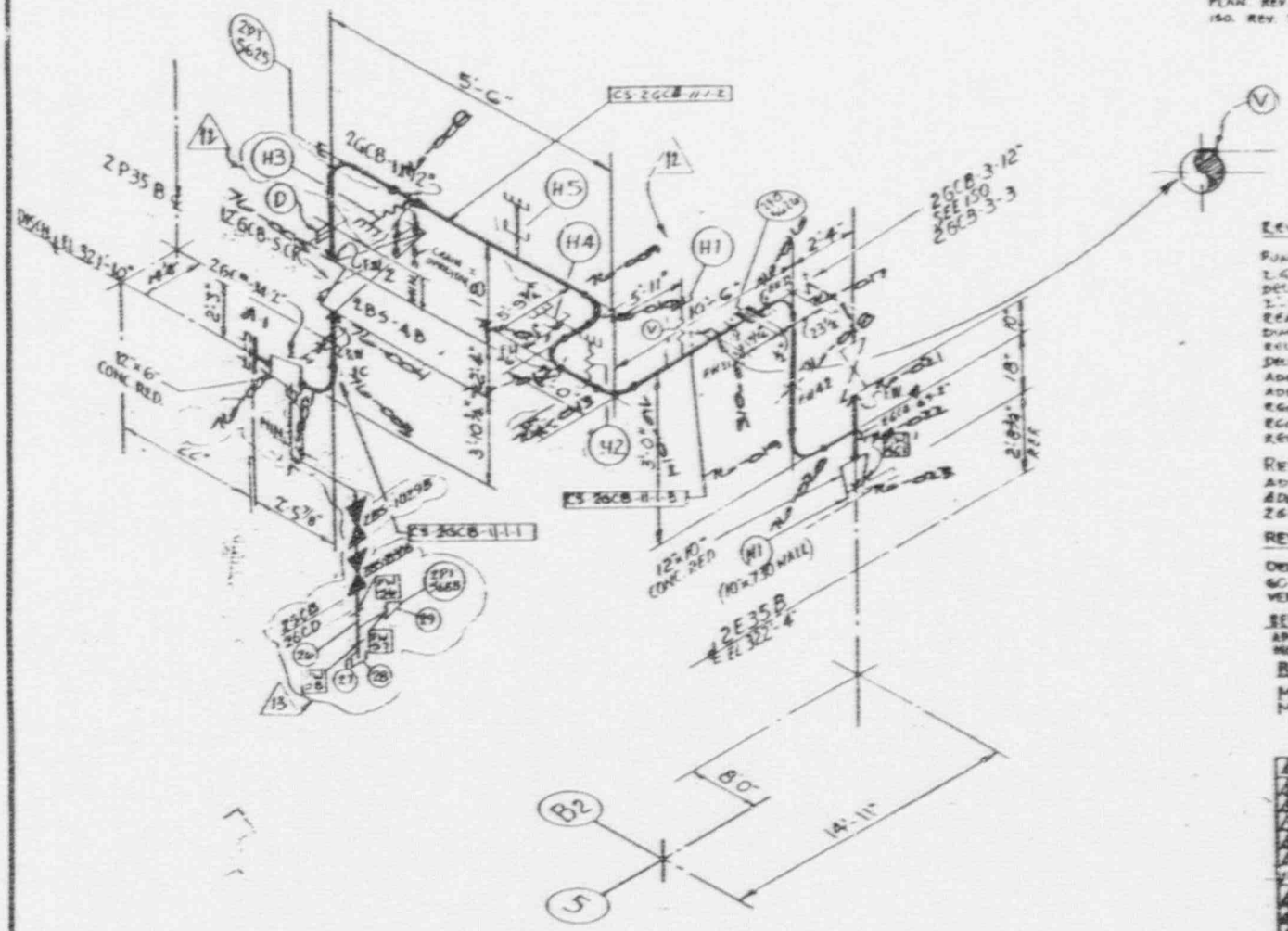
REV. 9 NOTE
DELETED FLANGES DUE TO REVISED PUMP LAYDOWN PLAN. REV. PER AS-BUILT ISO. REV. 7 F-13.

47 Lin.Ft.

N

3/16 = 6'-1A



REV 8 NOTE
ADDED FLANGES FOR REMOVAL OF SPOOL TO CLEAR ACCESS FOR DISMANTLING OF 2P35B. ADDED CHAIN OPERATOR AS SHOWN.

REV. 1 NOTE
PUMP DISCH. EL. WAS 322'-11"
2-6CB-11-2" CONN WAS 3"
DELETED 12"x3" WELDOLET & 8 3/4" DIM.
2-3" DIM. WAS 2'-6"
REPRINTED 12"-6CB-5 CK VALVE
DIM. 6'-8 1/4" WAS 3'-2", 18" WAS 2'-1 1/4"
RELOCATED VENT
DELETED 2'-1 1/2" DIM
ADDED RWP LOOP
ADDED F.W. & M. NPS
REGORIENTED DRAIN CONN
REGORIENTED 2-6CB-11-2" CONN.
REISSUED FOR FABRICATION

REV 4 NOTE:
ADDED CONN. FOR 26CB-69-2"
ADDED PIPE MARKS IN 2-6CB-54-3, 26CB-4-1, 26CB-62-1". 26CB-54-2" WAS 26CB-4-2"

REV. 3 NOTE:
DELETED CONN. TO ISO. 26CB-79-1", 26CB-60-1", & 26CB-62-1" REV. TO HYDROSTATIC VENTS & DRAINS. ADDED QUAN. OF ITEM # 7.

REV. 6 NOTE
APPED 2FO-3626 FOR BOM # 48. FIELD TO MODIFY.

REFERENCE DRAWINGS
M-2236 REV. 26 P & ID
M-2046 " 10 PIPING PLAN AREA

3	9/26/84	REV. 9 NOTE	RB	RM		
2	9/26/84	REV. 8 NOTE	LL	RM		
1	9/26/84	REV. 7 NOTE	LL			
4	9/26/84	REV. 6 NOTE	LL			
5	9/26/84	REV. 5 NOTE				
6	9/26/84	REV. 4 NOTE	TP			
7	9/26/84	REV. 3 NOTE				
8	9/26/84	REV. 2 NOTE				
9	9/26/84	REV. 1 NOTE				
10	9/26/84	ISSUED FOR FABRICATION				

NONE | WS

BECHTEL
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ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC - CONTAINMENT AUX. BUILDING
CONTAINMENT SPRAY

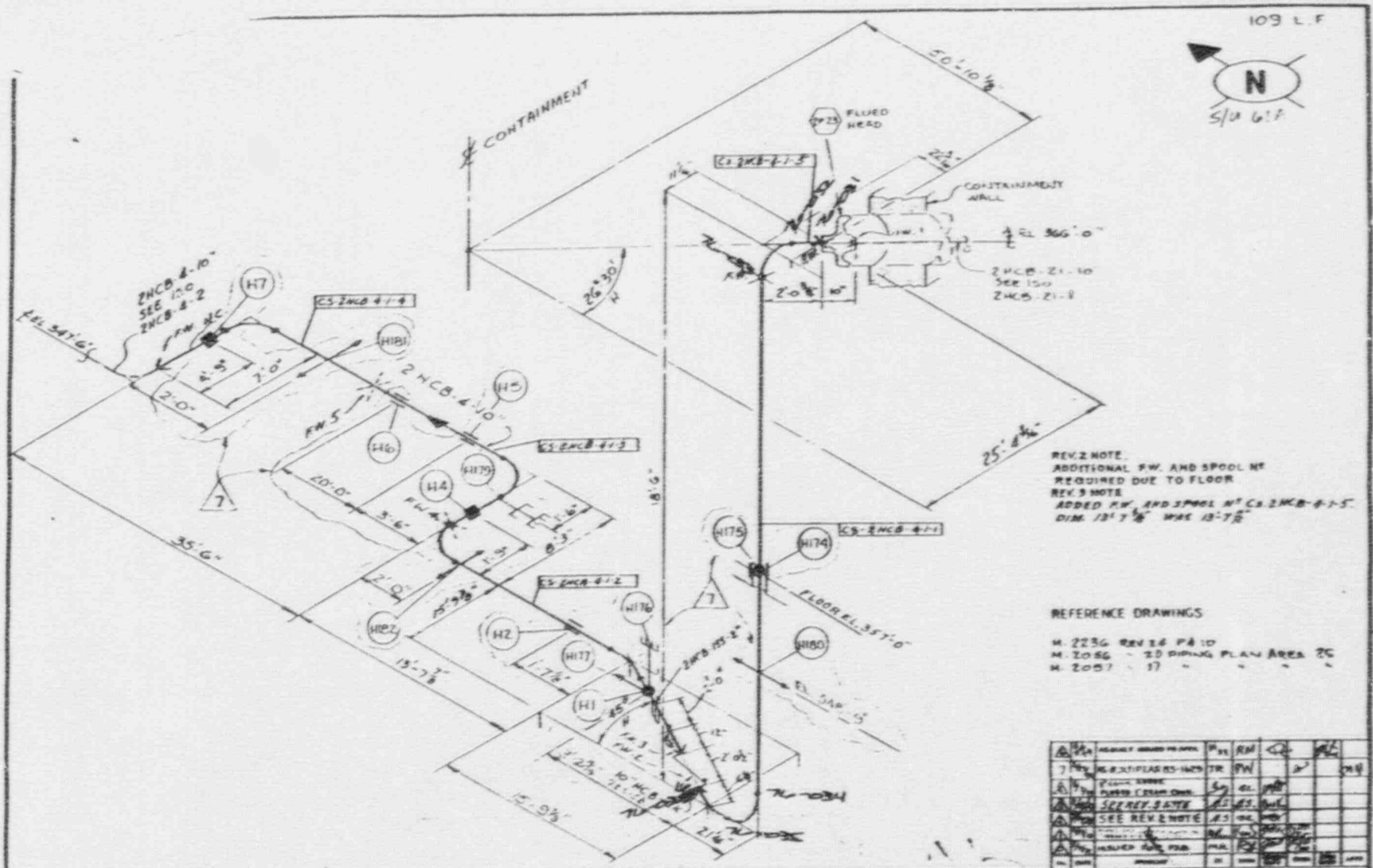
6600-2 | 26CB-11-1 | 13

BILL OF MATERIAL

ITEM NO.	DESCRIPTION	REQUIRED
1	PIPE SPOOL MARK: CS-26CB-11-1-1	1
2	PIPE SPOOL MARK: CS-26CB-11-1-2	1
3	PIPE SPOOL MARK: CS-26CB-11-1-3	1
4	FLEXITALLIC GASKET STYLE CG. SP	1
5	1 1/4"-8 UNC-2A x 6 1/2" LG. BOLT STUD SA-193 GR B7	12
	W/ANY HEX. NUT SA-194 GR. 2H	
6	CONCRETE ANCHORS	24
7	12" GCB. S CH.	1
8	2FO-3626	1
26	1" 3000# S.S. S.W. TEE A-182	1
27	1" SCH. 40 S.S. PIPE A-312	1
28	1" 3000# S.S. THREADED PIPE CAP A-182	1
29	1" PIPE x 3/8" TUBING ADAPTER S.S.	1

13

ISI-276



1	PIPE SPOOL CS-2HCB-4-1-1	1
2	CS-2HCB-4-1-2	1
3	CS-2HCB-4-1-3	1
4	CS-2HCB-4-1-4	1
5	VALVE 10" HCB CK	1
6	PIPE SPOOL CS-2HCB-4-1-5	1

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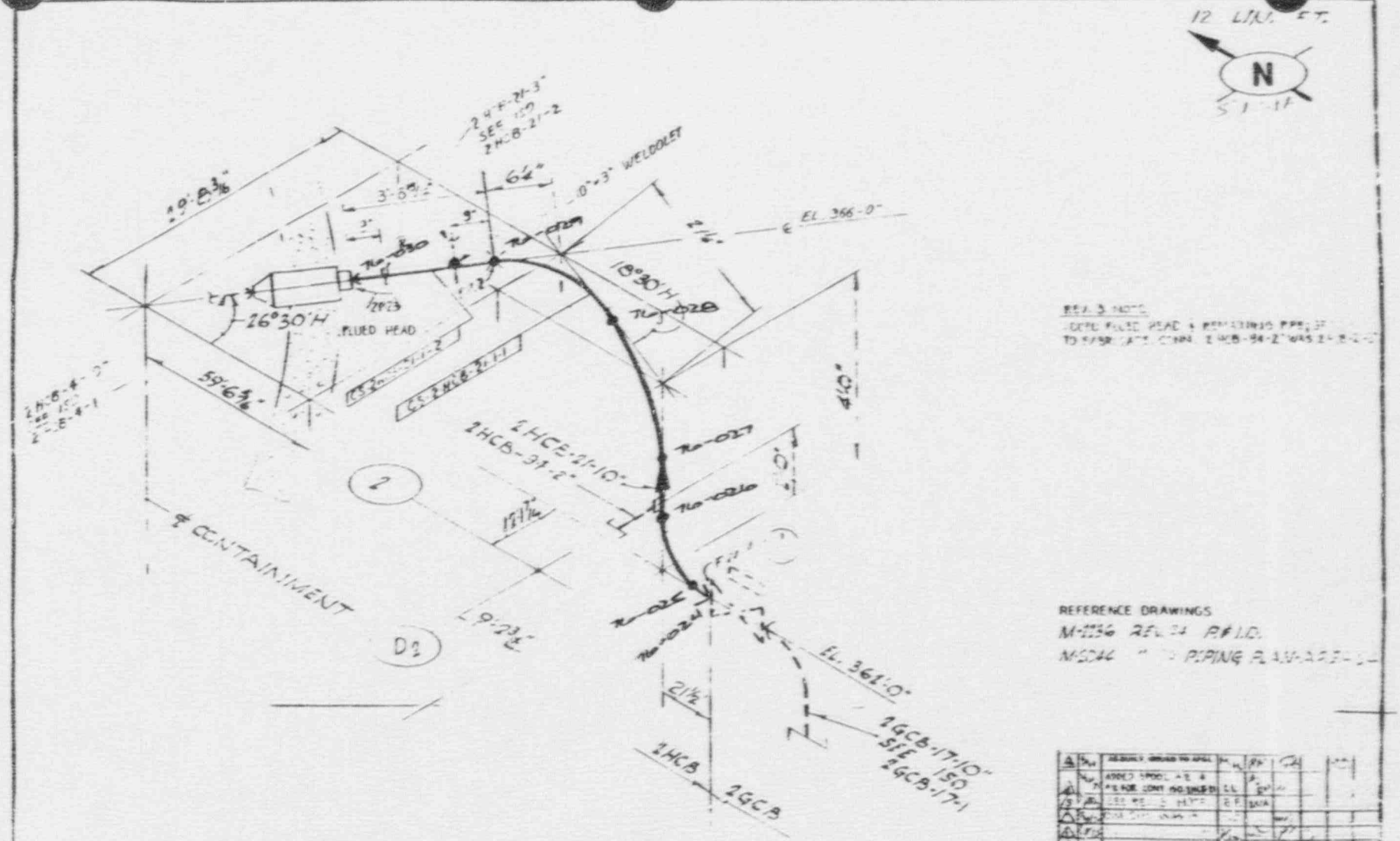

REV. 3 NOTE:
ADDED FLUED HEAD & REMOVED PIPE
TO REPLACE CONN. 2HCB-24-2" WAS 2-8-4-1

REFERENCE DRAWINGS
M-1256 REV. 24 P&ID
M-2046 " " PIPING PLAN

1	PIPE DESIGN MATCH CS-2HCB-21-1		
2	CS-2HCB-21-1-2		

ISI-276

BECHTEL
SAN FRANCISCO

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC-CONTAINMENT AUXILIARY
CONTAINMENT SPRAY

6600-2	2HCB-21-1	5

17x22

1 6 X

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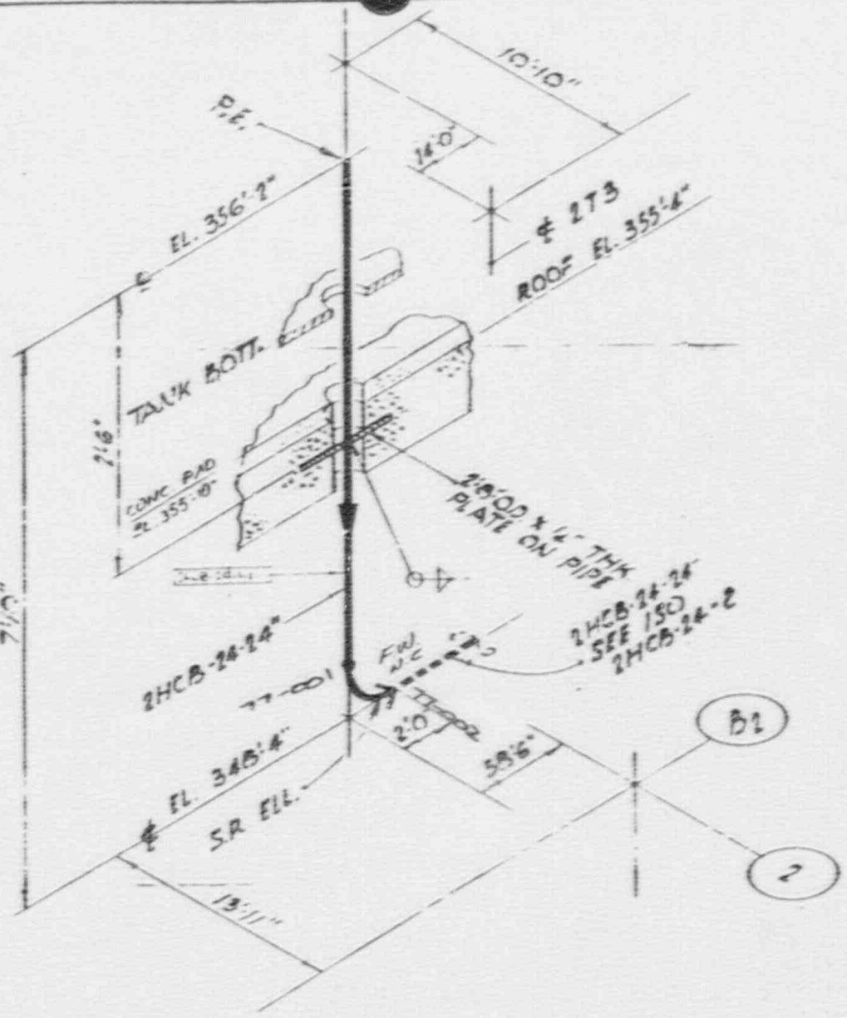

11 LIN. FT.

N

REV △1 NOTE
ADDED SPOOL NO
ADDED F.W. (WELD)
CORR. DIMENSION ISO 2HCB-24-2
DIMENSION 2'-0" WAS 3'-0"

REFERENCE DRAWINGS
M-1236 REV. : P&ID.
M1064 " " PIPING PLAN-AREA 26

1	ADDED CONC. PAD	EP			

DEGG

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SAN FRANCISCO

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC-CONTAINMENT AUX. BLDG.
CONTAINMENT SPRAY

6600-2 | 2HCB-24-1 | 1

ISI-277

17x22

16 X

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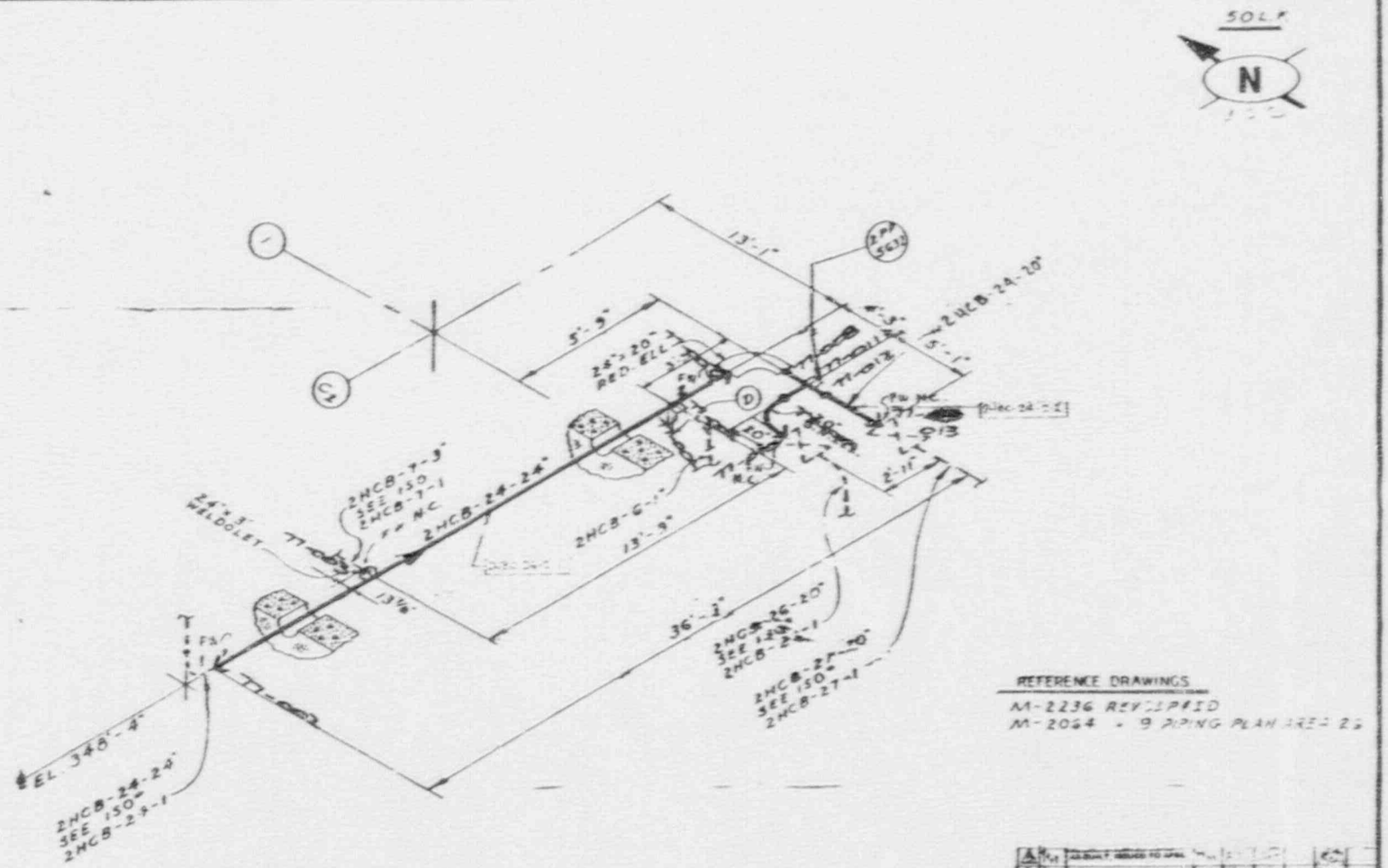

REFERENCE DRAWINGS

M-2236 REVISED
M-2064 + 9 PIPING PLAN AREA 26

REV	DESCRIPTION	QUAL
1	PIPE SPOOL WELD 2HCB-24-24	
2	PIPE SPOOL WELD 2HCB-24-24	

ISI-277

BECHTEL
SAN FRANCISCO

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC-CONTAINMENT AUX. BLDG
CONTAINMENT SPRAY

6600-2 2HCB-24-2

17 x 22

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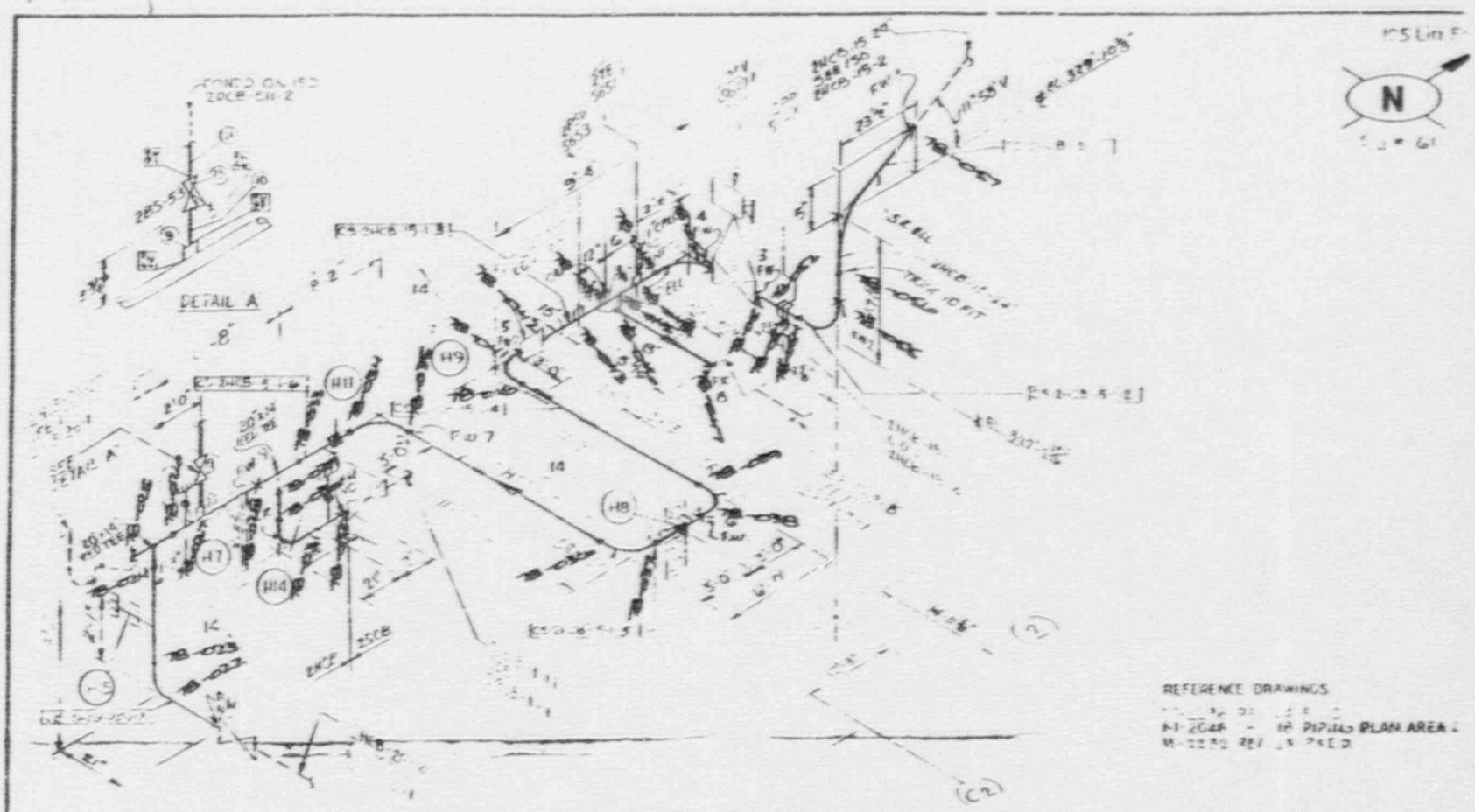

REFERENCE DRAWINGS

M-2048 - HP PIPING PLAN AREA

M-2230 REV 15 PIPED

6	PIPE SPOOL NUMBER CS 2HCB-15-16	1	
8	2CW-15-4-1	1	
9	2" HALF COUPLING FOR 1/4" A PREFRAGTING	1	

ISI-278

BECHTEL
SAN FRANCISCO

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC - CONTAINMENT AUX BUILDING
CONTAINMENT SPRAY

5600-2 | 2HCB-15-11

17 of 22

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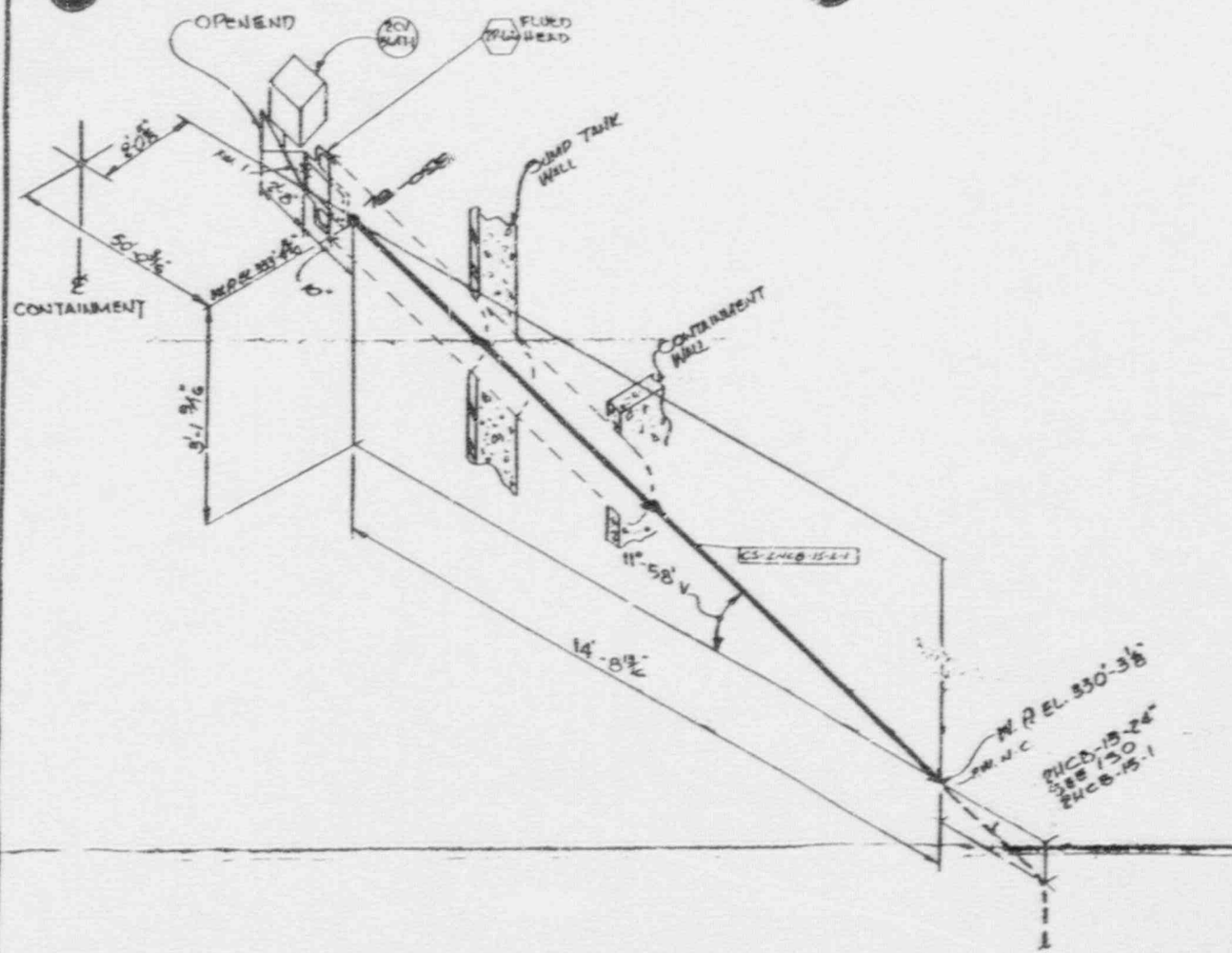

REFERENCE DRAWINGS

M-223G Rev.24 P&ID

M-204G Rev.16 Piping Plan Area 24

M-205T Rev.17 - - - 25

1	PIPE SPOOL CS-2HCB-15-2-1	1			
1	2CV-5687-1	1			

ISI-278

4			RY	RAP	
3			CC	AC	
2		REVISED AS NOTED	CMB	AL	
1					
0		ISSUED FOR FURDCA	RY		
NONE			RY		

BECHTEL
SAN FRANCISCO

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC-CONTAINMENT BLDG
CONTAINMENT SPRAY

6600-2 | 2HCB-15-2 | 4

17x22

16 X

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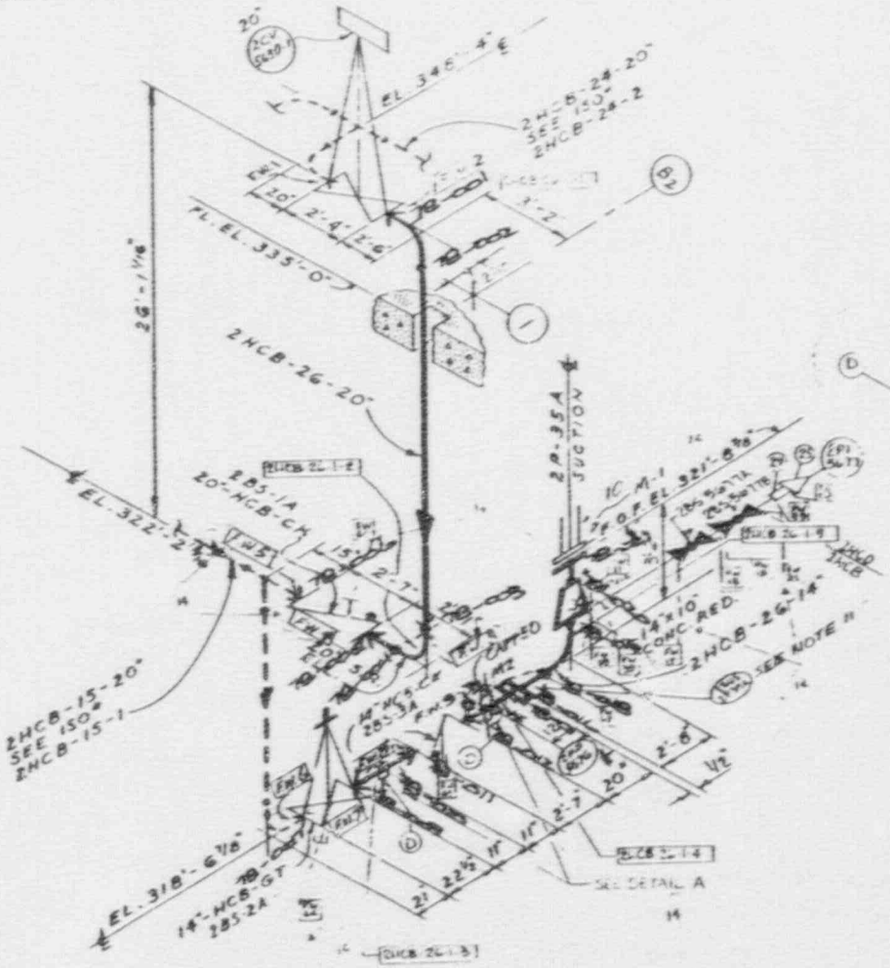

BILL OF MATERIAL

ITEM NO	DESCRIPTION	QUAN
1	PIPE SPOOL MARK: 2HCB-26-1-1	1
2	PIPE SPOOL MARK: 2HCB-26-1-2	1
3	PIPE SPOOL MARK: 2HCB-26-1-3	1
4	PIPE SPOOL MARK: 2HCB-26-1-4	1
5	PIPE SPOOL MARK: 2HCB-26-1-9	1
6	14" HCB-GT.	1
7	20" 3CV-5680	1
8	FLEXITALLIC GASKET TYPE CG-17	1
9	FLEXITALLIC GASKET TYPE CG-12	1
10	18" HCB-CK.	1
11	1"Ø x 9" LG STUD BOLTS SA 193 GR B7 W/HVY. HEX NUT SA 194 GR 2H	12
12	3/4"Ø x 4 1/2" LG STUD BOLTS SA 193 GR B7 W/HVY. HEX NUT SA 194 GR 2H	12
13	20" - HCB - CK.	1
14	3/4" PIPE x 3/8" TUBING ADAPTER S.S.	1
15	3/4" 3000# S.W. COUPLING A 182	1
16	3/4 x 4 NIPPLE SCH 40 SA 312 TP 304 PIPE	4
17	3/4 x 24" PIPE SCH 40 SA 312 TP 304 PIPE	2
18	1" X 4" PIPE SCH 40 SA 312 TP 304 PIPE	4
19	1 1/4" PIPE SCH 40 SA 312 TP 304 PIPE	4
20	3/4" MK CCA GB VALVE	4
21	1" MK CCA GT VALVE	5
22	3/4" 3000 # THRD CAP SA 182 F 304	2
23	1" 3000 # THRD CAP SA 182 F 304	2
24	3/4" 3000 # SA 182 GR F 304 SOCKET WELD (WELDCAPS)	3
25		
26	1" 3000 # SW 90° ELL SA 182 F 304	2
27	3/4" 3000 # SW 90° ELL SA 182 F 304	1
30	1" CCA GT SA 320 2B5-1028	1
31	1" SCH 40 SA 312 T 304 HT CT510	1
		1 FT

REV	DATE	DESCRIPTION	DRN	CHK
14	7/76	AS BUILT PER RL-2092		
13	7/72	AS BUILT: DCP/EL 2943		

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ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC CONTAINMENT AUX. BLDG.
CONTAINMENT SPRAY

6600-2 | 2HCB-26-1 | 14

ISI-278

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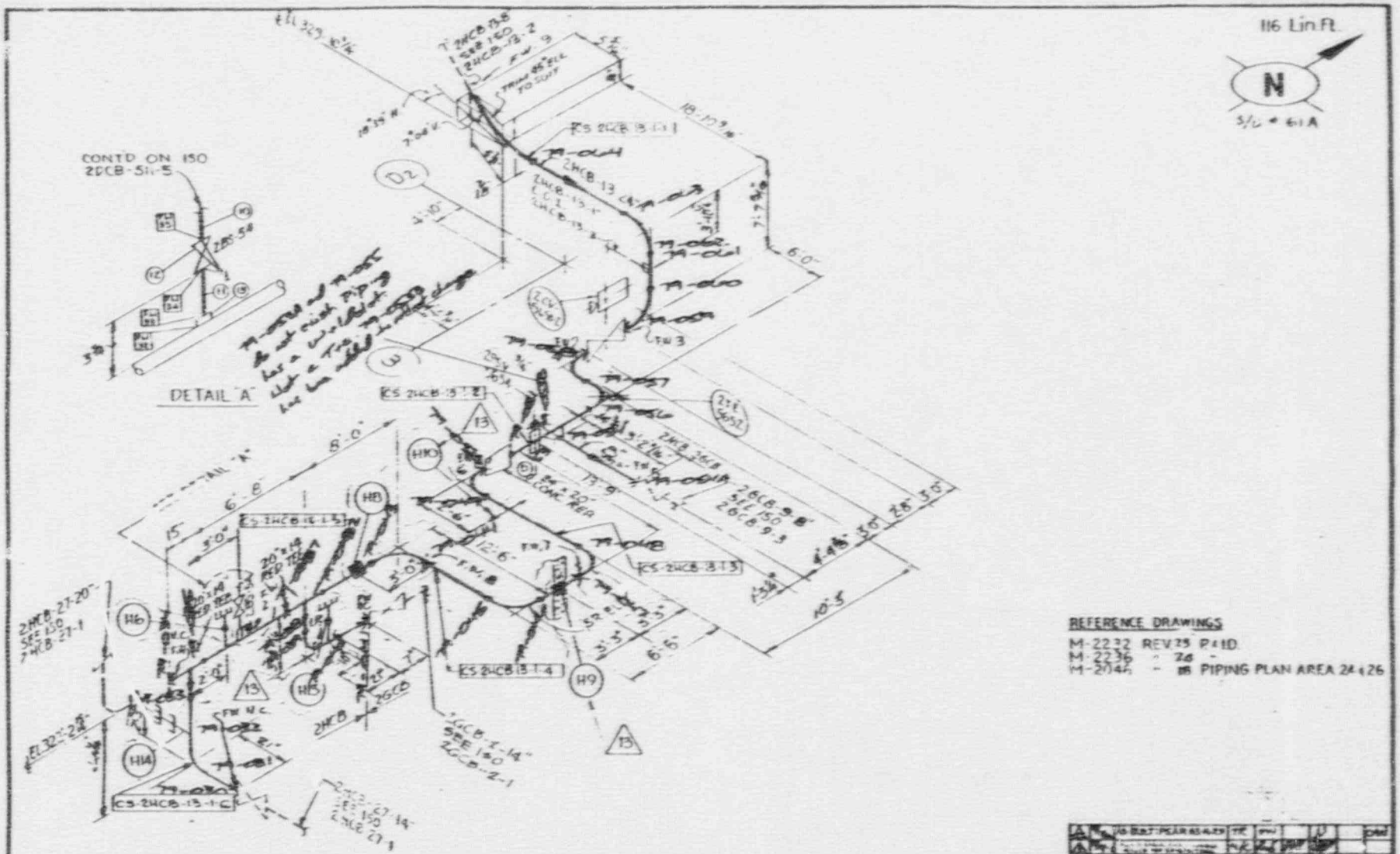

REFERENCE DRAWINGS

M-2232 REV.25 P&ID
M-2236 " 26 "
M-2042 " 18 PIPING PLAN AREA 24 & 26

BILL OF MATERIAL

ITEM No.	DESCRIPTION	QTY.
1	PIPE SPOOL MARK: CS-2HCB-13-1-1	1
2	PIPE SPOOL MARK: CS-2HCB-13-1-2	1
3	PIPE SPOOL MARK: CS-2HCB-13-1-3	1
4	PIPE SPOOL MARK: CS-2HCB-13-1-4	1
5	PIPE SPOOL MARK: CS-2HCB-13-1-5	1
6	PIPE SPOOL MARK: CS-2HCB-13-1-6	1
7	2CV-5650-2	1
8		
9		
10	2" PIPE SA-312 TP 304 SCH 40 HT#454974	1LF
11	2" PIPE SA-312 TP 304 SCH 40, HT#454974	1LF
12	2" CCA-GT WESTON HYD. SERIAL#1022 1973	1
13	2" HALF CPLG. 3000# SW, SA-182 F 304, HT#CR	1

3		AS-BUILT PLAN AS-4-29			
2					
1					
NO.	DATE	REVISIONS	BY	CHKD	APPD

SCALE NONE | DRAWN WS

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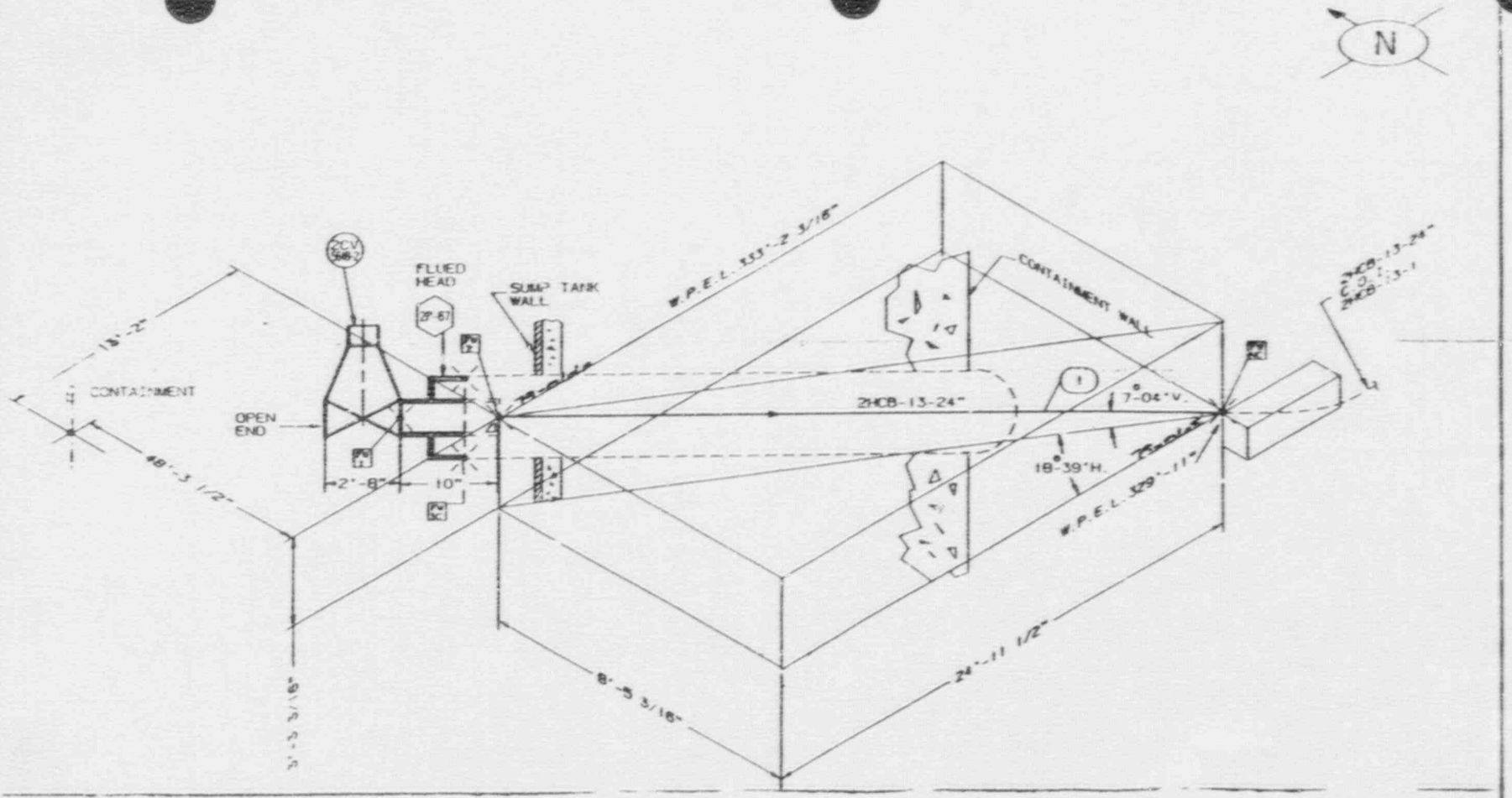
ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC - CONTAINMENT AUX. BUILDING
CONTAINMENT SPRAY

6600-2 | 2HCB-13-1 | 3

ISI-279



DESCRIPTION	HEAT NO	ASTM	GRD
FLUED HEAD			

BILL OF MATERIAL

STARTUP NO | INSULATION CLASS | THICK

REFERENCE

P&I.D. NO. M-2238
PIPING DWG. M-2048, M-2057
AREA NO. 25 ELEV.
BLDG. REACTOR BLDG.
SYS. CONTAINMENT SPRAY

HANGER TYPE
DWG NO

SYS. CLEANING REQMT

SERVICE CONDITIONS
NORMAL ____ PSIG ____ °F
MAXIMUM ____ PSIG ____ °F

NO.	DATE	REVISION	BY	CHK	ENGR	SUPV
5	[illegible]	[illegible]	[illegible]	[illegible]		

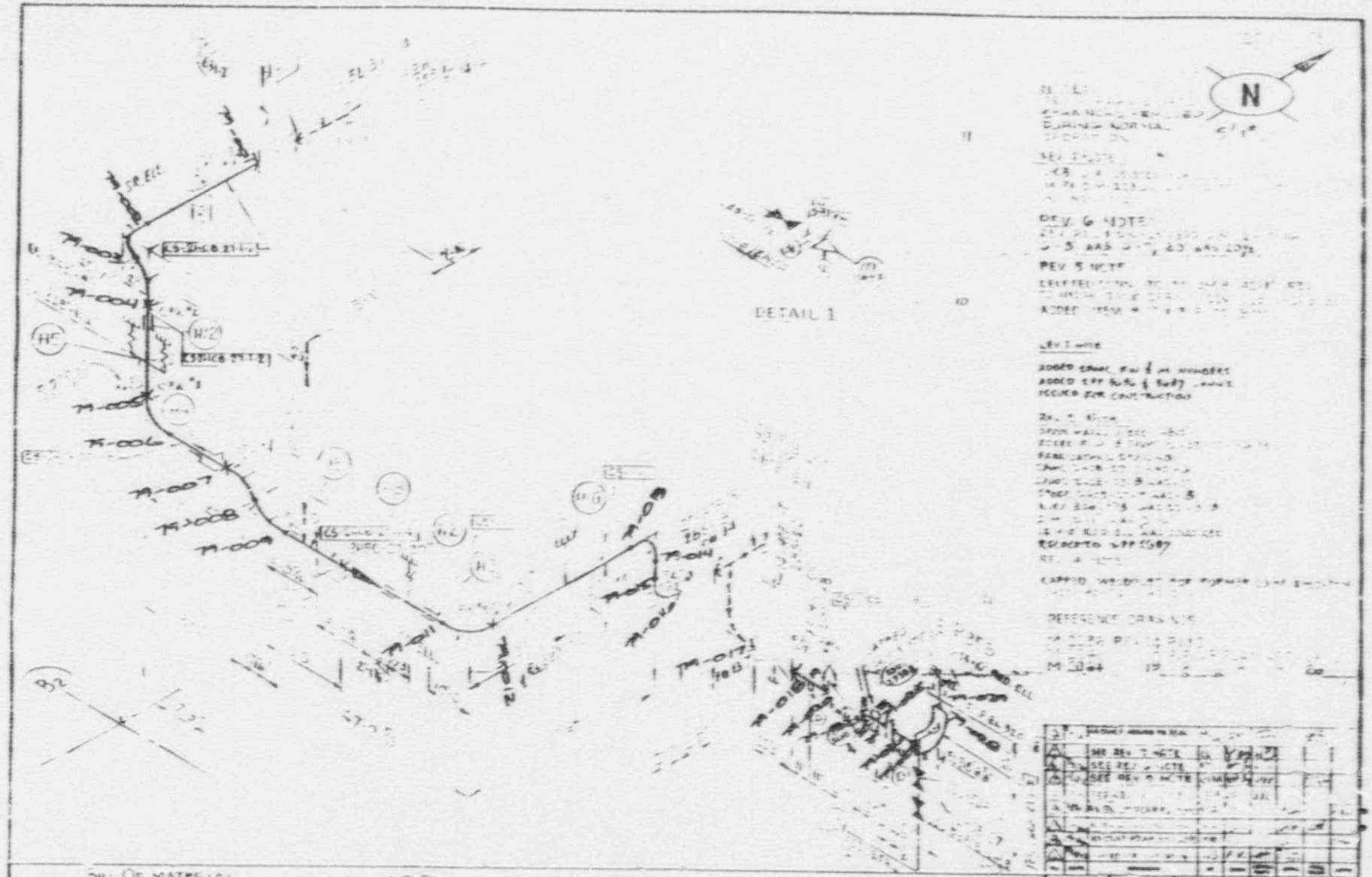
SCALE NONE | DESIGN BECHTEL | DRAWN IMPELL

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETRIC
CONTAINMENT SPRAY

DRAWING NO: 2HCB-13-2 | REV: 5

ISI-279



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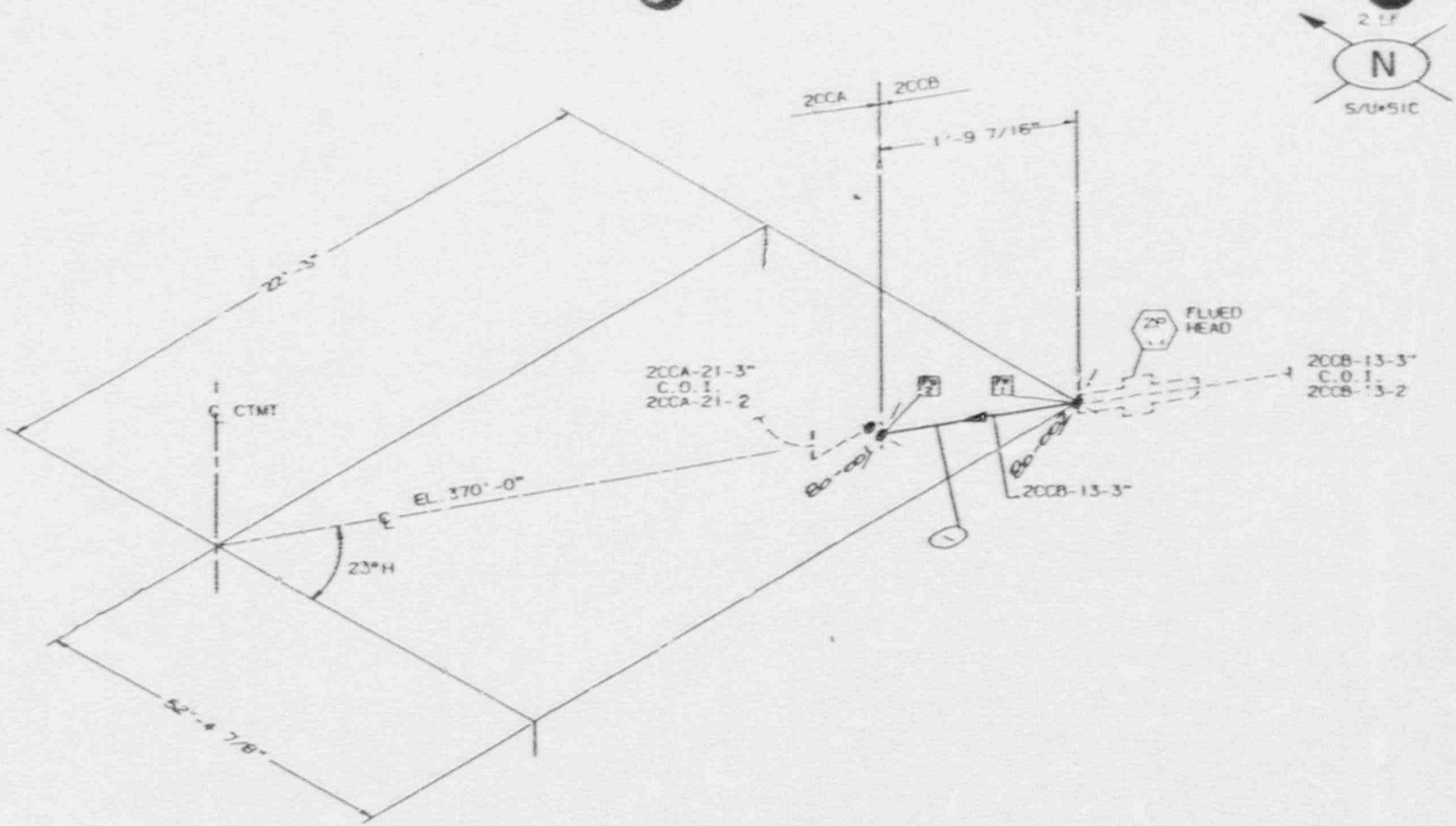


ITEM	QTY.	DESCRIPTION	HEAT NO.	ASTM	GRD.
1	1	PIPE SPOOL-SI-2CCB-13-2-1			

BILL OF MATERIAL

SIZE/TYP NO. | INSULATION CLASS. | THICK.

REFERENCE

P&I.D. NO. M-2232
PIPING DWG. M-2056
AREA NO. 25 ELEV.
BLDG. REACTOR
SYS. SAFETY INJECTION SYSTEM

HANGER TYPE
DWG. NO.
SYS. CLEANING REQMT.

SERVICE CONDITIONS
NORMAL ____ PSIG ____ °F
MAXIMUM ____ PSIG ____ °F

REV.	DRAWN	RELEASED	REVIEWED	QUALIFIED
3				

NO.	DATE	REVISION	BY	CHK	APPROVAL

SCALE: NONE | DESIGN: BECHTEL | DRAWN: INFRELL

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

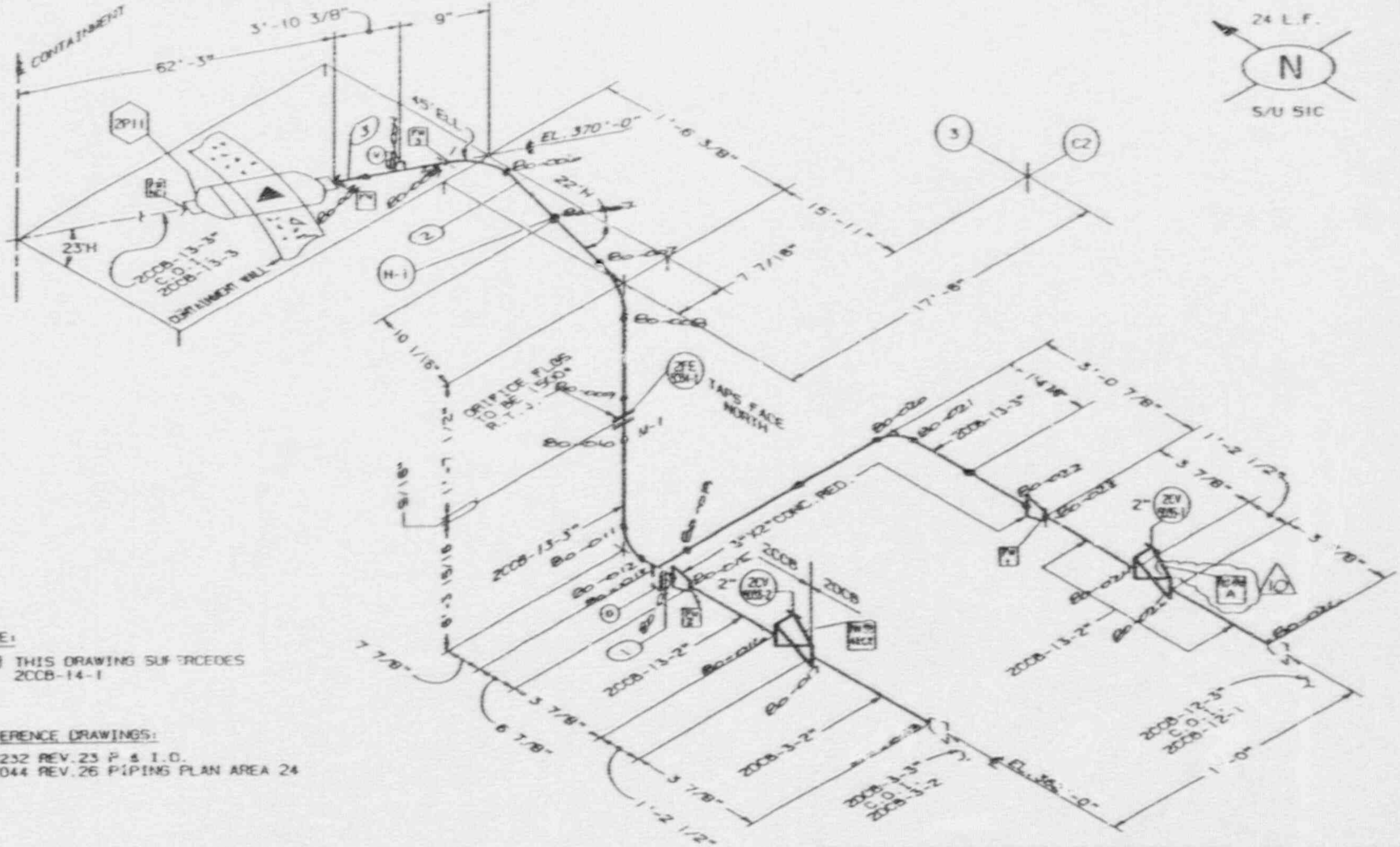
LARGE PIPE ISOMETRIC
SAFETY INJECTION SYSTEM

DRAWING NO. 2CCB-13-3 | REV. 3

ISI-280

Zone 80

80-001 → 80-002



NOTE:

1.) THIS DRAWING SUPERCEDES 2CCB-14-1

REFERENCE DRAWINGS:

M-2232 REV.23 P & I.D.
M-2044 REV.26 PIPING PLAN AREA 24

QTY.	DESCRIPTION	HEAT NO.	ASTM	GRD.
1	2CV-5036-2			
1	2CV-5035-1			
1	2FE-5034-1			
1	PIPE SPOOL MARK: SI-2CCB-13-2-3			
1	PIPE SPOOL MARK: SI-2CCB-13-2-2			
1	PIPE SPOOL MARK: SI-2CCB-13-2-1			

BILL OF MATERIAL

STARTUP NO. | INSULATION CLASS: | THICK:

REFERENCE

P&I.D. NO. M-2232
PIPING DWG. M-2044
AREA NO. 24 ELEV:
BLDG. REACTOR AUX.
SYS. SAFETY INJECTION SYSTEM

HANGER TYPE: -
DWG. NO.

SYS. CLEANING REQMT.

SERVICE CONDITIONS:

NORMAL ______ PSIG ______ °F
MAXIMUM ______ PSIG ______ °F

NO.	DATE	REVISION	BY	CH'K		
10	1/2/90	AS BUILT: WR 86-0122 & JO.# 723151	KS	DJD		
9	12.22.86	AS BUILT: PEAR 86-2890	TM	CRD		
8	10/15/84	REDRAWN FOR IMPROVED QUALITY	GPC	VAA		

SCALE: NONE | DESIGN: BECHTEL | DRAWN: IMPELL

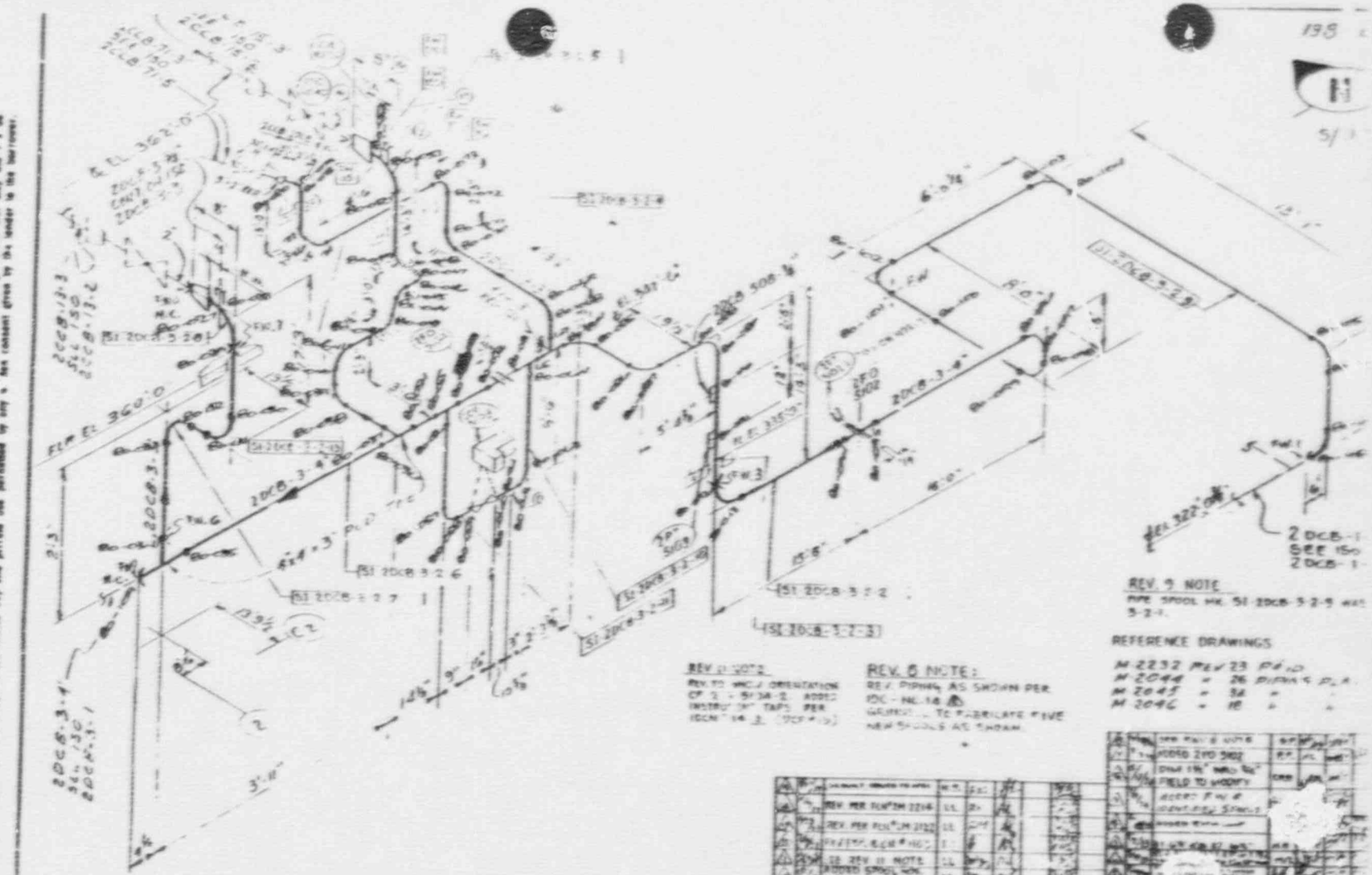
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETRIC
SAFETY INJECTION SYSTEM

DRAWING NO. 2CCB-13-2 | REV. 10

Zone 80 80-03-08-06

ISI-280



Bill Of Material			
REV.	DESCRIPTION	QTY.	
1	PIPE SPOOL MARK SI-2DCB-3-2-1	1	
2	PIPE SPOOL MARK SI-2DCB-3-2-2	1	
3	PIPE SPOOL MARK SI-2DCB-3-2-3	1	
4	PIPE SPOOL MARK SI-2DCB-3-2-4	1	
5	PIPE SPOOL MARK SI-2DCB-3-2-5	1	
6	PIPE SPOOL MARK SI-2DCB-3-2-6	1	
7	PIPE SPOOL MARK SI-2DCB-3-2-7	1	
8	PIPE SPOOL MARK SI-2DCB-3-2-8	1	
9	PIPE SPOOL MARK SI-2DCB-3-2-9	1	
10	PIPE SPOOL MARK SI-2DCB-3-2-10	1	
11	SI-2DCB-3-2-11	1	
12	SI-2DCB-3-2-12	1	
13	SI-2DCB-3-2-13	1	
14	1FO-5102	1	
15	2DCB-3-2-2		
16	PIPE 8" SCH 80 CARBON STEEL WT ASTM 106		
17	CAP 8" SCH. 80 CARBON STEEL WT BCW		

REV. 9 NOTE
PIPE SPOOL MK. SI-2DCB-3-2-9 was 3-2-1.

REFERENCE DRAWINGS
M-2232 REV 23 P&ID
M-2044 " 26 PIPING PLAN
M-2045 " 34 "
M-2046 " 18 "

REV. 8 NOTE:
REV. PIPING AS SHOWN PER DCN - NO. 14 (8)
WAIVED TO FABRICATE FIVE NEW SPOOLS AS SHOWN.

REV. 0 NOTE:
REV. TO MECH. ORIENTATION OF 3-1-5/3A-2. ADDED INSTRU. 3/4" TAPS PER DCN "14 3" (TOP FIG.)

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ARKANSAS POWER & LIGHT COMP
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC-CONTAINMENT AUX.
SAFETY INJECTION

6600-2 2DCB-3

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ISI-280

VR 80

-02-80-10E

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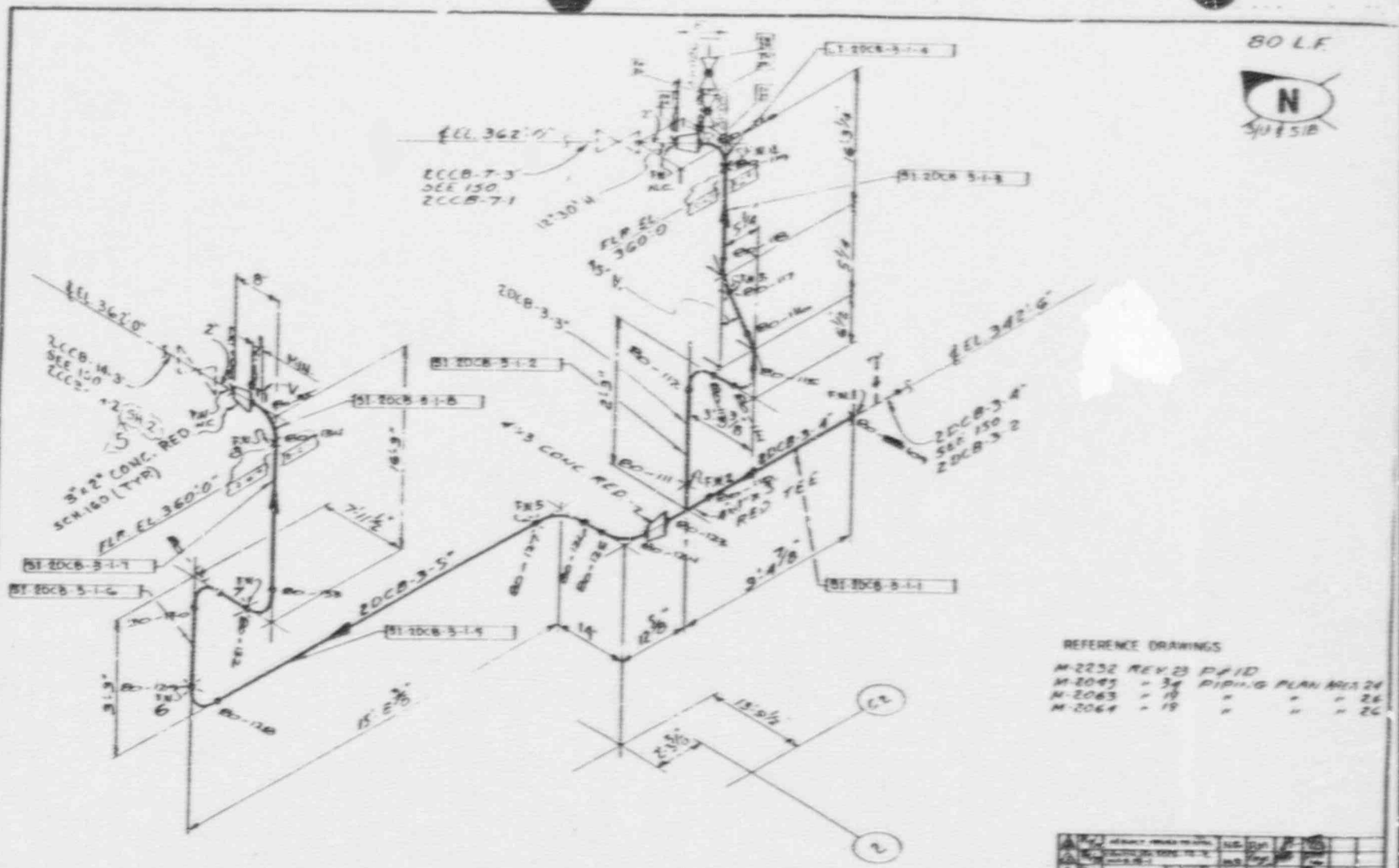

REFERENCE DRAWINGS

M-2232	REV 23	P&ID		
M-2063	" 18	PIPING PLAN	AREA 24	
M-2064	" 19	"	"	" 26
M-2065	" 34	"	"	" 26

BILL OF MATERIAL

ITEM Nº	DESCRIPTION	QUAN
1	PIPE SPOOL MARK: SI-ZDCB-3-1-1	1
2	PIPE SPOOL MARK: SI-ZDCB-3-1-2	1
3	PIPE SPOOL MARK: SI-ZDCB-3-1-3	1
4	PIPE SPOOL MARK: SI-ZDCB-3-1-4	1
5	PIPE SPOOL MARK: SI-ZDCB-3-1-5	1
6	PIPE SPOOL MARK: SI-ZDCB-3-1-6	1
7	PIPE SPOOL MARK: SI-ZDCB-3-1-7	1
8	PIPE SPOOL MARK: SI-ZDCB-3-1-8	1

ISI-280

BECHTEL
SAN FRANCISCO

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC-CONTAINMENT AUX. BLDG.
SAFETY INJECTION

6600-2 | ZDCB-3-1 | 5

Zone. 80
80-109 → 80-137

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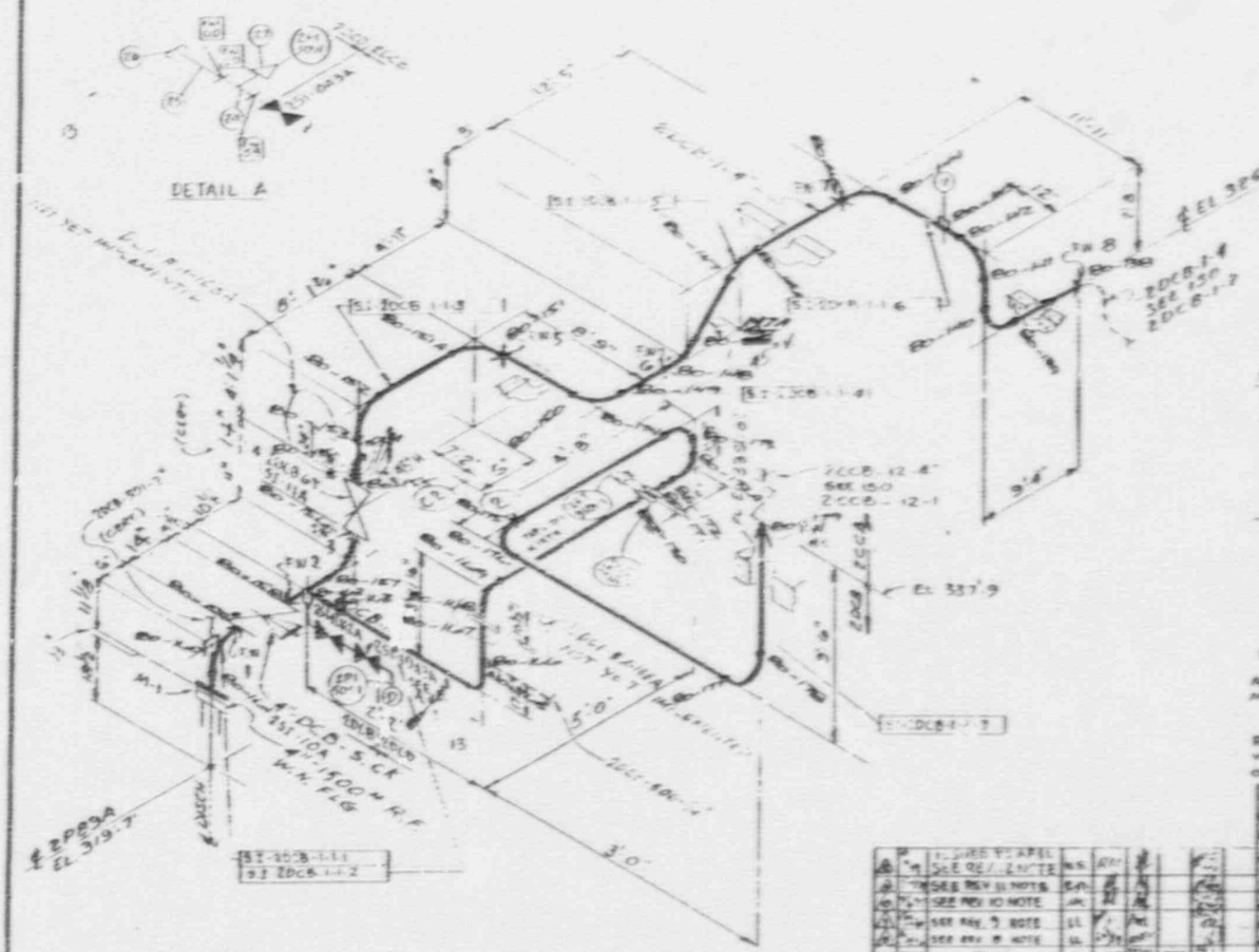
91 L.F.

N

S/G 7 S.E.



REV 12 NOTE

REV 11 NOTE

RELOCATED FLANGE TO CLEAR ACCESS FOR DISMANTLING OF EP-89A

REV 10 NOTE

ADDED FLANGE FOR REMOVAL OF SPOOL 2DCB-1-15 TO CLEAR ACCESS FOR DISMANTLING OF EP-89A.

REV. 9 NOTE

RELOCATED 2PD 3" DI AS INDICATED & ADDED INSTRUMENT TAPS PER 10CH #14 (DCP #15)

REV. 8 NOTE

(A) WAS 2DCB-19-1/2". (B) WAS 2DCB-23-1".

REFERENCE DRAWINGS

M-2232 REV 19 PG 10
M-2046 - 18 PIPING PLAN AREA 2 & 126

REVISED FW NO'S & SPOOL NO'S PER CHANGED VALVE DIMS CHGD. ADDED EXPAN LOOP ON 4" BRANCH

Bill Of Material		
ITEM NO	DESCRIPTION	QUAN.
1	PIPE SPOOL MARK SI 2DCB-1-1-1	1
2	PIPE SPOOL MARK SI 2DCB-1-1-2	1
3	PIPE SPOOL MARK SI 2DCB-1-1-3	1
4	PIPE SPOOL MARK SI 2DCB-1-1-4	1
5	PIPE SPOOL MARK SI 2DCB-1-1-5	1
6	PIPE SPOOL MARK SI 2DCB-1-1-6	1
7	FLEXITALLIC GASKET STYLE CG-SL	1
8	1 1/4"Ø - 7 1/2" LG BOLT STUD SA 193 GR B7 W/ 2 HVY HEX NUT SA-194 GR 2H	8
9	4" DCB-5 CK	1
10	4" DCB-GT	1
12	PIPE SPOOL MARK SI 2DCB-1-1-7	1
24	1" 3000# S.S. S.W. TEE A-182	1
25	1" SCH 40 S.S. PIPE A-312	1
26	1" 3000# S.S. THREADED PIPE CAP	1
27	1" PIPE x 3/8" TUBE INST. ADAPTER SS	1

ISI-280

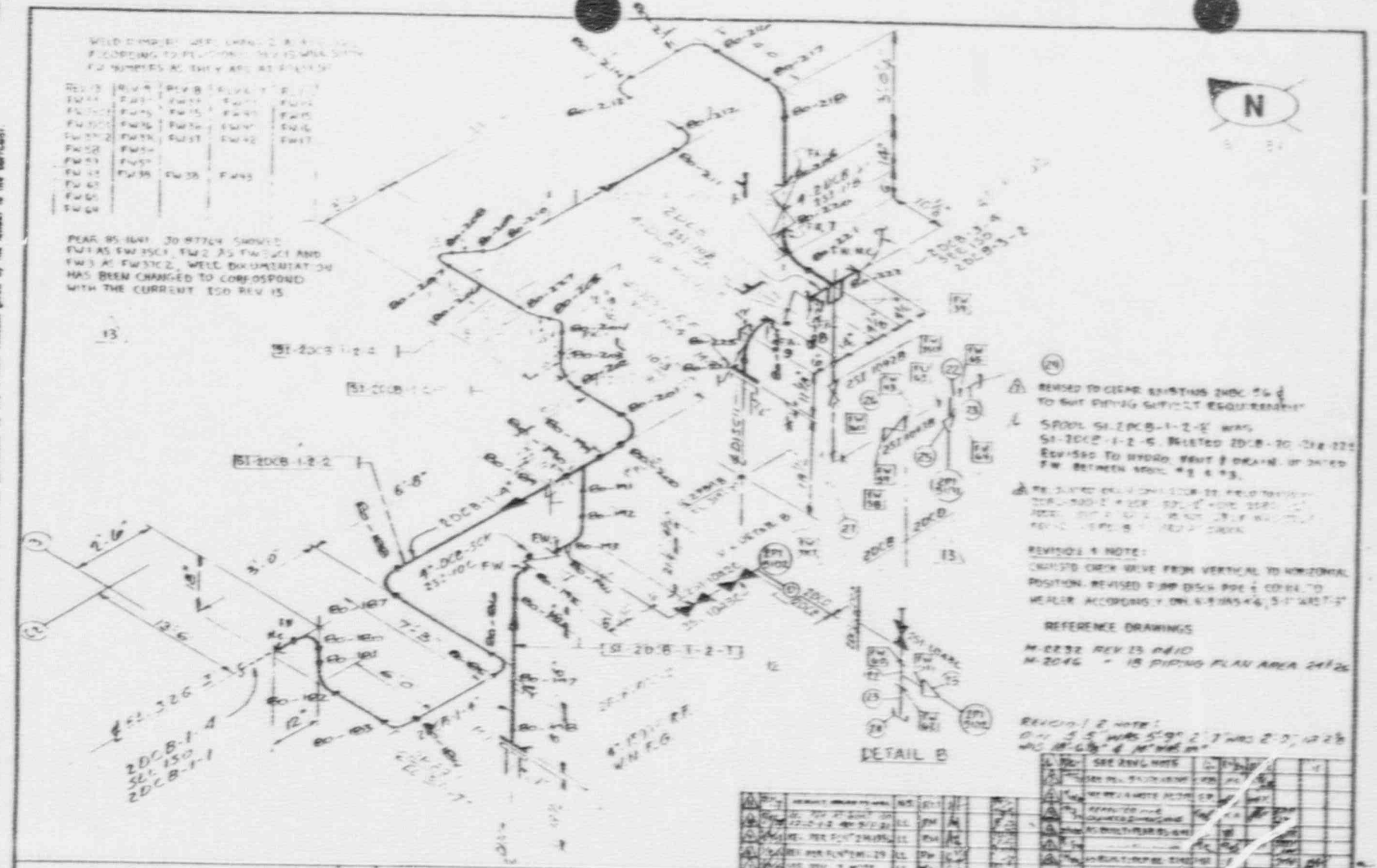
BECHTEL
SAN FRANCISCO

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC-CONTAINMENT AUX. BLDG.
SAFETY INJECTION

66002	2DCB-1-1	15

Zone 80
80-178 - 80-173



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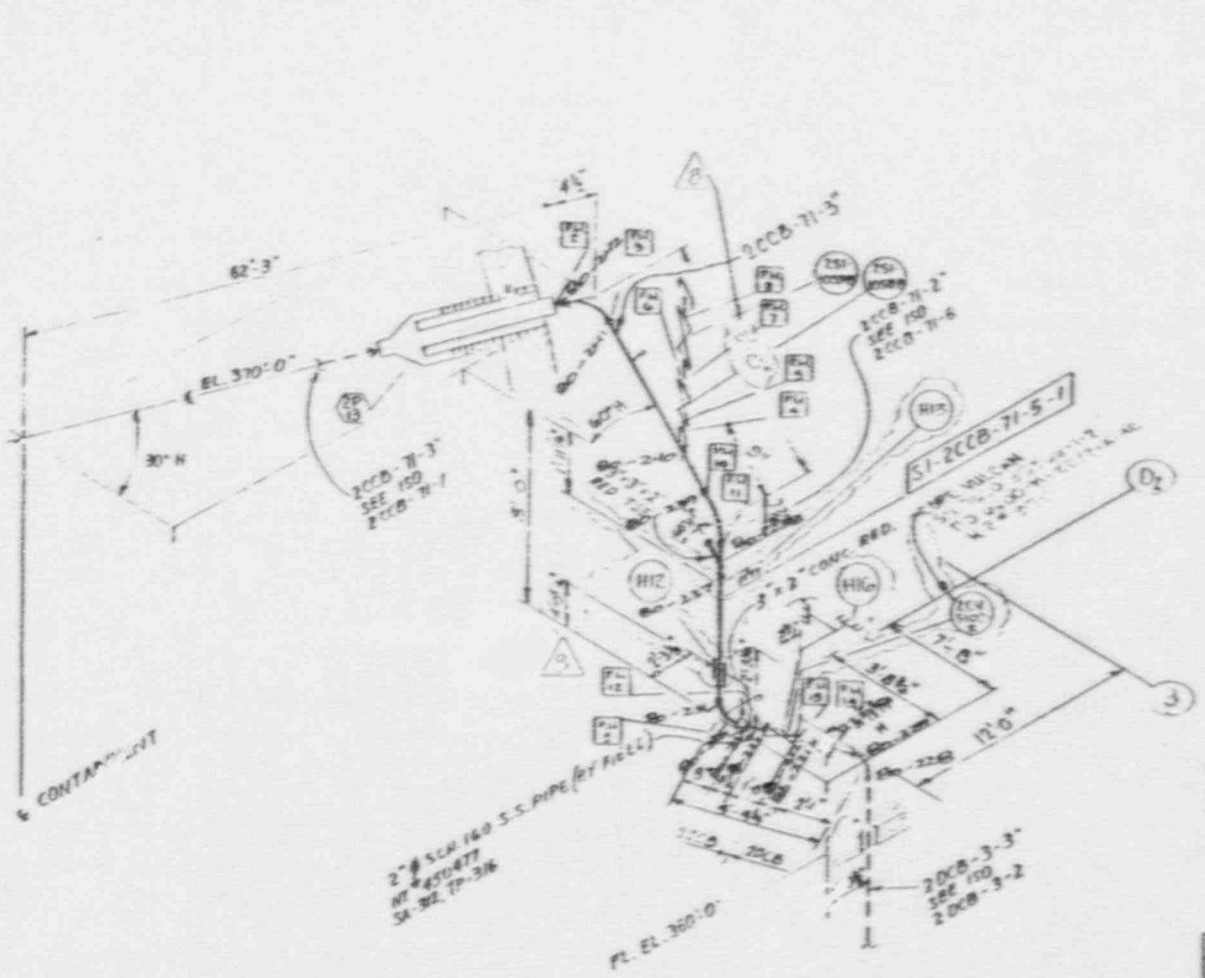

REFERENCE DRAWINGS

M- 2232 REV. 25 P&ID (DOC'ING)
M- 2044 REV. 26 PIPING PLAN AREA 24

OF MATERIAL

SCRIPTION	QUAN.
MARK: SI-2CCB-71-5-1	1
-Z VALVE	1
7 EH-2	1
	2
NIPPLE, SCH 160, SA312 GR 316	
	1
	2
P-6000# SA182 GR 316	1

NOTES:
1. 3/4" PIPE, VALVES & FITTINGS CONFORM TO MAT'L SPECS ON FILE.

ISI-280

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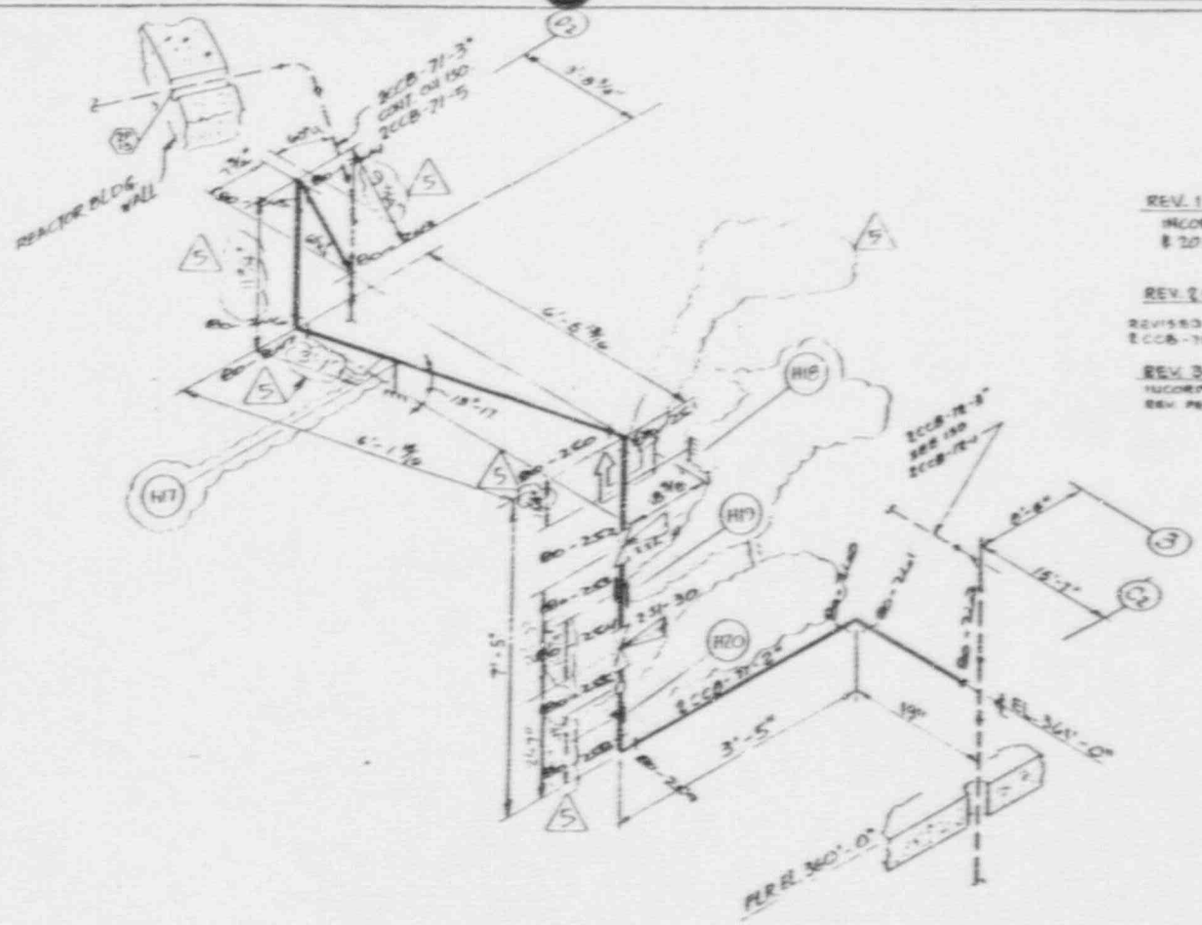
ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC-CONTAINMENT AUX. BLDG.
SAFETY INJECTION

6600-2	2CCB-71-5	8

Zone 80



N

REV. 1 NOTE:
INCORP. FCN # 2-M-2151, 2-M-2195A & 20 L.F. WAS 16 L.F.

REV. 2 NOTE:
REVISED TO MACH WITH LARGE PIPE ISO 2CCB-71-5 & ADDED FG-71 AS INDICATED.

REV. 3 NOTE:
INCORP. NCR. # U-2114-2 DATED 8-11-80 REV. PER AS BUILT COND. ESTIMATED 5-14-81

DESCRIPTION	HEAT NO.	ASTM	GRD.
BILL OF MATERIAL			

6. ALL DIMENSIONS WITHIN ± 3" FOR CRITICAL, NUCLEAR AND SEISMIC I AND ± 8" FOR NON-CRITICAL CLASS II CAN BE REWORKED WITHOUT [illegible] APPROVAL.
7. ⇨ – DENOTES DIRECTION TO SUPPORTING STRUCTURE.
8. [SW 1] – SHOP WELD NO.
9. [FW 1] – FIELD WELD NO.
10. [B 1] – BEND NO.
11. (1) – ITEM NO.

1. ✱ – DENOTES FIELD FIT UP. TO BE USED WITH FIELD WELD SYMBOL, SPECIFYING THAT A MIN. OF 8" RANDOM SURPLUS PIPE SHALL BE LEFT BY FAB. SHOP AT EACH JOIN; MARKED [FW 1]✱. THIS SURPLUS SHALL BE CUT TO FIT BY FIELD.

NOTES:

STARTUP NO. 1 TP | INSULATION CLASS: ~ | THICK: ~

REFERENCE

P&I.D. NO.: N-2252
PIPING DWG.: N-2844
AREA NO.: 24 ELEV.: 360'-0"
BLDG.: CONT. AIR BLDG.
SYS.: SAFETY INJECTION SYS.

HANGER TYPE: SSIS I, CRITICAL (H)
DWG. NO.:

SYS. CLEANING REQMT.

SERVICE CONDITIONS: (REF. M-2087)
NORMAL: 125.0 PSIG @ 100 °F
MAXIMUM: 1185 PSIG @ 200 °F

REV.	DATE	REVISIONS	BY	CHKD	APPD	CUSTOMER	PSI	APPD
3	5-14-81	NRC REV. 3 NOTE	GR					
2	5-5-81	SRS REV. 2 NOTE	RJ					
1	3-5-81	SRS REV. 1 NOTE	RJ					
0	2-26-81	RE. EDIT 2CFB TAG	CG					

DRAWN: SG | DESIGN: [illegible]

BECHTEL
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ARKANSAS POWER & LIGHT
ARKANSAS NUCLEAR ONE
UNIT 2

SMALL PIPE ISOMETRIC
AUXILIARY BUILDING

6600-2 | 2CCB-71-6 | 5

A B

ISI-280

Zone 80
80-243 80-262

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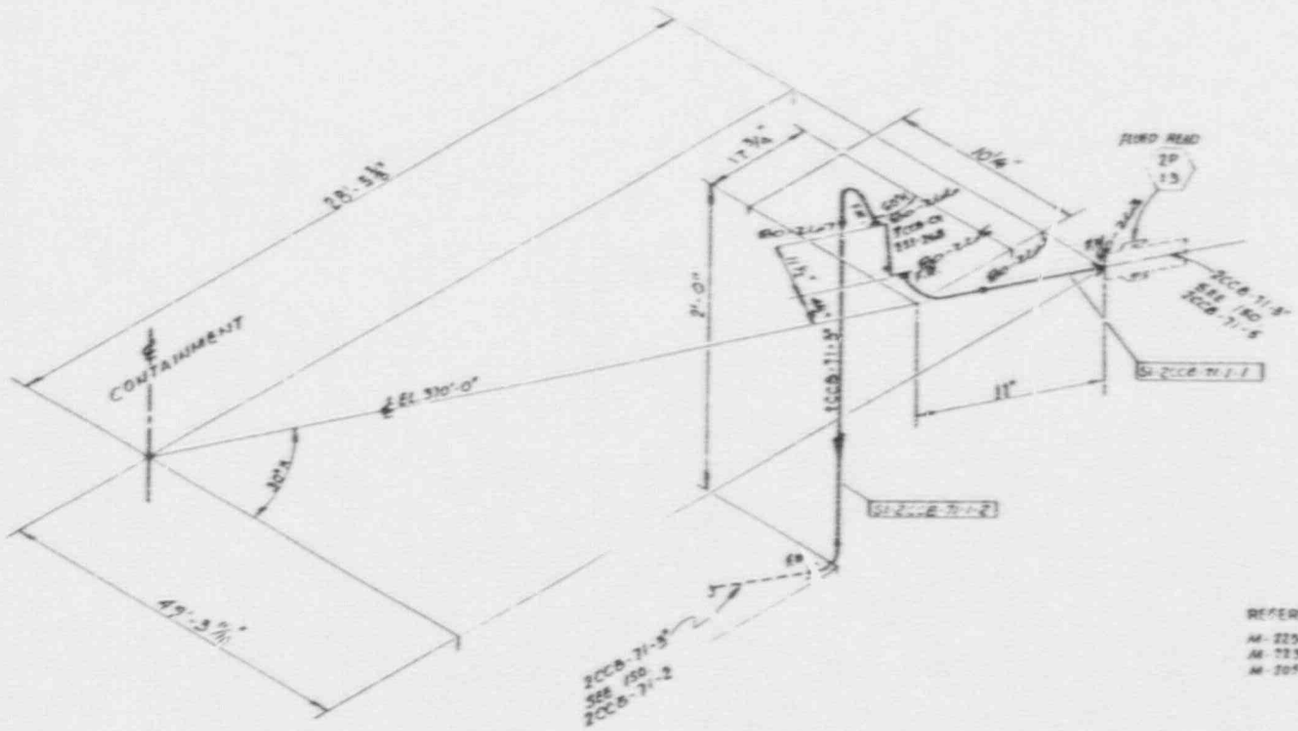

REV 1 NOTE:

ISSUED FOR CONSTRUCTION
ADDED SPOOL IDENTIFICATIONS &
ADDED CHECK VALVE DIM 18 3/8 &
DIM 4 3/8".

REFERENCE DRAWINGS

M-2250	REV 21	P&ID	(SDC #1)
M-2252	REV 25	P&ID	(LPC #1)
M-2056	REV 20	PIPING PLAN	(ANSI 2)

1	PIPE SPOOL MARK: SI-2CCB-71-1-1	1
2	1-2	1
	3" CCB-CF 2:1-BLE VALVE	1
	2P-13 FIXED HANGER	1

ISI-280

5					
4	REV PER HEBULTING	JR			
3	SEE REV 1 NOTE	CC			
2	ISSUED FOR IFAB	CC			
1					

BECHTEL
SAN FRANCISCO

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC CONTAINMENT BLDG
SAFETY INJECTION SYSTEM

6600-2CCB-71-1 5

Zone 80

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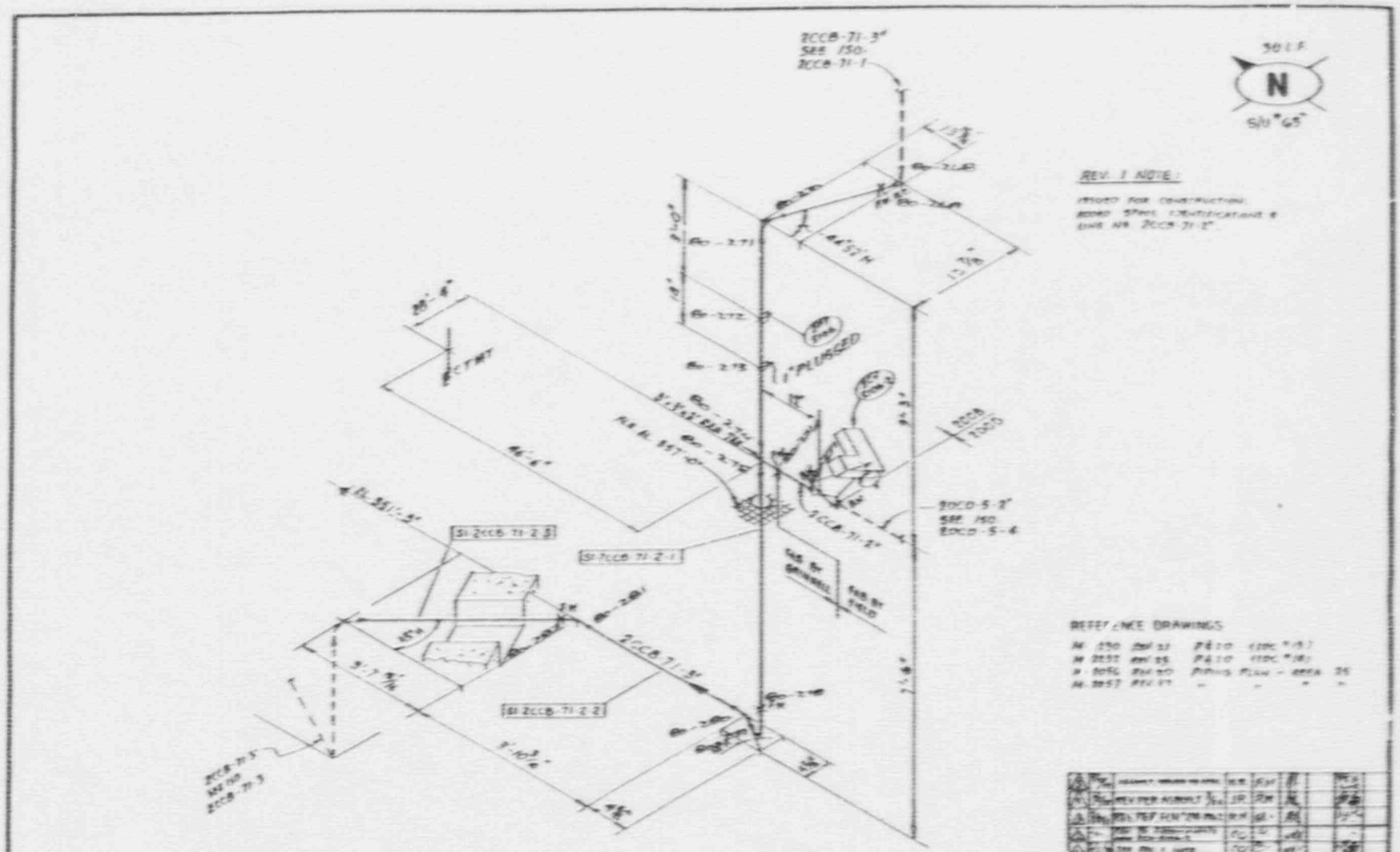


BILL OF MATERIAL		
1	PIPE SPOOL ASSY. SI 2CCB-71-2-1	1
2	2-2	1
3	2-3	1
	2CV-5106-2 VALVE	1

ISI-280

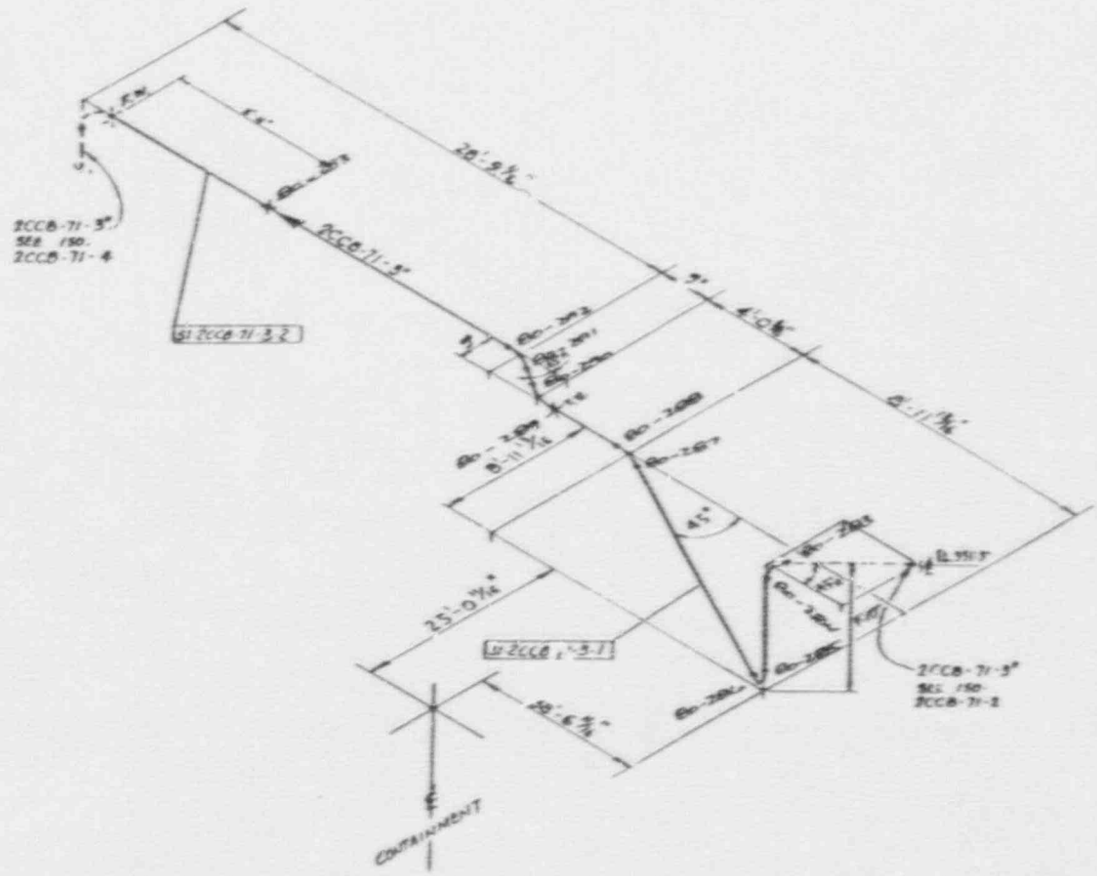
BECHTEL
SAN FRANCISCO

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC CONTAINMENT BLDG
SAFETY INJECTION SYSTEM

6600-2CCB-71-2 5

Zone 80



N

REFERENCE DRAWINGS

M-2290 REV. 31 P&ID (LOC. F18)
M-2292 REV. 25 P&ID (LOC. F16)
M-2057 REV. PIPING PLAN - AREA 25

1	PIPE SPOOL MARK: SI2CCB-71-3-1 1
2	3-2 1

ISI-280

BECHTEL
SAN FRANCISCO

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC CONTAINMENT BLDG.
SAFETY INJECTION SYSTEM

6600-2 2CCB-71-3 4

Zone 80

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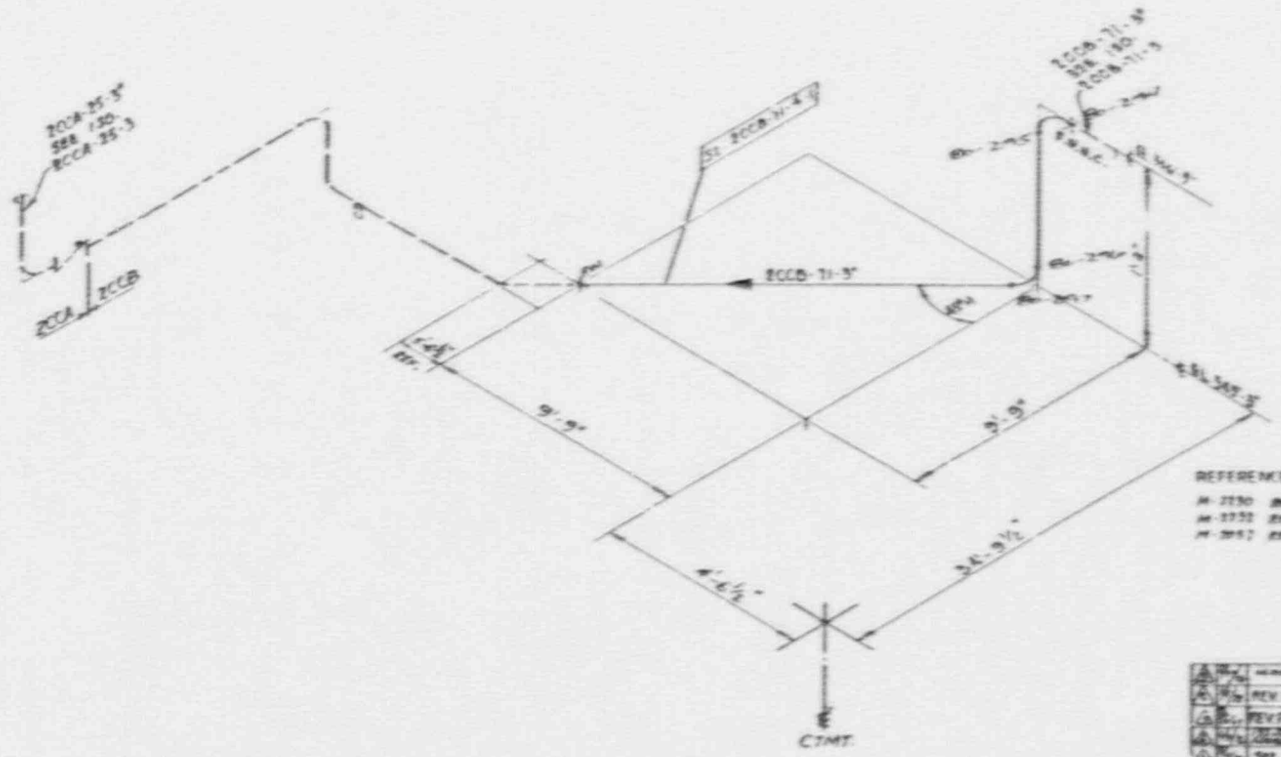


REV. 1 NOTE:

FAB. ITEM 2CCB-71-4 HAS BEEN MOVED IDENTIFIED AND SHOULD READ AS 2CCB-71-4.

REFERENCE DRAWINGS

M-2230 REV 21 P&ID (LOC F/9)
M-2232 REV 23 P&ID (LOC F/4)
M-2952 REV 17 PIPING PLAN - AREA 2C

BILL OF MATERIAL

ITEM NO	DESCRIPTION	QUAN
1	PIPE (PROL. ASMB. NO. SI 2CCB-71-4-1	1

ISI-280

5		REV PER ASBUILT'S	JR	RW	
4		REV PER SCALEDWORK			
3					
2					
1		ISSUED FOR FAB.			

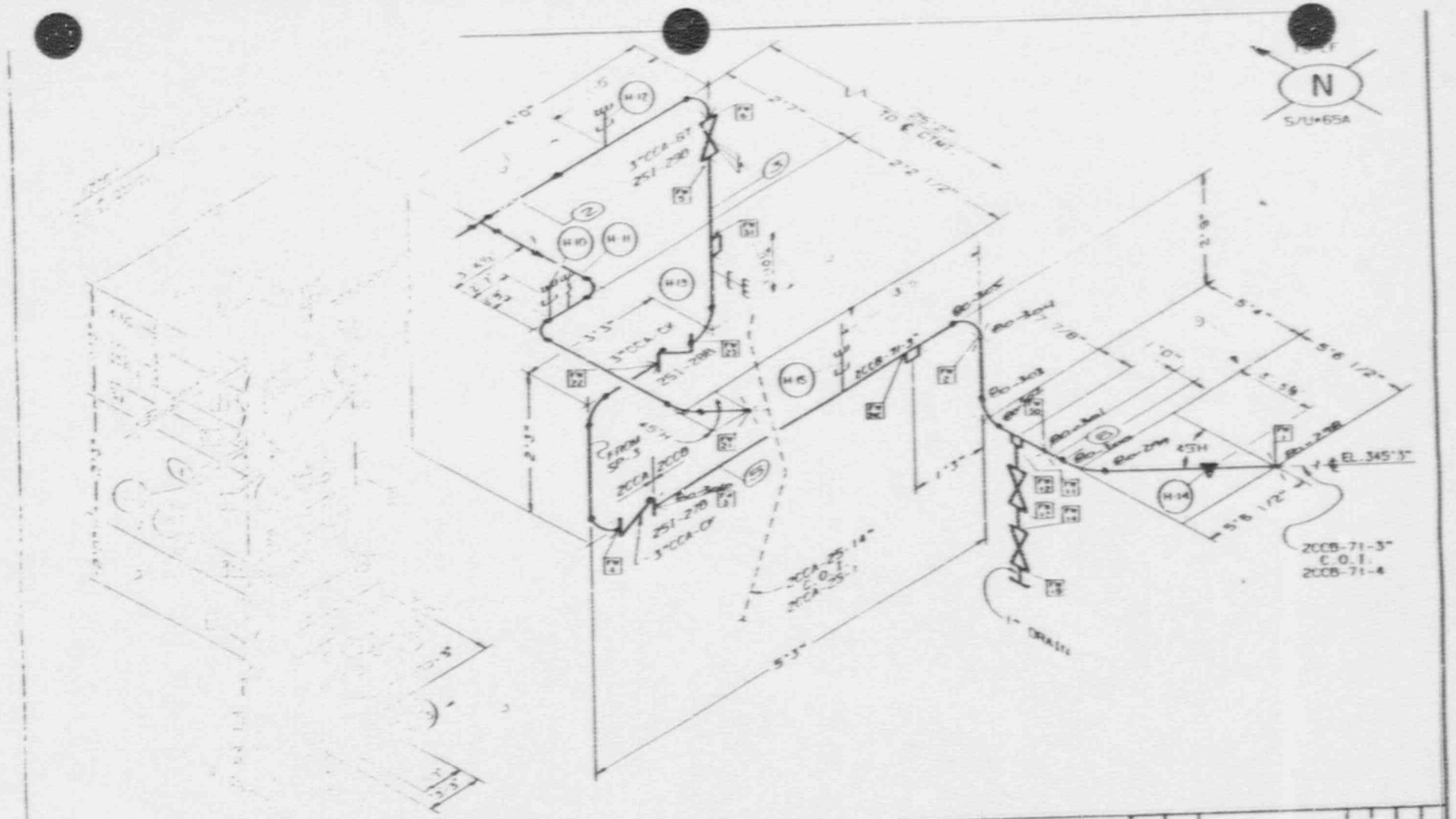
BECHTEL
SAN FRANCISCO

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC CONTAINMENT BLDG
SAFETY INJECTION SYSTEM

6600-2CCB-71-4 5

Zone 80



		F316
9506		F316
9506		F316
HEAT NO	ASTM	GRD

	STARTUP NO	INSULATION CLASS THICK

REFERENCE

PBID NO W-2230
PIPING DWG W-2057
AREA NO 25 ELEV
BLDG REACTOR BUILDING
SYS SAFETY INJECTION SYSTEM

HANGER TYPE
DWG NO
SYS CLEANING REQMT

SERVICE CONDITIONS
NORMAL ____ PSIG ____ °F
MAXIMUM ____ PSIG ____ °F

NO	DATE	REVISION	BY	CHK	APPD
8					

SCALE NONE DRAWN MEDITEL DRAWN SAPELL

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETRIC
SAFETY INJECTION SYSTEM

DRAWING NO 2CCA-25-3 REV 9

ISI-280

Zone 80
80-298 → 80-306

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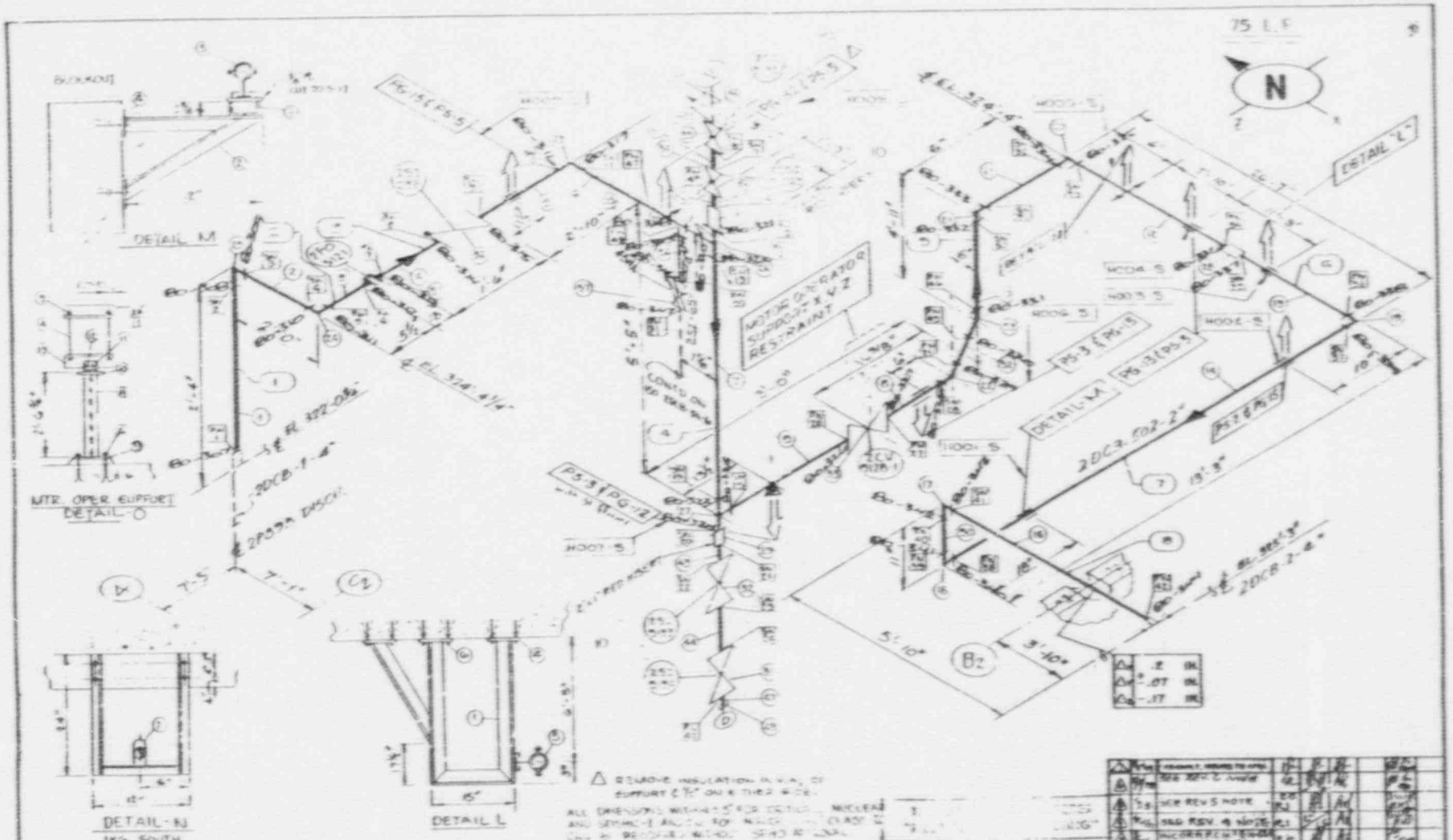


△ REMOVE INSULATION IN VIC. OF SUPPORT 2" ON EITHER SIDE.

ALL DIMENSIONS WITHIN 5" FOR DETAILS NUCLEAR AND SEISMIC ANALYSIS FOR NON-CLASS I CALL IN PROCEDURE METHOD SEND AS-BUILT

ITEM	QTY.	DESCRIPTION	HEAT NO.	ASTM	GRD.
15	16	1/2" HEX NUTS			
14	4	1/2" FIG. 146 ROD x LTS			
13	2	5" x 4" x 3/8 ANGLE x LTS			
12	2	5/8 BOLT W/DOUBLE NUTS			
11	1	STRUCTURAL TEE PART 0.5 H 184			
10	1	8" x 8" x 1/2 PL			
9	1	10" x 10" x 1/2 PL			
8	1	5" W LTS			
7	1	FIG. 82			
6	18	PHILLIPS WEDGE ANCHORS			
5	2	FIG. 117 WITH GU-068			
4	5	4'-8" x 4 1/2" PL			
3	7	2" x 2" x 1/4" L LTS			
2	1	PS 1 4" x 2" x 1/4" L			
1	7	5" x 5" x 1/2" L LTS			

BILL OF MATERIAL

- SHOP WELD NO.
- FIELD WELD NO.
- BEND NO.
- ITEM NO.
- SPOOL NO.

SPOOL NO. TO BE STENCILED IN 1/4" GOTHIC CHARACTERS USING NON-CHLORIDE PAINT ON EACH SPOOL AT APPROX. 10' INTERVALS.

1. DENOTES FIELD FIT UP. TO BE USED WITH FIELD WELD SYMBOL SPECIFYING THAT A MIN. OF 4' RANDOM SURPLUS PIPE SHALL BE LEFT BY FAB. SHOP AT EACH JOINT MARKED THIS SURPLUS SHALL BE CUT TO FIT BY FIELD.

NOTES

STARTUP-KO WC | INSULATION CLASS: F THICK: 1 1/2"

REFERENCE

P&ID NO.: M-1232
PIPING DWG.: N-1-2944
AREA NO.: 14 ELEV.: 317'-0"
BLDG.: QUADRANT-ENT AUX
SYS.: SAFETY INJECTION

HANGER TYPE: SEISMIC CLASS I (NS CRITICAL)
DWG. NO.:

SYS. CLEANING REQMT.
6600-M-2103B

SERVICE CONDITIONS: (REF M-2083)

NORMAL	1250	PSIG @	100
MAXIMUM	1950	PSIG @	250

NO.	DATE	REVISIONS	BY	CHKD	ENGRD	APPD
1		REV. 3 NOTE				
2		REV. 4 NOTE				
3		AS BUILT REV. 0	KS	CHP		
4		AS BUILT REV. 1	KS	CHP		
5		AS BUILT REV. 2	TRC			

DRAWN: NO

BECHTEL
SAN FRANCISCO

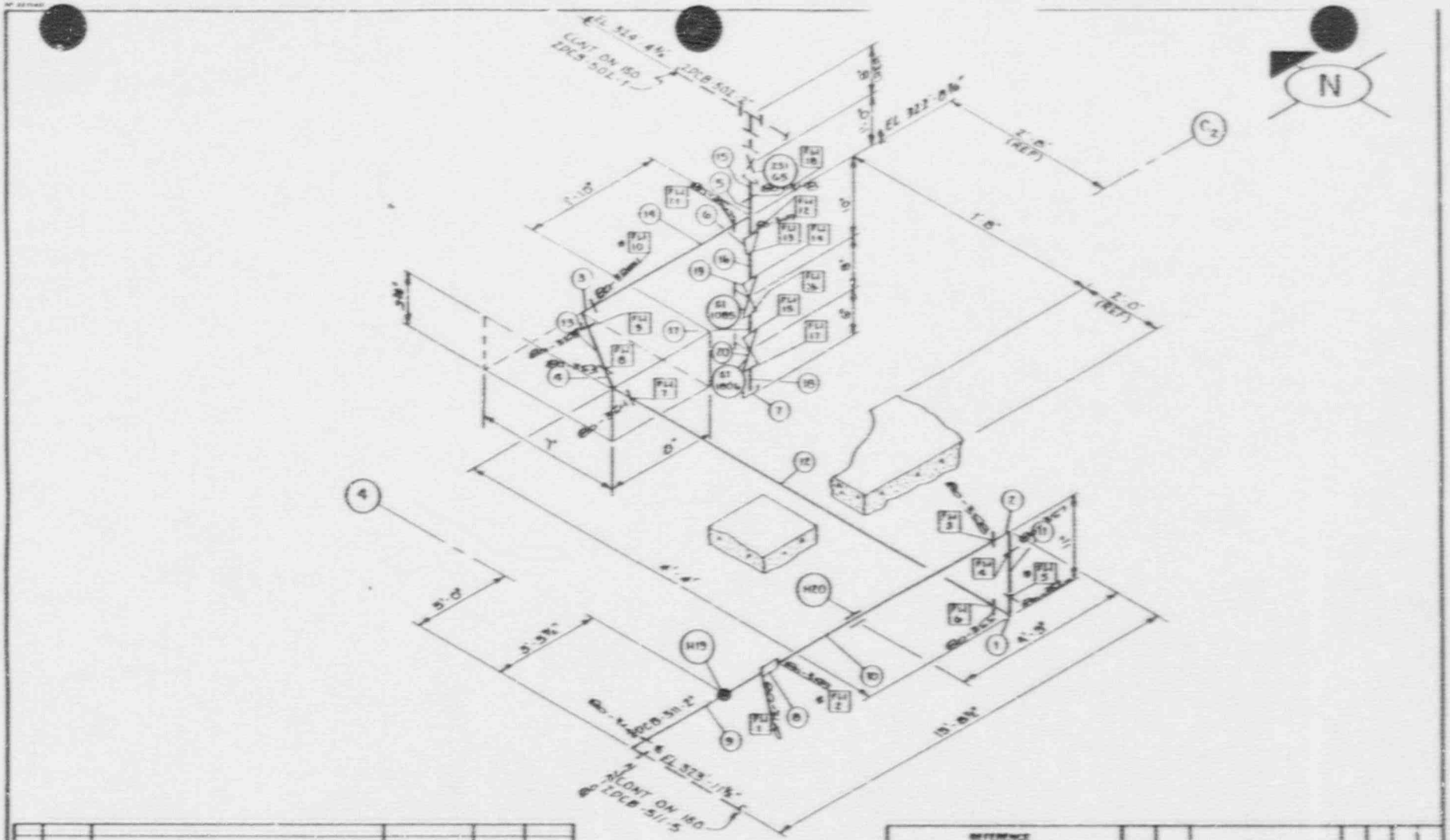
ARKANSAS POWER & LIGHT
ARKANSAS NUCLEAR ONE
UNIT 2

SMALL PIPE ISOMETRIC
AUXILIARY BUILDING

JOB NO. 6600-2 | DRAWING NO. 2DCB502-1 | REV. 10

ISI-280

Zone 80
80-307 → 80-347



ITEM	QTY.	DESCRIPTION	HEAT NO.	ASTM	WKJ

BILL OF MATERIAL

STARTUP NO. | INSULATION (ABB. F THICK. 1½"

5. ⊠ DENOTES IN PLACE WELDS
4. GROUTING TO BE PERFORMED IN ACCORDANCE WITH BECHTEL DRAWING A-2508
3. ALL PIPING BELOW ELEV. 324'-0" SHALL BE INSULATED PER BECHTEL SPECIFICATION 6400 M-2136
2. HORIZONTAL DIMENSIONAL TOLERANCES SHALL BE ± 3 INCHES. VERTICAL TOLERANCES SHALL BE ± ½ INCHES
1. SEISMIC CLASS I PIPING

NOTES

REFERENCE

FIELD NO. M-2232 & M-2238
PIPING DWG. N/A
AREA NO. 24 & 26 ELEV. 335'-0"
BLDG. AUXILIARY
SYS. HPSI PUMP MINIMUM RECIRCULATION

HANGER TYPE: N/A
DWG NO. N/A

SYS CLEANING REQMT. M-2H58

SERVICE CONDITIONS:
NORMAL 1250 PSIG 100 °F
MAXIMUM 1250 PSIG 200 °F

NO	DATE	REVISION	BY	CHK	APPR	APPR
0		ISSUED AS-BUILT PER PCP 85-0023	TP	RJ	JJ	

SCALE: NONE | DESIGN: BECHTEL | DRAWN: T. MONEY

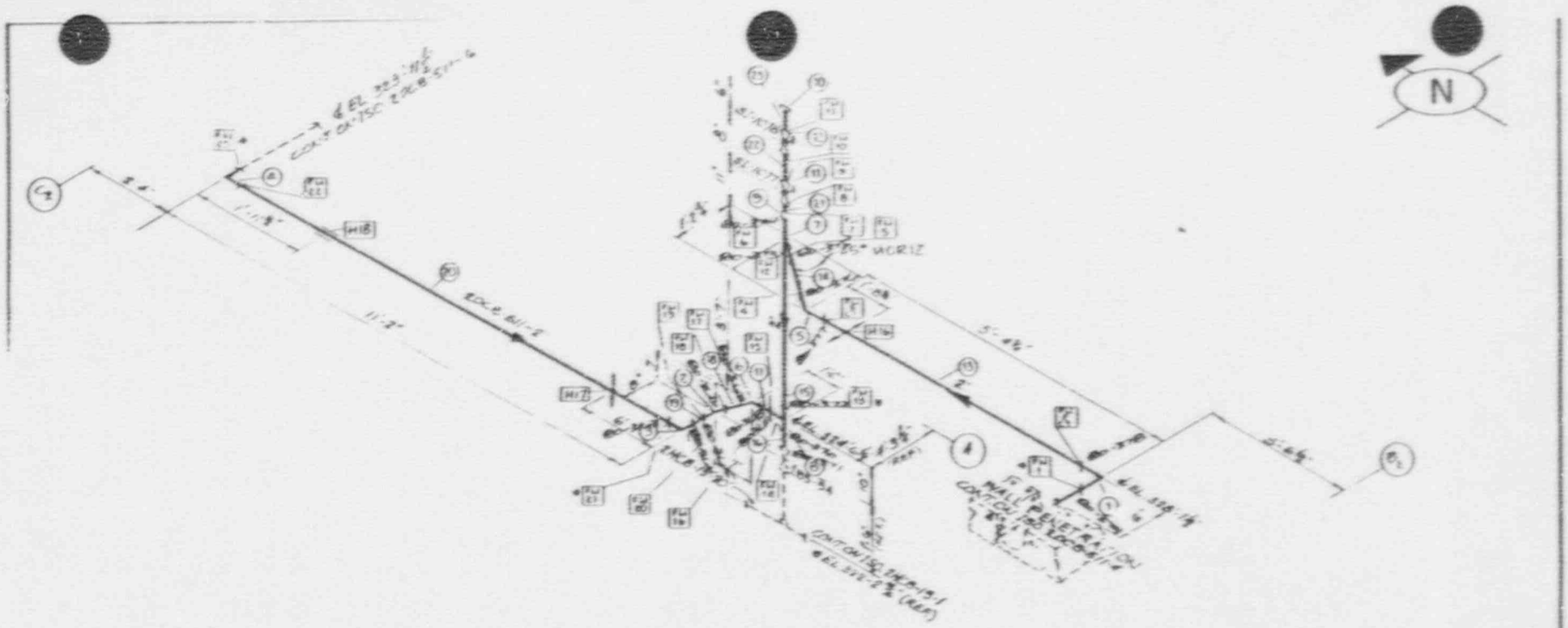
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

HPSI PUMP MINIMUM RECIRCULATION SYSTEM

DRAWING NO. 2DCB-511-6 | REV. 0

ISI-280

Zone 80
80-348 → 80-362



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ELDON A. WIDENSTEIN

DATE: 6/17/83 REG. NO. 3983

DESCRIPTION	HEAT NO.	ASME	QTY.

BILL OF MATERIAL

STARTUP NO. | INSULATION CLASS F THICK 1½"

5. ⊗ DENOTES IN PLACE WELDS
4. GROUTING TO BE PERFORMED IN ACCORDANCE WITH BECHTEL DRAWING A-2508.
3. ALL PIPING BELOW ELEVATION 374'-0" SHALL BE INSULATED PER BECHTEL SPECIFICATION 6680-M-2136.
2. HORIZONTAL DIMENSIONAL TOLERANCES SHALL BE ±3 INCHES. VERTICAL TOLERANCES SHALL BE ±1/2 INCH.
1. SEISMIC CLASS I PIPING.

REFERENCE

P&ID NO. M-2532 & M-2521
PIPING DWG. N/A
AREA NO. 001 EQ ELEV. 339'-0"
BLDG. AUXILIARY
SYS. HPSI PUMP MINIMUM RECIRCULATION
HANGER TYPE N/A
DWG NO. N/A
SYS. CLEANING REQMT. M-2038

SERVICE CONDITIONS
NORMAL 150 °F PSIG 100
MAXIMUM 150 °F PSIG 150

NO.	DATE	REVISION	DR	CHK		
0	6/17/83	ISSUED AS BUILT PER DCP 83-2003	TR	RJ	SS	

SCALE NONE | DRAWN NUTSCH | DESIGN CL

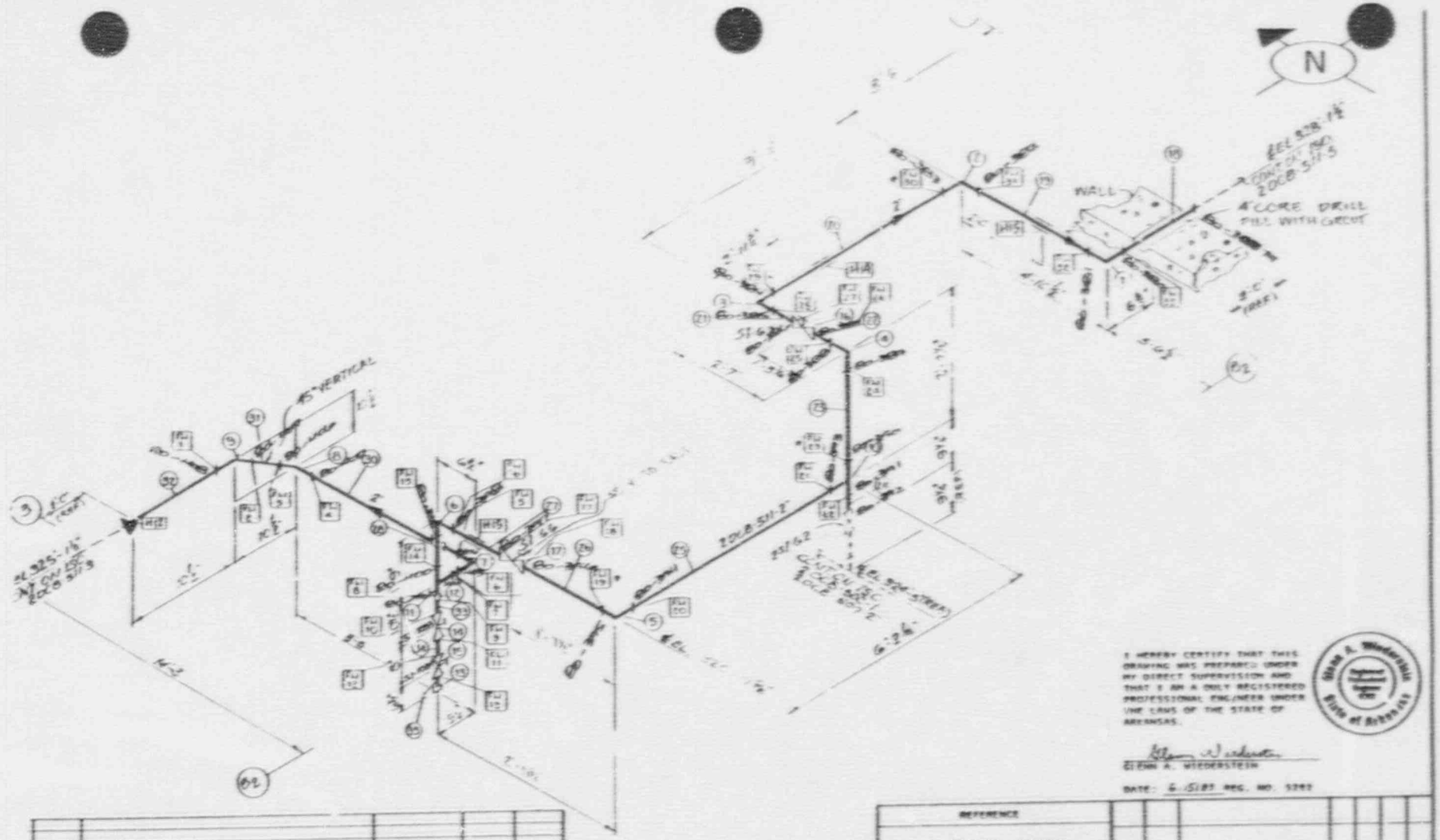
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

HPSI PUMP MINIMUM RECIRCULATION SYSTEM

DRAWING NO. 2DCB-511-5 SH 1 SH 2 | REV. 0

Zone 80

ISI-280 80-363 → 80-379



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GLENN A. WIEDERSTEIN

DATE: 6-15-87 REG. NO. 5393

QTY.	DESCRIPTION	HEAT NO	ASTM	GRD

BILL OF MATERIAL

5. ● DENOTES INPLACE WELD
4. GROUTING TO BE PERFORMED IN ACCORDANCE WITH BECHTEL DRAWING A-2508.
3. ALL PIPING BELOW ELEVATION 324'-8" SHALL BE INSULATED PER BECHTEL SPECIFICATION 6680-M-2355.
2. HORIZONTAL DIMENSIONAL TOLERANCES SHALL BE ±3 INCHES. VERTICAL TOLERANCES SHALL BE ±1/2 INCH.
1. SEISMIC CLASS I PIPING.

STARTUP NO | INSULATION CLASS: F | THICK: 1½

REFERENCE

P&ID NO. M-2292 & M-1286
PIPING DWG. N/A
AREA NO. 61-04 ELEV. 335'-0"
BLDG: ECH, SAB
SYS HPSI PUMP MINIMUM RECIRCULATION

HANGER TYPE N/A
DWG NO. N/A
SYS CLEANING REQMT M-2C58

SERVICE CONDITIONS
NORMAL 150 F PSIG 100 PSI
MAXIMUM 200 F PSIG 350 PSI

NO.	DATE	REVISION	BY	CHK	APPROVAL
0	7/1/87	ISSUED AS BUILT PER DCP 86-2009	TR	RJ	JJW

SCALE NONE | DRAWN LUNSFORD | DRAWN 01

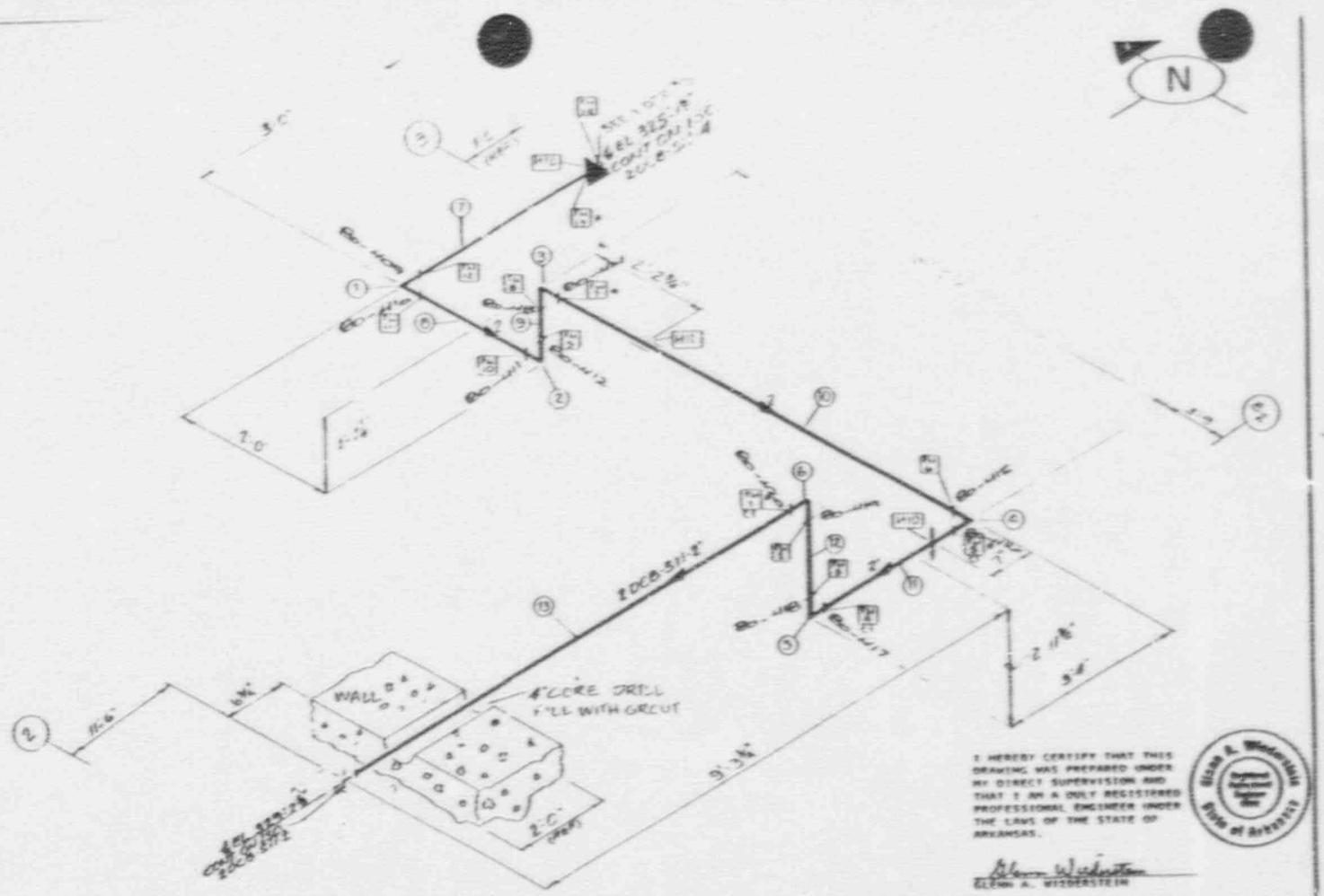
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

HPSI PUMP MINIMUM RECIRCULATION SYSTEM

DRAWING NO. 2DCB-511-4 SH 1 OF 2 | REV. 0

ISI-280

Zone 80
80-380 → 80-408



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ELENA A. WEIDERSTEIN

DATE: 6/15/83 REG. NO. 5997

DESCRIPTION	HEAT NO.	ASME	QRC

BILL OF MATERIAL

STARTUP NO.

INSULATION CLASS: F THICK: 1½"

4. ⊗ DENOTES INPLACE WELD
5. HGR #12 IS A 3000 S.W. COUPLING WELDING TO A WALL PENETRATION PLATE
4. GROUTING TO BE PERFORMED IN ACCORDANCE WITH BECHTEL DRAWING A-2508.
3. ALL PIPING BELOW ELEVATION 334'-8" SHALL BE INSULATED PER BECHTEL SPECIFICATION 6880-M-3136.
2. HORIZONTAL DIMENSIONAL TOLERANCES SHALL BE ±3 INCHES. VERTICAL TOLERANCES SHALL BE ±1/2 INCH.
1. SEISMIC CLASS I PIPING.

REFERENCE

P&ID NO. M-2250 & M-2256
PIPING DWG NO. N/A
AREA NO. 2446G ELEV. 355'-0"
BLDG: AUXILIARY
SYS: HPSI PUMP MINIMUM RECIRCULATION

HANGER TYPE: N/A
DWG NO. N/A

SYS CLEANING REQMT. M-2108B

SERVICE CONDITIONS:
NORMAL 125.0 PSIG 100 °F
MAXIMUM 195.0 PSIG 550 °F

NO.	DATE	REVISION	BY	CHK	APPROVAL
0	6/15/83	ISSUED AS BUILT PER DCP 83-2003	TR	RJ	JS

SCALE: NONE DESIGN: MUTSCH DRAWN: CL

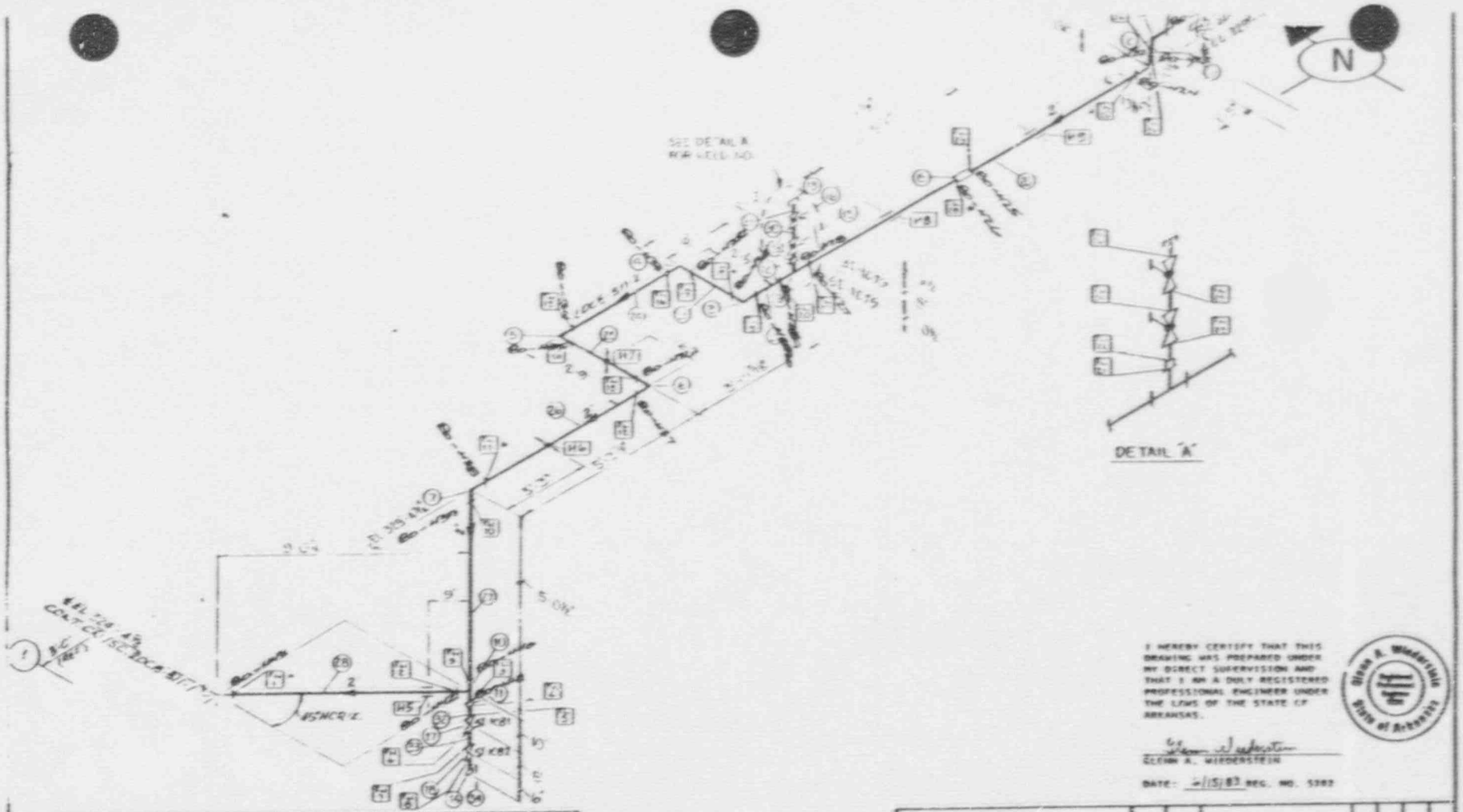
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

HPSI PUMP MINIMUM RECIRCULATION SYSTEM

DRAWING NO. 2DCB-511-3 SH 1 OF 2 REV. 0

ISI-280

Zone 80
80-419 → 80-420



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GLENN A. WIRDERSTEIN

DATE: 4/15/83 REG. NO. 5383

Glenn A. Wirderstein
Registered Professional Engineer
State of Arkansas

ITEM	QTY.	DESCRIPTION	HEAT NO.	ACME	GRD.

BILL OF MATERIAL

1. ⊕ DENOTES INPLACE WELD
4. GROUTING TO BE PERFORMED IN ACCORDANCE WITH BECHTEL DRAWING A-3588.
3. ALL PIPING BELOW ELEVATION 324'-0" SHALL BE INSULATED PER BECHTEL SPECIFICATION 6600-M-2336.
2. HORIZONTAL DIMENSIONAL TOLERANCES SHALL BE ±3 INCHES. VERTICAL TOLERANCES SHALL BE ±1/2 INCH.
1. SEISMIC CLASS I PIPING.

STARTUP NO.

INSULATION CLASS: F THICK: 1 1/2"

REFERENCE

P&ID NO. M-2232 & M-2236
PIPING DWG. N/A
AREA NO. 044 ELEV. 385'-0"
BLDG. AUXILIARY
SYS. HPSI PUMP MINIMUM RECIRCULATION
HANGER TYPE N/A
DWG. NO. N/A
SYS. CLEANING PROMT M-2IC515

SERVICE CONDITIONS
NORMAL 125°C PSIG 100 °F
MAXIMUM 175°C PSIG 350 °F

NO.	DATE	REVISION	BY	CHK	ENGR	APPR
0	4/15/83	ISSUED AS BUILT PER DCP 83-2003	TR	RJJ		

DRAWN: JCMB DESIGN: HUTECH DRAWN: CL

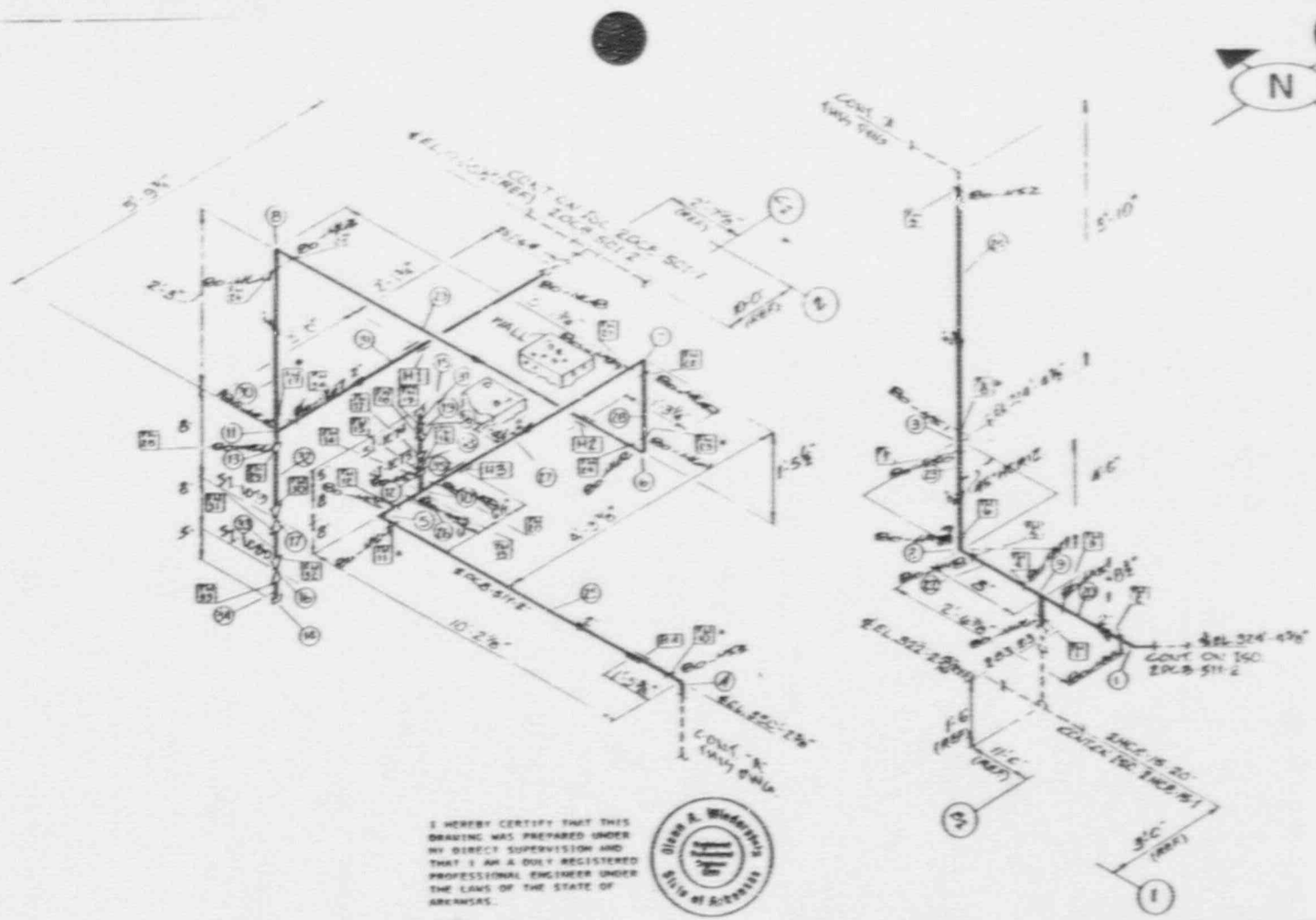
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

HPSI PUMP MINIMUM
RECIRCULATION SYSTEM

DRAWING NO. 2DCB-511-2 REV. 0

ISI-280

Zone 80
80-421 → 80-443



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Glenn A. Wiederstein
State of Arkansas
Registered Professional Engineer
No. 5282

GLENN A. WIEDERSTEIN

DATE: 4/5/85 REG. NO. 5282

4. ⊕ DENOTES INPLACE WELD

5. HANDWHEEL ON VALVES 2E1-1075 & 2E1-1076 TO BE FACING DOWN

6. GROUTING TO BE PERFORMED IN ACCORDANCE WITH BECHTEL DRAWING A-2588.

7. ALL PIPING BELOW ELEVATION 324'-8" SHALL BE INSULATED PER BECHTEL SPECIFICATION 6888-M-2136.

8. HORIZONTAL DIMENSIONAL TOLERANCES SHALL BE ±5 INCHES. VERTICAL TOLERANCES SHALL BE ±1/2 INCH.

9. SEISMIC CLASS I PIPING.

ITEM	QTY.	DESCRIPTION	HEAT NO.	ASME	GRD.

BILL OF MATERIAL

STARTUP NO.

INSULATION CLASS: F THICK: 1 1/2

REFERENCE

P&ID NO. M-2224 Sh 2 & 4

PIPING DWG N/A

AREA NO. 2A2B ELEV. 355'-0"

BLDG. AUX-WAREH

SYS. HPSI PUMP MINIMUM RECIRCULATION

HANGER TYPE N/A

DWG NO. N/A

SYS. CLEANING REQMT M-2103B

SERVICE CONDITIONS:

NORMAL 1250 PSIG 100 °F

MAXIMUM 1950 PSIG 350 °F

NO.	DATE	REVISION	BY	CHK'D	APPD
0	4/5/85	ISSUED AS BUILT PER DCP 85-2003	JR	RJ	SS

SCALE NONE DRAWN MUTCH

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

HPSI PUMP MINIMUM RECIRCULATION SYSTEM

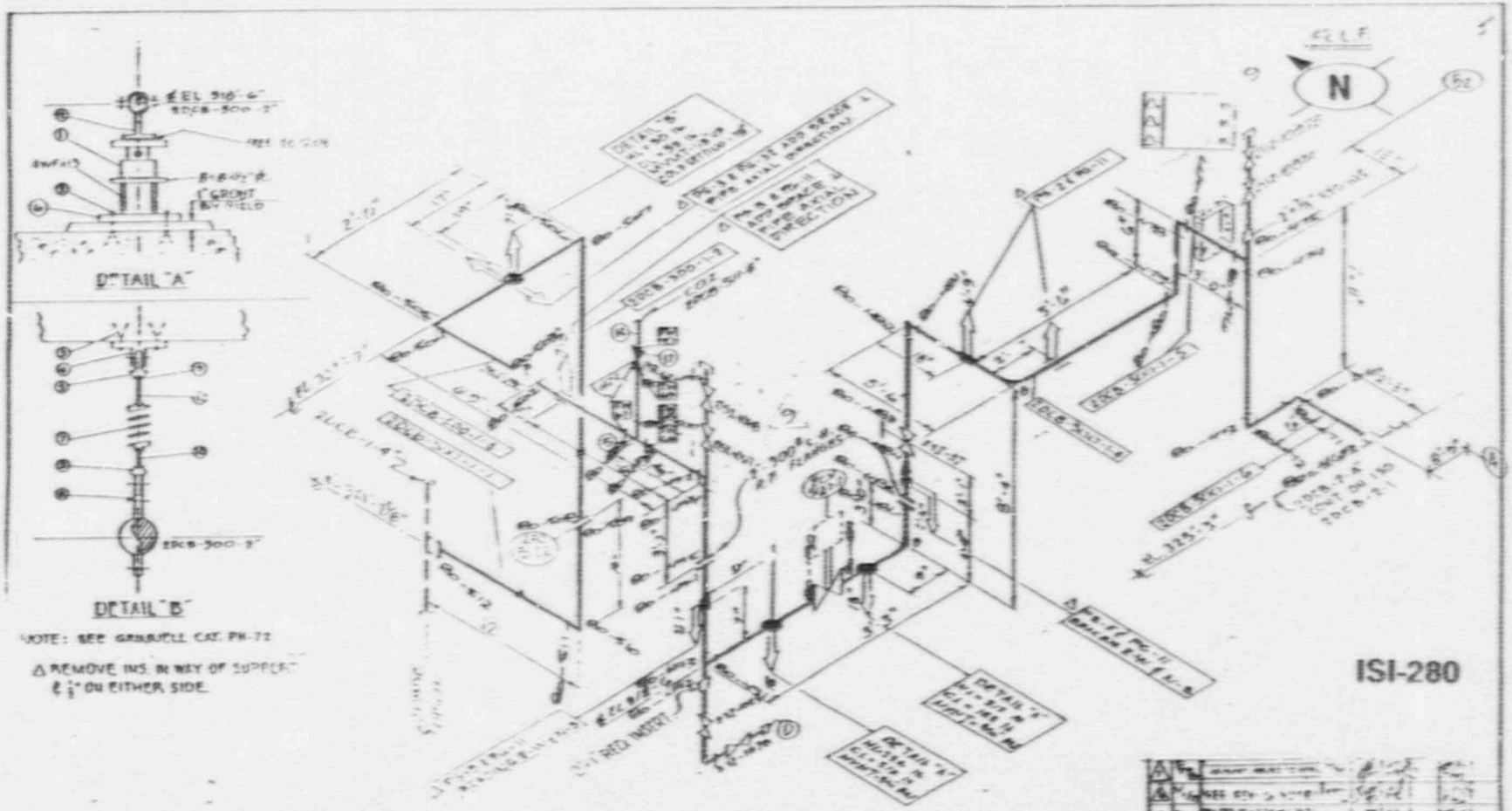
DRAWING NO. 2DCB-511-1 SH 1 OF 2

REV. 0

ISI-280

Zone 80

80-444 → 80-468



THIS DRAWING SUPERSEDES "FIELD SUGGESTED ROUTING"

REFERENCE

PAID NO. M-2232
PIPING DWG. M-2046
AREA NO. 24 ELEV. 321'-0"
BLDG. CONTAINMENT AUX.
SYS. SAFETY INJECTION

HANGER TYPE: SEISMIC, CLASS 2(3)
DWG. NO.

SYS. CLEANING PRINCIPLE
6L06-M-2005B

SERVICE CONDITIONS (REF. M-2002)
NORMAL 1150 PSIG @ 100 °F
MAXIMUM 1150 PSIG @ 350 °F

3. [illegible] WELDING [illegible] FOR CRITICAL, NUCLEAR AND [illegible] SPACE AND 3/8" FOR NON-CRITICAL CLASS CAN BE REWORKED WITHOUT SPHO APPROVAL.
2. ARROWS SHOW DIRECTION TO SUPPORTING STRUCTURE.
4. [illegible] - SHOP WELD NO.
5. [illegible] - FIELD WELD NO.
4. [illegible] - BEND NO.
3. ○ - ITEM NO.
2. [illegible] - SPOOL NO.
SPOOL NO. TO BE STENCILED IN 1/8" GOTHIC CHARACTERS USING BLAUL NON-CHLORIDE PAINT ON EACH SPOOL AT APPROX. 18' INTERVALS.
1. ★ - DENOTES FIELD FIT UP
TO BE USED WITH FIELD WELD SYMBOL, SPECIFYING THAT A MIN. OF 6" SANDON SURPLUS PIPE SHALL BE LEFT BY FAB. SHOP AT EACH JOINT MARKED [illegible] THIS SURPLUS SHALL BE CUT TO FIT BY FIELD [illegible]

NOTES

510 F 1 1/2"

ISSUE	DATE	SEAL #
2ND	[illegible]	[illegible]
3RD	[illegible]	[illegible]
4TH	[illegible]	[illegible]

FIG. 140
3
PIPE CLAMP
-347
PLATE
3 TO EVEN
A9
SSTEEL 6-1
SSTEEL 6-34
TYPE [illegible]

DESCRIPTION	HEAT NO.	ASTM	GRD

SEE BILL OF MATERIAL

BECHTEL
SAN FRANCISCO

ARKANSAS POWER & LIGHT
ARKANSAS NUCLEAR ONE
UNIT 2

SMALL PIPE ISOMETRIC
AUXILIARY BUILDING

6600-2-DCA-500-1

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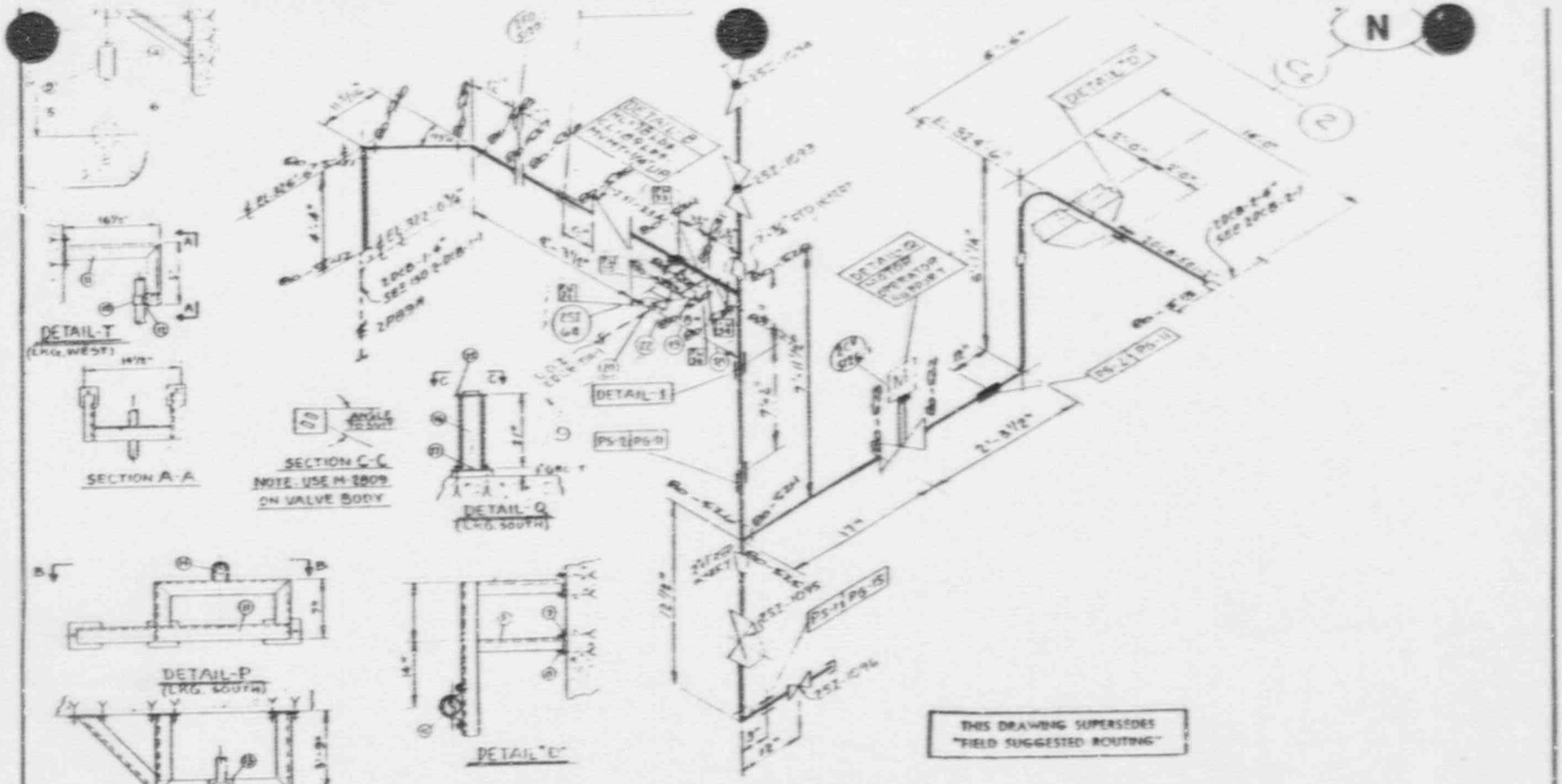


ITEM	QTY.	DESCRIPTION	HEAT NO.	ASTM	GRD.

BILL OF MATERIAL

NOTES:

1. ALL DIMENSIONS ARE ±1/8" FOR CRITICAL NUCLEAR LINE SEGMENT 1 AND ±1/4" FOR NON-CRITICAL CLASS II CAN BE REVISED WITHOUT SPHD APPROVAL.
2. APPLY PAINT SECTION TO EXPANSION STRUCTURE.
3. SHOP WELD NO.
4. FIELD WELD NO.
5. BEND NO.
6. ITEM NO.
7. SPOOL NO.
   SPOOL NO. TO BE STENCILED IN 3" GOTHIC CHARACTERS USING SHALL NON-CHLORIDE PAINT ON EACH SPOOL AT APPROX. 10' INTERVALS.
8. ✱ – DENOTES FIELD FIT UP.
   TO BE USED WITH FIELD WELD SYMBOL SPECIFYING THAT A MIN. OF 6" RANDOM SURPLUS PIPE SHALL BE LEFT BY FAB. SHOP AT EACH JOINT MARKED ✱. THIS SURPLUS SHALL BE CUT TO FIT BY FIELD.

STARTUP NO: – INSULATION CLASS: – THICK: 1 1/2"

REFERENCE	
P&ID NO.: M-2232	
PIPING DWG.: M-2846	
AREA NO.: 26	ELEV.: 317'-0"
BLDG.: CONTAINMENT AUX.	
SYS.: SAFETY INJECTION	
HANGER TYPE: SEISMIC CLASS I (EBT)	
DWG. NO.: M-2804, 7,8,10	
SYS. CLEANING REQMT.: 6600-M-2103 R	
SERVICE CONDITIONS: (REF. M-2803)	
NORMAL: 1250 PSIG ✱ 100 °F	
MAXIMUM: 1552 PSIG ✱ 256 °F	

REV	DATE	REVISIONS	BY	CHKD	ENGRD	PROJ	APPD
A		SITE SEL. & INTER.	RJ				
B		AS BUILT PER RS 5003	TR	RJ			
C		AS BUILT UPDATE	RJ				
D		REVISED PER RS 5003					

BECHTEL
SAN FRANCISCO

ARKANSAS POWER & LIGHT
ARKANSAS NUCLEAR ONE
UNIT 2

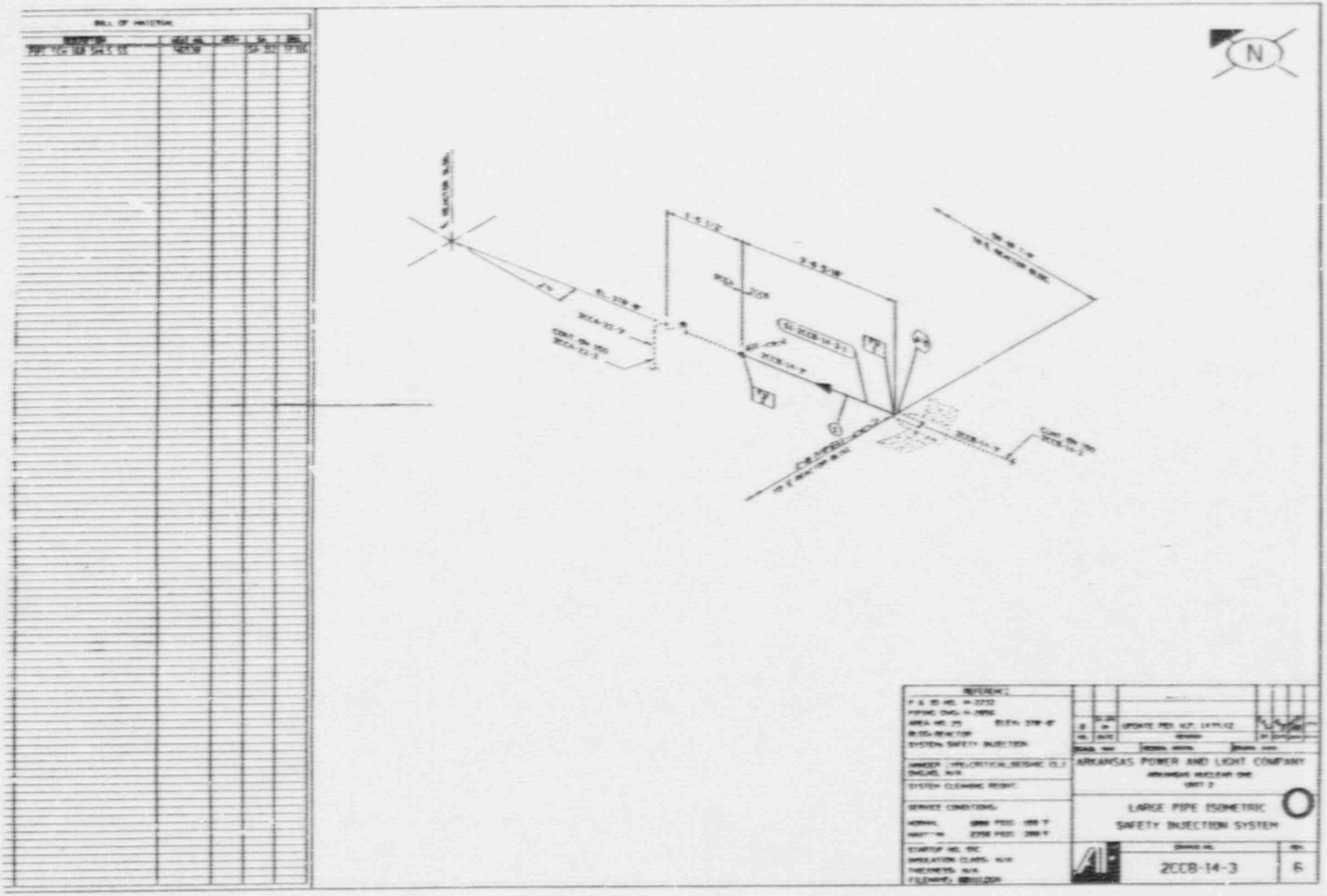
SMALL PIPE ISOMETRIC
AUXILIARY BUILDING

JOB NO.: 6600-2 DRAWING NO.: 2DCB-501-L SHT 9 REV. 9

ISI-280

Zone 80

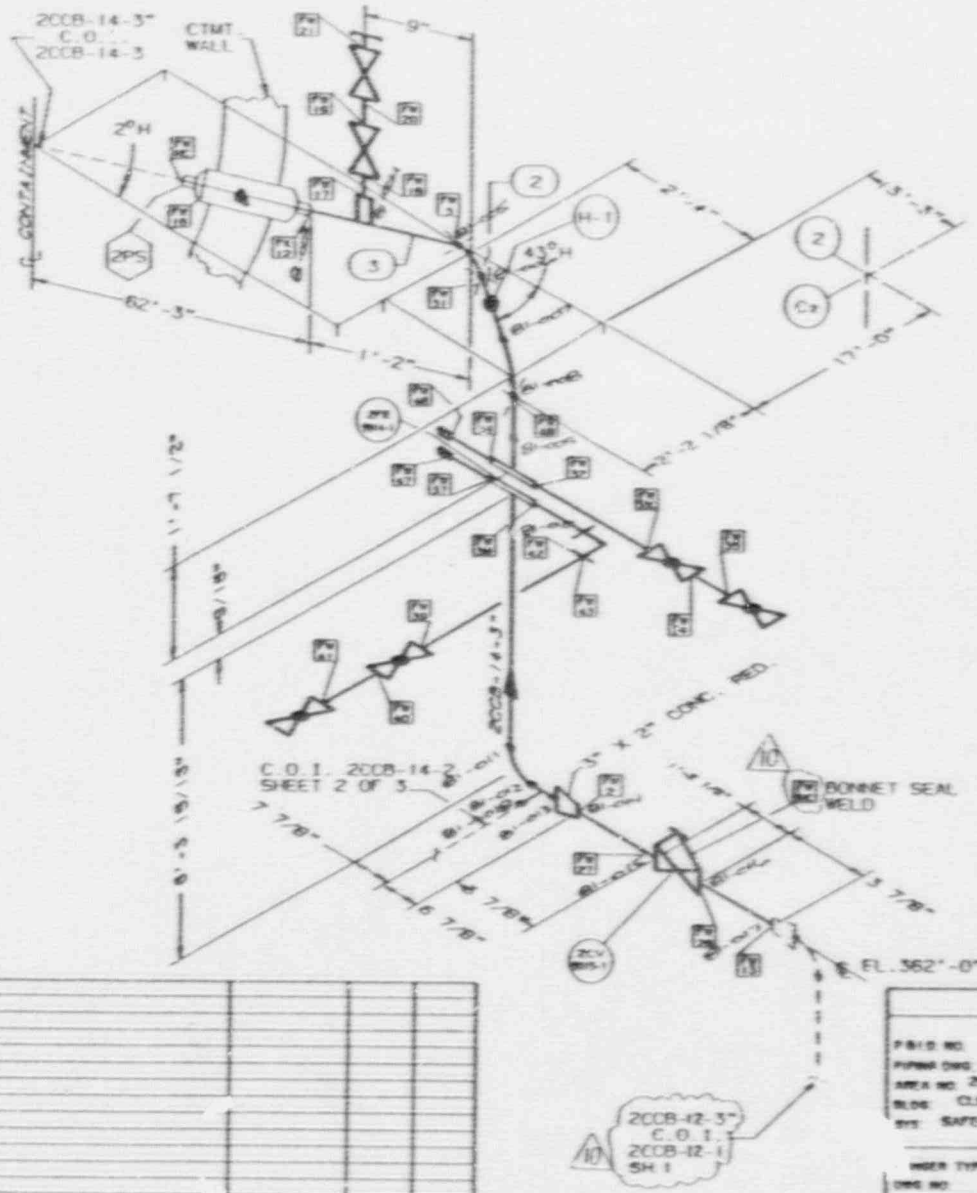
80-513 → 80-542

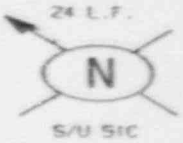


ISI-281

Zone 81

81-001 → 81-002





ITEM	QTY.	DESCRIPTION	HEAT NO.	ASTM	GRD

BILL OF MATERIAL

STARTUP NO. | INSULATION CLASS | THICK

REFERENCE

P&ID NO. M-2252
PIPING DWG. M-2063
AREA NO. 28 ELEV.
BLDG. CLEAN WASTE TANKS
SYS. SAFETY INJECTION SYSTEM

HGER TYPE
DWG NO.
SYS. CLEANING REQMT.
SERVICE CONDITIONS
NORMAL ____ PSIG ____ °F
MAXIMUM ____ PSIG ____ °F

REV.	DATE	REVISION	BY	CHK	APPROVED
10		AS BUILT PCR 88-009-2			
9					

SCALE NONE | DESIGN BIGHTEL | DRAWN SPELL

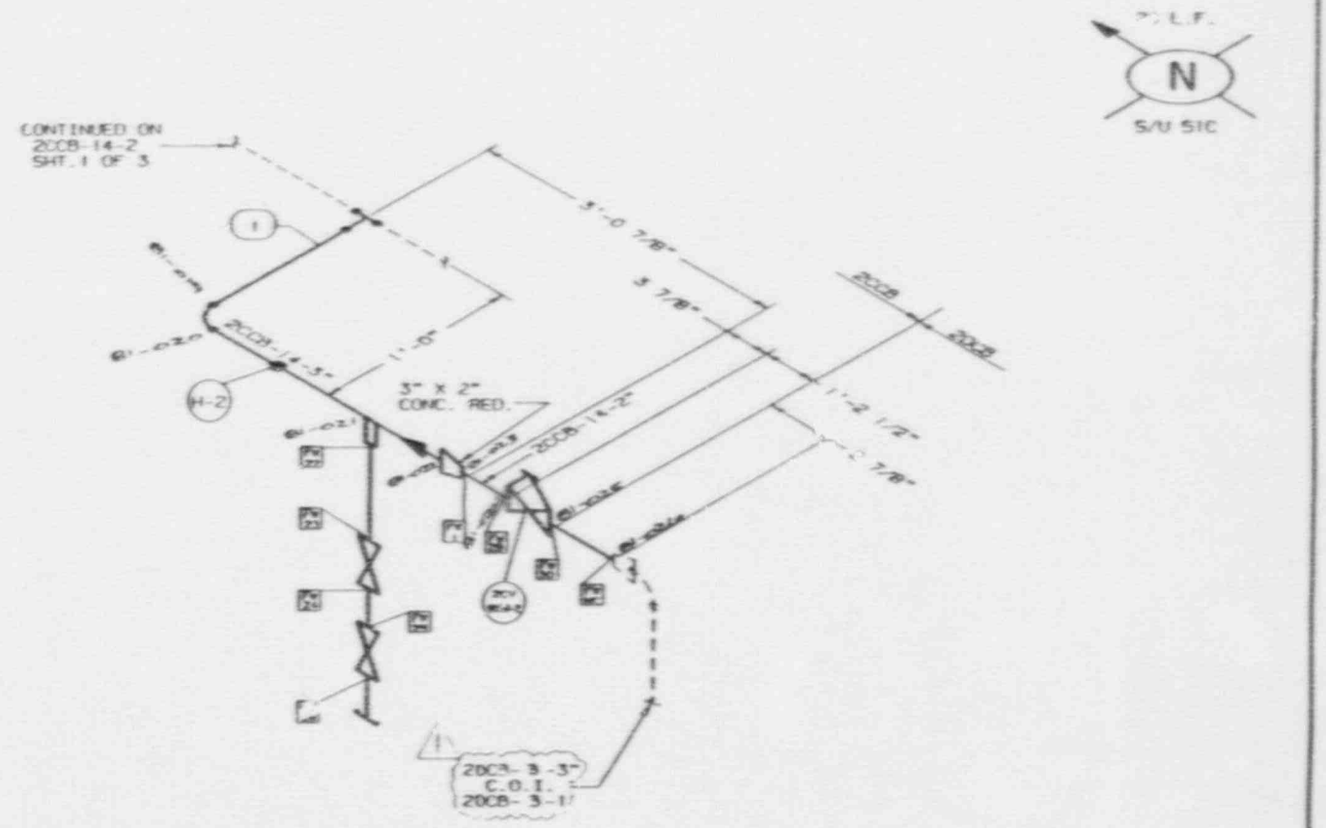
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETRIC
SAFETY INJECTION SYSTEM

DRAWING NO. 2CCB-14-2 REV. 10

ISI-281

Zone 81
81-003 → 81-017



ITEM	QTY.	DESCRIPTION	HEAT NO.	ASTM	GRD.

BILL OF MATERIAL

STARTUP NO. | INSULATION CLASS | THICK.

REFERENCE

B.I.D. NO. M-2232
PIPING DWG. M-2083
AREA NO. 26 ELEV.
BLDG. CLEAN WASTE TANKS
SYS. SAFETY INJECTION SYSTEM

HANGER TYPE
DWG. NO.
SYS. CLEANING REQMT.

SERVICE CONDITIONS
NORMAL PSIG °F
MAXIMUM PSIG °F

REV.	DATE	REVISION	BY	CHK'D	APPD
1		AS BUILT NCR 88-009-2			
0					

SCALE: NONE DRAWN: BEDWEL DESIGN: TUPELL

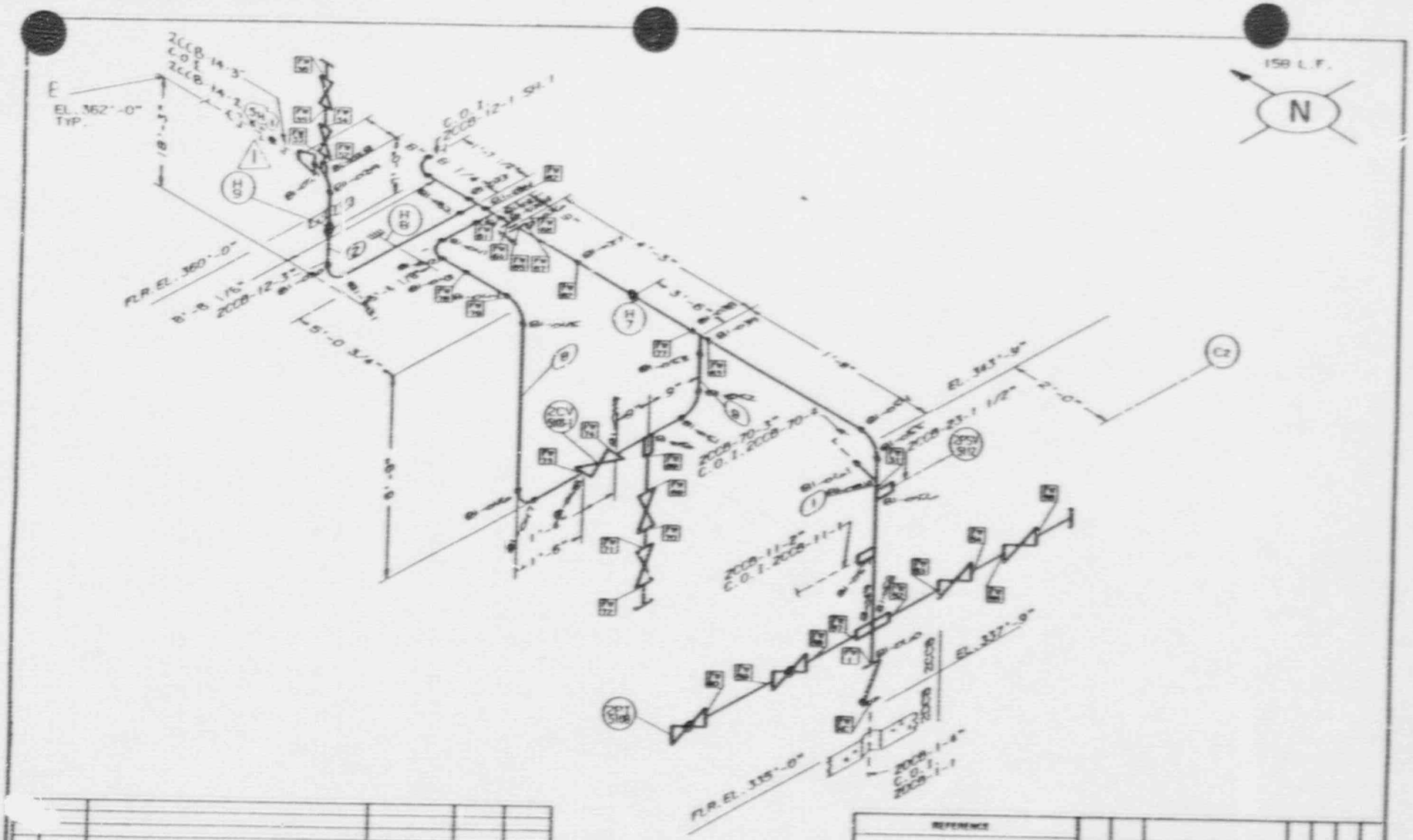
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETRIC
SAFETY INJECTION SYSTEM

DRAWING NO. 2CCB-14-2 REV. 1

Zone 81
81-019 — 81-026

ISI-281



ITEM	QTY	DESCRIPTION	HEAT NO	ASTM	GRD

BILL OF MATERIAL

STARTUP NO | INSULATION CLASS | THICK

REFERENCE

P&ID NO. M-2252

PIPING DWG. M-2041 SHS M-2041,M-2051,M-2051

AREA NO. 24 & 28 ELEV. 343'-0"

BLDG. REACTOR AUX. BLDG.

SYS. SAFTEY INJECTION

HANGER TYPE

HTS NO.

SYS CLEANING REQMT

SERVICE CONDITIONS

NORMAL ____ PSIG ____ °F

MAXIMUM ____ PSIG ____ °F

REV.	DATE	REVISION	BY	CHK	APPROVED
1	7/1/88	AS BUILT NCR 88-009-2	JB	CKD	RJ
0	2/1/88	RECONNECTOR HEADED QUANTS ADD HS			

SCALE: NONE | DRAWN BROWN | DATE | CHECKED | APPROVED

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETRIC
SAFTEY INJECTION

AP&L

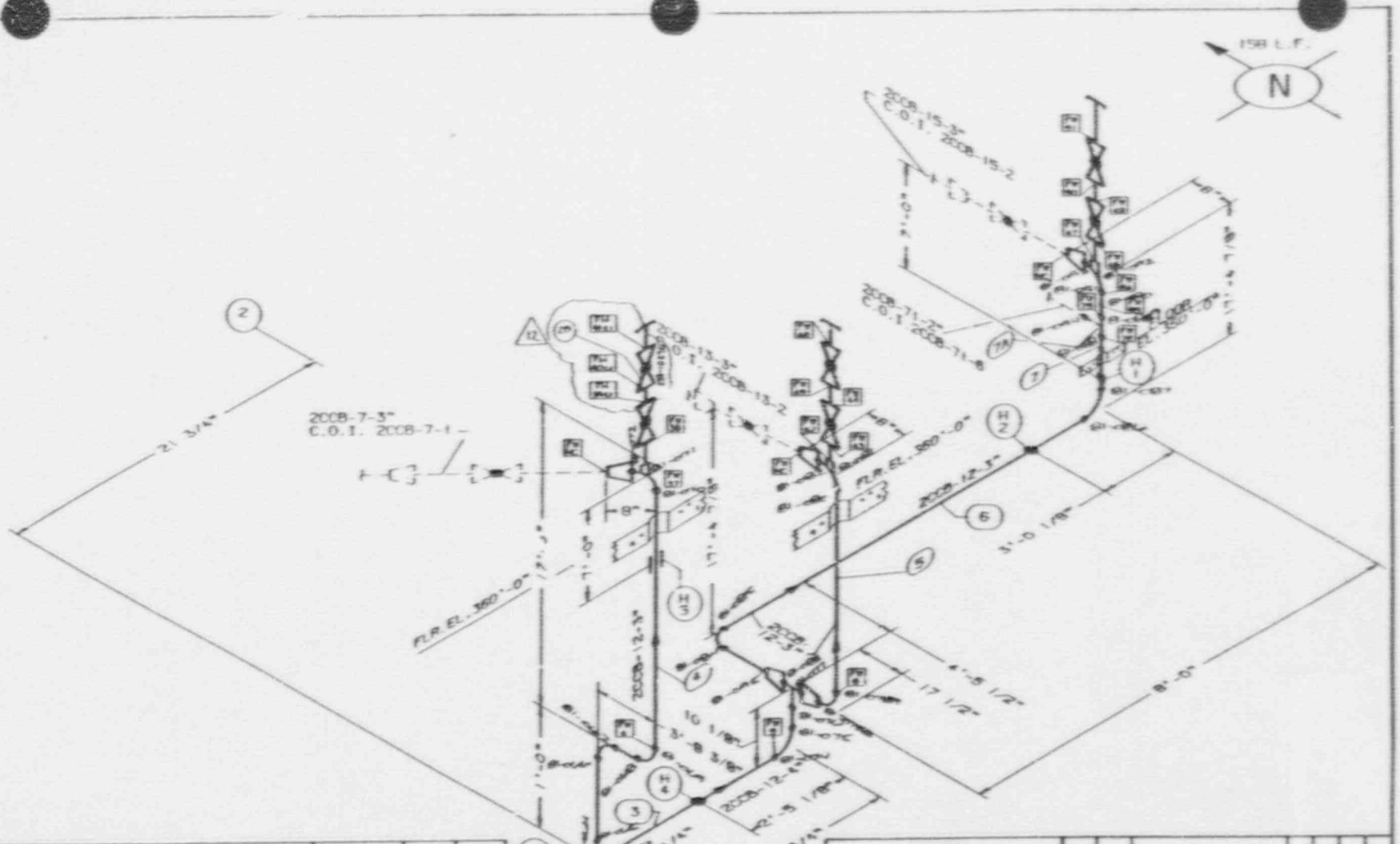
DRAWING NO. 2CCB-12-1 SH 1

REV. 1

ISI-281

Zone 81

81-027 → 81-040



ITEM	QTY.	DESCRIPTION	HEAT NO.	ASTM	GRD.

BILL OF MATERIAL

STARTUP NO. | INSULATION CLASS: | THICK:

REFERENCE

P.&I.D. NO. M-2232
PIPING DWG. 8-2014 THRU 8-2016, 8-2053, 8-2054
AREA NO. 24625 ELEV. 343'-8"
BLDG. REACTOR AUX. BLDG.
SYS. SAFTEY INJECTION

HANGER TYPE:
DWG. NO.
SYS. CLEANING REQMT.

SERVICE CONDITIONS:
NORMAL ____ PSIG ____ °F
MAXIMUM ____ PSIG ____ °F

NO.	DATE	REVISION	BY	CHK	APPR
12		AS BUILT PC 86-0533			
11					

SCALE: NONE | DESIGN: BRONTEL | DRAWN: SMELL

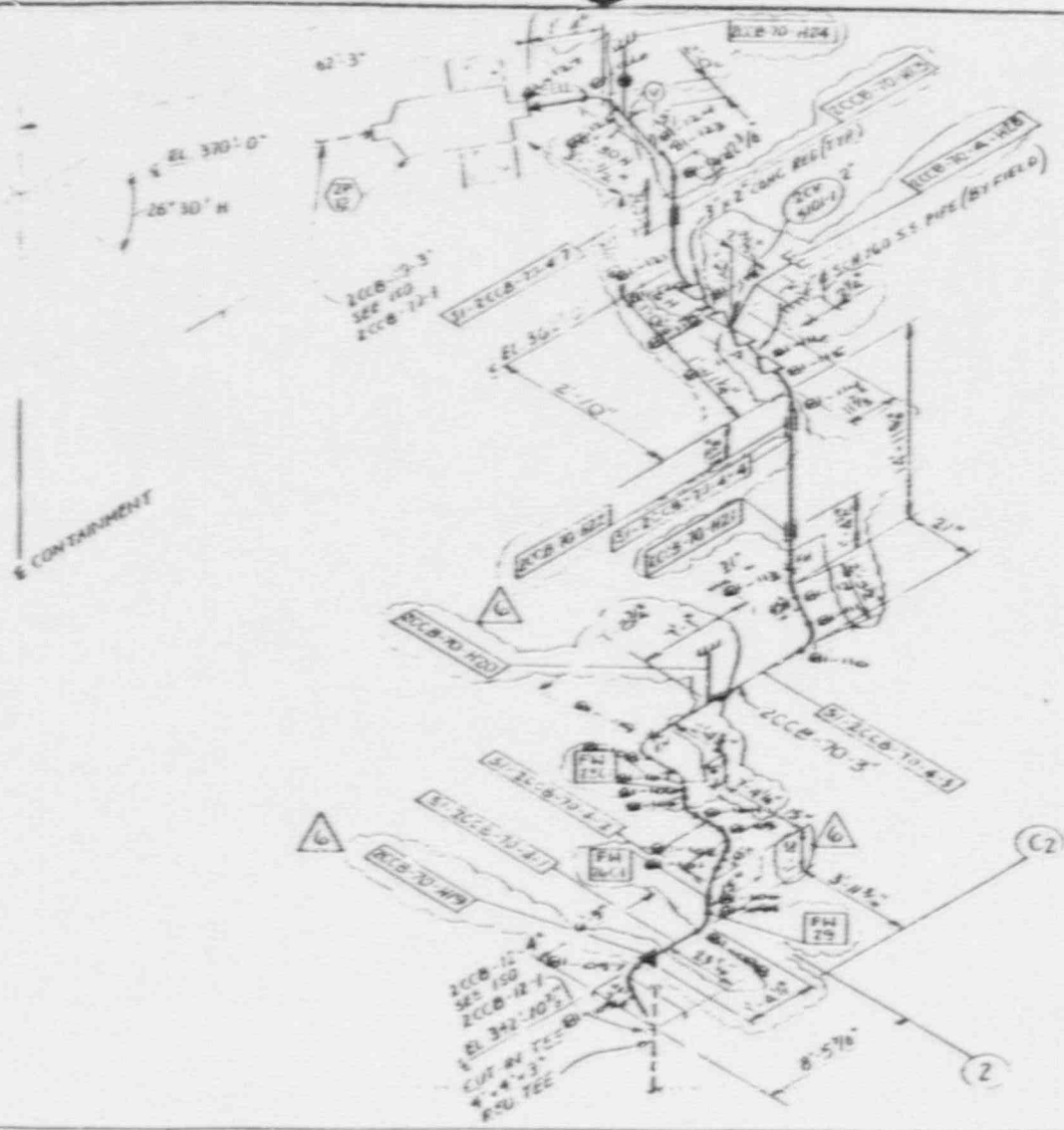
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETRIC
SAFETY INJECTION

DRAWING NO. 2CCB-12-1 | REV. 12

ISI-281

Zone 81
81-042 → 81-094



REFERENCE DRAWINGS
M-2231 REV. 29 P&ID (1DC*N6)
M-2044 REV. 26 PIPING PLAN AREA 24
M-2045 REV. 14 " " " 24
M-2064 REV. 19 " " " 24

OF MATERIAL	
SCRIPTION	QUAN.
MARK SI-2CCB-70-2-1	1
SI-2CCB-70-4-2	1
SI-2CCB-70-4-3	1
SI-2CCB-70-4-4	1
SI-2CCB-70-4-5	2
SI-2CCB-70-4-6	2
SI-2CCB-70-4-7	1
[illegible] VALVE	1

ISI-281

BECHTEL
SAN FRANCISCO

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC-CONTAINMENT AUX. BLDG.
SAFETY INJECTION

6600-2	2CCB-70-4	6

Zone 81
81-096 → 81-127

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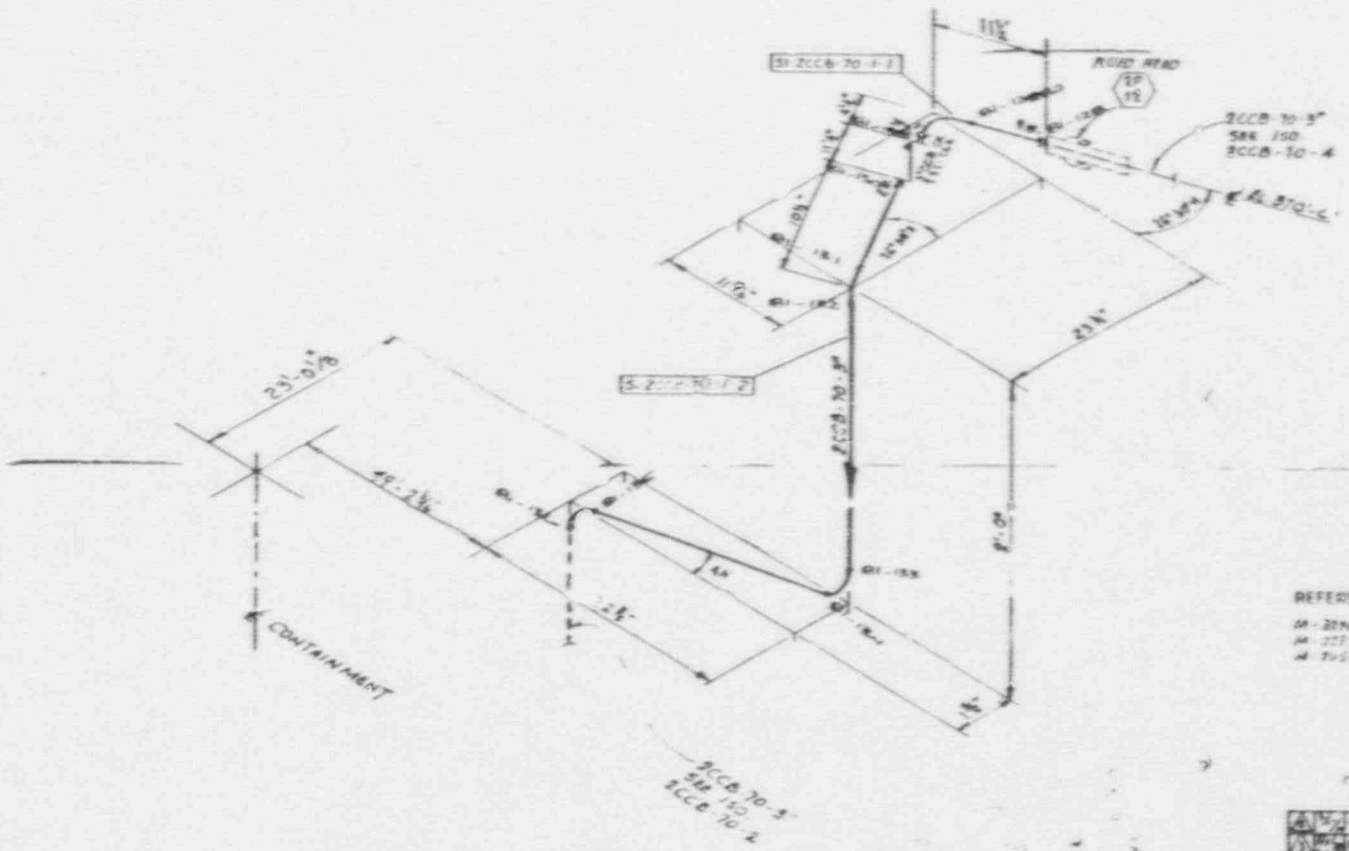

REFERENCE DRAWINGS

BECHTEL
SAN FRANCISCO

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC CONTAINMENT BLDG
SAFETY INJECTION SYSTEM

6600-22009-70-1 | 4

ISI-281

Zone 81
81-128 → 81-136

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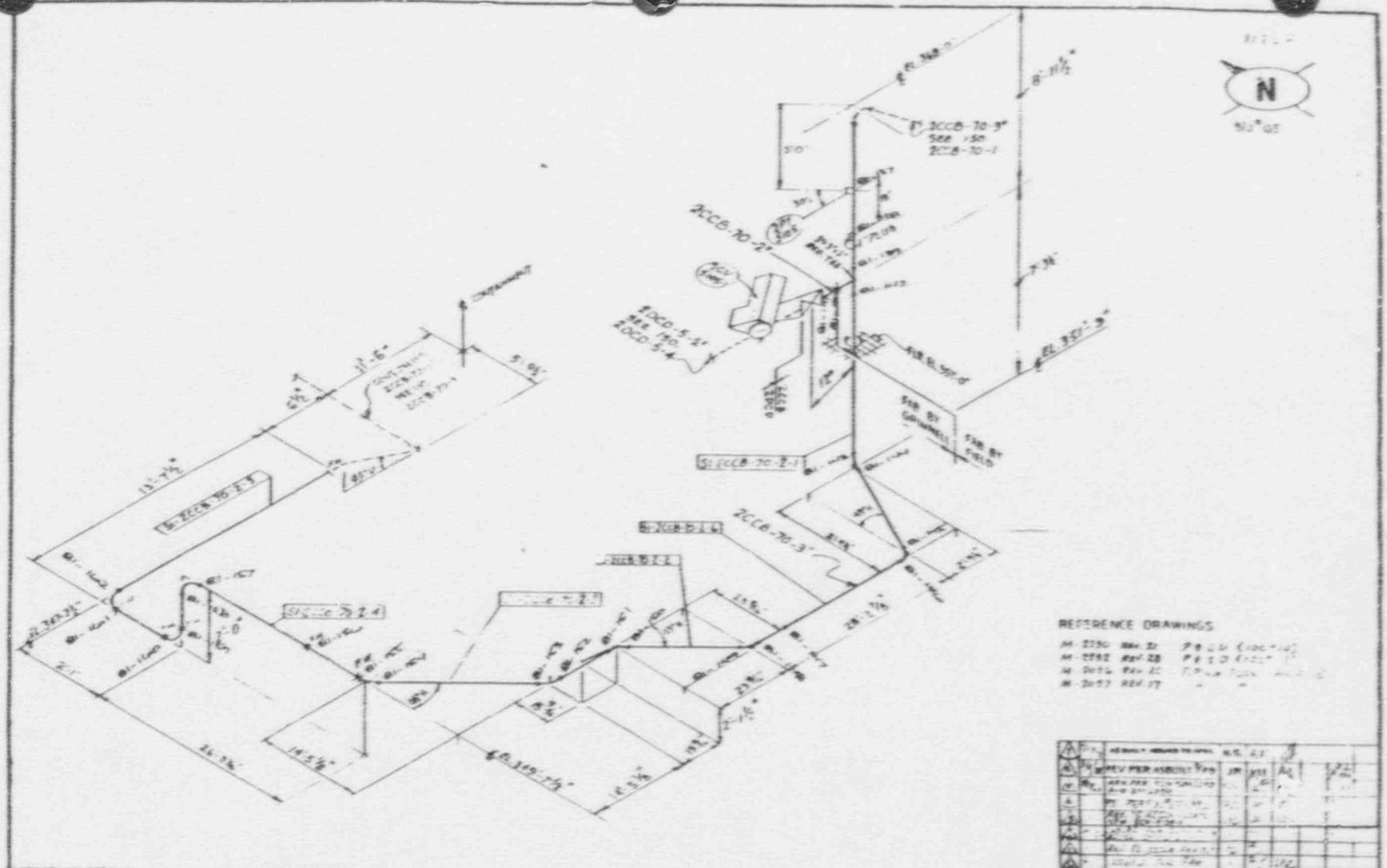

1	PIPE [illegible]	1
	2	1
	2	1
	2-4	1
	2	1
	2-6	1
	2CV 5105-1 VALVE	

ISI-281

BECHTEL
SAN FRANCISCO

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC CONTAINMENT BLDG
SAFETY INJECTION SYSTEM

6600-2[illegible] 7

1 6 X

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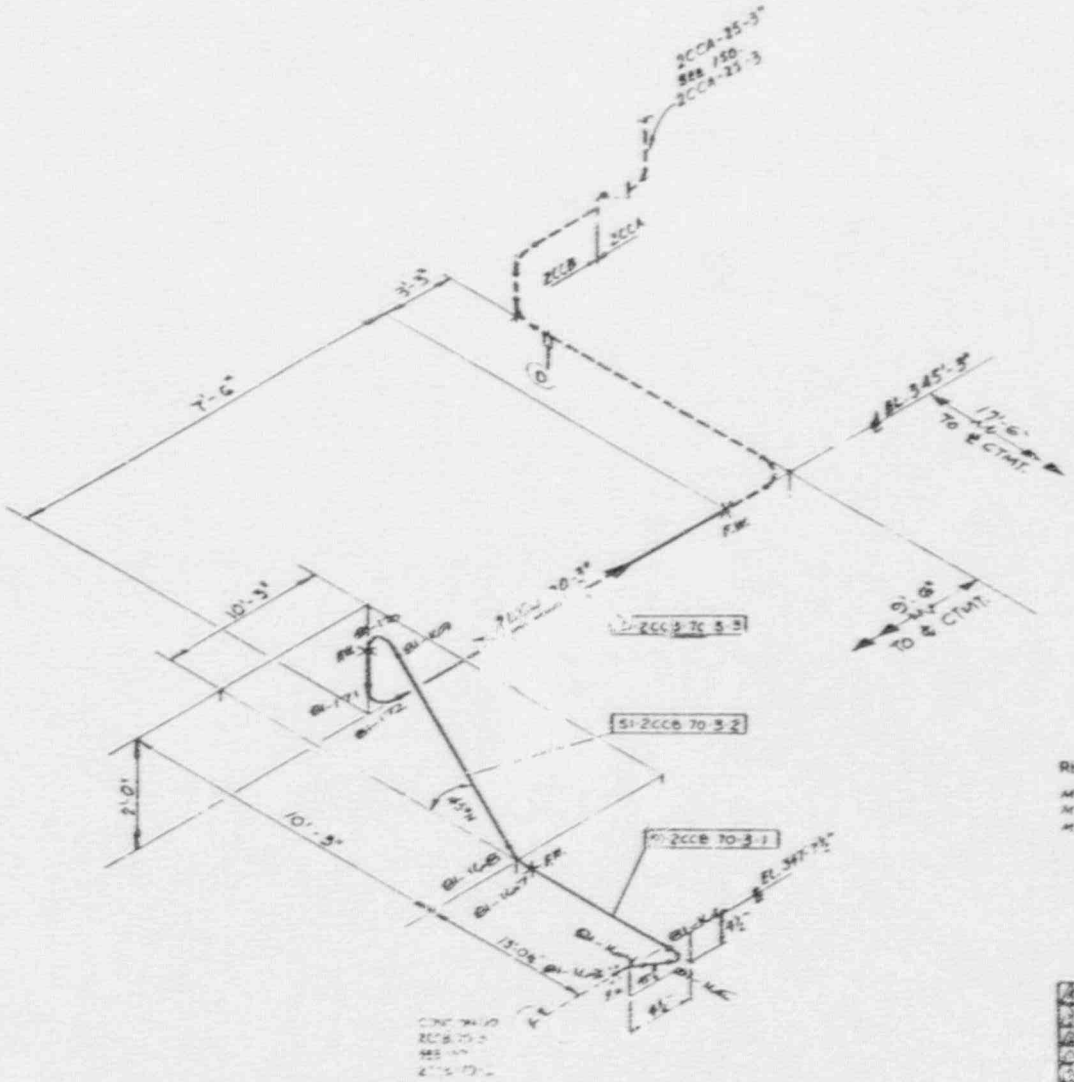
Zone 81
81-137 — 81-162



40 L.F.

N

3/0" GS

REFERENCE DRAWINGS

M-2290 REV 21 P&ID FSDC # 3
M-2232 REV 24 F&ID FSDC # 3
M-2057 REV 19 PIPING PLAN - AREA 25

1	FIX DIM. MAX. [illegible] SI-2CCB 70-3-1	1	
2	3-2	1	
3	3-3	1	

ISI-281

BECHTEL
SAN FRANCISCO

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC CONTAINMENT BLDG
SAFETY INJECTION SYSTEM

6600-2CCB-70-3 4

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Zone 81

81-163 → 81-172

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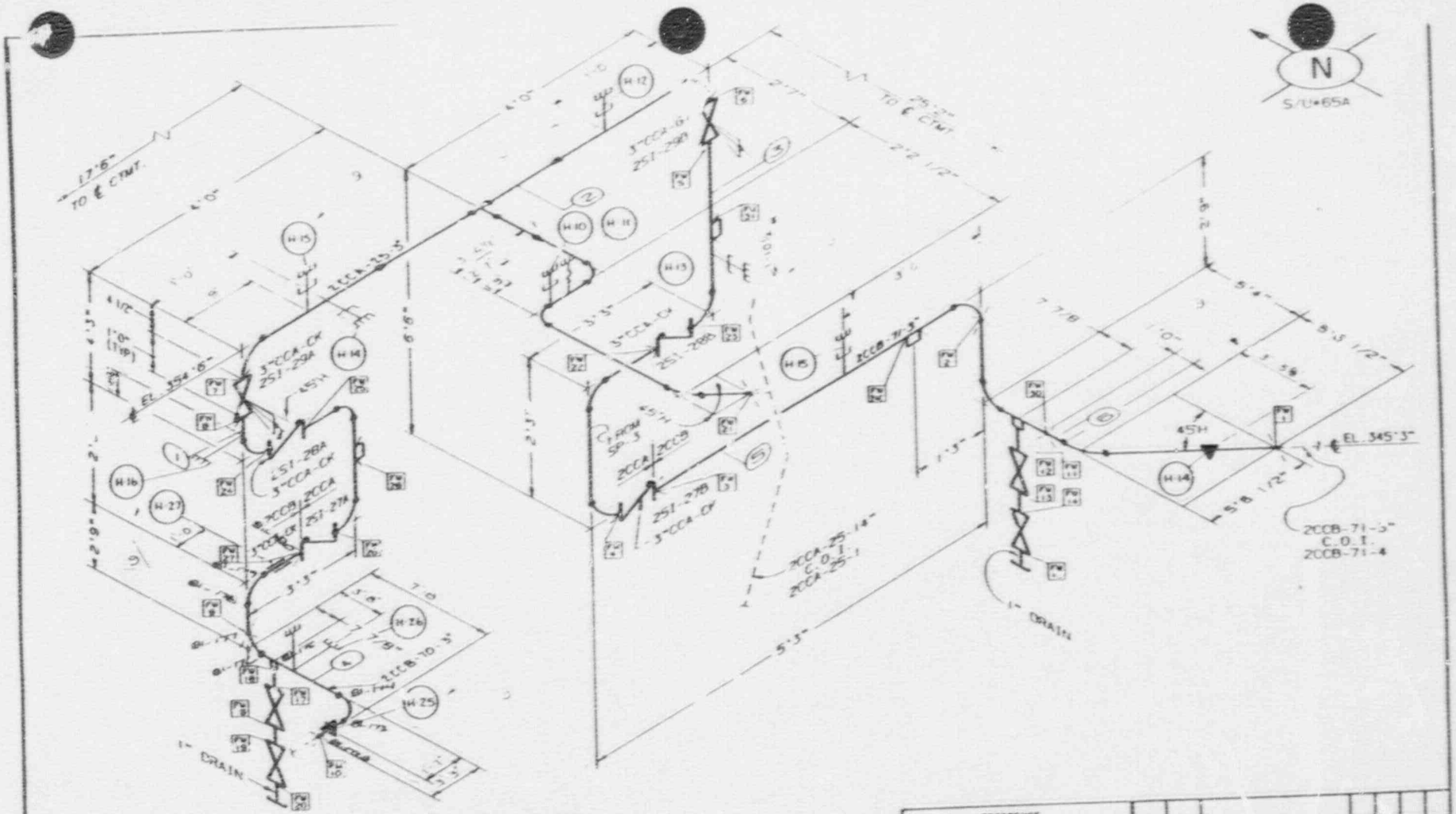


ITEM	QTY	DESCRIPTION	HEAT NO	ASTM	GRD
12	2	1" 6000# THD CAP SA182			F316
11	4	1"NR, CCA-GT VALVE P.O.M-21148, S/N:1734, 938, 232, 1107, WESTON HYDRAULICS			
10	2	1"X4"PE X TE SCH160 PIPE SA312	739506		F316
9	4	1"X4"PE X PE SCH160 PIPE SA312	739506		F316
8	4	3"CCA-GT, P.O.M-21122 C, S/N: 11596, 11594, 18582, 11595, WESTON HYDRAULICS			
7	1	PIPE SPOOL MARK NO. S:-2CA-25-3-6			
6	1	PIPE SPOOL MARK NO. S:-2CA-25-3-5			
5	1	PIPE SPOOL MARK NO. S:-2CA-25-3-4			
4	2	3"CCA-GT, TAG#25-29A, 25-29B, S/N:12315, 12316, P.O.#M-21122 C WESTON HYDRAULICS			
3	1	PIPE SPOOL MARK NO. S:-2CCA-25-3-3			
2	1	PIPE SPOOL MARK NO. S:-2CCA-25-3-2			
1	1	PIPE SPOOL MARK NO. S:-2CCA-25-3-1			

BILL OF MATERIAL

STARTUP NO | INSULATION CLASS | THICK

REFERENCE

P&ID NO M-2230
PIPING DWG M-2057
AREA NO 25 ELEV
BLDG REACTOR BUILDING
SYS SAFETY INJECTION SYSTEM

HANGER TYPE
DWG NO
SYS CLEANING REQMT

SERVICE CONDITIONS
NORMAL ____ PSIG ____ °F
MAXIMUM ____ PSIG ____ °F

NO	DATE	REVISION	BY	CHK	ENGR	APPR
9		[illegible]	TIR	DW		
8		[illegible]				

SCALE NONE | DESIGN WIGHTEL | DRAWN TAPELL

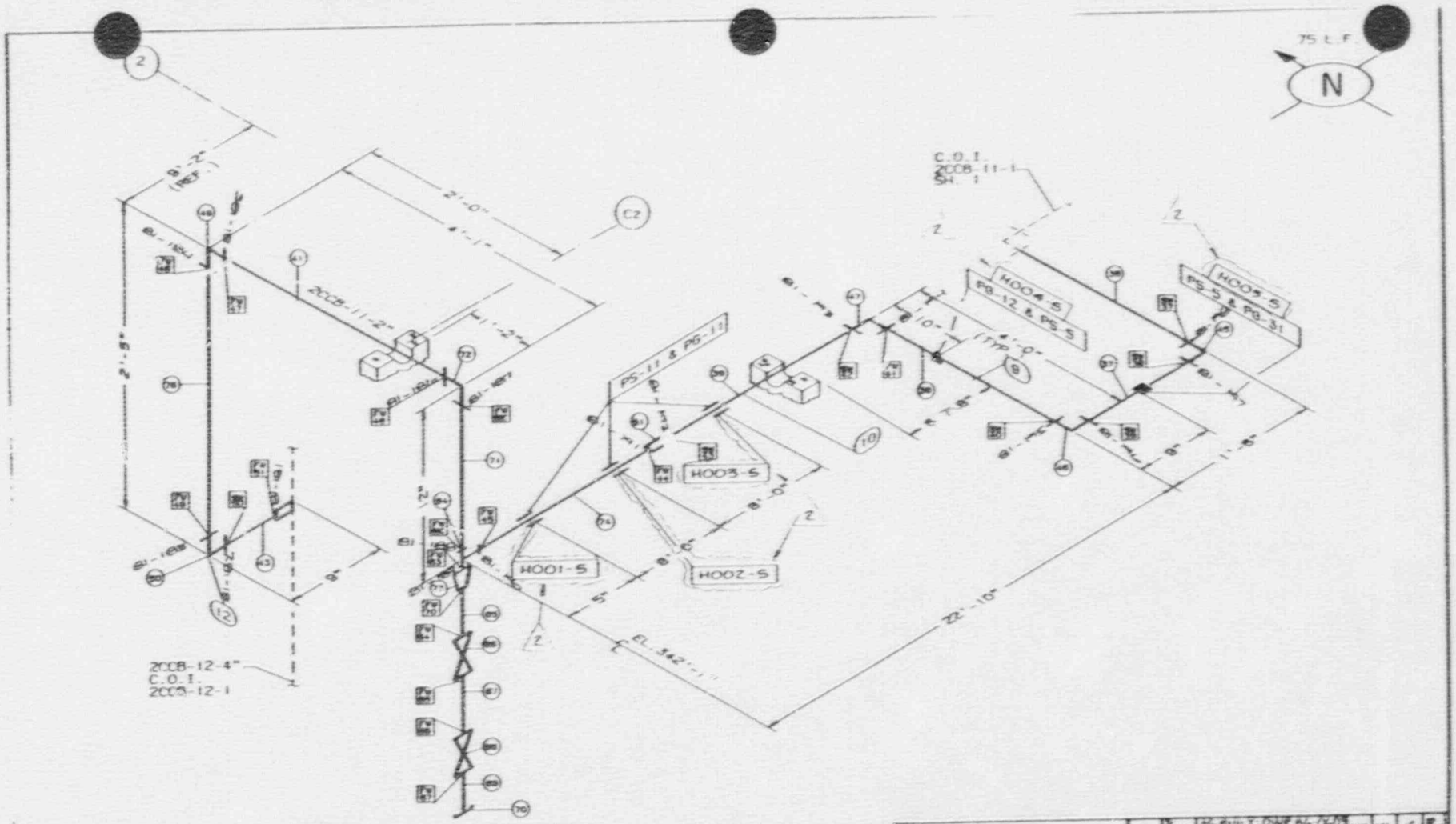
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETRIC
SAFETY INJECTION SYSTEM

APL | DRAWING NO. 2CCA-25-3 | REV. 9

ISI-281

Zone 81
81-172A → 81-180



EM	QTY	DESCRIPTION	HEAT NO	A*TM	GRD

BILL OF MATERIAL

STARTUP NO. 516 64A | INSPECTION CLASS | THICK.

REFERENCE

P&I.D NO. M2231 SHT. 1 & M2232
PIPING DWG. M2885 & M2884
AREA NO. 24 & 26 ELEV. 335'-0"
BLDG. REACTOR AUX. BLDG.
SYS. CHEM. & VOLUME CONTROL

HANGER TYPE SEISMIC CLASS I (N) CRITICAL
DWG NO. M-2808 THRU -10

SYS. CLEANING REQMT. M-2237

SERVICE CONDITIONS

NORMAL 2250 PSIG 120 °F
MAXIMUM 2250 PSIG 170 °F

NO.	DATE	REVISION	BY	CHK	APPD	APPD
2	[illegible]	AS BUILT: DWR 86-0606 (ENGR REQUEST)	CRD	VSL	K	[illegible]
1	[illegible]	AS BUILT DWR 85-0694	RS	CKD	—	[illegible]
0	[illegible]	REDRAWN FOR IMPROVED QUALITY	CRD	VSL		[illegible]

SCALE: NONE | DESIGN: REDITEL | DRAWN: TAPELL

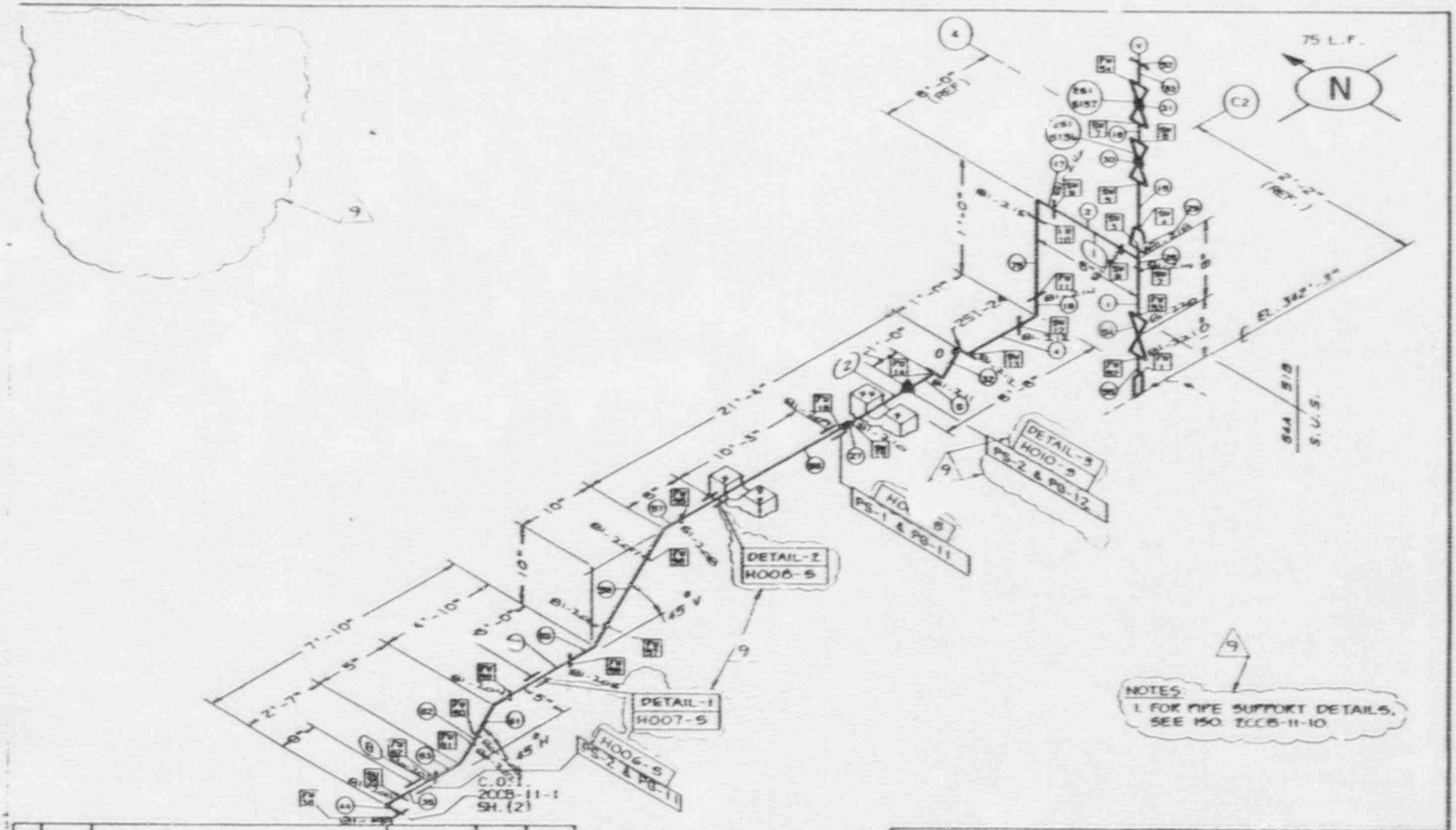
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SMALL PIPE ISOMETRIC
CHEMICAL & VOLUME CONTROL

DRAWING NO. 2CCB-11-1 REV. 2

Zone 81
81-181 → 81-192

ISI-281



ITEM	QTY	DESCRIPTION	HEAT NO.	ASTM	GRD.
				A 36	

BILL OF MATERIAL (DETAILS)

STARTUP NO. 816 844 | INSULATION CLASS: | THICK:

REFERENCE

P.B.I.D. NO. M2231 SHT. 1 & M2234
PIPING DWG. M2845 & M2854
AREA NO. 24 & 26 ELEV. 335'-0"
BLDG. REACTOR AUX. BLDG.
SYS. CHEM. & VOLUME CONTROL

HANGER TYPE SEISMIC CLASS I (N) + ORITICE
DWG. NO. M-2808 THRU -10
SYS. CLEANING REQMT. M-2237

SERVICE CONDITIONS (REF. M-2083)

NORMAL 2250 PSIG 120 °F
MAXIMUM 2250 PSIG 120 °F

NO.	DATE	REVISION	BY	CHK	ENGR	SUPV
7		AS BUILT: PEAR 86-0538				
9		AS BUILT: DWR 86-0609 (ENG'R REQUEST)	LP	VH		
8		AS BUILT: DCP 83-3139				

SCALE: NONE | DESIGN: | DRAWN: TIPPELL

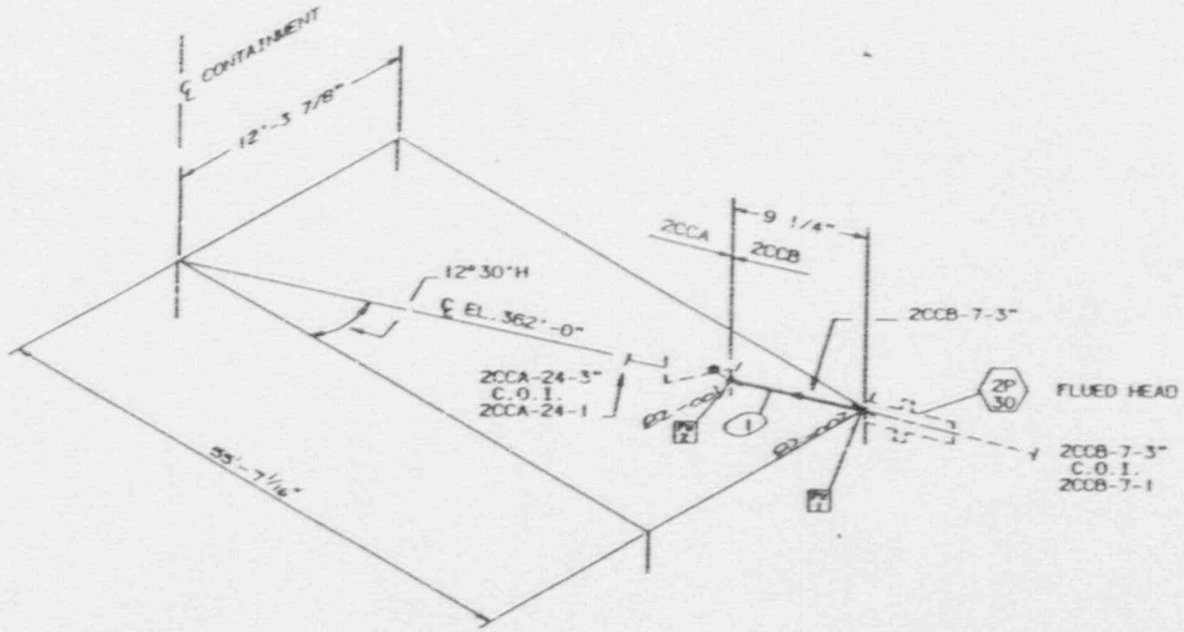
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

SMALL PIPE ISOMETRIC
CHEMICAL & VOLUME CONTROL

DRAWING NO. 2CCB-11-1 | REV. 9

ISI-281

Zone. 81



ITEM	QTY	DESCRIPTION	HEAT NO.	ASTM	GRD
1	1	PIPE SPOOL SI-2CCB-7-2-1			

BILL OF MATERIAL

STARTUP NO. | INSULATION CLASS | THICK.

REFERENCE

P.B.I.D. NO. M-2232
PIPING DWG. M-2056
AREA # 25 ELEV. 362'-0"
BLDG. REACTOR
SYS. SAFETY INJECTION

HANGER TYPE
DWG. NO.
SYS. CLEANING REQMT.

SERVICE CONDITIONS
NORMAL ____ PSIG ____ °F
MAXIMUM ____ PSIG ____ °F

NO.	DATE	REVISION	BY	CHK.	APPROVAL
3	12/82	RECONFIGURE PIPING (QUALITY ORD)			

SCALE NONE | DESIGN BECHTEL | DRAWN INFRILL

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETRIC
SAFETY INJECTION SYSTEM

DRAWING NO. 2CCB-7-2 | REV. 3

ISI-282

Zone 8-2

82-001 → 82-002

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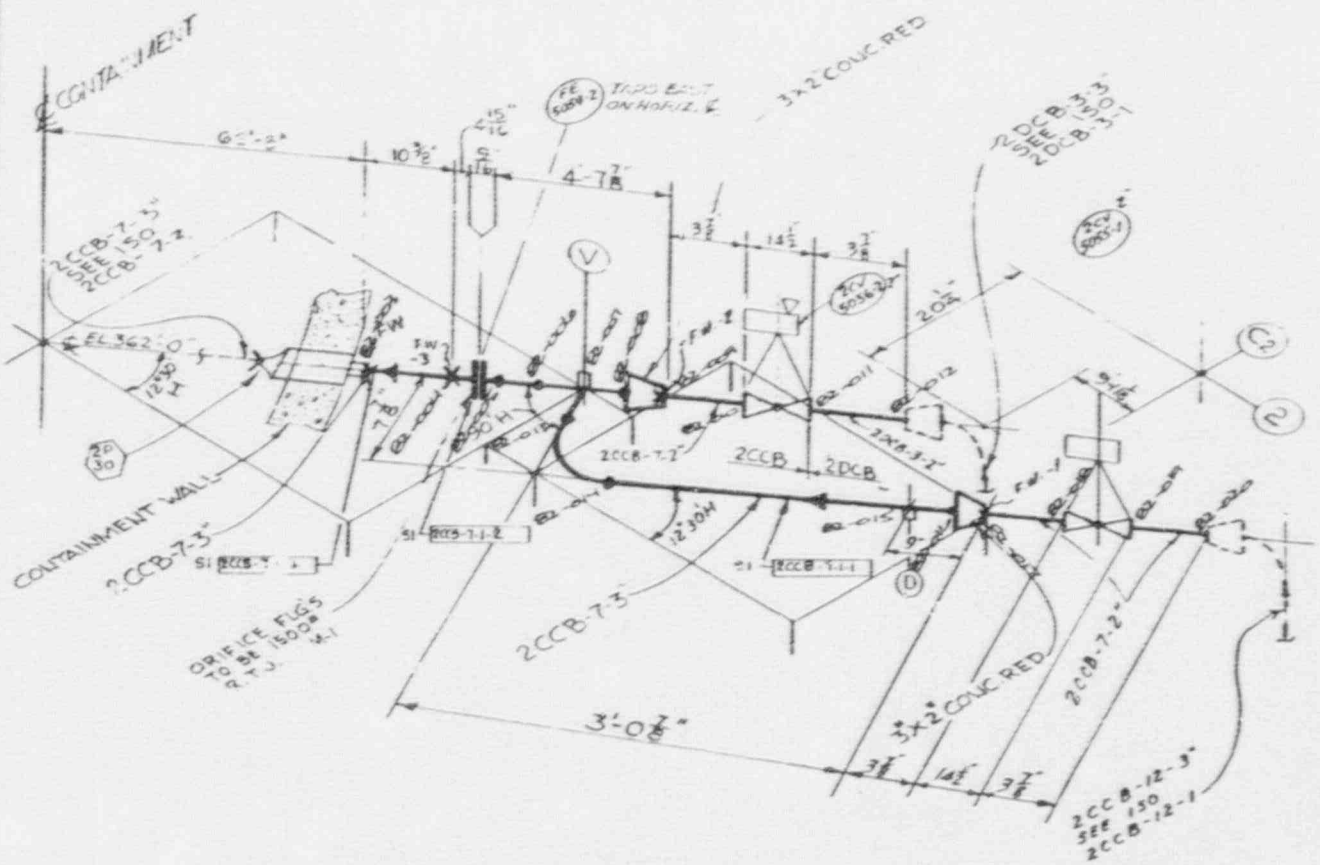

REV 4 NOTE:
DELETE 2CCB-83-3/4" & CHANGE TO HYDR DRAIN. INCLUDED SMALL PIPE, 2CCB-83 AND 2CV-5056 ON THIS ISO TO COMPLETE THE SYSTEM.

REV 2 NOTE: REVISED [illegible] REVISED FLANGE [illegible] SPOOL 2CCB-7-[illegible]

REFERENCE DRAWINGS
M-2232 REV 33 P&I.D.
M-2063 -- 14 PIPG PLAN AREA 26

BILL OF MATERIAL

ITEM NO	DESCRIPTION	QUANT
1	PIPE SPOOL MARK 2CCB-7-1-1	1
2	PIPE SPOOL MARK 2CCB-7-1-2	1
3	PIPE SPOOL MARK 2CCB-7-1-3	1
4	FE-5054	1
5	2CV-5055-1	1
6	2CV-5056-2	1

ISI-282

4	7/16	ASSEMBLY ISSUED TO APPR	N.S.	RJH	
3	7/16	SEE RE. NOTE ABOVE			
2	7/16	ADDED CONN 2CCB-83 55			
1	7/16	[illegible]			
0	7/16	[illegible]			
		ISSUED FOR FABRICATION	FAG	F.V.	

FAG

BECHTEL
SAN FRANCISCO

ARKANSAS POWER & LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

ISOMETRIC CONTAINMENT AUX BLDG
SAFETY INJECTION

DWG.	DRAWING	REV
6600-2	2CCB-7-1	5

17x22

Zone 82
82-003 → 82-020

1 6 X

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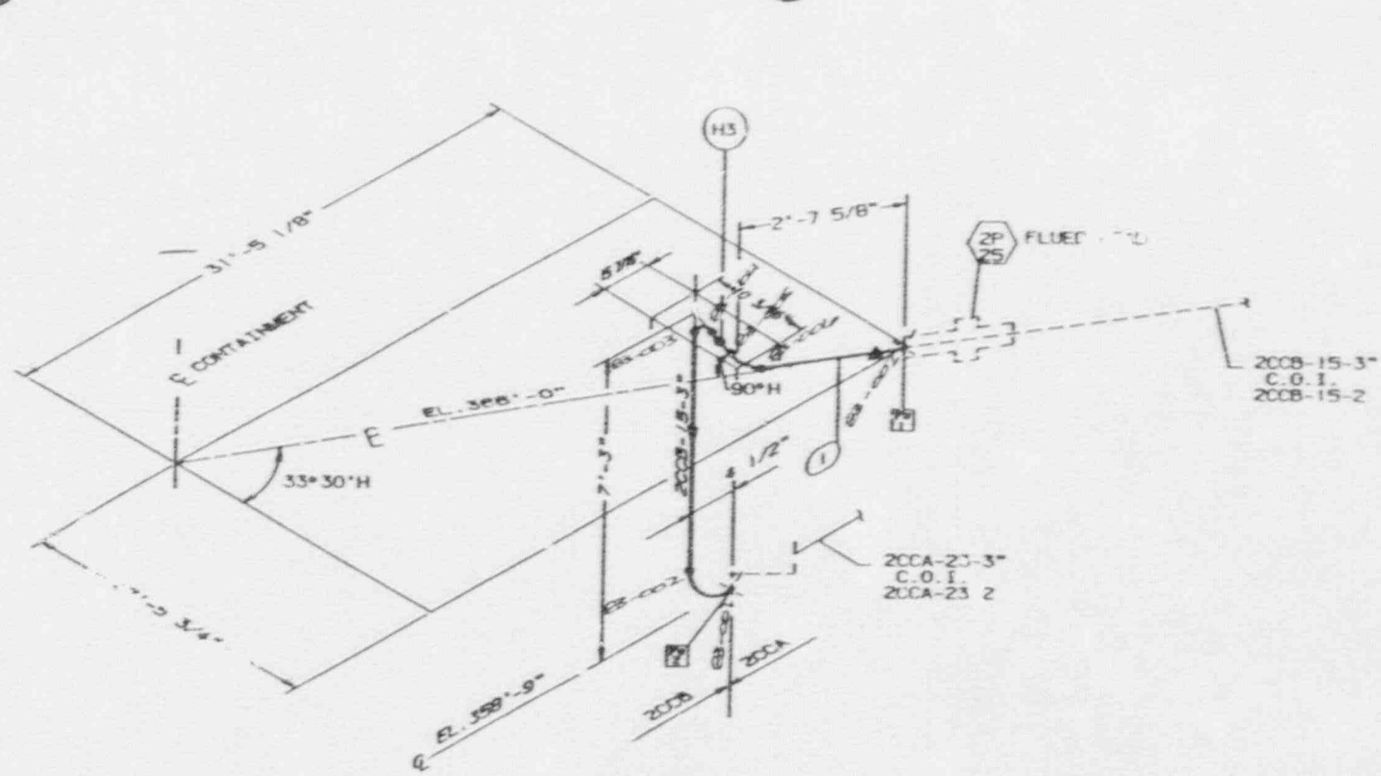


ITEM	QTY	DESCRIPTION	HEAT NO.	ASTM	GRD.
1	1	PIPE SPOOL SI-2CCB-15-3-1			

BILL OF MATERIAL

STARTUP NO.	INSULATION CLASS	THICK

REFERENCE

P&I.D. NO. M-2232
PIPING DWG. M-2056
AREA NO. 25 ELEV.
BLDG. REACTOR
SYS. SAFETY INJECTION SYSTEM

HANGER TYPE
DWG. NO.

SYS CLEANING REQMT

SERVICE CONDITIONS

NORMAL _____ PSIG _____ °F
MAXIMUM _____ PSIG _____ °F

NO.	DATE	REVISION	BY	CHK	ENGR	APP
4	12/8/84	RECHANNELED FOR AMENDED QUALIFICATION	JM			

SCALE NONE DESIGN ENG. JEL DRAWN INPELL

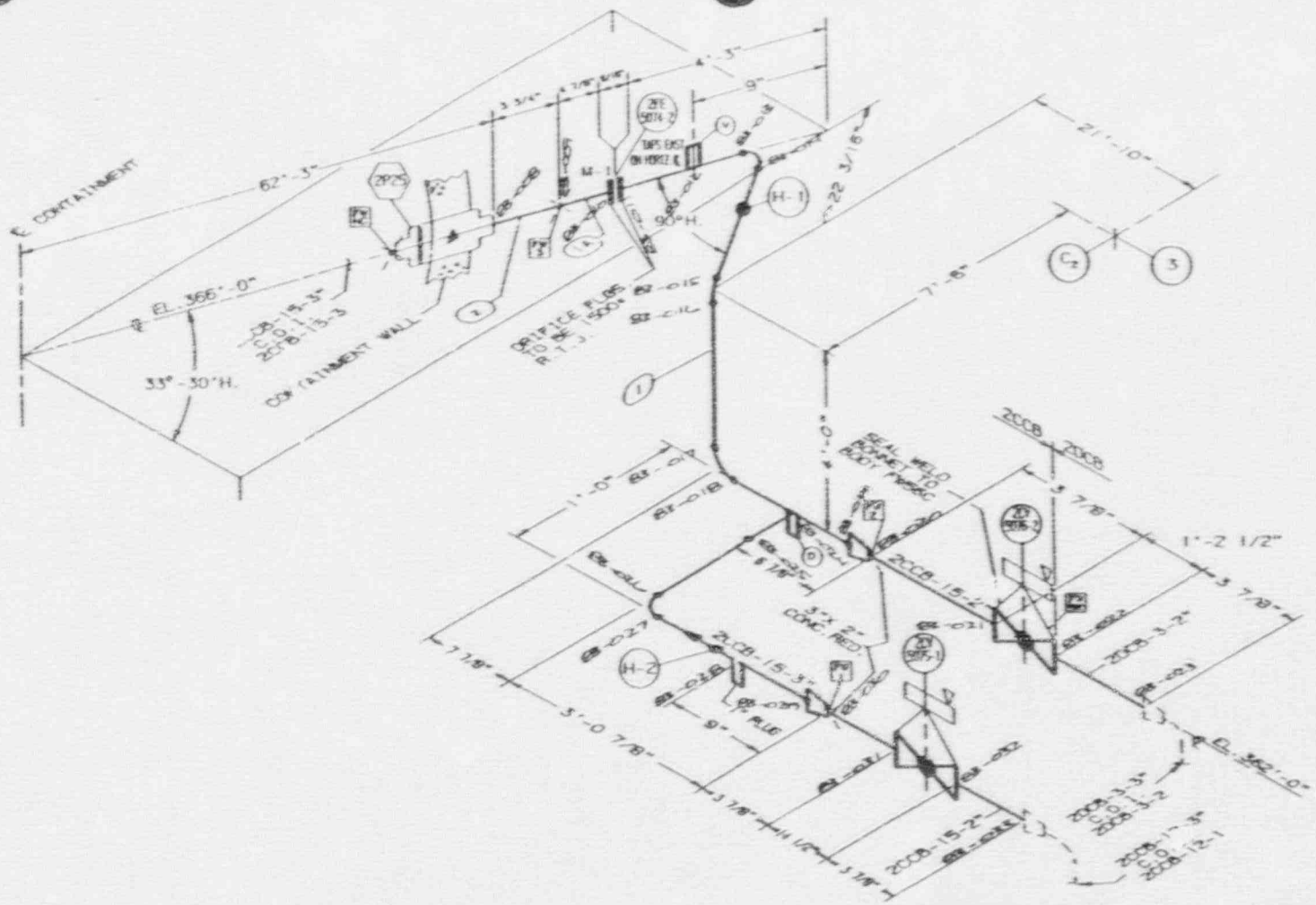
ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETRIC
SAFETY INJECTION SYSTEM

DRAWING NO. 2CCB-15-3 REV. 4

ISI-283

Zone BB
BB-001 → BB-007



NOTES

THIS DWG SUPPERCEDES 2CCB-15-1

ITEM	QTY.	DESCRIPTION	HEAT NO.	ASTM	GRD.
6	1	2CV-5076-2			
5	1	2CV-5075-1			
4	1	2FE 5074-2			
3	1	PIPE SPOOL MARK: S1-2CCB-15-2-2			
2	1	PIPE SPOOL MARK: S1-2CCB-15-2-1A			
1	1	PIPE SPOOL MARK: S1-2CCB-15-2-1			

BILL OF MATERIAL

STARTUP NO. | INSULATION CLASS | THICK.

REFERENCE

P&I.D. NO. M-2232
PIPING DWG. M-2044
AREA NO. Z4 ELEV.
BLDG. REACTOR AUX.
SYS. SAFETY INJECTION SYSTEM

HANGER TYPE
DWG. NO.

SYS CLEANING REQMT.

SERVICE CONDITIONS:
NORMAL ____ PSIG ____ °F
MAXIMUM ____ PSIG ____ °F

NO.	DATE	REVISION	BY	CHK	APPR	QUAL
0	[illegible]	RECOMMENDED QUALIFIED	AD	VM		

SCALE: NONE | DESIGN: LOWREL | DRAWN: IMPELL

ARKANSAS POWER AND LIGHT COMPANY
ARKANSAS NUCLEAR ONE
UNIT 2

LARGE PIPE ISOMETRIC
SAFETY INJECTION SYSTEM

DRAWING NO. 2CCB-15-2 | REV. 9

Zone 83
BB-008 → BB-033

ISI-283

ATTACHMENT 3

CODE CASES UTILIZED IN ISI PROGRAM

CODE CASES FOR ANO-2 INSERVICE INSPECTION PROGRAM

N-98	Ultrasonic Examination - Calibration Block Tolerances, Section XI
N-113-1	Basic Calibration Block for Ultrasonic Examinations of Welds 10 Inch to 14 Inch Thick, Section XI, Division 1
N-335	Calibration Block for Angle Beam Ultrasonic Examination of Large Fittings in Accordance with Appendix III-3410, Section XI, Division 1
N-356	Certification Period for Level III NDE Personnel, Section XI, Division 1, 2, and 3
N-427	Code Cases in Inspection Plans, Section XI, Division 1
N-435-1	Alternative Examination Requirements for Vessels with Wall Thickness 2 Inch or Less, Section XI, Division 1
N-436-1	Alternative Methods for Evaluation of Flaws in Austenitic Piping, Section XI, Division 1
N-445	Use of Later Editions of SNT-TC-1A for Qualification of Nondestructive Examination Personnel, Section XI, Division 1, 2, and 3