



ARKANSAS POWER & LIGHT COMPANY
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January 7, 1980

bcc to DAC:ADM:
CENTRAL FILES
PDR:HQ
LPDR
TIC
NSIC

STATE

1-010-4

Mr. K. V. Seyfrit, Director
Office of Inspection & Enforcement
U. S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011

Subject: Arkansas Nuclear One-Unit 1
Docket No. 50-313
License No. DPR-51
IE Bulletin No. 79-14
(File: 1510.1)

Gentlemen:

The following is provided in response to Item 2 of IE Bulletin 79-14. Included are the results of the initial engineering judgment for inaccessible systems as required by your first supplement to the subject bulletin.

Attachment I consists of a list of isometrics by systems in which all nonconformances were found to be within established tolerances or judged to be acceptable by the initial engineering judgment. No additional analyses will be performed on these isometrics. The associated evaluation sheets are included as part of this attachment.

Attachment II consists of a list of isometrics by systems where nonconformances were found to be out of established tolerances but were judged to be acceptable in the initial engineering judgment. These will require additional analyses. The results of these analyses will be provided to you no later than April 10, 1980 as committed in our November 27, 1979 letter. The associated evaluation sheets are included in this attachment.

Very truly yours,

David C. Trimble

David C. Trimble
Manager, Licensing

DCT:MOW:tw

Attachment

Q

8002140718

January 7, 1980

cc: Mr. W. D. Johnson
U. S. Nuclear Regulatory Commission
P. O. Box 2090
Russellville, AR 72801

Mr. Victor Stello Jr., Director
Office of Inspection & Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Mr. Darrell G. Eisenhut, Acting Director
Division of Operating Reactors
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

ATTACHMENT I

COMPLETED ISOMETRICS

The following isometrics were either within established tolerances or were found by engineering judgement to be acceptable as is without further re-analysis. The corresponding review sheets are attached.

<u>Stress Iso.</u>	<u>Fab. Iso.</u>
A. Main Feedwater	
EBB-1-1	2-MFW-2
EBB-1-2	2-MFW-1
B. Emergency Feedwater	
EBB-2-1	3-EFW-1
EBB-2-2	3-EFW-2
C. Main Steam	
EBB-3-1	1-MS-3,4
EBB-3-2	1-MS-1
D. Containment Spray	
HCD-8-1	5-BS-103
-	5-BS-105 thru 124
E. Containment Purge	
HBB-16	---
HBB-17	---
-	HP-209H-1
-	HP-209H-2
-	HP-210H-1
-	HP-210H-2

Stress Iso.

Fab. Iso.

F. Air Particulate Monitor

-

PM-202H-1

-

PM-202H-2

G. R. C. Letdown

CCA-3

17-MV-1, 2, 3, 4

H. Containment Penetration Piping

HBB-10

52-CT-1

HCB-8-1

12-CON-1

HCB-8-2

21-LW-40

HBB-7

30-PH-1, 2

EBB-4

11-HPD-1

EBB-4

11-HPD-2

HCB-5

21-LW-39

HBB-5

23-CH-1 & 2

-

27-ICC-1

-

27-ICC-2

HBB-2

27-ICC-4, 5

HCB-7

27-ICC-3

HBB-9

31-FW-1

I. Misc. R. C. Vents, Drains, Leak-Off and Sample Lines

-

CA-321H

-

LW-215H

-

LW-223H

-

LW-224H

-

LW-225H

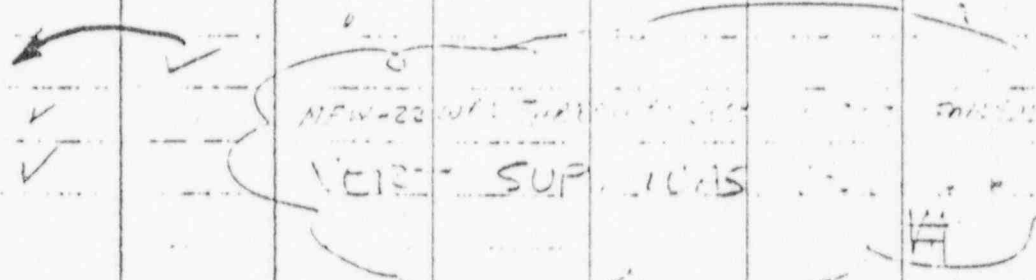
-

LW-227H

Stress Iso.Fab. Iso.

-	LW-228H
-	LWA-204H
-	LWA-243H
-	LW-216H
-	LW-335H
-	LWA-200H
-	RC-209H
-	RC-210H
-	RC-211H
-	RC-212H
-	MU-208H
-	MU-209H
-	MU-210H
-	MU-212H
-	MU-216H
-	MU-217H
-	MU-218H
-	MU-220H
-	MU-221H
-	MU-222H
-	MU-223H
-	MU-226H
-	MU-227H
-	RC-208H
-	RC-213H
-	SA-215H
-	SA-216H
-	SA-233H
-	SA-234H

BY: F. S. DILLON DATE: 10-30-79 ISOMETRIC: E32-1-511-1

SUBJECT: ANO-UNIT 1: IE 79-14 REVIEW				CALCULATION STATUS E *			
				CALC. T= 342, W= 413, S= 183			
		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS			
PIPING	GEOMETRY	✓					
PIPE	SIZE	✓					
PIPE	SCHEDULE	✓					
PIPE	MATERIAL	✓					
PIPE	CONTENTS	✓					
PIPE	INSULATION		✓	INSULATION WT. WAS NOT USED.			
VALVE	LOCATION			N/A			
VALVE	WEIGHT			✓			
VALVE	ORIENTATION			"			
OTHER CONCENTRATED WT.							
HANGER TYPES		✓					
HANGER LOCATIONS		✓					
BRANCH CONNECTIONS		✓					

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

INSULATION WT. NOT USED IN THE ANALYSIS. REST. NEW-22 IS NOT USED IN Y-DIRECTION. SEISMIC STRESSES ARE VERY LOW, IT WON'T EFFECT THE SYSTEM. NEEDS TO BE RE-ANALYSED AND UP-DATE WITH THE WALK-DOWN STRESS ISOS. OTHERWISE SYSTEM IS ACCEPTABLE & SAFE

STATUS CH. TO "A" MISSING SUPPORT WAS FOUND IN WALK DOWN DOCUMENTATION. *Rmtlh*

APPROVED BY: *Rmtlh*

12-10-79

DATE:

1054

BY: S.S. DILLON DATE: 10-26-79 ISOMETRIC: FIG. - 1, SHEET-2.

SUBJECT: AND -UNIT 1 IE 79-14 REVIEW			CALCULATION STATUS A *	
			CALC T=419, W=423 S=185	
			WITH-IN TOLERANCE	OUT OF TOLERANCE
PIPING GEOMETRY			✓	
PIPE SIZE			✓	
PIPE SCHEDULE			✓	
PIPE MATERIAL			✓	
PIPE CONTENTS			✓	
PIPE INSULATION				✓
VALVE LOCATION				
VALVE WEIGHT				
VALVE ORIENTATION				
OTHER CONCENTRATED WT.				
HANGER TYPES			✓	
HANGER LOCATIONS				✓
BRANCH CONNECTIONS,				

NOT INCLUDED IN ORIGINAL CALC.
N/A
"
"
"
H-12 WAS @ EL 367'-0" INSTEAD @ EL 362'-2"
N/A

A* = ACCEPTABLE - NO CALC. REQ'D
C* = NOT ACCEPTABLE - REPORTABLE

B* = ACCEPTABLE - CALC. REQUIRED

ENGINEER'S EVALUATION (IF APPLICABLE):

IN THE ORIGINAL CALC. INSULATION WT. WAS NOT USED. INSULATION WT. IS 5% OF LBS/FT OF SYST. STRESSES ARE LOW, SO IT WOULDNT EFFECT THE WT & SEISMIC STRESSES. A WHOLE LOT HNGR H-12 IS RE-LOCATED AS MENTIONED, THE SYSTEM IS ACCEPTABLE AND SAFE.

APPROVED BY: RWT, VP

HP-11

BY: S. C. CHILLY DATE: 11-11-79 ISOMETRIC: EBP-2 SIT. 1

SUBJECT: AND-UNIT 1 IE 79-14 REVIEW

CALCULATION STATUS A *

CALC T=416, W=423, S=1VE

		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS
PIPING	GEOMETRY	✓		
PIPE	SIZE	✓		
PIPE	SCHEDULE	✓		
PIPE	MATERIAL	✓		
PIPE	CONTENTS	✓		
PIPE	INSULATION			N/A
VALVE	LOCATION			"
VALVE	WEIGHT			"
VALVE	ORIENTATION			"
OTHER	CONCENTRATED WT.			"
HANGER	TYPES	✓		
HANGER	LOCATIONS		✓	LOC. OF LFW-5 IS 5'-0" INSTEAD 7'-0" USE IN CALC.
BRANCH	CONNECTIONS			N/A

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

COMPARED TO THE AS-BUILT WELDING ISOMETRIC
THE 5'-0" IS WITHIN TOLERANCE. THE 7'-0" IS
EBP-2 / RECORDED, AND IS OUT OF TOLERANCE
BUT BY JUDGEMENT, ACCEPTABLE
AND SAFE. NO CALCULATION REQ'D.

APPROVED BY: PHJ/LH

D/S CTMT

BY: S.S. MILLON DATE: 11-29-79 ISOMETRIC: EBB-2-SAT-2

SUBJECT: AND -UNIT 1 IE 79-14 REVIEW				CALCULATION STATUS		A *	
				CALC. T=417, W=424, S=179			
		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS			
PIPING	GEOMETRY	✓					
PIPE	SIZE	✓					
PIPE	SCHEDULE	✓					
PIPE	MATERIAL	✓					
PIPE	CONTENTS	✓					
PIPE	INSULATION			N/A			
VALVE	LOCATION			"			
VALVE	WEIGHT			"			
VALVE	ORIENTATION			"			
OTHER	CONCENTRATED WT.			"			
HANGER	TYPES	✓					
HANGER	LOCATIONS	✓					
BRANCH	CONNECTIONS			N/A			

A* = ACCEPTABLE - NO CALC. REQ'D
C* = NOT ACCEPTABLE - REPORTABLE

B* = ACCEPTABLE - CALC. REQUIRED

ENGINEER'S EVALUATION (IF APPLICABLE):

PIPING GEOMETRY, HANGER LOCATIONS OF THE SYSTEM ARE WITH-IN TOLERANCE, THEREFORE NO CALCULATION IS REQ'D.

APPROVED BY: RUTCH

BY: R. Mitchell DATE: 11-27-79 ISOMETRIC: ERB-3-1

SUBJECT: ANO -UNIT 1 IE 79-14 REVIEW				CALCULATION STATUS			
				S-173			
		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS			
PIPING	GEOMETRY	✓					
PIPE	SIZE	✓		Min wall used for 36" & 26"			
PIPE	SCHEDULE	✓					
PIPE	MATERIAL	✓					
PIPE	CONTENTS	✓					
PIPE	INSULATION	✓					
VALVE	LOCATION	N/A					
VALVE	WEIGHT	N/A					
VALVE	ORIENTATION	N/A					
OTHER	CONCENTRATED WT.	N/A					
HANGER	TYPES	✓					
HANGER	LOCATIONS		✓	MS-138	EHS-3	relocated > 2'-0"	
BRANCH	CONNECTIONS	N/A					

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

Since the seismic stresses are low (< 6000 psi) and min wall was used in analysis stresses will not significantly increase as a result of hanger relocation. System is OK as built.

APPROVED BY: Sam E. DeH.

BY: R. Mitchell DATE: 2-27-79 ISOMETRIC: EBB-3-2

SUBJECT: <u>ANO - UNIT 1 IE 79-14 REVIEW</u>				CALCULATION STATUS <u>A</u>	
				<u>S-271</u>	
		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS	
PIPING	GEOMETRY	✓		<u>Minwall used for 36" & 26"</u>	
PIPE	SIZE	✓			
PIPE	SCHEDULE	✓			
PIPE	MATERIAL	✓			
PIPE	CONTENTS	✓			
PIPE	INSULATION	✓			
VALVE	LOCATION	N/A			
VALVE	WEIGHT	N/A			
VALVE	ORIENTATION	N/A			
OTHER	CONCENTRATED WT.	N/A			
HANGER	TYPES	✓			
HANGER	LOCATIONS	✓			
BRANCH	CONNECTIONS	N/A			

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

APPROVED BY: Sanjiv S. N. S.

BY: R. MITCHELL DATE: 10-26-79 ISOMETRIC: HCD -8 Sht 1

SUBJECT: AND-UNIT 1 IE 79-14 REVIEW

CALCULATION STATUS

A*

S-24

WITH-IN TOLERANCE OUT OF TOLERANCE

COMMENTS

PIPING GEOMETRY

PIPE SIZE

PIPE SCHEDULE

PIPE MATERIAL

PIPE CONTENTS

PIPE INSULATION

VALVE LOCATION

VALVE WEIGHT

VALVE ORIENTATION

OTHER CONCENTRATED WT.

HANGER TYPES

HANGER LOCATIONS

BRANCH CONNECTIONS.

3' change in length

WATER IN VLV WAS IGNORED IN CALC.

{ CLR - HAS BEEN SHIMED ON BS-112 & 119 PER FIELD PUNCH LIST COMMENTS.

A* = ACCEPTABLE - NO CALC. REQ'D

C* = NOT ACCEPTABLE - REPORTABLE

B* = ACCEPTABLE - CALC. REQUIRED

ENGINEER'S EVALUATION (IF APPLICABLE):

Due to low system stresses - the 3' dimension reduction & the 24"/ft in the valve, will have little affect - therefore the system is OK & will meet code AS-Built.

APPROVED BY:

Sanji S. Malik

DATE: 10-26-79

5-BS-105,106, 117-124
(20 Iso's)

BY: R. MITCHELL DATE: 10-23-79 ISOMETRIC:

SUBJECT: ANO - UNIT 1 IE 79-14 REVIEW

CALCULATION STATUS A *

		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS
PIPING GEOMETRY				
PIPE SIZE				
PIPE SCHEDULE				
PIPE MATERIAL				
PIPE CONTENTS				
PIPE INSULATION				
VALVE LOCATION				
VALVE WEIGHT				
VALVE ORIENTATION				
OTHER CONCENTRATED WT.				
HANGER TYPES				
HANGER LOCATIONS				
BRANCH CONNECTIONS.				

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

NO CALC EXISTS — SPACING BY HAND CALC — (RIGID SPAN) — HNGR SPACING BY CIVIL GP.

APPROVED BY: Smith J. H. 6



BY: R. W. L. DATE: 10-25-79 ISOMETRIC: HEB-16217

SUBJECT: ANO-UNIT 1 IE 79-14 REVIEW	CALCULATION STATUS	A *
-------------------------------------	--------------------	-----

		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS
PIPING GEOMETRY				NO CALC FOUND -
PIPE SIZE				
PIPE SCHEDULE				
PIPE MATERIAL				
PIPE CONTENTS				
PIPE INSULATION				
VALVE LOCATION				
VALVE WEIGHT				
VALVE ORIENTATION				
OTHER CONCENTRATED WT.				
HANGER TYPES				
HANGER LOCATIONS				
BRANCH CONNECTIONS				

A* = ACCEPTABLE - NO CALC. REQ'D
C* = NOT ACCEPTABLE - REPORTABLE

B* = ACCEPTABLE - CALC. REQUIRED

ENGINEER'S EVALUATION (IF APPLICABLE):

CTMT. PEN. IS AN ANCHOR - NO ADDITIONAL REST. REQ'D.
DUE TO VERY SHORT LENGTH OF PIPE, $L \leq D/2$

APPROVED BY: *[Signature]*

BY: S.F. DUNLON DATE: 10-24-77 ISOMETRIC: HP-209-3H 1,2 HP-210-5H 1,2

SUBJECT: ANO-UNIT 1 IE 79-14 REVIEW

CALCULATION STATUS A *

CALC. #S: 532

WITH-IN TOLERANCE OUT OF TOLERANCE

COMMENTS

PIPING GEOMETRY

✓

PIPE SIZE

✓

PIPE SCHEDULE

✓

PIPE MATERIAL

✓

PIPE CONTENTS

N/A

PIPE INSULATION

"

VALVE LOCATION

"

VALVE WEIGHT

"

VALVE ORIENTATION

"

OTHER CONCENTRATED WT.

"

HANGER TYPES

✓

HANGER LOCATIONS

✓

BRANCH CONNECTIONS

N/A

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

AS-BUILT WALK-DOWNS ISOMETRIC IS WITH-IN TOLERANCE, SAFE AND ACCEPTABLE, THEREFORE NO CALCULATION IS REQUIRED.

APPROVED BY:

[Signature]

REVIEW

2

BY: S. S. MILLON DATE: 10-21-10 ISOMETRIC: PM-202 H. 10-10

SUBJECT: AND-UNIT 1 IE 79-14 REVIEW				CALCULATION STATUS		A *	
				CALC. * S = 53.5			
		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS			
PIPING	GEOMETRY	✓					
PIPE	SIZE	✓					
PIPE	SCHEDULE	✓					
PIPE	MATERIAL	✓					
PIPE	CONTENTS			N/A			
PIPE	INSULATION			"			
VALVE	LOCATION			"			
VALVE	WEIGHT			"			
VALVE	ORIENTATION			"			
OTHER	CONCENTRATED WT.			"			
HANGER	TYPES	✓					
HANGER	LOCATIONS						
BRANCH	CONNECTIONS			N/A			

A* = ACCEPTABLE - NO CALC. REQ'D
C* = NOT ACCEPTABLE - REPORTABLE

B* = ACCEPTABLE - CALC. REQUIRED

ENGINEER'S EVALUATION (IF APPLICABLE):

AS-BUILT WALK-DOWNS ISOMETRIC IS WITHIN TOLERANCE
SAFE AND ACCEPTABLE, THEREFORE NO CALCULATION
IS REQUIRED.

APPROVED BY: *Ruth*



"REACTOR COOLANT LETDOWN"

SH 1 of 3

E. W. SARAKET DATE: 10-26-79 ISOMETRIC: CCA-3 REV. 5

SUBJECT: AND-UNIT 1 IE 79-14 REVIEW

CALCULATION STATUS A *

REF: STRESS REPORT VOL V, APP. A & APP. B, CALL # 6600-1-5003 thru -5012

WITH-IN TOLERANCE OUT OF TOLERANCE

COMMENTS

PIPING GEOMETRY

✓

2 1/2" Pipe Length decreased by 2'-4" near top of 12" pipe. Loop is shifted by 2' along 2 direction between DTS 115 and 150.

PIPE SIZE

✓

PIPE SCHEDULE

✓

PIPE MATERIAL

✓

PIPE CONTENTS

✓

PIPE INSULATION

✓

VALVE LOCATION

✓

VALVE WEIGHT

} can't be determined from weight analysis

VALVE ORIENTATION

OTHER CONCENTRATED WT.

✓

HANGER TYPES

} see attached sheet

HANGER LOCATIONS

BRANCH CONNECTIONS.

✓

Branch near anchor MU-131 in 831.7 analysis. no branch on CCA-3 REV. 5.

A* = ACCEPTABLE - NO CALC. REQ'D

C* = NOT ACCEPTABLE - REPORTABLE

B* = ACCEPTABLE - CALC. REQUIRED

ENGINEER'S EVALUATION (IF APPLICABLE):

Comments above and in attached sheets do not result in significant changes. Therefore no analysis is needed.

APPROVED BY:

R. Muth

BY: GB Schan DATE: 8-31-79 ISOMETRIC: HBB-10 REV 0

SUBJECT: AND-UNIT 1 IE 79-14 REVIEW

CALCULATION STATUS A 2

NO ANALYSIS EXIST

		WITH IN TOLERANCE	OUT OF TOLERANCE	COMMENTS
PIPING	GEOMETRY			
PIPE	SIZE			
PIPE	SCHEDULE			
PIPE	MATERIAL			
PIPE	CONTENTS			
PIPE	INSULATION			
VALVE	LOCATION			
VALVE	WEIGHT			
VALVE	ORIENTATION			
OTHER	CONCENTRATED WT.			
HANGER	TYPES			NO RESTRAINTS REQUIRED
HANGER	LOCATIONS			
BRANCH	CONNECTIONS			

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

DUE TO THE AMOUNT OF PIPING, NO ANALYSIS AND
NO RESTRAINTS ARE REQUIRED, BUT PENETRATION PIPING -
FLUED HEAD IS AN ANCHOR.

APPROVED BY: [Signature]

DATE: 8/31/79

BY: BBBshaw DATE: 8-27-79 ISOMETRIC: HCB-B-SHT 1 REV 0

SUBJECT: <u>ANO-UNIT 1 IE 79-14 REVIEW</u>	CALCULATION STATUS	A *
	NO ANALYSIS FOUND	

		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS
PIPING GEOMETRY				
PIPE SIZE				
PIPE SCHEDULE				
PIPE MATERIAL				
PIPE CONTENTS				
PIPE INSULATION				
VALVE LOCATION				
VALVE WEIGHT				
VALVE ORIENTATION				
OTHER CONCENTRATED WT.				
HANGER TYPES				
HANGER LOCATIONS				
BRANCH CONNECTIONS				

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

CONTAINMENT PENETRATION PIPING - FLUED HEAD
CONSIDERED AS AN ANCHOR.

APPROVED BY:

R.H.A.A.

DATE 9-1-79

BY: R. MITCHELL DATE: 11-14-79

ISOMETRIC: 21-LW-40

HCB-8-2

SUBJECT: ANO - UNIT 1 IE 79-14 REVIEW

CALCULATION STATUS

A*

599

WITH-IN TOLERANCE OUT OF TOLERANCE

COMMENTS

PIPING GEOMETRY

✓

PIPE SIZE

✓

PIPE SCHEDULE

✓

PIPE MATERIAL

✓

PIPE CONTENTS

✓

PIPE INSULATION

N/A

VALVE LOCATION

✓

moved closer to Anc.

VALVE WEIGHT

✓

WT less than in calc.

VALVE ORIENTATION

✓

OTHER CONCENTRATED WT.

N/A

HANGER TYPES

✓

HANGER LOCATIONS

✓

BRANCH CONNECTIONS.

N/A

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

Because valve wts are reduced from calc valve and valve is moved closer to anchor the calc is conservative & The calc stresses are very low. ∴ system is OK As Built.

APPROVED BY: Sam S. Dwyer

BY: DATE: E-25-79 ISOMETRIC: HBB-7 IE 1 30-1--SUBJECT: AND-UNIT 1 IE 79-14 REVIEW

CALCULATION STATUS

A.

NO ANALYSIS FOUND

		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS
PIPING GEOMETRY				
PIPE SIZE				
PIPE SCHEDULE				
PIPE MATERIAL				
PIPE CONTENTS				
PIPE INSULATION				
VALVE LOCATION				
VALVE WEIGHT				
VALVE ORIENTATION				
OTHER CONCENTRATED WT.				
HANGER TYPES				
HANGER LOCATIONS				
BRANCH CONNECTIONS				

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

CONTAINMENT PENETRATION PIPING - FLUED HEAD
 CONSIDERED AN ANCHOR

APPROVED BY:

BY: --- DATE: 3-29-75 ISOMETRIC: 11-HPD-1 CE

SUBJECT: ANO-UNIT 1 IE 79-14 REVIEW

CALCULATION STATUS

A *

NO ANALYSIS FOUND

	WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS
PIPING GEOMETRY			
PIPE SIZE			
PIPE SCHEDULE			
PIPE MATERIAL			
PIPE CONTENTS			
PIPE INSULATION			
VALVE LOCATION			
VALVE WEIGHT			
VALVE ORIENTATION			
OTHER CONCENTRATED WT.			
HANGER TYPES			
HANGER LOCATIONS			
BRANCH CONNECTIONS			

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

CONTAINMENT PENETRATION PIPING - FLOUED
HEAD CONSIDERED AN ANCHOR

FOR REVIEW OF PIPING INSIDE ST. 17.

APPROVED BY:

[Signature]

I/S & O/S CTMT

CEPG

E 03-4

BY: DATE:

ISOMETRIC: 11-HPL-2 (E)

SUBJECT: AND-UNIT 1 IE 79-14 REVIEW

CALCULATION STATUS

A *

NO ANALYSIS FOUND

		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS
PIPING GEOMETRY				
PIPE SIZE				
PIPE SCHEDULE				
PIPE MATERIAL				
PIPE CONTENTS				
PIPE INSULATION				
VALVE LOCATION				
VALVE WEIGHT				
VALVE ORIENTATION				
OTHER CONCENTRATED WT.				
HANGER TYPES				
HANGER LOCATIONS				
BRANCH CONNECTIONS				

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

CONTAINMENT PENETRATION PIPING - FLUED HEAD
CONSIDERED AN ANCHOR

APPROVED BY:

[Signature]

HCB-5

BY: BOSTROMDATE: 8-30-79

ISOMETRIC

71-LW-32 R/3SUBJECT AND-UNIT 1 IE 79-14 REVIEW

CALCULATION STATUS

A *

NO ANALYSIS FOUND

	WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS
PIPING GEOMETRY PIPE SIZE PIPE SCHEDULE PIPE MATERIAL PIPE CONTENTS PIPE INSULATION VALVE LOCATION VALVE WEIGHT VALVE ORIENTATION OTHER CONCENTRATED WT. HANGER TYPES HANGER LOCATIONS BRANCH CONNECTIONS	}		NO CALCULATION EXIST

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

CONTAINMENT PENETRATION PIPING - FLUED HEAD
 CONSIDERED AS AN ANCHOR

APPROVED BY: BBBehan

I/S&O/S CMT

BY: CS RADIS DATE: 22 10 ISOMETRIC: -3E.5 IS. 0

SUBJECT: AND-UNIT 1 IE 79-14 REVIEW

CALCULATION STATUS

A *

NO ANALYSIS FOUND

	WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS
PIPING GEOMETRY			
PIPE SIZE			
PIPE SCHEDULE			
PIPE MATERIAL			
PIPE CONTENTS			
PIPE INSULATION			
VALVE LOCATION			
VALVE WEIGHT			
VALVE ORIENTATION			
OTHER CONCENTRATED WT.			
HANGER TYPES			
HANGER LOCATIONS			
BRANCH CONNECTIONS			

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

CONTAINMENT
CONSIDERED

PENETRATION PIPING - FLUED
AN ANCHOR

HEAD

RRB-1

BY: DATE: 9-29/75 ISOMETRIC: 27-ICC-2 REV 2

SUBJECT: ANO - UNIT 1 IE 79-14 REVIEW

CALCULATION STATUS A *

1.0 ANALYSIS TABLE

	WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS
PIPING GEOMETRY			
PIPE SIZE			
PIPE SCHEDULE			
PIPE MATERIAL			
PIPE CONTENTS			
PIPE INSULATION			
VALVE LOCATION			
VALVE WEIGHT			
VALVE ORIENTATION			
OTHER CONCENTRATED WT.			
HANGER TYPES			
HANGER LOCATIONS			
BRANCH CONNECTIONS			

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

CONTAINMENT CONSIDERED PENETRATION PIPING - FLUED HEAD
AS AN ANCHOR

APPROVED BY:

IS & QS CTMT

BY: BOSTONIA DATE: 8-29-79 ISOMETRIC: HBB-7 REV 0

SUBJECT: <u>AND-UNIT 1 IE 79-14 REVIEW</u>				CALCULATION STATUS	A *
				NO ANALYSIS FOUND	

		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS			
PIPING GEOMETRY	}						
PIPE SIZE							
PIPE SCHEDULE							
PIPE MATERIAL							
PIPE CONTENTS							
PIPE INSULATION							
VALVE LOCATION							
VALVE WEIGHT							
VALVE ORIENTATION							
OTHER CONCENTRATED WT:							
HANGER TYPES							
HANGER LOCATIONS							
BRANCH CONNECTIONS.							
		NO	CALC.	PERFORMED			

A* = ACCEPTABLE - NO CALC. REQ'D
C* = NOT ACCEPTABLE - REPORTABLE

B* = ACCEPTABLE - CALC. REQUIRED

ENGINEER'S EVALUATION (IF APPLICABLE):

CONTAINMENT PENETRATION PIPING - FLUED
HEAD CONSIDERED AN ANCHOR.

APPROVED BY: BBBchan

DATE: 8-29-79



I/S & O/S CTUT

BY: BSB Chan DATE: 8.29.79

ISOMETRIC: UCE-7 REV 0

SUBJECT: ANO - UNIT 1 IE 79-14 REVIEW

CALCULATION STATUS A *

NO ANALYSIS FOUND

		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS				
PIPING	GEOMETRY							
PIPE	SIZE							
PIPE	SCHEDULE							
PIPE	MATERIAL							
PIPE	CONTENTS							
PIPE	INSULATION							
VALVE	LOCATION							
VALVE	WEIGHT							
VALVE	ORIENTATION							
OTHER CONCENTRATED WT.								
HANGER TYPES								
HANGER LOCATIONS								
BRANCH CONNECTIONS								

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

CONTAINMENT PENETRATION PIPING - FLUED HEAD
CONSIDERED AS AN ANCHOR

APPROVED BY:

I/S & OF CTMT

BY: McGowan DATE: 8-28-79 ISOMETRIC: 1133 9 L.C.

SUBJECT: AND-UNIT 1 IE 72-14 REVIEW

CALCULATION STATUS

A *

NO ANALYSIS FOUND

	WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS
PIPING GEOMETRY			
PIPE SIZE			
PIPE SCHEDULE			
PIPE MATERIAL			
PIPE CONTENTS			
PIPE INSULATION			
VALVE LOCATION			
VALVE WEIGHTS			
VALVE ORIENTATION			
OTHER CONCENTRATED WT.			
HANGER TYPES			
HANGER LOCATIONS			
BRANCH CONNECTIONS			

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

CONTAINMENT PENETRATION
CONSIDERED AN ANCHOR

PIPING - FLUED HEAD

2/2/11



BY: S.S. DILLON DATE: 11-1-79 ISOMETRIC: LW-215-H C2V-0

SUBJECT: AND-UNIT 1 IE 79-14 REVIEW

CALCULATION STATUS A *

WITH-IN TOLERANCE OUT OF TOLERANCE

COMMENTS

PIPING GEOMETRY

✓

PIPE SIZE

✓

PIPE SCHEDULE

✓

PIPE MATERIAL

PIPE CONTENTS

✓

PIPE INSULATION

N/A

VALVE LOCATION

✓

VALVE WEIGHT

VALVE TYPE & WT NOT KNOWN.

VALVE ORIENTATION

✓

OTHER CONCENTRATED WT.

N/A

HANGER TYPES

✓

HANGER LOCATIONS

✓

BRANCH CONNECTIONS

N/A

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

PIPING GEOMETRY CHANGED. ADDED ELBOW 9'2" LONG PIPE, LOWERED THERMAL STRESSES AND SEISMIC STRESSES ARE VERY LOW, NEW ROUTING MAY INCREASE SEISMIC STRESSES IN Y-Z DIRE. BUT MAX. STR = 912 PSI. SO SYSTEM IS SAFE AND ACCEPTABLE.

APPROVED BY: R.W. HUN

REVISIONS

LW-229-H REV. F-1
 LW-228-H REV. E
 LWA-204-H REV. 1
 CA-321-H REV. 2
 SA-215-H REV. 2

BY: W. SARAICBI DATE: 10-30-84

ISOMETRIC: SA-215-H REV. 2

SUBJECT: AND-UNIT 1 IE 79-14 REVIEW

CALCULATION STATUS A *

REF. CALC: STRESS REPORT-APP G; BOOK I-54 (CALC# 1500-1500, -1501, -1502, -1503); BOOK I-5H (CALC# 1500)

		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS
PIPING	GEOMETRY		✓	1" PIPING is rerouted. Effect on stress is insignificant
PIPE	SIZE	✓		
PIPE	SCHEDULE	✓		
PIPE	MATERIAL	✓		
PIPE	CONTENTS	✓		
PIPE	INSULATION	✓		
VALVE	LOCATION	✓		
VALVE	WEIGHT	✓		
VALVE	ORIENTATION	✓		
OTHER	CONCENTRATED WT.	✓		
HANGER	TYPES		✓	Effect on stress is insignificant
HANGER	LOCATIONS		✓	Effect on stress is insignificant
BRANCH	CONNECTIONS	✓		

A* = ACCEPTABLE - NO CALC. REQ'D
 C* = NOT ACCEPTABLE - REPORTABLE

B* = ACCEPTABLE - CALC. REQUIRED

ENGINEER'S EVALUATION (IF APPLICABLE):

Primary stresses are low in areas where above changes are shown
 Therefore the effect on the stress is insignificant.

APPROVED BY: Ruth Lb

DEPT

1

BY: W. SARAKIS

DATE: 10-31-79

ISOMETRIC: LW-223-H REV. 3 FI

SUBJECT: AND-UNIT 1 IE 79-14 REVIEW

CALCULATION STATUS A*

REF. CALC. STRESS REPORT NO. 0706602-A BY EDS VOL I-52 API-5 F(BOOK I-5F) CALC. #600

		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS	1550 thru 1554 in BOOK I-5D
PIPING	GEOMETRY	✓			
PIPE	SIZE	✓			
PIPE	SCHEDULE	✓			
PIPE	MATERIAL	✓			
PIPE	CONTENTS	✓			
PIPE	INSULATION	✓			
VALVE	LOCATION	✓			
VALVE	WEIGHT	✓			
VALVE	ORIENTATION	✓			
OTHER	CONCENTRATED WT.	✓			
HANGER	TYPES	✓			
HANGER	LOCATIONS	✓			
BRANCH	CONNECTIONS	✓		X-STOP AT D.B. #45" WOULD 5" in Y direction	

A* = ACCEPTABLE - NO CALC. REQ'D
C* = NOT ACCEPTABLE - REPORTABLE

B* = ACCEPTABLE - CALC. REQUIRED

ENGINEER'S EVALUATION (IF APPLICABLE):

Above changes have an insignificant impact on stress level.

APPROVED BY: [Signature]

BY: W. SARAKBI

DATE: 11-1-79

ISOMETRIC: LW-225-H REV. 0

SUBJECT: AND-UNIT 1 IE 79-14 REVIEW

CALCULATION STATUS A *

REF. CALL.: STRESS REPORT BOOK I-4B CALC. #

		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS
PIPING	GEOMETRY	✓		
PIPE	SIZE	✓		
PIPE	SCHEDULE	✓		
PIPE	MATERIAL	✓		
PIPE	CONTENTS	✓		
PIPE	INSULATION	✓		
VALVE	LOCATION	✓		
VALVE	WEIGHT	✓		
VALVE	ORIENTATION	✓		
OTHER	CONCENTRATED WT.	✓		
HANGER	TYPES	✓		
HANGER	LOCATIONS		✓	Anchor moved 1' in -x direction
BRANCH	CONNECTIONS	✓		

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

Primary stresses are low in vicinity of change. Increase in pipe stress due to above change is significant.

APPROVED BY:

Runt Un

BY: DATE: 10-20-11 ISOMETRIC: LW-227-H, 251-5

SUBJECT: ANO-UNIT 1 IE 79-14 REVIEW				CALCULATION STATUS				A *	
				CALC. T=150, W=150, S=150					
				WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS			
PIPING	GEOMETRY			✓					
PIPE	SIZE			✓					
PIPE	SCHEDULE			✓					
PIPE	MATERIAL			✓					
PIPE	CONTENTS			✓					
PIPE	INSULATION					N/A			
VALVE	LOCATION			✓					
VALVE	WEIGHT			✓					
VALVE	ORIENTATION			✓					
OTHER	CONCENTRATED WT.					N/A			
HANGER	TYPES			✓					
HANGER	LOCATIONS				✓				
BRANCH	CONNECTIONS			✓					

A* = ACCEPTABLE - NO CALC. REQ'D B* = ACCEPTABLE - CALC. REQUIRED
C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

HNGR. LOCATIONS ARE SLIGHTLY OUT OF TOLERANCE BUT OK FOR OPERATION. SYSTEM IS SAFE AND ACCEPTABLE.

APPROVED BY: [Signature]

DATE: 11-1-11

FILED

BY: E. Mitchell DATE: 11-6-79 ISOMETRIC: LWA - 243 A

SUBJECT: ANO - UNIT 1 IE 79-14 REVIEW				CALCULATION STATUS		A *	
		SR - APPX FEG# 1-5 #1542-1 E#1547-1					
		WITH-IN TOLERANCE		OUT OF TOLERANCE		COMMENTS	
PIPING	GEOMETRY	✓					
PIPE	SIZE	✓					
PIPE	SCHEDULE	✓					
PIPE	MATERIAL	✓					
PIPE	CONTENTS	✓					
PIPE	INSULATION	N/A					
VALVE	LOCATION	N/A					
VALVE	WEIGHT	N/A					
VALVE	ORIENTATION	N/A					
OTHER CONCENTRATED WT.		N/A					
HANGER TYPES		✓					
HANGER LOCATIONS		✓					
BRANCH CONNECTIONS.		N/A					

A* = ACCEPTABLE - NO CALC. REQ'D
 C* = NOT ACCEPTABLE - REPORTABLE

B* = ACCEPTABLE - CALC. REQUIRED

ENGINEER'S EVALUATION (IF APPLICABLE):

APPROVED BY: E. Mitchell

MU-208-210, 212, 216-218

BY: R. Mitchell

DATE: 11-1-79

ISOMETRIC:

-220-223

SUBJECT: AND-UNIT 1 IE 79-14 REVIEW				CALCULATION STATUS		A *	
		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS			
PIPING GEOMETRY		N/A					
PIPE SIZE							
PIPE SCHEDULE							
PIPE MATERIAL							
PIPE CONTENTS							
PIPE INSULATION							
VALVE LOCATION							
VALVE WEIGHT							
VALVE ORIENTATION							
OTHER CONCENTRATED WT.							
HANGER TYPES							
HANGER LOCATIONS							
BRANCH CONNECTIONS							

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

NO PREVIOUS COMPUTER EVALUATION = DESIGNED BY.
SMALL PIPING DESIGN MANUAL

APPROVED BY: [Signature]

MU-227-H REV. 1-F2

BY: W. SAKAKI DATE: 10-31-79 ISOMETRIC: MU-226-H REV. 1-F2

SUBJECT: AND-UNIT 1 IE 79-14 REVIEW

CALCULATION STATUS A *

REF. CALC. STRESS REPORT NO. 0206400-A BY EDS VOL. I-5; APP. F (BANK I-SF) CALC. # 6400-1.15

		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS		S. H. (MV-226-HS) near 1" TR. moved .7" in + X. direction	
PIPING	GEOMETRY	✓					
PIPE	SIZE	✓					
PIPE	SCHEDULE	✓					
PIPE	MATERIAL	✓					
PIPE	CONTENTS	✓					
PIPE	INSULATION	✓					
VALVE	LOCATION	✓					
VALVE	WEIGHT	✓					
VALVE	ORIENTATION	✓					
OTHER	CONCENTRATED WT.	✓					
HANGER	TYPES	✓					
HANGER	LOCATIONS		✓				
BRANCH	CONNECTIONS	✓					

A* = ACCEPTABLE - NO CALC. REQ'D
C* = NOT ACCEPTABLE - REPORTABLE

B* = ACCEPTABLE - CALC. REQUIRED

ENGINEER'S EVALUATION (IF APPLICABLE):

Above changes do not effect the primary stresses significantly.
Note: IE 79-14 Mark up of pipe no. LWA-243 is not available at present. This drawing is a continuation of pipes described above.

APPROVED BY: *Ruth A*

DATE

BY: E.C. SHILLY DATE: 10-20-79 ISOMETRIC: EC-208 11-1-2

SUBJECT: ANO-UNIT 1 IE 79-14 REVIEW CALCULATION STATUS A *
CALC. = S = 1101 WT = 1101

		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS
PIPING GEOMETRY		✓		
PIPE SIZE		✓		
PIPE SCHEDULE		✓		
PIPE MATERIAL		✓		
PIPE CONTENTS		✓		
PIPE INSULATION		✓		
VALVE LOCATION		✓		
VALVE WEIGHT			✓	WT. USED IS HIGHER THAN ACTUAL WT.
VALVE ORIENTATION				
OTHER CONCENTRATED WT.				N/A
HANGER TYPES		✓		
HANGER LOCATIONS			✓	ANG. AC-208-1 IS RELAXED
BRANCH CONNECTIONS		✓		

A* = ACCEPTABLE - NO CALC. REQ'D B* = ACCEPTABLE - CALC. REQUIRED
C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

ANG. AC-208-1 IS DE-LOCATED, BUT OK FOR CARRY SUPPORT, VALVE WT USED IS 25% HIGHER THAN ACTUAL WT OF VALVE. SYSTEM IS SAFE AND ACCEPTABLE.

APPROVED BY: Runt Lo

BY: W. SARAKEL DATE: 11-1-79

ISOMETRIC:

SA-234-H Rev. 2

SA-233-H Rev. 2

SA-216-H Rev. 2

SUBJECT: AND-UNIT 1 IE 79-14 REVIEW

CALCULATION STATUS A *

REF. CALC: STRESS REPORT # C106000A BY EDS VOL. I-5; BOOK I-56. CALC# 6600-1-1504/11-1511

		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS
PIPING GEOMETRY			✓	(SA-234-A)
PIPE SIZE	✓			3/4" Piping near pressure slightly rerouted
PIPE SCHEDULE	✓			(SA-233-A). Piping near anchor at D.P. S. rerouted
PIPE MATERIAL	✓			
PIPE CONTENTS	✓			
PIPE INSULATION	✓			
VALVE LOCATION	✓			
VALVE WEIGHT	✓			
VALVE ORIENTATION	✓			
OTHER CONCENTRATED WT.	✓			
HANGER TYPES			✓	(AP-75) S.H. at AP 52 deleted, guide PG-11A vs changed
HANGER LOCATIONS			✓	to rigid Y, S.H. (SatchA) near D.P. 75 is added
BRANCH CONNECTIONS			✓	S.H. SA-216-H moved around 2" away from original position

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

Primary stresses are low in the vicinity of the changes indicated above. Above changes are not significant.

APPROVED BY:

Ruth

BY: S. S. DHILLON DATE: 11-5-79

ISOMETRIC: LW-335-H, LWA-200-H, LW-216-H

SUBJECT: AND-UNIT 1 IE 79-14 REVIEW				CALCULATION STATUS B *			
				COMMENTS			
				WITH-IN TOLERANCE	OUT OF TOLERANCE		
PIPING	GEOMETRY				✓		
PIPE	SIZE		✓				
PIPE	SCHEDULE		✓				
PIPE	MATERIAL		✓				
PIPE	CONTENTS		✓				
PIPE	INSULATION					N/A	
VALVE	LOCATION		✓				
VALVE	WEIGHT		✓				
VALVE	ORIENTATION		✓				
OTHER	CONCENTRATED WT.					N/A	
HANGER	TYPES				✓		
HANGER	LOCATIONS				✓		
BRANCH	CONNECTIONS				✓		

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

PIPING GEOMETRY CHANGE IS OUT-OF-TOLERANCE
 HNGRS ADDED AND TYPES CHANGED. BRANCH
 CONNECTION IS ALTERED. SYSTEM IS ACCEPTED
 AND SAFE, BUT NEEDS TO BE RE-ANALYSED
 UP-DATE WITH THE AS-BUILT WALK-DOWN ISO-
 METRIC.

APPROVED BY: *Rmt/Wh*

STATIC SEISMIC (NOT DYNAMIC SEISMIC CALC)

BY: CHILLON DATE: 11-5-79 ISOMETRIC: 20-211,212

SUBJECT: ANO-UNIT 1 IE 79-14 REVIEW

CALCULATION STATUS ✓A*

T=1208/210, W=1210/212, S=1208/211

WITH-IN TOLERANCE OUT OF TOLERANCE

COMMENTS

PIPING GEOMETRY

PIPE SIZE

PIPE SCHEDULE

PIPE MATERIAL

PIPE CONTENTS

PIPE INSULATION

VALVE LOCATION

VALVE WEIGHT

VALVE ORIENTATION

OTHER CONCENTRATED WT.

HANGER TYPES

HANGER LOCATIONS

BRANCH CONNECTIONS

PIPE PIPING ADDED

N/L

BRANCHES ADDED FOR TUBING CONNECTIONS

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

PIPING GEOMETRIC CHANGE IS OUT-OF TOLERANCE
MORE PIPING ADDED AND BRANCHED FOR TUBING
CONNECTIONS. SYSTEM IS ACCEPTABLE AND SAFE, BUT
NEEDED TO BE RE-ANALYZED TO UP-DATE PER
AS-BUILT WALK-DOWN STEEL ISOMETRIC.

CHANGED STATUS TO "A" BECAUSE PIPING WAS ANALYZED BY
STATIC CALC (NOT PART OF IE 79-14)

RWTH
12-13-79

APPROVED BY: RWTH

STATIC SEISMIC

BY: S. THILLON DATE: 11-5-79 ISOMETRIC: RC-209, 210

SUBJECT: ANO-UNIT 1 IE 79-14 REVIEW				CALCULATION STATUS		3A*	
			WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS		
PIPING	GEOMETRY			✓	MAKE PIPING ADDED		
PIPE	SIZE		✓				
PIPE	SCHEDULE		✓				
PIPE	MATERIAL		✓				
PIPE	CONTENTS				N/A		
PIPE	INSULATION		✓				
VALVE	LOCATION		✓				
VALVE	WEIGHT		✓				
VALVE	ORIENTATION		✓				
OTHER	CONCENTRATED WT.				N/A		
HANGER	TYPES		✓				
HANGER	LOCATIONS		✓				
BRANCH	CONNECTIONS			✓	TWO MORE BRANCH CONNECTIONS ADDED		

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

PIPING GEOMETRY CHANGE IS OUT-OF-TOLERANCE
MORE PIPING ADDED AT LOWER ELEV. AT 392' & 393'
AND THREE MORE BRANCHES ADDED. SYSTEM IS SAFE
AND ACCEPTABLE, BUT NEEDS TO BE REANALYZED TO
COMBINE WITH THE WALK-DOWN AS-BUILT STRESS ISOMETRIC

CHANGED STATUS TO 'A' BECAUSE PIPING WAS ANALYZED BY
STATIC CALC (NOT PART OF IE-79-14)

R MTH

APPROVED BY:

R MTH

ATTACHMENT II

ISOMETRICS REQUIRING REANALYSIS

Part of the following isometrics were out of established tolerances, but were found to be acceptable by Engineering judgement. They will be reanalyzed to confirm that the as-built piping and hanger configuration still yields acceptable stress levels.

<u>Stress Iso.</u>	<u>Fab. Iso.</u>
A. Decay Heat Removal & Core Flooding	
CCA-6-1	6-CF-1
CCA-6-2	6-CF-2
CCA-8	7-DH-2
CCB-1-1	7DH-2
CCB-1-2	7-DH-1
CCB-1-3	7-DH-23
CCB-1-4	7-DH-22A
CCB-6-1	6-CF-1
CCB-6-2	6-CF-2
FCB-3-1	6-CF-1
FCB-3-2	6-CF-2
GCB-4-2	7-DH-3, 4
B. Pressurizer Relief	
FCB-2-1	16-RC-8
FCB-2-2	16-RC-4
FCB-2-3	16-RC-6

<u>Stress Iso.</u>	<u>Fab. Iso.</u>
C. Pressurizer Spray	
CCA-4 (SK-M-666)	-
-	RC-203H
-	RC-207H
D. Containment Spray	
HCD-8-2	5-BS-102
E. Service Water	
HBD-14-3	13-SW-1, 131, 135, 149, 151
HBD-20-4	13-SW-130, 136, 150, 152
HBD-21-3	13-SW-2, 128, 137, 149, 151
HBD-21-4	13-SW-129, 138, 150, 152
F. Fuel Transfer Canal Fill	
HCB-3	15-FPC-17, 20, 21
G. High Pressure Injection	
CCA-5-1	17-MV-27
CCA-5-2	17-MV-26
CCA-5-3	17-MV-23
CCA-5-4	17-MV-29, 30
H. Misc. R. C. Vents, Drains and Sample Lines	
-	LW-217H
-	LW-336H
-	LWA-201H



COCK FLOODING and Delay Heat Removal
(WEST SIDE)

CCA-6 SH.1 REV.3

FCB-3 SH.1 REV.4

CCB-6 SH.1 REV.4

CCB-1 SH.1 REV.5

SH.1

BY: W. SARAKSI

DATE: 10-24-79

ISOMETRIC:

CCB-1 SH.1 REV.5

SUBJECT: AND-UNIT 1 IE 79-14 REVIEW

CALCULATION STATUS

B*

REF: STRESS REPORT VOL. II APP. A CALC. # 6600-1-2006-2007-2008-2008-2009

		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS
PIPING	GEOMETRY	✓		
PIPE	SIZE	✓		
PIPE	SCHEDULE	✓		
PIPE	MATERIAL			
PIPE	CONTENTS	✓		
PIPE	INSULATION		✓	PIPE INSULATION for Line CCA-6-14" FCB-3-14" and CCB-6-14" are conservatively included in analysis
VALVE	LOCATION	✓		
VALVE	WEIGHT		✓	VALVE DL-13A is 157# in analysis VALVE CV2415
VALVE	ORIENTATION		✓	operator is not modeled (800#) in analysis
	OTHER CONCENTRATED WT.	✓		
	HANGER TYPES			
	HANGER LOCATIONS	✓		
	BRANCH CONNECTIONS		✓	AWG. CCB-1 SH.1 shows 8" branch which was not included in analysis

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

Judging from the primary stresses of the most recent analysis the changes are not significant.

The 8" branch line at 12"X12"X8" reducing tee is analyzed separately by anchoring it at center of tee.

DUE TO THE ABOVE THIS PIPING SHOULD BE REANALYZED WITH THE PIPE ON SH. 2 OF 2.

APPROVED BY: [Signature]

"CURC FLOODING & DECAY HEAT REMOVAL"
(EAST SIDE)

CCB-6 Sht 2 Rev. 4

FEB-3 Sht 2 Rev. 3

CCA-6 Sht 7 Rev. 6

SH 1 OF

(3)

W. S. 2000

DATE: 10-25-79

ISOMETRIC:

SUBJECT: AND-UNIT 1 IE 79-14 REVIEW

CALCULATION STATUS B *

STRESS REPORT VOL. 1, APP. A CALC. 6.00-1-2001, 2002, 2003-2004, 2005

		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS
PIPING GEOMETRY			✓	1.2' piece of pipe added between 14" x 14" x 14" and 14" x 14" x 8" TRIS (i.e. between D.P. 60 and 120)
PIPE SIZE		✓		
PIPE SCHEDULE		✓		
PIPE MATERIAL		✓		
PIPE CONTENTS		✓		
PIPE INSULATION		✓		
VALVE LOCATION		✓		
VALVE WEIGHT		✓		
VALVE ORIENTATION			✓	VLV "CV 2419" OPERATOR is not modeled (980 lb) in analysis.
OTHER CONCENTRATED WT.		✓		
HANGER TYPES				
HANGER LOCATIONS			✓	DH-177(S.H.) model 5' in - x direction, DH-179(S.H.) added at EL. 353'-8" on riser near VLV "CV 2419".
BRANCH CONNECTIONS		✓		

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

FINAL EVALUATION OF THIS SYSTEM IS INCOMPLETE AT PRESENT
PENDING COMPARISON STUDIES FOR THE REMAINDER OF THE PIPING
DRAWINGS FROM AS BUILT GROUP.

APPROVED BY: *[Signature]*

DATE: 10-25-79

BY: R. MITCHELL DATE: 11-13-79

ISOMETRIC: CCB-1-2

SUBJECT: ANO-UNIT 1 IE 79-14 REVIEW		CALCULATION STATUS		B *	
		Val I Apx. A Calc 2001 → E			
		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS	
PIPE	GEOMETRY	✓			
PIPE	SIZE	✓			
PIPE	SCHEDULE	✓			
PIPE	MATERIAL	✓			
PIPE	CONTENTS				
PIPE	INSULATION	✓			
VALVE	LOCATION	✓			
VALVE	WEIGHT		✓	DH-13A ~ 700# Lighter than in calc.	
VALVE	ORIENTATION	✓			
OTHER	CONCENTRATED WT.	N/A			
HANGER	TYPES		✓	DH-167 acts like a guide instead of E.W Rest	
HANGER	LOCATIONS	✓			
BRANCH	CONNECTIONS		✓	Not considered in calc.	

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

Line is better supported than in calc and valve wt is reduced → Since no other info we know the system is probably OK as built but should be reviewed.

APPROVED BY:

DATE: 11-15-79

BY: W. SARAKBI DATE: 10-26-79 ISOMETRIC: CCB-1 SHT 3 REV. 0

SUBJECT: AND-UNIT 1 IE 79-14 REVIEW	CALCULATION STATUS	B *
-------------------------------------	--------------------	-----

		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS
PIPING GEOMETRY				N/A
PIPE SIZE				
PIPE SCHEDULE				
PIPE MATERIAL				
PIPE CONTENTS				
PIPE INSULATION				
VALVE LOCATION				
VALVE WEIGHT				
VALVE ORIENTATION				
OTHER CONCENTRATED WT.				
HANGER TYPES				
HANGER LOCATIONS				
BRANCH CONNECTIONS				

A* = ACCEPTABLE - NO CALC. REQ'D

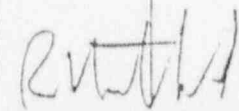
B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

NO ANALYSIS OR PREVIOUS DRAWING EXISTS FOR THIS PIPE.
 However by eyeballing the pipe seems to be sufficiently supported.

APPROVED BY:



DATE: 10-26-79

132-112

Sh 2 06 2

BY: W. SARAKBI DATE: 10-25-79 ISOMETRIC: CCB-1 Sh. 4 Rev. 0

SUBJECT: ANO-UNIT 1 IE 79-14 REVIEW		CALCULATION STATUS B *		
REF: ARKANSAS #1, 6600-1, BX #27, CALL # 497				
		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS
PIPING GEOMETRY		✓		
PIPE SIZE		✓		
PIPE SCHEDULE		✓		
PIPE MATERIAL		✓		
PIPE CONTENTS			✓	WATER NOT INCLUDED IN ANALYSIS
PIPE INSULATION			✓	INSULATION NOT INCLUDED IN ANALYSIS
VALVE LOCATION		✓		
VALVE WEIGHT		✓		
VALVE ORIENTATION		✓		
OTHER CONCENTRATED WT.		✓		
HANGER TYPES			✓	SPRING HANGER MISSING NEAR VALVE DH-17
HANGER LOCATIONS			✓	ANCHOR AT D.P. 145' MOVED 2'-8" IN + X DIRECTION
BRANCH CONNECTIONS			✓	SEE SH. 1 OF 2

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

DUE TO THE ABOVE DISCREPANCIES THIS PIPE SHOULD BE ANALYZED TOGETHER WITH PIPING ON SH. 1 OF 2. PIPING CHANGES SHOULD NOT SIGNIFICANTLY AFFECT THE PRIMARY STRESSES. AS-BUILT CONDITION IS FEASIBLY OK.

NOTE: S.H. NEAR VALVE DH-17 SHOULD BE VERIFIED WITH THE FIELD ASAP.

APPROVED BY: *[Signature]*

0301 11

2

BY: D.G. PHILLON DATE: 6-22-79 ISOMETRIC: CCA-8 & GCB-4, SHT. 2

SUBJECT: AND-UNIT 1 IE 79-14 REVIEW

CALCULATION STATUS B *

		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS
PIPING GEOMETRY		✓		
PIPE SIZE		✓		
PIPE SCHEDULE		-		
PIPE MATERIAL				
PIPE CONTENTS		✓		
PIPE INSULATION		✓		
VALVE LOCATION		✓		
VALVE WEIGHT			✓	VALVE WEIGHTS ARE > ACTUAL USED.
VALVE ORIENTATION			✓	C.G FOR M.O. VALVES SHOULD BE 90°
OTHER CONCENTRATED WT.				N/A
HANGER TYPES		✓		
HANGER LOCATIONS			✓	RESTS. DH-156 IS RE-LOCATED
BRANCH CONNECTIONS			✓	T-CONNECTION @ EL 358'-0" TAKEN OUT

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

BRANCH CONNECTION @ EL 358'-0" IS TAKEN OUT ALONG WITH
A ANCHOR. STRESSES WOULD BE DIFFERENT THAN ANALYSED.
X-REST - DH-156 HAS BEEN RE-LOCATED. HANGER DH-156
AND DH-157 ARE SPACED. CALC. NEEDED TO BE
RE-ANALYSE TO UP-DATE WITH THE AS-BUILT WALKDOWN
ISOS. SYSTEM IS SAFE AND ACCEPTABLE.

APPROVED BY: [Signature]

REVIEW

BY: B. Mitchell

DATE: 11-12-79

ISOMETRIC: FCB-2-1

SUBJECT: ANO-UNIT 1 IE 79-14 REVIEW				CALCULATION STATUS B*	
				S-273	
		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS	
PIPING GEOMETRY			✓	7'-6" Run is slightly shorter than tolerance	
PIPE SIZE		✓			
PIPE SCHEDULE		✓			
PIPE MATERIAL		✓			
PIPE CONTENTS			✓	WATER CONSIDERED	
PIPE INSULATION		N/A			
VALVE LOCATION		✓			
VALVE WEIGHT				Valves and vendor supplied - No information exists	
VALVE ORIENTATION		✓			
OTHER CONCENTRATED WT.				Need to know VLV wt to determine if Flange is properly considered	
HANGER TYPES		✓			
HANGER LOCATIONS			✓		
BRANCH CONNECTIONS		✓			

A* = ACCEPTABLE - NO CALC. REQ'D

C* = NOT ACCEPTABLE - REPORTABLE

B* = ACCEPTABLE - CALC. REQUIRED

ENGINEER'S EVALUATION (IF APPLICABLE):

Because stresses in cable are moderate and piping is mostly within tolerance and consideration of H₂O contents is probable conservative with the wt of valve & Flange at a anchor pt the piping is OK as built but should be seen because of hanger relocation

APPROVED BY: [Signature]

SY: T.M.L. DATE: 11-26-72 ISOMETRIC: FCB-2-2

SUBJECT: ANO-UNIT 1 IE 79-14 REVIEW				CALCULATION STATUS		B *	
				S-2731			
		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS			
PIPING	GEOMETRY	✓					
PIPE	SIZE	✓					
PIPE	SCHEDULE	✓					
PIPE	MATERIAL	✓					
PIPE	CONTENTS		✓	water considered			
PIPE	INSULATION	N/A					
VALVE	LOCATION	✓	}	Value is vendor supplied			
VALVE	WEIGHT	✓		Need not to know if flange is			
VALVE	ORIENTATION	✓		properly considered.			
OTHER CONCENTRATED WT.							
HANGER TYPES		✓					
HANGER LOCATIONS		✓					
BRANCH CONNECTIONS.		N/A					

A¹² = ACCEPTABLE - NO CALC. REQ'D
C¹² = NOT ACCEPTABLE - REPORTABLE

B¹² = ACCEPTABLE - CALC. REQUIRED

ENGINEER'S EVALUATION (IF APPLICABLE):

The valves & flanges are near an anchor pt. and the system stresses are moderate. ∴ the piping is probably OK as built.

APPROVED BY: [Signature]

REVIEW

BY: R Mitchell DATE: 10-29-79 ISOMETRIC: FCB-2 slt 3

SUBJECT: ANO-UNIT 1 IE 79-14 REVIEW				CALCULATION STATUS	
				B *	
				S-273	
		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS	
PIPING	GEOMETRY		✓	6" CHANGE NEAR HNGR HS-85 SEVERAL OTHER 2" ± CHANGES EXIST	
PIPE	SIZE	✓			
PIPE	SCHEDULE	✓			
PIPE	MATERIAL	✓			
PIPE	CONTENTS		✓	WATER CONSIDERED	
PIPE	INSULATION	N/A			
VALVE	LOCATION	✓			
VALVE	WEIGHT	✓			
VALVE	ORIENTATION		✓	CV-1000 CP ROTATED 45° IN HORIZ DIR	
OTHER	CONCENTRATED WT.		✓	FLG AT RV-1000 NOT CONSIDERED	
HANGER	TYPES	✓			
HANGER	LOCATIONS		✓		
BRANCH	CONNECTIONS	N/A			

A* = ACCEPTABLE - NO CALC. REQ'D
C* = NOT ACCEPTABLE - REPORTABLE

B* = ACCEPTABLE - CALC. REQUIRED

ENGINEER'S EVALUATION (IF APPLICABLE):

Seismic stresses are small and the changes in pipe geometry are probably not significant enough to cause lower stressing. The consideration of water as contents makes the analysis conservative.

APPROVED BY: R Mitchell

PRESSURIZED SPRAY LINE

RC-207

BY: W. SARAKBI DATE: 10-23-79 ISOMETRIC: SK-M-066 REV. 1 AT 79-14 (AS BUILT)

SUBJECT: ANO-UNIT 1 IE 79-14 REVIEW

CALCULATION STATUS B*

REF: CALL. # 160041-1530, -1531, -1532, -1533, -1530-1, IN STRESS REPORT BOOK I-SE APP E

		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS
PIPING GEOMETRY			✓	CCA - 4-1/2" branch pipe length decreased by 1'
PIPE SIZE		✓		
PIPE SCHEDULE		✓		
PIPE MATERIAL		✓		
PIPE CONTENTS		✓		
PIPE INSULATION		✓		
VALVE LOCATION		✓		
VALVE WEIGHT			✓	Valve RC-3 wt. increased by 165#
VALVE ORIENTATION		✓		
OTHER CONCENTRATED WT.		✓		
HANGER TYPES			✓	See explanation below
HANGER LOCATIONS			✓	x-shub at D.P. #171 is moved in -Y direction by 9"
BRANCH CONNECTIONS			✓	CCA - 4-1/2" branch at D.P. #177 moved by 1' away from valve CV 1008

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

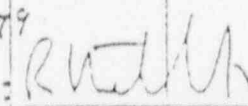
ENGINEER'S EVALUATION (IF APPLICABLE):

Sketch for snubber mark # HS-02 is not included in the package. Four sketches for hangers supporting a 10" pipe are apparently included in this package by mistake. The increase in valve RC-3 weight will increase the primary stress by a certain amount. However it is felt that this change can be incorporated in the analysis later on.

Note primary stresses for spray line were checked by hand.

Calcs and they meet the requirements of Eqn(9) WS 11/20/79

APPROVED BY:



BY: W. SARAKBI

DATE: 10-23-79

ISOMETRIC: RC-203-H R.V.: IE 79-14 Mark-Up/As

SUBJECT: ANO-UNIT 1 IE 79-14 REVIEW

CALCULATION STATUS B

REF: CALC. # (6600-1)-1531, -1532 IN STRESS REPORT BOOK E-5E, APP. G

		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS
PIPING GEOMETRY		✓		Several changes in dimension $\leq 6"$
PIPE SIZE		✓		
PIPE SCHEDULE		✓		
PIPE MATERIAL		✓		
PIPE CONTENTS		✓		
PIPE INSULATION			✓	NO INSULATION AS PER PIPING SPEC. NO. (6600-M-83) REV. 5. PIPE WAS ANALYZED WITH 2" & 1" INSULATION FOR CL 1 and 2 RESPECTIVELY
VALVE LOCATION		✓		
VALVE WEIGHT		✓		
VALVE ORIENTATION		✓		
OTHER CONCENTRATED WT.		✓		
HANGER TYPES				
HANGER LOCATIONS			✓	Vertical Rigid HNG (at AP. 281) moved by 16" in +x direction
BRANCH CONNECTIONS		✓		

A* = ACCEPTABLE - NO CALC. REQ'D

C* = NOT ACCEPTABLE - REPORTABLE

B* = ACCEPTABLE - CALC. REQUIRED

ENGINEER'S EVALUATION (IF APPLICABLE):

The above changes are not significant, but analysis is required later on.

APPROVED BY:

entlkh

REVISION

BY: G.S. DHILLON DATE: 10-25-79 ISOMETRIC: HCD-8-SHT-2

SUBJECT: AND-UNIT 1 IE 79-14 REVIEW

CALCULATION STATUS

E *

CALC T-308, S-27

WITH-IN TOLERANCE OUT OF TOLERANCE

COMMENTS

PIPING GEOMETRY

✓

PIPE SIZE

✓

PIPE SCHEDULE

✓

PIPE MATERIAL

✓

PIPE CONTENTS

✓

PIPE INSULATION

N/A

VALVE LOCATION

✓

VALVE WEIGHT

✓

VALVE ORIENTATION

✓

OTHER CONCENTRATED WT.

N/A

HANGER TYPES

✓

HANGER LOCATIONS

✓

BRANCH CONNECTIONS

SK-X-2 & BS-80 USED INSTEAD IN HANGER GUIDE
AS USED IN CASE

N/A

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

PIPING GEOMETRY CHANGE IS OUT OF TOLERANCE,
TWO GUIDES WERE USED IN ANALYSIS INSTEAD OF SK-X-2 & BS-80
LENGTH OF THE LEG IS 10' 0" VS 14' 0" OF THE LOOPS, SYSTEM
NEEDS TO BE RE-ANALYSED TO UP-DATE WITH AS-BUILT WALK-DOWN
ISOMETRIC. HNGR. SPACING ALL OK PER P.A. 207, SYSTEM IS
ACCEPTABLE AND SAFE

APPROVED BY:

[Signature]



BY: S. S. DHILLON DATE: 10-24-79 ISOMETRIC: HBD-14-3

SUBJECT: AND-UNIT 1 IE 79-14 REVIEW

CALCULATION STATUS B *

WITH-IN
TOLERANCE

OUT OF
TOLERANCE

COMMENTS

PIPING GEOMETRY

PIPE SIZE

PIPE SCHEDULE

PIPE MATERIAL

PIPE CONTENTS

PIPE INSULATION

VALVE LOCATION

VALVE WEIGHT

VALVE ORIENTATION

OTHER CONCENTRATED WT.

HANGER TYPES

HANGER LOCATIONS

BRANCH CONNECTIONS

✓

✓

✓

✓

✓

✓

N/A

"

"

✓

✓

NOTE: ✓

ADDITIONAL PIPING ADDED AT BR. CONNECTION

SP. HNGRS. CAN'T BE VERIFIED. } there is
BRANCH CONN. IS ROUTED DIFFERENT THAN ORIG. } NO WT. CALC.

A* = ACCEPTABLE - NO CALC. REQ'D

C* = NOT ACCEPTABLE - REPORTABLE

B* = ACCEPTABLE - CALC. REQUIRED

ENGINEER'S EVALUATION (IF APPLICABLE):

AT THE BRANCH CONNECTION MORE THAN 24 FEET
PIPING IS ADDED, PIPING NEEDS TO BE RESTRAINED
AND RE-ANALYSED PER AS-BUILT WALKDOWN STRESS
ISOMETRIC SYSTEM IS ACCEPTABLE AND SAFE.

APPROVED BY: R. L. T. 14

BY: R. MITCHELL DATE: 11-2-79 ISOMETRIC: HBD-20 Sht 4

SUBJECT: ANO-UNIT 1 IE 79-14 REVIEW				CALCULATION STATUS B*	
				S-121	
		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS	
PIPING GEOMETRY			✓	8'-8" Run was 12'-3" Branch not considered in Run.	
PIPE SIZE		✓			
PIPE SCHEDULE		✓			
PIPE MATERIAL		✓			
PIPE CONTENTS		✓		1" Fiber glass NOT considered.	
PIPE INSULATION			✓		
VALVE LOCATION		N/A			
VALVE WEIGHT		N/A			
VALVE ORIENTATION		N/A		H-46 Loc. Ch. w/ Geometry change.	
OTHER CONCENTRATED WT.		N/A			
HANGER TYPES		✓			
HANGER LOCATIONS			✓		
BRANCH CONNECTIONS		N/A			

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

Should be no run because branch line to VUC was not considered. The stress are low and the spectrum curve is low as built. ∴ system should be adequately supported

APPROVED BY: Sauhi B. Dhill



BY: G.S.D. DATE: 10-21-79 ISOMETRIC: HBD-21-511-3

SUBJECT: AND-UNIT 1 IE 79-14 REVIEW

CALCULATION STATUS

B*

351, 5-1-1

WITH-IN
TOLERANCE

OUT OF
TOLERANCE

COMMENTS

PIPING GEOMETRY

✓

PIPE SIZE

✓

PIPE SCHEDULE

✓

PIPE MATERIAL

✓

PIPE CONTENTS

✓

PIPE INSULATION

✓

VALVE LOCATION

N/A

VALVE WEIGHT

"

VALVE ORIENTATION

"

OTHER CONCENTRATED WT.

"

HANGER TYPES

✓

HNGR. SKH1 IS ADDED

HANGER LOCATIONS

✓

LOC. OF H-4E IS OUT OF TOLR.

BRANCH CONNECTIONS

✓

CONN. OF VCC-2C MOVED AND ADDED MORE
PIPE, ALSO AT CONN. TO VCC-2D.

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

CALC. NEEDS TO BE RE-ANALYSED TO UP-DATE WITH
AS-BUILT WALK-DOWN STRESS ISO. HNGR. TYPES AND
VARIATION IN RESTRAINING THE IS ACCEPTABLE AND
SAFE, BUT OUT OF TOLERANCE AS EXPLAINED ABOVE

APPROVED BY:

RWJ/66

REVIEWED

BY: J. S. DILLON DATE: 10-29-79 ISOMETRIC: H.P.D. 21- SHT-4

SUBJECT: ANO-UNIT 1 IE 79-14 REVIEW	CALCULATION STATUS B *
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		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS
PIPING GEOMETRY			✓	RE-ROUTED CONNECTION TO VCC-2B.
PIPE SIZE		✓		
PIPE SCHEDULE		✓		
PIPE MATERIAL		✓		
PIPE CONTENTS		✓		
PIPE INSULATION		✓		
VALVE LOCATION				N/A
VALVE WEIGHT				"
VALVE ORIENTATION				"
OTHER CONCENTRATED WT.				"
HANGER TYPES			✓	GUIDES H-34 & H-39, ^{HNGR} H-42 ARE ADDED.
HANGER LOCATIONS		✓		EXCEPT ADDED HNGRS, REST OF HNGRS ARE O.K.
BRANCH CONNECTIONS.			✓	BRANCH CONNECTION TO VCC-2B IS RE-ROUTED AND ADDED A HNGR.

A* = ACCEPTABLE - NO CALC. REQ'D
C* = NOT ACCEPTABLE - REPORTABLE

B* = ACCEPTABLE - CALC. REQUIRED

ENGINEER'S EVALUATION (IF APPLICABLE):

GUIDES H-34, H-39, AND HNGR H-42 ARE ADDED AND BRANCH CONNECTION TO VCC-2B IS RE-ROUTED. SYSTEM IS ACCEPTABLE AND SAFE, BUT NEEDS TO BE RE-ANALYZED TO COMPLY WITH THE AS-BUILT WALK-DOWN ISOMETRIC.

APPROVED BY: RW/ML
DATE: 11-1-79

BY: R MITCHELL DATE: 10-30-79 ISOMETRIC: HCR-3

SUBJECT: ANO-UNIT 1 IE 79-14 REVIEW

CALCULATION STATUS

B *

S-11E

WITH-IN
TOLERANCE

OUT OF
TOLERANCE

COMMENTS

PIPING GEOMETRY

✓

PIPE SIZE

✓

PIPE SCHEDULE

✓

PIPE MATERIAL

✓

PIPE CONTENTS

✓

PIPE INSULATION

✓

3" PIPE WT 20% HIGH W CALC.

VALVE LOCATION

✓

VLV ADDED TO 3" PIPE

VALVE WEIGHT

✓

VALVE ORIENTATION

✓

OTHER CONCENTRATED WT.

N/A

HANGER TYPES

✓

H3 IS NOT 3WAY REST AS IN ANAL

HANGER LOCATIONS

✓

H3 RELOCATED > 2D

BRANCH CONNECTIONS

✓

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

STRESSES SHOULD NOT EXCEED CODE AS A RESULT OF THESE CHANGES. THE 20% HIGH WT IN 3" P WILL HELP COMPENSATE FOR THE ADDITION OF NEW VLV.

APPROVED BY: [Signature] S. DWL

BY: R. Mitchell DATE: 11-27-79 ISOMETRIC: CCA-5-1

SUBJECT: ANO-UNIT 1 IE 79-14 REVIEW	CALCULATION STATUS	B *
	2008	

		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS
PIPING GEOMETRY			✓	Several dimensions change $d > 2D$
PIPE SIZE		✓		
PIPE SCHEDULE		✓		
PIPE MATERIAL			✓	E Hot used instead of 283
PIPE CONTENTS				
PIPE INSULATION				
VALVE LOCATION			✓	MU-453 added to piping
VALVE WEIGHT			✓	" " " " "
VALVE ORIENTATION		N/A		
OTHER CONCENTRATED WT.		N/A		
HANGER TYPES			✓	MU-116 is guide was rigid hanger
HANGER LOCATIONS			✓	Numerous hangers have been relocated $d > 2D$
BRANCH CONNECTIONS		N/A		

A* = ACCEPTABLE - NO CALC. REQ'D

C* = NOT ACCEPTABLE - REPORTABLE

B* = ACCEPTABLE - CALC. REQUIRED

ENGINEER'S EVALUATION (IF APPLICABLE):

Most changes are small except for addition of valve which is probably OK based upon reanalysis of CCA-5-2 with new valve.

APPROVED BY: Samir S. Nhill
DATE: 11-27-79

BY: R MITCHELL DATE: 10-24-79 ISOMETRIC: CCA-5-2

SUBJECT: ANO-UNIT 1 IE 79-14 REVIEW				CALCULATION STATUS B *			
		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS			
PIPING	GEOMETRY	✓					
PIPE	SIZE	✓					
PIPE	SCHEDULE	✓					
PIPE	MATERIAL	✓					
PIPE	CONTENTS	✓					
PIPE	INSULATION	✓					
VALVE	LOCATION		✓	} New Value added			
VALVE	WEIGHT		✓				
VALVE	ORIENTATION	✓					
UTIGR	CONCENTRATED WT.	✓					
HANGER	TYPES	✓					
HANGER	LOCATIONS	✓					
BRANCH	CONNECTIONS	✓					

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

System could be OK with new valve due to relatively low primary stresses.

[Analysis was performed, showed system OK As Built.]

R Mitchell
11-15-79

APPROVED BY: [Signature]

BY: R MITCHELL DATE: 11-27-79 ISOMETRIC: CCA-E SLT 3

SUBJECT: <u>ANO-UNIT 1 IE 79-14 REVIEW</u>				CALCULATION STATUS <u>B*</u>			
		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS			
PIPING GEOMETRY			✓				
PIPE SIZE		✓					
PIPE SCHEDULE		✓					
PIPE MATERIAL		✓		Wrong E used.			
PIPE CONTENTS							
PIPE INSULATION							
VALVE LOCATION			✓	MU 45 D	Not in old analysis		
VALVE WEIGHT			✓	"	"	"	"
VALVE ORIENTATION		N/A					
OTHER CONCENTRATED WT.		✓					
HANGER TYPES			✓	MU-194 (GUIDE)	was analyzed as Rigid H		
HANGER LOCATIONS			✓	MU-201, 195	Relocated > 2D		
BRANCH CONNECTIONS		N/A					

A* = ACCEPTABLE - NO CALC. REQ'D

C* = NOT ACCEPTABLE - REPORTABLE

B* = ACCEPTABLE - CALC. REQUIRED

ENGINEER'S EVALUATION (IF APPLICABLE):

Most changes are relatively insignificant except for addition of valves. Additional valve is probably OK based upon reanalysis of CCA-E-2 with new valve (similar routing).

APPROVED BY: Sanjit D. 1/6

BY: R. Mitchell DATE: 11-27-79 ISOMETRIC: CCA-5-4

SUBJECT: AND-UNIT 1 IE 79-14 REVIEW			CALCULATION STATUS		B
		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS	
PIPING	GEOMETRY		✓	12" Jcg	near MU-213 not in calc.
PIPE	SIZE	✓			
PIPE	SCHEDULE	✓			
PIPE	MATERIAL	✓		Wrong	E used.
PIPE	CONTENTS				
PIPE	INSULATION				
VALVE	LOCATION		✓	MU-45 C	Not modeled.
VALVE	WEIGHT		✓	" " "	" "
VALVE	ORIENTATION	N/A			
OTHER	CONCENTRATED WT.	N/A			
HANGER	TYPES	✓			
HANGER	LOCATIONS		✓	Numerous Hrgs Relocated	
BRANCH	CONNECTIONS	N/A			

A¹² = ACCEPTABLE - NO CALC. REQ'D

C¹² = NOT ACCEPTABLE - REPORTABLE

B¹² = ACCEPTABLE - CALC. REQUIRED

ENGINEER'S EVALUATION (IF APPLICABLE):

Most changes are small except for addition of value. Additional value is probably OK based on analysis of CCA-5-2 with value.

APPROVED BY: C. H. B. M-11

BY: C. C. DILLON DATE: 10-31-79 ISOMETRIC: 2W-217.201.336-H

SUBJECT: AND-UNIT 1 IE 79-14 REVIEW

CALCULATION STATUS B *

T=1406, W=1409, S=1413111

		WITH-IN TOLERANCE	OUT OF TOLERANCE	COMMENTS
PIPING GEOMETRY			✓	
PIPE SIZE		✓		
PIPE SCHEDULE		✓		
PIPE MATERIAL		✓		
PIPE CONTENTS				DATA NOT AVAILABLE IN THE CALC.
PIPE INSULATION				N/A
VALVE LOCATION			✓	VALVES RBD-11C & P81A ARE ADDED.
VALVE WEIGHT				WTS. USED NOT AVAILABLE IN CALC.
VALVE ORIENTATION		✓		
OTHER CONCENTRATED WT.				N/A
HANGER TYPES		✓		
HANGER LOCATIONS			✓	
BRANCH CONNECTIONS			✓	SK-5 IS RE-LOCATED BEFORE BRANCH

A* = ACCEPTABLE - NO CALC. REQ'D

B* = ACCEPTABLE - CALC. REQUIRED

C* = NOT ACCEPTABLE - REPORTABLE

ENGINEER'S EVALUATION (IF APPLICABLE):

PIPING GEOMETRY CHANGE OUT-OF TOLERANCE,
ANCHOR NO. SK-5 RE-LOCATED, AT THE LOCATION OF SK-2
PIPING GEOMETRY CHANGED, VALVES RBD-11C & P81A
ARE ADDED, HNGR SPANS ARE O.K. SYSTEM IS ACCEPTABLE
BUT NEEDS TO BE RE-CALCULATED PER AS-BUILT WALK-DOWN
ISOMETRIC

APPROVED BY:

Ruth B