

# CASE

(CITIZENS ASSN. FOR SOUND ENERGY)

October 1, 1983

1426 S. Polk  
Dallas, Texas

214/946-9446

75224  
DOCKETED  
USNRC

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Administrative Judge Peter B. Bloch  
U. S. Nuclear Regulatory Commission  
4350 East/West Highway, 4th Floor  
Bethesda, Maryland 20014

Dr. Walter H. Jordan  
881 W. Outer Drive  
Oak Ridge, Tennessee 37830

Dr. Kenneth A. McColton, Dean  
Division of Engineering, Architecture  
and Technology  
Oklahoma State University  
Stillwater, Oklahoma 74074

Gentlemen:

SUBJECT: In the Matter of  
Application of Texas Utilities  
Generating Company, et al. for  
An Operating License for  
Comanche Peak Steam Electric Station  
Units #1 and #2 (CPSES)  
Docket Nos. 50-445 and 50-446

Transcript references for documents

In response to Judge Bloch's telephone request, we are attaching a revised listing of some of CASE's Exhibits showing to the left of the exhibit number the corresponding transcript page number where the document was either accepted into evidence or following which the document was bound into the record.

We believe that this will take care of most of our documents which were referenced in our Proposed Findings regarding the Walsh/Doyle allegations. We will be reviewing those findings again and will provide additional information in this regard as soon as possible. In the meantime, should there be any specific documents referenced which we have not addressed, please call us and we will research them and advise you. (On the listing provided, we had simply checked the exhibits which had been accepted into evidence prior to the May 1983 hearings. Please advise if you need further specifics regarding any of them.)

Respectfully submitted,

CASE (Citizens Association for Sound Energy)

*Juanita Ellis*  
(Mrs.) Juanita Ellis  
President

cc: Service List

Attachment to parties and Docketing & Service only

B310120414 B31001  
PDR ADOCK 05000445  
G PDR

D503

## CASE SUMMARY OF EXHIBITS

The following CASE Exhibits were admitted into evidence in accordance with the Board's Order (Proposed Findings of Fact; CASE Exhibits) of December 7, 1982. They were admitted into evidence in the May 1983 hearings.

Copies were not bound into the record, and they are shown on the attached list with a check mark. (The checked Exhibits 4 through 189 were admitted into evidence during the week of June 7-11, 1982. The other checked Exhibits were admitted during hearings after that date. In most cases, the checked Exhibits were not bound into the record by the previous Board Chairman, and we have not attempted to identify the transcript page for each of them. However, should the Board require it, we will do so.)

### Admitted CASE Exhibits

190A-197E. 204-208, 211, 215, 218, 220, 222-23, 225, 227,  
230, 234, 236, 247-48, 253, 267, 278-79, 284, 286-88, 290,  
292, 293, 295-96. 301. 305-07, 310-12, 314, 316, 318-19,  
321-22, 325, 328-29, 331, 333-37, 339, 343-46, 348, 350-53,  
357, 361-65, 378, 382, 385, 387, 392-93, 396-99, 402-03, 406,  
449-59, 478-80, 482-84, 489-90, 492-93, 497-98, 500, 502-07,  
510, 512, 514-15, 518, 520-21, 523-25, 528-30, 533-42, 545-46,  
550, 557, 560-61, 563, 565, 569. 590-92, 595-96, 598, 602-16.  
617, 619-21, 623-28. 629-45, 646-49.

The following is a summary of CASE's Exhibits.

KEY: ✓ = accepted into evidence or bound into the transcript

X = withdrawn or not accepted

Blank = not submitted into evidence

## CASE EXHIBITS:

CASE SUMMARY OF EXHIBITS

KEY: ✓ = accepted into evidence      X = WITHDRAWN (or not accepted)

- X #1 }  
 X 2 } Identified in 12/81 Hearings but not introduced into evidence  
 X 3 }
- ✓ 4 2/4/75 Tugco letter TXX-667 to NRC; overexcavation.
  - ✓ 5 11/75 Interoffice memo to Mason from Crowder MJF-MJ-1M-111 overexcavation.
  - ✓ 6 12/12/75 Tugco letter TXX-1264 to NRC; reactor bldg. excavation.
  - ✓ 7 Diagram; alternate joints, basemat.
  - ✓ 8 4/26/77 NCR C650; vertical cracks in basemat.
  - ✓ 9 4/26/77 NCR C650 R1.
  - ✓ 10 6/19/78 NCR C650 R1.
  - ✓ 11 4/26/77 NCR C650 R2.
  - ✓ 12 4/26/77 NCR C650 R3.
  - ✓ 13 3/21/77 Concrete Pour Card 101-2812-001.
  - ✓ 14 2/5/75 Monthly QA/QC Report for CPSES-overexcavation, training personnel.
  - ✓ 15 3/6/75 I & E 75-05-overexcavation.
  - ✓ 16 1/8-9/75 I & E 75-01-QA program manual, overexcavation.
  - ✓ 17 copies of photographs, various locations around CPSES site. A-II
  - ✓ 18 copies of photographs, fuel building foundation area. A-0
  - ✓ 19 2/25/76 DC/DD request #79 absence of specified mud mat.
  - ✓ 20 3/28/75 TUSI Field Interpretation/Clarification Request #33-Pressure Grout. fractured rock in safeguards building #1.
  - ✓ 21 2/19/76 Memo from Mason/Johnston to TUSI-overexcavation (MJA-3700).
  - ✓ 22 5/10/76 B & R memo to Gatchell-TUSI re grout pipes/overexcavation (BRF-2719).
  - ✓ 23 5/13/76 M/J letter to Gatchell-TUSI refractures in Safeguard Building #1 (MJF-0005).
  - ✓ 24 5/17/76 " " " " " re grout pipes above referenced letter (MJF-00057).
  - ✓ 25 5/21/76 B&R letter to Gatchell-TUSI re above referenced letter (BRF-2791).
  - ✓ 26 6/13/76 " " " " " re grout pipes Safeguard Unit 1 (BRF-3331).
  - ✓ 27 5/16/77 " " " " " re grout pipes in Fuel Building seal slabs (BRF-5650).
  - ✓ 28 5/12/77 Gibbs/Hill memo to gatchell-TUSI re grouting in Safeguards Unit 1 (GHF-1612).
  - ✓ 29 6/77 M/J letter to Gatchell-TUSI re grouting in Safeguards Unit 1 (MJF-00233).
  - ✓ 30 8/2/77 M/J letter to Merritt-TUGCO re monitor of grout pipes (MJF-00239).
  - ✓ 31 2/23/78 " " " " " re grout pipes completed (MJF-00249)
  - ✓ 32 5/5/80 TUSI interoffice memo to John Marshall re pipes not grouted back (CPP 00259).
  - ✓ 33 5/28/80 " " " " " above grouting completed (CPPA 5196).
  - ✓ 34 5/26/75 M/J letter to TUSI re overexcavation (MJT-159).
  - ✓ 35 5/6/76 " " " " (MJF-00050).
  - ✓ 36 DDR Coo216 re: blasting procedures; overexcavation.
  - ✓ 37 Copy of TWX-607 3/15/77 Hersperger/Sweeney from Moorhead.
  - ✓ 38 Brown & Root Nonconformance Log, page 1 through NCR No. 3504.
  - X 39 Struck From Record. (See CASE Exhibit 45B)
  - ✓ 40 6/5/74 TUSI Interoffice Memo QTN-11 to Caudell (15 pages).
  - ✓ 41A TUSI Memo to Caudle 11/27/74.
  - ✓ 41B " " " " 12/23/74.
  - ✓ 41C " " " " "
  - ✓ 41D " " " " 1/31/75.
  - ✓ 41E " " " " 6/6/75.

CASE EXHIBIT NO.

- TUSI Internal Audit No.:
- ✓ 42 TIN-4: 12/31/75 Office Memorandum QTN-71, Caudle from Schmidt
- ✓ 42A 1/23/76 Office Memorandum TUS-646, Schmidt from Caudle
- ✓ 42B 2/27/76 Office Memorandum TUS-698, Schmidt from Caudle
- ✓ 42C 3/15/76 Office Memorandum QTN-79, Caudle from Schmidt
- ✓ 43 TIN-5: 7/7/76 Office Memorandum QTN-100, Caudle from Schmidt
- ✓ 43A 8/6/76 Office Memorandum TUS-953, Schmidt from Caudle
- ✓ 43B 9/17/76 Office Memorandum QTN-111, Schmidt from Chapman
- ✓ 44 TIN-6: 11/22/76 Office Memorandum QTN-126, Schmidt from Chapman
- ✓ 44A 2/23/77 Office Memorandum TUS-1210, Chapman from Schmidt
- ✓ 44B 3/30/77 Office Memorandum TUS-1292, Chapman from Schmidt
- ✓ 44C 5/23/77 Office Memorandum QTN-152, Schmidt from Chapman
- ✓ 45A TI-1: 9/22/73 Office Memorandum (Log #TUN-131, File #0100), Caudle from Schmidt
- ✓ 45B 10/5/73 Office Memorandum TUS-8, Schmidt/Brittain/Forbis from Caudle
- ✓ 45C 10/12/73 Office Memorandum (Log #TUN-149, file #00100), Forbis from Brittain
- ✓ 45D 11/20/73 Office Memorandum TUS-55, Schmidt from Caudle
- ✓ 45E 4/1/74 Office Memorandum QTN-5, Caudle from Schmidt
- ✓ 46 1980 TUGCO NCR Summary, 1/29/81 Office Memorandum Ainsworth from Bielfeldt
- ✓ 47 1st Quarter 1981 Corrective Action Report, 6/19/81 Office Memorandum, Tolson from  
Scott
- 47A 7/30/81 Speed Message, Scott, Brown & Root, from Williams, Brown & Root
- 47B Handwritten note, B. C. Scott
- 47C 7/28/81 Speed letter, Scott from Popplewell
- 47D 7/1/81 Speed Message, Brown & Root, Corrective Action File, 1st Quarter  
1981 from Scott
- ✓ 48 2nd Quarter 1981 Corrective Action Report, 8/12/81 Office Memorandum TUQ-936,  
Tolson from Scott
- ✓ 48A 7/21/81 Interoffice Memo IM-21195, Scott from Ali/Hartshorn
- ✓ 48B 8/19/81 Speed Message to Britt
- ✓ 48C 8/18/81 Speed Letter to Scott from Britt/Popplewell
- ✓ 48D 8/25/81 Speed Letter from Scott to Britt/Popplewell, reply to preceding
- ✓ 49 3rd Quarter 1981 Corrective Action Report, 11/18/81 Office Memorandum TUQ-1022,  
Tolson from Scott
- ✓ 49A 12/8/81 Speed Message from Scott to Tolson
- ✓ 49B 12/8/81 Speed Letter from Scott to Britt/Popplewell and reply by Britt  
12/18/81
- ✓ 49C 10/7/81 Speed Message from Dantzler(sp?) to Scott
- ✓ 49D Third Quarter Electrical IR Trends
- ✓ 49E Conduit Inspection Reports, 3rd Quarter, 1981 Trends
- ✓ 49F Hanger Inspection, 3rd Quarter, 1981 Trends



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- 50 3/11/82 TUGCO Memo to Merritt
- 51 QA Nonconformance Report Log (predecessor to TUGCO QA Significant Deficiencies Log)
- 52 QA Significant Deficiencies Log (TUGCO)
- 53 Brown & Root Quality Assurance Audit #1 - 12/9/74 letter B&R to TUSI
- 54 Brown & Root Quality Assurance Audit #CP-3 - 8/27/75 letter B&R to TUSI
- 54A " - 9/30/75 letter B&R to TUSI
- 54B " - 10/6/75 letter B&R to R. W. Hunt Co.
- 55 Brown & Root Quality Assurance Audit #CP-4 - 11/5/81 Interoffice Memo B&R Klimist to Purdy - CPQ-0445 and attachments
  
- 56 Brown & Root Quality Assurance Audit #CP-5 - 11/5/81 Interoffice Memo B&R Klimist to Purdy - CPQ-0446 and attachments
- 57 Brown & Root Quality Assurance Audit #CP-6 - 11/5/81 Interoffice Memo B&R Klimist to Purdy - CPQ-0447 and attachments
- 58 Brown & Root Quality Assurance Audit #CP-7 - 11/5/81 Interoffice Memo B&R Klimist to Purdy - CPQ-0448 and attachments
- 59 Brown & Root Quality Assurance Audit #CP-8 - 11/5/81 Interoffice Memo B&R Klimist to Purdy - CPQ-0449 and attachments
- 60 Brown & Root Quality Assurance Audit #CP-9 - 11/5/81 Interoffice Memo B&R Klimist to Purdy - CPQ-0450 and attachments
  
- 61 Brown & Root Quality Assurance Audit #CP-10 - 11/5/81 Interoffice Memo B&R Klimist to Purdy - CPQ-0451 and attachments
- 62 Brown & Root Quality Assurance Audit #CP-11 - 11/5/81 Interoffice Memo B&R Klimist to Purdy - CPQ-0452 and attachments
- 63 Brown & Root Quality Assurance Audit #CP-12 - 11/5/81 Interoffice Memo B&R Klimist to Purdy - CPQ-0453 and attachments
- 64 Brown & Root Quality Assurance Audit #CP-13 - April 25-27, 1978 Audit and attachments
- 65 ✓ Brown & Root Quality Assurance Audit #CP-14 - 12/8/78 Interoffice Memo B&R Bulcken to Douglas - TSQ-1390 and attachments
  
- 66 Brown & Root Quality Assurance Audit #CP-15 - 6/4/79 Interoffice Memo B&R Douglas/Clarke to Pass - IM-17290 and attachments
- 67 Brown & Root Quality Assurance Audit #CP-16 - 11/5/81 Interoffice Memo B&R Klimist to Purdy - CPQ-0441 and attachments
- 68 Brown & Root Quality Assurance Audit #CP-17 - 11/5/81 Interoffice Memo B&R Klimist to Purdy - CPQ-0442 and attachments
- 69 Brown & Root Quality Assurance Audit #CP-18 - Report and attachments
- 70 Brown & Root Quality Assurance Audit #CP-19 - 4/13/82 Interoffice Memo B&R Childers to Purdy - CPQ-0469 and attachments

Brown & Root QA/QC Report (Trending); for Month of:

- 71 June 1975
- 72 August 1975
- 73 September 1975
- 74 June 1976
- 75 July 1976
- 76 August 1976
- 77 November 1976
- 78 March 1977
- 79 April 1977
- 80 May 1977

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Brown & Root QA/QC Report (Trending); for Month of: (continued)

- 81 June 1977
- 82 July 1977
- 83 August 1977
- 84 October 1977
- 85 November 1977
- 86 December 1977
- 87 January 1978
- 88 February 1978
- 89 March 1978
- 90 April 1978
- 91 May 1978
- 92 July 1978
- 93 August 1978
- 94 September 1978
- 95 December 1978
- 96 February 1979
- 97 April 1979
- 98 December 1979
- 99 January 1980
- 100 July 1980
- 101 September 1980
- 102 December 1980
- 103 January 1981
- 104 October 1981
- 105 December 1981

Site Surveillance Reports (TUGCO); Report No.:

- 106 SSR-1
- 107 SSR-002
- 108 SSR-3 (with cover Office Memo, TUGCO Fleck to Klimist 2/7/80)
- 109 SSR-4
- 110 SSR-010
- 111 SSR-11
- 112 SSR-12
- 113 SSR-15
- 114 SSR-16
- 115 SSR-023
- 116 SSR-26
- 117 SSR-039
- 118 SSR-042
- 119 SSR-046
- 120 SSR-047
- 121 SSR-048
- 122 SSR-049
- 123 SSR-050
- 124 SSR-051
- 125 SSR-053

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Site Surveillance Reports (TUGOC); Report No.:

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126 SSR-054  
127 SSR-055  
128 SSR-057  
129 SSR-059  
130 SSR-062  
131 SSR-064  
132 SSR-066  
133 SSR-067  
134 SSR-068  
135 SSR-070  
136 SSR-074  
137 SSR-085  
138 SSR-089  
139 SSR-092  
140 SSR-094  
141 SSR-095  
142 SSR-097  
143 SSR-105  
144 SSR-113  
145 SSR-116  
146 SSR-116-A  
147 SSR-117  
148 SSR-120  
149 SSR-124  
150 SSR-127  
151 SSR-129  
152 SSR-130  
153 SSR-136  
154 ✓ SSR-141  
155 SSR-142  
156 SSR-147  
157 SSR-150  
158 SSR-155  
159 SSR-156  
160 SSR-160  
161 SSR-82-001  
162 SSR-82-002  
163 SSR-82-003  
164 Withdrawn  
165 Withdrawn  
166 Withdrawn  
167 withdrawn  
168 withdrawn  
169 withdrawn  
170 SSR-82-005  
171 SSR-82-005, Addendum 1  
172 SSR-82-006

CASE EXHIBIT NO.

Change-over of QA/QC from Brown & Root to TUGCO:

- ✓ 173 7/30/75 letter QBR-006, TUGCO to Brown & Root
- 174 5/14/76 Conference Memorandum, P. M. Milam, Jr., TUSI
- 175 10/22/76 letter QBR-29, TUGCO to Brown & Root
- 176 10/27/76 letter QBR-31, TUGCO to Brown & Root
- 177 2/7/77 letter QBR-40, TUGCO to Brown & Root
- 178 7/29/77 letter QBR-52, TUGCO to Brown & Root
- 179 1/3/78 letter TBR-414, TUGCO to Brown & Root
- 180 1/7/78 copy of telegram to J. G. Munisteri, Brown & Root, from R. J. Gary
- 181 1/10/78 letter, Brown & Root to TUGCO
- 182 1/10/78 letter FE-BQ-XX-0263, Brown & Root to TUGCO
- 183 1/16/78 letter GE-BQ-XX-0264, Brown & Root to TUGCO
- 184 3/20/78 letter QBR-62, TUGCO to Brown & Root
- 185 3/31/78 letter, Brown & Root to TUGCO
- 186 5/2/78 letter QBR-64, TUGCO to Brown & Root
- 187 9/26/78 letter QBR-65, TUGCO to Brown & Root

- ✗ X 188 Inspection & Enforcement Report 80-20, 9/24/80 and attachments *replaced by Staff 124*
- ✓ 189 Survey Findings (handwritten) - identified by witnesses as Westinghouse Survey Findings regarding ASME audit of Brown and Root at Comanche Peak

(NOTE: Exhibits 4 through 189 were admitted during the week of June 7-11, 1982.)

TUSI Audits of Brown & Root (TBR series):

- 190A TBR-1: TUSI letter 6/27/74 TBR-117
- 190B TUSI letter 8/2/74 TBR-144
- 190C Brown & Root letter 8/13/74 BRT-331
- 190D TUSI letter 8/28/74 TBR-160
- 190E TUSI letter 9/20/74 TBR-181
  
- 191A TBR-2: TUSI letter 3/20/75 TBR-253
- 191B TUSI letter 4/14/75 TBR-269
- 191C Brown & Root letter 5/14/75 BRF-0717
- 191D TUSI letter 10/20/75 TBR-295
- 191E Brown & Root letter 11/17/75 BRQ-0050
- 191F TUSI letter 11/26/75 TBR-303
- ✓ 191G Brown & Root letter 12/5/75 BRF-1802
- 191H Brown & Root letter 1/7/76 BRF-1959
- 191I TUSI letter 1/9/76 TBR-308
  
- 192A TBR-3: TUSI letter 10/20/75 TBR-296
- 192B Brown & Root letter 11/14/75 BRQ-0048
- 192C TUSI letter 1/2/76 TBR-307
- 192D Brown & Root letter 1/26/76 BRF-2053
- 192E TUSI letter 2/17/76 TBR-315
  
- 193A TBR-4: TUSI letter 4/16/76 TBR-326
- 193B Brown & Root letter 5/21/76 BRQ-0130
- 193C TUSI letter 6/17/76 TBR-336

CASE EXHIBIT NO.

✓ 194A TBR-5: TUSI letter 4/6/76 TBR-324  
194B Brown & Root letter 5/14/76 TS-BQ-XX-0245  
194C TUGCO letter 3/17/77 QBR-46  
  
195A TBR-6: TUGCO letter 1/3/77 QBR-36  
195B Brown & Root letter 1/26/77 TS-BQ-XX-0353  
195C TUGCO letter 3/17/77 QBR-46  
  
196A TBR-7: TUGCO letter 4/29/77 QBR-48  
196B Brown & Root letter 6/2/77 BRQ-0564  
196C TUGCO letter 6/16/77 QBR-54  
196D Brown & Root letter 9/9/77 BRQ-0665  
196E TUGCO letter 10/24/77 QBR-58  
  
197A TBR-8: TUGCO letter 7/29/77 QBR-53  
197B TUGCO letter 7/29/77 QBR-52  
197C Brown & Root letter 8/19/77 TS-BQ-XX-0492  
197D TUGCO letter 11/22/77 QBR-61  
197E TUGCO handwritten Memo to File from Vega 1/20/78

Staff Trend Analysis for:

- X 198 - 1976 *STAFF 182, 183, 184*
- X 199 - 1977 *STAFF 185, 186, 187*
- X 200 - 1978 *STAFF 188-191*
- X 201 - 1979 *STAFF 192-195*
  
- X 202 - Explanation of relative seriousness of items of noncompliance included in a notice of violation.
  
- X 203 - Summary of I&E Reports.

I&E Reports:

- ✓ 204 - 73-02
- ✓ 205 - 74-01
- ✓ 206 - 74-02
- ✓ 207 - 74-03
- ✓ 208 - 74-04
- X 209 - 75-06 *Staff 11*
- X 210 - 75-10 *Staff 20*
- ✓ 211 - 75-11
- X 212 - 75-12 *Staff 23*
- X 213 - 75-13 *Staff 24*
- X 214 - 76-01 *Staff 28*
- ✓ 215 - 76-04
- X 216 - 76-07 *Staff 31*



CASE EXHIBIT NO.

I&E Report:

X	217	76-08	See Staff Exhibit 150	
✓	218	76-09		
X	219	77-02	See Staff Exhibit 59	
✓	220	77-04		
X	221	77-06	See Staff Exhibit 62	
✓	222	77-08		
✓	223	77-09		
X	224	77-10	See Staff Exhibit 75	
✓	225	77-11		
X	226	77-13	See Staff Exhibit 128	
✓	227	78-04		
X	228	78-05	See Staff Exhibit 81	
X	229	78-07	See Staff Exhibit 35	
✓	230	78-10		
X	231	78-11	See Staff Exhibit 129	
X	232	78-12	See Staff Exhibit 86	
X	233	78-13	See Staff Exhibit 41	
✓	234	78-16 (10/12/78)		
X	235	78-16 (11/17/78)	See Staff Exhibit 44	
✓	236	78-17		
X	237	78-18	See Staff Exhibit 93	
X	238	78-20	See Staff Exhibit 38	
X	239	79-01	See Staff Exhibit 92	(For 79-03 see Staff Ex. 49 & Apps. Ex. 44g)
X	240	79-04	See Staff Exhibit 132	
X	241	79-06	See Staff Exhibit 52	
X	242	79-09	See Staff Exhibit 63	
X	243	79-11 (5/12/79 3-page letter from TUGCO to NRC)	See Staff Exhibit 65 *	
X	244	79-11 (7/5/79 1-page letter from NRC to TUGCO)	See Staff Exhibit 67 *	
X	245	79-13	See Staff Exhibit 74	
X	246	79-15	See Staff Exhibit 120	
✓	247	79-16		
✓	248	79-18(?) (9/7/79 2-page letter from NRC to TUGCO)		
X	249	79-18 (9/24/79 letter NRC to TUGCO)	See Staff Exhibit 69	
X	250	79-18 (11/9/79 letter NRC to TUGCO)	See Staff Exhibit 70	
X	251	79-19	See Staff Exhibit 139	
X	252	79-22/79-21	See Staff Exhibit 121	

(79-24/79-23, 11/27/79 - see Staff Ex. 71 and Apps. Ex. 44d)

(\* For 79-11 (5/14/79), see Staff Ex. 64 & Apps. Ex. 44c)

CASE EXHIBIT NO.

I&E Reports:

- ✓ 253 79-26/79-25
- X 254 79-27/79-26 (11/15/79) Replaced by Staff Exhibit 156
- X 255 79-27/79-26 (11/21/79) Replaced by Staff Exhibit 157
- X 256 79-27/79-26 (1/8/80) Replaced by Staff Exhibit 158
- X 257 79-28/79-27 Replaced by Staff Exhibit 140
- X 258 79-31/79-29 Replaced by Staff Exhibit 104
  
- X 259 80-01 (1/23/80) Replaced by Staff Exhibit 102
- X 260 80-01 (2/15/80) Replaced by Staff Exhibit 103
- X 261 80-02 Replaced by Staff Exhibit 122
- X 262 80-03 Replaced by Staff Exhibit 163
- X 263 80-03 (3/20/80) Replaced by Staff Exhibit 164
- X 264 80-04 Replaced by Staff Exhibit 196
- X 265 80-08 Replaced by Staff Exhibit 53
- (80-08) Applicants' Exhibit 44e (4/18/80) Staff Exhibit 54
- (80-11) Applicants' Exhibit 44f (6/17/80) Staff Exhibit 58
  
- X 266 80-09 WITHDRAWN
- ✓ 267 80-12
- X 268 80-13 Replaced by Staff Exhibit 107
- X 269 80-15 (Applicants' August 18, 1980 to Seidle, NRC). Replaced by Staff Ex. 170
- X 270 80-15 7/23/80. Replaced by Staff Exhibit 169
- X 271 80-15 6/23/80. Replaced by Staff Exhibit 168
- X 272 80-17 Replaced by Staff Exhibit 118
- (80-20) Applicants' Exhibit 44a (10/21/80). Staff Exhibit 125
- (80-20) already submitted as CASE Exhibit 188, (9/24/80). Replaced by Staff
- X 273 80-18 Replaced by Staff Exhibit 112 Ex. 124
  
- X 274 80-23 (10/16/80) Replaced by Staff Exhibit 113
- X 275 80-23 (11/19/80) Replaced by Staff Exhibit 114
- X 276 80-25 Replaced by Staff Exhibit 181
- X 277 80-27 Replaced by Staff Exhibit 172

## CASE EXHIBIT NO.

## I&amp;E Report No.

- ✓ 278 80-28  
 ✓ 279 81-01  
 X 280 81-02 (2/25/81) Replaced by Staff Exhibit 173  
 X 281 81-02 (3/20/81) Replaced by Staff Exhibit 174  
 X 282 81-04 Replaced by Staff Exhibit 149  
 X 283 81-05 Replaced by Staff Exhibit 177  
 ✓ 284 81-06  
 X 285 81-07 WITHDRAWN  
 ✓ 286 81-09  
 ✓ 287 81-10  
 ✓ 288 81-11  
 X 289 81-12 Replaced by Staff Exhibit 178  
 ✓ 290 81-13  
 X 291 81-14 Replaced by Staff Exhibit 117 (For 81-15, 11/6/81, see Staff Ex. 146  
 & Apps. Ex. 44b)  
 ✓ 292 81-16  
 ✓ 293 81-18  
 X 294 81-20 Replaced by Staff Exhibit 15  
 ✓ 295 82-01  
 ✓ 296 82-02 (3/26/82, Unit 1)  
 X 297 82-03/82-02 Replaced by Staff Exhibit 118C  
  
 X 298 7/7/82 NRC Summary of Caseload Forecast Panel Meeting and Facility Tour  
 -- NOT ACCEPTED BY BOARD  
  
 X 299 NRC General Statement of Policy and Procedure for Enforcement Actions -  
 Effective 3/3/82 - FEDERAL REGISTER - 10 CFR Part 2 -- REPLACED BY STAFF EX. 13B  
 ✓ 300 Guidance (NRC) - 10 CFR 50.55(e), Construction Deficiency Reporting, 4/1/80  
 ✓ 301 Chapter 0800 - 0850 (NRC) Notice of Violation - Guidance (cont.), Oct. 1975  
 X 302 August 25, 1976 letter to W. C. Seidle from R. E. Hall, Chief, Engineering  
 Support Section, re: IE Inspection Report Nos. 50-445 & 446/76-08, Comanche  
 Peak Units 1 & 2 - interpretation of MC0850 -- WITHDRAWN  
 ✓ 303 (NRC) Design Change Control - Procedure No. 37996B, 8/15/77  
 X 304 (NRC) Outstanding Items List -- WITHDRAWN  
  
 ✓ 305 DR 49R1 TWR not initiated for installation of polar crane girders.  
 ✓ 306 DDR C-548 Of 2 shipments of Polar Crane Supports, 5 were rejectable Cadwelds.  
 ✓ 307 DDR M-549 " " " " " " " " surface of weld not in accordance with G&H.  
 X 308 DDR M-549 Rev. 1 & 2 Welds have course ripples or grooves, overlaps and ridges, slag.  
 X 309 DDR C-552 2 shipments; 4 reject Cadwelds; slag in the tapholes of the sleeves.  
 ✓ 310 DDR 112R1 PW-12&15 on spool 5Q3 of dwg.  
 ✓ 311 DR 214 No record that item was given a functional check before activated.  
 ✓ 312 DR 298 Ironworkers cutting stainless steel pipe which was not covered for contamination.  
 X 313 DDR C-423 Discontinuities and pinholes existing in containment liner finish coat.  
 ✓ 314 DDR C-424, R2 No slump was determined on the second 50 yard increment of the pour.  
 X 315 C-427 Aggregate gradation testing for stone in bin has 2 set failures.  
 ✓ 316 C-437 Method of reblending aggregates is not within the scope.  
 X 317 DDR C-438 28 day strength test results for shotcrete pour fall below minimum.  
 ✓ 318 DDR C-440 Waterwell #1 which is used for concrete curing water, failed to meet req.  
 ✓ 319 C-443 R1 Dry-pack was used rather than grout as specified in cited document.  
 X 320 C-444 Shotcrete pour in pipe tunnel not cored and tested for compressive strength.  
 ✓ 321 C-445 Equipment on attached list was found to be "out-of-calibration".

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- ✓ 322 DDR C-446 gravel used for concrete production prior to completion of gradation tests.
- X 323 DDR C-447, RI average of 6 shotcrete strength tests is less than 3,000 PSI as required.
- X 324 DDR M-448 weld insert received with papers not showing grade & not mentioned in ref.
- ✓ 325 DDR C-449 compressive strength tests representing concrete placements do not comply.
- X 326 DDR C-450 stone in mix violating cited document.
- X 327 DDR C-453 gradation testing for gravel has set failure; may not be used in concrete mix.
- ✓ 328 DDR C-457 compressive strength tests represent concrete placements that do not comply.
- ✓ 329 DDR: M-459 gate valve was received with a damaged weld prep area.
- X 330 C-460 air immediately adjacent to concrete fell 40° F in 24 hours violating documents.
- ✓ 331 M-463 gate valve received with the handle stem of the gear operator broken.
- X 332 C-429, RI average of 6 shotcrete strength tests is less than required by cited document.
- ✓ 333 M-464 swing check valve received with incorrect heat number stamped on leaf. 20 nuts.
- ✓ 334 M-465 (16) valves received; (8) without coating on the nuts.
- ✓ 335 M-467 (6) swing check valves received without coating on the nuts.
- ✓ 336 C-468 defective concrete was discovered upon post pour inspection; rebar was exposed.
- ✓ 337 M-469 (3) swing check valves received without the radiographs.
- X 338 M-471, RI welding electrodes stored in "out of calibration" stationary ovens.
- ✓ 339 M-472 (3) gate valves received without coating on the nuts.
- X 340 C-473 R-1 (3/4 load) was applied to concrete compressive strength test in violation.
- X 341 M-474 (204 lbs.) covered welding electrode was received without conformance certificate.
- X 342 M-475 weld rod oven not functioning properly.
- ✓ 343 M-476 gate valve received with a broken oiling assembly.
- ✓ 344 M-477 (2) swing check valves received without coating on the nuts.
- ✓ 345 M-480 accuracy of thermometer was found defective.
- ✓ 346 M-483 gear operated gate valve received without heat number stamped on stem of valve.
- X 347 M-484 gear operated gate valve received without heat number stamped on stem of valve.
- ✓ 348 M-485-RI swing check valve received with incorrect documentation for heat number of nut.
- X 349 M-486 swing check valve received without coating on nuts.
- ✓ 350 G-487 pressure gauges cannot be recalibrated due to calibration stop work order.
- ✓ 351 C-488, RI concrete placement with violated air content allowed to be deposited in subj.
- ✓ 352 M-490 gate valve received with incorrect heat number.
- ✓ 353 C-499 field cured cylinders compressive strengths that do not comply with requirements.
- X 354 M-500 swing check valve received with a damaged weld prep.
- X 355 M-501 temperature check made of stationary rod ovens; cancelled.
- X 356 M-502 motor operated gate valve arrived w/bent manual shift handle; dent in weld prep.
- ✓ 357 E-503 maintenance was performed with a megger that was out of calibration certification.
- X 358 C-507 gravel was not tested for gradation prior to its use.
- X 359 M-510 (2) motor operated gate valves were received without the heat number.
- X 360 C-513 low test result was a result of a bar failure.
- ✓ 361 C-515 temperature violation in air immediately adjacent to concrete.
- ✓ 362 M-517, RI audit revealed that Teledyne McKay QA Manual had been extensively revised.
- ✓ 363 C-518 temperature violation in air immediately adjacent to concrete.
- ✓ 364 C-520 large number of interior wall dowels are out of tolerance.
- ✓ 365 C-529 field cured cylinder compressive strengths that do not comply.
- X 366 C-530 field cured cylinders were found to be completely uncovered, dry, and exposed.
- X 367 C-532 (9) Cadwelds were made in violation.
- X 368 C-542 wall has developed a hairline fracture of the top NW corner that continues down.
- X 369 C-533 curing room with cylinders stored had a temperature violation.
- X 370 M-538 (3) units sent to off-site facility for recalibration; extensive work required.
- X 371 M-539 meter was found to have 4% error factor.
- X 372 C-545 slab was exposed to considerable pedestrian traffic, carpenter crew, etc.
- X 373 C-546 Zeiss and Dietzgen Theodolite found to be out of calibration.
- X 374 C-547 exterior side of wall rebar has been exposed due to method of excavation.
- X 375 C-554 surface defects on all concrete placements are not being repaired immediately after form removal. There are concrete placements that have been made in excess of 8 months with surface defects which have not been repaired.



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NCR:

- X 376 M709 electrical lines and hydraulic hoses were scorched as a result of falling slag.
- X 377 C-835 top corner of columns have been cracked during the process of installing bracing.
- ✓ 378 M-1082R1 conflict in dwgs; bolt location won't allow proper position of tank nozzles.
- X 379 M-1138 cleanliness QC Hold Point on leak chase channel prior to weld out for FW's.
- X 380 E-1212R1 LB fitting and insulation enclosing conductor inside of LB were damaged.
- X 381 E-1212 " " " " " " " " " " " "
- ✓ 382 M-1225 spools have concrete, water, and dirt accumulation.
- X 383 M-1270 valve dwg. was reworked and installed; the removed damage was not recorded.
- X 384 M-1327 outlet nozzle has indications in the base material.
- ✓ 385 M-2662 material welded as shims does not fall under listed requirements.
- X 386 M-2706 valve face has been damaged due to excessive grinding while cutting out.
- ✓ 387 M-2851 rust noted in cross over loop on spool.
- X 388 M-2924 major weld repair completed to remove recorded defect; designation is incorrect.
- X 389 M-2980R1 spool has minimum wall violation.
- X 390 M-3015 damaged nozzle on Steam Generator.
- X 391 M-3015 R1 damaged nozzle on Steam Generator.
- ✓ 392 M-3039 R1 reactor vessel head and control rod drive mechanism were contaminated.
- ✓ 393 M-3045 established ANI hold point for final PT on weld 33A has been by-passed.
- X 394 M-3077 R1 arc strike has left 3 pin-holes penetrating solenoid casing.
- X 395 M-3077 " " " " " " " " " " " "
- ✓ 396 M-3181 R2 (4) areas of nonsurface rust on the interior cladding of the Reactor Vessel.
- ✓ 397 M-3192(S\*) Visual Examination Procedure(\*) if Start-up for testing, obtain SWA prior to.
- ✓ 398 M-3261S rewelding commenced without issuance of Modification Package.
- ✓ 399 M-3263S " " " " " " " " " " " "
- X 400 M-3333S Arc strike on expansion joint.
- X 401 M-3443S RTD-Scoop will not meet minimum engagement requirements.

TUGCO NCR:

- ✓ 402 M-82-00171S During startup testing, (3) welds failed on gravity dampers.
- ✓ 403 C-82-00475 Dwg. calls for Class "A or C"; blocks were poured with Class "F".

MINIMUM WALL VIOLATIONS:

- X 404 M-859
- X 405 M-859 R1
- ✓ 406 M-859 R2
- X 407 M862
- X 408 M862 R1
- X 409 M862 R2
- X 410 M868
- X 411 M868 R1
- X 412 M-868 R2
- X 413 M-890
- X 414 M-890 R1
- X 415 M-908
- X 416 M-908 R1
- X 417 M-910
- X 418 M-910 R1
- X 419 M-916
- X 420 M-916 R1
- X 421 M-924
- X 422 M-924 R1
- X 423 M-926
- X 424 M-926 R1
- X 425 M-947



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MINIMUM WALL VIOLATIONS (continued):

- X {
- 426 M-947 R1
  - 427 M-951
  - 428 M-951 R1
  - 429 M-953
  - 430 M-953 R1
  - 4 M969
  - 432 M1249
  - 433 M-1249 R1
  - 434 M-1398
  - 435 M-1398 R1
  - 436 M-1649
  - 437 M-2588
  - 438 M-2588 R1
  - 439 M-2889S
  - 440 M-2923
  - 441 M-2995
  - 442 M-3055
  - 443 M-3026 R1
  - 444 M-3047
  - 445 M-3047 R1
  - 446 M-3079
  - 447 M-3086
  - 448 M-3119

MINIMUM WALL VIOLATIONS (DCA 1560, etc.):

- ✓ 449 DCA (Design Change Authorization) 1560, 4/24/78
- ✓ 450 DCA 1560-Rev. 1, 6/1/78
- ✓ 451 DCA 1560-Rev. 2, 6/20/78
- ✓ 452 DCA 1593-Rev. 1, 7/26/78
- ✓ 453 DCA 1560-Rev. 3, 7/26/78
- ✓ 454 DCA 1521 Rev. 1, 12/20/78
- ✓ 455 DCA 1559, Rev. 2, 5/16/79
- ✓ 456 DCA 1560, Rev. 4, 5/16/79
- ✓ 457 DCA 2109, REv. 2, 5/16/79
- ✓ 458 DCA 5551, Rev. 2, 10/19/79
- ✓ 459 DCA 9457, 1/13/81

- X {
- 460 NCR I-2860 ball gauge violations.
  - 461 DDR C-458 Cadweld was fired directly below the Unit 1 personnel air lock; violation.
  - 462 NCR E-1208 Personnel air lock.
  - 463 DDR C-155 Discrepancies on Welder Performance Qualification Test Reports.
  - 464 DDR C-222 Approximately 20% of weld was made by QC; violation is he can't inspect.
  - 465 NCR M1109 Weld bead nonconformance.
  - 466 DR 124 list of discrepancies concerning entries made on Weld Data Cards.
  - 467 M927 reworking of seam welds revealed slag entrapment and lack of fusion.
  - 468 M-1109 R1 bead width exceeds maximum allowable on weld.
  - 469 M-1322 Arc strike in weld.
  - 470 M-2638 End prep for Thermoweld installation on ITT Grinnell spools does not conform.
  - 471 M-3320 welding was performed on hanger without issuance of modification documentation.
  - 472 M-2966 does not give sufficient information as to grade of weld plate.
  - 473 M1432 Arc strike.
  - 474 M1432 R1 Arc strike.
  - 475 M-2721 welds to spool were done without QC acceptance of cleanliness and alignment.
  - 476 M-3361 " " " " " " " " " " " " " " " "

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NCR:

- X 477 C606 sand was out of tolerance by 5.9% on the first 6 cubic yards of mortar.
- ✓ 478 C618R1 (14) anchor bolts were omitted in the pour.
- ✓ 479 C-669 Approx. 112 bars were not installed prior to concrete placement.
- ✓ 480 C-759 bars were subjected to load stresses after the pour.
- X 481 C-805 honeycombs were found in the pour.
- ✓ 482 C-809 (6) bars were omitted in aux. slab.
- ✓ 483 C-810 (11) bars were omitted around the elevator shaft door.
- ✓ 484 C-811 (46) rebar dowels were omitted in heat exchanger room in Reactor Building.
- X { 485 C-815 (10) dowels were left out of pour.
- 486 C-837 concrete consolidation violation.
- 487 C-833 "Cold Weather" violation.
- 488 C-968 mortar had a water/cement ratio in excess of the mix design.
- ✓ 489 C-1045 Cadwelder was not tested the required one (1) time within first (10) shots.
- ✓ 490 C-1112 (17) areas of defective concrete were found upon form removal on placement.
- X 491 C-1113 Coating exhibited poor adhesion, impact resistance, peeling and improper curing.
- ✓ 492 C-1170 honeycomb was discovered on the Chilled Water Surge Tank in the Auxiliary Bldg.
- ✓ 493 M-3123 minimum wall violation.
- X 494 M-2962 serrated sealing surface on flange face has numerous arc strikes.
- ✓ 495 M-986 (11) structural steel material samples submitted for conformity failed specs.
- X 496 C-2269 grout did not meet specified compressive strength.
- ✓ 497 M-1302R1 revision of support traveler; craft personnel failed to follow design changes
- ✓ 498 M-1802 " " " " " " " " " " " "
- X 499 M-3247 spool was installed prior to flush.
- ✓ 500 C-1335 fire caused by fuel spillage caused concrete to spill in an area 8' x 9' x 3/4".
- X 501 C-1006 cement mortar cubes were not broken at 3 days as required because of evacuation
- ✓ 502 C-1339 defective concrete penetrated the full thickness of the wall.
- ✓ 503 C-1367 (12) areas of defective concrete in the bottom of the slab and beams.
- ✓ 504 M-2223 pipe supported by equipment nozzles causing indeterminate stress on equipment.
- ✓ 505 E-81-00083 (4) meters sent offsite for modification to unapproved facility w/o procedure.
- ✓ 506 C-1303 upon form removal defective concrete was discovered in several locations.
- ✓ 507 C-1294 concrete was not consolidated in areas of heavy rebar congestion.
- X 508 M-2727 pipeline nonconformance and base metal defect.
- X 509 M-2689 verification of gasket material for traceability was not maintained.
- ✓ 510 C-1296R1 notch effect observed on 40 bars in wall of compartment 3 Reactor Containment
- X 511 C-1296 " " " " " " " " " " " "
- ✓ 512 M-1178R1 field weld subjected to water coming from a roof opening.
- X 513 M-1178 " " " " " " " " " " " "
- ✓ 514 C-661R3 (140) Richmond Screw Anchors were omitted on the south face of wall 2-S.
- ✓ 515 C-661R2 " " " " " " " " " " " "
- X 516 C-661R1 " " " " " " " " " " " "
- X 517 C-661 " " " " " " " " " " " "
- ✓ 518 M-722R1 anchor bolt assemblies have been incorrectly installed in the east wall.

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- X 519 M-722 anchor bolt assemblies have been incorrectly installed in the east wall C1.
- ✓ 520 M-33135 welding was done on this hanger after all welds were signed off by QC.
- ✓ 521 M-2309 component support was removed & reinstalled after welding hold point by QC.
- X 522 M-535 (4) reactor coolant pump internals arrived on job site with contingency on QA.
- ✓ 523 C-1418 concrete was placed without QC inspection and without QC monitoring.
- ✓ 524 M704R1 anchor bolt assemblies have been incorrectly installed in the west wall.
- ✓ 525 M-82-00239R1 all structural steel on Units 1 & 2 were in violation of AISC req.
- X 526 M-2640 additional welding on hanger without approval.
- X 527 M-1401R1 results of arc strike removal and inspections were not noted as required.
  
- ✓ 528 C-571R1 no Engineering evaluation before loading of slab.
- ✓ 529 C-642R1 field cured cylinder compressive strengths that do not comply with req.
- ✓ 530 C-642R2 " " " " " " " " " " " " " " " "
- X 531 M-656 Charging Safety Injection Pumps not submitted to proper QR for approval.
- X 532 M-693 " " " " " " " " " " " " " " " "
- ✓ 533 C-723 honeycomb exists, exposing structural rebar.
- ✓ 534 C-1314 (57) dowels partially embedded in set concrete have been bent & (10) broken.
- ✓ 535 C-1330 (9) violations of consolidation by suitable means on Reactor Containment #2.
- ✓ 536 C-1766 " " " " " " " " " " " " " " " "
- ✓ 537 1766R1 " " " " " " " " " " " " " " " "
- ✓ 538 1766R2 (20) " " " " " " " " " " " " " " " "
- ✓ 539 C-1734R1 (22) " " " " " " " " " " " " " " " "
- ✓ 540 C-1784 (7) " " " " " " " " " " " " " " " "
- ✓ 541 C-1734R2 (22) " " " " " " " " " " " " " " " "
- ✓ 542 C-1784R3 (22) " " " " " " " " " " " " " " " "
- X 543 M-2295 (3) valves noted to be inoperable due to handwheels being jammed in concrete
- X 544 M-2297 spherical bearing on West sway strut of hanger has become dislodged from end.
- ✓ 545 M-2297R1 " " " " " " " " " " " " " " " "
- ✓ 546 M-2602 nonconformations existing in the Service Water Tunnel.
- X 547 M-2672-R1 column support bolt holes will not align to pumps.
- X 548 M-2672 " " " " " " " " " " " " " " " "
- X 549 M-2749 numerous laminations exposed to surface of beams.
- ✓ 550 M-29445 bracket & clamp on Class 2 hanger salvaged from Class 3 hanger w/o upgrading.
- X { 551 M-2980R2 spool 2 has minimum wall violation.
- 552 M-2980 " " " " " " " " " " " " " " " "
- 553 M-2993 valve does not have sufficient socket depth.
- 554 M-3049R2 spool does not meet the 1/4" sleeve centerline requirements for piping.
- 555 M-3049 " " " " " " " " " " " " " " " "
- 556 M-3049-R1 " " " " " " " " " " " " " " " "
- ✓ 557 M-3089 interior of Pressurizer has evidence of damage to (3) of the heaters.
- X 558 M-3132 FW-5 has no inservice inspection stamp; QC hold point at fit-up has been verified; weld has been welded out and prepped.

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- X 559 M-3163 (Valve ASME code plate and ID plate lost)
- ✓ 560 M-3351S (Welding and material performed on support without modified documentation)
- ✓ 561 G-589 (Numerous water meters out of calibration)
- X 562 M-621R2 (Teflon tape used on Monroe Hydraulic shock suppressors)
- ✓ 563 M-1018 (Containment spray hangers weld material uncontrolled)
- X 564 M-1038 (Reactor vessel nozzle weld end preparation)
- ✓ 565 M-1102R2 (Reactor coolant loops (hot legs) arc strikes)
- X 566 M-1072 (Steam generator (hot leg) nozzle weld end preps)
- X 567 M-1023 (15 studs not installed in north transfer canal of fuel building)
- X 568 M-1401R1 (Grind occurred while removing arc strike; documentation incomplete)
- ✓ 569 M-1815 (More pipe than was issued)
- X 570 M-269 (Welding documentation packages issued and worked w/o ANI preliminary review)
- X 571 (This is a record of all QC inspectors)

ASME:

- X 572 (Letter from Brown & Root to ASME dated 12/29/80)
- X 573 (Memo from Brown & Root to J. R. Geurts/L. A. Ashley dated 1/14/81)
- X 574 (Interoffice memo from R. J. Vurpillat dated 2/16/81)
- X 575 (Letter from Brown & Root to Joseph A. Russo dated 3/10/81)
- X 576 (Interoffice memo from R. J. Vurpillat, Jr. dated 4/15/81)
- X 577 (Memo from J. P. Clarke, III dated 4/29/81)
- X 578 (Letter from Brown & Root to Mr. S. R. Timko dated 5/28/81)
- X 579 (Letter from Brown & Root to Ms. Arlene Spadafino dated 7/1/81)
- X 580 (Letter from Marcus N. Bressler to R. J. Vurpillat dated 7/15/81)
- X 581 (Letter from Marcus N. Bressler to J. P. Clarke, III dated 7/15/81)
- X 582 (Letter from Brown & Root to Arlene Spadafino dated 8/7/81)
- X 583 (Letter from The American Society of Mechanical Engineers to R. J. Vurpillat) 8-28-81
- X 584 (Letter from Brown & Root to Hartford Steam Boiler Inspection and Insurance) 8-28-81
- X 585 (Letter from The American Society of Mechanical Engineers to Brown & Root) 9-11-81
- X 586 (Letter from Brown & Root to Joseph A. Russo dated 9/15/81)
- X 587 (Presurvey Questionnaire from The American Society of Mechanical Engineers)
- X 588 (Letter from Brown & Root to Arlene Spadafino dated 10/16/81)
- X 589 (Interoffice memo to D. G. Frankum dated 10/26/81)
- ✓ 590 (Letter from The American Society of Mechanical Engineers to R. J. Vurpillat) 11-23-81
- ✓ 591 (Letter from The American Society of Mechanical Engineers to R. J. Vurpillat) 11-25-81
- ✓ 592 (Note to file dated 12/7/81)
- X 593 (Letter from The American Society of Mechanical Engineers to R. J. Vurpillat) 12-17-81
- X 594 (Letter from Brown & Root to Joseph A. Russo dated 12/17/81)
- ✓ 595 (Letter from Brown & Root to Hartford Steam Boiler Inspection & Ins. Co.) 12-23-81
- ✓ 596 (Letter from Brown & Root to Hartford Steam Boiler Inspection & Ins. Co.) 12-28-81



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ASME Cont.

- X 597 (Letter from Brown & Root to Joseph A. Russo dated 1/7/82)
- ✓ 598 (Letter from Brown & Root to Joseph A. Russo dated 12/4/81)
- X 599 (Interoffice memo from G. R. Purdy dated 1/14/82)
- X 600 (Letter from Brown & Root to Robert E. Tilton dated 1/18/82)
- X 601 (Letter from Brown & Root to Joseph A. Russo dated 8/27/81)
- ✓ 602 (Presurvey Questionnaire from The American Society of Mechanical Engineers)
- ✓ 603 (Response to Implementation Portion of Report of ASME Survey 10/12-14/81)
- ✓ 604 (Interoffice memo from R. J. Vurpillat dated 1/21/82)
- ✓ 605 (Letter from The Hartford Steam Boiler Inspection and Ins. Co. to A. Spadafino, 2-8-82)
- ✓ 606 (ASME Survey Finding Report and Corrective Actions dated 1/20/82)
- ✓ 607 (Brown & Root letter to Levinson Steel Co. dated 2/9/82)
- ✓ 608 (Brown & Root Quality Assurance Dept. Nonconformance Report (NCR) No. M-3152)
- ✓ 609 (Brown & Root Quality Assurance Dept. Nonconformance Report (NCR) No. M-3153R1)
- ✓ 610 (ASME Survey Finding Report and Corrective Actions dated 1/20/82)
- ✓ 611 (ASME Survey Finding Report dated 1/24/82)
- ✓ 612 (Brown & Root NCR No. M-3194)
- ✓ 613 (Brown & Root NCR No. M-3145)
- ✓ 614 (ASME letter to J. J. Vurpillat dated 3/19/82)
- ✓ 615 (Corrective Action Request S-22)
- ✓ 616 (Brown & Root Corrective Action Request S-45)
  
- ✓ 617 (Letter from TUGO from R.J. Gary to Mr. Seyfrit of the NRC dated 9/17/79)
- X 618 (Letter from TUGO from R.J. Gary to Mr. Seyfrit of the NRC dated 9/20/79)
- ✓ 619 (Memo from G. Wayne Parry to A. Vega on Construction Site Surveillance Scheduling & Manpower dated 10/1/81.)
- ✓ 620 (Memo from G. R. Purdy to R.J. Vurpillat on CPSES Quarterly Report on QA Department and QA Program Activities for the 1st Quarter of 1981)
  
- ✓ 621 Gibbs & Hill, Inc. August 25, 1980 letter to David N. Chapman, TUGCO, re: Quality Assurance Audit TGH-14
- X 622 7/8/81 letter, Marcus N. Bressler, P.E., Inc., to Brown & Root re: pre-ASME survey
- ✓ 623 TUGCO QA - Analysis of Class 1 & 2 Pipe Weld Trends
- ✓ 624 Brown & Root Corrective Action Request CAR S-6
- ✓ 625 Brown & Root Corrective Action Request CAR S-8
- ✓ 626 Brown & Root Deficiency Log
- ✓ 627 Brown & Root DDR Log
- ✓ 628 TUGCO NCR Log

Design/Construction Significant Deficiency Analysis Report:

- ✓ { 629 SDAR I.D. No. 8DCP81A
- 630 SDAR I.D. No. 0090
- 631 SDAR I.D. No. 049
- 632 SDAR I.D. No. 040
- 633 SDAR I.D. No. 039
- 634 SDAR I.D. No. 033
- 635 SDAR I.D. No. 030
- 636 SDAR I.D. No. 029
- 637 SDAR I.D. No. 026
- 638 SDAR I.D. No. 023



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Design/Construction Significant Deficiency Analysis Report; SDAR I.D. No.:

✓ 639 0021  
640 022  
641 0016  
642 0013  
643 110  
644 063  
645 056

✓ { 646 TUGCO/TUSI QA Nonconformance Report No: CP-77-D  
647 CP-77-B  
648 CP-77-C  
649 CP-77-4

Prefiled Direct Testimony of CASE Witnesses:

✓ 650 Charles A. Atchison ✓ (Plus Exhibits 650A thru 650X)  
✓ 651 John Junior Gates  
✓ 652 Cordella Marie Hamilton  
✓ 653 Robert L. Hamilton ✓ (Plus Exhibits 653A thru 653F)  
X 654 Joseph J. Krolak, Jr. WITHDRAWN  
✓ 655 Stanley G. Miles  
✓ 656 Supplementary, Charles A. Atchison  
✓ 657 Supplementary, Stanley G. Miles

658 TUGCO QA Audit TGH-14, under cover letter of 6/24/80

✓ 659 Statement of Mark Anthony Walsh 7/28/82 (Testimony)  
659A Mark Walsh Resume  
659B Section III--Division 1 Rules for Construction of Nuclear Power Plant  
Components, Subsection NF, Component Supports, 1974 Edition, July 1,  
1974, ASME Boiler and Pressure Vessel Code: Pages 1, 2, and 3, and  
29, 30, 31, and 32  
659C October 9, 1981, letter from Gibbs & Hill, Inc. to Texas Utilities  
Generating Company, 2-page letter with 5-page attachment  
659D January 25, 1982, letter NPSI-12-1720, from NPS Industries, Inc., to  
Texas Utilities Services, Inc., 2-page letter  
659E March 8, 1982, Texas Utilities Services, Inc., Office Memorandum, to  
Pipe Support Engineering "Design Criteria File" from C. R. Smaney,  
1-page memorandum  
659F Undated letter (estimated to be about March 15, 1982) to Pipe Support  
Engineers, from Jay Ryan, under Subject of: Limited Use of Tube  
Steel, 1-page letter  
659G June 25, 1982, Texas Utilities Services Inc., Office Memorandum to  
PSE "Design Criteria File" from John C. Finneran 1-page memo plus  
one-page TUSI memo of 3/8/82 as an attachment  
659H Supplementary Testimony of Mark A. Walsh

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- X 660 Testimony of Henry A. Stiner WITHDRAWN - REPLACED BY CASE Ex. 666
- ✓ 660A Nonconformance Report dated 3/20/82; signed by Charles Atchison; defective pipe whip restraints in Reactor Building #1
  
- X { 661 Testimony of Darlene Stiner WITHDRAWN - REPLACED BY CASE EX. 667
- 661A Nonconformance Report #M-81-01299
- 661B Nonconformance Report #M-81-00144
- 661C Nonconformance Report #M-81-01570
  
- ✓ 662 Nonconformance Report #M-2685 - violation of training files procedures written up by Charles Atchison, 3/2/81
- ✓ 663 Statement of Charles Atchison to NRC Investigator D. D. Driskill, 4/14/82
- ✓ 664 6/21/82 Deposition of Charles A. Atchison, pages 21 and 22
  
- ✓ { 665A } Photographs produced by Charles A. Atchison, stated to be from the
- 665B desk of Jim Hawkins after Mr. Hawkins left Comanche Peak
- 665C
- 665D
  
- ✓ { 666 Prefiled Testimony of Henry A. Stiner (dated 9/1/82, filed 9/2/82)
- 666A Resume of Henry Stiner
- 666B Signature list of individuals who attended Henry Stiner's first meeting with NRC Investigators
- 666C Copy of "sanitized" notes provided by NRC Staff of investigation of Stiners' allegations
- 666D Analysis of Inspection & Enforcement Report 81-12 (Staff Exhibit 178) and CASE Exhibit 666C -- analysis consists only of copying from I&E Report and notes, grouped together in more easily followed manner (without comment regarding content or meaning)
  
- ✓ { 667 Prefiled Testimony of Darlene K. Stiner (dated 9/1/82, filed 9/2/82)
- 667A Resume of Darlene Stiner
- 667B Copy of 5-year Service Pin Award to Darlene Stiner from Brown & Root dated 7/82
- 667C Brown & Root Certificate form for Darlene K. Stiner dated 2/20/79 for Structural Welding (SMAW) PCWC 451 GT
- 667D Brown & Root Personnel Training & Development Notice of Completion for Darlene Stiner, dated 2/20/79, Structural Welding (SMAW) PCWC-451-GT
- 667E Interim Welding Authorization dated 1/14/81 for Darlene Stiner, Symbol BCN, approved by Welding Engineering
- 667F Letter of Recommendation for Darlene Stiner from D. J. Stone
- 667G Letter of Recommendation for Darlene Stiner from James N. Stembridge
- 667H Brown & Root Certificate form for Darlene Stiner dated 3/5/81 for CP-CPM 6.9 Procedural Training PCGI 311 GT
- 667I Brown & Root Certificate form for Darlene Stiner dated 3/21/81 for Magnetic Particle Inspection PQYX 200 GT

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- 667J Brown & Root Certificate form for Darlene Stiner dated 6/25/81 for Liquid Penetrant PQYX 210 GT
- 667K Brown & Root Personnel Training & Development Notice of Completion dated 3/6/78 for Darlene K. Stiner for Visual Testing QVT-301-GT with note: "This course satisfies the classroom training requirements for Level II certification in accordance with the Brown & Root Corporate QA Training Manual and includes four hours of testing
- ✓ 667L Brown & Root Certificate form for Darlene Stiner dated 3/5/78 for Visual Testing QVT 301 GT
- 667M Letter of Recommendation for Darlene Stiner from Ronald Webb
- 667N Letter of Recommendation for Darlene Stiner from Charles Atchison
- 667O Copy of Notebook Page dated 3/24/81 through 3/27/81
- 667P Copy of Notebook Page dated 4/7/81 through 4/9/81
- 667Q NCR No. M-82-00584, 4 pages
- 667R NCR No. M-81-01570, 1 page
- 667S NCR No. M-81-01299 with note attached to front, 3 pages
- 667T OJT Sheet beginning 9/25/81
- 667U NCR No. M-81-00144, 2 pages
- 667V Interoffice Memo dated 5/21/82 to G. R. Purdy, from C. T. Brandt, allowing additional sick leave for Darlene Stiner "because of Ms. Stiner's length of service and dedication to Brown & Root" granting additional 60 hours sick leave - signed by C. T. Brandt, G. R. Purdy, and R. T. Vurpillat
- 667W: CASE's 8/12/82 Motion for Protective Order for Darlene Stiner, 4 pages
- 667W-4a 9/28/81 letter from Brown & Root Personnel Manager to Henry Stiner
- 667W-5 8/9/82 letter from Brown & Root Personnel Manager to Mr. and Mrs. Stiner
- ✓ 667W-6 8/9/82 Brown & Root Memo to Tom Brandt from Darlene Stiner
- ✓ 667W-7 } 8/9/81 (should be 8/9/82) notes by Darlene Stiner regarding events  
thru } of 8/5/82 through 8/9/82
- 667W-13 }
- 667W-14 Certificate of Service for CASE's Motion for Protective Order
- 667W-15 } 8/12/82 telegram from Nicholas Reynolds to Juanita Ellis re:  
thru } Darlene Stiner
- 667W-17 }
- 667X 8/25/82 letter to whom it may concern (Attn: Mr. Yokey) requesting copies of Mr. & Mrs. Stiner's personnel and training records, from Darlene and Henry Stiner, and Certified Mail Receipt
- 667Y NCR No. M81-00369S, 2 pages
- ✓ 667Z 8/9/82 letter to Ray Yockey, Personnel Manager, B&R, from Henry and Darlene Stiner requesting personnel and training records
- 668 Supplementary Testimony of Mark A. Walsh, filed 9/2/82
- ✓ 669 8/19/82 Deposition of Jack Doyle, submitted 9/2/82 as his prefiled direct testimony along with attachments:
- 669A 8/19/82 Deposition of Jack Doyle, Volume II

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✓669B  
669 (continued): Attachments to Jack Doyle's deposition (prefiled testimony)

- 6224-669B  
99+92
- #1 Jack Doyle's Resume, 4 pages
  - #2 Beginning "CT-1-137-701 & 702-S22R...", 5 pages
  - #3 Beginning "The use of "U" Bolts as one way constraints..." 3A thru G
  - #4 Beginning "The most basic fundamental of everyday..." 4A thru T
  - #5 Beginning "CC-1-136-704-E63R is a frame..." 5A thru C
  - #6 Beginning "Section and Table 1.17.5 of the AISC Code..." 5A thru F
  - #7 Beginning "In the design of supports..." 7A thru D
  - #8 Beginning "The method of modeling the N.P.S.I supports..." 8A thru W
  - #9 Beginning "With this large number of problems at..." 9A thru HH
  - #10 Beginning "The method of analysis for base plates..." A thru R
  - #11 Beginning "The U bolt loads to the ..." A thru BBB
  - #12 Beginning "In many cases huge secondary structures..." A thru P
  - #13 Beginning "One of the most flagrant violations of code..." A thru MMM
  - #14 Beginning "Anchors: CC-1-008-029-S33A..." A thru M
  - #15 Beginning "ITT Grinnell DP-2 assumes the frame..." A thru D
  - #16 Beginning "SW-1-012-009-A33R Item 12 is ..." A thru C
  - #17 Beginning "Supplementary Requirements for Design Control" A thru W
  - #18 Brown & Root Drawing, upper right: "912# Steel for 26# Max. Load"
  - #19 NF-3271.1-NF-3275, A and B
  - #20 Beginning "Page 1 of 12, RP-2 Rev. 1, The following procedure..."  
13 pages
  - #21 Newspaper ad "Safe, and Sound." by DP&L, TP&L, & TESCO
  - #22 Drawing by hand, SAW and Model R

669-1 Errata Sheet for Deposition of Jack Doyle, August 19, 1982

Not  
accepted  
by Board  
at Sept.  
Hearings -  
probable  
appeal  
item

- 670 Randall Dale Smith Deposition, 6/22/82
- 671 Richard Ice Deposition, 6/22/82
- 672 John B. Maxwell Deposition, 6/23/82
- 673 Clara Holliday Deposition, 6/23/82
- 674 Danny Wm. Leigh Deposition, 6/24/82
- 675 Kenneth L. Schepple Deposition, 8/20/82
- 676 John D. Finneran, Jr. Deposition, 8/20/82 and 8/21/82
- 677 Peter S. Y. Chang Deposition, 8/21/82
- 678 Gary Krishnan Deposition, 8/21/82 and 8/23/82
- 679 Gordon Purdy Deposition, 8/23/82
- 680 Ronald G. Tolson Deposition, 8/23/82
- 681 C. T. Brandt Deposition, 8/24/82
- 682 Randall D. Smith Deposition, 8/24/82
- ✓ 683 Supplemental Testimony of Jack Doyle
- ✓ { 683A } Photos of Model referenced in Supplemental Testimony of Jack Doyle
- ✓ { thru
- ✓ { 683K }
- ✓ { 684 Charles Atchison Supplemental Testimony 9/13/82
- ✓ { 684A Attachment to above



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X 685 FSAR Table 17.2-2 WITHDRAWN

X 686 ANSI N45.2.6 - 1973 WITHDRAWN - See CASE Exhibit 688

6414 ✓  
(copy) 687 ANSI N45.2 - 1971, "Quality Assurance Program Requirements for Nuclear Power Plants"

✓ 688 ANSI/ASME N45.2.6 - 1978, "Qualifications of Inspection, Examination, and Testing Personnel for Nuclear Power Plants"

X 689 "SAFE, AND SOUND," newspaper ad by Dallas Power & Light Company, Texas Electric Service Co., and Texas Power & Light Co. -- WITHDRAWN, see CASE Exhibit 669B, #21

X 690 ANSI N45.2.11 - 1974 "Quality Assurance Requirements for the Design of Nuclear Power Plants" -- WITHDRAWN (tr. 5398) - Replaced by Applicants Exhibit 148 -- NOTE: Applicants Exhibit 148 is incomplete; should have additional pages submitted

X 691 G.H.I. ISO M2-3231-22-Rev. B Drawing -- WITHDRAWN, same as CASE Exhibits 669B, 2D and 3E

✓ 692 ASTM A500-80 Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes

X 693 Structural Welding Code - Steel, American Welding Society, Inc. -- REJECTED, not applicable

X 694 ✓ ANSI/ASME N45.2 - 1977, QA Program Requirements for Nuclear Facilities, Page 4 - WITHDRAWN, See CASE Exhibit 687

695 PSE Design Manual, Section III, pages 2 and 3 of 42, Figures 1 and 2, Design Stress Intensities and Allowable Stresses (ksi)

696 PSE Design Manual, Section II, page 4 of 15, Rev. 2, items 2.11 Shims, 2.12 Welding, 2.13 Large Frames

✓ 697 STANDARD HANDBOOK FOR CIVIL ENGINEERS, Frederick S. Merritt, by McGraw-Hill, Structural Theory, Natural Period of Vibration, pages 6-98 through 6-101

X 698 WITHDRAWN

✓ 699 ASME, NB-3213.11 - NB-3213.21, Design, page 53 (especially NB-3213.13 Thermal Stress; NB-3213.18 Shakedown; NB-3213.19 Free End Displacement; NB-3213.20 Expansion Stresses)



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- ✓ 700 ASME, SECTION III, Division 1 - Subsection NF, NF-3212 - NF-3213.11  
(Terms Relating to Design by Analysis, plate and shell) -- See Also CASE Exhibit 744, page 32
- 701 Computer run of NPSI Design
- ✓ 702 Krishnan notes from 3/3/82 meeting (CASE Exhibit 659E, attachment to Mark Walsh testimony), in answer to CASE's 12th Set of Interrogatories to Applicants
- 703 FSAR, from Section 3.9N.3.2, Pump and Valve Operability Assurance  
-- WITHDRAW if current FSAR page is same (Applicants Exhibit 3)
- 704 ASME, Section III, Subsection NA, Appendix F, "Rules for Evaluation of Faulted Conditions" -- WITHDRAW if CASE Exhibit 746, which is expanded version, is accepted into evidence
- 705 ASME, NF-1000 Introduction, NF-1131.1 - NF-1213, page 5 (especially NF-1132.5 Nonintegral Support Connected to Building Structure)
- ✓ 706 STEEL STRUCTURES Design and Behavior, Professors Salmon and Johnson, from Intext Educational Publishers, pages 48-55  
(Effect of high temperature on stress-strain curve; Cold Work and Strain Hardening; Brittle Fracture: Effect of Temperature, Effect of Multiaxial Stress, Multiaxial Stress Induced by Welding, Effect of Thickness, Effect of Dynamic Loading; Fatigue Strength)
- ✓ 707 ASME, Appendix XVII, XVII-2263.4 - XVII-2283.4, page 381 (especially XVII-2271.3 Provision for Expansion)
- X 708 ASME, Section III, Subsection NF, especially NF-3630 Anchors and Guides, page 123.-- WITHDRAWN, replaced by CASE Exhibit 710
- X 709 Gibbs & Hill Specification MS-46A, pages 3-44 and 3-45 -- WITHDRAWN, same as CASE Exhibit 669B, pages 2B and 2C
- ✓ 710 ASME, Section III, Subsection NF, NF-3271.1 - NF-3272.1 (especially NF-3272.1 Anchors, Guides, Pivots, and Restraints)
- X 711 ANSI/ASME N45.2 - 1977, page 8, especially 17. Corrective Action, QA Program Requirements for Nuclear Facilities (same as 1974 version) -- WITHDRAWN, replaced by Applicants Exhibit 149, 1971 version (also CASE Exhibit 687)

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EXHIBIT  
NO.

- X 712 ANSI N45.2, 1977, Section 17, Corrective Action, Article NF-3000,  
Design NF Section -- WITHDRAWN, included in another  
exhibit -- see CASE Exhibit 687
- ✓ 713 STEEL STRUCTURES Design and Behavior, by Salmon and Johnson, page 99,  
Friction-Type and Bearing-Type Connections (from  
same book as CASE Exhibit 706)
- 7060 ✓ 714 12/22/80 TUSI Memorandum, CPSES, ASME Code Distribution, to Distribution  
(regarding which portions of ASME Boiler and Pressure  
Vessel Code were to be used in pipe support design  
and installation activities) (ATTACHED TO EX. 766)
- 715 PSE Design Manual, Section XV, Pipe Support Design Guidelines, page 3  
of 7, Rev. 1 (re: engineering judgement; gang  
hangers; qualification of supports; rough support  
sketches; relocation outside of tolerance)
- 716 PSE Design Manual, Section XI, Weld Calculations, pages 1 thru 17 of 17.
- 717 PSE Design Manual, Section IV, Baseplates, page 3 of 17, Containment  
Liner Plate
- 718 PSE Design Manual, Section II, General Engineering Criteria for Pipe  
Support Design, page 14 of 15, Strength to Weight  
Ratio of Welded Structural Steel Tubing
- ✓ 719 AWS D1.1-80, Structural Welding Code -- Steel, Fourth Edition, pages  
156 thru 159, Tubular Structures: General Require-  
ments; and Allowable Unit Stresses
- 720 ASME, Section III, Division 1 - Subsection NA - NA-3220 - NA-3254,  
page 20 (1974) (especially NA-3240 Provision of  
Adequate Supporting Structures; NA-3250 Provision  
of Design Specifications)
- 721 PSE Design Manual, Section II, General Engineering Criteria for Pipe  
Support Design, page 1 of 15, Rev. 2 (General;  
Design Activities; Friction; Clearances)
- 722 Hand drawing, tube steel, bolt, and washer, re: axial force
- 723 Hand drawing, re: moment at face of wall due to thermal load
- 6471 ✓ 724 PSE Design Manual, Section VI, Richmond Inserts & Anchor Bolts Stress  
Allowables, page 1 of 2, Rev. 3 (References;  
General; Richmond Inserts; Anchor Bolts)

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- 725 PSE Design Manual, Section XII, NPSI and ITT-Grinnell Load Capacity Data Sheets/Certified Design Report Summaries, pages 12 and 13 of 364, Rev. B, 1/28/81 (Hilti Kwik-Bolt Allowable Tensile & Shear Working Loads)
- 726 ASTM, American National Standard, ASTM A36-77a, page 135, Standard Specification for Structural Steel (A36, A307)
- 
- ✓ 727 Re: Emergency Planning - Letter dated August 12, 1982, to Victor Gilinsky, Commissioner, NRC, from County Judge George R. Crump, Somervell County, Texas
- ✓ 728A thru 728K Re: Emergency Planning - Comments from the RAC Committee on the state of emergency preparedness (supplied to CASE by the State of Texas, by Mr. Born)
- X 728L-1 and 728L-2 Re: Emergency Planning - Dallas/Fort Worth Metroplex Area (SMSA): Map; and Information from Council of Governments -- WITHDRAWN
- 
- 729 I&E Report 82-13/82-07 -- (see especially page 5, item 6, re: NRC review of "final record packages for 10 completed piping supports...as-built drawings" etc.)
- 730 ASME Code Case 1644, Additional Materials for Component Supports, Section III, Subsection NF, Class 1, 2, 3, and MC Construction, August 12, 1974 -- WITHDRAWN, not applicable, has been superseded
- 731 ASME Code Case 1644-3, November 3, 1975 -- WITHDRAWN, not applicable, has been superseded
- 732 ASME Code Case N-71-11, June 17, 1982 to June 17, 1985, Additional Materials for Component Supports Fabricated by Welding, Section III, Division 1, Subsection NF Class 1, 2, 3, and MC Component Supports
- 8/23/83 Motion Series X 733 NUREG/CR-143, UCRL-15103, "Detection of Damage in Structures from Changes in Their Dynamic (Modal) Properties -- A Survey," prepared by M. H. Richardson, Lawrence Livermore Laboratory, published April 1980, pages iii, 164 thru 169, 248 thru 251
- X 734 WITHDRAWN

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NOTE: CASE Exhibits 735, 736, 738, 739, 740 were submitted to the Board and parties with CASE's 12/14/82 Motion to Supplement CASE's Exhibits;  
\* CASE Exhibit 738 was accepted into the record by the Board's Order of January 4, 1983 (the remainder of the Exhibits were to be ruled on when the evidentiary hearing is resumed).

735 I&E Report 82-14, under cover letter of September 29, 1982, NRC Region IV investigation report into Atchison allegations regarding pipe whip restraints and skewed welds

736 I&E Report 82-14, under cover letter dated Nov. 8, 1982 - Revision of CASE Exhibit 735 preceding

737 I&E Report 82-22, under cover letter dated November 10, 1982, re: report by painter of previously unreported weld on NPSI-supplied main steam pipe-whip restraint located outside the reactor containment building 1 (found numerous other nonconforming weld conditions in immediate area); this was identified by Atchison but not so-noted in I&E Report.

\* ✓ 738 Recommended Decision of Administrative Law Judge, U. S. Department of Labor, in the Matter of Charles A. Atchison vs. Brown & Root, Inc., Case No. 82-ERA-9

739 I&E Report 82-14, letter of December 9, 1982, G. L. Madsen, NRC, to R. J. Gary, TUGCO, stating that revised I&E Report 82-14 (CASE Exhibit 736) replaces I&E Report 82-14 (CASE Exhibit 735). See discussion regarding CASE Exhibits 735, 736, 737, and 739, on pages 12 thru 17, of CASE's 12/21/82 Brief in Opposition to the NRC Staff's Exceptions to the Atomic Safety and Licensing Board's Order Denying Reconsideration of September 30, 1982, before Atomic Safety and Licensing Appeal Board.

740 11/17/82 letter, TUGCO to NRC, Region IV, re: IE Bulletin 82-01, Rev. 1, Sup. 1, regarding radiographs of welds on piping assemblies, furnished by ITT Grinnell, having been altered or "enhanced" with a soft lead pencil or an ink pen

741 I&E Report 82-30, Notice of Violation, Failure to Follow Procedures, NRC inspector's review of calculation packages for pipe hangers/ supports processed by NPSI and ITT Grinnell disclosed mathematical errors that were not identified during the checking process.

8/23/83 X 742  
Motion Denied NUREG/CR-2137, "Realistic Seismic Design Margins of Pumps, Valves, and Piping," Published June 1981, pages 8, 10, 11, 30, 31, B-8, B-9, B-10.

5901 ✓ 743 Regulatory Guide 1.124, "Service Limits and Loading Combinations for Class 1 Linear-Type Component Supports," Revision 1, January 1979

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- 5890 ✓ 744 ASME, Section III, Subsection NF, NF-3132.1(b)-1 Table - NF-3240, Design of Class 1 Component Supports, pages 31 thru 37
- (5890) ✓ 745 ASME, Section III, Subsection NF, NF-1100 Scope and General Requirements, thru NF-1131  
5969
- 746 ASME, Section III, Subsection NA, Appendix F, "Rules for Evaluation of Faulted Conditions"
- 747 ASME, Section III, Subsection NF, NF-3293 - NF3400, pages 42, 44, and 45 (especially NF-3300 Design of Class 2 and Class MC Component Supports; and NF-3400 Design of Class 3 Component Supports)
- 748 ASME, Section III, Subsection NF, Table NF-2121(a)-1 Material Tables Required for Component Supports
- (5890) ✓ 749 11/20/81 Memorandum from Harold R. Denton, Director, NRC Office of  
(5969) Nuclear Reactor Regulation, to All NRR Personnel, re: Standard Definitions for Commonly-Used Safety Classification Terms
- 750 THE TESTING AND INSPECTION OF ENGINEERING MATERIALS, book by Davis, Troxell, Wiskocil, published by McGraw-Hill, pages 36 and 37, Principles of testing and inspection, and General features of mechanical behavior (in particular re: nonductility of concrete)
- 6794 ✓ 751 ✓ ASME Code Case N-71-10, 5/11/81, Additional Materials for Component Support Fabricated by Welding, Section III, Division 1, Subsection NF, Class 1, 2, 3, and MC Component Supports, pages 1, 2, 233, 247, and 250.
- 752 ASME, Section III, Appendix XVII, XVII-2462.2 - XVII-2466 (especially Table XVII-2461.1-1 SA-307 bolts, footnote 1)
- 753 AISC (American Institute of Steel Construction), Manual of STEEL CONSTRUCTION, Seventh Edition, 1.3.7 Minimum Loads thru Table 1.5.3, re: A36 steel and A307 bolts
- 754 Regulatory Guide 1.85 "Materials Code Case Acceptability, ASME Section III, Division 1," pages 1, 2, 3, 4, 7, 8, 9, 10



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- X 755 "ACI Standard, Code Requirements for Nuclear Safety Related Concrete Structures (ACI 349-76)" pages 349-1, 349-24, and 349-25 -- WITHDRAWN, Replaced by CASE Ex. 831
- 756 PSE Design Manual, Section XII, Hilti Super Kwik-Bolt, Allowable Tensile & Shear Working Loads (lbs.), page 14 of 364
- 757 Deposition of Kenneth Scheppele, excerpts, pages 38, 39, and 213 (excerpts of CASE Exhibit 675)
- 6024 ✓ 758 Calculations, Unit #1, Reactor Building, S.G. Upper Lateral Support, 24-pages, supplied on discovery from Applicants, as part of item 47 - ATTACHED TO CASE EX. 761
- 759 ASME, Section III, Subsection NA, Table I-13.1, Yield Strength Values, for Ferritic Steels for Class 1, 2, 3, and MC Linear Type Component Supports - 1974 edition - has incorrect values for SA-36 steel at 300°F and 400°F (SEE CASE EXHIBIT 760 FOR CORRECT VALUES) - can WITHDRAW if Applicants and Staff stipulate that CASE EXHIBIT 760, 1980 Edition, contains correct values
- 760 ASME, Section III, Table I-13.1, Yield Strength Values for Ferritic Steels...for Class 1, 2, 3, and MC Linear Type Component Supports - 1980 Edition - has correct values for SA-36 steel at 300°F and 400°F (See note under CASE Exhibit 759 preceding)
- ✓ 761 4/26/83 Surrebuttal Testimony of Jack Doyle, Witness for Intervenor CASE (sworn affidavit)
- 7042 { ATTACHMENTS TO EXHIBIT 761:  
✓ Exhibit 758  
✓ Affidavit of Mark Anthony Walsh, 4/26/83  
✓ Exhibit 761A  
✓ Exhibit 761B  
✓ Exhibit 761C
- ✓ 761A Computer Print-Out by Mark Walsh on Upper Lateral Restraint, Unit #1, RBSG - 4/25/83
- 6223 ✓ 761B Calculations, Moment Restraint Structural Support, 48-pages, supplied on discovery from Applicants, as part of item 47
- 6051 ✓ 761C Hand Calculations by Jack Doyle, re: LOCA

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- 7042 {
- ✓ 762 4/28/83 Supplementary Surrebuttal Testimony of Jack Doyle, Witness for Intervenor CASE (additional information regarding documents sent with 4/26/83 Surrebuttal Testimony (CASE Exhibit 761))
  - ✓ 762A Computer Print-Out by Mark Walsh on Upper Lateral Restraint, Unit #1, RBSG - 4/27/83 (Revision of CASE Exhibit 761A )
- 6877, 7042 {
- ✓ 763 5/4/83 Supplementary Surrebuttal Testimony of Jack Doyle, Witness for Intervenor CASE (re: SIT Report and related items)
    - ATTACHMENTS TO EXHIBIT 763:
    - ✓ Exhibit 716
    - ✓ Exhibit 763A
    - ✓ Exhibit 763B
    - ✓ Exhibit 763C-1 thru -5
    - ✓ Exhibit 763D-1 thru -4, and -6 thru -9
    - ✓ Exhibit 763E
    - ✓ Exhibit 763F
    - ✓ Exhibit 763G
    - ✓ Exhibit 763H
    - ✓ Exhibit 763I
  - ✓ 763A FFTF (Fast Flux Test Facility) Report "Drilled-In Expansion Bolts Under Static and Alternating Load" BR-5853-C-4, January 1975
  - ✓ 763B Response to NRC - NRC Site Meeting - January 18, 1983, pages 1 thru 6 - re: Piping Support Stiffnesses Used in Seismic Analysis (Class 2 & 3); Consideration Given to Potential "Kick Loads;" Local Pipe Stress Induced by Thermal Expansion in Main Steam Support MS-1-003-009-C72K; the Effect of Lateral Stiffness of U-Bolts Analyzed as One-Way Rigid Supports on the Seismic Response of the System
  - ✓ 763C-1 thru -5 Component Modification Card (CMC) 46730 and revisions, Support SW-1-132-703-Y33R
  - ✓ 763D-1 thru -4 Component Modification Card (CMC) 46174 and revisions,  
✓ 763D-6 thru -9 Support SW-1-132-701-Y33R (Rev. 4 to be supplied by Applicants; was missing on discovery)
  - ✓ 763E ITT Grinnell, Catalog PH79, Pipe Hangers, pages ph-20 and ph-21, Steel Pipe Clamps
  - ✓ 763F STEEL STRUCTURES Design and Behavior, by Salmon & Johnson, pages 84 thru 87 (especially re: A307 bolts)

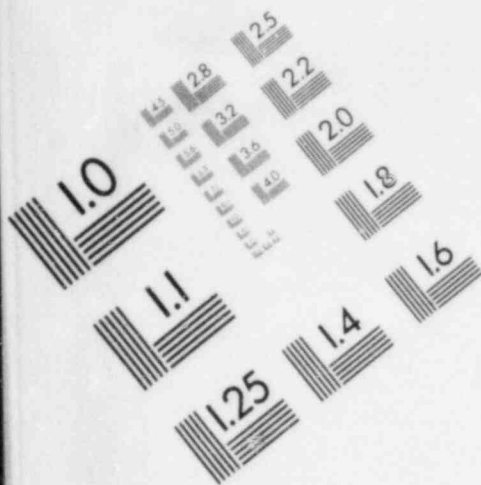
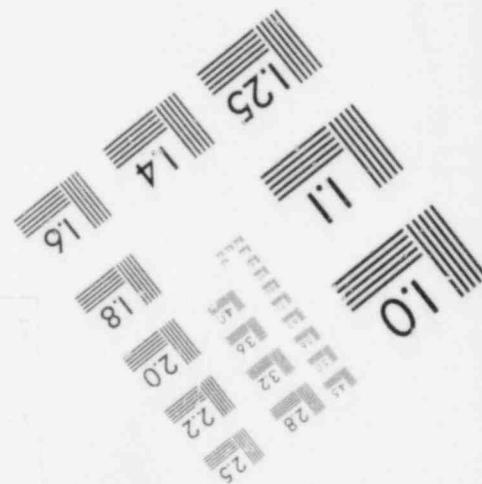
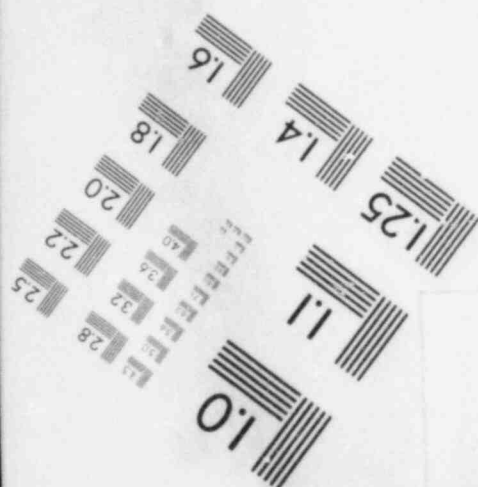
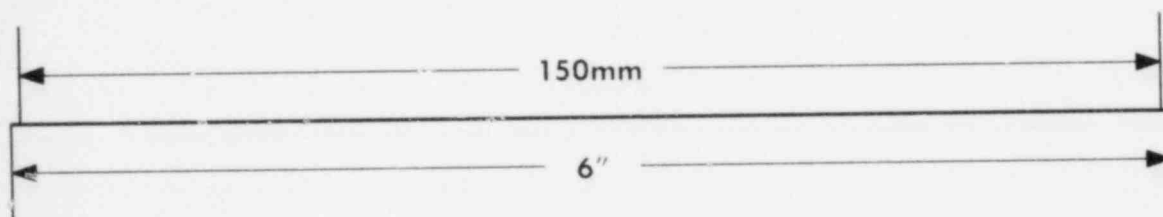
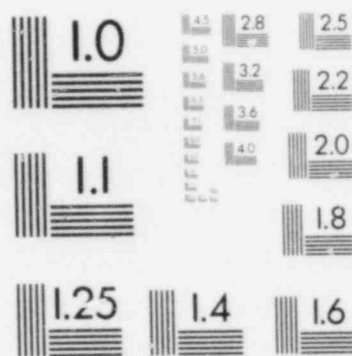
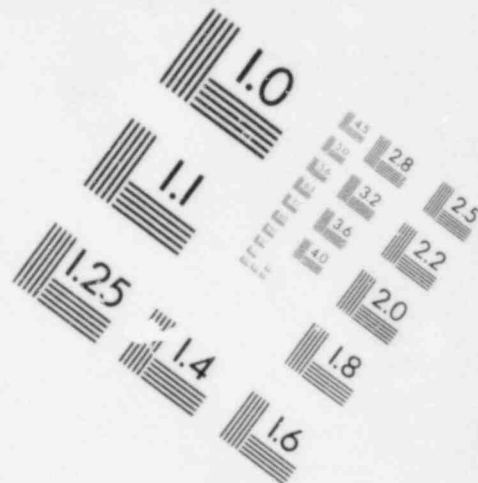


IMAGE EVALUATION  
TEST TARGET (MT-3)



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- (Cont.)
- ✓ 763G AISC (American Institute of Steel Construction), Manual of STEEL CONSTRUCTION, Seventh Edition (same as book used in Exhibit 753), page 2-203, Beam Diagrams and Formulas for various static loading conditions
  - ✓ 763H Calculations on support CC-1-107-008-E23R, for purpose of determining displacement (supplied by Applicants on discovery, item 134), pages cover sheet, sheets 1 thru 4 of 4, and drawing (drawing is to be replaced; copy received from Applicants originally was not clear)
  - ✓ 763I Cold Form Institute steel member properties used at Comanche Peak "hog house"
  - 764 ASME, NCA-3000, Responsibilities and Duties - NCA-3220 - NCA-3252, page 19 (especially NCA-3240, Provision of Adequate Supporting Structures)
  - 765 ASME, NCA-1130 - NCA-1210 - page 4 (especially NCA-1140 Use of Code Editions, Addenda, and Cases)
  - 7060 { 766 Surrebuttal Testimony of Mark Anthony Walsh, Witness for Intervenor  
CASE  
ATTACHMENT TO EXHIBIT 766:  
✓ Exhibit 714
  - 5890 ✓ 767 ASME, Appendix XVII-1100 - XVII-1210 (especially XVII-1100 Introduction, XVII-1110 Scope) especially
  - 5888 (5876) ✓ 768 ASME, Section III, Division 1, Subsection NF, 1980 Edition, Winter 1982 Addenda, Issued December 31, 1982: NF-1121 -- NF-2311; page 19, NF-3100 -- page 20, NF-3121.15 (especially NF-3121.2 Primary Stress) -- *First page only - see CASE Ex. 839 for pages 2 and 3*
  - 769 ASME, Section III, Organization of Section III, pages xxi and xxii (especially p. xxii, item D. References to Appendices)
  - 770 STEEL STRUCTURES Design and Behavior, by Salmon and Johnson, pages 678 thru 681, Combined Bending and Axial Load thru AISC -- Working Stress Design Criteria
  - 771 ASTM (American Institute of Steel Construction) -- Specification for Structural Joints Using ASTM A325 or A490 Bolts, pages 14, 15, 16, and 17
  - 772 USA Standard Code for Pressure Piping, "Power Piping," USAS B31.1.0 - 1967, published by ASME, pages 30 and 31 (especially 121.2.1 Anchors and Guides)

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- 773 ACI Standard 318-71, "Building Code Requirements for Reinforced Concrete (ACI 318-71)," by American Concrete Institute, pages 34, 35, 36, 39, 40, 41, 42, and 45 (10.15.4, Composite compression members; Chapter 11 -- Shear and Torsion; Chapter 12 -- Development of Reinforcement.)
- 6471 ✓ 774 Notes prepared for 1/17/83 meeting with NRC and Applicants re: Richmond Inserts
- 6513 ✓ 775 Documents received on discovery in answer to item 36. of CASE's 3/11/83 requests for documents re: the five load cases which were analyzed for tension, shear, and moment, etc.
- 776 ASTM (American Society for Testing and Materials) 1981, Part 18, re: Thermal Insulation; Building Seals and Sealants; Fire Standards; Building Constructions; Environmental Acoustics, pages 1040-1045 inclusive, "Standard Test Methods for Strength of Anchors in Concrete and Masonry Elements, ASTM E 488 - 76.
- 777 PSE Guidelines, Section V, Hilti Concrete Anchor Bolts, page 1 of 10, Rev. 4.
- 778 ACI 349-80, ACI 349R-80 (American Concrete Institute), "Code Requirements for Nuclear Safety Related Concrete Structures and Commentary" - pages 349-75 thru 349-81 inclusive, especially re: Appendix B -- Steel Embedments
- ✓ 779 PCI Design Handbook, Precast and Prestressed Concrete, pages 6-3, 6-4, and 6-10, re: Design of Connections
- 780 ASME Code Interpretation III-80-59, 4/7/80, re: Section III, Division 1, Code Case N-71 (1644), Additional Materials for Component Supports, SA-307-74 Specification for Low Carbon Steel Externally and Internally Threaded Standard Fasteners (especially A307 bolts).
- 6862 ✓ 781 Letter from NPS Industries, Inc., to CASE, 5/4/83, re: requested information regarding NPSI design criteria.
- 6945 ✓ 782 The 3 pages provided in response to CASE's requests for documents (3/11/83 letter, item 3) on NPSI design criteria.
- 783 11/16/82, "Summary of Load Transformation Study on Richmond Insert & Tube Steel Assemblies," by Peter Chang, PSE Chief Engineer



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- 6940 ✓ 784 Documents received on discovery in answer to item 37 of CASE's 3/11/83 requests for documents re: all documentation done by the SIT in evaluating the stresses in the bolt due to the offset (SIT Report, p. 21).
- 785 CMC 81948, Rev. 3 (2 pages), requested on item 196 of CASE's 3/11/83 requests for documents (was shown to SIT during "subsequent discussions with Applicant," (SIT Report, p. 54).
- 786 NCR No. M-2531, Support CC-1-116-038-F43R (SIT Report, p. 54).
- 8/23/83 Motion  
Denied-X 787  
Discussed  
on tr. p. 6951  
787 "JOURNAL OF THE STRUCTURAL DIVISION, Proceedings of The American Society of Civil Engineers, September 1982" - "Finite Element Analysis of RHS T-Joints" by Korol and Mirza, p. 2080 thru 2085 inclusive
- 788 "VECTOR MECHANICS FOR ENGINEERS, Second Edition, STATICS" by Beer and Johnston, Friction, p. 290-292, inclusive
- 789 1/6/83 Memorandum to J. I. Tapia, from R. G. Taylor (NRC), re: Load Test on CPSES Support CC-1-107-008-E23R, proposed notice of violation (SIT Report, p. 41)
- 6030 ✓ 790 Drawing from FSAR, R.B. Internal Struct. Equip. Supports & Fdns., Sh. 1, 2323-SI-0550 (ATTACHED TO EX. 805)
- 791 Letter from Stuart Treby, NRC, to CASE, 5/3/83, re: excerpt from proposed notice of violation (see Ex. 789)
- 792 Drawing CC-1-215-032-C53R, Vendor Certified
- 793 Drawing CC-1-208-008-C53R, Vendor Certified
- 794 Drawing AF-1-027-005-S33R, Vendor Certified
- 6973 ✓ 795 Drawing RH-1-025-004-S22R, Vendor Certified
- 796 Drawing CS-1-217-002-A42K, Vendor Certified
- 797 Drawing AF-1-100-019-S33R(?), Vendor Certified
- 798 Drawing SI-1-052-003-S42R, Vendor Certified
- 6030 ✓ 799 Drawing from FSAR, Figure 1.2-8, Building Cross-Section D-D
- 6030 ✓ 800 Drawing from FSAR, Figure 1.2-13, Primary Plant - Unit 1 Containment & Safeguard Buildings - Plans at Elev. 852'6" and 860'0"

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- 6030 {  
✓801 Drawing from FSAR, Figure 1.2-14, Primary Plant - Unit 1 Containment & Safeguard Buildings - Floor Plans at El. 873'6"  
✓802 Drawing from FSAR, Figure 1.2-18, Primary Plant, Unit 2 Containment & Safeguard Buildings, Plans at El. 851'6" and 882'6"  
✓803 Drawing from FSAR, Figure 1.2-19, Primary Plant, Unit 2 Containment & Safeguard Buildings - Plans at El. 852'6" and 860'0"  
✓804 Drawing from FSAR, Figure 1.2-20, Primary Plant, Unit 2 Containment & Safeguard Buildings - Floor Plans at El. 873'6"
- 7042 {  
✓805 Supplementary Surrebuttal Testimony of Jack Doyle, Witness for Intervenor CASE, 5/9/83  
ATTACHMENTS TO EXHIBIT 805:  
✓Exhibit 790  
✓Exhibit 799  
✓Exhibit 800  
✓Exhibit 801  
✓Exhibit 802  
✓Exhibit 803  
✓Exhibit 804
- 806 Drawing RH-1-064-008-S22K, Vendor Certified  
807 Drawing MS-1-028-046-S53R, Vendor Certified  
808 Drawing CT-1-039-431-C42R, Vendor Certified  
809 Drawing CS-1-063-013-S22R, Vendor Certified  
810 Drawing MS-1-151-005-C52R, Vendor Certified  
811 Drawing SW-1-027-003-J03R, Vendor Certified  
812 4/7/82 Speed Letter from D. M. Rencher, to ITT & NPSI, re: Stress Analysis of Welded Attachments  
813 Mill Test Report No. CH00167, 6/30/82 - sample documentation which indicates that all tube steel utilized in the design of pipe supports is designated as ASTM A-500-Grade B steel having a minimum ductility requirement expressed as minimum elongation in a 2-inch length of 23 percent (SIT Report, page 46).
- 6794 ✓814 PSE Guidelines, Section III, Stress, Elastic Modulus and Shear Modulus Criteria for Structural Steel Design, pages 1-3 inclusive

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- 815 "Manual of STEEL CONSTRUCTION" Seventh Edition, American Institute of Steel Construction (AISC), p. 1-102 and 1-103, properties, etc. of pipe and structural tubing
- 816 Drawing CC-2-028-006-A33R, U-Bolt Check and drawing (received on discovery item 84, 3/11/83 CASE letter, indicating that "U-bolts will be field-verified to confirm that they are properly tightened," SIT Report, p. 32)
- 817 Drawing CS-1-074-026-S42R - 2 drawings and U-Bolt Check sheet (see Exhibit 816 above)
- 818 4/2/81 letter to TUSI from Westinghouse and attachment and other document re: seismic analysis inputs for the upset operating condition, the emergency, and the faulted operating condition (SIT Report, p. 48)
- 6723 ✓ 819 8/20/82 Gibbs & Hill Interoffice Memorandum re: Welded Attachments, with Drawings MS-1-004-003-S72R, MS-1-004-005-S72R (SIT Report, p. 44 and 49)
- 820 7/15/82 Gibbs & Hill Interoffice Memorandum re: Welded Attachments, with Drawings MS-1-001-004-S72R and ?
- 821 Item G. U-Bolts and attachments (received on discovery item 89, 3/11/83 CASE letter, SIT Report, p. 33).
- 822 ✓ Procedure for inspection criteria, QI-QAP-11.1-28, Rev. 17, 2/2/83, pages 37-39 of 62 (received on discovery item 184 of CASE's 3/11/83 letter, SIT Report, p. 51).
- 823 3/31/83 Gibbs & Hill, Piping Seismic Analysis - Parametric Study of Support Stiffness (3 pages) (received on discovery items 103, 133, 146, CASE's 3/11/83 letter, SIT report, pages 36, 41, and 43).
- 824 Item J - Local Deflections & Stresses; Item 3. 1/32" Radial Expansion for Pipe Frame; and 1/13/83 TUSI calc, re: Pipe Radial Expansion in "Box" Supports (received on discovery items 132 and 143 of CASE's 3/11/83 letter, SIT Report, p. 40, 41, and 42).

8/23/83  
Motion X  
Denied

825 TUSI Procedure CP-EI-4.6-9, Rev. 0, 9/5/80, "Performance Instruction for SSAG," pages 1-7 inclusive

8/23/83  
Motion X  
Denied

826 TUSI Procedure CP-EI-4.6-9, Rev. 1, 8/3/81, "Performance Instruction for Piping Analysis by SSAG," pages 1-6 and chart

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827 Drawing from FSAR, Figure 3.8-15, Containment Internal Structure

7000 ✓ 828 I&E Report 50-445/83-08, inspection conducted March 1-31, 1983, includes Notice of Violation for Failure to Review Changes to Approved Procedures; and re: Hot Functional Test, statement "Several problem areas have been encountered. The major areas are: a. Erratic behavior of RCP seal flows, b. Thermal expansion, c. Letdown orifice size (emphasis added, p. 6).

6862 ✓ 829 5/9/83 letter from ITT Grinnell Corporation to CASE with responses re: ITT Grinnell design criteria

830 5/11/83 Protective Agreement between ITT Grinnell and CASE re: pages of charts and tables which are used to determine allowable stress values for designs on CPSES

X 831 "ACI Standard, Code Requirements for Nuclear Safety Related Concrete Structures (ACI 349-76)" pages 349-1, 349-24, 349-25, and 349-26 (replaces CASE Exhibit 755)

832. Gibbs & Hill, Inc., Specification 2323-MS-46A, Revision 3, January 23, 1981, Page 3-23, Table 3.4-1, Environmental Design Requirements Reactor Containment Accident Condition (LOCA) - the document identified by ITT Grinnell (see Exhibit 829) as the one considered by ITT Grinnell in support design on CPSES in regard to LOCA temperatures

833 ITT Grinnell Pipe Hanger Division E.S. 17, Rev. C, Page 21, 37, and 38 of 84, Allowable Stress, FA \* For structural Tubing Used as Compression Members in Accordance with ASME III, Article XVII-2000, Section 2213, 100 deg. F. - charts or tables provided by ITT Grinnell (see Exhibit 829)

6471 ✓ 834 3/30/83 TUSI Office Memorandum to M. R. McBay, Engineering Manager, from R. M. Kissinger, Project Civil Engineer, re: CPSES 1-1/2" Diameter Richmond Insert Shear Test (2 page letter) plus attachment, 3/30/83 Test Report, Shear Tests on Richmond 1-1/2 inch Type EC-6W Inserts (23 page report) - referred to in NRC Staff Supplemental Testimony of Burwell, Chen, Tapia, Rajan, and Taylor regarding concerns raised by Walsh and Doyle, and the NRC CAT Report for CPSES, page 5 (received by CASE 5/13/83, about 3:00 P.M.)

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- 835 Stipulations by NRC Staff in response to CASE's 3/21/83 Request to NRC Staff for Admissions (which were submitted informally to attempt to reach stipulations)
- 836 Items regarding which there did not appear to be any SIT documents responsive to CASE requests (contained in CASE's 3/11/83 informal discovery requests)
- 8350 ✓ 837 Items regarding which there were not documents responsive to CASE requests (contained in CASE's 3/11/83 informal discovery requests to Applicants)
- 6024 ✓ 838 Calculations by Jack Doyle -- information regarding moment restraint and upper lateral restraint (10 pages) -- plus FSAR pages 3.8-103 through 3.8-110a, Section 3.8.4.2 through 3.8.4.3.5; and pages 5.4-83 and 5.4-84, Section 5.4.14.2.1 through 5.4.14.2.4; and Figure 5.4-13
- 6242 ✓ 839 ASME Winter 1982 Addenda to 1980 Code, Article NF-3000 (NF-3100 through NF-3121.15, received from NRC Staff) -- replaces second and third pages of CASE Exhibit 768, which are exactly the same except for the page numbers
- 6215 ✓ 840 FSAR pages 3.8-77 through 3.8-80a (Sections 3.8.3.3 through 3.8.3.3.2)
- 7278 ✓ 841 Revision to Resume of Mark Walsh
- 7042 ✓ 842 Revision to Resume of Jack Doyle
- 6824 ✓ 843 Friction Analysis by Jack Doyle by Board Request (1/19/83)
- 844 3/11/83 TUSI Office Memorandum to H. C. Schmidt from J. S. Marshall, re: Comanche Peak Steam Electric Station Trip Report NRC IDVP Meeting
- (7743) 845 11/19/82 NRC Inspection and Enforcement Manual, Temporary Instruction 2512/07  
*Discussed* Revision 1, Regional Construction Assessment Team Inspections
- 8350 ✓ 846 4/27/83 Letter to Juanita Ellis, CASE, from William A. Horin, Counsel for Applicants, re: summary of responses from Applicants to CASE on SIT Report
- 847 5/11/83 NRC Staff Answer to CASE's Motion for Discovery and NRC Staff Answers to CASE's Fourth Set of Interrogatories



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- 8352 ✓ 848 Stipulations by NRC Staff regarding SIT Report (Special Inspection Team Report 50-445/82-26, 50-446/82-14 on Walsh/Doyle Allegations
- 849 I&E Report 50-445/82-25, 50-446/82-13 (CB&I components - lack of vendor control)
- 850 I&E Report 50-445/82-24, 50-446/82-12 (SALP Report)
- 851 Board Notification - Alleged Design Deficiency (Board Notification No. 82-105)
- 852 QI-QAP-11.1-28 Procedure
- 7979 ✓ 853 11/16/83 TUGCO memo from C. T. Brandt to M. E. Foote/W. E. Lawrence re: using IR's for discrepant conditions