

POWER AUTHORITY OF THE STATE OF NEW YORK

10 COLUMBUS CIRCLE NEW YORK, N. Y. 10019

(212) 397-6200

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CONTROLLER

May 22, 1979

IPN-79-26

United States Nuclear Regulatory Commission
 Director of Nuclear Reactor Regulation
 Operating Reactors Branch No. 1
 Division of Operating Reactors
 Washington, D.C. 20555

REGULATORY DOCKET FILE COPY

Attention: Mr. A. Schwencer, Chief

Subject: Indian Point 3 Nuclear Power Plant
 Docket No. 50-286
Supplemental Response to IE Bulletin No. 79-07

Dear Mr. Schwencer:

This letter is in response to requests by the Nuclear Regulatory Commission (NRC) on May 17, 1979 for further information as related to I.E. Bulletin 79-07. This letter supplements our letter of April 24, 1979. Included herein is a summary of the methodology and code verification used in the original piping analysis, a tabulation of the original seismic stresses for all lines which compares seismic stresses with allowable stresses, a discussion of the methodology used in the re-analysis, the results of the seismic pipe stress re-analysis completed to date, the impact of valve weight changes, a Westinghouse Corporation methodology verification, field verification of "as-built" drawings in the Westinghouse portion of the plant, a description of the overall re-analysis program and the justification for allowing the plant to continue operation during the re-analysis.

A. Original Methodology and Code Verification

Table 1 of our April 24, 1979 letter identified the systems for which the algebraic summation method was used in the seismic stress analyses portion of the computer code used for the original pipe analysis. The computer code currently in use by United Engineers & Constructors (UE&C), a proprietary copy of which was sent to you on April 26, 1979, does not use algebraic summations.

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Item 3 of the April 24, 1979 letter discusses the verification of the computer program used by UE&C as well as the verification of the UE&C ADLPIPE-2 program. The ADLPIPE-2 program has also been verified by direct comparison with computer results obtained from the five benchmark piping problems contained in BNL-NUREG-21241-R2 (Informal Report, "Development of Solutions to Benchmark Piping Problems"). These benchmark problems are as follows:

- Problem 1 - Static Response of Hovgaard Bend
- 2 - Dynamic Response of Hovgaard Bend
- 3 - Dynamic Analysis of Coffee Table
- 4 - Static Analysis of Spence's Pipe
- 5 - Dynamic Analysis of Low Frequency Coffee Table

B. Tabulation of Original Seismic Stresses

A tabulation of the original seismic stresses for all lines which compares the seismic stresses with allowable stresses is included as Attachment 1.

C. Methodology Used in Re-analysis

Re-analysis of pipe stress was completed for 10 lines as input to the April 24th letter. An additional 5 lines were subsequently reanalyzed. All the results are within applicable allowable limits. Attachments 2 and 3 tabulate the results associated with the emergency condition and address the ability of these lines to safely withstand the design basis seismic event (DBE). A tabulation of original pipe stresses for the combination of all the applicable loading conditions (i.e. pressure, deadweight, seismic, transient, etc.) and the individual seismic loading conditions is provided to display the difference between the original analysis and the re-analysis. In this evaluation, the results obtained from a re-analysis of 15 lines are also included.

A comparison of the seismic stresses calculated by use of the original and revised computer codes shows that there is a limited ratio between the new and original stresses for the lines which have been reanalyzed. The ratios are shown graphically in Attachment 5. A review of these figures shows that the ratio of new seismic stress to the original seismic stress does not exceed 1.10 for Indian Point 3. Therefore, it is considered conservative to assume that the new seismic stress values for Indian Point 3 will not be larger than 1.5 times the seismic stress values calculated by the original code. Attachment 1 compares the original total stresses plus an additional one-half of the stress produced by the DBE, and it can be seen that the total new stresses thus derived are less than the allowable stresses for all but 10 lines. Subsequent reanalysis of 5 lines, Attachment 3, shows that these lines are within allowable. Based on similar considerations and re-analysis, the remaining 5 lines are also expected to be within allowable.

Comparison of these new total stresses with the allowables leads to our conclusion that the plant can safely withstand the postulated seismic event.

D. Impact of Valve Weight Changes

By the letter from Mr. Noon to Mr. Wilverding of the Authority dated May 21, 1979, Attachment 6, Westinghouse reported that no additional 3 inch globe and 12 inch motor operated valves were supplied for Indian Point 3. Of the 18 Velan check valves in the Indian Point 3 plant systems, 6 valves have been confirmed as having the correct weight. The remaining 12 valves are being evaluated for their impact on the analysis performed. The corrected weights will be used in the stress re-analysis program.

E. Westinghouse Corporation Methodology Verification

As noted in response 1(b) of the Authority's April 24, 1979 letter, and as indicated in the letter from Mr. Noon to Mr. Cantone of the Authority dated May 21, 1979, Attachment 7, Westinghouse utilized a non-algebraic summation method. Consequently, the concerns of I.E. Bulletin 79-07 are inapplicable.

F. As-Built Drawing Verification in Westinghouse Portion of Plant

On November 7, 1977, a team of qualified UE&C personnel began the as-built verification of safety class systems, components and structures inside the containment. As part of this verification, the Westinghouse portion of the plant was also verified. It was verified that the main steam and feedwater piping was installed as shown on piping drawings.

G. Description of Re-Analysis Program

An overall re-analysis of the safety class piping will be performed. The criteria for priority of the systems analyzed is set forth in Attachment 8. Attachment 9 indicates the flow chart for implementation of the program. The piping stress re-analysis will be based on the field verification of piping runs made on November 1977 and augmented by the field verification effort now in progress in accessible areas. This re-analysis will use the current UE&C-ADLPIPE-2 computer code.

Interim results will be made available to the NRC for review. Based on the results, the Authority may request that the re-analysis program be reduced in scope.

The schedule for this work is shown in Attachment 10 and is based on the use of the SRSS method for reanalysis. It is expected that the analysis will be completed in 16 weeks with the final report to be submitted shortly thereafter but if a different reanalysis method is used, the schedule will have to be reconsidered.

H. Justification for Continued Operation

After a thorough review of the original seismic piping design criteria and the re-analysis of selected significant safety class piping, the Authority has concluded that Indian Point 3 can be safely operated without undue risk to the health and safety of the public. This conclusion is based on an evaluation of the design margins provided in the original piping design as previously discussed and on the satisfactory results of the re-analysis of 15 selected lines.

The consequences of shutting down Indian Point 3 upon the Authority's customers are severe and must also be considered.

The Authority uses the output of Indian Point 3 together with that of its 800 Mw Astoria No. 6 oil fired plant to supply the electric requirements of its public body customers in the New York City Metropolitan area which includes the Metropolitan Transit Authority (MTA), the City of New York, the Port Authority of New York and New Jersey, the State of New York and other public corporations, through transmission facilities of Consolidated Edison. The Authority also sells power from these units to Consolidated Edison for distribution to its own customers.

The Authority would be unable to meet its customers' peak load requirements during summer 1979 if Indian Point 3 is shut down. The Authority's Astoria Unit is out of service at this time for scheduled maintenance until June 17, 1979 at the earliest.

Thus with both Indian Point 3 and Astoria 6 out of service, the Authority would have to rely heavily on power purchased from other utilities to meet its own customer load.

The maximum amount of energy available is already being purchased from Canada and is being transmitted to Southeastern New York by transmission lines operating at full capacity in order to minimize the high cost of oil-fired generation. Thus, most of the energy which would replace the output of Indian Point 3 would have to be produced in Southeastern New York.

The generating plants of the Authority are used together with those of the other seven members of the New York Power Pool (NYPP) to serve the aggregate electric requirements of New York State with maximum reliability and economy. Operation of the NYPP is coordinated with that of neighboring regions in order to maximize regional reliability and make optimum use of available generating capacity.

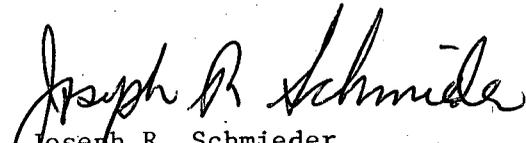
The latest projection of NYPP peak loads and available capacity for the summer of 1979 indicates that with Indian Point 3 out of service, NYPP generation operating reserve may, at times this summer, be below that required by the NYPP Operating Procedures. Astoria 6 is currently unavailable and the Authority's 800 Mw Fitzpatrick Nuclear Plant is out of service for an indefinite period. Consolidated Edison's Indian Point 2 will be out of service for refueling and maintenance this summer. It's 1000 Mw Ravenswood No. 3 Unit is out of service for major repairs until at least August 1, 1979. Unscheduled outages of other generating plants or major transmission facilities would further aggravate the situation.

If Indian Point 3 is shut down, the NYPP will be forced to rely on its inefficient oil-fired generating capacity including about 3500 Mw of combustion turbine units. The reliability of this supply this summer will only be as reliable as the availability of low sulfur fuel oil in New York harbor. Indian Point 3 replaces about 40,000 barrels of oil per day.

The cost of the replacement fuel, if burned in an efficient oil-fired unit such as Astoria 6, would be about \$600,000 per day at April 1979 prices. The combustion turbine generators have operating costs from about 30 to over 100 mils per Kwhr

at these prices. Current prices of oil are even higher and are expected to continue to rise. These additional costs will be passed on to Authority customers, particularly affecting the MTA which is providing for increased ridership in the face of reduced gasoline availability.

Very truly yours,


Joseph R. Schmieder
Chief Engineer

cc: United States Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region I
631 Park Avenue
King of Prussia, Pennsylvania 19406

Attn: Mr. Boyce H. Grier, Director, Region I

ATTACHMENT 1

FINAL STRESS REPORT TABULATION

Pages 1 through 21

FINAL STRESS REPORT TABULATION

Sheet No. /

Job Order Number

| PROB NO. | SYSTEM | LINE NO. | ISO/SHEET NO. | LOCATION Ins. or Outside Cont. | LINE SIZE | EMERGENCY CONDITION STRESS (PSI) | | | | PRIORITY CATEG | REMARKS |
|---|----------------------------|-----------------------------|---------------|--------------------------------|-----------|----------------------------------|---------------|---------------------------------|-------------------------|----------------|---------|
| | | | | | | TOTAL STRESS | SEISMIC (DBE) | ALLOWABLE (1.8 S _h) | TOT + 0.5 DBE ALLOWABLE | | |
| 436 | MAIN STEAM | 1 | 22323 | OUT. | 28" | 11,581 | 2,430 | 31,500 | .41 | | |
| 437 | | 2 | 23383 | OUT. | 28" | 17,159 | 8,400 | 31,500 | .68 | | |
| 438 | | 3 | 23023 | OUT. | 28" | 19,315 | 10,400 | 31,500 | .78 | | |
| 439 | | 4 | 22043 | OUT. | 28" | 13,925 | 4,160 | 31,500 | .51 | | |
| 533 | MAIN STEAM (SAFETY VALVES) | 1161 TO 1165 & 1176 TO 1180 | 23063 | OUT. | 14" | 3,310 | 760 | 23,000 | .16 | | |
| | | 1166 TO 1175 | | | 16" | 3,220 | 510 | 23,000 | .15 | | |
| | | | | | 14" | 2,830 | 280 | 23,000 | .13 | | |
| <p><u>NOTE:</u> • STRESS VALUES SHOWN ARE OBTAINED BY COMBINING MAX. VALUES FROM INDIVIDUAL LOADING CONDITIONS.</p> <p>• DBE SEISMIC WERE OBTAINED BY MULTIPLYING OBE SEISMIC STRESS BY FACTOR OF 1.5</p> | | | | | | | | | | | |

FINAL STRESS REPORT TABULATION

Job Order Number

| PROB NO. | SYSTEM | LINE No. | ISO/SHEET NO. | LOCATION Ins. or Outside Cont. | LINE SIZE | EMERGENCY CONDITION STRESS (PSI) | | | | PRIORITY CATEG | REMARKS | |
|----------|---|----------|---------------|-----------------------------------|-----------|----------------------------------|---------------|---------------------------------|-------------------------|----------------|-----------------------|-----|
| | | | | | | TOTAL STRESS | SEISMIC (DBE) | ALLOWABLE (1.8 S _h) | TOT + 0.5 DBE ALLOWABLE | | | |
| 424 | REACTOR COOLANT PRESSURIZER S.V. AND R.V. | 342 | 55553 | INS. | 6" | 18,837 | 15,440 | 27,000 | .98 | I, 1 | RERUN - SEE ATTACH. 3 | |
| | | ↓ | ↓ | | | 9,117 | 3,200 | 20,800 | .52 | | | |
| | | 343 | ↓ | | | 22,090 | 18,800 | 27,000 | 1.17 | | | |
| | | ↓ | ↓ | | | 7,292 | 1,370 | 20,800 | .38 | | | |
| | | 344 | ↓ | | | 18,143 | 12,397 | 27,000 | .90 | | | |
| | | ↓ | ↓ | | | 7,390 | 950 | 20,800 | .38 | | | |
| | | 70 | 55173 | | | ↓ | 11,438 | 7,745 | 27,000 | | | .57 |
| | | ↓ | ↓ | | | 10,953 | 5,539 | 27,000 | .51 | | | |
| | | ↓ | 10,243 | 5,025 | 19,200 | .66 | | | | | | |
| 470 | REACTOR COOLANT PRESSUR. SURGE | 63 | 53003 | INS. | 14" | 12,632 | 4,370 | 27,400 | .54 | | RERUN - SEE ATTACH. 2 | |

FINAL STRESS REPORT TABULATION

Job Order Number

Sheet No. **4**

| PROB NO. | SYSTEM | LINE No. | ISO/SHEET NO. | LOCATION Ins. or Outside Cont. | LINE SIZE | EMERGENCY CONDITION STRESS (PSI) | | | | PRIORITY CATEG | REMARKS |
|----------|----------------|----------|---------------|---|-----------|----------------------------------|---------------|---------------------------------|-------------------------|----------------|---------|
| | | | | | | TOTAL STRESS | SEISMIC (DBE) | ALLOWABLE (1.8 S _h) | TOT + 0.5 DBE ALLOWABLE | | |
| 475 | AUX. FEEDWATER | 1071 | 22073 | OUT | 8" | 4,360 | 1,700 | 23,000 ↓ | .23 | | |
| | | 1072 | 22293 | " | 6" | 2,535 | 800 | | .13 | | |
| | | 1073 | " | " | 6" | 3,666 | 1,650 | | .20 | | |
| | | 1074 | 22283 | " | 6" | 2,710 | 930 | | .14 | | |
| | | 1075 | " | " | 6" | 3,896 | 1,550 | | .20 | | |
| | | 1076 | " | " | 8" | 4,886 | 2,000 | | .26 | | |
| 471 | ↓ | 1016 | 22453 | OUT | 10" | 3,400 | 1,100 | 23,000 23,000 | .17 | | |
| | | 1017 | " | " | 12" | 4,280 | 1,900 | | .23 | | |

FINAL STRESS REPORT TABULATION

Sheet No. **5**

Job Order Number

| PROB NO. | SYSTEM | LINE No. | ISO/SHEET NO. | LOCATION Ins. or Outside Cont. | LINE SIZE | EMERGENCY CONDITION STRESS (PSI) | | | | PRIORITY CATEG | REMARKS |
|----------|-----------------|----------|---------------|---|-----------|----------------------------------|---------------|---------------------------------|------------------------|----------------|---------------------|
| | | | | | | TOTAL STRESS | SEISMIC (DBE) | ALLOWABLE (1.8 S _h) | TOT +0.5 DBE ALLOWABLE | | |
| 415 | AUXILIARY COOL. | 199 | 55003 | OUT | 14" | 1,772 | 100 | 27,000 | .07 | | |
| | | | | " | 10" | 2,734 | 1,230 | 27,000 | .12 | | |
| | | 209 | | " | 14" | 1,988 | 273 | 27,100 | .08 | | |
| | | | | " | 10" | 2,243 | 580 | 27,100 | .09 | | |
| | | 211 | | " | 14" | 1,903 | 180 | 27,000 | .07 | | |
| | | | | " | 10" | 5,366 | 3,570 | 27,000 | .27 | | |
| 423 | | 9 | 55153 | OUT. | 12" | 16,835 | 10,700 | 23,300 | .95 | | |
| | | 653 | 55143 | | 14" | 19,140 | 13,900 | 23,300 | 1.12 | | BERUN-SEE ATTACH. 3 |
| 433 | | 9 | 50063 | IN. | 12" | 11,473 | 5,300 | 23,300 | .61 | | |
| | | 90 | 51103 | | 8" | 9,825 | 5,150 | 27,400 | .45 | | |
| 435 | | 13 | 55623 | IN. | 6" | 3,750 | 1,470 | 27,000 | .17 | | |
| | 55633 | | " | 3" | 5,510 | 3,510 | 27,000 | .27 | | | |
| 441 | | 168 | 55073 | OUT | 8" | 5,605 | 2,960 | 18,350 | .39 | | |
| | 55093 | | " | 6" | 3,895 | 1,250 | .25 | | | | |
| | | 322 | 55093 | | 4" | 1,955 | 410 | .12 | | | |
| | | | | OUT | 6" | 4,118 | 3,050 | .31 | | | |
| 442 | | 149 | 55073 | OUT | 10" | 3,343 | 1,600 | 18,350 | .23 | | |
| | | | 55083 | " | 6" | 3,559 | 1,900 | | .25 | | |
| | | 516 | 55083 | OUT | 6" | 3,199 | 1,840 | | .22 | | |
| | | | | " | 4" | 2,251 | 680 | | .14 | | |
| | | 647 | 55083 | OUT | 6" | 1,918 | 1,100 | | .13 | | |

FINAL STRESS REPORT TABULATION

Job Order Number

| PROB NO. | SYSTEM | LINE NO. | ISO/SHEET NO. | LOCATION Ins. or Outside Cont. | LINE SIZE | EMERGENCY CONDITION STRESS (PSI) | | | | PRIORITY CATEG | REMARKS |
|----------------------------|-----------------|----------|---------------|-----------------------------------|-----------|----------------------------------|---------------|---------------------------------|-------------------------|----------------|---------|
| | | | | | | TOTAL STRESS | SEISMIC (DBE) | ALLOWABLE (1.8 S _h) | TOT + 0.5 DBE ALLOWABLE | | |
| 443 | AUXILIARY COOL. | 167 | 55033 | OUT. | 8" | 7,948 | 5,600 | 18,350 ↓ | .59 | | |
| | | | 55053 | OUT. | 6" | 3,859 | 1,680 | | .26 | | |
| | | | " | 4" | 2,743 | 1,960 | .20 | | | | |
| | | 321 | 55053 | OUT. | 6" | 3,760 | 2,560 | | .28 | | |
| 455 | | 146 | 55043 | OUT. | 3" | 1,998 | 770 | 18,350 ↓ | .13 | | |
| | | | 55033 | OUT. | 10" | 3,850 | 1,870 | | .26 | | |
| | | 55043 | " | 6" | 5,400 | 3,920 | .40 | | | | |
| | | 515 | 55043 | OUT. | 8" | 2,270 | 870 | | .15 | | |
| | | | " | 6" | 3,250 | 1,790 | .23 | | | | |
| | | 646 | 55043 | OUT. | 6" | 4,080 | 2,760 | | .30 | | |
| 457 457) 466) 457 | | 13 | 55023 | OUT. | 6" | 3,039 | 875 | 18,350 ↓ | .19 | | |
| | | | 53 | 55023 | OUT. | 16" | 5,670 | | 3,100 | .39 | |
| | | | 55033 | " | 14" | 7,509 | 4,750 | | .54 | | |
| | | 53A | ↓ | OUT. | 16" | 10,320 | 7,120 | | .76 | | |
| | | | " | " | 14" | 5,957 | 2,950 | | .41 | | |
| | | | " | " | 12" | 2,401 | 180 | | .14 | | |
| 467 | | 52A | 55063 | OUT | 16" | 4,620 | 1,420 | 18,350 ↓ | .29 | | |
| | | | 55393 | OUT | 14" | 10,220 | 7,280 | | .76 | | |
| | | | ↓ | " | 12" | 4,009 | 2,010 | | .27 | | |
| | | 52 | ↓ | " | 16" | 4,909 | 2,810 | | .34 | | |
| | | | ↓ | " | 14" | 7,831 | 5,200 | | .57 | | |
| | | | ↓ | " | 12" | 16,916 | 14,600 | | <u>1.32</u> | | |
| | | 14 | 55063 | OUT | 6" | 5,715 | 4,100 | | .42 | | |
| 466 | | 53 | 55433 | IN | 12" | 11,116 | 7,800 | 18,350 | .82 | | |

FINAL STRESS REPORT TABULATION

Job Order Number

| PROB NO. | SYSTEM | LINE NO. | ISO/SHEET NO. | LOCATION Ins. or Outside Coat. | LINE SIZE | EMERGENCY CONDITION STRESS (PSI) | | | | PRIORITY CATEG | REMARKS |
|----------|-----------------|----------|----------------|---|-----------|----------------------------------|---------------|---------------------------------|-------------------------|----------------|---------|
| | | | | | | TOTAL STRESS | SEISMIC (DBE) | ALLOWABLE (1.8 S _h) | TOT + 0.5 DBE ALLOWABLE | | |
| 477 | AUXILIARY COOL. | 14 | 55063 | OUT. | 6" | 5,140 | 2,860 | 18,350 | .36 | | |
| 478 | | 52 | 55103 | IN. | 12" | 11,066 | 8,150 | 18,350 | .83 | | |
| 479 | | 52A | 55063 55393 | OUT. OUT. | 12" | 12,778 | 9,400 | 18,350 | .95 | | |
| 480 | | 53 | 55433 | IN. | 12" | 11,116 | 7,800 | 18,350 | .82 | | |
| 481 | | 53A | 55023 55033 | OUT. | 12" | 15,213 | 10,407 | 18,350 | 1.11 | | |
| 496 | | 125 | 52673 | OUT. | 3" | 984 | 230 | 32,800 | .03 | | |
| | | 327 | 52673 | OUT. | 8" | 2,177 | 280 | | .07 | | |
| | | 328 | " | " | 8" | 8,682 | 6,300 | | .36 | | |
| | | 329 | " | " | 10" | 3,639 | 1,440 | | .13 | | |
| 513 | | 325 | 52553 | OUT. | 8" | 2,923 | 740 | 18,350 | .18 | | |
| | | 326 | " | " | 8" | 1,327 | 170 | 18,350 | .08 | | |
| 477 | | 14 | 55593 | IN. | 4" | 5,040 | 2,940 | 18,350 | .35 | | |
| | | | | " | 3" | 7,430 | 5,430 | 18,350 | .55 | | |
| | | 14A | 55603 | IN. | 4" | 12,900 | 10,800 | 21,600 | .85 | | |
| | | | | " | 3" | 12,846 | 10,800 | 21,600 | .84 | | |
| | | 14B | 55613 | IN. | 3" | 10,804 | 8,800 | 21,600 | .70 | | |
| | | 14C | 55613 | IN. | 3" | 12,800 | 10,800 | 21,600 | .84 | | |

FINAL STRESS REPORT TABULATION

Sheet No. **8**

Job Order Number

| PROB NO. | SYSTEM | LINE NO. | ISO/SHEET NO. | LOCATION Ins. or Outside Cont. | LINE SIZE | EMERGENCY CONDITION STRESS (PSI) | | | | PRIOR- ITY CATEG | REMARKS |
|----------|---------------|----------|---------------|---|-----------|----------------------------------|---------------|---------------------------------|-------------------------|------------------------|-----------------------|
| | | | | | | TOTAL STRESS | SEISMIC (DBE) | ALLOWABLE (1.8 S _h) | TOT + 0.5 DBE ALLOWABLE | | |
| 416 | SERVICE WATER | 407 | 55123 | OUT. | 20" | 7,338 | 3,430 | 25,500 | .36 | | |
| 417 | | 11A | 53533 | OUT. | 10" | 8,364 | 7,230 | 25,500 | .47 | | |
| | | 11B | ↓ | ↓ | 10" | 8,367 | 7,000 | ↓ | .47 | | |
| | | 11C | ↓ | ↓ | 10" | 3,954 | 2,400 | ↓ | .20 | | |
| | | 11D | ↓ | ↓ | 10" | 6,869 | 5,400 | ↓ | .38 | | |
| | | 11E | ↓ | ↓ | 10" | 3,160 | 1,260 | ↓ | .15 | | |
| | | 408 | ↓ | OUT. | 24" | 5,991 | 2,710 | ↓ | .29 | | |
| 418 | | 409 | 53543 | OUT. | 24" | 7,338 | 3,706 | 25,500 | .36 | | |
| 420 | | 405 | 55113 | OUT. | 24" | 12,882 | 8,050 | 27,000 | .63 | | |
| | | 410 | ↓ | ↓ | 14" | 1,995 | 250 | 27,000 | .08 | | |
| | | 509 | ↓ | ↓ | 18" | 2,243 | 120 | 27,000 | .09 | | |
| 432 | | 411 | 55163 | OUT. | 20" | 9,303 | 5,650 | 25,500 | .48 | | |
| 440 | | 12A | 53523 | OUT. | 10" | 8,340 | 5,400 | 25,500 | .43 | | |
| | | 12B | ↓ | ↓ | ↓ | 9,936 | 6,700 | ↓ | .52 | | |
| | | 12C | ↓ | ↓ | ↓ | 8,430 | 5,400 | ↓ | .44 | | |
| | | 12D | ↓ | ↓ | ↓ | 13,145 | 11,300 | ↓ | .74 | | |
| | | 12E | ↓ | ↓ | ↓ | 12,927 | 10,950 | ↓ | .72 | | |
| | | 406 | ↓ | OUT. | 18" | 19,096 | 14,250 | ↓ | 1.03 | | |
| | | | | | | | | | | | RERUN - SEE ATTACH. 3 |

FINAL STRESS REPORT TABULATION

Sheet No. 9

Job Order Number

| PROB NO. | SYSTEM | LINE NO. | ISO/SHEET NO. | LOCATION Ins. or Outside Cont. | LINE SIZE | EMERGENCY CONDITION STRESS (PSI) | | | | PRIORITY CATEG | REMARKS |
|----------|---------------|----------|---------------|-----------------------------------|-----------|----------------------------------|---------------|---------------------------------|-------------------------|---------------------|---------|
| | | | | | | TOTAL STRESS | SEISMIC (DBE) | ALLOWABLE (1.8 S _h) | TOT + 0.5 DBE ALLOWABLE | | |
| 499 | SERVICE WATER | 1081 | 22423 | OUT | 14" | 15,378 | 13,500 | 27,000 | .82 | | |
| | | 1082 | ↓ | ↓ | ↓ | 15,045 | 13,500 | ↓ | .81 | | |
| | | 1083 | ↓ | ↓ | ↓ | 15,212 | 13,500 | ↓ | .81 | | |
| | | 1084 | ↓ | ↓ | ↓ | 15,212 | 13,500 | ↓ | .81 | | |
| | | 1085 | ↓ | ↓ | ↓ | 15,045 | 13,500 | ↓ | .81 | | |
| | | 1086 | ↓ | ↓ | ↓ | 15,378 | 13,500 | ↓ | .82 | | |
| 522 | | 12A | 53083 | IN. | 10" | 16,095 | 13,500 | 25,500 | .90 | RERUN-SEE ATTACH. 2 | |
| | | | 55783 | | 10" | 8,050 | 5,400 | 10,800 | 1.00 | | |
| | | 12B | ↓ | " | 10" | 15,782 | 13,500 | 25,500 | .88 | | |
| | | | ↓ | " | ↓ | 7,690 | 5,400 | 10,800 | .96 | | |
| | | 12C | ↓ | " | ↓ | 16,834 | 13,800 | 25,500 | .93 | | |
| | | | ↓ | " | ↓ | 2,984 | 830 | 10,800 | .31 | | |
| | | 12D | 53083 | IN. | ↓ | 15,613 | 13,500 | 25,500 | .88 | | |
| | | | 55793 | | ↓ | 7,857 | 5,400 | 10,800 | .98 | | |
| | | 12E | ↓ | " | ↓ | 16,793 | 13,500 | 25,500 | .92 | | |
| | | | ↓ | " | ↓ | 8,189 | 5,400 | 10,800 | 1.00 | | |
| 521 | | 11A | 53083 | IN. | 10" | 16,119 | 13,500 | 25,500 | .90 | RERUN-SEE ATTACH. 2 | |
| | | | 55783 | | | 7,580 | 5,400 | 10,800 | .95 | | |
| | | 11B | ↓ | " | | 16,286 | 13,500 | 25,500 | .90 | | |
| | | | ↓ | " | | 8,430 | 5,400 | 10,800 | 1.03 | | |
| | | 11C | ↓ | " | | 15,895 | 13,500 | 25,500 | .89 | | |
| | | | ↓ | " | | 7,969 | 5,400 | 10,800 | .99 | | |
| 11D | 55793 | IN. | ↓ | 4,861 | 2,660 | 25,500 | .24 | | | | |
| | 53083 | | ↓ | 3,319 | 500 | 10,800 | .33 | | | | |
| 11E | ↓ | " | ↓ | 13,058 | 9,900 | 25,500 | .71 | | | | |
| | ↓ | " | ↓ | 3,972 | 1,340 | 10,800 | .43 | | | | |

FINAL STRESS REPORT TABULATION

Sheet No. 10

Job Order Number

| PROB NO. | SYSTEM | LINE NO. | ISO/SHEET NO. | LOCATION Ins. or Outside Cont. | LINE SIZE | EMERGENCY CONDITION STRESS (PSI) | | | | PRIORITY CATEG | REMARKS |
|----------|-----------------------------------|----------|----------------|-----------------------------------|-----------|----------------------------------|---------------|---------------------------------|-------------------------|----------------|---------|
| | | | | | | TOTAL STRESS | SEISMIC (DBE) | ALLOWABLE (1.8 S _h) | TOT + 0.5 DBE ALLOWABLE | | |
| 413 | SAFETY INJECTION (CONT. SPRAY) | 15 | 55013 | OUT. | 8" | 15,015 | 11,400 | 33,700 | .61 | | |
| | | 51 | " | " | 8" | 11,886 | 8,320 | 33,700 | .48 | | |
| 414 | | 181 | 55133 | OUT. | 12" | 10,590 | 7,930 | 33,700 | .43 | | |
| | | | " | " | 10" | 4,000 | 2,790 | 33,700 | .16 | | |
| | | 314 | " | " | 10" | 3,890 | 2,680 | 33,700 | .16 | | |
| 425 | | 15 | 51633 | IN. | 8" | 8,712 | 6,400 | 28,500 | .42 | | |
| | | 51 | 26223 26233 | IN. | 8" | 19,424 | 14,937 | 28,500 | .94 | | |
| | | 93 | 51623 55183 | IN. | 8" | 9,738 | 5,400 | 23,400 | .53 | | |
| | | 94 | 51623 55193 | IN. | 8" | 17,414 | 10,065 | 23,400 | .96 | | |
| | | 824 | 51603 | IN | 6" | 17,632 | 14,400 | 28,500 | .87 | | |
| | | 825 | " | " | ↓ | 12,150 | 8,700 | | .58 | | |
| | | 826 | " | " | ↓ | 21,280 | 17,900 | | 1.06 | | |
| | | 827 | " | " | ↓ | 25,590 | 21,600 | | 1.28 | | |
| 433 | | 91 | 51103 50403 | IN | 8" | 6,828 | 2,750 | 27,400 | .30 | | |
| | | 293 | " | IN | 10" | 6,254 | 1,620 | 27,400 | .26 | | |
| | | | " | | 8" | 6,054 | 1,720 | 27,400 | .25 | | |

FINAL STRESS REPORT TABULATION

Sheet No. 11

Job Order Number

| PROB NO. | SYSTEM | LINE NO. | ISO/SHEET NO. | LOCATION Ins. or Outside Cont. | LINE SIZE | EMERGENCY CONDITION STRESS (PSI) | | | | PRIORITY CATEG | REMARKS |
|----------|-----------------------------------|----------|-------------------------|-----------------------------------|-----------|----------------------------------|---------------|---------------------------------|-------------------------|----------------|------------------------|
| | | | | | | TOTAL STRESS | SEISMIC (DBE) | ALLOWABLE (1.8 S _h) | TOT + 0.5 DBE ALLOWABLE | | |
| 492 | SAFETY INJECTION (CONT. SPRAY) | 15 | 51633 | IN. | 8" | 8,712 | 6,400 | 28,500 | .42 | | |
| 493 | | 51 | 51633 | IN. | 8" | 15,323 | 9,400 | 28,500 | .70 | | |
| 494 | | 93 | 51623 55183 | IN. IN. | 8" | 9,738 | 5,400 | 23,400 | .53 | | |
| 495 | | 94 | 51623 55193 | IN. IN. | 8" | 17,414 | 10,065 | 23,400 | .96 | | RERUN-SEE ATTACH. 3 |
| | | | | | 8" | 21,405 | 15,100 | 28,500 | 1.02 | | |
| 524 | | 475 | 52393 52403 | IN. | 2" | 17,177 | 14,600 | 29,000 | .84 | | |
| | | 611 | 52393 52403 52623 | IN. | 2" | 17,251 | 14,600 | 29,000 | .85 | | |
| | | 612 | 52623 | IN. | 2" | 16,926 | 14,600 | 29,000 | .84 | | |
| | | 613 | " | IN. | 2" | 16,787 | 14,600 | 29,000 | .83 | | |
| | | 614 | " | IN. | 2" | 16,418 | 14,600 | 29,000 | .82 | | |

FINAL STRESS REPORT TABULATION

Job Order Number

| PROB NO. | SYSTEM | LINE NO. | ISO/SHEET NO. | LOCATION Ins. or Outside Cont. | LINE SIZE | EMERGENCY CONDITION STRESS (PSI) | | | | PRIORITY CATEG | REMARKS |
|----------|---|----------|---------------|---|-----------|----------------------------------|---------------|---------------------------------|-------------------------|----------------|------------------------|
| | | | | | | TOTAL STRESS | SEISMIC (DBE) | ALLOWABLE (1.8 S _H) | TOT + 0.5 DBE ALLOWABLE | | |
| 401 | SAFETY INJECTION (ACCUMULATOR DISCHARGE) | 351 | 55543 | IN. | 10" | 16,745 | 11,800 | 32,800 | .69 | | RERUN-SEE ATTACH. 2 |
| | | | | | 10" | 10,755 | 9,500 | 32,800 | .47 | | |
| 402 | | 352 | 55383 | IN | 10" | 8,082 | 3,240 | 28,800 | .34 | | |
| | | | | | 10" | 10,548 | 5,750 | 28,800 | .47 | | |
| | | | | | 10" | 16,844 | 9,500 | 26,000 | .83 | | |
| | | | | | 10" | 2,918 | 1,460 | 26,000 | .14 | | |
| 404 | | 351 | 55543 | IN | 10" | 6,740 | 1,470 | 28,800 | .26 | | |
| | | | | | 10" | 6,177 | 1,400 | 28,800 | .24 | | |
| | | | | | 10" | 7,403 | 2,345 | 32,800 | .26 | | |
| 405 | | 350 | 55373 | IN | 10" | 5,558 | 620 | 28,800 | .20 | | |
| | | | | | 10" | 5,278 | 720 | 28,800 | .20 | | |
| | | | | | 10" | 5,305 | 380 | 26,000 | .21 | | |
| | | | | | 10" | 1,438 | 160 | 26,000 | .06 | | |
| 406 | | 353 | | IN | 10" | 7,014 | 2,200 | 28,800 | .28 | | |
| | | | | | 10" | 6,147 | 1,200 | 28,800 | .23 | | |
| | | | | | 10" | 11,118 | 6,700 | 26,000 | .56 | | |
| | | | | | 10" | 2,113 | 630 | 26,000 | .09 | | |

FINAL STRESS REPORT TABULATION

Sheet No. **13**

Job Order Number

| PROB NO. | SYSTEM | LINE NO. | ISO/SHEET NO. | LOCATION Ins. or Outside Cont. | LINE SIZE | EMERGENCY CONDITION STRESS (PSI) | | | | PRIOR- ITY CATEG | REMARKS |
|----------|-----------------------|----------|---------------|---|-----------|----------------------------------|---------------|---------------------------------|------------------------|------------------------|----------------------|
| | | | | | | TOTAL STRESS | SEISMIC (DBE) | ALLOWABLE (1.8 S _h) | TOT +0.5 DBE ALLOWABLE | | |
| 402 | RESIDUAL HEAT REMOVAL | 356 | 55683 | IN. | 6" | 14,630 | 7,650 | 25,300 | .73 | | |
| 404 | | 355 | 55203 | IN. | 8" | 7,810 | 2,720 | 28,800 | .32 | | |
| | | | | | 8" | 10,800 | 3,920 | 28,800 | .44 | | |
| | | | | | 6" | 16,718 | 7,000 | 28,800 | .70 | | |
| | | | | | 8" | 18,162 | 12,750 | 26,600 | .92 | | |
| | | 356 | 55683 | IN. | 6" | 14,075 | 4,700 | 29,900 | .55 | | |
| | | 359 | 55343 | IN. | 8" | 8,922 | 2,465 | 28,800 | .35 | | |
| 405 | | 361 | 55353 | IN. | 6" | 17,078 | 10,000 | 29,900 | .74 | | |
| 406 | | 358 | 55343 | IN. | 8" | 7,619 | 2,850 | 28,800 | .31 | | |
| | | | | | 8" | 10,546 | 4,350 | 28,800 | .44 | | |
| | | | | | 8" | 12,284 | 6,950 | 26,600 | .59 | | |
| | | | | | 6" | 12,622 | 6,300 | 28,800 | .55 | | |
| | | 361 | 55353 | IN. | 6" | 19,715 | 12,850 | 29,900 | .87 | | |
| 407 | | 60 | 53553 | IN. | 8" | 17,570 | 12,150 | 27,400 | .86 | | |
| | | 89 | " | IN. | 6" | 13,844 | 9,250 | 27,400 | .67 | | |
| 408 | | 10 | 50103 | IN. | 14" | 8,786 | 2,860 | 28,800 | .35 | | RERUN- SEE ATTACH. 2 |
| | | | " | " | " | 14" | 7,841 | 1,840 | 23,300 | | |

FINAL STRESS REPORT TABULATION

Sheet No. 14

Job Order Number

| PROB NO. | SYSTEM | LINE NO. | ISO/SHEET NO. | LOCATION Ins. or Outside Cont. | LINE SIZE | EMERGENCY CONDITION STRESS (PSI) | | | | PRIOR- RITY CATEG | REMARKS |
|----------|--------------------------|----------|----------------|---|-----------|----------------------------------|---------------|---------------------------------|-------------------------|-------------------------|------------------------|
| | | | | | | TOTAL STRESS | SEISMIC (DBE) | ALLOWABLE (1.8 S _h) | TOT + 0.5 DBE ALLOWABLE | | |
| 423 | RESIDUAL HEAT REMOVAL | 9 | 55153 | OUT. | 12" | 16,835 | 10,700 | 23,300 | .95 | | RERUN-SEE ATTACH. 3 |
| | | 57 | 55143 | OUT. | 18" | 5,493 | 1,550 | 23,300 | .27 | | |
| | | | | | 12" | 14,103 | 8,250 | 23,300 | .78 | | |
| | | 10 | 55143 | OUT. | 14" | 19,724 | 14,900 | 23,300 | 1.17 | | |
| | | 155 | 55143 | OUT. | 16" | 10,074 | 6,500 | 27,400 | .49 | | |
| | | 190 | 55153 | OUT. | 8" | 14,425 | 8,800 | 28,500 | .66 | | |
| 433 | | 9 | 50063 | IN. | 12" | 11,473 | 5,300 | 23,300 | .61 | | |
| 446 | | 31 | 51203 | OUT. | 3/4" | 18,026 | 15,000 | 30,800 | .83 | | |
| 433 | | 293 | 51103 50403 | IN | 10" | 6,254 | 1,620 | 27,400 | .26 | | |
| 451 | | 60 | 55403 | OUT | 8" | 12,905 | 10,875 | 28,500 | .64 | | |
| 517 | | 337 | 52443 | OUT | 3" | 14,343 | 11,700 | 23,400 | .86 | | |
| 543 | | 205 | 52583 | OUT | 4" | 19,720 | 16,900 | 33,700 | .84 | | |

FINAL STRESS REPORT TABULATION

Sheet No. **15**

Job Order Number

| PROB NO. | SYSTEM | LINE NO. | ISO/SHEET NO. | LOCATION Ins. or Outside Cont. | LINE SIZE | EMERGENCY CONDITION STRESS (PSI) | | | | PRIORITY CATEG | REMARKS | | |
|----------|---------------------------------------|----------|---------------|---|-----------|----------------------------------|---------------|---------------------------------|-------------------------|----------------|------------------------|--------|-----|
| | | | | | | TOTAL STRESS | SEISMIC (DBE) | ALLOWABLE (1.8 S _h) | TOT + 0.5 DBE ALLOWABLE | | | | |
| 407 | SAFETY INJECTION (BORON INJECTION) | 60 | 55403 | OUT. | 6" | 9,388 | 5,085 | 27,400 | .44 | | | | |
| 409 | | 56 | 50103 | IN. | 2" | 6,135 | 2,980 | 28,800 | .27 | | RERUN-SEE ATTACH. 2 | | |
| | | | | IN. | 2" | 5,821 | 2,400 | 30,800 | .23 | | | | |
| | | | | IN. | 6" | 14,005 | 8,100 | 26,500 | .68 | | | | |
| | | | | IN. | 2" | 5,444 | 1,300 | 26,500 | .23 | | | | |
| 422 | | 595 | 53383 | OUT. | 2" | 18,827 | 16,000 | 32,000 | .84 | | | | |
| 445 | | 518 | 54183 | OUT. | 6" | 9,062 | 6,824 | 28,500 | .44 | | | | |
| 447 | | 270 | 55483 | OUT. | 3/4" | 20,474 | 16,000 | 32,000 | .89 | | | | |
| 449 | | 56 | 50323 | OUT. | 6" | 7,426 | 1,830 | 26,500 | .32 | | | | |
| | | | | " | 4" | 8,694 | 4,080 | 26,500 | .41 | | | | |
| | | | | 145 | 55323 | OUT. | 4" | 17,293 | 11,900 | | | 26,500 | .88 |
| | | | | 550 | 55583 | OUT. | 6" | 11,113 | 5,200 | | | 26,500 | .52 |
| | | | | " | 4" | 7,662 | 2,900 | 26,500 | .34 | | | | |
| 451 | | 277 | 55403 | OUT. | 6" | 9,093 | 7,725 | 28,500 | .46 | | | | |
| | | | | " | 6" | 9,897 | 8,700 | 28,500 | .50 | | | | |
| | | | | 60 | " | 6" | 6,640 | 4,950 | 28,500 | | | .32 | |
| | | | | 189 | 55333 | " | 8" | 10,324 | 7,250 | | | 28,500 | .49 |
| 456 | | 16 | 55563 | OUT. | 4" | 13,762 | 8,850 | 32,000 | .57 | | | | |
| 474 | | 161 | 52213 | OUT. | 2" | 15,600 | 11,160 | 22,300 | .95 | | | | |
| | | | | " | 1" | 13,680 | 11,160 | 22,300 | .86 | | | | |
| | | | | " | 3/4" | 14,980 | 11,160 | 22,300 | .92 | | | | |
| | | | | " | 3" | 12,060 | 10,500 | 21,100 | .82 | | | | |
| | | | | " | 2" | 12,131 | 10,500 | 21,100 | .82 | | | | |

FINAL STRESS REPORT TABULATION

Sheet No. 16

Job Order Number

| PROB NO. | SYSTEM | LINE NO. | ISO/SHEET NO. | LOCATION Ins. or Outside Cont. | LINE SIZE | EMERGENCY CONDITION STRESS (PSI) | | | | PRIORITY CATEG | REMARKS |
|----------|---------------------------------------|----------|---------------|---|-----------|----------------------------------|---------------|---------------------------------|-------------------------|----------------|---------------------|
| | | | | | | TOTAL STRESS | SEISMIC (DBE) | ALLOWABLE (1.8 S _H) | TOT + 0.5 DBE ALLOWABLE | | |
| 486 | SAFETY INJECTION (BORON INJECTION) | 754 | 52013 | IN. | 1½" | 13,235 | 9,800 | 33,300 | .55 | | |
| 487 | | 16 | 50313 | IN. | 1½" | 12,877 | 7,200 | 28,800 | .57 | | |
| | | | | IN. | 1½" | 9,278 | 5,670 | 30,800 | .39 | | |
| 488 | | 16A | 55983 | IN | 1½" | 13,729 | 9,600 | 28,800 | .64 | | |
| | | | | IN | 1½" | 14,186 | 9,800 | 30,800 | .62 | | |
| 497 | | 753 | 51993 | IN | 1½" | 6,895 | 2,570 | 33,300 | .25 | | |
| 511 | | 38B | 55533 | IN | 1" | 16,627 | 12,400 | 24,700 | .92 | | |
| | | | | IN | ¾" | 15,300 | 12,400 | 24,700 | .87 | | |
| 535 | | 28A | 52613 | OUT | 2" | 16,406 | 14,200 | 28,400 | .83 | | |
| | | | | OUT | 2" | 19,349 | 16,000 | 32,000 | .86 | | |
| 544 | | 525 | 50543 | IN | 1" | 18,380 | 15,300 | 30,600 | .85 | | |
| 546 | | 56A | 50483 | IN | 2" | 6,552 | 3,151 | 30,750 | .26 | | RERUN-SEE ATTACH. 2 |
| 547 | | 845 | 53103 | IN | 2" | 5,509 | 2,148 | 24,300 | .27 | | |
| | | | | " | 3" | 8,820 | 4,631 | 24,300 | .46 | | |
| | | | | " | 2" | 8,051 | 4,198 | 24,300 | .42 | | |
| | | | | " | 2" | 12,176 | 7,497 | 24,300 | .25 | | |
| 548 | | 84A | 53093 | IN | 2" | 9,029 | 5,112 | 28,800 | .40 | | |
| | | | | " | 2" | 16,868 | 12,467 | 30,780 | .75 | | |

FINAL STRESS REPORT TABULATION

Job Order Number

| PROB NO. | SYSTEM | LINE NO. | ISO/SHEET NO. | LOCATION Ins. or Outside Cont. | LINE SIZE | EMERGENCY CONDITION STRESS (PSI) | | | | PRIOR- ITY CATEG | REMARKS |
|----------|-------------------|----------|---------------|---|-----------|----------------------------------|---------------|---------------------------------|-------------------------|------------------------|---------|
| | | | | | | TOTAL STRESS | SEISMIC (DBE) | ALLOWABLE (1.8 S _h) | TOT + 0.5 DBE ALLOWABLE | | |
| 454 | INSTR. - AIR ↓ | 1140 | 22303 | OUT. | 6" | 2,800 | 520 | 27,000 | .11 | | |
| | | 1141 | " | ↓ | 6" | 2,800 | 520 | 27,000 | .11 | | |
| | | 1142 | " | ↓ | 6" | 2,838 | 1,450 | 27,000 | .13 | | |
| | | 1143 | " | ↓ | 6" | 2,836 | 1,450 | 27,000 | .13 | | |
| | | 1144 | " | ↓ | 3" | 2,223 | 850 | 27,000 | .10 | | |
| | | 1145 | " | ↓ | 3" | 1,514 | 750 | 27,000 | .07 | | |

FINAL STRESS REPORT TABULATION

Sheet No. 19

Job Order Number

| PROB NO. | SYSTEM | LINE NO. | ISO/SHEET NO. | LOCATION Ins. or Outside Cont. | LINE SIZE | EMERGENCY CONDITION STRESS (PSI) | | | | PRIORITY CATEG | REMARKS |
|----------|-------------|----------|---------------|---|-----------|----------------------------------|---------------|---------------------------------|-------------------------|----------------|---------|
| | | | | | | TOTAL STRESS | SEISMIC (DBE) | ALLOWABLE (1.8 S _H) | TOT + 0.5 DBE ALLOWABLE | | |
| 514 | DIESEL GEN. | 1087 | 22463 | OUT. | 8" | 2,850 | 650 | 23,000 | .14 | | |
| | | 1088 | " | ↓ | 8" | 2,850 | 650 | 23,000 | .14 | | |
| | | 1089 | " | ↓ | 8" | 2,850 | 650 | 23,000 | .14 | | |
| | | 1090 | " | ↓ | 8" | 2,750 | 1,250 | 23,000 | .15 | | |
| | | 1091 | " | ↓ | 8" | 2,750 | 1,250 | 23,000 | .15 | | |
| | | 1092 | " | ↓ | 8" | 2,750 | 1,250 | 23,000 | .15 | | |
| 514 | ↓ | 1208 | 22463 | OUT | 18" | 3,970 | 1,100 | 9,000 | .50 | | |
| | | 1209 | " | ↓ | 18" | 3,970 | 1,100 | 9,000 | .50 | | |
| | | 1210 | " | ↓ | 18" | 3,970 | 1,100 | 9,000 | .50 | | |

INP-3

PIPE STRESS SUMMARY
EMERGENCY CONDITION

| SYSTEM | LINE NO. | SIZE (IN) | EMERGENCY CONDITION (PSI) | | | | |
|--------|----------|-----------|---------------------------|---------------|-----------|-------------|--------|
| | | | ORIG. TOTAL | ORIG. SEISMIC | NEW TOTAL | NEW SEISMIC | ALLOW. |
| RHR | 10 | 14 | 8,786 | 2,860 | 8,718 | 2,792 | 28,800 |
| RCS | 63 | 14 | 12,632 | 4,370 | 12,915 | 4,653 | 28,800 |
| CVC | 80 | 3 | 13,255 | 8,500 | 13,381 | 8,625 | 28,800 |
| CVC | 96 | 3 | 8,313 | 3,360 | 8,229 | 3,276 | 28,800 |
| SIS | 351 | 10 | 16,745 | 11,800 | 15,093 | 10,148 | 32,800 |
| SIS | 56 | 6 | 14,005 | 8,100 | 11,985 | 6,080 | 26,500 |
| SIS | 56 | 2 | 6,135 | 2,980 | 6,161 | 3,006 | 28,800 |
| SIS | 56-A | 2 | 9,170 | 5,223 | 7,579 | 4,178 | 28,800 |
| SWS | 11-D | 10 | 4,861 | 2,660 | 4,115 | 1,914 | 25,500 |
| SWS | 12-C | 10 | 16,834 | 13,800 | 14,115 | 11,081 | 25,500 |

ATTACHMENT 5
RATIO EVALUATION SUMMARY
 (INDIAN PT. 3)

INDIAN PT. 3

| RATIO | (MIN) 0.39 | 0.75 | 1.00 | 1.10 (MAX) |
|-------------------------------------|------------|------|------|------------|
| NUMBER OF LINES ANALYZED (TOTAL 10) | 3 | 9 | 3 | |
| PERCENT OF LINES | 20% | 60% | 20% | |
| PERCENT OF LINES | | 80% | 20% | |

TELE COPY
580

Westinghouse
Electric Corporation

Water Reactor
Divisions

Nuclear Service Division

Box 2728
Pittsburgh, Pennsylvania 15230

*Attn: R. F. Quinn
From: E. Noon*

ATTACHMENT 6

INT-79-560

May 21, 1979

Mr. George Wilverding
Licensing Engineer
Power Authority State of New York
10 Columbus Circle
New York, New York 10019

Dear Mr. Wilverding:

Subject: Weights of Velan Valves, Indian Point Unit No. 2 and Unit No. 3

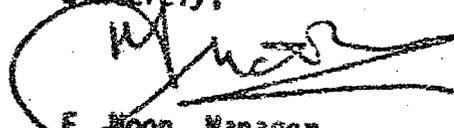
Reference: INT-79-528

Subsequent to the letter referenced above, Westinghouse became aware of additional errors in Velan valve weight estimates. Actual weights for Velan 3 inch globe valves and 12 inch motor operated valves were found to be different than the estimates found on the drawings.

Our records show that neither the 3 inch globe nor the 12 inch motor operated valves were supplied to either Indian Point Plant 2 or 3.

Please contact this office should you have further questions on this subject.

Sincerely,



E. Noon, Manager
Eastern Region & WNI Support

R. J. Sero:cam

- cc: S. H. Cantone
- J. P. Bayne
- S. S. Zulla
- P. J. Early
- K. S. Sunder Raj
- P. W. Lyon
- M. G. Cheney
- G. J. Keane

Westinghouse
Electric Corporation

Water Reactor
Divisions

Nuclear Service Division

Box 2728
Pittsburgh, Pennsylvania 15228

INT-79-559
M-SSA-342

May 21, 1979

ATTACHMENT 7

Mr. S. H. Cantone, Superintendent of Power
Power Authority State of New York
P. O. Box 215
Buchanan, New York 10511

Dear Mr. Cantone:

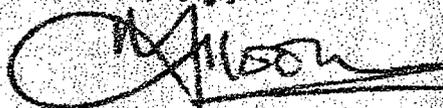
Subject: Seismic Stress Analysis of Safety-Related Piping - IE Bulletin
No. 79-07

Reference: INT-79-542

In response to our telephone conversation on May 18, 1979, Westinghouse re-confirms the information previously transmitted (see above reference) in response to NRC Bulletin IE-79-07. In particular, Westinghouse performed the seismic analyses for the Reactor Coolant loop, main steam, and main feed-water piping. These analyses were performed with the computer code WESTDYN and used an absolute summation of intramodal responses.

The code WESTDYN was documented for the Nuclear Regulatory Commission in WCAP-8252, Revision 1, "Documentation of Selected Westinghouse Structural Analysis Computer Codes", May 1977.

Sincerely,



F. Noon, Manager
Eastern Region & WNI Support

R. N. Brandon:cam

cc: J. P. Bayne
S. S. Zulla
P. J. Early
K. S. Sunder Raj
P. M. Lyon
M. G. Cheney
G. J. Keane

TELECOPY
579

Attn:
R.F. Duvall
From:
E. Morris

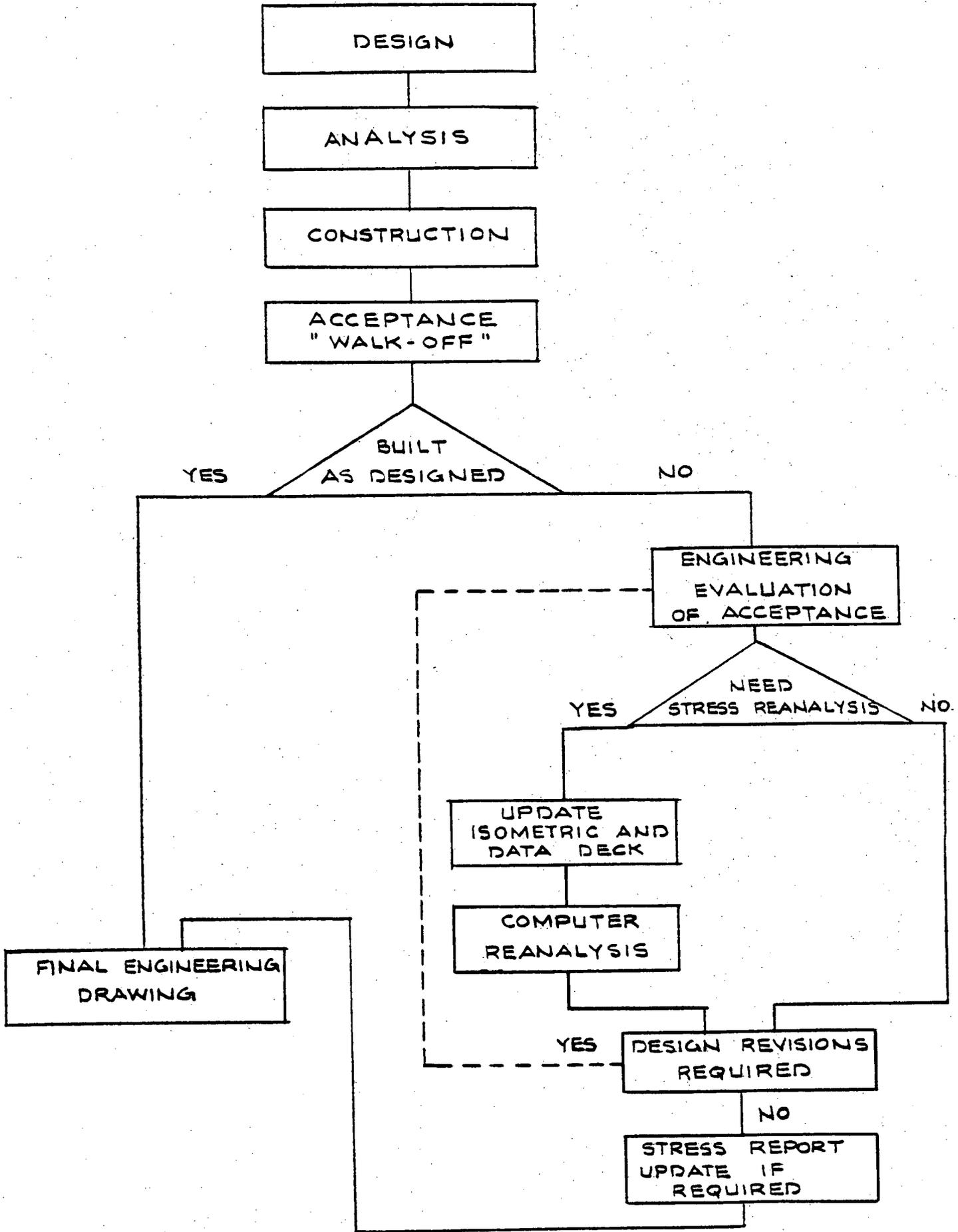
ATTACHMENT 8

RE-ANALYSIS PRIORITY CRITERIA

The following is the criteria that was used to establish the priority for the reanalysis for seismic stress of the Class I Seismic Piping.

| <u>Category</u> | <u>Description</u> |
|------------------|--|
| Complete 4/24/79 | Initial re-analysis of 10 lines |
| 1 | Selected lines whose failure is a "loss of coolant accident" (i.e., piping attached to the Reactor Coolant System). |
| 2 | Selected lines whose function it is to mitigate the consequences of a loss of coolant accident. (i.e, Engineered Safeguards) |
| 3 | Selected lines whose function it is to prevent the release of radioactivity. |
| 4 | Other Class I Seismic Systems - so classified because of the effect of their failure. |

ATTACHMENT 9



REANALYSIS SCHEDULE

INDIAN POINT UNIT NO 3

5/18 6/1 6/15 6/29 7/13 7/27 8/10 8/24 9/7 9/21

