

50-305

RESPONSE TO NUREG-0737 ITEM II.D.1

Docket # *50-305*

Control # *8403280048*

Date *3/23/84* of Document:
REGULATORY DOCKET FILE

| | | | | | | | | | | | | | |
|-------|-------|-------|--------|--------|-------|--------|--------|--------|--------|--------|-------|---------|-------|
| .3050 | 975. | 470. | 188. | -2001. | 4664. | -3389. | -1558. | -1533. | -2404. | -0.132 | .0595 | -0.0292 | 2449. |
| .3060 | 1577. | 449. | -49. | -2145. | 5167. | -3611. | -1588. | -1593. | -2506. | -0.111 | .0565 | -0.0279 | 2672. |
| .3070 | 2432. | 403. | -409. | -2248. | 5599. | -3756. | -1617. | -1639. | -2594. | -0.089 | .0531 | -0.0260 | 2852. |
| .3080 | 3057. | 334. | -690. | -2310. | 5942. | -3828. | -1645. | -1671. | -2666. | -0.066 | .0492 | -0.0235 | 2984. |
| .3090 | 3307. | 246. | -832. | -2374. | 6188. | -3827. | -1667. | -1688. | -2719. | -0.046 | .0451 | -0.0206 | 3066. |
| .3100 | 3533. | 147. | -980. | -2318. | 6339. | -3746. | -1681. | -1688. | -2752. | -0.028 | .0408 | -0.0173 | 3098. |
| .3110 | 4002. | 45. | -1245. | -2262. | 6401. | -3585. | -1685. | -1673. | -2767. | -0.013 | .0364 | -0.0141 | 3081. |
| .3120 | 4423. | -55. | -1502. | -2172. | 6372. | -3361. | -1677. | -1642. | -2763. | -0.003 | .0322 | -0.0111 | 3019. |
| .3130 | 4331. | -147. | -1553. | -2054. | 6249. | -3091. | -1663. | -1598. | -2737. | .0004 | .0283 | -0.0086 | 2917. |
| .3140 | 3754. | -224. | -1405. | -1915. | 6038. | -2738. | -1637. | -1543. | -2691. | .0006 | .0249 | -0.0067 | 2777. |
| .3150 | 3162. | -282. | -1250. | -1763. | 5753. | -2453. | -1603. | -1476. | -2626. | .0003 | .0220 | -0.0055 | 2608. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.28.55.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | 45 | MEMBER | 1 | SEQUENCE | 65 | LOCATION | END | TYPE | RU | | | | | | |
|------------|---------|---------|---------|------------|------------|------------|---------|---------|---------|----------|----------|----------|--------------|--|--|
| TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | MX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | STRESS (PSI) | | |
| .3160 | 2795. | -315. | -1183. | -1603. | 5406. | -2095. | -0.0561 | -0.1399 | -0.2544 | -0.0008 | .0199 | -0.0052 | 2414. | | |
| .3170 | 2398. | -324. | -1094. | -1442. | 5001. | -1733. | -0.0516 | -0.1317 | -0.2445 | -0.0025 | .0184 | -0.0057 | 2201. | | |
| .3180 | 1697. | -308. | -864. | -1284. | 4543. | -1388. | -0.0471 | -0.1230 | -0.2329 | -0.0046 | .0178 | -0.0072 | 1975. | | |
| .3190 | 851. | -269. | -557. | -1133. | 4047. | -1069. | -0.0427 | -0.1141 | -0.2200 | -0.0070 | .0181 | -0.0096 | 1740. | | |
| .3200 | 258. | -207. | -337. | -990. | 3530. | -776. | -0.0388 | -0.1051 | -0.2060 | -0.0095 | .0190 | -0.0129 | 1504. | | |
| .3210 | 42. | -125. | -254. | -859. | 3006. | -512. | -0.0353 | -0.0962 | -0.1912 | -0.0120 | .0207 | -0.0170 | 1271. | | |
| .3220 | -8. | -28. | -219. | -743. | 2481. | -283. | -0.0326 | -0.0875 | -0.1757 | -0.0142 | .0231 | -0.0217 | 1045. | | |
| .3230 | -96. | 79. | -147. | -643. | 1961. | -96. | -0.0306 | -0.0793 | -0.1597 | -0.0163 | .0262 | -0.0268 | 829. | | |
| .3240 | -186. | 192. | -55. | -556. | 1457. | 55. | -0.0292 | -0.0714 | -0.1435 | -0.0183 | .0297 | -0.0320 | 626. | | |
| .3250 | -91. | 306. | -23. | -479. | 979. | 177. | -0.0282 | -0.0641 | -0.1274 | -0.0200 | .0337 | -0.0372 | 443. | | |
| .3260 | 236. | 417. | -75. | -407. | 538. | 278. | -0.0275 | -0.0571 | -0.1116 | -0.0215 | .0380 | -0.0421 | 293. | | |
| .3270 | 612. | 520. | -138. | -340. | 136. | 360. | -0.0269 | -0.0507 | -0.0964 | -0.0225 | .0424 | -0.0466 | 206. | | |
| .3280 | 819. | 610. | -125. | -275. | -222. | 425. | -0.0262 | -0.0447 | -0.0818 | -0.0230 | .0468 | -0.0505 | 222. | | |
| .3290 | 820. | 684. | -27. | -213. | -534. | 481. | -0.0252 | -0.0393 | -0.0682 | -0.0229 | .0510 | -0.0536 | 301. | | |
| .3300 | 762. | 739. | 91. | -152. | -797. | 535. | -0.0238 | -0.0343 | -0.0556 | -0.0224 | .0549 | -0.0558 | 390. | | |
| .3310 | 732. | 771. | 180. | -89. | -1011. | 593. | -0.0218 | -0.0298 | -0.0442 | -0.0214 | .0582 | -0.0568 | 472. | | |
| .3320 | 630. | 778. | 300. | -25. | -1181. | 655. | -0.0193 | -0.0258 | -0.0341 | -0.0200 | .0607 | -0.0567 | 542. | | |
| .3330 | 330. | 758. | 476. | 42. | -1313. | 716. | -0.0164 | -0.0223 | -0.0252 | -0.0182 | .0622 | -0.0552 | 600. | | |
| .3340 | -138. | 710. | 700. | 109. | -1410. | 774. | -0.0131 | -0.0194 | -0.0175 | -0.0161 | .0627 | -0.0525 | 647. | | |
| .3350 | -559. | 637. | 880. | 175. | -1473. | 831. | -0.0097 | -0.0171 | -0.0111 | -0.0135 | .0519 | -0.0486 | 682. | | |
| .3360 | -826. | 539. | 970. | 235. | -1504. | 883. | -0.0062 | -0.0154 | -0.0060 | -0.0104 | .0598 | -0.0436 | 706. | | |
| .3370 | -1025. | 420. | 1006. | 285. | -1510. | 922. | -0.0029 | -0.0144 | -0.0021 | -0.0070 | .0563 | -0.0378 | 719. | | |
| .3380 | -1233. | 284. | 1022. | 323. | -1494. | 941. | .0001 | -0.0140 | .0008 | -0.0033 | .0515 | -0.0312 | 720. | | |
| .3390 | -1359. | 137. | 981. | 345. | -1459. | 935. | .0026 | -0.0144 | .0027 | .0006 | .0455 | -0.0240 | 709. | | |
| .3400 | -1287. | -15. | 841. | 350. | -1404. | 904. | .0047 | -0.0153 | .0037 | .0044 | .0384 | -0.0166 | 685. | | |
| .3410 | -1006. | -165. | 599. | 335. | -1330. | 846. | .0062 | -0.0169 | .0039 | .0082 | .0304 | -0.0091 | 647. | | |
| .3420 | -639. | -306. | 312. | 298. | -1236. | 758. | .0074 | -0.0190 | .0034 | .0118 | .0219 | -0.0020 | 594. | | |
| .3430 | -306. | -433. | 37. | 238. | -1124. | 638. | .0081 | -0.0214 | .0023 | .0152 | .0130 | .0046 | 527. | | |
| .3440 | -23. | -538. | -215. | 155. | -993. | 490. | .0087 | -0.0242 | .0009 | .0183 | .0042 | .0104 | 449. | | |
| .3450 | 304. | -618. | -477. | 53. | -840. | 320. | .0091 | -0.0272 | -0.0008 | .0210 | -0.0044 | .0152 | 361. | | |
| .3460 | 661. | -668. | -738. | -64. | -668. | 135. | .0096 | -0.0301 | -0.0027 | .0231 | -0.0124 | .0189 | 275. | | |
| .3470 | 896. | -688. | -932. | -192. | -481. | -61. | .0102 | -0.0329 | -0.0045 | .0246 | -0.0196 | .0214 | 209. | | |
| .3480 | 889. | -679. | -1005. | -326. | -287. | -263. | .0110 | -0.0354 | -0.0061 | .0254 | -0.0259 | .0228 | 204. | | |
| .3490 | 714. | -643. | -984. | -460. | -90. | -459. | .0120 | -0.0376 | -0.0074 | .0256 | -0.0309 | .0231 | 263. | | |
| .3500 | 523. | -583. | -933. | -587. | 105. | -638. | .0131 | -0.0391 | -0.0080 | .0253 | -0.0348 | .0223 | 350. | | |
| .3510 | 354. | -506. | -867. | -699. | 290. | -792. | .0144 | -0.0400 | -0.0080 | .0245 | -0.0373 | .0207 | 440. | | |
| .3520 | 119. | -416. | -750. | -793. | 454. | -918. | .0156 | -0.0402 | -0.0070 | .0234 | -0.0387 | .0182 | 520. | | |
| .3530 | -263. | -321. | -550. | -861. | 584. | -1012. | .0167 | -0.0397 | -0.0050 | .0220 | -0.0389 | .0153 | 582. | | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.28.55.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | | |
|-------|-------|-------|--------|-------|--------|--------|-------|--------|--------|-------|--------|-------|-------|------|
| .3430 | -306. | -433. | -37. | 238. | -1124. | -433. | 638. | .0081 | -.0214 | .0023 | .0152 | .0130 | .0046 | 527. |
| .3440 | -23. | -538. | -215. | 155. | -993. | 490. | .0087 | -.0242 | .0009 | .0183 | .0042 | .0104 | .0046 | 449. |
| .3450 | 304. | -618. | -477. | 53. | -840. | 320. | .0091 | -.0272 | -.0008 | .0210 | -.0044 | .0152 | .0046 | 361. |
| .3460 | 661. | -668. | -738. | -64. | -668. | 135. | .0096 | -.0301 | -.0027 | .0231 | -.0124 | .0189 | .0046 | 275. |
| .3470 | 896. | -688. | -932. | -192. | -481. | -61. | .0102 | -.0329 | -.0045 | .0246 | -.0196 | .0214 | .0046 | 209. |
| .3480 | 889. | -679. | -1005. | -326. | -287. | -263. | .0110 | -.0354 | -.0061 | .0254 | -.0259 | .0228 | .0046 | 204. |
| .3490 | 714. | -643. | -984. | -460. | -90. | -459. | .0120 | -.0376 | -.0074 | .0256 | -.0309 | .0231 | .0046 | 263. |
| .3500 | 523. | -583. | -933. | -587. | 105. | -638. | .0131 | -.0391 | -.0080 | .0253 | -.0348 | .0223 | .0046 | 350. |
| .3510 | 354. | -506. | -867. | -699. | 290. | -792. | .0144 | -.0400 | -.0080 | .0245 | -.0373 | .0207 | .0046 | 440. |
| .3520 | 119. | -416. | -750. | -793. | 454. | -918. | .0156 | -.0402 | -.0070 | .0234 | -.0387 | .0182 | .0046 | 520. |
| .3530 | -263. | -321. | -550. | -861. | 564. | -1012. | .0167 | -.0397 | -.0050 | .0220 | -.0389 | .0153 | .0046 | 582. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.28.55.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | 45 | MEMBER | 1 | SEQUENCE | 65 | LOCATION | END | TYPE | RU | | | | | | |
|------------|---------|---------|---------|------------|------------|------------|---------|---------|---------|----------|----------|----------|--------------|--|--|
| TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | MX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | STRESS (PSI) | | |
| .3540 | -646. | -227. | -329. | -900. | 673. | -1067. | .0175 | -.0384 | -.0017 | .0205 | -.0380 | .0120 | 622. | | |
| .3550 | -768. | -138. | -191. | -906. | 715. | -1076. | .0180 | -.0363 | .0029 | .0190 | -.0362 | .0086 | 633. | | |
| .3560 | -655. | -59. | -155. | -877. | 705. | -1037. | .0182 | -.0335 | .0089 | .0174 | -.0335 | .0051 | 614. | | |
| .3570 | -458. | 7. | -134. | -814. | 634. | -956. | .0182 | -.0299 | .0162 | .0160 | -.0301 | .0019 | 565. | | |
| .3580 | -369. | 57. | -62. | -720. | 498. | -839. | .0179 | -.0258 | .0251 | .0147 | -.0261 | -.0011 | 487. | | |
| .3590 | -299. | 93. | 23. | -596. | 297. | -688. | .0174 | -.0212 | .0353 | .0136 | -.0216 | -.0038 | 384. | | |
| .3600 | -50. | 114. | 34. | -446. | 38. | -503. | .0170 | -.0161 | .0468 | .0129 | -.0168 | -.0063 | 270. | | |
| .3610 | 391. | 125. | -37. | -278. | -274. | -293. | .0169 | -.0108 | .0594 | .0123 | -.0117 | -.0084 | 196. | | |
| .3620 | 773. | 129. | -88. | -99. | -636. | -71. | .0170 | -.0053 | .0730 | .0120 | -.0065 | -.0103 | 260. | | |
| .3630 | 868. | 127. | -26. | 82. | -1043. | 148. | .0177 | .0001 | .0875 | .0120 | -.0013 | -.0120 | 424. | | |
| .3640 | 755. | 124. | 115. | 257. | -1486. | 359. | .0189 | .0053 | .1025 | .0122 | .0039 | -.0135 | 622. | | |
| .3650 | 667. | 123. | 236. | 419. | -1949. | 557. | .0206 | .0101 | .1180 | .0126 | .0089 | -.0149 | 831. | | |
| .3660 | 669. | 125. | 308. | 564. | -2423. | 734. | .0231 | .0146 | .1335 | .0133 | .0135 | -.0162 | 1041. | | |
| .3670 | 543. | 133. | 422. | 686. | -2901. | 876. | .0260 | .0184 | .1490 | .0143 | .0178 | -.0175 | 1247. | | |
| .3680 | 82. | 146. | 662. | 779. | -3377. | 969. | .0294 | .0214 | .1642 | .0156 | .0215 | -.0186 | 1444. | | |
| .3690 | -568. | 163. | 967. | 839. | -3839. | 1013. | .0329 | .0235 | .1790 | .0173 | .0245 | -.0197 | 1629. | | |
| .3700 | -1064. | 184. | 1193. | 864. | -4275. | 1012. | .0365 | .0248 | .1930 | .0193 | .0268 | -.0206 | 1797. | | |
| .3710 | -1259. | 206. | 1281. | 855. | -4674. | 968. | .0401 | .0253 | .2060 | .0217 | .0281 | -.0213 | 1946. | | |
| .3720 | -1386. | 227. | 1326. | 813. | -5034. | 877. | .0434 | .0248 | .2179 | .0245 | .0284 | -.0218 | 2076. | | |
| .3730 | -1719. | 243. | 1444. | 741. | -5352. | 736. | .0462 | .0235 | .2287 | .0277 | .0278 | -.0218 | 2188. | | |
| .3740 | -2109. | 251. | 1572. | 644. | -5620. | 553. | .0485 | .0213 | .2382 | .0312 | .0262 | -.0213 | 2281. | | |
| .3750 | -2189. | 250. | 1558. | 528. | -5829. | 344. | .0503 | .0186 | .2461 | .0350 | .0235 | -.0204 | 2353. | | |
| .3760 | -1853. | 239. | 1360. | 400. | -5971. | 122. | .0518 | .0155 | .2524 | .0391 | .0197 | -.0189 | 2402. | | |
| .3770 | -1445. | 216. | 1123. | 263. | -6049. | -110. | .0528 | .0120 | .2571 | .0432 | .0152 | -.0167 | 2430. | | |
| .3780 | -1386. | 179. | 1024. | 121. | -6069. | -350. | .0534 | .0084 | .2603 | .0473 | .0099 | -.0140 | 2440. | | |
| .3790 | -1624. | 129. | 1043. | -17. | -6029. | -587. | .0536 | .0048 | .2620 | .0514 | .0039 | -.0107 | 2431. | | |
| .3800 | -1712. | 68. | 994. | -144. | -5927. | -801. | .0536 | .0015 | .2622 | .0553 | -.0026 | -.0069 | 2401. | | |
| .3810 | -1293. | -2. | 733. | -252. | -5758. | -980. | .0536 | -.0013 | .2609 | .0587 | -.0095 | -.0027 | 2346. | | |
| .3820 | -727. | -78. | 408. | -340. | -5535. | -1125. | .0536 | -.0034 | .2583 | .0616 | -.0167 | .0019 | 2271. | | |
| .3830 | -614. | -160. | 274. | -408. | -5272. | -1244. | .0536 | -.0050 | .2547 | .0639 | -.0240 | .0067 | 2180. | | |
| .3840 | -898. | -245. | 306. | -457. | -4975. | -1331. | .0535 | -.0057 | .2502 | .0656 | -.0313 | .0116 | 2075. | | |
| .3850 | -1037. | -327. | 280. | -486. | -4642. | -1372. | .0535 | -.0055 | .2449 | .0665 | -.0386 | .0164 | 1952. | | |
| .3860 | -770. | -403. | 88. | -492. | -4278. | -1363. | .0536 | -.0043 | .2388 | .0666 | -.0458 | .0210 | 1813. | | |
| .3870 | -489. | -471. | -107. | -476. | -3901. | -1314. | .0538 | -.0021 | .2322 | .0659 | -.0528 | .0252 | 1663. | | |
| .3880 | -675. | -530. | -104. | -439. | -3528. | -1241. | .0539 | .0010 | .2256 | .0643 | -.0594 | .0290 | 1511. | | |
| .3890 | -1180. | -577. | 36. | -385. | -3167. | -1146. | .0538 | .0050 | .2190 | .0617 | -.0657 | .0323 | 1360. | | |
| .3900 | -1440. | -609. | 78. | -314. | -2818. | -1021. | .0535 | .0099 | .2124 | .0582 | -.0717 | .0349 | 1209. | | |
| .3910 | -1207. | -623. | -81. | -230. | -2485. | -866. | .0531 | .0156 | .2061 | .0538 | -.0773 | .0368 | 1060. | | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.28.55.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|--------|-------|-------|-------|--------|--------|-------|--------|-------|-------|--------|--------|-------|
| .3810 | -1293. | -2. | 733. | -252. | -5758. | -980. | .0536 | -.0013 | .2609 | .0587 | -.0095 | -.0027 | 2346. |
| .3820 | -727. | -78. | 408. | -340. | -5535. | -1125. | .0536 | -.0034 | .2583 | .0616 | -.0167 | .0019 | 2271. |
| .3830 | -614. | -160. | 274. | -408. | -5272. | -1244. | .0536 | -.0050 | .2547 | .0639 | -.0240 | .0067 | 2180. |
| .3840 | -898. | -245. | 306. | -457. | -4975. | -1331. | .0535 | -.0057 | .2502 | .0656 | -.0313 | .0116 | 2075. |
| .3850 | -1037. | -327. | 280. | -486. | -4642. | -1372. | .0535 | -.0055 | .2449 | .0665 | -.0386 | .0164 | 1952. |
| .3860 | -770. | -403. | 80. | -492. | -4270. | -1363. | .0536 | -.0043 | .2388 | .0666 | -.0458 | .0210 | 1813. |
| .3870 | -489. | -471. | -107. | -476. | -3901. | -1314. | .0538 | -.0021 | .2322 | .0659 | -.0528 | .0252 | 1663. |
| .3880 | -675. | -530. | -104. | -439. | -3528. | -1241. | .0539 | .0010 | .2256 | .0643 | -.0594 | .0290 | 1511. |
| .3890 | -1180. | -577. | 36. | -385. | -3167. | -1146. | .0538 | .0050 | .2190 | .0617 | -.0657 | .0323 | 1360. |
| .3900 | -1440. | -609. | 70. | -314. | -2818. | -1021. | .0535 | .0099 | .2124 | .0582 | -.0717 | .0349 | 1209. |
| .3910 | -1207. | -623. | -81. | -230. | -2485. | -866. | .0531 | .0156 | .2061 | .0538 | -.0773 | .0368 | 1060. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.28.55.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | 45 | MEMBER | 1 | SEQUENCE | 65 | LOCATION | END | TYPE | RU | | | | | |
|---------|--------|--------|-------|----------|---------|----------|-------|-------|-------|--------|--------|-------|--------|--|
| TIME | FX | FY | FZ | MX | MY | MZ | DX | DY | DZ | RX | RY | RZ | STRESS | |
| (SEC) | (LB) | (LB) | (LB) | (FT-LB) | (FT-LB) | (FT-LB) | (IN) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) | |
| .3920 | -871. | -619. | -276. | -141. | -2180. | -695. | .0523 | .0221 | .2001 | .0487 | -.0325 | .0378 | 920. | |
| .3930 | -908. | -597. | -310. | -48. | -1917. | -523. | .0512 | .0292 | .1949 | .0430 | -.0871 | .0381 | 798. | |
| .3940 | -1194. | -557. | -233. | 47. | -1698. | -351. | .0497 | .0369 | .1904 | .0368 | -.0911 | .0375 | 696. | |
| .3950 | -1209. | -499. | -263. | 147. | -1518. | -168. | .0480 | .0450 | .1866 | .0302 | -.0945 | .0361 | 616. | |
| .3960 | -755. | -425. | -481. | 253. | -1375. | 28. | .0463 | .0537 | .1835 | .0232 | -.0972 | .0339 | 561. | |
| .3970 | -265. | -336. | -706. | 362. | -1278. | 230. | .0445 | .0627 | .1812 | .0160 | -.0992 | .0312 | 541. | |
| .3980 | -222. | -238. | -735. | 471. | -1232. | 425. | .0427 | .0720 | .1798 | .0087 | -.1004 | .0279 | 556. | |
| .3990 | -507. | -131. | -620. | 577. | -1231. | 619. | .0411 | .0814 | .1793 | .0015 | -.1007 | .0242 | 600. | |
| .4000 | -611. | -18. | -570. | 682. | -1265. | 823. | .0398 | .0909 | .1795 | -.0055 | -.1002 | .0203 | 665. | |

MAXIMUM VALUE OF STRESS OCCURS AT

| TIME | FX | FY | FZ | MX | MY | MZ | DX | DY | DZ | RX | RY | RZ | STRESS | |
|-------|-------|------|-------|---------|---------|---------|--------|--------|--------|--------|-------|--------|--------|--|
| (SEC) | (LB) | (LB) | (LB) | (FT-LB) | (FT-LB) | (FT-LB) | (IN) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) | |
| .3100 | 3533. | 147. | -980. | -2318. | 6339. | -3746. | -.0681 | -.1688 | -.2752 | -.0028 | .0408 | -.0173 | 3098. | |

| SECTION | 45 | MEMBER | 2 | SEQUENCE | 265 | LOCATION | END | TYPE | RU | | | | | |
|---------|------|--------|------|----------|---------|----------|--------|--------|--------|--------|--------|--------|--------|--|
| TIME | FX | FY | FZ | MX | MY | MZ | DX | DY | DZ | RX | RY | RZ | STRESS | |
| (SEC) | (LB) | (LB) | (LB) | (FT-LB) | (FT-LB) | (FT-LB) | (IN) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) | |
| 0.0000 | 0. | 0. | 0. | 0. | 0. | 0. | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0. | |
| .0010 | -0. | -0. | 0. | -0. | -0. | -0. | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. | |
| .0020 | -2. | -0. | 1. | -0. | -0. | -0. | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. | |
| .0030 | -4. | -0. | 2. | -0. | -0. | -0. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. | |
| .0040 | -5. | -0. | 2. | -0. | 0. | -1. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. | |
| .0050 | -4. | -0. | 1. | -0. | 0. | -1. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. | |
| .0060 | -1. | -0. | 0. | -0. | 1. | -1. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. | |
| .0070 | 5. | -0. | -2. | -0. | 1. | -1. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 1. | |
| .0080 | 18. | -0. | -8. | 0. | 2. | -1. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 1. | |
| .0090 | 32. | 0. | -14. | 1. | 3. | 0. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 1. | |
| .0100 | 30. | 0. | -13. | 0. | 2. | 2. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 1. | |
| .0110 | 9. | 0. | -4. | -1. | 0. | 3. | -.0000 | .0000 | -.0000 | .0000 | -.0000 | -.0000 | 1. | |
| .0120 | -11. | 1. | 5. | -3. | -1. | 5. | .0000 | .0000 | .0000 | .0001 | -.0000 | -.0000 | 2. | |
| .0130 | -10. | 1. | 5. | -5. | -2. | 8. | .0000 | .0000 | .0000 | .0002 | .0000 | -.0001 | 4. | |
| .0140 | 5. | 1. | -2. | -8. | -2. | 11. | .0000 | .0000 | .0000 | .0003 | .0000 | -.0001 | 6. | |
| .0150 | 14. | 1. | -6. | -12. | -2. | 13. | .0000 | .0000 | .0001 | .0005 | .0000 | -.0002 | 7. | |

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|------|-----|------|------|-----|-----|--------|-------|--------|--------|--------|--------|----|
| .0050 | -4. | -0. | 1. | -0. | 0. | -1. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0060 | -1. | -0. | 0. | -0. | 1. | -1. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0070 | 5. | -0. | -2. | -0. | 1. | -1. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 1. |
| .0080 | 13. | -0. | -0. | 0. | 2. | -1. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 1. |
| .0090 | 32. | 0. | -14. | 1. | 3. | 0. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | .0000 | 1. |
| .0100 | 30. | 0. | -13. | 0. | 2. | 2. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | .0000 | 1. |
| .0110 | 9. | 0. | -4. | -1. | 0. | 3. | -.0000 | .0000 | -.0000 | .0000 | -.0000 | -.0000 | 1. |
| .0120 | -11. | 1. | 5. | -3. | -1. | 5. | .0000 | .0000 | .0000 | .0001 | -.0000 | -.0000 | 2. |
| .0130 | -10. | 1. | 5. | -5. | -2. | 8. | .0000 | .0000 | .0000 | .0002 | .0000 | -.0001 | 4. |
| .0140 | 5. | 1. | -2. | -6. | -2. | 11. | .0000 | .0000 | .0000 | .0003 | .0000 | -.0001 | 6. |
| .0150 | 14. | 1. | -6. | -12. | -2. | 13. | .0000 | .0000 | .0001 | .0005 | .0000 | -.0002 | 7. |

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2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | 45 | MEMBER | 2 | SEQUENCE | 265 | LOCATION | END | TYPE | RU | | | | | STRESS |
|---------|-------|--------|-------|----------|---------|----------|-----|--------|--------|--------|--------|--------|--------|--------|
| TIME | FX | FY | FZ | MX | MY | MZ | | DX | DY | DZ | RX | RY | RZ | (PSI) |
| (SEC) | (LB) | (LB) | (LB) | (FT-LB) | (FT-LB) | (FT-LB) | | (IN) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | |
| .0160 | 5. | 1. | -2. | -16. | -4. | 15. | | .0000 | .0000 | .0001 | .0006 | .0000 | -.0002 | 9. |
| .0170 | -11. | 1. | 6. | -20. | -7. | 15. | | .0000 | .0000 | .0001 | .0007 | .0000 | -.0003 | 10. |
| .0180 | -10. | 1. | 6. | -24. | -10. | 16. | | -.0000 | -.0000 | .0001 | .0008 | .0000 | -.0003 | 12. |
| .0190 | 15. | 2. | -3. | -28. | -13. | 17. | | -.0000 | -.0000 | .0001 | .0009 | .0000 | -.0003 | 14. |
| .0200 | 50. | 2. | -16. | -32. | -15. | 18. | | -.0001 | -.0000 | .0002 | .0011 | .0001 | -.0004 | 16. |
| .0210 | 56. | 1. | -17. | -37. | -18. | 18. | | -.0001 | -.0001 | .0002 | .0012 | .0001 | -.0004 | 18. |
| .0220 | 28. | 1. | -5. | -45. | -20. | 20. | | -.0001 | -.0001 | .0002 | .0015 | .0001 | -.0005 | 21. |
| .0230 | 14. | 0. | 1. | -54. | -20. | 21. | | -.0001 | -.0001 | .0002 | .0018 | .0001 | -.0006 | 25. |
| .0240 | 25. | -1. | -4. | -57. | -17. | 20. | | -.0001 | -.0001 | .0002 | .0019 | .0001 | -.0006 | 25. |
| .0250 | 32. | -3. | -7. | -53. | -13. | 13. | | -.0000 | -.0001 | .0002 | .0019 | .0001 | -.0005 | 23. |
| .0260 | 23. | -5. | -3. | -49. | -11. | 6. | | .0000 | -.0001 | .0002 | .0017 | .0001 | -.0004 | 20. |
| .0270 | -2. | -6. | 8. | -51. | -12. | 5. | | .0001 | -.0001 | .0003 | .0016 | .0001 | -.0003 | 21. |
| .0280 | -46. | -7. | 28. | -53. | -13. | 6. | | .0001 | -.0001 | .0003 | .0015 | .0000 | -.0002 | 22. |
| .0290 | -100. | -7. | 50. | -43. | -8. | 1. | | .0002 | -.0000 | .0002 | .0013 | .0000 | -.0001 | 18. |
| .0300 | -142. | -6. | 65. | -33. | 6. | 0. | | .0002 | -.0000 | .0002 | .0011 | -.0000 | -.0000 | 13. |
| .0310 | -176. | -7. | 76. | -27. | 25. | -0. | | .0003 | .0000 | .0001 | .0009 | -.0001 | .0001 | 15. |
| .0320 | -136. | -9. | 54. | -17. | 51. | -7. | | .0005 | .0001 | -.0001 | .0007 | -.0002 | .0003 | 22. |
| .0330 | -61. | -13. | 16. | -2. | 81. | -19. | | .0005 | .0001 | -.0002 | .0001 | -.0003 | .0006 | 34. |
| .0340 | -136. | -17. | 40. | 14. | 104. | -35. | | .0004 | .0002 | -.0004 | -.0006 | -.0005 | .0008 | 44. |
| .0350 | -372. | -19. | 131. | 33. | 119. | -54. | | .0003 | .0002 | -.0005 | -.0015 | -.0008 | .0011 | 54. |
| .0360 | -459. | -18. | 160. | 58. | 142. | -63. | | .0004 | .0003 | -.0007 | -.0025 | -.0010 | .0014 | 66. |
| .0370 | -204. | -16. | 48. | 79. | 180. | -52. | | .0005 | .0004 | -.0009 | -.0032 | -.0011 | .0016 | 82. |
| .0380 | 71. | -13. | -71. | 91. | 215. | -33. | | .0006 | .0004 | -.0012 | -.0036 | -.0011 | .0017 | 95. |
| .0390 | -52. | -11. | -24. | 103. | 226. | -32. | | .0004 | .0005 | -.0013 | -.0040 | -.0012 | .0017 | 101. |
| .0400 | -427. | -10. | 129. | 128. | 221. | -47. | | .0001 | .0006 | -.0013 | -.0045 | -.0014 | .0016 | 104. |
| .0410 | -544. | -5. | 175. | 156. | 225. | -48. | | -.0000 | .0006 | -.0014 | -.0052 | -.0015 | .0015 | 111. |
| .0420 | -227. | 1. | 43. | 181. | 241. | -23. | | .0001 | .0007 | -.0015 | -.0059 | -.0014 | .0016 | 121. |
| .0430 | 159. | 8. | -114. | 202. | 244. | 4. | | .0002 | .0007 | -.0017 | -.0067 | -.0013 | .0017 | 127. |
| .0440 | 252. | 15. | -145. | 214. | 215. | 23. | | .0001 | .0007 | -.0016 | -.0073 | -.0012 | .0016 | 122. |
| .0450 | -29. | 23. | -17. | 215. | 158. | 36. | | -.0003 | .0007 | -.0014 | -.0076 | -.0011 | .0012 | 108. |
| .0460 | -405. | 34. | 151. | 215. | 99. | 51. | | -.0006 | .0005 | -.0012 | -.0074 | -.0010 | .0006 | 97. |
| .0470 | -333. | 45. | 133. | 226. | 66. | 73. | | -.0006 | .0004 | -.0011 | -.0070 | -.0006 | -.0000 | 99. |
| .0480 | 340. | 56. | -135. | 238. | 58. | 109. | | -.0004 | .0002 | -.0011 | -.0067 | -.0001 | -.0004 | 108. |
| .0490 | 881. | 66. | -346. | 229. | 33. | 142. | | -.0003 | -.0001 | -.0010 | -.0061 | .0003 | -.0008 | 109. |
| .0500 | 513. | 72. | -177. | 194. | -50. | 143. | | -.0008 | -.0005 | -.0005 | -.0055 | .0004 | -.0015 | 99. |
| .0510 | -301. | 75. | 178. | 147. | -156. | 122. | | -.0012 | -.0010 | -.0000 | -.0047 | .0004 | -.0023 | 99. |
| .0520 | -320. | 80. | 198. | 106. | -207. | 123. | | -.0013 | -.0016 | .0003 | -.0037 | .0006 | -.0029 | 106. |
| .0530 | 602. | 86. | -176. | 73. | -190. | 149. | | -.0008 | -.0022 | .0003 | -.0023 | .0012 | -.0033 | 101. |

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S/RV PIPING KEWAUNEE GK08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|-------|-----|-------|------|-------|------|--------|--------|--------|--------|--------|--------|------|
| .0430 | 159. | 8. | -114. | 202. | 244. | 4. | .0002 | .0007 | -.0017 | -.0067 | -.0013 | .0017 | 127. |
| .0440 | 252. | 15. | -145. | 214. | 215. | 23. | .0001 | .0007 | -.0016 | -.0073 | -.0012 | .0016 | 122. |
| .0450 | -29. | 23. | -17. | 215. | 158. | 36. | -.0003 | .0007 | -.0014 | -.0076 | -.0011 | .0012 | 108. |
| .0460 | -405. | 34. | 151. | 213. | 99. | 51. | -.0006 | .0005 | -.0012 | -.0074 | -.0010 | .0006 | 97. |
| .0470 | -333. | 45. | 133. | 226. | 66. | 73. | -.0006 | .0004 | -.0011 | -.0070 | -.0006 | -.0000 | 99. |
| .0480 | 340. | 56. | -135. | 238. | 58. | 109. | -.0004 | .0002 | -.0011 | -.0067 | -.0001 | -.0004 | 108. |
| .0490 | 881. | 66. | -346. | 229. | 33. | 142. | -.0003 | -.0001 | -.0010 | -.0061 | .0003 | -.0008 | 109. |
| .0500 | 513. | 72. | -177. | 194. | -50. | 143. | -.0008 | -.0005 | -.0005 | -.0055 | .0004 | -.0015 | 99. |
| .0510 | -301. | 75. | 178. | 147. | -156. | 122. | -.0012 | -.0010 | -.0000 | -.0047 | .0004 | -.0023 | 99. |
| .0520 | -320. | 80. | 198. | 106. | -207. | 123. | -.0013 | -.0016 | .0003 | -.0037 | .0006 | -.0029 | 106. |
| .0530 | 602. | 86. | -176. | 73. | -190. | 149. | -.0008 | -.0022 | .0003 | -.0023 | .0012 | -.0033 | 101. |

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CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | 45 | MEMBER | 2 | SEQUENCE | 265 | LOCATION | END | TYPE | RU | | | | | | |
|------------|---------|---------|---------|------------|------------|------------|---------|---------|---------|----------|----------|----------|--------------|--|--|
| TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | MX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | STRESS (PSI) | | |
| .0540 | 1196. | 86. | -417. | 32. | -178. | 146. | -.0005 | -.0029 | .0004 | -.0006 | .0016 | -.0038 | 94. | | |
| .0550 | 702. | 77. | -206. | -27. | -222. | 85. | -.0007 | -.0037 | .0007 | .0011 | .0015 | -.0044 | 96. | | |
| .0560 | -69. | 63. | 118. | -93. | -277. | 0. | -.0010 | -.0046 | .0012 | .0027 | .0013 | -.0050 | 117. | | |
| .0570 | -115. | 49. | 136. | -153. | -283. | -62. | -.0010 | -.0054 | .0015 | .0039 | .0012 | -.0050 | 131. | | |
| .0580 | 379. | 37. | -75. | -208. | -246. | -106. | -.0005 | -.0062 | .0016 | .0050 | .0012 | -.0048 | 136. | | |
| .0590 | 668. | 21. | -203. | -267. | -208. | -160. | .0001 | -.0069 | .0016 | .0061 | .0011 | -.0045 | 150. | | |
| .0600 | 509. | 1. | -149. | -332. | -180. | -235. | .0004 | -.0076 | .0018 | .0075 | .0008 | -.0043 | 179. | | |
| .0610 | 93. | -23. | 10. | -394. | -151. | -325. | .0004 | -.0082 | .0020 | .0090 | .0003 | -.0041 | 214. | | |
| .0620 | -331. | -51. | 167. | -448. | -109. | -422. | .0006 | -.0087 | .0023 | .0104 | -.0001 | -.0038 | 251. | | |
| .0630 | -419. | -80. | 182. | -481. | -41. | -511. | .0010 | -.0090 | .0023 | .0114 | -.0006 | -.0032 | 282. | | |
| .0640 | -78. | -105. | 17. | -492. | 51. | -577. | .0016 | -.0090 | .0023 | .0117 | -.0010 | -.0021 | 305. | | |
| .0650 | 108. | -128. | -34. | -489. | 130. | -628. | .0021 | -.0088 | .0023 | .0112 | -.0015 | -.0009 | 324. | | |
| .0660 | -377. | -148. | 98. | -488. | 160. | -680. | .0022 | -.0083 | .0025 | .0103 | -.0022 | .0003 | 342. | | |
| .0670 | -1001. | -165. | 340. | -480. | 174. | -714. | .0023 | -.0076 | .0027 | .0094 | -.0030 | .0013 | 352. | | |
| .0680 | -916. | -175. | 289. | -449. | 227. | -698. | .0026 | -.0066 | .0027 | .0086 | -.0034 | .0023 | 345. | | |
| .0690 | -397. | -178. | 57. | -391. | 305. | -645. | .0029 | -.0052 | .0026 | .0078 | -.0035 | .0032 | 326. | | |
| .0700 | -384. | -175. | 39. | -314. | 346. | -590. | .0030 | -.0036 | .0026 | .0068 | -.0038 | .0039 | 302. | | |
| .0710 | -901. | -167. | 247. | -226. | 338. | -530. | .0028 | -.0019 | .0027 | .0053 | -.0041 | .0043 | 268. | | |
| .0720 | -1094. | -149. | 328. | -128. | 320. | -425. | .0025 | .0002 | .0028 | .0032 | -.0043 | .0049 | 219. | | |
| .0730 | -683. | -122. | 165. | -24. | 302. | -267. | .0023 | .0024 | .0028 | .0007 | -.0042 | .0055 | 162. | | |
| .0740 | -264. | -89. | 7. | 83. | 260. | -90. | .0021 | .0046 | .0027 | -.0019 | -.0040 | .0060 | 115. | | |
| .0750 | -246. | -51. | 22. | 195. | 184. | 83. | .0016 | .0069 | .0028 | -.0044 | -.0038 | .0060 | 113. | | |
| .0760 | -375. | -8. | 102. | 314. | 98. | 256. | .0008 | .0091 | .0028 | -.0064 | -.0034 | .0056 | 167. | | |
| .0770 | -297. | 38. | 98. | 434. | 22. | 437. | .0001 | .0112 | .0028 | -.0081 | -.0028 | .0050 | 247. | | |
| .0780 | 31. | 86. | -9. | 545. | -44. | 621. | -.0005 | .0131 | .0027 | -.0095 | -.0022 | .0043 | 332. | | |
| .0790 | 444. | 133. | -150. | 633. | -111. | 802. | -.0011 | .0147 | .0025 | -.0107 | -.0015 | .0035 | 413. | | |
| .0800 | 691. | 176. | -222. | 689. | -188. | 968. | -.0018 | .0160 | .0023 | -.0118 | -.0009 | .0028 | 483. | | |
| .0810 | 624. | 214. | -166. | 715. | -271. | 1101. | -.0025 | .0169 | .0021 | -.0126 | -.0005 | .0019 | 538. | | |
| .0820 | 467. | 244. | -78. | 718. | -335. | 1196. | -.0031 | .0173 | .0019 | -.0127 | -.0001 | .0010 | 576. | | |
| .0830 | 617. | 266. | -126. | 704. | -345. | 1260. | -.0033 | .0172 | .0015 | -.0120 | .0003 | .0001 | 596. | | |
| .0840 | 1015. | 278. | -285. | 673. | -304. | 1286. | -.0033 | .0166 | .0009 | -.0106 | .0008 | -.0007 | 595. | | |
| .0850 | 1124. | 276. | -333. | 618. | -246. | 1251. | -.0031 | .0155 | .0003 | -.0088 | .0011 | -.0014 | 568. | | |
| .0860 | 732. | 262. | -179. | 532. | -191. | 1150. | -.0030 | .0139 | -.0002 | -.0069 | .0010 | -.0020 | 514. | | |
| .0870 | 296. | 235. | -15. | 418. | -116. | 1006. | -.0028 | .0118 | -.0008 | -.0051 | .0008 | -.0022 | 439. | | |
| .0880 | 255. | 198. | -25. | 283. | 7. | 836. | -.0021 | .0094 | -.0015 | -.0033 | .0004 | -.0019 | 354. | | |
| .0890 | 393. | 151. | -119. | 136. | 168. | 630. | -.0012 | .0066 | -.0024 | -.0012 | -.0000 | -.0013 | 267. | | |
| .0900 | 223. | 92. | -94. | -20. | 343. | 372. | -.0004 | .0036 | -.0032 | .0011 | -.0007 | -.0007 | 203. | | |
| .0910 | -287. | 23. | 66. | -182. | 523. | 69. | .0003 | .0004 | -.0039 | .0038 | -.0016 | -.0002 | 224. | | |

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ADLPIPE STRESS ANALYSIS

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CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|-------|------|-------|-------|-------|-------|--------|-------|--------|--------|--------|--------|------|
| .0810 | 624. | 214. | -168. | 715. | -271. | 1101. | -.0025 | .0169 | .0021 | -.0126 | -.0005 | .0019 | 538. |
| .0820 | 467. | 244. | -78. | 718. | -335. | 1196. | -.0031 | .0173 | .0019 | -.0127 | -.0001 | .0010 | 576. |
| .0830 | 617. | 266. | -126. | 704. | -345. | 1260. | -.0033 | .0172 | .0015 | -.0120 | .0003 | .0001 | 596. |
| .0840 | 1015. | 278. | -285. | 673. | -304. | 1286. | -.0033 | .0166 | .0009 | -.0106 | .0008 | -.0007 | 595. |
| .0850 | 1124. | 276. | -133. | 618. | -246. | 1251. | -.0031 | .0155 | .0003 | -.0088 | .0011 | -.0014 | 568. |
| .0860 | 732. | 262. | -179. | 532. | -191. | 1150. | -.0030 | .0139 | -.0002 | -.0069 | .0010 | -.0020 | 514. |
| .0870 | 296. | 235. | -15. | 418. | -116. | 1006. | -.0028 | .0118 | -.0008 | -.0051 | .0008 | -.0022 | 439. |
| .0880 | 255. | 198. | -25. | 283. | 7. | 836. | -.0021 | .0094 | -.0015 | -.0033 | .0004 | -.0019 | 354. |
| .0890 | 393. | 151. | -119. | 136. | 168. | 630. | -.0012 | .0066 | -.0024 | -.0012 | -.0000 | -.0013 | 267. |
| .0900 | 223. | 92. | -94. | -20. | 343. | 372. | -.0004 | .0036 | -.0032 | .0011 | -.0007 | -.0007 | 203. |
| .0910 | -287. | 23. | 66. | -182. | 523. | 69. | .0003 | .0004 | -.0039 | .0038 | -.0016 | -.0002 | 224. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

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S/RV PIPING KEWAUNEE GKM08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | MEMBER | SEQUENCE | LOCATION | END | TYPE | RU | TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | MX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | STRESS (PSI) |
|---------|--------|----------|----------|-----|------|----|------------|---------|---------|---------|------------|------------|------------|---------|---------|---------|----------|----------|----------|--------------|
| 45 | 2 | 265 | | | | | .0920 | -744. | -51. | 198. | -342. | 713. | -251. | .0010 | -.0028 | -.0045 | .0066 | -.0026 | .0005 | 333. |
| | | | | | | | .0930 | -903. | -127. | 206. | -496. | 910. | -564. | .0017 | -.0059 | -.0051 | .0092 | -.0036 | .0014 | 473. |
| | | | | | | | .0940 | -924. | -202. | 159. | -641. | 1088. | -859. | .0025 | -.0087 | -.0055 | .0114 | -.0047 | .0024 | 613. |
| | | | | | | | .0950 | -1092. | -272. | 180. | -770. | 1222. | -1131. | .0031 | -.0112 | -.0057 | .0129 | -.0057 | .0035 | 736. |
| | | | | | | | .0960 | -1437. | -334. | 282. | -875. | 1305. | -1373. | .0035 | -.0132 | -.0056 | .0139 | -.0068 | .0045 | 837. |
| | | | | | | | .0970 | -1744. | -385. | 378. | -943. | 1346. | -1567. | .0038 | -.0146 | -.0052 | .0144 | -.0076 | .0054 | 911. |
| | | | | | | | .0980 | -1817. | -423. | 388. | -967. | 1353. | -1697. | .0041 | -.0154 | -.0045 | .0146 | -.0082 | .0062 | 954. |
| | | | | | | | .0990 | -1690. | -444. | 328. | -946. | 1315. | -1754. | .0043 | -.0155 | -.0037 | .0145 | -.0083 | .0067 | 958. |
| | | | | | | | .1000 | -1593. | -446. | 297. | -881. | 1214. | -1734. | .0044 | -.0148 | -.0024 | .0137 | -.0082 | .0069 | 920. |
| | | | | | | | .1010 | -1681. | -428. | 361. | -776. | 1035. | -1634. | .0044 | -.0135 | -.0009 | .0121 | -.0078 | .0069 | 836. |
| | | | | | | | .1020 | -1815. | -387. | 463. | -634. | 786. | -1451. | .0043 | -.0115 | .0008 | .0096 | -.0070 | .0066 | 709. |
| | | | | | | | .1030 | -1690. | -325. | 476. | -456. | 494. | -1180. | .0042 | -.0089 | .0026 | .0065 | -.0057 | .0061 | 545. |
| | | | | | | | .1040 | -1208. | -245. | 355. | -244. | 179. | -831. | .0042 | -.0059 | .0042 | .0029 | -.0040 | .0055 | 355. |
| | | | | | | | .1050 | -798. | -151. | 275. | -11. | -165. | -441. | .0041 | -.0025 | .0059 | -.0007 | -.0019 | .0044 | 189. |
| | | | | | | | .1060 | -808. | -48. | 378. | 231. | -540. | -41. | .0035 | .0009 | .0074 | -.0043 | .0003 | .0028 | 236. |
| | | | | | | | .1070 | -934. | 59. | 533. | 475. | -913. | 363. | .0028 | .0043 | .0086 | -.0079 | .0026 | .0009 | 438. |
| | | | | | | | .1080 | -478. | 172. | 445. | 718. | -1235. | 780. | .0021 | .0074 | .0092 | -.0116 | .0051 | -.0009 | 653. |
| | | | | | | | .1090 | 514. | 285. | 131. | 944. | -1498. | 1193. | .0014 | .0101 | .0092 | -.0155 | .0077 | -.0026 | 857. |
| | | | | | | | .1100 | 465. | 388. | 244. | 1110. | -1773. | 1529. | .0002 | .0122 | .0087 | -.0188 | .0099 | -.0048 | 1040. |
| | | | | | | | .1110 | 132. | 478. | 464. | 1228. | -1998. | 1792. | -.0011 | .0135 | .0077 | -.0216 | .0118 | -.0070 | 1184. |
| | | | | | | | .1120 | 857. | 555. | 227. | 1319. | -2081. | 2004. | -.0024 | .0140 | .0057 | -.0238 | .0138 | -.0088 | 1274. |
| | | | | | | | .1130 | 1795. | 611. | -118. | 1365. | -2056. | 2121. | -.0037 | .0135 | .0031 | -.0252 | .0156 | -.0105 | 1306. |
| | | | | | | | .1140 | 1690. | 639. | -51. | 1347. | -1990. | 2089. | -.0053 | .0120 | -.0000 | -.0257 | .0166 | -.0122 | 1278. |
| | | | | | | | .1150 | 1305. | 642. | 111. | 1276. | -1843. | 1939. | -.0068 | .0095 | -.0037 | -.0257 | .0172 | -.0137 | 1189. |
| | | | | | | | .1160 | 1867. | 626. | -144. | 1163. | -1557. | 1729. | -.0079 | .0062 | -.0080 | -.0254 | .0175 | -.0143 | 1044. |
| | | | | | | | .1170 | 2644. | 590. | -510. | 997. | -1177. | 1448. | -.0088 | .0020 | -.0127 | -.0246 | .0175 | -.0143 | 849. |
| | | | | | | | .1180 | 2155. | 528. | -367. | 762. | -790. | 1045. | -.0096 | -.0029 | -.0174 | -.0230 | .0168 | -.0142 | 608. |
| | | | | | | | .1190 | 1382. | 441. | -126. | 496. | -347. | 548. | -.0100 | -.0082 | -.0221 | -.0208 | .0155 | -.0137 | 327. |
| | | | | | | | .1200 | 1807. | 336. | -403. | 235. | 222. | 21. | -.0098 | -.0139 | -.0270 | -.0182 | .0143 | -.0122 | 130. |
| | | | | | | | .1210 | 2380. | 216. | -756. | -28. | 838. | -549. | -.0093 | -.0197 | -.0316 | -.0153 | .0129 | -.0102 | 402. |
| | | | | | | | .1220 | 1443. | 80. | -490. | -306. | 1385. | -1195. | -.0088 | -.0254 | -.0354 | -.0123 | .0106 | -.0081 | 744. |
| | | | | | | | .1230 | -7. | -61. | -15. | -584. | 1887. | -1845. | -.0081 | -.0307 | -.0386 | -.0096 | .0079 | -.0057 | 1085. |
| | | | | | | | .1240 | -110. | -193. | -99. | -840. | 2424. | -2397. | -.0067 | -.0353 | -.0413 | -.0072 | .0055 | -.0026 | 1409. |
| | | | | | | | .1250 | 482. | -317. | -467. | -1077. | 2943. | -2855. | -.0049 | -.0390 | -.0433 | -.0047 | .0032 | .0009 | 1701. |
| | | | | | | | .1260 | -51. | -437. | -358. | -1301. | 3333. | -3284. | -.0033 | -.0418 | -.0441 | -.0018 | .0004 | .0039 | 1949. |
| | | | | | | | .1270 | -1361. | -550. | 85. | -1476. | 3601. | -3676. | -.0021 | -.0434 | -.0436 | .0012 | -.0025 | .0065 | 2148. |
| | | | | | | | .1280 | -1776. | -643. | 170. | -1566. | 3823. | -3951. | -.0009 | -.0437 | -.0421 | .0037 | -.0051 | .0091 | 2294. |
| | | | | | | | .1290 | -1442. | -711. | -38. | -1574. | 3968. | -4088. | .0003 | -.0424 | -.0397 | .0052 | -.0073 | .0119 | 2372. |

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ADLPIPE STRESS ANALYSIS

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2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|--------|-------|-------|--------|-------|--------|-------|-------|-------|-------|-------|-------|-------|
| .1190 | 1382. | 441. | -126. | 496. | -347. | 548. | -0100 | -0082 | -0221 | -0208 | .0155 | -0137 | 327. |
| .1200 | 1807. | 336. | -403. | 235. | 222. | 33. | -0098 | -0139 | -0270 | -0182 | .0143 | -0122 | 130. |
| .1210 | 2380. | 216. | -756. | -28. | 838. | -549. | -0093 | -0197 | -0316 | -0153 | .0129 | -0102 | 402. |
| .1220 | 1443. | 80. | -490. | -306. | 1385. | -1195. | -0088 | -0254 | -0354 | -0123 | .0106 | -0081 | 744. |
| .1230 | -7. | -61. | -15. | -584. | 1887. | -1845. | -0081 | -0307 | -0386 | -0096 | .0079 | -0057 | 1085. |
| .1240 | -110. | -193. | -99. | -840. | 2424. | -2397. | -0067 | -0353 | -0413 | -0072 | .0055 | -0026 | 1409. |
| .1250 | 482. | -317. | -467. | -1077. | 2943. | -2855. | -0049 | -0390 | -0433 | -0047 | .0032 | .0009 | 1701. |
| .1260 | -51. | -437. | -358. | -1301. | 3333. | -3284. | -0033 | -0418 | -0441 | -0018 | .0004 | .0039 | 1949. |
| .1270 | -1361. | -550. | 85. | -1476. | 3601. | -3676. | -0021 | -0434 | -0436 | .0012 | -0025 | .0065 | 2148. |
| .1280 | -1776. | -643. | 170. | -1566. | 3823. | -3951. | -0009 | -0437 | -0421 | .0037 | -0051 | .0091 | 2294. |
| .1290 | -1442. | -711. | -38. | -1574. | 3968. | -4088. | .0003 | -0424 | -0397 | .0052 | -0073 | .0119 | 2372. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

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S/RV PIPING KEWAUNEE GKM08F 2 RUP DISK
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CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | 45 | MEMBER | 2 | SEQUENCE | 265 | LOCATION | END | TYPE | RU | | | | | | |
|---------|--------|--------|-------|----------|---------|----------|-----|-------|-------|-------|-------|-------|-------|-------|--------|
| TIME | FX | FY | FZ | MX | MY | MZ | | | | | | | | | STRESS |
| (SEC) | (LB) | (LB) | (LB) | (FT-LB) | (FT-LB) | (FT-LB) | | (IN) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) | |
| .1300 | -1678. | -752. | 17. | -1525. | 3940. | -4112. | | .0014 | -0397 | -0360 | .0056 | -0096 | .0143 | 2366. | |
| .1310 | -2249. | -763. | 244. | -1427. | 3735. | -3999. | | .0021 | -0355 | -0311 | .0049 | -0117 | .0163 | 2269. | |
| .1320 | -2011. | -739. | 165. | -1269. | 3423. | -3706. | | .0028 | -0298 | -0252 | .0035 | -0133 | .0182 | 2088. | |
| .1330 | -1339. | -686. | -66. | -1053. | 3006. | -3261. | | .0032 | -0227 | -0184 | .0019 | -0144 | .0195 | 1829. | |
| .1340 | -1402. | -609. | 32. | -785. | 2447. | -2734. | | .0032 | -0145 | -0107 | .0006 | -0153 | .0198 | 1506. | |
| .1350 | -1787. | -509. | 282. | -452. | 1792. | -2129. | | .0029 | -0053 | -0022 | -0007 | -0159 | .0193 | 1131. | |
| .1360 | -1298. | -382. | 184. | -55. | 1116. | -1408. | | .0029 | .0046 | .0065 | -0026 | -0158 | .0186 | 721. | |
| .1370 | -335. | -235. | -95. | 373. | 402. | -593. | | .0029 | .0150 | .0155 | -0053 | -0154 | .0180 | 324. | |
| .1380 | -87. | -77. | -61. | 780. | -408. | 254. | | .0028 | .0255 | .0246 | -0084 | -0150 | .0170 | 367. | |
| .1390 | -300. | 85. | 174. | 1153. | -1266. | 1111. | | .0025 | .0359 | .0336 | -0116 | -0145 | .0157 | 819. | |
| .1400 | 60. | 248. | 171. | 1508. | -2064. | 1975. | | .0025 | .0457 | .0421 | -0144 | -0137 | .0145 | 1296. | |
| .1410 | 705. | 404. | 37. | 1845. | -2762. | 2793. | | .0026 | .0547 | .0498 | -0162 | -0126 | .0130 | 1741. | |
| .1420 | 665. | 541. | 169. | 2152. | -3379. | 3481. | | .0028 | .0625 | .0566 | -0169 | -0117 | .0111 | 2130. | |
| .1430 | 308. | 655. | 409. | 2412. | -3881. | 4031. | | .0031 | .0688 | .0622 | -0170 | -0109 | .0093 | 2445. | |
| .1440 | 560. | 741. | 371. | 2602. | -4219. | 4468. | | .0037 | .0734 | .0664 | -0170 | -0102 | .0082 | 2678. | |
| .1450 | 994. | 796. | 231. | 2690. | -4415. | 4769. | | .0043 | .0763 | .0691 | -0168 | -0098 | .0078 | 2823. | |
| .1460 | 616. | 813. | 402. | 2659. | -4511. | 4883. | | .0048 | .0772 | .0704 | -0162 | -0101 | .0077 | 2873. | |
| .1470 | -209. | 791. | 726. | 2539. | -4459. | 4802. | | .0053 | .0760 | .0702 | -0150 | -0108 | .0079 | 2820. | |
| .1480 | -405. | 735. | 752. | 2364. | -4178. | 4557. | | .0060 | .0730 | .0681 | -0128 | -0115 | .0086 | 2656. | |
| .1490 | -153. | 645. | 554. | 2140. | -3685. | 4142. | | .0068 | .0681 | .0643 | -0096 | -0124 | .0096 | 2385. | |
| .1500 | -412. | 519. | 541. | 1856. | -3065. | 3538. | | .0075 | .0616 | .0591 | -0058 | -0136 | .0107 | 2021. | |
| .1510 | -1150. | 363. | 705. | 1504. | -2358. | 2784. | | .0078 | .0536 | .0528 | -0019 | -0152 | .0121 | 1583. | |
| .1520 | -1616. | 187. | 742. | 1104. | -1562. | 1946. | | .0080 | .0446 | .0454 | .0014 | -0170 | .0141 | 1095. | |
| .1530 | -1765. | 1. | 638. | 674. | -705. | 1063. | | .0082 | .0349 | .0371 | .0038 | -0189 | .0167 | 579. | |
| .1540 | -2077. | -189. | 600. | 239. | 169. | 145. | | .0084 | .0247 | .0282 | .0056 | -0208 | .0193 | 131. | |
| .1550 | -2422. | -374. | 577. | -171. | 1046. | -774. | | .0084 | .0146 | .0191 | .0072 | -0225 | .0216 | 527. | |
| .1560 | -2394. | -546. | 409. | -537. | 1919. | -1639. | | .0082 | .0049 | .0099 | .0089 | -0237 | .0236 | 1035. | |
| .1570 | -2309. | -696. | 235. | -850. | 2728. | -2424. | | .0078 | -0042 | .0010 | .0104 | -0244 | .0249 | 1504. | |
| .1580 | -2634. | -819. | 260. | -1116. | 3401. | -3104. | | .0070 | -0122 | -0071 | .0115 | -0248 | .0254 | 1901. | |
| .1590 | -2921. | -905. | 304. | -1324. | 3925. | -3624. | | .0061 | -0190 | -0145 | .0115 | -0246 | .0255 | 2209. | |
| .1600 | -2633. | -946. | 148. | -1456. | 4310. | -3944. | | .0052 | -0242 | -0210 | .0102 | -0238 | .0252 | 2416. | |
| .1610 | -1997. | -942. | -114. | -1502. | 4537. | -4070. | | .0042 | -0279 | -0263 | .0076 | -0222 | .0244 | 2519. | |
| .1620 | -1617. | -896. | -231. | -1472. | 4577. | -4028. | | .0030 | -0299 | -0304 | .0043 | -0202 | .0227 | 2517. | |
| .1630 | -1490. | -812. | -208. | -1361. | 4444. | -3830. | | .0015 | -0304 | -0330 | .0009 | -0177 | .0200 | 2417. | |
| .1640 | -1144. | -691. | -244. | -1175. | 4176. | -3468. | | -0002 | -0294 | -0344 | -0024 | -0146 | .0164 | 2229. | |
| .1650 | -527. | -535. | -365. | -932. | 3788. | -2951. | | -0018 | -0272 | -0346 | -0057 | -0110 | .0122 | 1963. | |
| .1660 | 34. | -354. | -439. | -653. | 3278. | -2315. | | -0034 | -0239 | -0337 | -0090 | -0072 | .0075 | 1631. | |
| .1670 | 533. | -154. | -472. | -357. | 2669. | -1590. | | -0048 | -0198 | -0318 | -0126 | -0033 | .0027 | 1255. | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

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S/RV PIPING KEWAUNEE GKM08F 2 RUP DISK
2 SAFETY COLD FKM24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|--------|-------|-------|--------|-------|--------|--------|--------|--------|--------|--------|-------|-------|
| .1580 | -2634. | -319. | 260. | -1116. | 3401. | -3104. | .0070 | -.0122 | -.0071 | .0115 | -.0248 | .0254 | 1901. |
| .1590 | -2921. | -905. | 304. | -1324. | 3925. | -3624. | .0061 | -.0190 | -.0145 | .0115 | -.0246 | .0255 | 2209. |
| .1600 | -2633. | -946. | 148. | -1456. | 4310. | -3944. | .0052 | -.0242 | -.0210 | .0102 | -.0238 | .0252 | 2416. |
| .1610 | -1997. | -942. | -114. | -1502. | 4537. | -4070. | .0042 | -.0279 | -.0263 | .0076 | -.0222 | .0244 | 2519. |
| .1620 | -1617. | -896. | -231. | -1472. | 4577. | -4028. | .0030 | -.0299 | -.0304 | .0043 | -.0202 | .0227 | 2517. |
| .1630 | -1490. | -812. | -208. | -1361. | 4444. | -3830. | .0015 | -.0304 | -.0330 | .0009 | -.0177 | .0200 | 2417. |
| .1640 | -1144. | -691. | -244. | -1175. | 4176. | -3468. | -.0002 | -.0294 | -.0344 | -.0024 | -.0146 | .0164 | 2229. |
| .1650 | -527. | -535. | -365. | -932. | 3788. | -2951. | -.0018 | -.0272 | -.0346 | -.0057 | -.0110 | .0122 | 1963. |
| .1660 | 34. | -354. | -439. | -653. | 3270. | -2315. | -.0034 | -.0239 | -.0337 | -.0090 | -.0072 | .0075 | 1631. |
| .1670 | 533. | -154. | -472. | -357. | 2669. | -1590. | -.0048 | -.0198 | -.0318 | -.0126 | -.0033 | .0027 | 1255. |

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CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | 45 | MEMBER | 2 | SEQUENCE | 265 | LOCATION | END | TYPE | RU | | | | | | |
|---------|--------|--------|-------|----------|---------|----------|-----|--------|--------|--------|--------|--------|--------|--------|--|
| TIME | FX | FY | FZ | MX | MY | MZ | | DX | DY | DZ | RX | RY | RZ | STRESS | |
| (SEC) | (LB) | (LB) | (LB) | (FT-LB) | (FT-LB) | (FT-LB) | | (IN) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) | |
| .1680 | 1151. | 53. | -547. | -54. | 2004. | -813. | | -.0061 | -.0152 | -.0291 | -.0162 | .0004 | -.0021 | 868. | |
| .1690 | 1762. | 256. | -622. | 242. | 1318. | -36. | | -.0073 | -.0105 | -.0258 | -.0195 | .0040 | -.0068 | 538. | |
| .1700 | 2073. | 443. | -585. | 517. | 638. | 687. | | -.0083 | -.0059 | -.0219 | -.0221 | .0071 | -.0113 | 430. | |
| .1710 | 2177. | 608. | -482. | 762. | 10. | 1325. | | -.0091 | -.0019 | -.0179 | -.0237 | .0097 | -.0155 | 613. | |
| .1720 | 2418. | 744. | -464. | 958. | -522. | 1868. | | -.0093 | .0014 | -.0138 | -.0241 | .0118 | -.0191 | 868. | |
| .1730 | 2749. | 845. | -514. | 1092. | -944. | 2290. | | -.0090 | .0037 | -.0100 | -.0235 | .0134 | -.0219 | 1086. | |
| .1740 | 2813. | 903. | -487. | 1149. | -1264. | 2555. | | -.0084 | .0050 | -.0064 | -.0222 | .0142 | -.0239 | 1233. | |
| .1750 | 2522. | 915. | -349. | 1127. | -1478. | 2644. | | -.0075 | .0049 | -.0032 | -.0202 | .0140 | -.0248 | 1297. | |
| .1760 | 2144. | 880. | -213. | 1038. | -1563. | 2554. | | -.0062 | .0037 | -.0004 | -.0178 | .0131 | -.0247 | 1272. | |
| .1770 | 1843. | 801. | -146. | 892. | -1508. | 2296. | | -.0046 | .0013 | .0018 | -.0149 | .0115 | -.0234 | 1159. | |
| .1780 | 1461. | 682. | -79. | 693. | -1328. | 1881. | | -.0027 | -.0023 | .0034 | -.0113 | .0092 | -.0214 | 965. | |
| .1790 | 919. | 529. | 28. | 442. | -1047. | 1333. | | -.0007 | -.0067 | .0045 | -.0071 | .0065 | -.0187 | 703. | |
| .1800 | 366. | 351. | 119. | 147. | -686. | 691. | | .0015 | -.0118 | .0052 | -.0022 | .0034 | -.0156 | 395. | |
| .1810 | -129. | 155. | 173. | -175. | -272. | -12. | | .0036 | -.0172 | .0055 | .0029 | .0000 | -.0120 | 130. | |
| .1820 | -657. | -49. | 236. | -511. | 160. | -744. | | .0055 | -.0228 | .0056 | .0079 | -.0035 | -.0083 | 368. | |
| .1830 | -1225. | -250. | 318. | -835. | 581. | -1470. | | .0072 | -.0281 | .0056 | .0126 | -.0070 | -.0046 | 717. | |
| .1840 | -1650. | -438. | 351. | -1122. | 971. | -2147. | | .0087 | -.0328 | .0057 | .0166 | -.0104 | -.0010 | 1047. | |
| .1850 | -1881. | -601. | 321. | -1361. | 1305. | -2730. | | .0099 | -.0367 | .0058 | .0199 | -.0133 | .0023 | 1331. | |
| .1860 | -2077. | -732. | 304. | -1548. | 1544. | -3187. | | .0108 | -.0395 | .0063 | .0225 | -.0157 | .0049 | 1551. | |
| .1870 | -2251. | -824. | 311. | -1681. | 1668. | -3486. | | .0112 | -.0410 | .0071 | .0248 | -.0176 | .0067 | 1691. | |
| .1880 | -2263. | -871. | 286. | -1746. | 1672. | -3606. | | .0113 | -.0411 | .0084 | .0264 | -.0186 | .0076 | 1742. | |
| .1890 | -2100. | -869. | 227. | -1733. | 1555. | -3538. | | .0110 | -.0397 | .0100 | .0272 | -.0188 | .0075 | 1700. | |
| .1900 | -1914. | -820. | 193. | -1639. | 1313. | -3291. | | .0104 | -.0369 | .0121 | .0272 | -.0183 | .0066 | 1567. | |
| .1910 | -1717. | -726. | 190. | -1468. | 952. | -2876. | | .0095 | -.0326 | .0146 | .0262 | -.0170 | .0049 | 1351. | |
| .1920 | -1352. | -592. | 148. | -1232. | 493. | -2302. | | .0085 | -.0272 | .0173 | .0242 | -.0150 | .0026 | 1066. | |
| .1930 | -865. | -425. | 82. | -949. | -44. | -1595. | | .0074 | -.0208 | .0201 | .0216 | -.0124 | -.0002 | 745. | |
| .1940 | -471. | -234. | 75. | -638. | -643. | -797. | | .0061 | -.0138 | .0229 | .0186 | -.0093 | -.0035 | 484. | |
| .1950 | -200. | -29. | 130. | -311. | -1268. | 48. | | .0048 | -.0065 | .0256 | .0154 | -.0059 | -.0071 | 524. | |
| .1960 | 106. | 180. | 164. | 23. | -1868. | 901. | | .0035 | .0009 | .0278 | .0123 | -.0022 | -.0108 | 832. | |
| .1970 | 530. | 381. | 156. | 350. | -2405. | 1715. | | .0023 | .0078 | .0294 | .0093 | .0016 | -.0143 | 1194. | |
| .1980 | 861. | 562. | 162. | 646. | -2861. | 2440. | | .0011 | .0140 | .0302 | .0063 | .0052 | -.0173 | 1531. | |
| .1990 | 1060. | 713. | 200. | 892. | -3215. | 3038. | | .0001 | .0192 | .0301 | .0035 | .0084 | -.0198 | 1811. | |
| .2000 | 1181. | 825. | 240. | 1071. | -3441. | 3481. | | -.0009 | .0231 | .0290 | .0009 | .0111 | -.0214 | 2011. | |
| .2010 | 1244. | 894. | 270. | 1176. | -3519. | 3746. | | -.0018 | .0256 | .0267 | -.0013 | .0132 | -.0221 | 2116. | |
| .2020 | 1232. | 915. | 292. | 1205. | -3434. | 3815. | | -.0025 | .0266 | .0233 | -.0029 | .0147 | -.0219 | 2116. | |
| .2030 | 1178. | 887. | 292. | 1163. | -3178. | 3684. | | -.0031 | .0259 | .0188 | -.0039 | .0155 | -.0208 | 2007. | |
| .2040 | 1111. | 813. | 256. | 1056. | -2755. | 3357. | | -.0035 | .0238 | .0132 | -.0042 | .0157 | -.0188 | 1793. | |
| .2050 | 965. | 695. | 218. | 889. | -2188. | 2849. | | -.0038 | .0203 | .0068 | -.0041 | .0152 | -.0160 | 1485. | |

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S/RV PIPING KEWAUNEE GKM08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|-------|-------|------|-------|--------|-------|--------|--------|-------|--------|--------|--------|-------|
| .1740 | -471. | -234. | 75. | -638. | -643. | -797. | .0061 | -.0138 | .0229 | .0186 | -.0093 | -.0035 | 484. |
| .1950 | -200. | -29. | 130. | -311. | -1268. | 48. | .0048 | -.0065 | .0256 | .0154 | -.0059 | -.0071 | 524. |
| .1960 | 126. | 180. | 164. | 23. | -1868. | 901. | .0035 | .0009 | .0278 | .0123 | -.0022 | -.0108 | 832. |
| .1970 | 530. | 381. | 156. | 350. | -2405. | 1715. | .0023 | .0078 | .0294 | .0093 | .0016 | -.0143 | 1194. |
| .1980 | 861. | 562. | 162. | 646. | -2861. | 2440. | .0011 | .0140 | .0302 | .0063 | .0052 | -.0173 | 1531. |
| .1990 | 1060. | 712. | 200. | 892. | -3215. | 3038. | .0001 | .0192 | .0301 | .0035 | .0084 | -.0198 | 1811. |
| .2000 | 1181. | 823. | 240. | 1071. | -3441. | 3481. | -.0009 | .0231 | .0290 | .0009 | .0111 | -.0214 | 2011. |
| .2010 | 1244. | 894. | 270. | 1176. | -3519. | 3746. | -.0018 | .0256 | .0267 | -.0013 | .0132 | -.0221 | 2116. |
| .2020 | 1232. | 915. | 292. | 1205. | -3434. | 3815. | -.0025 | .0266 | .0233 | -.0029 | .0147 | -.0219 | 2116. |
| .2030 | 1178. | 887. | 292. | 1163. | -3178. | 3684. | -.0031 | .0259 | .0188 | -.0039 | .0155 | -.0208 | 2007. |
| .2040 | 1111. | 813. | 256. | 1056. | -2755. | 3357. | -.0035 | .0238 | .0132 | -.0042 | .0157 | -.0188 | 1793. |
| .2050 | 965. | 695. | 218. | 889. | -2188. | 2849. | -.0038 | .0203 | .0068 | -.0041 | .0152 | -.0160 | 1485. |

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2 SAFETY COLD FKM24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | 45 | MEMBER | 2 | SEQUENCE | 265 | LOCATION | END | TYPE | RU | | | | | |
|------------|---------|---------|---------|------------|------------|------------|---------|---------|---------|----------|----------|----------|--------------|--|
| TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | MX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | STRESS (PSI) | |
| .2060 | 681. | 539. | 206. | 668. | -1511. | 2187. | -.0040 | .0157 | -.0004 | -.0039 | .0141 | -.0124 | 1100. | |
| .2070 | 331. | 354. | 198. | 404. | -750. | 1410. | -.0041 | .0102 | -.0080 | -.0036 | .0124 | -.0081 | 661. | |
| .2080 | 28. | 150. | 155. | 114. | 66. | 566. | -.0041 | .0042 | -.0158 | -.0035 | .0104 | -.0032 | 233. | |
| .2090 | -228. | -60. | 84. | -182. | 906. | -303. | -.0041 | -.0019 | -.0236 | -.0034 | .0081 | .0018 | 390. | |
| .2100 | -511. | -266. | 23. | -467. | 1732. | -1152. | -.0040 | -.0078 | -.0311 | -.0032 | .0058 | .0067 | 856. | |
| .2110 | -822. | -457. | -16. | -723. | 2507. | -1940. | -.0039 | -.0132 | -.0379 | -.0029 | .0035 | .0113 | 1304. | |
| .2120 | -1084. | -622. | -59. | -937. | 3196. | -2619. | -.0039 | -.0178 | -.0439 | -.0027 | .0014 | .0152 | 1700. | |
| .2130 | -1262. | -753. | -109. | -1097. | 3764. | -3153. | -.0039 | -.0211 | -.0489 | -.0028 | -.0003 | .0185 | 2019. | |
| .2140 | -1386. | -844. | -149. | -1197. | 4179. | -3512. | -.0039 | -.0231 | -.0525 | -.0032 | -.0015 | .0210 | 2243. | |
| .2150 | -1460. | -888. | -171. | -1229. | 4420. | -3678. | -.0041 | -.0236 | -.0548 | -.0042 | -.0023 | .0226 | 2360. | |
| .2160 | -1450. | -883. | -188. | -1188. | 4462. | -3642. | -.0043 | -.0226 | -.0557 | -.0057 | -.0024 | .0233 | 2366. | |
| .2170 | -1339. | -830. | -207. | -1072. | 4367. | -3407. | -.0046 | -.0200 | -.0551 | -.0076 | -.0020 | .0229 | 2264. | |
| .2180 | -1160. | -733. | -216. | -888. | 4084. | -2989. | -.0050 | -.0160 | -.0531 | -.0095 | -.0009 | .0216 | 2062. | |
| .2190 | -938. | -596. | -208. | -645. | 3646. | -2409. | -.0054 | -.0108 | -.0497 | -.0114 | .0007 | .0193 | 1773. | |
| .2200 | -677. | -427. | -186. | -358. | 3076. | -1695. | -.0058 | -.0047 | -.0453 | -.0133 | .0027 | .0163 | 1417. | |
| .2210 | -391. | -235. | -151. | -42. | 2399. | -886. | -.0062 | .0021 | -.0399 | -.0151 | .0051 | .0127 | 1026. | |
| .2220 | -92. | -30. | -106. | 287. | 1648. | -24. | -.0065 | .0092 | -.0338 | -.0169 | .0076 | .0089 | 671. | |
| .2230 | 234. | 176. | -67. | 614. | 863. | 845. | -.0067 | .0163 | -.0274 | -.0187 | .0102 | .0050 | 544. | |
| .2240 | 573. | 372. | -36. | 925. | 83. | 1673. | -.0068 | .0230 | -.0208 | -.0202 | .0127 | .0012 | 768. | |
| .2250 | 851. | 548. | 8. | 1203. | -655. | 2412. | -.0067 | .0289 | -.0143 | -.0213 | .0149 | -.0022 | 1113. | |
| .2260 | 1007. | 693. | 82. | 1432. | -1319. | 3025. | -.0065 | .0337 | -.0081 | -.0218 | .0168 | -.0052 | 1443. | |
| .2270 | 1102. | 801. | 154. | 1601. | -1872. | 3482. | -.0061 | .0372 | -.0027 | -.0217 | .0181 | -.0075 | 1712. | |
| .2280 | 1213. | 867. | 186. | 1702. | -2288. | 3764. | -.0054 | .0392 | .0020 | -.0210 | .0189 | -.0091 | 1895. | |
| .2290 | 1295. | 886. | 194. | 1728. | -2554. | 3856. | -.0046 | .0395 | .0056 | -.0198 | .0191 | -.0098 | 1981. | |
| .2300 | 1245. | 858. | 217. | 1677. | -2667. | 3748. | -.0036 | .0383 | .0082 | -.0182 | .0186 | -.0095 | 1965. | |
| .2310 | 1067. | 735. | 255. | 1551. | -2625. | 3447. | -.0026 | .0354 | .0097 | -.0161 | .0173 | -.0085 | 1847. | |
| .2320 | 873. | 670. | 264. | 1360. | -2429. | 2973. | -.0015 | .0311 | .0101 | -.0137 | .0155 | -.0066 | 1634. | |
| .2330 | 693. | 521. | 235. | 1112. | -2090. | 2355. | -.0003 | .0256 | .0094 | -.0110 | .0132 | -.0041 | 1340. | |
| .2340 | 456. | 347. | 203. | 818. | -1633. | 1624. | .0009 | .0191 | .0078 | -.0079 | .0104 | -.0012 | 981. | |
| .2350 | 150. | 156. | 181. | 493. | -1089. | 818. | .0021 | .0119 | .0054 | -.0046 | .0075 | .0020 | 581. | |
| .2360 | -142. | -41. | 143. | 152. | -486. | -19. | .0032 | .0043 | .0023 | -.0013 | .0044 | .0052 | 205. | |
| .2370 | -364. | -234. | 73. | -186. | 145. | -844. | .0041 | -.0032 | -.0012 | .0018 | .0013 | .0084 | 352. | |
| .2380 | -566. | -413. | 1. | -505. | 767. | -1617. | .0050 | -.0104 | -.0049 | .0044 | -.0015 | .0113 | 746. | |
| .2390 | -797. | -568. | -46. | -789. | 1347. | -2303. | .0057 | -.0169 | -.0086 | .0065 | -.0041 | .0138 | 1117. | |
| .2400 | -1005. | -692. | -81. | -1024. | 1860. | -2866. | .0061 | -.0224 | -.0122 | .0081 | -.0062 | .0158 | 1431. | |
| .2410 | -1107. | -778. | -134. | -1202. | 2287. | -3277. | .0065 | -.0268 | -.0154 | .0091 | -.0076 | .0171 | 1675. | |
| .2420 | -1069. | -822. | -214. | -1315. | 2612. | -3518. | .0066 | -.0299 | -.0183 | .0095 | -.0084 | .0176 | 1836. | |
| .2430 | -966. | -824. | -287. | -1362. | 2821. | -3583. | .0067 | -.0316 | -.0207 | .0093 | -.0084 | .0173 | 1910. | |

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ADLPIPE STRESS ANALYSIS

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S/RV PIPING KEWAUNEE GKM08F 2 RUP DISK
2 SAFETY COLD FKM24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|--------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| .2330 | 893. | 521. | 215. | 1112. | -2090. | 2355. | -.0003 | .0256 | .0094 | -.0110 | .0132 | -.0041 | 1340. |
| .2340 | 456. | 347. | 203. | 818. | -1633. | 1624. | .0009 | .0191 | .0078 | -.0079 | .0104 | -.0012 | 981. |
| .2350 | 150. | 156. | 181. | 493. | -1089. | 818. | .0021 | .0119 | .0054 | -.0046 | .0075 | .0020 | 581. |
| .2360 | -142. | -41. | 143. | 152. | -486. | -19. | .0032 | .0043 | .0023 | -.0013 | .0044 | .0052 | 205. |
| .2370 | -364. | -234. | 73. | -186. | 145. | -844. | .0041 | -.0032 | -.0012 | .0018 | .0013 | .0084 | 352. |
| .2380 | -566. | -413. | 1. | -505. | 767. | -1617. | .0050 | -.0104 | -.0049 | .0044 | -.0015 | .0113 | 746. |
| .2390 | -797. | -568. | -46. | -789. | 1347. | -2303. | .0057 | -.0169 | -.0086 | .0065 | -.0041 | .0138 | 1117. |
| .2400 | -1005. | -692. | -81. | -1024. | 1860. | -2866. | .0061 | -.0224 | -.0122 | .0081 | -.0062 | .0158 | 1431. |
| .2410 | -1107. | -778. | -134. | -1202. | 2287. | -3277. | .0065 | -.0268 | -.0154 | .0091 | -.0076 | .0171 | 1675. |
| .2420 | -1069. | -822. | -214. | -1315. | 2612. | -3518. | .0066 | -.0299 | -.0183 | .0095 | -.0084 | .0176 | 1836. |
| .2430 | -966. | -824. | -287. | -1362. | 2821. | -3583. | .0067 | -.0316 | -.0207 | .0093 | -.0084 | .0173 | 1910. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | 45 | MEMBER | 2 | SEQUENCE | 265 | LOCATION | END | TYPE | RU | | | | | |
|------------|---------|---------|---------|------------|------------|------------|---------|---------|---------|----------|----------|----------|--------------|--|
| TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | HX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | STRESS (PSI) | |
| .2440 | -896. | -784. | -313. | -1340. | 2907. | -3478. | .0065 | -.0318 | -.0226 | .0085 | -.0078 | .0162 | 1897. | |
| .2450 | -847. | -705. | -298. | -1253. | 2874. | -3217. | .0061 | -.0308 | -.0239 | .0071 | -.0064 | .0144 | 1802. | |
| .2460 | -713. | -592. | -288. | -1105. | 2737. | -2814. | .0057 | -.0286 | -.0248 | .0050 | -.0044 | .0122 | 1637. | |
| .2470 | -394. | -452. | -330. | -906. | 2521. | -2292. | .0052 | -.0254 | -.0254 | .0022 | -.0019 | .0095 | 1415. | |
| .2480 | 5. | -292. | -387. | -671. | 2244. | -1687. | .0047 | -.0214 | -.0258 | -.0010 | .0012 | .0067 | 1158. | |
| .2490 | 251. | -124. | -368. | -418. | 1919. | -1042. | .0040 | -.0170 | -.0261 | -.0044 | .0044 | .0037 | 892. | |
| .2500 | 351. | 44. | -284. | -159. | 1575. | -399. | .0032 | -.0124 | -.0265 | -.0079 | .0078 | .0007 | 655. | |
| .2510 | 520. | 202. | -231. | 95. | 1255. | 212. | .0024 | -.0079 | -.0272 | -.0114 | .0112 | -.0021 | 512. | |
| .2520 | 871. | 342. | -265. | 332. | 993. | 761. | .0016 | -.0038 | -.0283 | -.0148 | .0145 | -.0045 | 519. | |
| .2530 | 1276. | 458. | -340. | 538. | 806. | 1214. | .0008 | -.0003 | -.0300 | -.0181 | .0175 | -.0062 | 623. | |
| .2540 | 1579. | 542. | -394. | 701. | 705. | 1545. | -.0001 | .0024 | -.0323 | -.0212 | .0201 | -.0073 | 737. | |
| .2550 | 1751. | 592. | -421. | 809. | 704. | 1741. | -.0009 | .0042 | -.0353 | -.0240 | .0222 | -.0078 | 820. | |
| .2560 | 1936. | 606. | -484. | 860. | 826. | 1800. | -.0016 | .0050 | -.0391 | -.0264 | .0237 | -.0074 | 866. | |
| .2570 | 2374. | 585. | -686. | 859. | 1097. | 1734. | -.0020 | .0047 | -.0439 | -.0283 | .0248 | -.0062 | 893. | |
| .2580 | 2842. | 531. | -934. | 808. | 1513. | 1547. | -.0021 | .0035 | -.0495 | -.0296 | .0254 | -.0043 | 927. | |
| .2590 | 2892. | 448. | -1041. | 708. | 2044. | 1240. | -.0018 | .0013 | -.0559 | -.0305 | .0255 | -.0019 | 1000. | |
| .2600 | 2557. | 339. | -1018. | 563. | 2677. | 833. | -.0014 | -.0016 | -.0629 | -.0311 | .0251 | .0010 | 1147. | |
| .2610 | 2250. | 212. | -1031. | 384. | 3414. | 365. | -.0007 | -.0051 | -.0706 | -.0313 | .0244 | .0044 | 1386. | |
| .2620 | 2164. | 75. | -1156. | 180. | 4243. | -129. | .0005 | -.0090 | -.0789 | -.0314 | .0235 | .0082 | 1705. | |
| .2630 | 2006. | -66. | -1263. | -42. | 5123. | -635. | .0018 | -.0132 | -.0875 | -.0313 | .0225 | .0121 | 2072. | |
| .2640 | 1291. | -206. | -1145. | -278. | 5991. | -1150. | .0028 | -.0173 | -.0962 | -.0310 | .0212 | .0157 | 2451. | |
| .2650 | 150. | -338. | -846. | -518. | 6814. | -1653. | .0033 | -.0214 | -.1046 | -.0305 | .0198 | .0186 | 2821. | |
| .2660 | -670. | -457. | -669. | -748. | 7592. | -2101. | .0034 | -.0251 | -.1128 | -.0296 | .0186 | .0210 | 3175. | |
| .2670 | -803. | -555. | -760. | -957. | 8305. | -2463. | .0030 | -.0282 | -.1204 | -.0284 | .0176 | .0228 | 3497. | |
| .2680 | -815. | -630. | -874. | -1144. | 8881. | -2745. | .0019 | -.0306 | -.1270 | -.0270 | .0169 | .0237 | 3759. | |
| .2690 | -1188. | -681. | -804. | -1306. | 9259. | -2954. | -.0002 | -.0322 | -.1323 | -.0256 | .0162 | .0235 | 3935. | |
| .2700 | -1545. | -705. | -702. | -1432. | 9431. | -3062. | -.0032 | -.0328 | -.1359 | -.0241 | .0158 | .0223 | 4020. | |
| .2710 | -1133. | -698. | -878. | -1506. | 9427. | -3031. | -.0065 | -.0324 | -.1379 | -.0226 | .0160 | .0204 | 4019. | |
| .2720 | -113. | -659. | -1266. | -1523. | 9237. | -2854. | -.0097 | -.0308 | -.1381 | -.0211 | .0169 | .0179 | 3928. | |
| .2730 | 582. | -592. | -1478. | -1490. | 8815. | -2560. | -.0129 | -.0282 | -.1362 | -.0193 | .0182 | .0146 | 3731. | |
| .2740 | 653. | -501. | -1390. | -1408. | 8154. | -2160. | -.0159 | -.0244 | -.1321 | -.0174 | .0199 | .0106 | 3432. | |
| .2750 | 693. | -388. | -1255. | -1272. | 7309. | -1642. | -.0183 | -.0198 | -.1259 | -.0155 | .0221 | .0063 | 3049. | |
| .2760 | 1246. | -258. | -1307. | -1080. | 6340. | -1003. | -.0194 | -.0143 | -.1181 | -.0136 | .0251 | .0023 | 2612. | |
| .2770 | 1955. | -116. | -1404. | -842. | 5266. | -278. | -.0192 | -.0082 | -.1087 | -.0119 | .0287 | -.0014 | 2143. | |
| .2780 | 2058. | 28. | -1238. | -574. | 4083. | 476. | -.0181 | -.0018 | -.0980 | -.0104 | .0323 | -.0048 | 1665. | |
| .2790 | 1438. | 166. | -768. | -291. | 2823. | 1220. | -.0161 | .0046 | -.0861 | -.0092 | .0360 | -.0079 | 1240. | |
| .2800 | 674. | 293. | -243. | -6. | 1560. | 1936. | -.0133 | .0107 | -.0738 | -.0082 | .0397 | -.0104 | 998. | |
| .2810 | 333. | 403. | 91. | 271. | 367. | 2603. | -.0097 | .0162 | -.0615 | -.0071 | .0433 | -.0122 | 1061. | |

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2 SAFETY COLD FKW24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|--------|-------|--------|--------|-------|--------|--------|--------|--------|--------|-------|--------|-------|
| .2710 | -1133. | -698. | -878. | -1506. | 9427. | -3031. | -.0065 | -.0324 | -.1379 | -.0226 | .0160 | .0204 | 4019. |
| .2720 | -113. | -659. | -1266. | -1523. | 9237. | -2854. | -.0097 | -.0308 | -.1381 | -.0211 | .0169 | .0179 | 3928. |
| .2730 | 582. | -592. | -1478. | -1490. | 8815. | -2560. | -.0129 | -.0282 | -.1362 | -.0193 | .0182 | .0146 | 3731. |
| .2740 | 653. | -501. | -1390. | -1408. | 8154. | -2160. | -.0159 | -.0244 | -.1321 | -.0174 | .0199 | .0106 | 3432. |
| .2750 | 697. | -388. | -1255. | -1272. | 7709. | -1642. | -.0183 | -.0198 | -.1259 | -.0155 | .0221 | .0063 | 3049. |
| .2760 | 1246. | -258. | -1307. | -1900. | 6340. | -1003. | -.0194 | -.0143 | -.1181 | -.0136 | .0251 | .0023 | 2612. |
| .2770 | 1955. | -116. | -1404. | -842. | 5266. | -278. | -.0192 | -.0082 | -.1087 | -.0119 | .0287 | -.0014 | 2143. |
| .2780 | 2058. | 28. | -1238. | -574. | 4083. | 476. | -.0181 | -.0018 | -.0980 | -.0104 | .0323 | -.0048 | 1665. |
| .2790 | 1438. | 166. | -768. | -291. | 2823. | 1220. | -.0161 | .0046 | -.0861 | -.0092 | .0360 | -.0079 | 1240. |
| .2800 | 674. | 293. | -243. | -6. | 1560. | 1936. | -.0133 | .0107 | -.0738 | -.0082 | .0397 | -.0104 | 998. |
| .2810 | 333. | 403. | 91. | 271. | 367. | 2603. | -.0097 | .0162 | -.0615 | -.0071 | .0433 | -.0122 | 1061. |

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CONDITION 24

LOADS

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INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | 45 | MEMBER | 2 | SEQUENCE | 265 | LOCATION | END | TYPE | RU | | | | | | |
|---------|--------|--------|--------|----------|---------|----------|--------|--------|--------|--------|-------|--------|--------|--|--|
| TIME | FX | FY | FZ | MX | MY | MZ | DX | DY | DZ | RX | RY | RZ | STRESS | | |
| (SEC) | (LB) | (LB) | (LB) | (FT-LB) | (FT-LB) | (FT-LB) | (IN) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) | | |
| .2820 | 303. | 488. | 274. | 527. | -722. | 3178. | -.0056 | .0208 | -.0499 | -.0060 | .0468 | -.0134 | 1325. | | |
| .2830 | -8. | 544. | 545. | 744. | -1710. | 3607. | -.0017 | .0242 | -.0390 | -.0050 | .0496 | -.0141 | 1629. | | |
| .2840 | -803. | 566. | 986. | 910. | -2584. | 3056. | .0014 | .0263 | -.0293 | -.0043 | .0516 | -.0146 | 1898. | | |
| .2850 | -1536. | 556. | 1367. | 1020. | -3300. | 3934. | .0038 | .0269 | -.0212 | -.0038 | .0530 | -.0147 | 2101. | | |
| .2860 | -1551. | 518. | 1415. | 1077. | -3017. | 3865. | .0055 | .0259 | -.0152 | -.0036 | .0538 | -.0143 | 2222. | | |
| .2870 | -974. | 456. | 1185. | 1078. | -4137. | 3660. | .0065 | .0236 | -.0113 | -.0038 | .0541 | -.0137 | 2258. | | |
| .2880 | -565. | 375. | 997. | 1022. | -4309. | 3316. | .0063 | .0198 | -.0093 | -.0041 | .0539 | -.0132 | 2220. | | |
| .2890 | -642. | 282. | 988. | 918. | -4358. | 2853. | .0050 | .0149 | -.0092 | -.0045 | .0532 | -.0132 | 2122. | | |
| .2900 | -619. | 186. | 922. | 782. | -4270. | 2328. | .0031 | .0089 | -.0110 | -.0050 | .0524 | -.0136 | 1977. | | |
| .2910 | 80. | 97. | 563. | 636. | -4033. | 1802. | .0010 | .0023 | -.0147 | -.0057 | .0520 | -.0142 | 1791. | | |
| .2920 | 1084. | 23. | 75. | 488. | -3693. | 1302. | -.0012 | -.0047 | -.0200 | -.0069 | .0519 | -.0150 | 1583. | | |
| .2930 | 1570. | -33. | -194. | 340. | -3321. | 838. | -.0034 | -.0119 | -.0264 | -.0085 | .0523 | -.0163 | 1381. | | |
| .2940 | 1417. | -66. | -187. | 197. | -2945. | 429. | -.0056 | -.0192 | -.0337 | -.0106 | .0530 | -.0182 | 1197. | | |
| .2950 | 1282. | -71. | -173. | 71. | -2548. | 121. | -.0072 | -.0263 | -.0419 | -.0131 | .0546 | -.0204 | 1024. | | |
| .2960 | 1564. | -47. | -317. | -30. | -2118. | -69. | -.0081 | -.0332 | -.0509 | -.0157 | .0572 | -.0230 | 851. | | |
| .2970 | 1871. | 0. | -454. | -111. | -1686. | -165. | -.0085 | -.0398 | -.0604 | -.0181 | .0605 | -.0259 | 681. | | |
| .2980 | 1675. | 66. | -365. | -180. | -1287. | -205. | -.0087 | -.0461 | -.0702 | -.0205 | .0645 | -.0293 | 528. | | |
| .2990 | 1067. | 144. | -89. | -242. | -922. | -210. | -.0090 | -.0523 | -.0802 | -.0227 | .0688 | -.0331 | 392. | | |
| .3000 | 605. | 228. | 138. | -305. | -563. | -191. | -.0091 | -.0583 | -.0905 | -.0249 | .0736 | -.0369 | 268. | | |
| .3010 | 601. | 309. | 183. | -376. | -194. | -168. | -.0094 | -.0643 | -.1011 | -.0270 | .0785 | -.0405 | 183. | | |
| .3020 | 829. | 381. | 135. | -466. | 180. | -181. | -.0100 | -.0703 | -.1118 | -.0290 | .0834 | -.0440 | 213. | | |
| .3030 | 918. | 434. | 144. | -583. | 547. | -267. | -.0112 | -.0765 | -.1225 | -.0307 | .0879 | -.0472 | 338. | | |
| .3040 | 846. | 465. | 214. | -731. | 917. | -446. | -.0133 | -.0827 | -.1332 | -.0319 | .0919 | -.0503 | 503. | | |
| .3050 | 975. | 470. | 188. | -904. | 1317. | -713. | -.0159 | -.0889 | -.1437 | -.0325 | .0952 | -.0529 | 702. | | |
| .3060 | 1577. | 449. | -49. | -1097. | 1765. | -1055. | -.0188 | -.0951 | -.1540 | -.0326 | .0980 | -.0550 | 935. | | |
| .3070 | 2432. | 403. | -409. | -1307. | 2247. | -1462. | -.0219 | -.1011 | -.1638 | -.0323 | .1000 | -.0563 | 1197. | | |
| .3080 | 3057. | 334. | -690. | -1531. | 2732. | -1927. | -.0252 | -.1066 | -.1729 | -.0319 | .1011 | -.0570 | 1476. | | |
| .3090 | 3307. | 246. | -832. | -1759. | 3203. | -2424. | -.0285 | -.1115 | -.1808 | -.0314 | .1013 | -.0570 | 1760. | | |
| .3100 | 3533. | 147. | -980. | -1974. | 3672. | -2907. | -.0312 | -.1155 | -.1876 | -.0308 | .1007 | -.0561 | 2040. | | |
| .3110 | 4002. | 45. | -1245. | -2158. | 4145. | -3331. | -.0331 | -.1183 | -.1930 | -.0302 | .0995 | -.0545 | 2303. | | |
| .3120 | 4423. | -55. | -1502. | -2301. | 4594. | -3676. | -.0341 | -.1197 | -.1968 | -.0294 | .0978 | -.0522 | 2535. | | |
| .3130 | 4331. | -147. | -1553. | -2397. | 4976. | -3928. | -.0343 | -.1196 | -.1987 | -.0286 | .0954 | -.0496 | 2720. | | |
| .3140 | 3754. | -224. | -1405. | -2439. | 5273. | -4065. | -.0337 | -.1179 | -.1984 | -.0278 | .0925 | -.0467 | 2845. | | |
| .3150 | 3162. | -282. | -1250. | -2421. | 5488. | -4056. | -.0322 | -.1144 | -.1962 | -.0271 | .0893 | -.0435 | 2906. | | |
| .3160 | 2795. | -315. | -1183. | -2339. | 5616. | -3888. | -.0298 | -.1092 | -.1920 | -.0267 | .0858 | -.0400 | 2897. | | |
| .3170 | 2398. | -324. | -1094. | -2198. | 5627. | -3576. | -.0269 | -.1023 | -.1857 | -.0265 | .0820 | -.0366 | 2817. | | |
| .3180 | 1697. | -308. | -864. | -2003. | 5498. | -3142. | -.0238 | -.0940 | -.1774 | -.0265 | .0779 | -.0334 | 2665. | | |
| .3190 | 851. | -269. | -557. | -1760. | 5231. | -2598. | -.0208 | -.0843 | -.1671 | -.0264 | .0735 | -.0307 | 2448. | | |

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CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|-------|-------|--------|--------|-------|--------|--------|--------|--------|--------|-------|--------|-------|
| .3080 | 3057. | 334. | -690. | -1531. | 2732. | -1927. | -.0252 | -.1066 | -.1729 | -.0319 | .1011 | -.0570 | 1476. |
| .3090 | 3307. | 246. | -832. | -1759. | 3203. | -2424. | -.0285 | -.1115 | -.1808 | -.0314 | .1013 | -.0570 | 1760. |
| .3100 | 3533. | 147. | -980. | -1974. | 3672. | -2907. | -.0312 | -.1155 | -.1876 | -.0308 | .1007 | -.0561 | 2040. |
| .3110 | 4002. | 45. | -1245. | -2158. | 4145. | -3331. | -.0331 | -.1183 | -.1930 | -.0302 | .0995 | -.0545 | 2303. |
| .3120 | 4423. | -55. | -1502. | -2301. | 4594. | -3676. | -.0341 | -.1197 | -.1968 | -.0294 | .0978 | -.0522 | 2535. |
| .3130 | 4331. | -147. | -1553. | -2397. | 4976. | -3928. | -.0343 | -.1196 | -.1987 | -.0286 | .0954 | -.0496 | 2720. |
| .3140 | 3754. | -124. | -1405. | -2439. | 5273. | -4065. | -.0337 | -.1179 | -.1984 | -.0278 | .0925 | -.0467 | 2845. |
| .3150 | 3162. | -282. | -1250. | -2421. | 5488. | -4056. | -.0322 | -.1144 | -.1962 | -.0271 | .0893 | -.0435 | 2906. |
| .3160 | 2795. | -315. | -1183. | -2339. | 5616. | -3888. | -.0298 | -.1092 | -.1920 | -.0267 | .0858 | -.0400 | 2897. |
| .3170 | 2398. | -324. | -1094. | -2198. | 5627. | -3576. | -.0269 | -.1023 | -.1857 | -.0265 | .0820 | -.0366 | 2817. |
| .3180 | 1697. | -308. | -864. | -2003. | 5498. | -3142. | -.0238 | -.0940 | -.1774 | -.0265 | .0779 | -.0334 | 2665. |
| .3190 | 851. | -269. | -557. | -1760. | 5231. | -2598. | -.0208 | -.0843 | -.1671 | -.0264 | .0735 | -.0307 | 2448. |

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CONDITION 24
LOADS
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ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | 45 | MEMBER | 2 | SEQUENCE | 265 | LOCATION | END | TYPE | RU | | | | | | |
|---------|--------|--------|--------|----------|---------|----------|--------|--------|--------|--------|--------|--------|--------|--|--|
| TIME | FX | FY | FZ | MX | MY | MZ | DX | DY | DZ | RX | RY | RZ | STRESS | | |
| (SEC) | (LB) | (LB) | (LB) | (FT-LB) | (FT-LB) | (FT-LB) | (IN) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) | | |
| .3200 | 258. | -207. | -337. | -1472. | 4847. | -1952. | -.0179 | -.0736 | -.1553 | -.0263 | .0691 | -.0284 | 2179. | | |
| .3210 | 42. | -125. | -254. | -1151. | 4354. | -1224. | -.0152 | -.0621 | -.1421 | -.0260 | .0547 | -.0265 | 1873. | | |
| .3220 | -8. | -28. | -219. | -809. | 3745. | -445. | -.0129 | -.0502 | -.1276 | -.0254 | .0604 | -.0252 | 1548. | | |
| .3230 | -96. | 79. | -147. | -459. | 3021. | 353. | -.0111 | -.0380 | -.1122 | -.0248 | .0560 | -.0245 | 1234. | | |
| .3240 | -186. | 192. | -55. | -108. | 2203. | 1147. | -.0097 | -.0259 | -.0960 | -.0240 | .0516 | -.0241 | 997. | | |
| .3250 | -91. | 306. | -23. | 236. | 1323. | 1919. | -.0086 | -.0143 | -.0794 | -.0232 | .0475 | -.0240 | 940. | | |
| .3260 | 236. | 417. | -75. | 566. | 413. | 2651. | -.0074 | -.0033 | -.0628 | -.0221 | .0437 | -.0239 | 1101. | | |
| .3270 | 612. | 520. | -138. | 874. | -508. | 3319. | -.0062 | .0067 | -.0463 | -.0208 | .0402 | -.0240 | 1392. | | |
| .3280 | 819. | 610. | -125. | 1149. | -1420. | 3899. | -.0049 | .0156 | -.0303 | -.0191 | .0370 | -.0241 | 1728. | | |
| .3290 | 820. | 684. | -27. | 1384. | -2295. | 4376. | -.0033 | .0231 | -.0151 | -.0172 | .0341 | -.0241 | 2059. | | |
| .3300 | 762. | 739. | 91. | 1572. | -3096. | 4740. | -.0012 | .0290 | -.0010 | -.0150 | .0315 | -.0238 | 2358. | | |
| .3310 | 732. | 771. | 188. | 1710. | -3791. | 4980. | .0013 | .0332 | .0117 | -.0127 | .0295 | -.0231 | 2604. | | |
| .3320 | 630. | 778. | 300. | 1791. | -4362. | 5081. | .0041 | .0356 | .0228 | -.0103 | .0275 | -.0220 | 2782. | | |
| .3330 | 330. | 758. | 476. | 1811. | -4795. | 5028. | .0071 | .0361 | .0320 | -.0079 | .0257 | -.0206 | 2881. | | |
| .3340 | -138. | 710. | 700. | 1767. | -5073. | 4817. | .0100 | .0348 | .0392 | -.0055 | .0239 | -.0188 | 2896. | | |
| .3350 | -559. | 637. | 880. | 1660. | -5176. | 4454. | .0123 | .0317 | .0441 | -.0030 | .0221 | -.0168 | 2820. | | |
| .3360 | -826. | 539. | 970. | 1492. | -5096. | 3950. | .0152 | .0269 | .0467 | -.0005 | .0203 | -.0146 | 2656. | | |
| .3370 | -1025. | 420. | 1006. | 1266. | -4842. | 3313. | .0169 | .0206 | .0470 | .0020 | .0183 | -.0123 | 2409. | | |
| .3380 | -1233. | 284. | 1022. | 987. | -4430. | 2559. | .0179 | .0129 | .0452 | .0044 | .0161 | -.0102 | 2091. | | |
| .3390 | -1359. | 137. | 981. | 666. | -3872. | 1716. | .0181 | .0043 | .0413 | .0065 | .0136 | -.0081 | 1720. | | |
| .3400 | -1287. | -15. | 841. | 315. | -3184. | 820. | .0174 | -.0050 | .0356 | .0084 | .0109 | -.0062 | 1325. | | |
| .3410 | -1006. | -165. | 599. | -50. | -2389. | -93. | .0160 | -.0146 | .0284 | .0099 | .0082 | -.0046 | 960. | | |
| .3420 | -639. | -306. | 312. | -417. | -1522. | -986. | .0140 | -.0242 | .0201 | .0111 | .0054 | -.0033 | 747. | | |
| .3430 | -306. | -433. | 37. | -773. | -621. | -1825. | .0116 | -.0333 | .0110 | .0120 | .0026 | -.0025 | 833. | | |
| .3440 | -23. | -538. | -215. | -1101. | 283. | -2573. | .0090 | -.0417 | .0016 | .0125 | -.0001 | -.0020 | 1129. | | |
| .3450 | 304. | -618. | -477. | -1388. | 1164. | -3195. | .0064 | -.0490 | -.0077 | .0128 | -.0025 | -.0019 | 1474. | | |
| .3460 | 661. | -668. | -738. | -1623. | 1991. | -3666. | .0042 | -.0550 | -.0165 | .0127 | -.0045 | -.0021 | 1796. | | |
| .3470 | 896. | -688. | -932. | -1798. | 2732. | -3977. | .0024 | -.0595 | -.0244 | .0122 | -.0062 | -.0025 | 2066. | | |
| .3480 | 889. | -679. | -1005. | -1910. | 3356. | -4127. | .0011 | -.0624 | -.0311 | .0114 | -.0075 | -.0031 | 2268. | | |
| .3490 | 714. | -643. | -984. | -1960. | 3846. | -4117. | .0004 | -.0637 | -.0363 | .0103 | -.0085 | -.0039 | 2394. | | |
| .3500 | 523. | -583. | -933. | -1948. | 4194. | -3958. | .0003 | -.0633 | -.0398 | .0091 | -.0090 | -.0047 | 2443. | | |
| .3510 | 354. | -506. | -867. | -1880. | 4395. | -3670. | .0008 | -.0616 | -.0415 | .0079 | -.0093 | -.0056 | 2418. | | |
| .3520 | 119. | -416. | -750. | -1764. | 4441. | -3286. | .0017 | -.0585 | -.0412 | .0068 | -.0095 | -.0064 | 2327. | | |
| .3530 | -263. | -321. | -550. | -1610. | 4325. | -2839. | .0027 | -.0543 | -.0390 | .0059 | -.0096 | -.0072 | 2174. | | |
| .3540 | -646. | -227. | -329. | -1429. | 4053. | -2357. | .0038 | -.0492 | -.0348 | .0052 | -.0098 | -.0079 | 1967. | | |
| .3550 | -788. | -138. | -191. | -1228. | 3645. | -1861. | .0049 | -.0435 | -.0286 | .0048 | -.0101 | -.0084 | 1715. | | |
| .3560 | -655. | -59. | -155. | -1015. | 3114. | -1372. | .0060 | -.0373 | -.0207 | .0047 | -.0106 | -.0087 | 1425. | | |
| .3570 | -458. | 7. | -134. | -798. | 2467. | -917. | .0069 | -.0309 | -.0111 | .0050 | -.0115 | -.0088 | 1104. | | |

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CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|-------|-------|--------|--------|-------|--------|-------|--------|--------|-------|--------|--------|-------|
| .3470 | 896. | -638. | -932. | -1798. | 2732. | -3977. | .0024 | -.0595 | -.0244 | .0122 | -.0062 | -.0025 | 2066. |
| .3480 | 889. | -679. | -1005. | -1910. | 3356. | -4127. | .0011 | -.0624 | -.0311 | .0114 | -.0075 | -.0031 | 2268. |
| .3490 | 714. | -643. | -984. | -1960. | 3846. | -4117. | .0004 | -.0637 | -.0363 | .0103 | -.0085 | -.0039 | 2394. |
| .3500 | 523. | -583. | -933. | -1948. | 4194. | -3958. | .0003 | -.0633 | -.0398 | .0091 | -.0090 | -.0047 | 2443. |
| .3510 | 354. | -506. | -867. | -1880. | 4395. | -3670. | .0008 | -.0616 | -.0415 | .0079 | -.0093 | -.0056 | 2418. |
| .3520 | 119. | -416. | -750. | -1764. | 4441. | -3286. | .0017 | -.0585 | -.0412 | .0068 | -.0095 | -.0064 | 2327. |
| .3530 | -263. | -321. | -550. | -1610. | 4325. | -2839. | .0027 | -.0543 | -.0390 | .0059 | -.0096 | -.0072 | 2174. |
| .3540 | -646. | -227. | -329. | -1429. | 4053. | -2357. | .0038 | -.0492 | -.0348 | .0052 | -.0098 | -.0079 | 1967. |
| .3550 | -788. | -138. | -191. | -1228. | 3645. | -1861. | .0049 | -.0435 | -.0286 | .0048 | -.0101 | -.0084 | 1715. |
| .3560 | -655. | -59. | -155. | -1015. | 3114. | -1372. | .0060 | -.0373 | -.0207 | .0047 | -.0106 | -.0087 | 1425. |
| .3570 | -458. | 7. | -134. | -798. | 2467. | -917. | .0069 | -.0309 | -.0111 | .0050 | -.0115 | -.0088 | 1104. |

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PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | 45 | MEMBER | 2 | SEQUENCE | 265 | LOCATION | END | TYPE | RU | | | | | | |
|---------|--------|--------|-------|----------|---------|----------|-------|--------|-------|-------|--------|--------|--------|--|--|
| TIME | FX | FY | FZ | MX | MY | MZ | DX | DY | DZ | RX | RY | RZ | STRESS | | |
| (SEC) | (LB) | (LB) | (LB) | (FT-LB) | (FT-LB) | (FT-LB) | (IN) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) | | |
| .3580 | -369. | 57. | -62. | -586. | 1709. | -512. | .0076 | -.0244 | .0002 | .0057 | -.0129 | -.0087 | 754. | | |
| .3590 | -299. | 93. | 23. | -380. | 864. | -160. | .0082 | -.0180 | .0130 | .0068 | -.0147 | -.0085 | 384. | | |
| .3600 | -50. | 114. | 34. | -179. | -39. | 148. | .0088 | -.0117 | .0269 | .0084 | -.0168 | -.0081 | 95. | | |
| .3610 | 391. | 125. | -37. | 15. | -977. | 421. | .0098 | -.0057 | .0419 | .0103 | -.0192 | -.0075 | 427. | | |
| .3620 | 773. | 129. | -88. | 202. | -1940. | 662. | .0110 | -.0000 | .0578 | .0124 | -.0219 | -.0067 | 827. | | |
| .3630 | 868. | 127. | -26. | 379. | -2923. | 872. | .0125 | .0053 | .0743 | .0148 | -.0250 | -.0059 | 1234. | | |
| .3640 | 755. | 124. | 115. | 546. | -3904. | 1065. | .0144 | .0102 | .0912 | .0173 | -.0283 | -.0051 | 1639. | | |
| .3650 | 667. | 123. | 236. | 705. | -4851. | 1255. | .0168 | .0147 | .1083 | .0199 | -.0318 | -.0043 | 2031. | | |
| .3660 | 669. | 125. | 308. | 857. | -5741. | 1448. | .0197 | .0186 | .1251 | .0226 | -.0353 | -.0035 | 2401. | | |
| .3670 | 543. | 133. | 422. | 997. | -6569. | 1634. | .0230 | .0220 | .1414 | .0254 | -.0389 | -.0029 | 2746. | | |
| .3680 | 82. | 146. | 662. | 1120. | -7334. | 1800. | .0264 | .0246 | .1571 | .0281 | -.0426 | -.0026 | 3063. | | |
| .3690 | -568. | 163. | 967. | 1220. | -8014. | 1942. | .0297 | .0265 | .1718 | .0309 | -.0463 | -.0026 | 3345. | | |
| .3700 | -1064. | 184. | 1193. | 1294. | -8583. | 2059. | .0329 | .0276 | .1851 | .0336 | -.0501 | -.0028 | 3580. | | |
| .3710 | -1259. | 206. | 1281. | 1337. | -9025. | 2142. | .0359 | .0277 | .1968 | .0362 | -.0538 | -.0033 | 3761. | | |
| .3720 | -1386. | 227. | 1326. | 1343. | -9346. | 2169. | .0383 | .0268 | .2067 | .0388 | -.0575 | -.0041 | 3887. | | |
| .3730 | -1719. | 243. | 1444. | 1307. | -9555. | 2116. | .0399 | .0249 | .2147 | .0412 | -.0613 | -.0053 | 3962. | | |
| .3740 | -2109. | 251. | 1572. | 1229. | -9642. | 1979. | .0407 | .0220 | .2207 | .0437 | -.0651 | -.0067 | 3980. | | |
| .3750 | -2189. | 250. | 1558. | 1111. | -9585. | 1765. | .0408 | .0181 | .2245 | .0460 | -.0687 | -.0082 | 3936. | | |
| .3760 | -1853. | 239. | 1360. | 957. | -9385. | 1480. | .0404 | .0133 | .2261 | .0483 | -.0721 | -.0097 | 3832. | | |
| .3770 | -1445. | 216. | 1123. | 766. | -9066. | 1117. | .0394 | .0077 | .2256 | .0503 | -.0752 | -.0111 | 3679. | | |
| .3780 | -1386. | 179. | 1024. | 540. | -8660. | 670. | .0378 | .0015 | .2232 | .0521 | -.0782 | -.0124 | 3492. | | |
| .3790 | -1624. | 129. | 1043. | 285. | -8173. | 150. | .0356 | -.0052 | .2192 | .0537 | -.0810 | -.0136 | 3282. | | |
| .3800 | -1712. | 68. | 994. | 15. | -7591. | -414. | .0331 | -.0121 | .2134 | .0551 | -.0834 | -.0144 | 3051. | | |
| .3810 | -1293. | -2. | 733. | -256. | -6909. | -991. | .0308 | -.0190 | .2061 | .0562 | -.0853 | -.0147 | 2803. | | |
| .3820 | -727. | -78. | 408. | -523. | -6162. | -1572. | .0285 | -.0256 | .1976 | .0569 | -.0867 | -.0144 | 2561. | | |
| .3830 | -614. | -160. | 274. | -783. | -5396. | -2157. | .0262 | -.0318 | .1883 | .0571 | -.0878 | -.0138 | 2353. | | |
| .3840 | -898. | -245. | 306. | -1028. | -4620. | -2723. | .0237 | -.0372 | .1783 | .0570 | -.0887 | -.0128 | 2191. | | |
| .3850 | -1037. | -327. | 280. | -1248. | -3815. | -3232. | .0216 | -.0416 | .1677 | .0564 | -.0892 | -.0112 | 2068. | | |
| .3860 | -770. | -403. | 88. | -1432. | -2981. | -3657. | .0198 | -.0448 | .1566 | .0553 | -.0892 | -.0091 | 1979. | | |
| .3870 | -489. | -471. | -107. | -1576. | -2151. | -3997. | .0181 | -.0467 | .1454 | .0538 | -.0889 | -.0066 | 1928. | | |
| .3880 | -675. | -530. | -104. | -1677. | -1361. | -4259. | .0164 | -.0471 | .1344 | .0518 | -.0887 | -.0040 | 1916. | | |
| .3890 | -1180. | -577. | 36. | -1732. | -617. | -4431. | .0145 | -.0459 | .1237 | .0493 | -.0884 | -.0012 | 1925. | | |
| .3900 | -1440. | -609. | 78. | -1735. | 102. | -4487. | .0126 | -.0431 | .1134 | .0463 | -.0880 | .0018 | 1931. | | |
| .3910 | -1207. | -623. | -81. | -1685. | 793. | -4412. | .0107 | -.0386 | .1034 | .0428 | -.0875 | .0050 | 1922. | | |
| .3920 | -871. | -619. | -276. | -1585. | 1426. | -4216. | .0087 | -.0324 | .0942 | .0388 | -.0870 | .0083 | 1896. | | |
| .3930 | -908. | -597. | -310. | -1441. | 1966. | -3918. | .0063 | -.0246 | .0860 | .0346 | -.0868 | .0113 | 1852. | | |
| .3940 | -1194. | -557. | -233. | -1253. | 2416. | -3519. | .0037 | -.0153 | .0789 | .0301 | -.0868 | .0141 | 1785. | | |
| .3950 | -1209. | -499. | -263. | -1018. | 2800. | -3009. | .0010 | -.0047 | .0727 | .0256 | -.0868 | .0168 | 1699. | | |

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ADLPIPE STRESS ANALYSIS

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18.28.55.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|--------|-------|-------|--------|--------|--------|-------|--------|-------|-------|--------|--------|-------|
| .3840 | -898. | -245. | 86. | -1028. | -4620. | -2723. | .0237 | -.0372 | .1783 | .0570 | -.0887 | -.0128 | 2191. |
| .3850 | -1037. | -327. | 280. | -1248. | -3815. | -3232. | .0216 | -.0416 | .1677 | .0564 | -.0892 | -.0112 | 2068. |
| .3860 | -770. | -403. | 88. | -1432. | -2981. | -3657. | .0198 | -.0448 | .1566 | .0553 | -.0892 | -.0091 | 1979. |
| .3870 | -489. | -471. | -107. | -1576. | -2151. | -3997. | .0181 | -.0467 | .1454 | .0538 | -.0889 | -.0066 | 1928. |
| .3880 | -675. | -510. | -104. | -1677. | -1361. | -4259. | .0164 | -.0471 | .1344 | .0518 | -.0887 | -.0040 | 1916. |
| .3890 | -1180. | -577. | 36. | -1732. | -617. | -4431. | .0145 | -.0459 | .1237 | .0493 | -.0884 | -.0012 | 1925. |
| .3900 | -1440. | -609. | 78. | -1735. | 102. | -4487. | .0126 | -.0431 | .1134 | .0463 | -.0880 | .0018 | 1931. |
| .3910 | -1207. | -623. | -81. | -1685. | 793. | -4412. | .0107 | -.0386 | .1034 | .0428 | -.0875 | .0050 | 1922. |
| .3920 | -871. | -619. | -276. | -1585. | 1426. | -4216. | .0087 | -.0324 | .0942 | .0388 | -.0870 | .0083 | 1896. |
| .3930 | -908. | -597. | -310. | -1441. | 1966. | -3918. | .0063 | -.0246 | .0860 | .0346 | -.0868 | .0113 | 1852. |
| .3940 | -1194. | -557. | -237. | -1253. | 2416. | -3519. | .0037 | -.0153 | .0789 | .0301 | -.0868 | .0141 | 1785. |
| .3950 | -1209. | -499. | -263. | -1018. | 2800. | -3009. | .0010 | -.0047 | .0727 | .0256 | -.0868 | .0168 | 1699. |

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S/RV PIPING KEWAUNEE GKWOBF 2 RUP DISK
2 SAFETY COLD FKM24F--2 PSV

CONDITION 24
LOADS
SHOCK
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ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | MEMBER | SEQUENCE | LOCATION | END | TYPE | RU | TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | HX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | STRESS (PSI) |
|---------|--------|----------|----------|-----|------|----|------------|---------|---------|---------|------------|------------|------------|---------|---------|---------|----------|----------|----------|--------------|
| 45 | 2 | 265 | | | | | .3960 | -755. | -425. | -481. | -738. | 3123. | -2389. | -.0014 | .0071 | .0677 | .0211 | -.0868 | .0195 | 1605. |
| | | | | | | | .3970 | -265. | -336. | -706. | -423. | 3356. | -1685. | -.0036 | .0200 | .0640 | .0165 | -.0868 | .0221 | 1517. |
| | | | | | | | .3980 | -222. | -238. | -735. | -84. | 3473. | -927. | -.0057 | .0335 | .0617 | .0119 | -.0870 | .0245 | 1443. |
| | | | | | | | .3990 | -507. | -131. | -620. | 271. | 3479. | -125. | -.0076 | .0476 | .0609 | .0075 | -.0873 | .0268 | 1401. |
| | | | | | | | .4000 | -611. | -18. | -570. | 639. | 3406. | 719. | -.0088 | .0618 | .0613 | .0035 | -.0874 | .0290 | 1420. |

MAXIMUM VALUE OF STRESS OCCURS AT

| TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | HX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | STRESS (PSI) |
|------------|---------|---------|---------|------------|------------|------------|---------|---------|---------|----------|----------|----------|--------------|
| .2700 | -1545. | -705. | -702. | -1432. | 9431. | -3062. | -.0032 | -.0328 | -.1359 | -.0241 | .0158 | .0223 | 4020. |

| SECTION | MEMBER | SEQUENCE | LOCATION | BEG | TYPE | EL | TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | HX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | STRESS (PSI) |
|---------|--------|----------|----------|-----|------|----|------------|---------|---------|---------|------------|------------|------------|---------|---------|---------|----------|----------|----------|--------------|
| 46 | 1 | 265 | | | | | 0.0000 | 0. | 0. | 0. | 0. | 0. | 0. | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0. |
| | | | | | | | .0010 | 0. | -0. | -0. | 0. | 0. | 0. | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| | | | | | | | .0020 | 1. | -0. | -0. | 0. | 0. | 0. | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| | | | | | | | .0030 | 1. | -0. | -0. | 0. | 0. | 0. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| | | | | | | | .0040 | 1. | -0. | -0. | 0. | -0. | 1. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| | | | | | | | .0050 | -1. | -0. | 0. | 0. | -0. | 1. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| | | | | | | | .0060 | -4. | -1. | 1. | 0. | -1. | 1. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| | | | | | | | .0070 | -9. | -1. | 2. | 0. | -1. | 1. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 1. |
| | | | | | | | .0080 | -17. | -0. | 4. | -0. | -2. | 1. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 1. |
| | | | | | | | .0090 | -24. | 0. | 6. | -1. | -3. | -0. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | .0000 | 1. |
| | | | | | | | .0100 | -20. | 0. | 5. | -0. | -2. | -2. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | .0000 | 1. |
| | | | | | | | .0110 | -6. | 0. | 2. | 1. | -0. | -3. | -.0000 | .0000 | -.0000 | .0000 | -.0000 | -.0000 | 1. |
| | | | | | | | .0120 | 8. | -0. | -1. | 3. | 1. | -5. | .0000 | .0000 | .0000 | .0001 | -.0000 | -.0000 | 2. |
| | | | | | | | .0130 | 10. | 0. | -2. | 5. | 2. | -8. | .0000 | .0000 | .0000 | .0002 | .0000 | -.0001 | 4. |
| | | | | | | | .0140 | 4. | 1. | -0. | 8. | 2. | -11. | .0000 | .0000 | .0000 | .0003 | .0000 | -.0001 | 6. |
| | | | | | | | .0150 | -1. | 1. | 1. | 12. | 2. | -13. | .0000 | .0000 | .0001 | .0005 | .0000 | -.0002 | 7. |
| | | | | | | | .0160 | 3. | 0. | 0. | 16. | 4. | -15. | .0000 | .0000 | .0001 | .0006 | .0000 | -.0002 | 9. |
| | | | | | | | .0170 | 7. | -1. | -1. | 20. | 7. | -15. | .0000 | .0000 | .0001 | .0007 | .0000 | -.0003 | 10. |
| | | | | | | | .0180 | 2. | -2. | 0. | 24. | 10. | -16. | -.0000 | -.0000 | .0001 | .0008 | .0000 | -.0003 | 12. |
| | | | | | | | .0190 | -18. | -2. | 5. | 28. | 13. | -17. | -.0000 | -.0000 | .0001 | .0009 | .0000 | -.0003 | 14. |

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18.28.55.

S/RV PIPING KEWAUNEE GKWOBF 2 RUP DISK
2 SAFETY COLD FKM24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | | |
|-------|------|-----|-----|-----|-----|------|--------|--------|--------|--------|--------|--------|--------|-----|
| .0090 | -24. | 0. | 6. | -1. | -3. | -0. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | 1. |
| .0100 | -20. | 0. | 5. | -0. | -2. | -2. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | 1. |
| .0110 | -6. | 0. | 2. | 1. | -0. | -3. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | 1. |
| .0120 | 8. | -0. | -1. | 3. | 1. | -5. | .0000 | .0000 | .0000 | .0001 | -.0000 | -.0000 | -.0000 | 2. |
| .0130 | 10. | 0. | -2. | 5. | 2. | -8. | .0000 | .0000 | .0000 | .0002 | .0000 | -.0001 | -.0001 | 4. |
| .0140 | 4. | 1. | -0. | 8. | 2. | -11. | .0000 | .0000 | .0000 | .0003 | .0000 | -.0001 | -.0001 | 6. |
| .0150 | -1. | 1. | 1. | 12. | 2. | -13. | .0000 | .0000 | .0001 | .0005 | .0000 | -.0002 | -.0002 | 7. |
| .0160 | 3. | 0. | 0. | 16. | 4. | -15. | .0000 | .0000 | .0001 | .0006 | .0000 | -.0002 | -.0002 | 9. |
| .0170 | 7. | -1. | -1. | 20. | 7. | -15. | .0000 | .0000 | .0001 | .0007 | .0000 | -.0003 | -.0003 | 10. |
| .0180 | 2. | -2. | 0. | 24. | 10. | -16. | -.0000 | -.0000 | .0001 | .0008 | .0000 | -.0003 | -.0003 | 12. |
| .0190 | -18. | -2. | 5. | 28. | 13. | -17. | -.0000 | -.0000 | .0001 | .0009 | .0000 | -.0003 | -.0003 | 14. |

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CONDITION 24
LOADS
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PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | MEMBER | SEQUENCE | LOCATION | BEG | TYPE | EL | DX | DY | DZ | RX | RY | RZ | STRESS |
|------------|---------|----------|----------|------------|------------|------------|--------|--------|--------|--------|--------|--------|--------|
| TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | MX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | (IN) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) |
| .0200 | -44. | -1. | 11. | 32. | 15. | -18. | -.0001 | -.0000 | .0002 | .0011 | .0001 | -.0004 | 16. |
| .0210 | -55. | -2. | 12. | 37. | 18. | -18. | -.0001 | -.0001 | .0002 | .0012 | .0001 | -.0004 | 18. |
| .0220 | -43. | -3. | 9. | 45. | 20. | -20. | -.0001 | -.0001 | .0002 | .0015 | .0001 | -.0005 | 21. |
| .0230 | -35. | -3. | 6. | 54. | 20. | -21. | -.0001 | -.0001 | .0002 | .0018 | .0001 | -.0006 | 25. |
| .0240 | -35. | -3. | 7. | 57. | 17. | -20. | -.0001 | -.0001 | .0002 | .0019 | .0001 | -.0006 | 25. |
| .0250 | -32. | -2. | 5. | 53. | 13. | -13. | -.0000 | -.0001 | .0002 | .0019 | .0001 | -.0005 | 23. |
| .0260 | -22. | -0. | 2. | 49. | 11. | -6. | .0000 | -.0001 | .0002 | .0017 | .0001 | -.0004 | 20. |
| .0270 | 1. | 2. | -4. | 51. | 12. | -5. | .0001 | -.0001 | .0003 | .0016 | .0001 | -.0003 | 21. |
| .0280 | 40. | 2. | -12. | 53. | 13. | -6. | .0001 | -.0001 | .0003 | .0015 | .0000 | -.0002 | 22. |
| .0290 | 83. | 3. | -23. | 43. | 8. | -1. | .0002 | -.0000 | .0002 | .0013 | .0000 | -.0001 | 18. |
| .0300 | 120. | 4. | -36. | 33. | -6. | -0. | .0002 | -.0000 | .0002 | .0011 | -.0000 | -.0000 | 13. |
| .0310 | 168. | 4. | -47. | 27. | -25. | 0. | .0003 | .0000 | .0001 | .0009 | -.0001 | .0001 | 15. |
| .0320 | 172. | 7. | -46. | 17. | -51. | 7. | .0005 | .0001 | -.0001 | .0007 | -.0002 | .0003 | 22. |
| .0330 | 131. | 12. | -37. | 2. | -81. | 19. | .0005 | .0001 | -.0002 | .0001 | -.0003 | .0006 | 34. |
| .0340 | 162. | 13. | -47. | -14. | -104. | 35. | .0004 | .0002 | -.0004 | -.0006 | -.0005 | .0008 | 44. |
| .0350 | 298. | 7. | -80. | -33. | -119. | 54. | .0003 | .0002 | -.0005 | -.0015 | -.0008 | .0011 | 54. |
| .0360 | 370. | 6. | -94. | -58. | -142. | 63. | .0004 | .0003 | -.0007 | -.0025 | -.0010 | .0014 | 66. |
| .0370 | 246. | 15. | -61. | -79. | -180. | 52. | .0005 | .0004 | -.0009 | -.0032 | -.0011 | .0016 | 82. |
| .0380 | 89. | 25. | -23. | -91. | -215. | 33. | .0006 | .0004 | -.0012 | -.0036 | -.0011 | .0017 | 95. |
| .0390 | 137. | 20. | -37. | -103. | -226. | 32. | .0004 | .0005 | -.0013 | -.0040 | -.0012 | .0017 | 101. |
| .0400 | 324. | 5. | -87. | -128. | -221. | 47. | .0001 | .0006 | -.0013 | -.0045 | -.0014 | .0016 | 104. |
| .0410 | 378. | -1. | -102. | -156. | -225. | 48. | -.0000 | .0006 | -.0014 | -.0052 | -.0015 | .0015 | 111. |
| .0420 | 205. | 8. | -56. | -181. | -241. | 23. | .0001 | .0007 | -.0015 | -.0059 | -.0014 | .0016 | 121. |
| .0430 | -1. | 19. | 2. | -202. | -244. | -4. | .0002 | .0007 | -.0017 | -.0067 | -.0013 | .0017 | 127. |
| .0440 | -79. | 19. | 26. | -214. | -215. | -23. | .0001 | .0007 | -.0016 | -.0073 | -.0012 | .0016 | 122. |
| .0450 | 12. | 9. | -2. | -215. | -158. | -36. | -.0003 | .0007 | -.0014 | -.0076 | -.0011 | .0012 | 108. |
| .0460 | 178. | -8. | -48. | -215. | -99. | -51. | -.0006 | .0005 | -.0012 | -.0074 | -.0010 | .0006 | 97. |
| .0470 | 149. | -17. | -38. | -226. | -66. | -73. | -.0006 | .0004 | -.0011 | -.0070 | -.0006 | -.0000 | 99. |
| .0480 | -216. | -7. | 56. | -238. | -58. | -109. | -.0004 | .0002 | -.0011 | -.0067 | -.0001 | -.0004 | 108. |
| .0490 | -565. | 4. | 139. | -229. | -33. | -142. | -.0003 | -.0001 | -.0010 | -.0061 | .0003 | -.0008 | 109. |
| .0500 | -436. | -11. | 102. | -194. | 50. | -143. | -.0008 | -.0005 | -.0005 | -.0055 | .0004 | -.0015 | 99. |
| .0510 | -19. | -43. | 2. | -147. | 156. | -122. | -.0012 | -.0010 | -.0000 | -.0047 | .0004 | -.0023 | 99. |
| .0520 | -10. | -52. | 5. | -106. | 207. | -123. | -.0013 | -.0016 | .0003 | -.0037 | .0006 | -.0029 | 106. |
| .0530 | -525. | -30. | 130. | -73. | 190. | -149. | -.0008 | -.0022 | .0003 | -.0023 | .0012 | -.0033 | 101. |
| .0540 | -861. | -19. | 208. | -32. | 178. | -146. | -.0005 | -.0029 | .0004 | -.0006 | .0016 | -.0038 | 94. |
| .0550 | -587. | -44. | 139. | 27. | 222. | -85. | -.0007 | -.0037 | .0007 | .0011 | .0015 | -.0044 | 96. |
| .0560 | -180. | -76. | 35. | 93. | 277. | -0. | -.0010 | -.0046 | .0012 | .0027 | .0013 | -.0050 | 117. |
| .0570 | -183. | -77. | 29. | 153. | 283. | 62. | -.0010 | -.0054 | .0015 | .0039 | .0012 | -.0050 | 131. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|-------|------|------|-------|------|-------|--------|--------|--------|--------|--------|--------|------|
| .0460 | 178. | -8. | -47. | -215. | -99. | -51. | -.0006 | .0005 | -.0012 | -.0074 | -.0010 | .0006 | 97. |
| .0470 | 149. | -17. | -38. | -226. | -66. | -73. | -.0006 | .0004 | -.0011 | -.0070 | -.0006 | -.0000 | 99. |
| .0480 | -216. | -7. | 56. | -238. | -58. | -109. | -.0004 | .0002 | -.0011 | -.0067 | -.0001 | -.0004 | 108. |
| .0490 | -565. | 4. | 139. | -229. | -33. | -142. | -.0003 | -.0001 | -.0010 | -.0061 | .0003 | -.0008 | 109. |
| .0500 | -436. | -11. | 102. | -194. | 50. | -143. | -.0008 | -.0005 | -.0005 | -.0055 | .0004 | -.0015 | 99. |
| .0510 | -19. | -43. | 2. | -147. | 156. | -122. | -.0012 | -.0010 | -.0000 | -.0047 | .0004 | -.0023 | 99. |
| .0520 | -10. | -52. | 5. | -106. | 207. | -123. | -.0013 | -.0016 | .0003 | -.0037 | .0006 | -.0029 | 106. |
| .0530 | -525. | -30. | 130. | -73. | 190. | -149. | -.0008 | -.0022 | .0003 | -.0023 | .0012 | -.0033 | 101. |
| .0540 | -861. | -19. | 208. | -32. | 178. | -146. | -.0005 | -.0029 | .0004 | -.0006 | .0016 | -.0038 | 94. |
| .0550 | -587. | -44. | 139. | 27. | 222. | -85. | -.0007 | -.0037 | .0007 | .0011 | .0015 | -.0044 | 96. |
| .0560 | -180. | -76. | 35. | 93. | 277. | -0. | -.0010 | -.0046 | .0012 | .0027 | .0013 | -.0050 | 117. |
| .0570 | -183. | -77. | 29. | 153. | 283. | 62. | -.0010 | -.0054 | .0015 | .0039 | .0012 | -.0050 | 131. |

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DIS/ADLPIPE
S/RV PIPING KEWAUNEE GKWOBF 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

ADLPIPE STRESS ANALYSIS

83/12/02. 18.28.55.

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | MEMBER | SEQUENCE | LOCATION | DEG | TYPE | EL | TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | MX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | STRESS (PSI) |
|---------|--------|----------|----------|-----|------|----|------------|---------|---------|---------|------------|------------|------------|---------|---------|---------|----------|----------|----------|--------------|
| 46 | 1 | 265 | | | | | .0580 | -429. | -59. | 92. | 208. | 246. | 106. | -.0005 | -.0062 | .0016 | .0050 | .0012 | -.0048 | 136. |
| | | | | | | | .0590 | -503. | -51. | 122. | 267. | 208. | 160. | .0001 | -.0069 | .0016 | .0061 | .0011 | -.0045 | 150. |
| | | | | | | | .0600 | -359. | -54. | 90. | 332. | 180. | 235. | .0004 | -.0076 | .0018 | .0075 | .0008 | -.0043 | 179. |
| | | | | | | | .0610 | -129. | -61. | 21. | 394. | 151. | 325. | .0004 | -.0082 | .0020 | .0090 | .0003 | -.0041 | 214. |
| | | | | | | | .0620 | 132. | -69. | -51. | 448. | 109. | 422. | .0006 | -.0087 | .0023 | .0104 | -.0001 | -.0038 | 251. |
| | | | | | | | .0630 | 270. | -69. | -79. | 481. | 41. | 511. | .0010 | -.0090 | .0023 | .0114 | -.0006 | -.0032 | 282. |
| | | | | | | | .0640 | 164. | -49. | -49. | 492. | -51. | 577. | .0016 | -.0090 | .0023 | .0117 | -.0010 | -.0021 | 305. |
| | | | | | | | .0650 | 105. | -26. | -36. | 489. | -130. | 628. | .0021 | -.0088 | .0023 | .0112 | -.0015 | -.0009 | 324. |
| | | | | | | | .0660 | 431. | -23. | -111. | 488. | -160. | 680. | .0022 | -.0083 | .0025 | .0103 | -.0022 | .0003 | 342. |
| | | | | | | | .0670 | 856. | -27. | -203. | 480. | -174. | 714. | .0023 | -.0076 | .0027 | .0094 | -.0030 | .0013 | 352. |
| | | | | | | | .0680 | 860. | -9. | -200. | 449. | -227. | 698. | .0026 | -.0066 | .0027 | .0086 | -.0034 | .0023 | 345. |
| | | | | | | | .0690 | 590. | 23. | -138. | 391. | -305. | 645. | .0029 | -.0052 | .0026 | .0078 | -.0035 | .0032 | 326. |
| | | | | | | | .0700 | 612. | 33. | -144. | 314. | -346. | 590. | .0030 | -.0036 | .0026 | .0068 | -.0038 | .0039 | 302. |
| | | | | | | | .0710 | 930. | 23. | -216. | 226. | -338. | 530. | .0028 | -.0019 | .0027 | .0053 | -.0041 | .0043 | 268. |
| | | | | | | | .0720 | 1025. | 29. | -237. | 128. | -320. | 425. | .0025 | .0002 | .0028 | .0032 | -.0043 | .0049 | 219. |
| | | | | | | | .0730 | 754. | 56. | -166. | 24. | -302. | 267. | .0023 | .0024 | .0028 | .0007 | -.0042 | .0055 | 162. |
| | | | | | | | .0740 | 485. | 79. | -88. | -83. | -260. | 90. | .0021 | .0046 | .0027 | -.0019 | -.0040 | .0060 | 115. |
| | | | | | | | .0750 | 426. | 82. | -65. | -195. | -184. | -83. | .0016 | .0069 | .0028 | -.0044 | -.0038 | .0060 | 113. |
| | | | | | | | .0760 | 402. | 76. | -62. | -314. | -98. | -256. | .0008 | .0091 | .0028 | -.0064 | -.0034 | .0056 | 167. |
| | | | | | | | .0770 | 246. | 71. | -32. | -434. | -22. | -437. | .0001 | .0112 | .0028 | -.0081 | -.0028 | .0050 | 247. |
| | | | | | | | .0780 | -27. | 70. | 33. | -545. | 44. | -621. | -.0005 | .0131 | .0027 | -.0095 | -.0022 | .0043 | 332. |
| | | | | | | | .0790 | -343. | 71. | 112. | -633. | 111. | -802. | -.0011 | .0147 | .0025 | -.0107 | -.0015 | .0035 | 413. |
| | | | | | | | .0800 | -590. | 73. | 171. | -689. | 188. | -968. | -.0018 | .0160 | .0023 | -.0118 | -.0009 | .0028 | 483. |
| | | | | | | | .0810 | -660. | 65. | 186. | -715. | 271. | -1101. | -.0025 | .0169 | .0021 | -.0126 | -.0005 | .0019 | 538. |
| | | | | | | | .0820 | -639. | 52. | 180. | -718. | 335. | -1196. | -.0031 | .0173 | .0019 | -.0127 | -.0001 | .0010 | 576. |
| | | | | | | | .0830 | -753. | 46. | 204. | -704. | 345. | -1260. | -.0033 | .0172 | .0015 | -.0120 | .0003 | .0001 | 596. |
| | | | | | | | .0840 | -986. | 47. | 251. | -673. | 304. | -1286. | -.0033 | .0166 | .0009 | -.0106 | .0008 | -.0007 | 595. |
| | | | | | | | .0850 | -1038. | 41. | 250. | -618. | 246. | -1251. | -.0031 | .0155 | .0003 | -.0088 | .0011 | -.0014 | 568. |
| | | | | | | | .0860 | -777. | 22. | 176. | -532. | 191. | -1150. | -.0030 | .0139 | -.0002 | -.0069 | .0010 | -.0020 | 514. |
| | | | | | | | .0870 | -460. | 8. | 91. | -418. | 116. | -1006. | -.0028 | .0118 | -.0008 | -.0051 | .0008 | -.0022 | 439. |
| | | | | | | | .0880 | -336. | 11. | 57. | -283. | -7. | -836. | -.0021 | .0094 | -.0015 | -.0033 | .0004 | -.0019 | 354. |
| | | | | | | | .0890 | -287. | 21. | 43. | -136. | -168. | -630. | -.0012 | .0066 | -.0024 | -.0012 | -.0000 | -.0013 | 267. |
| | | | | | | | .0900 | -50. | 19. | -18. | 20. | -343. | -372. | -.0004 | .0036 | -.0032 | .0011 | -.0007 | -.0007 | 203. |
| | | | | | | | .0910 | 370. | 3. | -128. | 182. | -523. | -69. | .0003 | .0004 | -.0039 | .0038 | -.0016 | -.0002 | 224. |
| | | | | | | | .0920 | 745. | -12. | -229. | 342. | -713. | 251. | .0010 | -.0028 | -.0045 | .0066 | -.0026 | .0005 | 333. |
| | | | | | | | .0930 | 949. | -17. | -284. | 496. | -910. | 564. | .0017 | -.0059 | -.0051 | .0092 | -.0036 | .0014 | 473. |
| | | | | | | | .0940 | 1074. | -17. | -312. | 641. | -1088. | 859. | .0025 | -.0087 | -.0055 | .0114 | -.0047 | .0024 | 613. |
| | | | | | | | .0950 | 1265. | -21. | -351. | 770. | -1222. | 1131. | .0031 | -.0112 | -.0057 | .0129 | -.0057 | .0035 | 736. |

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DIS/ADLPIPE
S/RV PIPING KEWAUNEE GKWOBF 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

ADLPIPE STRESS ANALYSIS

83/12/02. 18.28.55.

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|--------|------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|------|
| .0840 | -986. | 47. | 251. | -673. | 304. | -1286. | -.0033 | .0166 | .0009 | -.0106 | .0008 | -.0007 | 595. |
| .0850 | -1038. | 41. | 250. | -618. | 246. | -1251. | -.0031 | .0155 | .0003 | -.0088 | .0011 | -.0014 | 568. |
| .0860 | -777. | 22. | 176. | -572. | 191. | -1150. | -.0030 | .0139 | -.0002 | -.0069 | .0010 | -.0020 | 514. |
| .0870 | -460. | 8. | 91. | -418. | 116. | -1006. | -.0028 | .0118 | -.0008 | -.0051 | .0008 | -.0022 | 439. |
| .0880 | -336. | 11. | 57. | -283. | -7. | -836. | -.0021 | .0094 | -.0015 | -.0033 | .0004 | -.0019 | 354. |
| .0890 | -287. | 21. | 43. | -176. | -162. | -630. | -.0012 | .0066 | -.0024 | -.0012 | -.0000 | -.0013 | 267. |
| .0900 | -50. | 19. | -12. | 20. | -343. | -372. | -.0004 | .0036 | -.0032 | .0011 | -.0007 | -.0007 | 203. |
| .0910 | 370. | 3. | -128. | 182. | -523. | -69. | .0003 | .0004 | -.0039 | .0038 | -.0016 | -.0002 | 224. |
| .0920 | 745. | -12. | -229. | 342. | -713. | 251. | .0010 | -.0028 | -.0045 | .0066 | -.0026 | .0005 | 333. |
| .0930 | 949. | -17. | -284. | 496. | -910. | 564. | .0017 | -.0059 | -.0051 | .0092 | -.0036 | .0014 | 473. |
| .0940 | 1074. | -17. | -312. | 641. | -1088. | 859. | .0025 | -.0087 | -.0055 | .0114 | -.0047 | .0024 | 613. |
| .0950 | 1265. | -21. | -351. | 770. | -1222. | 1131. | .0031 | -.0112 | -.0057 | .0129 | -.0057 | .0035 | 736. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | MEMBER | SEQUENCE | LOCATION | BEG | TYPE | EL | | | | | | | | STRESS |
|------------|---------|----------|----------|------------|------------|------------|---------|---------|---------|----------|----------|----------|-------|--------|
| TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | MX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | (PSI) | |
| .0960 | 1527. | -28. | -406. | 875. | -1305. | 1373. | .0035 | -.0132 | -.0056 | .0139 | -.0068 | .0045 | 837. | |
| .0970 | 1747. | -35. | -449. | 943. | -1346. | 1567. | .0038 | -.0146 | -.0052 | .0144 | -.0076 | .0054 | 911. | |
| .0980 | 1826. | -37. | -456. | 967. | -1353. | 1697. | .0041 | -.0154 | -.0045 | .0146 | -.0082 | .0062 | 954. | |
| .0990 | 1772. | -33. | -432. | 946. | -1315. | 1754. | .0043 | -.0155 | -.0037 | .0145 | -.0083 | .0067 | 958. | |
| .1000 | 1700. | -26. | -406. | 881. | -1214. | 1734. | .0044 | -.0148 | -.0024 | .0137 | -.0082 | .0069 | 920. | |
| .1010 | 1707. | -21. | -399. | 776. | -1035. | 1634. | .0044 | -.0135 | -.0009 | .0121 | -.0078 | .0069 | 836. | |
| .1020 | 1744. | -15. | -395. | 634. | -786. | 1451. | .0043 | -.0115 | .0008 | .0096 | -.0070 | .0066 | 709. | |
| .1030 | 1643. | 1. | -353. | 456. | -494. | 1180. | .0042 | -.0089 | .0026 | .0065 | -.0057 | .0061 | 545. | |
| .1040 | 1321. | 30. | -261. | 244. | -179. | 831. | .0042 | -.0059 | .0042 | .0029 | -.0040 | .0055 | 355. | |
| .1050 | 1012. | 54. | -178. | 11. | 165. | 441. | .0041 | -.0025 | .0059 | -.0007 | -.0019 | .0044 | 189. | |
| .1060 | 932. | 58. | -153. | -231. | 540. | 41. | .0035 | .0009 | .0074 | -.0043 | .0003 | .0028 | 236. | |
| .1070 | 912. | 52. | -144. | -475. | 913. | -363. | .0028 | .0043 | .0086 | -.0079 | .0026 | .0009 | 438. | |
| .1080 | 522. | 62. | -52. | -718. | 1235. | -780. | .0021 | .0074 | .0092 | -.0116 | .0051 | -.0009 | 653. | |
| .1090 | -233. | 87. | 120. | -944. | 1498. | -1193. | .0014 | .0101 | .0092 | -.0155 | .0077 | -.0026 | 857. | |
| .1100 | -314. | 65. | 148. | -1110. | 1773. | -1529. | .0002 | .0122 | .0087 | -.0188 | .0099 | -.0048 | 1040. | |
| .1110 | -228. | 26. | 134. | -1228. | 1998. | -1792. | -.0011 | .0135 | .0077 | -.0216 | .0118 | -.0070 | 1184. | |
| .1120 | -858. | 21. | 266. | -1319. | 2081. | -2004. | -.0024 | .0140 | .0057 | -.0238 | .0138 | -.0088 | 1274. | |
| .1130 | -1640. | 16. | 422. | -1365. | 2056. | -2121. | -.0037 | .0135 | .0031 | -.0252 | .0156 | -.0115 | 1306. | |
| .1140 | -1733. | -37. | 424. | -1347. | 1990. | -2089. | -.0053 | .0120 | -.0000 | -.0257 | .0166 | -.0122 | 1278. | |
| .1150 | -1623. | -103. | 379. | -1276. | 1843. | -1939. | -.0068 | .0095 | -.0037 | -.0257 | .0172 | -.0137 | 1189. | |
| .1160 | -2111. | -129. | 459. | -1163. | 1557. | -1729. | -.0079 | .0062 | -.0080 | -.0254 | .0175 | -.0143 | 1044. | |
| .1170 | -2721. | -138. | 560. | -997. | 1177. | -1448. | -.0088 | .0020 | -.0127 | -.0246 | .0175 | -.0143 | 849. | |
| .1180 | -2445. | -191. | 468. | -762. | 790. | -1045. | -.0096 | -.0029 | -.0174 | -.0230 | .0168 | -.0142 | 608. | |
| .1190 | -1905. | -252. | 319. | -496. | 347. | -548. | -.0100 | -.0082 | -.0221 | -.0208 | .0155 | -.0137 | 327. | |
| .1200 | -2098. | -261. | 323. | -235. | -222. | -21. | -.0098 | -.0139 | -.0270 | -.0182 | .0143 | -.0122 | 130. | |
| .1210 | -2381. | -254. | 339. | 28. | -838. | 549. | -.0093 | -.0197 | -.0316 | -.0153 | .0129 | -.0102 | 402. | |
| .1220 | -1674. | -295. | 136. | 306. | -1385. | 1195. | -.0088 | -.0254 | -.0354 | -.0123 | .0106 | -.0081 | 744. | |
| .1230 | -577. | -344. | -142. | 584. | -1887. | 1845. | -.0081 | -.0307 | -.0386 | -.0096 | .0079 | -.0057 | 1085. | |
| .1240 | -280. | -330. | -232. | 840. | -2424. | 2397. | -.0067 | -.0353 | -.0413 | -.0072 | .0055 | -.0026 | 1409. | |
| .1250 | -398. | -280. | -223. | 1077. | -2943. | 2855. | -.0049 | -.0390 | -.0433 | -.0047 | .0032 | .0009 | 1701. | |
| .1260 | 191. | -268. | -363. | 1301. | -3333. | 3284. | -.0033 | -.0418 | -.0441 | -.0018 | .0004 | .0039 | 1949. | |
| .1270 | 1222. | -285. | -601. | 1476. | -3601. | 3676. | -.0021 | -.0434 | -.0436 | .0012 | -.0025 | .0065 | 2148. | |
| .1280 | 1615. | -268. | -697. | 1566. | -3823. | 3951. | -.0009 | -.0437 | -.0421 | .0037 | -.0051 | .0091 | 2294. | |
| .1290 | 1498. | -221. | -671. | 1574. | -3968. | 4088. | .0003 | -.0424 | -.0397 | .0052 | -.0073 | .0119 | 2372. | |
| .1300 | 1753. | -195. | -702. | 1525. | -3940. | 4112. | .0014 | -.0397 | -.0360 | .0056 | -.0096 | .0143 | 2366. | |
| .1310 | 2204. | -178. | -755. | 1427. | -3735. | 3999. | .0021 | -.0355 | -.0311 | .0049 | -.0117 | .0163 | 2269. | |
| .1320 | 2060. | -126. | -670. | 1269. | -3423. | 3706. | .0028 | -.0298 | -.0252 | .0035 | -.0133 | .0182 | 2088. | |
| .1330 | 1550. | -56. | -506. | 1053. | -3006. | 3261. | .0032 | -.0227 | -.0184 | .0019 | -.0144 | .0195 | 1829. | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.28.55.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|-------|-------|-------|-------|--------|-------|--------|--------|--------|--------|--------|--------|-------|
| .1230 | -577. | -344. | -142. | 584. | -1887. | 1845. | -.0081 | -.0307 | -.0386 | -.0096 | .0079 | -.0057 | 1085. |
| .1240 | -280. | -330. | -232. | 840. | -2424. | 2397. | -.0067 | -.0353 | -.0413 | -.0072 | .0055 | -.0026 | 1409. |
| .1250 | -398. | -280. | -223. | 1077. | -2943. | 2855. | -.0049 | -.0390 | -.0433 | -.0047 | .0032 | .0009 | 1701. |
| .1260 | 191. | -268. | -363. | 1301. | -3333. | 3284. | -.0033 | -.0410 | -.0441 | -.0018 | .0004 | .0039 | 1949. |
| .1270 | 1222. | -285. | -601. | 1476. | -3601. | 3676. | -.0021 | -.0434 | -.0436 | .0012 | -.0025 | .0065 | 2148. |
| .1280 | 1615. | -268. | -697. | 1566. | -3823. | 3951. | -.0009 | -.0437 | -.0421 | .0037 | -.0051 | .0091 | 2294. |
| .1290 | 1498. | -221. | -671. | 1574. | -3968. | 4088. | .0003 | -.0424 | -.0397 | .0052 | -.0073 | .0119 | 2372. |
| .1300 | 1753. | -195. | -702. | 1525. | -3940. | 4112. | .0014 | -.0397 | -.0360 | .0056 | -.0096 | .0143 | 2366. |
| .1310 | 2204. | -178. | -755. | 1427. | -3735. | 3999. | .0021 | -.0355 | -.0311 | .0049 | -.0117 | .0163 | 2269. |
| .1320 | 2060. | -126. | -670. | 1269. | -3423. | 3706. | .0028 | -.0290 | -.0252 | .0035 | -.0133 | .0182 | 2088. |
| .1330 | 1550. | -56. | -506. | 1053. | -3006. | 3261. | .0032 | -.0227 | -.0184 | .0019 | -.0144 | .0195 | 1829. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

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18.28.55.

S/RV PIPING KEWAUNEE GKW02F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | MEMBER | SEQUENCE | LOCATION | BEG | TYPE | EL | | | | | | | | STRESS |
|------------|---------|----------|----------|------------|------------|------------|---------|---------|---------|----------|----------|----------|-------|--------|
| TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | MX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | (PSI) | |
| .1340 | 1472. | -22. | -432. | 785. | -2447. | 2734. | .0032 | -.0145 | -.0107 | .0006 | -.0153 | .0198 | 1506. | |
| .1350 | 1591. | -12. | -399. | 452. | -1792. | 2129. | .0029 | -.0053 | -.0022 | -.0007 | -.0159 | .0193 | 1131. | |
| .1360 | 1137. | 31. | -238. | 55. | -1116. | 1408. | .0029 | .0046 | .0065 | -.0026 | -.0158 | .0186 | 721. | |
| .1370 | 374. | 97. | -6. | -373. | -402. | 593. | .0029 | .0150 | .0155 | -.0053 | -.0154 | .0180 | 324. | |
| .1380 | 87. | 142. | 133. | -730. | 408. | -254. | .0028 | .0255 | .0246 | -.0084 | -.0150 | .0170 | 367. | |
| .1390 | 108. | 175. | 209. | -1153. | 1266. | -1111. | .0025 | .0359 | .0336 | -.0116 | -.0145 | .0157 | 819. | |
| .1400 | -249. | 232. | 356. | -1508. | 2064. | -1975. | .0025 | .0457 | .0421 | -.0144 | -.0137 | .0145 | 1296. | |
| .1410 | -775. | 295. | 521. | -1845. | 2762. | -2793. | .0026 | .0547 | .0498 | -.0162 | -.0126 | .0130 | 1741. | |
| .1420 | -801. | 318. | 565. | -2152. | 3379. | -3481. | .0028 | .0625 | .0566 | -.0169 | -.0117 | .0111 | 2130. | |
| .1430 | -559. | 322. | 541. | -2412. | 3881. | -4031. | .0031 | .0688 | .0622 | -.0170 | -.0109 | .0093 | 2445. | |
| .1440 | -682. | 351. | 587. | -2602. | 4219. | -4468. | .0037 | .0734 | .0664 | -.0170 | -.0102 | .0082 | 2678. | |
| .1450 | -918. | 394. | 651. | -2690. | 4415. | -4769. | .0043 | .0763 | .0691 | -.0168 | -.0098 | .0078 | 2823. | |
| .1460 | -615. | 408. | 593. | -2659. | 4511. | -4883. | .0048 | .0772 | .0704 | -.0162 | -.0101 | .0077 | 2873. | |
| .1470 | 4. | 398. | 453. | -2539. | 4459. | -4802. | .0053 | .0760 | .0702 | -.0150 | -.0108 | .0079 | 2820. | |
| .1480 | 254. | 401. | 375. | -2364. | 4178. | -4557. | .0060 | .0730 | .0681 | -.0128 | -.0115 | .0086 | 2656. | |
| .1490 | 254. | 404. | 335. | -2140. | 3685. | -4142. | .0068 | .0681 | .0643 | -.0096 | -.0124 | .0096 | 2385. | |
| .1500 | 598. | 375. | 209. | -1856. | 3065. | -3538. | .0075 | .0616 | .0591 | -.0058 | -.0136 | .0107 | 2021. | |
| .1510 | 1219. | 324. | 14. | -1504. | 2358. | -2784. | .0078 | .0536 | .0528 | -.0019 | -.0152 | .0121 | 1583. | |
| .1520 | 1624. | 288. | -140. | -1104. | 1562. | -1946. | .0080 | .0446 | .0454 | .0014 | -.0170 | .0141 | 1095. | |
| .1530 | 1827. | 266. | -246. | -674. | 705. | -1063. | .0082 | .0349 | .0371 | .0038 | -.0189 | .0167 | 579. | |
| .1540 | 2171. | 232. | -374. | -239. | -169. | -145. | .0084 | .0247 | .0282 | .0056 | -.0208 | .0193 | 131. | |
| .1550 | 2543. | 187. | -509. | 171. | -1046. | 774. | .0084 | .0146 | .0191 | .0072 | -.0225 | .0216 | 527. | |
| .1560 | 2627. | 149. | -590. | 537. | -1919. | 1639. | .0082 | .0049 | .0099 | .0089 | -.0237 | .0236 | 1035. | |
| .1570 | 2609. | 109. | -655. | 850. | -2728. | 2424. | .0078 | -.0042 | .0010 | .0104 | -.0244 | .0249 | 1504. | |
| .1580 | 2812. | 50. | -764. | 1116. | -3401. | 3104. | .0070 | -.0122 | -.0071 | .0115 | -.0248 | .0254 | 1901. | |
| .1590 | 2975. | -4. | -849. | 1324. | -3925. | 3624. | .0061 | -.0190 | -.0145 | .0115 | -.0246 | .0255 | 2209. | |
| .1600 | 2756. | -30. | -835. | 1456. | -4310. | 3944. | .0052 | -.0242 | -.0210 | .0102 | -.0238 | .0252 | 2416. | |
| .1610 | 2294. | -41. | -753. | 1502. | -4537. | 4070. | .0042 | -.0279 | -.0263 | .0076 | -.0222 | .0244 | 2519. | |
| .1620 | 1957. | -63. | -688. | 1472. | -4577. | 4028. | .0030 | -.0299 | -.0304 | .0043 | -.0202 | .0227 | 2517. | |
| .1630 | 1716. | -97. | -642. | 1361. | -4444. | 3830. | .0015 | -.0304 | -.0330 | .0009 | -.0177 | .0200 | 2417. | |
| .1640 | 1278. | -124. | -553. | 1175. | -4176. | 3468. | -.0002 | -.0294 | -.0344 | -.0024 | -.0146 | .0164 | 2229. | |
| .1650 | 653. | -141. | -415. | 932. | -3788. | 2951. | -.0018 | -.0272 | -.0346 | -.0057 | -.0110 | .0122 | 1963. | |
| .1660 | 79. | -159. | -275. | 653. | -3278. | 2315. | -.0034 | -.0239 | -.0337 | -.0090 | -.0072 | .0075 | 1631. | |
| .1670 | -444. | -172. | -134. | 357. | -2669. | 1590. | -.0048 | -.0198 | -.0318 | -.0126 | -.0033 | .0027 | 1255. | |
| .1680 | -1053. | -172. | 32. | 54. | -2004. | 813. | -.0061 | -.0152 | -.0291 | -.0162 | .0004 | -.0021 | 868. | |
| .1690 | -1663. | -167. | 200. | -242. | -1318. | 36. | -.0073 | -.0105 | -.0258 | -.0195 | .0040 | -.0068 | 538. | |
| .1700 | -2067. | -169. | 321. | -517. | -638. | -687. | -.0083 | -.0059 | -.0219 | -.0221 | .0071 | -.0113 | 430. | |
| .1710 | -2296. | -177. | 399. | -762. | -10. | -1325. | -.0091 | -.0019 | -.0179 | -.0237 | .0097 | -.0155 | 613. | |

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S/RV PIPING KEWAUNEE GKW02F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|--------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| .1610 | 2294. | -41. | -755. | 1502. | -4537. | 4070. | .0042 | -.0279 | -.0263 | .0076 | -.0222 | .0244 | 2519. |
| .1620 | 1957. | -63. | -688. | 1472. | -4577. | 4028. | .0030 | -.0299 | -.0304 | .0043 | -.0202 | .0227 | 2517. |
| .1630 | 1716. | -97. | -642. | 1361. | -4444. | 3830. | .0015 | -.0304 | -.0330 | .0009 | -.0177 | .0200 | 2417. |
| .1640 | 1278. | -124. | -553. | 1175. | -4176. | 2468. | -.0002 | -.0294 | -.0344 | -.0024 | -.0146 | .0164 | 2229. |
| .1650 | 653. | -141. | -415. | 921. | -3788. | 2951. | -.0018 | -.0172 | -.0346 | -.0057 | -.0110 | .0122 | 1963. |
| .1660 | 79. | -159. | -275. | 653. | -3270. | 2315. | -.0034 | -.0234 | -.0337 | -.0090 | -.0072 | .0075 | 1631. |
| .1670 | -444. | -172. | -134. | 357. | -2669. | 1590. | -.0048 | -.0198 | -.0318 | -.0126 | -.0033 | .0027 | 1255. |
| .1680 | -1053. | -172. | 32. | 54. | -2004. | 813. | -.0061 | -.0152 | -.0291 | -.0162 | .0004 | -.0021 | 868. |
| .1690 | -1663. | -167. | 200. | -242. | -1318. | 36. | -.0073 | -.0105 | -.0258 | -.0195 | .0040 | -.0068 | 538. |
| .1700 | -2067. | -169. | 321. | -517. | -638. | -687. | -.0083 | -.0059 | -.0219 | -.0221 | .0071 | -.0113 | 430. |
| .1710 | -2296. | -177. | 399. | -762. | -10. | -1325. | -.0091 | -.0019 | -.0179 | -.0237 | .0097 | -.0155 | 613. |

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | 46 | MEMBER | 1 | SEQUENCE | 265 | LOCATION | BEG | TYPE | EL | | | | | | |
|---------|--------|--------|-------|----------|---------|----------|--------|--------|--------|--------|--------|--------|--------|--|--|
| TIME | FX | FY | FZ | MX | MY | MZ | DX | DY | DZ | RX | RY | RZ | STRESS | | |
| (SEC) | (LB) | (LB) | (LB) | (FT-LB) | (FT-LB) | (FT-LB) | (IN) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) | | |
| .1720 | -2546. | -176. | 479. | -958. | 522. | -1868. | -.0093 | .0014 | -.0138 | -.0241 | .0118 | -.0191 | 868. | | |
| .1730 | -2784. | -165. | 554. | -1092. | 944. | -2290. | -.0090 | .0037 | -.0100 | -.0235 | .0134 | -.0219 | 1086. | | |
| .1740 | -2797. | -155. | 578. | -1149. | 1264. | -2555. | -.0084 | .0050 | -.0064 | -.0222 | .0142 | -.0239 | 1233. | | |
| .1750 | -2542. | -148. | 538. | -1127. | 1478. | -2644. | -.0075 | .0049 | -.0032 | -.0202 | .0140 | -.0248 | 1297. | | |
| .1760 | -2189. | -137. | 472. | -1038. | 1563. | -2554. | -.0062 | .0037 | -.0004 | -.0178 | .0131 | -.0247 | 1272. | | |
| .1770 | -1833. | -120. | 401. | -892. | 1508. | -2296. | -.0046 | .0013 | .0018 | -.0149 | .0115 | -.0234 | 1159. | | |
| .1780 | -1373. | -105. | 307. | -693. | 1328. | -1881. | -.0027 | -.0023 | .0034 | -.0113 | .0092 | -.0214 | 965. | | |
| .1790 | -774. | -96. | 169. | -442. | 1047. | -1333. | -.0007 | -.0067 | .0045 | -.0071 | .0065 | -.0187 | 703. | | |
| .1800 | -158. | -87. | 27. | -147. | 686. | -691. | .0015 | -.0118 | .0052 | -.0022 | .0034 | -.0156 | 395. | | |
| .1810 | 409. | -76. | -107. | 175. | 272. | 12. | .0036 | -.0172 | .0055 | .0029 | .0000 | -.0120 | 130. | | |
| .1820 | 978. | -67. | -241. | 511. | -160. | 744. | .0055 | -.0228 | .0056 | .0079 | -.0035 | -.0083 | 368. | | |
| .1830 | 1550. | -64. | -372. | 835. | -581. | 1470. | .0072 | -.0281 | .0056 | .0126 | -.0070 | -.0046 | 717. | | |
| .1840 | 1994. | -59. | -473. | 1122. | -971. | 2147. | .0087 | -.0328 | .0057 | .0166 | -.0104 | -.0010 | 1047. | | |
| .1850 | 2270. | -53. | -533. | 1361. | -1305. | 2730. | .0099 | -.0367 | .0058 | .0199 | -.0133 | .0023 | 1331. | | |
| .1860 | 247. | -50. | -573. | 1548. | -1544. | 3187. | .0108 | -.0395 | .0063 | .0225 | -.0157 | .0049 | 1551. | | |
| .1870 | 2616. | -51. | -593. | 1681. | -1668. | 3486. | .0112 | -.0410 | .0071 | .0248 | -.0176 | .0067 | 1691. | | |
| .1880 | 2591. | -49. | -575. | 1746. | -1672. | 3606. | .0113 | -.0411 | .0084 | .0264 | -.0186 | .0076 | 1742. | | |
| .1890 | 2401. | -45. | -519. | 1733. | -1555. | 3538. | .0110 | -.0397 | .0100 | .0272 | -.0188 | .0075 | 1700. | | |
| .1900 | 2162. | -44. | -447. | 1639. | -1313. | 3291. | .0104 | -.0369 | .0121 | .0272 | -.0183 | .0066 | 1567. | | |
| .1910 | 1896. | -44. | -364. | 1468. | -952. | 2876. | .0095 | -.0326 | .0146 | .0262 | -.0170 | .0049 | 1351. | | |
| .1920 | 1500. | -38. | -249. | 1232. | -493. | 2302. | .0085 | -.0272 | .0173 | .0242 | -.0150 | .0026 | 1066. | | |
| .1930 | 1005. | -24. | -112. | 949. | 44. | 1595. | .0074 | -.0208 | .0201 | .0216 | -.0124 | -.0002 | 745. | | |
| .1940 | 560. | -12. | 15. | 638. | 643. | 797. | .0061 | -.0138 | .0229 | .0186 | -.0093 | -.0035 | 484. | | |
| .1950 | 196. | -4. | 120. | 311. | 1268. | -48. | .0048 | -.0065 | .0256 | .0154 | -.0059 | -.0071 | 524. | | |
| .1960 | -186. | 5. | 223. | -23. | 1868. | -901. | .0035 | .0009 | .0278 | .0123 | -.0022 | -.0108 | 832. | | |
| .1970 | -592. | 16. | 325. | -350. | 2405. | -1715. | .0023 | .0078 | .0294 | .0093 | .0016 | -.0143 | 1194. | | |
| .1980 | -922. | 25. | 406. | -646. | 2861. | -2440. | .0011 | .0140 | .0302 | .0063 | .0052 | -.0173 | 1531. | | |
| .1990 | -1147. | 29. | 457. | -892. | 3215. | -3038. | .0001 | .0192 | .0301 | .0035 | .0084 | -.0198 | 1811. | | |
| .2000 | -1306. | 35. | 487. | -1071. | 3441. | -3481. | -.0009 | .0231 | .0290 | .0009 | .0111 | -.0214 | 2011. | | |
| .2010 | -1402. | 39. | 496. | -1176. | 3519. | -3746. | -.0018 | .0256 | .0267 | -.0013 | .0132 | -.0221 | 2116. | | |
| .2020 | -1410. | 39. | 478. | -1205. | 3434. | -3815. | -.0025 | .0266 | .0233 | -.0029 | .0147 | -.0219 | 2116. | | |
| .2030 | -1353. | 34. | 437. | -1163. | 3178. | -3684. | -.0031 | .0259 | .0188 | -.0039 | .0155 | -.0208 | 2007. | | |
| .2040 | -1258. | 26. | 379. | -1056. | 2755. | -3357. | -.0035 | .0238 | .0132 | -.0042 | .0157 | -.0188 | 1793. | | |
| .2050 | -1093. | 14. | 298. | -889. | 2188. | -2849. | -.0038 | .0203 | .0068 | -.0041 | .0152 | -.0160 | 1485. | | |
| .2060 | -824. | -3. | 190. | -668. | 1511. | -2187. | -.0040 | .0157 | -.0004 | -.0039 | .0141 | -.0124 | 1100. | | |
| .2070 | -498. | -19. | 68. | -404. | 750. | -1410. | -.0041 | .0102 | -.0080 | -.0036 | .0124 | -.0081 | 661. | | |
| .2080 | -185. | -31. | -49. | -114. | -66. | -566. | -.0041 | .0042 | -.0158 | -.0035 | .0104 | -.0032 | 233. | | |
| .2090 | 109. | -41. | -160. | 182. | -906. | 303. | -.0041 | -.0019 | -.0236 | -.0034 | .0081 | .0018 | 390. | | |

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CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|--------|------|-------|--------|-------|--------|--------|--------|--------|--------|-------|--------|-------|
| .1990 | -1147. | 29. | 457. | -892. | 3215. | -3038. | .0001 | .0192 | .0301 | .0035 | .0084 | -.0198 | 1811. |
| .2000 | -1306. | 35. | 487. | -1071. | 3441. | -3401. | -.0009 | .0231 | .0290 | .0009 | .0111 | -.0214 | 2011. |
| .2010 | -1402. | 79. | 496. | -1176. | 3519. | -3746. | -.0018 | .0256 | .0267 | -.0013 | .0132 | -.0221 | 2116. |
| .2020 | -1410. | 79. | 478. | -1205. | 3434. | -3815. | -.0025 | .0266 | .0233 | -.0029 | .0147 | -.0219 | 2116. |
| .2030 | -1753. | 74. | 437. | -1167. | 3170. | -3684. | -.0031 | .0259 | .0188 | -.0039 | .0155 | -.0208 | 2007. |
| .2040 | -1258. | 26. | 379. | -1056. | 2755. | -3357. | -.0035 | .0238 | .0132 | -.0042 | .0157 | -.0188 | 1793. |
| .2050 | -1093. | 14. | 298. | -889. | 2188. | -2849. | -.0038 | .0203 | .0068 | -.0041 | .0152 | -.0160 | 1485. |
| .2060 | -824. | -3. | 190. | -668. | 1511. | -2187. | -.0040 | .0157 | -.0004 | -.0039 | .0141 | -.0124 | 1100. |
| .2070 | -498. | -19. | 68. | -404. | 750. | -1410. | -.0041 | .0102 | -.0080 | -.0036 | .0124 | -.0081 | 661. |
| .2080 | -185. | -31. | -49. | -114. | -66. | -566. | -.0041 | .0042 | -.0158 | -.0035 | .0104 | -.0032 | 233. |
| .2090 | 109. | -41. | -160. | 182. | -906. | 303. | -.0041 | -.0019 | -.0236 | -.0034 | .0081 | .0018 | 390. |

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | 46 | MEMBER | 1 | SEQUENCE | 265 | LOCATION | BEG | TYPE | EL | | | | | | |
|---------|--------|--------|-------|----------|---------|----------|--------|--------|--------|--------|--------|--------|--------|--|--|
| TIME | FX | FY | FZ | MX | MY | MZ | DX | DY | DZ | FX | RY | RZ | STRESS | | |
| (SEC) | (LB) | (LB) | (LB) | (FT-LB) | (FT-LB) | (FT-LB) | (IN) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) | | |
| .2100 | 420. | -52. | -273. | 467. | -1732. | 1152. | -.0040 | -.0078 | -.0311 | -.0032 | .0058 | .0067 | 856. | | |
| .2110 | 738. | -65. | -386. | 723. | -2507. | 1940. | -.0039 | -.0132 | -.0379 | -.0029 | .0035 | .0113 | 1304. | | |
| .2120 | 1005. | -76. | -484. | 937. | -3196. | 2619. | -.0039 | -.0178 | -.0439 | -.0027 | .0014 | .0152 | 1700. | | |
| .2130 | 1199. | -83. | -558. | 1097. | -3764. | 3153. | -.0039 | -.0211 | -.0489 | -.0028 | -.0003 | .0185 | 2019. | | |
| .2140 | 1334. | -85. | -609. | 1197. | -4179. | 3512. | -.0039 | -.0231 | -.0525 | -.0032 | -.0015 | .0210 | 2243. | | |
| .2150 | 1409. | -83. | -635. | 1229. | -4420. | 3678. | -.0041 | -.0236 | -.0548 | -.0042 | -.0023 | .0226 | 2360. | | |
| .2160 | 1398. | -76. | -632. | 1188. | -4482. | 3642. | -.0043 | -.0226 | -.0557 | -.0057 | -.0024 | .0233 | 2366. | | |
| .2170 | 1293. | -65. | -599. | 1072. | -4367. | 3407. | -.0046 | -.0200 | -.0551 | -.0076 | -.0020 | .0229 | 2264. | | |
| .2180 | 1119. | -52. | -542. | 888. | -4084. | 2989. | -.0050 | -.0160 | -.0531 | -.0095 | -.0009 | .0216 | 2062. | | |
| .2190 | 894. | -38. | -468. | 645. | -3646. | 2409. | -.0054 | -.0108 | -.0497 | -.0114 | .0007 | .0193 | 1773. | | |
| .2200 | 620. | -23. | -378. | 358. | -3076. | 1695. | -.0058 | -.0047 | -.0453 | -.0133 | .0027 | .0163 | 1417. | | |
| .2210 | 315. | -6. | -275. | 42. | -2399. | 886. | -.0062 | .0021 | -.0399 | -.0151 | .0051 | .0127 | 1026. | | |
| .2220 | 3. | 14. | -166. | -287. | -1648. | 24. | -.0065 | .0092 | -.0338 | -.0169 | .0076 | .0089 | 671. | | |
| .2230 | -311. | 35. | -52. | -614. | -863. | -845. | -.0067 | .0163 | -.0274 | -.0187 | .0102 | .0050 | 544. | | |
| .2240 | -620. | 58. | 61. | -925. | -83. | -1673. | -.0068 | .0230 | -.0208 | -.0202 | .0127 | .0012 | 768. | | |
| .2250 | -879. | 79. | 160. | -1203. | 655. | -2412. | -.0067 | .0289 | -.0143 | -.0213 | .0149 | -.0022 | 1113. | | |
| .2260 | -1045. | 94. | 233. | -1432. | 1319. | -3025. | -.0065 | .0337 | -.0081 | -.0218 | .0168 | -.0052 | 1443. | | |
| .2270 | -1137. | 106. | 284. | -1601. | 1872. | -3482. | -.0061 | .0372 | -.0027 | -.0217 | .0181 | -.0075 | 1712. | | |
| .2280 | -1198. | 117. | 323. | -1702. | 2288. | -3764. | -.0054 | .0392 | .0020 | -.0210 | .0189 | -.0091 | 1895. | | |
| .2290 | -1205. | 127. | 344. | -1728. | 2554. | -3856. | -.0046 | .0395 | .0056 | -.0198 | .0191 | -.0098 | 1981. | | |
| .2300 | -1102. | 132. | 334. | -1677. | 2667. | -3748. | -.0036 | .0383 | .0082 | -.0182 | .0186 | -.0095 | 1965. | | |
| .2310 | -898. | 131. | 295. | -1551. | 2625. | -3447. | -.0026 | .0354 | .0097 | -.0161 | .0173 | -.0085 | 1847. | | |
| .2320 | -659. | 128. | 240. | -1360. | 2429. | -2973. | -.0015 | .0311 | .0101 | -.0137 | .0155 | -.0066 | 1634. | | |
| .2330 | -405. | 123. | 176. | -1112. | 2090. | -2355. | -.0003 | .0256 | .0094 | -.0110 | .0132 | -.0041 | 1340. | | |
| .2340 | -97. | 113. | 93. | -818. | 1633. | -1624. | .0009 | .0191 | .0078 | -.0079 | .0104 | -.0012 | 981. | | |
| .2350 | 260. | 98. | -6. | -493. | 1089. | -818. | .0021 | .0119 | .0054 | -.0046 | .0075 | .0020 | 581. | | |
| .2360 | 605. | 82. | -107. | -152. | 486. | 19. | .0032 | .0043 | .0023 | -.0013 | .0044 | .0052 | 205. | | |
| .2370 | 900. | 67. | -198. | 186. | -145. | 844. | .0041 | -.0032 | -.0012 | .0018 | .0013 | .0084 | 352. | | |
| .2380 | 1173. | 52. | -285. | 505. | -767. | 1617. | .0050 | -.0104 | -.0049 | .0044 | -.0015 | .0113 | 746. | | |
| .2390 | 1448. | 36. | -371. | 789. | -1347. | 2303. | .0057 | -.0169 | -.0086 | .0065 | -.0041 | .0138 | 1117. | | |
| .2400 | 1685. | 20. | -446. | 1024. | -1860. | 2866. | .0061 | -.0224 | -.0122 | .0081 | -.0062 | .0158 | 1431. | | |
| .2410 | 1835. | 9. | -503. | 1202. | -2287. | 3277. | .0065 | -.0268 | -.0154 | .0091 | -.0076 | .0171 | 1675. | | |
| .2420 | 1884. | 3. | -532. | 1315. | -2612. | 3518. | .0066 | -.0299 | -.0183 | .0095 | -.0084 | .0176 | 1836. | | |
| .2430 | 1874. | -1. | -545. | 1362. | -2821. | 3583. | .0067 | -.0316 | -.0207 | .0093 | -.0084 | .0173 | 1910. | | |
| .2440 | 1856. | -3. | -554. | 1340. | -2907. | 3478. | .0065 | -.0318 | -.0226 | .0085 | -.0078 | .0162 | 1897. | | |
| .2450 | 1823. | -4. | -558. | 1253. | -2874. | 3217. | .0061 | -.0308 | -.0239 | .0071 | -.0064 | .0144 | 1802. | | |
| .2460 | 1724. | -0. | -543. | 1105. | -2737. | 2814. | .0057 | -.0286 | -.0248 | .0050 | -.0044 | .0122 | 1637. | | |
| .2470 | 1512. | 12. | -499. | 906. | -2521. | 2292. | .0052 | -.0254 | -.0254 | .0022 | -.0019 | .0095 | 1415. | | |

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|-------|-----|-------|-------|--------|-------|-------|--------|--------|-------|--------|-------|-------|
| .2370 | 900. | 67. | -198. | 186. | -145. | 844. | .0041 | -.0032 | -.0012 | .0018 | .0013 | .0052 | 205. |
| .2380 | 1173. | 52. | -285. | 505. | -767. | 1617. | .0050 | -.0104 | -.0049 | .0044 | -.0015 | .0113 | 746. |
| .2390 | 1448. | 36. | -371. | 789. | -1347. | 2303. | .0057 | -.0169 | -.0086 | .0065 | -.0041 | .0138 | 1117. |
| .2400 | 1685. | 20. | -448. | 1074. | -1860. | 2866. | .0061 | -.0224 | -.0122 | .0081 | -.0062 | .0158 | 1431. |
| .2410 | 1835. | 9. | -503. | 1261. | -2287. | 3277. | .0065 | -.0268 | -.0154 | .0091 | -.0076 | .0171 | 1675. |
| .2420 | 1884. | 3. | -532. | 1311. | -2412. | 3518. | .0066 | -.0299 | -.0182 | .0095 | -.0084 | .0176 | 1836. |
| .2430 | 1874. | -1. | -545. | 1362. | -2821. | 3583. | .0067 | -.0316 | -.0207 | .0093 | -.0084 | .0173 | 1910. |
| .2440 | 1856. | -3. | -554. | 1340. | -2907. | 3478. | .0065 | -.0318 | -.0226 | .0085 | -.0078 | .0162 | 1897. |
| .2450 | 1823. | -4. | -558. | 1253. | -2874. | 3217. | .0061 | -.0308 | -.0239 | .0071 | -.0064 | .0144 | 1802. |
| .2460 | 1724. | -6. | -543. | 1105. | -2737. | 2814. | .0057 | -.0286 | -.0248 | .0050 | -.0044 | .0122 | 1637. |
| .2470 | 1512. | 12. | -499. | 906. | -2521. | 2292. | .0052 | -.0254 | -.0254 | .0022 | -.0019 | .0095 | 1415. |

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CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | 46 | MEMBER | 1 | SEQUENCE | 265 | LOCATION | BEG | TYPE | EL | | | | | | |
|---------|--------|--------|--------|----------|---------|----------|-----|--------|--------|--------|--------|-------|--------|--------|--|
| TIME | FX | FY | FZ | MX | MY | MZ | | DX | DY | DZ | RX | RY | RZ | STRESS | |
| (SEC) | (LB) | (LB) | (LB) | (FT-LB) | (FT-LB) | (FT-LB) | | (IN) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) | |
| .2480 | 1250. | 29. | -439. | 671. | -2244. | 1687. | | .0047 | -.0214 | -.0258 | -.0010 | .0012 | .0067 | 1158. | |
| .2490 | 1063. | 42. | -399. | 418. | -1919. | 1042. | | .0040 | -.0170 | -.0261 | -.0044 | .0044 | .0037 | 892. | |
| .2500 | 945. | 51. | -377. | 159. | -1575. | 399. | | .0032 | -.0124 | -.0265 | -.0079 | .0078 | .0007 | 655. | |
| .2510 | 778. | 60. | -346. | -95. | -1255. | -212. | | .0024 | -.0079 | -.0272 | -.0114 | .0112 | -.0021 | 512. | |
| .2520 | 511. | 73. | -292. | -332. | -993. | -761. | | .0016 | -.0038 | -.0283 | -.0148 | .0145 | -.0045 | 519. | |
| .2530 | 219. | 86. | -234. | -538. | -806. | -1214. | | .0008 | -.0003 | -.0300 | -.0181 | .0175 | -.0062 | 623. | |
| .2540 | -9. | 95. | -194. | -701. | -705. | -1545. | | -.0001 | .0024 | -.0323 | -.0212 | .0201 | -.0073 | 737. | |
| .2550 | -152. | 100. | -178. | -809. | -704. | -1741. | | -.0009 | .0042 | -.0353 | -.0240 | .0222 | -.0078 | 820. | |
| .2560 | -280. | 107. | -170. | -860. | -826. | -1800. | | -.0016 | .0050 | -.0391 | -.0264 | .0237 | -.0074 | 866. | |
| .2570 | -502. | 125. | -142. | -859. | -1097. | -1734. | | -.0020 | .0047 | -.0439 | -.0283 | .0248 | -.0062 | 893. | |
| .2580 | -669. | 149. | -132. | -808. | -1513. | -1547. | | -.0021 | .0035 | -.0495 | -.0296 | .0254 | -.0043 | 927. | |
| .2590 | -519. | 164. | -203. | -708. | -2044. | -1240. | | -.0018 | .0013 | -.0559 | -.0305 | .0255 | -.0019 | 1000. | |
| .2600 | -83. | 175. | -348. | -563. | -2677. | -833. | | -.0014 | -.0016 | -.0629 | -.0311 | .0251 | .0010 | 1147. | |
| .2610 | 396. | 196. | -506. | -384. | -3414. | -365. | | -.0007 | -.0051 | -.0706 | -.0313 | .0244 | .0044 | 1386. | |
| .2620 | 815. | 230. | -650. | -180. | -4243. | 129. | | .0005 | -.0090 | -.0789 | -.0314 | .0235 | .0082 | 1705. | |
| .2630 | 1324. | 266. | -814. | 42. | -5123. | 635. | | .0018 | -.0132 | -.0875 | -.0313 | .0225 | .0121 | 2072. | |
| .2640 | 2132. | 284. | -1053. | 278. | -5991. | 1150. | | .0028 | -.0173 | -.0962 | -.0310 | .0212 | .0157 | 2451. | |
| .2650 | 3115. | 280. | -1337. | 518. | -6814. | 1653. | | .0033 | -.0214 | -.1046 | -.0305 | .0198 | .0186 | 2821. | |
| .2660 | 3821. | 274. | -1552. | 748. | -7592. | 2101. | | .0034 | -.0251 | -.1128 | -.0296 | .0186 | .0210 | 3175. | |
| .2670 | 4020. | 272. | -1639. | 957. | -8305. | 2463. | | .0030 | -.0282 | -.1204 | -.0284 | .0176 | .0228 | 3497. | |
| .2680 | 3998. | 256. | -1665. | 1144. | -8881. | 2745. | | .0019 | -.0306 | -.1270 | -.0270 | .0169 | .0237 | 3759. | |
| .2690 | 3996. | 207. | -1690. | 1306. | -9259. | 2954. | | -.0002 | -.0322 | -.1323 | -.0256 | .0162 | .0235 | 3935. | |
| .2700 | 3802. | 143. | -1663. | 1432. | -9431. | 3062. | | -.0032 | -.0328 | -.1359 | -.0241 | .0158 | .0223 | 4020. | |
| .2710 | 3046. | 92. | -1489. | 1506. | -9427. | 3031. | | -.0065 | -.0324 | -.1379 | -.0226 | .0160 | .0204 | 4019. | |
| .2720 | 1889. | 54. | -1203. | 1523. | -9237. | 2854. | | -.0097 | -.0308 | -.1381 | -.0211 | .0169 | .0179 | 3928. | |
| .2730 | 901. | 6. | -944. | 1490. | -8815. | 2560. | | -.0129 | -.0282 | -.1362 | -.0193 | .0182 | .0146 | 3731. | |
| .2740 | 272. | -52. | -767. | 1408. | -8154. | 2160. | | -.0159 | -.0244 | -.1321 | -.0174 | .0199 | .0106 | 3432. | |
| .2750 | -279. | -92. | -600. | 1272. | -7309. | 1642. | | -.0183 | -.0198 | -.1259 | -.0155 | .0221 | .0063 | 3049. | |
| .2760 | -972. | -93. | -385. | 1080. | -6340. | 1003. | | -.0194 | -.0143 | -.1181 | -.0136 | .0251 | .0023 | 2612. | |
| .2770 | -1559. | -64. | -178. | 842. | -5266. | 278. | | -.0192 | -.0082 | -.1087 | -.0119 | .0287 | -.0014 | 2143. | |
| .2780 | -1633. | -27. | -86. | 574. | -4083. | -476. | | -.0181 | -.0018 | -.0980 | -.0104 | .0323 | -.0048 | 1665. | |
| .2790 | -1166. | 14. | -126. | 291. | -2823. | -1220. | | -.0161 | .0046 | -.0861 | -.0092 | .0360 | -.0079 | 1240. | |
| .2800 | -486. | 70. | -213. | 6. | -1560. | -1936. | | -.0133 | .0107 | -.0738 | -.0082 | .0397 | -.0104 | 998. | |
| .2810 | 81. | 150. | -267. | -271. | -367. | -2603. | | -.0097 | .0162 | -.0615 | -.0071 | .0433 | -.0122 | 1061. | |
| .2820 | 536. | 241. | -292. | -527. | 722. | -3178. | | -.0056 | .0208 | -.0499 | -.0060 | .0468 | -.0134 | 1325. | |
| .2830 | 1121. | 317. | -357. | -744. | 1710. | -3607. | | -.0017 | .0242 | -.0390 | -.0050 | .0496 | -.0141 | 1629. | |
| .2840 | 1897. | 363. | -480. | -910. | 2584. | -3856. | | .0014 | .0263 | -.0293 | -.0043 | .0516 | -.0146 | 1898. | |
| .2850 | 2544. | 389. | -577. | -1020. | 3300. | -3934. | | .0038 | .0269 | -.0212 | -.0038 | .0530 | -.0147 | 2101. | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

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18.28.56.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK

2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|--------|------|-------|--------|--------|--------|---------|---------|---------|---------|-------|---------|-------|
| .2750 | -279. | -92. | -100. | 1272. | -7309. | 1642. | -0.0183 | -0.0198 | -0.1259 | -0.0155 | .0221 | .0063 | 3049. |
| .2760 | -972. | -93. | -385. | 1080. | -6340. | 1003. | -0.0194 | -0.0143 | -0.1181 | -0.0136 | .0251 | .0023 | 2612. |
| .2770 | -1559. | -64. | -170. | 842. | -5266. | 278. | -0.0192 | -0.0082 | -0.1087 | -0.0119 | .0287 | -0.0014 | 2143. |
| .2780 | -1633. | -27. | -86. | 574. | -4083. | -476. | -0.0181 | -0.0017 | -0.0980 | -0.0104 | .0323 | -0.0048 | 1665. |
| .2790 | -1166. | 14. | -126. | 291. | -2823. | -1220. | -0.0161 | .0046 | -0.0861 | -0.0092 | .0360 | -0.0079 | 1240. |
| .2800 | -488. | 70. | -213. | 6. | -1560. | -1936. | -0.0133 | .0107 | -0.0738 | -0.0082 | .0397 | -0.0104 | 998. |
| .2810 | 81. | 150. | -267. | -271. | -367. | -2603. | -0.0097 | .0162 | -0.0615 | -0.0071 | .0433 | -0.0122 | 1061. |
| .2820 | 536. | 241. | -292. | -527. | 722. | -3178. | -0.0056 | .0208 | -0.0499 | -0.0060 | .0468 | -0.0134 | 1325. |
| .2830 | 1121. | 317. | -357. | -744. | 1710. | -3607. | -0.0017 | .0242 | -0.0390 | -0.0050 | .0496 | -0.0141 | 1629. |
| .2840 | 1897. | 363. | -480. | -910. | 2584. | -3856. | .0014 | .0262 | -0.0293 | -0.0043 | .0516 | -0.0146 | 1898. |
| .2850 | 2544. | 389. | -577. | -1020. | 3300. | -3934. | .0038 | .0269 | -0.0212 | -0.0038 | .0530 | -0.0147 | 2101. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

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S/RV PIPING KEWAUNEE GKWOFF 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | 46 | MEMBER | 1 | SEQUENCE | 265 | LOCATION | BEG | TYPE | EL | | | | | | |
|------------|---------|---------|---------|------------|------------|------------|---------|---------|---------|----------|----------|----------|--------------|--|--|
| TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | HX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | STRESS (PSI) | | |
| .2860 | 2673. | 413. | -553. | -1077. | 3817. | -3865. | .0055 | .0759 | -0.0152 | -0.0036 | .0538 | -0.0143 | 2222. | | |
| .2870 | 2326. | 429. | -424. | -1078. | 4137. | -3660. | .0065 | .0236 | -0.0113 | -0.0038 | .0541 | -0.0137 | 2258. | | |
| .2880 | 1925. | 414. | -298. | -1022. | 4309. | -7316. | .0063 | .0198 | -0.0093 | -0.0041 | .0539 | -0.0132 | 2220. | | |
| .2890 | 1681. | 358. | -225. | -918. | 4358. | -2853. | .0050 | .0149 | -0.0092 | -0.0045 | .0532 | -0.0132 | 2122. | | |
| .2900 | 1310. | 285. | -133. | -782. | 4270. | -2328. | .0031 | .0089 | -0.0110 | -0.0050 | .0524 | -0.0136 | 1977. | | |
| .2910 | 532. | 222. | 45. | -636. | 4033. | -1802. | .0010 | .0023 | -0.0147 | -0.0057 | .0520 | -0.0142 | 1791. | | |
| .2920 | -405. | 166. | 251. | -488. | 3693. | -1302. | -0.0012 | -0.0047 | -0.0200 | -0.0069 | .0519 | -0.0150 | 1583. | | |
| .2930 | -995. | 96. | 363. | -340. | 3321. | -836. | -0.0034 | -0.0119 | -0.0264 | -0.0085 | .0523 | -0.0163 | 1381. | | |
| .2940 | -1139. | 17. | 359. | -197. | 2945. | -429. | -0.0056 | -0.0192 | -0.0337 | -0.0106 | .0530 | -0.0182 | 1197. | | |
| .2950 | -1183. | -48. | 322. | -71. | 2548. | -121. | -0.0072 | -0.0263 | -0.0419 | -0.0131 | .0546 | -0.0204 | 1024. | | |
| .2960 | -1337. | -86. | 307. | 30. | 2118. | 69. | -0.0081 | -0.0332 | -0.0509 | -0.0157 | .0572 | -0.0230 | 851. | | |
| .2970 | -1388. | -112. | 260. | 111. | 1686. | 165. | -0.0085 | -0.0398 | -0.0604 | -0.0181 | .0605 | -0.0259 | 681. | | |
| .2980 | -1078. | -146. | 118. | 180. | 1287. | 205. | -0.0087 | -0.0461 | -0.0702 | -0.0205 | .0645 | -0.0293 | 528. | | |
| .2990 | -505. | -187. | -97. | 242. | 922. | 210. | -0.0090 | -0.0523 | -0.0802 | -0.0227 | .0688 | -0.0331 | 392. | | |
| .3000 | -13. | -223. | -295. | 305. | 563. | 191. | -0.0091 | -0.0583 | -0.0905 | -0.0249 | .0736 | -0.0369 | 268. | | |
| .3010 | 198. | -249. | -423. | 376. | 194. | 168. | -0.0094 | -0.0643 | -0.1011 | -0.0270 | .0785 | -0.0405 | 183. | | |
| .3020 | 208. | -277. | -501. | 466. | -180. | 181. | -0.0100 | -0.0703 | -0.1118 | -0.0290 | .0834 | -0.0440 | 213. | | |
| .3030 | 179. | -322. | -574. | 583. | -547. | 267. | -0.0112 | -0.0765 | -0.1225 | -0.0307 | .0879 | -0.0472 | 338. | | |
| .3040 | 109. | -388. | -640. | 731. | -917. | 446. | -0.0133 | -0.0827 | -0.1332 | -0.0319 | .0919 | -0.0503 | 503. | | |
| .3050 | -187. | -463. | -651. | 904. | -1317. | 713. | -0.0159 | -0.0889 | -0.1437 | -0.0325 | .0952 | -0.0529 | 702. | | |
| .3060 | -838. | -536. | -572. | 1097. | -1765. | 1055. | -0.0188 | -0.0951 | -0.1540 | -0.0326 | .0980 | -0.0550 | 935. | | |
| .3070 | -1704. | -606. | -436. | 1307. | -2247. | 1462. | -0.0219 | -0.1011 | -0.1638 | -0.0323 | .1000 | -0.0563 | 1197. | | |
| .3080 | -2480. | -680. | -317. | 1531. | -2732. | 1927. | -0.0252 | -0.1066 | -0.1729 | -0.0319 | .1011 | -0.0570 | 1476. | | |
| .3090 | -3032. | -755. | -242. | 1759. | -3203. | 2424. | -0.0285 | -0.1115 | -0.1808 | -0.0314 | .1013 | -0.0570 | 1760. | | |
| .3100 | -3508. | -815. | -174. | 1974. | -3672. | 2907. | -0.0312 | -0.1155 | -0.1876 | -0.0308 | .1007 | -0.0561 | 2040. | | |
| .3110 | -4018. | -844. | -85. | 2158. | -4145. | 3331. | -0.0331 | -0.1183 | -0.1930 | -0.0302 | .0995 | -0.0545 | 2303. | | |
| .3120 | -4377. | -848. | -22. | 2301. | -4594. | 3676. | -0.0341 | -0.1197 | -0.1968 | -0.0294 | .0978 | -0.0522 | 2535. | | |
| .3130 | -4308. | -840. | -50. | 2397. | -4976. | 3928. | -0.0343 | -0.1196 | -0.1987 | -0.0286 | .0954 | -0.0496 | 2720. | | |
| .3140 | -3832. | -818. | -164. | 2439. | -5273. | 4065. | -0.0337 | -0.1179 | -0.1984 | -0.0278 | .0925 | -0.0467 | 2845. | | |
| .3150 | -3226. | -769. | -295. | 2421. | -5488. | 4056. | -0.0322 | -0.1144 | -0.1962 | -0.0271 | .0893 | -0.0435 | 2906. | | |
| .3160 | -2652. | -688. | -400. | 2379. | -5616. | 3888. | -0.0298 | -0.1092 | -0.1920 | -0.0267 | .0858 | -0.0400 | 2897. | | |
| .3170 | -2003. | -590. | -507. | 2198. | -5627. | 3576. | -0.0269 | -0.1023 | -0.1857 | -0.0265 | .0820 | -0.0366 | 2817. | | |
| .3180 | -1176. | -491. | -645. | 2003. | -5498. | 3142. | -0.0238 | -0.0940 | -0.1774 | -0.0265 | .0779 | -0.0334 | 2665. | | |
| .3190 | -308. | -395. | -783. | 1760. | -5231. | 2598. | -0.0208 | -0.0843 | -0.1671 | -0.0264 | .0735 | -0.0307 | 2448. | | |
| .3200 | 351. | -296. | -862. | 1472. | -4847. | 1952. | -0.0179 | -0.0736 | -0.1553 | -0.0263 | .0691 | -0.0284 | 2179. | | |
| .3210 | 712. | -195. | -858. | 1151. | -4354. | 1224. | -0.0152 | -0.0621 | -0.1421 | -0.0260 | .0647 | -0.0265 | 1873. | | |
| .3220 | 874. | -102. | -800. | 809. | -3745. | 445. | -0.0129 | -0.0502 | -0.1276 | -0.0254 | .0604 | -0.0252 | 1548. | | |
| .3230 | 943. | -23. | -715. | 459. | -3021. | -353. | -0.0111 | -0.0380 | -0.1122 | -0.0248 | .0560 | -0.0245 | 1234. | | |

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S/RV PIPING KEWAUNEE GKWOFF 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|--------|-------|-------|-------|--------|-------|--------|--------|--------|--------|-------|--------|-------|
| .3120 | -4777. | -542. | -11. | 2371. | -4794. | 3928. | -.0341 | -.1197 | -.1968 | -.0294 | .0978 | -.0522 | 2535. |
| .3130 | -4708. | -840. | -50. | 2397. | -4976. | 3928. | -.0343 | -.1196 | -.1987 | -.0286 | .0954 | -.0496 | 2720. |
| .3140 | -3832. | -818. | -164. | 2439. | -5273. | 4065. | -.0337 | -.1179 | -.1984 | -.0278 | .0925 | -.0467 | 2845. |
| .3150 | -3226. | -769. | -295. | 2421. | -5488. | 4056. | -.0322 | -.1144 | -.1962 | -.0271 | .0893 | -.0435 | 2906. |
| .3160 | -2652. | -688. | -400. | 2379. | -5616. | 3885. | -.0298 | -.1092 | -.1920 | -.0267 | .0858 | -.0400 | 2897. |
| .3170 | -2003. | -596. | -507. | 2198. | -5627. | 3576. | -.0269 | -.1023 | -.1857 | -.0265 | .0820 | -.0366 | 2817. |
| .3180 | -1176. | -491. | -645. | 2003. | -5493. | 3142. | -.0238 | -.0940 | -.1774 | -.0265 | .0779 | -.0334 | 2665. |
| .3190 | -308. | -395. | -783. | 1760. | -5231. | 2598. | -.0208 | -.0843 | -.1671 | -.0264 | .0735 | -.0307 | 2448. |
| .3200 | 351. | -296. | -862. | 1472. | -4847. | 1952. | -.0179 | -.0736 | -.1553 | -.0263 | .0691 | -.0284 | 2179. |
| .3210 | 712. | -195. | -858. | 1151. | -4354. | 1224. | -.0152 | -.0621 | -.1421 | -.0260 | .0647 | -.0265 | 1873. |
| .3220 | 874. | -102. | -800. | 809. | -3745. | 445. | -.0129 | -.0502 | -.1276 | -.0254 | .0604 | -.0252 | 1548. |
| .3230 | 943. | -23. | -715. | 459. | -3021. | -353. | -.0111 | -.0380 | -.1122 | -.0248 | .0560 | -.0245 | 1234. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

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18.28.56.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | MEMBER | SEQUENCE | LOCATION | BEG | TYPE | EL | | | | | | | | |
|------------|---------|----------|----------|------------|------------|------------|---------|---------|---------|----------|----------|----------|--------------|--|
| TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | MX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | STRESS (PSI) | |
| .3240 | 915. | 42. | -605. | 108. | -2203. | -1147. | -.0097 | -.0259 | -.0960 | -.0240 | .0516 | -.0241 | 997. | |
| .3250 | 722. | 101. | -452. | -236. | -1323. | -1919. | -.0086 | -.0143 | -.0794 | -.0232 | .0475 | -.0240 | 940. | |
| .3260 | 374. | 158. | -261. | -566. | -413. | -2651. | -.0074 | -.0033 | -.0628 | -.0221 | .0437 | -.0239 | 1101. | |
| .3270 | -3. | 210. | -67. | -874. | 508. | -3319. | -.0062 | .0067 | -.0463 | -.0208 | .0402 | -.0240 | 1392. | |
| .3280 | -256. | 254. | 89. | -1149. | 1420. | -3899. | -.0049 | .0156 | -.0303 | -.0191 | .0370 | -.0241 | 1728. | |
| .3290 | -326. | 291. | 192. | -1384. | 2295. | -4376. | -.0033 | .0231 | -.0151 | -.0172 | .0341 | -.0241 | 2059. | |
| .3300 | -269. | 329. | 258. | -1572. | 3096. | -4740. | -.0012 | .0290 | -.0010 | -.0150 | .0316 | -.0238 | 2358. | |
| .3310 | -132. | 369. | 295. | -1710. | 3791. | -4980. | .0013 | .0332 | .0117 | -.0127 | .0295 | -.0231 | 2604. | |
| .3320 | 124. | 409. | 290. | -1791. | 4362. | -5081. | .0041 | .0356 | .0228 | -.0103 | .0275 | -.0220 | 2782. | |
| .3330 | 556. | 441. | 230. | -1811. | 4795. | -5028. | .0071 | .0361 | .0320 | -.0079 | .0257 | -.0206 | 2881. | |
| .3340 | 1125. | 461. | 124. | -1767. | 5073. | -4817. | .0100 | .0348 | .0392 | -.0055 | .0239 | -.0188 | 2896. | |
| .3350 | 1676. | 472. | 7. | -1660. | 5176. | -4454. | .0128 | .0317 | .0441 | -.0030 | .0221 | -.0168 | 2820. | |
| .3360 | 2111. | 474. | -97. | -1492. | 5096. | -3950. | .0152 | .0269 | .0467 | -.0005 | .0203 | -.0146 | 2656. | |
| .3370 | 2443. | 459. | -190. | -1266. | 4842. | -3313. | .0169 | .0206 | .0470 | .0020 | .0183 | -.0123 | 2409. | |
| .3380 | 2692. | 424. | -278. | -987. | 4430. | -2559. | .0179 | .0129 | .0452 | .0044 | .0161 | -.0102 | 2091. | |
| .3390 | 2792. | 370. | -342. | -666. | 3872. | -1716. | .0181 | .0043 | .0413 | .0065 | .0136 | -.0081 | 1720. | |
| .3400 | 2674. | 304. | -363. | -315. | 3184. | -820. | .0174 | -.0050 | .0356 | .0084 | .0109 | -.0062 | 1325. | |
| .3410 | 2342. | 229. | -340. | 50. | 2389. | 93. | .0160 | -.0146 | .0284 | .0099 | .0082 | -.0046 | 960. | |
| .3420 | 1888. | 145. | -295. | 417. | 1522. | 986. | .0140 | -.0242 | .0201 | .0111 | .0054 | -.0033 | 747. | |
| .3430 | 1407. | 54. | -248. | 773. | 621. | 1825. | .0116 | -.0333 | .0110 | .0120 | .0026 | -.0025 | 833. | |
| .3440 | 939. | -36. | -206. | 1101. | -283. | 2573. | .0090 | -.0417 | .0016 | .0125 | -.0001 | -.0020 | 1129. | |
| .3450 | 469. | -117. | -163. | 1388. | -1164. | 3195. | .0064 | -.0490 | -.0077 | .0128 | -.0025 | -.0019 | 1474. | |
| .3460 | 43. | -183. | -126. | 1623. | -1991. | 3666. | .0042 | -.0550 | -.0165 | .0127 | -.0045 | -.0021 | 1796. | |
| .3470 | -234. | -234. | -119. | 1798. | -2732. | 3977. | .0024 | -.0595 | -.0244 | .0122 | -.0062 | -.0025 | 2066. | |
| .3480 | -287. | -270. | -159. | 1910. | -3356. | 4127. | .0011 | -.0624 | -.0311 | .0114 | -.0075 | -.0031 | 2268. | |
| .3490 | -157. | -290. | -233. | 1960. | -3846. | 4117. | .0004 | -.0637 | -.0363 | .0103 | -.0085 | -.0039 | 2394. | |
| .3500 | 65. | -289. | -319. | 1948. | -4194. | 3958. | .0003 | -.0633 | -.0398 | .0091 | -.0090 | -.0047 | 2443. | |
| .3510 | 337. | -269. | -403. | 1880. | -4395. | 3670. | .0008 | -.0616 | -.0415 | .0079 | -.0093 | -.0056 | 2418. | |
| .3520 | 677. | -239. | -493. | 1764. | -4441. | 3286. | .0017 | -.0585 | -.0412 | .0068 | -.0095 | -.0064 | 2327. | |
| .3530 | 1092. | -206. | -589. | 1610. | -4325. | 2839. | .0027 | -.0543 | -.0390 | .0059 | -.0096 | -.0072 | 2174. | |
| .3540 | 1468. | -170. | -664. | 1429. | -4053. | 2357. | .0038 | -.0492 | -.0348 | .0052 | -.0098 | -.0079 | 1967. | |
| .3550 | 1649. | -128. | -677. | 1228. | -3645. | 1861. | .0049 | -.0435 | -.0286 | .0048 | -.0101 | -.0084 | 1715. | |
| .3560 | 1804. | -83. | -622. | 1015. | -3114. | 1372. | .0060 | -.0373 | -.0207 | .0047 | -.0106 | -.0087 | 1425. | |
| .3570 | 1443. | -41. | -527. | 798. | -2467. | 917. | .0069 | -.0309 | -.0111 | .0050 | -.0115 | -.0088 | 1104. | |
| .3580 | 1266. | -10. | -418. | 586. | -1709. | 512. | .0076 | -.0244 | -.0002 | .0057 | -.0129 | -.0087 | 754. | |
| .3590 | 1036. | 14. | -288. | 380. | -864. | 160. | .0082 | -.0180 | .0130 | .0068 | -.0147 | -.0085 | 384. | |
| .3600 | 669. | 39. | -116. | 179. | 39. | -148. | .0088 | -.0117 | .0269 | .0084 | -.0168 | -.0081 | 95. | |
| .3610 | 189. | 70. | 91. | -15. | 977. | -421. | .0098 | -.0057 | .0419 | .0103 | -.0192 | -.0075 | 427. | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|-------|-------|-------|-------|--------|-------|-------|--------|--------|-------|--------|--------|-------|
| .3510 | 337. | -269. | -403. | 1880. | -4395. | 3670. | .0008 | -.0616 | -.0415 | .0079 | -.0093 | -.0056 | 2418. |
| .3520 | 677. | -239. | -403. | 1764. | -4441. | 3286. | .0017 | -.0585 | -.0412 | .0068 | -.0095 | -.0064 | 2327. |
| .3530 | 1092. | -206. | -589. | 1610. | -4325. | 2839. | .0027 | -.0543 | -.0390 | .0059 | -.0096 | -.0072 | 2174. |
| .3540 | 1468. | -170. | -664. | 1429. | -4053. | 2357. | .0038 | -.0492 | -.0348 | .0052 | -.0098 | -.0079 | 1967. |
| .3550 | 1649. | -128. | -677. | 1220. | -3640. | 1861. | .0049 | -.0435 | -.0286 | .0048 | -.0101 | -.0084 | 1715. |
| .3560 | 1604. | -83. | -622. | 1015. | -3114. | 1372. | .0060 | -.0373 | -.0207 | .0047 | -.0106 | -.0087 | 1425. |
| .3570 | 1443. | -41. | -527. | 798. | -2467. | 917. | .0069 | -.0309 | -.0111 | .0050 | -.0115 | -.0088 | 1104. |
| .3580 | 1266. | -10. | -418. | 526. | -1709. | 512. | .0076 | -.0244 | .0002 | .0057 | -.0129 | -.0087 | 754. |
| .3590 | 1036. | 14. | -288. | 380. | -864. | 160. | .0082 | -.0180 | .0130 | .0068 | -.0147 | -.0085 | 384. |
| .3600 | 669. | 34. | -116. | 179. | 39. | -148. | .0088 | -.0117 | .0269 | .0084 | -.0168 | -.0081 | 95. |
| .3610 | 189. | 70. | 91. | -15. | 977. | -421. | .0098 | -.0057 | .0419 | .0103 | -.0192 | -.0075 | 427. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

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S/RV PIPING KEVAUNEE GKWOEF 2 RUP DISK
2 SAFETY COLD FRW24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | 46 | MEMBER | 1 | SEQUENCE | 265 | LOCATION | BEG | TYPE | EL | | | | | | |
|---------|--------|--------|-------|----------|---------|----------|--------|--------|-------|-------|--------|--------|--------|--|--|
| TIME | FX | FY | FZ | MX | MY | MZ | DX | DY | DZ | RX | RY | RZ | STRESS | | |
| (SEC) | (LB) | (LB) | (LB) | (FT-LB) | (FT-LB) | (FT-LB) | (IN) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) | | |
| .3620 | -252. | 101. | 290. | -202. | 1940. | -662. | .0110 | -.0000 | .0578 | .0124 | -.0219 | -.0067 | 827. | | |
| .3630 | -444. | 128. | 442. | -379. | 2923. | -872. | .0125 | .0053 | .0743 | .0148 | -.0250 | -.0059 | 1234. | | |
| .3640 | -474. | 155. | 552. | -546. | 3904. | -1065. | .0144 | .0102 | .0912 | .0173 | -.0283 | -.0051 | 1639. | | |
| .3650 | -441. | 191. | 648. | -705. | 4851. | -1255. | .0168 | .0147 | .1083 | .0199 | -.0318 | -.0043 | 2031. | | |
| .3660 | -375. | 237. | 736. | -857. | 5741. | -1448. | .0197 | .0186 | .1251 | .0226 | -.0353 | -.0035 | 2401. | | |
| .3670 | -159. | 283. | 784. | -997. | 6569. | -1634. | .0230 | .0220 | .1414 | .0254 | -.0389 | -.0029 | 2746. | | |
| .3680 | 298. | 319. | 767. | -1120. | 7334. | -1800. | .0264 | .0246 | .1571 | .0281 | -.0426 | -.0026 | 3063. | | |
| .3690 | 884. | 347. | 711. | -1220. | 8014. | -1942. | .0297 | .0265 | .1718 | .0309 | -.0463 | -.0026 | 3345. | | |
| .3700 | 1380. | 372. | 668. | -1294. | 8583. | -2059. | .0329 | .0276 | .1851 | .0336 | -.0501 | -.0028 | 3580. | | |
| .3710 | 1679. | 394. | 663. | -1337. | 9025. | -2142. | .0359 | .0277 | .1968 | .0362 | -.0538 | -.0033 | 3761. | | |
| .3720 | 1889. | 404. | 669. | -1343. | 9346. | -2169. | .0383 | .0268 | .2067 | .0388 | -.0575 | -.0041 | 3887. | | |
| .3730 | 2136. | 388. | 651. | -1307. | 9555. | -2116. | .0399 | .0249 | .2147 | .0412 | -.0613 | -.0053 | 3962. | | |
| .3740 | 2319. | 351. | 633. | -1229. | 9642. | -1979. | .0407 | .0220 | .2207 | .0437 | -.0651 | -.0067 | 3980. | | |
| .3750 | 2240. | 303. | 663. | -1111. | 9585. | -1765. | .0408 | .0181 | .2245 | .0460 | -.0687 | -.0082 | 3936. | | |
| .3760 | 1859. | 251. | 755. | -957. | 9385. | -1480. | .0404 | .0133 | .2261 | .0483 | -.0721 | -.0097 | 3832. | | |
| .3770 | 1385. | 187. | 855. | -766. | 9066. | -1117. | .0394 | .0077 | .2256 | .0503 | -.0752 | -.0111 | 3679. | | |
| .3780 | 1064. | 104. | 905. | -540. | 8660. | -670. | .0378 | .0015 | .2232 | .0521 | -.0782 | -.0124 | 3492. | | |
| .3790 | 879. | 4. | 907. | -285. | 8173. | -150. | .0356 | -.0052 | .2192 | .0537 | -.0810 | -.0136 | 3282. | | |
| .3800 | 602. | -93. | 921. | -15. | 7591. | 414. | .0331 | -.0121 | .2134 | .0551 | -.0834 | -.0144 | 3051. | | |
| .3810 | 62. | -173. | 992. | 256. | 6909. | 991. | .0308 | -.0190 | .2061 | .0562 | -.0853 | -.0147 | 2803. | | |
| .3820 | -522. | -242. | 1066. | 523. | 6162. | 1572. | .0285 | -.0256 | .1976 | .0569 | -.0867 | -.0144 | 2561. | | |
| .3830 | -806. | -315. | 1061. | 783. | 5396. | 2157. | .0262 | -.0318 | .1883 | .0571 | -.0878 | -.0138 | 2353. | | |
| .3840 | -823. | -389. | 986. | 1028. | 4620. | 2723. | .0237 | -.0372 | .1783 | .0570 | -.0887 | -.0128 | 2191. | | |
| .3850 | -869. | -444. | 916. | 1248. | 3815. | 3232. | .0216 | -.0416 | .1677 | .0564 | -.0892 | -.0112 | 2068. | | |
| .3860 | -1079. | -471. | 887. | 1432. | 2981. | 3657. | .0198 | -.0448 | .1566 | .0553 | -.0892 | -.0091 | 1979. | | |
| .3870 | -1241. | -483. | 848. | 1576. | 2151. | 3997. | .0181 | -.0467 | .1454 | .0538 | -.0889 | -.0066 | 1928. | | |
| .3880 | -1115. | -498. | 740. | 1677. | 1361. | 4259. | .0164 | -.0471 | .1344 | .0518 | -.0887 | -.0040 | 1916. | | |
| .3890 | -813. | -511. | 590. | 1732. | 617. | 4431. | .0145 | -.0459 | .1237 | .0493 | -.0884 | -.0012 | 1925. | | |
| .3900 | -657. | -507. | 482. | 1735. | -102. | 4487. | .0126 | -.0431 | .1134 | .0463 | -.0880 | .0018 | 1931. | | |
| .3910 | -792. | -480. | 453. | 1685. | -793. | 4412. | .0107 | -.0386 | .1034 | .0428 | -.0875 | .0050 | 1922. | | |
| .3920 | -1013. | -444. | 453. | 1585. | -1426. | 4216. | .0087 | -.0324 | .0942 | .0388 | -.0870 | .0083 | 1896. | | |
| .3930 | -1072. | -415. | 420. | 1441. | -1966. | 3918. | .0063 | -.0246 | .0860 | .0346 | -.0868 | .0113 | 1852. | | |
| .3940 | -1037. | -390. | 371. | 1253. | -2416. | 3519. | .0037 | -.0153 | .0789 | .0301 | -.0868 | .0141 | 1785. | | |
| .3950 | -1181. | -353. | 374. | 1018. | -2800. | 3009. | .0010 | -.0047 | .0727 | .0256 | -.0868 | .0168 | 1699. | | |
| .3960 | -1594. | -297. | 455. | 738. | -3123. | 2389. | -.0014 | .0071 | .0677 | .0211 | -.0868 | .0195 | 1605. | | |
| .3970 | -2026. | -233. | 549. | 423. | -3356. | 1685. | -.0036 | .0200 | .0640 | .0165 | -.0868 | .0221 | 1517. | | |
| .3980 | -2194. | -174. | 580. | 84. | -3473. | 927. | -.0057 | .0335 | .0617 | .0119 | -.0870 | .0245 | 1443. | | |
| .3990 | -2141. | -116. | 583. | -271. | -3479. | 125. | -.0076 | .0476 | .0609 | .0075 | -.0873 | .0268 | 1401. | | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.28.56.

S/RV PIPING KEVAUNEE GKWOEF 2 RUP DISK
2 SAFETY COLD FRW24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|--------|-------|------|-------|--------|-------|--------|--------|-------|-------|--------|--------|-------|
| .3890 | -813. | -511. | 590. | 1732. | 617. | 4431. | .0145 | -.0459 | .1237 | .0493 | -.0884 | -.0012 | 1918. |
| .3900 | -657. | -507. | 482. | 1735. | -102. | 4487. | .0126 | -.0431 | .1134 | .0463 | -.0880 | .0018 | 1931. |
| .3910 | -792. | -480. | 453. | 1685. | -793. | -412. | .0107 | -.0386 | .1034 | .0428 | -.0875 | .0050 | 1922. |
| .3920 | -1013. | -444. | 453. | 1585. | -1426. | 4216. | .0067 | -.0324 | .0942 | .0388 | -.0870 | .0083 | 1896. |
| .3930 | -1072. | -415. | 420. | 1441. | -1966. | 3918. | .0063 | -.0246 | .0860 | .0346 | -.0868 | .0113 | 1852. |
| .3940 | -1037. | -390. | 371. | 1253. | -2416. | 3519. | .0037 | -.0153 | .0789 | .0301 | -.0868 | .0141 | 1785. |
| .3950 | -1161. | -353. | 374. | 1018. | -2800. | 3009. | .0010 | -.0047 | .0727 | .0256 | -.0868 | .0168 | 1699. |
| .3960 | -1594. | -297. | 455. | 738. | -3123. | 2389. | -.0014 | .0071 | .0677 | .0211 | -.0868 | .0195 | 1605. |
| .3970 | -2026. | -233. | 549. | 423. | -3356. | 1685. | -.0036 | .0200 | .0640 | .0165 | -.0868 | .0221 | 1517. |
| .3980 | -2194. | -174. | 580. | 84. | -3473. | 927. | -.0057 | .0335 | .0617 | .0119 | -.0870 | .0245 | 1443. |
| .3990 | -2141. | -116. | 583. | -271. | -3479. | 125. | -.0076 | .0476 | .0609 | .0075 | -.0873 | .0268 | 1401. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | 46 | MEMBER | 1 | SEQUENCE | 265 | LOCATION | BEG | TYPE | EL | | | | | |
|---------|--------|--------|------|----------|---------|----------|-----|--------|-------|-------|-------|--------|-------|--------|
| TIME | FX | FY | FZ | MX | MY | MZ | | DX | DY | DZ | RX | RY | RZ | STRESS |
| (SEC) | (LB) | (LB) | (LB) | (FT-LB) | (FT-LB) | (FT-LB) | | (IN) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) |
| .4000 | -2128. | -43. | 598. | -639. | -3406. | -719. | | -.0088 | .0618 | .0613 | .0035 | -.0874 | .0290 | 1420. |

MAXIMUM VALUE OF STRESS OCCURS AT

| TIME | FX | FY | FZ | MX | MY | MZ | | DX | DY | DZ | RX | RY | RZ | STRESS |
|-------|--------|-------|-------|---------|---------|---------|--|--------|--------|--------|--------|-------|-------|--------|
| (SEC) | (LB) | (LB) | (LB) | (FT-LB) | (FT-LB) | (FT-LB) | | (IN) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) |
| .2700 | -3802. | -143. | 1663. | -1432. | 9431. | -3062. | | -.0032 | -.0328 | -.1359 | -.0241 | .0158 | .0223 | 4020. |

| SECTION | 46 | MEMBER | 1 | SEQUENCE | 822 | LOCATION | END | TYPE | EL | | | | | |
|---------|------|--------|------|----------|---------|----------|-----|--------|--------|--------|--------|--------|--------|--------|
| TIME | FX | FY | FZ | MX | MY | MZ | | DX | DY | DZ | RX | RY | RZ | STRESS |
| (SEC) | (LB) | (LB) | (LB) | (FT-LB) | (FT-LB) | (FT-LB) | | (IN) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) |
| 0.0000 | 0. | 0. | 0. | 0. | 0. | 0. | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0. |
| .0010 | -0. | 0. | 0. | -0. | -0. | -0. | | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0020 | -1. | 0. | 0. | -0. | -0. | -0. | | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0030 | -1. | 0. | 0. | -0. | -0. | -0. | | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0040 | -1. | 0. | 0. | -0. | -0. | -0. | | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0050 | 1. | 0. | -0. | -0. | 0. | -1. | | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0060 | 4. | 1. | -1. | -0. | 1. | -1. | | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0070 | 9. | 1. | -2. | -0. | 1. | -1. | | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 1. |
| .0080 | 17. | 0. | -4. | 0. | 2. | -1. | | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 1. |
| .0090 | 24. | -0. | -6. | 1. | 3. | 0. | | -.0000 | .0000 | -.0000 | -.0000 | .0000 | .0000 | 1. |
| .0100 | 20. | -0. | -5. | 0. | 2. | 2. | | -.0000 | .0000 | -.0000 | -.0000 | .0000 | .0000 | 1. |
| .0110 | 6. | -0. | -2. | -1. | 0. | 3. | | -.0000 | .0000 | -.0000 | .0000 | -.0000 | -.0000 | 1. |
| .0120 | -8. | 0. | 1. | -3. | -1. | 5. | | .0000 | .0000 | .0000 | .0001 | -.0000 | -.0000 | 2. |
| .0130 | -10. | -0. | 2. | -5. | -2. | 8. | | .0000 | .0000 | .0000 | .0002 | -.0000 | -.0001 | 4. |
| .0140 | -4. | -1. | 0. | -8. | -2. | 11. | | .0000 | .0000 | .0000 | .0003 | .0000 | -.0001 | 5. |
| .0150 | 1. | -1. | -1. | -12. | -2. | 13. | | .0000 | .0000 | .0001 | .0005 | .0000 | -.0001 | 7. |
| .0160 | -3. | -0. | -0. | -16. | -4. | 15. | | .0000 | .0000 | .0001 | .0006 | .0000 | -.0002 | 9. |
| .0170 | -7. | 1. | 1. | -20. | -7. | 15. | | .0000 | .0000 | .0001 | .0007 | -.0000 | -.0002 | 10. |
| .0180 | -2. | 2. | -0. | -24. | -10. | 16. | | -.0000 | -.0000 | .0001 | .0008 | -.0000 | -.0003 | 12. |
| .0190 | 18. | 2. | -5. | -28. | -13. | 17. | | -.0000 | -.0000 | .0001 | .0009 | .0000 | -.0003 | 14. |
| .0200 | 44. | 1. | -11. | -32. | -16. | 18. | | -.0001 | -.0000 | .0002 | .0010 | .0000 | -.0004 | 16. |
| .0210 | 55. | 2. | -12. | -37. | -19. | 19. | | -.0001 | -.0001 | .0002 | .0012 | .0000 | -.0004 | 18. |
| .0220 | 43. | 3. | -9. | -45. | -21. | 20. | | -.0001 | -.0001 | .0002 | .0015 | .0000 | -.0005 | 22. |
| .0230 | 35. | 3. | -6. | -54. | -21. | 22. | | -.0001 | -.0001 | .0002 | .0017 | .0000 | -.0006 | 25. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.28.56.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|------|-----|------|------|------|-----|--------|--------|-------|-------|--------|--------|-----|
| .0130 | -10. | -0. | 2. | -5. | -2. | 8. | .0000 | .0000 | .0000 | .0002 | -.0000 | -.0001 | 4. |
| .0140 | -4. | -1. | 0. | -8. | -2. | 11. | .0000 | .0000 | .0000 | .0003 | .0000 | -.0001 | 5. |
| .0150 | 1. | -1. | -1. | -12. | -2. | 13. | .0000 | .0000 | .0001 | .0005 | .0000 | -.0001 | 7. |
| .0160 | -3. | -0. | -0. | -16. | -4. | 15. | .0000 | .0000 | .0001 | .0006 | .0000 | -.0002 | 9. |
| .0170 | -7. | 1. | 1. | -20. | -7. | 15. | .0000 | .0000 | .0001 | .0007 | -.0000 | -.0002 | 10. |
| .0180 | -2. | 2. | -0. | -24. | -10. | 16. | -.0000 | -.0000 | .0001 | .0008 | -.0000 | -.0003 | 12. |
| .0190 | 18. | 2. | -5. | -28. | -13. | 17. | -.0000 | -.0000 | .0001 | .0009 | .0000 | -.0003 | 14. |
| .0200 | 44. | 1. | -11. | -32. | -16. | 18. | -.0001 | -.0000 | .0002 | .0010 | .0000 | -.0004 | 16. |
| .0210 | 55. | 2. | -12. | -37. | -19. | 19. | -.0001 | -.0001 | .0002 | .0012 | .0000 | -.0004 | 18. |
| .0220 | 47. | 3. | -9. | -45. | -21. | 20. | -.0001 | -.0001 | .0002 | .0015 | .0000 | -.0005 | 22. |
| .0230 | 35. | 3. | -6. | -54. | -21. | 22. | -.0001 | -.0001 | .0002 | .0017 | .0000 | -.0006 | 25. |

ADLPIPE PAGE 1810 DIS/ADLPIPE ADLPIPE STRESS ANALYSIS 83/12/02. 18.28.56.

S/RV PIPING KEWAUNEE GKW0RF 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | 46 | MEMBER | 1 | SEQUENCE | 822 | LOCATION | END | TYPE | EL | FX | RY | RZ | STRESS |
|---------|-------|--------|-------|----------|---------|----------|--------|--------|--------|--------|--------|--------|--------|
| TIME | FX | FY | FZ | MX | MY | MZ | DX | DY | DZ | (DEG) | (DEG) | (DEG) | (PSI) |
| (SEC) | (LB) | (LB) | (LB) | (FT-LB) | (FT-LB) | (FT-LB) | (IN) | (IN) | (IN) | | | | |
| .0240 | 35. | 3. | -7. | -57. | -18. | 20. | -.0001 | -.0001 | .0002 | .0019 | .0000 | -.0006 | 25. |
| .0250 | 32. | 2. | -5. | -53. | -14. | 13. | -.0000 | -.0001 | .0002 | .0019 | .0000 | -.0005 | 23. |
| .0260 | 22. | 0. | -2. | -49. | -12. | 6. | .0000 | -.0001 | .0003 | .0017 | .0000 | -.0004 | 20. |
| .0270 | -1. | -2. | 4. | -51. | -12. | 5. | .0001 | -.0001 | .0003 | .0016 | .0000 | -.0003 | 21. |
| .0280 | -40. | -2. | 12. | -53. | -12. | 5. | .0001 | -.0001 | .0003 | .0015 | -.0000 | -.0002 | 22. |
| .0290 | -83. | -3. | 23. | -43. | -7. | 1. | .0002 | -.0000 | .0002 | .0012 | -.0000 | -.0001 | 18. |
| .0300 | -120. | -4. | 36. | -33. | 7. | -0. | .0002 | -.0000 | .0002 | .0010 | -.0000 | -.0000 | 13. |
| .0310 | -168. | -4. | 47. | -28. | 26. | -1. | .0003 | .0000 | .0001 | .0009 | .0000 | .0000 | 15. |
| .0320 | -172. | -7. | 46. | -18. | 53. | -8. | .0005 | .0001 | -.0001 | .0006 | -.0000 | .0002 | 23. |
| .0330 | -131. | -12. | 37. | -2. | 82. | -21. | .0005 | .0001 | -.0002 | .0001 | -.0001 | .0005 | 34. |
| .0340 | -162. | -13. | 47. | 14. | 105. | -38. | .0004 | .0001 | -.0004 | -.0006 | -.0002 | .0008 | 45. |
| .0350 | -298. | -7. | 80. | 33. | 122. | -55. | .0003 | .0002 | -.0005 | -.0015 | -.0005 | .0010 | 55. |
| .0360 | -370. | -6. | 94. | 57. | 146. | -64. | .0003 | .0003 | -.0007 | -.0025 | -.0006 | .0012 | 68. |
| .0370 | -246. | -15. | 61. | 79. | 183. | -55. | .0005 | .0003 | -.0010 | -.0032 | -.0005 | .0015 | 83. |
| .0380 | -89. | -25. | 23. | 90. | 216. | -38. | .0006 | .0004 | -.0012 | -.0036 | -.0005 | .0017 | 95. |
| .0390 | -137. | -20. | 37. | 102. | 227. | -36. | .0004 | .0005 | -.0013 | -.0039 | -.0006 | .0017 | 101. |
| .0400 | -324. | -5. | 87. | 128. | 224. | -48. | .0001 | .0006 | -.0013 | -.0045 | -.0008 | .0015 | 105. |
| .0410 | -378. | 1. | 102. | 156. | 229. | -47. | -.0000 | .0006 | -.0014 | -.0051 | -.0008 | .0015 | 113. |
| .0420 | -205. | -8. | 56. | 181. | 243. | -25. | .0001 | .0007 | -.0016 | -.0058 | -.0007 | .0017 | 122. |
| .0430 | 1. | -19. | -2. | 201. | 244. | 1. | .0002 | .0007 | -.0017 | -.0066 | -.0006 | .0018 | 127. |
| .0440 | 79. | -19. | -26. | 213. | 214. | 19. | .0001 | .0007 | -.0017 | -.0072 | -.0006 | .0018 | 122. |
| .0450 | -12. | -9. | 2. | 215. | 158. | 35. | -.0003 | .0007 | -.0014 | -.0074 | -.0007 | .0014 | 108. |
| .0460 | -178. | 8. | 48. | 215. | 101. | 52. | -.0007 | .0006 | -.0012 | -.0072 | -.0007 | .0009 | 98. |
| .0470 | -149. | 17. | 38. | 226. | 67. | 76. | -.0006 | .0005 | -.0011 | -.0068 | -.0004 | .0003 | 100. |
| .0480 | 216. | 7. | -56. | 238. | 56. | 110. | -.0004 | .0003 | -.0011 | -.0064 | .0001 | .0000 | 108. |
| .0490 | 565. | -4. | -139. | 229. | 25. | 141. | -.0003 | -.0000 | -.0009 | -.0059 | .0004 | -.0003 | 108. |
| .0500 | 436. | 11. | -102. | 194. | -57. | 145. | -.0007 | -.0004 | -.0005 | -.0052 | .0003 | -.0010 | 100. |
| .0510 | 19. | 43. | -2. | 149. | -157. | 130. | -.0012 | -.0009 | .0000 | -.0045 | -.0000 | -.0019 | 101. |
| .0520 | 10. | 52. | -5. | 109. | -206. | 132. | -.0013 | -.0015 | .0003 | -.0035 | .0000 | -.0025 | 108. |
| .0530 | 525. | 30. | -130. | 75. | -197. | 154. | -.0008 | -.0021 | .0003 | -.0021 | .0006 | -.0029 | 105. |
| .0540 | 861. | 19. | -206. | 33. | -191. | 150. | -.0005 | -.0028 | .0004 | -.0005 | .0010 | -.0034 | 98. |
| .0550 | 587. | 44. | -139. | -24. | -232. | 93. | -.0007 | -.0036 | .0008 | .0012 | .0009 | -.0042 | 101. |
| .0560 | 180. | 76. | -35. | -88. | -282. | 13. | -.0010 | -.0044 | .0013 | .0026 | .0005 | -.0050 | 119. |
| .0570 | 183. | 77. | -29. | -148. | -288. | -49. | -.0010 | -.0053 | .0015 | .0038 | .0004 | -.0053 | 132. |
| .0580 | 429. | 59. | -92. | -205. | -254. | -96. | -.0005 | -.0061 | .0016 | .0048 | .0005 | -.0052 | 136. |
| .0590 | 503. | 51. | -122. | -265. | -215. | -152. | .0001 | -.0068 | .0016 | .0058 | .0005 | -.0051 | 150. |
| .0600 | 359. | 54. | -90. | -329. | -185. | -226. | .0004 | -.0075 | .0018 | .0071 | .0003 | -.0051 | 176. |
| .0610 | 129. | 61. | -21. | -391. | -155. | -314. | .0004 | -.0082 | .0020 | .0085 | -.0001 | -.0052 | 211. |

ADLPIPE PAGE 1811 DIS/ADLPIPE ADLPIPE STRESS ANALYSIS 83/12/02. 18.28.56.

S/RV PIPING KEWAUNEE GKW0RF 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|------|-----|-------|-------|-------|-------|--------|--------|-------|--------|--------|--------|------|
| .0520 | 10. | 52. | -5. | 109. | -206. | 132. | -.0013 | -.0015 | .0003 | -.0035 | .0000 | -.0025 | 101. |
| .0530 | 525. | 30. | -130. | 75. | -197. | 154. | -.0008 | -.0021 | .0003 | -.0021 | .0006 | -.0029 | 105. |
| .0540 | 861. | 19. | -201. | 77. | -191. | 150. | -.0005 | -.0028 | .0004 | -.0005 | .0010 | -.0034 | 98. |
| .0550 | 587. | 44. | -125. | -24. | -232. | 93. | -.0007 | -.0036 | .0002 | .0012 | .0009 | -.0042 | 101. |
| .0560 | 180. | 76. | -35. | -88. | -281. | 13. | -.0010 | -.0044 | .0013 | .0026 | .0005 | -.0050 | 119. |
| .0570 | 183. | 77. | -29. | -148. | -208. | -49. | -.0009 | -.0053 | .0015 | .0038 | .0004 | -.0053 | 132. |
| .0580 | 429. | 59. | -92. | -205. | -254. | -96. | -.0005 | -.0061 | .0016 | .0048 | .0005 | -.0052 | 136. |
| .0590 | 503. | 51. | -122. | -265. | -215. | -152. | .0001 | -.0068 | .0016 | .0058 | .0005 | -.0051 | 150. |
| .0600 | 359. | 54. | -90. | -319. | -185. | -226. | .0004 | -.0075 | .0018 | .0071 | .0003 | -.0051 | 176. |
| .0610 | 125. | 61. | -21. | -391. | -155. | -314. | .0004 | -.0082 | .0020 | .0085 | -.0001 | -.0052 | 211. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | MEMBER | SEQUENCE | LOCATION | END | TYPE | EL | TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | PX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | STRESS (PSI) |
|---------|--------|----------|----------|-----|------|----|------------|---------|---------|---------|------------|------------|------------|---------|---------|---------|----------|----------|----------|--------------|
| 46 | 1 | 022 | | | | | .0620 | -132. | 69. | 51. | -474. | -110. | -410. | .0006 | -.0087 | .0022 | .0098 | -.0005 | -.0052 | 246. |
| | | | | | | | .0630 | -270. | 69. | 79. | -477. | -40. | -499. | .0010 | -.0090 | .0023 | .0107 | -.0007 | -.0048 | 278. |
| | | | | | | | .0640 | -184. | 49. | 49. | -489. | 52. | -568. | .0016 | -.0090 | .0022 | .0109 | -.0009 | -.0040 | 302. |
| | | | | | | | .0650 | -105. | 26. | 36. | -488. | 129. | -623. | .0020 | -.0089 | .0022 | .0104 | -.0011 | -.0028 | 322. |
| | | | | | | | .0660 | -431. | 23. | 111. | -486. | 165. | -676. | .0022 | -.0084 | .0024 | .0095 | -.0018 | -.0019 | 341. |
| | | | | | | | .0670 | -856. | 27. | 203. | -478. | 188. | -709. | .0023 | -.0077 | .0026 | .0086 | -.0024 | -.0009 | 351. |
| | | | | | | | .0680 | -860. | 9. | 200. | -448. | 242. | -697. | .0026 | -.0067 | .0026 | .0078 | -.0027 | .0001 | 346. |
| | | | | | | | .0690 | -590. | -23. | 138. | -392. | 314. | -649. | .0029 | -.0054 | .0024 | .0071 | -.0027 | .0013 | 329. |
| | | | | | | | .0700 | -612. | -33. | 144. | -316. | 356. | -596. | .0030 | -.0038 | .0025 | .0062 | -.0028 | .0021 | 306. |
| | | | | | | | .0710 | -930. | -23. | 216. | -227. | 353. | -534. | .0027 | -.0020 | .0026 | .0048 | -.0031 | .0028 | 272. |
| | | | | | | | .0720 | -1025. | -29. | 237. | -129. | 337. | -429. | .0024 | -.0000 | .0027 | .0028 | -.0034 | .0037 | 225. |
| | | | | | | | .0730 | -754. | -56. | 166. | -27. | 316. | -276. | .0023 | .0022 | .0026 | .0005 | -.0033 | .0048 | 169. |
| | | | | | | | .0740 | -485. | -79. | 88. | 78. | 272. | -103. | .0021 | .0044 | .0026 | -.0019 | -.0033 | .0058 | 121. |
| | | | | | | | .0750 | -426. | -82. | 65. | 190. | 196. | 69. | .0015 | .0067 | .0026 | -.0042 | -.0032 | .0064 | 113. |
| | | | | | | | .0760 | -402. | -76. | 62. | 310. | 110. | 243. | .0008 | .0090 | .0027 | -.0060 | -.0031 | .0065 | 164. |
| | | | | | | | .0770 | -246. | -71. | 32. | 430. | 31. | 425. | .0000 | .0111 | .0027 | -.0075 | -.0028 | .0064 | 243. |
| | | | | | | | .0780 | 27. | -70. | -33. | 541. | -40. | 609. | -.0006 | .0130 | .0026 | -.0086 | -.0023 | .0063 | 327. |
| | | | | | | | .0790 | 343. | -71. | -112. | 629. | -111. | 790. | -.0011 | .0147 | .0024 | -.0097 | -.0018 | .0061 | 408. |
| | | | | | | | .0800 | 590. | -73. | -171. | 685. | -191. | 956. | -.0018 | .0160 | .0022 | -.0107 | -.0015 | .0058 | 478. |
| | | | | | | | .0810 | 660. | -65. | -186. | 711. | -276. | 1090. | -.0025 | .0169 | .0021 | -.0113 | -.0013 | .0053 | 534. |
| | | | | | | | .0820 | 639. | -52. | -180. | 715. | -340. | 1187. | -.0031 | .0173 | .0019 | -.0113 | -.0011 | .0046 | 573. |
| | | | | | | | .0830 | 753. | -46. | -204. | 702. | -352. | 1252. | -.0033 | .0172 | .0015 | -.0106 | -.0007 | .0039 | 593. |
| | | | | | | | .0840 | 986. | -47. | -251. | 670. | -316. | 1278. | -.0032 | .0167 | .0009 | -.0092 | -.0001 | .0031 | 593. |
| | | | | | | | .0850 | 1038. | -41. | -250. | 615. | -262. | 1244. | -.0031 | .0156 | .0003 | -.0075 | .0003 | .0023 | 567. |
| | | | | | | | .0860 | 777. | -22. | -176. | 571. | -205. | 1146. | -.0030 | .0140 | -.0002 | -.0058 | .0005 | .0014 | 513. |
| | | | | | | | .0870 | 460. | -8. | -91. | 417. | -126. | 1004. | -.0027 | .0119 | -.0008 | -.0041 | .0004 | .0007 | 439. |
| | | | | | | | .0880 | 336. | -11. | -57. | 282. | -2. | 834. | -.0021 | .0094 | -.0015 | -.0025 | .0005 | .0005 | 353. |
| | | | | | | | .0890 | 287. | -21. | -43. | 135. | 160. | 626. | -.0012 | .0066 | -.0024 | -.0007 | .0005 | .0004 | 265. |
| | | | | | | | .0900 | 50. | -19. | 18. | -21. | 337. | 369. | -.0004 | .0036 | -.0032 | .0013 | .0003 | .0002 | 201. |
| | | | | | | | .0910 | -370. | -3. | 128. | -182. | 522. | 69. | .0003 | .0004 | -.0039 | .0037 | -.0001 | -.0001 | 223. |
| | | | | | | | .0920 | -745. | 12. | 229. | -342. | 716. | -248. | .0009 | -.0029 | -.0045 | .0062 | -.0006 | -.0004 | 334. |
| | | | | | | | .0930 | -949. | 17. | 284. | -495. | 915. | -561. | .0017 | -.0060 | -.0051 | .0085 | -.0010 | -.0005 | 474. |
| | | | | | | | .0940 | -1074. | 17. | 312. | -640. | 1095. | -856. | .0024 | -.0089 | -.0056 | .0103 | -.0015 | -.0003 | 614. |
| | | | | | | | .0950 | -1265. | 21. | 351. | -769. | 1233. | -1128. | .0030 | -.0114 | -.0058 | .0116 | -.0022 | .0000 | 738. |
| | | | | | | | .0960 | -1527. | 28. | 406. | -873. | 1321. | -1368. | .0034 | -.0134 | -.0057 | .0123 | -.0030 | .0003 | 840. |
| | | | | | | | .0970 | -1747. | 35. | 449. | -941. | 1368. | -1561. | .0037 | -.0149 | -.0054 | .0127 | -.0037 | .0007 | 914. |
| | | | | | | | .0980 | -1826. | 37. | 456. | -965. | 1377. | -1691. | .0040 | -.0157 | -.0048 | .0128 | -.0042 | .0010 | 957. |
| | | | | | | | .0990 | -1772. | 33. | 432. | -944. | 1341. | -1649. | .0042 | -.0158 | -.0039 | .0126 | -.0045 | .0014 | 962. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.28.56.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|--------|------|------|-------|-------|--------|--------|--------|--------|--------|--------|--------|------|
| .0880 | 132. | -11. | -42. | 135. | 160. | 676. | -0.012 | .0066 | -.0024 | -.0007 | .0005 | .0005 | 353. |
| .0890 | 287. | -21. | -42. | 135. | 160. | 676. | -0.012 | .0066 | -.0024 | -.0007 | .0005 | .0004 | 265. |
| .0900 | 50. | -19. | 10. | -21. | 337. | 369. | -.0004 | .0036 | -.0032 | .0013 | .0003 | .0002 | 201. |
| .0910 | -370. | -3. | 120. | -162. | 522. | 89. | .0003 | .0004 | -.0039 | .0037 | -.0001 | -.0001 | 223. |
| .0920 | -745. | 12. | 229. | -342. | 716. | -248. | .0009 | -.0029 | -.0045 | .0062 | -.0006 | -.0004 | 334. |
| .0930 | -949. | 17. | 224. | -495. | 915. | -561. | .0017 | -.0060 | -.0051 | .0005 | -.0010 | -.0005 | 474. |
| .0940 | -1074. | 17. | 312. | -640. | 1095. | -256. | .0024 | -.0089 | -.0056 | .0103 | -.0015 | -.0003 | 614. |
| .0950 | -1265. | 21. | 351. | -769. | 1233. | -1128. | .0030 | -.0114 | -.0058 | .0116 | -.0022 | .0000 | 738. |
| .0960 | -1527. | 28. | 406. | -872. | 1321. | -1368. | .0034 | -.0134 | -.0057 | .0123 | -.0030 | .0003 | 840. |
| .0970 | -1747. | 35. | 449. | -941. | 1368. | -1561. | .0037 | -.0149 | -.0054 | .0127 | -.0037 | .0007 | 914. |
| .0980 | -1826. | 37. | 456. | -965. | 1377. | -1621. | .0040 | -.0157 | -.0048 | .0128 | -.0042 | .0010 | 957. |
| .0990 | -1772. | 33. | 432. | -944. | 1341. | -1749. | .0042 | -.0158 | -.0039 | .0126 | -.0045 | .0014 | 962. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

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S/RV PIPING KEMAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | MEMBER | SEQUENCE | LOCATION | END | TYPE | EL | | | | | | | | |
|---------|--------|----------|----------|---------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--|
| TIME | FX | FY | FZ | MX | MY | MZ | DX | DY | DZ | RX | RY | RZ | STRESS | |
| (SEC) | (LB) | (LB) | (LB) | (FT-LB) | (FT-LB) | (FT-LB) | (IN) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) | |
| .1000 | -1700. | 26. | 406. | -880. | 1240. | -1729. | .0044 | -.0152 | -.0027 | .0118 | -.0047 | .0017 | 924. | |
| .1010 | -1707. | 21. | 399. | -775. | 1062. | -1631. | .0043 | -.0138 | -.0011 | .0104 | -.0048 | .0020 | 841. | |
| .1020 | -1744. | 15. | 395. | -633. | 816. | -1448. | .0042 | -.0118 | .0006 | .0081 | -.0047 | .0023 | 714. | |
| .1030 | -1643. | -1. | 353. | -456. | 526. | -1180. | .0042 | -.0091 | .0024 | .0053 | -.0042 | .0027 | 550. | |
| .1040 | -1321. | -30. | 261. | -246. | 209. | -837. | .0042 | -.0060 | .0041 | .0022 | -.0034 | .0031 | 360. | |
| .1050 | -1012. | -54. | 178. | -14. | -139. | -451. | .0040 | -.0026 | .0058 | -.0010 | -.0023 | .0032 | 189. | |
| .1060 | -932. | -58. | 153. | 228. | -514. | -51. | .0035 | .0009 | .0073 | -.0042 | -.0012 | .0029 | 226. | |
| .1070 | -912. | -52. | 144. | 472. | -887. | 354. | .0028 | .0043 | .0086 | -.0073 | -.0000 | .0022 | 427. | |
| .1080 | -522. | -62. | 52. | 714. | -1214. | 770. | .0022 | .0075 | .0093 | -.0106 | .0016 | .0016 | 644. | |
| .1090 | 237. | -87. | -120. | 939. | -1491. | 1178. | .0015 | .0102 | .0094 | -.0140 | .0035 | .0012 | 850. | |
| .1100 | 314. | -65. | -148. | 1107. | -1765. | 1518. | .0003 | .0125 | .0090 | -.0170 | .0048 | .0000 | 1035. | |
| .1110 | 228. | -26. | -134. | 1227. | -1987. | 1787. | -.0010 | .0139 | .0080 | -.0195 | .0061 | -.0014 | 1180. | |
| .1120 | 258. | -21. | -266. | 1318. | -2084. | 2001. | -.0023 | .0145 | .0061 | -.0215 | .0078 | -.0027 | 1274. | |
| .1130 | 1640. | -16. | -422. | 1364. | -2076. | 2118. | -.0035 | .0141 | .0035 | -.0228 | .0096 | -.0040 | 1310. | |
| .1140 | 1733. | 37. | -424. | 1349. | -2015. | 2095. | -.0051 | .0126 | .0005 | -.0233 | .0109 | -.0058 | 1286. | |
| .1150 | 1623. | 103. | -379. | 1282. | -1869. | 1956. | -.0066 | .0102 | -.0032 | -.0234 | .0118 | -.0077 | 1202. | |
| .1160 | 2111. | 129. | -459. | 1171. | -1597. | 1752. | -.0077 | .0069 | -.0074 | -.0233 | .0130 | -.0089 | 1061. | |
| .1170 | 2721. | 138. | -560. | 1005. | -1234. | 1472. | -.0086 | .0027 | -.0121 | -.0229 | .0141 | -.0097 | 870. | |
| .1180 | 2445. | 191. | -468. | 773. | -847. | 1078. | -.0094 | -.0021 | -.0168 | -.0217 | .0144 | -.0109 | 631. | |
| .1190 | 1905. | 252. | -319. | 510. | -399. | 591. | -.0098 | -.0075 | -.0216 | -.0200 | .0144 | -.0118 | 352. | |
| .1200 | 2098. | 261. | -323. | 250. | 159. | 66. | -.0096 | -.0133 | -.0265 | -.0180 | .0149 | -.0119 | 122. | |
| .1210 | 2381. | 254. | -339. | -14. | 762. | -505. | -.0091 | -.0191 | -.0311 | -.0156 | .0151 | -.0116 | 367. | |
| .1220 | 1674. | 295. | -136. | -289. | 1314. | -1145. | -.0086 | -.0249 | -.0350 | -.0134 | .0145 | -.0114 | 709. | |
| .1230 | 577. | 344. | 142. | -565. | 1830. | -1786. | -.0080 | -.0302 | -.0382 | -.0113 | .0132 | -.0109 | 1051. | |
| .1240 | 280. | 330. | 232. | -821. | 2368. | -2340. | -.0066 | -.0350 | -.0409 | -.0095 | .0123 | -.0094 | 1376. | |
| .1250 | 398. | 280. | 223. | -1061. | 2882. | -2807. | -.0048 | -.0389 | -.0430 | -.0075 | .0115 | -.0073 | 1670. | |
| .1260 | -191. | 268. | 363. | -1286. | 3281. | -3238. | -.0033 | -.0417 | -.0439 | -.0050 | .0099 | -.0056 | 1921. | |
| .1270 | -1222. | 285. | 601. | -1460. | 3566. | -3627. | -.0021 | -.0434 | -.0435 | -.0024 | .0078 | -.0042 | 2124. | |
| .1280 | -1615. | 268. | 697. | -1551. | 3794. | -3905. | -.0009 | -.0438 | -.0421 | -.0002 | .0058 | -.0023 | 2272. | |
| .1290 | -1498. | 221. | 671. | -1562. | 3937. | -4050. | .0003 | -.0427 | -.0397 | .0012 | .0040 | .0001 | 2352. | |
| .1300 | -1753. | 195. | 702. | -1514. | 3918. | -4078. | .0013 | -.0400 | -.0361 | .0016 | .0017 | .0025 | 2349. | |
| .1310 | -2204. | 178. | 755. | -1417. | 3729. | -3968. | .0020 | -.0359 | -.0313 | .0011 | -.0010 | .0049 | 2258. | |
| .1320 | -2060. | 126. | 670. | -1262. | 3424. | -3685. | .0027 | -.0302 | -.0255 | -.0000 | -.0035 | .0076 | 2081. | |
| .1330 | -1550. | 56. | 506. | -1050. | 3007. | -3252. | .0031 | -.0232 | -.0188 | -.0011 | -.0058 | .0102 | 1827. | |
| .1340 | -1472. | 22. | 432. | -784. | 2456. | -2730. | .0030 | -.0151 | -.0111 | -.0018 | -.0082 | .0121 | 1507. | |
| .1350 | -1591. | 12. | 399. | -451. | 1813. | -2127. | .0028 | -.0059 | -.0027 | -.0025 | -.0107 | .0134 | 1136. | |
| .1360 | -1137. | -31. | 236. | -56. | 1139. | -1413. | .0027 | .0040 | .0060 | -.0036 | -.0126 | .0149 | 729. | |
| .1370 | -374. | -97. | 6. | 368. | 422. | -610. | .0027 | .0144 | .0149 | -.0054 | -.0142 | .0167 | 332. | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

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S/RV PIPING KEMAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|--------|------|------|--------|-------|--------|-------|-------|-------|-------|-------|-------|-------|
| .1270 | -1222. | 205. | 601. | -1460. | 3566. | -3627. | -0021 | -0434 | -0435 | -0024 | .0078 | -0042 | 2124. |
| .1280 | -1615. | 268. | 697. | -1551. | 3794. | -3905. | -0009 | -0428 | -0421 | -0002 | .0058 | -0023 | 2272. |
| .1290 | -1498. | 221. | 671. | -1562. | 3937. | -4050. | .0003 | -0427 | -0397 | .0012 | .0040 | .0001 | 2352. |
| .1300 | -1757. | 195. | 702. | -1514. | 3518. | -4078. | .0013 | -0400 | -0361 | .0016 | .0017 | .0025 | 2349. |
| .1310 | -2204. | 178. | 750. | -1417. | 2705. | -3988. | .0020 | -0359 | -0313 | .0011 | -0010 | .0049 | 2258. |
| .1320 | -2060. | 126. | 670. | -1262. | 3424. | -3685. | .0027 | -0702 | -0155 | -0000 | -0035 | .0076 | 2081. |
| .1330 | -1550. | 56. | 506. | -1050. | 3007. | -3252. | .0031 | -0232 | -0188 | -0011 | -0058 | .0102 | 1827. |
| .1340 | -1472. | 22. | 432. | -784. | 2456. | -2720. | .0030 | -0151 | -0111 | -0018 | -0082 | .0121 | 1507. |
| .1350 | -1591. | 12. | 399. | -451. | 1813. | -2127. | .0028 | -0059 | -0027 | -0025 | -0107 | .0134 | 1136. |
| .1360 | -1137. | -31. | 230. | -56. | 1139. | -1413. | .0027 | .0040 | .0060 | -0036 | -0126 | .0149 | 729. |
| .1370 | -374. | -97. | 0. | 368. | 422. | -610. | .0027 | .0144 | .0149 | -0054 | -0142 | .0167 | 332. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

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S/RV PIPING KEMAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | 46 | MEMBER | 1 | SEQUENCE | 822 | LOCATION | END | TYPE | EL | | | | | | |
|---------|--------|--------|-------|----------|---------|----------|-------|-------|-------|-------|-------|-------|--------|--|--|
| TIME | FX | FY | FZ | RX | RY | RZ | DX | DY | DZ | RX | RY | RZ | STRESS | | |
| (SEC) | (LB) | (LB) | (LB) | (FT-LB) | (FT-LB) | (FT-LB) | (IN) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) | | |
| .1380 | -87. | -142. | -133. | 772. | -390. | 229. | .0026 | .0250 | .0240 | -0077 | -0161 | .0182 | 357. | | |
| .1390 | -108. | -175. | -209. | 1143. | -1224. | 1081. | .0023 | .0354 | .0330 | -0101 | -0181 | .0194 | 800. | | |
| .1400 | 249. | -232. | -356. | 1495. | -2017. | 1935. | .0023 | .0453 | .0415 | -0120 | -0196 | .0207 | 1272. | | |
| .1410 | 775. | -295. | -521. | 1828. | -2716. | 2742. | .0024 | .0542 | .0492 | -0129 | -0205 | .0215 | 1714. | | |
| .1420 | 801. | -318. | -565. | 2134. | -3327. | 3426. | .0026 | .0620 | .0560 | -0130 | -0213 | .0217 | 2099. | | |
| .1430 | 559. | -322. | -541. | 2394. | -3820. | 3975. | .0029 | .0684 | .0616 | -0125 | -0219 | .0215 | 2412. | | |
| .1440 | 682. | -351. | -587. | 2502. | -4156. | 4407. | .0035 | .0731 | .0658 | -0120 | -0222 | .0217 | 2643. | | |
| .1450 | 918. | -394. | -651. | 2668. | -4355. | 4701. | .0042 | .0759 | .0685 | -0116 | -0223 | .0221 | 2786. | | |
| .1460 | 615. | -408. | -593. | 2636. | -4444. | 4813. | .0046 | .0768 | .0698 | -0110 | -0229 | .0223 | 2834. | | |
| .1470 | -4. | -398. | -453. | 2517. | -4381. | 4733. | .0051 | .0756 | .0695 | -0099 | -0234 | .0222 | 2778. | | |
| .1480 | -254. | -401. | -375. | 2341. | -4100. | 4488. | .0058 | .0725 | .0674 | -0080 | -0234 | .0221 | 2614. | | |
| .1490 | -254. | -404. | -335. | 2117. | -3613. | 4073. | .0066 | .0676 | .0636 | -0053 | -0228 | .0219 | 2344. | | |
| .1500 | -598. | -375. | -209. | 1835. | -2995. | 3474. | .0072 | .0610 | .0584 | -0020 | -0222 | .0212 | 1982. | | |
| .1510 | -1219. | -324. | -14. | 1486. | -2287. | 2728. | .0076 | .0530 | .0521 | .0011 | -0219 | .0203 | 1548. | | |
| .1520 | -1624. | -288. | 140. | 1088. | -1495. | 1896. | .0078 | .0439 | .0446 | .0035 | -0214 | .0199 | 1063. | | |
| .1530 | -1827. | -266. | 246. | 659. | -644. | 1017. | .0080 | .0341 | .0363 | .0050 | -0208 | .0199 | 551. | | |
| .1540 | -2171. | -232. | 374. | 226. | 227. | 105. | .0081 | .0240 | .0275 | .0059 | -0202 | .0198 | 135. | | |
| .1550 | -2543. | -187. | 509. | -182. | 1102. | -806. | .0081 | .0138 | .0183 | .0066 | -0194 | .0194 | 553. | | |
| .1560 | -2627. | -149. | 590. | -545. | 1966. | -1664. | .0080 | .0040 | .0091 | .0074 | -0181 | .0189 | 1057. | | |
| .1570 | -2609. | -109. | 655. | -856. | 2763. | -2443. | .0075 | -0051 | .0003 | .0081 | -0166 | .0179 | 1519. | | |
| .1580 | -2812. | -50. | 764. | -1119. | 3428. | -3113. | .0088 | -0131 | -0079 | .0085 | -0150 | .0165 | 1912. | | |
| .1590 | -2975. | 4. | 849. | -1324. | 3947. | -3623. | .0058 | -0198 | -0152 | .0081 | -0134 | .0150 | 2215. | | |
| .1600 | -2756. | 30. | 835. | -1454. | 4322. | -3939. | .0050 | -0250 | -0216 | .0064 | -0114 | .0138 | 2418. | | |
| .1610 | -2294. | 41. | 753. | -1500. | 4537. | -4063. | .0040 | -0286 | -0269 | .0036 | -0092 | .0126 | 2517. | | |
| .1620 | -1957. | 63. | 688. | -1468. | 4569. | -4017. | .0028 | -0305 | -0308 | .0005 | -0071 | .0111 | 2512. | | |
| .1630 | -1716. | 97. | 642. | -1356. | 4420. | -3813. | .0013 | -0309 | -0334 | -0027 | -0050 | .0090 | 2408. | | |
| .1640 | -1278. | 124. | 553. | -1168. | 4153. | -3446. | -0003 | -0298 | -0347 | -0057 | -0026 | .0065 | 2216. | | |
| .1650 | -653. | 141. | 415. | -924. | 3753. | -2927. | -0019 | -0274 | -0348 | -0084 | -0002 | .0039 | 1946. | | |
| .1660 | -79. | 159. | 275. | -644. | 3235. | -2287. | -0034 | -0239 | -0338 | -0111 | .0021 | .0010 | 1611. | | |
| .1670 | 444. | 172. | 134. | -347. | 2621. | -1560. | -0048 | -0196 | -0318 | -0139 | .0042 | -0017 | 1232. | | |
| .1680 | 1053. | 172. | -32. | -44. | 1950. | -783. | -0061 | -0149 | -0290 | -0168 | .0061 | -0043 | 844. | | |
| .1690 | 1663. | 167. | -200. | 251. | 1259. | -7. | -0072 | -0100 | -0256 | -0194 | .0076 | -0067 | 515. | | |
| .1700 | 2067. | 169. | -321. | 527. | 577. | 717. | -0082 | -0053 | -0217 | -0213 | .0088 | -0091 | 425. | | |
| .1710 | 2296. | 177. | -399. | 772. | -51. | 1356. | -0089 | -0011 | -0175 | -0222 | .0096 | -0114 | 626. | | |
| .1720 | 2546. | 176. | -479. | 968. | -583. | 1899. | -0091 | .0023 | -0134 | -0221 | .0102 | -0135 | 887. | | |
| .1730 | 2784. | 165. | -534. | 1101. | -1005. | 2318. | -0089 | .0047 | -0096 | -0211 | .0106 | -0151 | 1106. | | |
| .1740 | 2797. | 155. | -678. | 1158. | -1328. | 2581. | -0082 | .0059 | -0060 | -0195 | .0104 | -0163 | 1253. | | |
| .1750 | 2542. | 148. | -538. | 1135. | -1529. | 2669. | -0073 | .0059 | -0028 | -0176 | .0097 | -0171 | 1316. | | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.28.56.

S/RV PIPING KEMAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|-------|------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| .1650 | -653. | 141. | 415. | -924. | 3752. | -2927. | -.0019 | -.0274 | -.0348 | -.0084 | -.0002 | .0039 | 1946. |
| .1660 | -79. | 159. | 275. | -644. | 3235. | -2287. | -.0034 | -.0239 | -.0338 | -.0111 | .0021 | .0010 | 1611. |
| .1670 | 444. | 172. | 134. | -347. | 2621. | -1560. | -.0048 | -.0196 | -.0318 | -.0139 | .0042 | -.0017 | 1232. |
| .1680 | 1057. | 172. | -37. | -44. | 1950. | -783. | -.0061 | -.0149 | -.0290 | -.0168 | .0061 | -.0043 | 844. |
| .1690 | 1663. | 167. | -200. | 251. | 1259. | -7. | -.0072 | -.0100 | -.0256 | -.0194 | .0076 | -.0067 | 515. |
| .1700 | 2067. | 169. | -321. | 527. | 577. | 717. | -.0082 | -.0053 | -.0217 | -.0213 | .0088 | -.0091 | 425. |
| .1710 | 2296. | 177. | -399. | 772. | -51. | 1356. | -.0089 | -.0011 | -.0175 | -.0222 | .0096 | -.0114 | 626. |
| .1720 | 2546. | 176. | -479. | 962. | -583. | 1899. | -.0091 | .0023 | -.0134 | -.0221 | .0102 | -.0135 | 887. |
| .1730 | 2784. | 165. | -554. | 1101. | -1005. | 2318. | -.0089 | .0047 | -.0096 | -.0211 | .0106 | -.0151 | 1106. |
| .1740 | 2797. | 155. | -578. | 1158. | -1322. | 2581. | -.0082 | .0059 | -.0060 | -.0195 | .0104 | -.0163 | 1253. |
| .1750 | 2542. | 148. | -538. | 1135. | -1529. | 2669. | -.0073 | .0059 | -.0028 | -.0176 | .0097 | -.0171 | 1316. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.28.56.

S/RV PIPING KEWAUNEE GKHOFF 2 RUP DISK
2 SAFETY COLD FKN24F--2 PSVCONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITSINTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | 46 | MEMBER | 1 | SEQUENCE | B22 | LOCATION | END | TYPE | EL | | | | | |
|---------|--------|--------|-------|----------|---------|----------|--------|--------|--------|--------|--------|--------|--------|--|
| TIME | FX | FY | FZ | MX | MY | MZ | DX | DY | DZ | RX | RY | RZ | STRESS | |
| (SEC) | (LB) | (LB) | (LB) | (FT-LB) | (FT-LB) | (FT-LB) | (IN) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) | |
| .1760 | 2189. | 137. | -472. | 1046. | -1605. | 2578. | -.0061 | .0047 | -.0000 | -.0153 | .0085 | -.0172 | 1289. | |
| .1770 | 1833. | 120. | -401. | 899. | -1542. | 2317. | -.0045 | .0021 | .0021 | -.0127 | .0071 | -.0167 | 1174. | |
| .1780 | 1373. | 105. | -303. | 699. | -1353. | 1899. | -.0026 | -.0015 | .0037 | -.0095 | .0054 | -.0159 | 977. | |
| .1790 | 774. | 96. | -169. | 448. | -1062. | 1350. | -.0006 | -.0060 | .0047 | -.0058 | .0035 | -.0149 | 712. | |
| .1800 | 158. | 87. | -27. | 152. | -691. | 706. | .0015 | -.0112 | .0053 | -.0016 | .0014 | -.0136 | 401. | |
| .1810 | -409. | 76. | 107. | -171. | -267. | 1. | .0036 | -.0168 | .0055 | .0027 | -.0008 | -.0122 | 127. | |
| .1820 | -978. | 67. | 241. | -507. | 174. | -733. | .0055 | -.0225 | .0055 | .0070 | -.0030 | -.0106 | 364. | |
| .1830 | -1550. | 64. | 372. | -851. | 604. | -1460. | .0072 | -.0280 | .0054 | .0110 | -.0053 | -.0090 | 716. | |
| .1840 | -1994. | 59. | 473. | -1119. | 1002. | -2137. | .0086 | -.0328 | .0053 | .0143 | -.0075 | -.0074 | 1048. | |
| .1850 | -2270. | 53. | 533. | -1358. | 1341. | -2721. | .0098 | -.0369 | .0054 | .0170 | -.0095 | -.0058 | 1334. | |
| .1860 | -2477. | 50. | 573. | -1545. | 1585. | -3178. | .0106 | -.0398 | .0058 | .0192 | -.0113 | -.0045 | 1554. | |
| .1870 | -2616. | 51. | 593. | -1678. | 1713. | -3477. | .0110 | -.0413 | .0066 | .0211 | -.0127 | -.0036 | 1695. | |
| .1880 | -2591. | 49. | 575. | -1743. | 1719. | -3598. | .0110 | -.0415 | .0078 | .0226 | -.0137 | -.0031 | 1746. | |
| .1890 | -2401. | 45. | 519. | -1730. | 1601. | -3530. | .0107 | -.0401 | .0094 | .0235 | -.0143 | -.0030 | 1704. | |
| .1900 | -2162. | 44. | 447. | -1637. | 1358. | -3283. | .0102 | -.0372 | .0115 | .0237 | -.0145 | -.0032 | 1570. | |
| .1910 | -1896. | 44. | 364. | -1466. | 996. | -2868. | .0093 | -.0329 | .0140 | .0231 | -.0142 | -.0037 | 1353. | |
| .1920 | -1500. | 38. | 249. | -1230. | 535. | -2295. | .0084 | -.0275 | .0168 | .0217 | -.0135 | -.0043 | 1067. | |
| .1930 | -1005. | 24. | 112. | -948. | -7. | -1591. | .0072 | -.0210 | .0196 | .0198 | -.0125 | -.0051 | 743. | |
| .1940 | -560. | 12. | -15. | -637. | -609. | -755. | .0060 | -.0139 | .0226 | .0176 | -.0111 | -.0060 | 476. | |
| .1950 | -196. | 4. | -120. | -310. | -1236. | 49. | .0047 | -.0064 | .0253 | .0152 | -.0094 | -.0072 | 512. | |
| .1960 | 186. | -5. | -223. | 23. | -1840. | 901. | .0034 | .0011 | .0276 | .0130 | -.0075 | -.0084 | 822. | |
| .1970 | 592. | -16. | -325. | 349. | -2383. | 1712. | .0022 | .0081 | .0293 | .0107 | -.0053 | -.0095 | 1186. | |
| .1980 | 922. | -25. | -406. | 645. | -2844. | 2436. | .0012 | .0144 | .0302 | .0085 | -.0030 | -.0105 | 1525. | |
| .1990 | 1147. | -29. | -457. | 890. | -3201. | 3033. | .0001 | .0197 | .0302 | .0063 | -.0008 | -.0112 | 1805. | |
| .2000 | 1306. | -35. | -487. | 1069. | -3431. | 3475. | -.0008 | .0237 | .0292 | .0041 | .0012 | -.0115 | 2006. | |
| .2010 | 1402. | -39. | -496. | 1174. | -3513. | 3739. | -.0017 | .0262 | .0270 | .0022 | .0031 | -.0114 | 2112. | |
| .2020 | 1410. | -39. | -478. | 1203. | -3431. | 3809. | -.0024 | .0272 | .0237 | .0006 | .0049 | -.0110 | 2113. | |
| .2030 | 1353. | -34. | -437. | 1161. | -3179. | 3678. | -.0029 | .0265 | .0192 | -.0004 | .0064 | -.0103 | 2006. | |
| .2040 | 1258. | -26. | -379. | 1054. | -2761. | 3353. | -.0033 | .0243 | .0136 | -.0011 | .0078 | -.0093 | 1793. | |
| .2050 | 1093. | -14. | -298. | 888. | -2199. | 2846. | -.0036 | .0208 | .0072 | -.0015 | .0090 | -.0079 | 1487. | |
| .2060 | 824. | 3. | -190. | 668. | -1524. | 2187. | -.0038 | .0160 | .0001 | -.0018 | .0098 | -.0062 | 1103. | |
| .2070 | 498. | 19. | -68. | 405. | -766. | 1414. | -.0040 | .0105 | -.0076 | -.0023 | .0103 | -.0041 | 665. | |
| .2080 | 185. | 31. | 49. | 116. | 47. | 571. | -.0040 | .0044 | -.0154 | -.0030 | .0106 | -.0017 | 235. | |
| .2090 | -109. | 41. | 160. | -180. | 885. | -296. | -.0040 | -.0019 | -.0233 | -.0037 | .0107 | .0009 | 381. | |
| .2100 | -420. | 52. | 273. | -464. | 1709. | -1144. | -.0039 | -.0080 | -.0308 | -.0043 | .0107 | .0034 | 846. | |
| .2110 | -738. | 65. | 386. | -720. | 2482. | -1928. | -.0038 | -.0135 | -.0377 | -.0048 | .0106 | .0057 | 1294. | |
| .2120 | -1005. | 76. | 484. | -972. | 3169. | -2606. | -.0038 | -.0181 | -.0437 | -.0052 | .0105 | .0077 | 1688. | |
| .2130 | -1199. | 83. | 558. | -1092. | 3735. | -3136. | -.0035 | -.0216 | -.0487 | -.0057 | .0105 | .0094 | 2006. | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.28.56.

S/RV PIPING KEWAUNEE GKHOFF 2 RUP DISK
2 SAFETY COLD FKN24F--2 PSVCONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNIT

INTERNAL FORCES IN THE PIPING

| | | | | | | | | | | | | | |
|-------|--------|------|-------|--------|--------|--------|--------|--------|--------|--------|-------|--------|-------|
| .2020 | 1410. | -79. | -478. | 1203. | -3431. | 3809. | -0024 | .0272 | .0237 | .0006 | .0049 | -.0110 | 2113. |
| .2030 | 1353. | -34. | -437. | 1161. | -3179. | 3678. | -.0029 | .0265 | .0192 | -.0004 | .0064 | -.0103 | 2006. |
| .2040 | 1258. | -26. | -379. | 1054. | -2761. | 3353. | -.0033 | .0243 | .0136 | -.0011 | .0078 | -.0093 | 1793. |
| .2050 | 1093. | -14. | -298. | 888. | -2199. | 2846. | -.0036 | .0208 | .0072 | -.0015 | .0090 | -.0079 | 1487. |
| .2060 | 824. | 3. | -190. | 668. | -1524. | 2187. | -.0038 | .0160 | .0001 | -.0018 | .0098 | -.0062 | 1103. |
| .2070 | 498. | 19. | -68. | 405. | -766. | 1414. | -.0040 | .0105 | -.0076 | -.0023 | .0103 | -.0041 | 665. |
| .2080 | 185. | 31. | 4. | 110. | 47. | 571. | -.0040 | .0044 | -.0154 | -.0030 | .0106 | -.0017 | 235. |
| .2090 | -109. | 41. | 160. | -180. | 885. | -298. | -.0040 | -.0019 | -.0233 | -.0037 | .0107 | .0009 | 381. |
| .2100 | -420. | 52. | 273. | -464. | 1709. | -1144. | -.0039 | -.0080 | -.0308 | -.0043 | .0107 | .0034 | 846. |
| .2110 | -730. | 65. | 386. | -720. | 2482. | -1928. | -.0038 | -.0135 | -.0377 | -.0048 | .0106 | .0057 | 1294. |
| .2120 | -1005. | 76. | 484. | -972. | 3165. | -2600. | -.0038 | -.0181 | -.0437 | -.0052 | .0105 | .0077 | 1688. |
| .2130 | -1199. | 83. | 558. | -1092. | 3735. | -3139. | -.0038 | -.0216 | -.0487 | -.0057 | .0105 | .0094 | 2006. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.28.56.

S/RV PIPING KEWAUNEE GKWOOD 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSVCONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITSINTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | MEMBER | SEQUENCE | LOCATION | END | TYPE | EL | | | | | | | | STRESS |
|------------|---------|----------|----------|------------|------------|------------|---------|---------|---------|----------|----------|----------|-------|--------|
| TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | MX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | (PSI) | |
| .2140 | -1334. | 85. | 609. | -1192. | 4149. | -3498. | -.0039 | -.0236 | -.0524 | -.0065 | .0104 | .0109 | 2230. | |
| .2150 | -1409. | 83. | 635. | -1224. | 4390. | -3664. | -.0041 | -.0242 | -.0547 | -.0077 | .0104 | .0121 | 2347. | |
| .2160 | -1398. | 76. | 632. | -1183. | 4452. | -3629. | -.0043 | -.0231 | -.0555 | -.0091 | .0104 | .0129 | 2353. | |
| .2170 | -1293. | 65. | 599. | -1068. | 4337. | -3396. | -.0046 | -.0206 | -.0549 | -.0107 | .0105 | .0133 | 2252. | |
| .2180 | -1119. | 52. | 542. | -885. | 4053. | -2980. | -.0049 | -.0165 | -.0529 | -.0122 | .0107 | .0132 | 2050. | |
| .2190 | -894. | 38. | 468. | -643. | 3616. | -2402. | -.0053 | -.0113 | -.0495 | -.0136 | .0110 | .0126 | 1761. | |
| .2200 | -620. | 23. | 370. | -357. | 3046. | -1691. | -.0057 | -.0050 | -.0450 | -.0147 | .0115 | .0116 | 1405. | |
| .2210 | -315. | 6. | 275. | -28. | 2369. | -885. | -.0061 | .0019 | -.0396 | -.0158 | .0119 | .0104 | 1015. | |
| .2220 | -3. | -14. | 166. | 286. | 1620. | -26. | -.0064 | .0091 | -.0335 | -.0167 | .0123 | .0090 | 660. | |
| .2230 | 311. | -35. | 52. | 612. | 836. | 839. | -.0066 | .0163 | -.0269 | -.0176 | .0126 | .0076 | 535. | |
| .2240 | 620. | -58. | -61. | 922. | 58. | 1663. | -.0066 | .0231 | -.0203 | -.0184 | .0129 | .0062 | 763. | |
| .2250 | 879. | -79. | -160. | 1198. | -677. | 2399. | -.0065 | .0290 | -.0138 | -.0187 | .0130 | .0050 | 1110. | |
| .2260 | 1045. | -94. | -233. | 1427. | -1237. | 3009. | -.0063 | .0339 | -.0076 | -.0187 | .0130 | .0038 | 1440. | |
| .2270 | 1137. | -106. | -284. | 1595. | -1888. | 3464. | -.0059 | .0375 | -.0021 | -.0181 | .0127 | .0027 | 1707. | |
| .2280 | 1198. | -117. | -323. | 1695. | -2300. | 3744. | -.0052 | .0395 | .0025 | -.0171 | .0124 | .0020 | 1890. | |
| .2290 | 1205. | -127. | -344. | 1721. | -2563. | 3834. | -.0044 | .0399 | .0062 | -.0159 | .0118 | .0015 | 1975. | |
| .2300 | 1102. | -132. | -334. | 1670. | -2671. | 3726. | -.0034 | .0386 | .0087 | -.0143 | .0109 | .0014 | 1958. | |
| .2310 | 898. | -131. | -295. | 1544. | -2625. | 3425. | -.0024 | .0357 | .0102 | -.0126 | .0098 | .0017 | 1839. | |
| .2320 | 659. | -128. | -240. | 1352. | -2425. | 2951. | -.0013 | .0313 | .0105 | -.0107 | .0085 | .0021 | 1626. | |
| .2330 | 405. | -123. | -176. | 1105. | -2082. | 2334. | -.0002 | .0257 | .0098 | -.0085 | .0072 | .0028 | 1331. | |
| .2340 | 97. | -113. | -93. | 812. | -1623. | 1605. | .0010 | .0191 | .0081 | -.0062 | .0058 | .0036 | 972. | |
| .2350 | -260. | -98. | 6. | 487. | -1075. | 801. | .0022 | .0118 | .0056 | -.0037 | .0044 | .0044 | 573. | |
| .2360 | -605. | -82. | 107. | 147. | -470. | -33. | .0032 | .0041 | .0024 | -.0012 | .0030 | .0052 | 198. | |
| .2370 | -900. | -67. | 198. | -190. | 161. | -855. | .0042 | -.0035 | -.0011 | .0010 | .0018 | .0060 | 358. | |
| .2380 | -1173. | -52. | 285. | -508. | 784. | -1626. | .0050 | -.0107 | -.0049 | .0029 | .0007 | .0067 | 753. | |
| .2390 | -1448. | -36. | 371. | -791. | 1365. | -2309. | .0056 | -.0173 | -.0087 | .0044 | -.0002 | .0072 | 1122. | |
| .2400 | -1685. | -20. | 448. | -1025. | 1878. | -2870. | .0061 | -.0229 | -.0123 | .0053 | -.0008 | .0075 | 1436. | |
| .2410 | -1835. | -9. | 503. | -1202. | 2304. | -3279. | .0064 | -.0273 | -.0156 | .0059 | -.0010 | .0076 | 1679. | |
| .2420 | -1984. | -3. | 532. | -1315. | 2626. | -3518. | .0066 | -.0304 | -.0185 | .0061 | -.0009 | .0074 | 1839. | |
| .2430 | -1874. | 1. | 545. | -1362. | 2833. | -3582. | .0066 | -.0321 | -.0209 | .0058 | -.0003 | .0069 | 1913. | |
| .2440 | -1856. | 3. | 534. | -1340. | 2917. | -3478. | .0064 | -.0323 | -.0227 | .0052 | .0006 | .0061 | 1899. | |
| .2450 | -1823. | 4. | 558. | -1253. | 2881. | -3216. | .0061 | -.0312 | -.0240 | .0039 | .0018 | .0051 | 1804. | |
| .2460 | -1724. | 0. | 543. | -1105. | 2741. | -2814. | .0057 | -.0289 | -.0248 | .0022 | .0034 | .0040 | 1638. | |
| .2470 | -1512. | -12. | 499. | -907. | 2521. | -2294. | .0052 | -.0256 | -.0253 | -.0000 | .0054 | .0029 | 1415. | |
| .2480 | -1250. | -29. | 439. | -673. | 2239. | -1692. | .0047 | -.0216 | -.0257 | -.0026 | .0076 | .0018 | 1158. | |
| .2490 | -1063. | -42. | 399. | -420. | 1910. | -1050. | .0041 | -.0170 | -.0259 | -.0054 | .0099 | .0006 | 891. | |
| .2500 | -945. | -51. | 377. | -162. | 1564. | -408. | .0034 | -.0123 | -.0261 | -.0087 | .0123 | -.0005 | 652. | |
| .2510 | -778. | -60. | 340. | 91. | 1240. | 202. | .0025 | -.0077 | -.0267 | -.0112 | .0148 | -.0015 | 505. | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.28.56.

S/RV PIPING KEWAUNEE GKWOOD 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSVCONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

| | | | | | | | | | | | | | |
|-------|--------|------|------|--------|-------|--------|-------|--------|--------|--------|--------|--------|-------|
| .2410 | -1835. | -9. | 503. | -1202. | 2704. | -3279. | .0064 | -.0273 | -.0156 | .0059 | -.0010 | .0076 | 1679. |
| .2420 | -1884. | -3. | 530. | -1315. | 2626. | -3518. | .0066 | -.0304 | -.0185 | .0061 | -.0009 | .0074 | 1839. |
| .2430 | -1874. | 1. | 545. | -1362. | 2633. | -3582. | .0066 | -.0321 | -.0209 | .0058 | -.0003 | .0069 | 1913. |
| .2440 | -1856. | 3. | 554. | -1340. | 2917. | -3478. | .0064 | -.0323 | -.0227 | .0052 | .0006 | .0061 | 1899. |
| .2450 | -1823. | 4. | 558. | -1252. | 2801. | -3216. | .0061 | -.0310 | -.0240 | .0039 | .0018 | .0051 | 1804. |
| .2460 | -1724. | 0. | 547. | -1105. | 2741. | -2814. | .0057 | -.0289 | -.0248 | .0022 | .0034 | .0040 | 1638. |
| .2470 | -1512. | -12. | 499. | -907. | 2521. | -2294. | .0052 | -.0256 | -.0253 | -.0000 | .0054 | .0029 | 1415. |
| .2480 | -1250. | -29. | 439. | -673. | 2239. | -1692. | .0047 | -.0216 | -.0257 | -.0026 | .0076 | .0018 | 1158. |
| .2490 | -1063. | -42. | 399. | -420. | 1910. | -1050. | .0041 | -.0170 | -.0259 | -.0054 | .0099 | .0006 | 891. |
| .2500 | -945. | -51. | 377. | -162. | 1564. | -408. | .0034 | -.0123 | -.0261 | -.0083 | .0123 | -.0005 | 652. |
| .2510 | -778. | -60. | 346. | 91. | 1240. | 202. | .0025 | -.0077 | -.0267 | -.0112 | .0148 | -.0015 | 505. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.28.56.

S/RV PIPING KEWAUNEE OXW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | 40 | MEMBER | 1 | SEQUENCE | 022 | LOCATION | END | TYPE | EL | | | | | | |
|---------|--------|--------|-------|----------|---------|----------|--------|--------|--------|--------|-------|--------|--------|--|--|
| TIME | FX | FY | FZ | MX | MY | MZ | DX | DY | DZ | RX | RY | RZ | STRESS | | |
| (SEC) | (LB) | (LB) | (LB) | (FT-LB) | (FT-LB) | (FT-LB) | (IN) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) | | |
| .2520 | -511. | -73. | 292. | 328. | 972. | 748. | .0018 | -.0035 | -.0277 | -.0141 | .0173 | -.0022 | 509. | | |
| .2530 | -219. | -86. | 234. | 533. | 778. | 1199. | .0010 | .0001 | -.0293 | -.0169 | .0198 | -.0027 | 612. | | |
| .2540 | 9. | -95. | 194. | 695. | 671. | 1529. | .0002 | .0029 | -.0315 | -.0197 | .0221 | -.0028 | 726. | | |
| .2550 | 152. | -100. | 178. | 803. | 665. | 1724. | -.0006 | .0047 | -.0345 | -.0222 | .0241 | -.0026 | 808. | | |
| .2560 | 280. | -107. | 170. | 854. | 781. | 1781. | -.0014 | .0054 | -.0382 | -.0245 | .0260 | -.0021 | 852. | | |
| .2570 | 502. | -125. | 142. | 852. | 1045. | 1713. | -.0017 | .0052 | -.0429 | -.0265 | .0278 | -.0011 | 875. | | |
| .2580 | 669. | -149. | 132. | 800. | 1453. | 1522. | -.0017 | .0039 | -.0485 | -.0280 | .0296 | .0003 | 903. | | |
| .2590 | 519. | -164. | 203. | 699. | 1980. | 1211. | -.0015 | .0017 | -.0548 | -.0292 | .0312 | .0018 | 973. | | |
| .2600 | 83. | -175. | 348. | 554. | 2612. | 802. | -.0011 | -.0013 | -.0618 | -.0301 | .0326 | .0036 | 1119. | | |
| .2610 | -396. | -196. | 506. | 373. | 3749. | 332. | -.0003 | -.0049 | -.0695 | -.0308 | .0340 | .0056 | 1359. | | |
| .2620 | -815. | -230. | 650. | 167. | 4178. | -168. | .0008 | -.0089 | -.0778 | -.0314 | .0355 | .0080 | 1679. | | |
| .2630 | -1324. | -266. | 814. | -57. | 5058. | -681. | .0022 | -.0132 | -.0864 | -.0318 | .0370 | .0104 | 2048. | | |
| .2640 | -2132. | -284. | 1053. | -294. | 5930. | -1199. | .0032 | -.0175 | -.0951 | -.0321 | .0383 | .0124 | 2431. | | |
| .2650 | -3115. | -280. | 1337. | -534. | 6760. | -1701. | .0036 | -.0216 | -.1035 | -.0320 | .0392 | .0139 | 2805. | | |
| .2660 | -3821. | -274. | 1552. | -763. | 7540. | -2148. | .0037 | -.0253 | -.1117 | -.0316 | .0402 | .0149 | 3161. | | |
| .2670 | -4020. | -272. | 1639. | -972. | 8250. | -2509. | .0034 | -.0285 | -.1193 | -.0308 | .0413 | .0156 | 3482. | | |
| .2680 | -3998. | -256. | 1665. | -1158. | 8821. | -2789. | .0022 | -.0310 | -.1259 | -.0298 | .0422 | .0156 | 3741. | | |
| .2690 | -3996. | -207. | 1690. | -1318. | 9193. | -2989. | .0001 | -.0326 | -.1312 | -.0286 | .0426 | .0148 | 3915. | | |
| .2700 | -3802. | -143. | 1667. | -1440. | 9359. | -3087. | -.0029 | -.0332 | -.1348 | -.0273 | .0427 | .0132 | 3997. | | |
| .2710 | -3046. | -92. | 1489. | -1511. | 9343. | -3047. | -.0062 | -.0327 | -.1368 | -.0258 | .0429 | .0114 | 3990. | | |
| .2720 | -1889. | -54. | 1203. | -1526. | 9137. | -2863. | -.0093 | -.0310 | -.1370 | -.0241 | .0432 | .0093 | 3891. | | |
| .2730 | -901. | -6. | 944. | -1490. | 8703. | -2561. | -.0125 | -.0283 | -.1351 | -.0222 | .0432 | .0068 | 3689. | | |
| .2740 | -272. | 52. | 767. | -1405. | 8037. | -2151. | -.0156 | -.0245 | -.1309 | -.0199 | .0430 | .0039 | 3386. | | |
| .2750 | 279. | 92. | 600. | -1267. | 7190. | -1626. | -.0179 | -.0197 | -.1247 | -.0175 | .0429 | .0012 | 3001. | | |
| .2760 | 972. | 93. | 385. | -1075. | 6220. | -987. | -.0190 | -.0141 | -.1168 | -.0150 | .0431 | -.0011 | 2564. | | |
| .2770 | 1559. | 64. | 178. | -838. | 5148. | -267. | -.0188 | -.0080 | -.1074 | -.0126 | .0435 | -.0027 | 2096. | | |
| .2780 | 1633. | 27. | 86. | -572. | 3976. | 481. | -.0176 | -.0015 | -.0966 | -.0105 | .0439 | -.0040 | 1623. | | |
| .2790 | 1166. | -14. | 126. | -252. | 2735. | 1218. | -.0156 | .0049 | -.0847 | -.0086 | .0440 | -.0049 | 1207. | | |
| .2800 | 486. | -70. | 213. | -10. | 1496. | 1924. | -.0128 | .0111 | -.0722 | -.0068 | .0440 | -.0054 | 978. | | |
| .2810 | -81. | -150. | 267. | 263. | 326. | 2578. | -.0092 | .0166 | -.0600 | -.0051 | .0443 | -.0052 | 1048. | | |
| .2820 | -536. | -241. | 297. | 517. | -742. | 3137. | -.0050 | .0212 | -.0482 | -.0034 | .0447 | -.0047 | 1310. | | |
| .2830 | -1121. | -317. | 357. | 726. | -1708. | 3552. | -.0012 | .0246 | -.0373 | -.0020 | .0447 | -.0042 | 1608. | | |
| .2840 | -1897. | -363. | 480. | 889. | -2560. | 3794. | .0019 | .0266 | -.0276 | -.0009 | .0443 | -.0039 | 1871. | | |
| .2850 | -2544. | -389. | 577. | 990. | -3256. | 3867. | .0043 | .0272 | -.0195 | -.0003 | .0436 | -.0037 | 2068. | | |
| .2860 | -2673. | -413. | 553. | 1053. | -3761. | 3794. | .0061 | .0263 | -.0135 | -.0002 | .0429 | -.0035 | 2185. | | |
| .2870 | -2326. | -429. | 424. | 1054. | -4079. | 3586. | .0071 | .0239 | -.0095 | -.0005 | .0424 | -.0034 | 2220. | | |
| .2880 | -1925. | -414. | 296. | 999. | -4257. | 3244. | .0069 | .0201 | -.0076 | -.0010 | .0416 | -.0039 | 2183. | | |
| .2890 | -1681. | -358. | 225. | 898. | -4302. | 2791. | .0056 | .0152 | -.0075 | -.0018 | .0408 | -.0052 | 2089. | | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.28.56.

S/RV PIPING KEWAUNEE OXW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

| | | | | | | | | | | | | | |
|-------|--------|-------|------|-------|--------|-------|--------|--------|--------|--------|-------|--------|-------|
| .2780 | 1637. | -27. | 7. | -572. | 3976. | 481. | -.0176 | -.0015 | -.0966 | -.0105 | .0439 | -.0040 | 1623. |
| .2790 | 1166. | -14. | 126. | -292. | 2735. | 1218. | -.0156 | .0049 | -.0847 | -.0086 | .0440 | -.0049 | 1207. |
| .2800 | 486. | -70. | 213. | -10. | 1496. | 1924. | -.0128 | .0111 | -.0722 | -.0068 | .0440 | -.0054 | 978. |
| .2810 | -81. | -150. | 267. | 263. | 326. | 2578. | -.0092 | .0166 | -.0600 | -.0051 | .0443 | -.0052 | 1048. |
| .2820 | -536. | -241. | 292. | 512. | -742. | 7127. | -.0050 | .0212 | -.0482 | -.0034 | .0447 | -.0047 | 1310. |
| .2830 | -1121. | -317. | 357. | 726. | -1708. | 3552. | -.0012 | .0246 | -.0373 | -.0020 | .0447 | -.0042 | 1608. |
| .2840 | -1897. | -363. | 480. | 880. | -2560. | 3794. | .0019 | .0266 | -.0276 | -.0009 | .0443 | -.0039 | 1871. |
| .2850 | -2544. | -389. | 577. | 990. | -3256. | 3867. | .0043 | .0272 | -.0195 | -.0003 | .0436 | -.0037 | 2068. |
| .2860 | -2673. | -413. | 553. | 1053. | -3761. | 3794. | .0061 | .0263 | -.0135 | -.0002 | .0429 | -.0035 | 2185. |
| .2870 | -2326. | -429. | 424. | 1054. | -4079. | 3586. | .0071 | .0239 | -.0095 | -.0005 | .0424 | -.0034 | 2220. |
| .2880 | -1925. | -414. | 298. | 999. | -4257. | 3244. | .0069 | .0201 | -.0076 | -.0010 | .0416 | -.0039 | 2183. |
| .2890 | -1681. | -358. | 225. | 898. | -4302. | 2791. | .0056 | .0152 | -.0075 | -.0018 | .0408 | -.0052 | 2089. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.28.56.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSVCONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITSINTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | 46 | MEMBER | 1 | SEQUENCE | 822 | LOCATION | END | TYPE | EL | | | | | |
|---------|--------|--------|-------|----------|---------|----------|--------|--------|--------|--------|-------|--------|--------|--|
| TIME | FX | FY | FZ | MX | MY | MZ | DX | DY | DZ | RX | RY | RZ | STRESS | |
| (SEC) | (LB) | (LB) | (LB) | (FT-LB) | (FT-LB) | (FT-LB) | (IN) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) | |
| .2900 | -1310. | -285. | 133. | 766. | -4219. | 2279. | .0036 | .0093 | -.0093 | -.0028 | .0403 | -.0070 | 1949. | |
| .2910 | -532. | -222. | -45. | 624. | -3995. | 1764. | .0015 | .0028 | -.0130 | -.0040 | .0405 | -.0090 | 1770. | |
| .2920 | 405. | -166. | -251. | 479. | -3672. | 1274. | -.0006 | -.0041 | -.0183 | -.0056 | .0414 | -.0113 | 1572. | |
| .2930 | 995. | -96. | -363. | 334. | -3314. | 820. | -.0028 | -.0113 | -.0247 | -.0077 | .0428 | -.0139 | 1377. | |
| .2940 | 1139. | -17. | -359. | 196. | -2948. | 426. | -.0050 | -.0185 | -.0320 | -.0102 | .0446 | -.0169 | 1198. | |
| .2950 | 1183. | 48. | -322. | 74. | -2559. | 129. | -.0066 | -.0255 | -.0401 | -.0130 | .0473 | -.0201 | 1029. | |
| .2960 | 1337. | 86. | -307. | -25. | -2141. | -55. | -.0075 | -.0322 | -.0490 | -.0157 | .0511 | -.0231 | 859. | |
| .2970 | 1388. | 112. | -260. | -105. | -1720. | -146. | -.0078 | -.0386 | -.0583 | -.0183 | .0557 | -.0264 | 694. | |
| .2980 | 1078. | 146. | -118. | -171. | -1327. | -180. | -.0080 | -.0448 | -.0680 | -.0207 | .0607 | -.0299 | 542. | |
| .2990 | 505. | 187. | 97. | -232. | -967. | -177. | -.0081 | -.0508 | -.0778 | -.0230 | .0661 | -.0338 | 405. | |
| .3000 | 13. | 223. | 295. | -292. | -614. | -152. | -.0083 | -.0567 | -.0879 | -.0252 | .0719 | -.0376 | 280. | |
| .3010 | -198. | 249. | 423. | -362. | -255. | -125. | -.0084 | -.0625 | -.0982 | -.0274 | .0779 | -.0412 | 185. | |
| .3020 | -208. | 277. | 501. | -450. | 106. | -133. | -.0090 | -.0684 | -.1088 | -.0294 | .0838 | -.0447 | 193. | |
| .3030 | -179. | 322. | 574. | -565. | 458. | -211. | -.0102 | -.0744 | -.1193 | -.0312 | .0894 | -.0482 | 304. | |
| .3040 | -109. | 388. | 640. | -709. | 813. | -379. | -.0122 | -.0804 | -.1298 | -.0327 | .0943 | -.0519 | 459. | |
| .3050 | 187. | 463. | 651. | -877. | 1194. | -633. | -.0147 | -.0866 | -.1401 | -.0336 | .0988 | -.0553 | 647. | |
| .3060 | 838. | 536. | 572. | -1067. | 1619. | -963. | -.0176 | -.0927 | -.1503 | -.0340 | .1028 | -.0584 | 869. | |
| .3070 | 1704. | 606. | 436. | -1273. | 2076. | -1358. | -.0207 | -.0986 | -.1601 | -.0342 | .1062 | -.0609 | 1119. | |
| .3080 | 2480. | 680. | 317. | -1492. | 2538. | -1810. | -.0240 | -.1041 | -.1690 | -.0343 | .1086 | -.0630 | 1387. | |
| .3090 | 3032. | 755. | 242. | -1716. | 2990. | -2294. | -.0272 | -.1089 | -.1770 | -.0343 | .1101 | -.0644 | 1662. | |
| .3100 | 3508. | 815. | 174. | -1928. | 3445. | -2767. | -.0300 | -.1129 | -.1838 | -.0342 | .1108 | -.0650 | 1934. | |
| .3110 | 4018. | 844. | 85. | -2111. | 3904. | -3186. | -.0319 | -.1157 | -.1892 | -.0340 | .1110 | -.0646 | 2192. | |
| .3120 | 4377. | 848. | 22. | -2253. | 4343. | -3730. | -.0329 | -.1172 | -.1930 | -.0336 | .1105 | -.0633 | 2421. | |
| .3130 | 4308. | 840. | 50. | -2349. | 4725. | -3784. | -.0331 | -.1172 | -.1949 | -.0330 | .1093 | -.0614 | 2606. | |
| .3140 | 3832. | 818. | 164. | -2393. | 5028. | -3924. | -.0325 | -.1156 | -.1948 | -.0323 | .1072 | -.0589 | 2734. | |
| .3150 | 3226. | 769. | 295. | -2377. | 5255. | -3924. | -.0310 | -.1122 | -.1927 | -.0316 | .1046 | -.0557 | 2799. | |
| .3160 | 2652. | 688. | 400. | -2300. | 5397. | -3770. | -.0287 | -.1071 | -.1886 | -.0310 | .1015 | -.0517 | 2799. | |
| .3170 | 2007. | 590. | 507. | -2165. | 5427. | -3475. | -.0258 | -.1004 | -.1824 | -.0305 | .0978 | -.0474 | 2728. | |
| .3180 | 1176. | 491. | 645. | -1976. | 5321. | -3057. | -.0228 | -.0922 | -.1742 | -.0300 | .0934 | -.0429 | 2587. | |
| .3190 | 308. | 395. | 783. | -1737. | 5079. | -2530. | -.0198 | -.0827 | -.1642 | -.0295 | .0883 | -.0386 | 2381. | |
| .3200 | -351. | 296. | 862. | -1455. | 4719. | -1901. | -.0170 | -.0722 | -.1525 | -.0287 | .0828 | -.0344 | 2123. | |
| .3210 | -712. | 195. | 858. | -1140. | 4247. | -1190. | -.0143 | -.0608 | -.1395 | -.0276 | .0771 | -.0305 | 1828. | |
| .3220 | -874. | 102. | 800. | -803. | 3657. | -427. | -.0121 | -.0489 | -.1253 | -.0263 | .0710 | -.0269 | 1512. | |
| .3230 | -943. | 23. | 715. | -457. | 2951. | 357. | -.0104 | -.0368 | -.1100 | -.0248 | .0645 | -.0238 | 1207. | |
| .3240 | -915. | -42. | 605. | -111. | 2150. | 1139. | -.0091 | -.0248 | -.0940 | -.0233 | .0579 | -.0212 | 978. | |
| .3250 | -722. | -101. | 452. | 230. | 1286. | 1902. | -.0080 | -.0132 | -.0776 | -.0217 | .0512 | -.0188 | 926. | |
| .3260 | -374. | -138. | 261. | 557. | 380. | 2624. | -.0069 | -.0023 | -.0612 | -.0199 | .0448 | -.0166 | 1088. | |
| .3270 | 3. | -210. | 67. | 862. | -520. | 3283. | -.0058 | .0077 | -.0449 | -.0178 | .0387 | -.0147 | 1378. | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.28.56.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSVCONDITION 4
LOADS
SHOCK

| | | | | | | | | | | | | | |
|-------|-------|-------|------|--------|-------|--------|--------|--------|--------|--------|-------|--------|-------|
| .3170 | 2007. | 590. | 507. | -2165. | 5427. | -3475. | -.0258 | -.1004 | -.1824 | -.0305 | .0978 | -.0474 | 2728. |
| .3180 | 1176. | 491. | 645. | -1976. | 5321. | -3057. | -.0228 | -.0922 | -.1742 | -.0300 | .0934 | -.0429 | 2587. |
| .3190 | 308. | 395. | 787. | -1737. | 5070. | -2530. | -.0198 | -.0827 | -.1642 | -.0295 | .0883 | -.0386 | 2381. |
| .3200 | -351. | 296. | 862. | -1455. | 4719. | -1901. | -.0170 | -.0722 | -.1525 | -.0287 | .0828 | -.0344 | 2123. |
| .3210 | -712. | 195. | 858. | -1140. | 4247. | -1190. | -.0143 | -.0608 | -.1395 | -.0276 | .0771 | -.0305 | 1828. |
| .3220 | -874. | 102. | 800. | -803. | 3657. | -427. | -.0121 | -.0489 | -.1253 | -.0263 | .0710 | -.0269 | 1512. |
| .3230 | -943. | 23. | 715. | -457. | 2951. | 357. | -.0104 | -.0368 | -.1100 | -.0248 | .0645 | -.0238 | 1207. |
| .3240 | -915. | -42. | 605. | -111. | 2150. | 1139. | -.0091 | -.0248 | -.0940 | -.0233 | .0579 | -.0212 | 978. |
| .3250 | -722. | -101. | 452. | 270. | 1286. | 1902. | -.0080 | -.0132 | -.0776 | -.0217 | .0512 | -.0188 | 926. |
| .3260 | -374. | -158. | 261. | 557. | 389. | 2624. | -.0069 | -.0023 | -.0612 | -.0199 | .0448 | -.0166 | 1088. |
| .3270 | 3. | -210. | 67. | 862. | -520. | 2283. | -.0058 | .0077 | -.0449 | -.0178 | .0387 | -.0147 | 1378. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.28.56.

S/RV PIPING KEWAUNEE GKWOFF 2 RUP DISK
2 SAFETY COLD FRW24F--2 PSVCONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITSINTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | 46 | MEMBER | 1 | SEQUENCE | 822 | LOCATION | END | TYPE | EL | | | | | |
|---------|--------|--------|-------|----------|---------|----------|--------|--------|--------|--------|--------|--------|--------|--|
| TIME | FX | FY | FZ | MX | MY | MZ | DX | DY | DZ | RX | RY | RZ | STRESS | |
| (SEC) | (LB) | (LB) | (LB) | (FT-LB) | (FT-LB) | (FT-LB) | (IN) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) | |
| .3280 | 256. | -254. | -89. | 1135. | -1420. | 3856. | -.0045 | .0165 | -.0291 | -.0156 | .0329 | -.0131 | 1711. | |
| .3290 | 326. | -291. | -192. | 1368. | -2280. | 4326. | -.0029 | .0239 | -.0140 | -.0131 | .0276 | -.0117 | 2038. | |
| .3300 | 269. | -329. | -258. | 1554. | -3067. | 4683. | -.0009 | .0297 | .0000 | -.0106 | .0228 | -.0103 | 2331. | |
| .3310 | 132. | -369. | -295. | 1689. | -3748. | 4917. | .0016 | .0339 | .0126 | -.0080 | .0187 | -.0089 | 2572. | |
| .3320 | -124. | -409. | -290. | 1768. | -4305. | 5011. | .0044 | .0362 | .0236 | -.0055 | .0151 | -.0075 | 2744. | |
| .3330 | -556. | -441. | -230. | 1786. | -4724. | 4953. | .0073 | .0367 | .0327 | -.0031 | .0121 | -.0062 | 2839. | |
| .3340 | -1125. | -461. | -124. | 1741. | -4989. | 4738. | .0102 | .0353 | .0398 | -.0009 | .0095 | -.0050 | 2848. | |
| .3350 | -1676. | -472. | -7. | 1624. | -5081. | 4373. | .0129 | .0321 | .0446 | .0013 | .0075 | -.0040 | 2769. | |
| .3360 | -2111. | -474. | 97. | 1466. | -4994. | 3868. | .0153 | .0272 | .0472 | .0033 | .0059 | -.0033 | 2602. | |
| .3370 | -2443. | -459. | 190. | 1240. | -4737. | 3234. | .0170 | .0208 | .0474 | .0052 | .0046 | -.0029 | 2355. | |
| .3380 | -2692. | -424. | 278. | 963. | -4326. | 2486. | .0180 | .0131 | .0455 | .0068 | .0035 | -.0028 | 2039. | |
| .3390 | -2792. | -370. | 342. | 645. | -3773. | 1652. | .0181 | .0044 | .0416 | .0082 | .0027 | -.0032 | 1673. | |
| .3400 | -2674. | -304. | 363. | 298. | -3095. | 767. | .0175 | -.0049 | .0359 | .0091 | .0020 | -.0039 | 1285. | |
| .3410 | -2342. | -229. | 340. | -83. | -2315. | -132. | .0161 | -.0146 | .0286 | .0098 | .0015 | -.0050 | 931. | |
| .3420 | -1888. | -145. | 295. | -426. | -1467. | -1011. | .0141 | -.0241 | .0202 | .0101 | .0011 | -.0063 | 735. | |
| .3430 | -1407. | -54. | 248. | -776. | -584. | -1835. | .0116 | -.0333 | .0110 | .0101 | .0009 | -.0078 | 833. | |
| .3440 | -939. | 36. | 206. | -1099. | 301. | -2567. | .0090 | -.0416 | .0016 | .0100 | .0008 | -.0095 | 1127. | |
| .3450 | -469. | 117. | 163. | -1382. | 1162. | -3175. | .0064 | -.0489 | -.0077 | .0096 | .0009 | -.0112 | 1466. | |
| .3460 | -43. | 183. | 126. | -1612. | 1972. | -2635. | .0041 | -.0548 | -.0166 | .0090 | .0012 | -.0128 | 1781. | |
| .3470 | 234. | 234. | 119. | -1785. | 2699. | -3937. | .0023 | -.0593 | -.0245 | .0082 | .0016 | -.0141 | 2045. | |
| .3480 | 287. | 270. | 159. | -1895. | 3313. | -4080. | .0011 | -.0622 | -.0312 | .0072 | .0020 | -.0152 | 2242. | |
| .3490 | 157. | 290. | 233. | -1944. | 3797. | -4067. | .0003 | -.0634 | -.0364 | .0061 | .0025 | -.0160 | 2365. | |
| .3500 | -65. | 289. | 319. | -1932. | 4143. | -3909. | .0003 | -.0630 | -.0399 | .0050 | .0029 | -.0164 | 2413. | |
| .3510 | -337. | 269. | 403. | -1865. | 4345. | -3624. | .0008 | -.0612 | -.0416 | .0040 | .0032 | -.0164 | 2391. | |
| .3520 | -677. | 239. | 493. | -1750. | 4395. | -3245. | .0016 | -.0581 | -.0415 | .0033 | .0032 | -.0162 | 2302. | |
| .3530 | -1092. | 206. | 589. | -1599. | 4285. | -2804. | .0026 | -.0539 | -.0391 | .0028 | .0028 | -.0157 | 2153. | |
| .3540 | -1468. | 170. | 664. | -1420. | 4022. | -2328. | .0037 | -.0488 | -.0349 | .0026 | .0018 | -.0151 | 1950. | |
| .3550 | -1649. | 128. | 677. | -1221. | 3621. | -1839. | .0048 | -.0431 | -.0288 | .0026 | .0003 | -.0141 | 1702. | |
| .3560 | -1604. | 83. | 622. | -1010. | 3098. | -1358. | .0059 | -.0369 | -.0209 | .0031 | -.0018 | -.0130 | 1417. | |
| .3570 | -1443. | 41. | 527. | -796. | 2458. | -910. | .0068 | -.0306 | -.0113 | .0038 | -.0045 | -.0117 | 1099. | |
| .3580 | -1266. | 10. | 418. | -585. | 1769. | -511. | .0074 | -.0241 | -.0002 | .0049 | -.0080 | -.0105 | 753. | |
| .3590 | -1036. | -14. | 288. | -380. | 870. | -163. | .0080 | -.0177 | .0129 | .0065 | -.0122 | -.0092 | 387. | |
| .3600 | -669. | -39. | 116. | -102. | -22. | 141. | .0086 | -.0115 | .0263 | .0084 | -.0169 | -.0078 | 93. | |
| .3610 | -189. | -70. | -91. | 11. | -951. | 409. | .0095 | -.0056 | .0412 | .0106 | -.0220 | -.0064 | 415. | |
| .3620 | 232. | -101. | -290. | 196. | -1903. | 644. | .0107 | .0000 | .0569 | .0130 | -.0274 | -.0048 | 810. | |
| .3630 | 444. | -128. | -442. | 372. | -2872. | 850. | .0121 | .0053 | .0732 | .0157 | -.0333 | -.0034 | 1211. | |
| .3640 | 474. | -155. | -552. | 527. | -3276. | 1039. | .0140 | .0101 | .0900 | .0184 | -.0394 | -.0019 | 1609. | |
| .3650 | 441. | -191. | -648. | 695. | -4764. | 1222. | .0163 | .0145 | .1068 | .0213 | -.0455 | -.0005 | 1993. | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.28.56.

S/RV PIPING KEWAUNEE GKWOFF 2 RUP DISK
2 SAFETY COLD FRW24F--2 PSVCONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

| | | | | | | | | | | | | | |
|-------|--------|-------|-------|--------|--------|--------|-------|--------|--------|-------|--------|--------|-------|
| .3550 | -1649. | 126. | 677. | -1221. | 3621. | -1839. | .0048 | -.0431 | -.0288 | .0026 | .0003 | -.0141 | 1702. |
| .3560 | -1604. | 83. | 622. | -1010. | 3098. | -1358. | .0059 | -.0369 | -.0209 | .0031 | -.0018 | -.0130 | 1417. |
| .3570 | -1443. | 41. | 527. | -796. | 2458. | -910. | .0068 | -.0306 | -.0113 | .0038 | -.0045 | -.0117 | 1099. |
| .3580 | -1266. | 10. | 418. | -585. | 1769. | -511. | .0074 | -.0241 | -.0002 | .0049 | -.0080 | -.0105 | 753. |
| .3590 | -1036. | -14. | 288. | -380. | 872. | -163. | .0080 | -.0177 | .0125 | .0065 | -.0122 | -.0092 | 387. |
| .3600 | -669. | -39. | 116. | -182. | -82. | 141. | .0086 | -.0115 | .0263 | .0084 | -.0169 | -.0078 | 93. |
| .3610 | -189. | -70. | -91. | 11. | -951. | 409. | .0095 | -.0056 | .0412 | .0106 | -.0220 | -.0064 | 415. |
| .3620 | 232. | -101. | -290. | 196. | -1903. | 644. | .0107 | .0000 | .0569 | .0130 | -.0274 | -.0048 | 810. |
| .3630 | 444. | -128. | -442. | 372. | -2372. | 850. | .0121 | .0053 | .0732 | .0157 | -.0333 | -.0034 | 1211. |
| .3640 | 474. | -155. | -552. | 537. | -3236. | 1039. | .0140 | .0101 | .0900 | .0184 | -.0394 | -.0019 | 1609. |
| .3650 | 441. | -191. | -648. | 695. | -4764. | 1222. | .0163 | .0145 | .1068 | .0213 | -.0455 | -.0005 | 1993. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.28.56.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSVCONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITSINTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | 46 | MEMBER | 1 | SEQUENCE | 822 | LOCATION | END | TYPE | EL | | | | | | |
|---------|--------|--------|--------|----------|---------|----------|--------|--------|-------|-------|--------|--------|--------|--|--|
| TIME | FX | FY | FZ | MX | MY | MZ | DX | DY | DZ | RX | RY | RZ | STRESS | | |
| (SEC) | (LB) | (LB) | (LB) | (FT-LB) | (FT-LB) | (FT-LB) | (IN) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) | | |
| .3660 | 375. | -237. | -736. | 844. | -5636. | 1407. | .0192 | .0184 | .1235 | .0242 | -.0516 | .0009 | 2355. | | |
| .3670 | 159. | -283. | -784. | 981. | -6444. | 1585. | .0224 | .0217 | .1397 | .0272 | -.0575 | .0021 | 2692. | | |
| .3680 | -298. | -319. | -767. | 1102. | -7185. | 1745. | .0258 | .0243 | .1552 | .0302 | -.0633 | .0029 | 3000. | | |
| .3690 | -884. | -347. | -711. | 1200. | -7842. | 1863. | .0290 | .0261 | .1697 | .0331 | -.0690 | .0033 | 3272. | | |
| .3700 | -1380. | -372. | -668. | 1273. | -8391. | 1995. | .0322 | .0271 | .1828 | .0359 | -.0744 | .0034 | 3498. | | |
| .3710 | -1679. | -394. | -663. | 1314. | -8816. | 2074. | .0351 | .0272 | .1943 | .0386 | -.0793 | .0031 | 3673. | | |
| .3720 | -1889. | -404. | -669. | 1320. | -9124. | 2099. | .0374 | .0264 | .2041 | .0412 | -.0840 | .0024 | 3794. | | |
| .3730 | -2136. | -388. | -651. | 1285. | -9323. | 2049. | .0390 | .0245 | .2120 | .0436 | -.0883 | .0011 | 3865. | | |
| .3740 | -2319. | -351. | -633. | 1209. | -9402. | 1919. | .0398 | .0216 | .2178 | .0459 | -.0923 | -.0007 | 3881. | | |
| .3750 | -2240. | -303. | -663. | 1094. | -9345. | 1713. | .0398 | .0178 | .2215 | .0480 | -.0958 | -.0029 | 3838. | | |
| .3760 | -1859. | -251. | -755. | 943. | -9150. | 1437. | .0394 | .0130 | .2229 | .0500 | -.0986 | -.0052 | 3736. | | |
| .3770 | -1385. | -187. | -855. | 755. | -8841. | 1085. | .0384 | .0075 | .2224 | .0516 | -.1008 | -.0077 | 3587. | | |
| .3780 | -1064. | -104. | -905. | 534. | -8445. | 652. | .0367 | .0013 | .2199 | .0530 | -.1027 | -.0103 | 3406. | | |
| .3790 | -879. | -4. | -907. | 285. | -7967. | 149. | .0345 | -.0053 | .2158 | .0540 | -.1041 | -.0130 | 3200. | | |
| .3800 | -602. | 93. | -921. | 21. | -7399. | -398. | .0320 | -.0122 | .2100 | .0548 | -.1048 | -.0155 | 2973. | | |
| .3810 | -62. | 173. | -992. | -246. | -6735. | -961. | .0297 | -.0191 | .2027 | .0553 | -.1048 | -.0174 | 2732. | | |
| .3820 | 522. | 242. | -1066. | -509. | -6008. | -1530. | .0274 | -.0257 | .1942 | .0554 | -.1041 | -.0188 | 2496. | | |
| .3830 | 806. | 315. | -1061. | -765. | -5259. | -2103. | .0250 | -.0318 | .1848 | .0551 | -.1031 | -.0199 | 2294. | | |
| .3840 | 823. | 389. | -986. | -1007. | -4497. | -2656. | .0226 | -.0372 | .1748 | .0544 | -.1017 | -.0205 | 2134. | | |
| .3850 | 869. | 444. | -916. | -1223. | -3707. | -3156. | .0204 | -.0417 | .1643 | .0532 | -.0999 | -.0205 | 2014. | | |
| .3860 | 1079. | 471. | -887. | -1406. | -2889. | -3576. | .0187 | -.0449 | .1532 | .0518 | -.0976 | -.0196 | 1929. | | |
| .3870 | 1241. | 483. | -848. | -1549. | -2075. | -3914. | .0171 | -.0469 | .1421 | .0499 | -.0950 | -.0181 | 1883. | | |
| .3880 | 1115. | 498. | -740. | -1649. | -1297. | -4174. | .0153 | -.0473 | .1311 | .0477 | -.0925 | -.0162 | 1875. | | |
| .3890 | 813. | 511. | -590. | -1703. | -561. | -4344. | .0134 | -.0462 | .1205 | .0450 | -.0900 | -.0139 | 1886. | | |
| .3900 | 657. | 507. | -482. | -1707. | 147. | -4400. | .0115 | -.0434 | .1102 | .0419 | -.0876 | -.0111 | 1895. | | |
| .3910 | 792. | 480. | -453. | -1657. | 826. | -4329. | .0097 | -.0390 | .1003 | .0385 | -.0852 | -.0076 | 1890. | | |
| .3920 | 1013. | 444. | -453. | -1560. | 1446. | -4140. | .0077 | -.0329 | .0912 | .0348 | -.0829 | -.0038 | 1868. | | |
| .3930 | 1072. | 415. | -420. | -1417. | 1978. | -3847. | .0054 | -.0252 | .0830 | .0308 | -.0812 | .0001 | 1827. | | |
| .3940 | 1037. | 390. | -371. | -1271. | 2422. | -3452. | .0027 | -.0160 | .0759 | .0268 | -.0799 | .0041 | 1763. | | |
| .3950 | 1181. | 353. | -374. | -998. | 2798. | -2948. | .0001 | -.0054 | .0698 | .0228 | -.0788 | .0083 | 1679. | | |
| .3960 | 1594. | 297. | -455. | -722. | 3111. | -2338. | -.0023 | .0063 | .0648 | .0189 | -.0779 | .0128 | 1588. | | |
| .3970 | 2026. | 233. | -549. | -410. | 3337. | -1645. | -.0045 | .0191 | .0610 | .0150 | -.0772 | .0175 | 1502. | | |
| .3980 | 2194. | 174. | -588. | -74. | 3450. | -897. | -.0067 | .0326 | .0588 | .0112 | -.0771 | .0221 | 1431. | | |
| .3990 | 2141. | 116. | -583. | 278. | 3459. | -105. | -.0085 | .0465 | .0579 | .0076 | -.0774 | .0267 | 1393. | | |
| .4000 | 2128. | 43. | -598. | 641. | 3389. | 726. | -.0098 | .0607 | .0583 | .0044 | -.0777 | .0314 | 1415. | | |

ADLPIPE PAGE 1820

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.28.56.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

| | | | | | | | | | | | | | |
|-------|-------|------|-------|--------|-------|--------|--------|--------|-------|-------|--------|-------|-------|
| .3930 | 1022. | 415. | -420. | -1417. | 1978. | -3247. | .0054 | -.0252 | .0830 | .0308 | -.0812 | .0001 | 1827. |
| .3940 | 1037. | 390. | -371. | -1231. | 2422. | -3452. | .0027 | -.0160 | .0759 | .0268 | -.0799 | .0041 | 1763. |
| .3950 | 1181. | 353. | -374. | -998. | 2798. | -2948. | .0001 | -.0054 | .0698 | .0228 | -.0788 | .0083 | 1679. |
| .3960 | 1594. | 297. | -451. | -711. | 3111. | -2238. | -.0023 | .0063 | .0648 | .0189 | -.0779 | .0128 | 1588. |
| .3970 | 2024. | 233. | -549. | -410. | 3337. | -1645. | -.0045 | .0191 | .0610 | .0150 | -.0772 | .0175 | 1502. |
| .3980 | 2194. | 174. | -588. | -74. | 3450. | -897. | -.0067 | .0326 | .0588 | .0112 | -.0771 | .0221 | 1431. |
| .3990 | 2141. | 116. | -583. | 278. | 3459. | -105. | -.0085 | .0465 | .0579 | .0076 | -.0774 | .0267 | 1393. |
| .4000 | 2128. | 43. | -598. | 641. | 3389. | 726. | -.0098 | .0607 | .0583 | .0044 | -.0777 | .0314 | 1415. |

ADLPIPE PAGE 1820 DIS/ADLPIPE ADLPIPE STRESS ANALYSIS 83/12/02. 18.28.56.

5/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

MAXIMUM VALUE OF STRESS OCCURS AT

| TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | MX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | STRESS (PSI) |
|------------|---------|---------|---------|------------|------------|------------|---------|---------|---------|----------|----------|----------|--------------|
| .2700 | -3802. | -143. | 1663. | -1440. | 9359. | -3087. | -.0029 | -.0332 | -.1348 | -.0273 | .0427 | .0132 | 3997. |

| SECTION | MEMBER | SEQUENCE | LOCATION | END | TYPE | EL | TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | MX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | STRESS (PSI) |
|---------|--------|----------|----------|-----|------|----|------------|---------|---------|---------|------------|------------|------------|---------|---------|---------|----------|----------|----------|--------------|
| 46 | 2 | 266 | | | | | 0.0000 | 0. | 0. | 0. | 0. | 0. | 0. | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0. |
| | | | | | | | .0010 | -0. | 0. | 0. | 0. | -0. | -0. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| | | | | | | | .0020 | -1. | 0. | 0. | -0. | -0. | -0. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| | | | | | | | .0030 | -1. | 0. | 0. | -0. | -0. | -0. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| | | | | | | | .0040 | -1. | 0. | 0. | -0. | -0. | -0. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| | | | | | | | .0050 | 1. | 0. | -0. | -0. | 0. | -1. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| | | | | | | | .0060 | 4. | 1. | -1. | -0. | 1. | -1. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| | | | | | | | .0070 | 9. | 1. | -2. | -0. | 1. | -1. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 1. |
| | | | | | | | .0080 | 17. | 0. | -4. | 0. | 2. | -0. | -.0000 | .0000 | -.0000 | -.0000 | .0000 | -.0000 | 1. |
| | | | | | | | .0090 | 24. | -0. | -6. | 1. | 3. | 0. | -.0000 | .0000 | -.0000 | -.0000 | .0000 | .0000 | 1. |
| | | | | | | | .0100 | 20. | -0. | -5. | 0. | 2. | 1. | -.0000 | .0000 | -.0000 | -.0000 | .0000 | .0000 | 1. |
| | | | | | | | .0110 | 6. | -0. | -2. | -1. | 1. | 3. | -.0000 | .0000 | -.0000 | .0000 | .0000 | .0000 | 1. |
| | | | | | | | .0120 | -8. | 0. | 1. | -3. | -1. | 5. | .0000 | .0000 | .0000 | .0001 | -.0000 | -.0000 | 2. |
| | | | | | | | .0130 | -10. | -0. | 2. | -5. | -2. | 7. | .0000 | .0000 | .0000 | .0002 | -.0000 | -.0000 | 4. |
| | | | | | | | .0140 | -4. | -1. | 0. | -8. | -1. | 11. | .0000 | .0000 | .0000 | .0003 | .0000 | -.0001 | 5. |
| | | | | | | | .0150 | 1. | -1. | -1. | -12. | -2. | 13. | .0000 | .0000 | .0001 | .0005 | .0000 | -.0001 | 7. |
| | | | | | | | .0160 | -3. | -0. | -0. | -16. | -4. | 15. | .0000 | .0000 | .0001 | .0006 | -.0000 | -.0001 | 9. |
| | | | | | | | .0170 | -7. | 1. | 1. | -20. | -7. | 15. | .0000 | .0000 | .0001 | .0007 | -.0000 | -.0002 | 10. |
| | | | | | | | .0180 | -2. | 2. | -0. | -24. | -10. | 16. | -.0000 | -.0000 | .0001 | .0008 | -.0000 | -.0002 | 12. |
| | | | | | | | .0190 | 18. | 2. | -5. | -28. | -13. | 17. | -.0000 | -.0000 | .0001 | .0009 | -.0000 | -.0003 | 14. |
| | | | | | | | .0200 | 44. | 1. | -11. | -32. | -15. | 18. | -.0001 | -.0000 | .0002 | .0010 | -.0000 | -.0003 | 16. |
| | | | | | | | .0210 | 55. | 2. | -12. | -37. | -18. | 19. | -.0001 | -.0001 | .0002 | .0012 | -.0000 | -.0004 | 18. |
| | | | | | | | .0220 | 43. | 3. | -9. | -45. | -21. | 21. | -.0001 | -.0001 | .0002 | .0014 | -.0000 | -.0004 | 22. |
| | | | | | | | .0230 | 35. | 3. | -6. | -53. | -21. | 23. | -.0001 | -.0001 | .0002 | .0017 | -.0000 | -.0005 | 25. |
| | | | | | | | .0240 | 35. | 3. | -7. | -57. | -18. | 21. | -.0001 | -.0001 | .0002 | .0019 | -.0000 | -.0005 | 25. |
| | | | | | | | .0250 | 32. | 2. | -5. | -53. | -14. | 14. | -.0000 | -.0001 | .0002 | .0018 | -.0000 | -.0005 | 23. |
| | | | | | | | .0260 | 22. | 0. | -2. | -49. | -13. | 6. | .0000 | -.0001 | .0003 | .0017 | .0000 | -.0004 | 20. |
| | | | | | | | .0270 | -1. | -2. | 4. | -51. | -13. | 5. | .0001 | -.0001 | .0003 | .0016 | -.0000 | -.0003 | 21. |
| | | | | | | | .0280 | -40. | -2. | 12. | -53. | -13. | 5. | .0001 | -.0001 | .0003 | .0015 | -.0001 | -.0002 | 22. |
| | | | | | | | .0290 | -83. | -3. | 23. | -43. | -8. | 1. | .0002 | -.0000 | .0002 | .0012 | -.0000 | -.0001 | 18. |
| | | | | | | | .0300 | -120. | -4. | 36. | -33. | 4. | -1. | .0002 | -.0000 | .0002 | .0010 | .0000 | -.0000 | 13. |
| | | | | | | | .0310 | -168. | -4. | 47. | -28. | 23. | -2. | .0003 | .0000 | .0001 | .0009 | .0001 | .0001 | 15. |
| | | | | | | | .0320 | -172. | -7. | 46. | -18. | 50. | -9. | .0005 | .0000 | -.0001 | .0006 | .0001 | .0002 | 22. |

| | | | | | | | | | | | | | |
|-------|-------|------|-----|-----|-----|------|-------|-------|--------|-------|-------|-------|-----|
| .0330 | -131. | -12. | 37. | -3. | 80. | -23. | .0005 | .0001 | -.0002 | .0001 | .0002 | .0004 | 33. |
|-------|-------|------|-----|-----|-----|------|-------|-------|--------|-------|-------|-------|-----|

| | | | | | | | | | | | | | |
|-------|-------|-----|------|------|------|-----|--------|--------|--------|-------|--------|--------|-----|
| .0180 | -2. | 2. | -0. | -24. | -10. | 16. | -.0000 | -.0000 | .0001 | .0002 | -.0000 | -.0002 | 10. |
| .0190 | 18. | 2. | -5. | -28. | -12. | 17. | -.0000 | -.0000 | .0001 | .0009 | -.0000 | -.0003 | 14. |
| .0200 | 44. | 1. | -11. | -32. | -15. | 18. | -.0001 | -.0000 | .0002 | .0010 | -.0000 | -.0003 | 16. |
| .0210 | 55. | 2. | -12. | -37. | -17. | 19. | -.0001 | -.0001 | .0002 | .0012 | -.0000 | -.0004 | 18. |
| .0220 | 43. | 3. | -9. | -45. | -21. | 21. | -.0001 | -.0001 | .0002 | .0014 | -.0000 | -.0004 | 22. |
| .0230 | 35. | 3. | -7. | -53. | -21. | 23. | -.0001 | -.0001 | .0002 | .0017 | -.0000 | -.0005 | 25. |
| .0240 | 35. | 3. | -7. | -57. | -18. | 21. | -.0001 | -.0001 | .0002 | .0019 | -.0000 | -.0005 | 25. |
| .0250 | 32. | 2. | -5. | -53. | -14. | 14. | -.0000 | -.0001 | .0002 | .0018 | -.0000 | -.0005 | 23. |
| .0260 | 22. | 0. | -2. | -49. | -13. | 6. | .0000 | -.0001 | .0003 | .0017 | .0000 | -.0004 | 20. |
| .0270 | -1. | -2. | 4. | -51. | -12. | 5. | .0001 | -.0001 | .0003 | .0016 | -.0000 | -.0003 | 21. |
| .0280 | -40. | -2. | 11. | -52. | -12. | 5. | .0001 | -.0001 | .0003 | .0015 | -.0001 | -.0002 | 22. |
| .0290 | -83. | -3. | 23. | -43. | -8. | 1. | .0002 | -.0000 | .0002 | .0012 | -.0000 | -.0001 | 18. |
| .0300 | -120. | -4. | 36. | -33. | 4. | -1. | .0002 | -.0000 | .0002 | .0010 | .0000 | -.0000 | 13. |
| .0310 | -168. | -4. | 47. | -28. | 23. | -2. | .0003 | .0000 | .0001 | .0009 | .0001 | .0000 | 15. |
| .0320 | -172. | -7. | 46. | -18. | 50. | -9. | .0005 | .0000 | -.0001 | .0006 | .0001 | .0002 | 22. |

.0330 -131. -12. 37. -3. 80. -23. .0005 .0001 -.0002 .0001 .0002 .0004 33.

INTERNAL FORCES IN THE PIPING
 FORCES AND MOMENTS ACT ON THE PIPING

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | 46 | MEMBER | 2 | SEQUENCE | 266 | LOCATION | END | TYPE | EL | | | | | | |
|---------|-------|--------|-------|----------|---------|----------|--------|--------|--------|--------|--------|--------|--------|--|--|
| TIME | FX | FY | FZ | MX | MY | MZ | DX | DY | DZ | FX | RY | RZ | STRESS | | |
| (SEC) | (LB) | (LB) | (LB) | (FT-LB) | (FT-LB) | (FT-LB) | (IN) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) | | |
| .0340 | -162. | -13. | 47. | 13. | 102. | -40. | .0004 | .0001 | -.0004 | -.0006 | .0001 | .0007 | 44. | | |
| .0350 | -298. | -7. | 80. | 32. | 117. | -56. | .0003 | .0002 | -.0005 | -.0015 | -.0001 | .0008 | 54. | | |
| .0360 | -370. | -6. | 94. | 57. | 141. | -65. | .0003 | .0002 | -.0007 | -.0025 | -.0002 | .0011 | 66. | | |
| .0370 | -246. | -15. | 61. | 78. | 180. | -57. | .0005 | .0003 | -.0010 | -.0032 | -.0000 | .0014 | 82. | | |
| .0380 | -89. | -25. | 23. | 89. | 215. | -42. | .0006 | .0004 | -.0012 | -.0035 | .0001 | .0016 | 95. | | |
| .0390 | -137. | -20. | 37. | 102. | 225. | -39. | .0004 | .0005 | -.0013 | -.0039 | .0001 | .0016 | 100. | | |
| .0400 | -324. | -5. | 87. | 128. | 219. | -49. | .0001 | .0005 | -.0014 | -.0044 | -.0001 | .0014 | 104. | | |
| .0410 | -378. | 1. | 102. | 156. | 222. | -47. | -.0000 | .0006 | -.0014 | -.0051 | -.0002 | .0014 | 111. | | |
| .0420 | -205. | -8. | 56. | 180. | 240. | -26. | .0001 | .0007 | -.0016 | -.0057 | -.0000 | .0017 | 121. | | |
| .0430 | 1. | -19. | -2. | 200. | 245. | -2. | .0002 | .0007 | -.0017 | -.0064 | .0001 | .0019 | 127. | | |
| .0440 | 79. | -19. | -26. | 212. | 217. | 16. | .0001 | .0007 | -.0017 | -.0070 | .0001 | .0019 | 122. | | |
| .0450 | -12. | -9. | 2. | 214. | 158. | 33. | -.0003 | .0007 | -.0015 | -.0073 | -.0002 | .0016 | 108. | | |
| .0460 | -178. | 8. | 48. | 216. | 98. | 54. | -.0007 | .0006 | -.0012 | -.0071 | -.0004 | .0011 | 97. | | |
| .0470 | -149. | 17. | 38. | 227. | 65. | 79. | -.0007 | .0005 | -.0011 | -.0067 | -.0003 | .0007 | 100. | | |
| .0480 | 216. | 7. | -56. | 238. | 59. | 112. | -.0004 | .0003 | -.0011 | -.0062 | .0002 | .0005 | 108. | | |
| .0490 | 565. | -4. | -139. | 229. | 32. | 140. | -.0003 | .0000 | -.0009 | -.0057 | .0005 | .0002 | 108. | | |
| .0500 | 436. | 11. | -102. | 194. | -53. | 147. | -.0007 | -.0004 | -.0005 | -.0051 | .0001 | -.0005 | 100. | | |
| .0510 | 19. | 43. | -2. | 151. | -157. | 137. | -.0012 | -.0008 | -.0000 | -.0044 | -.0005 | -.0015 | 103. | | |
| .0520 | 10. | 52. | -5. | 111. | -206. | 141. | -.0013 | -.0013 | .0003 | -.0034 | -.0005 | -.0021 | 110. | | |
| .0530 | 525. | 30. | -130. | 76. | -490. | 159. | -.0008 | -.0020 | .0003 | -.0020 | .0001 | -.0024 | 104. | | |
| .0540 | 861. | 19. | -208. | 33. | -181. | 153. | -.0005 | -.0027 | .0004 | -.0004 | .0005 | -.0029 | 96. | | |
| .0550 | 587. | 44. | -139. | -23. | -225. | 101. | -.0007 | -.0034 | .0008 | .0012 | .0002 | -.0040 | 99. | | |
| .0560 | 180. | 76. | -35. | -86. | -281. | 27. | -.0010 | -.0042 | .0013 | .0026 | -.0003 | -.0050 | 118. | | |
| .0570 | 183. | 77. | -29. | -146. | -289. | -35. | -.0009 | -.0051 | .0015 | .0037 | -.0004 | -.0055 | 131. | | |
| .0580 | 429. | 59. | -92. | -203. | -251. | -85. | -.0005 | -.0059 | .0016 | .0046 | -.0002 | -.0055 | 134. | | |
| .0590 | 503. | 51. | -122. | -263. | -209. | -143. | .0001 | -.0067 | .0016 | .0056 | -.0001 | -.0056 | 146. | | |
| .0600 | 359. | 54. | -90. | -327. | -180. | -216. | .0004 | -.0074 | .0018 | .0068 | -.0003 | -.0059 | 173. | | |
| .0610 | 129. | 61. | -21. | -389. | -155. | -303. | .0004 | -.0080 | .0020 | .0081 | -.0005 | -.0062 | 207. | | |
| .0620 | -132. | 69. | 51. | -442. | -115. | -398. | .0006 | -.0085 | .0022 | .0094 | -.0008 | -.0065 | 243. | | |
| .0630 | -270. | 69. | 79. | -475. | -45. | -487. | .0010 | -.0088 | .0023 | .0103 | -.0008 | -.0064 | 274. | | |
| .0640 | -164. | 49. | 49. | -487. | 49. | -560. | .0016 | -.0089 | .0022 | .0104 | -.0007 | -.0057 | 298. | | |
| .0650 | -105. | 26. | 36. | -487. | 126. | -619. | .0020 | -.0088 | .0022 | .0099 | -.0008 | -.0048 | 320. | | |
| .0660 | -431. | 23. | 111. | -486. | 159. | -671. | .0022 | -.0084 | .0023 | .0089 | -.0013 | -.0039 | 339. | | |
| .0670 | -856. | 27. | 203. | -477. | 178. | -704. | .0023 | -.0077 | .0025 | .0080 | -.0019 | -.0031 | 349. | | |
| .0680 | -860. | 9. | 200. | -448. | 232. | -695. | .0025 | -.0067 | .0025 | .0073 | -.0020 | -.0020 | 345. | | |
| .0690 | -590. | -23. | 138. | -393. | 308. | -653. | .0029 | -.0054 | .0024 | .0066 | -.0018 | -.0007 | 330. | | |
| .0700 | -612. | -33. | 144. | -317. | 349. | -601. | .0030 | -.0039 | .0024 | .0058 | -.0018 | .0003 | 307. | | |
| .0710 | -930. | -23. | 216. | -228. | 344. | -538. | .0027 | -.0021 | .0025 | .0044 | -.0021 | .0012 | 272. | | |

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|-------|------|------|-------|-------|-------|-------|--------|-------|-------|--------|--------|------|
| .0610 | 129. | 61. | -21. | -389. | -155. | -303. | .0004 | -.0080 | .0020 | .0081 | -.0005 | -.0062 | 207. |
| .0620 | -132. | 69. | 51. | -442. | -115. | -398. | .0006 | -.0085 | .0022 | .0094 | -.0008 | -.0065 | 243. |
| .0630 | -270. | 69. | 79. | -475. | -45. | -487. | .0010 | -.0088 | .0023 | .0103 | -.0008 | -.0064 | 274. |
| .0640 | -164. | 49. | 49. | -487. | 49. | -560. | .0016 | -.0089 | .0022 | .0104 | -.0007 | -.0057 | 298. |
| .0650 | -165. | 26. | 76. | -487. | 126. | -619. | .0020 | -.0088 | .0022 | .0099 | -.0008 | -.0048 | 320. |
| .0660 | -431. | 23. | 111. | -486. | 159. | -671. | .0022 | -.0084 | .0023 | .0089 | -.0013 | -.0039 | 339. |
| .0670 | -856. | 27. | 203. | -477. | 178. | -704. | .0023 | -.0077 | .0025 | .0080 | -.0019 | -.0031 | 349. |
| .0680 | -860. | 9. | 200. | -448. | 232. | -695. | .0025 | -.0067 | .0025 | .0073 | -.0020 | -.0070 | 345. |
| .0690 | -590. | -23. | 138. | -393. | 308. | -653. | .0029 | -.0054 | .0024 | .0066 | -.0018 | -.0007 | 330. |
| .0700 | -612. | -33. | 144. | -317. | 349. | -601. | .0030 | -.0039 | .0024 | .0058 | -.0018 | .0003 | 307. |
| .0710 | -930. | -23. | 216. | -228. | 344. | -538. | .0027 | -.0021 | .0025 | .0044 | -.0021 | .0012 | 272. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

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18.28.56.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | MEMBER | SEQUENCE | LOCATION | END | TYPE | EL | | | | | | | | STRESS |
|------------|---------|----------|----------|------------|------------|------------|---------|---------|---------|----------|----------|----------|-------|--------|
| TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | MX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | (PSI) | |
| .0720 | -1025. | -29. | 237. | -130. | 326. | -435. | .0024 | -.0002 | .0026 | .0026 | -.0024 | .0024 | 224. | |
| .0730 | -754. | -56. | 166. | -29. | 310. | -286. | .0023 | .0020 | .0025 | .0004 | -.0024 | .0040 | 170. | |
| .0740 | -485. | -79. | 88. | 76. | 272. | -117. | .0020 | .0042 | .0025 | -.0019 | -.0025 | .0055 | 123. | |
| .0750 | -426. | -82. | 65. | 188. | 198. | 54. | .0015 | .0065 | .0025 | -.0041 | -.0027 | .0066 | 112. | |
| .0760 | -402. | -76. | 62. | 307. | 111. | 230. | .0008 | .0088 | .0026 | -.0058 | -.0028 | .0073 | 160. | |
| .0770 | -246. | -71. | 32. | 428. | 33. | 412. | .0000 | .0109 | .0026 | -.0071 | -.0027 | .0078 | 239. | |
| .0780 | 27. | -70. | -33. | 539. | -35. | 597. | -.0006 | .0128 | .0025 | -.0081 | -.0024 | .0082 | 323. | |
| .0790 | 343. | -71. | -112. | 627. | -101. | 777. | -.0011 | .0144 | .0023 | -.0091 | -.0021 | .0085 | 403. | |
| .0800 | 590. | -73. | -171. | 683. | -179. | 943. | -.0018 | .0158 | .0022 | -.0099 | -.0020 | .0087 | 473. | |
| .0810 | 660. | -65. | -186. | 709. | -264. | 1078. | -.0025 | .0167 | .0020 | -.0105 | -.0021 | .0086 | 529. | |
| .0820 | 639. | -52. | -180. | 714. | -327. | 1178. | -.0031 | .0171 | .0018 | -.0105 | -.0021 | .0082 | 568. | |
| .0830 | 753. | -46. | -204. | 700. | -339. | 1244. | -.0033 | .0171 | .0014 | -.0098 | -.0017 | .0077 | 589. | |
| .0840 | 986. | -47. | -251. | 669. | -302. | 1289. | -.0032 | .0165 | .0009 | -.0084 | -.0010 | .0069 | 588. | |
| .0850 | 1038. | -41. | -250. | 614. | -249. | 1236. | -.0031 | .0155 | .0003 | -.0067 | -.0004 | .0060 | 563. | |
| .0860 | 777. | -22. | -176. | 530. | -198. | 1142. | -.0030 | .0139 | -.0002 | -.0050 | -.0001 | .0048 | 511. | |
| .0870 | 460. | -8. | -91. | 417. | -124. | 1003. | -.0027 | .0118 | -.0007 | -.0035 | .0001 | .0037 | 439. | |
| .0880 | 336. | -11. | -57. | 282. | -3. | 832. | -.0021 | .0094 | -.0015 | -.0020 | .0004 | .0029 | 352. | |
| .0890 | 287. | -21. | -43. | 134. | 158. | 622. | -.0012 | .0066 | -.0023 | -.0004 | .0009 | .0022 | 263. | |
| .0900 | 50. | -19. | 18. | -22. | 333. | 365. | -.0004 | .0035 | -.0032 | .0015 | .0012 | .0013 | 198. | |
| .0910 | -370. | -3. | 128. | -182. | 510. | 68. | .0003 | .0003 | -.0039 | .0036 | .0013 | .0000 | 219. | |
| .0920 | -745. | 12. | 229. | -341. | 698. | -246. | .0009 | -.0029 | -.0045 | .0059 | .0014 | -.0012 | 327. | |
| .0930 | -949. | 17. | 284. | -495. | 893. | -558. | .0017 | -.0060 | -.0051 | .0080 | .0016 | -.0022 | 467. | |
| .0940 | -1074. | 17. | 312. | -639. | 1073. | -853. | .0024 | -.0089 | -.0056 | .0097 | .0016 | -.0029 | 607. | |
| .0950 | -1265. | 21. | 351. | -768. | 1210. | -1124. | .0030 | -.0114 | -.0058 | .0107 | .0013 | -.0034 | 731. | |
| .0960 | -1527. | 28. | 406. | -872. | 1296. | -1363. | .0034 | -.0134 | -.0058 | .0113 | .0008 | -.0038 | 832. | |
| .0970 | -1747. | 35. | 449. | -940. | 1342. | -1554. | .0037 | -.0149 | -.0054 | .0115 | .0002 | -.0040 | 906. | |
| .0980 | -1826. | 37. | 456. | -964. | 1357. | -1684. | .0039 | -.0157 | -.0048 | .0116 | -.0003 | -.0041 | 949. | |
| .0990 | -1772. | 33. | 432. | -943. | 1319. | -1743. | .0042 | -.0158 | -.0040 | .0114 | -.0007 | -.0038 | 955. | |
| .1000 | -1700. | 26. | 406. | -879. | 1220. | -1725. | .0043 | -.0152 | -.0028 | .0107 | -.0011 | -.0034 | 918. | |
| .1010 | -1707. | 21. | 399. | -774. | 1044. | -1627. | .0043 | -.0138 | -.0013 | .0093 | -.0017 | -.0028 | 836. | |
| .1020 | -1744. | 15. | 395. | -633. | 800. | -1446. | .0042 | -.0118 | .0005 | .0072 | -.0023 | -.0019 | 710. | |
| .1030 | -1643. | -1. | 353. | -456. | 514. | -1180. | .0041 | -.0092 | .0023 | .0046 | -.0027 | -.0008 | 548. | |
| .1040 | -1321. | -30. | 261. | -247. | 203. | -842. | .0042 | -.0061 | .0040 | .0017 | -.0028 | .0007 | 361. | |
| .1050 | -1012. | -54. | 178. | -16. | -139. | -460. | .0040 | -.0027 | .0057 | -.0012 | -.0027 | .0019 | 193. | |
| .1060 | -932. | -58. | 153. | 226. | -512. | -61. | .0035 | .0008 | .0073 | -.0041 | -.0027 | .0028 | 226. | |
| .1070 | -912. | -52. | 144. | 471. | -884. | 345. | .0028 | .0042 | .0085 | -.0069 | -.0025 | .0034 | 425. | |
| .1080 | -522. | -62. | 52. | 713. | -1207. | 759. | .0022 | .0075 | .0093 | -.0099 | -.0019 | .0041 | 640. | |
| .1090 | 233. | -87. | -120. | 936. | -1477. | 1163. | .0015 | .0103 | .0094 | -.0130 | -.0008 | .0048 | 843. | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

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18.28.57.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|--------|------|-------|-------|--------|--------|-------|--------|--------|--------|--------|--------|------|
| .0990 | -1772. | 33. | 432. | -943. | 1319. | -1743. | .0042 | -.0158 | -.0040 | .0114 | -.0007 | -.0038 | 955. |
| .1000 | -1700. | 26. | 406. | -879. | 1220. | -1725. | .0043 | -.0152 | -.0028 | .0107 | -.0011 | -.0034 | 918. |
| .1010 | -1707. | 21. | 399. | -774. | 1044. | -1627. | .0043 | -.0138 | -.0013 | .0093 | -.0017 | -.0028 | 336. |
| .1020 | -1744. | 15. | 395. | -673. | 900. | -1446. | .0042 | -.0110 | .0005 | .0072 | -.0023 | -.0019 | 710. |
| .1030 | -1647. | -1. | 357. | -456. | 514. | -1180. | .0041 | -.0092 | .0023 | .0046 | -.0027 | -.0008 | 548. |
| .1040 | -1321. | -70. | 261. | -247. | 203. | -842. | .0042 | -.0061 | .0040 | .0017 | -.0028 | .0007 | 361. |
| .1050 | -1012. | -54. | 178. | -16. | -139. | -460. | .0040 | -.0027 | .0057 | -.0012 | -.0027 | .0019 | 193. |
| .1060 | -932. | -58. | 153. | 226. | -512. | -61. | .0035 | .0008 | .0073 | -.0041 | -.0027 | .0028 | 226. |
| .1070 | -912. | -52. | 144. | 471. | -884. | 345. | .0028 | .0047 | .0085 | -.0069 | -.0025 | .0034 | 425. |
| .1080 | -522. | -62. | 52. | 713. | -1207. | 759. | .0022 | .0075 | .0093 | -.0099 | -.0019 | .0041 | 640. |
| .1090 | 233. | -87. | -120. | 936. | -1477. | 1163. | .0015 | .0103 | .0094 | -.0130 | -.0008 | .0048 | 843. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

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S/RV PIPING KEWAUNEE GKW02F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | 46 | MEMBER | 2 | SEQUENCE | 266 | LOCATION | END | TYPE | EL | | | | | | |
|---------|--------|--------|-------|----------|---------|----------|--------|--------|--------|--------|--------|--------|--------|--|--|
| TIME | FX | FY | FZ | MX | MY | MZ | DX | DY | DZ | RX | RY | RZ | STRESS | | |
| (SEC) | (LB) | (LB) | (LB) | (FT-LB) | (FT-LB) | (FT-LB) | (IN) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) | | |
| .1100 | 314. | -65. | -148. | 1105. | -1749. | 1507. | .0004 | .0125 | .0091 | -.0158 | -.0002 | .0047 | 1027. | | |
| .1110 | 228. | -26. | -134. | 1226. | -1971. | 1783. | -.0010 | .0140 | .0081 | -.0181 | .0004 | .0040 | 1174. | | |
| .1120 | 858. | -21. | -266. | 1317. | -2063. | 1997. | -.0022 | .0146 | .0063 | -.0200 | .0019 | .0034 | 1268. | | |
| .1130 | 1640. | -16. | -422. | 1364. | -2052. | 2115. | -.0035 | .0142 | .0038 | -.0212 | .0037 | .0025 | 1303. | | |
| .1140 | 1733. | 37. | -424. | 1350. | -1993. | 2102. | -.0050 | .0129 | .0008 | -.0217 | .0051 | .0006 | 1282. | | |
| .1150 | 1623. | 103. | -379. | 1285. | -1852. | 1975. | -.0065 | .0105 | -.0028 | -.0219 | .0065 | -.0017 | 1203. | | |
| .1160 | 2111. | 129. | -459. | 1175. | -1580. | 1775. | -.0076 | .0073 | -.0070 | -.0220 | .0085 | -.0035 | 1064. | | |
| .1170 | 2721. | 138. | -560. | 1009. | -1218. | 1497. | -.0085 | .0032 | -.0116 | -.0217 | .0105 | -.0052 | 874. | | |
| .1180 | 2445. | 191. | -468. | 779. | -839. | 1112. | -.0093 | -.0016 | -.0163 | -.0209 | .0120 | -.0075 | 640. | | |
| .1190 | 1905. | 252. | -319. | 518. | -401. | 636. | -.0097 | -.0070 | -.0211 | -.0195 | .0133 | -.0099 | 366. | | |
| .1200 | 2098. | 261. | -323. | 258. | 152. | 112. | -.0095 | -.0127 | -.0259 | -.0178 | .0153 | -.0116 | 128. | | |
| .1210 | 2381. | 254. | -339. | -6. | 749. | -460. | -.0089 | -.0186 | -.0305 | -.0158 | .0173 | -.0129 | 353. | | |
| .1220 | 1674. | 295. | -136. | -280. | 1286. | -1092. | -.0085 | -.0243 | -.0343 | -.0140 | .0182 | -.0146 | 686. | | |
| .1230 | 577. | 344. | 142. | -554. | 1787. | -1724. | -.0079 | -.0297 | -.0376 | -.0123 | .0184 | -.0160 | 1021. | | |
| .1240 | 280. | 330. | 232. | -811. | 2318. | -2281. | -.0065 | -.0344 | -.0403 | -.0108 | .0190 | -.0161 | 1345. | | |
| .1250 | 31. | 280. | 223. | -1052. | 2830. | -2757. | -.0047 | -.0384 | -.0424 | -.0092 | .0197 | -.0154 | 1641. | | |
| .1260 | -191. | 268. | 363. | -1278. | 3222. | -3191. | -.0032 | -.0413 | -.0433 | -.0070 | .0192 | -.0151 | 1891. | | |
| .1270 | -1222. | 285. | 601. | -1451. | 3497. | -3576. | -.0021 | -.0430 | -.0430 | -.0046 | .0179 | -.0148 | 2090. | | |
| .1280 | -1615. | 268. | 697. | -1543. | 3720. | -3857. | -.0009 | -.0435 | -.0417 | -.0026 | .0166 | -.0137 | 2238. | | |
| .1290 | -1498. | 221. | 671. | -1555. | 3864. | -4010. | .0004 | -.0424 | -.0394 | -.0012 | .0152 | -.0118 | 2320. | | |
| .1300 | -1753. | 195. | 702. | -1508. | 3847. | -4044. | .0013 | -.0399 | -.0358 | -.0008 | .0128 | -.0095 | 2320. | | |
| .1310 | -2204. | 178. | 755. | -1412. | 3663. | -3936. | .0021 | -.0358 | -.0311 | -.0012 | .0096 | -.0067 | 2231. | | |
| .1320 | -2060. | 126. | 670. | -1258. | 3368. | -3562. | .0027 | -.0303 | -.0255 | -.0022 | .0062 | -.0032 | 2059. | | |
| .1330 | -1550. | 56. | 506. | -1048. | 2764. | -3242. | .0031 | -.0234 | -.0188 | -.0030 | .0028 | .0007 | 1812. | | |
| .1340 | -1472. | 22. | 432. | -783. | 2425. | -2726. | .0030 | -.0154 | -.0113 | -.0034 | -.0013 | .0041 | 1497. | | |
| .1350 | -1591. | 12. | 399. | -451. | 1791. | -2125. | .0027 | -.0063 | -.0030 | -.0036 | -.0055 | .0073 | 1130. | | |
| .1360 | -1137. | -31. | 238. | -57. | 1132. | -1418. | .0026 | .0036 | .0056 | -.0042 | -.0093 | .0109 | 729. | | |
| .1370 | -374. | -97. | 6. | 365. | 432. | -627. | .0026 | .0139 | .0144 | -.0055 | -.0130 | .0151 | 339. | | |
| .1380 | -87. | -142. | -133. | 767. | -354. | 204. | .0025 | .0243 | .0234 | -.0072 | -.0172 | .0191 | 349. | | |
| .1390 | -108. | -175. | -209. | 1137. | -1184. | 1049. | .0022 | .0347 | .0323 | -.0090 | -.0216 | .0229 | 782. | | |
| .1400 | 249. | -232. | -356. | 1487. | -1961. | 1894. | .0022 | .0444 | .0406 | -.0104 | -.0253 | .0266 | 1246. | | |
| .1410 | 775. | -295. | -521. | 1819. | -2647. | 2689. | .0023 | .0534 | .0483 | -.0108 | -.0282 | .0298 | 1681. | | |
| .1420 | 801. | -318. | -565. | 2124. | -3252. | 3369. | .0024 | .0611 | .0550 | -.0105 | -.0307 | .0320 | 2063. | | |
| .1430 | 559. | -322. | -541. | 2384. | -3741. | 3918. | .0027 | .0674 | .0606 | -.0097 | -.0327 | .0335 | 2375. | | |
| .1440 | 682. | -351. | -587. | 2572. | -4073. | 4345. | .0033 | .0721 | .0648 | -.0089 | -.0340 | .0349 | 2603. | | |
| .1450 | 918. | -394. | -651. | 2658. | -4267. | 4631. | .0040 | .0749 | .0674 | -.0083 | -.0347 | .0362 | 2743. | | |
| .1460 | 615. | -408. | -593. | 2624. | -4357. | 4740. | .0045 | .0757 | .0687 | -.0076 | -.0355 | .0367 | 2790. | | |
| .1470 | -4. | -398. | -453. | 2505. | -4300. | 4662. | .0049 | .0746 | .0684 | -.0067 | -.0358 | .0363 | 2736. | | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.28.57.

S/RV PIPING KEWAUNEE GKW02F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|--------|--------|-------|-------|
| .1370 | -374. | -97. | 6. | 365. | 437. | -627. | .0026 | .0139 | .0144 | -.0055 | -.0130 | .0151 | 339. |
| .1380 | -87. | -142. | -133. | 767. | -354. | 204. | .0025 | .0243 | .0234 | -.0072 | -.0172 | .0191 | 349. |
| .1390 | -108. | -175. | -209. | 1137. | -1184. | 1049. | .0022 | .0347 | .0323 | -.0090 | -.0216 | .0229 | 782. |
| .1400 | 249. | -232. | -356. | 1487. | -1961. | 1894. | .0022 | .0444 | .0406 | -.0104 | -.0253 | .0266 | 1246. |
| .1410 | 775. | -295. | -521. | 1819. | -2647. | 2689. | .0023 | .0534 | .0483 | -.0108 | -.0282 | .0298 | 1681. |
| .1420 | 801. | -318. | -565. | 2124. | -3252. | 3269. | .0024 | .0611 | .0550 | -.0105 | -.0307 | .0320 | 2063. |
| .1430 | 559. | -322. | -541. | 2384. | -3741. | 3918. | .0027 | .0674 | .0606 | -.0097 | -.0327 | .0335 | 2375. |
| .1440 | 682. | -351. | -587. | 2572. | -4073. | 4345. | .0033 | .0721 | .0648 | -.0089 | -.0340 | .0349 | 2603. |
| .1450 | 918. | -394. | -651. | 2656. | -4267. | 4631. | .0040 | .0749 | .0674 | -.0083 | -.0347 | .0362 | 2743. |
| .1460 | 615. | -408. | -597. | 2624. | -4357. | 4740. | .0045 | .0757 | .0687 | -.0076 | -.0355 | .0367 | 2790. |
| .1470 | -4. | -398. | -457. | 2505. | -4300. | 4662. | .0049 | .0746 | .0684 | -.0067 | -.0358 | .0363 | 2736. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.28.57.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | MEMBER | SEQUENCE | LOCATION | END | TYPE | EL | | | | | | | | STRESS |
|------------|---------|----------|----------|------------|------------|------------|---------|---------|---------|----------|----------|----------|-------|--------|
| TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | MX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | (PSI) | |
| .1480 | -254. | -401. | -375. | 2329. | -4025. | 4417. | .0056 | .0715 | .0663 | -.0050 | -.0350 | .0355 | 2574. | |
| .1490 | -254. | -404. | -335. | 2105. | -3546. | 4001. | .0064 | .0666 | .0626 | -.0025 | -.0330 | .0340 | 2306. | |
| .1500 | -598. | -375. | -209. | 1823. | -2939. | 3407. | .0071 | .0600 | .0574 | .0004 | -.0307 | .0315 | 1948. | |
| .1510 | -1219. | -324. | -14. | 1476. | -2246. | 2670. | .0074 | .0521 | .0511 | .0030 | -.0283 | .0285 | 1520. | |
| .1520 | -1624. | -288. | 140. | 1079. | -1470. | 1845. | .0076 | .0431 | .0438 | .0048 | -.0256 | .0256 | 1041. | |
| .1530 | -1827. | -266. | 246. | 651. | -631. | 970. | .0078 | .0333 | .0355 | .0058 | -.0226 | .0229 | 533. | |
| .1540 | -2171. | -232. | 374. | 218. | 227. | 64. | .0080 | .0232 | .0267 | .0060 | -.0196 | .0201 | 129. | |
| .1550 | -2543. | -187. | 509. | -188. | 1090. | -839. | .0080 | .0131 | .0176 | .0061 | -.0162 | .0171 | 557. | |
| .1560 | -2627. | -149. | 590. | -550. | 1942. | -1691. | .0079 | .0033 | .0085 | .0064 | -.0125 | .0140 | 1057. | |
| .1570 | -2609. | -109. | 655. | -859. | 2727. | -2462. | .0074 | -.0056 | -.0002 | .0067 | -.0087 | .0107 | 1514. | |
| .1580 | -2812. | -50. | 764. | -1120. | 3379. | -3122. | .0067 | -.0136 | -.0082 | .0067 | -.0053 | .0074 | 1900. | |
| .1590 | -2975. | 4. | 849. | -1324. | 3888. | -3623. | .0058 | -.0202 | -.0154 | .0059 | -.0021 | .0044 | 2198. | |
| .1600 | -2756. | 30. | 835. | -1453. | 4259. | -3934. | .0049 | -.0253 | -.0218 | .0040 | .0009 | .0022 | 2398. | |
| .1610 | -2294. | 41. | 753. | -1499. | 4474. | -4056. | .0040 | -.0289 | -.0270 | .0012 | .0037 | .0007 | 2497. | |
| .1620 | -1957. | 63. | 688. | -1466. | 4507. | -4006. | .0028 | -.0307 | -.0308 | -.0019 | .0059 | -.0007 | 2490. | |
| .1630 | -1716. | 97. | 642. | -1353. | 4369. | -3796. | .0013 | -.0310 | -.0334 | -.0050 | .0076 | -.0022 | 2385. | |
| .1640 | -1278. | 124. | 553. | -1164. | 4094. | -3424. | -.0003 | -.0298 | -.0346 | -.0077 | .0092 | -.0035 | 2192. | |
| .1650 | -653. | 141. | 415. | -920. | 3700. | -2901. | -.0018 | -.0273 | -.0346 | -.0101 | .0105 | -.0046 | 1922. | |
| .1660 | -79. | 159. | 275. | -639. | 3188. | -2259. | -.0033 | -.0237 | -.0336 | -.0124 | .0113 | -.0055 | 1589. | |
| .1670 | 444. | 172. | 134. | -342. | 2583. | -1529. | -.0047 | -.0194 | -.0315 | -.0147 | .0117 | -.0062 | 1212. | |
| .1680 | 1053. | 172. | -32. | -39. | 1924. | -752. | -.0060 | -.0145 | -.0287 | -.0171 | .0116 | -.0064 | 829. | |
| .1690 | 1663. | 167. | -200. | 257. | 1243. | 23. | -.0072 | -.0096 | -.0252 | -.0192 | .0112 | -.0065 | 509. | |
| .1700 | 2067. | 169. | -321. | 532. | 570. | 747. | -.0081 | -.0049 | -.0213 | -.0207 | .0104 | -.0068 | 433. | |
| .1710 | 2296. | 177. | -399. | 777. | -51. | 1387. | -.0088 | -.0006 | -.0172 | -.0212 | .0095 | -.0073 | 638. | |
| .1720 | 2546. | 176. | -479. | 973. | -577. | 1930. | -.0091 | .0028 | -.0131 | -.0208 | .0086 | -.0077 | 898. | |
| .1730 | 2784. | 165. | -554. | 1106. | -993. | 2347. | -.0088 | .0053 | -.0092 | -.0196 | .0077 | -.0082 | 1115. | |
| .1740 | 2797. | 155. | -578. | 1163. | -1306. | 2609. | -.0082 | .0065 | -.0057 | -.0179 | .0067 | -.0086 | 1260. | |
| .1750 | 2542. | 148. | -538. | 1139. | -1512. | 2696. | -.0073 | .0065 | -.0025 | -.0159 | .0053 | -.0091 | 1322. | |
| .1760 | 2189. | 137. | -472. | 1050. | -1589. | 2602. | -.0060 | .0052 | .0002 | -.0137 | .0039 | -.0095 | 1294. | |
| .1770 | 1833. | 120. | -401. | 902. | -1527. | 2338. | -.0045 | .0027 | .0023 | -.0112 | .0027 | -.0099 | 1178. | |
| .1780 | 1373. | 105. | -303. | 702. | -1342. | 1918. | -.0026 | -.0009 | .0038 | -.0084 | .0015 | -.0103 | 981. | |
| .1790 | 774. | 96. | -169. | 451. | -1056. | 1367. | -.0006 | -.0055 | .0048 | -.0050 | .0004 | -.0109 | 716. | |
| .1800 | 158. | 87. | -27. | 155. | -691. | 722. | .0015 | -.0107 | .0053 | -.0012 | -.0006 | -.0116 | 406. | |
| .1810 | -409. | 76. | 107. | -168. | -274. | 14. | .0036 | -.0164 | .0054 | .0027 | -.0015 | -.0122 | 129. | |
| .1820 | -978. | 67. | 241. | -505. | 161. | -721. | .0055 | -.0221 | .0054 | .0065 | -.0025 | -.0129 | 359. | |
| .1830 | -1550. | 64. | 372. | -829. | 586. | -1448. | .0071 | -.0276 | .0052 | .0099 | -.0036 | -.0134 | 710. | |
| .1840 | -1994. | 59. | 473. | -1117. | 980. | -2126. | .0086 | -.0325 | .0051 | .0128 | -.0047 | -.0138 | 1041. | |
| .1850 | -2270. | 53. | 533. | -1356. | 1316. | -2711. | .0097 | -.0366 | .0052 | .0152 | -.0057 | -.0139 | 1326. | |

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CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|--------|------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| .1750 | 2542. | 148. | -538. | 1139. | -1512. | 2676. | -.073 | .0065 | -.0025 | -.0159 | .0053 | -.0091 | 1322. |
| .1760 | 2189. | 137. | -472. | 1050. | -1589. | 2602. | -.060 | .0052 | .0002 | -.0137 | .0039 | -.0095 | 1294. |
| .1770 | 1833. | 120. | -401. | 902. | -1527. | 2338. | -.045 | .0027 | .0023 | -.0112 | .0027 | -.0099 | 1178. |
| .1780 | 1373. | 105. | -303. | 702. | -1342. | 1918. | -.026 | -.0009 | .0038 | -.0084 | .0015 | -.0103 | 981. |
| .1790 | 774. | 96. | -169. | 451. | -1056. | 1367. | -.0006 | -.0055 | .0048 | -.0050 | .0004 | -.0109 | 716. |
| .1800 | 158. | 87. | -27. | 155. | -691. | 722. | .0015 | -.0107 | .0053 | -.0012 | -.0006 | -.0116 | 406. |
| .1810 | -409. | 76. | 107. | -168. | -274. | 14. | .0036 | -.0164 | .0054 | .0027 | -.0015 | -.0122 | 129. |
| .1820 | -978. | 67. | 241. | -505. | 161. | -721. | .0055 | -.0221 | .0054 | .0065 | -.0025 | -.0129 | 359. |
| .1830 | -1550. | 64. | 372. | -829. | 586. | -1448. | .0071 | -.0276 | .0052 | .0099 | -.0036 | -.0134 | 710. |
| .1840 | -1994. | 59. | 473. | -1117. | 980. | -2126. | .0086 | -.0325 | .0051 | .0128 | -.0047 | -.0138 | 1041. |
| .1850 | -2270. | 53. | 533. | -1356. | 1316. | -2711. | .0097 | -.0366 | .0052 | .0152 | -.0057 | -.0139 | 1326. |

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CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | MEMBER | SEQUENCE | LOCATION | END | TYPE | EL | | | | | | | | STRESS |
|------------|---------|----------|----------|------------|------------|------------|---------|---------|---------|----------|----------|----------|-------|--------|
| TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | MX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | (PSI) | |
| .1860 | -2477. | 50. | 573. | -1544. | 1560. | -3169. | .0105 | -.0395 | .0055 | .0171 | -.0067 | -.0140 | 1547. | |
| .1870 | -2616. | 51. | 593. | -1677. | 1688. | -3468. | .0109 | -.0411 | .0062 | .0188 | -.0078 | -.0140 | 1688. | |
| .1880 | -2591. | 49. | 575. | -1741. | 1697. | -3589. | .0109 | -.0413 | .0074 | .0202 | -.0088 | -.0138 | 1739. | |
| .1890 | -2401. | 45. | 519. | -1729. | 1583. | -3522. | .0106 | -.0399 | .0090 | .0212 | -.0097 | -.0135 | 1698. | |
| .1900 | -2162. | 44. | 447. | -1635. | 1345. | -3275. | .0101 | -.0371 | .0111 | .0215 | -.0106 | -.0130 | 1565. | |
| .1910 | -1896. | 44. | 364. | -1464. | 990. | -2860. | .0092 | -.0328 | .0135 | .0212 | -.0114 | -.0122 | 1349. | |
| .1920 | -1500. | 38. | 249. | -1229. | 537. | -2289. | .0083 | -.0273 | .0163 | .0202 | -.0120 | -.0112 | 1064. | |
| .1930 | -1005. | 24. | 112. | -947. | 4. | -1586. | .0072 | -.0251 | .0192 | .0187 | -.0125 | -.0099 | 741. | |
| .1940 | -560. | 12. | -15. | -637. | -589. | -793. | .0059 | -.0137 | .0221 | .0169 | -.0128 | -.0085 | 472. | |
| .1950 | -196. | 4. | -120. | -310. | -1209. | 50. | .0046 | -.0062 | .0249 | .0151 | -.0129 | -.0072 | 501. | |
| .1960 | 186. | -5. | -223. | 23. | -1806. | 900. | .0033 | .0012 | .0272 | .0133 | -.0127 | -.0059 | 810. | |
| .1970 | 592. | -16. | -325. | 348. | -2343. | 1709. | .0022 | .0083 | .0290 | .0116 | -.0120 | -.0046 | 1172. | |
| .1980 | 922. | -25. | -406. | 644. | -2800. | 2432. | .0011 | .0146 | .0299 | .0098 | -.0111 | -.0034 | 1510. | |
| .1990 | 1147. | -29. | -457. | 889. | -3155. | 3028. | .0001 | .0199 | .0300 | .0080 | -.0099 | -.0024 | 1791. | |
| .2000 | 1306. | -35. | -487. | 1068. | -3384. | 3469. | -.0009 | .0239 | .0290 | .0061 | -.0085 | -.0014 | 1992. | |
| .2010 | 1402. | -39. | -496. | 1173. | -3468. | 3732. | -.0017 | .0264 | .0269 | .0043 | -.0068 | -.0006 | 2098. | |
| .2020 | 1410. | -39. | -478. | 1202. | -3390. | 3802. | -.0024 | .0274 | .0237 | .0028 | -.0049 | .0000 | 2100. | |
| .2030 | 1353. | -34. | -437. | 1160. | -3143. | 3672. | -.0029 | .0267 | .0193 | .0017 | -.0026 | .0004 | 1995. | |
| .2040 | 1258. | -26. | -379. | 1053. | -2732. | 3348. | -.0033 | .0245 | .0138 | .0008 | -.0000 | .0005 | 1785. | |
| .2050 | 1093. | -14. | -298. | 888. | -2180. | 2844. | -.0036 | .0209 | .0074 | .0001 | .0027 | .0004 | 1481. | |
| .2060 | 824. | 3. | -190. | 668. | -1516. | 2188. | -.0038 | .0162 | .0003 | -.0006 | .0054 | .0002 | 1101. | |
| .2070 | 498. | 19. | -68. | 405. | -770. | 1417. | -.0039 | .0106 | -.0072 | -.0016 | .0081 | .0000 | 667. | |
| .2080 | 185. | 31. | 49. | 117. | 33. | 577. | -.0039 | .0044 | -.0150 | -.0027 | .0107 | -.0000 | 237. | |
| .2090 | -109. | 41. | 160. | -179. | 860. | -288. | -.0039 | -.0019 | -.0228 | -.0039 | .0132 | .0000 | 371. | |
| .2100 | -420. | 52. | 273. | -462. | 1673. | -1174. | -.0038 | -.0080 | -.0303 | -.0051 | .0155 | .0000 | 832. | |
| .2110 | -738. | 65. | 386. | -718. | 2436. | -1917. | -.0037 | -.0136 | -.0371 | -.0060 | .0177 | .0000 | 1277. | |
| .2120 | -1005. | 76. | 484. | -930. | 3114. | -2593. | -.0037 | -.0182 | -.0431 | -.0068 | .0195 | .0001 | 1668. | |
| .2130 | -1199. | 83. | 558. | -1090. | 3673. | -3124. | -.0037 | -.0217 | -.0481 | -.0076 | .0211 | .0003 | 1984. | |
| .2140 | -1334. | 85. | 609. | -1189. | 4082. | -3482. | -.0038 | -.0238 | -.0518 | -.0086 | .0222 | .0007 | 2205. | |
| .2150 | -1409. | 83. | 635. | -1222. | 4321. | -3649. | -.0040 | -.0244 | -.0540 | -.0098 | .0228 | .0014 | 2322. | |
| .2160 | -1398. | 76. | 632. | -1181. | 4382. | -3615. | -.0042 | -.0234 | -.0549 | -.0112 | .0230 | .0023 | 2329. | |
| .2170 | -1293. | 65. | 599. | -1066. | 4270. | -3385. | -.0045 | -.0208 | -.0543 | -.0126 | .0228 | .0034 | 2228. | |
| .2180 | -1119. | 52. | 542. | -883. | 3991. | -2971. | -.0048 | -.0168 | -.0522 | -.0139 | .0222 | .0045 | 2028. | |
| .2190 | -894. | 38. | 468. | -642. | 3560. | -2395. | -.0052 | -.0115 | -.0489 | -.0149 | .0213 | .0056 | 1741. | |
| .2200 | -620. | 23. | 378. | -356. | 2998. | -1687. | -.0056 | -.0053 | -.0444 | -.0156 | .0201 | .0068 | 1388. | |
| .2210 | -315. | 6. | 275. | -42. | 2330. | -884. | -.0060 | .0016 | -.0390 | -.0161 | .0186 | .0079 | 1000. | |
| .2220 | -3. | -14. | 166. | 286. | 1590. | -28. | -.0063 | .0089 | -.0329 | -.0166 | .0169 | .0090 | 648. | |
| .2230 | 311. | -35. | 52. | 611. | 817. | 833. | -.0065 | .0161 | -.0264 | -.0170 | .0150 | .0102 | 529. | |

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CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|--------|------|------|--------|-------|--------|--------|--------|--------|--------|-------|-------|-------|
| .2120 | -1005. | 76. | 474. | -950. | 3114. | -2593. | -2037 | -.0182 | -.0431 | -.0060 | .0195 | .0001 | 1668. |
| .2130 | -1199. | 83. | 558. | -1090. | 3673. | -3124. | -.0037 | -.0217 | -.0481 | -.0076 | .0211 | .0003 | 1984. |
| .2140 | -1334. | 85. | 609. | -1189. | 4082. | -3482. | -.0038 | -.0238 | -.0518 | -.0086 | .0222 | .0007 | 2205. |
| .2150 | -1409. | 83. | 635. | -1222. | 4321. | -3649. | -.0040 | -.0244 | -.0540 | -.0098 | .0228 | .0014 | 2322. |
| .2160 | -1398. | 76. | 632. | -1181. | 4382. | -3615. | -.0042 | -.0234 | -.0549 | -.0112 | .0230 | .0023 | 2329. |
| .2170 | -1293. | 65. | 599. | -1066. | 4270. | -3385. | -.0045 | -.0208 | -.0543 | -.0126 | .0228 | .0034 | 2228. |
| .2180 | -1119. | 52. | 542. | -883. | 3991. | -2971. | -.0048 | -.0168 | -.0522 | -.0139 | .0222 | .0045 | 2028. |
| .2190 | -894. | 38. | 468. | -642. | 3560. | -2395. | -.0052 | -.0115 | -.0489 | -.0149 | .0213 | .0056 | 1741. |
| .2200 | -620. | 23. | 378. | -356. | 2998. | -1687. | -.0056 | -.0053 | -.0444 | -.0156 | .0201 | .0068 | 1388. |
| .2210 | -315. | 6. | 275. | -42. | 2330. | -884. | -.0060 | .0016 | -.0390 | -.0161 | .0186 | .0079 | 1000. |
| .2220 | -3. | -14. | 166. | 286. | 1590. | -28. | -.0063 | .0089 | -.0329 | -.0166 | .0169 | .0090 | 648. |
| .2230 | 311. | -35. | 52. | 611. | 617. | 833. | -.0065 | .0161 | -.0264 | -.0170 | .0150 | .0102 | 529. |

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ADLPIPE STRESS ANALYSIS

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CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | 46 | MEMBER | 2 | SEQUENCE | 266 | LOCATION | END | TYPE | EL | | | | | |
|------------|---------|---------|---------|------------|------------|------------|---------|---------|---------|----------|----------|----------|--------------|--|
| TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | MX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | STRESS (PSI) | |
| .2240 | 620. | -58. | -61. | 920. | 50. | 1652. | -.0065 | .0228 | -.0198 | -.0172 | .0130 | .0112 | 759. | |
| .2250 | 879. | -79. | -160. | 1196. | -676. | 2385. | -.0064 | .0288 | -.0133 | -.0171 | .0111 | .0121 | 1104. | |
| .2260 | 1045. | -94. | -233. | 1424. | -1328. | 2992. | -.0062 | .0337 | -.0072 | -.0167 | .0091 | .0127 | 1432. | |
| .2270 | 1137. | -106. | -284. | 1592. | -1872. | 3445. | -.0058 | .0373 | -.0017 | -.0159 | .0074 | .0130 | 1698. | |
| .2280 | 1198. | -117. | -323. | 1692. | -2280. | 3723. | -.0052 | .0393 | .0029 | -.0147 | .0058 | .0131 | 1879. | |
| .2290 | 1205. | -127. | -344. | 1717. | -2539. | 3811. | -.0043 | .0397 | .0065 | -.0134 | .0045 | .0129 | 1963. | |
| .2300 | 1102. | -132. | -334. | 1666. | -2646. | 3702. | -.0034 | .0384 | .0090 | -.0120 | .0033 | .0125 | 1944. | |
| .2310 | 898. | -131. | -295. | 1540. | -2600. | 3401. | -.0024 | .0355 | .0104 | -.0104 | .0023 | .0118 | 1826. | |
| .2320 | 659. | -128. | -240. | 1348. | -2403. | 2929. | -.0013 | .0312 | .0107 | -.0088 | .0016 | .0109 | 1613. | |
| .2330 | 405. | -123. | -176. | 1101. | -2064. | 2312. | -.0001 | .0255 | .0099 | -.0070 | .0013 | .0098 | 1320. | |
| .2340 | 97. | -113. | -93. | 808. | -1609. | 1585. | .0010 | .0189 | .0082 | -.0051 | .0012 | .0084 | 963. | |
| .2350 | -260. | -98. | 6. | 484. | -1069. | 784. | .0022 | .0116 | .0057 | -.0031 | .0013 | .0068 | 566. | |
| .2360 | -605. | -82. | 107. | 145. | -471. | -48. | .0032 | .0040 | .0025 | -.0012 | .0017 | .0052 | 199. | |
| .2370 | -900. | -67. | 198. | -192. | 154. | -867. | .0042 | -.0037 | -.0010 | .0006 | .0022 | .0035 | 362. | |
| .2380 | -1173. | -52. | 285. | -509. | 770. | -1636. | .0050 | -.0109 | -.0048 | .0020 | .0029 | .0020 | 754. | |
| .2390 | -1448. | -36. | 371. | -792. | 1344. | -2316. | .0056 | -.0175 | -.0086 | .0030 | .0037 | .0005 | 1120. | |
| .2400 | -1685. | -20. | 448. | -1026. | 1850. | -2873. | .0061 | -.0231 | -.0122 | .0036 | .0046 | -.0009 | 1432. | |
| .2410 | -1835. | -9. | 503. | -1203. | 2271. | -3280. | .0064 | -.0275 | -.0155 | .0039 | .0055 | -.0020 | 1672. | |
| .2420 | -1884. | -3. | 532. | -1316. | 2590. | -3518. | .0066 | -.0305 | -.0184 | .0039 | .0066 | -.0029 | 1831. | |
| .2430 | -1874. | 1. | 545. | -1361. | 2794. | -3582. | .0066 | -.0322 | -.0207 | .0037 | .0077 | -.0036 | 1903. | |
| .2440 | -1856. | 3. | 554. | -1340. | 2875. | -3477. | .0064 | -.0324 | -.0225 | .0030 | .0089 | -.0041 | 1889. | |
| .2450 | -1823. | 4. | 558. | -1252. | 2838. | -3215. | .0061 | -.0313 | -.0237 | .0020 | .0100 | -.0044 | 1793. | |
| .2460 | -1724. | 0. | 543. | -1105. | 2697. | -2814. | .0057 | -.0289 | -.0245 | .0005 | .0112 | -.0043 | 1626. | |
| .2470 | -1512. | -12. | 499. | -907. | 2479. | -2297. | .0053 | -.0256 | -.0250 | -.0014 | .0125 | -.0039 | 1404. | |
| .2480 | -1250. | -29. | 439. | -674. | 2199. | -1697. | .0048 | -.0215 | -.0253 | -.0037 | .0139 | -.0032 | 1147. | |
| .2490 | -1063. | -42. | 399. | -422. | 1872. | -1057. | .0042 | -.0170 | -.0254 | -.0061 | .0153 | -.0025 | 879. | |
| .2500 | -945. | -51. | 377. | -163. | 1526. | -417. | .0034 | -.0122 | -.0256 | -.0086 | .0167 | -.0017 | 638. | |
| .2510 | -778. | -60. | 346. | 89. | 1202. | 191. | .0026 | -.0076 | -.0261 | -.0111 | .0183 | -.0009 | 490. | |
| .2520 | -511. | -73. | 292. | 325. | 935. | 735. | .0019 | -.0034 | -.0270 | -.0136 | .0201 | -.0000 | 495. | |
| .2530 | -219. | -86. | 234. | 531. | 743. | 1184. | .0011 | .0002 | -.0285 | -.0161 | .0220 | .0009 | 600. | |
| .2540 | 9. | -95. | 194. | 692. | 636. | 1512. | .0003 | .0030 | -.0307 | -.0187 | .0239 | .0017 | 714. | |
| .2550 | 152. | -100. | 178. | 800. | 628. | 1706. | -.0005 | .0048 | -.0335 | -.0211 | .0260 | .0025 | 797. | |
| .2560 | 280. | -107. | 170. | 850. | 742. | 1762. | -.0012 | .0056 | -.0372 | -.0234 | .0282 | .0032 | 840. | |
| .2570 | 502. | -125. | 142. | 848. | 1004. | 1690. | -.0015 | .0053 | -.0418 | -.0253 | .0308 | .0040 | 859. | |
| .2580 | 669. | -149. | 132. | 795. | 1409. | 1495. | -.0015 | .0040 | -.0473 | -.0270 | .0337 | .0048 | 884. | |
| .2590 | 519. | -164. | 203. | 694. | 1928. | 1182. | -.0013 | .0017 | -.0536 | -.0283 | .0368 | .0055 | 949. | |
| .2600 | 87. | -175. | 348. | 548. | 2548. | 771. | -.0008 | -.0013 | -.0605 | -.0295 | .0400 | .0060 | 1091. | |
| .2610 | -396. | -196. | 506. | 367. | 3271. | 297. | -.0001 | -.0050 | -.0680 | -.0305 | .0435 | .0067 | 1326. | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

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S/RV PIPING KEWAUNEE GKM08F 2 RUP DISK

2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|-------|-------|------|------|-------|-------|--------|--------|--------|--------|-------|--------|-------|
| .2510 | -778. | -60. | 346. | 89. | 1202. | 191. | .0026 | -.0076 | -.0261 | -.0111 | .0183 | -.0009 | 490. |
| .2520 | -511. | -73. | 292. | 325. | 935. | 735. | .0019 | -.0034 | -.0270 | -.0136 | .0201 | -.0000 | 495. |
| .2530 | -219. | -86. | 234. | 531. | 743. | 1184. | .0011 | .0002 | -.0285 | -.01.1 | .0220 | .0009 | 600. |
| .2540 | 9. | -95. | 194. | 692. | 676. | 1512. | .0003 | .0030 | -.0307 | -.0187 | .0239 | .0017 | 714. |
| .2550 | 152. | -100. | 178. | 800. | 628. | 1706. | -.0005 | .0048 | -.0335 | -.0211 | .0260 | .0025 | 797. |
| .2560 | 280. | -107. | 170. | 850. | 742. | 1762. | -.0012 | .0056 | -.0372 | -.0234 | .0282 | .0032 | 840. |
| .2570 | 502. | -125. | 142. | 848. | *004. | 1690. | -.0015 | .0053 | -.0418 | -.0253 | .0308 | .0040 | 859. |
| .2580 | 669. | -149. | 132. | 795. | 1409. | 1495. | -.0015 | .0040 | -.0473 | -.0270 | .0337 | .0048 | 884. |
| .2590 | 519. | -164. | 203. | 694. | 1928. | 1182. | -.0013 | .0017 | -.0536 | -.0283 | .0368 | .0055 | 949. |
| .2600 | 87. | -175. | 348. | 548. | 2548. | 771. | -.0008 | -.0013 | -.0605 | -.0295 | .0400 | .0060 | 1091. |
| .2610 | -396. | -196. | 506. | 367. | 3271. | 297. | -.0001 | -.0050 | -.0680 | -.0305 | .0435 | .0067 | 1326. |

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ADLPIPE STRESS ANALYSIS

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S/RV PIPING KEWAUNEE GKWC8F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | 46 | MEMBER | 2 | SEQUENCE | 266 | LOCATION | END | TYPE | EL | | | | | | |
|---------|--------|--------|-------|----------|---------|----------|--------|--------|--------|--------|-------|--------|--------|--|--|
| TIME | FX | FY | FZ | MX | MY | MZ | DX | DY | DZ | RX | RY | RZ | STRESS | | |
| (SEC) | (LB) | (LB) | (LB) | (FT-LB) | (FT-LB) | (FT-LB) | (IN) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) | | |
| .2620 | -815. | -230. | 650. | 160. | 4087. | -209. | .0011 | -.0090 | -.0762 | -.0314 | .0474 | .0075 | 1643. | | |
| .2630 | -1324. | -266. | 814. | -66. | 4954. | -728. | .0024 | -.0134 | -.0848 | -.0321 | .0514 | .0084 | 2009. | | |
| .2640 | -2132. | -284. | 1053. | -302. | 5809. | -1250. | .0034 | -.0177 | -.0933 | -.0327 | .0551 | .0089 | 2387. | | |
| .2650 | -3115. | -280. | 1337. | -542. | 6618. | -1751. | .0039 | -.0218 | -.1017 | -.0330 | .0584 | .0088 | 2756. | | |
| .2660 | -3821. | -274. | 1552. | -772. | 7382. | -2196. | .0040 | -.0256 | -.1097 | -.0329 | .0616 | .0086 | 3106. | | |
| .2670 | -4020. | -272. | 1639. | -981. | 8082. | -2558. | .0037 | -.0288 | -.1173 | -.0324 | .0647 | .0082 | 3425. | | |
| .2680 | -3998. | -256. | 1665. | -1166. | 8648. | -2835. | .0026 | -.0312 | -.1239 | -.0316 | .0672 | .0073 | 3682. | | |
| .2690 | -3996. | -207. | 1690. | -1324. | 9016. | -3026. | .0004 | -.0328 | -.1291 | -.0305 | .0687 | .0058 | 3853. | | |
| .2700 | -3802. | -143. | 1663. | -1444. | 9180. | -3112. | -.0026 | -.0333 | -.1327 | -.0293 | .0692 | .0040 | 3933. | | |
| .2710 | -3046. | -92. | 1489. | -1514. | 9171. | -3063. | -.0058 | -.0328 | -.1346 | -.0279 | .0694 | .0022 | 3927. | | |
| .2720 | -1889. | -54. | 1203. | -1527. | 8981. | -2873. | -.0090 | -.0311 | -.1349 | -.0261 | .0691 | .0007 | 3833. | | |
| .2730 | -901. | -6. | 944. | -1490. | 8563. | -2562. | -.0122 | -.0283 | -.1330 | -.0240 | .0679 | -.0009 | 3636. | | |
| .2740 | -272. | 52. | 767. | -1403. | 7909. | -2142. | -.0152 | -.0244 | -.1289 | -.0215 | .0658 | -.0026 | 3336. | | |
| .2750 | 279. | 92. | 600. | -1264. | 7074. | -1610. | -.0176 | -.0195 | -.1227 | -.0188 | .0633 | -.0039 | 2955. | | |
| .2760 | 972. | 93. | 385. | -1072. | 6121. | -970. | -.0187 | -.0139 | -.1149 | -.0160 | .0607 | -.0042 | 2524. | | |
| .2770 | 1559. | 64. | 178. | -836. | 5068. | -256. | -.0185 | -.0078 | -.1055 | -.0132 | .0582 | -.0038 | 2064. | | |
| .2780 | 1633. | 27. | 86. | -571. | 3910. | 485. | -.0173 | -.0013 | -.0947 | -.0106 | .0551 | -.0029 | 1597. | | |
| .2790 | 1166. | -14. | 126. | -292. | 2677. | 1215. | -.0153 | .0051 | -.0829 | -.0082 | .0517 | -.0016 | 1185. | | |
| .2800 | 486. | -70. | 213. | -12. | 1443. | 1912. | -.0125 | .0112 | -.0705 | -.0060 | .0482 | -.0000 | 961. | | |
| .2810 | -81. | -150. | 267. | 258. | 281. | 2551. | -.0089 | .0167 | -.0583 | -.0039 | .0452 | .0020 | 1035. | | |
| .2820 | -536. | -241. | 292. | 506. | -778. | 3094. | -.0048 | .0212 | -.0466 | -.0019 | .0425 | .0042 | 1296. | | |
| .2830 | -1121. | -317. | 357. | 716. | -1737. | 3496. | -.0009 | .0246 | -.0358 | -.0002 | .0398 | .0059 | 1593. | | |
| .2840 | -1897. | -363. | 480. | 878. | -2586. | 3729. | .0022 | .0266 | -.0261 | .0011 | .0369 | .0069 | 1855. | | |
| .2850 | -2544. | -389. | 577. | 987. | -3280. | 3798. | .0046 | .0271 | -.0180 | .0018 | .0343 | .0074 | 2052. | | |
| .2860 | -2673. | -413. | 553. | 1041. | -3777. | 3720. | .0063 | .0262 | -.0120 | .0019 | .0322 | .0074 | 2168. | | |
| .2870 | -2326. | -429. | 424. | 1040. | -4083. | 3509. | .0073 | .0238 | -.0082 | .0015 | .0307 | .0069 | 2200. | | |
| .2880 | -1925. | -414. | 298. | 986. | -4245. | 3171. | .0071 | .0201 | -.0063 | .0008 | .0295 | .0054 | 2163. | | |
| .2890 | -1681. | -358. | 225. | 886. | -4290. | 2727. | .0058 | .0152 | -.0062 | -.0003 | .0285 | .0029 | 2071. | | |
| .2900 | -1310. | -285. | 133. | 758. | -4202. | 2228. | .0038 | .0095 | -.0080 | -.0015 | .0282 | -.0004 | 1933. | | |
| .2910 | -532. | -222. | -45. | 617. | -3971. | 1724. | .0017 | .0031 | -.0117 | -.0030 | .0291 | -.0039 | 1755. | | |
| .2920 | 405. | -166. | -251. | 474. | -3640. | 1244. | -.0004 | -.0038 | -.0170 | -.0048 | .0309 | -.0076 | 1555. | | |
| .2930 | 995. | -96. | -363. | 331. | -3280. | 802. | -.0026 | -.0108 | -.0233 | -.0072 | .0333 | -.0115 | 1362. | | |
| .2940 | 1139. | -17. | -359. | 195. | -2919. | 423. | -.0047 | -.0178 | -.0305 | -.0099 | .0362 | -.0157 | 1186. | | |
| .2950 | 1183. | 48. | -322. | 76. | -2538. | 138. | -.0063 | -.0246 | -.0385 | -.0129 | .0400 | -.0197 | 1020. | | |
| .2960 | 1337. | 86. | -307. | -22. | -2128. | -39. | -.0072 | -.0312 | -.0472 | -.0158 | .0450 | -.0233 | 854. | | |
| .2970 | 1388. | 112. | -260. | -101. | -1716. | -126. | -.0075 | -.0375 | -.0564 | -.0184 | .0507 | -.0268 | 692. | | |
| .2980 | 1078. | 146. | -118. | -167. | -1340. | -154. | -.0076 | -.0436 | -.0658 | -.0209 | .0569 | -.0305 | 545. | | |
| .2990 | 505. | 187. | 97. | -226. | -999. | -144. | -.0077 | -.0494 | -.0754 | -.0232 | .0633 | -.0343 | 415. | | |

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DIS/ADLPIPE

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S/RV PIPING KEWAUNEE GKWC8F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSV

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|--------|-------|-------|-------|--------|-------|--------|--------|--------|--------|-------|--------|-------|
| .2890 | -1681. | -358. | 225. | 886. | -4290. | 2727. | .058 | .0152 | -.0062 | -.0003 | .0285 | .0029 | 2071. |
| .2900 | -1310. | -285. | 133. | 758. | -4202. | 2228. | .038 | .0095 | -.0080 | -.0015 | .0282 | -.0004 | 1933. |
| .2910 | -532. | -222. | -45. | 617. | -3971. | 1724. | .0017 | .0031 | -.0117 | -.0030 | .0291 | -.0039 | 1755. |
| .2920 | 405. | -166. | -251. | 474. | -3640. | 1244. | -.0004 | -.0038 | -.0170 | -.0048 | .0309 | -.0076 | 1555. |
| .2930 | 955. | -96. | -363. | 371. | -3280. | 802. | -.0026 | -.0108 | -.0233 | -.0072 | .0333 | -.0115 | 1362. |
| .2940 | 1139. | -17. | -359. | 195. | -2919. | 423. | -.0047 | -.0178 | -.0305 | -.0099 | .0362 | -.0157 | 1186. |
| .2950 | 1183. | 48. | -322. | 76. | -2538. | 138. | -.0063 | -.0246 | -.0385 | -.0129 | .0400 | -.0197 | 1020. |
| .2960 | 1337. | 86. | -307. | -22. | -2128. | -39. | -.0072 | -.0312 | -.0472 | -.0158 | .0450 | -.0233 | 854. |
| .2970 | 1388. | 112. | -260. | -101. | -1716. | -126. | -.0075 | -.0375 | -.0564 | -.0184 | .0507 | -.0268 | 692. |
| .2980 | 1078. | 146. | -118. | -167. | -1340. | -154. | -.0076 | -.0436 | -.0658 | -.0209 | .0569 | -.0305 | 545. |
| .2990 | 505. | 187. | 97. | -226. | -999. | -144. | -.0077 | -.0494 | -.0754 | -.0232 | .0633 | -.0343 | 415. |

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DIS/ADLPIPE

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKN24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | 40 | MEMBER | 2 | SEQUENCE | 266 | LOCATION | END | TYPE | EL | | | | | | |
|------------|---------|---------|---------|------------|------------|------------|---------|---------|---------|----------|----------|----------|--------------|--|--|
| TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | MX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | STRESS (PSI) | | |
| .3000 | 13. | 223. | 295. | -285. | -667. | -112. | -.0078 | -.0551 | -.0852 | -.0254 | .0700 | -.0381 | 295. | | |
| .3010 | -198. | 249. | 423. | -354. | -324. | -81. | -.0079 | -.0603 | -.0953 | -.0276 | .0770 | -.0416 | 195. | | |
| .3020 | -208. | 277. | 501. | -442. | 23. | -84. | -.0084 | -.0665 | -.1056 | -.0297 | .0840 | -.0452 | 181. | | |
| .3030 | -179. | 322. | 574. | -555. | 362. | -154. | -.0096 | -.0723 | -.1159 | -.0316 | .0905 | -.0490 | 273. | | |
| .3040 | -109. | 388. | 640. | -697. | 702. | -310. | -.0116 | -.0783 | -.1262 | -.0332 | .0965 | -.0531 | 416. | | |
| .3050 | 187. | 463. | 651. | -863. | 1072. | -551. | -.0141 | -.0842 | -.1364 | -.0343 | .1021 | -.0573 | 595. | | |
| .3060 | 838. | 536. | 572. | -1050. | 1492. | -867. | -.0169 | -.0902 | -.1464 | -.0354 | .1073 | -.0614 | 810. | | |
| .3070 | 1704. | 606. | 436. | -1254. | 1946. | -1250. | -.0200 | -.0960 | -.1560 | -.0354 | .1119 | -.0651 | 1056. | | |
| .3080 | 2480. | 680. | 317. | -1471. | 2404. | -1689. | -.0232 | -.1014 | -.1648 | -.0358 | .1157 | -.0685 | 1319. | | |
| .3090 | 3032. | 755. | 242. | -1693. | 2853. | -2160. | -.0264 | -.1061 | -.1727 | -.0361 | .1184 | -.0713 | 1589. | | |
| .3100 | 3508. | 815. | 174. | -1903. | 3305. | -2621. | -.0292 | -.1101 | -.1794 | -.0363 | .1205 | -.0732 | 1857. | | |
| .3110 | 4018. | 844. | 85. | -2085. | 3765. | -3036. | -.0311 | -.1129 | -.1848 | -.0364 | .1219 | -.0741 | 2113. | | |
| .3120 | 4377. | 848. | 22. | -2227. | 4204. | -3379. | -.0321 | -.1144 | -.1886 | -.0362 | .1227 | -.0738 | 2342. | | |
| .3130 | 4308. | 840. | 50. | -2323. | 4582. | -3634. | -.0323 | -.1145 | -.1906 | -.0357 | .1225 | -.0727 | 2525. | | |
| .3140 | 3832. | 818. | 164. | -2368. | 4880. | -3778. | -.0317 | -.1129 | -.1905 | -.0351 | .1214 | -.0706 | 2653. | | |
| .3150 | 3226. | 769. | 295. | -2353. | 5103. | -3787. | -.0303 | -.1097 | -.1885 | -.0344 | .1194 | -.0673 | 2719. | | |
| .3160 | 2652. | 688. | 400. | -2279. | 5244. | -3647. | -.0279 | -.1048 | -.1845 | -.0337 | .1167 | -.0630 | 2722. | | |
| .3170 | 2003. | 590. | 507. | -2147. | 5275. | -3369. | -.0251 | -.0982 | -.1785 | -.0330 | .1131 | -.0578 | 2655. | | |
| .3180 | 1176. | 491. | 645. | -1961. | 5169. | -2969. | -.0221 | -.0902 | -.1704 | -.0323 | .1083 | -.0521 | 2518. | | |
| .3190 | 308. | 395. | 783. | -1725. | 4930. | -2459. | -.0192 | -.0809 | -.1606 | -.0314 | .1026 | -.0463 | 2317. | | |
| .3200 | -351. | 296. | 862. | -1446. | 4576. | -1848. | -.0164 | -.0706 | -.1492 | -.0302 | .0961 | -.0403 | 2064. | | |
| .3210 | -712. | 195. | 858. | -1134. | 4116. | -1155. | -.0138 | -.0594 | -.1364 | -.0287 | .0890 | -.0342 | 1775. | | |
| .3220 | -874. | 102. | 800. | -800. | 3541. | -409. | -.0116 | -.0477 | -.1224 | -.0269 | .0813 | -.0284 | 1466. | | |
| .3230 | -943. | 23. | 715. | -457. | 2853. | 361. | -.0099 | -.0358 | -.1074 | -.0249 | .0728 | -.0230 | 1169. | | |
| .3240 | -915. | -42. | 605. | -112. | 2071. | 1132. | -.0087 | -.0240 | -.0917 | -.0229 | .0639 | -.0180 | 948. | | |
| .3250 | -722. | -101. | 452. | 227. | 1228. | 1884. | -.0077 | -.0125 | -.0756 | -.0208 | .0548 | -.0134 | 907. | | |
| .3260 | -374. | -158. | 261. | 552. | 354. | 2596. | -.0066 | -.0017 | -.0595 | -.0185 | .0459 | -.0091 | 1075. | | |
| .3270 | 3. | -210. | 67. | 856. | -532. | 3246. | -.0055 | .0081 | -.0435 | -.0161 | .0372 | -.0053 | 1364. | | |
| .3280 | 256. | -254. | -89. | 1127. | -1412. | 3810. | -.0043 | .0168 | -.0279 | -.0134 | .0289 | -.0020 | 1692. | | |
| .3290 | 326. | -291. | -192. | 1359. | -2256. | 4274. | -.0027 | .0241 | -.0131 | -.0107 | .0211 | .0008 | 2015. | | |
| .3300 | 269. | -329. | -258. | 1544. | -3029. | 4625. | -.0008 | .0299 | .0007 | -.0079 | .0141 | .0033 | 2303. | | |
| .3310 | 132. | -369. | -295. | 1678. | -3699. | 4851. | .0017 | .0340 | .0131 | -.0051 | .0080 | .0054 | 2539. | | |
| .3320 | -124. | -409. | -290. | 1755. | -4249. | 4938. | .0044 | .0362 | .0239 | -.0026 | .0029 | .0071 | 2709. | | |
| .3330 | -556. | -441. | -230. | 1772. | -4666. | 4874. | .0073 | .0366 | .0329 | -.0002 | -.0013 | .0082 | 2797. | | |
| .3340 | -1125. | -461. | -124. | 1727. | -4932. | 4655. | .0102 | .0352 | .0398 | .0020 | -.0046 | .0088 | 2808. | | |
| .3350 | -1676. | -472. | -7. | 1619. | -5028. | 4289. | .0129 | .0319 | .0446 | .0039 | -.0070 | .0087 | 2730. | | |
| .3360 | -2111. | -474. | 97. | 1451. | -4946. | 3784. | .0153 | .0270 | .0471 | .0056 | -.0083 | .0080 | 2566. | | |
| .3370 | -2443. | -459. | 190. | 1226. | -4696. | 3152. | .0170 | .0206 | .0473 | .0071 | -.0089 | .0065 | 2322. | | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKN24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|--------|-------|-------|-------|--------|-------|--------|-------|--------|--------|--------|--------|-------|
| .3270 | 3. | -210. | 67. | 856. | -532. | 3246. | -.0055 | .0081 | -.0435 | -.0161 | .0372 | -.0053 | 1364. |
| .3280 | 256. | -254. | -89. | 1127. | -1412. | 3810. | -.0043 | .0168 | -.0279 | -.0134 | .0289 | -.0020 | 1692. |
| .3290 | 326. | -291. | -192. | 1359. | -2256. | 4274. | -.0027 | .0241 | -.0131 | -.0107 | .0211 | .0008 | 2015. |
| .3300 | 269. | -329. | -258. | 1544. | -3029. | 4625. | -.0008 | .0299 | .0007 | -.0079 | .0141 | -.0033 | 2303. |
| .3310 | 132. | -369. | -295. | 1678. | -3699. | 4851. | .0017 | .0340 | .0131 | -.0051 | .0380 | .0054 | 2539. |
| .3320 | -124. | -409. | -290. | 1755. | -4249. | 4938. | .0044 | .0362 | .0239 | -.0026 | .0329 | .0071 | 2707. |
| .3330 | -556. | -441. | -230. | 1772. | -4666. | 4874. | .0073 | .0366 | .0329 | -.0002 | -.0013 | .0082 | 2799. |
| .3340 | -1125. | -461. | -124. | 1727. | -4932. | 4655. | .0102 | .0352 | .0398 | .0020 | -.0046 | .0088 | 2808. |
| .3350 | -1675. | -472. | -7. | 1619. | -5028. | 4289. | .0129 | .0319 | .0446 | .0039 | -.0070 | .0087 | 2730. |
| .3360 | -2111. | -474. | 97. | 1451. | -4946. | 3784. | .0153 | .0270 | .0471 | .0056 | -.0023 | .0080 | 2566. |
| .3370 | -2447. | -459. | 190. | 1226. | -4696. | 2152. | .0170 | .0206 | .0473 | .0071 | -.0089 | .0065 | 2322. |

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2 SAFETY COLD FKM24F--2 PSV

CONDITION 24
LOADS
SHOCK
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ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | MEMBER | SEQUENCE | LOCATION | END | TYPE | EL | DX | DY | DZ | RX | RY | RZ | STRESS |
|------------|---------|----------|----------|------------|------------|------------|-------|--------|--------|-------|--------|--------|--------|
| TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | MX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | (IN) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) |
| .3380 | -2552. | -424. | 278. | 950. | -4293. | 2410. | .0180 | .0130 | .0454 | .0083 | -.0088 | .0044 | 2012. |
| .3390 | -2792. | -370. | 342. | 633. | -3748. | 1586. | .0181 | .0044 | .0415 | .0092 | -.0081 | .0015 | 1653. |
| .3400 | -2674. | -304. | 363. | 289. | -3077. | 713. | .0174 | -.0049 | .0358 | .0096 | -.0068 | -.0018 | 1273. |
| .3410 | -2342. | -229. | 340. | -70. | -2304. | -173. | .0160 | -.0144 | .0285 | .0097 | -.0051 | -.0054 | 927. |
| .3420 | -1888. | -145. | 295. | -430. | -1461. | -1037. | .0140 | -.0239 | .0201 | .0095 | -.0031 | -.0093 | 739. |
| .3430 | -1407. | -54. | 248. | -777. | -585. | -1844. | .0116 | -.0329 | .0110 | .0090 | -.0008 | -.0133 | 837. |
| .3440 | -939. | 36. | 206. | -1098. | 293. | -2561. | .0090 | -.0412 | .0017 | .0083 | .0016 | -.0171 | 1124. |
| .3450 | -469. | 117. | 163. | -1378. | 1148. | -3154. | .0064 | -.0483 | -.0076 | .0076 | .0042 | -.0206 | 1456. |
| .3460 | -43. | 183. | 126. | -1607. | 1951. | -3602. | .0042 | -.0542 | -.0164 | .0066 | .0068 | -.0235 | 1766. |
| .3470 | 234. | 234. | 119. | -1777. | 2670. | -3895. | .0024 | -.0586 | -.0243 | .0056 | .0093 | -.0258 | 2025. |
| .3480 | 287. | 270. | 159. | -1887. | 3276. | -4032. | .0011 | -.0614 | -.0310 | .0045 | .0115 | -.0273 | 2218. |
| .3490 | 157. | 290. | 233. | -1935. | 3750. | -4016. | .0004 | -.0626 | -.0361 | .0034 | .0133 | -.0281 | 2338. |
| .3500 | -65. | 289. | 319. | -1923. | 4088. | -3857. | .0003 | -.0622 | -.0396 | .0024 | .0147 | -.0280 | 2384. |
| .3510 | -337. | 269. | 403. | -1857. | 4283. | -3576. | .0008 | -.0604 | -.0412 | .0016 | .0155 | -.0272 | 2360. |
| .3520 | -677. | 239. | 493. | -1743. | 4328. | -3202. | .0017 | -.0573 | -.0410 | .0010 | .0157 | -.0259 | 2271. |
| .3530 | -1092. | 206. | 589. | -1592. | 4214. | -2767. | .0027 | -.0532 | -.0388 | .0008 | .0149 | -.0241 | 2121. |
| .3540 | -1468. | 170. | 664. | -1414. | 3949. | -2298. | .0038 | -.0481 | -.0346 | .0009 | .0132 | -.0221 | 1919. |
| .3550 | -1649. | 128. | 677. | -1217. | 3552. | -1816. | .0048 | -.0425 | -.0286 | .0013 | .0106 | -.0197 | 1674. |
| .3560 | -1604. | 83. | 622. | -1007. | 3037. | -1343. | .0059 | -.0364 | -.0208 | .0020 | .0070 | -.0172 | 1392. |
| .3570 | -1443. | 41. | 527. | -795. | 2408. | -903. | .0068 | -.0301 | -.0114 | .0030 | .0025 | -.0146 | 1080. |
| .3580 | -1266. | 10. | 418. | -585. | 1673. | -509. | .0074 | -.0237 | -.0004 | .0044 | -.0031 | -.0121 | 740. |
| .3590 | -1036. | -14. | 288. | -381. | 853. | -165. | .0079 | -.0174 | .0121 | .0062 | -.0097 | -.0098 | 381. |
| .3600 | -669. | -39. | 116. | -183. | -22. | 134. | .0085 | -.0113 | .0257 | .0083 | -.0169 | -.0075 | 91. |
| .3610 | -189. | -70. | -91. | 9. | -929. | 397. | .0094 | -.0054 | .0403 | .0107 | -.0246 | -.0052 | 405. |
| .3620 | 232. | -101. | -290. | 193. | -1859. | 626. | .0105 | .0001 | .0557 | .0134 | -.0328 | -.0030 | 791. |
| .3630 | 444. | -128. | -442. | 368. | -2807. | 827. | .0119 | .0053 | .0718 | .0162 | -.0414 | -.0009 | 1184. |
| .3640 | 474. | -155. | -552. | 533. | -3752. | 1011. | .0137 | .0100 | .0883 | .0191 | -.0503 | .0011 | 1574. |
| .3650 | 441. | -191. | -648. | 689. | -4662. | 1188. | .0160 | .0143 | .1049 | .0221 | -.0590 | .0031 | 1950. |
| .3660 | 375. | -237. | -736. | 836. | -5516. | 1365. | .0188 | .0181 | .1212 | .0252 | -.0675 | .0051 | 2305. |
| .3670 | 159. | -283. | -784. | 972. | -6309. | 1535. | .0220 | .0213 | .1371 | .0284 | -.0757 | .0068 | 2635. |
| .3680 | -298. | -319. | -767. | 1092. | -7039. | 1688. | .0253 | .0239 | .1524 | .0314 | -.0837 | .0081 | 2938. |
| .3690 | -884. | -347. | -711. | 1190. | -7688. | 1821. | .0285 | .0257 | .1666 | .0345 | -.0912 | .0090 | 3206. |
| .3700 | -1380. | -372. | -668. | 1261. | -8229. | 1929. | .0316 | .0266 | .1796 | .0374 | -.0982 | .0094 | 3429. |
| .3710 | -1679. | -394. | -663. | 1302. | -8646. | 2004. | .0345 | .0267 | .1909 | .0401 | -.1043 | .0094 | 3600. |
| .3720 | -1889. | -404. | -669. | 1308. | -8947. | 2027. | .0368 | .0259 | .2004 | .0427 | -.1098 | .0087 | 3718. |
| .3730 | -2136. | -388. | -651. | 1273. | -9141. | 1980. | .0383 | .0240 | .2081 | .0451 | -.1147 | .0072 | 3788. |
| .3740 | -2319. | -351. | -633. | 1198. | -9218. | 1856. | .0391 | .0212 | .2138 | .0473 | -.1190 | .0050 | 3804. |
| .3750 | -2240. | -303. | -663. | 1085. | -9157. | 1659. | .0391 | .0174 | .2174 | .0493 | -.1222 | .0022 | 3760. |

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKM24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| | | | | | | | | | | | | | |
|-------|--------|-------|-------|-------|--------|-------|-------|-------|-------|-------|--------|-------|-------|
| .3650 | 441. | -191. | -648. | 689. | -4662. | 1188. | .0160 | .0143 | .1049 | .0221 | -.0590 | .0031 | 1950. |
| .3660 | 375. | -237. | -736. | 836. | -5516. | 1365. | .0188 | .0181 | .1212 | .0252 | -.0675 | .0051 | 2305. |
| .3670 | 159. | -283. | -784. | 972. | -6309. | 1535. | .0220 | .0213 | .1371 | .0284 | -.0757 | .0068 | 2635. |
| .3680 | -298. | -319. | -767. | 1092. | -7039. | 1688. | .0253 | .0239 | .1524 | .0314 | -.0837 | .0081 | 2938. |
| .3690 | -884. | -347. | -711. | 1190. | -7688. | 1821. | .0285 | .0257 | .1666 | .0345 | -.0912 | .0090 | 3206. |
| .3700 | -1380. | -372. | -668. | 1261. | -8229. | 1929. | .0316 | .0266 | .1796 | .0374 | -.0982 | .0094 | 3429. |
| .3710 | -1679. | -394. | -663. | 1302. | -8646. | 2004. | .0345 | .0267 | .1909 | .0401 | -.1047 | .0094 | 3600. |
| .3720 | -1889. | -404. | -669. | 1308. | -8947. | 2027. | .0368 | .0259 | .2004 | .0427 | -.1098 | .0087 | 3718. |
| .3730 | -2136. | -388. | -651. | 1273. | -9141. | 1980. | .0383 | .0240 | .2081 | .0451 | -.1147 | .0072 | 3788. |
| .3740 | -2319. | -351. | -633. | 1198. | -9218. | 1856. | .0391 | .0212 | .2138 | .0473 | -.1190 | .0050 | 3804. |
| .3750 | -2240. | -303. | -663. | 1085. | -9157. | 1659. | .0391 | .0174 | .2174 | .0493 | -.1222 | .0022 | 3760. |

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DIS/ADLPIPE

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKM24F--2 PSV

CONDITION 24
LOADS
SHOCK
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INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | 46 | MEMBER | 2 | SEQUENCE | 266 | LOCATION | END | TYPE | EL | | | | | |
|------------|---------|---------|---------|------------|------------|------------|---------|---------|---------|----------|----------|----------|--------------|--|
| TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | MX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | STRESS (PSI) | |
| .3760 | -1859. | -251. | -755. | 935. | -8958. | 1392. | .0386 | .0128 | .2187 | .0510 | -.1245 | -.0009 | 3657. | |
| .3770 | -1385. | -187. | -855. | 750. | -8646. | 1052. | .0376 | .0073 | .2181 | .0524 | -.1258 | -.0044 | 3508. | |
| .3780 | -1064. | -104. | -905. | 531. | -8251. | 634. | .0359 | .0013 | .2156 | .0535 | -.1266 | -.0083 | 3327. | |
| .3790 | -879. | -4. | -907. | 285. | -7778. | 149. | .0337 | -.0052 | .2115 | .0542 | -.1266 | -.0125 | 3124. | |
| .3800 | -602. | 93. | -921. | 24. | -7216. | -381. | .0313 | -.0120 | .2057 | .0547 | -.1257 | -.0166 | 2900. | |
| .3810 | -62. | 173. | -992. | -241. | -6557. | -930. | .0289 | -.0187 | .1984 | .0548 | -.1238 | -.0201 | 2659. | |
| .3820 | 522. | 242. | -1066. | -502. | -5834. | -1487. | .0267 | -.0253 | .1899 | .0545 | -.1210 | -.0232 | 2425. | |
| .3830 | 806. | 315. | -1061. | -755. | -5095. | -2047. | .0243 | -.0313 | .1807 | .0538 | -.1179 | -.0260 | 2224. | |
| .3840 | 823. | 389. | -986. | -994. | -4346. | -2587. | .0219 | -.0367 | .1708 | .0528 | -.1144 | -.0283 | 2069. | |
| .3850 | 869. | 444. | -916. | -1210. | -3570. | -3077. | .0198 | -.0411 | .1603 | .0513 | -.1104 | -.0297 | 1953. | |
| .3860 | 1079. | 471. | -887. | -1391. | -2765. | -3492. | .0180 | -.0443 | .1494 | .0496 | -.1057 | -.0300 | 1872. | |
| .3870 | 1241. | 483. | -848. | -1534. | -1962. | -3827. | .0164 | -.0463 | .1384 | .0476 | -.1008 | -.0295 | 1832. | |
| .3880 | 1115. | 498. | -740. | -1634. | -1200. | -4085. | .0147 | -.0468 | .1276 | .0451 | -.0960 | -.0284 | 1830. | |
| .3890 | 813. | 511. | -590. | -1688. | -481. | -4253. | .0129 | -.0457 | .1171 | .0424 | -.0915 | -.0266 | 1846. | |
| .3900 | 657. | 507. | -482. | -1691. | 213. | -4310. | .0110 | -.0430 | .1069 | .0393 | -.0871 | -.0239 | 1860. | |
| .3910 | 792. | 480. | -453. | -1643. | 882. | -4244. | .0092 | -.0387 | .0972 | .0359 | -.0827 | -.0202 | 1860. | |
| .3920 | 1013. | 444. | -453. | -1546. | 1496. | -4061. | .0072 | -.0327 | .0881 | .0323 | -.0787 | -.0158 | 1844. | |
| .3930 | 1072. | 415. | -420. | -1404. | 2020. | -3773. | .0049 | -.0252 | .0800 | .0286 | -.0755 | -.0111 | 1807. | |
| .3940 | 1037. | 390. | -371. | -1219. | 2456. | -3383. | .0022 | -.0161 | .0730 | .0248 | -.0729 | -.0059 | 1747. | |
| .3950 | 1181. | 353. | -374. | -987. | 2828. | -2885. | -.0004 | -.0057 | .0670 | .0211 | -.0708 | -.0002 | 1669. | |
| .3960 | 1594. | 297. | -455. | -712. | 3143. | -2285. | -.0028 | .0059 | .0620 | .0176 | -.0689 | .0061 | 1585. | |
| .3970 | 2026. | 233. | -549. | -403. | 3372. | -1604. | -.0050 | .0184 | .0583 | .0141 | -.0677 | .0128 | 1507. | |
| .3980 | 2194. | 174. | -588. | -69. | 3487. | -866. | -.0071 | .0317 | .0560 | .0108 | -.0672 | .0196 | 1442. | |
| .3990 | 2141. | 116. | -583. | 282. | 3496. | -84. | -.0090 | .0455 | .0552 | .0077 | -.0574 | .0265 | 1408. | |
| .4000 | 2128. | 43. | -598. | 642. | 3430. | 734. | -.0102 | .0594 | .0556 | .0050 | -.0580 | .0337 | 1431. | |

MAXIMUM VALUE OF STRESS OCCURS AT

| TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | MX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | STRESS (PSI) |
|------------|---------|---------|---------|------------|------------|------------|---------|---------|---------|----------|----------|----------|--------------|
| .2700 | -3802. | -143. | 1663. | -1444. | 9180. | -3112. | -.0026 | -.0333 | -.1327 | -.0293 | .0592 | .0040 | 3933. |

| SECTION | 47 | MEMBER | 1 | SEQUENCE | 266 | LOCATION | BEG | TYPE | RU | | | | | |
|------------|---------|---------|---------|------------|------------|------------|---------|---------|---------|----------|----------|----------|--------------|--|
| TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | MX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | STRESS (PSI) | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

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S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKM24F--2 PSV

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING

| TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | MX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | STRESS (PSI) |
|------------|---------|---------|---------|------------|------------|------------|---------|---------|---------|----------|----------|----------|--------------|
| .2700 | -3802. | -143. | 1663. | -1444. | 9180. | -2112. | -.0026 | -.0333 | -.1327 | -.0293 | .0592 | .0040 | 3933. |

| SECTION | MEMBER | SEQUENCE | LOCATION | BEG | TYPE | RU | DX | DY | DZ | RX | RY | RZ | STRESS |
|------------|---------|----------|----------|------------|------------|------------|------|------|------|-------|-------|-------|--------|
| TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | MX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | (IN) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) |
| 47 | 1 | 266 | | | | | | | | | | | |

ADLPIPE PAGE 1831 DIS/ADLPIPE ADLPIPE STRESS ANALYSIS 83/12/02. 18.28.57.
 S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
 2 SAFETY COLD FKW24F--2 PSV
 CONDITION 24
 LOADS
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INTERNAL FORCES IN THE PIPING
 FORCES AND MOMENTS ACT ON THE PIPING

| SECTION | MEMBER | SEQUENCE | LOCATION | BEG | TYPE | RU | DX | DY | DZ | RX | RY | RZ | STRESS |
|------------|---------|----------|----------|------------|------------|------------|--------|--------|--------|--------|--------|--------|--------|
| TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | MX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | (IN) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) |
| 0.0000 | 0. | 0. | 0. | 0. | 0. | 0. | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0. |
| .0010 | -0. | -0. | 0. | -0. | 0. | 0. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0020 | -0. | -0. | 0. | 0. | 0. | 0. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0030 | -0. | -0. | 0. | 0. | 0. | 0. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0040 | -2. | -0. | 1. | 0. | 0. | 0. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0050 | -4. | -1. | 1. | 0. | -0. | 1. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0060 | -8. | -1. | 1. | 0. | -1. | 1. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0070 | -12. | -1. | 2. | 0. | -1. | 1. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 1. |
| .0080 | -17. | -1. | 2. | -0. | -2. | 0. | -.0000 | .0000 | -.0000 | -.0000 | .0000 | -.0000 | 1. |
| .0090 | -18. | -0. | 1. | -1. | -3. | -0. | -.0000 | .0000 | -.0000 | -.0000 | .0000 | .0000 | 1. |
| .0100 | -14. | 0. | 1. | -0. | -2. | -1. | -.0000 | .0000 | -.0000 | -.0000 | .0000 | .0000 | 1. |
| .0110 | -4. | 1. | 1. | 1. | -1. | -3. | -.0000 | .0000 | -.0000 | .0000 | .0000 | .0000 | 1. |
| .0120 | 6. | 1. | 0. | 3. | 1. | -5. | .0000 | .0000 | .0000 | .0001 | -.0000 | -.0000 | 2. |
| .0130 | 10. | 1. | -1. | 5. | 2. | -7. | .0000 | .0000 | .0000 | .0002 | -.0000 | -.0000 | 4. |
| .0140 | 9. | 2. | -2. | 8. | 1. | -11. | .0000 | .0000 | .0000 | .0003 | .0000 | -.0001 | 5. |
| .0150 | 8. | 2. | -2. | 12. | 2. | -13. | .0000 | .0000 | .0001 | .0005 | .0000 | -.0001 | 7. |
| .0160 | 7. | 1. | -1. | 16. | 4. | -15. | .0000 | .0000 | .0001 | .0006 | -.0000 | -.0001 | 9. |
| .0170 | 5. | 0. | 1. | 20. | 7. | -15. | .0000 | .0000 | .0001 | .0007 | -.0000 | -.0002 | 10. |
| .0180 | -4. | -1. | 3. | 24. | 10. | -16. | -.0000 | -.0000 | .0001 | .0008 | -.0000 | -.0002 | 12. |
| .0190 | -20. | -1. | 5. | 28. | 13. | -17. | -.0000 | -.0000 | .0001 | .0009 | -.0000 | -.0003 | 14. |
| .0200 | -41. | -1. | 8. | 32. | 15. | -18. | -.0001 | -.0000 | .0002 | .0010 | -.0000 | -.0003 | 16. |
| .0210 | -54. | -2. | 10. | 37. | 18. | -19. | -.0001 | -.0001 | .0002 | .0012 | -.0000 | -.0004 | 18. |
| .0220 | -53. | -3. | 11. | 45. | 21. | -21. | -.0001 | -.0001 | .0002 | .0014 | -.0000 | -.0004 | 22. |
| .0230 | -48. | -4. | 11. | 53. | 21. | -23. | -.0001 | -.0001 | .0002 | .0017 | -.0000 | -.0005 | 25. |
| .0240 | -42. | -4. | 8. | 57. | 18. | -21. | -.0001 | -.0001 | .0002 | .0019 | -.0000 | -.0005 | 25. |
| .0250 | -32. | -4. | 5. | 53. | 14. | -14. | -.0000 | -.0001 | .0002 | .0018 | -.0000 | -.0005 | 23. |
| .0260 | -21. | -4. | 2. | 49. | 13. | -6. | .0000 | -.0001 | .0003 | .0017 | .0000 | -.0004 | 20. |
| .0270 | 1. | -2. | -0. | 51. | 13. | -5. | .0001 | -.0001 | .0003 | .0016 | -.0000 | -.0003 | 21. |
| .0280 | 36. | -0. | -3. | 53. | 13. | -5. | .0001 | -.0001 | .0003 | .0015 | -.0001 | -.0002 | 22. |
| .0290 | 71. | 0. | -8. | 43. | 8. | -1. | .0002 | -.0000 | .0002 | .0012 | -.0000 | -.0001 | 18. |
| .0300 | 107. | 3. | -17. | 33. | -4. | 1. | .0002 | -.0000 | .0002 | .0010 | .0000 | -.0000 | 13. |
| .0310 | 163. | 5. | -29. | 28. | -23. | 2. | .0003 | .0000 | .0001 | .0009 | .0001 | .0000 | 15. |
| .0320 | 194. | 7. | -41. | 18. | -50. | 9. | .0005 | .0000 | -.0001 | .0006 | .0001 | .0002 | 22. |
| .0330 | 176. | 9. | -48. | 3. | -80. | 23. | .0005 | .0001 | -.0002 | .0001 | .0002 | .0004 | 33. |
| .0340 | 179. | 8. | -49. | -13. | -102. | 40. | .0004 | .0001 | -.0004 | -.0006 | .0001 | .0007 | 44. |
| .0350 | 251. | 2. | -51. | -32. | -117. | 56. | .0003 | .0002 | -.0005 | -.0015 | -.0001 | .0008 | 54. |
| .0360 | 312. | 2. | -59. | -57. | -141. | 65. | .0003 | .0002 | -.0007 | -.0025 | -.0002 | .0011 | 66. |
| .0370 | 271. | 14. | -70. | -78. | -180. | 57. | .0005 | .0003 | -.0010 | -.0032 | -.0000 | .0014 | 82. |

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 CONDITION 24
 LOADS
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INTERNAL FORCES IN THE PIPING
 FORCES AND MOMENTS ACT ON THE PIPING