

50-305

RESPONSE TO NUREG-0737 ITEM II.D.1

Docket # *50-305*

Control # *8403280048*

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

| | | | | | | | | | | | | | |
|-------|--------|-------|--------|------|-------|--------|--------|--------|-------|-------|--------|--------|------|
| .3340 | -931. | -948. | -1407. | -84. | -120. | -819. | -1045 | -.0382 | .0444 | .0620 | -.0032 | -.0306 | 334. |
| .3350 | -961. | -916. | -1459. | 16. | -25. | -1001. | -.0004 | -.0423 | .0432 | .0594 | -.0021 | -.0295 | 402. |
| .3360 | -991. | -888. | -1479. | 96. | 73. | -1166. | .0052 | -.0466 | .0417 | .0568 | -.0001 | -.0279 | 471. |
| .3370 | -1029. | -871. | -1490. | 161. | 163. | -1312. | .0096 | -.0510 | .0398 | .0541 | .0026 | -.0260 | 535. |
| .3380 | -1086. | -863. | -1501. | 208. | 272. | -1438. | .0135 | -.0552 | .0378 | .0515 | .0061 | -.0236 | 591. |
| .3390 | -1156. | -856. | -1518. | 242. | 277. | -1551. | .0169 | -.0592 | .0356 | .0493 | .0103 | -.0208 | 639. |
| .3400 | -1222. | -844. | -1546. | 264. | 305. | -1652. | .0196 | -.0629 | .0334 | .0476 | .0150 | -.0178 | 682. |
| .3410 | -1268. | -818. | -1577. | 272. | 323. | -1733. | .0217 | -.0660 | .0312 | .0463 | .0201 | -.0145 | 716. |
| .3420 | -1294. | -775. | -1592. | 265. | 332. | -1782. | .0231 | -.0685 | .0291 | .0455 | .0256 | -.0113 | 735. |
| .3430 | -1300. | -718. | -1579. | 250. | 327. | -1797. | .0241 | -.0703 | .0273 | .0450 | .0314 | -.0083 | 740. |
| .3440 | -1286. | -644. | -1547. | 270. | 307. | -1778. | .0246 | -.0717 | .0257 | .0446 | .0375 | -.0058 | 730. |
| .3450 | -1254. | -551. | -1506. | 207. | 278. | -1732. | .0249 | -.0715 | .0243 | .0441 | .0435 | -.0042 | 709. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.27.33.

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 | RU | | | | | | | | |
|------------|---------|----------|----------|------------|------------|------------|---------|---------|---------|----------|----------|----------|--------------|--|
| TIME (SEC) | FX (LB) | FY (LB) | FZ (LB) | NX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | STRESS (PSI) | |
| .3460 | -1222. | -445. | -1460. | 186. | 246. | -1665. | .0250 | -.0708 | .0230 | .0432 | .0494 | -.0035 | 680. | |
| .3470 | -1205. | -343. | -1410. | 181. | 213. | -1583. | .0252 | -.0694 | .0217 | .0416 | .0551 | -.0040 | 645. | |
| .3480 | -1205. | -260. | -1364. | 204. | 185. | -1489. | .0255 | -.0674 | .0204 | .0389 | .0502 | -.0057 | 608. | |
| .3490 | -1212. | -202. | -1327. | 251. | 175. | -1384. | .0261 | -.0648 | .0189 | .0350 | .0544 | -.0085 | 569. | |
| .3500 | -1216. | -166. | -1304. | 307. | 197. | -1269. | .0271 | -.0617 | .0171 | .0299 | .0576 | -.0121 | 530. | |
| .3510 | -1210. | -153. | -1290. | 367. | 252. | -1150. | .0287 | -.0582 | .0150 | .0238 | .0594 | -.0162 | 495. | |
| .3520 | -1193. | -169. | -1270. | 437. | 333. | -1035. | .0308 | -.0544 | .0127 | .0167 | .0598 | -.0205 | 470. | |
| .3530 | -1162. | -217. | -1242. | 517. | 432. | -933. | .0332 | -.0505 | .0100 | .0091 | .0588 | -.0247 | 462. | |
| .3540 | -1115. | -289. | -1214. | 595. | 535. | -855. | .0360 | -.0466 | .0070 | .0011 | .0564 | -.0285 | 470. | |
| .3550 | -1057. | -374. | -1182. | 658. | 634. | -817. | .0390 | -.0427 | .0038 | -.0069 | .0527 | -.0317 | 492. | |
| .3560 | -999. | -466. | -1136. | 703. | 724. | -830. | .0419 | -.0390 | .0003 | -.0147 | .0578 | -.0342 | 525. | |
| .3570 | -943. | -563. | -1068. | 735. | 804. | -897. | .0445 | -.0355 | -.0032 | -.0221 | .0521 | -.0357 | 566. | |
| .3580 | -889. | -650. | -980. | 753. | 873. | -1012. | .0467 | -.0324 | -.0068 | -.0290 | .0458 | -.0363 | 616. | |
| .3590 | -831. | -752. | -876. | 761. | 933. | -1164. | .0482 | -.0295 | -.0103 | -.0353 | .0390 | -.0359 | 672. | |
| .3600 | -765. | -831. | -763. | 763. | 983. | -1333. | .0489 | -.0269 | -.0134 | -.0408 | .0320 | -.0346 | 732. | |
| .3610 | -685. | -897. | -648. | 769. | 1018. | -1493. | .0485 | -.0244 | -.0160 | -.0456 | .0249 | -.0324 | 788. | |
| .3620 | -593. | -953. | -529. | 793. | 1028. | -1623. | .0470 | -.0220 | -.0179 | -.0497 | .0180 | -.0295 | 834. | |
| .3630 | -489. | -1001. | -403. | 845. | 997. | -1706. | .0441 | -.0197 | -.0190 | -.0532 | .0115 | -.0260 | 862. | |
| .3640 | -369. | -1038. | -269. | 924. | 915. | -1736. | .0399 | -.0173 | -.0193 | -.0562 | .0055 | -.0222 | 870. | |
| .3650 | -232. | -1057. | -122. | 1012. | 782. | -1703. | .0344 | -.0148 | -.0189 | -.0587 | .0001 | -.0184 | 855. | |
| .3660 | -83. | -1050. | 52. | 1086. | 608. | -1606. | .0276 | -.0121 | -.0180 | -.0608 | -.0047 | -.0147 | 815. | |
| .3670 | 74. | -1012. | 259. | 1131. | 401. | -1447. | .0199 | -.0091 | -.0166 | -.0625 | -.0087 | -.0114 | 755. | |
| .3680 | 238. | -946. | 493. | 1146. | 170. | -1238. | .0114 | -.0059 | -.0150 | -.0636 | -.0121 | -.0083 | 680. | |
| .3690 | 407. | -856. | 745. | 1137. | -72. | -993. | .0024 | -.0025 | -.0133 | -.0642 | -.0150 | -.0055 | 606. | |
| .3700 | 575. | -744. | 1001. | 1107. | -305. | -722. | -.0066 | .0011 | -.0117 | -.0641 | -.0174 | -.0029 | 544. | |
| .3710 | 734. | -613. | 1240. | 1052. | -513. | -437. | -.0154 | .0048 | -.0103 | -.0634 | -.0195 | -.0005 | 502. | |
| .3720 | 883. | -474. | 1443. | 980. | -681. | -152. | -.0235 | .0085 | -.0093 | -.0623 | -.0216 | .0018 | 483. | |
| .3730 | 1020. | -346. | 1606. | 907. | -802. | 117. | -.0305 | .0120 | -.0088 | -.0610 | -.0239 | .0039 | 488. | |
| .3740 | 1144. | -237. | 1738. | 844. | -872. | 350. | -.0361 | .0152 | -.0089 | -.0598 | -.0265 | .0057 | 507. | |
| .3750 | 1254. | -139. | 1837. | 766. | -888. | 541. | -.0402 | .0180 | -.0098 | -.0587 | -.0297 | .0072 | 518. | |
| .3760 | 1350. | -46. | 1904. | 647. | -852. | 691. | -.0426 | .0204 | -.0113 | -.0580 | -.0335 | .0082 | 511. | |
| .3770 | 1431. | 34. | 1949. | 493. | -774. | 800. | -.0433 | .0223 | -.0135 | -.0579 | -.0379 | .0087 | 489. | |
| .3780 | 1499. | 89. | 1976. | 334. | -669. | 864. | -.0424 | .0236 | -.0162 | -.0585 | -.0428 | .0089 | 458. | |
| .3790 | 1556. | 116. | 1979. | 187. | -550. | 880. | -.0400 | .0240 | -.0193 | -.0597 | -.0480 | .0090 | 423. | |
| .3800 | 1601. | 126. | 1952. | 58. | -421. | 850. | -.0364 | .0237 | -.0224 | -.0614 | -.0534 | .0090 | 381. | |
| .3810 | 1633. | 119. | 1893. | -35. | -282. | 773. | -.0318 | .0227 | -.0253 | -.0635 | -.0585 | .0091 | 330. | |
| .3820 | 1648. | 96. | 1794. | -92. | -131. | 660. | -.0266 | .0209 | -.0279 | -.0657 | -.0631 | .0094 | 273. | |
| .3830 | 1642. | 64. | 1654. | -117. | 23. | 526. | -.0211 | .0185 | -.0301 | -.0677 | -.0668 | .0100 | 216. | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.27.33.

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

| | | | | | | | | | | | | | |
|-------|-------|-------|-------|-------|-------|------|--------|-------|--------|--------|--------|-------|------|
| .3730 | 1020. | -346. | 606. | 907. | -802. | 117. | -.0305 | .0120 | -.0088 | -.0610 | -.0239 | .0039 | 488. |
| .3740 | 1144. | -237. | 1738. | 844. | -872. | 350. | -.0361 | .0152 | -.0089 | -.0598 | -.0265 | .0057 | 507. |
| .3750 | 1254. | -139. | 1837. | 766. | -888. | 541. | -.0412 | .0180 | -.0098 | -.0587 | -.0297 | .0072 | 518. |
| .3760 | 1350. | -46. | 1904. | 647. | -852. | 691. | -.0426 | .0204 | -.0113 | -.0580 | -.0335 | .0082 | 511. |
| .3770 | 1431. | 34. | 1949. | 493. | -774. | 800. | -.0433 | .0223 | -.0135 | -.0579 | -.0379 | .0087 | 489. |
| .3780 | 1499. | 89. | 1976. | 334. | -669. | 894. | -.0424 | .0236 | -.0162 | -.0585 | -.0428 | .0089 | 458. |
| .3790 | 1556. | 116. | 1979. | 187. | -550. | 880. | -.0400 | .0240 | -.0173 | -.0597 | -.0480 | .0090 | 423. |
| .3800 | 1601. | 126. | 1952. | 58. | -421. | 850. | -.0364 | .0237 | -.0224 | -.0614 | -.0534 | .0090 | 381. |
| .3810 | 1633. | 119. | 1893. | -35. | -282. | 773. | -.0318 | .0227 | -.0253 | -.0635 | -.0585 | .0091 | 330. |
| .3820 | 1648. | 96. | 1794. | -62. | -131. | 660. | -.0266 | .0209 | -.0279 | -.0657 | -.0631 | .0094 | 273. |
| .3830 | 1642. | 64. | 1654. | -117. | 23. | 526. | -.0211 | .0185 | -.0301 | -.0677 | -.0668 | .0100 | 216. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.33.

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 | 30 | MEMBER | 2 | SEQUENCE | 55 | LOCATION | END | TYPE | RU | | | | | | |
|---------|-------|--------|-------|----------|---------|----------|--------|--------|--------|--------|--------|-------|--------|--|--|
| TIME | FX | FY | FZ | HX | 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) | | |
| .3840 | 1610. | 24. | 1486. | -103. | 168. | 368. | -.0159 | .0155 | -.0316 | -.0695 | -.0591 | .0111 | 168. | | |
| .3850 | 1547. | -10. | 1301. | -61. | 295. | 191. | -.0111 | .0121 | -.0325 | -.0707 | -.0698 | .0125 | 143. | | |
| .3860 | 1450. | -23. | 1103. | -23. | 404. | 8. | -.0073 | .0084 | -.0326 | -.0711 | -.0685 | .0145 | 162. | | |
| .3870 | 1323. | -18. | 904. | 10. | 485. | -177. | -.0044 | .0045 | -.0319 | -.0706 | -.0652 | .0171 | 207. | | |
| .3880 | 1176. | -12. | 727. | 71. | 526. | -373. | -.0027 | .0004 | -.0303 | -.0694 | -.0598 | .0203 | 260. | | |
| .3890 | 1023. | -9. | 583. | 174. | 524. | -583. | -.0022 | -.0038 | -.0280 | -.0672 | -.0524 | .0241 | 322. | | |
| .3900 | 872. | 13. | 464. | 272. | 489. | -784. | -.0028 | -.0077 | -.0249 | -.0638 | -.0434 | .0284 | 387. | | |
| .3910 | 728. | 71. | 365. | 320. | 430. | -949. | -.0044 | -.0108 | -.0213 | -.0591 | -.0331 | .0331 | 437. | | |
| .3920 | 594. | 147. | 289. | 337. | 345. | -1068. | -.0069 | -.0132 | -.0171 | -.0534 | -.0218 | .0379 | 470. | | |
| .3930 | 471. | 214. | 243. | 366. | 234. | -1140. | -.0100 | -.0148 | -.0127 | -.0469 | -.0099 | .0427 | 490. | | |
| .3940 | 363. | 268. | 220. | 408. | 111. | -1165. | -.0136 | -.0155 | -.0083 | -.0400 | .0021 | .0473 | 497. | | |
| .3950 | 267. | 325. | 207. | 430. | -1. | -1141. | -.0173 | -.0153 | -.0041 | -.0330 | .0136 | .0512 | 489. | | |
| .3960 | 184. | 386. | 200. | 423. | -82. | -1076. | -.0209 | -.0142 | -.0003 | -.0261 | .0244 | .0541 | 465. | | |
| .3970 | 114. | 439. | 209. | 411. | -125. | -985. | -.0241 | -.0122 | .0030 | -.0196 | .0341 | .0560 | 431. | | |
| .3980 | 58. | 476. | 242. | 409. | -138. | -873. | -.0270 | -.0095 | .0056 | -.0135 | .0425 | .0568 | 391. | | |
| .3990 | 19. | 513. | 299. | 399. | -129. | -738. | -.0293 | -.0061 | .0077 | -.0079 | .0494 | .0566 | 341. | | |
| .4000 | -3. | 569. | 372. | 356. | -101. | -578. | -.0312 | -.0021 | .0091 | -.0025 | .0546 | .0556 | 275. | | |

MAXIMUM VALUE OF STRESS OCCURS AT

| TIME | FX | FY | FZ | HX | 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) | | |
| .1170 | -1697. | 817. | -3337. | 3902. | -1237. | -4330. | .0361 | -.0015 | .0032 | -.0071 | .0520 | .0361 | 2391. | | |

| SECTION | 31 | MEMBER | 1 | SEQUENCE | 55 | LOCATION | BEG | TYPE | EL | | | | | | |
|---------|-------|--------|-------|----------|---------|----------|--------|--------|--------|--------|--------|--------|--------|--|--|
| TIME | FX | FY | FZ | HX | 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 | -3. | 1. | -3. | 3. | 2. | -2. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | 2. | | |
| .0030 | -13. | -1. | -15. | 11. | 7. | -4. | -.0001 | .0000 | -.0001 | .0000 | -.0000 | .0001 | 6. | | |
| .0040 | -37. | -13. | -42. | 29. | 19. | -7. | -.0003 | .0001 | -.0002 | .0002 | -.0000 | .0003 | 14. | | |
| .0050 | -80. | -39. | -89. | 56. | 45. | -12. | -.0006 | .0001 | -.0004 | .0005 | .0002 | .0008 | 29. | | |
| .0060 | -142. | -75. | -157. | 92. | 84. | -28. | -.0013 | .0002 | -.0008 | .0007 | .0005 | .0014 | 51. | | |
| .0070 | -226. | -110. | -243. | 136. | 137. | -61. | -.0021 | .0004 | -.0014 | .0008 | .0010 | .0021 | 81. | | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.33.

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

| 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) |
|------------|---------|---------|---------|------------|------------|------------|---------|---------|---------|----------|----------|----------|--------------|
| 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. | -0.0000 | .0000 | -0.0000 | -0.0000 | -0.0000 | -0.0000 | 0. |
| .0020 | -3. | 1. | -3. | 3. | 2. | -2. | -0.0000 | .0000 | -0.0000 | -0.0000 | -0.0000 | .0000 | 2. |
| .0030 | -13. | -1. | -15. | 11. | 7. | -4. | -0.0001 | .0000 | -0.0001 | .0000 | -0.0000 | .0001 | 6. |
| .0040 | -37. | -13. | -42. | 29. | 19. | -7. | -0.0003 | .0001 | -0.0002 | .0002 | -0.0000 | .0003 | 14. |
| .0050 | -80. | -39. | -89. | 56. | 45. | -12. | -0.0006 | .0001 | -0.0004 | .0005 | .0002 | .0008 | 29. |
| .0060 | -142. | -75. | -157. | 92. | 84. | -23. | -0.0013 | .0002 | -0.0008 | .0007 | .0005 | .0014 | 51. |
| .0070 | -226. | -110. | -243. | 136. | 137. | -61. | -0.0021 | .0004 | -0.0014 | .0008 | .0010 | .0021 | 81. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.33.

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) |
|---------|--------|----------|----------|-----|------|----|------------|---------|---------|---------|------------|------------|------------|---------|---------|---------|----------|----------|----------|--------------|
| 31 | 1 | 55 | | | | | .0080 | -343. | -138. | -336. | 191. | 223. | -116. | -0.0033 | .0006 | -0.0023 | .0007 | .0016 | .0028 | 127. |
| | | | | | | | .0090 | -507. | -175. | -436. | 246. | 362. | -194. | -0.0051 | .0009 | -0.0034 | .0006 | .0029 | .0041 | 192. |
| | | | | | | | .0100 | -721. | -246. | -545. | 283. | 567. | -288. | -0.0074 | .0013 | -0.0047 | .0007 | .0060 | .0061 | 279. |
| | | | | | | | .0110 | -965. | -354. | -664. | 286. | 821. | -398. | -0.0102 | .0017 | -0.0061 | .0006 | .0113 | .0086 | 384. |
| | | | | | | | .0120 | -1177. | -472. | -803. | 261. | 1047. | -516. | -0.0129 | .0021 | -0.0078 | -0.0004 | .0186 | .0106 | 480. |
| | | | | | | | .0130 | -1277. | -557. | -981. | 234. | 1141. | -624. | -0.0148 | .0027 | -0.0102 | -0.0034 | .0270 | .0108 | 530. |
| | | | | | | | .0140 | -1222. | -598. | -1196. | 214. | 1040. | -698. | -0.0154 | .0034 | -0.0133 | -0.0085 | .0353 | .0086 | 510. |
| | | | | | | | .0150 | -1022. | -613. | -1405. | 166. | 766. | -727. | -0.0144 | .0041 | -0.0170 | -0.0158 | .0428 | .0041 | 429. |
| | | | | | | | .0160 | -712. | -596. | -1507. | 22. | 400. | -732. | -0.0118 | .0047 | -0.0205 | -0.0246 | .0492 | -0.0019 | 335. |
| | | | | | | | .0170 | -342. | -476. | -1358. | -268. | 67. | -753. | -0.0076 | .0052 | -0.0230 | -0.0344 | .0545 | -0.0084 | 322. |
| | | | | | | | .0180 | 50. | -201. | -860. | -719. | -128. | -788. | -0.0017 | .0054 | -0.0236 | -0.0443 | .0588 | -0.0144 | 431. |
| | | | | | | | .0190 | 460. | 174. | -50. | -1308. | -171. | -764. | .0062 | .0052 | -0.0215 | -0.0529 | .0627 | -0.0191 | 612. |
| | | | | | | | .0200 | 826. | 560. | 950. | -1931. | -33. | -595. | .0158 | .0046 | -0.0166 | -0.0586 | .0665 | -0.0212 | 811. |
| | | | | | | | .0210 | 1100. | 806. | 1912. | -2459. | 250. | -201. | .0263 | .0036 | -0.0091 | -0.0594 | .0719 | -0.0192 | 995. |
| | | | | | | | .0220 | 1411. | 629. | 2391. | -2827. | 372. | 493. | .0372 | .0022 | -0.0003 | -0.0548 | .0814 | -0.0133 | 1161. |
| | | | | | | | .0230 | 1785. | 84. | 2285. | -2948. | 178. | 1403. | .0481 | .0003 | .0074 | -0.0481 | .0910 | -0.0071 | 1312. |
| | | | | | | | .0240 | 2304. | -389. | 1854. | -2755. | -416. | 2329. | .0593 | .0000 | .0120 | -0.0446 | .0914 | -0.0058 | 1458. |
| | | | | | | | .0250 | 2832. | -228. | 1768. | -2416. | -991. | 2937. | .0693 | .0000 | .0143 | -0.0464 | .0911 | -0.0090 | 1577. |
| | | | | | | | .0260 | 3130. | 492. | 2497. | -2451. | -967. | 3039. | .0752 | .0003 | .0182 | -0.0498 | .0713 | -0.0096 | 1614. |
| | | | | | | | .0270 | 3449. | 940. | 3504. | -3150. | -842. | 3004. | .0769 | .0001 | .0247 | -0.0503 | .0694 | -0.0041 | 1779. |
| | | | | | | | .0280 | 3848. | 1011. | 4401. | -3901. | -1033. | 3247. | .0771 | -0.0002 | .0301 | -0.0490 | .0583 | .0018 | 2079. |
| | | | | | | | .0290 | 3909. | 1346. | 5460. | -4197. | -1003. | 3495. | .0756 | .0004 | .0331 | -0.0483 | .0293 | .0047 | 2228. |
| | | | | | | | .0300 | 3610. | 1708. | 6320. | -4605. | -649. | 3137. | .0696 | .0013 | .0383 | -0.0470 | .0102 | .0100 | 2251. |
| | | | | | | | .0310 | 3007. | 2048. | 6676. | -4957. | -91. | 2163. | .0585 | .0027 | .0456 | -0.0434 | .0076 | .0187 | 2171. |
| | | | | | | | .0320 | 2116. | 2407. | 6293. | -4408. | 540. | 1238. | .0451 | .0052 | .0493 | -0.0373 | .0027 | .0256 | 1850. |
| | | | | | | | .0330 | 1393. | 2230. | 4794. | -3012. | 615. | 972. | .0322 | .0082 | .0469 | -0.0293 | -0.0104 | .0269 | 1294. |
| | | | | | | | .0340 | 1062. | 1427. | 2520. | -1526. | 11. | 1073. | .0190 | .0107 | .0406 | -0.0208 | -0.0228 | .0237 | 749. |
| | | | | | | | .0350 | 685. | 939. | 751. | -360. | -340. | 760. | .0038 | .0129 | .0328 | -0.0144 | -0.0336 | .0176 | 364. |
| | | | | | | | .0360 | -0. | 1232. | 221. | 333. | 147. | -190. | -0.0136 | .0149 | .0251 | -0.0109 | -0.0451 | .0108 | 165. |
| | | | | | | | .0370 | -566. | 1570. | 356. | 388. | 741. | -1230. | -0.0309 | .0157 | .0186 | -0.0069 | -0.0530 | .0064 | 597. |
| | | | | | | | .0380 | -625. | 1376. | 417. | 105. | 535. | -1719. | -0.0442 | .0150 | .0126 | .0005 | -0.0510 | .0041 | 724. |
| | | | | | | | .0390 | -537. | 920. | 352. | 107. | -207. | -1625. | -0.0511 | .0137 | .0056 | .0099 | -0.0817 | -0.0006 | 659. |
| | | | | | | | .0400 | -1147. | 486. | 193. | 497. | -350. | -1757. | -0.0564 | .0126 | -0.0020 | .0196 | -0.1078 | -0.0063 | 746. |
| | | | | | | | .0410 | -2197. | -25. | -464. | 780. | -32. | -2642. | -0.0637 | .0115 | -0.0061 | .0298 | -0.1129 | -0.0072 | 1106. |
| | | | | | | | .0420 | -3354. | -187. | -1700. | 1546. | 470. | -3943. | -0.0718 | .0114 | -0.0097 | .0403 | -0.1026 | -0.0053 | 1710. |
| | | | | | | | .0430 | -3957. | -154. | -2730. | 2628. | 846. | -4378. | -0.0736 | .0106 | -0.0123 | .0499 | -0.0993 | -0.0085 | 2077. |
| | | | | | | | .0440 | -3919. | -983. | -3999. | 3522. | 779. | -3615. | -0.0696 | .0079 | -0.0156 | .0583 | -0.1030 | -0.0187 | 2049. |
| | | | | | | | .0450 | -3413. | -2338. | -5283. | 3785. | 335. | -2551. | -0.0640 | .0037 | -0.0178 | .0646 | -0.0985 | -0.0301 | 1837. |

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ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.33.

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

| | | | | | | | | | | | | | |
|-------|--------|--------|--------|-------|-------|--------|--------|-------|--------|--------|--------|--------|-------|
| .0350 | 685. | 939. | 751. | 360. | -740. | 760. | .038 | .0129 | .0328 | -.0144 | -.0336 | .0176 | 364. |
| .0360 | -0. | 1232. | 221. | 333. | 147. | -190. | -.136 | .0149 | .0251 | -.0109 | -.0451 | .0108 | 165. |
| .0370 | -566. | 1570. | 356. | 388. | 741. | -1270. | -.0309 | .0157 | .0186 | -.0069 | -.0530 | .0064 | 597. |
| .0380 | -625. | 1376. | 417. | 105. | 535. | -1719. | -.0442 | .0150 | .0126 | .0005 | -.0510 | .0041 | 724. |
| .0390 | -537. | 920. | 352. | 107. | -207. | -1625. | -.0511 | .0137 | .0056 | .0099 | -.0517 | -.0006 | 659. |
| .0400 | -1147. | 486. | 193. | 497. | -250. | -1757. | -.0564 | .0126 | -.0020 | .0196 | -.1078 | -.0063 | 746. |
| .0410 | -2197. | -25. | -464. | 780. | -32. | -2642. | -.0637 | .0115 | -.0061 | .0298 | -.1129 | -.0072 | 1106. |
| .0420 | -3354. | -187. | -1700. | 1546. | 470. | -3943. | -.0718 | .0114 | -.0097 | .0403 | -.1026 | -.0053 | 1710. |
| .0430 | -3957. | -154. | -2730. | 2628. | 846. | -4378. | -.0736 | .0106 | -.0123 | .0499 | -.0993 | -.0085 | 2077. |
| .0440 | -3919. | -983. | -2999. | 3522. | 779. | -3615. | -.0696 | .0079 | -.0156 | .0583 | -.1030 | -.0187 | 2049. |
| .0450 | -3413. | -2338. | -5283. | 3785. | 335. | -2551. | -.0640 | .0037 | -.0178 | .0646 | -.0985 | -.0301 | 1837. |

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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 | 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) |
|---------|--------|----------|----------|-----|------|----|------------|---------|---------|---------|------------|------------|------------|---------|---------|---------|----------|----------|----------|--------------|
| .0460 | 31 | 1 | 55 | | | | .0460 | -2804. | -2731. | -5679. | 3706. | 32. | -2156. | -.0589 | -.0004 | -.0176 | .0660 | -.0876 | -.0401 | 1721. |
| .0470 | | | | | | | .0470 | -2490. | -1961. | -5114. | 3709. | 189. | -2508. | -.0547 | -.0034 | -.0170 | .0625 | -.0327 | -.0503 | 1798. |
| .0480 | | | | | | | .0480 | -2477. | -1257. | -4259. | 3530. | 467. | -3062. | -.0516 | -.0065 | -.0160 | .0599 | -.0302 | -.0567 | 1886. |
| .0490 | | | | | | | .0490 | -2446. | -1205. | -3294. | 2846. | 555. | -3319. | -.0485 | -.0110 | -.0109 | .0644 | -.0690 | -.0537 | 1769. |
| .0500 | | | | | | | .0500 | -2308. | -1385. | -2243. | 2162. | 494. | -3084. | -.0439 | -.0162 | -.0026 | .0761 | -.0525 | -.0439 | 1524. |
| .0510 | | | | | | | .0510 | -1902. | -1596. | -1310. | 1775. | 311. | -2289. | -.0367 | -.0215 | .0066 | .0896 | -.0378 | -.0352 | 1169. |
| .0520 | | | | | | | .0520 | -1165. | -1819. | -628. | 1550. | -7. | -1171. | -.0277 | -.0268 | .0159 | .1011 | -.0220 | -.0298 | 779. |
| .0530 | | | | | | | .0530 | -362. | -1787. | -138. | 1558. | -154. | -110. | -.0194 | -.0314 | .0255 | .1108 | -.0000 | -.0244 | 630. |
| .0540 | | | | | | | .0540 | 228. | -1580. | 53. | 1953. | 82. | 834. | -.0130 | -.0347 | .0341 | .1206 | .0264 | -.0176 | 853. |
| .0550 | | | | | | | .0550 | 623. | -1630. | -101. | 2504. | 485. | 1812. | -.0075 | -.0367 | .0407 | .1304 | .0522 | -.0109 | 1256. |
| .0560 | | | | | | | .0560 | 1036. | -1746. | -158. | 2851. | 750. | 2718. | -.0013 | -.0379 | .0457 | .1362 | .0742 | -.0061 | 1609. |
| .0570 | | | | | | | .0570 | 1727. | -1218. | 407. | 2872. | 693. | 3273. | .0074 | -.0379 | .0503 | .1342 | .0916 | -.0046 | 1769. |
| .0580 | | | | | | | .0580 | 2790. | 56. | 1633. | 2589. | 213. | 3477. | .0196 | -.0367 | .0552 | .1249 | .1030 | -.0076 | 1742. |
| .0590 | | | | | | | .0590 | 3953. | 1407. | 3231. | 1994. | -549. | 3608. | .0344 | -.0349 | .0603 | .1133 | .1068 | -.0130 | 1669. |
| .0600 | | | | | | | .0600 | 4835. | 2210. | 4851. | 1112. | -1241. | 3856. | .0495 | -.0333 | .0657 | .1046 | .1063 | -.0153 | 1686. |
| .0610 | | | | | | | .0610 | 5198. | 2476. | 6080. | 263. | -1506. | 4066. | .0618 | -.0317 | .0713 | .1013 | .1076 | -.0120 | 1743. |
| .0620 | | | | | | | .0620 | 5118. | 2623. | 6718. | -190. | -1293. | 3992. | .0701 | -.0292 | .0762 | .1021 | .1127 | -.0060 | 1686. |
| .0630 | | | | | | | .0630 | 4790. | 2908. | 6873. | -148. | -757. | 3631. | .0755 | -.0257 | .0792 | .1040 | .1176 | -.0028 | 1489. |
| .0640 | | | | | | | .0640 | 4449. | 3030. | 6489. | 218. | -218. | 3290. | .0795 | -.0220 | .0791 | .1048 | .1192 | -.0060 | 1326. |
| .0650 | | | | | | | .0650 | 4287. | 2588. | 5364. | 763. | -50. | 3252. | .0827 | -.0187 | .0749 | .1051 | .1172 | -.0158 | 1341. |
| .0660 | | | | | | | .0660 | 4321. | 1806. | 3898. | 1368. | -300. | 3437. | .0847 | -.0158 | .0676 | .1062 | .1110 | -.0290 | 1489. |
| .0670 | | | | | | | .0670 | 4286. | 1234. | 2910. | 1771. | -530. | 3434. | .0840 | -.0133 | .0595 | .1084 | .1020 | -.0406 | 1565. |
| .0680 | | | | | | | .0680 | 3984. | 910. | 2749. | 1549. | -432. | 2962. | .0794 | -.0119 | .0535 | .1105 | .0956 | -.0468 | 1353. |
| .0690 | | | | | | | .0690 | 3449. | 550. | 3127. | 674. | -194. | 2140. | .0718 | -.0120 | .0497 | .1126 | .0918 | -.0476 | 904. |
| .0700 | | | | | | | .0700 | 2748. | 147. | 3639. | -280. | -57. | 1299. | .0631 | -.0128 | .0461 | .1150 | .0833 | -.0456 | 534. |
| .0710 | | | | | | | .0710 | 1963. | -289. | 3986. | -878. | -36. | 693. | .0543 | -.0141 | .0416 | .1176 | .0697 | -.0424 | 449. |
| .0720 | | | | | | | .0720 | 1271. | -956. | 3461. | -1177. | -122. | 375. | .0449 | -.0157 | .0369 | .1192 | .0597 | -.0381 | 498. |
| .0730 | | | | | | | .0730 | 741. | -1694. | 2318. | -1130. | -279. | 223. | .0348 | -.0171 | .0315 | .1178 | .0542 | -.0349 | 475. |
| .0740 | | | | | | | .0740 | 239. | -2030. | 816. | -496. | -326. | 76. | .0247 | -.0175 | .0239 | .1114 | .0435 | -.0360 | 240. |
| .0750 | | | | | | | .0750 | -321. | -2001. | -748. | 463. | -136. | -130. | .0144 | -.0172 | .0145 | .1001 | .0261 | -.0405 | 201. |
| .0760 | | | | | | | .0760 | -933. | -2007. | -2124. | 1105. | 295. | -418. | .0030 | -.0172 | .0060 | .0861 | .0096 | -.0431 | 488. |
| .0770 | | | | | | | .0770 | -1616. | -1981. | -2920. | 1226. | 934. | -825. | -.0089 | -.0179 | -.0002 | .0722 | -.0041 | -.0404 | 701. |
| .0780 | | | | | | | .0780 | -2315. | -1624. | -2930. | 1058. | 1630. | -1302. | -.0199 | -.0186 | -.0043 | .0595 | -.0188 | -.0326 | 939. |
| .0790 | | | | | | | .0790 | -2803. | -1141. | -2461. | 663. | 1999. | -1659. | -.0281 | -.0195 | -.0066 | .0483 | -.0336 | -.0221 | 1076. |
| .0800 | | | | | | | .0800 | -2912. | -928. | -1976. | 67. | 1723. | -1710. | -.0327 | -.0209 | -.0076 | .0384 | -.0464 | -.0109 | 975. |
| .0810 | | | | | | | .0810 | -2772. | -901. | -1639. | -394. | 977. | -1459. | -.0340 | -.0221 | -.0087 | .0303 | -.0595 | -.0007 | 722. |
| .0820 | | | | | | | .0820 | -2579. | -838. | -1482. | -476. | 210. | -1045. | -.0338 | -.0224 | -.0101 | .0245 | -.0717 | .0089 | 468. |
| .0830 | | | | | | | .0830 | -2368. | -826. | -1568. | -372. | -303. | -589. | -.0341 | -.0218 | -.0106 | .0211 | -.0764 | .0195 | 305. |

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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

| | | | | | | | | | | | | | |
|-------|--------|--------|--------|--------|-------|--------|--------|--------|--------|-------|--------|--------|-------|
| .0730 | 741. | -1694. | 2318. | -1130. | -272. | 223. | 348. | -.0171 | .0315 | .1178 | .0542 | -.0349 | 475. |
| .0740 | 239. | -2030. | 816. | -496. | -326. | 76. | .247 | -.0175 | .0239 | .1114 | .0435 | -.0360 | 240. |
| .0750 | -321. | -2001. | -742. | 462. | -136. | -130. | .0144 | -.0172 | .0145 | .1001 | .0261 | -.0405 | 201. |
| .0760 | -933. | -2007. | -2124. | 1105. | 295. | -418. | .0030 | -.0172 | .0060 | .0861 | .0096 | -.0431 | 488. |
| .0770 | -1616. | -1981. | -2920. | 1276. | 934. | -821. | -.0089 | -.0179 | -.0002 | .0722 | -.0041 | -.0404 | 701. |
| .0780 | -2315. | -1624. | -2930. | 1058. | 1630. | -1302. | -.0199 | -.0186 | -.0043 | .0595 | -.0188 | -.0326 | 939. |
| .0790 | -2803. | -1141. | -2461. | 663. | 1999. | -1659. | -.0281 | -.0195 | -.0066 | .0483 | -.0336 | -.0221 | 1076. |
| .0800 | -2912. | -928. | -1976. | 67. | 1723. | -1710. | -.0327 | -.0209 | -.0076 | .0384 | -.0464 | -.0109 | 975. |
| .0810 | -2772. | -901. | -1639. | -394. | 577. | -1459. | -.0340 | -.0221 | -.0087 | .0303 | -.0595 | -.0007 | 722. |
| .0820 | -2579. | -838. | -1482. | -476. | 210. | -1045. | -.0338 | -.0224 | -.0101 | .0245 | -.0717 | .0089 | 468. |
| .0830 | -2368. | -826. | -1568. | -372. | -303. | -589. | -.0341 | -.0218 | -.0106 | .0211 | -.0764 | .0195 | 305. |

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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 | 31 | MEMBER | 1 | SEQUENCE | 55 | LOCATION | BLG | TYPE | EL | | | | | | |
|---------|--------|--------|--------|----------|---------|----------|-----|------|--------|--------|--------|--------|--------|--------|-------|
| TIME | FX | FY | FZ | MX | MY | MZ | | | | DZ | PX | RY | RZ | STRESS | |
| (SEC) | (LB) | (LB) | (LB) | (FT-LB) | (FT-LB) | (FT-LB) | | | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) | |
| .0840 | -2132. | -914. | -1775. | -294. | -497. | -135. | | | -.0349 | -.0204 | -.0101 | .0181 | -.0744 | .0300 | 238. |
| .0850 | -1876. | -888. | -1822. | -234. | -400. | 302. | | | -.0347 | -.0180 | -.0095 | .0125 | -.0744 | .0367 | 222. |
| .0860 | -1500. | -642. | -1568. | -307. | -197. | 680. | | | -.0319 | -.0147 | -.0082 | .0026 | -.0786 | .0377 | 310. |
| .0870 | -936. | -253. | -996. | -739. | -100. | 913. | | | -.0265 | -.0108 | -.0046 | -.0110 | -.0821 | .0357 | 473. |
| .0880 | -337. | 276. | -103. | -1467. | -126. | 937. | | | -.0192 | -.0062 | .0015 | -.0265 | -.0836 | .0340 | 700. |
| .0890 | 60. | 933. | 940. | -2184. | -178. | 741. | | | -.0109 | -.0008 | .0087 | -.0419 | -.0854 | .0336 | 928. |
| .0900 | 166. | 1568. | 1798. | -2712. | -225. | 318. | | | -.0034 | .0055 | .0158 | -.0560 | -.0859 | .0345 | 1100. |
| .0910 | 30. | 2095. | 2276. | -3010. | -242. | -331. | | | .0019 | .0124 | .0213 | -.0682 | -.0814 | .0362 | 1219. |
| .0920 | -179. | 2590. | 2391. | -3012. | -202. | -1061. | | | .0046 | .0196 | .0239 | -.0793 | -.0721 | .0365 | 1284. |
| .0930 | -195. | 3073. | 2180. | -2689. | -199. | -1587. | | | .0055 | .0266 | .0225 | -.0897 | -.0510 | .0327 | 1255. |
| .0940 | 130. | 3423. | 1697. | -2158. | -355. | -1718. | | | .0055 | .0328 | .0172 | -.0986 | -.0492 | .0244 | 1116. |
| .0950 | 631. | 3522. | 1068. | -1588. | -600. | -1543. | | | .0043 | .0379 | .0088 | -.1046 | -.0365 | .0140 | 921. |
| .0960 | 969. | 3315. | 383. | -1089. | -738. | -1346. | | | .0012 | .0420 | -.0016 | -.1063 | -.0230 | .0041 | 755. |
| .0970 | 908. | 2895. | -377. | -611. | -696. | -1413. | | | -.0038 | .0455 | -.0131 | -.1034 | -.0087 | -.0038 | 678. |
| .0980 | 405. | 2461. | -1249. | 15. | -570. | -1868. | | | -.0100 | .0492 | -.0255 | -.0959 | .0053 | -.0089 | 784. |
| .0990 | -407. | 2020. | -2297. | 870. | -523. | -2559. | | | -.0159 | .0533 | -.0389 | -.0848 | .0172 | -.0121 | 1105. |
| .1000 | -1261. | 1351. | -3593. | 1824. | -695. | -3159. | | | -.0199 | .0573 | -.0533 | -.0714 | .0258 | -.0159 | 1490. |
| .1010 | -1879. | 436. | -5017. | 2710. | -1119. | -3437. | | | -.0208 | .0608 | -.0682 | -.0579 | .0301 | -.0227 | 1813. |
| .1020 | -2137. | -387. | -6226. | 3449. | -1636. | -3421. | | | -.0188 | .0638 | -.0827 | -.0465 | .0296 | -.0328 | 2057. |
| .1030 | -2124. | -900. | -6933. | 3911. | -1947. | -3264. | | | -.0147 | .0660 | -.0952 | -.0386 | .0254 | -.0447 | 2188. |
| .1040 | -2040. | -1272. | -7080. | 3875. | -1830. | -3070. | | | -.0096 | .0666 | -.1039 | -.0344 | .0204 | -.0558 | 2116. |
| .1050 | -2067. | -1556. | -6746. | 3404. | -1289. | -2950. | | | -.0041 | .0656 | -.1079 | -.0325 | .0160 | -.0636 | 1880. |
| .1060 | -2239. | -1639. | -6111. | 2799. | -554. | -2961. | | | .0024 | .0634 | -.1069 | -.0319 | .0118 | -.0677 | 1650. |
| .1070 | -2435. | -1627. | -5521. | 2252. | 21. | -3026. | | | .0104 | .0602 | -.1019 | -.0324 | .0384 | -.0696 | 1514. |
| .1080 | -2618. | -1772. | -5084. | 1710. | 374. | -2998. | | | .0199 | .0558 | -.0938 | -.0341 | .0055 | -.0705 | 1393. |
| .1090 | -2850. | -1956. | -4575. | 1165. | 770. | -2869. | | | .0288 | .0503 | -.0826 | -.0350 | .0061 | -.0685 | 1280. |
| .1100 | -2531. | -1655. | -4336. | 1164. | 544. | -2556. | | | .0369 | .0449 | -.0704 | -.0319 | .0150 | -.0623 | 1148. |
| .1110 | -1977. | -1538. | -4149. | 1319. | 213. | -1707. | | | .0431 | .0382 | -.0596 | -.0267 | .0222 | -.0543 | 870. |
| .1120 | -1506. | -2336. | -3677. | 776. | 248. | -302. | | | .0464 | .0288 | -.0506 | -.0230 | .0244 | -.0454 | 348. |
| .1130 | -944. | -2964. | -2547. | -305. | 549. | 971. | | | .0458 | .0187 | -.0410 | -.0207 | .0300 | -.0328 | 464. |
| .1140 | -184. | -2305. | -656. | -1192. | 976. | 1711. | | | .0423 | .0109 | -.0298 | -.0176 | .0405 | -.0158 | 924. |
| .1150 | 550. | -1400. | 1447. | -1959. | 1419. | 2400. | | | .0306 | .0052 | -.0181 | -.0135 | .0482 | .0027 | 1367. |
| .1160 | 1109. | -1701. | 2965. | -3048. | 1533. | 3439. | | | .0365 | .0005 | -.0070 | -.0095 | .0512 | .0203 | 1944. |
| .1170 | 1495. | -2348. | 3814. | -3902. | 1237. | 4330. | | | .0361 | -.0015 | .0032 | -.0071 | .0520 | .0361 | 2391. |
| .1180 | 1963. | -1901. | 3953. | -3700. | 399. | 4427. | | | .0370 | .0019 | .0115 | -.0094 | .0528 | .0471 | 2321. |
| .1190 | 2076. | -542. | 3886. | -2723. | -135. | 3776. | | | .0379 | .0095 | .0158 | -.0201 | .0429 | .0493 | 1869. |
| .1200 | 1712. | 282. | 3763. | -2212. | -35. | 2806. | | | .0370 | .0181 | .0172 | -.0382 | .0271 | .0456 | 1434. |
| .1210 | 1340. | 537. | 3539. | -2388. | 318. | 1662. | | | .0331 | .0269 | .0184 | -.0572 | .0204 | .0424 | 1174. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.33.

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

| | | | | | | | | | | | | | |
|-------|--------|--------|--------|--------|-------|--------|-------|--------|--------|--------|-------|--------|-------|
| .1100 | -2531. | -1655. | -336. | 1164. | 544. | -2556. | .0369 | .0449 | -.0704 | -.0719 | .0150 | -.0623 | 1148. |
| .1110 | -1977. | -1538. | -4149. | 1319. | 213. | -1707. | .0431 | .0382 | -.0596 | -.0267 | .0222 | -.0543 | 870. |
| .1120 | -1506. | -2336. | -3677. | 776. | 248. | -302. | .0464 | .0288 | -.0506 | -.0230 | .0244 | -.0454 | 348. |
| .1130 | -944. | -2964. | -2547. | -305. | 549. | 971. | .0458 | .0187 | -.0410 | -.0207 | .0300 | -.0328 | 464. |
| .1140 | -184. | -2305. | -656. | -1192. | 976. | 1711. | .0423 | .0109 | -.0298 | -.0176 | .0405 | -.0158 | 924. |
| .1150 | 550. | -1400. | 1447. | -1959. | 1419. | 2406. | .0366 | .0052 | -.0181 | -.0135 | .0482 | .0027 | 1367. |
| .1160 | 1109. | -1701. | 2965. | -3048. | 1533. | 3439. | .0365 | .0005 | -.0070 | -.0095 | .0512 | .0203 | 1944. |
| .1170 | 1495. | -2348. | 3814. | -3902. | 1237. | 4330. | .0361 | -.0015 | .0032 | -.0071 | .0520 | .0361 | 2391. |
| .1180 | 1963. | -1901. | 3953. | -3700. | 399. | 4427. | .0370 | .0019 | .0115 | -.0094 | .0528 | .0471 | 2321. |
| .1190 | 2076. | -542. | 3886. | -2723. | -135. | 3776. | .0379 | .0095 | .0158 | -.0201 | .0429 | .0493 | 1869. |
| .1200 | 1712. | 282. | 3763. | -2212. | -35. | 2806. | .0370 | .0181 | .0172 | -.0382 | .0271 | .0456 | 1434. |
| .1210 | 1240. | 537. | 3539. | -2388. | 318. | 1662. | .0331 | .0269 | .0184 | -.0572 | .0204 | .0424 | 1174. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.33.

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) | PX (DEG) | RY (DEG) | RZ (DEG) | STRESS (PSI) | |
| .1220 | 1148. | 1557. | 3703. | -2160. | 923. | 506. | .0279 | .0378 | .0180 | -.0724 | .0142 | .0396 | 964. | |
| .1230 | 1356. | 2498. | 3892. | -1780. | 1219. | -134. | .0243 | .0491 | .0150 | -.0841 | .0034 | .0339 | 868. | |
| .1240 | 1723. | 2410. | 3919. | -1879. | 1073. | -216. | .0226 | .0585 | .0097 | -.0943 | -.0119 | .0252 | 873. | |
| .1250 | 2010. | 2071. | 3813. | -2069. | 547. | -423. | .0211 | .0669 | .0038 | -.1021 | -.0253 | .0170 | 875. | |
| .1260 | 2123. | 2345. | 3395. | -1619. | -318. | -1221. | .0183 | .0760 | -.0027 | -.1051 | -.0336 | .0117 | 824. | |
| .1270 | 1543. | 2841. | 2907. | -584. | -739. | -2337. | .0129 | .0847 | -.0103 | -.1027 | -.0457 | .0094 | 1011. | |
| .1280 | 432. | 2059. | 1982. | -47. | -773. | -3223. | .0040 | .0900 | -.0175 | -.0953 | -.0523 | .0122 | 1330. | |
| .1290 | -788. | 642. | 865. | 106. | -493. | -3843. | -.0077 | .0922 | -.0237 | -.0850 | -.0498 | .0189 | 1555. | |
| .1300 | -1648. | -36. | -71. | 599. | -72. | -4322. | -.0196 | .0933 | -.0305 | -.0766 | -.0457 | .0222 | 1751. | |
| .1310 | -1836. | -395. | -1103. | 1163. | 16. | -4488. | -.0294 | .0928 | -.0395 | -.0758 | -.0446 | .0153 | 1860. | |
| .1320 | -1784. | -918. | -2085. | 1446. | 63. | -4354. | -.0371 | .0899 | -.0506 | -.0843 | -.0508 | -.0006 | 1841. | |
| .1330 | -1729. | -1459. | -3158. | 1557. | 16. | -4282. | -.0443 | .0853 | -.0616 | -.0967 | -.0548 | -.0164 | 1828. | |
| .1340 | -1948. | -1335. | -4070. | 2020. | 85. | -4568. | -.0520 | .0805 | -.0709 | -.1067 | -.0554 | -.0248 | 2005. | |
| .1350 | -2562. | -1032. | -4706. | 2519. | 373. | -5016. | -.0597 | .0748 | -.0777 | -.1128 | -.0548 | -.0248 | 2257. | |
| .1360 | -3266. | -1455. | -5286. | 2338. | 497. | -5266. | -.0651 | .0664 | -.0818 | -.1178 | -.0518 | -.0194 | 2321. | |
| .1370 | -3782. | -1776. | -5465. | 1945. | 401. | -5280. | -.0661 | .0565 | -.0845 | -.1243 | -.0546 | -.0142 | 2264. | |
| .1380 | -3668. | -1455. | -5421. | 1852. | -232. | -5007. | -.0618 | .0468 | -.0872 | -.1310 | -.0635 | -.0128 | 2144. | |
| .1390 | -3145. | -896. | -5183. | 1971. | -928. | -4290. | -.0541 | .0373 | -.0898 | -.1356 | -.0779 | -.0138 | 1931. | |
| .1400 | -2667. | -919. | -4861. | 1802. | -1147. | -3146. | -.0463 | .0272 | -.0912 | -.1355 | -.0914 | -.0124 | 1526. | |
| .1410 | -2320. | -1458. | -4698. | 1393. | -1023. | -1943. | -.0401 | .0174 | -.0904 | -.1294 | -.0975 | -.0061 | 1043. | |
| .1420 | -2223. | -1377. | -4322. | 1513. | -522. | -1064. | -.0343 | .0100 | -.0886 | -.1185 | -.1061 | .0020 | 771. | |
| .1430 | -2181. | -961. | -3874. | 1943. | -44. | -413. | -.0276 | .0049 | -.0855 | -.1055 | -.1174 | .0092 | 797. | |
| .1440 | -2108. | -865. | -3335. | 2091. | 259. | 262. | -.0192 | .0007 | -.0796 | -.0917 | -.1276 | .0161 | 852. | |
| .1450 | -1849. | -1023. | -2638. | 1907. | 198. | 1003. | -.0091 | -.0023 | -.0702 | -.0761 | -.1334 | .0239 | 868. | |
| .1460 | -1253. | -1044. | -1059. | 1698. | -381. | 1705. | .0022 | -.0032 | -.0580 | -.0588 | -.1348 | .0311 | 978. | |
| .1470 | -668. | -674. | -705. | 1584. | -836. | 2207. | .0130 | -.0017 | -.0447 | -.0428 | -.1381 | .0352 | 1141. | |
| .1480 | -172. | -479. | 518. | 1076. | -1052. | 2379. | .0208 | -.0012 | -.0304 | -.0304 | -.1358 | .0362 | 1129. | |
| .1490 | 133. | -149. | 1803. | 409. | -871. | 2039. | .0246 | .0058 | -.0157 | -.0212 | -.1267 | .0348 | 905. | |
| .1500 | 292. | 721. | 3078. | 143. | -324. | 1292. | .0249 | .0127 | -.0018 | -.0130 | -.1143 | .0303 | 538. | |
| .1510 | 572. | 1473. | 3824. | 139. | 137. | 604. | .0233 | .0204 | .0106 | -.0045 | -.0969 | .0224 | 255. | |
| .1520 | 916. | 1564. | 4068. | 197. | 457. | 278. | .0212 | .0274 | .0214 | .0044 | -.0779 | .0116 | 229. | |
| .1530 | 1380. | 1234. | 3815. | 316. | 356. | 216. | .0194 | .0333 | .0306 | .0148 | -.0573 | -.0004 | 210. | |
| .1540 | 1706. | 1179. | 3560. | 782. | 181. | 95. | .0172 | .0387 | .0385 | .0281 | -.0386 | -.0106 | 325. | |
| .1550 | 1707. | 1222. | 3511. | 1270. | 270. | -167. | .0130 | .0428 | .0463 | .0456 | -.0181 | -.0151 | 525. | |
| .1560 | 1490. | 620. | 3391. | 1243. | 467. | -394. | .0061 | .0442 | .0544 | .0672 | .0101 | -.0118 | 556. | |
| .1570 | 1013. | -100. | 3465. | 1118. | 929. | -519. | -.0020 | .0436 | .0606 | .0907 | .0358 | -.0041 | 620. | |
| .1580 | 680. | -598. | 3512. | 1163. | 1233. | -502. | -.0095 | .0415 | .0639 | .1124 | .0575 | .0029 | 709. | |
| .1590 | 756. | -1029. | 3290. | 1215. | 1124. | -289. | -.0150 | .0378 | .0640 | .1281 | .0772 | .0058 | 674. | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.33.

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

| | | | | | | | | | | | | | |
|-------|-------|--------|-------|-------|-------|-------|--------|-------|--------|--------|--------|--------|------|
| .1490 | 133. | -149. | 1003. | 409. | -871. | 2039. | .0246 | .0058 | -.0157 | -.0212 | -.1267 | .0346 | 905. |
| .1500 | 292. | 721. | 3078. | 143. | -324. | 1292. | .0249 | .0127 | -.0018 | -.0130 | -.1143 | .0303 | 538. |
| .1510 | 572. | 1473. | 3824. | 179. | 137. | 604. | .0233 | .0204 | .0106 | -.0045 | -.0969 | .0224 | 255. |
| .1520 | 916. | 1564. | 4068. | 197. | 457. | 278. | .0212 | .0274 | .0214 | .0044 | -.0779 | .0116 | 229. |
| .1530 | 1300. | 1274. | 3815. | 316. | 356. | 216. | .0194 | .0333 | .0306 | .0148 | -.0573 | -.0004 | 710. |
| .1540 | 1706. | 1179. | 3560. | 783. | 181. | 95. | .0172 | .0387 | .0385 | .0281 | -.0386 | -.0106 | 325. |
| .1550 | 1707. | 1222. | 3511. | 1270. | 270. | -167. | .0130 | .0428 | .0463 | .0456 | -.0181 | -.0151 | 525. |
| .1560 | 1490. | 620. | 3391. | 1243. | 467. | -394. | .0061 | .0442 | .0544 | .0672 | .0101 | -.0118 | 556. |
| .1570 | 1013. | -100. | 3465. | 1118. | 929. | -519. | -.0020 | .0436 | .0606 | .0907 | .0358 | -.0041 | 620. |
| .1580 | 680. | -598. | 3512. | 1163. | 1233. | -502. | -.0095 | .0415 | .0639 | .1124 | .0575 | .0029 | 709. |
| .1590 | 756. | -1029. | 3290. | 1215. | 1124. | -289. | -.0150 | .0378 | .0640 | .1281 | .0772 | .0058 | 674. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.33.

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) |
|---------|--------|----------|----------|-----|------|----|------------|---------|---------|---------|------------|------------|------------|---------|---------|---------|----------|----------|----------|--------------|
| 31 | 1 | 55 | | | | | .1600 | 1048. | -1393. | 2937. | 1244. | 863. | 89. | -.0182 | .0725 | .0610 | .1352 | .0906 | .0030 | 609. |
| | | | | | | | .1610 | 1357. | -1680. | 2465. | 1264. | 602. | 480. | -.0198 | .0258 | .0559 | .1353 | .0986 | -.0030 | 594. |
| | | | | | | | .1620 | 1621. | -1928. | 1701. | 1255. | 273. | 682. | -.0211 | .0187 | .0509 | .1317 | .1080 | -.0077 | 584. |
| | | | | | | | .1630 | 1497. | -1840. | 1031. | 1398. | 316. | 588. | -.0227 | .0116 | .0462 | .1259 | .1143 | -.0093 | 622. |
| | | | | | | | .1640 | 1059. | -1806. | 393. | 1420. | 599. | 338. | -.0244 | .0041 | .0422 | .1179 | .1179 | -.0083 | 633. |
| | | | | | | | .1650 | 610. | -1941. | -308. | 1224. | 748. | 73. | -.0250 | -.0037 | .0387 | .1074 | .1194 | -.0067 | 576. |
| | | | | | | | .1660 | 244. | -1650. | -726. | 1168. | 805. | -180. | -.0240 | -.0108 | .0348 | .0946 | .1134 | -.0062 | 574. |
| | | | | | | | .1670 | 170. | -1209. | -1018. | 1110. | 584. | -261. | -.0218 | -.0176 | .0307 | .0809 | .1046 | -.0066 | 514. |
| | | | | | | | .1680 | 250. | -997. | -1136. | 860. | 340. | -26. | -.0193 | -.0242 | .0267 | .0686 | .0741 | -.0068 | 371. |
| | | | | | | | .1690 | 421. | -1139. | -1213. | 404. | 78. | 451. | -.0177 | -.0302 | .0232 | .0594 | .0851 | -.0055 | 245. |
| | | | | | | | .1700 | 547. | -1096. | -1141. | 119. | -88. | 899. | -.0173 | -.0344 | .0202 | .0536 | .0759 | -.0027 | 365. |
| | | | | | | | .1710 | 486. | -631. | -765. | 147. | 53. | 1198. | -.0180 | -.0363 | .0178 | .0506 | .0649 | .0012 | 485. |
| | | | | | | | .1720 | 492. | -556. | -622. | 10. | 52. | 1510. | -.0193 | -.0367 | .0175 | .0504 | .0602 | .0061 | 606. |
| | | | | | | | .1730 | 453. | -639. | -519. | -90. | 33. | 1858. | -.0204 | -.0354 | .0186 | .0521 | .0556 | .0104 | 746. |
| | | | | | | | .1740 | 466. | -574. | -464. | 52. | -149. | 2181. | -.0202 | -.0319 | .0205 | .0544 | .0493 | .0128 | 877. |
| | | | | | | | .1750 | 662. | -452. | -552. | 288. | -593. | 2456. | -.0191 | -.0264 | .0233 | .0561 | .0433 | .0128 | 1021. |
| | | | | | | | .1760 | 842. | -235. | -481. | 473. | -902. | 2619. | -.0178 | -.0194 | .0268 | .0560 | .0346 | .0106 | 1128. |
| | | | | | | | .1770 | 979. | -26. | -276. | 411. | -1061. | 2550. | -.0174 | -.0114 | .0313 | .0541 | .0266 | .0077 | 1121. |
| | | | | | | | .1780 | 928. | 496. | 294. | 258. | -843. | 2139. | -.0182 | -.0025 | .0367 | .0509 | .0169 | .0050 | 928. |
| | | | | | | | .1790 | 842. | 1054. | 960. | -63. | -494. | 1523. | -.0200 | .0066 | .0427 | .0468 | .0081 | .0023 | 643. |
| | | | | | | | .1800 | 799. | 1424. | 1522. | -508. | -201. | 907. | -.0216 | .0152 | .0484 | .0417 | -.0014 | -.0016 | 425. |
| | | | | | | | .1810 | 685. | 1863. | 2101. | -792. | 131. | 320. | -.0224 | .0232 | .0530 | .0361 | -.0156 | -.0069 | 347. |
| | | | | | | | .1820 | 668. | 2145. | 2329. | -1006. | 163. | -257. | -.0230 | .0301 | .0571 | .0316 | -.0265 | -.0119 | 422. |
| | | | | | | | .1830 | 590. | 2329. | 2308. | -1081. | 118. | -844. | -.0239 | .0356 | .0604 | .0290 | -.0347 | -.0157 | 552. |
| | | | | | | | .1840 | 375. | 2310. | 2051. | -1039. | 106. | -1379. | -.0258 | .0392 | .0620 | .0282 | -.0415 | -.0185 | 694. |
| | | | | | | | .1850 | 77. | 2096. | 1572. | -904. | 105. | -1812. | -.0288 | .0408 | .0615 | .0292 | -.0468 | -.0199 | 814. |
| | | | | | | | .1860 | -273. | 1940. | 1104. | -633. | 208. | -2141. | -.0329 | .0403 | .0592 | .0321 | -.0511 | -.0195 | 900. |
| | | | | | | | .1870 | -484. | 1674. | 580. | -437. | 218. | -2286. | -.0380 | .0377 | .0558 | .0368 | -.0508 | -.0170 | 938. |
| | | | | | | | .1880 | -620. | 1393. | 230. | -318. | 282. | -2202. | -.0430 | .0330 | .0512 | .0417 | -.0505 | -.0141 | 900. |
| | | | | | | | .1890 | -620. | 1039. | -42. | -316. | 243. | -1902. | -.0473 | .0264 | .0460 | .0461 | -.0499 | -.0115 | 780. |
| | | | | | | | .1900 | -505. | 703. | -330. | -350. | 13. | -1505. | -.0505 | .0186 | .0410 | .0500 | -.0479 | -.0086 | 620. |
| | | | | | | | .1910 | -531. | 598. | -484. | -255. | -98. | -1163. | -.0532 | .0103 | .0366 | .0538 | -.0461 | -.0047 | 479. |
| | | | | | | | .1920 | -734. | 417. | -701. | -204. | -65. | -911. | -.0559 | .0015 | .0337 | .0578 | -.0401 | .0011 | 376. |
| | | | | | | | .1930 | -1103. | 125. | -1008. | -202. | 148. | -755. | -.0587 | -.0072 | .0325 | .0617 | -.0295 | .0076 | 319. |
| | | | | | | | .1940 | -1503. | -80. | -1349. | -112. | 437. | -667. | -.0607 | -.0154 | .0320 | .0646 | -.0170 | .0126 | 323. |
| | | | | | | | .1950 | -1727. | -145. | -1692. | 53. | 639. | -562. | -.0610 | -.0227 | .0317 | .0655 | -.0036 | .0137 | 342. |
| | | | | | | | .1960 | -1663. | -190. | -1990. | 156. | 692. | -343. | -.0594 | -.0293 | .0316 | .0643 | .0107 | .0104 | 316. |
| | | | | | | | .1970 | -1365. | -245. | -2141. | 150. | 644. | -5. | -.0560 | -.0351 | .0316 | .0621 | .0256 | .0039 | 265. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.33.

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

| | | | | | | | | | | | | | |
|-------|--------|-------|--------|-------|------|--------|--------|--------|-------|-------|--------|--------|------|
| .1860 | -273. | 1940. | 1104. | -633. | 208. | -2141. | -.0329 | .0403 | .0592 | .0321 | -.0511 | -.0195 | 900. |
| .1870 | -484. | 1674. | 580. | -437. | 218. | -2286. | -.0380 | .0377 | .0558 | .0368 | -.0508 | -.0170 | 938. |
| .1880 | -620. | 1393. | 230. | -318. | 282. | -2202. | -.0430 | .0330 | .0512 | .0417 | -.0505 | -.0141 | 900. |
| .1890 | -620. | 1039. | -42. | -316. | 243. | -1902. | -.0473 | .0264 | .0460 | .0461 | -.0499 | -.0115 | 780. |
| .1900 | -505. | 703. | -330. | -350. | 13. | -1505. | -.0505 | .0186 | .0410 | .0500 | -.0479 | -.0086 | 620. |
| .1910 | -531. | 598. | -484. | -255. | -98. | -1163. | -.0532 | .0103 | .0366 | .0538 | -.0461 | -.0047 | 479. |
| .1920 | -734. | 417. | -701. | -204. | -65. | -911. | -.0559 | .0015 | .0337 | .0578 | -.0401 | .0011 | 376. |
| .1930 | -1103. | 125. | -1008. | -202. | 148. | -755. | -.0587 | -.0072 | .0325 | .0617 | -.0295 | .0076 | 319. |
| .1940 | -1503. | -80. | -1349. | -112. | 437. | -667. | -.0607 | -.0154 | .0320 | .0646 | -.0170 | .0126 | 323. |
| .1950 | -1727. | -145. | -1692. | 53. | 639. | -582. | -.0610 | -.0227 | .0317 | .0655 | -.0036 | .0137 | 342. |
| .1960 | -1663. | -190. | -1990. | 156. | 692. | -343. | -.0594 | -.0293 | .0316 | .0643 | .0107 | .0104 | 316. |
| .1970 | -1365. | -245. | -2141. | 150. | 644. | -5. | -.0560 | -.0351 | .0316 | .0621 | .0256 | .0039 | 265. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.33.

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) | |
| .1980 | -948. | -277. | -2081. | 62. | 540. | 378. | -.0514 | -.0399 | .0320 | .0608 | .0407 | -.0032 | 266. | |
| .1990 | -516. | -345. | -1832. | -121. | 403. | 739. | -.0458 | -.0435 | .0330 | .0617 | .0561 | -.0092 | 341. | |
| .2000 | -159. | -488. | -1420. | -390. | 285. | 1037. | -.0393 | -.0460 | .0347 | .0649 | .0708 | -.0136 | 459. | |
| .2010 | 94. | -616. | -870. | -654. | 201. | 1244. | -.0318 | -.0470 | .0369 | .0698 | .0836 | -.0166 | 570. | |
| .2020 | 313. | -667. | -286. | -817. | 76. | 1381. | -.0230 | -.0463 | .0393 | .0760 | .0944 | -.0189 | 645. | |
| .2030 | 592. | -697. | 178. | -836. | -160. | 1549. | -.0128 | -.0441 | .0415 | .0826 | .1033 | -.0214 | 709. | |
| .2040 | 951. | -773. | 459. | -703. | -459. | 1830. | -.0015 | -.0406 | .0427 | .0886 | .1087 | -.0255 | 808. | |
| .2050 | 1347. | -832. | 603. | -442. | -722. | 2160. | .0101 | -.0358 | .0429 | .0927 | .1107 | -.0312 | 931. | |
| .2060 | 1727. | -733. | 707. | -116. | -868. | 2373. | .0208 | -.0300 | .0425 | .0945 | .1111 | -.0375 | 1015. | |
| .2070 | 2036. | -421. | 865. | 206. | -857. | 2380. | .0299 | -.0233 | .0418 | .0937 | .1106 | -.0435 | 1019. | |
| .2080 | 2258. | 12. | 1108. | 474. | -730. | 2246. | .0374 | -.0164 | .0410 | .0908 | .1086 | -.0486 | 967. | |
| .2090 | 2436. | 441. | 1397. | 659. | -627. | 2074. | .0433 | -.0096 | .0405 | .0869 | .1052 | -.0524 | 909. | |
| .2100 | 2619. | 826. | 1695. | 753. | -665. | 1903. | .0479 | -.0033 | .0405 | .0830 | .1015 | -.0541 | 863. | |
| .2110 | 2786. | 1186. | 2017. | 765. | -812. | 1716. | .0508 | .0023 | .0413 | .0794 | .0982 | -.0538 | 821. | |
| .2120 | 2892. | 1494. | 2348. | 702. | -965. | 1505. | .0516 | .0070 | .0426 | .0762 | .0952 | -.0519 | 771. | |
| .2130 | 2910. | 1713. | 2620. | 599. | -1039. | 1273. | .0499 | .0105 | .0442 | .0736 | .0930 | -.0487 | 702. | |
| .2140 | 2814. | 1834. | 2773. | 509. | -970. | 1025. | .0454 | .0130 | .0458 | .0720 | .0919 | -.0443 | 602. | |
| .2150 | 2596. | 1811. | 2783. | 435. | -725. | 794. | .0384 | .0142 | .0470 | .0713 | .0916 | -.0390 | 465. | |
| .2160 | 2298. | 1601. | 2656. | 329. | -346. | 616. | .0296 | .0142 | .0476 | .0710 | .0916 | -.0336 | 313. | |
| .2170 | 2007. | 1288. | 2431. | 197. | 40. | 487. | .0204 | .0132 | .0476 | .0701 | .0910 | -.0293 | 211. | |
| .2180 | 1771. | 1018. | 2169. | 98. | 312. | 373. | .0119 | .0116 | .0467 | .0681 | .0881 | -.0264 | 199. | |
| .2190 | 1562. | 799. | 1907. | 29. | 429. | 262. | .0047 | .0095 | .0450 | .0651 | .0821 | -.0244 | 202. | |
| .2200 | 1311. | 525. | 1650. | -78. | 441. | 151. | -.0011 | .0070 | .0426 | .0616 | .0735 | -.0224 | 190. | |
| .2210 | 967. | 200. | 1421. | -233. | 432. | 10. | -.0056 | .0042 | .0396 | .0580 | .0632 | -.0193 | 197. | |
| .2220 | 542. | -65. | 1240. | -364. | 446. | -179. | -.0089 | .0016 | .0358 | .0539 | .0511 | -.0156 | 242. | |
| .2230 | 121. | -234. | 1065. | -416. | 448. | -370. | -.0108 | -.0008 | .0306 | .0489 | .0367 | -.0125 | 287. | |
| .2240 | -210. | -368. | 817. | -370. | 387. | -475. | -.0110 | -.0027 | .0238 | .0424 | .0200 | -.0114 | 287. | |
| .2250 | -419. | -502. | 449. | -198. | 254. | -447. | -.0098 | -.0041 | .0153 | .0347 | .0013 | -.0128 | 221. | |
| .2260 | -533. | -632. | -44. | 123. | 64. | -312. | -.0074 | -.0047 | .0055 | .0266 | -.0184 | -.0160 | 137. | |
| .2270 | -616. | -757. | -628. | 567. | -149. | -139. | -.0048 | -.0045 | -.0050 | .0188 | -.0379 | -.0198 | 242. | |
| .2280 | -748. | -869. | -1218. | 1074. | -323. | -14. | -.0025 | -.0034 | -.0155 | .0117 | -.0568 | -.0231 | 450. | |
| .2290 | -969. | -940. | -1720. | 1583. | -420. | -2. | -.0010 | -.0015 | -.0254 | .0054 | -.0742 | -.0254 | 657. | |
| .2300 | -1250. | -966. | -2080. | 2034. | -470. | -107. | -.0005 | .0011 | -.0340 | .0001 | -.0893 | -.0261 | 839. | |
| .2310 | -1516. | -979. | -2291. | 2385. | -527. | -268. | -.0010 | .0043 | -.0410 | -.0045 | -.1016 | -.0258 | 986. | |
| .2320 | -1694. | -995. | -2363. | 2626. | -613. | -410. | -.0020 | .0079 | -.0464 | -.0090 | -.1112 | -.0253 | 1095. | |
| .2330 | -1741. | -990. | -2320. | 2773. | -714. | -518. | -.0037 | .0119 | -.0502 | -.0140 | -.1176 | -.0253 | 1168. | |
| .2340 | -1471. | -926. | -2198. | 2847. | -789. | -638. | -.0062 | .0163 | -.0522 | -.0199 | -.1202 | -.0261 | 1213. | |
| .2350 | -1549. | -796. | -2023. | 2868. | -770. | -624. | -.0093 | .0211 | -.0525 | -.0268 | -.1190 | -.0278 | 1237. | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.33.

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

| | | | | | | | | | | | | | |
|-------|--------|-------|--------|-------|-------|-------|--------|--------|--------|--------|--------|--------|-------|
| .2250 | -419. | -502. | 449. | -198. | 254. | -447. | -.098 | -.0041 | .0153 | .0347 | .0013 | -.0128 | 221. |
| .2260 | -533. | -632. | -44. | 123. | 64. | -312. | -.074 | -.0047 | .0055 | .0266 | -.0184 | -.0160 | 137. |
| .2270 | -616. | -757. | -628. | 567. | -149. | -139. | -.0048 | -.0045 | -.0050 | .0188 | -.0379 | -.0198 | 242. |
| .2280 | -748. | -869. | -1218. | 1074. | -323. | -14. | -.0025 | -.0034 | -.0155 | .0117 | -.0568 | -.0231 | 450. |
| .2290 | -969. | -940. | -1720. | 1583. | -420. | -2. | -.0010 | -.0015 | -.0254 | .0054 | -.0742 | -.0254 | 657. |
| .2300 | -1250. | -966. | -2080. | 2034. | -470. | -107. | -.0005 | .0011 | -.0340 | .0001 | -.0893 | -.0261 | 839. |
| .2310 | -1516. | -979. | -2291. | 2385. | -527. | -268. | -.0010 | .0043 | -.0410 | -.0045 | -.1016 | -.0258 | 986. |
| .2320 | -1694. | -995. | -2363. | 2626. | -613. | -410. | -.0020 | .0079 | -.0464 | -.0090 | -.1112 | -.0253 | 1095. |
| .2330 | -1741. | -990. | -2320. | 2773. | -714. | -518. | -.0037 | .0119 | -.0502 | -.0140 | -.1176 | -.0253 | 1168. |
| .2340 | -1671. | -926. | -2198. | 2847. | -789. | -638. | -.0062 | .0167 | -.0522 | -.0199 | -.1202 | -.0261 | 1213. |
| .2350 | -1549. | -796. | -2023. | 2868. | -770. | -624. | -.0093 | .0211 | -.0525 | -.0268 | -.1190 | -.0278 | 1237. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.27.33.

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

| SECTION | MEMBER | SEQUENCE | LOCATION | BEG | TYPE | EL | TIME | FX | FY | FZ | MX | MY | MZ | DX | DY | DZ | RX | RY | RZ | STRESS |
|---------|--------|----------|----------|--------|-------|--------|--------|-------|--------|--------|---------|---------|---------|-------|------|------|-------|-------|-------|--------|
| 31 | 1 | 55 | | | | | (SEC) | (LB) | (LB) | (LB) | (FT-LB) | (FT-LB) | (FT-LB) | (IN.) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) |
| .2360 | -1441. | -627. | -1816. | 2846. | -616. | -1089. | -.0131 | .0261 | -.0510 | -.0344 | -.1145 | -.0299 | 1248. | | | | | | | |
| .2370 | -1356. | -447. | -1597. | 2784. | -357. | -1412. | -.0171 | .0312 | -.0477 | -.0422 | -.1067 | -.0319 | 1261. | | | | | | | |
| .2380 | -1266. | -248. | -1357. | 2687. | -68. | -1759. | -.0205 | .0361 | -.0428 | -.0495 | -.0962 | -.0334 | 1289. | | | | | | | |
| .2390 | -1150. | -38. | -1071. | 2544. | 192. | -2082. | -.0229 | .0406 | -.0366 | -.0561 | -.0341 | -.0342 | 1321. | | | | | | | |
| .2400 | -994. | 127. | -725. | 2317. | 392. | -2325. | -.0240 | .0443 | -.0296 | -.0617 | -.0714 | -.0343 | 1326. | | | | | | | |
| .2410 | -794. | 222. | -329. | 2002. | 528. | -2453. | -.0236 | .0470 | -.0223 | -.0659 | -.0584 | -.0333 | 1288. | | | | | | | |
| .2420 | -570. | 281. | 106. | 1651. | 636. | -2472. | -.0223 | .0489 | -.0154 | -.0684 | -.0451 | -.0309 | 1220. | | | | | | | |
| .2430 | -352. | 326. | 550. | 1309. | 757. | -2395. | -.0203 | .0498 | -.0095 | -.0688 | -.0316 | -.0268 | 1137. | | | | | | | |
| .2440 | -137. | 314. | 957. | 964. | 882. | -2214. | -.0179 | .0498 | -.0049 | -.0676 | -.0178 | -.0213 | 1032. | | | | | | | |
| .2450 | 95. | 223. | 1275. | 620. | 965. | -1926. | -.0149 | .0489 | -.0019 | -.0655 | -.0044 | -.0154 | 900. | | | | | | | |
| .2460 | 349. | 111. | 1471. | 336. | 963. | -1562. | -.0110 | .0472 | -.0007 | -.0634 | .0075 | -.0100 | 749. | | | | | | | |
| .2470 | 579. | 17. | 1502. | 167. | 876. | -1194. | -.0065 | .0452 | -.0017 | -.0618 | .0176 | -.0055 | 598. | | | | | | | |
| .2480 | 741. | -65. | 1353. | 94. | 738. | -890. | -.0019 | .0428 | -.0044 | -.0610 | .0266 | -.0015 | 465. | | | | | | | |
| .2490 | 823. | -135. | 1075. | 66. | 580. | -675. | .0026 | .0402 | -.0086 | -.0610 | .0349 | .0023 | 358. | | | | | | | |
| .2500 | 838. | -195. | 737. | 46. | 414. | -525. | .0071 | .0374 | -.0140 | -.0622 | .0415 | .0055 | 269. | | | | | | | |
| .2510 | 822. | -252. | 389. | 7. | 227. | -397. | .0117 | .0343 | -.0203 | -.0645 | .0452 | .0077 | 184. | | | | | | | |
| .2520 | 794. | -298. | 69. | -62. | 33. | -282. | .0162 | .0311 | -.0273 | -.0678 | .0461 | .0092 | 116. | | | | | | | |
| .2530 | 737. | -320. | -193. | -160. | -114. | -191. | .0204 | .0279 | -.0344 | -.0716 | .0450 | .0103 | 110. | | | | | | | |
| .2540 | 626. | -358. | -406. | -286. | -173. | -119. | .0240 | .0247 | -.0414 | -.0753 | .0424 | .0115 | 142. | | | | | | | |
| .2550 | 461. | -445. | -614. | -409. | -168. | -45. | .0271 | .0217 | -.0480 | -.0786 | .0384 | .0127 | 178. | | | | | | | |
| .2560 | 263. | -579. | -845. | -485. | -144. | 44. | .0299 | .0190 | -.0542 | -.0814 | .0329 | .0137 | 204. | | | | | | | |
| .2570 | 44. | -751. | -1095. | -515. | -117. | 147. | .0326 | .0166 | -.0598 | -.0839 | .0259 | .0142 | 220. | | | | | | | |
| .2580 | -177. | -910. | -1331. | -512. | -91. | 231. | .0351 | .0147 | -.0646 | -.0863 | .0181 | .0142 | 228. | | | | | | | |
| .2590 | -383. | -1012. | -1520. | -490. | -65. | 273. | .0373 | .0131 | -.0685 | -.0889 | .0101 | .0141 | 227. | | | | | | | |
| .2600 | -577. | -1101. | -1655. | -494. | -30. | 301. | .0391 | .0117 | -.0716 | -.0920 | .0019 | .0139 | 232. | | | | | | | |
| .2610 | -760. | -1221. | -1743. | -545. | 17. | 342. | .0404 | .0104 | -.0740 | -.0957 | -.0068 | .0139 | 258. | | | | | | | |
| .2620 | -915. | -1311. | -1783. | -610. | 64. | 379. | .0412 | .0093 | -.0760 | -.0998 | -.0157 | .01.2 | 289. | | | | | | | |
| .2630 | -1040. | -1315. | -1772. | -667. | 109. | 378. | .0414 | .0084 | -.0776 | -.1045 | -.0247 | .0151 | 311. | | | | | | | |
| .2640 | -1152. | -1251. | -1729. | -723. | 155. | 333. | .0410 | .0078 | -.0789 | -.1098 | -.0337 | .0164 | 326. | | | | | | | |
| .2650 | -1255. | -1143. | -1685. | -774. | 185. | 252. | .0400 | .0073 | -.0802 | -.1157 | -.0428 | .0183 | 335. | | | | | | | |
| .2660 | -1346. | -1018. | -1656. | -822. | 183. | 150. | .0385 | .0070 | -.0814 | -.1219 | -.0521 | .0208 | 343. | | | | | | | |
| .2670 | -1433. | -872. | -1635. | -870. | 156. | 22. | .0367 | .0068 | -.0824 | -.1281 | -.0613 | .0237 | 355. | | | | | | | |
| .2680 | -1513. | -675. | -1607. | -918. | 111. | -153. | .0346 | .0068 | -.0831 | -.1343 | -.0702 | .0271 | 376. | | | | | | | |
| .2690 | -1594. | -480. | -1581. | -1005. | 56. | -366. | .0323 | .0068 | -.0835 | -.1405 | -.0786 | .0306 | 430. | | | | | | | |
| .2700 | -1686. | -347. | -1578. | -1144. | -0. | -594. | .0296 | .0068 | -.0836 | -.1465 | -.0866 | .0341 | 517. | | | | | | | |
| .2710 | -1780. | -243. | -1610. | -1275. | -61. | -831. | .0267 | .0070 | -.0836 | -.1517 | -.0939 | .0373 | 611. | | | | | | | |
| .2720 | -1842. | -53. | -1675. | -1301. | -151. | -1089. | .0234 | .0078 | -.0833 | -.1555 | -.1001 | .0403 | 683. | | | | | | | |
| .2730 | -1856. | 211. | -1771. | -1233. | -279. | -1341. | .0199 | .0088 | -.0827 | -.1579 | -.1051 | .0431 | 740. | | | | | | | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.27.34.

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

| | | | | | | | | | | | | | |
|-------|--------|--------|--------|--------|-------|--------|-------|-------|--------|--------|--------|-------|------|
| .2620 | -915. | -1311. | -1772. | -667. | 109. | 378. | .414 | .0084 | -.0776 | -.1045 | -.0247 | .0151 | 311. |
| .2630 | -1040. | -1315. | -1772. | -667. | 109. | 378. | .414 | .0084 | -.0776 | -.1045 | -.0247 | .0151 | 311. |
| .2640 | -1152. | -1251. | -1729. | -723. | 155. | 333. | .0410 | .0078 | -.0789 | -.1098 | -.0337 | .0164 | 326. |
| .2650 | -1255. | -1143. | -1685. | -774. | 185. | 252. | .0400 | .0073 | -.0802 | -.1157 | -.0428 | .0183 | 335. |
| .2660 | -1346. | -1018. | -1656. | -822. | 153. | 150. | .0385 | .0070 | -.0814 | -.1219 | -.0521 | .0208 | 343. |
| .2670 | -1433. | -872. | -1635. | -870. | 156. | 22. | .0367 | .0068 | -.0824 | -.1281 | -.0613 | .0237 | 355. |
| .2680 | -1517. | -675. | -1607. | -918. | 111. | -153. | .0346 | .0068 | -.0831 | -.1343 | -.0702 | .0271 | 376. |
| .2690 | -1594. | -480. | -1581. | -1005. | 56. | -366. | .0323 | .0068 | -.0835 | -.1405 | -.0786 | .0306 | 430. |
| .2700 | -1686. | -347. | -1578. | -1144. | -0. | -594. | .0296 | .0068 | -.0836 | -.1465 | -.0866 | .0341 | 517. |
| .2710 | -1780. | -243. | -1610. | -1275. | -61. | -831. | .0267 | .0070 | -.0836 | -.1517 | -.0939 | .0373 | 611. |
| .2720 | -1842. | -53. | -1675. | -1301. | -151. | -1089. | .0234 | .0078 | -.0833 | -.1555 | -.1001 | .0403 | 683. |
| .2730 | -1856. | 211. | -1771. | -1233. | -279. | -1341. | .0199 | .0088 | -.0827 | -.1579 | -.1051 | .0431 | 740. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.27.34.

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 | 31 | MEMBER | 1 | SEQUENCE | 55 | 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) | | | |
| .2740 | -1857. | 368. | -1886. | -1210. | -412. | -1524. | .0160 | .0095 | -.0818 | -.1592 | -.1092 | .0460 | 798. | | | |
| .2750 | -1864. | 367. | -1989. | -1292. | -526. | -1619. | .0119 | .0096 | -.0802 | -.1594 | -.1121 | .0491 | 858. | | | |
| .2760 | -1868. | 372. | -2040. | -1384. | -614. | -1683. | .0074 | .0095 | -.0778 | -.1580 | -.1135 | .0529 | 908. | | | |
| .2770 | -1877. | 487. | -2029. | -1410. | -653. | -1756. | .0025 | .0094 | -.0745 | -.1546 | -.1132 | .0574 | 941. | | | |
| .2780 | -1927. | 570. | -1999. | -1448. | -617. | -1814. | -.0029 | .0091 | -.0705 | -.1498 | -.1112 | .0624 | 964. | | | |
| .2790 | -2037. | 486. | -2007. | -1564. | -510. | -1830. | -.0088 | .0083 | -.0659 | -.1441 | -.1075 | .0675 | 988. | | | |
| .2800 | -2169. | 376. | -2060. | -1648. | -364. | -1840. | -.0148 | .0074 | -.0610 | -.1375 | -.1023 | .0719 | 1002. | | | |
| .2810 | -2274. | 413. | -2146. | -1577. | -199. | -1875. | -.0207 | .0069 | -.0563 | -.1301 | -.0958 | .0752 | 986. | | | |
| .2820 | -2346. | 503. | -2264. | -1427. | -21. | -1895. | -.0264 | .0064 | -.0519 | -.1223 | -.0882 | .0773 | 952. | | | |
| .2830 | -2395. | 454. | -2411. | -1355. | 163. | -1841. | -.0315 | .0054 | -.0478 | -.1143 | -.0794 | .0782 | 920. | | | |
| .2840 | -2414. | 302. | -2537. | -1367. | 341. | -1713. | -.0357 | .0040 | -.0440 | -.1063 | -.0701 | .0784 | 890. | | | |
| .2850 | -2376. | 220. | -2579. | -1373. | 500. | -1554. | -.0386 | .0025 | -.0406 | -.0979 | -.0608 | .0777 | 856. | | | |
| .2860 | -2287. | 218. | -2527. | -1370. | 629. | -1378. | -.0399 | .0011 | -.0374 | -.0891 | -.0518 | .0763 | 820. | | | |
| .2870 | -2168. | 167. | -2422. | -1427. | 719. | -1165. | -.0393 | -.0004 | -.0346 | -.0802 | -.0434 | .0739 | 794. | | | |
| .2880 | -2034. | 49. | -2304. | -1522. | 757. | -922. | -.0366 | -.0019 | -.0323 | -.0713 | -.0365 | .0705 | 776. | | | |
| .2890 | -1877. | -32. | -2196. | -1558. | 741. | -681. | -.0319 | -.0031 | -.0306 | -.0627 | -.0314 | .0656 | 744. | | | |
| .2900 | -1694. | -46. | -2105. | -1508. | 686. | -457. | -.0253 | -.0039 | -.0294 | -.0545 | -.0283 | .0593 | 690. | | | |
| .2910 | -1498. | -51. | -2031. | -1420. | 620. | -241. | -.0172 | -.0043 | -.0288 | -.0467 | -.0269 | .0517 | 629. | | | |
| .2920 | -1290. | -55. | -1953. | -1319. | 554. | -32. | -.0078 | -.0046 | -.0286 | -.0394 | -.0271 | .0430 | 574. | | | |
| .2930 | -1060. | -23. | -1845. | -1198. | 485. | 170. | .0022 | -.0047 | -.0284 | -.0325 | -.0288 | .0337 | 523. | | | |
| .2940 | -813. | 20. | -1686. | -1082. | 417. | 375. | .0125 | -.0049 | -.0281 | -.0254 | -.0313 | .0246 | 489. | | | |
| .2950 | -574. | 27. | -1471. | -1001. | 353. | 586. | .0225 | -.0051 | -.0273 | -.0178 | -.0338 | .0164 | 487. | | | |
| .2960 | -350. | 35. | -1201. | -925. | 279. | 778. | .0317 | -.0054 | -.0257 | -.0091 | -.0357 | .0097 | 498. | | | |
| .2970 | -132. | 93. | -889. | -811. | 176. | 928. | .0397 | -.0057 | -.0234 | .0008 | -.0365 | .0045 | 500. | | | |
| .2980 | 72. | 152. | -564. | -686. | 53. | 1047. | .0460 | -.0062 | -.0202 | .0114 | -.0360 | .0009 | 503. | | | |
| .2990 | 249. | 142. | -243. | -596. | -64. | 1154. | .0505 | -.0072 | -.0162 | .0226 | -.0339 | -.0012 | 522. | | | |
| .3000 | 405. | 104. | 79. | -524. | -154. | 1240. | .0528 | -.0085 | -.0113 | .0343 | -.0299 | -.0019 | 544. | | | |
| .3010 | 563. | 118. | 414. | -432. | -205. | 1293. | .0531 | -.0102 | -.0056 | .0462 | -.0241 | -.0014 | 553. | | | |
| .3020 | 723. | 152. | 760. | -349. | -199. | 1332. | .0515 | -.0124 | .0008 | .0580 | -.0169 | .0002 | 558. | | | |
| .3030 | 861. | 115. | 1097. | -334. | -127. | 1379. | .0482 | -.0152 | .0079 | .0694 | -.0085 | .0026 | 572. | | | |
| .3040 | 962. | 30. | 1422. | -365. | -2. | 1416. | .0435 | -.0185 | .0155 | .0805 | .0007 | .0060 | 587. | | | |
| .3050 | 1027. | -13. | 1730. | -366. | 155. | 1414. | .0379 | -.0221 | .0236 | .0915 | .0104 | .0105 | 590. | | | |
| .3060 | 1061. | -21. | 2004. | -327. | 319. | 1383. | .0317 | -.0257 | .0317 | .1020 | .0202 | .0156 | 584. | | | |
| .3070 | 1070. | -76. | 2218. | -297. | 469. | 1352. | .0254 | -.0296 | .0396 | .1117 | .0296 | .0209 | 586. | | | |
| .3080 | 1068. | -188. | 2370. | -292. | 583. | 1328. | .0193 | -.0337 | .0468 | .1200 | .0381 | .0260 | 594. | | | |
| .3090 | 1078. | -286. | 2474. | -276. | 654. | 1301. | .0137 | -.0379 | .0530 | .1268 | .0454 | .0302 | 595. | | | |
| .3100 | 1119. | -351. | 2539. | -239. | 691. | 1277. | .0086 | -.0418 | .0581 | .1318 | .0512 | .0332 | 590. | | | |
| .3110 | 1188. | -423. | 2554. | -201. | 700. | 1267. | .0041 | -.0454 | .0618 | .1351 | .0555 | .0346 | 586. | | | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.27.34.

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

| | | | | | | | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|-------|--------|--------|------|
| .3000 | 405. | 104. | 104. | -514. | -154. | 1240. | .528 | -.0085 | -.0113 | .0343 | -.0299 | -.0019 | 544. |
| .3010 | 563. | 118. | 414. | -432. | -205. | 1293. | .531 | -.0102 | -.0056 | .0462 | -.0241 | -.0014 | 553. |
| .3020 | 723. | 152. | 760. | -349. | -199. | 1332. | .0515 | -.0124 | .0008 | .0580 | -.0169 | .0002 | 558. |
| .3030 | 861. | 115. | 1097. | -334. | -127. | 1379. | .0482 | -.0152 | .0079 | .0694 | -.0085 | .0026 | 572. |
| .3040 | 962. | 30. | 1422. | -365. | -2. | 1416. | .0435 | -.0185 | .0155 | .0805 | .0007 | .0060 | 587. |
| .3050 | 1027. | -13. | 1730. | -366. | 155. | 1414. | .0379 | -.0221 | .0236 | .0915 | .0104 | .0105 | 590. |
| .3060 | 1061. | -21. | 2004. | -327. | 319. | 1383. | .0317 | -.0257 | .0317 | .1020 | .0202 | .0156 | 584. |
| .3070 | 1070. | -76. | 2218. | -297. | 469. | 1352. | .0254 | -.0296 | .0396 | .1117 | .0296 | .0209 | 586. |
| .3080 | 1068. | -188. | 2370. | -292. | 583. | 1328. | .0193 | -.0337 | .0468 | .1200 | .0391 | .0260 | 594. |
| .3090 | 1078. | -286. | 2474. | -276. | 654. | 1301. | .0137 | -.0379 | .0530 | .1268 | .0454 | .0302 | 595. |
| .3100 | 1119. | -351. | 2539. | -239. | 691. | 1277. | .0086 | -.0418 | .0581 | .1318 | .0512 | .0332 | 590. |
| .3110 | 1188. | -423. | 2554. | -201. | 700. | 1267. | .0041 | -.0454 | .0618 | .1351 | .0555 | .0346 | 586. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.34.

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 | 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) |
| .3120 | 1268. | -506. | 2510. | -156. | 682. | 1259. | .0002 | -.0486 | .0641 | .1369 | .0581 | .0344 | 578. |
| .3130 | 1340. | -568. | 2401. | -73. | 642. | 1231. | -.0031 | -.0512 | .0650 | .1373 | .0592 | .0330 | 558. |
| .3140 | 1381. | -619. | 2218. | 55. | 586. | 1173. | -.0060 | -.0531 | .0649 | .1366 | .0587 | .0306 | 527. |
| .3150 | 1375. | -684. | 1963. | 216. | 519. | 1091. | -.0085 | -.0541 | .0637 | .1350 | .0568 | .0273 | 492. |
| .3160 | 1326. | -739. | 1655. | 411. | 436. | 981. | -.0108 | -.0544 | .0618 | .1328 | .0536 | .0235 | 461. |
| .3170 | 1250. | -748. | 1330. | 634. | 339. | 844. | -.0128 | -.0538 | .0594 | .1299 | .0494 | .0193 | 445. |
| .3180 | 1157. | -726. | 1021. | 841. | 251. | 692. | -.0149 | -.0526 | .0567 | .1263 | .0445 | .0148 | 448. |
| .3190 | 1051. | -695. | 762. | 985. | 194. | 538. | -.0169 | -.0507 | .0539 | .1219 | .0390 | .0101 | 457. |
| .3200 | 942. | -615. | 575. | 1082. | 173. | 374. | -.0191 | -.0482 | .0512 | .1168 | .0332 | .0050 | 465. |
| .3210 | 849. | -432. | 464. | 1168. | 175. | 189. | -.0213 | -.0451 | .0487 | .1112 | .0276 | -.0002 | 480. |
| .3220 | 772. | -183. | 407. | 1237. | 190. | -2. | -.0234 | -.0417 | .0466 | .1051 | .0222 | -.0056 | 502. |
| .3230 | 696. | 44. | 375. | 1258. | 215. | -171. | -.0252 | -.0382 | .0450 | .0989 | .0173 | -.0110 | 517. |
| .3240 | 615. | 244. | 354. | 1250. | 236. | -312. | -.0266 | -.0348 | .0439 | .0928 | .0130 | -.0160 | 525. |
| .3250 | 544. | 461. | 348. | 1256. | 236. | -425. | -.0274 | -.0316 | .0432 | .0872 | .0093 | -.0205 | 541. |
| .3260 | 494. | 688. | 370. | 1272. | 222. | -495. | -.0275 | -.0289 | .0431 | .0824 | .0061 | -.0244 | 555. |
| .3270 | 461. | 848. | 428. | 1237. | 215. | -491. | -.0270 | -.0270 | .0433 | .0783 | .0035 | -.0275 | 541. |
| .3280 | 445. | 913. | 533. | 1120. | 223. | -407. | -.0258 | -.0261 | .0438 | .0749 | .0014 | -.0297 | 486. |
| .3290 | 457. | 946. | 693. | 963. | 243. | -265. | -.0238 | -.0260 | .0444 | .0723 | -.0003 | -.0310 | 412. |
| .3300 | 504. | 983. | 898. | 800. | 263. | -80. | -.0212 | -.0269 | .0450 | .0703 | -.0017 | -.0317 | 339. |
| .3310 | 582. | 990. | 1112. | 622. | 269. | 141. | -.0178 | -.0286 | .0454 | .0684 | -.0028 | -.0320 | 278. |
| .3320 | 676. | 936. | 1300. | 421. | 250. | 383. | -.0138 | -.0311 | .0455 | .0665 | -.0035 | -.0319 | 249. |
| .3330 | 773. | 852. | 1443. | 228. | 199. | 615. | -.0093 | -.0344 | .0451 | .0643 | -.0037 | -.0314 | 275. |
| .3340 | 870. | 784. | 1536. | 84. | 120. | 819. | -.0045 | -.0382 | .0444 | .0620 | -.0032 | -.0306 | 334. |
| .3350 | 965. | 721. | 1577. | -16. | 25. | 1001. | .0004 | -.0423 | .0432 | .0594 | -.0021 | -.0295 | 402. |
| .3360 | 1057. | 643. | 1578. | -96. | -73. | 1166. | .0052 | -.0466 | .0417 | .0568 | -.0001 | -.0279 | 471. |
| .3370 | 1146. | 568. | 1563. | -161. | -163. | 1312. | .0096 | -.0510 | .0398 | .0541 | .0026 | -.0260 | 535. |
| .3380 | 1233. | 513. | 1550. | -208. | -232. | 1438. | .0135 | -.0552 | .0378 | .0515 | .0061 | -.0236 | 591. |
| .3390 | 1314. | 468. | 1546. | -242. | -277. | 1551. | .0169 | -.0592 | .0356 | .0493 | .0103 | -.0208 | 639. |
| .3400 | 1379. | 415. | 1546. | -264. | -305. | 1652. | .0196 | -.0629 | .0334 | .0476 | .0150 | -.0178 | 682. |
| .3410 | 1418. | 351. | 1545. | -272. | -323. | 1733. | .0217 | -.0660 | .0312 | .0463 | .0201 | -.0145 | 716. |
| .3420 | 1426. | 279. | 1537. | -265. | -332. | 1782. | .0231 | -.0685 | .0291 | .0455 | .0256 | -.0113 | 735. |
| .3430 | 1402. | 196. | 1522. | -250. | -327. | 1797. | .0241 | -.0703 | .0273 | .0450 | .0314 | -.0083 | 740. |
| .3440 | 1347. | 103. | 1502. | -230. | -307. | 1778. | .0246 | -.0713 | .0257 | .0446 | .0375 | -.0058 | 730. |
| .3450 | 1273. | 6. | 1479. | -207. | -278. | 1732. | .0249 | -.0715 | .0243 | .0441 | .0435 | -.0042 | 709. |
| .3460 | 1200. | -80. | 1456. | -186. | -246. | 1665. | .0250 | -.0708 | .0230 | .0432 | .0494 | -.0035 | 680. |
| .3470 | 1140. | -153. | 1437. | -181. | -213. | 1583. | .0252 | -.0694 | .0217 | .0416 | .0551 | -.0040 | 645. |
| .3480 | 1094. | -216. | 1424. | -204. | -185. | 1489. | .0255 | -.0674 | .0204 | .0389 | .0502 | -.0057 | 608. |
| .3490 | 1061. | -261. | 1413. | -251. | -175. | 1384. | .0261 | -.0648 | .0189 | .0350 | .0544 | -.0085 | 569. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.34.

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

| | | | | | | | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|------|--------|-------|-------|-------|--------|------|
| .3380 | 1237. | 513. | 1550. | -208. | -222. | 1438. | .135 | -.0552 | .0378 | .0515 | .0061 | -.0236 | 591. |
| .3390 | 1314. | 468. | 1546. | -242. | -277. | 1551. | .169 | -.0592 | .0356 | .0493 | .0103 | -.0208 | 639. |
| .3400 | 1379. | 415. | 1546. | -264. | -305. | 1652. | .196 | -.0629 | .0334 | .0476 | .0150 | -.0178 | 682. |
| .3410 | 1418. | 351. | 1545. | -272. | -323. | 1733. | .217 | -.0660 | .0312 | .0463 | .0201 | -.0145 | 716. |
| .3420 | 1426. | 279. | 1537. | -265. | -332. | 1782. | .231 | -.0685 | .0291 | .0455 | .0256 | -.0113 | 735. |
| .3430 | 1402. | 196. | 1522. | -250. | -327. | 1797. | .241 | -.0703 | .0273 | .0450 | .0314 | -.0083 | 740. |
| .3440 | 1347. | 103. | 1502. | -230. | -307. | 1778. | .246 | -.0713 | .0257 | .0446 | .0375 | -.0058 | 730. |
| .3450 | 1273. | 6. | 1479. | -207. | -278. | 1732. | .249 | -.0715 | .0243 | .0441 | .0435 | -.0042 | 709. |
| .3460 | 1200. | -80. | 1456. | -186. | -246. | 1665. | .250 | -.0708 | .0230 | .0432 | .0494 | -.0035 | 680. |
| .3470 | 1140. | -153. | 1437. | -181. | -213. | 1583. | .252 | -.0694 | .0217 | .0416 | .0551 | -.0040 | 645. |
| .3480 | 1094. | -216. | 1424. | -204. | -185. | 1489. | .255 | -.0674 | .0204 | .0389 | .0502 | -.0057 | 608. |
| .3490 | 1061. | -261. | 1413. | -251. | -175. | 1384. | .261 | -.0648 | .0189 | .0350 | .0644 | -.0085 | 569. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.34.

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 | | | | | | | SIRESS |
|---------|--------|----------|----------|---------|---------|---------|--------|--------|--------|--------|--------|--------|--------|
| 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) | |
| .3500 | 1043. | -270. | 1401. | -307. | -197. | 1269. | .0271 | -.0617 | .0171 | .0299 | .0676 | -.0121 | 530. |
| .3510 | 1038. | -240. | 1386. | -367. | -252. | 1150. | .0287 | -.0582 | .0150 | .0238 | .0694 | -.0162 | 495. |
| .3520 | 1040. | -184. | 1365. | -437. | -333. | 1035. | .0308 | -.0544 | .0127 | .0167 | .0698 | -.0205 | 470. |
| .3530 | 1040. | -107. | 1339. | -517. | -432. | 933. | .0332 | -.0505 | .0100 | .0091 | .0688 | -.0247 | 462. |
| .3540 | 1037. | -7. | 1307. | -595. | -535. | 855. | .0360 | -.0466 | .0070 | .0011 | .0664 | -.0285 | 470. |
| .3550 | 1037. | 113. | 1261. | -658. | -634. | 817. | .0390 | -.0427 | .0038 | -.0069 | .0627 | -.0317 | 492. |
| .3560 | 1041. | 238. | 1191. | -703. | -724. | 830. | .0419 | -.0390 | .0003 | -.0147 | .0578 | -.0342 | 525. |
| .3570 | 1047. | 351. | 1089. | -735. | -804. | 897. | .0445 | -.0355 | -.0032 | -.0221 | .0521 | -.0357 | 566. |
| .3580 | 1050. | 446. | 955. | -753. | -873. | 1012. | .0467 | -.0324 | -.0068 | -.0290 | .0458 | -.0363 | 616. |
| .3590 | 1047. | 522. | 796. | -761. | -933. | 1164. | .0482 | -.0295 | -.0103 | -.0353 | .0390 | -.0359 | 672. |
| .3600 | 1034. | 584. | 625. | -763. | -983. | 1333. | .0489 | -.0269 | -.0134 | -.0408 | .0320 | -.0346 | 732. |
| .3610 | 1004. | 640. | 458. | -769. | -1018. | 1493. | .0485 | -.0244 | -.0160 | -.0456 | .0249 | -.0324 | 788. |
| .3620 | 950. | 690. | 310. | -793. | -1028. | 1623. | .0470 | -.0220 | -.0179 | -.0497 | .0180 | -.0295 | 834. |
| .3630 | 863. | 727. | 183. | -845. | -997. | 1706. | .0441 | -.0197 | -.0190 | -.0532 | .0115 | -.0260 | 862. |
| .3640 | 736. | 742. | 71. | -924. | -915. | 1736. | .0399 | -.0173 | -.0193 | -.0562 | .0055 | -.0222 | 870. |
| .3650 | 571. | 738. | -41. | -1012. | -782. | 1703. | .0344 | -.0148 | -.0189 | -.0587 | .0001 | -.0184 | 855. |
| .3660 | 372. | 723. | -170. | -1086. | -608. | 1606. | .0276 | -.0121 | -.0180 | -.0608 | -.0047 | -.0147 | 815. |
| .3670 | 147. | 699. | -328. | -1131. | -401. | 1447. | .0199 | -.0091 | -.0166 | -.0625 | -.0087 | -.0114 | 755. |
| .3680 | -103. | 656. | -515. | -1146. | -170. | 1238. | .0114 | -.0059 | -.0150 | -.0636 | -.0121 | -.0083 | 680. |
| .3690 | -377. | 583. | -724. | -1137. | 72. | 993. | .0024 | -.0025 | -.0133 | -.0642 | -.0150 | -.0055 | 606. |
| .3700 | -661. | 488. | -936. | -1107. | 305. | 722. | -.0066 | .0011 | -.0117 | -.0641 | -.0174 | -.0029 | 544. |
| .3710 | -935. | 398. | -1131. | -1052. | 513. | 437. | -.0154 | .0048 | -.0103 | -.0634 | -.0195 | -.0005 | 502. |
| .3720 | -1186. | 324. | -1292. | -980. | 681. | 152. | -.0235 | .0085 | -.0093 | -.0623 | -.0216 | .0018 | 483. |
| .3730 | -1409. | 249. | -1421. | -907. | 802. | -117. | -.0305 | .0120 | -.0088 | -.0610 | -.0239 | .0039 | 488. |
| .3740 | -1603. | 156. | -1526. | -844. | 872. | -350. | -.0361 | .0152 | -.0089 | -.0598 | -.0265 | .0057 | 507. |
| .3750 | -1756. | 67. | -1618. | -766. | 888. | -541. | -.0402 | .0180 | -.0098 | -.0587 | -.0297 | .0072 | 518. |
| .3760 | -1860. | 18. | -1706. | -647. | 852. | -691. | -.0426 | .0204 | -.0113 | -.0580 | -.0335 | .0082 | 511. |
| .3770 | -1917. | 6. | -1793. | -493. | 774. | -800. | -.0433 | .0223 | -.0135 | -.0579 | -.0379 | .0087 | 489. |
| .3780 | -1939. | 6. | -1876. | -334. | 669. | -864. | -.0424 | .0236 | -.0162 | -.0585 | -.0428 | .0089 | 458. |
| .3790 | -1935. | 9. | -1943. | -187. | 559. | -880. | -.0400 | .0240 | -.0193 | -.0597 | -.0480 | .0090 | 423. |
| .3800 | -1900. | 22. | -1981. | -58. | 421. | -850. | -.0364 | .0237 | -.0224 | -.0614 | -.0534 | .0090 | 381. |
| .3810 | -1833. | 30. | -1979. | 35. | 282. | -773. | -.0318 | .0227 | -.0253 | -.0635 | -.0585 | .0091 | 330. |
| .3820 | -1734. | 43. | -1927. | 92. | 131. | -660. | -.0266 | .0209 | -.0279 | -.0657 | -.0631 | .0094 | 273. |
| .3830 | -1610. | 71. | -1824. | 117. | -23. | -526. | -.0211 | .0185 | -.0301 | -.0677 | -.0668 | .0100 | 216. |
| .3840 | -1471. | 82. | -1683. | 103. | -168. | -368. | -.0159 | .0155 | -.0316 | -.0695 | -.0691 | .0111 | 168. |
| .3850 | -1322. | 73. | -1516. | 61. | -295. | -191. | -.0111 | .0121 | -.0325 | -.0707 | -.0698 | .0125 | 143. |
| .3860 | -1160. | 75. | -1333. | 23. | -404. | -8. | -.0073 | .0084 | -.0326 | -.0711 | -.0685 | .0145 | 162. |
| .3870 | -991. | 86. | -1144. | -10. | -485. | 177. | -.0044 | .0045 | -.0319 | -.0706 | -.0652 | .0171 | 207. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.34.

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

| | | | | | | | | | | | | | |
|-------|--------|-----|--------|-------|-------|-------|--------|-------|--------|--------|--------|-------|------|
| .3770 | -1917. | 6. | -1793. | -493. | 774. | -800. | -.0433 | .0223 | -.0135 | -.0579 | -.0379 | .0087 | 489. |
| .3780 | -1939. | 6. | -1876. | -334. | 669. | -864. | -.0424 | .0236 | -.0162 | -.0585 | -.0428 | .0089 | 458. |
| .3790 | -1935. | 9. | -1943. | -187. | 550. | -880. | -.0400 | .0240 | -.0193 | -.0597 | -.0480 | .0090 | 423. |
| .3800 | -1900. | 22. | -1981. | -58. | 421. | -850. | -.0364 | .0237 | -.0224 | -.0614 | -.0534 | .0090 | 381. |
| .3810 | -1833. | 30. | -1979. | 39. | 282. | -773. | -.0318 | .0227 | -.0253 | -.0635 | -.0585 | .0091 | 330. |
| .3820 | -1734. | 43. | -1927. | 92. | 131. | -660. | -.0266 | .0209 | -.0279 | -.0657 | -.0631 | .0094 | 273. |
| .3830 | -1610. | 71. | -1824. | 117. | -23. | -526. | -.0211 | .0185 | -.0301 | -.0677 | -.0668 | .0100 | 216. |
| .3840 | -1471. | 82. | -1683. | 103. | -168. | -368. | -.0159 | .0155 | -.0316 | -.0695 | -.0691 | .0111 | 168. |
| .3850 | -1322. | 73. | -1516. | 61. | -295. | -191. | -.0111 | .0121 | -.0325 | -.0707 | -.0698 | .0125 | 143. |
| .3860 | -1160. | 75. | -1333. | 23. | -404. | -8. | -.0073 | .0084 | -.0326 | -.0711 | -.0685 | .0145 | 162. |
| .3870 | -991. | 86. | -1144. | -10. | -485. | 177. | -.0044 | .0045 | -.0319 | -.0706 | -.0652 | .0171 | 207. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.34.

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 | 31 | MEMBER | 1 | SEQUENCE | 55 | 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) | | |
| .3880 | -634. | 49. | -963. | -71. | -526. | 373. | -.0027 | .0004 | -.0303 | -.0694 | -.0598 | .0203 | 260. | | |
| .3890 | -699. | -67. | -800. | -174. | -524. | 583. | -.0022 | -.0038 | -.0280 | -.0672 | -.0524 | .0241 | 322. | | |
| .3900 | -581. | -201. | -650. | -272. | -489. | 784. | -.0028 | -.0077 | -.0249 | -.0638 | -.0434 | .0284 | 387. | | |
| .3910 | -473. | -288. | -508. | -320. | -430. | 949. | -.0044 | -.0108 | -.0213 | -.0591 | -.0331 | .0331 | 437. | | |
| .3920 | -385. | -343. | -377. | -337. | -345. | 1068. | -.0069 | -.0132 | -.0171 | -.0534 | -.0218 | .0379 | 470. | | |
| .3930 | -331. | -417. | -262. | -366. | -234. | 1140. | -.0100 | -.0148 | -.0127 | -.0469 | -.0099 | .0427 | 490. | | |
| .3940 | -309. | -509. | -169. | -408. | -111. | 1165. | -.0136 | -.0155 | -.0083 | -.0400 | .0021 | .0473 | 497. | | |
| .3950 | -295. | -569. | -97. | -430. | 1. | 1141. | -.0173 | -.0153 | -.0041 | -.0330 | .0136 | .0512 | 489. | | |
| .3960 | -268. | -588. | -52. | -423. | 82. | 1076. | -.0209 | -.0142 | -.0003 | -.0261 | .0244 | .0541 | 465. | | |
| .3970 | -227. | -600. | -41. | -411. | 125. | 985. | -.0241 | -.0122 | .0030 | -.0196 | .0341 | .0560 | 431. | | |
| .3980 | -185. | -630. | -67. | -409. | 138. | 873. | -.0270 | -.0095 | .0056 | -.0135 | .0425 | .0568 | 391. | | |
| .3990 | -150. | -662. | -128. | -399. | 129. | 738. | -.0293 | -.0061 | .0077 | -.0079 | .0494 | .0566 | 341. | | |
| .4000 | -123. | -672. | -216. | -356. | 101. | 578. | -.0312 | -.0021 | .0091 | -.0025 | .0546 | .0556 | 275. | | |

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) | | |
| .1170 | -1495. | 2348. | -3814. | 3902. | -1237. | -4330. | .0361 | -.0015 | .0032 | -.0071 | .0520 | .0361 | 2391. | | |

| SECTION | 31 | MEMBER | 1 | SEQUENCE | 814 | 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 | 3. | -1. | 3. | -1. | -1. | 0. | -.0000 | .0000 | -.0000 | -.0000 | -.0000 | .0000 | 0. | | |
| .0030 | 13. | 1. | 15. | -7. | -3. | -0. | -.0001 | .0000 | -.0001 | -.0001 | -.0001 | .0002 | 3. | | |
| .0040 | 37. | 13. | 42. | -24. | -9. | -1. | -.0002 | .0000 | -.0002 | -.0002 | -.0001 | .0005 | 10. | | |
| .0050 | 80. | 39. | 89. | -54. | -21. | -1. | -.0005 | .0001 | -.0004 | -.0003 | -.0002 | .0012 | 23. | | |
| .0060 | 142. | 75. | 157. | -92. | -39. | 7. | -.0011 | .0001 | -.0008 | -.0006 | -.0002 | .0022 | 40. | | |
| .0070 | 226. | 110. | 243. | -133. | -64. | 24. | -.0019 | .0001 | -.0014 | -.0012 | -.0003 | .0035 | 60. | | |
| .0080 | 343. | 138. | 336. | -175. | -98. | 49. | -.0030 | .0002 | -.0022 | -.0022 | -.0005 | .0050 | 83. | | |
| .0090 | 507. | 175. | 436. | -222. | -152. | 82. | -.0047 | .0002 | -.0032 | -.0031 | -.0006 | .0073 | 113. | | |
| .0100 | 721. | 246. | 545. | -274. | -237. | 128. | -.0071 | .0003 | -.0042 | -.0039 | .0004 | .0106 | 154. | | |
| .0110 | 965. | 354. | 664. | -318. | -351. | 194. | -.0102 | .0004 | -.0053 | -.0046 | .0030 | .0145 | 205. | | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.34.

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

| | | | | | | | | | | | | | |
|-------|------|------|------|-------|-------|------|--------|-------|--------|--------|--------|-------|------|
| .0010 | 0. | -0. | 0. | 0. | -0. | 0. | -0.000 | 0.000 | -0.000 | -0.000 | -0.000 | 0.000 | 0. |
| .0020 | 3. | -1. | 3. | -1. | -1. | 0. | -0.000 | 0.000 | -0.000 | -0.000 | -0.000 | 0.000 | 0. |
| .0030 | 13. | 1. | 15. | -7. | -3. | -0. | -0.001 | 0.000 | -0.001 | -0.001 | -0.001 | 0.002 | 3. |
| .0040 | 37. | 13. | 42. | -24. | -9. | -1. | -0.002 | 0.000 | -0.002 | -0.002 | -0.001 | 0.005 | 10. |
| .0050 | 80. | 79. | 89. | -54. | -21. | -1. | -0.005 | 0.001 | -0.004 | -0.003 | -0.002 | 0.012 | 23. |
| .0060 | 142. | 75. | 157. | -92. | -39. | 7. | -0.011 | 0.001 | -0.008 | -0.006 | -0.002 | 0.022 | 40. |
| .0070 | 226. | 110. | 243. | -133. | -64. | 24. | -0.019 | 0.001 | -0.014 | -0.012 | -0.003 | 0.035 | 60. |
| .0080 | 343. | 138. | 336. | -175. | -98. | 49. | -0.030 | 0.002 | -0.022 | -0.022 | -0.005 | 0.050 | 83. |
| .0090 | 507. | 175. | 436. | -222. | -152. | 82. | -0.047 | 0.002 | -0.032 | -0.031 | -0.006 | 0.073 | 113. |
| .0100 | 721. | 246. | 545. | -274. | -237. | 128. | -0.071 | 0.003 | -0.042 | -0.039 | 0.004 | 0.106 | 154. |
| .0110 | 965. | 354. | 664. | -318. | -351. | 194. | -0.102 | 0.004 | -0.053 | -0.046 | 0.030 | 0.145 | 205. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.34.

S/RV PIPING KEWAUNEE GKWOEF 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) | MX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | STRESS (PSI) | |
| .0120 | 1177. | 472. | 803. | -333. | -471. | 284. | -0.0136 | 0.0004 | -0.0064 | -0.0060 | 0.0076 | 0.0179 | 258. | |
| .0130 | 1277. | 557. | 901. | -307. | -562. | 392. | -0.0167 | 0.0004 | -0.0079 | -0.0090 | 0.0143 | 0.0192 | 301. | |
| .0140 | 1222. | 598. | 1196. | -240. | -596. | 503. | -0.0189 | 0.0004 | -0.0098 | -0.0142 | 0.0227 | 0.0175 | 327. | |
| .0150 | 1022. | 613. | 1405. | -128. | -565. | 611. | -0.0197 | 0.0004 | -0.0121 | -0.0210 | 0.0319 | 0.0128 | 338. | |
| .0160 | 712. | 596. | 1507. | 67. | -482. | 723. | -0.0190 | 0.0003 | -0.0143 | -0.0282 | 0.0408 | 0.0058 | 350. | |
| .0170 | 342. | 476. | 1358. | 396. | -374. | 828. | -0.0165 | 0.0001 | -0.0156 | -0.0343 | 0.0481 | -0.0025 | 398. | |
| .0180 | -50. | 201. | 860. | 878. | -274. | 891. | -0.0120 | -0.0002 | -0.0153 | -0.0379 | 0.0533 | -0.0111 | 514. | |
| .0190 | -460. | -174. | 50. | 1461. | -207. | 859. | -0.0053 | -0.0006 | -0.0127 | -0.0381 | 0.0568 | -0.0192 | 685. | |
| .0200 | -826. | -560. | -950. | 2018. | -208. | 661. | 0.0034 | -0.0010 | -0.0077 | -0.0342 | 0.0593 | -0.0257 | 856. | |
| .0210 | -1100. | -806. | -1912. | 2385. | -306. | 263. | 0.0132 | -0.0014 | -0.0003 | -0.0262 | 0.0625 | -0.0284 | 971. | |
| .0220 | -1411. | -629. | -2391. | 2440. | -460. | -241. | 0.0226 | -0.0018 | 0.0086 | -0.0155 | 0.0721 | -0.0275 | 1001. | |
| .0230 | -1785. | -84. | -2285. | 2177. | -601. | -785. | 0.0319 | -0.0020 | 0.0166 | -0.0065 | 0.0849 | -0.0261 | 959. | |
| .0240 | -2304. | 389. | -1854. | 1775. | -592. | -1322. | 0.0421 | -0.0021 | 0.0214 | -0.0042 | 0.0927 | -0.0294 | 919. | |
| .0250 | -2832. | 228. | -1768. | 1592. | -463. | -1804. | 0.0527 | -0.0021 | 0.0233 | -0.0075 | 0.0896 | -0.0366 | 983. | |
| .0260 | -3130. | -492. | -2497. | 1919. | -411. | -2100. | 0.0601 | -0.0020 | 0.0264 | -0.0068 | 0.0804 | -0.0400 | 1154. | |
| .0270 | -3449. | -940. | -3504. | 2597. | -359. | -2137. | 0.0625 | -0.0019 | 0.0322 | 0.0027 | 0.0765 | -0.0381 | 1358. | |
| .0280 | -3848. | -1011. | -4401. | 3075. | -100. | -2264. | 0.0644 | -0.0015 | 0.0360 | 0.0133 | 0.0678 | -0.0376 | 1533. | |
| .0290 | -3909. | -1346. | -5460. | 3244. | 269. | -2631. | 0.0676 | -0.0005 | 0.0362 | 0.0188 | 0.0416 | -0.0392 | 1680. | |
| .0300 | -3610. | -1708. | -6320. | 3618. | 510. | -2536. | 0.0654 | 0.0005 | 0.0392 | 0.0247 | 0.0200 | -0.0345 | 1785. | |
| .0310 | -3007. | -2048. | -6676. | 4104. | 571. | -1925. | 0.0563 | 0.0016 | 0.0454 | 0.0307 | 0.0103 | -0.0214 | 1833. | |
| .0320 | -2116. | -2407. | -6293. | 3974. | 470. | -1479. | 0.0455 | 0.0034 | 0.0483 | 0.0294 | -0.0013 | -0.0067 | 1712. | |
| .0330 | -1393. | -2230. | -4794. | 2989. | 324. | -1402. | 0.0353 | 0.0057 | 0.0452 | 0.0199 | -0.0142 | 0.0024 | 1331. | |
| .0340 | -1062. | -1427. | -2520. | 1712. | 227. | -1286. | 0.0235 | 0.0080 | 0.0387 | 0.0080 | -0.0204 | 0.0059 | 864. | |
| .0350 | -685. | -939. | -751. | 814. | 125. | -906. | 0.0097 | 0.0101 | 0.0306 | -0.0023 | -0.0286 | 0.0076 | 491. | |
| .0360 | 0. | -1232. | -221. | 543. | -54. | -330. | -0.0053 | 0.0119 | 0.0219 | -0.0085 | -0.0464 | 0.0098 | 256. | |
| .0370 | 566. | -1570. | -356. | 702. | -151. | 361. | -0.0205 | 0.0131 | 0.0141 | -0.0071 | -0.0623 | 0.0124 | 322. | |
| .0380 | 625. | -1376. | -417. | 811. | 126. | 910. | -0.0327 | 0.0139 | 0.0070 | -0.0000 | -0.0693 | 0.0122 | 492. | |
| .0390 | 537. | -920. | -352. | 479. | 772. | 1041. | -0.0375 | 0.0144 | -0.0021 | 0.0056 | -0.0806 | 0.0060 | 555. | |
| .0400 | 1147. | -486. | -193. | -190. | 1323. | 1132. | -0.0391 | 0.0148 | -0.0121 | 0.0066 | -0.1016 | 0.0023 | 703. | |
| .0410 | 2197. | 25. | 464. | -630. | 1543. | 1849. | -0.0448 | 0.0144 | -0.0172 | 0.0074 | -0.1098 | 0.0092 | 999. | |
| .0420 | 3354. | 187. | 1700. | -1069. | 1418. | 2794. | -0.0532 | 0.0141 | -0.0202 | 0.0041 | -0.1065 | 0.0237 | 1329. | |
| .0430 | 3957. | 154. | 2730. | -1748. | 1077. | 2994. | -0.0549 | 0.0135 | -0.0226 | 0.0005 | -0.1074 | 0.0285 | 1457. | |
| .0440 | 3919. | 983. | 3999. | -2822. | 579. | 2595. | -0.0512 | 0.0124 | -0.0262 | -0.0019 | -0.1097 | 0.0202 | 1556. | |
| .0450 | 3413. | 2338. | 5283. | -3667. | 88. | 2287. | -0.0478 | 0.0103 | -0.0280 | -0.0006 | -0.1017 | 0.0075 | 1735. | |
| .0460 | 2804. | 2731. | 5679. | -3749. | -249. | 2281. | -0.0456 | 0.0076 | -0.0269 | 0.0017 | -0.0901 | -0.0035 | 1764. | |
| .0470 | 2490. | 1961. | 5114. | -3360. | -412. | 2423. | -0.0427 | 0.0048 | -0.0259 | 0.0007 | -0.0886 | -0.0125 | 1670. | |
| .0480 | 2477. | 1257. | 4259. | -2947. | -359. | 2685. | -0.0400 | 0.0019 | -0.0248 | 0.0011 | -0.0899 | -0.0175 | 1606. | |
| .0490 | 2446. | 1205. | 3294. | -2576. | -44. | 2932. | -0.0385 | -0.0015 | -0.0195 | 0.0118 | -0.0791 | -0.0160 | 1566. | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.34.

S/RV PIPING KEWAUNEE GKWOEF 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

| | | | | | | | | | | | | | |
|-------|-------|-------|-------|--------|-------|-------|--------|--------|--------|--------|--------|--------|-------|
| .0390 | 537. | -920. | -352. | 479. | 772. | 1041. | -.3375 | .0144 | -.0021 | .0056 | -.0806 | .0060 | 555. |
| .0400 | 1147. | -486. | -193. | -190. | 1323. | 1132. | -.391 | .0148 | -.0121 | .0066 | -.1016 | .0023 | 703. |
| .0410 | 2197. | 25. | 464. | -620. | 1542. | 1849. | -.0448 | .0144 | -.0172 | .0074 | -.1098 | .0092 | 999. |
| .0420 | 2354. | 187. | 1700. | -1069. | 1418. | 2794. | -.0532 | .0141 | -.0202 | .0041 | -.1065 | .0237 | 1329. |
| .0430 | 3957. | 154. | 2730. | -1748. | 1077. | 2924. | -.0549 | .0135 | -.0226 | .0005 | -.1074 | .0285 | 1457. |
| .0440 | 3919. | 983. | 3999. | -2822. | 579. | 2595. | -.0512 | .0124 | -.0262 | -.0019 | -.1097 | .0202 | 1556. |
| .0450 | 3413. | 2338. | 5283. | -3667. | 88. | 2287. | -.0478 | .0103 | -.0280 | -.0006 | -.1017 | .0075 | 1735. |
| .0460 | 2804. | 2731. | 5679. | -3749. | -249. | 2281. | -.0456 | .0076 | -.0269 | .0017 | -.0901 | -.0035 | 1764. |
| .0470 | 2490. | 1961. | 5114. | -3360. | -412. | 2423. | -.0427 | .0048 | -.0259 | .0007 | -.0886 | -.0125 | 1670. |
| .0480 | 2477. | 1257. | 4259. | -2947. | -359. | 2685. | -.0400 | .0019 | -.0248 | .0011 | -.0899 | -.0175 | 1606. |
| .0490 | 2446. | 1205. | 3294. | -2576. | -44. | 2932. | -.0385 | -.0015 | -.0195 | .0118 | -.0791 | -.0160 | 1566. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.34.

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 | 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) |
| .0500 | 2308. | 1385. | 2243. | -2417. | 353. | 2823. | -.0363 | -.0047 | -.0110 | .0299 | -.0598 | -.0108 | 1498. |
| .0510 | 1902. | 1596. | 1310. | -2535. | 614. | 2266. | -.0315 | -.0077 | -.0018 | .0485 | -.0401 | -.0088 | 1386. |
| .0520 | 1165. | 1819. | 628. | -2733. | 647. | 1512. | -.0256 | -.0107 | .0080 | .0648 | -.0185 | -.0112 | 1280. |
| .0530 | 362. | 1787. | 138. | -2895. | 377. | 731. | -.0210 | -.0136 | .0186 | .0784 | .0063 | -.0120 | 1208. |
| .0540 | -228. | 1580. | -53. | -3200. | -236. | -84. | -.0185 | -.0157 | .0287 | .0889 | .0311 | -.0085 | 1288. |
| .0550 | -623. | 1630. | 101. | -3734. | -1011. | -896. | -.0165 | -.0168 | .0368 | .0969 | .0536 | -.0036 | 1593. |
| .0560 | -1036. | 1746. | 158. | -4149. | -1621. | -1602. | -.0135 | -.0172 | .0432 | .1024 | .0736 | -.0012 | 1900. |
| .0570 | -1727. | 1218. | -407. | -3967. | -1862. | -212. | -.0078 | -.0173 | .0493 | .1049 | .0917 | -.0040 | 1955. |
| .0580 | -2790. | -56. | -1633. | -3143. | -1691. | -2479. | .0014 | -.0166 | .0557 | .1052 | .1074 | -.0134 | 1744. |
| .0590 | -3953. | -1407. | -3231. | -2084. | -1159. | -2754. | .0140 | -.0151 | .0618 | .1061 | .1189 | -.0272 | 1462. |
| .0600 | -4835. | -2210. | -4851. | -1171. | -469. | -3018. | .0279 | -.0134 | .0675 | .1107 | .1266 | -.0390 | 1313. |
| .0610 | -5198. | -2476. | -6080. | -566. | 32. | -3207. | .0395 | -.0115 | .0729 | .1181 | .1322 | -.0425 | 1307. |
| .0620 | -5118. | -2623. | -6718. | -232. | 151. | -3224. | .0476 | -.0088 | .0777 | .1244 | .1357 | -.0383 | 1299. |
| .0630 | -4790. | -2908. | -6873. | -109. | -66. | -3103. | .0532 | -.0055 | .0807 | .1265 | .1346 | -.0323 | 1246. |
| .0640 | -4449. | -3030. | -6489. | -240. | -501. | -2939. | .0576 | -.0020 | .0807 | .1235 | .1294 | -.0307 | 1200. |
| .0650 | -4287. | -2588. | -5364. | -717. | -1017. | -2774. | .0608 | .0014 | .0766 | .1164 | .1235 | -.0354 | 1220. |
| .0660 | -4321. | -1806. | -3898. | -1392. | -1412. | -2617. | .0627 | .0049 | .0692 | .1083 | .1179 | -.0445 | 1318. |
| .0670 | -4286. | -1234. | -2910. | -1878. | -1573. | -2385. | .0625 | .0082 | .0607 | .1032 | .1099 | -.0528 | 1372. |
| .0680 | -3984. | -910. | -2749. | -1849. | -1503. | -1887. | .0588 | .0104 | .0539 | .1045 | .1012 | -.0559 | 1220. |
| .0690 | -3449. | -550. | -3127. | -1392. | -1166. | -1109. | .0523 | .0111 | .0491 | .1114 | .0937 | -.0543 | 854. |
| .0700 | -2748. | -147. | -3639. | -938. | -544. | -355. | .0454 | .0110 | .0442 | .1187 | .0840 | -.0509 | 458. |
| .0710 | -1963. | 289. | -3886. | -770. | 149. | 148. | .0392 | .0101 | .0381 | .1227 | .0718 | -.0468 | 320. |
| .0720 | -1271. | 956. | -3461. | -832. | 594. | 493. | .0317 | .0084 | .0324 | .1229 | .0638 | -.0414 | 456. |
| .0730 | -741. | 1694. | -2318. | -1035. | 681. | 763. | .0228 | .0061 | .0270 | .1175 | .0593 | -.0359 | 584. |
| .0740 | -239. | 2030. | -816. | -1379. | 485. | 867. | .0145 | .0039 | .0195 | .1030 | .0482 | -.0327 | 682. |
| .0750 | 321. | 2001. | 748. | -1744. | 70. | 856. | .0072 | .0016 | .0100 | .0820 | .0279 | -.0316 | 780. |
| .0760 | 937. | 2007. | 2124. | -1886. | -465. | 923. | -.0008 | -.0014 | .0013 | .0619 | .0052 | -.0287 | 863. |
| .0770 | 1616. | 1981. | 2920. | -1696. | -910. | 1069. | -.0093 | -.0049 | -.0054 | .0473 | -.0168 | -.0218 | 883. |
| .0780 | 2315. | 1624. | 2930. | -1246. | -1067. | 1139. | -.0164 | -.0084 | -.0103 | .0380 | -.0389 | -.0121 | 802. |
| .0790 | 2803. | 1141. | 2461. | -648. | -860. | 1114. | -.0211 | -.0117 | -.0135 | .0328 | -.0564 | -.0027 | 622. |
| .0800 | 2912. | 928. | 1976. | -65. | -295. | 1036. | -.0232 | -.0150 | -.0151 | .0302 | -.0649 | .0038 | 433. |
| .0810 | 2772. | 901. | 1639. | 294. | 485. | 824. | -.0227 | -.0177 | -.0166 | .0272 | -.0680 | .0075 | 402. |
| .0820 | 2579. | 838. | 1482. | 368. | 1168. | 454. | -.0211 | -.0195 | -.0182 | .0230 | -.0694 | .0112 | 524. |
| .0830 | 2368. | 826. | 1568. | 304. | 1481. | 70. | -.0206 | -.0202 | -.0186 | .0196 | -.0669 | .0177 | 607. |
| .0840 | 2132. | 914. | 1775. | 234. | 1404. | -260. | -.0213 | -.0200 | -.0176 | .0173 | -.0624 | .0257 | 581. |
| .0850 | 1876. | 888. | 1822. | 212. | 1089. | -615. | -.0205 | -.0189 | -.0167 | .0135 | -.0635 | .0305 | 509. |
| .0860 | 1500. | 642. | 1568. | 382. | 701. | -959. | -.0169 | -.0169 | -.0153 | .0079 | -.0706 | .0293 | 501. |
| .0870 | 936. | 253. | 996. | 907. | 407. | -1149. | -.0112 | -.0143 | -.0115 | .0027 | -.0767 | .0241 | 610. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.34.

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

| | | | | | | | | | | | | | |
|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|-------|--------|--------|------|
| .0770 | 1616. | 1981. | 2920. | -1696. | -910. | 1069. | -.093 | -.0049 | -.0054 | .0473 | -.0168 | -.0218 | 883. |
| .0780 | 2315. | 1624. | 2930. | -1246. | -1067. | 1139. | -.164 | -.0084 | -.0103 | .0380 | -.0389 | -.0121 | 802. |
| .0790 | 2803. | 1141. | 2461. | -648. | -860. | 1114. | -.0211 | -.0117 | -.0135 | .0328 | -.0564 | -.0027 | 622. |
| .0800 | 2912. | 928. | 1976. | -65. | -295. | 1036. | -.0232 | -.0150 | -.0151 | .0302 | -.0549 | .0038 | 473. |
| .0810 | 2772. | 901. | 1639. | 294. | 485. | 824. | -.0227 | -.0177 | -.0166 | .0272 | -.0580 | .0075 | 462. |
| .0820 | 2579. | 838. | 1482. | 368. | 1168. | 454. | -.0211 | -.0195 | -.0182 | .0230 | -.0594 | .0112 | 524. |
| .0830 | 2368. | 826. | 1568. | 304. | 1481. | 70. | -.0206 | -.0202 | -.0186 | .0196 | -.0569 | .0177 | 607. |
| .0840 | 2132. | 914. | 1775. | 234. | 1404. | -260. | -.0213 | -.0200 | -.0176 | .0173 | -.0524 | .0257 | 581. |
| .0850 | 1876. | 888. | 1822. | 212. | 1089. | -615. | -.0205 | -.0189 | -.0167 | .0135 | -.0535 | .0305 | 509. |
| .0860 | 1500. | 642. | 1568. | 382. | 701. | -959. | -.0169 | -.0169 | -.0153 | .0079 | -.0706 | .0293 | 501. |
| .0870 | 936. | 253. | 996. | 907. | 407. | -1149. | -.0112 | -.0143 | -.0115 | .0027 | -.0767 | .0241 | 610. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.34.

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 | 31 | MEMBER | 1 | SEQUENCE | 814 | 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) | | |
| .0880 | 337. | -276. | 103. | 1719. | 344. | -1176. | -.0039 | -.0111 | -.0050 | -.0015 | -.0798 | .0183 | 847. | | |
| .0890 | -60. | -933. | -940. | 2565. | 528. | -1113. | .0044 | -.0073 | .0027 | -.0065 | -.0822 | .0142 | 1142. | | |
| .0900 | -166. | -1568. | -1798. | 3272. | 855. | -918. | .0120 | -.0028 | .0104 | -.0135 | -.0827 | .0133 | 1406. | | |
| .0910 | -30. | -2095. | -2276. | 3804. | 1178. | -541. | .0168 | .0020 | .0172 | -.0225 | -.0786 | .0159 | 1613. | | |
| .0920 | 179. | -2590. | -2391. | 4149. | 1349. | -97. | .0184 | .0070 | .0214 | -.0340 | -.0711 | .0192 | 1751. | | |
| .0930 | 195. | -3073. | -2180. | 4277. | 1270. | 220. | .0175 | .0120 | .0220 | -.0475 | -.0618 | .0191 | 1793. | | |
| .0940 | -130. | -3423. | -1697. | 4196. | 969. | 322. | .0150 | .0169 | .0188 | -.0608 | -.0506 | .0136 | 1733. | | |
| .0950 | -631. | -3522. | -1068. | 3933. | 560. | 289. | .0108 | .0214 | .0124 | -.0715 | -.0377 | .0051 | 1598. | | |
| .0960 | -969. | -3315. | -383. | 3523. | 147. | 302. | .0047 | .0256 | .0037 | -.0788 | -.0246 | -.0025 | 1420. | | |
| .0970 | -908. | -2895. | 377. | 2998. | -168. | 524. | -.0030 | .0296 | -.0064 | -.0833 | -.0121 | -.0059 | 1223. | | |
| .0980 | -405. | -2461. | 1249. | 2354. | -271. | 978. | -.0113 | .0338 | -.0176 | -.0870 | -.0000 | -.0039 | 1029. | | |
| .0990 | 407. | -2020. | 2297. | 1540. | -129. | 1559. | -.0188 | .0384 | -.0300 | -.0909 | .0118 | .0016 | 881. | | |
| .1000 | 1261. | -1351. | 3593. | 541. | 159. | 2127. | -.0242 | .0433 | -.0437 | -.0949 | .0232 | .0063 | 883. | | |
| .1010 | 1879. | -436. | 5017. | -534. | 462. | 2565. | -.0265 | .0482 | -.0581 | -.0980 | .0329 | .0061 | 1068. | | |
| .1020 | 2137. | 387. | 6226. | -1470. | 670. | 2802. | -.0255 | .0529 | -.0725 | -.0999 | .0385 | .0000 | 1298. | | |
| .1030 | 2124. | 900. | 6933. | -2072. | 673. | 2865. | -.0219 | .0568 | -.0854 | -.0996 | .0377 | -.0099 | 1444. | | |
| .1040 | 2040. | 1272. | 7080. | -2271. | 430. | 2859. | -.0168 | .0592 | -.0950 | -.0958 | .0309 | -.0205 | 1476. | | |
| .1050 | 2067. | 1556. | 6746. | -2143. | 49. | 2849. | -.0106 | .0598 | -.1001 | -.0888 | .0200 | -.0286 | 1431. | | |
| .1060 | 2239. | 1639. | 6111. | -1834. | -284. | 2832. | -.0030 | .0587 | -.1004 | -.0808 | .0079 | -.0332 | 1359. | | |
| .1070 | 2435. | 1627. | 5521. | -1495. | -458. | 2821. | .0060 | .0562 | -.0964 | -.0747 | -.0016 | -.0360 | 1294. | | |
| .1080 | 2618. | 1772. | 5084. | -1225. | -485. | 2787. | .0161 | .0522 | -.0890 | -.0705 | -.0078 | -.0385 | 1237. | | |
| .1090 | 2850. | 1956. | 4575. | -1009. | -487. | 2650. | .0254 | .0471 | -.0782 | -.0653 | -.0101 | -.0387 | 1155. | | |
| .1100 | 2531. | 1655. | 4336. | -863. | -407. | 2327. | .0320 | .0419 | -.0654 | -.0597 | .0018 | -.0359 | 1009. | | |
| .1110 | 1927. | 1538. | 4149. | -994. | -427. | 1632. | .0370 | .0357 | -.0543 | -.0527 | .0143 | -.0335 | 786. | | |
| .1120 | 1506. | 2336. | 3677. | -1244. | -628. | 736. | .0399 | .0275 | -.0459 | -.0414 | .0188 | -.0332 | 632. | | |
| .1130 | 944. | 2964. | 2547. | -1065. | -890. | -66. | .0389 | .0186 | -.0370 | -.0249 | .0233 | -.0304 | 557. | | |
| .1140 | 184. | 2305. | 656. | -359. | -1110. | -807. | .0350 | .0114 | -.0262 | -.0057 | .0306 | -.0222 | 569. | | |
| .1150 | -550. | 1400. | -1447. | 342. | -1236. | -1608. | .0313 | .0063 | -.0152 | .0138 | .0357 | -.0127 | 825. | | |
| .1160 | -1109. | 1701. | -2965. | 641. | -1144. | -2315. | .0294 | .0025 | -.0051 | .0320 | .0403 | -.0053 | 1068. | | |
| .1170 | -1495. | 2348. | -3814. | 682. | -790. | -2793. | .0292 | .0009 | .0047 | .0431 | .0470 | .0021 | 1196. | | |
| .1180 | -1963. | 1901. | -3953. | 776. | -257. | -2907. | .0298 | .0029 | .0137 | .0398 | .0574 | .0099 | 1212. | | |
| .1190 | -2076. | 542. | -3886. | 879. | 161. | -2788. | .0322 | .0073 | .0188 | .0212 | .0532 | .0150 | 1175. | | |
| .1200 | -1712. | -282. | -3763. | 1053. | 292. | -2298. | .0342 | .0122 | .0206 | -.0025 | .0352 | .0172 | 1021. | | |
| .1210 | -1340. | -537. | -3539. | 1509. | 134. | -1398. | .0320 | .0178 | .0224 | -.0217 | .0208 | .0209 | 827. | | |
| .1220 | -1148. | -1557. | -3703. | 2013. | -252. | -742. | .0289 | .0257 | .0223 | -.0378 | .0044 | .0256 | 867. | | |
| .1230 | -1356. | -2498. | -3892. | 2296. | -631. | -422. | .0272 | .0349 | .0192 | -.0510 | -.0124 | .0246 | 970. | | |
| .1240 | -1723. | -2410. | -3919. | 2316. | -758. | -170. | .0273 | .0435 | .0134 | -.0610 | -.0282 | .0169 | 980. | | |
| .1250 | -2010. | -2071. | -3813. | 2282. | -500. | 286. | .0269 | .0514 | .0071 | -.0701 | -.0378 | .0095 | 944. | | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.34.

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

| | | | | | | | | | | | | | |
|-------|--------|--------|--------|-------|--------|--------|-------|-------|--------|--------|--------|--------|-------|
| .1140 | 184. | 2305. | 156. | -359. | -1110. | -277. | .0350 | .0114 | -.0262 | -.0057 | .0306 | -.0222 | 569. |
| .1150 | -550. | 1400. | -1447. | 342. | -1236. | -1608. | .313 | .0063 | -.0152 | .0138 | .0357 | -.0127 | 825. |
| .1160 | -1109. | 1701. | -2965. | 641. | -1144. | -2315. | .0294 | .0025 | -.0051 | .0320 | .0403 | -.0053 | 1068. |
| .1170 | -1495. | 2348. | -3814. | 682. | -790. | -2793. | .0292 | .0009 | .0047 | .0431 | .0470 | .0021 | 1196. |
| .1180 | -1923. | 1901. | -3953. | 776. | -257. | -2907. | .0298 | .0029 | .0137 | .0398 | .0574 | .0099 | 1212. |
| .1190 | -2076. | 542. | -3886. | 879. | 161. | -2788. | .0322 | .0073 | .0188 | .0212 | .0532 | .0150 | 1175. |
| .1200 | -1712. | -282. | -3763. | 1053. | 292. | -2298. | .0342 | .0122 | .0206 | -.0025 | .0352 | .0172 | 1021. |
| .1210 | -1340. | -537. | -3539. | 1509. | 134. | -1398. | .0320 | .0178 | .0224 | -.0217 | .0208 | .0209 | 827. |
| .1220 | -1148. | -1557. | -3703. | 2013. | -252. | -742. | .0289 | .0257 | .0223 | -.0378 | .0044 | .0256 | 867. |
| .1230 | -1356. | -2492. | -3892. | 2296. | -631. | -422. | .0272 | .0349 | .0192 | -.0510 | -.0124 | .0246 | 970. |
| .1240 | -1723. | -2410. | -3919. | 2210. | -758. | -170. | .0273 | .0435 | .0134 | -.0610 | -.0282 | .0169 | 980. |
| .1250 | -2010. | -2071. | -3813. | 2282. | -500. | 286. | .0269 | .0514 | .0071 | -.0701 | -.0378 | .0095 | 944. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.34.

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) | MX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | STRESS (PSI) | |
| .1260 | -2123. | -2345. | -3395. | 2197. | 101. | 1010. | .0245 | .0595 | .0011 | -.0815 | -.0386 | .0084 | 971. | |
| .1270 | -1543. | -2841. | -2907. | 1726. | 766. | 1703. | .0209 | .0670 | -.0066 | -.0945 | -.0455 | .0142 | 1021. | |
| .1280 | -432. | -2059. | -1982. | 921. | 1273. | 2513. | .0138 | .0718 | -.0143 | -.1017 | -.0504 | .0257 | 1189. | |
| .1290 | 788. | -642. | -865. | 76. | 1470. | 3284. | .0029 | .0742 | -.0207 | -.1029 | -.0501 | .0405 | 1444. | |
| .1300 | 1648. | 36. | 71. | -601. | 1322. | 3734. | -.0086 | .0754 | -.0274 | -.1049 | -.0504 | .0514 | 1608. | |
| .1310 | 1836. | 395. | 1103. | -1067. | 945. | 3983. | -.0187 | .0748 | -.0359 | -.1121 | -.0520 | .0497 | 1697. | |
| .1320 | 1784. | 918. | 2085. | -1396. | 444. | 4088. | -.0263 | .0716 | -.0467 | -.1247 | -.0610 | .0368 | 1743. | |
| .1330 | 1729. | 1459. | 3158. | -1534. | -4. | 4264. | -.0340 | .0661 | -.0570 | -.1394 | -.0675 | .0235 | 1819. | |
| .1340 | 1948. | 1335. | 4070. | -1567. | -289. | 4418. | -.0419 | .0598 | -.0653 | -.1538 | -.0706 | .0188 | 1885. | |
| .1350 | 2562. | 1032. | 4706. | -1598. | -368. | 4513. | -.0490 | .0523 | -.0714 | -.1649 | -.0730 | .0229 | 1927. | |
| .1360 | 3266. | 1455. | 5286. | -1533. | -190. | 4684. | -.0544 | .0425 | -.0749 | -.1703 | -.0706 | .0295 | 1979. | |
| .1370 | 3782. | 1776. | 5465. | -1324. | 232. | 4644. | -.0547 | .0315 | -.0775 | -.1737 | -.0707 | .0323 | 1940. | |
| .1380 | 3668. | 1455. | 5421. | -997. | 795. | 4278. | -.0498 | .0210 | -.0801 | -.1773 | -.0710 | .0283 | 1791. | |
| .1390 | 3145. | 896. | 5183. | -769. | 1185. | 3517. | -.0411 | .0113 | -.0834 | -.1783 | -.0756 | .0196 | 1521. | |
| .1400 | 2667. | 919. | 4861. | -736. | 1168. | 2557. | -.0318 | .0020 | -.0862 | -.1719 | -.0841 | .0124 | 1166. | |
| .1410 | 2320. | 1458. | 4698. | -805. | 843. | 1708. | -.0245 | -.0062 | -.0869 | -.1583 | -.0897 | .0113 | 830. | |
| .1420 | 2223. | 1377. | 4322. | -1001. | 426. | 831. | -.0166 | -.0121 | -.0870 | -.1444 | -.1008 | .0152 | 549. | |
| .1430 | 2181. | 961. | 3874. | -1271. | 104. | 20. | -.0072 | -.0158 | -.0861 | -.1315 | -.1140 | .0197 | 512. | |
| .1440 | 2108. | 865. | 3735. | -1542. | -29. | -669. | .0033 | -.0180 | -.0823 | -.1166 | -.1242 | .0230 | 675. | |
| .1450 | 1849. | 1023. | 2638. | -1736. | 126. | -1249. | .0144 | -.0186 | -.0747 | -.0978 | -.1262 | .0253 | 860. | |
| .1460 | 1253. | 1044. | 1859. | -1828. | 570. | -1723. | .0254 | -.0166 | -.0639 | -.0773 | -.1189 | .0259 | 1034. | |
| .1470 | 668. | 674. | 705. | -1849. | 1057. | -2168. | .0361 | -.0123 | -.0521 | -.0583 | -.1143 | .0239 | 1220. | |
| .1480 | 172. | 479. | 518. | -1637. | 1404. | -2240. | .0432 | -.0068 | -.0388 | -.0402 | -.1086 | .0208 | 1248. | |
| .1490 | -133. | 149. | -1803. | -1186. | 1528. | -1928. | .0456 | .0001 | -.0245 | -.0240 | -.1023 | .0185 | 1096. | |
| .1500 | -292. | -721. | -3078. | -709. | 1395. | -1489. | .0443 | .0087 | -.0108 | -.0119 | -.0974 | .0170 | 867. | |
| .1510 | -572. | -1433. | -3824. | -426. | 1032. | -999. | .0401 | .0182 | .0022 | -.0025 | -.0878 | .0137 | 601. | |
| .1520 | -916. | -1564. | -4068. | -472. | 547. | -602. | .0347 | .0273 | .0138 | .0054 | -.0753 | .0071 | 378. | |
| .1530 | -1380. | -1234. | -3815. | -754. | 181. | -231. | .0288 | .0357 | .0242 | .0124 | -.0567 | -.0016 | 325. | |
| .1540 | -1706. | -1179. | -3560. | -1170. | -5. | 33. | .0228 | .0435 | .0332 | .0191 | -.0378 | -.0082 | 470. | |
| .1550 | -1707. | -1222. | -3511. | -1606. | -115. | 277. | .0152 | .0501 | .0417 | .0296 | -.0186 | -.0083 | 656. | |
| .1560 | -1490. | -620. | -3391. | -2003. | -194. | 678. | .0044 | .0545 | .0507 | .0473 | .0369 | -.0013 | 852. | |
| .1570 | -1013. | 100. | -3465. | -2465. | -255. | 932. | -.0068 | .0569 | .0572 | .0677 | .0287 | .0094 | 1063. | |
| .1580 | -680. | 598. | -3512. | -2913. | -280. | 1003. | -.0169 | .0576 | .0606 | .0861 | .0486 | .0184 | 1241. | |
| .1590 | -756. | 1029. | -3290. | -3218. | -324. | 999. | -.0255 | .0562 | .0615 | .0997 | .0895 | .0214 | 1359. | |
| .1600 | -1048. | 1393. | -2937. | -3401. | -438. | 882. | -.0315 | .0523 | .0592 | .1062 | .0851 | .0173 | 1421. | |
| .1610 | -1357. | 1680. | -2465. | -3472. | -617. | 725. | -.0352 | .0464 | .0550 | .1067 | .0949 | .0098 | 1445. | |
| .1620 | -1621. | 1928. | -1701. | -3376. | -814. | 724. | -.0388 | .0392 | .0512 | .1037 | .1055 | .0044 | 1423. | |
| .1630 | -1497. | 1840. | -1031. | -3204. | -1044. | 736. | -.0414 | .0311 | .0476 | .0977 | .1099 | .0040 | 1384. | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.34.

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

| | | | | | | | | | | | | | |
|-------|--------|--------|--------|--------|--------|-------|--------|-------|-------|-------|--------|--------|-------|
| .1520 | -516. | -1574. | 165. | -472. | 547. | -602. | .0347 | .0273 | .0138 | .0054 | -.0753 | .0071 | 378. |
| .1530 | -1380. | -1274. | -3815. | -754. | 181. | -231. | .0288 | .0357 | .0242 | .0124 | -.0567 | -.0016 | 325. |
| .1540 | -1706. | -1179. | -3560. | -1170. | -5. | 33. | .0228 | .0435 | .0332 | .0191 | -.0378 | -.0082 | 470. |
| .1550 | -1707. | -1222. | -2511. | -1606. | -115. | 277. | .0152 | .0501 | .0417 | .0296 | -.0186 | -.0083 | 656. |
| .1560 | -1490. | -620. | -3291. | -2003. | -194. | 678. | .0044 | .0545 | .0507 | .0472 | .0069 | -.0013 | 852. |
| .1570 | -1013. | 100. | -2465. | -2465. | -255. | 932. | -.0068 | .0569 | .0572 | .0677 | .0287 | .0094 | 1063. |
| .1580 | -680. | 598. | -3512. | -2912. | -210. | 1003. | -.0169 | .0576 | .0606 | .0861 | .0486 | .0184 | 1241. |
| .1590 | -756. | 1029. | -3290. | -3218. | -324. | 999. | -.0255 | .0562 | .0615 | .0997 | .0695 | .0214 | 1359. |
| .1600 | -1048. | 1393. | -2937. | -3401. | -438. | 882. | -.0315 | .0523 | .0592 | .1062 | .0851 | .0173 | 1421. |
| .1610 | -1357. | 1680. | -2465. | -3472. | -617. | 725. | -.0352 | .0464 | .0550 | .1067 | .0949 | .0098 | 1445. |
| .1620 | -1621. | 1928. | -1701. | -3376. | -614. | 724. | -.0388 | .0392 | .0512 | .1037 | .1055 | .0044 | 1423. |
| .1630 | -1497. | 1840. | -1031. | -3204. | -1044. | 736. | -.0414 | .0311 | .0476 | .0977 | .1099 | .0040 | 1384. |

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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 | 31 | MEMBER | 1 | SEQUENCE | 814 | 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) | |
| .1640 | -1059. | 1806. | -393. | -2967. | -1257. | 812. | -.0431 | .0221 | .0444 | .0903 | .1094 | .0069 | 1333. | |
| .1650 | -610. | 1941. | 308. | -2619. | -1352. | 969. | -.0435 | .0125 | .0417 | .0819 | .1079 | .0097 | 1245. | |
| .1660 | -244. | 1650. | 726. | -2184. | -1301. | 365. | -.0414 | .0032 | .0382 | .0714 | .1009 | .0101 | 1091. | |
| .1670 | -170. | 1209. | 1018. | -1676. | -1145. | 833. | -.0380 | -.0056 | .0343 | .0611 | .0941 | .0076 | 880. | |
| .1680 | -250. | 997. | 1136. | -1218. | -1014. | 538. | -.0343 | -.0137 | .0302 | .0542 | .0864 | .0033 | 672. | |
| .1690 | -421. | 1139. | 1213. | -844. | -917. | 183. | -.0317 | -.0205 | .0265 | .0520 | .0805 | -.0008 | 505. | |
| .1700 | -547. | 1096. | 1141. | -553. | -817. | -236. | -.0300 | -.0252 | .0229 | .0517 | .0741 | -.0030 | 407. | |
| .1710 | -486. | 631. | 765. | -357. | -753. | -754. | -.0287 | -.0277 | .0196 | .0522 | .0639 | -.0026 | 451. | |
| .1720 | -492. | 556. | 622. | -214. | -697. | -1095. | -.0291 | -.0282 | .0187 | .0553 | .0604 | -.0009 | 528. | |
| .1730 | -453. | 679. | 519. | -216. | -604. | -1423. | -.0293 | -.0267 | .0192 | .0590 | .0577 | .0004 | 626. | |
| .1740 | -466. | 574. | 464. | -329. | -409. | -768. | -.0284 | -.0230 | .0206 | .0608 | .0553 | .0003 | 740. | |
| .1750 | -662. | 452. | 552. | -437. | -154. | -2023. | -.0289 | -.0172 | .0230 | .0609 | .0552 | -.0021 | 833. | |
| .1760 | -842. | 235. | 481. | -480. | 45. | -2212. | -.0243 | -.0101 | .0260 | .0598 | .0508 | -.0061 | 908. | |
| .1770 | -979. | 26. | 276. | -331. | 184. | -2181. | -.0235 | -.0021 | .0301 | .0590 | .0443 | -.0098 | 888. | |
| .1780 | -928. | -496. | -294. | 20. | 245. | -2008. | -.0227 | .0065 | .0345 | .0584 | .0320 | -.0116 | 812. | |
| .1790 | -842. | -1054. | -960. | 530. | 244. | -1659. | -.0226 | .0153 | .0396 | .0585 | .0182 | -.0125 | 706. | |
| .1800 | -799. | -1424. | -1522. | 1056. | 222. | -1215. | -.0224 | .0237 | .0444 | .0581 | .0037 | -.0146 | 652. | |
| .1810 | -685. | -1863. | -2101. | 1469. | 223. | -855. | -.0208 | .0313 | .0479 | .0557 | -.0152 | -.0179 | 688. | |
| .1820 | -668. | -2145. | -2329. | 1820. | 300. | -403. | -.0197 | .0378 | .0512 | .0527 | -.0282 | -.0206 | 758. | |
| .1830 | -590. | -2329. | -2308. | 2045. | 398. | 78. | -.0194 | .0430 | .0540 | .0496 | -.0377 | -.0215 | 837. | |
| .1840 | -375. | -2310. | -2051. | 2083. | 468. | 542. | -.0201 | .0463 | .0551 | .0462 | -.0458 | -.0207 | 884. | |
| .1850 | -77. | -2096. | -1572. | 1957. | 498. | 956. | -.0221 | .0477 | .0543 | .0430 | -.0522 | -.0183 | 897. | |
| .1860 | 273. | -1940. | -1104. | 1736. | 470. | 1222. | -.0252 | .0471 | .0516 | .0410 | -.0580 | -.0141 | 873. | |
| .1870 | 484. | -1674. | -580. | 1525. | 403. | 1403. | -.0299 | .0447 | .0481 | .0418 | -.0584 | -.0091 | 847. | |
| .1880 | 620. | -1393. | -230. | 1315. | 296. | 1388. | -.0347 | .0403 | .0432 | .0446 | -.0587 | -.0052 | 776. | |
| .1890 | 620. | -1039. | 42. | 1139. | 221. | 1236. | -.0390 | .0343 | .0378 | .0485 | -.0574 | -.0036 | 680. | |
| .1900 | 505. | -703. | 330. | 1016. | 240. | 1024. | -.0428 | .0271 | .0328 | .0526 | -.0524 | -.0029 | 587. | |
| .1910 | 531. | -598. | 484. | 896. | 306. | 716. | -.0457 | .0192 | .0284 | .0563 | -.0481 | -.0011 | 476. | |
| .1920 | 734. | -417. | 701. | 785. | 339. | 467. | -.0491 | .0106 | .0258 | .0600 | -.0410 | .0033 | 391. | |
| .1930 | 1103. | -125. | 1008. | 667. | 285. | 298. | -.0529 | .0019 | .0250 | .0637 | -.0315 | .0096 | 315. | |
| .1940 | 1503. | 80. | 1349. | 544. | 162. | 151. | -.0562 | -.0063 | .0253 | .0656 | -.0211 | .0151 | 236. | |
| .1950 | 1727. | 145. | 1692. | 454. | -11. | -9. | -.0584 | -.0137 | .0262 | .0655 | -.0095 | .0167 | 182. | |
| .1960 | 1663. | 190. | 1990. | 424. | -239. | -186. | -.0594 | -.0202 | .0274 | .0644 | .0039 | .0130 | 209. | |
| .1970 | 1365. | 245. | 2141. | 444. | -487. | -392. | -.0591 | -.0255 | .0289 | .0638 | .0185 | .0050 | 308. | |
| .1980 | 948. | 277. | 2081. | 485. | -681. | -608. | -.0577 | -.0295 | .0306 | .0651 | .0341 | -.0044 | 415. | |
| .1990 | 516. | 345. | 1832. | 523. | -775. | -782. | -.0554 | -.0321 | .0328 | .0690 | .0506 | -.0130 | 489. | |
| .2000 | 159. | 488. | 1420. | 531. | -760. | -890. | -.0520 | -.0331 | .0354 | .0752 | .0567 | -.0198 | 516. | |
| .2010 | -94. | 616. | 870. | 493. | -641. | -950. | -.0470 | -.0327 | .0382 | .0824 | .0810 | -.0250 | 501. | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.34.

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

| | | | | | | | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|--------|--------|-------|-------|--------|--------|------|
| .1900 | 505. | -703. | 20. | 1016. | 240. | 1024. | -.428 | .0271 | .0328 | .0528 | -.0524 | -.0029 | 587. |
| .1910 | 531. | -598. | 484. | 896. | 306. | 716. | -.457 | .0192 | .0284 | .0563 | -.0481 | -.0011 | 476. |
| .1920 | 734. | -417. | 701. | 785. | 339. | 467. | -.0491 | .0106 | .0258 | .0600 | -.0410 | .0033 | 391. |
| .1930 | 1103. | -125. | 1008. | 667. | 285. | 298. | -.0529 | .0019 | .0250 | .0637 | -.0315 | .0096 | 315. |
| .1940 | 1503. | 80. | 1349. | 544. | 162. | 151. | -.0562 | -.0063 | .0253 | .0656 | -.0211 | .0151 | 236. |
| .1950 | 1727. | 145. | 1692. | 454. | -11. | -9. | -.0584 | -.0137 | .0262 | .0655 | -.0095 | .0167 | 182. |
| .1960 | 1663. | 190. | 1990. | 424. | -239. | -136. | -.0594 | -.0202 | .0274 | .0644 | .0039 | .0130 | 209. |
| .1970 | 1365. | 245. | 2141. | 444. | -487. | -392. | -.0591 | -.0255 | .0289 | .0638 | .0185 | .0050 | 308. |
| .1980 | 948. | 277. | 2081. | 485. | -681. | -608. | -.0577 | -.0295 | .0306 | .0651 | .0341 | -.0044 | 415. |
| .1990 | 516. | 345. | 1832. | 523. | -775. | -782. | -.0554 | -.0321 | .0328 | .0690 | .0506 | -.0130 | 489. |
| .2000 | 159. | 488. | 1420. | 531. | -760. | -890. | -.0520 | -.0331 | .0354 | .0752 | .0567 | -.0198 | 516. |
| .2010 | -94. | 616. | 870. | 493. | -641. | -950. | -.0470 | -.0327 | .0382 | .0824 | .0810 | -.0250 | 501. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.34.

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 | 31 | MEMBER | 1 | SEQUENCE | 814 | 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) | | |
| .2020 | -313. | 667. | 286. | 404. | -440. | -985. | -.0404 | -.0306 | .0411 | .0896 | .0943 | -.0289 | 462. | | |
| .2030 | -592. | 697. | -178. | 230. | -226. | -1038. | -.0322 | -.0270 | .0437 | .0957 | .1066 | -.0330 | 436. | | |
| .2040 | -951. | 773. | -459. | -66. | -86. | -1156. | -.0226 | -.0221 | .0452 | .0996 | .1161 | -.0384 | 466. | | |
| .2050 | -1347. | 832. | -603. | -425. | -70. | -1316. | -.0121 | -.0163 | .0455 | .1009 | .1215 | -.0450 | 556. | | |
| .2060 | -1727. | 733. | -707. | -712. | -175. | -1432. | -.0021 | -.0098 | .0452 | .0997 | .1234 | -.0512 | 646. | | |
| .2070 | -2036. | 421. | -865. | -849. | -360. | -1457. | .0067 | -.0031 | .0446 | .0965 | .1223 | -.0560 | 692. | | |
| .2080 | -2258. | -12. | -1108. | -870. | -557. | -1424. | .0143 | .0035 | .0440 | .0921 | .1181 | -.0595 | 706. | | |
| .2090 | -2436. | -441. | -1397. | -828. | -676. | -1369. | .0207 | .0097 | .0434 | .0873 | .1129 | -.0619 | 697. | | |
| .2100 | -2619. | -826. | -1695. | -732. | -655. | -1292. | .0258 | .0154 | .0434 | .0832 | .1092 | -.0630 | 651. | | |
| .2110 | -2786. | -1186. | -2017. | -582. | -501. | -1196. | .0291 | .0204 | .0442 | .0800 | .1072 | -.0627 | 570. | | |
| .2120 | -2892. | -1494. | -2348. | -402. | -292. | -1076. | .0304 | .0243 | .0456 | .0777 | .1057 | -.0611 | 476. | | |
| .2130 | -2910. | -1713. | -2620. | -227. | -116. | -930. | .0292 | .0272 | .0472 | .0761 | .1042 | -.0578 | 387. | | |
| .2140 | -2814. | -1834. | -2773. | -99. | -46. | -768. | .0254 | .0290 | .0487 | .0750 | .1021 | -.0526 | 311. | | |
| .2150 | -2596. | -1811. | -2783. | -47. | -118. | -607. | .0192 | .0296 | .0498 | .0745 | .0988 | -.0456 | 249. | | |
| .2160 | -2298. | -1601. | -2656. | -58. | -319. | -450. | .0114 | .0290 | .0502 | .0743 | .0943 | -.0381 | 222. | | |
| .2170 | -2007. | -1288. | -2431. | -86. | -574. | -295. | .0032 | .0275 | .0499 | .0736 | .0888 | -.0316 | 261. | | |
| .2180 | -1771. | -1018. | -2169. | -101. | -773. | -155. | -.0043 | .0253 | .0488 | .0717 | .0823 | -.0270 | 319. | | |
| .2190 | -1562. | -799. | -1907. | -107. | -838. | -28. | -.0101 | .0225 | .0467 | .0684 | .0745 | -.0239 | 339. | | |
| .2200 | -1311. | -525. | -1650. | -118. | -763. | 108. | -.0142 | .0192 | .0439 | .0645 | .0658 | -.0211 | 313. | | |
| .2210 | -967. | -200. | -1421. | -132. | -584. | 259. | -.0168 | .0156 | .0402 | .0606 | .0560 | -.0175 | 262. | | |
| .2220 | -542. | 65. | -1240. | -141. | -344. | 405. | -.0179 | .0120 | .0356 | .0559 | .0446 | -.0132 | 221. | | |
| .2230 | -121. | 234. | -1065. | -156. | -92. | 513. | -.0171 | .0084 | .0296 | .0498 | .0312 | -.0095 | 218. | | |
| .2240 | 210. | 368. | -817. | -215. | 121. | 553. | -.0146 | .0052 | .0220 | .0416 | .0161 | -.0080 | 243. | | |
| .2250 | 419. | 502. | -449. | -357. | 261. | 506. | -.0105 | .0025 | .0127 | .0314 | -.0003 | -.0093 | 270. | | |
| .2260 | 533. | 632. | 44. | -598. | 332. | 383. | -.0055 | .0005 | .0021 | .0195 | -.0172 | -.0123 | 315. | | |
| .2270 | 616. | 757. | 628. | -926. | 363. | 233. | -.0001 | -.0006 | -.0091 | .0067 | -.0338 | -.0156 | 410. | | |
| .2280 | 748. | 869. | 1218. | -1304. | 390. | 107. | .0048 | -.0009 | -.0202 | -.0063 | -.0500 | -.0179 | 548. | | |
| .2290 | 969. | 940. | 1720. | -1683. | 448. | 43. | .0089 | -.0005 | -.0307 | -.0188 | -.0654 | -.0185 | 699. | | |
| .2300 | 1250. | 966. | 2080. | -2023. | 564. | 57. | .0118 | .0008 | -.0399 | -.0301 | -.0789 | -.0172 | 843. | | |
| .2310 | 1516. | 979. | 2291. | -2307. | 739. | 126. | .0135 | .0027 | -.0473 | -.0399 | -.0894 | -.0150 | 973. | | |
| .2320 | 1694. | 995. | 2363. | -2534. | 933. | 209. | .0139 | .0051 | -.0529 | -.0484 | -.0971 | -.0130 | 1087. | | |
| .2330 | 1741. | 990. | 2320. | -2693. | 1089. | 298. | .0132 | .0081 | -.0567 | -.0561 | -.1019 | -.0121 | 1172. | | |
| .2340 | 1671. | 926. | 2198. | -2762. | 1160. | 417. | .0111 | .0115 | -.0584 | -.0635 | -.1039 | -.0121 | 1214. | | |
| .2350 | 1549. | 796. | 2023. | -2746. | 1120. | 592. | .0078 | .0151 | -.0580 | -.0710 | -.1037 | -.0125 | 1214. | | |
| .2360 | 1441. | 627. | 1816. | -2668. | 969. | 826. | .0034 | .0190 | -.0557 | -.0785 | -.1022 | -.0126 | 1186. | | |
| .2370 | 1356. | 447. | 1597. | -2546. | 737. | 1104. | -.0015 | .0228 | -.0514 | -.0857 | -.0989 | -.0121 | 1152. | | |
| .2380 | 1266. | 248. | 1357. | -2383. | 479. | 1400. | -.0063 | .0266 | -.0452 | -.0919 | -.0935 | -.0110 | 1125. | | |
| .2390 | 1150. | 38. | 1071. | -2181. | 250. | 1677. | -.0103 | .0301 | -.0377 | -.0968 | -.0860 | -.0097 | 1109. | | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.34.

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

| | | | | | | | | | | | | | |
|-------|-------|------|-------|--------|-------|-------|--------|--------|--------|--------|--------|--------|-------|
| .2290 | 969. | 940. | 1720. | -1683. | 448. | 43. | .089 | -.0005 | -.0307 | -.0188 | -.0554 | -.0179 | 548. |
| .2300 | 1250. | 966. | 2080. | -2023. | 564. | 57. | .0118 | .0008 | -.0399 | -.0301 | -.0789 | -.0172 | 843. |
| .2310 | 1516. | 979. | 2291. | -2307. | 739. | 126. | .0135 | .0027 | -.0473 | -.0399 | -.0894 | -.0150 | 973. |
| .2320 | 1694. | 995. | 2363. | -2534. | 933. | 209. | .0139 | .0051 | -.0529 | -.0484 | -.0971 | -.0130 | 1087. |
| .2330 | 1741. | 990. | 2320. | -2693. | 1089. | 298. | .0132 | .0081 | -.0567 | -.0561 | -.1019 | -.0121 | 1172. |
| .2340 | 1671. | 926. | 2198. | -2762. | 1160. | 417. | .0111 | .0115 | -.0584 | -.0635 | -.1039 | -.0121 | 1214. |
| .2350 | 1549. | 796. | 2023. | -2746. | 1120. | 592. | .0078 | .0151 | -.0580 | -.0710 | -.1037 | -.0125 | 1214. |
| .2360 | 1441. | 627. | 1816. | -2668. | 969. | 826. | .0034 | .0190 | -.0557 | -.0785 | -.1022 | -.0126 | 1186. |
| .2370 | 1356. | 447. | 1597. | -2546. | 737. | 1104. | -.0015 | .0228 | -.0514 | -.0857 | -.0989 | -.0121 | 1152. |
| .2380 | 1266. | 248. | 1357. | -2383. | 479. | 1400. | -.0063 | .0266 | -.0452 | -.0919 | -.0935 | -.0110 | 1125. |
| .2390 | 1150. | 38. | 1071. | -2181. | 250. | 1677. | -.0103 | .0301 | -.0377 | -.0968 | -.0860 | -.0097 | 1109. |

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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 | | | | | | | | STRESS |
|------------|---------|----------|----------|------------|------------|------------|---------|---------|---------|----------|----------|----------|-------|--------|
| 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) | (PSI) | |
| .2400 | 994. | -127. | 725. | -1953. | 75. | 1907. | -.0131 | .0331 | -.0294 | -.0997 | -.0771 | -.0085 | 1096. | |
| .2410 | 794. | -222. | 329. | -1710. | -50. | 2069. | -.0146 | .0354 | -.0210 | -.1003 | -.0668 | -.0075 | 1077. | |
| .2420 | 570. | -281. | -106. | -1472. | -149. | 2145. | -.0151 | .0370 | -.0131 | -.0985 | -.0557 | -.0059 | 1045. | |
| .2430 | 352. | -326. | -550. | -1257. | -251. | 2129. | -.0150 | .0380 | -.0063 | -.0945 | -.0441 | -.0032 | 997. | |
| .2440 | 137. | -314. | -957. | -1071. | -372. | 2032. | -.0144 | .0382 | -.0009 | -.0885 | -.0319 | .0003 | 934. | |
| .2450 | -95. | -223. | -1275. | -914. | -501. | 1867. | -.0132 | .0376 | .0028 | -.0817 | -.0195 | .0037 | 858. | |
| .2460 | -349. | -111. | -1471. | -789. | -613. | 1643. | -.0110 | .0364 | .0046 | -.0753 | -.0076 | .0062 | 772. | |
| .2470 | -579. | -17. | -1502. | -704. | -692. | 1399. | -.0081 | .0346 | .0043 | -.0706 | .0034 | .0080 | 687. | |
| .2480 | -741. | 65. | -1353. | -641. | -742. | 1189. | -.0049 | .0323 | .0023 | -.0678 | .0138 | .0098 | 618. | |
| .2490 | -823. | 135. | -1075. | -565. | -765. | 1034. | -.0017 | .0295 | -.0011 | -.0666 | .0237 | .0119 | 564. | |
| .2500 | -838. | 195. | -737. | -467. | -754. | 914. | .0017 | .0263 | -.0057 | -.0667 | .0318 | .0137 | 511. | |
| .2510 | -822. | 252. | -389. | -345. | -702. | 804. | .0056 | .0228 | -.0115 | -.0679 | .0374 | .0146 | 450. | |
| .2520 | -794. | 298. | -69. | -195. | -620. | 698. | .0098 | .0190 | -.0181 | -.0698 | .0403 | .0144 | 383. | |
| .2530 | -737. | 320. | 193. | -18. | -540. | 596. | .0140 | .0153 | -.0250 | -.0718 | .0408 | .0140 | 323. | |
| .2540 | -626. | 358. | 406. | 157. | -485. | 499. | .0180 | .0116 | -.0320 | -.0735 | .0390 | .0137 | 286. | |
| .2550 | -461. | 445. | 614. | 287. | -449. | 402. | .0218 | .0081 | -.0388 | -.0750 | .0352 | .0138 | 268. | |
| .2560 | -263. | 579. | 845. | 345. | -416. | 296. | .0256 | .0050 | -.0453 | -.0768 | .0300 | .0139 | 247. | |
| .2570 | -44. | 751. | 1095. | 333. | -378. | 185. | .0294 | .0023 | -.0513 | -.0790 | .0234 | .0137 | 216. | |
| .2580 | 177. | 910. | 1331. | 292. | -333. | 88. | .0331 | -.0000 | -.0566 | -.0816 | .0161 | .0133 | 181. | |
| .2590 | 383. | 1012. | 1520. | 261. | -279. | 13. | .0366 | -.0020 | -.0610 | -.0846 | .0086 | .0129 | 153. | |
| .2600 | 577. | 1101. | 1655. | 245. | -220. | -47. | .0398 | -.0039 | -.0645 | -.0879 | .0006 | .0124 | 133. | |
| .2610 | 760. | 1221. | 1743. | 235. | -162. | -105. | .0425 | -.0057 | -.0675 | -.0913 | -.0079 | .0120 | 122. | |
| .2620 | 915. | 1311. | 1783. | 244. | -105. | -161. | .0448 | -.0075 | -.0700 | -.0949 | -.0167 | .0118 | 125. | |
| .2630 | 1040. | 1315. | 1772. | 294. | -48. | -204. | .0466 | -.0091 | -.0721 | -.0988 | -.0256 | .0122 | 145. | |
| .2640 | 1152. | 1251. | 1729. | 384. | 11. | -227. | .0477 | -.0107 | -.0739 | -.1033 | -.0347 | .0132 | 179. | |
| .2650 | 1255. | 1143. | 1685. | 503. | 79. | -230. | .0484 | -.0123 | -.0756 | -.1083 | -.0440 | .0149 | 224. | |
| .2660 | 1346. | 1018. | 1656. | 637. | 164. | -214. | .0486 | -.0138 | -.0771 | -.1136 | -.0531 | .0171 | 278. | |
| .2670 | 1433. | 872. | 1635. | 791. | 268. | -179. | .0486 | -.0152 | -.0785 | -.1190 | -.0619 | .0199 | 343. | |
| .2680 | 1513. | 675. | 1607. | 983. | 387. | -117. | .0482 | -.0166 | -.0795 | -.1242 | -.0704 | .0233 | 426. | |
| .2690 | 1594. | 480. | 1581. | 1211. | 515. | -16. | .0474 | -.0179 | -.0802 | -.1292 | -.0786 | .0268 | 528. | |
| .2700 | 1686. | 347. | 1578. | 1452. | 644. | 123. | .0463 | -.0191 | -.0806 | -.1338 | -.0864 | .0303 | 639. | |
| .2710 | 1780. | 243. | 1610. | 1676. | 765. | 282. | .0448 | -.0199 | -.0808 | -.1378 | -.0936 | .0338 | 748. | |
| .2720 | 1842. | 53. | 1675. | 1874. | 875. | 436. | .0428 | -.0202 | -.0807 | -.1413 | -.0995 | .0375 | 848. | |
| .2730 | 1856. | -211. | 1771. | 2046. | 974. | 573. | .0402 | -.0200 | -.0803 | -.1441 | -.1038 | .0411 | 938. | |
| .2740 | 1857. | -368. | 1886. | 2186. | 1059. | 689. | .0372 | -.0199 | -.0796 | -.1455 | -.1070 | .0444 | 1013. | |
| .2750 | 1864. | -367. | 1989. | 2305. | 1135. | 782. | .0338 | -.0200 | -.0782 | -.1451 | -.1093 | .0475 | 1078. | |
| .2760 | 1868. | -372. | 2040. | 2419. | 1205. | 842. | .0297 | -.0201 | -.0760 | -.1427 | -.1101 | .0510 | 1136. | |
| .2770 | 1877. | -487. | 2029. | 2531. | 1255. | 664. | .0250 | -.0200 | -.0730 | -.1388 | -.1095 | .0554 | 1186. | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.34.

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

| | | | | | | | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|-------|-------|
| .2670 | 1437. | 872. | 1635. | 791. | 268. | -179. | .0486 | -.0152 | -.0785 | -.1190 | -.0519 | .0199 | 343. |
| .2680 | 1513. | 675. | 1607. | 983. | 387. | -117. | .0482 | -.0166 | -.0795 | -.1242 | -.0704 | .0233 | 426. |
| .2690 | 1594. | 480. | 1581. | 1211. | 515. | -16. | .0474 | -.0179 | -.0802 | -.1292 | -.0786 | .0268 | 528. |
| .2700 | 1686. | 347. | 1578. | 1452. | 644. | 123. | .0463 | -.0191 | -.0806 | -.1338 | -.0864 | .0303 | 639. |
| .2710 | 1780. | 243. | 1610. | 1676. | 765. | 232. | .0448 | -.0199 | -.0808 | -.1378 | -.0936 | .0338 | 748. |
| .2720 | 1842. | 53. | 1675. | 1874. | 875. | 436. | .0428 | -.0202 | -.0807 | -.1413 | -.0995 | .0375 | 848. |
| .2730 | 1856. | -211. | 1771. | 2046. | 974. | 573. | .0402 | -.0200 | -.0803 | -.1441 | -.1038 | .0411 | 938. |
| .2740 | 1857. | -368. | 1886. | 2186. | 1059. | 689. | .0372 | -.0199 | -.0796 | -.1455 | -.1070 | .0444 | 1013. |
| .2750 | 1864. | -367. | 1989. | 2305. | 1135. | 782. | .0338 | -.0200 | -.0782 | -.1451 | -.1093 | .0475 | 1078. |
| .2760 | 1868. | -372. | 2040. | 2419. | 1265. | 842. | .0297 | -.0201 | -.0760 | -.1427 | -.1101 | .0510 | 1136. |
| .2770 | 1877. | -487. | 2029. | 2531. | 1255. | 864. | .0250 | -.0200 | -.0730 | -.1388 | -.1095 | .0554 | 1186. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.34.

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) | HX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | (PSI) | |
| .2780 | 1927. | -570. | 1999. | 2622. | 1271. | 868. | .0197 | -.0200 | -.0691 | -.1332 | -.1079 | .0604 | 1220. | |
| .2790 | 2037. | -486. | 2007. | 2676. | 1246. | 880. | .0138 | -.0202 | -.0648 | -.1263 | -.1053 | .0653 | 1236. | |
| .2800 | 2169. | -376. | 2060. | 2694. | 1179. | 887. | .0074 | -.0203 | -.0601 | -.1191 | -.1017 | .0700 | 1233. | |
| .2810 | 2274. | -413. | 2146. | 2684. | 1061. | 868. | .0009 | -.0201 | -.0555 | -.1121 | -.0970 | .0741 | 1209. | |
| .2820 | 2346. | -503. | 2264. | 2647. | 888. | 825. | -.0056 | -.0197 | -.0510 | -.1052 | -.0914 | .0772 | 1168. | |
| .2830 | 2395. | -454. | 2411. | 2590. | 680. | 773. | -.0119 | -.0195 | -.0468 | -.0976 | -.0849 | .0789 | 1119. | |
| .2840 | 2414. | -302. | 2537. | 2531. | 464. | 702. | -.0174 | -.0195 | -.0429 | -.0892 | -.0778 | .0792 | 1070. | |
| .2850 | 2378. | -220. | 2579. | 2488. | 260. | 591. | -.0217 | -.0195 | -.0394 | -.0801 | -.0703 | .0784 | 1031. | |
| .2860 | 2287. | -218. | 2527. | 2464. | 81. | 449. | -.0245 | -.0193 | -.0363 | -.0704 | -.0627 | .0763 | 1006. | |
| .2870 | 2168. | -167. | 2422. | 2443. | -56. | 302. | -.0254 | -.0189 | -.0336 | -.0601 | -.0552 | .0730 | 988. | |
| .2880 | 2034. | -49. | 2304. | 2403. | -149. | 157. | -.0242 | -.0184 | -.0314 | -.0497 | -.0485 | .0682 | 968. | |
| .2890 | 1877. | 32. | 2196. | 2337. | -209. | 7. | -.0208 | -.0176 | -.0299 | -.0403 | -.0429 | .0621 | 941. | |
| .2900 | 1694. | 46. | 2105. | 2243. | -258. | -144. | -.0154 | -.0164 | -.0291 | -.0320 | -.0389 | .0547 | 908. | |
| .2910 | 1498. | 51. | 2031. | 2124. | -313. | -286. | -.0082 | -.0149 | -.0289 | -.0246 | -.0365 | .0462 | 869. | |
| .2920 | 1290. | 55. | 1953. | 1991. | -376. | -417. | .0004 | -.0132 | -.0292 | -.0179 | -.0359 | .0368 | 830. | |
| .2930 | 1060. | 23. | 1845. | 1856. | -440. | -548. | .0098 | -.0114 | -.0297 | -.0117 | -.0366 | .0269 | 796. | |
| .2940 | 813. | -20. | 1686. | 1715. | -496. | -681. | .0197 | -.0096 | -.0300 | -.0053 | -.0381 | .0170 | 767. | |
| .2950 | 574. | -27. | 1471. | 1561. | -528. | -807. | .0293 | -.0078 | -.0300 | .0018 | -.0395 | .0080 | 736. | |
| .2960 | 350. | -35. | 1201. | 1392. | -514. | -921. | .0381 | -.0061 | -.0292 | .0098 | -.0400 | .0004 | 701. | |
| .2970 | 132. | -93. | 889. | 1209. | -448. | -1016. | .0456 | -.0044 | -.0275 | .0184 | -.0390 | -.0054 | 659. | |
| .2980 | -72. | -152. | 564. | 1010. | -347. | -1085. | .0514 | -.0029 | -.0250 | .0275 | -.0363 | -.0096 | 611. | |
| .2990 | -249. | -142. | 243. | 795. | -232. | -1123. | .0552 | -.0019 | -.0215 | .0370 | -.0321 | -.0121 | 560. | |
| .3000 | -405. | -104. | -79. | 576. | -127. | -1136. | .0567 | -.0013 | -.0171 | .0471 | -.0264 | -.0130 | 514. | |
| .3010 | -563. | -118. | -414. | 372. | -58. | -1137. | .0560 | -.0013 | -.0117 | .0573 | -.0195 | -.0124 | 481. | |
| .3020 | -723. | -152. | -760. | 188. | -42. | -1132. | .0533 | -.0017 | -.0055 | .0678 | -.0118 | -.0106 | 461. | |
| .3030 | -861. | -115. | -1097. | 21. | -79. | -1112. | .0489 | -.0029 | .0014 | .0785 | -.0040 | -.0078 | 447. | |
| .3040 | -962. | -30. | -1422. | -133. | -146. | -1076. | .0431 | -.0047 | .0089 | .0892 | .0041 | -.0039 | 439. | |
| .3050 | -1027. | 13. | -1730. | -278. | -222. | -1033. | .0364 | -.0068 | .0169 | .0995 | .0123 | .0012 | 438. | |
| .3060 | -1061. | 21. | -2004. | -423. | -298. | -986. | .0293 | -.0093 | .0250 | .1091 | .0205 | .0073 | 447. | |
| .3070 | -1070. | 76. | -2218. | -574. | -364. | -928. | .0220 | -.0121 | .0325 | .1177 | .0285 | .0137 | 462. | |
| .3080 | -1068. | 188. | -2370. | -721. | -413. | -858. | .0151 | -.0154 | .0402 | .1250 | .0360 | .0196 | 479. | |
| .3090 | -1078. | 286. | -2474. | -852. | -448. | -786. | .0087 | -.0189 | .0466 | .1307 | .0425 | .0247 | 499. | |
| .3100 | -1119. | 351. | -2539. | -962. | -489. | -719. | .0029 | -.0223 | .0518 | .1347 | .0478 | .0284 | 521. | |
| .3110 | -1188. | 423. | -2554. | -1063. | -545. | -653. | -.0021 | -.0256 | .0556 | .1371 | .0517 | .0305 | 546. | |
| .3120 | -1268. | 506. | -2510. | -1155. | -609. | -582. | -.0064 | -.0286 | .0581 | .1378 | .0540 | .0312 | 574. | |
| .3130 | -1340. | 568. | -2401. | -1247. | -670. | -501. | -.0100 | -.0311 | .0592 | .1368 | .0549 | .0307 | 603. | |
| .3140 | -1381. | 619. | -2218. | -1348. | -724. | -406. | -.0130 | -.0331 | .0591 | .1342 | .0544 | .0294 | 635. | |
| .3150 | -1375. | 684. | -1963. | -1466. | -760. | -299. | -.0154 | -.0344 | .0581 | .1302 | .0527 | .0275 | 673. | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.34.

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

| | | | | | | | | | | | | | |
|-------|--------|------|--------|--------|-------|--------|--------|--------|-------|-------|-------|--------|------|
| .3040 | -1027. | 13. | -1730. | -278. | -222. | -1033. | .364 | -.0068 | .0169 | .0995 | .0123 | -.0039 | 438. |
| .3050 | -1061. | 21. | -2004. | -423. | -298. | -986. | .0293 | -.0093 | .0250 | .1091 | .0205 | .0073 | 447. |
| .3070 | -1070. | 76. | -2218. | -574. | -364. | -928. | .0220 | -.0121 | .0329 | .1177 | .0285 | .0137 | 462. |
| .3080 | -1068. | 188. | -2370. | -721. | -413. | -858. | .0151 | -.0154 | .0402 | .1250 | .0360 | .0196 | 479. |
| .3090 | -1078. | 286. | -2474. | -852. | -448. | -786. | .0087 | -.0189 | .0466 | .1307 | .0425 | .0247 | 499. |
| .3100 | -1119. | 351. | -2539. | -962. | -489. | -717. | .0029 | -.0223 | .0518 | .1347 | .0478 | .0284 | 521. |
| .3110 | -1188. | 423. | -2554. | -1063. | -545. | -653. | -.0021 | -.0256 | .0556 | .1371 | .0517 | .0305 | 546. |
| .3120 | -1268. | 506. | -2510. | -1155. | -609. | -582. | -.0064 | -.0286 | .0581 | .1378 | .0540 | .0312 | 574. |
| .3130 | -1340. | 568. | -2401. | -1247. | -670. | -501. | -.0100 | -.0311 | .0592 | .1368 | .0549 | .0307 | 603. |
| .3140 | -1381. | 619. | -2218. | -1348. | -724. | -406. | -.0130 | -.0331 | .0591 | .1342 | .0544 | .0294 | 635. |
| .3150 | -1375. | 684. | -1963. | -1466. | -760. | -299. | -.0154 | -.0344 | .0581 | .1302 | .0527 | .0275 | 673. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.34.

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) | |
| .3160 | -1326. | 739. | -1655. | -1591. | -768. | -184. | -.0174 | -.0350 | .0563 | .1250 | .0499 | .0253 | 713. | |
| .3170 | -1250. | 748. | -1330. | -1702. | -749. | -71. | -.0191 | -.0349 | .0540 | .1190 | .0464 | .0228 | 747. | |
| .3180 | -1157. | 726. | -1021. | -1778. | -717. | 38. | -.0207 | -.0341 | .0513 | .1126 | .0420 | .0198 | 770. | |
| .3190 | -1051. | 695. | -762. | -1804. | -689. | 140. | -.0222 | -.0328 | .0485 | .1062 | .0368 | .0163 | 777. | |
| .3200 | -942. | 615. | -575. | -1770. | -663. | 230. | -.0238 | -.0309 | .0458 | .1000 | .0310 | .0124 | 764. | |
| .3210 | -849. | 432. | -464. | -1674. | -638. | 304. | -.0253 | -.0284 | .0433 | .0938 | .0249 | .0080 | 729. | |
| .3220 | -772. | 183. | -407. | -1529. | -618. | 362. | -.0268 | -.0256 | .0412 | .0877 | .0190 | .0033 | 677. | |
| .3230 | -696. | -44. | -375. | -1361. | -597. | 407. | -.0282 | -.0227 | .0396 | .0819 | .0136 | -.0016 | 618. | |
| .3240 | -615. | -244. | -354. | -1190. | -564. | 434. | -.0292 | -.0199 | .0386 | .0766 | .0089 | -.0065 | 556. | |
| .3250 | -544. | -461. | -348. | -1025. | -512. | 430. | -.0298 | -.0173 | .0380 | .0718 | .0051 | -.0111 | 491. | |
| .3260 | -494. | -688. | -370. | -873. | -449. | 385. | -.0297 | -.0151 | .0379 | .0678 | .0023 | -.0154 | 423. | |
| .3270 | -461. | -848. | -428. | -734. | -392. | 302. | -.0290 | -.0134 | .0382 | .0650 | .0000 | -.0194 | 355. | |
| .3280 | -445. | -913. | -533. | -606. | -344. | 185. | -.0277 | -.0126 | .0387 | .0637 | -.0017 | -.0230 | 289. | |
| .3290 | -457. | -946. | -693. | -482. | -305. | 33. | -.0257 | -.0126 | .0392 | .0637 | -.0030 | -.0262 | 229. | |
| .3300 | -504. | -983. | -898. | -365. | -276. | -150. | -.0230 | -.0134 | .0397 | .0645 | -.0039 | -.0290 | 193. | |
| .3310 | -582. | -990. | -1112. | -260. | -252. | -346. | -.0196 | -.0150 | .0399 | .0656 | -.0045 | -.0315 | 201. | |
| .3320 | -676. | -936. | -1300. | -169. | -226. | -530. | -.0156 | -.0176 | .0399 | .0666 | -.0044 | -.0338 | 241. | |
| .3330 | -773. | -852. | -1443. | -94. | -190. | -691. | -.0113 | -.0209 | .0396 | .0671 | -.0036 | -.0356 | 290. | |
| .3340 | -870. | -784. | -1536. | -37. | -148. | -831. | -.0067 | -.0248 | .0390 | .0668 | -.0019 | -.0368 | 339. | |
| .3350 | -965. | -721. | -1577. | -1. | -110. | -951. | -.0021 | -.0292 | .0382 | .0658 | .0006 | -.0372 | 384. | |
| .3360 | -1057. | -643. | -1578. | 18. | -82. | -1050. | .0023 | -.0339 | .0370 | .0642 | .0038 | -.0371 | 423. | |
| .3370 | -1146. | -568. | -1563. | 30. | -69. | -1132. | .0063 | -.0388 | .0356 | .0625 | .0076 | -.0363 | 455. | |
| .3380 | -1233. | -513. | -1550. | 39. | -73. | -1203. | .0097 | -.0435 | .0340 | .0607 | .0118 | -.0348 | 484. | |
| .3390 | -1314. | -468. | -1546. | 39. | -92. | -1267. | .0125 | -.0480 | .0324 | .0591 | .0165 | -.0328 | 510. | |
| .3400 | -1379. | -415. | -1546. | 20. | -114. | -1322. | .0146 | -.0521 | .0307 | .0577 | .0215 | -.0303 | 532. | |
| .3410 | -1418. | -351. | -1545. | -21. | -127. | -1361. | .0160 | -.0557 | .0290 | .0565 | .0269 | -.0274 | 549. | |
| .3420 | -1426. | -279. | -1537. | -81. | -128. | -1378. | .0168 | -.0586 | .0275 | .0554 | .0326 | -.0243 | 556. | |
| .3430 | -1402. | -196. | -1522. | -155. | -120. | -1366. | .0171 | -.0608 | .0263 | .0543 | .0386 | -.0211 | 554. | |
| .3440 | -1347. | -103. | -1502. | -241. | -106. | -1329. | .0168 | -.0621 | .0253 | .0530 | .0446 | -.0181 | 543. | |
| .3450 | -1273. | -6. | -1479. | -330. | -88. | -1269. | .0163 | -.0626 | .0245 | .0514 | .0504 | -.0158 | 527. | |
| .3460 | -1200. | 89. | -1456. | -409. | -73. | -1192. | .0156 | -.0623 | .0238 | .0495 | .0561 | -.0143 | 507. | |
| .3470 | -1140. | 153. | -1437. | -465. | -67. | -1101. | .0149 | -.0612 | .0232 | .0470 | .0613 | -.0140 | 480. | |
| .3480 | -1094. | 216. | -1424. | -486. | -65. | -997. | .0143 | -.0595 | .0225 | .0439 | .0658 | -.0150 | 446. | |
| .3490 | -1061. | 261. | -1413. | -469. | -53. | -885. | .0141 | -.0573 | .0217 | .0399 | .0697 | -.0171 | 403. | |
| .3500 | -1043. | 270. | -1401. | -415. | -22. | -773. | .0143 | -.0547 | .0205 | .0349 | .0726 | -.0202 | 352. | |
| .3510 | -1038. | 240. | -1386. | -327. | 30. | -669. | .0153 | -.0518 | .0191 | .0292 | .0745 | -.0240 | 299. | |
| .3520 | -1040. | 184. | -1365. | -205. | 101. | -577. | .0169 | -.0488 | .0173 | .0228 | .0754 | -.0283 | 249. | |
| .3530 | -1040. | 107. | -1339. | -56. | 188. | -507. | .0191 | -.0457 | .0151 | .0161 | .0751 | -.0327 | 218. | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.34.

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 | -1402. | -196. | -1522. | -155. | -120. | -1366. | .171 | -.0608 | .0263 | .0543 | .0386 | -.0211 | 554. |
| .3440 | -1347. | -103. | -1502. | -241. | -106. | -1329. | .168 | -.0621 | .0253 | .0530 | .0446 | -.0181 | 543. |
| .3450 | -1273. | -6. | -1479. | -330. | -88. | -1269. | .0163 | -.0626 | .0245 | .0514 | .0504 | -.0158 | 527. |
| .3460 | -1200. | 80. | -1456. | -409. | -73. | -1192. | .0156 | -.0623 | .0238 | .0495 | .0561 | -.0143 | 507. |
| .3470 | -1140. | 153. | -1437. | -465. | -67. | -1101. | .0149 | -.0612 | .0232 | .0470 | .0613 | -.0140 | 480. |
| .3480 | -1094. | 216. | -1424. | -486. | -61. | -997. | .0143 | -.0595 | .0225 | .0439 | .0658 | -.0150 | 446. |
| .3490 | -1061. | 261. | -1413. | -479. | -53. | -885. | .0141 | -.0573 | .0217 | .0399 | .0697 | -.0171 | 403. |
| .3500 | -1043. | 270. | -1401. | -415. | -22. | -773. | .0143 | -.0547 | .0205 | .0349 | .0726 | -.0202 | 352. |
| .3510 | -1038. | 240. | -1386. | -327. | 30. | -669. | .0153 | -.0518 | .0191 | .0292 | .0745 | -.0240 | 299. |
| .3520 | -1040. | 184. | -1365. | -205. | 101. | -577. | .0169 | -.0488 | .0173 | .0228 | .0754 | -.0283 | 249. |
| .3530 | -1040. | 107. | -1339. | -56. | 188. | -507. | .0191 | -.0457 | .0151 | .0161 | .0751 | -.0327 | 218. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.34.

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 | 31 | MEMBER | 1 | SEQUENCE | 814 | 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) | | |
| .3540 | -1037. | 7. | -1307. | 111. | 281. | -472. | .0219 | -.0427 | .0126 | .0093 | .0735 | -.0370 | 225. | | |
| .3550 | -1037. | -113. | -1261. | 284. | 361. | -485. | .0251 | -.0397 | .0096 | .0026 | .0707 | -.0409 | 268. | | |
| .3560 | -1041. | -238. | -1191. | 452. | 418. | -550. | .0285 | -.0370 | .0064 | -.0038 | .0668 | -.0444 | 331. | | |
| .3570 | -1047. | -351. | -1089. | 609. | 449. | -662. | .0318 | -.0345 | .0028 | -.0097 | .0620 | -.0472 | 404. | | |
| .3580 | -1050. | -446. | -955. | 750. | 460. | -816. | .0348 | -.0323 | -.0008 | -.0151 | .0565 | -.0492 | 482. | | |
| .3590 | -1047. | -522. | -796. | 875. | 455. | -1001. | .0373 | -.0304 | -.0044 | -.0198 | .0506 | -.0503 | 564. | | |
| .3600 | -1034. | -584. | -625. | 988. | 443. | -1201. | .0391 | -.0286 | -.0077 | -.0239 | .0443 | -.0506 | 649. | | |
| .3610 | -1004. | -640. | -458. | 1098. | 431. | -1396. | .0399 | -.0269 | -.0106 | -.0273 | .0380 | -.0499 | 733. | | |
| .3620 | -950. | -690. | -310. | 1215. | 421. | -1566. | .0396 | -.0253 | -.0128 | -.0298 | .0315 | -.0484 | 813. | | |
| .3630 | -863. | -727. | -183. | 1343. | 404. | -1697. | .0380 | -.0237 | -.0143 | -.0318 | .0249 | -.0459 | 883. | | |
| .3640 | -736. | -742. | -71. | 1474. | 373. | -1779. | .0352 | -.0221 | -.0150 | -.0332 | .0182 | -.0428 | 939. | | |
| .3650 | -571. | -738. | 41. | 1600. | 322. | -1806. | .0310 | -.0202 | -.0151 | -.0343 | .0113 | -.0390 | 977. | | |
| .3660 | -372. | -723. | 170. | 1710. | 247. | -1775. | .0255 | -.0181 | -.0145 | -.0355 | .0044 | -.0348 | 994. | | |
| .3670 | -147. | -699. | 328. | 1794. | 148. | -1688. | .0190 | -.0158 | -.0135 | -.0367 | -.0022 | -.0302 | 990. | | |
| .3680 | 103. | -656. | 515. | 1844. | 33. | -1553. | .0117 | -.0131 | -.0122 | -.0382 | -.0086 | -.0254 | 968. | | |
| .3690 | 377. | -583. | 724. | 1855. | -84. | -1376. | .0038 | -.0103 | -.0108 | -.0396 | -.0146 | -.0203 | 927. | | |
| .3700 | 661. | -488. | 936. | 1829. | -187. | -1170. | -.0043 | -.0071 | -.0095 | -.0410 | -.0201 | -.0151 | 875. | | |
| .3710 | 935. | -398. | 1131. | 1776. | -264. | -948. | -.0121 | -.0038 | -.0084 | -.0422 | -.0249 | -.0100 | 815. | | |
| .3720 | 1186. | -324. | 1293. | 1705. | -306. | -723. | -.0193 | -.0004 | -.0076 | -.0432 | -.0292 | -.0051 | 753. | | |
| .3730 | 1409. | -249. | 1421. | 1621. | -307. | -504. | -.0255 | .0028 | -.0074 | -.0441 | -.0331 | -.0006 | 692. | | |
| .3740 | 1603. | -156. | 1526. | 1524. | -271. | -302. | -.0304 | .0058 | -.0078 | -.0451 | -.0366 | .0033 | 633. | | |
| .3750 | 1756. | -67. | 1618. | 1411. | -206. | -130. | -.0338 | .0084 | -.0089 | -.0463 | -.0400 | .0064 | 575. | | |
| .3760 | 1860. | -18. | 1706. | 1285. | -127. | 3. | -.0354 | .0106 | -.0107 | -.0481 | -.0433 | .0088 | 518. | | |
| .3770 | 1917. | -6. | 1793. | 1154. | -41. | 96. | -.0354 | .0123 | -.0131 | -.0505 | -.0467 | .0105 | 465. | | |
| .3780 | 1939. | -6. | 1876. | 1026. | 46. | 151. | -.0337 | .0132 | -.0160 | -.0535 | -.0503 | .0115 | 416. | | |
| .3790 | 1935. | -9. | 1943. | 906. | 133. | 168. | -.0305 | .0133 | -.0192 | -.0568 | -.0540 | .0119 | 374. | | |
| .3800 | 1900. | -22. | 1981. | 800. | 219. | 145. | -.0262 | .0125 | -.0225 | -.0601 | -.0576 | .0118 | 338. | | |
| .3810 | 1833. | -30. | 1979. | 712. | 308. | 89. | -.0209 | .0111 | -.0256 | -.0633 | -.0608 | .0115 | 313. | | |
| .3820 | 1734. | -43. | 1927. | 647. | 403. | 7. | -.0152 | .0089 | -.0283 | -.0659 | -.0633 | .0109 | 306. | | |
| .3830 | 1610. | -71. | 1824. | 606. | 505. | -94. | -.0094 | .0062 | -.0306 | -.0680 | -.0647 | .0103 | 319. | | |
| .3840 | 1471. | -82. | 1683. | 577. | 601. | -205. | -.0039 | .0029 | -.0321 | -.0694 | -.0650 | .0099 | 344. | | |
| .3850 | 1322. | -73. | 1516. | 551. | 683. | -323. | .0008 | -.0006 | -.0329 | -.0698 | -.0637 | .0098 | 375. | | |
| .3860 | 1160. | -75. | 1333. | 524. | 742. | -448. | .0044 | -.0044 | -.0328 | -.0694 | -.0608 | .0103 | 407. | | |
| .3870 | 991. | -86. | 1144. | 496. | 773. | -576. | .0067 | -.0083 | -.0319 | -.0681 | -.0561 | .0114 | 435. | | |
| .3880 | 834. | -49. | 963. | 462. | 767. | -699. | .0076 | -.0123 | -.0300 | -.0658 | -.0499 | .0133 | 456. | | |
| .3890 | 699. | 67. | 800. | 415. | 729. | -811. | .0071 | -.0163 | -.0273 | -.0624 | -.0423 | .0158 | 468. | | |
| .3900 | 581. | 201. | 650. | 354. | 666. | -912. | .0053 | -.0198 | -.0238 | -.0579 | -.0334 | .0191 | 475. | | |
| .3910 | 473. | 288. | 508. | 283. | 583. | -1001. | .0024 | -.0224 | -.0196 | -.0525 | -.0235 | .0231 | 479. | | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.34.

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 | 1833. | -30. | 1979. | 712. | 308. | 89. | -.209 | .0111 | -.0256 | -.0633 | -.0605 | .0115 | 313. |
| .3820 | 1734. | -43. | 1927. | 647. | 403. | 7. | -.0152 | .0089 | -.0283 | -.0659 | -.0633 | .0109 | 306. |
| .3830 | 1610. | -71. | 1824. | 606. | 505. | -94. | -.0094 | .0062 | -.0306 | -.0680 | -.0647 | .0103 | 319. |
| .3840 | 1471. | -82. | 1683. | 577. | 601. | -205. | -.0039 | .0029 | -.0321 | -.0694 | -.0650 | .0099 | 344. |
| .3850 | 1322. | -73. | 1516. | 551. | 683. | -323. | .0008 | -.0006 | -.0329 | -.0698 | -.0637 | .0098 | 375. |
| .3860 | 1160. | -75. | 1333. | 524. | 742. | -448. | .0044 | -.0044 | -.0328 | -.0694 | -.0608 | .0103 | 407. |
| .3870 | 991. | -86. | 1144. | 496. | 773. | -576. | .0067 | -.0083 | -.0319 | -.0681 | -.0561 | .0114 | 435. |
| .3880 | 834. | -49. | 963. | 462. | 767. | -699. | .0076 | -.0123 | -.0300 | -.0658 | -.0499 | .0133 | 456. |
| .3890 | 699. | 67. | 800. | 415. | 729. | -811. | .0071 | -.0163 | -.0273 | -.0624 | -.0423 | .0152 | 468. |
| .3900 | 581. | 201. | 650. | 354. | 666. | -912. | .0053 | -.0198 | -.0238 | -.0579 | -.0334 | .0191 | 475. |
| .3910 | 473. | 288. | 508. | 283. | 583. | -1001. | .0024 | -.0224 | -.0196 | -.0525 | -.0235 | .0231 | 479. |

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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 | 31 | MEMBER | 1 | SEQUENCE | 814 | 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) | | |
| .3920 | 385. | 343. | 377. | 209. | 485. | -1064. | -.0015 | -.0242 | -.0150 | -.0464 | -.0130 | .0276 | 476. | | |
| .3930 | 331. | 417. | 262. | 138. | 381. | -1085. | -.0061 | -.0251 | -.0102 | -.0397 | -.0023 | .0325 | 465. | | |
| .3940 | 309. | 509. | 169. | 75. | 280. | -1064. | -.0111 | -.0251 | -.0053 | -.0327 | .0082 | .0375 | 442. | | |
| .3950 | 295. | 569. | 97. | 23. | 187. | -1008. | -.0162 | -.0241 | -.0007 | -.0259 | .0183 | .0421 | 412. | | |
| .3960 | 268. | 588. | 52. | -15. | 105. | -926. | -.0212 | -.0221 | .0035 | -.0194 | .0278 | .0460 | 374. | | |
| .3970 | 227. | 600. | 41. | -40. | 34. | -815. | -.0258 | -.0193 | .0071 | -.0134 | .0364 | .0489 | 328. | | |
| .3980 | 185. | 630. | 67. | -55. | -23. | -675. | -.0298 | -.0158 | .0101 | -.0079 | .0439 | .0508 | 272. | | |
| .3990 | 150. | 662. | 128. | -69. | -66. | -514. | -.0333 | -.0116 | .0123 | -.0031 | .0501 | .0518 | 210. | | |
| .4000 | 123. | 672. | 216. | -86. | -96. | -340. | -.0360 | -.0068 | .0139 | .0011 | .0548 | .0522 | 146. | | |

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) |
| .1360 | 3266. | 1455. | 5286. | -1533. | -190. | 4684. | -.0544 | .0425 | -.0749 | -.1703 | -.0706 | .0295 | 1979. |

| SECTION | 31 | MEMBER | 2 | SEQUENCE | 56 | 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 | 3. | -1. | 3. | 2. | -0. | -3. | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | .0000 | 2. | | |
| .0030 | 13. | 1. | 15. | 6. | -1. | -12. | -.0000 | -.0000 | -.0000 | -.0001 | -.0001 | .0001 | 5. | | |
| .0040 | 37. | 13. | 42. | 9. | -4. | -31. | -.0001 | -.0000 | -.0001 | -.0003 | -.0001 | .0004 | 13. | | |
| .0050 | 80. | 39. | 89. | 12. | -11. | -64. | -.0003 | -.0000 | -.0003 | -.0007 | -.0001 | .0009 | 27. | | |
| .0060 | 142. | 75. | 157. | 23. | -21. | -106. | -.0007 | -.0001 | -.0006 | -.0012 | -.0001 | .0018 | 44. | | |
| .0070 | 226. | 110. | 243. | 46. | -33. | -157. | -.0012 | -.0001 | -.0010 | -.0019 | -.0002 | .0029 | 67. | | |
| .0080 | 343. | 138. | 336. | 77. | -46. | -231. | -.0020 | -.0002 | -.0016 | -.0029 | -.0005 | .0042 | 99. | | |
| .0090 | 507. | 175. | 436. | 107. | -65. | -335. | -.0032 | -.0003 | -.0024 | -.0040 | -.0006 | .0061 | 144. | | |
| .0100 | 721. | 246. | 545. | 129. | -100. | -467. | -.0050 | -.0004 | -.0033 | -.0050 | .0001 | .0091 | 198. | | |
| .0110 | 965. | 354. | 664. | 155. | -156. | -597. | -.0074 | -.0006 | -.0040 | -.0058 | .0023 | .0130 | 255. | | |
| .0120 | 1177. | 472. | 803. | 225. | -233. | -673. | -.0103 | -.0008 | -.0048 | -.0067 | .0063 | .0169 | 300. | | |
| .0130 | 1277. | 557. | 981. | 381. | -323. | -640. | -.0135 | -.0010 | -.0055 | -.0085 | .0122 | .0195 | 326. | | |
| .0140 | 1222. | 598. | 1196. | 624. | -411. | -473. | -.0163 | -.0013 | -.0063 | -.0114 | .0195 | .0198 | 355. | | |
| .0150 | 1022. | 613. | 1405. | 917. | -482. | -184. | -.0185 | -.0016 | -.0072 | -.0154 | .0276 | .0178 | 422. | | |

ADLPIPE PAGE 1353 DIS/ADLPIPE ADLPIPE STRESS ANALYSIS 83/12/02. 18.27.34.

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 | 80. | 39. | 89. | 12. | -11. | -64. | -.0003 | -.0000 | -.0003 | -.0007 | -.0001 | .0009 | 27. |
| .0060 | 142. | 75. | 157. | 23. | -21. | -106. | -.0007 | -.0001 | -.0006 | -.0012 | -.0001 | .0018 | 44. |
| .0070 | 226. | 110. | 243. | 46. | -33. | -157. | -.0012 | -.0001 | -.0010 | -.0019 | -.0002 | .0029 | 67. |
| .0080 | 343. | 138. | 336. | 77. | -46. | -231. | -.0020 | -.0002 | -.0016 | -.0029 | -.0005 | .0042 | 99. |
| .0090 | 507. | 175. | 436. | 107. | -65. | -335. | -.0032 | -.0003 | -.0024 | -.0040 | -.0006 | .0061 | 144. |
| .0100 | 721. | 246. | 545. | 129. | -100. | -467. | -.0050 | -.0004 | -.0033 | -.0050 | .0001 | .0091 | 198. |
| .0110 | 965. | 354. | 664. | 155. | -156. | -597. | -.0074 | -.0006 | -.0040 | -.0058 | .0023 | .0130 | 255. |
| .0120 | 1177. | 472. | 803. | 225. | -233. | -673. | -.0103 | -.0008 | -.0048 | -.0067 | .0063 | .0169 | 300. |
| .0130 | 1277. | 557. | 981. | 381. | -323. | -640. | -.0135 | -.0010 | -.0055 | -.0085 | .0122 | .0195 | 326. |
| .0140 | 1222. | 598. | 1196. | 624. | -411. | -473. | -.0163 | -.0013 | -.0063 | -.0114 | .0195 | .0198 | 355. |
| .0150 | 1022. | 613. | 1405. | 917. | -481. | -104. | -.0185 | -.0016 | -.0072 | -.0154 | .0276 | .0178 | 422. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.34.

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 | 31 | MEMBER | 2 | SEQUENCE | 56 | 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) | | |
| .0160 | 712. | 596. | 1507. | 1207. | -517. | 198. | -.0195 | -.0019 | -.0080 | -.0191 | .0355 | .0139 | 533. | | |
| .0170 | 342. | 476. | 1358. | 1443. | -501. | 608. | -.0189 | -.0021 | -.0084 | -.0211 | .0418 | .0086 | 660. | | |
| .0180 | -50. | 201. | 860. | 1573. | -440. | 970. | -.0163 | -.0022 | -.0078 | -.0202 | .0460 | .0021 | 763. | | |
| .0190 | -460. | -174. | 50. | 1561. | -363. | 1235. | -.0114 | -.0021 | -.0058 | -.0157 | .0489 | -.0054 | 812. | | |
| .0200 | -826. | -560. | -950. | 1359. | -308. | 1293. | -.0043 | -.0018 | -.0020 | -.0085 | .0513 | -.0134 | 763. | | |
| .0210 | -1100. | -806. | -1912. | 954. | -326. | 1095. | .0042 | -.0014 | .0035 | .0002 | .0552 | -.0204 | 597. | | |
| .0220 | -1411. | -629. | -2391. | 529. | -496. | 896. | .0127 | -.0010 | .0108 | .0088 | .0557 | -.0235 | 463. | | |
| .0230 | -1785. | -84. | -2285. | 184. | -776. | 779. | .0209 | -.0006 | .0180 | .0136 | .0795 | -.0253 | 447. | | |
| .0240 | -2304. | 389. | -1854. | 11. | -1009. | 782. | .0295 | -.0005 | .0232 | .0117 | .0887 | -.0312 | 512. | | |
| .0250 | -2832. | 228. | -1768. | -45. | -1066. | 739. | .0384 | -.0004 | .0258 | .0071 | .0872 | -.0419 | 521. | | |
| .0260 | -3130. | -492. | -2497. | -129. | -982. | 580. | .0453 | -.0001 | .0280 | .0105 | .0788 | -.0493 | 461. | | |
| .0270 | -3449. | -940. | -3504. | -197. | -857. | 747. | .0482 | .0008 | .0311 | .0250 | .0745 | -.0476 | 463. | | |
| .0280 | -3848. | -1011. | -4401. | -490. | -570. | 960. | .0504 | .0022 | .0322 | .0368 | .0667 | -.0478 | 489. | | |
| .0290 | -3969. | -1346. | -5460. | -1149. | -35. | 589. | .0544 | .0037 | .0304 | .0386 | .0443 | -.0563 | 518. | | |
| .0300 | -3610. | -1708. | -6320. | -1418. | 453. | 357. | .0543 | .0049 | .0312 | .0451 | .0242 | -.0543 | 614. | | |
| .0310 | -3007. | -2048. | -6676. | -1138. | 769. | 375. | .0489 | .0060 | .0354 | .0564 | .0131 | -.0382 | 572. | | |
| .0320 | -2116. | -2407. | -6293. | -814. | 889. | -29. | .0420 | .0071 | .0382 | .0564 | .0010 | -.0235 | 484. | | |
| .0330 | -1393. | -2230. | -4794. | -530. | 713. | -560. | .0344 | .0081 | .0374 | .0415 | -.0111 | -.0162 | 422. | | |
| .0340 | -1062. | -1427. | -2520. | -56. | 325. | -596. | .0241 | .0091 | .0342 | .0228 | -.0174 | -.0099 | 273. | | |
| .0350 | -685. | -939. | -751. | 452. | 36. | -464. | .0117 | .0101 | .0287 | .0088 | -.0269 | -.0032 | 260. | | |
| .0360 | 0. | -1232. | -221. | 745. | -15. | -545. | -.0009 | .0112 | .0207 | .0027 | -.0463 | .0027 | 370. | | |
| .0370 | 566. | -1570. | -356. | 892. | 94. | -414. | -.0138 | .0123 | .0119 | .0061 | -.0642 | .0106 | 396. | | |
| .0380 | 625. | -1376. | -417. | 885. | 400. | 118. | -.0250 | .0135 | .0032 | .0127 | -.0720 | .0167 | 392. | | |
| .0390 | 537. | -920. | -352. | 464. | 1007. | 406. | -.0303 | .0146 | -.0065 | .0109 | -.0802 | .0117 | 474. | | |
| .0400 | 1147. | -486. | -193. | -203. | 1726. | 33. | -.0314 | .0148 | -.0163 | .0002 | -.0966 | .0045 | 697. | | |
| .0410 | 2197. | 25. | 464. | -228. | 2168. | -89. | -.0347 | .0141 | -.0211 | -.0042 | -.1041 | .0149 | 876. | | |
| .0420 | 3354. | 187. | 1700. | 373. | 2200. | -137. | -.0394 | .0127 | -.0229 | -.0074 | -.1030 | .0358 | 897. | | |
| .0430 | 3957. | 154. | 2730. | 615. | 1873. | -476. | -.0399 | .0115 | -.0241 | -.0139 | -.1049 | .0413 | 814. | | |
| .0440 | 3919. | 983. | 3999. | 396. | 1141. | -697. | -.0376 | .0102 | -.0261 | -.0254 | -.1074 | .0323 | 560. | | |
| .0450 | 3413. | 2338. | 5283. | 250. | 263. | -321. | -.0368 | .0085 | -.0269 | -.0315 | -.1013 | .0241 | 194. | | |
| .0460 | 2804. | 2731. | 5679. | 391. | -338. | 280. | -.0370 | .0063 | -.0258 | -.0284 | -.0928 | .0192 | 236. | | |
| .0470 | 2490. | 1961. | 5114. | 529. | -504. | 565. | -.0356 | .0039 | -.0251 | -.0245 | -.0933 | .0129 | 371. | | |
| .0480 | 2477. | 1257. | 4259. | 413. | -306. | 716. | -.0336 | .0012 | -.0246 | -.0215 | -.0953 | .0096 | 353. | | |
| .0490 | 2446. | 1205. | 3294. | -53. | 168. | 980. | -.0324 | -.0014 | -.0211 | -.0123 | -.0836 | .0129 | 400. | | |
| .0500 | 2308. | 1385. | 2243. | -880. | 703. | 1025. | -.0309 | -.0036 | -.0151 | .0000 | -.0616 | .0162 | 611. | | |
| .0510 | 1902. | 1596. | 1310. | -1890. | 997. | 863. | -.0278 | -.0054 | -.0081 | .0102 | -.0381 | .0127 | 925. | | |
| .0520 | 1165. | 1819. | 628. | -2763. | 912. | 800. | -.0246 | -.0071 | -.0001 | .0191 | -.0139 | .0054 | 1211. | | |
| .0530 | 362. | 1787. | 138. | -3348. | 469. | 724. | -.0226 | -.0090 | .0091 | .0285 | .0117 | .0002 | 1387. | | |

ADLPIPE PAGE 1354

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.35.

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

| | | | | | | | | | | | | | |
|-------|-------|-------|-------|--------|-------|-------|--------|--------|--------|--------|--------|-------|-------|
| .0430 | 3957. | 154. | 2730. | 615. | 1873. | -476. | -.0399 | .0115 | -.0241 | -.0139 | -.1049 | .0413 | 814. |
| .0440 | 3919. | 983. | 3999. | 396. | 1141. | -697. | -.0376 | .0102 | -.0261 | -.0254 | -.1074 | .0323 | 560. |
| .0450 | 3413. | 2338. | 5283. | 250. | 263. | -321. | -.0368 | .0085 | -.0269 | -.0315 | -.1013 | .0241 | 194. |
| .0460 | 2804. | 2731. | 5679. | 391. | -338. | 280. | -.0370 | .0063 | -.0258 | -.0284 | -.0928 | .0192 | 236. |
| .0470 | 2490. | 1961. | 5114. | 529. | -504. | 565. | -.0356 | .0039 | -.0251 | -.0245 | -.0933 | .0129 | 371. |
| .0480 | 2477. | 1257. | 4259. | 413. | -306. | 716. | -.0336 | .0012 | -.0246 | -.0215 | -.0953 | .0096 | 353. |
| .0490 | 2446. | 1205. | 3294. | -53. | 168. | 980. | -.0324 | -.0014 | -.0211 | -.0123 | -.0836 | .0129 | 400. |
| .0500 | 2308. | 1385. | 2243. | -880. | 703. | 1025. | -.0309 | -.0036 | -.0151 | .0000 | -.0516 | .0162 | 611. |
| .0510 | 1902. | 1596. | 1310. | -1890. | 997. | 863. | -.0278 | -.0054 | -.0081 | .0102 | -.0381 | .0127 | 925. |
| .0520 | 1165. | 1819. | 628. | -2763. | 912. | 800. | -.0246 | -.0071 | -.0001 | .0191 | -.0139 | .0054 | 1211. |
| .0530 | 362. | 1787. | 138. | -3348. | 469. | 724. | -.0226 | -.0090 | .0091 | .0285 | .0117 | .0002 | 1387. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.27.35.

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) | MX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | RX (DEG) | RY (DEG) | RZ (DEG) | STRESS (PSI) | |
| .0540 | -228. | 1580. | -53. | -3756. | -300. | 394. | -.0216 | -.0105 | .0183 | .0361 | .0362 | -.0013 | 1520. | |
| .0550 | -623. | 1630. | 101. | -4169. | -1229. | -61. | -.0208 | -.0113 | .0262 | .0393 | .0581 | -.0014 | 1745. | |
| .0560 | -1036. | 1746. | 158. | -4571. | -1982. | -381. | -.0191 | -.0115 | .0326 | .0405 | .0776 | -.0030 | 2005. | |
| .0570 | -1727. | 1218. | -407. | -4719. | -2347. | -388. | -.0156 | -.0111 | .0386 | .0449 | .0954 | -.0086 | 2121. | |
| .0580 | -2790. | -56. | -1633. | -4568. | -2303. | -23. | -.0097 | -.0097 | .0444 | .0538 | .1109 | -.0196 | 2053. | |
| .0590 | -3953. | -1407. | -3231. | -4487. | -1866. | 494. | -.0010 | -.0073 | .0494 | .0639 | .1232 | -.0350 | 1960. | |
| .0600 | -4835. | -2210. | -4851. | -4748. | -1177. | 870. | .0094 | -.0046 | .0537 | .0733 | .1334 | -.0495 | 1994. | |
| .0610 | -5198. | -2476. | -6080. | -5143. | -578. | 955. | .0195 | -.0018 | .0575 | .0817 | .1415 | -.0562 | 2112. | |
| .0620 | -5118. | -2623. | -6718. | -5326. | -322. | 841. | .0279 | .0012 | .0609 | .0891 | .1458 | -.0539 | 2168. | |
| .0630 | -4790. | -2908. | -6873. | -5248. | -406. | 623. | .0348 | .0045 | .0633 | .0932 | .1438 | -.0483 | 2127. | |
| .0640 | -4449. | -3030. | -6489. | -5001. | -799. | 464. | .0403 | .0077 | .0635 | .0918 | .1364 | -.0452 | 2041. | |
| .0650 | -4287. | -2588. | -5364. | -4626. | -1460. | 563. | .0436 | .0106 | .0609 | .0844 | .1275 | -.0455 | 1960. | |
| .0660 | -4321. | -1806. | -3898. | -4256. | -2122. | 886. | .0448 | .0137 | .0555 | .0738 | .1191 | -.0485 | 1941. | |
| .0670 | -4286. | -1234. | -2910. | -4054. | -2443. | 1188. | .0441 | .0167 | .0482 | .0661 | .1096 | -.0516 | 1958. | |
| .0680 | -3984. | -910. | -2749. | -3986. | -2305. | 1475. | .0411 | .0190 | .0408 | .0672 | .0997 | -.0496 | 1940. | |
| .0690 | -3449. | -550. | -3127. | -3979. | -1730. | 1843. | .0361 | .0202 | .0342 | .0758 | .0915 | -.0420 | 1892. | |
| .0700 | -2748. | -147. | -3639. | -4107. | -792. | 2049. | .0310 | .0204 | .0273 | .0831 | .0830 | -.0351 | 1869. | |
| .0710 | -1963. | 289. | -3886. | -4298. | 196. | 1934. | .0264 | .0197 | .0202 | .0846 | .0738 | -.0314 | 1893. | |
| .0720 | -1271. | 956. | -3461. | -4199. | 790. | 1784. | .0205 | .0177 | .0145 | .0831 | .0677 | -.0262 | 1858. | |
| .0730 | -741. | 1694. | -2318. | -3630. | 848. | 1713. | .0132 | .0148 | .0102 | .0792 | .0629 | -.0192 | 1646. | |
| .0740 | -239. | 2030. | -816. | -2754. | 550. | 1433. | .0065 | .0114 | .0051 | .0686 | .0505 | -.0161 | 1265. | |
| .0750 | 321. | 2001. | 748. | -1727. | 43. | 922. | .0009 | .0075 | -.0013 | .0532 | .0284 | -.0169 | 786. | |
| .0760 | 933. | 2007. | 2124. | -654. | -536. | 448. | -.0048 | .0030 | -.0074 | .0408 | .0029 | -.0149 | 384. | |
| .0770 | 1616. | 1981. | 2920. | 248. | -900. | -14. | -.0103 | -.0016 | -.0128 | .0351 | -.0217 | -.0091 | 375. | |
| .0780 | 2315. | 1624. | 2930. | 821. | -834. | -623. | -.0142 | -.0059 | -.0176 | .0339 | -.0443 | -.0036 | 532. | |
| .0790 | 2803. | 1141. | 2461. | 1160. | -388. | -1163. | -.0163 | -.0098 | -.0212 | .0357 | -.0605 | -.0002 | 677. | |
| .0800 | 2912. | 928. | 1976. | 1384. | 297. | -1375. | -.0172 | -.0132 | -.0232 | .0383 | -.0664 | .0015 | 792. | |
| .0810 | 2772. | 901. | 1639. | 1452. | 1091. | -1468. | -.0166 | -.0161 | -.0245 | .0372 | -.0656 | -.0001 | 937. | |
| .0820 | 2579. | 838. | 1482. | 1408. | 1739. | -1679. | -.0150 | -.0182 | -.0253 | .0324 | -.0627 | -.0029 | 1122. | |
| .0830 | 2368. | 826. | 1568. | 1424. | 1969. | -1878. | -.0142 | -.0193 | -.0248 | .0284 | -.0577 | -.0013 | 1232. | |
| .0840 | 2132. | 914. | 1775. | 1508. | 1781. | -1985. | -.0140 | -.0196 | -.0232 | .0266 | -.0529 | .0043 | 1229. | |
| .0850 | 1876. | 888. | 1822. | 1536. | 1374. | -2118. | -.0125 | -.0189 | -.0218 | .0239 | -.0547 | .0071 | 1186. | |
| .0860 | 1500. | 642. | 1568. | 1561. | 909. | -2173. | -.0088 | -.0171 | -.0200 | .0211 | -.0632 | .0045 | 1134. | |
| .0870 | 936. | 253. | 996. | 1705. | 534. | -1932. | -.0037 | -.0144 | -.0163 | .0222 | -.0716 | .0003 | 1056. | |
| .0880 | 337. | -276. | 103. | 1899. | 435. | -1523. | .0028 | -.0110 | -.0102 | .0262 | -.0767 | -.0035 | 992. | |
| .0890 | -60. | -933. | -940. | 2034. | 673. | -1223. | .0104 | -.0071 | -.0027 | .0288 | -.0798 | -.0069 | 990. | |
| .0900 | -166. | -1568. | -1798. | 2187. | 1115. | -1046. | .0179 | -.0029 | .0054 | .0281 | -.0801 | -.0076 | 1071. | |
| .0910 | -30. | -2095. | -2276. | 2467. | 1566. | -880. | .0231 | .0013 | .0134 | .0246 | -.0762 | -.0034 | 1225. | |

ADLPIPE PAGE 1355

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.27.35.

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

| | | | | | | | | | | | | | |
|-------|-------|--------|--------|-------|-------|--------|--------|--------|--------|-------|--------|--------|-------|
| .0810 | 2772. | 901. | 1429. | 1452. | 1091. | -1468. | -.0166 | -.0161 | -.0245 | .0372 | -.0656 | -.0001 | 937. |
| .0820 | 2579. | 538. | 1482. | 1408. | 1739. | -1679. | -.0150 | -.0182 | -.0253 | .0324 | -.0627 | -.0029 | 1122. |
| .0830 | 2363. | 826. | 1568. | 1424. | 1969. | -1878. | -.0142 | -.0193 | -.0245 | .0284 | -.0577 | -.0013 | 1232. |
| .0840 | 2132. | 914. | 1775. | 1508. | 1781. | -1985. | -.0140 | -.0196 | -.0232 | .0266 | -.0529 | .0043 | 1229. |
| .0850 | 1876. | 888. | 1822. | 1576. | 1374. | -2118. | -.0125 | -.0189 | -.0218 | .0239 | -.0547 | .0071 | 1186. |
| .0860 | 1500. | 642. | 1568. | 1561. | 909. | -2173. | -.0088 | -.0171 | -.0200 | .0211 | -.0632 | .0045 | 1134. |
| .0870 | 936. | 253. | 996. | 1705. | 534. | -1932. | -.0037 | -.0144 | -.0163 | .0222 | -.0716 | .0003 | 1056. |
| .0880 | 337. | -276. | 103. | 1899. | 435. | -1523. | .0028 | -.0110 | -.0102 | .0262 | -.0767 | -.0035 | 992. |
| .0890 | -60. | -933. | -940. | 2034. | 673. | -1223. | .0104 | -.0071 | -.0027 | .0288 | -.0798 | -.0069 | 990. |
| .0900 | -166. | -1568. | -1798. | 2187. | 1115. | -1046. | .0179 | -.0029 | .0054 | .0281 | -.0801 | -.0076 | 1071. |
| .0910 | -30. | -2095. | -2276. | 2467. | 1566. | -800. | .0231 | .0013 | .0134 | .0246 | -.0762 | -.0034 | 1225. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.35.

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

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

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

| SECTION | 31 | MEMBER | 2 | SEQUENCE | 50 | 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) | | |
| .0920 | 179. | -2590. | -2391. | 2868. | 1824. | -707. | .0251 | .0054 | .0195 | .0184 | -.0696 | .0027 | 1393. | | |
| .0930 | 195. | -3073. | -2180. | 3339. | 1714. | -490. | .0240 | .0095 | .0226 | .0096 | -.0523 | .0061 | 1519. | | |
| .0940 | -130. | -3423. | -1697. | 3798. | 1224. | -161. | .0201 | .0136 | .0221 | -.0000 | -.0539 | .0048 | 1602. | | |
| .0950 | -631. | -3522. | -1068. | 4122. | 544. | 232. | .0138 | .0177 | .0182 | -.0094 | -.0439 | .0009 | 1671. | | |
| .0960 | -969. | -3315. | -383. | 4251. | -98. | 579. | .0059 | .0215 | .0117 | -.0181 | -.0334 | -.0018 | 1722. | | |
| .0970 | -908. | -2895. | 377. | 4263. | -526. | 820. | -.0027 | .0251 | .0034 | -.0265 | -.0229 | -.0001 | 1755. | | |
| .0980 | -405. | -2461. | 1249. | 4249. | -620. | 906. | -.0108 | .0288 | -.0058 | -.0358 | -.0116 | .0066 | 1761. | | |
| .0990 | 407. | -2020. | 2297. | 4220. | -400. | 846. | -.0175 | .0326 | -.0160 | -.0475 | .0009 | .0158 | 1735. | | |
| .1000 | 1261. | -1351. | 3593. | 4152. | -62. | 776. | -.0223 | .0366 | -.0270 | -.0614 | .0138 | .0239 | 1695. | | |
| .1010 | 1879. | -436. | 5017. | 4041. | 190. | 828. | -.0248 | .0409 | -.0390 | -.0754 | .0253 | .0273 | 1657. | | |
| .1020 | 2137. | 387. | 6226. | 3908. | 270. | 981. | -.0250 | .0453 | -.0515 | -.0868 | .0321 | .0245 | 1621. | | |
| .1030 | 2124. | 900. | 6933. | 3766. | 146. | 1145. | -.0230 | .0494 | -.0637 | -.0927 | .0315 | .0171 | 1581. | | |
| .1040 | 2040. | 1272. | 7080. | 3577. | -151. | 1278. | -.0191 | .0523 | -.0740 | -.0916 | .0236 | .0088 | 1525. | | |
| .1050 | 2067. | 1556. | 6746. | 3318. | -464. | 1294. | -.0135 | .0537 | -.0809 | -.0850 | .0111 | .0021 | 1441. | | |
| .1060 | 2239. | 1639. | 6111. | 3040. | -632. | 1139. | -.0059 | .0535 | -.0835 | -.0762 | -.0023 | -.0030 | 1327. | | |
| .1070 | 2435. | 1627. | 5521. | 2861. | -639. | 953. | .0033 | .0517 | -.0814 | -.0685 | -.0122 | -.0070 | 1237. | | |
| .1080 | 2618. | 1772. | 5084. | 2699. | -530. | 782. | .0132 | .0481 | -.0752 | -.0635 | -.0181 | -.0112 | 1147. | | |
| .1090 | 2850. | 1956. | 4575. | 2406. | -369. | 473. | .0224 | .0434 | -.0657 | -.0589 | -.0195 | -.0147 | 995. | | |
| .1100 | 2531. | 1655. | 4336. | 2437. | -350. | 379. | .0283 | .0386 | -.0537 | -.0515 | -.0066 | -.0152 | 1000. | | |
| .1110 | 1977. | 1538. | 4149. | 2178. | -516. | 153. | .0321 | .0329 | -.0433 | -.0465 | .0077 | -.0186 | 900. | | |
| .1120 | 1506. | 2336. | 3677. | 1255. | -786. | -188. | .0339 | .0254 | -.0363 | -.0433 | .0146 | -.0251 | 599. | | |
| .1130 | 944. | 2964. | 2547. | 233. | -1031. | -383. | .0324 | .0177 | -.0303 | -.0322 | .0205 | -.0277 | 451. | | |
| .1140 | 184. | 2305. | 656. | -520. | -1165. | -567. | .0286 | .0119 | -.0236 | -.0114 | .0286 | -.0259 | 560. | | |
| .1150 | -550. | 1400. | -1447. | -1388. | -1160. | -878. | .0253 | .0081 | -.0168 | .0089 | .0353 | -.0245 | 807. | | |
| .1160 | -1109. | 1701. | -2965. | -2527. | -983. | -1038. | .0236 | .0054 | -.0099 | .0213 | .0429 | -.0233 | 1165. | | |
| .1170 | -1495. | 2348. | -3814. | -3444. | -604. | -1062. | .0236 | .0044 | -.0016 | .0252 | .0531 | -.0202 | 1467. | | |
| .1180 | -1963. | 1901. | -3953. | -3330. | -198. | -840. | .0245 | .0059 | .0084 | .0229 | .0656 | -.0136 | 1380. | | |
| .1190 | -2076. | 542. | -3886. | -2731. | 172. | -858. | .0280 | .0089 | .0165 | .0098 | .0625 | -.0102 | 1151. | | |
| .1200 | -1712. | -282. | -3763. | -2182. | 399. | -834. | .0320 | .0121 | .0216 | -.0085 | .0436 | -.0059 | 951. | | |
| .1210 | -1340. | -537. | -3539. | -1446. | 322. | -308. | .0326 | .0163 | .0256 | -.0192 | .0247 | .0074 | 607. | | |
| .1220 | -1148. | -1557. | -3703. | -759. | 25. | 0. | .0324 | .0230 | .0270 | -.0254 | .0036 | .0188 | 305. | | |
| .1230 | -1356. | -2498. | -3892. | -341. | -388. | 340. | .0323 | .0314 | .0251 | -.0321 | -.0170 | .0230 | 248. | | |
| .1240 | -1723. | -2410. | -3919. | -373. | -628. | 932. | .0325 | .0395 | .0205 | -.0422 | -.0351 | .0218 | 475. | | |
| .1250 | -2010. | -2071. | -3813. | -422. | -481. | 1701. | .0320 | .0470 | .0158 | -.0531 | -.0456 | .0223 | 729. | | |
| .1260 | -2123. | -2345. | -3395. | -49. | 11. | 2477. | .0301 | .0541 | .0121 | -.0641 | -.0467 | .0293 | 994. | | |
| .1270 | -1543. | -2841. | -2907. | 71. | 777. | 2571. | .0285 | .0602 | .0072 | -.0814 | -.0513 | .0379 | 1078. | | |
| .1280 | -432. | -2059. | -1982. | -168. | 1480. | 2535. | .0244 | .0638 | .0021 | -.0991 | -.0540 | .0535 | 1180. | | |
| .1290 | 788. | -642. | -865. | -482. | 1875. | 2475. | .0171 | .0652 | -.0027 | -.1116 | -.0527 | .0735 | 1261. | | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.35.

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

CONDITION 24

LOADS

SHOCK

PRESSURE

ENGLISH UNITS

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

| | | | | | | | | | | | | | |
|-------|--------|--------|--------|--------|-------|-------|-------|-------|--------|--------|--------|--------|-------|
| .1180 | -1765. | 1901. | -3886. | -3330. | -192. | 848. | 2280. | .0089 | .0165 | .0098 | .0625 | -.0102 | 1180. |
| .1190 | -2076. | 542. | -3763. | -2731. | 172. | -858. | 2280. | .0089 | .0165 | .0098 | .0625 | -.0102 | 1151. |
| .1200 | -1712. | -282. | -3763. | -2182. | 399. | -834. | .0320 | .0121 | .0216 | -.0085 | .0436 | -.0059 | 951. |
| .1210 | -1340. | -537. | -3539. | -1446. | 322. | -308. | .0326 | .0163 | .0256 | -.0192 | .0247 | .0074 | 607. |
| .1220 | -1148. | -1557. | -3703. | -759. | 25. | 0. | .0324 | .0230 | .0270 | -.0254 | .0036 | .0188 | 305. |
| .1230 | -1356. | -2498. | -3892. | -341. | -788. | 340. | .0323 | .0314 | .0251 | -.0321 | -.0170 | .0230 | 248. |
| .1240 | -1723. | -2410. | -3919. | -373. | -620. | 932. | .0325 | .0395 | .0205 | -.0422 | -.0351 | .0218 | 475. |
| .1250 | -2010. | -2071. | -3813. | -422. | -481. | 1701. | .0320 | .0470 | .0158 | -.0531 | -.0456 | .0223 | 729. |
| .1260 | -2123. | -2345. | -3395. | -49. | 11. | 2477. | .0301 | .0541 | .0121 | -.0641 | -.0467 | .0293 | 994. |
| .1270 | -1543. | -2841. | -2907. | 71. | 77. | 2571. | .0285 | .0602 | .0072 | -.0814 | -.0513 | .0379 | 1078. |
| .1280 | -432. | -2059. | -1982. | -168. | 1480. | 2535. | .0244 | .0638 | .0021 | -.0991 | -.0540 | .0535 | 1180. |
| .1290 | 788. | -642. | -865. | -482. | 1875. | 2475. | .0171 | .0652 | -.0027 | -.1116 | -.0527 | .0735 | 1261. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.35.

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 | 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) | |
| .1300 | 1848. | 36. | 71. | -550. | 1840. | 2283. | .0082 | .0655 | -.0082 | -.1201 | -.0533 | .0872 | 1197. | |
| .1310 | 1836. | 395. | 1103. | -219. | 1343. | 2429. | -.0014 | .0643 | -.0150 | -.1282 | -.0575 | .0903 | 1117. | |
| .1320 | 1784. | 918. | 2085. | 152. | 654. | 2671. | -.0103 | .0606 | -.0237 | -.1401 | -.0597 | .0824 | 1105. | |
| .1330 | 1729. | 1459. | 3158. | 787. | 0. | 2991. | -.0194 | .0546 | -.0316 | -.1509 | -.0800 | .0747 | 1241. | |
| .1340 | 1948. | 1335. | 4070. | 1601. | -373. | 2929. | -.0276 | .0475 | -.0376 | -.1591 | -.0855 | .0717 | 1348. | |
| .1350 | 2562. | 1032. | 4706. | 2230. | -366. | 2428. | -.0339 | .0391 | -.0420 | -.1654 | -.0880 | .0728 | 1331. | |
| .1360 | 3266. | 1455. | 5286. | 2671. | -62. | 2052. | -.0382 | .0287 | -.0444 | -.1681 | -.0849 | .0772 | 1352. | |
| .1370 | 3782. | 1776. | 5465. | 2935. | 495. | 1611. | -.0384 | .0175 | -.0465 | -.1692 | -.0823 | .0748 | 1358. | |
| .1380 | 3668. | 1455. | 5421. | 3326. | 1028. | 1290. | -.0351 | .0070 | -.0489 | -.1678 | -.0793 | .0636 | 1490. | |
| .1390 | 3145. | 896. | 5183. | 3524. | 1292. | 893. | -.0289 | -.0022 | -.0525 | -.1650 | -.0805 | .0453 | 1548. | |
| .1400 | 2667. | 919. | 4861. | 3265. | 1177. | 360. | -.0216 | -.0106 | -.0568 | -.1593 | -.0862 | .0282 | 1400. | |
| .1410 | 2320. | 1458. | 4698. | 2878. | 769. | -87. | -.0149 | -.0178 | -.0601 | -.1481 | -.0907 | .0201 | 1196. | |
| .1420 | 2223. | 1377. | 4322. | 2377. | 386. | -893. | -.0064 | -.0228 | -.0631 | -.1375 | -.1000 | .0141 | 1031. | |
| .1430 | 2181. | 961. | 3874. | 1844. | 129. | -1740. | .0037 | -.0257 | -.0648 | -.1289 | -.1110 | .0085 | 1019. | |
| .1440 | 2108. | 865. | 3335. | 1127. | 67. | -2380. | .0147 | -.0270 | -.0638 | -.1202 | -.1183 | .0034 | 1057. | |
| .1450 | 1849. | 1023. | 2638. | 267. | 261. | -2705. | .0256 | -.0264 | -.0592 | -.1091 | -.1168 | -.0007 | 1096. | |
| .1460 | 1253. | 1044. | 1859. | -521. | 648. | -2648. | .0354 | -.0230 | -.0514 | -.0955 | -.1057 | -.0043 | 1114. | |
| .1470 | 668. | 674. | 705. | -1442. | 1149. | -2641. | .0447 | -.0174 | -.0426 | -.0836 | -.0971 | -.0109 | 1292. | |
| .1480 | 172. | 479. | -518. | -2249. | 1550. | -2308. | .0500 | -.0104 | -.0324 | -.0703 | -.0895 | -.0137 | 1435. | |
| .1490 | -133. | 149. | -1803. | -2827. | 1800. | -1784. | .0525 | -.0023 | -.0212 | -.0552 | -.0839 | -.0113 | 1524. | |
| .1500 | -292. | -721. | -3073. | -3198. | 1839. | -1357. | .0512 | .0072 | -.0101 | -.0415 | -.0812 | -.0075 | 1577. | |
| .1510 | -572. | -1433. | -3824. | -3345. | 1516. | -745. | .0465 | .0174 | .0011 | -.0302 | -.0754 | -.0025 | 1504. | |
| .1520 | -916. | -1564. | -4068. | -3564. | 963. | -66. | .0400 | .0273 | .0116 | -.0236 | -.0671 | .0002 | 1482. | |
| .1530 | -1380. | -1234. | -3815. | -3729. | 404. | 773. | .0321 | .0363 | .0216 | -.0197 | -.0522 | .0019 | 1537. | |
| .1540 | -1706. | -1179. | -3560. | -3938. | 68. | 1335. | .0242 | .0446 | .0306 | -.0176 | -.0352 | .0024 | 1669. | |
| .1550 | -1707. | -1222. | -3511. | -4316. | -51. | 1572. | .0157 | .0517 | .0386 | -.0132 | -.0166 | .0063 | 1844. | |
| .1560 | -1490. | -620. | -3391. | -4800. | -81. | 1886. | .0052 | .0568 | .0458 | -.0029 | .0082 | .0192 | 2070. | |
| .1570 | -1013. | 100. | -3465. | -5560. | 24. | 1845. | -.0051 | .0599 | .0502 | .0075 | .0306 | .0321 | 2351. | |
| .1580 | -680. | 598. | -3512. | -6209. | 114. | 1709. | -.0148 | .0614 | .0518 | .0171 | .0517 | .0412 | 2585. | |
| .1590 | -756. | 1029. | -3290. | -6457. | 8. | 1847. | -.0242 | .0607 | .0513 | .0263 | .0727 | .0459 | 2695. | |
| .1600 | -1048. | 1393. | -2937. | -6446. | -263. | 2052. | -.0319 | .0574 | .0486 | .0316 | .0876 | .0435 | 2717. | |
| .1610 | -1357. | 1680. | -2465. | -6191. | -623. | 2218. | -.0376 | .0518 | .0447 | .0337 | .0961 | .0372 | 2651. | |
| .1620 | -1621. | 1928. | -1701. | -5499. | -1039. | 2494. | -.0427 | .0446 | .0415 | .0368 | .1043 | .0348 | 2459. | |
| .1630 | -1497. | 1840. | -1031. | -4707. | -1345. | 2381. | -.0455 | .0362 | .0386 | .0385 | .1067 | .0343 | 2185. | |
| .1640 | -1059. | 1806. | -393. | -3895. | -1529. | 2064. | -.0466 | .0267 | .0362 | .0392 | .1046 | .0358 | 1872. | |
| .1650 | -610. | 1941. | 308. | -2971. | -1602. | 1847. | -.0463 | .0166 | .0343 | .0401 | .1015 | .0381 | 1544. | |
| .1660 | -244. | 1650. | 726. | -2073. | -1506. | 1469. | -.0438 | .0067 | .0317 | .0396 | .0942 | .0349 | 1185. | |
| .1670 | -170. | 1209. | 1018. | -1166. | -1377. | 1194. | -.0407 | -.0025 | .0286 | .0401 | .0875 | .0283 | 868. | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.35.

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

| | | | | | | | | | | | | | |
|-------|--------|-------|--------|--------|--------|-------|--------|--------|-------|--------|-------|-------|-------|
| .1560 | -1490. | -620. | 991. | -4800. | -81. | 1886. | .0552 | .0568 | .0458 | -.0029 | .0082 | .0192 | 2070. |
| .1570 | -1013. | 100. | -3465. | -5560. | 24. | 1845. | -.051 | .0599 | .0502 | .0075 | .0306 | .0321 | 2351. |
| .1580 | -680. | 598. | -3512. | -6209. | 114. | 1709. | -.0148 | .0614 | .0518 | .0171 | .0517 | .0412 | 2585. |
| .1590 | -756. | 1029. | -3290. | -3457. | 8. | 1847. | -.0242 | .0607 | .0513 | .0263 | .0727 | .0459 | 2695. |
| .1600 | -1048. | 1393. | -2937. | -6446. | -263. | 2052. | -.0319 | .0574 | .0486 | .0316 | .0876 | .0435 | 2717. |
| .1610 | -1257. | 1680. | -2465. | -6191. | -627. | 2218. | -.0376 | .0518 | .0447 | .0337 | .0961 | .0372 | 2651. |
| .1620 | -1621. | 1928. | -1701. | -5499. | -1039. | 2494. | -.0427 | .0446 | .0415 | .0368 | .1043 | .0348 | 2459. |
| .1630 | -1497. | 1840. | -1031. | -4707. | -1345. | 2381. | -.0455 | .0362 | .0386 | .0385 | .1067 | .0343 | 2185. |
| .1640 | -1059. | 1806. | -393. | -3895. | -1529. | 2064. | -.0466 | .0267 | .0362 | .0392 | .1046 | .0358 | 1872. |
| .1650 | -610. | 1941. | 308. | -2971. | -1602. | 1847. | -.0463 | .0166 | .0343 | .0401 | .1015 | .0381 | 1544. |
| .1660 | -244. | 1650. | 726. | -2073. | -1506. | 1469. | -.0438 | .0067 | .0317 | .0396 | .0942 | .0349 | 1185. |
| .1670 | -170. | 1209. | 1018. | -1166. | -1377. | 1194. | -.0407 | -.0025 | .0286 | .0401 | .0875 | .0283 | 868. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.35.

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 | 31 | MEMBER | 2 | SEQUENCE | 56 | 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) | |
| .1680 | -250. | 997. | 1136. | -535. | -1292. | 933. | | -.0379 | -.0106 | .0248 | .0417 | .0803 | .0192 | 675. | |
| .1690 | -421. | 1139. | 1213. | -179. | -1264. | 754. | | -.0361 | -.0173 | .0206 | .0452 | .0750 | .0109 | 593. | |
| .1700 | -547. | 1096. | 1141. | 103. | -1193. | 438. | | -.0350 | -.0218 | .0164 | .0493 | .0699 | .0031 | 512. | |
| .1710 | -486. | 631. | 765. | 117. | -1043. | -214. | | -.0338 | -.0240 | .0124 | .0521 | .0519 | -.0053 | 430. | |
| .1720 | -492. | 556. | 622. | 157. | -964. | -563. | | -.0342 | -.0243 | .0107 | .0569 | .0598 | -.0088 | 452. | |
| .1730 | -453. | 639. | 519. | 37. | -840. | -911. | | -.0345 | -.0226 | .0104 | .0597 | .0590 | -.0124 | 498. | |
| .1740 | -466. | 574. | 464. | -104. | -640. | -1255. | | -.0340 | -.0186 | .0115 | .0597 | .0591 | -.0179 | 567. | |
| .1750 | -662. | 452. | 552. | -95. | -464. | -1359. | | -.0334 | -.0128 | .0141 | .0589 | .0609 | -.0235 | 577. | |
| .1760 | -842. | 235. | 481. | -130. | -310. | -1426. | | -.0321 | -.0056 | .0173 | .0573 | .0580 | -.0299 | 588. | |
| .1770 | -979. | 26. | 276. | -95. | -180. | -1311. | | -.0310 | .0025 | .0210 | .0577 | .0517 | -.0333 | 532. | |
| .1780 | -928. | -496. | -294. | -79. | -2. | -1274. | | -.0297 | .0113 | .0247 | .0601 | .0390 | -.0340 | 512. | |
| .1790 | -842. | -1054. | -960. | 21. | 141. | -1099. | | -.0285 | .0202 | .0286 | .0649 | .0238 | -.0330 | 445. | |
| .1800 | -799. | -1424. | -1522. | 168. | 231. | -757. | | -.0272 | .0287 | .0323 | .0695 | .0071 | -.0304 | 325. | |
| .1810 | -685. | -1863. | -2101. | 211. | 369. | -574. | | -.0246 | .0363 | .0350 | .0706 | -.0130 | -.0308 | 287. | |
| .1820 | -668. | -2145. | -2329. | 451. | 492. | -188. | | -.0226 | .0428 | .0380 | .0717 | -.0278 | -.0287 | 278. | |
| .1830 | -590. | -2329. | -2308. | 754. | 611. | 193. | | -.0213 | .0477 | .0407 | .0720 | -.0389 | -.0245 | 397. | |
| .1840 | -375. | -2310. | -2051. | 1014. | 705. | 470. | | -.0208 | .0508 | .0421 | .0701 | -.0482 | -.0189 | 530. | |
| .1850 | -77. | -2096. | -1572. | 1241. | 748. | 658. | | -.0214 | .0517 | .0418 | .0669 | -.0557 | -.0124 | 639. | |
| .1860 | 273. | -1940. | -1104. | 1384. | 751. | 642. | | -.0230 | .0507 | .0395 | .0639 | -.0519 | -.0063 | 682. | |
| .1870 | 484. | -1674. | -580. | 1551. | 660. | 683. | | -.0265 | .0481 | .0360 | .0641 | -.0631 | .0008 | 730. | |
| .1880 | 620. | -1393. | -230. | 1560. | 536. | 596. | | -.0305 | .0437 | .0309 | .0653 | -.0635 | .0047 | 704. | |
| .1890 | 620. | -1039. | 42. | 1511. | 414. | 506. | | -.0346 | .0379 | .0250 | .0675 | -.0619 | .0054 | 660. | |
| .1900 | 505. | -703. | 330. | 1534. | 345. | 455. | | -.0388 | .0309 | .0195 | .0709 | -.0564 | .0046 | 657. | |
| .1910 | 531. | -598. | 484. | 1516. | 392. | 143. | | -.0422 | .0232 | .0148 | .0735 | -.0505 | .0021 | 631. | |
| .1920 | 734. | -417. | 701. | 1539. | 452. | -255. | | -.0456 | .0148 | .0119 | .0765 | -.0419 | .0021 | 652. | |
| .1930 | 1103. | -125. | 1008. | 1598. | 464. | -699. | | -.0491 | .0061 | .0110 | .0797 | -.0315 | .0045 | 724. | |
| .1940 | 1503. | 80. | 1349. | 1711. | 410. | -1164. | | -.0523 | -.0022 | .0114 | .0817 | -.0205 | .0063 | 847. | |
| .1950 | 1727. | 145. | 1692. | 1902. | 249. | -1510. | | -.0552 | -.0096 | .0127 | .0827 | -.0088 | .0051 | 980. | |
| .1960 | 1663. | 190. | 1990. | 2122. | -57. | -1623. | | -.0578 | -.0160 | .0145 | .0836 | .0037 | .0003 | 1072. | |
| .1970 | 1365. | 245. | 2141. | 2258. | -422. | -1555. | | -.0600 | -.0211 | .0164 | .0849 | .0171 | -.0075 | 1113. | |
| .1980 | 948. | 277. | 2081. | 2235. | -740. | -1398. | | -.0615 | -.0246 | .0183 | .0869 | .0317 | -.0163 | 1099. | |
| .1990 | 516. | 345. | 1832. | 2031. | -978. | -1178. | | -.0619 | -.0266 | .0204 | .0900 | .0478 | -.0240 | 1013. | |
| .2000 | 159. | 488. | 1420. | 1629. | -957. | -945. | | -.0609 | -.0270 | .0226 | .0932 | .0640 | -.0298 | 848. | |
| .2010 | -94. | 616. | 870. | 1063. | -823. | -759. | | -.0579 | -.0258 | .0248 | .0957 | .0793 | -.0343 | 620. | |
| .2020 | -313. | 667. | 286. | 443. | -590. | -592. | | -.0531 | -.0232 | .0272 | .0972 | .0940 | -.0378 | 380. | |
| .2030 | -592. | 697. | -178. | -152. | -385. | -392. | | -.0466 | -.0191 | .0295 | .0972 | .1079 | -.0414 | 229. | |
| .2040 | -951. | 773. | -459. | -720. | -312. | -180. | | -.0387 | -.0138 | .0312 | .0945 | .1187 | -.0461 | 323. | |
| .2050 | -1347. | 832. | -603. | -1225. | -398. | 20. | | -.0299 | -.0078 | .0321 | .0895 | .1249 | -.0518 | 517. | |

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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

| | | | | | | | | | | | | | |
|-------|--------|------|-------|--------|-------|--------|--------|--------|-------|-------|--------|--------|-------|
| .1940 | 1503. | 80. | 1649. | 1711. | 410. | -1164. | -7523 | -0022 | .0114 | .0817 | -.0205 | .0063 | 847. |
| .1950 | 1727. | 145. | 1692. | 1902. | 249. | -1510. | -.552 | -.0096 | .0127 | .0827 | -.0088 | .0051 | 980. |
| .1960 | 1663. | 190. | 1990. | 2122. | -52. | -1623. | -.578 | -.0160 | .0145 | .0836 | .0037 | .0003 | 1072. |
| .1970 | 1365. | 245. | 2141. | 2258. | -422. | -1555. | -.0600 | -.0211 | .0164 | .0849 | .0171 | -.0075 | 1113. |
| .1980 | 948. | 277. | 2081. | 2235. | -740. | -1398. | -.0615 | -.0246 | .0183 | .0869 | .0317 | -.0163 | 1099. |
| .1990 | 516. | 345. | 1832. | 2031. | -922. | -1178. | -.0619 | -.0266 | .0204 | .0900 | .0478 | -.0240 | 1013. |
| .2000 | 159. | 488. | 1420. | 1629. | -957. | -945. | -.0609 | -.0270 | .0226 | .0932 | .0640 | -.0298 | 848. |
| .2010 | -94. | 616. | 870. | 1063. | -827. | -759. | -.0579 | -.0258 | .0248 | .0957 | .0793 | -.0343 | 620. |
| .2020 | -313. | 667. | 286. | 443. | -590. | -592. | -.0531 | -.0232 | .0272 | .0972 | .0940 | -.0378 | 380. |
| .2030 | -592. | 697. | -178. | -152. | -385. | -392. | -.0466 | -.0191 | .0295 | .0972 | .1079 | -.0414 | 229. |
| .2040 | -951. | 773. | -459. | -720. | -512. | -180. | -.0387 | -.0138 | .0312 | .0945 | .1187 | -.0461 | 323. |
| .2050 | -1747. | 832. | -603. | -1225. | -398. | 20. | -.0299 | -.0078 | .0321 | .0895 | .1249 | -.0518 | 517. |

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

| SECTION | 31 | MEMBER | 2 | SEQUENCE | 56 | 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) | | |
| .2060 | -1727. | 733. | -707. | -1572. | -607. | 222. | -.0212 | -.0012 | .0324 | .0840 | .1266 | -.0566 | 682. | | |
| .2070 | -2036. | 421. | -865. | -1749. | -264. | 416. | -.0130 | .0054 | .0325 | .0792 | .1245 | -.0595 | 800. | | |
| .2080 | -2258. | -12. | -1108. | -1845. | -1090. | 570. | -.0056 | .0118 | .0325 | .0746 | .1192 | -.0611 | 890. | | |
| .2090 | -2436. | -441. | -1397. | -1921. | -1216. | 708. | .0009 | .0178 | .0325 | .0703 | .1131 | -.0619 | 955. | | |
| .2100 | -2619. | -826. | -1695. | -1965. | -1201. | 878. | .0061 | .0232 | .0330 | .0668 | .1089 | -.0617 | 989. | | |
| .2110 | -2786. | -1186. | -2017. | -1983. | -1046. | 1060. | .0096 | .0280 | .0342 | .0646 | .1070 | -.0604 | 995. | | |
| .2120 | -2892. | -1494. | -2348. | -1996. | -812. | 1219. | .0113 | .0318 | .0358 | .0633 | .1060 | -.0579 | 994. | | |
| .2130 | -2910. | -1713. | -2620. | -1992. | -595. | 1342. | .0109 | .0344 | .0374 | .0627 | .1046 | -.0538 | 993. | | |
| .2140 | -2814. | -1834. | -2773. | -1960. | -468. | 1399. | .0084 | .0360 | .0389 | .0626 | .1023 | -.0475 | 984. | | |
| .2150 | -2596. | -1811. | -2783. | -1924. | -467. | 1371. | .0039 | .0363 | .0399 | .0627 | .0985 | -.0395 | 966. | | |
| .2160 | -2298. | -1601. | -2656. | -1890. | -594. | 1302. | -.0020 | .0354 | .0402 | .0627 | .0929 | -.0308 | 951. | | |
| .2170 | -2007. | -1288. | -2431. | -1820. | -795. | 1254. | -.0083 | .0336 | .0398 | .0624 | .0860 | -.0226 | 943. | | |
| .2180 | -1771. | -1018. | -2169. | -1690. | -964. | 1233. | -.0142 | .0310 | .0388 | .0612 | .0781 | -.0164 | 924. | | |
| .2190 | -1562. | -799. | -1907. | -1535. | -1008. | 1213. | -.0188 | .0278 | .0370 | .0588 | .0698 | -.0123 | 883. | | |
| .2200 | -1311. | -525. | -1650. | -1408. | -897. | 1175. | -.0117 | .0242 | .0346 | .0553 | .0612 | -.0090 | 819. | | |
| .2210 | -967. | -200. | -1421. | -1324. | -647. | 1079. | -.0229 | .0202 | .0314 | .0510 | .0521 | -.0057 | 733. | | |
| .2220 | -542. | 65. | -1240. | -1258. | -302. | 825. | -.0224 | .0160 | .0274 | .0458 | .0420 | -.0026 | 631. | | |
| .2230 | -121. | 274. | -1065. | -1173. | 55. | 660. | -.0202 | .0119 | .0221 | .0394 | .0301 | -.0009 | 540. | | |
| .2240 | 210. | 368. | -817. | -1055. | 331. | 432. | -.0165 | .0081 | .0156 | .0310 | .0164 | -.0015 | 476. | | |
| .2250 | 419. | 502. | -449. | -915. | 474. | 223. | -.0117 | .0047 | .0078 | .0204 | .0011 | -.0049 | 423. | | |
| .2260 | 533. | 632. | 44. | -762. | 495. | 23. | -.0063 | .0020 | -.0010 | .0076 | -.0149 | -.0101 | 365. | | |
| .2270 | 616. | 757. | 628. | -614. | 452. | -180. | -.0007 | .0001 | -.0100 | -.0065 | -.0306 | -.0155 | 314. | | |
| .2280 | 748. | 869. | 1218. | -506. | 418. | -402. | .0048 | -.0011 | -.0190 | -.0216 | -.0457 | -.0199 | 309. | | |
| .2290 | 969. | 940. | 1720. | -465. | 459. | -649. | .0097 | -.0016 | -.0273 | -.0369 | -.0600 | -.0224 | 370. | | |
| .2300 | 1250. | 966. | 2080. | -495. | 603. | -879. | .0136 | -.0013 | -.0343 | -.0513 | -.0721 | -.0229 | 472. | | |
| .2310 | 1516. | 979. | 2291. | -596. | 826. | -1043. | .0163 | -.0002 | -.0399 | -.0644 | -.0812 | -.0218 | 585. | | |
| .2320 | 1694. | 995. | 2363. | -766. | 1065. | -1114. | .0177 | .0015 | -.0439 | -.0764 | -.0876 | -.0204 | 691. | | |
| .2330 | 1741. | 990. | 2320. | -961. | 1244. | -1069. | .0175 | .0038 | -.0461 | -.0871 | -.0915 | -.0190 | 763. | | |
| .2340 | 1671. | 926. | 2198. | -1118. | 1313. | -898. | .0157 | .0066 | -.0463 | -.0964 | -.0934 | -.0172 | 780. | | |
| .2350 | 1549. | 796. | 2023. | -1214. | 1266. | -630. | .0125 | .0098 | -.0446 | -.1044 | -.0942 | -.0144 | 749. | | |
| .2360 | 1441. | 627. | 1816. | -1265. | 1116. | -339. | .0084 | .0131 | -.0409 | -.1115 | -.0943 | -.0105 | 690. | | |
| .2370 | 1356. | 447. | 1597. | -1279. | 894. | -17. | .0039 | .0165 | -.0353 | -.1175 | -.0934 | -.0053 | 626. | | |
| .2380 | 1266. | 248. | 1357. | -1263. | 649. | 324. | -.0005 | .0198 | -.0281 | -.1220 | -.0905 | .0009 | 584. | | |
| .2390 | 1150. | 38. | 1071. | -1247. | 433. | 668. | -.0043 | .0229 | -.0197 | -.1249 | -.0855 | .0070 | 594. | | |
| .2400 | 994. | -127. | 725. | -1271. | 268. | 1006. | -.0070 | .0256 | -.0109 | -.1260 | -.0787 | .0124 | 659. | | |
| .2410 | 794. | -222. | 329. | -1348. | 148. | 1328. | -.0087 | .0279 | -.0023 | -.1251 | -.0701 | .0170 | 762. | | |
| .2420 | 570. | -281. | -106. | -1474. | 53. | 1592. | -.0095 | .0296 | .0054 | -.1222 | -.0601 | .0211 | 871. | | |
| .2430 | 352. | -320. | -550. | -1639. | -41. | 1760. | -.0096 | .0308 | .0116 | -.1175 | -.0493 | .0250 | 965. | | |

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ADLPIPE STRESS ANALYSIS

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S/RV PIPING KEWAUNEE GKW08F 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

| | | | | | | | | | | | | | |
|-------|-------|-------|-------|--------|-------|--------|--------|-------|--------|--------|--------|--------|------|
| .2330 | 1741. | 990. | 2320. | -961. | 1244. | -1069. | .0175 | .0038 | -.0461 | -.0871 | -.0915 | -.0190 | 763. |
| .2340 | 1671. | 926. | 2198. | -1118. | 1313. | -898. | .0157 | .0066 | -.0463 | -.0964 | -.0934 | -.0172 | 780. |
| .2350 | 1549. | 796. | 2023. | -1214. | 1266. | -638. | .0125 | .0098 | -.0446 | -.1044 | -.0942 | -.0144 | 749. |
| .2360 | 1441. | 627. | 1816. | -1265. | 1116. | -339. | .0084 | .0131 | -.0409 | -.1115 | -.0943 | -.0105 | 690. |
| .2370 | 1356. | 447. | 1597. | -1279. | 894. | -17. | .0039 | .0165 | -.0353 | -.1175 | -.0934 | -.0053 | 626. |
| .2380 | 1266. | 248. | 1357. | -1263. | 649. | 324. | -.0005 | .0198 | -.0281 | -.1220 | -.0905 | .0009 | 584. |
| .2390 | 1150. | 38. | 1071. | -1247. | 433. | 668. | -.0043 | .0229 | -.0197 | -.1249 | -.0855 | .0070 | 594. |
| .2400 | 994. | -127. | 725. | -1271. | 268. | 1006. | -.0070 | .0256 | -.0109 | -.1260 | -.0787 | .0124 | 659. |
| .2410 | 794. | -222. | 329. | -1348. | 148. | 1328. | -.0087 | .0279 | -.0023 | -.1251 | -.0701 | .0170 | 762. |
| .2420 | 570. | -221. | -106. | -1474. | 53. | 1592. | -.0095 | .0296 | .0054 | -.1222 | -.0601 | .0211 | 871. |
| .2430 | 352. | -326. | -550. | -1679. | -41. | 1766. | -.0096 | .0308 | .0116 | -.1175 | -.0493 | .0250 | 965. |

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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
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PRESSURE
ENGLISH UNITS

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

| SECTION | 31 | MEMBER | 2 | SEQUENCE | 56 | 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) | | |
| .2440 | 137. | -314. | -957. | -1816. | -161. | 1856. | -.0092 | .0314 | .0161 | -.1111 | -.0377 | .0289 | 1044. | | |
| .2450 | -95. | -223. | -1275. | -1969. | -309. | 1912. | -.0083 | .0313 | .0188 | -.1038 | -.0258 | .0321 | 1108. | | |
| .2460 | -349. | -111. | -1471. | -2054. | -468. | 1932. | -.0066 | .0304 | .0197 | -.0967 | -.0142 | .0337 | 1147. | | |
| .2470 | -579. | -17. | -1502. | -2026. | -616. | 1908. | -.0043 | .0290 | .0188 | -.0908 | -.0032 | .0340 | 1144. | | |
| .2480 | -741. | 65. | -1353. | -1858. | -744. | 1855. | -.0017 | .0268 | .0165 | -.0861 | .0072 | .0343 | 1095. | | |
| .2490 | -823. | 135. | -1075. | -1559. | -842. | 1784. | .0010 | .0241 | .0130 | -.0820 | .0168 | .0350 | 1009. | | |
| .2500 | -838. | 195. | -737. | -1182. | -895. | 1689. | .0041 | .0209 | .0085 | -.0785 | .0249 | .0353 | 902. | | |
| .2510 | -822. | 252. | -389. | -771. | -898. | 1575. | .0076 | .0174 | .0029 | -.0758 | .0306 | .0344 | 790. | | |
| .2520 | -794. | 298. | -69. | -352. | -863. | 1451. | .0113 | .0136 | -.0034 | -.0735 | .0337 | .0323 | 692. | | |
| .2530 | -737. | 320. | 193. | 49. | -811. | 1303. | .0152 | .0098 | -.0103 | -.0713 | .0344 | .0297 | 616. | | |
| .2540 | -626. | 358. | 406. | 401. | -757. | 1115. | .0191 | .0061 | -.0173 | -.0691 | .0329 | .0271 | 564. | | |
| .2550 | -461. | 445. | 614. | 686. | -704. | 888. | .0230 | .0026 | -.0242 | -.0676 | .0295 | .0246 | 532. | | |
| .2560 | -263. | 579. | 845. | 905. | -648. | 629. | .0269 | -.0006 | -.0307 | -.0674 | .0248 | .0220 | 513. | | |
| .2570 | -44. | 751. | 1095. | 1060. | -584. | 355. | .0309 | -.0034 | -.0366 | -.0688 | .0190 | .0191 | 506. | | |
| .2580 | 177. | 910. | 1331. | 1176. | -509. | 91. | .0349 | -.0059 | -.0416 | -.0710 | .0125 | .0160 | 515. | | |
| .2590 | 383. | 1012. | 1520. | 1279. | -421. | -149. | .0386 | -.0081 | -.0457 | -.0736 | .0058 | .0132 | 544. | | |
| .2600 | 577. | 1101. | 1655. | 1353. | -323. | -365. | .0420 | -.0101 | -.0489 | -.0766 | -.0013 | .0106 | 577. | | |
| .2610 | 760. | 1221. | 1743. | 1382. | -222. | -563. | .0452 | -.0121 | -.0515 | -.0800 | -.0091 | .0082 | 606. | | |
| .2620 | 915. | 1311. | 1783. | 1398. | -122. | -740. | .0479 | -.0141 | -.0536 | -.0836 | -.0172 | .0062 | 637. | | |
| .2630 | 1040. | 1315. | 1772. | 1437. | -23. | -894. | .0502 | -.0160 | -.0553 | -.0870 | -.0255 | .0048 | 679. | | |
| .2640 | 1152. | 1251. | 1729. | 1510. | 80. | -1027. | .0520 | -.0179 | -.0568 | -.0903 | -.0342 | .0044 | 733. | | |
| .2650 | 1255. | 1142. | 1685. | 1624. | 188. | -1139. | .0535 | -.0199 | -.0580 | -.0936 | -.0431 | .0048 | 800. | | |
| .2660 | 1346. | 1018. | 1656. | 1774. | 308. | -1226. | .0547 | -.0218 | -.0591 | -.0969 | -.0519 | .0059 | 874. | | |
| .2670 | 1433. | 972. | 1635. | 1956. | 443. | -1293. | .0557 | -.0236 | -.0600 | -.0998 | -.0605 | .0079 | 958. | | |
| .2680 | 1513. | 675. | 1607. | 2186. | 593. | -1336. | .0564 | -.0253 | -.0606 | -.1021 | -.0688 | .0105 | 1055. | | |
| .2690 | 1594. | 480. | 1581. | 2454. | 752. | -1341. | .0569 | -.0271 | -.0610 | -.1035 | -.0770 | .0139 | 1162. | | |
| .2700 | 1686. | 347. | 1578. | 2735. | 911. | -1306. | .0570 | -.0286 | -.0612 | -.1045 | -.0850 | .0177 | 1270. | | |
| .2710 | 1780. | 243. | 1610. | 3021. | 1056. | -1249. | .0567 | -.0299 | -.0612 | -.1050 | -.0925 | .0219 | 1378. | | |
| .2720 | 1842. | 53. | 1675. | 3338. | 1175. | -1182. | .0559 | -.0304 | -.0611 | -.1049 | -.0988 | .0263 | 1497. | | |
| .2730 | 1856. | -211. | 1771. | 3679. | 1262. | -1104. | .0544 | -.0305 | -.0606 | -.1039 | -.1035 | .0308 | 1622. | | |
| .2740 | 1857. | -368. | 1886. | 3972. | 1327. | -1017. | .0523 | -.0306 | -.0599 | -.1022 | -.1072 | .0348 | 1729. | | |
| .2750 | 1864. | -367. | 1989. | 4181. | 1388. | -930. | .0496 | -.0308 | -.0589 | -.0996 | -.1097 | .0388 | 1807. | | |
| .2760 | 1868. | -372. | 2040. | 4342. | 1450. | -874. | .0463 | -.0308 | -.0573 | -.0954 | -.1107 | .0428 | 1870. | | |
| .2770 | 1877. | -487. | 2029. | 4481. | 1505. | -880. | .0423 | -.0306 | -.0551 | -.0896 | -.1101 | .0469 | 1929. | | |
| .2780 | 1927. | -570. | 1999. | 4573. | 1542. | -935. | .0378 | -.0304 | -.0524 | -.0826 | -.1084 | .0513 | 1973. | | |
| .2790 | 2037. | -486. | 2007. | 4606. | 1551. | -1006. | .0326 | -.0303 | -.0493 | -.0751 | -.1059 | .0559 | 1992. | | |
| .2800 | 2169. | -376. | 2060. | 4636. | 1517. | -1095. | .0269 | -.0300 | -.0459 | -.0675 | -.1025 | .0602 | 2006. | | |
| .2810 | 2274. | -413. | 2146. | 4713. | 1418. | -1215. | .0208 | -.0294 | -.0424 | -.0597 | -.0982 | .0637 | 2034. | | |

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S/RV PIPING KEWAUNEE GKW08F 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

| | | | | | | | | | | | | | |
|-------|-------|-------|-------|-------|-------|--------|-------|--------|--------|--------|--------|-------|-------|
| .2710 | 1780. | 243. | 1610. | 3021. | 1056. | -1249. | .567 | -.0299 | -.0612 | -.1050 | -.0925 | .0219 | 1378. |
| .2720 | 1842. | 53. | 1675. | 3338. | 1175. | -1182. | .559 | -.0304 | -.0611 | -.1049 | -.0988 | .0263 | 1497. |
| .2730 | 1856. | -211. | 1771. | 3679. | 1262. | -1104. | .0544 | -.0305 | -.0606 | -.1039 | -.1035 | .0308 | 1622. |
| .2740 | 1857. | -368. | 1886. | 3972. | 1327. | -1017. | .0523 | -.0306 | -.0599 | -.1022 | -.1072 | .0349 | 1729. |
| .2750 | 1864. | -367. | 1989. | 4181. | 1388. | -930. | .0496 | -.0308 | -.0589 | -.0996 | -.1097 | .0388 | 1807. |
| .2760 | 1868. | -372. | 2040. | 4342. | 1450. | -874. | .0463 | -.0308 | -.0573 | -.0954 | -.1107 | .0428 | 1870. |
| .2770 | 1877. | -487. | 2029. | 4481. | 1505. | -880. | .0423 | -.0306 | -.0551 | -.0896 | -.1101 | .0469 | 1929. |
| .2780 | 1927. | -570. | 1999. | 4573. | 1542. | -935. | .0378 | -.0304 | -.0524 | -.0826 | -.1084 | .0513 | 1973. |
| .2790 | 2037. | -486. | 2007. | 4606. | 1551. | -1006. | .0326 | -.0303 | -.0493 | -.0751 | -.1059 | .0559 | 1992. |
| .2800 | 2169. | -376. | 2060. | 4676. | 1517. | -1095. | .0269 | -.0300 | -.0459 | -.0675 | -.1025 | .0602 | 2006. |
| .2810 | 2274. | -413. | 2146. | 4713. | 1418. | -1215. | .0208 | -.0294 | -.0424 | -.0597 | -.0982 | .0637 | 2034. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.35.

S/RV PIPING KEWAUNEE GKMOFF 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) | MX (FT-LB) | MY (FT-LB) | MZ (FT-LB) | DX (IN) | DY (IN) | DZ (IN) | PX (DEG) | RY (DEG) | RZ (DEG) | STRESS (PSI) | | |
| .2820 | 2346. | -503. | 2264. | 4810. | 1247. | -1337. | .0145 | -.0287 | -.0390 | -.0519 | -.0932 | .0662 | 2065. | | |
| .2830 | 2395. | -454. | 2411. | 4868. | 1030. | -1424. | .0082 | -.0281 | -.0360 | -.0440 | -.0875 | .0678 | 2077. | | |
| .2840 | 2414. | -302. | 2537. | 4870. | 798. | -1484. | .0023 | -.0276 | -.0334 | -.0356 | -.0311 | .0682 | 2068. | | |
| .2850 | 2378. | -220. | 2579. | 4838. | 574. | -1549. | -.0027 | -.0269 | -.0314 | -.0267 | -.0743 | .0670 | 2051. | | |
| .2860 | 2287. | -218. | 2527. | 4768. | 376. | -1611. | -.0064 | -.0259 | -.0298 | -.0171 | -.0670 | .0643 | 2025. | | |
| .2870 | 2168. | -167. | 2422. | 4637. | 218. | -1644. | -.0085 | -.0247 | -.0287 | -.0075 | -.0598 | .0604 | 1976. | | |
| .2880 | 2034. | -49. | 2304. | 4455. | 103. | -1650. | -.0088 | -.0234 | -.0281 | .0014 | -.0530 | .0551 | 1907. | | |
| .2890 | 1877. | 32. | 2196. | 4267. | 12. | -1647. | -.0070 | -.0217 | -.0281 | .0091 | -.0473 | .0484 | 1835. | | |
| .2900 | 1694. | 46. | 2105. | 4089. | -81. | -1634. | -.0033 | -.0197 | -.0286 | .0157 | -.0430 | .0405 | 1767. | | |
| .2910 | 1498. | 51. | 2031. | 3903. | -186. | -1601. | .0021 | -.0173 | -.0295 | .0211 | .0404 | .0316 | 1695. | | |
| .2920 | 1290. | 55. | 1953. | 3700. | -302. | -1548. | .0088 | -.0149 | -.0308 | .0255 | -.0397 | .0221 | 1614. | | |
| .2930 | 1060. | 23. | 1845. | 3479. | -421. | -1481. | .0164 | -.0123 | -.0322 | .0294 | -.0403 | .0123 | 1527. | | |
| .2940 | 813. | -20. | 1686. | 3212. | -529. | -1403. | .0245 | -.0098 | -.0336 | .0330 | -.0416 | .0026 | 1423. | | |
| .2950 | 574. | -27. | 1471. | 2870. | -600. | -1320. | .0324 | -.0073 | -.0347 | .0367 | -.0426 | -.0064 | 1290. | | |
| .2960 | 350. | -35. | 1201. | 2464. | -611. | -1236. | .0398 | -.0047 | -.0351 | .0405 | -.0425 | -.0139 | 1133. | | |
| .2970 | 132. | -93. | 889. | 2025. | -561. | -1148. | .0460 | -.0023 | -.0346 | .0445 | -.0405 | -.0198 | 961. | | |
| .2980 | -72. | -152. | 564. | 1558. | -468. | -1047. | .0508 | -.0001 | -.0332 | .0485 | -.0368 | -.0239 | 776. | | |
| .2990 | -249. | -142. | 243. | 1055. | -354. | -928. | .0537 | .0016 | -.0310 | .0526 | -.0314 | -.0260 | 581. | | |
| .3000 | -405. | -104. | -79. | 540. | -244. | -796. | .0546 | .0027 | -.0278 | .0569 | -.0247 | -.0262 | 398. | | |
| .3010 | -563. | -118. | -414. | 44. | -166. | -660. | .0536 | .0034 | -.0236 | .0619 | -.0170 | -.0246 | 274. | | |
| .3020 | -723. | -152. | -760. | -434. | -142. | -520. | .0507 | .0035 | -.0188 | .0674 | -.0089 | -.0217 | 278. | | |
| .3030 | -861. | -115. | -1097. | -912. | -135. | -371. | .0464 | .0029 | -.0132 | .0734 | -.0008 | -.0173 | 401. | | |
| .3040 | -962. | -30. | -1422. | -1380. | -207. | -231. | .0410 | .0016 | -.0070 | .0725 | .0072 | -.0118 | 567. | | |
| .3050 | -1027. | 13. | -1730. | -1811. | -251. | -123. | .0348 | -.0001 | -.0004 | .0856 | .0154 | -.0051 | 735. | | |
| .3060 | -1061. | 21. | -2004. | -2201. | -290. | -44. | .0284 | -.0022 | .0065 | .0913 | .0236 | .0022 | 891. | | |
| .3070 | -1070. | 76. | -2218. | -2559. | -321. | 32. | .0219 | -.0048 | .0134 | .0961 | .0315 | .0099 | 1035. | | |
| .3080 | -1068. | 188. | -2370. | -2876. | -342. | 119. | .0157 | -.0079 | .0199 | .0999 | .0389 | .0173 | 1163. | | |
| .3090 | -1078. | 286. | -2474. | -3131. | -363. | 217. | .0099 | -.0112 | .0257 | .1027 | .0454 | .0239 | 1268. | | |
| .3100 | -1119. | 351. | -2539. | -3320. | -406. | 331. | .0046 | -.0146 | .0305 | .1044 | .0504 | .0291 | 1349. | | |
| .3110 | -1188. | 423. | -2554. | -3456. | -481. | 470. | -.0001 | -.0178 | .0342 | .1049 | .0539 | .0331 | 1413. | | |
| .3120 | -1268. | 506. | -2510. | -3537. | -578. | 627. | -.0043 | -.0209 | .0367 | .1043 | .0556 | .0357 | 1460. | | |
| .3130 | -1340. | 568. | -2401. | -3552. | -682. | 783. | -.0078 | -.0235 | .0382 | .1025 | .0558 | .0372 | 1485. | | |
| .3140 | -1381. | 619. | -2218. | -3508. | -781. | 923. | -.0108 | -.0256 | .0387 | .0994 | .0547 | .0379 | 1489. | | |
| .3150 | -1375. | 684. | -1963. | -3420. | -859. | 1036. | -.0133 | -.0271 | .0385 | .0951 | .0524 | .0379 | 1475. | | |
| .3160 | -1326. | 739. | -1655. | -3292. | -905. | 1117. | -.0154 | -.0281 | .0376 | .0898 | .0492 | .0372 | 1442. | | |
| .3170 | -1250. | 748. | -1330. | -3118. | -919. | 1165. | -.0171 | -.0283 | .0363 | .0841 | .0453 | .0358 | 1386. | | |
| .3180 | -1157. | 726. | -1021. | -2914. | -913. | 1187. | -.0188 | -.0279 | .0348 | .0785 | .0407 | .0337 | 1315. | | |
| .3190 | -1051. | 695. | -762. | -2701. | -894. | 1190. | -.0206 | -.0269 | .0330 | .0733 | .0353 | .0308 | 1238. | | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.35.

S/RV PIPING KEWAUNEE GKMOFF 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

| | | | | | | | | | | | | | |
|-------|--------|------|--------|--------|-------|-------|--------|--------|-------|-------|-------|-------|-------|
| .3090 | -1072. | 286. | -2474. | -3131. | -363. | 217. | .099 | -.0112 | .0257 | .1027 | .0454 | .0239 | 1268. |
| .3100 | -1119. | 351. | -2539. | -3320. | -406. | 331. | .046 | -.0146 | .0305 | .1044 | .0504 | .0291 | 1349. |
| .3110 | -1188. | 423. | -2554. | -3456. | -481. | 470. | -.0001 | -.0178 | .0342 | .1049 | .0539 | .0331 | 1413. |
| .3120 | -1268. | 506. | -2510. | -3527. | -572. | 627. | -.0043 | -.0209 | .0367 | .1043 | .0556 | .0357 | 1460. |
| .3130 | -1340. | 568. | -2401. | -3552. | -682. | 783. | -.0078 | -.0235 | .0382 | .1025 | .0558 | .0372 | 1485. |
| .3140 | -1381. | 619. | -2218. | -3508. | -781. | 923. | -.0108 | -.0256 | .0387 | .0994 | .0547 | .0379 | 1489. |
| .3150 | -1375. | 684. | -1963. | -3420. | -859. | 1036. | -.0133 | -.0271 | .0385 | .0951 | .0524 | .0379 | 1475. |
| .3160 | -1326. | 739. | -1655. | -3292. | -905. | 1117. | -.0154 | -.0281 | .0376 | .0898 | .0492 | .0372 | 1442. |
| .3170 | -1250. | 748. | -1330. | -3118. | -919. | 1165. | -.0171 | -.0283 | .0363 | .0841 | .0453 | .0358 | 1386. |
| .3180 | -1157. | 726. | -1021. | -2914. | -913. | 1187. | -.0188 | -.0279 | .0348 | .0785 | .0407 | .0337 | 1315. |
| .3190 | -1051. | 695. | -762. | -2701. | -894. | 1190. | -.0206 | -.0269 | .0330 | .0733 | .0353 | .0308 | 1238. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.35.

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 | 31 | MEMBER | 2 | SEQUENCE | 56 | 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) | |
| .3200 | -942. | 615. | -575. | -2476. | -865. | 1170. | | -.0224 | -.0253 | .0311 | .0689 | .0292 | .0270 | 1153. | |
| .3210 | -849. | 432. | -464. | -2223. | -831. | 1130. | | -.0243 | -.0231 | .0293 | .0653 | .0229 | .0226 | 1055. | |
| .3220 | -772. | 183. | -407. | -1948. | -795. | 1076. | | -.0263 | -.0205 | .0279 | .0625 | .0167 | .0175 | 948. | |
| .3230 | -696. | -44. | -375. | -1678. | -756. | 1014. | | -.0282 | -.0177 | .0269 | .0601 | .0109 | .0120 | 843. | |
| .3240 | -615. | -244. | -354. | -1424. | -700. | 935. | | -.0298 | -.0151 | .0263 | .0580 | .0061 | .0063 | 739. | |
| .3250 | -544. | -461. | -348. | -1185. | -626. | 830. | | -.0311 | -.0125 | .0263 | .0563 | .0024 | .0004 | 633. | |
| .3260 | -494. | -688. | -370. | -978. | -544. | 701. | | -.0318 | -.0103 | .0266 | .0551 | -.0001 | -.0056 | 530. | |
| .3270 | -461. | -848. | -428. | -840. | -465. | 561. | | -.0319 | -.0087 | .0271 | .0545 | -.0019 | -.0116 | 446. | |
| .3280 | -445. | -913. | -533. | -783. | -394. | 419. | | -.0313 | -.0078 | .0275 | .0547 | -.0032 | -.0173 | 390. | |
| .3290 | -457. | -946. | -693. | -790. | -331. | 272. | | -.0300 | -.0076 | .0279 | .0557 | -.0038 | -.0228 | 361. | |
| .3300 | -504. | -983. | -898. | -842. | -281. | 124. | | -.0281 | -.0082 | .0281 | .0571 | -.0040 | -.0281 | 360. | |
| .3310 | -582. | -990. | -1112. | -925. | -245. | -4. | | -.0254 | -.0095 | .0280 | .0586 | -.0039 | -.0331 | 384. | |
| .3320 | -676. | -936. | -1300. | -1018. | -217. | -96. | | -.0221 | -.0119 | .0277 | .0597 | -.0032 | -.0374 | 419. | |
| .3330 | -773. | -852. | -1443. | -1096. | -187. | -157. | | -.0184 | -.0150 | .0273 | .0602 | -.0017 | -.0408 | 450. | |
| .3340 | -870. | -784. | -1536. | -1143. | -159. | -200. | | -.0143 | -.0189 | .0268 | .0600 | .0005 | -.0433 | 470. | |
| .3350 | -965. | -721. | -1577. | -1163. | -145. | -224. | | -.0101 | -.0233 | .0261 | .0591 | .0033 | -.0449 | 479. | |
| .3360 | -1057. | -643. | -1578. | -1170. | -147. | -228. | | -.0060 | -.0281 | .0254 | .0576 | .0068 | -.0454 | 482. | |
| .3370 | -1146. | -568. | -1563. | -1168. | -164. | -218. | | -.0022 | -.0330 | .0244 | .0560 | .0107 | -.0450 | 481. | |
| .3380 | -1233. | -513. | -1550. | -1166. | -199. | -203. | | .0011 | -.0380 | .0233 | .0543 | .0150 | -.0439 | 482. | |
| .3390 | -1314. | -468. | -1546. | -1177. | -245. | -186. | | .0039 | -.0426 | .0221 | .0527 | .0197 | -.0420 | 488. | |
| .3400 | -1379. | -415. | -1546. | -1214. | -268. | -175. | | .0061 | -.0469 | .0209 | .0510 | .0247 | -.0397 | 505. | |
| .3410 | -1418. | -351. | -1545. | -1274. | -313. | -169. | | .0077 | -.0507 | .0197 | .0490 | .0302 | -.0369 | 531. | |
| .3420 | -1426. | -279. | -1537. | -1349. | -318. | -166. | | .0087 | -.0538 | .0188 | .0469 | .0361 | -.0337 | 560. | |
| .3430 | -1402. | -196. | -1522. | -1437. | -306. | -161. | | .0091 | -.0562 | .0181 | .0444 | .0422 | -.0303 | 593. | |
| .3440 | -1347. | -103. | -1502. | -1535. | -277. | -156. | | .0091 | -.0578 | .0177 | .0416 | .0484 | -.0270 | 629. | |
| .3450 | -1273. | -6. | -1479. | -1635. | -239. | -145. | | .0087 | -.0585 | .0175 | .0384 | .0544 | -.0242 | 666. | |
| .3460 | -1200. | 80. | -1456. | -1722. | -205. | -117. | | .0079 | -.0584 | .0175 | .0351 | .0601 | -.0220 | 697. | |
| .3470 | -1140. | 153. | -1437. | -1784. | -183. | -66. | | .0070 | -.0575 | .0177 | .0315 | .0652 | -.0207 | 720. | |
| .3480 | -1094. | 216. | -1424. | -1814. | -168. | 8. | | .0061 | -.0560 | .0178 | .0278 | .0695 | -.0203 | 731. | |
| .3490 | -1061. | 261. | -1413. | -1802. | -148. | 98. | | .0054 | -.0540 | .0178 | .0238 | .0730 | -.0211 | 727. | |
| .3500 | -1043. | 270. | -1401. | -1741. | -113. | 196. | | .0050 | -.0517 | .0177 | .0196 | .0756 | -.0229 | 704. | |
| .3510 | -1038. | 240. | -1386. | -1629. | -62. | 291. | | .0052 | -.0490 | .0173 | .0151 | .0772 | -.0257 | 664. | |
| .3520 | -1040. | 184. | -1365. | -1471. | 5. | 374. | | .0060 | -.0462 | .0165 | .0107 | .0778 | -.0292 | 609. | |
| .3530 | -1040. | 107. | -1339. | -1274. | 88. | 431. | | .0075 | -.0434 | .0154 | .0064 | .0774 | -.0333 | 541. | |
| .3540 | -1037. | 7. | -1307. | -1046. | 175. | 446. | | .0096 | -.0406 | .0138 | .0024 | .0758 | -.0377 | 462. | |
| .3550 | -1037. | -113. | -1261. | -795. | 248. | 411. | | .0121 | -.0379 | .0117 | -.0011 | .0730 | -.0426 | 373. | |
| .3560 | -1041. | -238. | -1191. | -524. | 291. | 329. | | .0150 | -.0354 | .0092 | -.0042 | .0691 | -.0475 | 274. | |
| .3570 | -1047. | -351. | -1089. | -241. | 303. | 202. | | .0179 | -.0331 | .0063 | -.0067 | .0645 | -.0522 | 175. | |

ADLPIPE PAGE 1362

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.35.

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

| | | | | | | | | | | | | | |
|-------|--------|-------|--------|--------|-------|-------|-------|--------|-------|--------|-------|--------|------|
| .3460 | -1200. | 80. | -1456. | -1722. | -205. | -117. | .0079 | -.0584 | .0175 | .0351 | .0501 | -.0220 | 697. |
| .3470 | -1140. | 153. | -1437. | -1784. | -183. | -66. | .0070 | -.0575 | .0177 | .0315 | .0652 | -.0207 | 720. |
| .3480 | -1094. | 216. | -1424. | -1814. | -168. | 8. | .0061 | -.0560 | .0178 | .0278 | .0595 | -.0203 | 731. |
| .3490 | -1061. | 261. | -1413. | -1802. | -148. | 98. | .0054 | -.0540 | .0178 | .0238 | .0730 | -.0211 | 727. |
| .3500 | -1043. | 270. | -1401. | -1741. | -117. | 196. | .0050 | -.0517 | .0177 | .0196 | .0756 | -.0229 | 704. |
| .3510 | -1038. | 240. | -1386. | -1629. | -62. | 291. | .0052 | -.0490 | .0173 | .0151 | .0772 | -.0257 | 664. |
| .3520 | -1040. | 184. | -1365. | -1471. | 5. | 374. | .0060 | -.0462 | .0165 | .0107 | .0778 | -.0292 | 609. |
| .3530 | -1040. | 197. | -1339. | -1274. | 88. | 431. | .0075 | -.0434 | .0154 | .0064 | .774 | -.0333 | 541. |
| .3540 | -1037. | 7. | -1307. | -1046. | 175. | 446. | .0096 | -.0406 | .0138 | .0024 | .0758 | -.0377 | 462. |
| .3550 | -1037. | -113. | -1261. | -795. | 248. | 411. | .0121 | -.0379 | .0117 | -.0011 | .0730 | -.0426 | 373. |
| .3560 | -1041. | -238. | -1191. | -524. | 291. | 329. | .0150 | -.0354 | .0092 | -.0042 | .0691 | -.0475 | 274. |
| .3570 | -1047. | -351. | -1089. | -241. | 303. | 202. | .0179 | -.0331 | .0063 | -.0067 | .0545 | -.0522 | 175. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.35.

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 | 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) | |
| .3580 | -1050. | -446. | -955. | 50. | 289. | 34. | .0207 | -.0311 | .0032 | -.0086 | .0592 | -.0566 | 119. | |
| .3590 | -1047. | -522. | -796. | 340. | 258. | -167. | .0231 | -.0294 | -.0000 | -.0100 | .0535 | -.0605 | 184. | |
| .3600 | -1034. | -584. | -625. | 624. | 220. | -389. | .0250 | -.0278 | -.0031 | -.0108 | .0476 | -.0638 | 308. | |
| .3610 | -1004. | -640. | -456. | 899. | 188. | -620. | .0260 | -.0263 | -.0058 | -.0110 | .0415 | -.0662 | 445. | |
| .3620 | -950. | -690. | -310. | 1164. | 169. | -847. | .0262 | -.0249 | -.0080 | -.0106 | .0354 | -.0674 | 582. | |
| .3630 | -863. | -727. | -183. | 1415. | 158. | -1062. | .0254 | -.0234 | -.0096 | -.0095 | .0290 | -.0675 | 713. | |
| .3640 | -736. | -742. | -71. | 1650. | 148. | -1258. | .0234 | -.0219 | -.0106 | -.0080 | .0222 | -.0663 | 835. | |
| .3650 | -571. | -738. | 41. | 1874. | 131. | -1430. | .0203 | -.0202 | -.0109 | -.0064 | .0151 | -.0639 | 947. | |
| .3660 | -372. | -723. | 170. | 2093. | 97. | -1572. | .0161 | -.0183 | -.0106 | -.0051 | .0078 | -.0604 | 1051. | |
| .3670 | -147. | -699. | 328. | 2309. | 44. | -1680. | .0110 | -.0162 | -.0097 | -.0040 | .0005 | -.0558 | 1146. | |
| .3680 | 103. | -656. | 515. | 2511. | -23. | -1759. | .0052 | -.0138 | -.0086 | -.0036 | -.0068 | -.0504 | 1230. | |
| .3690 | 377. | -583. | 724. | 2682. | -89. | -1811. | -.0011 | -.0112 | -.0072 | -.0037 | -.0137 | -.0442 | 1299. | |
| .3700 | 661. | -488. | 936. | 2814. | -138. | -1839. | -.0076 | -.0084 | -.0058 | -.0044 | -.0201 | -.0375 | 1350. | |
| .3710 | 935. | -398. | 1131. | 2904. | -161. | -1843. | -.0139 | -.0054 | -.0046 | -.0055 | -.0257 | -.0306 | 1382. | |
| .3720 | 1186. | -324. | 1293. | 2952. | -150. | -1827. | -.0196 | -.0023 | -.0037 | -.0070 | -.0305 | -.0240 | 1394. | |
| .3730 | 1409. | -249. | 1421. | 2958. | -102. | -1793. | -.0244 | .0006 | -.0033 | -.0088 | -.0347 | -.0177 | 1389. | |
| .3740 | 1603. | -156. | 1526. | 2923. | -22. | -1746. | -.0281 | .0033 | -.0035 | -.0111 | -.0383 | -.0122 | 1366. | |
| .3750 | 1756. | -67. | 1618. | 2863. | 76. | -1694. | -.0305 | .0057 | -.0043 | -.0141 | -.0416 | -.0077 | 1335. | |
| .3760 | 1860. | -18. | 1706. | 2799. | 174. | -1644. | -.0314 | .0076 | -.0057 | -.0176 | -.0447 | -.0042 | 1304. | |
| .3770 | 1917. | -6. | 1793. | 2740. | 263. | -1599. | -.0307 | .0089 | -.0076 | -.0217 | -.0477 | -.0019 | 1278. | |
| .3780 | 1939. | -6. | 1876. | 2685. | 343. | -1564. | -.0286 | .0096 | -.0099 | -.0263 | -.0509 | -.0005 | 1255. | |
| .3790 | 1935. | -9. | 1943. | 2626. | 416. | -1544. | -.0251 | .0094 | -.0124 | -.0311 | -.0540 | .0000 | 1234. | |
| .3800 | 1900. | -22. | 1981. | 2558. | 485. | -1538. | -.0206 | .0084 | -.0150 | -.0359 | -.0570 | -.0003 | 1213. | |
| .3810 | 1833. | -30. | 1979. | 2470. | 552. | -1536. | -.0153 | .0067 | -.0175 | -.0405 | -.0596 | -.0013 | 1188. | |
| .3820 | 1734. | -43. | 1927. | 2364. | 625. | -1533. | -.0096 | .0044 | -.0197 | -.0445 | -.0613 | -.0026 | 1158. | |
| .3830 | 1610. | -71. | 1824. | 2241. | 704. | -1529. | -.0040 | .0015 | -.0215 | -.0479 | -.0620 | -.0041 | 1125. | |
| .3840 | 1471. | -82. | 1683. | 2091. | 780. | -1520. | .0012 | -.0018 | -.0227 | -.0506 | -.0614 | -.0055 | 1083. | |
| .3850 | 1322. | -73. | 1516. | 1914. | 843. | -1504. | .0057 | -.0054 | -.0233 | -.0526 | -.0594 | -.0065 | 1034. | |
| .3860 | 1160. | -75. | 1333. | 1726. | 883. | -1487. | .0090 | -.0091 | -.0231 | -.0538 | -.0558 | -.0068 | 980. | |
| .3870 | 991. | -86. | 1144. | 1534. | 892. | -1467. | .0111 | -.0130 | -.0221 | -.0540 | -.0506 | -.0064 | 924. | |
| .3880 | 834. | -49. | 963. | 1329. | 867. | -1444. | .0118 | -.0169 | -.0204 | -.0534 | -.0440 | -.0051 | 861. | |
| .3890 | 699. | 67. | 800. | 1101. | 814. | -1417. | .0112 | -.0207 | -.0179 | -.0519 | -.0361 | -.0028 | 791. | |
| .3900 | 581. | 201. | 650. | 864. | 740. | -1391. | .0093 | -.0240 | -.0148 | -.0495 | -.0271 | .0003 | 721. | |
| .3910 | 473. | 288. | 508. | 639. | 647. | -1369. | .0064 | -.0265 | -.0111 | -.0461 | -.0172 | .0044 | 659. | |
| .3920 | 385. | 343. | 377. | 431. | 543. | -1344. | .0027 | -.0280 | -.0072 | -.0419 | -.0068 | .0092 | 607. | |
| .3930 | 331. | 417. | 262. | 235. | 441. | -1305. | -.0016 | -.0287 | -.0030 | -.0370 | .0036 | .0147 | 561. | |
| .3940 | 309. | 509. | 169. | 60. | 350. | -1248. | -.0064 | -.0284 | .0010 | -.0317 | .0137 | .0207 | 521. | |
| .3950 | 295. | 569. | 97. | -74. | 265. | -1170. | -.0112 | -.0272 | .0048 | -.0262 | .0233 | .0266 | 482. | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.35.

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

| | | | | | | | | | | | | | |
|-------|-------|------|-------|-------|------|--------|--------|--------|--------|--------|--------|--------|-------|
| .3850 | 1322. | -73. | 516. | 1914. | 847. | -1504. | .057 | -.0054 | -.0233 | -.0526 | -.0594 | -.0065 | 1034. |
| .3860 | 1160. | -75. | 1333. | 1726. | 883. | -1487. | .090 | -.0091 | -.0231 | -.0538 | -.0558 | -.0068 | 980. |
| .3870 | 991. | -86. | 1144. | 1534. | 892. | -1467. | .0111 | -.0130 | -.0221 | -.0540 | -.0506 | -.0064 | 924. |
| .3880 | 834. | -49. | 967. | 1329. | 867. | -1444. | .0118 | -.0169 | -.0204 | -.0534 | -.0440 | -.0051 | 861. |
| .3890 | 699. | 67. | 800. | 1101. | 814. | -1417. | .0112 | -.0207 | -.0179 | -.0519 | -.0361 | -.0028 | 791. |
| .3900 | 581. | 201. | 650. | 864. | 740. | -1391. | .0093 | -.0240 | -.0148 | -.0495 | -.0271 | .0003 | 721. |
| .3910 | 473. | 288. | 508. | 679. | 647. | -1369. | .0064 | -.0265 | -.0111 | -.0461 | -.0172 | .0044 | 659. |
| .3920 | 385. | 343. | 377. | 431. | 543. | -1344. | .0027 | -.0280 | -.0072 | -.0419 | -.0068 | .0092 | 607. |
| .3930 | 331. | 417. | 262. | 235. | 441. | -1305. | -.0016 | -.0287 | -.0030 | -.0370 | .0036 | .0147 | 561. |
| .3940 | 309. | 509. | 169. | 69. | 350. | -1248. | -.0064 | -.0284 | .0010 | -.0317 | .0137 | .0207 | 521. |
| .3950 | 295. | 569. | 97. | -74. | 265. | -1170. | -.0112 | -.0272 | .0048 | -.0262 | .0233 | .0266 | 482. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.35.

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 | 31 | MEMBER | 2 | SEQUENCE | 56 | 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) | | | |
| .3960 | 268. | 588. | 52. | -158. | 182. | -1060. | -.0159 | -.0249 | .0082 | -.0205 | .0321 | .0322 | 436. | | | |
| .3970 | 227. | 600. | 41. | -197. | 100. | -911. | -.0203 | -.0219 | .0110 | -.0150 | .0400 | .0372 | 376. | | | |
| .3980 | 185. | 630. | 67. | -199. | 25. | -729. | -.0243 | -.0181 | .0133 | -.0097 | .0466 | .0415 | 303. | | | |
| .3990 | 150. | 662. | 128. | -168. | -40. | -531. | -.0277 | -.0136 | .0149 | -.0048 | .0519 | .0453 | 224. | | | |
| .4000 | 123. | 672. | 216. | -111. | -94. | -332. | -.0304 | -.0086 | .0158 | -.0005 | .0557 | .0484 | 145. | | | |

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) |
| .1600 | -1048. | 1393. | -2937. | -6446. | -263. | 2052. | -.0319 | .0574 | .0486 | .0316 | .0376 | .0435 | 2717. |

| SECTION | 32 | MEMBER | 1 | SEQUENCE | 56 | LOCATION | BEG | 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 | 1. | 1. | -1. | -2. | 0. | 3. | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | .0000 | 2. | | | |
| .0030 | -2. | -1. | -7. | -6. | 1. | 12. | -.0000 | -.0000 | -.0000 | -.0001 | -.0001 | .0001 | 5. | | | |
| .0040 | -15. | -12. | -29. | -9. | 4. | 31. | -.0001 | -.0000 | -.0001 | -.0003 | -.0001 | .0004 | 13. | | | |
| .0050 | -48. | -37. | -71. | -12. | 11. | 64. | -.0003 | -.0000 | -.0003 | -.0007 | -.0001 | .0009 | 27. | | | |
| .0060 | -108. | -73. | -130. | -23. | 21. | 106. | -.0007 | -.0001 | -.0006 | -.0012 | -.0001 | .0018 | 44. | | | |
| .0070 | -183. | -110. | -210. | -46. | 33. | 157. | -.0012 | -.0001 | -.0010 | -.0019 | -.0002 | .0029 | 67. | | | |
| .0080 | -264. | -140. | -317. | -77. | 46. | 231. | -.0020 | -.0002 | -.0016 | -.0039 | -.0005 | .0042 | 99. | | | |
| .0090 | -379. | -176. | -444. | -107. | 65. | 335. | -.0032 | -.0003 | -.0024 | -.0040 | -.0006 | .0061 | 144. | | | |
| .0100 | -570. | -244. | -576. | -129. | 100. | 467. | -.0050 | -.0004 | -.0033 | -.0050 | .0001 | .0091 | 198. | | | |
| .0110 | -834. | -351. | -704. | -155. | 156. | 597. | -.0074 | -.0006 | -.0040 | -.0058 | .0023 | .0130 | 255. | | | |
| .0120 | -1111. | -469. | -831. | -225. | 233. | 673. | -.0103 | -.0008 | -.0048 | -.0067 | .0063 | .0169 | 300. | | | |
| .0130 | -1308. | -557. | -980. | -381. | 323. | 640. | -.0135 | -.0010 | -.0055 | -.0085 | .0122 | .0195 | 326. | | | |
| .0140 | -1353. | -600. | -1179. | -624. | 411. | 473. | -.0163 | -.0013 | -.0063 | -.0114 | .0195 | .0198 | 359. | | | |
| .0150 | -1249. | -617. | -1411. | -917. | 482. | 184. | -.0185 | -.0016 | -.0072 | -.0154 | .0276 | .0178 | 422. | | | |
| .0160 | -1048. | -603. | -1570. | -1207. | 517. | -198. | -.0195 | -.0019 | -.0080 | -.0191 | .0355 | .0139 | 533. | | | |
| .0170 | -765. | -490. | -1515. | -1443. | 501. | -608. | -.0189 | -.0021 | -.0084 | -.0211 | .0418 | .0086 | 660. | | | |
| .0180 | -383. | -223. | -1131. | -1573. | 440. | -970. | -.0163 | -.0022 | -.0078 | -.0202 | .0460 | .0021 | 763. | | | |
| .0190 | 107. | 150. | -403. | -1561. | 363. | -1235. | -.0114 | -.0021 | -.0058 | -.0157 | .0489 | -.0054 | 812. | | | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.35.

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

| | | | | | | | | | | | | | |
|-------|--------|-------|--------|--------|------|--------|--------|--------|--------|--------|--------|--------|------|
| .0090 | -779. | -176. | -444. | -107. | 65. | 375. | -.0032 | -.0003 | -.0024 | -.0040 | -.0006 | .0061 | 144. |
| .0100 | -570. | -244. | -576. | -129. | 100. | 467. | -.0050 | -.0004 | -.0033 | -.0050 | .0001 | .0091 | 198. |
| .0110 | -834. | -351. | -704. | -155. | 156. | 597. | -.0074 | -.0006 | -.0040 | -.0058 | .0023 | .0130 | 255. |
| .0120 | -1111. | -469. | -831. | -225. | 233. | 673. | -.0103 | -.0008 | -.0048 | -.0067 | .0063 | .0169 | 300. |
| .0130 | -1308. | -557. | -980. | -381. | 323. | 640. | -.0135 | -.0010 | -.0055 | -.0085 | .0122 | .0195 | 326. |
| .0140 | -1393. | -600. | -1179. | -624. | 411. | 473. | -.0163 | -.0013 | -.0063 | -.0114 | .0195 | .0198 | 355. |
| .0150 | -1249. | -617. | -1411. | -917. | 482. | 184. | -.0185 | -.0016 | -.0072 | -.0154 | .0276 | .0178 | 422. |
| .0160 | -1048. | -603. | -1570. | -1207. | 517. | -198. | -.0195 | -.0019 | -.0080 | -.0191 | .0355 | .0139 | 533. |
| .0170 | -765. | -490. | -1515. | -1443. | 501. | -608. | -.0189 | -.0021 | -.0084 | -.0211 | .0418 | .0086 | 660. |
| .0180 | -383. | -223. | -1131. | -1573. | 440. | -970. | -.0163 | -.0022 | -.0078 | -.0202 | .0460 | .0021 | 763. |
| .0190 | 107. | 150. | -403. | -1561. | 363. | -1235. | -.0114 | -.0021 | -.0058 | -.0157 | .0489 | -.0054 | 812. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.27.35.

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 | 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) | |
| .0200 | 744. | 538. | 538. | -1359. | 308. | -1293. | -.0043 | -.0018 | -.0020 | -.0085 | .0513 | -.0134 | 763. | |
| .0210 | 1419. | 804. | 1501. | -954. | 326. | -1095. | .0042 | -.0014 | .0035 | .0002 | .0552 | -.0204 | 597. | |
| .0220 | 1736. | 668. | 2389. | -529. | 496. | -896. | .0127 | -.0010 | .0108 | .0088 | .0657 | -.0235 | 463. | |
| .0230 | 1877. | 145. | 2864. | -184. | 776. | -779. | .0209 | -.0006 | .0180 | .0136 | .0795 | -.0253 | 447. | |
| .0240 | 2351. | -349. | 2730. | -11. | 1009. | -782. | .0295 | -.0005 | .0232 | .0117 | .0887 | -.0312 | 512. | |
| .0250 | 3315. | -242. | 2439. | 45. | 1066. | -739. | .0384 | -.0004 | .0258 | .0071 | .0872 | -.0419 | 521. | |
| .0260 | 4014. | 435. | 2974. | 129. | 987. | -580. | .0453 | -.0001 | .0280 | .0105 | .0788 | -.0493 | 461. | |
| .0270 | 3678. | 890. | 4606. | 197. | 857. | -747. | .0482 | .0008 | .0311 | .0250 | .0745 | -.0476 | 463. | |
| .0280 | 3590. | 1030. | 5774. | 490. | 570. | -960. | .0504 | .0022 | .0322 | .0368 | .0667 | -.0478 | 489. | |
| .0290 | 4708. | 1436. | 5690. | 1149. | 35. | -589. | .0544 | .0037 | .0304 | .0386 | .0443 | -.0563 | 518. | |
| .0300 | 4700. | 1785. | 6262. | 1418. | -453. | -357. | .0543 | .0049 | .0312 | .0451 | .0242 | -.0543 | 614. | |
| .0310 | 3193. | 2086. | 7554. | 1138. | -769. | -375. | .0489 | .0060 | .0354 | .0564 | .0131 | -.0382 | 572. | |
| .0320 | 2146. | 2439. | 7507. | 814. | -889. | 29. | .0420 | .0071 | .0382 | .0564 | .0010 | -.0235 | 484. | |
| .0330 | 1929. | 2261. | 5601. | 530. | -713. | 560. | .0344 | .0081 | .0374 | .0415 | -.0111 | -.0162 | 422. | |
| .0340 | 1441. | 1435. | 3239. | 56. | -325. | 596. | .0241 | .0091 | .0342 | .0228 | -.0174 | -.0099 | 273. | |
| .0350 | 692. | 935. | 1420. | -452. | -36. | 464. | .0117 | .0101 | .0287 | .0088 | -.0269 | -.0032 | 260. | |
| .0360 | 77. | 1229. | 390. | -745. | 15. | 545. | -.0009 | .0112 | .0207 | .0027 | -.0463 | .0027 | 370. | |
| .0370 | -840. | 1558. | 326. | -892. | -94. | 414. | -.0138 | .0123 | .0119 | .0061 | -.0542 | .0106 | 396. | |
| .0380 | -1763. | 1391. | 663. | -885. | -400. | -118. | -.0250 | .0135 | .0032 | .0127 | -.0720 | .0167 | 392. | |
| .0390 | -1475. | 1040. | 133. | -464. | -1007. | -406. | -.0303 | .0146 | -.0065 | .0109 | -.0802 | .0117 | 474. | |
| .0400 | -721. | 660. | -1340. | 203. | -1726. | -33. | -.0314 | .0148 | -.0163 | .0002 | -.0966 | .0045 | 697. | |
| .0410 | -1913. | 49. | -1807. | 228. | -2168. | 89. | -.0347 | .0141 | -.0211 | -.0042 | -.1041 | .0149 | 876. | |
| .0420 | -4114. | -235. | -1882. | -373. | -2200. | 137. | -.0394 | .0127 | -.0229 | -.0074 | -.1030 | .0358 | 897. | |
| .0430 | -4495. | -159. | -2723. | -615. | -1873. | 476. | -.0399 | .0115 | -.0241 | -.0139 | -.1049 | .0413 | 814. | |
| .0440 | -3575. | -898. | -4614. | -396. | -1141. | 697. | -.0376 | .0102 | -.0261 | -.0254 | -.1074 | .0323 | 560. | |
| .0450 | -3171. | -2260. | -5878. | -350. | -263. | 321. | -.0368 | .0085 | -.0269 | -.0215 | -.1074 | .0241 | 194. | |
| .0460 | -3156. | -2704. | -5732. | -301. | -338. | -280. | -.0370 | .0063 | -.0258 | -.0284 | -.0928 | .0192 | 236. | |
| .0470 | -2647. | -1921. | -5268. | -529. | 504. | -565. | -.0356 | .0039 | -.0251 | -.0245 | -.0933 | .0129 | 371. | |
| .0480 | -2215. | -1244. | -4870. | -413. | 306. | -716. | -.0336 | .0012 | -.0246 | -.0215 | -.0953 | .0096 | 353. | |
| .0490 | -2462. | -1278. | -3763. | 53. | -168. | -980. | -.0324 | -.0014 | -.0211 | -.0123 | -.0836 | .0129 | 400. | |
| .0500 | -2588. | -1468. | -2404. | 830. | -703. | -1025. | -.0309 | -.0036 | -.0151 | .0000 | -.0516 | .0162 | 611. | |
| .0510 | -1916. | -1578. | -1513. | 1890. | -997. | -863. | -.0278 | -.0054 | -.0081 | .0102 | -.0381 | .0127 | 925. | |
| .0520 | -907. | -1772. | -872. | 2763. | -912. | -800. | -.0246 | -.0071 | -.0001 | .0191 | -.0139 | .0054 | 1211. | |
| .0530 | -138. | -1847. | -147. | 3348. | -469. | -724. | -.0226 | -.0090 | -.0091 | .0285 | .0117 | .0002 | 1387. | |
| .0540 | 285. | -1710. | 312. | 3758. | 300. | -394. | -.0216 | -.0105 | .0183 | .0361 | .0362 | -.0013 | 1520. | |
| .0550 | 486. | -1713. | 181. | 4169. | 1229. | 61. | -.0208 | -.0113 | .0262 | .0393 | .0581 | -.0014 | 1745. | |
| .0560 | 737. | -1826. | -61. | 4571. | 1982. | 381. | -.0191 | -.0115 | .0326 | .0405 | .0776 | -.0030 | 2005. | |
| .0570 | 1703. | -1393. | 421. | 4719. | 2347. | 388. | -.0156 | -.0111 | .0386 | .0449 | .0954 | -.0086 | 2121. | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.27.35.

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

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNIT

| | | | | | | | | | | | | | |
|-------|--------|--------|--------|-------|-------|--------|--------|--------|--------|--------|--------|--------|-------|
| .0470 | -2647. | -1921. | -3268. | -529. | 504. | -565. | -.3356 | .0039 | -.0251 | -.0245 | -.0933 | .0129 | 371. |
| .0480 | -2215. | -1244. | -4870. | -413. | 306. | -716. | -.3336 | .0012 | -.0246 | -.0215 | -.0953 | .0096 | 353. |
| .0490 | -2462. | -1278. | -3763. | 53. | -168. | -980. | -.0324 | -.0014 | -.0211 | -.0123 | -.0836 | .0129 | 400. |
| .0500 | -2588. | -1468. | -2404. | 830. | -703. | -1025. | -.0309 | -.0036 | -.0151 | .0000 | -.0516 | .0162 | 611. |
| .0510 | -1916. | -1578. | -1513. | 1890. | -997. | -863. | -.0278 | -.0054 | -.0081 | .0102 | -.0381 | .0127 | 925. |
| .0520 | -907. | -1772. | -872. | 2763. | -912. | -800. | -.0246 | -.0071 | -.0001 | .0191 | -.0139 | .0054 | 1211. |
| .0530 | -138. | -1847. | -147. | 3348. | -469. | -724. | -.0226 | -.0090 | .0091 | .0285 | .0117 | .0002 | 1387. |
| .0540 | 285. | -1710. | 312. | 3756. | 300. | -394. | -.0216 | -.0105 | .0183 | .0361 | .0362 | -.0013 | 1520. |
| .0550 | 486. | -1713. | 181. | 4169. | 1229. | 61. | -.0208 | -.0113 | .0262 | .0393 | .0581 | -.0014 | 1745. |
| .0560 | 737. | -1826. | -81. | 4571. | 1982. | 381. | -.0191 | -.0115 | .0326 | .0405 | .0776 | -.0030 | 2005. |
| .0570 | 1303. | -1393. | 421. | 4719. | 2347. | 388. | -.0156 | -.0111 | .0386 | .0449 | .0954 | -.0086 | 2121. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.35.

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 | 32 | MEMBER | 1 | SEQUENCE | 56 | LOCATION | BEG | 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) | |
| .0580 | 2280. | -128. | 1780. | 4568. | 2303. | 23. | | -.0097 | -.0097 | .0444 | .0538 | .1109 | -.0196 | 2053. | |
| .0590 | 3598. | 1351. | 3410. | 4407. | 1866. | -494. | | -.0010 | -.0073 | .0494 | .0639 | .1232 | -.0350 | 1960. | |
| .0600 | 4857. | 2225. | 4888. | 4748. | 1177. | -870. | | .0094 | -.0046 | .0537 | .0733 | .1334 | -.0495 | 1994. | |
| .0610 | 5492. | 2433. | 6082. | 5143. | 578. | -955. | | .0195 | -.0018 | .0575 | .0817 | .1415 | -.0562 | 2112. | |
| .0620 | 5380. | 2573. | 6957. | 5326. | 322. | -841. | | .0279 | .0012 | .0609 | .0891 | .1458 | -.0539 | 2168. | |
| .0630 | 5022. | 2950. | 7332. | 5248. | 406. | -623. | | .0348 | .0045 | .0633 | .0932 | .1438 | -.0483 | 2127. | |
| .0640 | 4780. | 3087. | 6992. | 5001. | 799. | -464. | | .0403 | .0077 | .0635 | .0918 | .1364 | -.0452 | 2041. | |
| .0650 | 4615. | 2561. | 5845. | 4626. | 1460. | -563. | | .0436 | .0106 | .0609 | .0844 | .1275 | -.0455 | 1960. | |
| .0660 | 4595. | 1800. | 4235. | 4256. | 2122. | -886. | | .0448 | .0137 | .0555 | .0738 | .1191 | -.0485 | 1941. | |
| .0670 | 4697. | 1373. | 2889. | 4054. | 2443. | -1188. | | .0441 | .0167 | .0482 | .0661 | .1096 | -.0516 | 1958. | |
| .0680 | 4380. | 1122. | 2556. | 3986. | 2305. | -1475. | | .0411 | .0190 | .0408 | .0672 | .0997 | -.0496 | 1940. | |
| .0690 | 3449. | 724. | 3156. | 3979. | 1730. | -1843. | | .0361 | .0202 | .0342 | .0758 | .0915 | -.0420 | 1892. | |
| .0700 | 2628. | 327. | 3703. | 4107. | 792. | -2049. | | .0310 | .0204 | .0273 | .0831 | .0830 | -.0351 | 1869. | |
| .0710 | 2237. | -62. | 3609. | 4298. | -196. | -1934. | | .0264 | .0197 | .0202 | .0846 | .0738 | -.0314 | 1893. | |
| .0720 | 1620. | -770. | 3180. | 4199. | -790. | -1784. | | .0205 | .0177 | .0145 | .0831 | .0677 | -.0262 | 1858. | |
| .0730 | 645. | -1596. | 2491. | 3630. | -848. | -1713. | | .0132 | .0148 | .0102 | .0792 | .0529 | -.0192 | 1646. | |
| .0740 | 23. | -1931. | 1115. | 2754. | -550. | -1433. | | .0065 | .0114 | .0051 | .0686 | .0505 | -.0161 | 1265. | |
| .0750 | -264. | -1873. | -749. | 1727. | -43. | -922. | | .0009 | .0075 | -.0013 | .0532 | .0284 | -.0169 | 786. | |
| .0760 | -937. | -1954. | -2246. | 654. | 536. | -448. | | -.0048 | .0030 | -.0074 | .0408 | .0029 | -.0149 | 384. | |
| .0770 | -1942. | -2041. | -2970. | -248. | 900. | 14. | | -.0103 | -.0016 | -.0128 | .0351 | -.0217 | -.0091 | 375. | |
| .0780 | -2642. | -1697. | -3090. | -821. | 834. | 623. | | -.0142 | -.0059 | -.0176 | .0339 | -.0443 | -.0036 | 532. | |
| .0790 | -2991. | -1182. | -2701. | -1160. | 388. | 1163. | | -.0163 | -.0098 | -.0212 | .0357 | -.0605 | -.0002 | 677. | |
| .0800 | -3185. | -1006. | -2003. | -1384. | -297. | 1375. | | -.0172 | -.0132 | -.0232 | -.0383 | -.0664 | .0015 | 792. | |
| .0810 | -2963. | -1045. | -1568. | -1452. | -1091. | 1468. | | -.0166 | -.0161 | -.0245 | .0372 | -.0556 | -.0001 | 937. | |
| .0820 | -2390. | -987. | -1597. | -1408. | -1739. | 1679. | | -.0150 | -.0182 | -.0253 | .0324 | -.0527 | -.0029 | 1122. | |
| .0830 | -2155. | -958. | -1664. | -1424. | -1969. | 1878. | | -.0142 | -.0193 | -.0248 | .0284 | -.0577 | -.0013 | 1232. | |
| .0840 | -2352. | -1071. | -1616. | -1508. | -1781. | 1985. | | -.0140 | -.0196 | -.0232 | .0266 | -.0529 | .0043 | 1229. | |
| .0850 | -2276. | -1070. | -1737. | -1536. | -1374. | 2118. | | -.0125 | -.0189 | -.0218 | .0239 | -.0547 | .0071 | 1186. | |
| .0860 | -1724. | -797. | -1842. | -1561. | -909. | 2173. | | -.0088 | -.0171 | -.0200 | .0211 | -.0632 | .0045 | 1134. | |
| .0870 | -1127. | -361. | -1344. | -1705. | -534. | 1932. | | -.0037 | -.0144 | -.0163 | .0222 | -.0716 | .0003 | 1056. | |
| .0880 | -567. | 197. | -241. | -1899. | -435. | 1523. | | .0028 | -.0110 | -.0102 | .0262 | -.0767 | -.0035 | 992. | |
| .0890 | 106. | 893. | 927. | -2074. | -673. | 1223. | | .0104 | -.0071 | -.0027 | .0288 | -.0798 | -.0069 | 990. | |
| .0900 | 609. | 1584. | 1885. | -2187. | -1115. | 1046. | | .0179 | -.0029 | .0054 | .0281 | -.0801 | -.0076 | 1071. | |
| .0910 | 621. | 2139. | 2630. | -2467. | -1566. | 880. | | .0231 | .0013 | .0134 | .0246 | -.0762 | -.0034 | 1225. | |
| .0920 | 379. | 2620. | 3020. | -2868. | -1824. | 707. | | .0251 | .0054 | .0195 | .0184 | -.0696 | .0027 | 1393. | |
| .0930 | 319. | 3100. | 2889. | -3339. | -1714. | 490. | | .0240 | .0095 | .0226 | .0096 | -.0623 | .0061 | 1519. | |
| .0940 | 556. | 3490. | 2310. | -3798. | -1224. | 161. | | .0201 | .0136 | .0221 | -.0000 | -.0539 | .0048 | 1602. | |
| .0950 | 904. | 3631. | 1492. | -4122. | -544. | -232. | | .0138 | .0177 | .0182 | -.0094 | -.0439 | .0009 | 1671. | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.35.

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

| | | | | | | | | | | | | | |
|-------|--------|--------|--------|--------|--------|-------|--------|--------|--------|--------|--------|--------|-------|
| .0840 | -2352. | -1071. | -616. | -1508. | -1781. | 1935. | -.140 | -.0196 | -.0232 | .0266 | -.0529 | .0043 | 1229. |
| .0850 | -2276. | -1070. | -1737. | -1536. | -1374. | 2118. | -.125 | -.0189 | -.0218 | .0239 | -.0547 | .0071 | 1186. |
| .0860 | -1724. | -797. | -1842. | -1561. | -209. | 2173. | -.0088 | -.0171 | -.0200 | .0211 | -.0532 | .0045 | 1134. |
| .0870 | -1127. | -361. | -1344. | -1705. | -534. | 1932. | -.0037 | -.0144 | -.0163 | .0222 | -.0716 | .0003 | 1056. |
| .0880 | -567. | 197. | -241. | -1899. | -435. | 1523. | .0028 | -.0110 | -.0102 | .0262 | -.0767 | -.0035 | 992. |
| .0890 | 106. | 593. | 927. | -2074. | -673. | 1223. | .0104 | -.0071 | -.0027 | .0288 | -.0798 | -.0069 | 990. |
| .0900 | 609. | 1584. | 1885. | -2187. | -1115. | 1046. | .0179 | -.0029 | .0054 | .0281 | -.0301 | -.0076 | 1071. |
| .0910 | 621. | 2179. | 2630. | -2467. | -1566. | 880. | .0231 | .0013 | .0134 | .0246 | -.0762 | -.0034 | 1225. |
| .0920 | 379. | 2620. | 3020. | -2868. | -1024. | 707. | .0251 | .0054 | .0195 | .0184 | -.0596 | .0027 | 1393. |
| .0930 | 319. | 3100. | 2889. | -3329. | -1714. | 490. | .0240 | .0095 | .0226 | .0096 | -.0523 | .0061 | 1519. |
| .0940 | 556. | 2490. | 2318. | -3758. | -1224. | 161. | .0201 | .0136 | .0226 | -.0000 | -.0539 | .0048 | 1602. |
| .0950 | 904. | 3631. | 1492. | -4182. | -544. | -270. | .0138 | .0177 | .0182 | -.0094 | -.0439 | .0009 | 1671. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.35.

S/RV PIPING KEWAUNEE GKW0RF 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 | 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) | |
| .0960 | 1055. | 3422. | 550. | -4251. | 98. | -579. | .0039 | .0215 | .0117 | -.0181 | -.0334 | -.0018 | 1722. | |
| .0970 | 764. | 2979. | -408. | -4263. | 526. | -820. | -.0027 | .0251 | .0034 | -.0265 | -.0229 | -.0001 | 1755. | |
| .0980 | 56. | 2535. | -1364. | -4249. | 620. | -906. | -.0108 | .0288 | -.0058 | -.0358 | -.0116 | .0066 | 1761. | |
| .0990 | -847. | 2087. | -2435. | -4220. | 400. | -846. | -.0175 | .0326 | -.0160 | -.0475 | .0009 | .0158 | 1735. | |
| .1000 | -1734. | 1399. | -3734. | -4152. | 62. | -776. | -.0223 | .0366 | -.0270 | -.0614 | .0138 | .0239 | 1695. | |
| .1010 | -2386. | 496. | -5179. | -4041. | -190. | -828. | -.0248 | .0409 | -.0390 | -.0754 | .0253 | .0273 | 1657. | |
| .1020 | -2608. | -231. | -6506. | -3908. | -270. | -931. | -.0250 | .0453 | -.0515 | -.0868 | .0321 | .0245 | 1621. | |
| .1030 | -2494. | -610. | -7428. | -3766. | -146. | -1145. | -.0230 | .0494 | -.0637 | -.0927 | .0315 | .0171 | 1581. | |
| .1040 | -2390. | -921. | -7772. | -3577. | 151. | -1278. | -.0191 | .0523 | -.0740 | -.0916 | .0236 | .0088 | 1525. | |
| .1050 | -2444. | -1209. | -7570. | -3318. | 464. | -1294. | -.0135 | .0537 | -.0809 | -.0850 | .0111 | .0021 | 1441. | |
| .1060 | -2526. | -1284. | -7003. | -3040. | 632. | -1139. | -.0059 | .0535 | -.0835 | -.0762 | -.0023 | -.0030 | 1327. | |
| .1070 | -2581. | -1274. | -6301. | -2861. | 639. | -953. | .0033 | .0517 | -.0814 | -.0685 | -.0122 | -.0070 | 1237. | |
| .1080 | -2490. | -1555. | -5718. | -2699. | 530. | -782. | .0132 | .0481 | -.0752 | -.0635 | -.0181 | -.0112 | 1147. | |
| .1090 | -2234. | -1954. | -5133. | -2406. | 369. | -473. | .0224 | .0434 | -.0657 | -.0589 | -.0195 | -.0147 | 995. | |
| .1100 | -2193. | -1478. | -4019. | -2437. | 350. | -379. | .0283 | .0386 | -.0537 | -.0515 | -.0066 | -.0152 | 1000. | |
| .1110 | -1696. | -1154. | -3413. | -2178. | 516. | -153. | .0321 | .0329 | -.0433 | -.0465 | .0077 | -.0186 | 900. | |
| .1120 | -846. | -2236. | -3473. | -1255. | 786. | 188. | .0339 | .0254 | -.0363 | -.0433 | .0146 | -.0251 | 599. | |
| .1130 | -397. | -3289. | -2702. | -233. | 1031. | 383. | .0324 | .0177 | -.0303 | -.0322 | .0205 | -.0277 | 451. | |
| .1140 | -199. | -2641. | -613. | 520. | 1165. | 567. | .0286 | .0119 | -.0236 | -.0114 | .0286 | -.0259 | 560. | |
| .1150 | 303. | -1545. | 1496. | 1388. | 1160. | 878. | .0253 | .0081 | -.0168 | .0089 | .0353 | -.0245 | 807. | |
| .1160 | 857. | -1947. | 2763. | 2527. | 983. | 1038. | .0236 | .0054 | -.0099 | .0213 | .0429 | -.0233 | 1165. | |
| .1170 | 1290. | -2793. | 3519. | 3444. | 604. | 1062. | .0236 | .0044 | -.0016 | .0252 | .0531 | -.0202 | 1467. | |
| .1180 | 1402. | -2145. | 4420. | 3330. | 198. | 840. | .0245 | .0059 | .0084 | .0229 | .0656 | -.0136 | 1380. | |
| .1190 | 2006. | -491. | 4514. | 2731. | -172. | 858. | .0280 | .0089 | .0165 | .0098 | .0625 | -.0102 | 1151. | |
| .1200 | 2395. | 166. | 3937. | 2182. | -399. | 834. | .0320 | .0121 | .0216 | -.0085 | .0436 | -.0059 | 951. | |
| .1210 | 1537. | 80. | 4059. | 1446. | -522. | 308. | .0326 | .0163 | .0256 | -.0192 | .0247 | .0074 | 607. | |
| .1220 | 1041. | 1246. | 4438. | 759. | -25. | -0. | .0324 | .0230 | .0270 | -.0254 | .0036 | .0188 | 305. | |
| .1230 | 1285. | 2595. | 4493. | 341. | 388. | -340. | .0323 | .0314 | .0251 | -.0321 | -.0170 | .0230 | 248. | |
| .1240 | 1902. | 2581. | 4005. | 373. | 628. | -932. | .0325 | .0395 | .0205 | -.0422 | -.0351 | .0218 | 475. | |
| .1250 | 2264. | 2116. | 3649. | 422. | 481. | -1701. | .0320 | .0470 | .0158 | -.0531 | -.0456 | .0223 | 729. | |
| .1260 | 2025. | 2550. | 2738. | 49. | -11. | -2477. | .0301 | .0541 | .0121 | -.0641 | -.0467 | .0293 | 994. | |
| .1270 | 1982. | 3352. | 3084. | -71. | -777. | -2571. | .0285 | .0602 | .0072 | -.0814 | -.0513 | .0379 | 1078. | |
| .1280 | 1111. | 2506. | 2014. | 162. | -1480. | -2535. | .0244 | .0638 | .0021 | -.0991 | -.0540 | .0535 | 1180. | |
| .1290 | -428. | 843. | 1112. | 482. | -1875. | -2475. | .0171 | .0652 | -.0027 | -.1116 | -.0527 | .0735 | 1261. | |
| .1300 | -1486. | 249. | 334. | 550. | -1840. | -2283. | .0082 | .0655 | -.0082 | -.1201 | -.0533 | .0872 | 1197. | |
| .1310 | -1964. | 134. | -568. | 219. | -1343. | -2429. | -.0014 | .0643 | -.0150 | -.1282 | -.0575 | .0903 | 1117. | |
| .1320 | -1731. | -450. | -2067. | -152. | -654. | -2871. | -.0103 | .0606 | -.0237 | -.1401 | -.0697 | .0824 | 1105. | |
| .1330 | -1511. | -1236. | -3387. | -787. | -0. | -2991. | -.0194 | .0546 | -.0316 | -.1509 | -.0800 | .0747 | 1241. | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.35.

S/RV PIPING KEWAUNEE GKW0RF 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSVCONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

| | | | | | | | | | | | | | | |
|-------|--------|--------|--------|-------|--------|--------|--------|-------|--------|--------|--------|-------|-------|-------|
| .1220 | 1285. | 2595. | 4493. | 341. | 388. | -340. | .0323 | .0314 | .0251 | -.0321 | -.0170 | .0230 | .0188 | 305. |
| .1240 | 1902. | 2571. | 4005. | 373. | 628. | -932. | .0325 | .0395 | .0205 | -.0422 | -.0351 | .0218 | .0218 | 475. |
| .1250 | 2264. | 2116. | 3649. | 422. | 481. | -1701. | .0320 | .0470 | .0158 | -.0531 | -.0456 | .0223 | .0223 | 729. |
| .1260 | 2025. | 2550. | 2738. | 49. | -11. | -2477. | .0301 | .0541 | .0121 | -.0641 | -.0467 | .0293 | .0293 | 994. |
| .1270 | 1982. | 2352. | 3084. | -71. | -77. | -2571. | .0285 | .0602 | .0072 | -.0814 | -.0513 | .0379 | .0379 | 1078. |
| .1280 | 1111. | 2506. | 2014. | 162. | -1480. | -2535. | .0244 | .0638 | .0021 | -.0991 | -.0540 | .0535 | .0535 | 1180. |
| .1290 | -428. | 843. | 1112. | 482. | -1875. | -2475. | .0171 | .0652 | -.0027 | -.1116 | -.0527 | .0735 | .0735 | 1261. |
| .1300 | -1486. | 249. | 334. | 550. | -1840. | -2283. | .0082 | .0655 | -.0082 | -.1201 | -.0533 | .0872 | .0872 | 1197. |
| .1310 | -1964. | 134. | -568. | 219. | -1343. | -2429. | -.0014 | .0643 | -.0150 | -.1282 | -.0575 | .0903 | .0903 | 1117. |
| .1320 | -1731. | -450. | -2062. | -152. | -654. | -2671. | -.0103 | .0606 | -.0237 | -.1401 | -.0697 | .0824 | .0824 | 1105. |
| .1330 | -1511. | -1236. | -3382. | -787. | -0. | -2591. | -.0194 | .0546 | -.0316 | -.1509 | -.0800 | .0747 | .0747 | 1241. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.35.

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 | 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) |
| .1340 | -2224. | -1074. | -4275. | -1601. | 373. | -2929. | -.0276 | .0475 | -.0376 | -.1591 | -.0855 | .0717 | 1348. |
| .1350 | -2849. | -604. | -4552. | -2230. | 366. | -2422. | -.0339 | .0391 | -.0420 | -.1654 | -.0880 | .0728 | 1331. |
| .1360 | -3965. | -1209. | -5210. | -2671. | 82. | -2052. | -.0382 | .0287 | -.0444 | -.1681 | -.0849 | .0772 | 1352. |
| .1370 | -4464. | -1893. | -5291. | -2935. | -495. | -1611. | -.0384 | .0175 | -.0465 | -.1692 | -.0823 | .0748 | 1358. |
| .1380 | -4207. | -1653. | -5059. | -3326. | -1028. | -1290. | -.0351 | .0070 | -.0489 | -.1678 | -.0793 | .0636 | 1490. |
| .1390 | -3285. | -968. | -4926. | -3524. | -1292. | -893. | -.0269 | -.0022 | -.0525 | -.1650 | -.0305 | .0453 | 1548. |
| .1400 | -2495. | -1070. | -4940. | -3265. | -1177. | -360. | -.0216 | -.0106 | -.0568 | -.1593 | -.0362 | .0282 | 1400. |
| .1410 | -2626. | -1829. | -4617. | -2878. | -769. | 87. | -.0149 | -.0178 | -.0601 | -.1481 | -.0907 | .0201 | 1196. |
| .1420 | -2586. | -1729. | -4404. | -2377. | -366. | 893. | -.0064 | -.0228 | -.0631 | -.1375 | -.1000 | .0141 | 1031. |
| .1430 | -2339. | -1177. | -4230. | -1844. | -129. | 1740. | .0037 | -.0257 | -.0648 | -.1289 | -.1110 | .0085 | 1019. |
| .1440 | -2024. | -1168. | -3907. | -1127. | -67. | 2380. | .0147 | -.0270 | -.0638 | -.1202 | -.1183 | .0034 | 1057. |
| .1450 | -1664. | -1502. | -3157. | -267. | -261. | 2705. | .0256 | -.0264 | -.0592 | -.1091 | -.1168 | -.0007 | 1096. |
| .1460 | -1195. | -1449. | -1941. | 521. | -648. | 2648. | .0354 | -.0230 | -.0514 | -.0955 | -.1057 | -.0043 | 1114. |
| .1470 | -51. | -859. | -886. | 1442. | -1149. | 2641. | .0447 | -.0174 | -.0436 | -.0836 | -.0971 | -.0109 | 1292. |
| .1480 | 583. | -650. | -383. | 2249. | -1550. | 2308. | .0506 | -.0104 | -.0324 | -.0703 | -.0895 | -.0137 | 1435. |
| .1490 | 729. | -403. | 1856. | 2827. | -1800. | 1784. | .0525 | -.0023 | -.0212 | -.0552 | -.0839 | -.0113 | 1524. |
| .1500 | 909. | 598. | 3096. | 3198. | -1839. | 1357. | .0512 | .0072 | -.0101 | -.0415 | -.0812 | -.0075 | 1577. |
| .1510 | 939. | 1545. | 3975. | 3345. | -1516. | 745. | .0465 | .0174 | .0011 | -.0302 | -.0754 | -.0025 | 1504. |
| .1520 | 1154. | 1739. | 4168. | 3564. | -963. | 86. | .0400 | .0273 | .0116 | -.0236 | -.0671 | .0002 | 1482. |
| .1530 | 1359. | 1368. | 4053. | 3729. | -404. | -773. | .0321 | .0363 | .0216 | -.0197 | -.0522 | .0019 | 1537. |
| .1540 | 1838. | 1416. | 3751. | 3938. | -68. | -1335. | .0242 | .0446 | .0306 | -.0176 | -.0352 | .0024 | 1669. |
| .1550 | 2146. | 1619. | 3601. | 4316. | 51. | -1572. | .0157 | .0517 | .0386 | -.0132 | -.0166 | .0063 | 1844. |
| .1560 | 1463. | 1033. | 3942. | 4800. | 81. | -1886. | .0052 | .0568 | .0458 | -.0029 | .0082 | .0192 | 2070. |
| .1570 | 890. | 220. | 4029. | 5560. | -24. | -1845. | -.0051 | .0599 | .0502 | .0075 | .0306 | .0321 | 2351. |
| .1580 | 625. | -192. | 3910. | 6209. | -114. | -1709. | -.0148 | .0614 | .0518 | .0171 | .0517 | .0412 | 2585. |
| .1590 | 440. | -514. | 3777. | 6457. | -8. | -1847. | -.0242 | .0607 | .0513 | .0263 | .0727 | .0459 | 2695. |
| .1600 | 726. | -932. | 3242. | 6446. | 263. | -2052. | -.0319 | .0574 | .0486 | .0316 | .0376 | .0435 | 2717. |
| .1610 | 1275. | -1366. | 2353. | 6191. | 623. | -2212. | -.0376 | .0518 | .0447 | .0337 | .0961 | .0372 | 2651. |
| .1620 | 1263. | -1682. | 1705. | 5499. | 1039. | -2494. | -.0427 | .0446 | .0415 | .0368 | .1043 | .0348 | 2459. |
| .1630 | 1158. | -1594. | 1015. | 4707. | 1345. | -2381. | -.0455 | .0362 | .0386 | .0385 | .1067 | .0343 | 2185. |
| .1640 | 308. | -1649. | 353. | 3895. | 1529. | -2064. | -.0466 | .0267 | .0362 | .0392 | .1046 | .0358 | 1872. |
| .1650 | 191. | -1945. | -107. | 2971. | 1602. | -1847. | -.0463 | .0166 | .0343 | .0401 | .1015 | .0381 | 1544. |
| .1660 | 122. | -1738. | -594. | 2073. | 1506. | -1469. | -.0478 | .0067 | .0317 | .0396 | .0942 | .0349 | 1185. |
| .1670 | 242. | -1342. | -840. | 1166. | 1377. | -1194. | -.0407 | -.0025 | .0286 | .0401 | .0875 | .0283 | 868. |
| .1680 | 477. | -1226. | -1043. | 535. | 1292. | -933. | -.0379 | -.0106 | .0248 | .0417 | .0803 | .0192 | 675. |
| .1690 | 487. | -1485. | -1108. | 139. | 1264. | -754. | -.0361 | -.0173 | .0206 | .0452 | .0750 | .0100 | 593. |
| .1700 | 507. | -1465. | -1086. | -103. | 1193. | -438. | -.0350 | -.0218 | .0164 | .0493 | .0599 | .0031 | 512. |
| .1710 | 830. | -947. | -1149. | -117. | 1043. | 214. | -.0338 | -.0240 | .0124 | .0521 | .0619 | -.0053 | 430. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.35.

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

CONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

| | | | | | | | | | | | | | |
|-------|-------|--------|--------|-------|-------|--------|---------|--------|-------|-------|-------|--------|-------|
| .1590 | 440. | -932. | 3242. | 6446. | 262. | -2052. | -1119. | .0574 | .0486 | .0316 | .0376 | .0435 | 2717. |
| .1610 | 1275. | -1366. | 2353. | 6191. | 623. | -2218. | -1376. | .0518 | .0447 | .0337 | .0961 | .0372 | 2651. |
| .1620 | 1263. | -1682. | 1705. | 5499. | 1039. | -2494. | -10427. | .0446 | .0415 | .0368 | .1043 | .0348 | 2459. |
| .1630 | 1158. | -1594. | 1015. | 4707. | 1345. | -2381. | -10455. | .0362 | .0386 | .0385 | .1067 | .0343 | 2185. |
| .1640 | 808. | -1649. | 357. | 3895. | 1529. | -2084. | -10466. | .0267 | .0362 | .0392 | .1046 | .0358 | 1872. |
| .1650 | 191. | -1945. | -107. | 2971. | 1602. | -1047. | -10467. | .0166 | .0343 | .0401 | .1015 | .0381 | 1544. |
| .1660 | 122. | -1738. | -594. | 2673. | 1516. | -1469. | -10478. | .0067 | .0317 | .0396 | .0942 | .0349 | 1185. |
| .1670 | 242. | -1342. | -840. | 1166. | 1377. | -1194. | -10407. | -.0025 | .0286 | .0401 | .0875 | .0283 | 868. |
| .1680 | 477. | -1226. | -1043. | 535. | 1292. | -933. | -10379. | -.0106 | .0248 | .0417 | .0803 | .0192 | 675. |
| .1690 | 487. | -1485. | -1108. | 139. | 1264. | -754. | -10361. | -.0173 | .0206 | .0452 | .0750 | .0109 | 593. |
| .1700 | 507. | -1465. | -1086. | -103. | 1193. | -438. | -10350. | -.0218 | .0164 | .0493 | .0599 | .0031 | 512. |
| .1710 | 830. | -947. | -1149. | -117. | 1043. | 214. | -10338. | -.0240 | .0124 | .0521 | .0619 | -.0053 | 430. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.35.

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 | 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) | |
| .1720 | 522. | -878. | -852. | -157. | 964. | 563. | -.0342 | -.0243 | .0107 | .0569 | .0598 | -.0088 | 452. | |
| .1730 | 308. | -997. | -689. | -37. | 840. | 911. | -.0345 | -.0226 | .0104 | .0597 | .0590 | -.0124 | 498. | |
| .1740 | 426. | -896. | -678. | 104. | 640. | 1255. | -.0340 | -.0186 | .0115 | .0597 | .0591 | -.0179 | 567. | |
| .1750 | 564. | -672. | -564. | 95. | 464. | 1359. | -.0334 | -.0128 | .0141 | .0589 | .0609 | -.0235 | 577. | |
| .1760 | 904. | -366. | -511. | 130. | 310. | 1426. | -.0321 | -.0056 | .0173 | .0573 | .0580 | -.0299 | 588. | |
| .1770 | 966. | -115. | -179. | 95. | 180. | 1311. | -.0310 | .0025 | .0210 | .0577 | .0517 | -.0333 | 532. | |
| .1780 | 1016. | 486. | 335. | 79. | 2. | 1274. | -.0297 | .0113 | .0247 | .0601 | .0390 | -.0347 | 512. | |
| .1790 | 809. | 1155. | 1108. | -21. | -141. | 1099. | -.0285 | .0202 | .0286 | .0649 | .0238 | -.0330 | 445. | |
| .1800 | 552. | 1602. | 1845. | -168. | -231. | 757. | -.0272 | .0287 | .0323 | .0695 | .0071 | -.0304 | 325. | |
| .1810 | 828. | 2094. | 2120. | -211. | -369. | 574. | -.0246 | .0363 | .0350 | .0706 | -.0130 | -.0308 | 287. | |
| .1820 | 853. | 2445. | 2442. | -451. | -492. | 188. | -.0226 | .0428 | .0380 | .0717 | -.0278 | -.0287 | 278. | |
| .1830 | 736. | 2716. | 2627. | -754. | -611. | -193. | -.0213 | .0477 | .0407 | .0720 | -.0389 | -.0245 | 397. | |
| .1840 | 559. | 2724. | 2469. | -1014. | -705. | -470. | -.0208 | .0508 | .0421 | .0701 | -.0482 | -.0189 | 530. | |
| .1850 | 288. | 2470. | 2023. | -1241. | -748. | -658. | -.0214 | .0517 | .0418 | .0669 | -.0557 | -.0124 | 639. | |
| .1860 | 93. | 2293. | 1388. | -1384. | -751. | -642. | -.0230 | .0507 | .0395 | .0639 | -.0619 | -.0063 | 682. | |
| .1870 | -353. | 2026. | 944. | -1551. | -660. | -683. | -.0265 | .0481 | .0360 | .0641 | -.0631 | .0008 | 730. | |
| .1880 | -561. | 1715. | 432. | -1560. | -536. | -596. | -.0305 | .0437 | .0309 | .0653 | -.0635 | .0047 | 704. | |
| .1890 | -609. | 1292. | -62. | -1511. | -414. | -506. | -.0346 | .0379 | .0250 | .0675 | -.0619 | .0054 | 660. | |
| .1900 | -661. | 905. | -402. | -1534. | -345. | -455. | -.0388 | .0309 | .0195 | .0709 | -.0564 | .0046 | 657. | |
| .1910 | -516. | 780. | -790. | -1516. | -392. | -143. | -.0422 | .0232 | .0148 | .0735 | -.0505 | .0021 | 631. | |
| .1920 | -677. | 529. | -1050. | -1539. | -452. | 255. | -.0456 | .0148 | .0119 | .0765 | -.0419 | .0021 | 652. | |
| .1930 | -1136. | 121. | -1249. | -1598. | -464. | 699. | -.0491 | .0061 | .0110 | .0797 | -.0315 | .0045 | 724. | |
| .1940 | -1553. | -169. | -1507. | -1711. | -410. | 1164. | -.0523 | -.0022 | .0114 | .0817 | -.0205 | .0063 | 847. | |
| .1950 | -1754. | -275. | -1790. | -1902. | -249. | 1510. | -.0552 | -.0096 | .0127 | .0827 | -.0088 | .0051 | 980. | |
| .1960 | -1738. | -366. | -2014. | -2122. | 52. | 1623. | -.0578 | -.0160 | .0145 | .0836 | .0037 | .0003 | 1072. | |
| .1970 | -1497. | -469. | -2144. | -2258. | 422. | 1555. | -.0600 | -.0211 | .0164 | .0849 | .0171 | -.0075 | 1113. | |
| .1980 | -1119. | -510. | -2114. | -2235. | 740. | 1398. | -.0615 | -.0246 | .0183 | .0869 | .0317 | -.0163 | 1099. | |
| .1990 | -782. | -562. | -1862. | -2031. | 928. | 1178. | -.0619 | -.0266 | .0204 | .0900 | .0478 | -.0240 | 1013. | |
| .2000 | -524. | -707. | -1438. | -1629. | 957. | 945. | -.0609 | -.0270 | .0226 | .0932 | .0540 | -.0298 | 848. | |
| .2010 | -267. | -848. | -915. | -1063. | 823. | 759. | -.0579 | -.0258 | .0248 | .0957 | .0793 | -.0343 | 620. | |
| .2020 | 1. | -881. | -306. | -443. | 590. | 592. | -.0531 | -.0232 | .0272 | .0972 | .0940 | -.0378 | 380. | |
| .2030 | 307. | -861. | 269. | 152. | 385. | 392. | -.0466 | -.0191 | .0295 | .0972 | .1079 | -.0414 | 229. | |
| .2040 | 763. | -878. | 394. | 720. | 312. | 180. | -.0387 | -.0138 | .0312 | .0945 | .1187 | -.0461 | 323. | |
| .2050 | 1333. | -678. | 665. | 1225. | 396. | -20. | -.0299 | -.0078 | .0321 | .0895 | .1249 | -.0518 | 517. | |
| .2060 | 1815. | -713. | 718. | 1572. | 607. | -222. | -.0212 | -.0012 | .0324 | .0840 | .1266 | -.0566 | 682. | |
| .2070 | 2131. | -342. | 884. | 1749. | 864. | -416. | -.0130 | .0054 | .0325 | .0792 | .1245 | -.0595 | 800. | |
| .2080 | 2394. | 123. | 1081. | 1845. | 1090. | -570. | -.0056 | .0118 | .0325 | .0746 | .1192 | -.0611 | 890. | |
| .2090 | 2667. | 574. | 1274. | 1921. | 1216. | -708. | .0009 | .0178 | .0325 | .0703 | .1131 | -.0619 | 955. | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.35.

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

CONDITION 24
 LOADS
 SHOCK
 PRESSURE
 ENGLISH UNITS

| | | | | | | | | | | | | | |
|-------|-------|-------|--------|--------|-------|-------|--------|--------|-------|-------|-------|--------|-------|
| .1990 | -782. | -542. | -1862. | -2031. | 928. | 1178. | -.0619 | -.0266 | .0204 | .0900 | .0478 | -.0240 | 1099. |
| .2000 | -924. | -707. | -1438. | -1679. | 957. | 945. | -.0609 | -.0270 | .0226 | .0932 | .0540 | -.0298 | 848. |
| .2010 | -267. | -848. | -915. | -1063. | 823. | 759. | -.0579 | -.0258 | .0248 | .0957 | .0793 | -.0343 | 620. |
| .2020 | 1. | -881. | -306. | -443. | 590. | 592. | -.0531 | -.0232 | .0272 | .0972 | .0940 | -.0378 | 380. |
| .2030 | 707. | -861. | 264. | 172. | 389. | 392. | -.0466 | -.0191 | .0295 | .0972 | .1079 | -.0414 | 229. |
| .2040 | 763. | -878. | 594. | 720. | 312. | 130. | -.0387 | -.0138 | .0312 | .0945 | .1187 | -.0461 | 323. |
| .2050 | 1333. | -878. | 665. | 1225. | 798. | -20. | -.0299 | -.0078 | .0321 | .0895 | .1249 | -.0518 | 517. |
| .2060 | 1815. | -713. | 718. | 1572. | 607. | -222. | -.0212 | -.0012 | .0324 | .0840 | .1266 | -.0566 | 682. |
| .2070 | 2131. | -342. | 884. | 1749. | 864. | -416. | -.0130 | .0054 | .0325 | .0792 | .1245 | -.0595 | 800. |
| .2080 | 2394. | 123. | 1011. | 1845. | 1090. | -570. | -.0056 | .0118 | .0325 | .0746 | .1192 | -.0611 | 890. |
| .2090 | 2667. | 574. | 1274. | 1921. | 1316. | -708. | .0009 | .0178 | .0325 | .0703 | .1131 | -.0619 | 955. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.35.

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 | 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) |
| .2100 | 2902. | 993. | 1550. | 1965. | 1201. | -878. | .0061 | .0232 | .0330 | .0668 | .1089 | -.0617 | 989. |
| .2110 | 3104. | 1395. | 1921. | 1983. | 1046. | -1060. | -.0096 | .0280 | .0342 | .0646 | .1070 | -.0604 | 995. |
| .2120 | 3264. | 1731. | 2309. | 1976. | 812. | -1219. | .0113 | .0318 | .0358 | .0633 | .1060 | -.0579 | 994. |
| .2130 | 3306. | 1964. | 2643. | 1992. | 595. | -1342. | .0109 | .0344 | .0374 | .0627 | .1046 | -.0538 | 993. |
| .2140 | 3171. | 2093. | 2861. | 1960. | 468. | -1399. | .0084 | .0360 | .0389 | .0626 | .1023 | -.0475 | 984. |
| .2150 | 2864. | 2066. | 2902. | 1924. | 467. | -1371. | .0039 | .0363 | .0399 | .0627 | .0985 | -.0395 | 966. |
| .2160 | 2421. | 1823. | 2775. | 1890. | 594. | -1302. | -.0020 | .0354 | .0402 | .0627 | .0929 | -.0308 | 951. |
| .2170 | 1934. | 1461. | 2580. | 1820. | 795. | -1254. | -.0083 | .0336 | .0398 | .0624 | .0860 | -.0226 | 943. |
| .2180 | 1544. | 1160. | 2311. | 1690. | 964. | -1233. | -.0142 | .0310 | .0388 | .0612 | .0781 | -.0164 | 924. |
| .2190 | 1281. | 930. | 2041. | 1535. | 1008. | -1213. | -.0188 | .0278 | .0370 | .0588 | .0598 | -.0123 | 883. |
| .2200 | 1017. | 636. | 1787. | 1408. | 897. | -1175. | -.0217 | .0242 | .0346 | .0553 | .0612 | -.0090 | 819. |
| .2210 | 657. | 270. | 1597. | 1324. | 647. | -1079. | -.0229 | .0202 | .0314 | .0510 | .0521 | -.0057 | 733. |
| .2220 | 241. | -36. | 1467. | 1258. | 302. | -895. | -.0224 | .0160 | .0274 | .0458 | .0420 | -.0026 | 631. |
| .2230 | -141. | -240. | 1327. | 1173. | -55. | -660. | -.0202 | .0119 | .0221 | .0394 | .0301 | -.0009 | 540. |
| .2240 | -414. | -413. | 1073. | 1055. | -331. | -432. | -.0165 | .0081 | .0156 | .0310 | .0164 | -.0015 | 476. |
| .2250 | -543. | -587. | 641. | 915. | -474. | -223. | -.0117 | .0047 | .0078 | .0204 | .0011 | -.0049 | 423. |
| .2260 | -570. | -737. | 50. | 762. | -495. | -23. | -.0063 | .0020 | -.0010 | .0076 | -.0149 | -.0101 | 365. |
| .2270 | -590. | -862. | -627. | 614. | -452. | 180. | -.0007 | .0001 | -.0100 | -.0065 | -.0306 | -.0155 | 314. |
| .2280 | -660. | -974. | -1314. | 506. | -418. | 402. | .0048 | -.0011 | -.0190 | -.0216 | -.0457 | -.0199 | 309. |
| .2290 | -804. | -1051. | -1916. | 465. | -459. | 649. | .0097 | -.0016 | -.0273 | -.0369 | -.0600 | -.0224 | 370. |
| .2300 | -1029. | -1077. | -2337. | 495. | -603. | 879. | .0136 | -.0013 | -.0343 | -.0513 | -.0721 | -.0229 | 472. |
| .2310 | -1272. | -1079. | -2566. | 596. | -826. | 1043. | .0163 | -.0002 | -.0399 | -.0644 | -.0812 | -.0218 | 585. |
| .2320 | -1422. | -1082. | -2668. | 766. | -1065. | 1114. | .0177 | .0015 | -.0439 | -.0764 | -.0876 | -.0204 | 691. |
| .2330 | -1447. | -1062. | -2670. | 961. | -1244. | 1069. | .0175 | .0038 | -.0461 | -.0871 | -.0915 | -.0190 | 763. |
| .2340 | -1414. | -972. | -2561. | 1118. | -1313. | 898. | .0157 | .0066 | -.0463 | -.0964 | -.0934 | -.0172 | 780. |
| .2350 | -1377. | -812. | -2376. | 1214. | -1266. | 638. | .0125 | .0098 | -.0446 | -.1044 | -.0942 | -.0144 | 749. |
| .2360 | -1355. | -625. | -2167. | 1265. | -1116. | 339. | .0084 | .0131 | -.0409 | -.1115 | -.0943 | -.0105 | 690. |
| .2370 | -1365. | -433. | -1922. | 1279. | -894. | 17. | .0039 | .0165 | -.0353 | -.1175 | -.0934 | -.0053 | 626. |
| .2380 | -1383. | -209. | -1596. | 1263. | -649. | -324. | -.0005 | .0198 | -.0281 | -.1220 | -.0905 | .0009 | 584. |
| .2390 | -1333. | 35. | -1190. | 1247. | -433. | -668. | -.0043 | .0229 | -.0197 | -.1249 | -.0855 | .0070 | 594. |
| .2400 | -1184. | 218. | -727. | 1271. | -268. | -1036. | -.0070 | .0256 | -.0109 | -.1260 | -.0787 | .0124 | 659. |
| .2410 | -964. | 311. | -216. | 1348. | -148. | -1328. | -.0087 | .0279 | -.0023 | -.1251 | -.0701 | .0170 | 762. |
| .2420 | -708. | 372. | 314. | 1474. | -53. | -1592. | -.0095 | .0296 | .0054 | -.1222 | -.0601 | .0211 | 871. |
| .2430 | -451. | 433. | 815. | 1639. | 41. | -1760. | -.0096 | .0308 | .0116 | -.1175 | -.0493 | .0250 | 965. |
| .2440 | -234. | 434. | 1261. | 1816. | 161. | -1856. | -.0092 | .0314 | .0161 | -.1111 | -.0377 | .0289 | 1044. |
| .2450 | -33. | 340. | 1599. | 1969. | 309. | -1912. | -.0083 | .0313 | .0188 | -.1038 | -.0258 | .0321 | 1108. |
| .2460 | 223. | 216. | 1764. | 2034. | 468. | -1932. | -.0066 | .0304 | .0197 | -.0967 | -.0142 | .0337 | 1147. |
| .2470 | 509. | 111. | 1719. | 2026. | 616. | -1908. | -.0043 | .0290 | .0188 | -.0908 | -.0032 | .0340 | 1144. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.35.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
2 SAFETY COLD FKW24F--2 PSVCONDITION 24
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

| | | | | | | | | | | | | | |
|-------|--------|-------|--------|-------|--------|--------|--------|-------|--------|--------|--------|--------|-------|
| .2360 | -1355. | -525. | -2167. | 1265. | -1116. | 339. | .0084 | .0131 | -.0409 | -.1115 | -.0943 | -.0105 | 690. |
| .2370 | -1365. | -433. | -1922. | 1279. | -894. | 17. | .0039 | .0165 | -.0353 | -.1175 | -.0934 | -.0053 | 626. |
| .2380 | -1383. | -209. | -1596. | 1263. | -649. | -324. | -.0005 | .0198 | -.0281 | -.1220 | -.0905 | .0009 | 584. |
| .2390 | -1333. | 35. | -1190. | 1247. | -433. | -668. | -.0043 | .0229 | -.0197 | -.1249 | -.0855 | .0070 | 594. |
| .2400 | -1184. | 218. | -727. | 1271. | -268. | -1006. | -.0070 | .0256 | -.0109 | -.1260 | -.0787 | .0124 | 659. |
| .2410 | -964. | 311. | -216. | 1348. | -148. | -1328. | -.0087 | .0279 | -.0023 | -.1251 | -.0701 | .0170 | 762. |
| .2420 | -708. | 372. | 314. | 1474. | -53. | -1592. | -.0095 | .0296 | .0054 | -.1222 | -.0601 | .0211 | 871. |
| .2430 | -451. | 433. | 815. | 1639. | 41. | -1760. | -.0096 | .0308 | .0116 | -.1175 | -.0493 | .0250 | 965. |
| .2440 | -234. | 434. | 1261. | 1816. | 161. | -1856. | -.0092 | .0314 | .0161 | -.1111 | -.0377 | .0289 | 1044. |
| .2450 | -33. | 340. | 1599. | 1969. | 309. | -1912. | -.0083 | .0313 | .0188 | -.1038 | -.0258 | .0321 | 1108. |
| .2460 | 223. | 216. | 1764. | 2054. | 468. | -1932. | -.0066 | .0304 | .0197 | -.0967 | -.0142 | .0337 | 1147. |
| .2470 | 509. | 111. | 1710. | 2026. | 616. | -1908. | -.0043 | .0290 | .0188 | -.0908 | -.0032 | .0340 | 1144. |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.27.35.

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

| SECTION | MEMBER | SEQUENCE | LOCATION | BEG | 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) | | |
| .2480 | 703. | 17. | 1500. | 1858. | 744. | -1855. | -.0017 | .0268 | .0165 | -.0861 | .0072 | .0343 | | 1095. |
| .2490 | 755. | -68. | 1224. | 1559. | 842. | -1784. | .0010 | .0241 | .0130 | -.0820 | .0168 | .0350 | | 1009. |
| .2500 | 748. | -153. | 892. | 1182. | 895. | -1689. | .0041 | .0209 | .0085 | -.0785 | .0249 | .0353 | | 902. |
| .2510 | 753. | -246. | 506. | 771. | 898. | -1575. | .0076 | .0174 | .0029 | -.0758 | .0306 | .0344 | | 790. |
| .2520 | 761. | -322. | 122. | 352. | 863. | -1451. | .0113 | .0136 | -.0034 | -.0735 | .0337 | .0323 | | 692. |
| .2530 | 727. | -368. | -201. | -49. | 811. | -1303. | .0152 | .0098 | -.0103 | -.0713 | .0344 | .0297 | | 616. |
| .2540 | 614. | -431. | -469. | -401. | 757. | -1115. | .0191 | .0061 | -.0173 | -.0691 | .0329 | .0271 | | 564. |
| .2550 | 433. | -547. | -724. | -686. | 704. | -888. | .0230 | .0026 | -.0242 | -.0676 | .0295 | .0246 | | 532. |
| .2560 | 228. | -702. | -1008. | -905. | 648. | -629. | .0269 | -.0006 | -.0307 | -.0674 | .0248 | .0220 | | 513. |
| .2570 | 33. | -889. | -1324. | -1060. | 584. | -355. | .0309 | -.0034 | -.0366 | -.0688 | .0190 | .0191 | | 506. |
| .2580 | -160. | -1045. | -1600. | -1176. | 509. | -91. | .0349 | -.0059 | -.0416 | -.0710 | .0125 | .0160 | | 515. |
| .2590 | -362. | -1121. | -1772. | -1279. | 421. | 149. | .0386 | -.0081 | -.0457 | -.0736 | .0058 | .0132 | | 544. |
| .2600 | -557. | -1200. | -1874. | -1353. | 323. | 365. | .0420 | -.0101 | -.0489 | -.0766 | -.0013 | .0106 | | 577. |
| .2610 | -725. | -1340. | -1958. | -1382. | 222. | 563. | .0452 | -.0121 | -.0515 | -.0800 | -.0091 | .0082 | | 606. |
| .2620 | -874. | -1444. | -2003. | -1398. | 122. | 740. | .0479 | -.0141 | -.0536 | -.0836 | -.0172 | .0062 | | 637. |
| .2630 | -1012. | -1436. | -1983. | -1437. | 23. | 894. | .0502 | -.0160 | -.0553 | -.0870 | -.0255 | .0048 | | 679. |
| .2640 | -1141. | -1366. | -1932. | -1510. | -80. | 1027. | .0520 | -.0179 | -.0568 | -.0903 | -.0342 | .0044 | | 733. |
| .2650 | -1256. | -1265. | -1887. | -1624. | -188. | 1139. | .0535 | -.0199 | -.0580 | -.0936 | -.0431 | .0048 | | 800. |
| .2660 | -1357. | -1148. | -1861. | -1774. | -308. | 1226. | .0547 | -.0218 | -.0591 | -.0969 | -.0519 | .0059 | | 874. |
| .2670 | -1440. | -993. | -1843. | -1956. | -443. | 1293. | .0557 | -.0236 | -.0600 | -.0998 | -.0605 | .0079 | | 958. |
| .2680 | -1507. | -772. | -1798. | -2186. | -593. | 1336. | .0564 | -.0253 | -.0606 | -.1021 | -.0688 | .0105 | | 1055. |
| .2690 | -1574. | -577. | -1739. | -2454. | -752. | 1341. | .0569 | -.0271 | -.0610 | -.1035 | -.0770 | .0139 | | 1162. |
| .2700 | -1644. | -490. | -1720. | -2735. | -911. | 1306. | .0570 | -.0286 | -.0612 | -.1045 | -.0850 | .0177 | | 1270. |
| .2710 | -1709. | -429. | -1762. | -3021. | -1056. | 1249. | .0567 | -.0299 | -.0612 | -.1050 | -.0925 | .0219 | | 1378. |
| .2720 | -1756. | -203. | -1823. | -3338. | -1175. | 1182. | .0559 | -.0304 | -.0611 | -.1049 | -.0988 | .0263 | | 1497. |
| .2730 | -1775. | 153. | -1388. | -3679. | -1262. | 1104. | .0544 | -.0305 | -.0606 | -.1039 | -.1035 | .0308 | | 1622. |
| .2740 | -1770. | 357. | -2004. | -3972. | -1327. | 1017. | .0523 | -.0306 | -.0599 | -.1022 | -.1072 | .0349 | | 1729. |
| .2750 | -1764. | 312. | -2143. | -4181. | -1388. | 930. | .0496 | -.0308 | -.0589 | -.0996 | -.1097 | .0383 | | 1807. |
| .2760 | -1766. | 290. | -2208. | -4342. | -1450. | 874. | .0463 | -.0308 | -.0573 | -.0954 | -.1107 | .0428 | | 1870. |
| .2770 | -1774. | 455. | -2170. | -4481. | -1505. | 880. | .0423 | -.0306 | -.0551 | -.0896 | -.1101 | .0469 | | 1929. |
| .2780 | -1820. | 591. | -2105. | -4573. | -1542. | 935. | .0378 | -.0304 | -.0524 | -.0826 | -.1084 | .0513 | | 1973. |
| .2790 | -1943. | 454. | -2088. | -4606. | -1551. | 1006. | .0326 | -.0303 | -.0493 | -.0751 | -.1059 | .0559 | | 1992. |
| .2800 | -2101. | 292. | -2110. | -4676. | -1517. | 1095. | .0269 | -.0300 | -.0459 | -.0675 | -.1025 | .0602 | | 2006. |
| .2810 | -2231. | 363. | -2152. | -4713. | -1418. | 1215. | .0208 | -.0294 | -.0424 | -.0597 | -.0982 | .0637 | | 2034. |
| .2820 | -2339. | 522. | -2228. | -4810. | -1247. | 1337. | .0145 | -.0287 | -.0390 | -.0519 | -.0932 | .0662 | | 2065. |
| .2830 | -2463. | 472. | -2349. | -4868. | -1030. | 1424. | .0082 | -.0281 | -.0360 | -.0440 | -.0875 | .0673 | | 2077. |
| .2840 | -2570. | 258. | -2472. | -4870. | -798. | 1484. | .0023 | -.0276 | -.0334 | -.0356 | -.0811 | .0682 | | 2068. |
| .2850 | -2662. | 147. | -2513. | -4873. | -574. | 1549. | -.0027 | -.0269 | -.0314 | -.0267 | -.0743 | .0670 | | 2051. |

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 | 32 | MEMBER | 1 | SEQUENCE | 56 | 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) | | |
| .2860 | -2571. | 169. | -2459. | -4768. | -376. | 1611. | -.0084 | -.0259 | -.0298 | -.0171 | -.0570 | .0643 | 2025. | | |
| .2870 | -2510. | 126. | -2343. | -4637. | -218. | 1644. | -.0085 | -.0247 | -.0287 | -.0075 | -.0598 | .0604 | 1976. | | |
| .2880 | -2405. | -19. | -2228. | -4455. | -103. | 1650. | -.0088 | -.0234 | -.0281 | .0014 | -.0530 | .0551 | 1907. | | |
| .2890 | -2230. | -115. | -2127. | -4267. | -12. | 1647. | -.0070 | -.0217 | -.0281 | .0091 | -.0473 | .0484 | 1835. | | |
| .2900 | -2004. | -111. | -2040. | -4089. | 81. | 1634. | -.0033 | -.0197 | -.0286 | .0157 | -.0430 | .0405 | 1767. | | |
| .2910 | -1755. | -93. | -1977. | -3903. | 186. | 1601. | .0021 | -.0173 | -.0295 | .0211 | -.0404 | .0316 | 1695. | | |
| .2920 | -1477. | -85. | -1932. | -3700. | 302. | 1548. | .0088 | -.0149 | -.0308 | .0255 | -.0397 | .0221 | 1614. | | |
| .2930 | -1158. | -41. | -1868. | -3479. | 421. | 1481. | .0164 | -.0123 | -.0322 | .0294 | -.0403 | .0123 | 1527. | | |
| .2940 | -814. | 7. | -1758. | -3212. | 529. | 1403. | .0245 | -.0098 | -.0336 | .0330 | -.0416 | .0026 | 1423. | | |
| .2950 | -482. | 8. | -1597. | -2870. | 600. | 1320. | .0324 | -.0073 | -.0347 | .0367 | -.0426 | -.0064 | 1290. | | |
| .2960 | -172. | 24. | -1370. | -2464. | 611. | 1236. | .0398 | -.0047 | -.0351 | .0405 | -.0425 | -.0139 | 1133. | | |
| .2970 | 120. | 124. | -1074. | -2025. | 561. | 1148. | .0460 | -.0023 | -.0346 | .0445 | -.0405 | -.0198 | 961. | | |
| .2980 | 384. | 222. | -750. | -1558. | 468. | 1047. | .0508 | -.0001 | -.0332 | .0485 | -.0368 | -.0239 | 776. | | |
| .2990 | 598. | 212. | -433. | -1055. | 354. | 928. | .0537 | .0016 | -.0310 | .0526 | -.0314 | -.0260 | 581. | | |
| .3000 | 756. | 163. | -110. | -540. | 244. | 796. | .0546 | .0027 | -.0278 | .0569 | -.0247 | -.0262 | 398. | | |
| .3010 | 882. | 197. | 244. | -44. | 166. | 660. | .0536 | .0034 | -.0236 | .0619 | -.0170 | -.0246 | 274. | | |
| .3020 | 989. | 259. | 610. | 434. | 142. | 520. | .0507 | .0035 | -.0188 | .0674 | -.0089 | -.0217 | 278. | | |
| .3030 | 1060. | 209. | 958. | 912. | 165. | 371. | .0464 | .0029 | -.0132 | .0734 | -.0008 | -.0173 | 401. | | |
| .3040 | 1087. | 83. | 1295. | 1380. | 207. | 231. | .0410 | .0016 | -.0070 | .0795 | .0072 | -.0118 | 567. | | |
| .3050 | 1083. | 29. | 1641. | 1611. | 251. | 123. | .0348 | -.0001 | -.0004 | .0856 | .0154 | -.0051 | 735. | | |
| .3060 | 1060. | 41. | 1973. | 2201. | 290. | 44. | .0284 | -.0022 | .0065 | .0913 | .0236 | .0022 | 891. | | |
| .3070 | 1023. | -13. | 2250. | 2559. | 321. | -32. | .0219 | -.0048 | .0134 | .0961 | .0315 | .0099 | 1035. | | |
| .3080 | 980. | -163. | 2456. | 2876. | 342. | -119. | .0157 | -.0079 | .0199 | .0999 | .0389 | .0173 | 1163. | | |
| .3090 | 985. | -304. | 2609. | 3131. | 363. | -217. | .0099 | -.0112 | .0257 | .1027 | .0454 | .0239 | 1268. | | |
| .3100 | 1018. | -397. | 2708. | 3320. | 406. | -331. | .0046 | -.0146 | .0305 | .1044 | .0504 | .0291 | 1349. | | |
| .3110 | 1077. | -493. | 2733. | 3456. | 481. | -470. | -.0001 | -.0178 | .0342 | .1049 | .0539 | .0331 | 1413. | | |
| .3120 | 1154. | -602. | 2672. | 3537. | 578. | -627. | -.0043 | -.0209 | .0367 | .1043 | .0556 | .0357 | 1460. | | |
| .3130 | 1231. | -684. | 2535. | 3552. | 682. | -783. | -.0078 | -.0235 | .0382 | .1025 | .0558 | .0372 | 1485. | | |
| .3140 | 1281. | -748. | 2326. | 3508. | 781. | -923. | -.0108 | -.0256 | .0387 | .0994 | .0547 | .0379 | 1489. | | |
| .3150 | 1284. | -827. | 2042. | 3420. | 859. | -1036. | -.0133 | -.0271 | .0385 | .0951 | .0524 | .0379 | 1475. | | |
| .3160 | 1266. | -890. | 1705. | 3292. | 965. | -1117. | -.0154 | -.0281 | .0376 | .0898 | .0492 | .0372 | 1442. | | |
| .3170 | 1222. | -892. | 1358. | 3118. | 919. | -1165. | -.0171 | -.0283 | .0363 | .0841 | .0453 | .0358 | 1386. | | |
| .3180 | 1155. | -865. | 1032. | 2914. | 913. | -1187. | -.0188 | -.0279 | .0348 | .0785 | .0407 | .0337 | 1315. | | |
| .3190 | 1060. | -844. | 745. | 2701. | 894. | -1190. | -.0206 | -.0269 | .0330 | .0733 | .0353 | .0308 | 1238. | | |
| .3200 | 952. | -764. | 521. | 2476. | 865. | -1170. | -.0224 | -.0253 | .0311 | .0689 | .0292 | .0270 | 1153. | | |
| .3210 | 849. | -545. | 377. | 2223. | 831. | -1130. | -.0243 | -.0231 | .0293 | .0653 | .0229 | .0226 | 1055. | | |
| .3220 | 750. | -245. | 299. | 1948. | 795. | -1076. | -.0263 | -.0205 | .0279 | .0625 | .0167 | .0175 | 948. | | |
| .3230 | 645. | 12. | 249. | 1678. | 756. | -1014. | -.0282 | -.0177 | .0269 | .0601 | .0109 | .0120 | 843. | | |

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

CONDITION
LOADS
SHOCK
PRESSURE
ENGLISH UNITS

| | | | | | | | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|--------|------|
| .3500 | 927. | -399. | 1376. | 1741. | 113. | -196. | .050 | -.0517 | .0177 | .0196 | .0756 | -.0229 | 704. |
| .3510 | 906. | -344. | 1372. | 1629. | 62. | -291. | .052 | -.0490 | .0173 | .0151 | .0772 | -.0257 | 664. |
| .3520 | 901. | -268. | 1365. | 1471. | -5. | -374. | .060 | -.0462 | .0165 | .0107 | .0778 | -.0292 | 609. |
| .3530 | 907. | -179. | 1352. | 1274. | -88. | -431. | .0075 | -.0434 | .0154 | .0064 | .0774 | -.0333 | 541. |
| .3540 | 925. | -67. | 1326. | 1046. | -175. | -446. | .0096 | -.0406 | .0138 | .0024 | .0758 | -.0377 | 462. |
| .3550 | 959. | 68. | 1276. | 795. | -248. | -411. | .0121 | -.0379 | .0117 | -.0011 | .0730 | -.0426 | 373. |
| .3560 | 1002. | 209. | 1191. | 524. | -291. | -371. | .0150 | -.0354 | .0092 | -.0042 | .0691 | -.0475 | 274. |
| .3570 | 1048. | 329. | 1067. | 241. | -303. | -292. | .0179 | -.0331 | .0063 | -.0067 | .0645 | -.0522 | 175. |
| .3580 | 1090. | 418. | 905. | -50. | -289. | -34. | .0207 | -.0311 | .0032 | -.0086 | .0592 | -.0566 | 119. |
| .3590 | 1124. | 479. | 712. | -340. | -258. | 167. | .0231 | -.0294 | -.0000 | -.0100 | .0535 | -.0605 | 184. |
| .3500 | 1146. | 528. | 506. | -624. | -220. | 389. | .0250 | -.0278 | -.0031 | -.0108 | .0476 | -.0638 | 308. |
| .3610 | 1148. | 576. | 309. | -899. | -188. | 620. | .0260 | -.0263 | -.0058 | -.0110 | .0415 | -.0662 | 445. |

ADLPIPE PAGE 1373

DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02. 18.27.35.

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 | 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) |
|---------|--------|----------|----------|--------|-------|-------|------------|---------|---------|---------|------------|------------|------------|---------|---------|---------|----------|----------|----------|--------------|
| .3620 | 1118. | 621. | 140. | -1164. | -169. | 847. | .0262 | -.0249 | -.0080 | -.0106 | .0354 | -.0674 | 582. | | | | | | | |
| .3630 | 1044. | 650. | 7. | -1415. | -158. | 1062. | .0254 | -.0234 | -.0096 | -.0095 | .0290 | -.0675 | 713. | | | | | | | |
| .3640 | 922. | 551. | -104. | -1650. | -148. | 1258. | .0234 | -.0219 | -.0106 | -.0080 | .0222 | -.0663 | 835. | | | | | | | |
| .3650 | 750. | 635. | -209. | -1874. | -131. | 1430. | .0203 | -.0202 | -.0109 | -.0064 | .0151 | -.0639 | 947. | | | | | | | |
| .3660 | 532. | 616. | -321. | -2093. | -97. | 1572. | .0161 | -.0183 | -.0106 | -.0051 | .0078 | -.0604 | 1051. | | | | | | | |
| .3670 | 271. | 596. | -450. | -2309. | -44. | 1680. | .0110 | -.0162 | -.0097 | -.0040 | .0005 | -.0558 | 1146. | | | | | | | |
| .3680 | -26. | 557. | -603. | -2511. | 23. | 1759. | .0052 | -.0138 | -.0086 | -.0036 | -.0068 | -.0504 | 1230. | | | | | | | |
| .3690 | -353. | 484. | -778. | -2682. | 89. | 1811. | -.0011 | -.0112 | -.0072 | -.0037 | -.0137 | -.0442 | 1299. | | | | | | | |
| .3700 | -698. | 396. | -958. | -2814. | 138. | 1839. | -.0076 | -.0084 | -.0058 | -.0044 | -.0201 | -.0375 | 1350. | | | | | | | |
| .3710 | -1036. | 329. | -1122. | -2904. | 161. | 1843. | -.0139 | -.0054 | -.0046 | -.0055 | -.0257 | -.0306 | 1382. | | | | | | | |
| .3720 | -1345. | 292. | -1255. | -2952. | 150. | 1827. | -.0196 | -.0023 | -.0037 | -.0070 | -.0305 | -.0240 | 1394. | | | | | | | |
| .3730 | -1618. | 248. | -1361. | -2958. | 102. | 1793. | -.0244 | .0006 | -.0033 | -.0088 | -.0347 | -.0177 | 1389. | | | | | | | |
| .3740 | -1852. | 169. | -1455. | -2923. | 22. | 1746. | -.0281 | .0033 | -.0035 | -.0111 | -.0383 | -.0122 | 1366. | | | | | | | |
| .3750 | -2032. | 94. | -1550. | -2863. | -76. | 1694. | -.0305 | .0057 | -.0043 | -.0141 | -.0416 | -.0077 | 1335. | | | | | | | |
| .3760 | -2144. | 75. | -1649. | -2799. | -174. | 1644. | -.0314 | .0076 | -.0057 | -.0176 | -.0447 | -.0042 | 1304. | | | | | | | |
| .3770 | -2193. | 100. | -1752. | -2740. | -263. | 1599. | -.0307 | .0089 | -.0076 | -.0217 | -.0477 | -.0019 | 1278. | | | | | | | |
| .3780 | -2191. | 121. | -1855. | -2685. | -343. | 1564. | -.0286 | .0096 | -.0099 | -.0263 | -.0509 | -.0005 | 1255. | | | | | | | |
| .3790 | -2144. | 125. | -1947. | -2626. | -416. | 1544. | -.0251 | .0094 | -.0124 | -.0311 | -.0540 | .0000 | 1234. | | | | | | | |
| .3800 | -2051. | 134. | -2011. | -2558. | -485. | 1538. | -.0206 | .0084 | -.0150 | -.0359 | -.0570 | -.0003 | 1213. | | | | | | | |
| .3810 | -1917. | 131. | -2039. | -2470. | -552. | 1536. | -.0153 | .0067 | -.0175 | -.0405 | -.0596 | -.0013 | 1188. | | | | | | | |
| .3820 | -1745. | 132. | -2013. | -2364. | -625. | 1533. | -.0096 | .0044 | -.0197 | -.0445 | -.0613 | -.0026 | 1158. | | | | | | | |
| .3830 | -1545. | 145. | -1929. | -2241. | -704. | 1529. | -.0040 | .0015 | -.0215 | -.0479 | -.0620 | -.0041 | 1125. | | | | | | | |
| .3840 | -1338. | 132. | -1805. | -2091. | -780. | 1520. | .0012 | -.0018 | -.0227 | -.0506 | -.0614 | -.0055 | 1083. | | | | | | | |
| .3850 | -1136. | 99. | -1655. | -1914. | -843. | 1504. | .0057 | -.0054 | -.0233 | -.0526 | -.0594 | -.0065 | 1034. | | | | | | | |
| .3860 | -938. | 96. | -1481. | -1726. | -883. | 1487. | .0090 | -.0091 | -.0231 | -.0538 | -.0558 | -.0068 | 980. | | | | | | | |
| .3870 | -751. | 108. | -1288. | -1534. | -892. | 1467. | .0111 | -.0130 | -.0221 | -.0540 | -.0506 | -.0064 | 924. | | | | | | | |
| .3880 | -594. | 39. | -1095. | -1329. | -867. | 1444. | .0118 | -.0169 | -.0204 | -.0534 | -.0440 | -.0051 | 861. | | | | | | | |
| .3890 | -478. | -146. | -917. | -1101. | -814. | 1417. | .0112 | -.0207 | -.0179 | -.0519 | -.0361 | -.0028 | 791. | | | | | | | |
| .3900 | -390. | -343. | -747. | -864. | -740. | 1391. | .0093 | -.0240 | -.0148 | -.0495 | -.0271 | .0003 | 721. | | | | | | | |
| .3910 | -316. | -448. | -574. | -639. | -647. | 1369. | .0064 | -.0265 | -.0111 | -.0461 | -.0172 | .0044 | 659. | | | | | | | |
| .3920 | -266. | -493. | -403. | -431. | -543. | 1344. | .0027 | -.0280 | -.0072 | -.0419 | -.0068 | .0092 | 607. | | | | | | | |
| .3930 | -256. | -568. | -250. | -235. | -441. | 1305. | -.0016 | -.0287 | -.0030 | -.0370 | .0036 | .0147 | 561. | | | | | | | |
| .3940 | -280. | -676. | -121. | -60. | -350. | 1248. | -.0064 | -.0284 | .0010 | -.0317 | .0137 | .0207 | 521. | | | | | | | |
| .3950 | -307. | -737. | -19. | 74. | -265. | 1170. | -.0112 | -.0272 | .0048 | -.0262 | .0233 | .0266 | 482. | | | | | | | |
| .3960 | -314. | -730. | 50. | 158. | -182. | 1060. | -.0159 | -.0249 | .0082 | -.0205 | .0321 | .0322 | 436. | | | | | | | |
| .3970 | -302. | -718. | 76. | 197. | -100. | 911. | -.0203 | -.0219 | .0110 | -.0150 | .0400 | .0372 | 376. | | | | | | | |
| .3980 | -282. | -739. | 56. | 199. | -25. | 729. | -.0243 | -.0181 | .0133 | -.0097 | .0466 | .0415 | 303. | | | | | | | |
| .3990 | -262. | -765. | -7. | 168. | 40. | 531. | -.0277 | -.0136 | .0149 | -.0048 | .0519 | .0453 | 224. | | | | | | | |

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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

| | | | | | | | | | | | | | |
|-------|-------|-------|-------|--------|-------|-------|--------|--------|--------|--------|--------|--------|------|
| .3890 | -478. | -146. | -917. | -1101. | -814. | 1417. | .112 | -.0207 | -.0179 | -.0519 | -.0361 | -.0028 | 791. |
| .3900 | -390. | -343. | -747. | -864. | -740. | 1391. | .093 | -.0240 | -.0148 | -.0495 | -.0271 | .0003 | 721. |
| .3910 | -316. | -448. | -574. | -639. | -647. | 1369. | .0064 | -.0265 | -.0111 | -.0461 | -.0172 | .0044 | 659. |
| .3920 | -266. | -493. | -403. | -471. | -543. | 1344. | .0027 | -.0280 | -.0072 | -.0419 | -.0068 | .0092 | 607. |
| .3930 | -256. | -568. | -250. | -235. | -441. | 1305. | -.0016 | -.0287 | -.0030 | -.0370 | .0036 | .0147 | 561. |
| .3940 | -280. | -676. | -121. | -60. | -350. | 1248. | -.0064 | -.0284 | .0010 | -.0317 | .0137 | .0207 | 521. |
| .3950 | -307. | -737. | -19. | 74. | -265. | 1170. | -.0112 | -.0272 | .0048 | -.0262 | .0233 | .0266 | 482. |
| .3960 | -314. | -730. | 50. | 158. | -182. | 1060. | -.0159 | -.0249 | .0082 | -.0205 | .0321 | .0322 | 436. |
| .3970 | -302. | -718. | 76. | 197. | -100. | 911. | -.0203 | -.0219 | .0110 | -.0150 | .0400 | .0372 | 376. |
| .3980 | -282. | -739. | 56. | 199. | -25. | 729. | -.0243 | -.0181 | .0133 | -.0097 | .0466 | .0415 | 303. |
| .3990 | -262. | -765. | -7. | 168. | 40. | 531. | -.0277 | -.0136 | .0149 | -.0048 | .0519 | .0453 | 224. |

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ADLPIPE STRESS ANALYSIS

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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 | 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) | (IN) | (IN) | (IN) | (DEG) | (DEG) | (DEG) | (PSI) |
| .4000 | -240. | -743. | -103. | 111. | 94. | 332. | -.0304 | -.0086 | .0158 | -.0005 | .0557 | .0484 | | | | | | | 145. |

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) |
| .1600 | -726. | 932. | -3242. | -6446. | -263. | 2052. | -.0319 | .0574 | .0486 | .0316 | .0876 | .0435 | 2717. |

| SECTION | MEMBER | SEQUENCE | LOCATION | DIS | TYPE | RU | 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) | (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 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0. |
| .0010 | 0. | 0. | 0. | 0. | 0. | 0. | .0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0020 | 0. | 0. | 1. | 0. | 0. | 0. | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0030 | 2. | 0. | 4. | 0. | 0. | 0. | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0040 | 8. | 0. | 14. | 0. | 0. | 0. | -.0001 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0050 | 20. | 0. | 37. | 0. | 0. | 0. | -.0002 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0060 | 43. | 0. | 80. | 0. | 0. | 0. | -.0005 | -.0001 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0070 | 81. | 0. | 150. | 0. | 0. | 0. | -.0009 | -.0001 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0080 | 138. | 0. | 253. | 0. | 0. | 0. | -.0015 | -.0002 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0090 | 215. | 0. | 395. | 0. | 0. | 0. | -.0024 | -.0003 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0100 | 313. | 0. | 576. | 0. | 0. | 0. | -.0038 | -.0004 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0110 | 430. | 0. | 791. | 0. | 0. | 0. | -.0058 | -.0006 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0120 | 559. | 0. | 1030. | 0. | 0. | 0. | -.0082 | -.0008 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0130 | 695. | 0. | 1280. | 0. | 0. | 0. | -.0110 | -.0010 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0140 | 827. | 0. | 1524. | 0. | 0. | 0. | -.0138 | -.0013 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0150 | 943. | 0. | 1737. | 0. | 0. | 0. | -.0162 | -.0016 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0160 | 1022. | 0. | 1882. | 0. | 0. | 0. | -.0177 | -.0019 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0170 | 1034. | 0. | 1904. | 0. | 0. | 0. | -.0178 | -.0021 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0180 | 941. | 0. | 1733. | 0. | 0. | 0. | -.0159 | -.0022 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0190 | 703. | 0. | 1295. | 0. | 0. | 0. | -.0120 | -.0021 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0200 | 295. | 0. | 542. | 0. | 0. | 0. | -.0060 | -.0019 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | -.0000 | 0. |
| .0210 | -283. | 0. | -522. | 0. | 0. | 0. | .0017 | -.0015 | .0000 | .0000 | .0000 | .0000 | .0000 | .0000 | .0000 | .0000 | .0000 | .0000 | 0. |
| .0220 | -987. | 0. | -1813. | 0. | 0. | 0. | .0097 | -.0010 | .0000 | .0000 | .0000 | .0000 | .0000 | .0000 | .0000 | .0000 | .0000 | .0000 | 0. |
| .0230 | -1721. | 0. | -3169. | 0. | 0. | 0. | .0177 | -.0006 | .0160 | .0129 | .0783 | -.0238 | | | | | | | 0. |

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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

| | | | | | | | | | | | | | | |
|-------|--------|----|--------|----|----|----|----|--------|--------|--------|--------|-------|--------|----|
| .0120 | 559. | 0. | 1280. | 0. | 0. | 0. | 0. | -.0082 | -.0002 | -.0039 | -.0062 | .0060 | .0158 | 0. |
| .0130 | 695. | 0. | 1524. | 0. | 0. | 0. | 0. | -.0110 | -.0010 | -.0044 | -.0077 | .0117 | .0183 | 0. |
| .0140 | 827. | 0. | 1524. | 0. | 0. | 0. | 0. | -.0138 | -.0013 | -.0048 | -.0103 | .0189 | .0188 | 0. |
| .0150 | 943. | 0. | 1737. | 0. | 0. | 0. | 0. | -.0162 | -.0016 | -.0053 | -.0138 | .0269 | .0172 | 0. |
| .0160 | 1022. | 0. | 1882. | 0. | 0. | 0. | 0. | -.0177 | -.0019 | -.0056 | -.0172 | .0347 | .0138 | 0. |
| .0170 | 1034. | 0. | 1904. | 0. | 0. | 0. | 0. | -.0178 | -.0021 | -.0058 | -.0190 | .0410 | .0090 | 0. |
| .0180 | 941. | 0. | 1733. | 0. | 0. | 0. | 0. | -.0159 | -.0022 | -.0054 | -.0180 | .0454 | .0030 | 0. |
| .0190 | 703. | 0. | 1295. | 0. | 0. | 0. | 0. | -.0120 | -.0021 | -.0040 | -.0138 | .0484 | -.0040 | 0. |
| .0200 | 295. | 0. | 542. | 0. | 0. | 0. | 0. | -.0060 | -.0019 | -.0012 | -.0071 | .0508 | -.0117 | 0. |
| .0210 | -283. | 0. | -522. | 0. | 0. | 0. | 0. | .0017 | -.0015 | .0033 | .0007 | .0548 | -.0187 | 0. |
| .0220 | -987. | 0. | -1818. | 0. | 0. | 0. | 0. | .0097 | -.0010 | .0094 | .0086 | .0550 | -.0219 | 0. |
| .0230 | -1721. | 0. | -3169. | 0. | 0. | 0. | 0. | .0177 | -.0006 | .0160 | .0129 | .0783 | -.0238 | 0. |

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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
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ENGLISH UNITS

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

| SECTION | 32 | MEMBER | 1 | SEQUENCE | 57 | LOCATION | DIS | 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) | | |
| .0240 | -2369. | 0. | -4363. | 0. | 0. | 0. | .0255 | -.0005 | .0215 | .0108 | .0872 | -.0295 | 0. | | |
| .0250 | -2859. | 0. | -5265. | 0. | 0. | 0. | .0330 | -.0004 | .0247 | .0063 | .0856 | -.0400 | 0. | | |
| .0260 | -3188. | 0. | -5871. | 0. | 0. | 0. | .0389 | -.0001 | .0264 | .0094 | .0774 | -.0473 | 0. | | |
| .0270 | -3381. | 0. | -6227. | 0. | 0. | 0. | .0420 | .0008 | .0276 | .0233 | .0732 | -.0455 | 0. | | |
| .0280 | -3436. | 0. | -6328. | 0. | 0. | 0. | .0443 | .0021 | .0272 | .0343 | .0659 | -.0455 | 0. | | |
| .0290 | -3403. | 0. | -6266. | 0. | 0. | 0. | .0471 | .0036 | .0252 | .0354 | .0443 | -.0541 | 0. | | |
| .0300 | -3407. | 0. | -6275. | 0. | 0. | 0. | .0472 | .0049 | .0251 | .0414 | .0249 | -.0523 | 0. | | |
| .0310 | -3467. | 0. | -6385. | 0. | 0. | 0. | .0439 | .0060 | .0278 | .0526 | .0143 | -.0367 | 0. | | |
| .0320 | -3467. | 0. | -6385. | 0. | 0. | 0. | .0389 | .0070 | .0306 | .0530 | .0023 | -.0228 | 0. | | |
| .0330 | -3304. | 0. | -6085. | 0. | 0. | 0. | .0322 | .0080 | .0318 | .0391 | -.0100 | -.0162 | 0. | | |
| .0340 | -2915. | 0. | -5368. | 0. | 0. | 0. | .0227 | .0091 | .0311 | .0217 | -.0169 | -.0101 | 0. | | |
| .0350 | -2254. | 0. | -4151. | 0. | 0. | 0. | .0112 | .0101 | .0275 | .0088 | -.0268 | -.0035 | 0. | | |
| .0360 | -1339. | 0. | -2467. | 0. | 0. | 0. | -.0006 | .0112 | .0203 | .0034 | -.0463 | .0021 | 0. | | |
| .0370 | -289. | 0. | -532. | 0. | 0. | 0. | -.0125 | .0123 | .0111 | .0070 | -.0641 | .0098 | 0. | | |
| .0380 | 728. | 0. | 1341. | 0. | 0. | 0. | -.0228 | .0135 | .0015 | .0134 | -.0714 | .0162 | 0. | | |
| .0390 | 1577. | 0. | 2903. | 0. | 0. | 0. | -.0287 | .0145 | -.0079 | .0114 | -.0787 | .0117 | 0. | | |
| .0400 | 2206. | 0. | 4062. | 0. | 0. | 0. | -.0308 | .0148 | -.0161 | .0004 | -.0940 | .0043 | 0. | | |
| .0410 | 2555. | 0. | 4705. | 0. | 0. | 0. | -.0327 | .0141 | -.0203 | -.0039 | -.1009 | .0141 | 0. | | |
| .0420 | 2728. | 0. | 5025. | 0. | 0. | 0. | -.0346 | .0127 | -.0219 | -.0063 | -.0998 | .0343 | 0. | | |
| .0430 | 2740. | 0. | 5046. | 0. | 0. | 0. | -.0344 | .0115 | -.0222 | -.0123 | -.1022 | .0393 | 0. | | |
| .0440 | 2730. | 0. | 5028. | 0. | 0. | 0. | -.0333 | .0103 | -.0226 | -.0234 | -.1057 | .0303 | 0. | | |
| .0450 | 2730. | 0. | 5027. | 0. | 0. | 0. | -.0336 | .0085 | -.0225 | -.0293 | -.1009 | .0227 | 0. | | |
| .0460 | 2709. | 0. | 4989. | 0. | 0. | 0. | -.0343 | .0063 | -.0217 | -.0261 | -.0933 | .0184 | 0. | | |
| .0470 | 2681. | 0. | 4938. | 0. | 0. | 0. | -.0337 | .0039 | -.0217 | -.0221 | -.0941 | .0127 | 0. | | |
| .0480 | 2616. | 0. | 4817. | 0. | 0. | 0. | -.0321 | .0012 | -.0215 | -.0194 | -.0957 | .0097 | 0. | | |
| .0490 | 2400. | 0. | 4421. | 0. | 0. | 0. | -.0305 | -.0014 | -.0192 | -.0111 | -.0834 | .0132 | 0. | | |
| .0500 | 2031. | 0. | 3741. | 0. | 0. | 0. | -.0285 | -.0036 | -.0148 | -.0002 | -.0605 | .0166 | 0. | | |
| .0510 | 1558. | 0. | 2870. | 0. | 0. | 0. | -.0260 | -.0053 | -.0091 | .0085 | -.0366 | .0130 | 0. | | |
| .0520 | 1014. | 0. | 1868. | 0. | 0. | 0. | -.0238 | -.0071 | -.0022 | .0162 | -.0126 | .0060 | 0. | | |
| .0530 | 428. | 0. | 788. | 0. | 0. | 0. | -.0225 | -.0090 | .0058 | .0248 | .0124 | .0010 | 0. | | |
| .0540 | -153. | 0. | -281. | 0. | 0. | 0. | -.0218 | -.0105 | .0141 | .0317 | .0358 | -.0008 | 0. | | |
| .0550 | -685. | 0. | -1262. | 0. | 0. | 0. | -.0210 | -.0112 | .0216 | .0345 | .0563 | -.0013 | 0. | | |
| .0560 | -1167. | 0. | -2149. | 0. | 0. | 0. | -.0196 | -.0114 | .0280 | .0353 | .0747 | -.0032 | 0. | | |
| .0570 | -1630. | 0. | -3001. | 0. | 0. | 0. | -.0168 | -.0111 | .0334 | .0394 | .0919 | -.0086 | 0. | | |
| .0580 | -2100. | 0. | -3868. | 0. | 0. | 0. | -.0123 | -.0097 | .0380 | .0481 | .1075 | -.0189 | 0. | | |
| .0590 | -2585. | 0. | -4760. | 0. | 0. | 0. | -.0056 | -.0074 | .0416 | .0577 | .1205 | -.0332 | 0. | | |
| .0600 | -3095. | 0. | -5699. | 0. | 0. | 0. | .0029 | -.0046 | .0445 | .0663 | .1317 | -.0469 | 0. | | |
| .0610 | -3612. | 0. | -6651. | 0. | 0. | 0. | .0121 | -.0019 | .0472 | .0739 | .1406 | -.0533 | 0. | | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.27.36.

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

| | | | | | | | | | | | | | |
|-------|--------|----|--------|----|----|----|--------|--------|--------|-------|--------|--------|----|
| .0510 | 1558. | 0. | 2870. | 0. | 0. | 0. | -.0260 | -.0053 | -.0091 | .0085 | -.0366 | .0130 | 0. |
| .0520 | 1014. | 0. | 1868. | 0. | 0. | 0. | -.0238 | -.0071 | -.0022 | .0162 | -.0126 | .0060 | 0. |
| .0530 | 428. | 0. | 788. | 0. | 0. | 0. | -.0225 | -.0090 | .0058 | .0248 | .0124 | .0010 | 0. |
| .0540 | -153. | 0. | -281. | 0. | 0. | 0. | -.0218 | -.0105 | .0141 | .0317 | .0358 | -.0008 | 0. |
| .0550 | -685. | 0. | -1262. | 0. | 0. | 0. | -.0210 | -.0112 | .0216 | .0345 | .0563 | -.0013 | 0. |
| .0560 | -1167. | 0. | -2149. | 0. | 0. | 0. | -.0196 | -.0114 | .0280 | .0353 | .0747 | -.0032 | 0. |
| .0570 | -1630. | 0. | -3001. | 0. | 0. | 0. | -.0168 | -.0111 | .0334 | .0394 | .0919 | -.0080 | 0. |
| .0580 | -2100. | 0. | -3868. | 0. | 0. | 0. | -.0123 | -.0097 | .0380 | .0481 | .1075 | -.0189 | 0. |
| .0590 | -2585. | 0. | -4760. | 0. | 0. | 0. | -.0056 | -.0074 | .0416 | .0577 | .1205 | -.0332 | 0. |
| .0600 | -3095. | 0. | -5699. | 0. | 0. | 0. | .0029 | -.0046 | .0445 | .0663 | .1317 | -.0469 | 0. |
| .0610 | -3612. | 0. | -6651. | 0. | 0. | 0. | .0121 | -.0019 | .0472 | .0739 | .1406 | -.0533 | 0. |

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DIS/ADLPIPE

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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 | DIS | 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) | |
| .0620 | -4095. | 0. | -7542. | 0. | 0. | 0. | .0209 | .0011 | .0497 | .0808 | .1453 | -.0512 | 0. | |
| .0630 | -4491. | 0. | -8270. | 0. | 0. | 0. | .0285 | .0044 | .0515 | .0848 | .1432 | -.0460 | 0. | |
| .0640 | -4732. | 0. | -8715. | 0. | 0. | 0. | .0343 | .0076 | .0519 | .0839 | .1352 | -.0431 | 0. | |
| .0650 | -4746. | 0. | -8740. | 0. | 0. | 0. | .0376 | .0106 | .0503 | .0772 | .1254 | -.0433 | 0. | |
| .0660 | -4509. | 0. | -8303. | 0. | 0. | 0. | .0385 | .0137 | .0463 | .0676 | .1160 | -.0460 | 0. | |
| .0670 | -4052. | 0. | -7462. | 0. | 0. | 0. | .0374 | .0167 | .0401 | .0606 | .1060 | -.0487 | 0. | |
| .0680 | -3451. | 0. | -6355. | 0. | 0. | 0. | .0347 | .0190 | .0326 | .0618 | .0963 | -.0465 | 0. | |
| .0690 | -2786. | 0. | -5130. | 0. | 0. | 0. | .0307 | .0202 | .0248 | .0702 | .0890 | -.0388 | 0. | |
| .0700 | -2112. | 0. | -3889. | 0. | 0. | 0. | .0265 | .0204 | .0171 | .0772 | .0818 | -.0319 | 0. | |
| .0710 | -1478. | 0. | -2721. | 0. | 0. | 0. | .0224 | .0177 | .0098 | .0785 | .0741 | -.0284 | 0. | |
| .0720 | -921. | 0. | -1696. | 0. | 0. | 0. | .0173 | .0197 | .0043 | .0773 | .0588 | -.0236 | 0. | |
| .0730 | -429. | 0. | -791. | 0. | 0. | 0. | .0109 | .0148 | .0005 | .0742 | .0541 | -.0170 | 0. | |
| .0740 | 50. | 0. | 92. | 0. | 0. | 0. | .0046 | .0114 | -.0032 | .0651 | .0513 | -.0145 | 0. | |
| .0750 | 548. | 0. | 1008. | 0. | 0. | 0. | -.0011 | .0075 | -.0076 | .0514 | .0285 | -.0159 | 0. | |
| .0760 | 1051. | 0. | 1936. | 0. | 0. | 0. | -.0065 | .0031 | -.0121 | .0408 | .0021 | -.0147 | 0. | |
| .0770 | 1535. | 0. | 2826. | 0. | 0. | 0. | -.0112 | -.0016 | -.0168 | .0363 | -.0230 | -.0098 | 0. | |
| .0780 | 1964. | 0. | 3616. | 0. | 0. | 0. | -.0144 | -.0059 | -.0215 | .0358 | -.0456 | -.0052 | 0. | |
| .0790 | 2289. | 0. | 4216. | 0. | 0. | 0. | -.0161 | -.0097 | -.0254 | .0379 | -.0611 | -.0025 | 0. | |
| .0800 | 2479. | 0. | 4565. | 0. | 0. | 0. | -.0168 | -.0132 | -.0278 | .0405 | -.0560 | -.0012 | 0. | |
| .0810 | 2544. | 0. | 4685. | 0. | 0. | 0. | -.0164 | -.0161 | -.0290 | .0394 | -.0540 | -.0027 | 0. | |
| .0820 | 2514. | 0. | 4630. | 0. | 0. | 0. | -.0153 | -.0182 | -.0292 | .0345 | -.0601 | -.0056 | 0. | |
| .0830 | 2411. | 0. | 4440. | 0. | 0. | 0. | -.0142 | -.0193 | -.0282 | .0306 | -.0548 | -.0041 | 0. | |
| .0840 | 2260. | 0. | 4162. | 0. | 0. | 0. | -.0134 | -.0195 | -.0264 | .0288 | -.0503 | .0013 | 0. | |
| .0850 | 2073. | 0. | 3818. | 0. | 0. | 0. | -.0116 | -.0188 | -.0246 | .0262 | -.0527 | .0040 | 0. | |
| .0860 | 1812. | 0. | 3337. | 0. | 0. | 0. | -.0082 | -.0171 | -.0225 | .0235 | -.0519 | .0015 | 0. | |
| .0870 | 1407. | 0. | 2591. | 0. | 0. | 0. | -.0036 | -.0144 | -.0190 | .0245 | -.0708 | -.0023 | 0. | |
| .0880 | 827. | 0. | 1516. | 0. | 0. | 0. | .0023 | -.0110 | -.0135 | .0284 | -.0761 | -.0054 | 0. | |
| .0890 | 87. | 0. | 160. | 0. | 0. | 0. | .0095 | -.0072 | -.0065 | .0308 | -.0788 | -.0083 | 0. | |
| .0900 | -725. | 0. | -1334. | 0. | 0. | 0. | .0168 | -.0030 | .0017 | .0300 | -.0785 | -.0085 | 0. | |
| .0910 | -1486. | 0. | -2736. | 0. | 0. | 0. | .0225 | .0012 | .0099 | .0266 | -.0739 | -.0042 | 0. | |
| .0920 | -2050. | 0. | -3776. | 0. | 0. | 0. | .0253 | .0053 | .0168 | .0206 | -.0569 | .0020 | 0. | |
| .0930 | -2302. | 0. | -4240. | 0. | 0. | 0. | .0247 | .0094 | .0209 | .0125 | -.0598 | .0057 | 0. | |
| .0940 | -2200. | 0. | -4051. | 0. | 0. | 0. | .0206 | .0136 | .0216 | .0035 | -.0521 | .0048 | 0. | |
| .0950 | -1773. | 0. | -3266. | 0. | 0. | 0. | .0138 | .0176 | .0189 | -.0052 | -.0431 | .0015 | 0. | |
| .0960 | -1112. | 0. | -2048. | 0. | 0. | 0. | .0056 | .0214 | .0135 | -.0134 | -.0336 | -.0008 | 0. | |
| .0970 | -332. | 0. | -611. | 0. | 0. | 0. | -.0027 | .0251 | .0064 | -.0215 | -.0237 | .0011 | 0. | |
| .0980 | 470. | 0. | 866. | 0. | 0. | 0. | -.0100 | .0287 | -.0016 | -.0305 | -.0125 | .0076 | 0. | |
| .0990 | 1247. | 0. | 2297. | 0. | 0. | 0. | -.0154 | .0325 | -.0102 | -.0419 | .0003 | .0165 | 0. | |

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DIS/ADLPIPE

ADLPIPE STRESS ANALYSIS

83/12/02.

18.27.36.

S/RV PIPING KEWAUNEE GKW08F 2 RUP DISK
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CONDITION 24
LOADS
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INTERNAL FORCES IN THE PIPING
FORCES AND MOMENTS ACT ON THE PIPING