

ISOPARAMETRIC (PLANE STRAIN) ELEMENT (TOTAL)

| ELEMENT | SIGMA-X | SIGMA-Y | SIGMA-Z | TAU-XY | SIGMA-1 | SIGMA-2 | THETA | SAFTY FACTOR |
|---------|-----------|-----------|----------|----------|----------|-----------|---------|--------------|
| 313 | -33.7782 | -59.2898 | -25.1283 | 50.1561 | 5.2188 | -98.2867 | 37.8655 | 0.0000 |
| 314 | -47.3452 | -108.3984 | -42.0508 | 49.5920 | -19.6375 | -136.1082 | 29.1327 | 0.0000 |
| 315 | -59.0709 | -163.8839 | -60.1989 | 49.2219 | -39.5806 | -183.3782 | 21.6020 | 0.0000 |
| 316 | -60.2335 | -234.8406 | -79.6700 | 44.5612 | -49.5186 | -245.5555 | 13.5203 | 0.0000 |
| 317 | -50.1958 | -211.3599 | -97.6200 | 20.4972 | -48.5969 | -312.9588 | 4.4604 | 0.0000 |
| 318 | -41.0519 | 143.1718 | 27.5724 | 18.6361 | 145.0382 | -42.9182 | 84.2811 | 0.0000 |
| 319 | -27.3306 | 52.8524 | 6.8822 | 37.5884 | 67.6897 | -42.1999 | 68.4171 | 0.0000 |
| 320 | -55.3921 | -31.4352 | -13.3596 | 42.1291 | 13.7958 | -70.6831 | 42.9385 | 0.0000 |
| 321 | -35.1566 | -93.7600 | -34.8075 | 49.2314 | -17.1668 | -121.7498 | 29.6198 | 0.0000 |
| 322 | -52.4759 | -141.6577 | -52.4161 | 62.9977 | -19.8849 | -174.2487 | 27.3542 | 0.0000 |
| 323 | -77.2360 | -175.6488 | -68.2789 | 85.9577 | -27.3970 | -225.4878 | 30.1055 | 0.0000 |
| 324 | -99.6020 | -195.4035 | -79.6515 | 115.6080 | -22.3641 | -272.6475 | 33.7470 | 0.0000 |
| 325 | -73.0900 | -73.7943 | 0.1902 | 20.4296 | 76.5829 | -75.8786 | 82.2274 | 0.0000 |
| 326 | -67.0424 | 39.3945 | -7.4649 | 41.8158 | 53.8574 | -81.5053 | 70.9210 | 0.0000 |
| 327 | -54.3653 | -4.8790 | -15.9960 | 54.2551 | 30.4640 | -89.7082 | 57.1588 | 0.0000 |
| 328 | -49.9633 | -50.3924 | -27.0960 | 58.9214 | 8.7440 | -109.0996 | 44.8357 | 0.0000 |
| 329 | -92.7833 | -92.7833 | -38.7065 | 56.6178 | -11.1992 | -132.1583 | 34.7884 | 0.0000 |
| 330 | -49.9771 | -137.3838 | -50.4581 | 47.8192 | -28.4968 | -158.3851 | 23.7931 | 0.0000 |
| 331 | -45.7022 | -184.4955 | -62.1534 | 33.6860 | -37.9585 | -192.2393 | 12.8462 | 0.0000 |
| 332 | -43.6476 | -228.9504 | -73.6015 | 13.3503 | -42.7049 | -229.8921 | 4.0894 | 0.0000 |
| 333 | -42.5992 | 47.8693 | -1.4223 | 14.1218 | 50.0224 | -44.7523 | 81.3310 | 0.0000 |
| 334 | -1.3612 | -1.3037 | -11.6395 | 34.6300 | 18.6724 | -61.3373 | 60.0218 | 0.0000 |
| 335 | -39.5745 | -52.7792 | -24.9355 | 46.9575 | 1.2426 | -93.5963 | 40.9983 | 0.0000 |
| 336 | -41.6382 | -100.6838 | -38.4267 | 54.0736 | -9.5527 | -132.7682 | 30.6835 | 0.0000 |
| 337 | -46.5690 | -145.872 | -51.9597 | 55.1243 | -22.0322 | -170.4111 | 23.8977 | 0.0000 |
| 338 | -47.5649 | -194.9345 | -65.4748 | 49.3434 | -32.6134 | -209.8960 | 16.8835 | 0.0000 |
| 339 | -43.3608 | -248.1836 | -78.7170 | 36.4872 | -37.0551 | -254.4893 | 9.8050 | 0.0000 |
| 340 | -39.8896 | -297.4426 | -91.0797 | 14.4826 | -39.0777 | -298.2544 | 3.2084 | 0.0000 |
| 341 | -37.2255 | 110.5251 | 19.7909 | 17.1386 | 112.4871 | -39.1875 | 83.4694 | 0.0000 |
| 342 | -37.7565 | 54.6652 | 5.6454 | 41.4352 | 71.0813 | -50.1726 | 68.4109 | 0.0000 |
| 343 | -31.1265 | -3.7808 | -9.4250 | 53.9985 | 38.2490 | -73.1563 | 52.1046 | 0.0000 |
| 344 | -35.4125 | -55.6813 | -24.5953 | 59.8502 | 15.1553 | -106.2491 | 40.1946 | 0.0000 |
| 345 | -33.6269 | -102.5206 | -39.4599 | 59.8029 | 6.2527 | -139.8950 | 31.9232 | 0.0000 |
| 346 | -49.6075 | -153.9299 | -57.9524 | 54.0093 | -26.6884 | -176.8391 | 22.9916 | 0.0000 |
| 347 | -50.4993 | -214.1779 | -71.4628 | 39.9889 | -41.2519 | -223.4253 | 13.0207 | 0.0000 |
| 348 | -48.0008 | -276.2483 | -87.5472 | 15.4468 | -46.9602 | -277.2889 | 3.8541 | 0.0000 |
| 349 | -44.4934 | 125.0533 | 21.7523 | 11.5667 | 135.8428 | -45.2089 | 85.1153 | 0.0000 |
| 350 | -37.8992 | 45.4445 | 2.0372 | 28.6697 | 54.3544 | -78.7934 | 72.7353 | 0.0000 |
| 351 | -33.7136 | -36.0343 | -18.8319 | 43.9041 | 9.0455 | -78.7934 | 44.2430 | 0.0000 |
| 352 | -40.8901 | -99.9812 | -38.0353 | 59.9941 | -3.5609 | -137.3104 | 31.8905 | 0.0000 |
| 353 | -58.7884 | -151.032 | -56.6529 | 77.3927 | -14.8178 | -195.0077 | 29.6030 | 0.0000 |
| 354 | -81.4094 | -188.8238 | -73.9624 | 102.0717 | -19.7771 | -250.4541 | 31.1242 | 0.0000 |
| 355 | -103.4928 | -207.3559 | -83.9291 | 128.2803 | -17.0773 | -293.7714 | 33.9764 | 0.0000 |
| 356 | -71.8579 | 51.1180 | -15.5998 | 15.4985 | 53.0412 | -73.7810 | 82.9264 | 0.0000 |
| 357 | -64.4903 | 22.3663 | -11.3735 | 33.5114 | 33.7927 | -75.9167 | 71.1732 | 0.0000 |
| 358 | -61.2087 | -14.5731 | -21.5602 | 47.0602 | 13.5474 | -93.3232 | 59.1338 | 0.0000 |
| 359 | -61.3133 | -50.6480 | -30.2295 | 53.9399 | -1.7778 | -110.1835 | 47.1830 | 0.0000 |
| 360 | -50.7642 | -82.4243 | -35.9609 | 53.5297 | -20.7730 | -121.4156 | 26.7629 | 0.0000 |
| 361 | -49.3882 | -118.7303 | -45.3920 | 45.2355 | -27.0175 | -141.7011 | 26.2870 | 0.0000 |
| 362 | -53.3976 | -152.5932 | -57.5087 | 30.3393 | -45.3215 | -167.6736 | 14.8273 | 0.0000 |
| 363 | -48.8693 | -196.6649 | -66.2942 | 10.2232 | -48.1655 | -197.3687 | 3.9382 | 0.0000 |
| 364 | -44.5526 | 25.0106 | -5.2763 | 12.1987 | 27.0871 | -46.16291 | 80.3380 | 0.0000 |

ISOPARAMETRIC (PLANE STRAIN) ELEMENT (TOTAL)

| ELEMENT | SIGMA-X | SIGMA-Y | SIGMA-Z | TAU-XY | SIGMA-1 | SIGMA-2 | THETA | SAFTY FACTOR |
|---------|-----------|-----------|----------|----------|-----------|-----------|---------|--------------|
| 365 | -41.3557 | -14.9184 | -15.1940 | 33.5945 | 7.9645 | -64.2386 | 55.7392 | 0.0000 |
| 366 | -47.6698 | -59.9127 | -29.0473 | 47.6997 | -5.7004 | -101.8821 | 41.3455 | 0.0000 |
| 367 | -48.2838 | -101.5533 | -40.4577 | 54.4995 | -14.2581 | -135.5780 | 31.9770 | 0.0000 |
| 368 | -39.9991 | -137.7785 | -43.0000 | 55.6327 | -14.3267 | -162.9509 | 24.3456 | 0.0000 |
| 369 | -40.9845 | -178.4876 | -59.2575 | 48.8719 | -25.3842 | -194.0879 | 17.7035 | 0.0000 |
| 370 | -46.4259 | -224.2352 | -73.0785 | 33.1249 | -40.4554 | -230.2057 | 10.2174 | 0.0000 |
| 371 | -41.3993 | -265.6013 | -82.8848 | 11.1528 | -40.8259 | -266.1526 | 2.8405 | 0.0000 |
| 372 | -37.0978 | 86.6148 | 12.2896 | 14.0764 | 88.3962 | -38.6732 | 82.5899 | 0.0000 |
| 373 | -31.5374 | 41.0613 | 2.2575 | 38.8119 | 57.9033 | -48.3794 | 66.5421 | 0.0000 |
| 374 | -38.0789 | -10.0509 | -12.9950 | 55.5765 | 33.2512 | -81.3810 | 52.0762 | 0.0000 |
| 375 | -40.0830 | -55.6786 | -25.6786 | 62.8626 | 15.7518 | -110.8579 | 41.6716 | 0.0000 |
| 376 | -35.1526 | -95.0351 | -35.1526 | 62.3569 | 4.9802 | -135.1699 | 32.3531 | 0.0000 |
| 377 | -36.8124 | -139.4737 | -47.6134 | 57.9363 | -10.7885 | -165.5576 | 24.2381 | 0.0000 |
| 378 | -47.0144 | -189.1948 | -63.7765 | 42.9435 | -35.0506 | -201.1586 | 15.5675 | 0.0000 |
| 379 | -52.3187 | -244.1826 | -80.3253 | 13.5366 | -52.3634 | -245.1878 | 4.0366 | 0.0000 |
| 380 | -42.8858 | 114.0731 | 19.2206 | 4.5916 | -114.2073 | -43.0200 | 88.3252 | 0.0000 |
| 381 | -29.3229 | 33.7696 | 1.2006 | 23.4590 | 41.5360 | -37.0894 | 71.6820 | 0.0000 |
| 382 | -46.4700 | -49.8476 | -25.9517 | 51.0201 | 2.9860 | -99.1036 | 44.1082 | 0.0000 |
| 383 | -58.9107 | -111.5623 | -46.0777 | 67.6957 | -12.6114 | -157.8616 | 34.3734 | 0.0000 |
| 384 | -61.7563 | -161.1311 | -60.7266 | 91.1187 | -7.6581 | -195.2932 | 30.6981 | 0.0000 |
| 385 | -97.8041 | -207.3844 | -82.4009 | 121.7385 | -19.0943 | -286.0941 | 32.8846 | 0.0000 |
| 386 | -115.5622 | -235.0456 | -91.9101 | 150.2131 | -10.2927 | -330.1151 | 34.9716 | 0.0000 |
| 387 | -67.9927 | 14.2345 | -14.5147 | 16.6375 | 17.4733 | -71.2315 | 78.9841 | 0.0000 |
| 388 | -70.1808 | -13.7436 | -22.6596 | 34.7125 | 2.7749 | -86.6594 | 64.5533 | 0.0000 |
| 389 | -67.0934 | -13.7502 | -21.8378 | 45.9535 | 12.7110 | -93.5547 | 60.0555 | 0.0000 |
| 390 | -60.7758 | -40.3693 | -27.3092 | 39.8672 | -9.4204 | -91.7247 | 52.1772 | 0.0000 |
| 391 | -56.0392 | -80.5573 | -36.8573 | 39.8621 | -27.0911 | -109.5654 | 36.3746 | 0.0000 |
| 392 | -48.1577 | -111.2295 | -43.0454 | 46.0153 | -23.9403 | -135.4869 | 27.7964 | 0.0000 |
| 393 | -46.3755 | -110.1737 | -42.2694 | 34.7125 | -31.1344 | -125.4187 | 23.7102 | 0.0000 |
| 394 | -50.7462 | -139.8434 | -51.4700 | 13.7446 | -48.7132 | -141.9164 | 8.5759 | 0.0000 |
| 395 | -50.3741 | -118.5109 | -48.5396 | 16.8230 | -11.2384 | -91.4866 | 66.6215 | 0.0000 |
| 396 | -50.3740 | -55.0861 | -28.4734 | 39.0796 | -13.5778 | -91.8792 | 43.2739 | 0.0000 |
| 397 | -49.7471 | -54.8553 | -28.2427 | 52.5884 | 0.3491 | -104.9516 | 43.6097 | 0.0000 |
| 398 | -47.4715 | -88.4087 | -35.6877 | 46.5939 | -17.0485 | -118.8317 | 32.1421 | 0.0000 |
| 399 | -45.2186 | -136.3200 | -49.0154 | 46.1431 | -25.9307 | -155.6080 | 22.6851 | 0.0000 |
| 400 | -37.7884 | -172.3296 | -59.7219 | 52.1763 | -19.9098 | -190.2082 | 18.8948 | 0.0000 |
| 401 | -36.7286 | -171.9650 | -56.3473 | 38.7326 | -26.4209 | -182.2126 | 14.9023 | 0.0000 |
| 402 | -41.5079 | -207.8012 | -67.3135 | 16.2275 | -38.9392 | -209.3700 | 5.5217 | 0.0000 |
| 403 | -40.2224 | -42.7859 | 0.6921 | 18.4960 | -46.7207 | -44.1572 | 77.9901 | 0.0000 |
| 404 | -40.4883 | -3.5072 | -11.8783 | 42.6642 | 40.5016 | -68.4953 | 56.7154 | 0.0000 |
| 405 | -38.2161 | -2.6675 | -11.0386 | 58.3640 | 40.5687 | -81.4533 | 32.4583 | 0.0000 |
| 406 | -31.5678 | -44.6795 | -20.5868 | 53.8670 | 16.1408 | -92.3881 | 41.5305 | 0.0000 |
| 407 | -24.5154 | -97.4637 | -32.5343 | 60.0087 | 9.2344 | -131.2135 | 29.3541 | 0.0000 |
| 408 | -29.6151 | -138.0339 | -44.7252 | 67.4290 | 3.0703 | -168.7193 | 25.8612 | 0.0000 |
| 409 | -31.5845 | -136.7623 | -45.4536 | 51.5658 | -10.5206 | -157.8261 | 22.2189 | 0.0000 |
| 410 | -23.1340 | -175.3169 | -53.5818 | 31.3897 | -16.9137 | -181.5072 | 11.2087 | 0.0000 |
| 411 | -30.9986 | 70.5417 | 10.6766 | 2.0372 | 70.5825 | -31.0394 | 88.8511 | 0.0000 |
| 412 | -43.8623 | -43.8128 | -23.6933 | 41.1514 | 21.7361 | -85.0390 | 45.0520 | 0.0000 |
| 413 | -51.1562 | -46.4735 | -26.3600 | 70.5704 | 21.7943 | -119.4241 | 45.9501 | 0.0000 |
| 414 | -54.3552 | -112.4952 | -45.0469 | 69.5235 | -8.0619 | -158.7785 | 32.8326 | 0.0000 |
| 415 | -90.3641 | -157.4504 | -77.7098 | 120.9191 | -11.6637 | -276.1503 | 32.0581 | 0.0000 |
| 416 | -112.1924 | -223.6424 | -91.2154 | 160.9905 | -1.7743 | -339.1691 | 35.2950 | 0.0000 |

STEP 1 CASE-4

SUB STEP 1

ISOPARAMETRIC (PLANE STRAIN) ELEMENT (TOTAL)

| ELEMENT | SIGMA-X | SIGMA-Y | SIGMA-Z | TAU-XY | SIGMA-1 | SIGMA-2 | THETA | SAFTY FACTOR |
|---------|-----------|-----------|----------|----------|----------|-----------|----------|--------------|
| 417 | -64.1558 | -16.2951 | -21.7218 | 17.6257 | -10.5047 | -69.9463 | 71.8134 | 0.0000 |
| 418 | -57.5514 | -40.0301 | -26.3470 | 33.8141 | -13.8602 | -83.7212 | 52.2625 | 0.0000 |
| 419 | -55.0613 | -55.0753 | -32.4369 | 33.5511 | -26.1456 | -93.9910 | 40.7561 | 0.0000 |
| 420 | -49.1795 | -88.9688 | -37.3049 | 15.3233 | -43.3420 | -94.8243 | 19.6779 | 0.0000 |
| 421 | -52.0825 | -57.1380 | -29.4895 | 21.0398 | -33.4191 | -75.8014 | 41.5746 | 0.0000 |
| 422 | -47.1889 | -86.4055 | -36.0705 | 44.6619 | -18.0204 | -115.5739 | 33.1483 | 0.0000 |
| 423 | -47.6103 | -119.5995 | -45.1736 | 43.2315 | -27.3222 | -139.5875 | 25.1096 | 0.0000 |
| 424 | -42.2321 | -152.7497 | -52.6443 | 19.9230 | -38.7288 | -156.2490 | 9.9409 | 0.0000 |
| 425 | -43.8831 | 5.7945 | -10.2839 | 18.8518 | -12.1388 | -50.2260 | 71.4014 | 0.0000 |
| 426 | -14.9323 | -44.1911 | -19.7743 | 42.3679 | 6.4201 | -79.6582 | 39.9335 | 0.0000 |
| 428 | 0.3201 | -92.7751 | -29.0810 | 50.6571 | 10.0292 | -117.7365 | 26.2319 | 0.0000 |
| 429 | -25.9634 | -108.7218 | -29.2685 | 30.1030 | 8.0785 | -116.4802 | 14.4523 | 0.0000 |
| 430 | -80.8587 | 10.3794 | -4.2077 | 40.3445 | 36.4560 | -52.0399 | 57.1235 | 0.0000 |
| 431 | -123.7130 | -163.2729 | -65.9152 | 112.2594 | -2.4824 | -24.6492 | 34.9417 | 0.0000 |
| 432 | -56.9719 | -236.7931 | -97.3366 | 184.7964 | 12.9994 | -373.5055 | 36.4540 | 0.0000 |
| 433 | -53.8442 | -37.7289 | -25.5692 | 14.1502 | -30.2390 | -64.4618 | 52.1070 | 0.0000 |
| 434 | -49.9411 | -41.8898 | -25.8482 | 28.5814 | -18.6672 | -77.0567 | 50.9060 | 0.0000 |
| 435 | -47.9231 | -45.4847 | -25.7649 | 28.6021 | -19.0241 | -76.4016 | 47.2273 | 0.0000 |
| 436 | -47.9398 | -47.8398 | -25.8560 | 13.8309 | -34.0505 | -61.7124 | 45.0863 | 0.0000 |
| 437 | -47.3914 | -86.9398 | -36.2694 | 20.1045 | -38.9662 | -95.3650 | 22.7373 | 0.0000 |
| 438 | -47.0301 | -90.1024 | -37.0258 | 42.5744 | -20.8548 | -116.2777 | 31.5838 | 0.0000 |
| 438 | -46.3740 | -95.0284 | -38.4621 | 41.8763 | -22.5307 | -119.5217 | 29.6361 | 0.0000 |
| 439 | -47.2645 | -106.4380 | -41.4991 | 18.8093 | -41.7916 | -111.9088 | 16.2232 | 0.0000 |
| 440 | -45.2277 | -11.5573 | -15.3319 | 12.5183 | -7.4132 | -49.3718 | 71.6832 | 0.0000 |
| 441 | -38.3639 | -46.7950 | -22.9929 | 27.8911 | -14.4230 | -70.7359 | 40.6827 | 0.0000 |
| 442 | -21.0281 | -82.6997 | -29.8911 | 29.0930 | -14.7491 | -95.9587 | 22.8327 | 0.0000 |
| 443 | -7.6988 | -61.4883 | -19.6643 | 25.6839 | -71.7305 | -21.8563 | 21.8563 | 0.0000 |
| 444 | -47.2946 | -82.3781 | -35.0116 | 98.0387 | 34.7593 | -164.4320 | 39.9218 | 0.0000 |
| 445 | -119.5165 | -196.2006 | -85.2490 | 175.4518 | 21.7260 | -337.4631 | 38.8348 | 0.0000 |
| 446 | -53.6280 | -52.6579 | -28.6972 | 11.6622 | -41.4707 | -64.8152 | 46.1909 | 0.0000 |
| 447 | -49.8843 | -41.8360 | -24.7804 | 25.3345 | -20.2421 | -71.5372 | 49.4802 | 0.0000 |
| 448 | -46.3250 | -31.5857 | -21.0359 | 25.4253 | -12.4825 | -65.4271 | 53.0223 | 0.0000 |
| 449 | -43.4522 | -18.1496 | -16.6325 | 11.6909 | -13.5756 | -48.0262 | 68.6307 | 0.0000 |
| 450 | -44.0227 | -109.5275 | -41.4586 | 18.9709 | -38.9252 | -114.6250 | 15.0402 | 0.0000 |
| 451 | -42.4140 | -92.6972 | -36.4800 | 42.6102 | -18.0811 | -117.0301 | 29.7289 | 0.0000 |
| 452 | -43.6278 | -78.6587 | -39.0174 | 43.6061 | -14.1509 | -108.1356 | 34.0380 | 0.0000 |
| 453 | -46.4986 | -70.9200 | -31.7030 | 19.5228 | -35.6823 | -81.7363 | 28.9878 | 0.0000 |
| 454 | -47.4196 | -19.1006 | -17.9605 | 8.4801 | -16.7554 | -49.7648 | 74.5413 | 0.0000 |
| 455 | -45.0930 | -45.7575 | -24.5296 | 24.9377 | -20.4853 | -70.3652 | 44.6183 | 0.0000 |
| 456 | -56.3414 | -72.6406 | -34.8251 | 27.0429 | -36.2468 | -92.7352 | 36.6147 | 0.0000 |
| 457 | -101.1992 | -38.2085 | -37.6401 | -3.5341 | -38.0109 | -101.3969 | -86.7388 | 0.0000 |
| 458 | -156.5949 | -195.8342 | -95.1964 | 190.4327 | 15.1489 | -367.7280 | 42.0476 | 0.0000 |
| 459 | -107.3136 | -79.6949 | -50.4923 | 173.6383 | 80.6823 | -267.6908 | 47.2736 | 0.0000 |
| 460 | -50.7080 | -61.7431 | -30.3631 | 9.9859 | -44.8180 | -67.6381 | 30.5336 | 0.0000 |
| 461 | -47.3010 | -41.2904 | -23.9197 | 22.0308 | -22.0609 | -66.5305 | 48.8840 | 0.0000 |
| 462 | -43.3919 | -21.3100 | -17.4695 | 22.2061 | -7.5515 | -57.1504 | 58.2124 | 0.0000 |
| 463 | -41.1069 | 1.6184 | -10.6619 | 10.6583 | 4.1296 | -43.6181 | 76.7422 | 0.0000 |
| 464 | -39.0861 | -125.2509 | -44.3710 | 18.1112 | -35.4340 | -128.9029 | 11.4006 | 0.0000 |
| 465 | -36.4035 | -66.4122 | -35.8765 | 40.8103 | -15.7670 | -117.1088 | 26.8244 | 0.0000 |
| 466 | -34.6974 | -68.9355 | -27.4328 | 45.9413 | -2.6288 | -98.2351 | 33.2351 | 0.0000 |
| 467 | -41.4278 | -42.3844 | -22.6293 | 22.9956 | -18.9056 | -64.9067 | 44.4042 | 0.0000 |
| 468 | -42.4879 | -22.8190 | -17.6329 | 6.4077 | -20.9157 | -44.3913 | 73.4567 | 0.0000 |

ISOPARAMETRIC (PLANE STRAIN) ELEMENT (TOTAL)

| ELEMENT | SIGMA-X | SIGMA-Y | SIGMA-Z | TAU-XY | SIGMA-1 | SIGMA-2 | THETA | SAFTY FACTOR |
|---------|-----------|-----------|----------|----------|----------|-----------|----------|--------------|
| 469 | -45.4837 | -52.5902 | -26.4800 | 27.3552 | -21.3519 | -76.5220 | 41.2996 | 0.0000 |
| 470 | -69.8339 | -55.8339 | -33.8392 | 46.3513 | -15.8133 | -109.5173 | 49.1920 | 0.0000 |
| 471 | -154.4684 | -144.5659 | -80.7392 | 117.8919 | -31.5213 | -267.5129 | 46.2025 | 0.0000 |
| 472 | -176.4683 | -174.2326 | -67.6894 | 79.0775 | -31.1896 | -219.5118 | 61.4399 | 0.0000 |
| 473 | -71.6454 | -190.4780 | -70.7733 | 73.9522 | -36.1975 | -225.9259 | 25.6101 | 0.0000 |
| 474 | -47.9122 | -70.2095 | -31.8929 | 7.3274 | -45.7143 | -72.4073 | 18.5753 | 0.0000 |
| 475 | -43.9349 | -39.5421 | -22.5590 | 17.5569 | -24.0711 | -59.4660 | 48.6136 | 0.0000 |
| 476 | -39.8351 | -9.3144 | -13.3406 | 18.2083 | -0.9921 | -48.4174 | 64.9184 | 0.0000 |
| 477 | -37.5970 | 23.6165 | -3.7747 | 8.8200 | 24.8620 | -38.8425 | 81.9622 | 0.0000 |
| 478 | -35.0621 | -142.1786 | -47.8550 | 15.4398 | -32.8810 | -144.3597 | 8.0406 | 0.0000 |
| 479 | -28.7503 | -101.0176 | -35.0374 | 35.5131 | -14.2203 | -115.5478 | 22.2519 | 0.0000 |
| 480 | -19.8523 | -38.7341 | -21.2195 | 42.1706 | 7.1425 | -85.7294 | 32.6252 | 0.0000 |
| 481 | -11.9356 | -8.1352 | -4.0691 | 30.0220 | 22.8074 | -37.8782 | 49.1691 | 0.0000 |
| 482 | -17.4732 | -29.1169 | -12.5793 | 5.4284 | -15.2951 | -31.2550 | 21.4985 | 0.0000 |
| 483 | -41.1311 | -65.8790 | -28.8927 | 41.3704 | -10.3237 | -96.6864 | 36.6740 | 0.0000 |
| 484 | -68.8204 | -91.0884 | -43.1808 | 79.7413 | 0.5491 | -160.4779 | 41.0292 | 0.0000 |
| 485 | -67.0340 | -128.9767 | -51.5729 | 102.2648 | 10.6488 | -201.6595 | 37.2212 | 0.0000 |
| 486 | -49.9361 | -131.7825 | -49.0640 | 39.6017 | -33.8120 | -147.8067 | 22.0292 | 0.0000 |
| 487 | -44.7574 | -75.8705 | -42.5695 | 3.6273 | -44.3402 | -76.2878 | 6.5625 | 0.0000 |
| 488 | -39.4488 | -37.0073 | -20.6427 | 11.9668 | -25.1983 | -50.2539 | 47.9097 | 0.0000 |
| 489 | -35.8059 | 1.8097 | -9.1790 | 14.3817 | 6.6777 | -40.6740 | 71.2587 | 0.0000 |
| 490 | -34.7537 | 45.7208 | 2.9611 | 7.5155 | 45.4166 | -35.4198 | 84.7101 | 0.0000 |
| 491 | -35.1523 | -153.9057 | -51.5858 | 11.6345 | -34.0420 | -157.0165 | 5.4536 | 0.0000 |
| 492 | -26.6432 | -103.9139 | -35.2505 | 24.4353 | -19.5646 | -110.9936 | 16.1559 | 0.0000 |
| 493 | -8.8492 | -49.6300 | -15.7894 | 28.0954 | 5.4761 | -63.9533 | 37.0152 | 0.0000 |
| 494 | 5.5025 | 33.1653 | 10.4403 | 13.0712 | 38.2646 | 0.3033 | 59.3093 | 0.0000 |
| 495 | -6.1716 | -50.9699 | -15.4833 | 33.1197 | 11.4091 | -68.5546 | 27.9658 | 0.0000 |
| 496 | -40.7022 | -81.8027 | -33.0160 | 67.0823 | 8.9077 | -131.4116 | 36.4837 | 0.0000 |
| 497 | -64.7834 | -105.1037 | -45.8595 | 84.0179 | 1.4592 | -171.3463 | 38.2535 | 0.0000 |
| 498 | -52.4238 | -118.5884 | -46.1733 | 95.5226 | 15.5830 | -186.5952 | 35.4488 | 0.0000 |
| 499 | -41.3036 | -74.8843 | -31.3118 | -1.2909 | -41.2581 | -74.9339 | -2.1985 | 0.0000 |
| 500 | -35.1049 | -25.8345 | -19.1697 | 4.1879 | -31.2929 | -39.7059 | 42.3052 | 0.0000 |
| 501 | -27.6214 | 8.4762 | -5.1692 | 12.2792 | 12.2572 | -31.4034 | 72.8856 | 0.0000 |
| 502 | -36.6179 | 67.4748 | 8.3314 | 12.2161 | 68.8892 | -38.0323 | 83.3955 | 0.0000 |
| 503 | -40.2316 | -63.1128 | -54.9030 | 11.1087 | -38.2355 | -164.1090 | 5.1243 | 0.0000 |
| 504 | -39.3683 | 98.0446 | -37.0115 | 11.2425 | -37.2879 | -100.1249 | 10.4835 | 0.0000 |
| 505 | -18.7834 | -42.9371 | -16.6645 | 5.5287 | -17.5780 | -44.1434 | 12.2990 | 0.0000 |
| 506 | 4.4895 | 56.5357 | 16.4768 | 14.3905 | 60.2495 | 0.7756 | 75.5239 | 0.0000 |
| 507 | -14.8233 | -97.0757 | -30.2319 | 55.7752 | 13.2921 | -125.2621 | 26.8101 | 0.0000 |
| 508 | -66.1620 | -88.5090 | -41.7615 | 82.2911 | 16.6217 | -171.2938 | 41.5852 | 0.0000 |
| 509 | -69.1695 | -96.8047 | -44.8130 | 88.0235 | 6.1143 | -172.0866 | 40.5394 | 0.0000 |
| 510 | -39.8469 | -71.3098 | -30.0123 | -4.5360 | -39.2060 | -71.3506 | 8.0421 | 0.0000 |
| 511 | -34.1075 | -33.9874 | -18.5856 | -3.5924 | -30.4546 | -24.8791 | 81.3564 | 0.0000 |
| 512 | -24.1943 | 4.7440 | -5.2516 | 4.5031 | 5.4286 | -34.6576 | 80.4621 | 0.0000 |
| 513 | -30.3598 | 121.3642 | -24.5712 | 26.2126 | 125.7721 | -185.6018 | 12.3287 | 0.0000 |
| 514 | -57.2705 | -179.4407 | -63.9120 | 28.1186 | -51.1095 | -81.0822 | 1.9390 | 0.0000 |
| 515 | -53.9669 | -81.0511 | -36.4549 | 0.9180 | -53.9358 | -81.0822 | 1.9390 | 0.0000 |
| 516 | -55.4846 | -35.5058 | -24.5674 | -12.5885 | -24.5674 | -61.5656 | -64.2166 | 0.0000 |
| 517 | -74.0501 | 61.5773 | -23.3677 | -7.0977 | -61.9477 | -61.4205 | -87.0125 | 0.0000 |
| 518 | -114.7757 | -202.8339 | -85.7546 | 127.7595 | -23.6713 | -292.9383 | 35.4924 | 0.0000 |
| 519 | -117.6132 | -62.7629 | -48.7015 | 96.3540 | 9.9930 | -190.3691 | 52.9439 | 0.0000 |
| 520 | -80.6302 | -60.2278 | -38.0316 | 81.5859 | 11.7922 | -152.6501 | 48.5635 | 0.0000 |

239

STEP 1 CASE-4

SUB STEP 1

ISOPARAMETRIC (PLANE STRAIN) ELEMENT (TOTAL)

| ELEMENT | SIGMA-X | SIGMA-Y | SIGMA-Z | TAU-XY | SIGMA-1 | SIGMA-2 | THETA | SAFTY FACTOR |
|---------|-----------|-----------|----------|---------|----------|-----------|----------|--------------|
| 521 | -64.6531 | -73.5118 | -37.3045 | 79.5047 | 10.5455 | -148.7104 | 43.4056 | 0.0000 |
| 522 | -39.1777 | -64.0523 | -27.8721 | -6.1762 | -37.7286 | -65.5014 | -13.2041 | 0.0000 |
| 523 | -36.5913 | -31.6680 | -18.4300 | -6.8821 | -26.8205 | -41.4388 | -54.8407 | 0.0000 |
| 524 | -23.9098 | 6.8677 | -7.3014 | -2.2558 | 6.9931 | -34.0352 | -86.8308 | 0.0000 |
| 525 | -27.3449 | 33.1982 | 1.5804 | 53.2777 | 64.2037 | -58.3504 | 59.8023 | 0.0000 |
| 526 | -38.3394 | 54.6639 | -25.1109 | -6.5730 | -36.0218 | -56.9814 | -19.4220 | 0.0000 |
| 527 | -39.7772 | -28.7074 | -18.4908 | -8.1359 | -24.4021 | -44.0825 | -62.1139 | 0.0000 |
| 528 | -46.2946 | 1.3626 | -12.1316 | 5.0270 | 1.8923 | 46.8253 | 84.0091 | 0.0000 |
| 529 | -55.0870 | -46.4325 | -27.4103 | 40.1264 | -10.4007 | -91.1188 | 48.0775 | 0.0000 |
| 530 | -36.7958 | -90.7649 | -34.4414 | 47.3566 | -9.2752 | -118.2855 | 30.1624 | 0.0000 |
| 531 | -24.9498 | 3.0956 | -5.9006 | 33.7787 | 25.6466 | -47.5008 | 56.2725 | 0.0000 |
| 532 | -54.1108 | -72.1891 | -34.1010 | 3.4349 | -52.4802 | -72.8197 | 10.4035 | 0.0000 |
| 533 | -60.9257 | -13.4751 | -25.4882 | 4.6385 | -13.1576 | -81.2432 | 86.0844 | 0.0000 |
| 534 | -80.4797 | -80.2689 | -65.0021 | 83.7347 | -27.5307 | -213.2179 | 57.7962 | 0.0000 |
| 535 | -124.1021 | -147.8360 | -73.4233 | 46.2192 | -88.2508 | -183.6873 | 37.8001 | 0.0000 |
| 536 | -198.2422 | -109.6371 | -83.1274 | 71.2948 | -70.0012 | -237.8781 | 60.9204 | 0.0000 |
| 537 | -99.0217 | -73.8609 | -46.6783 | 55.0136 | -30.0077 | -142.8750 | 51.4404 | 0.0000 |
| 538 | -59.6158 | -30.9250 | -24.4460 | 50.4799 | 7.2083 | -97.7491 | 52.9321 | 0.0000 |
| 539 | -37.6283 | -46.4583 | -23.7034 | -5.6320 | -34.8870 | -49.1996 | -25.5532 | 0.0000 |
| 540 | -42.0201 | -26.4036 | -18.4744 | -5.9288 | -44.3689 | -44.0548 | -71.2463 | 0.0000 |
| 541 | -48.1423 | -16.5369 | -17.4634 | 11.4209 | -12.8419 | -51.8374 | 72.0719 | 0.0000 |
| 542 | -45.1122 | -5.9198 | -12.9686 | 26.8206 | 8.3385 | -56.3705 | 62.0040 | 0.0000 |
| 543 | -47.1869 | -66.0235 | -30.5668 | 34.6491 | -20.6988 | -92.5116 | 37.3966 | 0.0000 |
| 544 | -47.6547 | -55.4844 | -27.8476 | 21.5558 | -29.6612 | -73.4780 | 39.8522 | 0.0000 |
| 545 | -77.8001 | -46.1377 | -33.4632 | 36.6157 | -22.0773 | -101.8605 | 56.6909 | 0.0000 |
| 546 | -75.6354 | -41.7735 | -41.9604 | 72.1394 | -5.5392 | -149.8697 | 45.7666 | 0.0000 |
| 547 | -63.7398 | -104.4506 | -45.4114 | 51.1892 | -29.0073 | -139.1831 | 34.1574 | 0.0000 |
| 548 | -30.7634 | -70.3499 | -27.3006 | 22.9919 | -20.2186 | -80.8947 | 24.6378 | 0.0000 |
| 549 | -84.1464 | -29.4162 | -25.2619 | 36.8752 | -6.0219 | -87.5407 | 57.6082 | 0.0000 |
| 550 | -35.0899 | -18.6693 | -14.5150 | 4.3807 | -17.5737 | -36.1854 | 75.9587 | 0.0000 |
| 551 | -36.5366 | -39.1003 | -20.4220 | -3.8909 | -33.7219 | -41.9151 | -35.8827 | 0.0000 |
| 552 | -41.5277 | -27.4731 | -18.6302 | -1.8355 | -27.2349 | -41.7659 | -82.6427 | 0.0000 |
| 553 | -44.9159 | -21.4986 | -17.9306 | 8.9875 | -18.4425 | -47.9671 | 71.2481 | 0.0000 |
| 554 | -41.2354 | -19.5568 | -16.4193 | 27.5488 | -0.7979 | -60.0143 | 55.7478 | 0.0000 |
| 555 | -49.6587 | -58.0528 | -29.0821 | 44.2004 | -9.4565 | -98.2550 | 42.2879 | 0.0000 |
| 556 | -38.0818 | -71.0927 | -29.4779 | 53.2526 | 1.2610 | -110.4385 | 36.4044 | 0.0000 |
| 557 | -12.0545 | -66.4181 | -21.1876 | 33.2469 | 3.7079 | -82.1805 | 25.3657 | 0.0000 |
| 558 | -9.5723 | -37.5723 | -6.1094 | -3.4616 | -7.4334 | -15.1941 | -31.6668 | 0.0000 |
| 559 | -33.4756 | -31.5994 | -17.5703 | -0.9032 | -21.2332 | -33.8419 | -67.9944 | 0.0000 |
| 560 | -37.4727 | -28.2927 | -17.7566 | 2.4432 | -27.6833 | -38.0820 | 75.9911 | 0.0000 |
| 561 | -40.9861 | -25.6238 | -17.9847 | 12.7357 | -18.4322 | -48.1776 | 60.5475 | 0.0000 |
| 562 | -46.6527 | -43.9643 | -24.4666 | 25.0653 | -20.2072 | -70.4098 | 46.5349 | 0.0000 |
| 563 | -38.0934 | -50.4305 | -23.9015 | 32.0501 | -11.6236 | -76.9003 | 39.5529 | 0.0000 |
| 564 | -35.0714 | -27.3948 | -16.8659 | 25.1802 | -5.7818 | -56.6943 | 49.3269 | 0.0000 |
| 565 | -43.2307 | -51.6369 | -25.6143 | 28.7842 | -18.3443 | -76.5233 | 40.8461 | 0.0000 |
| 566 | -37.9357 | -53.8611 | -24.7851 | 32.9823 | -11.9685 | -79.8283 | 38.2136 | 0.0000 |
| 567 | -36.5076 | -58.1661 | -25.5619 | 40.7688 | -5.1562 | -89.5175 | 37.5618 | 0.0000 |
| 568 | -24.6602 | -65.4402 | -24.1652 | 42.6067 | 2.6142 | -92.1151 | 32.0492 | 0.0000 |
| 569 | -41.9144 | -41.9144 | -13.2954 | 20.5916 | 2.2690 | -51.5111 | 24.9878 | 0.0000 |
| 570 | -30.2702 | -27.0307 | -15.4713 | 1.2257 | -26.6187 | -30.6825 | 71.4318 | 0.0000 |
| 571 | -33.0022 | -28.2186 | -16.5296 | 5.6526 | -24.4680 | -36.7527 | 56.4584 | 0.0000 |
| 572 | -33.9864 | -31.6053 | -18.2497 | 13.1536 | -20.4621 | -47.1236 | 49.7279 | 0.0000 |

JOINT ANALYSIS

STEP 1 CASE-4 SUB STEP 1

ISOPARAMETRIC (PLANE STRAIN) ELEMENT (TOTAL)

| ELEMENT | SIGMA-X | SIGMA-Y | SIGMA-Z | TAU-XY | SIGMA-1 | SIGMA-2 | THETA | SAFETY FACTOR |
|---------|----------|----------|----------|---------|----------|----------|---------|---------------|
| 573 | -31.1425 | -32.7635 | -17.2546 | 23.0702 | -8.8686 | -55.0374 | 43.9940 | 0.0000 |
| 574 | -27.5060 | -2.0121 | -7.9699 | 18.7151 | 7.8847 | -37.4028 | 62.1295 | 0.0000 |
| 575 | -40.7779 | -62.0923 | -27.7750 | 26.1646 | -23.1834 | -79.6869 | 33.9191 | 0.0000 |
| 576 | -33.7120 | -48.6237 | -22.2306 | 32.2796 | -8.0383 | -74.2874 | 38.4970 | 0.0000 |
| 577 | -29.2210 | -57.2979 | -23.3601 | 37.2420 | -3.4593 | -83.0595 | 34.6730 | 0.0000 |
| 578 | -20.0199 | -55.5928 | -20.4154 | 34.5192 | 1.0258 | -76.5885 | 31.3692 | 0.0000 |
| 579 | -15.7939 | -36.9095 | -14.2299 | 21.4857 | -2.4122 | -50.2812 | 31.9155 | 0.0000 |
| 580 | -27.4353 | -23.2311 | -14.2361 | 2.3323 | -23.7963 | -28.9301 | 57.3437 | 0.0000 |
| 581 | -28.8567 | -28.8096 | -15.5699 | 7.4799 | -21.3532 | -35.3131 | 45.0900 | 0.0000 |
| 582 | -29.7548 | -31.3339 | -16.4939 | 14.7748 | -15.7485 | -45.2402 | 43.4706 | 0.0000 |
| 583 | -34.4287 | -45.3259 | -21.5337 | 21.1373 | -18.0491 | -61.7095 | 37.7727 | 0.0000 |
| 584 | -26.2247 | -27.3219 | -14.4846 | 22.0359 | -4.7818 | -48.8648 | 44.3519 | 0.0000 |
| 585 | -31.6398 | -45.2854 | -20.7698 | 28.2739 | -9.3772 | -67.5480 | 38.2166 | 0.0000 |
| 586 | -29.1167 | -48.7733 | -21.0303 | 28.5757 | -8.7264 | -69.1697 | 35.5099 | 0.0000 |
| 587 | -25.2754 | -53.8552 | -21.3679 | 34.3090 | -2.4023 | -76.1382 | 33.6904 | 0.0000 |
| 588 | -20.3509 | -48.2529 | -18.6866 | 31.4675 | -0.2628 | -68.9469 | 33.1953 | 0.0000 |
| 589 | -26.1712 | -49.2859 | -20.3734 | 29.4952 | -6.0498 | -69.4073 | 34.3014 | 0.0000 |
| 590 | -24.0703 | -49.8781 | -19.9661 | 31.6506 | -2.7942 | -71.1541 | 32.9027 | 0.0000 |
| 591 | -23.7828 | -47.1018 | -13.1388 | 32.3257 | -1.0782 | -69.8064 | 35.0831 | 0.0000 |
| 592 | -24.2081 | -24.2532 | -13.1365 | 2.6471 | -21.6797 | -26.9740 | 44.7977 | 0.0000 |
| 593 | -24.6855 | -28.5479 | -14.3730 | 2.8703 | -18.5130 | -34.7205 | 38.1056 | 0.0000 |
| 594 | -25.2494 | -33.5627 | -15.8793 | 13.4130 | -15.3638 | -43.4483 | 36.3909 | 0.0000 |
| 595 | -22.6825 | -35.5516 | -15.7232 | 21.3684 | -6.8009 | -51.4332 | 36.6209 | 0.0000 |
| 596 | -18.6219 | -8.2664 | -6.7198 | 16.9927 | 5.6367 | -30.5250 | 54.9894 | 0.0000 |
| 597 | -31.2468 | -57.0002 | -23.8267 | 23.2737 | -7.5260 | -70.7210 | 30.5222 | 0.0000 |
| 598 | -24.7529 | -43.6291 | -18.4631 | 27.9566 | -4.7042 | -63.6778 | 35.6662 | 0.0000 |
| 599 | -23.7459 | -47.5919 | -19.2612 | 31.4113 | -2.0709 | -69.2670 | 34.6072 | 0.0000 |
| 600 | -24.7218 | -47.6208 | -19.5325 | 33.2005 | -1.0520 | -71.2905 | 35.4864 | 0.0000 |
| 601 | -24.7499 | -44.9347 | -18.8149 | 19.7234 | -12.6823 | -57.0024 | 31.4536 | 0.0000 |
| 602 | -23.0468 | -40.0028 | -17.0234 | 25.2922 | -4.8447 | -58.0049 | 35.7361 | 0.0000 |
| 603 | -17.6589 | -25.7238 | -11.7133 | 21.5255 | 0.2086 | -48.5913 | 39.6948 | 0.0000 |
| 604 | -22.9316 | -43.1673 | -17.8467 | 25.1847 | -5.9084 | -60.1907 | 34.0561 | 0.0000 |
| 605 | -23.9514 | -46.3621 | -18.9847 | 32.3996 | -0.9025 | -69.4110 | 35.4579 | 0.0000 |
| 606 | -21.7890 | -23.8567 | -12.3243 | 2.4023 | -20.1225 | -25.5231 | 33.7445 | 0.0000 |
| 607 | -22.0210 | -28.5715 | -13.6600 | 7.6857 | -16.9418 | -33.6507 | 33.4595 | 0.0000 |
| 608 | -21.3599 | -32.6831 | -14.5916 | 13.7316 | -12.1686 | -41.8744 | 33.7968 | 0.0000 |
| 609 | -21.6736 | -42.6817 | -17.3759 | 27.3055 | -2.8701 | -61.4852 | 34.4938 | 0.0000 |
| 610 | -24.6946 | -46.0185 | -19.0926 | 32.3098 | -1.2561 | -69.4571 | 35.8901 | 0.0000 |
| 611 | -19.8873 | -23.3489 | -11.6738 | 2.6411 | -18.4604 | -24.7758 | 28.3811 | 0.0000 |
| 612 | -20.4927 | -27.6802 | -13.0067 | 7.0398 | -16.1825 | -31.9905 | 31.4781 | 0.0000 |
| 613 | -20.3660 | -32.2386 | -14.2033 | 10.5688 | -14.1910 | -38.4137 | 30.3250 | 0.0000 |
| 614 | -24.3232 | -48.2361 | -16.2480 | 13.2370 | -9.7788 | -52.8804 | 18.9478 | 0.0000 |
| 615 | -19.5620 | -3.4089 | -3.5021 | 19.6160 | 13.3703 | -26.3412 | 49.4563 | 0.0000 |
| 616 | -26.1401 | -62.8834 | -24.0363 | 20.9136 | -16.6297 | -72.3933 | 24.3918 | 0.0000 |
| 617 | -13.4398 | -29.1059 | -1.4873 | 28.8633 | 7.8824 | -50.4281 | 37.2075 | 0.0000 |
| 618 | -21.7685 | -41.9035 | -17.1855 | 27.3676 | -2.6650 | -60.9849 | 34.9035 | 0.0000 |
| 619 | -24.6683 | -44.9076 | -18.7856 | 34.3293 | 1.3855 | -70.9617 | 36.8774 | 0.0000 |
| 620 | -7.0491 | 1.1247 | 1.1409 | 33.5860 | 36.9260 | -24.7005 | 52.6292 | 0.0000 |
| 621 | -18.9165 | -22.3525 | -1.1429 | 3.1306 | -17.0637 | -24.2063 | 30.6177 | 0.0000 |
| 622 | -20.2662 | -26.4288 | -12.6074 | 7.2822 | -15.4400 | -31.2541 | 33.5343 | 0.0000 |
| 623 | -22.2601 | -30.2539 | -14.1785 | 11.5780 | -14.0082 | -38.5048 | 35.4784 | 0.0000 |
| 624 | -31.6531 | -48.4450 | -21.6265 | 9.9093 | -27.0511 | -53.0370 | 24.5661 | 0.0000 |

240

STEP 1 CASE-4

SUB STEP 1

ISOPARAMETRIC (PLANE STRAIN) ELEMENT (TOTAL)

| ELEMENT | SIGMA-X | SIGMA-Y | SIGMA-Z | TAU-XY | SIGMA-1 | SIGMA-2 | THETA | SAFETY FACTOR |
|---------|----------|----------|----------|---------|----------|----------|---------|---------------|
| 625 | -17.7967 | -14.1724 | -8.6316 | 30.7643 | 14.8331 | -46.8022 | 46.6855 | 0.0000 |
| 626 | -16.3939 | -28.2924 | -12.0652 | 30.1886 | 8.4065 | -52.0928 | 39.4222 | 0.0000 |
| 627 | -21.1044 | -39.8341 | -16.4507 | 30.3079 | 1.2560 | -62.1845 | 36.4190 | 0.0000 |
| 628 | -25.4367 | -38.3683 | -17.2274 | 16.3434 | -14.3266 | -49.4784 | 34.2076 | 0.0000 |
| 629 | -30.0201 | -41.4440 | -19.2953 | 16.9318 | -17.8628 | -53.6014 | 35.6791 | 0.0000 |
| 630 | -23.9161 | -28.6724 | -14.1989 | 31.6182 | 5.4132 | -58.0017 | 42.8493 | 0.0000 |
| 631 | -20.4289 | -32.8686 | -14.3903 | 34.6723 | 8.5770 | -61.8746 | 39.9150 | 0.0000 |
| 632 | -17.2027 | -20.3988 | -10.1281 | 3.4050 | -15.0133 | -22.4982 | 32.7412 | 0.0000 |
| 633 | -19.0463 | -25.1149 | -11.9235 | 8.3292 | -13.2159 | -30.9453 | 34.9317 | 0.0000 |
| 634 | -21.1203 | -31.2808 | -14.1429 | 13.1372 | -12.1089 | -40.2722 | 34.4479 | 0.0000 |
| 635 | -14.9564 | -18.1250 | -8.9347 | 3.6141 | -12.6016 | -20.4898 | 33.1979 | 0.0000 |
| 636 | -16.8838 | -24.2157 | -11.1133 | 9.1179 | -10.7415 | -30.4190 | 33.9560 | 0.0000 |
| 637 | -17.6572 | -29.9672 | -12.8586 | 13.3203 | -9.1385 | -38.4858 | 32.5998 | 0.0000 |
| 638 | -18.6129 | -36.1470 | -14.7852 | 17.7903 | -7.5468 | -47.2132 | 31.8830 | 0.0000 |
| 639 | -21.9218 | -36.9124 | -15.8852 | 23.3818 | -4.8632 | -53.9709 | 36.1131 | 0.0000 |
| 640 | -14.4726 | -37.5500 | -14.0461 | 20.1870 | -2.7593 | -49.2633 | 30.1240 | 0.0000 |
| 641 | -12.1479 | -16.4375 | -7.7181 | 3.8121 | -9.9187 | -18.6667 | 30.3180 | 0.0000 |
| 642 | -13.4799 | -22.5662 | -9.7324 | 9.0233 | -7.9205 | -28.1256 | 31.6375 | 0.0000 |
| 643 | -13.5644 | -28.0099 | -11.2251 | 12.5524 | -6.4781 | -35.0962 | 29.8421 | 0.0000 |
| 644 | -12.9665 | -34.5397 | -12.8296 | 16.7280 | -3.8514 | -43.6658 | 28.5950 | 0.0000 |
| 645 | -8.5692 | -14.2656 | -6.1654 | 3.7104 | -6.7399 | -16.0949 | 26.2445 | 0.0000 |
| 646 | -9.2812 | -19.3102 | -7.7197 | 7.9755 | -4.8748 | -23.7167 | 28.9205 | 0.0000 |
| 647 | -8.7912 | -24.3951 | -8.9603 | 10.1696 | -3.7764 | -29.4099 | 26.2512 | 0.0000 |
| 648 | -7.3747 | -32.2422 | -10.6966 | 13.7141 | -1.7370 | -37.8799 | 23.2827 | 0.0000 |
| 649 | -5.2779 | -11.4929 | -4.0282 | 3.0282 | -4.0464 | -12.7244 | 22.1902 | 0.0000 |
| 650 | -4.6136 | -14.8915 | -5.5364 | 6.2256 | -2.4887 | -18.0164 | 26.6543 | 0.0000 |
| 651 | -4.8425 | -19.3155 | -6.5227 | 7.2318 | -1.8483 | -22.3097 | 22.4807 | 0.0000 |
| 652 | -2.8859 | -24.7163 | -7.4534 | 7.4081 | -0.6121 | -26.9931 | 17.0822 | 0.0000 |
| 653 | -2.2820 | -7.7017 | -2.6956 | 2.0209 | -1.6114 | -8.3722 | 18.3667 | 0.0000 |
| 654 | -2.4576 | -9.4324 | -3.2103 | 3.9919 | -0.6443 | -11.2457 | 24.4934 | 0.0000 |
| 655 | -1.5836 | -11.8228 | -3.6548 | 3.8070 | -0.4163 | -13.1201 | 18.4116 | 0.0000 |
| 656 | -0.5190 | -13.5263 | -3.8111 | 2.9049 | -0.1246 | -13.9307 | 9.7089 | 0.0000 |
| 657 | -0.1413 | -2.7612 | -0.7837 | 0.7453 | 0.0559 | -2.9584 | 14.8187 | 0.0000 |
| 658 | 0.0284 | -3.2381 | -0.8793 | 1.5661 | 0.5105 | -3.8670 | 22.1945 | 0.0000 |
| 659 | 0.0580 | -3.7380 | -0.8341 | 1.0660 | 0.5940 | -3.9834 | 13.9609 | 0.0000 |
| 660 | 0.0901 | -3.8599 | -0.8717 | 0.3320 | 0.6339 | -3.8624 | 1.5928 | 0.0000 |

JOINT ELEMENT STRAIN,STRESS (TOTAL)

| ELEMENT | STRAIN(UO) | STRAIN(VO) | STRAIN(WO) | STRESS(ST) | STRESS(SN) | MOMENT(FM) | SAFETY FACT |
|---------|---------------|---------------|---------------|------------|------------|------------|-------------|
| 1250 | -2.428895E-03 | -1.072058E-06 | 6.535966E-07 | 0.0000 | -53.6039 | 18.5837 | 0.0000 |
| 1290 | -4.072641E-03 | -6.732117E-07 | -2.421152E-07 | 0.0000 | -33.6506 | -6.8724 | 0.0000 |
| 1322 | -5.359781E-03 | -8.928118E-07 | 1.537269E-08 | 0.0000 | -44.6406 | 0.4364 | 0.0000 |
| 1354 | -6.400128E-03 | -9.206963E-07 | -4.414122E-08 | 0.0000 | -46.0348 | -1.2551 | 0.0000 |
| 1386 | -7.351722E-03 | -9.935505E-07 | -1.552590E-08 | 0.0000 | -49.6775 | -3.5288 | 0.0000 |
| 1418 | -8.026411E-03 | -1.008823E-06 | 7.091322E-09 | 0.0000 | -50.4946 | 1.6118 | 0.0000 |
| 1429 | -8.138066E-03 | -9.518834E-07 | 2.213483E-08 | 0.0000 | -47.5942 | 5.5337 | 0.0000 |
| 1444 | -7.799878E-03 | -8.750583E-07 | 3.255549E-08 | 0.0000 | -43.7523 | 1.0174 | 0.0000 |

JOINT ANALYSIS

STEP 1 CASE-4

SUB STEP 1

JOINT ELEMENT STRAIN, STRESS (TOTAL)

| ELEMENT | STRAIN(UO) | STRAIN(VO) | STRAIN(WO) | STRESS(ST) | STRESS(SN) | MOMENT(FM) | SAFTY FACT |
|---------|---------------|---------------|---------------|------------|------------|------------|------------|
| 1459 | -7.241576E-03 | -8.017308E-07 | 3.261750E-08 | 0.0000 | -40.0865 | 1.9908 | 0.0000 |
| 1473 | -6.289337E-03 | -7.371912E-07 | 1.521138E-08 | 0.0000 | -36.8596 | 1.8133 | 0.0000 |
| 1487 | -4.965311E-03 | -6.929902E-07 | 1.307272E-08 | 0.0000 | -34.6495 | 1.5589 | 0.0000 |
| 1500 | -3.346961E-03 | -8.472177E-07 | 1.178295E-07 | 0.0000 | -42.3256 | 1.3256 | 0.0000 |
| 1512 | -1.229635E-03 | -5.109392E-07 | 3.270011E-07 | 0.0000 | -25.5470 | 38.9816 | 0.0000 |
| 1528 | -1.730199E-04 | -6.708219E-07 | 7.424702E-07 | 0.0000 | -33.5411 | -17.1125 | 0.0000 |
| 1540 | -1.730203E-04 | -5.624473E-07 | 3.533001E-07 | 0.0000 | -28.1224 | 44.7992 | 0.0000 |
| 1560 | -1.221720E-04 | -5.360016E-07 | 3.353354E-07 | 0.0000 | -26.8001 | -42.6927 | 0.0000 |
| 1572 | -1.221719E-04 | -5.653496E-07 | 6.257327E-07 | 0.0000 | -28.2675 | 14.4219 | 0.0000 |
| 1582 | -1.057563E-04 | -4.050764E-07 | -2.537278E-07 | 0.0000 | -20.2538 | -32.2645 | 0.0000 |
| 1595 | -1.057563E-04 | -4.050764E-07 | 4.483413E-07 | 0.0000 | -20.2538 | 10.3334 | 0.0000 |
| 1600 | -8.936378E-05 | -2.988339E-07 | 1.878206E-07 | 0.0000 | -14.9417 | -23.8022 | 0.0000 |
| 1615 | -8.936378E-05 | -2.988339E-07 | 3.307514E-07 | 0.0000 | -14.9417 | 7.6232 | 0.0000 |
| 1619 | -6.258201E-05 | 5.797707E-05 | 2.319083E-04 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1624 | -2.692746E-04 | -1.038829E-06 | 2.330529E-08 | 0.0000 | -51.9414 | 0.5239 | 0.0000 |
| 1628 | -4.579914E-04 | -1.065543E-06 | -1.088843E-07 | 0.0000 | -53.2771 | -21.3466 | 0.0000 |
| 1258 | -3.220370E-03 | -1.334075E-06 | 1.030202E-06 | 0.0000 | -66.7038 | 29.2916 | 0.0000 |
| 1298 | -5.434042E-03 | -6.159416E-07 | -2.892427E-07 | 0.0000 | -30.7971 | -8.2113 | 0.0000 |
| 1330 | -7.220879E-03 | -8.195157E-07 | 7.904742E-08 | 0.0000 | -40.9758 | 2.2441 | 0.0000 |
| 1362 | -8.746118E-03 | -7.666994E-07 | -2.430061E-08 | 0.0000 | -38.3350 | -0.6966 | 0.0000 |
| 1394 | -1.041316E-02 | -8.147465E-07 | -1.454505E-08 | 0.0000 | -40.7373 | -2.8513 | 0.0000 |
| 1417 | -1.210027E-02 | -8.668470E-07 | -1.434522E-08 | 0.0000 | -43.3423 | -3.2606 | 0.0000 |
| 1433 | -1.325925E-02 | -9.874112E-07 | -4.638489E-08 | 0.0000 | -49.3706 | -11.5962 | 0.0000 |
| 1438 | -1.381093E-02 | -8.249508E-07 | 2.552302E-07 | 0.0000 | -41.2475 | 7.9759 | 0.0000 |
| 1463 | -1.398675E-02 | -1.310430E-06 | -5.955678E-07 | 0.0000 | -65.5215 | -36.1675 | 0.0000 |
| 1477 | -1.395077E-02 | 1.120184E-06 | 2.029648E-06 | 0.0000 | 15.7289 | 57.6008 | 0.0000 |
| 1491 | -1.354233E-02 | 8.675840E-04 | 5.525072E-04 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1504 | -1.256499E-02 | 2.989729E-03 | 8.056657E-04 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1516 | -1.056993E-02 | 6.925608E-03 | 1.713297E-03 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1532 | -1.327185E-02 | -9.671605E-06 | 7.289650E-06 | 0.0000 | -49.5803 | 506.5675 | 0.0000 |
| 1545 | -1.349431E-02 | -5.133450E-07 | -4.649614E-07 | 0.0000 | -28.3590 | -114.9431 | 0.0000 |
| 1266 | -3.023493E-03 | -1.662412E-06 | 1.395325E-05 | 0.0000 | -83.1205 | 39.6732 | 0.0000 |
| 1306 | -5.186000E-03 | -7.278635E-07 | -4.311018E-07 | 0.0000 | -36.3932 | -12.2385 | 0.0000 |
| 1338 | -6.986950E-03 | -9.320035E-07 | 2.203223E-07 | 0.0000 | -46.6002 | 6.2547 | 0.0000 |
| 1370 | -8.585382E-03 | -1.163797E-06 | -4.594172E-07 | 0.0000 | -58.1898 | -13.0626 | 0.0000 |
| 1402 | -1.042022E-02 | -3.726523E-07 | 6.381004E-07 | 0.0000 | -25.5650 | 105.9971 | 0.0000 |
| 1421 | -1.229619E-02 | 9.015484E-04 | 4.648696E-04 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1437 | -1.211427E-02 | 4.064532E-03 | 1.311505E-03 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1452 | -1.258354E-02 | 8.726136E-03 | 2.399305E-03 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1467 | -1.645893E-02 | 2.123720E-06 | 1.988797E-05 | 0.0000 | -370.8478 | 1386.6780 | 0.0000 |

241

JOINT ANALYSIS

STEP 1 CASE-4

SUB STEP 1

| BEAM ELEMENT | GRID | AXIAL FORCE (TOTAL) | SHEAR-Y FORCE | SHEAR-Z FORCE | TORQUE MOMENT | BEND-Y MOMENT | BEND-Z MOMENT |
|---------------------|---------|---------------------|---------------|---------------|---------------|---------------|---------------|
| 2001 (523 - 528) | 18.9869 | -18.9869 | -0.0023 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 2002 (1528 - 541) | 10.1246 | -10.1246 | 0.0023 | 0.0000 | 0.0000 | 0.0000 | -0.0069 |
| 2003 (551 - 560) | -4.0857 | -4.0857 | -0.0023 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 2004 (1560 - 563) | 5.2125 | -5.2125 | 0.0008 | 0.0000 | 0.0000 | 0.0000 | -0.0024 |
| 2005 (571 - 582) | -3.3061 | -3.3061 | -0.0008 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 2006 (1582 - 587) | 4.8757 | -4.8757 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | -0.0006 |
| 2007 (594 - 600) | -3.8258 | -3.8258 | -0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 2008 (1600 - 608) | 5.2118 | -5.2118 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 2009 (614 - 619) | 6.4485 | -6.4485 | -0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 2010 (1619 - 629) | 9.9678 | -9.9678 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | -0.0006 |

6. 工事費積算関係（第11章 参照）

- ・工事費積算内訳

応急対策工内訳*(1)

| 工種 | 単位 | 数量 | 単価(円) | 金額(円) | 内貨(円) | 外貨(円) |
|-----------------|----------------|--------|-----------|-------------------------|-------------------------|-----------------------|
| 1.1特殊グラウト工 | | | | 41,700,000 | 37,530,000 | 4,170,000 |
| 1) 直接工事費 | | | | 32,100,000 | | |
| ボーリング孔 | m | 1,000 | 30,000 | 30,000,000 | | |
| グラウト工 | 孔 | 42 | 50,000 | 2,100,000 | | |
| 2) 間接工事費 | 式 | 1 | | 9,600,000 | | |
| 1.2堤体PC工 | | | | 236,800,000 | 189,440,000 | 47,360,000 |
| 1) 直接工事費 | | | | 172,350,000 | | |
| 堤体削孔Φ165 | m | 2,118 | 35,000 | 74,112,500 | | |
| 堤体PC工 材工 | 孔 | 55 | 441,000 | 24,255,000 | | |
| 堤体錠 | 式 | 1 | | 9,982,500 | | |
| 断層削孔Φ115 | m | 800 | 65,000 | 52,000,000 | | |
| 断層PC工 材工 | 孔 | 20 | 600,000 | 12,000,000 | | |
| 2) 間接工事費 | 式 | 1 | | 64,450,000 | | |
| 1.3堤体排水孔 | | | | 276,400,000 | 221,120,000 | 55,280,000 |
| 1) 直接工事費 | | | | 207,000,000 | | |
| ボーリング孔(上方) | m | 5,000 | 30,000 | 150,000,000 | | |
| ボーリング孔(下方) | m | 6,000 | 9,500 | 57,000,000 | | |
| 2) 間接工事費 | 式 | 1 | | 69,400,000 | | |
| 1.4堤体諸観測設備 | | | | 71,900,000 | 71,900,000 | 0 |
| 1) 直接工事費 | | | | 65,400,000 | | |
| 測深器他 | 式 | 1 | | 2,300,000 | | |
| 地震計 | 台 | 4 | | 13,000,000 | | |
| 排水孔圧力計 | 式 | | | 300,000 | | |
| 漏水量測定設備 | ヶ所 | 4 | | 4,300,000 | | |
| ミニカメラ-スフィジョン | 式 | 1 | | 13,900,000 | | |
| 水準、三角網部材 | 式 | 1 | | 1,500,000 | | |
| アラムライン | ヶ所 | 2 | | 20,500,000 | | |
| 断層部変位測定器 | 式 | 1 | | 5,400,000 | | |
| 掘付、掘戻料 | 式 | 1 | | 4,200,000 | | |
| 2) 間接工事費 | 式 | 1 | | 6,500,000 | | |
| 1.5貯水池内測量 | | | | 165,000,000 | 128,700,000 | 36,300,000 |
| 1) 直接工事費 | | | | 104,000,000 | | |
| 現地調査 | 式 | 1 | | 95,800,000 | | |
| 解析、計算、作図 | 式 | 1 | | 8,200,000 | | |
| 2) 間接工事費 | 式 | 1 | | 61,000,000 | | |
| 1.6堤体上流面水中止水工 | | | | 930,000,000 | 744,000,000 | 186,000,000 |
| 1) 直接工事費 | | | | 704,900,000 | | |
| 材料費 | 式 | 1 | | 109,000,000 | | |
| 労務費 | 式 | 1 | | 455,400,000 | | |
| 機械費 | 式 | 1 | | 140,500,000 | | |
| 2) 間接工事費 | 式 | 1 | | 225,100,000 | | |
| 1.7水圧鉄管補修 | | | | 126,400,000 | 126,400,000 | 0 |
| 1) 直接工事費 | | | | 88,320,000 | | |
| 材料費(掘抜長当り) | m | 40 | 24,000 | 960,000 | | |
| 機械費 | m | 40 | 430,000 | 17,200,000 | | |
| 輸送費 | m | 40 | 411,000 | 16,440,000 | | |
| 労務費 | m | 40 | 1,343,000 | 53,720,000 | | |
| 2) 間接工事費 | 式 | 40 | 952,000 | 38,080,000 | | |
| 1.8堤体天端、天端涵庫高補修 | | | | 165,200,000 | 148,680,000 | 16,520,000 |
| 1) 直接工事費 | | | | 134,700,000 | | |
| 天端舗装 | m ² | 10,000 | 1,600 | 16,000,000 | | |
| 天端排水溝 | m | 2,160 | 20,000 | 43,200,000 | | |
| 天端涵庫 | m | 1,000 | 21,500 | 21,500,000 | | |
| 天端高欄 | m ² | 5,400 | 10,000 | 54,000,000 | | |
| 2) 間接工事費 | 式 | | | 30,500,000 | | |
| 応急対策工 計 | 円 千元 | | | 2,013,400,000 85,389 | 1,667,770,000 70,731 | 345,630,000 14,658 |

恒久対策工内訳*(1)

| 工種 | 単位 | 数量 | 単価(元) | 金額(元) | 内貨(元) | 外貨(元) |
|---------------|----------------|--------|--------|-----------------------------|----------------------------|----------------------------|
| 洪水吐増設工事 | | | | 91,128,000元 | 54,676,800元 | 36,451,200元 |
| I.土木工事費 | | | | 86,214,000 | | |
| (1)直接工事費 | | | | 61,581,300 | | |
| 掘削/土砂 | m ³ | 12,400 | 25 | 310,000 | | |
| 掘削/岩 | m ³ | 34,700 | 80 | 2,776,000 | | |
| 掘削/人力(岩) | m ³ | 15,000 | 865 | 12,975,000 | | |
| コンクリート撤去(含運搬) | m ³ | 16,400 | 485 | 7,954,000 | | |
| コンクリートチップング | m ³ | 3,700 | 45 | 166,500 | | |
| コンクリート | m ³ | 38,390 | 720 | 27,640,800 | | |
| 鉄筋 | t | 1,160 | 5,900 | 6,844,000 | | |
| 埋め戻し | m ³ | 7,900 | 30 | 237,000 | | |
| PC工 | m | 1,070 | 2,400 | 2,568,000 | | |
| 排水管 | m | 1,300 | 50 | 65,000 | | |
| 止水板 | m | 60 | 750 | 45,000 | | |
| (2)間接工事費 | 式 | 1 | | 24,632,700 | | |
| II.ゲート工事費 | | | | 4,914,000 | | |
| (1)直接工事費 | | | | 3,510,000 | | |
| ゲート | t | 270 | 13,000 | 3,510,000 | | |
| (2)間接工事費 | 式 | 1 | | 1,404,000 | | |
| ダム断層部補強工事 | | | | 23,249,600元 | 13,949,800元 | 9,299,800元 |
| III.土木工事費 | | | | 21,989,600 | | |
| (1)直接工事費 | | | | 15,715,000 | | |
| 掘削/土砂 | m ³ | 14,000 | 25 | 350,000 | | |
| 掘削/岩 | m ³ | 6,000 | 80 | 480,000 | | |
| 埋め戻し | m ³ | 900 | 30 | 27,000 | | |
| コンクリート | m ³ | 19,300 | 600 | 11,580,000 | | |
| 矢板工 | m ² | 2,200 | 1490 | 3,278,000 | | |
| (2)間接工事費 | 式 | 1 | | 6,274,600 | | |
| IV.閉閉所移設工事費 | | | | 1,260,000 | | |
| (1)直接工事費 | | | | 900,000 | | |
| 撤去費 | 式 | 1 | | 85,000 | | |
| 掘付工 | 式 | 1 | | 815,000 | | |
| (2)間接工事費 | | | | 360,000 | | |
| 来害永久対策工 | | | | 53,438,000元 | 5,343,800元 | 48,094,200元 |
| (1)直接工事費 | m ² | 35,000 | 1,080 | 37,800,000 | | |
| (2)間接工事費 | 式 | 1 | | 15,638,000 | | |
| 合 計 | | | | 167,815,600元 3,956,880千円 | 73,970,400元 1,744,130千円 | 93,845,200元 2,212,750千円 |

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