**Appendix A: Baseline Pipeline Impact Radius Tables for MAP 9.6.S.1**

**1. High-Pressure Pipelines Transferring Flammable and Combustible Liquids**

**Table 1: Diesel Thermal Radiation ASDs (feet)**

|  |  |
| --- | --- |
| **Diameter (in)** | **ASD (feet)** |
| 4 | 536 |
| 6 | 634 |
| 8 | 713 |
| 10 | 782 |
| 12 | 843 |
| 14 | 898 |
| 16 | 949 |
| 18 | 996 |
| 20 | 1,040 |
| 22 | 1,081 |
| 24 | 1,121 |

**Table 2: Gasoline Thermal Radiation ASDs (feet)**

|  |  |
| --- | --- |
| **Diameter (in)** | **ASD (feet)** |
| 4 | 508 |
| 6 | 600 |
| 8 | 676 |
| 10 | 741 |
| 12 | 798 |
| 14 | 851 |
| 16 | 899 |
| 18 | 943 |
| 20 | 985 |
| 22 | 1,024 |
| 24 | 1,061 |

**Table 3: Crude Oil Thermal Radiation ASDs (feet)**

|  |  |
| --- | --- |
| **Diameter (in)** | **ASD (feet)** |
| 4 | 521 |
| 6 | 616 |
| 8 | 693 |
| 10 | 759 |
| 12 | 819 |
| 14 | 872 |
| 16 | 921 |
| 18 | 967 |
| 20 | 1,010 |
| 22 | 1,050 |
| 24 | 1,089 |
| 26 | 1,125 |
| 28 | 1,160 |
| 30 | 1,193 |
| 32 | 1,225 |
| 34 | 1,256 |
| 36 | 1,286 |
| 38 | 1,315 |
| 40 | 1,343 |
| 42 | 1,369 |
| 44 | 1,397 |
| 46 | 1,423 |
| 48 | 1,448 |

**2. High-Pressure Pipelines Transferring Flammable and Combustible Gasses (Thermal Radiation)**

**Table 1: Natural Gas Pipeline Thermal Radiation ASDs (feet)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Diameter (in)** | **Pipeline Pressure (psi)** | | | | | | | | | | | | | | | |
| **60** | **120** | **240** | **360** | **480** | **600** | **720** | **840** | **960** | **1,080** | **1,200** | **1,320** | **1,440** | **1,560** | **1,680** | **1,800** |
| **4** | 71 | 100 | 142 | 173 | 200 | 224 | 245 | 265 | 283 | 300 | 317 | 332 | 347 | 361 | 375 | 388 |
| **6** | 106 | 150 | 212 | 260 | 300 | 336 | 368 | 397 | 425 | 450 | 475 | 498 | 520 | 541 | 562 | 581 |
| **8** | 142 | 200 | 283 | 347 | 400 | 448 | 490 | 530 | 566 | 601 | 633 | 664 | 693 | 722 | 749 | 775 |
| **10** | 177 | 250 | 354 | 433 | 500 | 560 | 613 | 662 | 708 | 751 | 791 | 830 | 867 | 902 | 936 | 969 |
| **12** | 212 | 300 | 425 | 520 | 601 | 671 | 736 | 794 | 849 | 901 | 950 | 996 | 1,040 | 1,083 | 1,124 | 1,163 |
| **14** | 248 | 350 | 495 | 607 | 701 | 783 | 858 | 927 | 991 | 1,051 | 1,108 | 1,162 | 1,214 | 1,263 | 1,311 | 1,357 |
| **16** | 283 | 400 | 566 | 693 | 801 | 895 | 981 | 1,059 | 1,132 | 1,201 | 1,266 | 1,328 | 1,387 | 1,444 | 1,498 | 1,551 |
| **18** | 318 | 450 | 637 | 780 | 901 | 1,007 | 1,103 | 1,192 | 1,274 | 1,351 | 1,424 | 1,494 | 1,560 | 1,624 | 1,685 | 1,744 |
| **20** | 354 | 500 | 708 | 867 | 1,001 | 1,119 | 1,226 | 1,324 | 1,415 | 1,501 | 1,583 | 1,660 | 1,734 | 1,804 | 1,873 | 1,938 |
| **22** | 389 | 550 | 779 | 953 | 1,101 | 1,231 | 1,348 | 1,456 | 1,557 | 1,651 | 1,741 | 1,826 | 1,907 | 1,985 | 2,060 | 2,132 |
| **24** | 425 | 601 | 849 | 1,040 | 1,201 | 1,343 | 1,471 | 1,589 | 1,699 | 1,802 | 1,899 | 1,992 | 2,080 | 2,165 | 2,247 | 2,326 |
| **26** | 460 | 651 | 920 | 1,127 | 1,301 | 1,455 | 1,594 | 1,721 | 1,840 | 1,952 | 2,057 | 2,158 | 2,254 | 2,346 | 2,434 | 2,520 |
| **28** | 495 | 701 | 991 | 1,214 | 1,401 | 1,567 | 1,716 | 1,854 | 1,982 | 2,102 | 2,216 | 2,324 | 2,427 | 2,526 | 2,622 | 2,714 |
| **30** | 531 | 751 | 1,062 | 1,300 | 1,501 | 1,679 | 1,839 | 1,986 | 2,123 | 2,252 | 2,374 | 2,490 | 2,600 | 2,707 | 2,809 | 2,907 |
| **32** | 566 | 801 | 1,132 | 1,387 | 1,601 | 1,790 | 1,961 | 2,119 | 2,265 | 2,402 | 2,532 | 2,656 | 2,774 | 2,887 | 2,996 | 3,101 |
| **34** | 602 | 851 | 1,203 | 1,474 | 1,702 | 1,902 | 2,084 | 2,251 | 2,406 | 2,552 | 2,690 | 2,822 | 2,947 | 3,067 | 3,183 | 3,295 |
| **36** | 637 | 901 | 1,274 | 1,560 | 1,802 | 2,014 | 2,207 | 2,383 | 2,548 | 2,702 | 2,849 | 2,988 | 3,121 | 3,248 | 3,371 | 3,489 |
| **38** | 672 | 951 | 1,345 | 1,647 | 1,902 | 2,126 | 2,329 | 2,516 | 2,689 | 2,853 | 3,007 | 3,154 | 3,294 | 3,428 | 3,558 | 3,683 |
| **40** | 708 | 1,001 | 1,415 | 1,734 | 2,002 | 2,238 | 2,452 | 2,648 | 2,831 | 3,003 | 3,165 | 3,320 | 3,467 | 3,609 | 3,745 | 3,876 |
| **42** | 743 | 1,051 | 1,486 | 1,820 | 2,102 | 2,350 | 2,574 | 2,781 | 2,973 | 3,153 | 3,323 | 3,486 | 3,641 | 3,789 | 3,932 | 4,070 |
| **44** | 779 | 1,101 | 1,557 | 1,907 | 2,202 | 2,462 | 2,697 | 2,913 | 3,114 | 3,303 | 3,482 | 3,652 | 3,814 | 3,970 | 4,120 | 4,264 |
| **46** | 814 | 1,151 | 1,628 | 1,994 | 2,302 | 2,574 | 2,819 | 3,045 | 3,256 | 3,453 | 3,640 | 3,818 | 3,987 | 4,150 | 4,307 | 4,458 |
| **48** | 849 | 1,201 | 1,699 | 2,080 | 2,402 | 2,686 | 2,942 | 3,178 | 3,397 | 3,603 | 3,798 | 3,984 | 4,161 | 4,331 | 4,494 | 4,652 |
| **50** | 885 | 1,251 | 1,769 | 2,167 | 2,502 | 2,798 | 3,065 | 3,310 | 3,539 | 3,753 | 3,956 | 4,150 | 4,334 | 4,511 | 4,681 | 4,846 |

**Table 2: Hydrogen Pipeline Thermal Radiation ASDs (feet)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Diameter (in)** | **Pipeline Pressure (psi)** | | | | | | | | | | | | | | | |
| **60** | **120** | **240** | **360** | **480** | **600** | **720** | **840** | **960** | **1,080** | **1,200** | **1,320** | **1,440** | **1,560** | **1,680** | **1,800** |
| **4** | 58 | 83 | 117 | 143 | 165 | 185 | 202 | 219 | 234 | 248 | 261 | 274 | 286 | 298 | 309 | 320 |
| **6** | 88 | 124 | 175 | 215 | 248 | 277 | 304 | 328 | 350 | 372 | 392 | 411 | 429 | 447 | 464 | 480 |
| **8** | 117 | 165 | 234 | 286 | 330 | 369 | 405 | 437 | 467 | 496 | 522 | 548 | 572 | 596 | 618 | 640 |
| **10** | 146 | 207 | 292 | 358 | 413 | 462 | 506 | 546 | 584 | 620 | 653 | 685 | 715 | 745 | 773 | 800 |
| **12** | 175 | 248 | 350 | 429 | 496 | 554 | 607 | 656 | 701 | 743 | 784 | 822 | 858 | 894 | 927 | 960 |
| **14** | 204 | 289 | 409 | 501 | 578 | 647 | 708 | 765 | 818 | 867 | 914 | 959 | 1,002 | 1,042 | 1,082 | 1,120 |
| **16** | 234 | 330 | 467 | 572 | 661 | 739 | 809 | 874 | 935 | 991 | 1,045 | 1,096 | 1,145 | 1,191 | 1,236 | 1,280 |
| **18** | 263 | 372 | 526 | 644 | 743 | 831 | 911 | 984 | 1,051 | 1,115 | 1,176 | 1,233 | 1,288 | 1,340 | 1,391 | 1,440 |
| **20** | 292 | 413 | 584 | 715 | 826 | 924 | 1,012 | 1,093 | 1,168 | 1,239 | 1,306 | 1,370 | 1,431 | 1,489 | 1,545 | 1,600 |
| **22** | 321 | 454 | 643 | 787 | 909 | 1,016 | 1,113 | 1,202 | 1,285 | 1,363 | 1,437 | 1,507 | 1,574 | 1,638 | 1,700 | 1,760 |
| **24** | 350 | 496 | 701 | 858 | 991 | 1,108 | 1,214 | 1,311 | 1,402 | 1,487 | 1,567 | 1,644 | 1,717 | 1,787 | 1,855 | 1,920 |

**Table 3: Ethane Pipeline Thermal Radiation ASDs (feet)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Diameter (in)** | **Pipeline Pressure (psi)** | | | | | | | | | | | | | | | |
| **60** | **120** | **240** | **360** | **480** | **600** | **720** | **840** | **960** | **1,080** | **1,200** | **1,320** | **1,440** | **1,560** | **1,680** | **1,800** |
| **4** | 87 | 123 | 174 | 213 | 246 | 275 | 301 | 325 | 348 | 369 | 389 | 408 | 426 | 443 | 460 | 476 |
| **6** | 130 | 184 | 261 | 319 | 369 | 412 | 451 | 488 | 521 | 553 | 583 | 611 | 639 | 665 | 690 | 714 |
| **8** | 174 | 246 | 348 | 426 | 492 | 550 | 602 | 650 | 695 | 737 | 777 | 815 | 851 | 886 | 920 | 952 |
| **10** | 217 | 307 | 434 | 532 | 614 | 687 | 752 | 813 | 869 | 922 | 971 | 1,019 | 1,064 | 1,108 | 1,149 | 1,190 |
| **12** | 261 | 369 | 521 | 639 | 737 | 824 | 903 | 975 | 1,043 | 1,106 | 1,166 | 1,223 | 1,277 | 1,329 | 1,379 | 1,428 |
| **14** | 304 | 430 | 608 | 745 | 860 | 962 | 1,053 | 1,138 | 1,216 | 1,290 | 1,360 | 1,426 | 1,490 | 1,551 | 1,609 | 1,666 |
| **16** | 348 | 492 | 695 | 851 | 983 | 1,099 | 1,204 | 1,300 | 1,390 | 1,475 | 1,554 | 1,630 | 1,703 | 1,772 | 1,839 | 1,904 |
| **18** | 391 | 553 | 782 | 958 | 1,106 | 1,236 | 1,354 | 1,463 | 1,564 | 1,659 | 1,749 | 1,834 | 1,916 | 1,994 | 2,069 | 2,142 |
| **20** | 434 | 614 | 869 | 1,064 | 1,229 | 1,374 | 1,505 | 1,626 | 1,738 | 1,843 | 1,943 | 2,038 | 2,128 | 2,215 | 2,299 | 2,380 |
| **22** | 478 | 676 | 956 | 1,171 | 1,352 | 1,511 | 1,655 | 1,788 | 1,912 | 2,028 | 2,137 | 2,242 | 2,341 | 2,437 | 2,529 | 2,618 |
| **24** | 521 | 737 | 1,043 | 1,277 | 1,475 | 1,649 | 1,806 | 1,951 | 2,085 | 2,212 | 2,332 | 2,445 | 2,554 | 2,658 | 2,759 | 2,856 |

**3. High-Pressure Pipelines Transferring Flammable and Combustible Gasses (Blast Overpressure)**

**Table 1: Natural Gas Blast Overpressure ASDs (feet)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Diameter (in)** | **Pipeline Pressure (psi)** | | | | | | | | |
| **60** | **240** | **600** | **720** | **840** | **960** | **1,200** | **1,560** | **1,800** |
| **4** | 42 | 87 | 141 | 156 | 168 | 180 | 204 | 234 | 252 |
| **6** | 96 | 147 | 237 | 261 | 282 | 303 | 342 | 390 | 423 |
| **8** | 144 | 318 | 525 | 555 | 603 | 645 | 729 | 834 | 906 |
| **10** | 186 | 429 | 705 | 774 | 840 | 894 | 1,005 | 1,131 | 1,209 |
| **12** | 237 | 546 | 888 | 981 | 1,056 | 1,119 | 1,239 | 1,398 | 1,488 |
| **14** | 288 | 666 | 1,080 | 1,170 | 1,257 | 1,338 | 1,479 | 1,662 | 1,767 |
| **16** | 345 | 798 | 1,254 | 1,365 | 1,464 | 1,551 | 1,716 | 1,923 | 2,046 |
| **18** | 390 | 930 | 1,434 | 1,554 | 1,668 | 1,770 | 1,950 | 2,184 | 2,328 |
| **20** | 465 | 1,056 | 1,611 | 1,749 | 1,866 | 1,983 | 2,187 | 2,454 | 2,610 |
| **22** | 525 | 1,173 | 1,788 | 1,938 | 2,073 | 2,196 | 2,424 | 2,721 | 2,898 |
| **24** | 585 | 1,293 | 1,965 | 2,127 | 2,274 | 2,415 | 2,664 | 2,991 | 3,192 |
| **26** | 660 | 1,416 | 2,139 | 2,319 | 2,481 | 2,631 | 2,904 | 3,270 | 3,492 |
| **28** | 720 | 1,530 | 2,316 | 2,508 | 2,685 | 2,853 | 3,153 | 3,558 | 3,804 |
| **30** | 780 | 1,653 | 2,493 | 2,703 | 2,895 | 3,078 | 3,408 | 3,852 | 4,125 |
| **32** | 840 | 1,770 | 2,673 | 2,901 | 3,111 | 3,306 | 3,669 | 4,161 | 4,461 |
| **34** | 915 | 1,887 | 2,856 | 3,102 | 3,330 | 3,546 | 3,939 | 4,479 | 4,815 |
| **36** | 975 | 2,007 | 3,042 | 3,309 | 3,555 | 3,789 | 4,221 | 4,815 | 5,184 |
| **38** | 1,050 | 2,127 | 3,234 | 3,519 | 3,789 | 4,041 | 4,512 | 5,163 | 5,808 |
| **40** | 1,110 | 2,244 | 3,429 | 3,738 | 4,029 | 4,302 | 4,818 | 5,808 | 6,336 |
| **42** | 1,170 | 2,370 | 3,630 | 3,963 | 4,278 | 4,575 | 5,133 | 6,336 | 7,392 |
| **44** | 1,230 | 2,493 | 3,837 | 4,194 | 4,533 | 4,854 | 5,280 | 7,392 | 8,448 |
| **46** | 1,290 | 2,616 | 4,047 | 4,434 | 4,800 | 5,148 | 6,336 | 7,920 | 9,504 |
| **48** | 1,350 | 2,742 | 4,266 | 4,683 | 5,076 | 5,280 | 6,864 | 8,976 | 10,560 |
| **50** | 1,470 | 2,871 | 4,491 | 4,938 | 5,280 | 6,336 | 7,920 | 10,032 | 11,616 |

**Table 2: Hydrogen Blast Overpressure ASDs (feet)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Diameter (in)** | **Pipeline Pressure (psi)** | | | | | |
| **350** | **800** | **1,100** | **1,400** | **1,700** | **1,800** |
| **4** | 300 | 465 | 549 | 621 | 687 | 708 |
| **6** | 510 | 792 | 924 | 1,038 | 1,137 | 1,167 |
| **8** | 747 | 1,119 | 1,296 | 1,458 | 1,593 | 1,635 |
| **10** | 981 | 1,452 | 1,680 | 1,881 | 2,055 | 2,109 |
| **12** | 1,212 | 1,788 | 2,070 | 2,316 | 2,535 | 2,604 |
| **14** | 1,449 | 2,130 | 2,475 | 2,778 | 3,048 | 3,135 |
| **16** | 1,686 | 2,493 | 2,907 | 3,270 | 3,603 | 3,711 |
| **18** | 1,935 | 2,874 | 3,366 | 3,804 | 4,209 | 4,338 |
| **20** | 2,187 | 3,279 | 3,858 | 4,380 | 4,866 | 5,022 |
| **22** | 2,454 | 3,711 | 4,389 | 5,004 | 5,808 | 6,336 |
| **24** | 2,730 | 4,167 | 4,956 | 6,336 | 7,392 | 8,448 |
| **26** | 3,018 | 4,656 | 5,808 | 7,920 | 8,976 | 9,504 |

**Table 3: Ethane Blast Overpressure ASDs (feet)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Diameter (in)** | **Pipeline Pressure (psi)** | | | | | |
| **60** | **120** | **240** | **360** | **480** | **600** |
| **4** | 39 | 54 | 90 | 102 | 126 | 135 |
| **6** | 87 | 108 | 141 | 177 | 210 | 240 |
| **8** | 117 | 165 | 243 | 279 | 354 | 393 |
| **10** | 153 | 222 | 324 | 399 | 444 | 474 |
| **12** | 192 | 279 | 402 | 498 | 507 | 534 |
| **14** | 228 | 336 | 462 | 564 | 558 | 621 |
| **16** | 267 | 393 | 513 | 594 | 681 | 747 |
| **18** | 309 | 447 | 594 | 684 | 783 | 867 |
| **20** | 366 | 486 | 666 | 789 | 891 | 1,002 |
| **22** | 396 | 540 | 759 | 885 | 1,017 | 1,167 |
| **24** | 432 | 600 | 858 | 990 | 1,164 | 1,305 |
| \*Ethane is a liquid above 600 psi | |  |  |  |  |  |