

## **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)**

<b>Diameter (in)</b>	<b>ASD (feet)</b>
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)**

<b>Diameter (in)</b>	<b>ASD (feet)</b>
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)**

<b>Diameter (in)</b>	<b>ASD (feet)</b>
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 Gases (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	211	300	425	520	601	671	736	794	849	901	950	996	1,040	1,083	1,124	1,163
14	244	350	495	607	701	783	858	927	991	1,051	1,108	1,162	1,214	1,263	1,311	1,357
16	276	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	307	450	637	780	901	1,007	1,103	1,192	1,277	1,358	1,424	1,494	1,560	1,624	1,685	1,744
20	337	500	708	867	1,001	1,119	1,226	1,324	1,415	1,501	1,583	1,661	1,736	1,808	1,877	1,933
22	366	550	779	953	1,101	1,231	1,348	1,456	1,555	1,655	1,747	1,822	1,900	1,985	2,060	2,133
24	394	601	849	1,040	1,201	1,343	1,477	1,588	1,699	1,802	1,899	1,992	2,080	2,165	2,247	2,327
26	421	651	920	1,127	1,301	1,455	1,599	1,724	1,841	1,951	2,057	2,159	2,256	2,349	2,438	2,524
28	447	701	991	1,214	1,401	1,567	1,711	1,854	1,988	2,104	2,211	2,322	2,428	2,529	2,626	2,711
30	472	751	1,062	1,300	1,501	1,679	1,839	1,998	2,127	2,257	2,377	2,499	2,600	2,707	2,809	2,907
32	496	801	1,132	1,387	1,601	1,790	1,961	2,119	2,266	2,404	2,533	2,655	2,777	2,888	2,999	3,107
34	519	851	1,203	1,474	1,702	1,902	2,084	2,255	2,406	2,555	2,699	2,822	2,947	3,067	3,183	3,295
36	541	901	1,274	1,560	1,802	2,014	2,207	2,388	2,548	2,707	2,844	2,988	3,121	3,244	3,377	3,489
38	562	951	1,345	1,647	1,902	2,126	2,329	2,511	2,688	2,855	3,007	3,159	3,299	3,428	3,555	3,683
40	582	1,001	1,415	1,734	2,002	2,238	2,452	2,644	2,833	3,000	3,166	3,322	3,466	3,609	3,749	3,877
42	601	1,051	1,486	1,821	2,102	2,355	2,577	2,788	2,997	3,155	3,322	3,488	3,644	3,788	3,933	4,077

	3	1	6	0	2	0	4	1	3	3	3	6	1	9	2	0
<b>44</b>	77 9	1,10 1	1,55 7	1,90 7	2,20 2	2,46 2	2,69 7	2,91 3	3,11 4	3,30 3	3,48 2	3,65 2	3,81 4	3,97 0	4,12 0	4,26 4
<b>46</b>	81 4	1,15 1	1,62 8	1,99 4	2,30 2	2,57 4	2,81 9	3,04 5	3,25 6	3,45 3	3,64 0	3,81 8	3,98 7	4,15 0	4,30 7	4,45 8
<b>48</b>	84 9	1,20 1	1,69 9	2,08 0	2,40 2	2,68 6	2,94 2	3,17 8	3,39 7	3,60 3	3,79 8	3,98 4	4,16 1	4,33 1	4,49 4	4,65 2
<b>50</b>	88 5	1,25 1	1,76 9	2,16 7	2,50 2	2,79 8	3,06 5	3,31 0	3,53 9	3,75 3	3,95 6	4,15 0	4,33 4	4,51 1	4,68 1	4,84 6

**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	1,122
16	233	330	467	572	661	739	809	874	935	991	1,045	1,096	1,145	1,191	1,236	1,280
18	262	372	526	644	743	831	911	984	1,051	1,115	1,176	1,233	1,288	1,341	1,391	1,440
20	291	413	584	715	826	924	1,012	1,099	1,166	1,233	1,300	1,370	1,433	1,488	1,541	1,600
22	320	454	643	787	909	1,016	1,111	1,202	1,288	1,366	1,433	1,500	1,570	1,633	1,700	1,760
24	349	496	701	858	991	1,108	1,211	1,311	1,408	1,486	1,563	1,640	1,710	1,780	1,850	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	1,110	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	1,555	1,633	1,709	1,783	1,834	1,900
18	391	553	782	958	1,106	1,233	1,354	1,466	1,566	1,655	1,740	1,830	1,915	1,995	2,069	2,140
20	435	614	869	1,066	1,222	1,377	1,500	1,622	1,733	1,840	1,940	2,035	2,125	2,210	2,290	2,380

	4			4	9	4	5	6	8	3	3	8	8	5	9	0
<b>22</b>	47 8	676	956	1,17 1	1,35 2	1,51 1	1,65 5	1,78 8	1,91 2	2,02 8	2,13 7	2,24 2	2,34 1	2,43 7	2,52 9	2,61 8
<b>24</b>	52 1	737	1,04 3	1,27 7	1,47 5	1,64 9	1,80 6	1,95 1	2,08 5	2,21 2	2,33 2	2,44 5	2,55 4	2,65 8	2,75 9	2,85 6

### **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	4,803	5,145	6,336	7,920	9,504

	0	6		4	0	8			
<b>48</b>	1,35 0	2,74 2	4,266	4,68 3	5,07 6	5,28 0	6,864	8,976	10,56 0
<b>50</b>	1,47 0	2,87 1	4,491	4,93 8	5,28 0	6,33 6	7,920	10,03 2	11,61 6

**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