

## **APPENDIX L**

### **Distribution Infrastructure Mileage**

## Main Mileage, Service Line Counts and Estimated Service Line Mileage

For Use In Normalization of Incidents and Harm to Humans in Trending Analyses

Mileage of Main								
	Steel	Cast Iron	Polyethylene		Other / No Data	Total	OPS Website	%
			Plastic	Other Plastic				
1988	560,000	60,293	186,134	20,688	2,683	829,798	866,639	-4.3%
1989	560,000	58,520	197,588	20,261	1,807	838,176	838,237	0.0%
1990	600,000	54,053	212,800	20,955	1,758	889,566	945,964	-6.0%
1991	585,000	55,450	220,000	25,230	2,878	888,558	890,876	-0.3%
1992	580,000	55,242	230,000	22,957	2,972	891,171	891,984	-0.1%
1993	593,940	53,543	250,000	23,883	2,304	923,670	951,750	-3.0%
1994	607,880	52,223	280,000	26,096	1,994	968,193	1,002,669	-3.4%
1995	603,396	50,660	310,000	22,936	1,826	988,818	1,003,798	-1.5%
1996	573,136	49,106	332,000	24,990	1,668	980,900	992,860	-1.2%
1997	558,550	47,551	356,000	26,104	3,185	991,390	1,002,896	-1.1%
1998	569,908	46,023	380,000	25,237	4,324	1,025,492	1,040,424	-1.4%
1999	542,289	46,541	388,686	27,195	1,869	1,006,580	1,035,946	-2.8%
2000	551,865	45,105	417,660	24,777	1,752	1,041,159	1,050,756	-0.9%
2001	554,855	44,169	472,082	26,259	2,135	1,099,500	1,100,859	-0.1%
2002	569,000	45,577	505,000	21,506	2,866	1,143,949	1,144,407	0.0%

Number of Service Lines								
	Steel	Cast Iron	Polyethylene		Other / No Data	Total	OPS Website	%
			Plastic	Other Plastic				
1988	28,500,000	72,931	16,347,027	490,611	2,540,583	47,951,152	48,246,973	-0.6%
1989	27,500,000	75,116	16,700,000	871,801	2,304,594	47,451,511	47,591,804	-0.3%
1990	27,118,760	73,147	17,554,256	878,916	2,533,814	48,158,893	48,755,074	-1.2%
1991	26,916,383	67,806	20,000,000	976,644	2,472,341	50,433,174	52,665,539	-4.2%
1992	26,714,006	64,605	20,000,000	900,000	2,400,000	50,078,611	50,103,974	-0.1%
1993	26,617,615	60,586	21,023,573	1,500,000	2,465,729	51,667,503	52,009,967	-0.7%
1994	29,000,000	57,422	23,511,486	1,735,898	2,463,598	56,768,404	56,816,569	-0.1%
1995	27,197,170	77,619	23,914,617	1,901,879	2,285,557	55,376,842	55,518,341	-0.3%
1996	23,939,679	53,462	23,666,227	1,983,747	2,384,740	52,027,855	54,644,300	-4.8%
1997	24,350,899	76,355	27,305,124	551,027	2,298,550	54,581,955	54,863,439	-0.5%
1998	23,814,222	49,693	27,308,110	526,411	2,318,754	54,017,190	55,735,215	-3.1%
1999	23,357,401	47,656	28,709,086	782,225	2,285,219	55,181,587	56,538,415	-2.4%
2000	23,358,460	43,755	30,354,543	583,701	2,332,642	56,673,101	57,688,700	-1.8%
2001	23,275,973	41,718	32,000,000	579,562	2,315,457	58,212,710	58,465,594	-0.4%
2002	23,348,010	41,490	35,000,000	527,775	2,624,922	61,542,197	61,743,320	-0.3%

Estimated Mileage of Service Lines								
	Steel	Cast Iron	Polyethylene		Other / No Data	Total	OPS Website	%
			Plastic	Other Plastic				
1988	298,298	763	171,098	5,135	26,591	501,885	504,981	-0.6%
1989	314,600	859	191,048	9,973	26,365	542,845	544,450	-0.3%
1990	315,247	850	204,063	10,217	29,455	559,833	566,763	-1.2%
1991	301,203	759	223,807	10,929	27,666	564,364	589,345	-4.2%
1992	316,760	766	237,149	10,672	28,458	593,804	594,105	-0.1%
1993	302,419	688	238,862	17,042	28,015	587,026	590,917	-0.7%
1994	349,680	692	283,500	20,931	29,706	684,510	685,091	-0.1%
1995	328,093	936	288,494	22,943	27,572	668,039	669,746	-0.3%
1996	285,584	638	282,322	23,665	28,448	620,657	651,869	-4.8%
1997	284,407	892	318,910	6,436	26,846	637,490	640,778	-0.5%
1998	284,784	594	326,566	6,295	27,729	645,969	666,514	-3.1%
1999	288,180	588	354,209	9,651	28,195	680,823	697,563	-2.4%
2000	273,335	512	355,201	6,830	27,296	663,175	675,059	-1.8%
2001	286,651	514	394,091	7,137	28,516	716,909	720,023	-0.4%
2002	282,614	502	423,655	6,388	31,773	744,933	747,367	-0.3%

Mileage of Distribution Mains DIRECT FROM OPS DATA BASE																						
Unprotected				Protected														Total	Total	Total	Total	
Bare	Coated	Bare	Coated	Total Steel	Cl or WI	PE Plastic	PVC plastic	ABS plastic	Total Other Plastic	Total Plastic	Ductile Iron	Copper	Other 1	Other 2	Total Other / No Data	Total Mileage (by input)	Total Mileage (by sum)	Total Mileage OPS Web	% Difference			
Data Entered By Operators in Part B - Sytem Description (1.0 General)																						
1988	75,793	40,005	21,531	425,000	562,329	60,421				206,320	1,366	70	888	1,331	3,655	865,272	832,725	866,639	-3.9%			
1989	73,895	37,520	21,358	427,782	560,555	58,470				217,340	1,444	68	318	28	1,858	838,223	838,223	838,237	0.0%			
1990	69,744	34,335	25,911	430,225	560,215	57,641				307,139	1,197	67	379	89	1,732	926,727	926,727	945,964	-2.0%			
1991	74,693	28,866	20,378	453,885	577,822	56,164				256,168	1,302	67	611	990	2,970	893,124	893,124	890,876	0.3%			
1992	74,742	27,493	197,321	453,499	753,055	52,830				275,358	1,270	60	1,739	32	3,101	1,084,344	1,084,344	891,984	21.6%			
1993	72,184	27,088	22,733	458,924	580,929	54,124				293,482	1,657	90	729	160	2,636	951,511	931,171	951,750	-2.2%			
1994	73,793	25,379	24,270	485,131	608,573	58,144				333,702	1,325	59	810	113	2,307	1,002,726	1,002,726	1,002,669	0.0%			
1995	71,514	23,069	24,139	485,552	604,274	50,760				355,839	1,160	50	833	2,050	4,093	1,014,966	1,014,966	1,003,798	1.1%			
1996	66,489	21,923	41,705	442,821	572,938	51,542				350,699	1,125	57	785	24,655	26,622	1,001,771	1,001,801	992,860	0.9%			
1997	63,707	21,538	19,010	455,118	559,373	47,697				383,071	1,099	51	1,805	2,623	5,578	995,719	995,719	1,002,896	-0.7%			
1998	65,273	21,366	30,530	454,433	571,602	47,587				400,627	1,070	52	781	367	2,270	1,022,086	1,022,086	1,040,424	-1.8%			
1999	62,774	21,733	14,852	444,003	543,362	45,801				414,431	1,118	51	1,250	123	2,542	1,006,136	1,006,136	1,035,946	-2.9%			
2000	62,124	20,731	14,874	454,432	552,161	44,726				447,586	1,281	45	785	206	2,317	1,046,790	1,046,790	1,050,756	-0.4%			
2001	62,063	19,197	16,488	457,297	555,045	44,404				497,600	982	41	1,164	159	2,346	1,099,395	1,099,395	1,100,859	-0.1%			
2002	64,662	17,948	15,338	472,329	570,277	45,523				525,959	1,872	46	987	322	3,227	1,144,986	1,144,986	1,144,407	0.1%			
Data Entered By Operators in Part B - Sytem Description (2. Miles of main in system at end of year)																						
1988				592,537	60,293	186,134	15,950	4,738	20,688	206,822	1,360	65	1,246	12	2,683	862,813	862,335	866,639	-0.5%			
1989				560,087	58,520	197,588	15,635	4,626	20,261	217,849	1,347	66	389	5	1,807	838,233	838,263	838,237	0.0%			
1990				568,583	54,053	212,800	15,926	5,029	20,955	233,755	1,230	68	455	5	1,758	858,010	858,149	945,964	-9.3%			
1991				629,184	55,450	239,845	20,319	4,911	25,230	265,075	1,266	147	1,460	5	2,878	945,596	952,587	890,876	6.9%			
1992				581,420	55,242	260,859	19,673	3,284	22,957	283,816	1,177	246	1,480	69	2,972	923,596	923,450	891,984	3.5%			
1993				629,907	53,543	315,488	20,145	3,738	23,883	339,371	1,181	63	5,577	33	6,854	1,022,525	1,029,675	951,750	8.2%			
1994				607,880	52,223	314,182	21,009	5,087	26,096	340,278	1,329	61	573	31	1,994	1,003,294	1,002,375	1,002,669	0.0%			
1995				603,396	50,660	397,963	19,051	3,885	22,936	420,899	1,155	70	484	117	1,826	1,076,773	1,076,781	1,003,798	7.3%			
1996				573,136	69,956	341,081	21,319	3,671	24,990	366,071	1,117	72	16,672	9	17,870	991,524	1,027,033	992,860	3.4%			
1997				558,550	47,551	374,056	22,237	3,867	26,104	400,160	1,454	136	456	1,139	3,185	992,871	1,009,446	1,002,896	0.7%			
1998				569,908	46,023	439,907	21,526	3,711	25,237	465,144	1,117	120	985	2,102	4,324	1,024,331	1,085,399	1,040,424	4.3%			
1999				542,289	46,541	388,686	23,890	3,305	27,195	415,881	1,120	113	609	27	1,869	1,006,678	1,006,580	1,035,946	-2.8%			
2000				551,865	45,105	417,660	21,547	3,230	24,777	442,437	1,069	141	531	11	1,752	1,047,219	1,041,159	1,050,756	-0.9%			
2001				554,855	44,169	472,082	23,372	2,887	26,259	498,341	1,144	98	761	132	2,135	1,099,451	1,099,500	1,100,859	-0.1%			
2002				569,486	45,577	507,384	18,707	2,799	21,506	528,890	1,891	49	802	124	2,866	1,146,708	1,146,819	1,144,407	0.2%			
Percent Difference Between Data in 1. General vs. 2. Miles of main in system at end of year																						
1988				-5.1%	0.2%					-0.2%	0.4%	7.7%	-28.7%	10991.7%	36.2%	0.3%	-3.4%					
1989				0.1%	-0.1%					-0.2%	7.2%	3.0%	-18.3%	460.0%	2.8%	0.0%	0.0%					
1990				-1.5%	6.6%					31.4%	-2.7%	-1.5%	-16.7%	1680.0%	-1.5%	8.0%	8.0%					
1991				-8.2%	1.3%					-3.4%	2.8%	-54.4%	-58.2%	19700.0%	3.2%	-5.5%	-6.2%					
1992				29.5%	-4.4%					-3.0%	7.9%	-75.6%	17.5%	-53.6%	4.3%	17.4%	17.4%					
1993				-7.8%	1.1%					-13.5%	40.3%	42.9%	-86.9%	384.8%	-61.5%	-6.9%	-9.6%					
1994				0.1%	11.3%					-1.9%	-0.3%	-3.3%	41.4%	264.5%	15.7%	-0.1%	0.0%					
1995				0.1%	0.2%					-15.5%	0.4%	-28.6%	72.1%	1652.1%	124.2%	-5.7%	-5.7%					
1996				0.0%	-26.3%					-4.2%	0.7%	-20.8%	-95.3%	273844.4%	49.0%	1.0%	-2.5%					
1997				0.1%	0.3%					-4.3%	-24.4%	-62.5%	295.8%	130.3%	75.1%	0.3%	-1.4%					
1998				0.3%	3.4%					-13.9%	-4.2%	-56.7%	-20.7%	-82.5%	-47.5%	-0.2%	-5.8%					
1999				0.2%	-1.6%					-0.3%	-0.2%	-54.9%	105.3%	355.6%	36.0%	-0.1%	0.0%					
2000				0.1%	-0.8%					1.2%	19.8%	-68.1%	47.8%	1772.7%	32.2%	0.0%	0.5%					
2001				0.0%	0.5%					-0.1%	-14.2%	-58.2%	53.0%	20.5%	9.9%	0.0%	0.0%					
2002				0.1%	-0.1%					-0.6%	-1.0%	-6.1%	23.1%	159.7%	12.6%	-0.2%	-0.2%					
Note: Shaded area are calculated vs. non-shaded areas are taken directly from annuals reports Highlighted area are suspect																						

Mileage of Distribution Mains																	MODIFIED			
Unprotected				Protected																
Bare	Coated	Bare	Coated	Total Steel	Cl or WI	PE Plastic	PVC plastic	ABS plastic	Total Other Plastic	Total Plastic	Ductile Iron	Copper	Other 1	Other 2	Total Other / No Data	Total Mileage (by input)	Total Mileage (by sum)	Total Mileage OPS Web	% Difference	
Data Entered By Operators in Part B - Sytem Description (1.0 General)																				
1988	75,793	40,005	21,531	425,000	562,329	60,421				206,320	1,366	70	888	1,331	3,655	865,272	832,725	866,639	-3.9%	
1989	73,895	37,520	21,358	427,782	560,555	58,470				217,340	1,444	68	318	28	1,858	838,223	838,223	838,237	0.0%	
1990	69,744	34,335	25,911	430,225	560,215	57,641				236,754	1,197	67	379	89	1,732	926,727	856,342	945,964	-9.5%	
1991	74,693	28,866	20,378	453,885	577,822	56,164				256,168	1,302	67	611	990	2,970	893,124	893,124	890,876	0.3%	
1992	74,742	27,493	21,556	453,499	577,290	52,830				275,358	1,270	60	1,739	32	3,101	1,084,344	908,579	891,984	1.9%	
1993	72,184	27,088	22,733	458,924	580,929	54,124				293,482	1,657	90	729	160	2,636	951,511	931,171	951,750	-2.2%	
1994	73,793	25,379	24,270	485,131	608,573	52,442				333,702	1,325	59	810	113	2,307	1,002,726	997,024	1,002,669	-0.6%	
1995	71,514	23,069	24,139	485,552	604,274	50,760				355,839	1,160	50	833	2,050	4,093	1,014,966	1,014,966	1,003,798	1.1%	
1996	66,489	21,923	21,575	442,821	552,808	51,542				350,699	1,125	57	785	2,337	4,304	1,001,771	959,352	992,860	-3.4%	
1997	63,707	21,538	19,010	455,118	559,373	47,697				383,071	1,099	51	1,805	2,623	5,578	995,719	995,719	1,002,896	-0.7%	
1998	65,273	21,366	30,530	454,433	571,602	47,587				400,627	1,070	52	781	367	2,270	1,022,086	1,022,086	1,040,424	-1.8%	
1999	62,774	21,733	14,852	444,003	543,362	45,801				414,431	1,118	51	1,250	123	2,542	1,006,136	1,006,136	1,035,946	-2.9%	
2000	62,124	20,731	14,874	454,432	552,161	44,726				447,586	1,281	45	785	206	2,317	1,046,790	1,046,790	1,050,756	-0.4%	
2001	62,063	19,197	16,488	457,297	555,045	44,404				497,600	982	41	1,164	159	2,346	1,099,395	1,099,395	1,100,859	-0.1%	
2002	64,662	17,948	15,338	472,329	570,277	45,523				525,959	1,872	46	987	322	3,227	1,144,986	1,144,986	1,144,407	0.1%	
Data Entered By Operators in Part B - Sytem Description (2. Miles of main in system at end of year)																				
1988				560,000	60,293	186,134	15,950	4,738	20,688	206,822	1,360	65	1,246	12	2,683	862,813	829,798	866,639	-4.3%	
1989				560,000	58,520	197,588	15,635	4,626	20,261	217,849	1,347	66	389	5	1,807	838,233	838,176	838,237	0.0%	
1990				600,000	54,053	212,800	15,926	5,029	20,955	233,755	1,230	68	455	5	1,758	858,010	889,566	945,964	-6.0%	
1991				585,000	55,450	220,000	20,319	4,911	25,230	245,230	1,266	147	1,460	5	2,878	945,596	888,558	890,876	-0.3%	
1992				580,000	55,242	230,000	19,673	3,284	22,957	252,957	1,177	246	1,480	69	2,972	923,596	891,171	891,984	-0.1%	
1993				593,940	53,543	250,000	20,145	3,738	23,883	273,883	1,181	63	1,027	33	2,304	1,022,525	923,670	951,750	-3.0%	
1994				607,880	52,223	280,000	21,009	5,087	26,096	306,096	1,329	61	573	31	1,994	1,003,294	968,193	1,002,669	-3.4%	
1995				603,396	50,660	310,000	19,051	3,885	22,936	332,936	1,155	70	484	117	1,826	1,076,773	988,818	1,003,798	-1.5%	
1996				573,136	49,106	332,000	21,319	3,671	24,990	356,990	1,117	72	470	9	1,668	991,524	980,900	992,860	-1.2%	
1997				558,550	47,551	356,000	22,237	3,867	26,104	382,104	1,454	136	456	1,139	3,185	992,871	991,390	1,002,896	-1.1%	
1998				569,908	46,023	380,000	21,526	3,711	25,237	405,237	1,117	120	985	2,102	4,324	1,024,331	1,025,492	1,040,424	-1.4%	
1999				542,289	46,541	388,686	23,890	3,305	27,195	415,881	1,120	113	609	27	1,869	1,006,678	1,006,580	1,035,946	-2.8%	
2000				551,865	45,105	417,660	21,547	3,230	24,777	442,437	1,069	141	531	11	1,752	1,047,219	1,041,159	1,050,756	-0.9%	
2001				554,855	44,169	472,082	23,372	2,887	26,259	498,341	1,144	98	761	132	2,135	1,099,451	1,099,500	1,100,859	-0.1%	
2002				569,000	45,577	505,000	18,707	2,799	21,506	526,506	1,891	49	802	124	2,866	1,146,708	1,143,949	1,144,407	0.0%	
Percent Difference Between Data in 1. General vs. 2. Miles of main in system at end of year																				
1988					0.4%	0.2%				-0.2%	0.4%	7.7%	-28.7%	10991.7%	36.2%	0.3%	0.4%			
1989					0.1%	-0.1%				-0.2%	7.2%	3.0%	-18.3%	460.0%	2.8%	0.0%	0.0%			
1990					-6.6%	6.6%				1.3%	-2.7%	-1.5%	-16.7%	1680.0%	-1.5%	8.0%	-3.7%			
1991					-1.2%	1.3%				4.5%	2.8%	-54.4%	-58.2%	19700.0%	3.2%	-5.5%	0.5%			
1992					-0.5%	-4.4%				8.9%	7.9%	-75.6%	17.5%	-53.6%	4.3%	17.4%	2.0%			
1993					-2.2%	1.1%				7.2%	40.3%	-42.9%	-29.0%	384.8%	14.4%	-6.9%	0.8%			
1994					0.1%	0.4%				9.0%	-0.3%	-3.3%	41.4%	264.5%	15.7%	-0.1%	3.0%			
1995					0.1%	0.2%				6.9%	0.4%	-28.6%	72.1%	1652.1%	124.2%	-5.7%	2.6%			
1996					-3.5%	5.0%				-1.8%	0.7%	-20.8%	67.0%	25861.1%	158.0%	1.0%	-2.2%			
1997					0.1%	0.3%				0.3%	-24.4%	-62.5%	295.8%	130.3%	75.1%	0.3%	0.4%			
1998					0.3%	3.4%				-1.1%	-4.2%	-56.7%	-20.7%	-82.5%	-47.5%	-0.2%	-0.3%			
1999					0.2%	-1.6%				-0.3%	-0.2%	-54.9%	105.3%	355.6%	36.0%	-0.1%	0.0%			
2000					0.1%	-0.8%				1.2%	19.8%	-68.1%	47.8%	1772.7%	32.2%	0.0%	0.5%			
2001					0.0%	0.5%				-0.1%	-14.2%	-58.2%	53.0%	20.5%	9.9%	0.0%	0.0%			
2002					0.2%	-0.1%				-0.1%	-1.0%	-6.1%	23.1%	159.7%	12.6%	-0.2%	0.1%			

Note: Shaded area are calculated vs. non-shaded areas are taken directly from annuals reports  
Highlighted area are suspect

Mileage of Distribution Mains		NUMBERS USED IN TRENDING															Total	Total	Total	Total	%
Unprotected		Protected				Total		PE	PVC	ABS	Total	Total	Ductile	Copper	Other 1	Other 2	Total	Total	Total	Total	%
Bare	Coated	Bare	Coated	Steel	Cl or WI	Plastic	plastic	plastic	Other	Plastic	Plastic	Iron				Other / No	Mileage	Mileage	Mileage	Difference	
																Data	(by input)	(by sum)	OPS Web		
Data Entered By Operators in Part B - Sytem Description (1.0 General)																					
1988				560,000	60,293	186,134				20,688						2,683		829,798	866,639	-4.3%	
1989				560,000	58,520	197,588				20,261						1,807		838,176	838,237	0.0%	
1990				600,000	54,053	212,800				20,955						1,758		889,566	945,964	-6.0%	
1991				585,000	55,450	220,000				25,230						2,878		888,558	890,876	-0.3%	
1992				580,000	55,242	230,000				22,957						2,972		891,171	891,984	-0.1%	
1993				593,940	53,543	250,000				23,883						2,304		923,670	951,750	-3.0%	
1994				607,880	52,223	280,000				26,096						1,994		968,193	1,002,669	-3.4%	
1995				603,396	50,660	310,000				22,936						1,826		988,818	1,003,798	-1.5%	
1996				573,136	49,106	332,000				24,990						1,668		980,900	992,860	-1.2%	
1997				558,550	47,551	356,000				26,104						3,185		991,390	1,002,896	-1.1%	
1998				569,908	46,023	380,000				25,237						4,324		1,025,492	1,040,424	-1.4%	
1999				542,289	46,541	388,686				27,195						1,869		1,006,580	1,035,946	-2.8%	
2000				551,865	45,105	417,660				24,777						1,752		1,041,159	1,050,756	-0.9%	
2001				554,855	44,169	472,082				26,259						2,135		1,099,500	1,100,859	-0.1%	
2002				569,000	45,577	505,000				21,506						2,866		1,143,949	1,144,407	0.0%	

Count of Distribution Service Line DIRECT FROM OPS DATA BASE																					
Unprotected		Protected				Total Steel	Cl or WI	PE Plastic	PVC plastic	ABS plastic	Total Other Plastic	Total Plastic	Ductile Iron	Copper	Other 1	Other 2	Total Other / No Data	Total Number (by reports)	Total Number (by sum)	Total Number (OPS WS)	% Difference
Bare	Coated	Bare	Coated																		
Data Entered By Operators in Part B - Sytem Description (1.0 General)																					
1988	4,928,071	3,082,127	990,867	19,675,903	28,676,968	88,750					16,866,988	958	1,755,961	591,305	181,241	2,529,465	48,162,171	48,162,171	48,246,973	-0.2%	
1989	5,297,819	2,455,244	1,357,034	18,996,719	28,106,816	76,822					17,677,720	9,039	1,519,580	180,456	19,150	1,728,225	47,589,583	47,589,583	47,591,804	0.0%	
1990	4,991,773	2,311,268	887,604	18,689,088	26,879,733	71,298					18,409,236	18,555	1,583,560	732,130	49,978	2,384,223	47,744,490	47,744,490	48,755,074	-2.1%	
1991	5,289,700	1,946,498	941,147	22,360,752	30,538,097	107,630					19,558,873	38,933	1,636,252	808,832	101,002	2,585,019	52,789,619	52,789,619	52,665,539	0.2%	
1992	5,372,437	1,826,499	893,240	24,291,735	32,383,911	69,955					21,408,131	26,486	1,643,760	923,097	55,172	2,648,515	56,510,512	56,510,512	50,103,974	12.8%	
1993	5,357,981	1,571,989	808,255	19,028,682	26,766,907	136,084					22,626,572	20,721	1,608,674	747,905	90,225	2,467,525	51,997,088	51,997,088	52,009,967	0.0%	
1994	5,140,395	1,388,713	868,213	20,653,026	28,050,347	61,831					25,114,922	1,010	1,577,809	778,870	1,234,838	3,592,527	56,819,627	56,819,627	56,816,569	0.0%	
1995	4,689,915	1,477,830	813,334	20,284,501	27,265,580	57,535					26,105,785	1,065	1,445,741	766,548	50,483	2,263,837	55,692,737	55,692,737	55,518,341	0.3%	
1996	4,507,375	1,268,238	814,019	17,779,751	24,369,383	212,549					26,187,536	939	1,519,625	739,132	1,621,059	3,880,755	54,650,223	54,650,223	54,644,300	0.0%	
1997	4,324,148	1,205,157	664,160	18,261,342	24,454,807	57,029					27,780,850	594	1,498,050	765,805	151,299	2,415,748	54,708,434	54,708,434	54,863,439	-0.3%	
1998	4,311,849	1,151,404	595,326	17,883,018	23,941,597	51,090					28,629,388	35,208	1,464,019	760,526	60,397	2,320,150	54,942,175	54,942,225	55,735,215	-1.4%	
1999	4,683,016	1,067,815	551,576	17,756,469	24,058,876	50,446					28,781,073	555	1,458,518	756,169	47,100	2,262,342	55,152,737	55,152,737	56,538,415	-2.5%	
2000	4,618,850	1,056,523	532,135	17,254,820	23,462,328	46,631					31,659,363	538	1,434,091	831,446	50,802	2,316,877	57,485,199	57,485,199	57,688,700	-0.4%	
2001	4,390,886	1,077,939	484,961	17,361,513	23,315,299	77,581					32,734,380	513	1,393,626	827,024	49,911	2,271,074	58,398,334	58,398,334	58,465,594	-0.1%	
2002	4,339,847	988,638	466,810	17,653,694	23,448,989	46,332					35,777,119	482	1,527,812	902,063	59,542	2,489,899	61,762,339	61,762,339	61,743,320	0.0%	
Data Entered By Operators in Part B - Sytem Description (3. Number of services in system at end of year)																					
1988					28,802,977	72,931	16,347,027	438,433	52,178	490,611	16,837,638	7,674	1,762,282	720,733	49,894	2,540,583	49,191,717	48,254,129	48,246,973	0.0%	
1989					28,095,007	75,116	16,804,605	837,003	34,798	871,801	17,676,406	36,500	1,499,521	223,312	27,213	1,786,546	47,629,325	47,633,075	47,591,804	0.1%	
1990					27,118,760	73,147	17,554,256	544,554	334,362	878,916	18,433,172	3,807	1,700,488	782,003	47,516	2,533,814	48,162,773	48,158,893	48,755,074	-1.2%	
1991					27,266,061	62,157	19,000,484	662,157	314,487	976,644	19,977,128	101,008	1,574,739	839,862	52,740	2,568,349	49,754,956	49,879,344	52,665,539	-5.3%	
1992					26,714,006	64,605	22,316,287	579,462	1,459,094	2,038,556	24,354,843	49,933	1,707,117	988,196	50,187	2,795,433	51,397,956	53,928,887	50,103,974	7.6%	
1993					26,617,615	60,586	21,023,573	595,711	1,323,337	1,919,048	22,942,621	4,774	1,608,553	804,658	47,744	2,465,729	51,895,505	52,086,551	52,009,967	0.1%	
1994					29,066,026	57,422	23,511,486	349,378	1,386,520	1,735,898	25,247,384	46,027	1,591,923	822,637	46,538	2,507,125	55,578,377	56,877,957	56,816,569	0.1%	
1995					27,197,170	77,619	23,914,617	953,691	1,401,879	2,355,570	26,270,187	24,717	1,443,228	790,580	49,249	2,307,774	55,854,309	55,852,750	55,518,341	0.6%	
1996					23,939,679	53,462	23,666,227	1,037,108	1,483,747	2,520,855	26,187,082	22,364	1,518,640	812,778	50,822	2,404,604	52,561,888	52,584,827	54,644,300	-3.8%	
1997					24,350,899	76,355	27,305,124	513,939	37,088	551,027	27,856,151	1,243	1,472,870	771,126	53,311	2,298,550	54,625,170	54,581,955	54,863,439	-0.5%	
1998					23,814,222	49,693	27,308,110	1,198,017	280,157	1,478,174	28,786,284	2,057	1,497,638	738,801	80,258	2,318,754	54,976,785	54,968,953	55,735,215	-1.4%	
1999					23,357,401	47,656	28,709,086	766,491	15,734	782,225	29,491,311	9,490	1,458,065	772,030	45,634	2,285,219	55,185,812	55,181,587	56,538,415	-2.4%	
2000					23,358,460	43,755	32,866,098	571,928	11,773	583,701	33,449,799	6,021	1,434,678	831,780	60,163	2,332,642	59,187,591	59,184,656	57,688,700	2.6%	
2001					23,275,973	41,718	32,402,915	553,988	25,574	579,562	32,982,477	1,362	1,394,306	850,218	69,571	2,315,457	58,615,599	58,615,625	58,465,594	0.3%	
2002					23,348,010	41,490	35,468,060	494,740	33,035	527,775	35,995,835	1,383	1,527,743	1,020,214	75,582	2,624,922	61,788,747	62,010,257	61,743,320	0.4%	
Percent Difference Between Data in 1. General vs. 3. Number of services in system at end of year																					
1988					-0.4%		21.7%				0.2%	-87.5%	-0.4%	-18.0%	263.3%	-0.4%	-2.1%	-0.2%			
1989					0.0%		2.3%				0.0%	-75.2%	1.3%	-19.2%	-29.6%	-3.3%	-0.1%	-0.1%			
1990					-0.9%		-2.5%				-0.1%	387.4%	-6.9%	-6.4%	5.2%	-5.9%	-0.9%	-0.9%			
1991					12.0%		58.7%				-2.1%	-61.5%	3.9%	-3.7%	91.5%	0.6%	6.1%	5.8%			
1992					21.2%		8.3%				-12.1%	-47.0%	-3.7%	-6.6%	9.9%	-5.3%	9.9%	4.8%			
1993					0.6%		124.6%				-1.4%	334.0%	0.0%	-7.1%	89.0%	0.1%	0.2%	-0.2%			
1994					-3.5%		7.7%				-0.5%	-97.8%	-0.9%	-5.3%	2553.4%	43.3%	2.2%	-0.1%			
1995					0.3%		-25.9%				-0.6%	-95.7%	0.2%	-3.0%	2.5%	-1.9%	-0.3%	-0.3%			
1996					1.8%		297.6%				0.0%	-95.8%	0.1%	-9.1%	3089.7%	61.4%	4.0%	3.9%			
1997					0.4%		-25.3%				-0.3%	-52.2%	1.7%	-0.7%	183.8%	5.1%	0.2%	0.2%			
1998					0.5%		2.8%				-0.5%	1611.6%	-2.2%	2.9%	-24.7%	0.1%	-0.1%	0.0%			
1999					3.0%		5.9%				-2.4%	-94.2%	0.0%	-2.1%	3.2%	-1.0%	-0.1%	-0.1%			
2000					0.4%		6.6%				-5.4%	-91.1%	0.0%	0.0%	-15.6%	-0.7%	-2.9%	-2.9%			
2001					0.2%		86.0%				-0.8%	-62.3%	0.0%	-2.7%	-28.3%	-1.9%	-0.4%	-0.4%			
2002					0.4%		11.7%				-0.6%	-65.1%	0.0%	-11.6%	-21.2%	-5.1%	0.0%	-0.4%			

Note: Shaded area are calculated vs. non-shaded areas are taken directly from annuals reports  
Highlighted area are suspect

Count of Distribution Service Line																	MODIFIED						
Unprotected				Protected				Total Steel	CI or WI	PE Plastic	PVC plastic	ABS plastic	Total Other Plastic	Total Plastic	Ductile Iron	Copper	Other 1	Other 2	Total Other / No Data	Total Number (by reports)	Total Mileage (by sum)	Total Number (OPS WS)	% Difference
Bare	Coated	Bare	Coated																				
Data Entered By Operators in Part B - Sytem Description (1.0 General)																							
1988	4,928,071	3,082,127	990,867	19,675,903	28,676,968								16,866,988	958	1,755,961	591,305	181,241	2,529,465	48,162,171	48,162,171	48,246,973	-0.2%	
1989	5,297,819	2,455,244	939,236	18,996,719	27,689,018								17,677,720	1,000	1,519,580	180,456	19,150	1,720,186	47,589,583	47,163,746	47,591,804	-0.9%	
1990	4,991,773	2,311,268	887,604	18,689,088	26,879,733								18,409,236	1,000	1,583,560	732,130	49,978	2,366,668	47,744,490	47,726,935	48,755,074	-2.1%	
1991	5,289,700	1,946,498	941,147	22,360,752	30,538,097								19,558,873	1,000	1,636,252	808,832	101,002	2,547,086	52,789,619	52,714,683	52,665,539	0.1%	
1992	5,372,437	1,826,499	893,240	24,291,735	32,383,911								21,408,131	1,000	1,643,760	923,097	55,172	2,623,029	56,510,512	56,485,026	50,103,974	12.7%	
1993	5,357,981	1,571,989	808,255	19,028,682	26,766,907								22,626,572	1,000	1,608,674	747,905	90,225	2,447,804	51,997,088	51,907,176	52,009,967	-0.2%	
1994	5,140,395	1,388,713	868,213	20,653,026	28,050,347								25,114,922	1,010	1,577,809	778,870	70,354	2,428,043	56,819,627	55,655,143	56,816,569	-2.0%	
1995	4,689,915	1,477,830	813,334	20,284,501	27,265,580								26,105,785	1,065	1,445,741	766,548	50,483	2,263,837	55,692,737	55,692,737	55,518,341	0.3%	
1996	4,507,375	1,268,238	814,019	17,779,751	24,369,383								26,187,536	939	1,519,625	739,132	100,891	2,360,587	54,650,223	52,974,788	54,644,300	-3.1%	
1997	4,324,148	1,205,157	664,160	18,261,342	24,454,807								27,780,850	594	1,498,050	765,805	151,299	2,415,748	54,708,434	54,708,434	54,863,439	-0.3%	
1998	4,311,849	1,151,404	595,326	17,883,018	23,941,597								28,629,388	600	1,464,019	760,526	60,397	2,285,542	54,942,175	54,907,617	55,735,215	-1.5%	
1999	4,683,016	1,067,815	551,576	17,756,469	24,058,876								28,781,073	555	1,458,518	756,169	47,100	2,262,342	55,152,737	55,152,737	56,538,415	-2.5%	
2000	4,618,850	1,056,523	532,135	17,254,820	23,462,328								31,659,363	538	1,434,091	831,446	50,802	2,316,877	57,485,199	57,485,199	57,688,700	-0.4%	
2001	4,390,886	1,077,939	484,961	17,361,513	23,315,299								32,734,380	513	1,393,626	827,024	49,911	2,271,074	58,398,334	58,398,334	58,465,594	-0.1%	
2002	4,339,847	988,638	466,810	17,653,694	23,448,989								35,777,119	482	1,527,812	902,063	59,542	2,489,899	61,762,339	61,762,339	61,743,320	0.0%	
Data Entered By Operators in Part B - Sytem Description (3. Number of services in system at end of year)																							
1988					28,500,000	72,931	16,347,027	438,433	52,178	490,611	16,837,638	7,674	1,762,282	720,733	49,894	2,540,583	49,191,717	47,951,152	48,246,973			-0.6%	
1989					27,500,000	75,116	16,700,000	837,003	34,798	871,801	17,571,801	5,000	1,499,521	751,368	48,705	2,304,594	47,629,325	47,451,511	47,591,804			-0.3%	
1990					27,118,760	73,147	17,554,256	544,554	334,362	878,916	18,433,172	3,807	1,700,488	782,003	47,516	2,533,814	48,162,773	48,158,893	48,755,074			-1.2%	
1991					26,916,383	67,806	20,000,000	662,157	314,487	976,644	20,976,644	5,000	1,574,739	839,862	52,740	2,472,341	49,754,956	50,433,174	52,665,539			-4.2%	
1992					26,714,006	64,605	20,000,000	579,462	1,459,094	900,000	20,900,000	5,000	1,707,117	988,196	50,187	2,400,000	51,397,956	51,567,667	50,103,974			2.9%	
1993					26,617,615	60,586	21,023,573	595,711	1,323,337	1,500,000	22,523,573	4,774	1,608,553	804,658	47,744	2,465,729	51,895,505	52,086,551	52,009,967			0.1%	
1994					29,000,000	57,422	23,511,486	349,378	1,386,520	1,735,898	25,247,384	2,500	1,591,923	822,637	46,538	2,463,598	55,578,377	56,768,404	56,816,569			-0.1%	
1995					27,197,170	77,619	23,914,617	500,000	1,401,879	1,901,879	25,816,496	2,500	1,443,228	790,580	49,249	2,285,557	55,854,309	55,376,842	55,518,341			-0.3%	
1996					23,939,679	53,462	23,666,227	500,000	1,463,747	1,983,747	25,649,974	2,500	1,518,640	812,778	50,822	2,384,740	52,561,888	52,027,855	54,644,300			-4.8%	
1997					24,350,899	76,355	27,305,124	513,939	37,088	551,027	27,856,151	1,243	1,472,870	771,126	53,311	2,298,550	54,625,170	54,581,955	54,863,439			-0.5%	
1998					23,814,222	49,693	27,308,110	500,000	26,411	526,411	27,834,521	2,057	1,497,638	738,801	80,258	2,318,754	54,976,785	54,017,190	55,735,215			-3.1%	
1999					23,357,401	47,656	28,709,086	766,491	15,734	782,225	29,491,311	9,490	1,458,065	772,030	45,634	2,285,219	55,185,812	55,181,587	56,538,415			-2.4%	
2000					23,358,460	43,755	30,354,543	571,928	11,773	583,701	30,938,244	6,021	1,434,678	831,780	60,163	2,332,642	59,187,591	56,673,101	57,688,700			-1.8%	
2001					23,275,973	41,718	32,000,000	553,988	25,574	579,562	32,579,562	1,362	1,394,306	850,218	69,571	2,315,457	58,615,599	58,212,710	58,465,594			-0.4%	
2002					23,348,010	41,490	35,000,000	494,740	33,035	527,775	35,527,775	1,383	1,527,743	1,020,214	75,582	2,624,922	61,788,747	61,542,197	61,743,320			-0.3%	
Percent Difference Between Data in 1. General vs. 3. Number of services in system at end of year																							
1988					0.6%	21.7%					0.2%	-87.5%	-0.4%	-18.0%	263.3%	-0.4%	-2.1%	0.4%					
1989					0.7%	2.3%					0.6%	-80.0%	1.3%	-76.0%	-60.7%	-25.4%	-0.1%	-0.6%					
1990					-0.9%	-2.5%					-0.1%	-73.7%	-6.9%	-6.4%	5.2%	-6.6%	-0.9%	-0.9%					
1991					13.5%	4.2%					-6.8%	-80.0%	3.9%	-3.7%	91.5%	3.0%	6.1%	4.5%					
1992					21.2%	8.3%					2.4%	-80.0%	-3.7%	-6.6%	9.9%	9.3%	9.9%	9.5%					
1993					0.6%	8.8%					0.5%	-79.1%	0.0%	-7.1%	89.0%	-0.7%	0.2%	-0.3%					
1994					-3.3%	7.7%					-0.5%	-59.6%	-0.9%	-5.3%	51.2%	-1.4%	2.2%	-2.0%					
1995					0.3%	-25.9%					1.1%	-57.4%	0.2%	-3.0%	2.5%	-1.0%	-0.3%	0.6%					
1996					1.8%	7.1%					2.1%	-62.4%	0.1%	-9.1%	98.5%	-1.0%	4.0%	1.8%					
1997					0.4%	-25.3%					-0.3%	-52.2%	1.7%	-0.7%	183.8%	5.1%	0.2%	0.2%					
1998					0.5%	2.8%					2.9%	-70.8%	-2.2%	2.9%	-24.7%	-1.4%	-0.1%	1.6%					
1999					3.0%	5.9%					-2.4%	-94.2%	0.0%	-2.1%	3.2%	-1.0%	-0.1%	-0.1%					
2000					0.4%	6.6%					2.3%	-91.1%	0.0%	0.0%	-15.6%	-0.7%	-2.9%	1.4%					
2001					0.2%	86.0%					0.5%	-62.3%	0.0%	-2.7%	-28.3%	-1.9%	-0.4%	0.3%					
2002					0.4%	11.7%					0.7%	-65.1%	0.0%	-11.6%	-21.2%	-5.1%	0.4%						
Note: Shaded area are calculated vs. non-shaded areas are taken directly from annuals reports Highlighted area are suspect																							

Count of Distribution Service Line	NUMBERS USED IN TRENDING															Total Other / No Data	Total Number (by reports)	Total Number (by sum)	Total Number (OPS WS)	% Difference
	Unprotected		Protected					Total Other Plastic	Total Plastic	Ductile Iron	Copper	Other 1	Other 2							
	Bare	Coated	Bare	Coated	Total Steel	CI or WI	PE Plastic							PVC plastic	ABS plastic					
1988					28,500,000	72,931	16,347,027			490,611						2,540,583	47,951,152	48,246,973	-0.6%	
1989					27,500,000	75,116	16,700,000			871,801						2,304,594	47,451,511	47,591,804	-0.3%	
1990					27,118,760	73,147	17,554,256			878,916						2,533,814	48,158,893	48,755,074	-1.2%	
1991					26,916,383	67,806	20,000,000			976,644						2,472,341	50,433,174	52,665,539	-4.2%	
1992					26,714,006	64,605	20,000,000			900,000						2,400,000	50,078,611	50,103,974	-0.1%	
1993					26,617,615	60,586	21,023,573			1,500,000						2,465,729	51,667,503	52,009,967	-0.7%	
1994					29,000,000	57,422	23,511,486			1,735,898						2,463,598	56,768,404	56,816,569	-0.1%	
1995					27,197,170	77,619	23,914,617			1,901,879						2,285,557	55,376,842	55,518,341	-0.3%	
1996					23,939,679	53,462	23,666,227			1,983,747						2,384,740	52,027,855	54,644,300	-4.8%	
1997					24,350,899	76,355	27,305,124			551,027						2,298,550	54,581,955	54,863,439	-0.5%	
1998					23,814,222	49,693	27,308,110			526,411						2,318,754	54,017,190	55,735,215	-3.1%	
1999					23,357,401	47,656	28,709,086			782,225						2,285,219	55,181,587	56,538,415	-2.4%	
2000					23,358,460	43,755	30,354,543			583,701						2,332,642	56,673,101	57,688,700	-1.8%	
2001					23,275,973	41,718	32,000,000			579,562						2,315,457	58,212,710	58,465,594	-0.4%	
2002					23,348,010	41,490	35,000,000			527,775						2,624,922	61,542,197	61,743,320	-0.3%	

Estimated Mileage of Distribution Service Line	NUMBERS USED IN TRENDING															Total Other / No Data	Total Number (by reports)	Total Mileage (by sum)	Estimated Mileage (OPS WS)	% Difference	Average Length (OPS WS)
	Unprotected		Protected					Total Other Plastic	Total Plastic	Ductile Iron	Copper	Other 1	Other 2								
	Bare	Coated	Bare	Coated	Total Steel	CI or WI	PE Plastic							PVC plastic	ABS plastic						
1988					298,298	763	171,098			5,135						26,591	501,885	504,981	-0.6%	55.3	
1989					314,600	859	191,048			9,973						26,365	542,845	544,450	-0.3%	60.4	
1990					315,247	850	204,063			10,217						29,455	559,833	566,763	-1.2%	61.4	
1991					301,203	759	223,807			10,929						27,666	564,364	589,345	-4.2%	59.1	
1992					316,760	766	237,149			10,672						28,458	593,804	594,105	-0.1%	62.6	
1993					302,419	688	238,862			17,042						28,015	587,026	590,917	-0.7%	60.0	
1994					349,680	692	283,500			20,931						29,706	684,510	685,091	-0.1%	63.7	
1995					328,093	936	288,494			22,943						27,572	668,039	669,746	-0.3%	63.7	
1996					285,584	638	282,322			23,665						28,448	620,657	651,869	-4.8%	63.0	
1997					284,407	892	318,910			6,436						26,846	637,490	640,778	-0.5%	61.7	
1998					284,784	594	326,566			6,295						27,729	645,969	666,514	-3.1%	63.1	
1999					288,180	588	354,209			9,651						28,195	680,823	697,563	-2.4%	65.1	
2000					273,335	512	355,201			6,830						27,296	663,175	675,059	-1.8%	61.8	
2001					286,651	514	394,091			7,137						28,516	716,909	720,023	-0.4%	65.0	
2002					282,614	502	423,655			6,388						31,773	744,933	747,367	-0.3%	63.9	