

## **APPENDIX C: TABLES**



**Table 15**

**Air Concentration Comparison Listed as Micrograms per Cubic Meter of Air  
and as Parts Per Million  
Koppers Industries Inc., North Little Rock, AR**

<b>PAH</b>	Concentration ( $\mu\text{g}/\text{m}^3$ )			Concentration (ppm)	
	maximum	mean	mol wt	maximum	mean
Naphthalene	6.7460e+01	8.8773e+00	128.18	1.2868e-02	1.6933e-03
Phenanthrene	3.8110e+00	7.8251e-01	178.20	5.2289e-04	1.0736e-04
Benzo(a)anthracene	5.9397e-01	6.7800e-03	228.29	6.3615e-05	7.2614e-07
Benzo(b)fluoranthene	1.3540e+00	2.9710e-02	252.30	1.3121e-04	2.8791e-06
Benzo(k)fluoranthene	1.0417e+00	2.9850e-02	252.30	1.0095e-04	2.8927e-06
Benzo(a)pyrene	8.3518e-01	1.6910e-02	252.30	8.0936e-05	1.6387e-06
Dimethylbenzo(a)anthracene	2.1967e-01	1.7300e-03	256.40	2.0947e-05	1.6497e-07
Dibenzo(a-j)acridine	6.1709e-01	1.6460e-02	276.30	5.4607e-05	1.4566e-06
Indeno(1-2-3-cd)pyrene	8.1699e-01	3.8050e-02	276.30	7.2296e-05	3.3671e-06
Dibenz(a-h)anthracene	9.4747e-01	3.4780e-02	278.35	8.3225e-05	3.0550e-06
Benzo(g-h-i)perylene	8.0878e-01	3.9880e-02	276.34	7.1559e-05	3.5285e-06
<b>Other</b>					
Bis(2-chloroethyl)-Ether	1.6703e+00	1.3150e-02	143.02	2.8555e-04	2.2481e-06
1-4-Dichlorobenzene	2.0882e+00	6.3945e-01	147.00	3.4732e-04	1.0636e-04
Acetophenone	6.0589e+00	4.4019e-01	120.16	1.2329e-03	8.9569e-05
Hexachlorobenzene	1.4001e-01	1.8100e-03	284.76	1.2022e-05	1.5541e-07
Pentachlorophenol	2.3088e-01	3.6300e-03	266.32	2.1196e-05	3.3326e-07

Table 16  
 Concentration from Air Monitoring Station One (1) Glenview Elementary School  
 Koppers Inc., North Little Rock, AR, July 17- Aug 15

	17-Jul	18-Jul	19-Jul	20-Jul	21-Jul	22-Jul	24-Jul	25-Jul	26-Jul	27-Jul	28-Jul	29-Jul	31-Jul
<b>Polyaromatic Hydrocarbons</b>													
Naphthalene	61038	10,727	1,0388	1,3568	0.20288	3,8003	0.7585	2,3625	34,368	12,721	10,257	4,2788	
Phenanthrene	3,811	2,8335	0.43112	0.30802	0.14493	0.33262	0.22673	0.2111	2,0842	2,167	1,2638	0.49124	
Benz(a)anthracene	<.03162	0.59397	<.06116	<.03290	<.01940	<.02478	<.01936	<.01117	<.01760	<.03268	<.01621	<.01849	
Benz(b)fluoranthene	<.06373	1,354	<.08251	<.07586	0.04734	<.02823	<.01572	0.08036	<.04007	<.02306	<.03662	<.02893	
Benz(k)fluoranthene	<.06081	1,0417	<.04051	<.05853	0.048	<.02054	<.01240	0.10607	<.03159	<.01818	<.02735	<.02348	
Benz(a)pyrene	<.07008	0.83318	<.05052	<.07299	<.03885	<.02771	<.01510	0.10483	<.03849	<.02215	<.03488	<.02959	
Dimethylbenz(a)anthracene	<.09997	0.21967	<.07607	<.07668	<.03653	<.05792	<.04417	<.03047	<.04592	<.02019	<.02754	<.01601	
Dibenz(a,h)acridine	<.04889	0.61709	<.04800	<.03925	<.02089	<.02301	<.01295	0.26718	<.03346	<.01174	<.01291	<.01591	
Indeno(1,2,3-cd)pyrene	<.03580	0.81699	<.02771	<.02726	0.07043	<.01114	<.01156	0.16361	0.10713	<.01099	<.01418	<.01259	
Dibenz(a,h)anthracene	<.03299	0.94747	<.03637	<.03177	<.02112	<.01236	<.01066	0.17249	0.10124	<.01239	<.02012	<.00895	
Benz(a)fluoranthene	<.04665	0.80878	<.03590	<.03532	0.06508	<.01405	<.01492	0.18451	<.01492	0.18451	0.0818	<.01419	
<b>Other Semi-Volatiles</b>													
Acetophenone	0.34637	0.33358	0.29729	0.25197	0.14857	0.23193	0.27055	0.32005	0.26437	0.21423	0.16801	0.21151	
Bis(2-chloroethyl)-Ether	<.47165	<.52608	<.48733	<.35813	<.31296	<.3182	<.19250	<.74967	<.25481	<.42592	<.28744	<.17887	
1,4-Dichlorobenzene	0.58561	1,1625	0.50938	0.86645	0.14782	0.43857	0.47444	0.49589	0.60324	0.33492	0.61158	0.48837	
Hexachlorobenzene	<.14050	<.20478	<.11775	<.15071	<.05418	<.06417	<.04426	<.04627	<.07651	<.07462	<.07579	<.03021	
Pentachlorophenol	<.20131	<.19186	<.24732	<.16184	<.09013	<.07715	<.09387	0.23088	<.08379	<.11598	<.08941	<.10107	
<b>Polyaromatic Hydrocarbons</b>													
Naphthalene	28,682	6,9844	10,554	8,1092	13,231	28,792	28,707	6,5332	0.45876	0.4924	1,4765	6,4516	
Phenanthrene	0.85173	0.8273	0.87968	0.90202	1.8237	1.8891	3,4466	1.3573	0.27531	0.26212	0.60142	0.30671	
Benz(a)anthracene	<.04000	<.01931	<.05474	<.02131	<.03741	<.01485	<.05691	<.02159	<.01231	<.01231	<.01573	<.01779	
Benz(b)fluoranthene	<.02264	<.05489	0.06045	<.03836	<.01782	<.01753	<.01916	0.08263	0.08895	0.09607	<.01596	<.02232	
Benz(k)fluoranthene	<.01837	<.04454	<.02285	<.03113	<.01283	<.01440	<.01574	0.10614	0.11114	0.08893	<.01313	<.01836	
Benz(a)pyrene	<.02315	<.05613	<.02879	<.03923	<.01672	<.01846	<.02018	0.10925	0.08201	<.02236	<.01750	<.02490	
Dimethylbenz(a)anthracene	<.02983	<.03399	<.04257	<.01866	<.02610	<.01552	<.03928	<.01284	<.02066	<.01191	<.01012	<.01061	
Dibenz(a,h)acridine	0.15876	<.03726	<.02162	<.03043	<.01515	<.01114	<.01712	<.01128	<.01112	<.00779	<.01379	<.01620	
Indeno(1,2,3-cd)pyrene	0.10569	<.02210	<.01248	<.02055	<.01543	<.00620	0.0977	0.09105	0.11969	<.00892	0.15977	<.015977	
Dibenz(a,h)anthracene	0.11516	<.01903	<.02076	<.00945	<.01209	<.01544	0.22557	0.10908	0.0975	<.01473	<.01303	0.10004	
Benz(a)fluoranthene	<.01912	<.01657	0.12511	<.02908	<.01641	<.02704	<.02026	<.00792	0.26562	0.12887	0.097	0.17455	
<b>Other Semi-Volatiles</b>													
Acetophenone	0.38186	0.26386	0.23474	0.25546	0.21723	0.13221	0.19833	0.17352	0.16001	0.19607	0.27763	0.09243	
Bis(2-chloroethyl)-Ether	<.44939	<.52431	<.28988	<.49103	<.23382	<.17282	<.39601	<.33075	<.31515	<.18390	<.31442	<.20956	
1,4-Dichlorobenzene	0.83908	0.73837	0.37834	0.47833	0.58229	0.2668	0.26998	0.26416	0.40575	0.36897	0.70405	0.35112	
Hexachlorobenzene	<.07255	<.08061	0.04674	<.09766	0.06131	<.05406	<.08078	<.03092	<.03347	<.03114	<.03245	<.02516	
Pentachlorophenol	<.10557	<.13154	<.14337	<.09448	<.19880	<.07569	<.08699	<.06494	<.06389	<.04708	<.06582	<.10649	

Concentration in microgram/cubic meter of air (µg/m<sup>3</sup>)

Table 11  
Concentration from Air Monitoring Station Two (2) Ben Street  
Koppers Inc., North Little Rock, AR July 17- Aug 15

	17-Jul	18-Jul	19-Jul	20-Jul	21-Jul	22-Jul	24-Jul	25-Jul	26-Jul	27-Jul	28-Jul	29-Jul	31-Jul
<b>Polycyclic Aromatic Hydrocarbons</b>													
Naphthalene	13.722	67.46	12.001	2.4155	4.5749	0.55047	11.255	0.9726	6.1418	20.659	14.871	31.294	16.727
Phenanthrene	2.3378	3.2223	2.5347	0.75576	0.54869	0.21408	0.28525	0.39853	0.30243	0.47062	1.0947	0.9841	0.75639
Benzo(a)anthracene	0.15106	<.05310	<.04054	<.06244	<.01707	0.116	<.01739	<.01936	<.03457	<.02488	<.03056	<.036109	<.02579
Benzo(b)fluoranthene	<.04101	0.64987	0.24299	<.07564	<.05434	<.02395	<.01923	<.06160	<.05530	0.13407	<.02949	<.01925	0.10417
Benzo(k)fluoranthene	<.03234	0.85476	0.22325	<.08836	<.04192	<.02117	<.01399	<.04857	<.04360	<.02473	<.02325	<.01438	0.16333
Benzo(a)pyrene	<.04183	0.44359	<.09294	<.07278	<.05228	<.02597	<.01887	<.05917	<.05312	<.03013	<.02832	<.01834	0.12114
Dimethylbenzo(a)anthracene	<.05402	<.23881	<.12278	<.07859	<.02930	<.02790	<.06807	<.05430	<.02972	<.05510	<.04526	<.03118	<.02599
Dibenz(a,h)perylene	<.04884	0.29697	<.06389	<.03930	<.03425	<.02170	<.02397	<.02753	<.02650	<.03116	<.02445	<.01275	0.40706
Indeno(1,2,3-cd)pyrene	<.02681	0.62236	0.18788	<.02359	<.01131	<.02048	<.01303	<.01396	<.01211	<.01313	<.00946	<.01755	0.35266
Dibenz(ghi)perylene	<.03223	0.61473	0.19532	<.02441	<.01472	<.01536	<.01128	<.02320	<.01761	<.01341	<.01523	<.01742	0.37551
Benzo(ghi)perylene	<.03529	0.55596	0.09611	<.03057	<.01465	<.02563	0.07311	<.01603	<.01564	<.01695	<.01521	<.02366	0.28161
<b>Other Semi-Volatiles</b>													
Acetophenone	0.27058	0.38109	0.67666	0.32499	0.33388	0.24035	0.26621	0.21871	0.24029	0.2476	0.25366	0.17307	0.21066
Bis(2-chloroethyl)-Ether	1.6703	<.12856	<.33577	<.42008	<.15058	<.22228	<.44339	<.44339	<.12434	<.51267	<.54524	<.22246	<.36710
1,4-Dichlorobenzene	0.88461	1.1544	2.0882	1.1266	0.53919	0.29995	0.79768	0.47363	0.65259	0.30465	0.49198	0.50724	0.53388
Hexachlorobenzene	<.13337	0.14001	0.16216	<.18471	<.06943	<.08065	<.03904	<.06768	<.10062	<.04887	<.06245	<.02393	<.07436
Pentachlorophenol	<.19216	<.35449	<.28070	<.16552	<.12318	<.12356	<.11561	<.13676	<.19538	<.08574	<.09997	<.07905	0.23024
<b>Polycyclic Aromatic Hydrocarbons</b>													
Naphthalene	46.887	14.03	5.6236	4.8898	9.4858	6.8424	24.252	48.542	19.144	1.1018	6.0648	5.1298	44.518
Phenanthrene	0.66571	1.1556	0.6867	0.44158	0.80064	0.52637	1.0626	2.7115	2.4851	0.54931	0.28753	0.37676	0.77467
Benzo(a)anthracene	<.01924	<.03639	<.05230	<.03554	<.02404	<.04427	<.04258	<.03710	<.02339	<.02168	<.01289	<.01544	<.03593
Benzo(b)fluoranthene	<.01411	<.02718	<.01849	<.02247	<.01740	<.02871	<.01613	<.02679	<.02078	<.02472	<.02049	<.01515	<.00921
Benzo(k)fluoranthene	<.01445	<.02206	<.01501	<.01824	<.01247	<.02058	<.01325	<.02200	<.01707	<.02031	<.01636	<.01246	<.00757
Benzo(a)pyrene	<.01442	<.02780	<.01891	<.02298	<.01651	<.02724	<.01699	<.02821	<.02188	<.02604	<.02286	<.01690	<.01027
Dimethylbenzo(a)anthracene	<.04172	<.02901	<.02593	<.03317	<.01947	<.03403	<.01628	<.01674	<.02879	<.02221	<.01949	<.02880	<.01970
Dibenz(a,h)perylene	<.01888	<.02412	<.02707	<.01429	<.02422	<.02324	<.01064	<.01986	<.01119	<.01571	<.01859	<.03664	<.00716
Indeno(1,2,3-cd)pyrene	<.01486	<.01825	<.01740	<.02484	<.01527	<.01138	0.08708	<.01815	0.05636	<.01571	<.01506	0.13799	<.01546
Dibenz(ghi)anthracene	<.01305	<.01247	<.02739	<.01454	<.02070	<.00985	0.07942	<.01295	0.07101	<.01345	<.01004	0.11635	<.01576
Benzo(ghi)perylene	<.01955	<.02401	<.02289	<.03268	<.02005	<.01494	0.12387	<.02321	0.07507	0.07513	<.01889	0.12882	<.01839
<b>Other Semi-Volatiles</b>													
Acetophenone	0.30514	6.0589	5.0669	2.9452	2.0527	1.2053	0.62271	0.23081	0.35229	0.21046	0.2623	0.2984	0.25871
Bis(2-chloroethyl)-Ether	<.49907	<.48844	<.42781	<.42556	<.50031	<.47209	<.37192	<.20975	<.26411	<.32290	<.40389	<.24019	<.14850
1,4-Dichlorobenzene	0.63285	1.2201	0.96237	0.53892	0.55888	0.47459	0.22903	0.45487	0.47585	0.42506	0.33915	0.28858	0.32195
Hexachlorobenzene	<.04248	<.08790	<.08203	<.05396	<.10394	<.04171	<.02841	<.05281	<.04485	<.03334	<.05722	<.08567	<.03942
Pentachlorophenol	<.17434	<.16223	<.11154	<.07154	<.03631	<.06468	<.07070	<.06337	<.06279	<.08557	<.05767	<.05611	<.05960

Table 18  
 Concentration from Air Monitoring Station Three (3) Trucking  
 Koppers Inc., North Little Rock, AR, July 17- Aug 15

	17-Jul	18-Jul	19-Jul	20-Jul	21-Jul	22-Jul	24-Jul	25-Jul	26-Jul	27-Jul	28-Jul	29-Jul	31-Jul
<b>Polycyclic Aromatic Hydrocarbons</b>													
Naphthalene	7.5288		4.7847	2.4272	0.28898	0.13357	3.7884	0.79858	7.1384	5.6125	3.9088	9.6691	9.0708
Phenanthrene	1.4701		3.7466	0.73755	0.53014	0.24893	0.43501	0.3969	0.32065	0.56756	0.47912	1.0496	0.70537
Benzof(a)anthracene	<.04188		<.07361	<.07742	<.05131	<.03951	<.03567	<.03965	<.02044	<.01486	<.02549	<.03675	<.04074
Benzof(k)fluoranthene	<.04504		<.06734	<.05873	<.04652	<.04292	<.05754	<.04371	<.01848	<.03828	<.02336	<.02664	<.04308
Benzof(b)fluoranthene	<.03595		<.06972	<.04831	<.03589	<.03794	<.01246	<.03447	<.01457	<.03018	<.01842	<.01989	<.04037
Benzof(g)perylene	<.04594		<.08949	<.05651	<.04476	<.04654	<.09138	<.04199	<.01775	<.03677	<.02244	<.02537	<.04405
Dimethylbenzof(a)anthracene	<.08377		<.24626	<.08847	<.048279	<.10490	<.14401	<.03900	<.02341	<.04130	<.01362	<.04882	<.02885
Indeno(1,2,3-cd)pyrene	<.03542		<.07371	<.05993	<.02700	<.05169	<.02342	<.01639	<.02178	<.01847	<.01864	<.02206	<.05188
Dibenz(a,h)anthracene	<.03682		<.04851	<.04476	<.02448	<.02807	<.010882	<.01774	<.01155	<.01563	<.01913	<.01632	<.04760
Benzof(k)perylene	<.03236		<.05422	<.05016	<.03506	<.02240	<.09884	<.02681	<.01137	<.01708	<.00875	<.03001	<.02116
<b>Other Semi-Volatiles</b>													
Acetophenone	0.24571		0.37941	0.31465	<.15361	<.21232	0.2297	0.26411	0.27525	0.3441	0.22945	0.2289	0.2682
Bis(2-chlorophenyl)-Ether	<.29098		<.12914	<.1285	<.36739	<.78657	<.78657	<.23776	<.36962	<.33211	<.31301	<.19128	<.51179
1,4-Dichlorobenzene	0.60008		1.0707	0.89256	0.42504	0.20344	0.85643	0.78158	0.61754	0.47025	0.33475	0.54754	1.3756
Hexachlorobenzene	<.07378		<.28369	<.16823	<.12584	<.13321	<.07399	<.06789	<.02948	<.04872	<.05661	<.04883	<.08670
Polychlorophenol	<.15415		<.35486	<.28206	<.15990	<.21761	<.09575	<.09256	<.13064	<.09115	<.11577	<.05816	<.15226
<b>Polycyclic Aromatic Hydrocarbons</b>													
Naphthalene	41.872	6.063	0.65312	0.40538	0.75817	0.58423	0.90093	4.7717	5.9408	0.37682	9.6217	6.0542	11.712
Phenanthrene	1.146	0.87005	0.51282	0.2826	1.3424	1.2276	0.40089	0.69626	1.6096	0.30449	0.31348	0.57454	0.33101
Benzof(a)anthracene	<.02594	<.02652	<.04653	<.01833	<.07071	<.09050	<.02977	<.03042	<.02757	<.01389	<.01868	<.01768	<.01572
Benzof(k)fluoranthene	<.04217	<.03078	<.03056	<.02110	<.11804	<.07867	<.03484	<.02968	<.01869	<.02675	<.02525	<.02348	<.02296
Benzof(g)perylene	<.02422	<.02498	<.02480	<.01712	<.08462	<.05639	<.02862	<.02438	<.01535	<.02197	<.02077	<.01932	<.01889
Benzof(b)fluoranthene	<.04313	<.03147	<.03125	<.02158	<.11202	<.07465	<.03870	<.03126	<.01968	<.02818	<.02816	<.02620	<.02551
Dimethylbenzof(a)anthracene	<.03554	<.02222	<.02223	<.02310	<.06527	<.03082	<.01866	<.03529	<.03017	<.01630	<.02101	<.01985	<.01965
Dibenz(a,h)anthracene	<.01878	<.01461	<.01761	<.01403	<.06934	<.04811	<.01505	<.01029	<.01682	<.01275	<.01309	<.02164	<.02857
Indeno(1,2,3-cd)pyrene	<.02143	<.00999	<.00988	<.01695	<.06942	<.04215	<.00990	0.11798	<.00908	<.00851	<.01060	<.01753	0.13524
Dibenz(a,k)anthracene	<.01646	<.00994	<.01246	<.01205	<.04317	<.04514	<.01160	0.11398	<.00878	<.01247	<.01237	<.01278	0.07547
Benzof(k)perylene	<.02818	<.01313	<.01300	<.02230	<.09114	<.05534	<.01266	0.12373	<.01162	<.01088	<.01330	<.02199	0.10387
<b>Other Semi-Volatiles</b>													
Acetophenone	5.1744	0.23473	0.16947	0.13007	0.35267	0.35406	0.174	0.22234	0.17952	0.14826	0.18806	0.29298	0.28635
Bis(2-chlorophenyl)-Ether	<.18583	<.23989	<.29962	<.12558	<.19295	<.97918	<.27727	<.44715	<.32220	<.24290	<.08150	<.28932	<.22460
1,4-Dichlorobenzene	1.7375	0.78259	0.47314	0.26597	0.65949	0.76838	0.4449	0.39887	0.29046	0.2232	0.58426	0.60072	0.60072
Hexachlorobenzene	<.07735	<.03527	<.14391	<.04819	<.43256	<.09238	<.04514	<.05843	<.04097	<.03238	<.03060	<.03110	<.02550
Polychlorophenol	<.10795	<.08715	<.10649	<.11326	<.25566	<.17941	<.04635	<.06458	<.06094	<.05289	<.04626	<.06582	<.06410

Concentration in microgram/cubic meter of air (0.04m<sup>3</sup>)

Table 19  
Concentration from Air Monitoring Station Four (4) Poe Street  
Koppers Inc., North Little Rock, AR July 17- Aug 15

<b>Polycyclic Aromatic Hydrocarbons</b>	17-Jul	18-Jul	19-Jul	20-Jul	21-Jul	22-Jul	24-Jul	25-Jul	26-Jul	27-Jul	28-Jul	29-Jul	31-Jul
Naphthalene	2.70E4	0.90112	1.8E84	8.4988	1.9E08	9.6E6	6.6E42	10.5E6	8.2708	1.2E08	0.6753	2.5998	19.05
Phenanthrene	1.17E	0.68882	0.61905	0.79886	0.31519	0.20901	0.48637	0.45468	0.45997	0.40767	0.46927	0.22121	0.61586
Benz(a)anthracene	<.05414	<.02850	<.04964	<.05090	<.13160	<.01669	<.01550	<.01596	<.02554	<.03604	<.01930	<.02302	<.01228
Benz(b)fluoranthene	<.09076	0.30447	0.30814	0.08746	0.07569	0.03305	0.02122	0.03090	0.02633	0.02358	0.02812	0.02379	0.04174
Benz(k)fluoranthene	<.07225	<.04742	0.2482	0.06748	0.05840	0.02921	0.01544	0.02437	0.02234	0.01859	0.02217	0.01777	0.03387
Benz(a)pyrene	<.09259	<.05465	0.13733	0.08416	0.07283	0.03583	0.02082	0.02969	0.02721	0.02265	0.02701	0.02286	0.04269
Dimethylbenz(a)anthracene	<.09405	<.07419	<.07513	0.10922	0.07615	0.01531	0.20275	0.04222	0.02430	0.03206	0.02728	0.02704	0.01960
Dibenz(a,h)perylene	<.05681	<.07512	0.34313	0.05888	0.04382	0.03188	0.01550	0.02857	0.02091	0.02688	0.02055	0.02314	0.01955
Inden(1,2,3-cd)pyrene	<.03946	0.11303	0.04688	0.02198	0.01495	0.01378	0.00825	0.01106	0.01371	0.01287	0.01409	0.10662	0.01082
Dibenz(gh)anthracene	<.05086	0.04987	0.16413	0.04722	0.02918	0.01461	0.01667	0.02037	0.01727	0.01242	0.01963	0.16341	0.01114
Benz(ghi)perylene	<.05193	0.14613	0.20284	0.02847	0.01936	0.01725	0.01041	0.01428	0.01770	0.01674	0.01819	0.12794	0.01423
<b>Other Semi-Volatiles</b>													
Acetophenone	0.35628	0.32579	0.32575	0.25916	0.31404	0.14835	0.31578	0.41655	0.43178	0.30445	0.30142	0.24471	0.25884
Bis(2-chloroethyl)-Ether	<.19704	<.37357	<.56058	<.88253	<.58061	<.23221	<.25833	<.26906	<.92146	<.37796	<.29267	<.18500	<.13523
1,4-Dichlorobenzene	0.33088	1.131	0.81917	0.82648	0.42259	0.36223	0.6488	0.7828	0.51553	0.55471	0.54375	0.51432	0.78139
Hexachlorobenzene	<.11724	<.32375	<.23409	<.17543	<.12553	<.12749	0.08051	0.03802	0.06536	0.09048	0.05911	0.03429	0.06271
Pentachlorophenol	<.10747	<.29524	<.35576	<.24846	<.22068	<.10423	<.11364	<.11478	<.13055	0.06021	<.11252	<.10737	<.07317
<b>Polycyclic Aromatic Hydrocarbons</b>	1-Aug	2-Aug	3-Aug	4-Aug	5-Aug	7-Aug	8-Aug	9-Aug	10-Aug	11-Aug	12-Aug	14-Aug	15-Aug
Naphthalene	13.327	1.4691	0.53815	1.1381	0.54895	0.22893	0.28666	0.50828	1.3479	4.5596	7.8504	12.293	1.1403
Phenanthrene	0.63846	0.39895	0.36877	0.25884	0.1515	0.12003	0.17358	0.13121	0.22189	0.29542	0.21729	0.43459	0.42091
Benz(a)anthracene	<.01832	<.00996	<.03419	<.04382	<.03821	<.04994	0.02657	<.01542	0.02243	0.00911	<.02025	0.03301	<.01100
Benz(b)fluoranthene	<.02924	<.02336	0.03046	0.01979	0.05246	0.06509	0.02888	0.01475	0.03507	0.01767	0.03661	0.01818	0.02229
Benz(k)fluoranthene	<.02373	<.01845	<.02472	0.01606	0.03761	0.04666	0.01715	0.01212	0.02881	0.01452	0.03012	0.01446	0.01946
Benz(a)pyrene	<.02990	<.02388	<.03115	<.02024	0.04978	0.06176	0.02199	0.01554	0.03694	0.01861	0.04084	0.02029	0.02598
Dimethylbenz(a)anthracene	<.02094	<.02085	<.01589	0.01388	0.04154	0.04602	0.01740	0.01284	0.02671	0.01019	0.01741	0.01456	0.02013
Dibenz(a,h)perylene	<.01503	<.02438	<.01940	0.02192	0.04165	0.03830	0.00774	0.01205	0.02403	0.01425	0.01898	0.01489	0.01317
Inden(1,2,3-cd)pyrene	<.00801	<.01589	0.01023	0.01477	0.01316	0.03158	0.01588	0.00335	0.0638	0.00649	0.00769	0.00563	0.00839
Dibenz(gh)anthracene	<.01512	0.01741	0.01131	0.01879	0.01443	0.02954	0.01947	0.01375	0.01329	0.01521	0.01793	0.00563	0.01037
Benz(ghi)perylene	<.01054	<.02090	0.01345	0.01942	0.01728	0.04146	0.02006	0.06667	0.06995	0.00830	0.00964	0.00706	0.01115
<b>Other Semi-Volatiles</b>													
Acetophenone	0.42882	0.27329	0.26814	0.2829	0.32949	0.11520	0.1925	0.20727	0.208	0.17174	0.30359	0.38312	0.28226
Bis(2-chloroethyl)-Ether	<.20947	<.27344	<.36402	<.34141	<.48192	<.17678	<.53199	<.21077	<.31324	<.18798	<.28222	<.19994	<.22071
1,4-Dichlorobenzene	1.0195	0.75136	0.42155	0.33788	0.32096	0.21176	0.26688	0.35934	0.40955	0.66979	0.51632	0.85269	0.86681
Hexachlorobenzene	<.04832	<.07865	<.06071	0.05453	0.05523	0.10461	0.04666	0.03501	0.05776	0.02850	0.04241	0.03309	0.02151
Pentachlorophenol	<.04145	<.13903	<.10732	0.05933	0.14485	0.23712	0.10376	0.11202	0.08491	0.05320	0.08549	0.03335	0.06503
Concentration in microgram/cubic meter of air ( $\mu\text{g}/\text{m}^3$ )													

Table 20  
 Concentration from Air Monitoring Station Five (5) "F" Street  
 Koppers Inc., North Little Rock, AR July 11 - Aug 15

	17-Jul	18-Jul	19-Jul	20-Jul	21-Jul	22-Jul	23-Jul	24-Jul	25-Jul	26-Jul	27-Jul	28-Jul	29-Jul	31-Jul
<b>Polyaromatic Hydrocarbons</b>														
Naphthalene	6.895	1.4432	5.3379	10.287	7.1673	0.9094	4.8407	4.31	5.298	4.7176	2.4512	3.8507	9.1904	
Phenanthrene	0.85222	0.21534	0.57662	0.96432	0.78851	0.26334	0.47651	0.46015	0.48522	0.3737	0.41379	0.21652	0.67603	
Benz(a)anthracene	<.03382	<.02623	<.06184	<.01511	<.04063	<.04421	<.01977	<.01479	<.01445	<.03048	<.04345	<.02510	<.00982	
Benz(b)fluoranthene	<.06184	<.03838	<.09078	<.03951	<.04376	<.01973	<.01831	<.01671	<.03637	<.05004	<.05462	<.02195	<.01986	
Benz(k)fluoranthene	<.04907	<.03862	<.07246	<.03033	<.03376	<.01744	<.01332	<.01318	<.017491	<.03946	<.04306	<.01640	<.01812	
Benz(a)pyrene	<.06288	<.04220	<.09301	<.03783	<.04210	<.02140	<.01797	<.01605	<.03494	<.04807	<.05847	<.02256	<.02031	
Dimethylbenz(a)anthracene	<.03442	<.06251	<.19292	<.02369	<.03987	<.01224	<.05859	<.02636	<.03121	<.05160	<.03027	<.02495	<.02251	
Dibenz(a,h)perylene	<.04582	<.04350	<.05514	<.06209	<.03849	<.01965	<.01935	<.01942	<.03795	<.02510	<.05041	<.01462	<.01608	
Indeno(1,2,3-cd)pyrene	<.01339	<.02878	<.03411	<.02342	<.01647	<.00823	<.00834	<.00991	<.04929	<.00970	<.02199	<.01542	<.00865	
Dibenz(e,h)anthracene	<.02246	<.02330	<.05487	<.02833	<.01885	<.01273	<.01444	<.01496	<.01828	<.02136	<.04509	<.02537	<.012721	
Benz(a,h)perylene	<.01762	<.03490	<.04284	<.03034	<.02133	<.01030	<.01052	<.01280	<.010759	<.01253	<.02840	<.015603	<.01137	
<b>Other Semi-Volatiles</b>														
Acetophenone	0.40472	0.48797	0.3904	0.63491	0.26938	0.14918	0.50802	0.36334	0.42409	0.44978	0.33012	0.30736	0.44979	
Bu(2-chloroethyl)-Ether	<.26408	<.23623	<.79835	<.24851	<.35396	<.23088	<.20059	<.26439	<.46429	<.24513	<.12416	<.19419	<.16634	
1-4-Dichlorobenzene	1.1062	1.7189	1.1787	0.79538	0.67863	0.37371	0.7126	0.70593	0.84707	1.0467	0.57292	0.79596	0.66371	
Hexachlorobenzene	<.08475	<.12093	<.24297	<.11512	<.14876	<.04428	<.06665	<.03893	<.09320	<.07399	<.16639	<.03437	<.06419	
Perchlorophenol	<.11944	<.18542	<.25350	<.20039	<.19394	<.05171	<.10301	<.08444	<.10623	<.09901	<.14358	<.09685	<.07595	
<b>Polyaromatic Hydrocarbons</b>														
Naphthalene	12.096	2.2913	1.9409	6.8893	0.48667	0.44693	0.46633	0.7192	6.1219	6.8613	18.265	14.671	2.3648	
Phenanthrene	0.70583	0.42665	0.25255	0.31913	0.22482	0.23945	0.18197	0.22094	0.49745	0.89811	0.96169	1.0268	0.52503	
Benz(a)anthracene	<.02277	<.02328	<.06689	<.04137	<.01939	<.03407	<.03204	<.01888	<.01914	<.01418	<.00683	<.02069	<.02179	
Benz(b)fluoranthene	<.04243	<.02314	<.03386	<.03331	<.03097	<.04501	<.01350	<.01646	<.01424	<.01416	<.06196	<.01984	<.03488	
Benz(k)fluoranthene	<.03443	<.01878	<.02747	<.02703	<.02220	<.03227	<.01109	<.01352	<.01170	<.01163	0.1013	<.01632	<.03034	
Benz(a)pyrene	<.04239	<.02366	<.03462	<.03407	<.02939	<.04271	<.01422	<.01734	<.01500	<.01491	<.02050	<.02214	<.04114	
Dimethylbenz(a)anthracene	<.03936	<.01590	<.03640	<.03336	<.01950	<.02405	<.02228	<.00926	<.01438	<.01659	<.00999	<.00943	<.02004	
Dibenz(a,h)perylene	<.02574	<.01234	<.01506	<.02779	<.01184	<.03871	<.01089	<.00828	<.01044	<.01350	<.00817	<.01288	<.01912	
Indeno(1,2,3-cd)pyrene	<.01900	<.01072	<.01684	<.01381	<.01342	<.01741	<.01239	<.05904	<.01569	<.01032	<.04932	<.01041	<.01106	
Dibenz(e,h)anthracene	<.02307	<.02300	<.02564	<.02021	<.01433	<.04431	<.01259	<.01126	<.00817	<.01100	<.08437	<.01215	<.01032	
Benz(a,h)perylene	<.02449	<.01410	<.02216	<.01817	<.01752	<.02228	<.01584	0.07574	<.02006	<.01320	0.10149	<.01306	<.01387	
<b>Other Semi-Volatiles</b>														
Acetophenone	0.42375	0.20404	0.62663	0.56228	0.24795	<.18622	0.23839	0.28732	0.15681	0.16366	0.27911	0.4041	0.45634	
Bu(2-chloroethyl)-Ether	<.29837	<.31670	<.37147	<.27558	<.31152	<.78831	<.18740	<.38968	<.19648	<.28858	<.16018	<.23892	<.29231	
1-4-Dichlorobenzene	0.74501	0.62084	0.54732	0.80138	0.42301	0.39343	0.4276	0.536	0.31035	0.31184	0.52511	0.75796	0.84833	
Hexachlorobenzene	<.10594	<.07578	<.07042	<.05076	<.08165	<.21821	<.02509	<.03531	<.02846	<.01986	0.0425	<.05811	<.06214	
Perchlorophenol	<.10190	<.10940	<.14556	<.06089	<.10311	<.48221	<.06801	<.06464	<.06640	<.05957	<.04795	<.09663	<.07829	
Concentration in microgram/cubic meter of air ( $\mu\text{g}/\text{m}^3$ )														

Table 21  
 Concentration from Air Monitoring Station Six (6) Railroad  
 Koppers Inc., North Little Rock, AR, July 17- Aug 15

	17-Jul	18-Jul	19-Jul	20-Jul	21-Jul	22-Jul	24-Jul	25-Jul	26-Jul	27-Jul	28-Jul	29-Jul	31-Jul
<b>Polycyclic Aromatic Hydrocarbons</b>													
Naphthalene			5.602	0.22437	0.34337	0.35489	0.67627	1.2677	2.9044	8.9931	14.283	5.7861	4.8947
Phenanthrene			0.9123	0.27829	0.23712	0.48513	0.20711	0.26946	0.46992	1.2922	1.2542	0.5743	0.91395
Benz(a)anthracene			<0.2078	<0.0784	<0.04393	<0.0656	<0.0142	<0.01519	<0.0182	<0.04612	<0.02056	<0.02064	<0.02288
Benz(b)fluoranthene			<0.06223	<0.04518	<0.05302	<0.02502	<0.01568	<0.02299	<0.01893	<0.02502	<0.01895	<0.02047	<0.02200
Benz(k)fluoranthene			<0.04967	<0.03486	<0.04091	<0.02212	<0.01441	<0.01813	<0.01493	<0.02761	<0.01494	<0.01529	<0.01786
Benz(a)pyrene			<0.06376	<0.04348	<0.05102	<0.02713	<0.01539	<0.02208	<0.01819	<0.03364	<0.01820	<0.01950	<0.02250
Dimethylbenz(a)anthracene			<0.04622	<0.01817	<0.05322	<0.01202	<0.06194	<0.02325	<0.03352	<0.21610	<0.07366	<0.0621	<0.0701
Dibenz(a,h)perylene			<0.03397	<0.03995	<0.04336	<0.01840	<0.01834	<0.02822	<0.01253	<0.05178	<0.02954	<0.01753	<0.02670
Indeno(1,2,3-cd)pyrene			<0.02317	<0.01400	<0.01724	<0.00696	<0.01131	<0.01287	<0.00732	<0.02553	<0.01526	<0.01333	<0.00730
Dibenz(ghi)anthracene			<0.02618	<0.02449	<0.03015	<0.01037	<0.01131	<0.01422	<0.01097	0.38499	<0.06497	<0.01280	<0.00854
Benzof(ghi)perylene			<0.02910	<0.01814	<0.02234	<0.00871	<0.01427	<0.01636	<0.00945	<0.02296	<0.01970	<0.01798	<0.00960
<b>Other Semi-Volatiles</b>													
Acetophenone			0.29016	<0.05111	0.22715	0.26751	0.23639	0.25281	0.19237	0.53694	0.20573	0.2264	0.17736
Bis(2-chlorophenyl)-Ether			<0.05334	<0.04562	<0.03570	<0.00684	<0.02610	<0.01594	<0.05974	<0.72304	<0.52861	<0.22342	<0.33866
1,4-Dichlorobenzene			0.63253	0.19746	0.46914	0.34044	0.28647	0.48363	0.45527	0.54062	0.34117	0.28029	0.38485
Hexachlorobenzene			<0.15937	<0.05980	<0.15935	<0.05853	<0.07556	<0.06315	<0.05405	<0.14020	<0.07340	<0.03629	<0.05655
Pentachlorobenzol			<0.21230	<0.12264	<0.18129	<0.08115	<0.08526	<0.13379	<0.11492	<0.24762	<0.10736	<0.06128	<0.11376
<b>Polycyclic Hydrocarbons</b>													
Naphthalene	7.4609	12.643	21.868	14.649	1.8523	34.137	2.9817	4.8445	4.0886				
Phenanthrene	0.72296	1.9171	3.0147	2.3567	0.62635	3.4554	3.2466	1.8778	0.88426				
Benz(a)anthracene	<0.02621	<0.04698	<0.08839	<0.03544	<0.03389	<0.04369	<0.03461	<0.02713	<0.02639				
Benz(b)fluoranthene	<0.02599	<0.01310	<0.02830	<0.02093	<0.05750	<0.03672	<0.01876	<0.02494	<0.01848				
Benz(k)fluoranthene	<0.02109	<0.01063	<0.02297	<0.01699	<0.04122	<0.02632	<0.01541	<0.02049	<0.01518				
Benz(a)pyrene	<0.02658	<0.01539	<0.02894	<0.02141	<0.05456	<0.03464	<0.01976	<0.02627	<0.01947				
Dimethylbenz(a)anthracene	<0.04558	<0.02485	<0.03740	<0.03972	<0.01576	<0.01541	<0.02418	<0.03417	<0.02553				
Dibenz(a,h)perylene	<0.02007	<0.01907	<0.03219	<0.00838	<0.01211	<0.01228	<0.01789	<0.01646	<0.02040				
Indeno(1,2,3-cd)pyrene	<0.02292	<0.01433	<0.01961	<0.00687	<0.00666	<0.01736	<0.01306	<0.01984	<0.00851				
Dibenz(ghi)anthracene	<0.02821	<0.00915	<0.02031	<0.01390	<0.01173	<0.01529	<0.01968	<0.01968	<0.01451				
Benzof(ghi)perylene	<0.03015	<0.01635	<0.02580	<0.00904	<0.00874	<0.02279	<0.01670	<0.02537	<0.01088				
<b>Other Semi-Volatiles</b>													
Acetophenone	0.3188	0.25064	0.352	0.2825	0.24818	0.23022	0.31256	0.23622	0.18231				
Bis(2-chlorophenyl)-Ether	<0.29219	<0.16480	<0.51768	<0.23787	<0.20835	<0.68517	<0.60243	<0.53075	<0.30371				
1,4-Dichlorobenzene	0.42771	0.52641	0.59773	0.25043	0.47266	0.23177	0.55325	0.47969	0.4023				
Hexachlorobenzene	<0.04117	<0.08611	<0.07632	<0.08085	<0.09323	<0.09367	<0.05376	<0.03862	<0.04441				
Pentachlorobenzol	<0.15880	<0.16177	<0.19070	<0.09174	<0.11706	<0.16728	<0.25402	<0.17569	<0.06871				
Concentration in microgram/cubic meter of air (µg/m <sup>3</sup> )													



## **APPENDIX D: PUBLIC COMMENTS AND AGENCY RESPONSES**

On September 23, 2003, ADH, in cooperation with ATSDR and ADEQ, held a Public Availability Session (PAS) at the Glenview Recreation Center from 6:30 p.m. until 9:00 p.m. The PAS was organized so the community could discuss the PHA findings with agency representatives and to allow the public an opportunity to provide any comments about the PHA. During the PAS, public comments were received by various delivery methods, including PAS Evaluations, typed comments via laptop computer, comment cards, audio recorded comments, and prepared public comments. ADH also received public comments via ATSDR Public Health Assessment Questionnaires and formally written letters to ATSDR during the public comment period.

Note that each comment and response has been assigned a correlating number to assist in referencing. The comments from letters are listed by letter date. Similar questions from the PAS have been grouped together. Comments appear in no otherwise particular order. Public comments and agency responses are summarized below.

### **Letter #1 dated September 1, 2003 from Resident**

#### **Comment 1:**

I feel that there is a cancer cluster because of Koppers chemicals. I am just a concerned member who needs answers. Last year in Poe Addition within a block and a half from Koppers ...people died from cancer and ...from congested heart failure. ...people in the same radius of the plant in Poe Addition, people in Glenview, and some Koppers workers have cancer now. There is not enough information about stomach cancer. My [child] died... The doctor doesn't even know where [the] cancer came from. I believe that our community has a cancer cluster and feel it is because of Koppers chemicals.

#### **Response to Comment 1:**

*Cancer clusters are extremely rare. Cases of cancers are more likely to represent a cancer cluster if they involve (1) one type of cancer, rather than several types (2) a rare type of cancer, or (3) a type of cancer in a group not usually affected by that cancer, such as a cancer in children that is normally seen in adults. Cancer cases may seem high among a small group of people who have something in common with the cases, such as working in the same building or living on the same street, but cancer is very common and occurrence is usually random. Cancer has many possible causes such as: smoking, unhealthy diet, chemicals, overexposure to sun, immune conditions, inherited mutations, etc. Age and lifestyle factors are the most common risk factors for cancer.*

*Information on stomach cancer was added to this document (Table 14). No studies were found that linked stomach cancer to the levels of contaminants that were detected in your area. See the Health Outcome Data Evaluation section of this document for additional*

*cancer information. Cancer rates reported for your ZIP code were generally as would be expected for this population.*

**Comment 2:**

If we are at risk, I would like to know the truth. I have concerns and/or questions about respiratory problems, sinus, diabetes and cancer. Residents of the Glenview and Poe Addition are getting sick and dying because of the fumes from the chemicals from Koppers. I have data on different chemicals that Koppers uses that show over an extended period of time at a lower level the chemicals cause, cancer, respiratory problems, heart, skin rashes, burning of the eyes, nose, and throat, and other health problems.

**Response to Comment 2:**

*ADH recommends that individuals see their physician regarding their health concerns. The effects of exposure to any hazardous substance depend on the dose, the duration, how you were exposed, personal traits and habits, and whether other chemicals are present. This document addresses possible risks related to specific chemicals in the Toxicology Evaluation section. While there are limited studies to determine the potential health effects these chemicals have on long-term residents at amounts below minimum risk levels, current studies show that the chemicals would have to be at much higher levels than were discovered in your community to cause adverse health effects. With the available data, it is not expected that Koppers poses any apparent public health hazard.*

**Comment 3:**

Very few people go to the doctor or hospital in the 72117 zip code area. How could ADH get good data to use if the people went to other hospitals and doctors?

**Response to Comment 3:**

*The Arkansas Central Cancer Registry data is based on place of residence rather than place of treatment or diagnosis. As such, reporting reflected by ZIP code would include people in your community. Since 1996, any facility, clinic, or physician who diagnoses and/or treats cancer is required to report the case to the registry. Cancer data prior to 1996 is limited. The National Cancer Registry Program is responsible for reporting nationwide, so whether you seek treatment outside of your state or not, the information ultimately ends up at the Arkansas Central Cancer Registry if Arkansas is listed as the state of residency.*

**Comment 4:**

Koppers have been under reporting their emissions to the state and EPA. A Koppers corporate employee made the statement that they do not report the emissions from the treated ties on one of their reports to EPA and ADEQ.

**Response to Comment 4:**

*Emissions from the treated wood storage area are included in the emission calculations that support the permit applications for Koppers submitted to ADEQ. Emissions from the treated wood storage area are also included in the monthly/annual emission estimates for the facility. The reporting of emissions by Koppers complies with the requirements of each respective program.*

**Comment 5:**

According to one of the fact sheets from ATSDR, the workers are to leave their work clothes with creosote on them at work, instead they wear them home for their wives to wash.

**Response to Comment 5:**

*According to the Koppers safety training records, all employees working in the area of wood treating received an updated training on worker safety regarding creosote contamination and proper handling precautions in September 2003. Training included the importance of changing clothes and showering before leaving work. Koppers has a contracted laundry service. Records also indicate that this information is covered in new employee orientation training. This is not expected to be an future issue.*

**Comment 6:**

The fumes are so strong at times I can't stand to be in my yard because my nose, throat and eyes burn.

**Response to Comment 6:**

*ADH recommends that individuals see their physician regarding their health concerns. The air sampling that occurred in your community did not indicate contaminants to be at levels to cause adverse health effects. Health effects due to odor exposure are not well understood. Some individuals are more sensitive to chemical odors, smelling creosote-related chemicals at very low concentrations. Reports indicate that people can smell these compounds at 0.0075 ppm, which is over 1,000 times lower than the lowest observed adverse effects level that ATSDR used to derive the naphthalene minimum risk levels. See the Toxicology Evaluation section of this document that specifically addresses Air for more information. It is the recommendation of ADH and ATSDR that additional unannounced air sampling be conducted when the odors are strongest (see Recommendations).*

**Comment 7:**

On Van Street at Puckett you can see creosote coming from the drainpipe off of Koppers

property into the drainage ditch. When we have hard rains, the ditch overflows and the water from the ditch goes across the street into the resident's yards.

**Response to Comment 7:**

*Sediment samples were collected from two drainage ditches. One ditch is located on the west side of the site and the other is on the southeast side of the site. The two drainage ditches contained detectable levels of PAHs and nine inorganic constituents, see Table 4. None of the estimated exposure doses exceeded ATSDR's acute minimum risk level. If the contamination level in the ditches is not expected to cause adverse health effects, it is less likely to see health effects from the run-off. ADH and ATSDR recommends continued monitoring of the drainage ditches to insure that contaminants are not escaping the containment area (see Recommendations).*

**Comment 8:**

The health assessment only briefly discussed the soil. ADEQ told me that the soil was contaminated at 8-12 inches below the top of the soil on the north side of Atkinson Street in Poe Addition. It is hard for me to believe we could grow our vegetables in the contamination and just wash them off.

**Response to Comment 8:**

*Additional information on soil has been added to the Soil and Sediment section of this document. In 1994, ADEQ performed soil sampling in Glenview and Poe Addition. The results indicated no detection of chemicals and toxic metals in the off-site soil. Off-site soil samples were collected again in 1995, within ½ mile radius of the facility. Results were then calculated for the incidental ingestion doses (see Tables 9 and 10). Incidental ingestion of off-site soil is not expected to cause any adverse health effects.*

*ADH also considered possible exposure to those that participate in gardening activities. Adverse health effects are not expected to result from skin contact with the contaminants detected in the soils. Therefore, based on low levels of contaminants detected in past soil samples, concentrations are not at levels expected to pose a risk to those that garden.*

*Additionally, plants absorb very little creosote (less than 0.5% of the amount available to the plant) and PAHs (particularly those with higher molecular weight). Therefore, the uptake of these chemicals by humans from plants would be extremely low, see the Garden Plant Uptake section. It is the recommendation of ADH that all garden fruits and vegetables be washed thoroughly before being eaten (see Recommendations).*

**Comment 9:**

Koppers Industries, Inc. had at least three months advance notice of the air sampling that

took place in July and August of 2000. This provided them plenty of time to cut down on their emissions. For it to be a fair health assessment more test and data needs to be taken.

**Response to Comment 9:**

*Appendix B, Table 5 shows the Koppers productions levels for July-August from 1984 through 2003 in cubic yards. The mean production level for this entire time is 773,208.7 cubic yards. The mean production level for the time of the air monitoring was 951,850 cubic yards, actually higher than the average. However, since Koppers was notified of the air sampling activities in advance, ADH and ATSDR recommends additional unannounced air sampling (see Recommendations).*

**Comment 10:**

I would like to know why it took four years to complete the Public Health Assessment and then come up with insufficient data.

**Response to Comment 10:**

*A health consultation evaluating the air data was published in April 2001. New soil and groundwater data were obtained by ADH in May 2002. Final data analysis was conducted for the assessment from May 2002 to October 2002. Staff turnover during that time affected the completion of the public health assessment. ADH and ATSDR apologize for the delay in publication.*

*The public health assessment was published on July 31, 2003 for public comment, which ended in October 2003. Since then, additional dioxin and cancer data have been obtained and incorporated into this document. The accuracy of the information in this document relies on the accuracy of the environmental sampling and health outcome data received from the environmental regulatory agencies and cancer registry.*

**Comment 11:**

Residents are concerned about several discrepancies in the PHA document pertaining to ATSDR's conclusion that contaminant concentrations detected were below levels found to cause adverse health effects at the Koppers plant. The air monitoring that was done by the ADH and used in the health assessment could not get a good reading because it was snowing.

***Response to Comment 11:***

*Air sampling was conducted by ADH in December 1999-January 2000. ADH sampling results were not used to make health determinations, but instead were used to identify data gaps. ADH then requested the assistance of USEPA Region 6 to conduct additional sampling. The 151 air samples collected by USEPA were the only air samples used to make health determinations in this document. Additionally, ADEQ collected four canister samples (see Table 3) for naphthalene analysis to assess odor only.*

**Letter #2 dated September 12, 2003, from Resident**

**Comment 12:**

Concern by a ...resident of Glenview having chronic eye, nose, anxiety and skin irritations, collapsed lung, skin maladies, impaired vision, and throat tumors, loss of smell and taste, and a high number of chronic health conditions reported by other residents in the immediate area of Koppers.

***Response to Comment 12:***

*ADH recommends that individuals see their physician regarding their health concerns. Available data suggests that exposures should not result in adverse health effects. Also see Response to Comment 2, and review the Public Health Implications section of this document.*

**Comment 13:**

Concerned about communities chemical exposures causing a cancer cluster. Concerned about the inaccuracies in the collection data, registry data relies on reporting from zip code boundaries. The only hospital in this area was not built when the data was collected.

***Response to Comment 13:***

*See Responses to Comment 1 and Comment 3.*

**Comment 14:**

In the PHA document there was no explanation as to why the statement canister sampling was not part of the ADEQ air sampling work plan and is not an approved sampling

method for naphthalene - doesn't agree with the toxicological evaluation for naphthalene.

**Response to Comment 14:**

*The canister sampling was not part of the air monitoring sampling plan because that specific method of sampling is not the best method for analyzing PAHs, which include naphthalene. Canister sampling is not generally used for solids or semi-solids. It is usually reserved for volatiles and gases.*

*The method used (USEPA Method 8270) is most effective for measuring PAHs. The Quality Assurance data for the sampling indicated the testing method was performed well. By collecting samples with this method, PAHs were extracted from a larger volume of air than the one liter canister sample. Thus, the detection limits for PAHs were much lower and the sensitivity to contaminants higher.*

**Comment 15:**

Sample data indicates PAHs are only found periodically and does not concentrate in a specific area. Strong fumes of PAHs become trapped in my home, therefore, PAHs do concentrate in specific areas.

**Response to Comment 15:**

*See Response to Comment 6.*

**Comment 16:**

A video was compiled and edited by residents showing numerous violations of dust generated sawdust dispersed into the air, exhausts and smoke emissions, vapors streaming from treated ties, and other activities that affect our health.

**Response to Comment 16:**

*ADH did view the video. ADH also observed the dust and smoke, which indicated that potential exposure pathways did exist. However, without air sampling during the incident, we were unable to determine the acute health impact. It appeared to ADH that the majority of dust was coming from the parking lot, rather than the crossties. Since the video was made, the parking lot has been paved to limit dust. Also, the stove generating smoke has since been removed from the facility. These issues should not be future concerns, as the potential exposures have been eliminated.*

*An ADEQ inspector followed up on the formal complaint on October 28, 2003. In the ADEQ report, the inspector stated, "A large dumpster, for collecting scrap wood was positioned at the end of the cutting line. [The inspector(s)] didn't observe any treated*

*wood in the container... However, some of the wood was discolored and appeared dark brown. It is possible that the complainant witnessed employees burning this wood, rather than the treated wood. From a distance, the two types can look very similar.” The investigation of the complaint resulted in no violations.*

**Comment 17:**

Koppers had anywhere from three weeks to three months notice of the impending monitoring and testing that ADEQ had conducted in July and August 2000. Koppers had scaled back their production at the plant and that is why there concentrations of chemicals sampled were actually lower than during normal plant operations.

***Response to Comment 17:***

*See Response to Comment 9.*

**Comment 18:**

Because most of the background data gathered on the contaminants detected in the sampling were of rats, mice, and hamsters, I think that the best references to use for the health effects of these contaminants and chemicals (combined) is the people who lived in them for years. A revision should be made of the PHA document and a more comprehensive investigation into the adverse health effects that we are convinced Koppers is having on our lives, livelihood and the devaluation of our property.

***Response to Comment 18:***

*ADH and ATSDR use the best available science to understand the toxicity and potential human health effects from exposure to chemicals. For many chemicals, the best available toxicity studies are in animals and, as such, we use those studies as the basis for our screening values and guidelines.*

**Letter #3 dated September 26, 2003, from ADEQ**

ADEQ has reviewed the Koppers PHA and offers the following comments:

**Comment 19:**

It may be instructive to the reader if the 151 data values are listed in a Table for reference. It would also be helpful if the assessment referenced exactly where the USEPA screens were obtained for Table 2. If this was done, the table would be easier to understand and the data could be viewed in a more instructive context.

***Response to Comment 19:***

*Additional tables were added that contain the location and concentration of the 151 air samples (see Appendix C, Tables 16-21). The USEPA Screens discussed in Table 2 were obtained from the USEPA Region III Risk-Based Concentrations. A note has been added to Table 2.*

**Comment 20:**

The conclusion of no adverse effects expected from sample concentrations also states the detected concentrations were well below reported health effect concentrations. It would be helpful to the readers if the health effect concentration, to which the conclusion refers, were actually provided in the text of the pentachlorophenol section.

***Response to Comment 20:***

*Table 2 shows the highest concentrations of pentachlorophenol from the air monitoring samples, along with the screening concentrations. Pentachlorophenol was present in only two of the 151 air samples. A non-occupational health effect concentration for pentachlorophenol has not been established by ATSDR; however, the occupational health effect concentration is 500  $\mu\text{g}/\text{m}^3$ . Both pentachlorophenol concentrations were less than 1  $\mu\text{g}/\text{m}^3$ .*

**Comment 21:**

In the first paragraph [page 19] it states: This exposure scenario indicates that even though inhalation exposure is occurring, the exposure is sporadic at very low concentrations of PAHs. No numerical values are given for the low concentrations of PAHs. Providing such information would be instructive to the reader.

***Response to Comment 21:***

*See Tables 16-21 in Appendix C for a complete list of the 151 air sample concentrations.*

**Comment 22:**

Two concentrations reported for the Southeast Ditch are incorrect (Table 4). The 509.0 mg/kg indicated for Benzo(b)fluoranthene and the 505.0 mg/kg indicated for Benzo(k)fluoranthene should be 5.9 mg/kg and 5.5 mg/kg, respectively. This error in transcription also affects the results indicated in Tables 5, 6, 7 and 8.

***Response to Comment 22:***

*Tables 4, 5, 6, 7 and 8 have been corrected.*

**Comment 23:**

It is unclear from Table 13 what dates and locations are associated with the reported data. It would be instructive for the reader if this information were provided. The conclusions seem reasonable, given the sampling data and toxicity information available. However, the data, comparison values and toxicity rationales could be presented in a more understandable manner.

***Response to Comment 23:***

*Sampling dates and locations have been added to Table 13. Changes have also been made to the data presentation format of the table.*

**Letter #4 dated September 30, 2003, from Resident**

**Comment 24:**

The health assessment does not mention the school which Koppers property is joining the school property on the north and west. Children are sick quite often with respiratory infections and they also have redness of the skin. When ADEQ did their air sampling in July and August 2000 the monitor with the highest reading of Naphthalene was near the bars that children play on at the school playgrounds.

***Response to Comment 24:***

*Information about Glenview Elementary School has been added to the document under the Child Health Concerns section. ADH and ATSDR recommend additional unannounced air sampling be conducted, with one of the air monitoring stations close to the school (see Recommendations).*

*ADH reviewed the 2000-2001 academic year attendance rates for elementary students in both the Pulaski County School District and the North Little Rock School District. Attendance for Glenview Elementary was actually higher than the average school attendance for the two Districts (see Table 7 in Appendix B). The higher attendance rate indicates that children do not appear to be missing excessive school due to illness. ADH recommends that individuals see their physician regarding their health concerns.*

**Comment 25:**

Until the year 2001 the school had treated crossties from Koppers on the school playground around the playground equipment for the children to play on. They moved the treated crossties to the back part of the school grounds and they are still piled up there.

***Response to Comment 25:***

*It is the responsibility of school officials to insure that treated crossties are removed from school property. According to the principal at Glenview Elementary School, the crossties were removed from the playground area and placed in the back of the property where children are not permitted to congregate. The principal told ADH that the district office would have these ties permanently removed from the school grounds in the near future. ADH will follow-up with the school on the removal of the crossties.*

**Comment 26:**

Limbs from Koppers trees hang over the fence onto the school grounds and have creosote like substance on them.

***Response to Comment 26:***

*ADH suggests that this topic be presented to the North Little Rock - Koppers Industries, Inc. Community Advisory Panel for discussion about possible appropriate actions to be taken by the facility and community members.*

**Comment 27:**

There is an open drainage ditch on Van Street that runs along side the Koppers plant and through the community of Glenview. There is water run off from a pond on the Koppers site that runs into the drainage ditch. The water is stagnant, looks oily, and has a bad odor. There is also a drainpipe at the same location that has creosote like substance draining from it into the drainage ditch. Children have been seen playing in the water at the ditch.

***Response to Comment 27:***

*See Response to Comment 7. Also, ADH suggests that this topic be presented to the North Little Rock - Koppers Industries, Inc. Community Advisory Panel for discussion about possible appropriate actions to be taken by the facility and community members.*

**Comment 28:**

People get sick when the fumes from Koppers are bad. A lot of people have died in the two communities with cancer and respiratory ailments and a lot of people in the two communities have cancer and respiratory problems now. A study needs to be made from the federal government as to how many residents in the communities and Koppers workers that have died of cancer or have it now. I have no doubt that we have a cancer cluster.

***Response to Comment 28:***

*For more information on cancer clusters see Response to Comment 1. Also refer to the Health Outcome Data Evaluation section of this document for information about cancer*

*occurrence in your community. Arkansas does not currently maintain a respiratory specific registry. ADH recommends that individuals see their physician regarding their health concerns.*

**Comment 29:**

There is also nerve disorders, skin rashes, loss of sense of smell because of nasal tumors and aggravated asthma.

**Response to Comment 29:**

*See Response to Comment 2, and review the Community Health Concerns section of this document. Some chemicals used in the wood-treatment process may trigger existing conditions of asthma. Asthma symptoms can be triggered by several factors, for example: allergens, irritants such as tobacco smoke or strong odors, weather changes, viral or sinus infections, exercise, reflux disease (stomach acid flowing back up the esophagus), medications or foods, and emotional anxiety. Each trigger will vary among individuals. ADH recommends that individuals see their physician regarding their health concerns.*

**Comment 30:**

Koppers was given at least a three months notice of the monitoring and when it would take place. Koppers had plenty of time to make sure their hazardous waste emissions would be low. More testing needs to be taken on the air and soil from the federal level and not the state and it needs to be confidential.

**Response to Comment 30:**

*See Response to Comment 9. Also refer to the Recommendations section of this document.*

**Comment 31:**

The air monitoring from the ADH was done when it was snowing and it messed up the data and they used it any way. ADEQ took a sampling off of my storage building on a cotton ball. All they told me was it wasn't mold.

**Response to Comment 31:**

*See Response to Comment 11. ADH and ATSDR never received the results of the sample taken from the storage building, and therefore did not address it in this PHA.*

**Comment 32:**

Koppers have been under reporting their emissions of hazardous chemicals released into the air according to a report the consulting firm that Koppers hired to do air monitoring

and modeling. From what I understand Koppers have never actually monitored the emission rate of creosote into the air from its various sources at the North Little Rock plant. They have made assumptions.

***Response to Comment 32:***

*See Response to Comment 4. Please note that ADEQ is the state agency responsible for insuring permit compliance by Koppers regarding air emissions.*

**Comment 33:**

A Glenview resident has on video what he says looks like Koppers burning the ends off of the creosote crossties in a stove on their property which is releasing toxic emissions into the air. Koppers plant manager made the statement that he would tear down the stove and get an electric heater.

***Response to Comment 33:***

*ADH viewed the video. An ADEQ inspector followed up on the formal complaint on October 28, 2003. In the ADEQ report, the inspector stated, "A large dumpster, for collecting scrap wood was positioned at the end of the cutting line. [The inspector(s)] didn't observe any treated wood in the container... However, some of the wood was discolored and appeared dark brown. It is possible that the complainant witnessed employees burning this wood, rather than the treated wood. From a distance, the two types can look very similar." The investigation of the complaint resulted in no violations.*

**Comment 34:**

Another concern is that workers wear their uniforms home and I have seen them at the super market with creosote all over their clothes. They are worn into their homes where their wives and children are exposed.

***Response to Comment 34:***

*See Response to Comment 5.*

**Comment 35:**

Dioxin wasn't mentioned in the PHA. Dioxin comes from Pentachlorophenol and is one of the most hazardous chemicals that have been released into the air when the creosote is heated that we have coming from Koppers. Evidently we have the dioxin from the heated creosote quite often.

***Response to Comment 35:***

*Dioxin information has been added to this document under the Soil and Sediment section.*

**Letter #5 dated October 27, 2003, from Resident**

**Comment 36:**

There is a video showing Koppers employees burning the ends off of creosote treated crossties in an open stove and the mishandling of the wet treated cross ties with vapors going high into the air from them. Vapors like this is what is not reported by Koppers on the form R.

***Response to Comment 36:***

*See Response to Comment 33.*

**Comment 37:**

Glenview has problems with the sawdust and the road dust from the Koppers plant a lot.

***Response to Comment 37:***

*Improvements to control dust problems have been made by Koppers, such as paving the dirt road that runs adjacent to the fence-line near the Glenview community, and stacking untreated crossties along the roads to provide dust barriers. See the Site Update section of this document for additional information.*

**Comment 38:**

Fumes from Koppers chemicals are very bad in the air again. I had to leave my home last Saturday night for a while because the air was so bad.

***Response to Comment 38:***

*See Response to Comment 6.*

**Public Comments Received During Public Comment Period**

**Comment 39:**

I want to know if the soil is contaminated.

**Comment 40:**

Cause I have a garden I want to know for a fact that the soil is not contaminated. If it is not contaminated, where do I find this information?

**Comment 41:**

I have a garden, is the soil contaminated?

**Comment 42:**

Concerned about soil around home, would like to plant a garden next spring.

***Response to Comments 39 - 42:***

*This document addresses your concern regarding the soil in the Soil and Sediment section. All contaminated soils and subsoils have been determined to be confined within the facility's boundary and containment drainage ditches.*

**Comment 43:**

My trees in the yard are not growing like they always did and my gardens do not grow anymore.

**Comment 44:**

Concerned about trees dying in yard.

**Comment 45:**

My trees are dying and they are 18 years old.

**Comment 46:**

Evergreen trees in my yard are dying. Is this a result of the pollution?

**Comment 47:**

Concerned about mature trees dying, some are over 18 years old.

***Response to Comments 43 - 47:***

*The general condition of vegetation in your community does not reflect a stressed state. Trees in urban areas do not fair as well as they do in a forest setting. The average tree grown in the city lives only 32 years, with inner city trees living only 7 years. Clemson University's Department of Forest Resources states that trees in urban areas are living in a harsh, unnatural environment, and that tree-care programs are usually not implemented until after problems or symptoms develop [25].*

**Comment 48:**

We cannot raise flowers or plants in this area.

**Response to Comment 48:**

*The success of flowers and other outside plants are dependent on their care, soil composition, and the heartiness of the zone in which they are planted. Soil composition differs between the Glenview and Poe Addition communities. The soil in the Glenview community is Perry-Urban land complex and is poorly drained. Because of its wetness and poor aeration, it is suited to only a limited number of water-tolerant plants. Soil in the Poe Addition community is Rilla-Urban land complex, which is well drained and suited to a wide selection of landscaping plants [26].*

**Comment 49:**

Will the soil contaminate the vegetables in my garden?

**Comment 50:**

I'm afraid to plant a garden. I bought topsoil and put my plants in five (5) gallon buckets.

**Comment 51:**

I have lived this area for ...years. I use to raise a garden there for my family. I fed my family from this garden and all of us have come down with diabetes.

**Comment 52:**

Other health problems still present in the neighborhood are pain in stomach from eating foods grown in home gardens in the area.

**Response to Comments 49 - 52:**

*In 1994, ADEQ performed soil sampling in Glenview and Poe Addition. The results indicated no detection of chemicals and toxic metals in the off-site soil. Off-site soil samples were collected again in 1995, within ½ mile radius of the facility. Results were then calculated for the incidental ingestion doses (see Tables 9 and 10). Incidental ingestion of off-site soil is not expected to cause any adverse health effects.*

*ADH also considered possible exposure to those that participate in gardening activities. Adverse health effects are not expected to result from skin contact with the contaminants detected in the soils. Therefore, based on low levels of contaminants detected in past soil samples, concentrations are not at levels expected to pose a risk to those that garden.*

*Plants absorb very little creosote, (less than 0.5% of the amount available to the plant) and PAHs (particularly those with higher molecular weight). Therefore, the uptake of these chemicals by humans from plants would be extremely low, see the Garden Plant Uptake section of this document. It is the recommendation of ADH that all garden vegetables be washed thoroughly before eaten. ADH also recommends that individuals see their physician regarding their health concerns.*

**Comment 53:**

Over 30 health related comments were made from residents living in the Glenview and Poe Addition communities surrounding the Koppers facility. These residents listed numerous health problems that they and other family members have experienced. Some of the medical conditions listed were: cancer (lung, prostate, leukemia), lung and breathing problems, respiratory infections, chronic bronchitis, asthma, scoliosis, osteoporosis, arthritis, lupus, diabetes, alzheimers, thyroid problems, eye, nose, and skin irritations/rashes, eyes burning, sinus nosebleeds, sinus and ear infections, allergies, loss of smell, headaches, gastric reflux, heart disease, stroke, congestive heart failure, blood clots, severe anemia, kidney and liver problems, shingles, nervous break down, confusion, memory problems, miscarriage, sick at stomach, vomiting, diarrhea, and blood in the urine. The residents further expressed concern that these problems might be related to past or current exposures to contaminants from Koppers site.

**Response to Comment 53:**

*ADH reviewed available literature to determine which of the above listed health problems were associated with site-related chemicals. ADH then estimated the exposure doses for the contaminants that were detected above screening levels in your area. No plausible relationships were found between the levels of contaminants detected near the site and the above listed health conditions.*

*ADH recommends that individuals see their physician regarding their health concerns. It is not the purpose of a health assessment to evaluate the medical status of individuals to*

*determine if their health problems are related to exposures to hazardous substances from the site. The establishment of causal relationships between site-related exposures and adverse disease outcomes in individuals is beyond the scope of the health assessment process, as all chemicals can potentially cause serious health problems. The effects of exposure to any hazardous substance depend on the dose, the duration, how you were exposed, personal traits and habits, and whether other chemicals are present. The aim of this health assessment is to find out if people are being exposed to hazardous substances and, if so, whether that exposure is harmful and should be reduced or stopped.*

*Currently, there are no off-site exposures that pose an apparent public health hazard. ADH and ATSDR both recognize, however, that there are sensitive and vulnerable populations. Children, because of their play activities and growing bodies, may be more vulnerable to potential contaminant-related health effects. There are also potential increased health impacts to other high risk groups within the community, such as: the elderly, chronically ill, and people who engage in high risk practices. Community health concerns are noted in this health assessment under the Community Health Concerns section. All health concerns were considered while completing this document.*

**Comment 54:**

I have concerns about our health over a long period of time.

**Response to Comment 54:**

*See Response to Comment 2.*

**Comment 55:**

We had a pulmonary test back in the lawsuit and 20-30 of us went down for the test and no one passed the breathing test. We went to the doctors that Koppers lawyers selected.

**Response to Comment 55:**

*See Response to Comment 53.*

**Comment 56:**

The report was well written but not well documented. Nor was it very explicate with words like “should not” or “we do not expect” chronic inhalation to affect the body. PAHs in the water, air and dust does cause respiratory infections.

**Response to Comment 56:**

*ADH and ATSDR recognize that some of the methods used to complete health assessments are an inexact science. However, the best available science is used to understand the toxicity and potential human health effects from exposure to chemicals. Terms used in this document were selected based on scientific data results and whether there is confirmed exposure to contaminants at public health hazard levels. See the Toxicology Evaluation section of this document for specific information on PAHs.*

**Comment 57:**

I have documents from ATSDR and OSHA that clearly states over an extended period of time lower amounts of creosote, arsenic, PAHs, benzene, pentachlorophenol, and naphthalene do cause serious health problems as listed above. Pulmonary problems average out to be high in the communities. This is not a coincident.

**Response to Comment 57:**

*All chemicals can potentially cause serious health problems. The effects of exposure to any hazardous substance depend on the dose, the duration, how you were exposed, personal traits and habits, and whether other chemicals are present. Also see Response to Comment 2.*

**Comment 58:**

I am still being bothered with respiratory problems at night and sometimes at day. I would like to have more information on this problem.

**Response to Comment 58:**

\_\_\_\_\_ *ADH recommends that individuals see their physician regarding their health concerns. For information on respiratory problems you can contact the National Institute of Health (NIH) by telephone at 301-496-4000. Other toll-free NIH telephone numbers can be found on their web site. Their web site is: <http://www.nih.gov.health.infoline>.*

**Comment 59:**

Could the pollution from the plant be a contributing factor to chronic bronchitis?

**Response to Comment 59:**

*The American Lung Association cites cigarette smoking as being by far the most common cause of chronic bronchitis. Bacterial or viral infections may also initially irritate the bronchial tubes of people with chronic bronchitis. Air pollution and industrial dusts and fumes are also causes of chronic bronchitis. Also see Response to Comment 53.*

**Comment 60:**

People on Van Street are exposed to Naphthalene in the air that is why we have respiratory, ear, and nose problems.

**Response to Comment 60:**

*See Response to Comment 6.*

**Comment 61:**

The public health conclusions and recommendations were not too specific on the public health.

**Response to Comment 61:**

*Changes have been made to both the Conclusions and Recommendations sections of this document. Also see Response to Comment 15.*

**Comment 62:**

I walk in the neighborhood six (6) miles a day. Does this area have a problem with the air that will cause lung cancer?

**Comment 63:**

My concern was could the pollution from the plant (i.e. fumes and pollen) cause lung cancer?

**Comment 64:**

Concerned about the rising number of lung cancer.

**Comment 65:**

...I was wondering why there is so much cancer in this area. I have known more than 25-30 people from [this area] who have died of cancer. My [relatives] ...died of cancer. I think it is caused from the chemicals in the air.

**Comment 66:**

Young people in the community have died of cancer. We know that we have had numerous people pass away from cancer.

**Comment 67:**

My concern is if it is polluted over in this area where it is causing people to get cancer or what ever we would like to see it put to a stop.

**Comment 68:**

On Ben Street alone my neighbors have some form of cancer. My question is why?

**Comment 69:**

I am a resident in the Glenview area and I am concerned about the exposure to cancer.

**Comment 70:**

A lot of people in the two communities are dying of cancer, respiratory problems and congestive heart failure. There are so many dying it is more like a cancer cluster.

**Comment 71:**

Concerned about contamination causing residents leukemia.

**Response to Comments 62 - 71:**

*See Responses to Comment 1 and Comment 53.*

**Comment 72:**

Does this also affect men, which may be prone to prostate cancer?

**Response to Comment 72:**

*Based on the review of literature, prostate cancer is not expected to be associated to any site-related chemicals. Different cancers, including prostate cancer, have different risk factors. (However, having one or more of the risk factors does not necessarily mean you will get the disease.) Risk factors associated with prostate cancer are: age, ethnicity, family history, diet, and physical inactivity. Your health care professional offers tests for the early detection of prostate cancer and advice as to when these tests should begin based on your specific risk factors. The most common tests performed are the prostate-specific antigen (PSA) blood test and digital rectal examination (DRE).*

**Comment 73:**

The data used in the study was too limited. They used the 72117 zip code. This is a large area 72117 zip code. They didn't concentrate on the people in this area.

**Comment 74:**

Most people in this area do not use the hospital or clinic on East Broadway Street. Therefore, you could not get good data from them.

**Comment 75:**

The neighbors of the Glenview community do not agree with the results of the PHA because the study was based on the 72117 zip code of current residents, which is much larger than impact.

**Comment 76:**

The data presented does not tell how many of the residents in the 72117 zip code from Glenview and/or Poe Addition was adversely affected.

**Response to 73-76:**

*The Arkansas Central Cancer Registry data is based on place of residence rather than place of treatment or diagnosis. As such, reporting is reflected by Zip Code and would include people in your community. When the population is small (such as a neighborhood) it causes instability in the numbers and often invalid results, therefore it is not accurate to report below the Zip Code level. Also see Response to Comment 3.*

**Comment 77:**

It's just a health problem to put up with the odor.

**Comment 78:**

I can't breathe good when I smell that odor and it gives me a lot of allergies. I use over the counter things because doctors are too expensive.

**Comment 79:**

The odor has not changed. I can't tell any difference. I have a problem with my sinuses late at night the smell gets stronger.

**Comment 80:**

I wake up in the middle of the night with strange odors that have my nose and eyes watering and I cannot sleep and my throat is hoarse.

**Comment 81:**

I can smell the odor from there on Poe.

**Comment 82:**

A test for a short time is not like living for 20-30 years with the same odors and conditions when at least something could be cleaned up.

**Comment 83:**

Odors still penetrating the air in the neighborhood.

**Comment 84:**

The smells are very strong. It also burns your nose. These smells give you also headaches and running eyes. We cannot enjoy our property. We cannot entertain at our home at all. It is not fair that I cannot use my property.

**Comment 85:**

We would like for Koppers to clean up their act. On Friday August 15, 2003 those toxins were released into the air. I could smell the odor coming through my air conditioner. I could barely breathe. My eyes were burning. My child woke up coughing. I am concerned for the safety of my neighborhood.

**Response to Comments 77 - 85:**

*ADH recommends that individuals see their physician regarding their health concerns. Health effects due to odor are not well understood, as some individuals are more sensitive to chemical odors than others (see Response to Comment 6). However, the air sampling did not indicate contaminants to be at levels to cause adverse health effects. ADH and ATSDR recommend that additional unannounced air sampling be conducted when the odors are strongest (see Recommendations).*

**Comment 86:**

I would like to know about the exposure of elementary school.

**Comment 87:**

Koppers sits next to Glenview Elementary. How are the children affected? I'm sure there will be some health related problems when they are older.

**Comment 88:**

My concerns are on the Elementary School, air filters, and chemicals.

**Response to 86-88:**

*See Response to Comment 24.*

**Comment 89:**

I am concerned about the creosote ponds that kids had played in it.

**Response to Comment 89:**

*ADH suggests that this topic be presented to the North Little Rock - Koppers Industries, Inc. Community Advisory Panel for discussion about possible appropriate actions to be taken by the facility and community members. Also see Response to Comment 7.*

**Comment 90:**

The health official that wrote the statistics is a bunch of lies. Too many people are dying around here for so many reasons and it has got to be contributed to Koppers.

**Response to Comment 90:**

*This Public Health Assessment was developed as a collaborative effort between ADH and ATSDR. Environmental sampling data has been provided by ADEQ and USEPA Region 6. Cancer data was provided by the Arkansas Central Cancer Registry. The final document was reviewed by federal and state public health and environmental representatives, as well as the public for accuracy and comments prior to publication. Revisions have been made accordingly.*

**Comment 91:**

More samples needed to be checked over a longer period of time. Samples need to be taken without any notice to Koppers. I feel the health assessment was drug out to long and should have been more efficient. The health assessment did not mention long-term exposure. The number of illnesses and deaths were not accurate in the health assessment.

**Response to Comment 91:**

*Refer to the Recommendations section of this document for information on ADH and ATSDR sampling/monitoring recommendations. Also see Responses to Comment 10 and Comment 2.*

**Comment 92:**

The public health assessment should be updated every year.

**Comment 93:**

Your hundred and fifty-one air samples showed three samples of hexachlorobenzene. If the tests had been longer more may have been found. There are 365 days in a year not just a mere few days.

**Comment 94:**

We don't feel the report is truthful.

**Comment 95:**

More data should be collected and presented.

**Comment 96:**

I do not feel the report was totally accurate. I am truly concerned about the well being of my community.

**Comment 97:**

The data are far to limited and we do not believe the results are definitive.

**Comment 98:**

This health assessment that ADH put together is not a fair and true assessment. I request that more samples and tests be studied over a longer period of time because these chemicals are more harmful in lower doses over a long period of time than if you had one big dose.

**Response to Comments 92 - 98:**

*Additional sampling recommendations have been made by ADH and ATSDR, see the Recommendations section of this document for more information. If data gathered during ongoing investigations and sampling indicate that additional contamination is present at Koppers and exposures are occurring, ADH and ATSDR will review these data to determine if potential public health hazards exist and issue a health consult or addendum to this PHA, if appropriate.*

**Comment 99:**

On the air monitoring in 2000, Koppers had at least three months to prepare for it.

**Response to Comment 99:**

*See Response to Comment 9.*

**Comment 100:**

If I would have know this area was contaminated I would not have moved here. Now we are stuck. Even when I go to get a loan my property is devaluated because I am living in this area.

**Response to Comment 100:**

*ADH suggests that this topic be presented to the North Little Rock - Koppers Industries, Inc. Community Advisory Panel for discussion about possible appropriate actions to be taken by the facility and community members.*

**Comment 101:**

I know the ground water is contaminated on Van Street.

**Comment 102:**

My concerns are on the Water source and additives and the amount of chemicals released from each cross tie when dipped.

**Response to Comment 101-102:**

*The off-site groundwater contamination begins at the water table about 15 feet under the ground, and continues to a depth of about 100 feet. It is the recommendation of this PHA that all residents stay on the public water system and not use private wells. See the Groundwater and Recommendations sections of this document for more information.*

**Comment 103:**

Video showing Koppers employees burning the ends off of creosote treated crossties in an open stove.

**Comment 104:**

Video shows the mishandling of the wet treated crossties with vapors going high into the air from them.

**Response to Comments 103-104:**

*See Response to Comment 33.*

**Comment 105:**

There is something else I don't understand. They say that the crossties chemicals are not dangerous to you so why is it that when they work on the railroad they advise them not to touch them with their naked hands cause they have chemicals on them that affect their skin. If it is going to affect their hands how is it that it is not going to affect them if they breathe it. Anything you put your hands on and its going to burn them if you breathe it its going to have an effect on your lungs.

**Response to Comment 105:**

*Potential occupational exposure to creosote can occur by inhalation or direct skin contact with the products. These exposures are greatest in individuals working in the wood-preserving industries, such as Koppers. Occupational risk of exposure from breathing creosote products are more of a hazard if they are working in a confined space. Exposure risk can be dramatically reduced by proper hygiene, and wearing protective equipment. However, this PHA was focused on potential residential exposures rather than potential occupational exposures.*

**Comment 106:**

The back of my house has little black particles all over it from Koppers. It is on my car.

**Response to Comment 106:**

*ADH suggests that this topic be presented to the North Little Rock - Koppers Industries, Inc. Community Advisory Panel for discussion about possible appropriate actions to be taken by the facility and community members.*

**Comment 107:**

Nothing has been done to clear the drainage ditch on the lower end of Van Street with water sewage in the ditch, debris and a green oily slick on top of the water.

**Response to Comment 107:**

*See Response to Comment 7.*

**Comment 108:**

I think the CAP meeting is a farce. It is a picnic. It is a social time. I think the people on the committee should live close to Koppers. People that live in the Poe Addition and on Ben Street should be coming to the CAP meetings and asking questions and getting answers. I wouldn't mind coming to the meeting.

**Response to Comment 108:**

*The Community Advisory Panel (CAP) was formed with the intention of open communication between Koppers representatives and the surrounding community. The CAP is looking for additional members to join the panel to form a cross-section of the community. Please contact the facilitator, Tod Lyons with Ann Green Communications, for more information if you are interested in becoming a member. He can be reached at 304-746-7700. Currently, monthly CAP meetings are held every third Monday beginning at 5:00 p.m. at the Glenview Community Center. Guests are welcome.*

**Comment 109:**

Our concerns of the citizens in the Glenview community are a concern and seriousness about health, quality of life, the safety and well being of our children and our elderly and we just want a safe community. We live here for the purpose of dwelling and when we dwell in any community safe water and safe air is the major concern in part with our daily

existence as we progress from day to day and whatever activities we are engaged in. I hope the dialogue continues where we can just sit down and peaceably discuss ways and means by which we can make the improvement on those things that affect our lives on a daily basis. Thank you for this opportunity to speak and let us continue to be concerned with one another and have a sense of purpose for we are living and work and operate in any community and environment and any social institution where people have a sense of purpose about a quality of life that we all want to share in. Thank you.

***Response to Comment 109:***

*See Response to Comment 108.*

**Comment 110:**

I did not like the public availability session. I wanted a meeting with questions and answers.

***Response to Comment 110:***

*The Public Availability Sessions was organized so the community could discuss the PHA findings with agency representatives and to allow the public an opportunity to provide any comments about the PHA. During the PAS, public comments were received by various delivery methods, including PAS Evaluations, typed comments via laptop computer, comment cards, audio recorded comments, and prepared public comments. ADH also received public comments via ATSDR Public Health Assessment Questionnaires and formally written letters to ATSDR during the public comment period. This section of the document allows an opportunity for ADH and ATSDR to respond to the public comments.*

**Comment 111:**

I don't understand about this meeting (public availability session) and what is going to be done about my personal sickness and my family, the community who have died.

***Response to Comment 111:***

*See Responses to Comment 110 and Comment 53.*

**Comment 112:**

The study did not interview long-term residents.

**Comment 113:**

The study does not capture the people that grew up in the community from birth to adulthood from 1957 to present.

**Comment 114:**

The study does not address the impact of exposure of all the neighbors from 1957 to 1990 when Koppers was out of compliance.

***Response to Comments 112-114:***

*See Responses to Comment 2 and Comment 3.*

**Comment 115:**

The study does not address short-term problems.

***Response to Comment 115:***

*The short-term problems being referred to in this comment are unclear. If you are referring to odor concerns, see Response to Comment 6.*

**Comment 116:**

Trucks come through there and nothing has changed. The dust is constantly in my house. The dust is still the same. Truck comes through with dust flying up all over. They stopped the trucks from coming in on the paved street but when they come in where they don't have it paved dust goes everywhere. There has to be chemicals in the dust because they are using chemicals all over the ground every day. The only time it doesn't do it is when it rains and it doesn't rain all of the time.

***Response to Comment 116:***

*No sampling data were collected to analyze for possible contamination levels in the dust. Therefore, ADH considers this possible past exposure pathway to be indeterminate. However, improvements to control dust problems have been made by Koppers, such as paving the dirt road that runs adjacent to the fence-line near the Glenview community. This and other site improvements should eliminate future dust exposure pathways. See Response to Comment 37.*

**Comment 117:**

Koppers can make money and be more environmentally friendly to the community.

***Response to Comment 117:***

*Your comment has been noted.*

**Comment 118:**

Koppers didn't let the people know about the contaminations.

***Response to Comment 118:***

*Your comment has been noted.*

**Comment 119:**

I am truly concerned about the Glenview community especially Ben Street.

***Response to Comment 119:***

*Both ADH and ATSDR's highest priority is the protection of public health. Through the public health assessment process, the nature and extent of hazards are identified and public health actions are implemented when needed. Koppers and your community will continue to be monitored by state environmental and public health agencies. Refer to the Public Health Action Plan section of this document for information on past activities, ongoing activities, and future action plans.*

**Comment 120:**

A concerned citizen called ADH and ATSDR regarding an incident with sawdust.

***Response to Comment 120:***

*ADH met with the citizen involved with sawdust incident. See Responses to Comment 16 and 37 for more information on site-related sawdust/dust.*



## **APPENDIX E: CONCLUSION CATEGORIES**

# Agency for Toxic Substances and Disease Registry Public Health Conclusion Categories

## **CATEGORY A. URGENT PUBLIC HEALTH HAZARD**

This category is used for sites that pose an urgent public health hazard as the result of short-term exposures to hazardous substances.

### **Criteria:**

Evidence exists that exposures have occurred, are occurring, or are likely to occur in the future; and the estimated exposures are to a substance or substances at concentrations in the environment that, upon short-term exposures (less than 1 year), can cause adverse health effects to any segment of the receptor population. The adverse health effect can be the result of either carcinogenic or noncarcinogenic toxicity from a chemical exposure. For a noncarcinogenic toxic effect, the exposure exceeds an acute or intermediate minimal risk level (MRL) established in the ATSDR Toxicological Profiles or other comparable value; and /or community-specific health outcome data indicate that the site has had an adverse impact on human health that requires rapid intervention; and /or physical hazards at the site pose an imminent risk of physical injury.

## **CATEGORY B. PUBLIC HEALTH HAZARD**

This category is used for sites that pose a public health hazard as the result of long-term exposures to hazardous substances.

### **Criteria:**

Evidence exists that exposures have occurred, are occurring, or are likely to occur in the future; and the estimated exposures are to a substance or substances at concentrations in the environment that, upon long-term exposures (greater than 1 year), can cause adverse health effects to any segment of the receptor population. The adverse health effect can be the result of either carcinogenic or noncarcinogenic toxicity from a chemical exposure. For a noncarcinogenic toxic effect, the exposure exceeds a chronic MRL established in the ATSDR Toxicological Profiles or other comparable value; and/or community-specific health outcome data indicate that the site has had an adverse impact on human health that requires intervention.

## **CATEGORY C. INDETERMINATE PUBLIC HEALTH HAZARD**

This category is used for sites with incomplete information.

### **Criteria:**

The limited available data do not indicate that humans are being or have been exposed to levels of contamination that would be expected to cause adverse health effects. However, data or information are not available for all environmental media to which humans may be exposed; and there are insufficient or no community-specific health outcome data to indicate that the site has had an adverse impact on human health.

## **CATEGORY D. NO APPARENT PUBLIC HEALTH HAZARD**

This category is used for sites where human exposure to contaminated media is occurring or has occurred in the past, but the exposure is below a level of health hazard.

### **Criteria:**

Exposures do not exceed an ATSDR chronic MRL or other comparable value; and data are available for all environmental media to which humans are being exposed; and there are no community-specific health outcome data to indicate that the site has had an adverse impact on human health.

## **CATEGORY E. NO PUBLIC HEALTH HAZARD**

This category is used for sites that do not pose a public health hazard.

### **Criteria:**

There is no evidence of current or past human exposure to contaminated media; and future exposures to contaminated media are not likely to occur; and there are no community-specific health outcome data to indicate that the site has had an adverse impact on human health.