MAR 07 2017

OHIO EPA NEDO

March 3, 2017

CLE VELAND

City of Cleveland

Frank G. Jackson, Mayor Department of Public Utilities Division of Water 1201 Lakeside Avenue Cleveland, Ohio 44114-1175 216/664-2444 Fax: 216/664-3330 www.clevelandwater.com

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L. Anne Karney, P.E. Ohio EPA Northeast District Office Division of Drinking and Ground Waters 2110 East Aurora Road Twinsburg, Ohio 44087

Re: HB512 Lead Mapping Requirements

Dear Ms. Karney:

Cleveland Water is pleased to submit the following documents to fulfill the requirements of House Bill 512:

- A 11" x 17" color-coded map of the Cleveland Water System identifying percent of lead city-side service connections by census tract
- A narrative description of the buildings served by the water system likely to contain lead solder, leaded plumbing or lead-containing fixtures
- A spreadsheet listing the lead and copper monitoring sites used for compliance monitoring
- Listing of Cleveland Water direct service communities and approximate number of lead service lines in each community
- Listing of City of Cleveland wards and approximate number of lead service lines per ward.

The purpose of the map is to identify areas known or likely to have lead service lines on the city-side of individual service connections. The intent of the map is not to identify every specific connection, but rather the general likelihood that certain areas of the Cleveland Water System may have lead connections. Where records are incomplete, we assumed lead was the material used. Based upon historical research, we have determined lead service lines were not used in the Cleveland metropolitan area after 1953 (we use 1954 as the cut-off date, which coincides with service connection number 326,705). Our service connections are numbered sequentially based on installation date. Additionally, to the best of our knowledge, research shows Cleveland Water has no lead service lines on connections over 1inch in diameter. Most lead service lines were 5/8-inch diameter.

It should also be noted that customer-side service line connection material is not typically known by Cleveland Water. We have discovered through a small pool of replacement projects that approximately 2 to 3% of service connections that have lead on the city-side also have lead on the customer side. This appears to correlate well with other larger, older cities in Ohio we have consulted with. Regardless, our website illustrates a "scratch test/magnet test" method for homeowners to determine if they have lead on the customer-side. We believe this provides our customers with the best information possible to make informed household decisions regarding lead service lines and their drinking water usage.

Please be aware the map is constantly changing as lead service lines are replaced due to leaks, meter/curb stop work, or as construction projects involving water, sewer, roadway, and other infrastructure are completed. This information is updated as needed and is best viewed through our lead service line look-up tool on our website at:

www.clevelandwater.com/your-water/water-quality-and-treatment/lead-treatment

If you have any questions or concerns with the enclosed documents, please contact Scott Moegling at (216) 664-2444 x75583 or by e-mail at <u>scott moegling@clevelandwater.com</u>. Thank you for your attention to this matter.

Sincerely,

Alex Margevicius, P.E. Commissioner Cleveland Water

Enclosures

 CC: Ohio EPA, Central Office, DDAGW (all enclosures except map)
Ohio Department of Health, Lead Program
ODJFS, Office of Family Assistance, Bureau of Child Care Licensing and Monitoring

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Narrative Requirements OHIO EPA NEDO Cleveland Water and buildings known or likely to contain lead service lines

Service Line Materials:

The primary determinant for having or likely having a lead service line on the public property side of the curb stop (shut-off valve) is age of structure and water service installation. Cleveland Water stopped using lead service lines in 1953. The cut-off date used for lead service lines is therefore 1954 and correlates with research findings and interviews with retired distribution system employees. Virtually all surrounding cities adopted the same standard at approximately the same time. Once age is determined, buildings older than 1954 (or having service connection number less than 326,705) may have lead service lines on the city-side if:

- the diameter is 1-inch or less (typically 5/8-inch material was used)
- service line leak repair records do not exist for the service connection
- work orders where city-side service lines were replaced due to water main leaks, curb stop/valve box replacements and settings, vaulted meter installations, or other water system work does not exist. It has been long-standing procedure to replace city-side lead service lines with Type K copper if the service line was exposed.

Information on the customer-side of the service connection (i.e., property owner's side of the curb stop) is not easily obtained and is very unreliable. Cleveland Water has queried a small sampling of water line replacement projects and found that only approximately 2-3% of the service connections on the city-side also have lead on the customer-side. Additionally, Cleveland Water has found very few instances where there is lead on the customer-side but not on the city-side. We believe this to be true because of the difficulty, equipment, skill, and time requirements needed to do lead service line installations. Virtually all homeowners utilize private contractors for customer-side installations, and threaded galvanized steel and solder-joined copper was the material of choice. Cleveland Water has also determined many customer-side lead service connections were replaced at the owner expense without our knowledge, which is perfectly legal. Many urban renewal projects have also replaced the private side of the lead service connection.

Based upon the above assumptions and Cleveland Water records, Cleveland Water has developed the enclosed map based upon the likelihood of lead service lines on the city-side of the connection. It is not known at this time the extent of the customer-side connections which may have lead.

Characteristics of Buildings with Lead Piping, Solder, or Fixtures:

It is impossible to know the extent of lead containing materials used in the internal plumbing and fixtures of homes and buildings. Date of manufacture or installation is the best way to try and determine this. Lead in interior plumbing can come from lead solder, lead piping, and fixtures, including brass components in plumbing systems. In Ohio, buildings built prior to 1998 or that use plumbing material or solder manufactured before 1998 may have materials with greater than 8% lead and are at a higher risk of contributing lead to the drinking water than materials manufactured after 1998. In addition, buildings built and plumbing materials manufactured after 2014 were required to have less than 0.25% lead by weight and therefore have the lowest risk for contributing lead to the drinking water. It should be noted however that, although prohibited, some use of leaded solder or leaded components may have occurred after the prohibitions became effective.

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	City	of Clevela	nd Lead S	eland W Service L	later ine Breakdo	wn by War	d OHI	O EPA
		Status						
	Ward	1	2	3	4	5	Total No.	Percent
Councilman		>1954	lead	size	replaced	sz&repl	Service Lines	Lead
Kelly	13	233	8053	174	532	5	8997	89.5%
Cummins	14	85	5836	139	545	17	6622	88.1%
Conwell	9	173	5419	169	399	19	6179	87.7%
Polensek	8	320	5898	180	597	11	7006	84.2%
Johnson	4	146	5485	125	796	11	6563	83.6%
Reed	2	340	6782	89	949	13	8173	83.0%
Johnson	10	266	6295	284	768	60	7673	82.0%
Zone	15	322	5144	382	558	16	6422	80.1%
Kazy	16	908	7819	262	790	22	9801	79.8%
Brady	11	458	6309	138	999	21	7925	79.6%
Brankatelli	12	1200	6347	236	436	18	8237	77.1%
Mitchell	6	267	4523	365	728	39	5922	76.4%
Keane	17	1704	6621	267	487	22	9101	72.8%
Pruitt	1	1913	6803	97	545	14	9372	72.6%
McCormack	3	253	3933	655	864	73	5778	68.1%
Dow	7	350	3388	425	960	97	5220	64.9%
Cleveland	5	225	1966	489	565	38	3283	59.9%
	Grand Total	9163	96621	4476	11518	496	122274	79.0%

Cleveland Water

Legend:

>1954 Lead Size Replaced sz&repl

= Likely are not lead since installed after 1954

= Likely are lead due to installation in in 1954 or earlier

= Likely are not lead due to size (> 1-inch)

= Likely are not lead due to a repair or replacement

= likely are not lead due to the size and a repair/replacement

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	Status							
City	1	2	3	4	5	Total No.	Percent	
	>1954	lead	size	replaced	sz & repl	Serv. Conn.	Lead	
NEWBURG HEIGHTS	58	653	25	46	2	784	83.3%	
CLEVELAND	9173	96692	4478	11523	496	122362	79.0%	
LINNDALE	9	41	1	2		53	77.4%	
SHAKER HEIGHTS	505	6284	623	969	92	8473	74.2%	
JNIVERSITY HEIGHTS	122	2502	114	770	24	3532	70.8%	
UCLID	2361	11364	462	1820	50	16057	70.8%	
OUTH EUCLID	1789	5986	114	898	3	8790	68.1%	
GARFIELD HEIGHTS	3029	7230	211	710	9	11189	64.6%	
APLE HEIGHTS	2806	6239	163	494	11	9713	64.0%	
AIRVIEW PARK	1890	3954	159	170	3	6176	64.0%	
AKEWOOD	1	5	2	1	5	9	55.6%	
AAYFIELD HEIGHTS	2144	3084	333	182	4	5747	52 70/	
IIGHLAND HILLS	56	97	22	102	1	187	51.00/	
ARMA	13243	15217	527	1142	15	30144	50 50/	
ROOKLYN	1804	2013	163	97	15	1076	10 40/	
AY VILLAGE	2922	3074	110	176	4	6296	49.4%	
OCKY BIVEB	2643	3373	270	627	4	6200	48.9%	
/NDHURST	2364	2740	07	680	0	000/ E994	48.3%	
ARRENSVILLE HEIGHTS	1698	1662	370	70	0	2814	46.6%	
	3266	2660	175	206	3	3814	43.6%	
	224	2009	70	596	3	6509	41.0%	
	721	1010	10	50	4	/3/	37.9%	
	1902	1010	10	2009	39	4395	36.8%	
nmatchad)	1862	1199	343	85	- 11	3500	34.3%	
	2090	925	496	111	5	3627	25.5%	
	1910	7/3	198	222	1	3104	24.9%	
	90	/4	12	/9	10	325	22.8%	
	208	98	64	127	12	509	19.3%	
	8561	1963	576	184	3	11287	17.4%	
IDDLEBURG HEIGHTS	4147	935	540	91	4	5717	16.4%	
VEN HILLS	4224	825	69	106	1	5225	15.8%	
LMSTED FALLS	1923	367	187	37	2	2516	14.6%	
RECKSVILLE	4080	734	244	105		5163	14.2%	
/ESTLAKE	8050	1083	1152	523	5	10813	10.0%	
EVELAND HEIGHTS	5	2	9	5		21	9.5%	
EPPER PIKE	1920	208	98	79	5	2310	9.0%	
ROADVIEW HEIGHTS	5515	550	310	22	1	6398	8.6%	
DFORD	1	1	10			12	8.3%	
CHMOND HEIGHTS	3119	193	311	8	1	3632	5.3%	
AYFIELD	1152	58	64	10		1284	4.5%	
ALTON HILLS	934	45	56	1		1036	4.3%	
DLON	7298	341	399	153	6	8197	4.2%	
ATES MILLS	678	34	162	1		875	3.9%	
CHFIELD VILLAGE	271	14	80			365	3.8%	

Cleveland Water

Grand Total	186870	188509	18241	24964	878	419462	44.9%
MEDINA TOWNSHIP	1					1	0.0%
CHAGRIN FALLS	1					1	0.0%
AVON	1					1	0.0%
RUSSELL T.			2			2	0.0%
BAINBRIDGE T.			2			2	0.0%
SOUTH RUSSELL	2		1			3	0.0%
BATH	1		3			4	0.0%
BEREA	3		2			5	0.0%
AURORA	15					15	0.0%
CHESTER T.	12		10			22	0.0%
HINCKLEY TOWNSHIP	263					263	0.0%
BRUNSWICK HILLS TOWNSHIP	335		14			349	0.0%
BRUNSWICK CITY	11199	9	443	13		11664	0.1%
VALLEY VIEW	793	1	111			905	0.1%
NORTHFIELD	1259	2	34	1		1296	0.2%
REMINDERVILLE	1392	4	22			1418	0.3%
NORTHFIELD CENTER	2034	7	202			2243	0.3%
BOSTON HEIGHTS	285	1	15			301	0.3%
HUDSON	266	1	2			269	0.4%
SAGAMORE HILLS	2991	18	262			3271	0.6%
BEDFORD HEIGHTS	2703	19	161	28	4	2915	0.7%
BENTLYVILLE	121	1	25			147	0.7%
ORANGE	801	6	36			843	0.7%
TWINSBURG CITY	5811	46	421	2		6280	0.7%
MACEDONIA	4315	45	225			4585	1.0%
GLENWILLOW	241	3	26			270	1.1%
MORELAND HILLS	1000	13	77	2		1092	1.2%
HUNTING VALLEY	35	3	108	18	10	174	1.7%
WOODMERE	141	3	27		1	172	1.7%
RICHFIELD TOWNSHIP	269	5	7			281	1.8%
HIGHLAND HEIGHTS	3262	81	156	6		3505	2.3%
TWINSBURG TWP	807	23	75		S	905	2.5%
OAKWOOD	1275	36	80	4		1395	2.6%
STRONGSVILLE	15164	419	446	13	2	16044	2.6%
BROOK PARK	7015	201	445	20	2	7683	2.6%
OLMSTED TOWNSHIP	3014	95	119	15	1	3244	2.9%
NORTH RANDALL	150	6	41	1		198	3.0%
NORTH ROYALTON	8917	315	696	46		9974	3.2%

Legend:

= Likely are not lead since installed after 1954 >1954

Lead = Likely are lead due to installation in in 1954 or earlier

Size

= Likely are not lead due to size (> 1-inch)

Replaced = Likely are not lead due to a repair or replacement

= likely are not lead due to the size and a repair/replacement sz&repl





Buildings in Ohio built prior to 1998 or that use plumbing material or solder manufactured before 1998 may have materials with greater than 8% lead and are at a higher risk of contributing lead to the drinking water than materials manufactured after 1998. In addition, buildings built and plumbing materials manufactured after 2014 were required to have less than 0.25% lead by weight and have the lowest risk for contributing lead to the drinking water. It should be noted however that, although prohibited, some use of leaded solder or leaded components may have occurred after the prohibitions became effective.



Percent of Cleveland Water Cityside **Connections Suspected to be Lead**

- **Census Tract**
- Highways

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ww.ClevelandGIS.org Date: 3/6/2017 Prepared By: Justin Schaffe