

ICPSR 36955

**State of Michigan: Taking Action  
on Flint Water Test Results,  
2015-2017**

*Michigan Department of Health and  
Human Services*

Codebook for Part 2 - Sentinel Testing Results

## Terms of Use

The terms of use for this study can be found at:  
<http://www.icpsr.umich.edu/icpsrweb/ICPSR/studies/36955/terms>

## Information about Copyrighted Content

Some instruments administered as part of this study may contain in whole or substantially in part contents from copyrighted instruments. Reproductions of the instruments are provided as documentation for the analysis of the data associated with this collection. Restrictions on "fair use" apply to all copyrighted content. More information about the reproduction of copyrighted works by educators and librarians is available from the United States Copyright Office.

### NOTICE

#### WARNING CONCERNING COPYRIGHT RESTRICTIONS

The copyright law of the United States (Title 17, United States Code) governs the making of photocopies or other reproductions of copyrighted material. Under certain conditions specified in the law, libraries and archives are authorized to furnish a photocopy or other reproduction. One of these specified conditions is that the photocopy or reproduction is not to be "used for any purpose other than private study, scholarship, or research." If a user makes a request for, or later uses, a photocopy or reproduction for purposes in excess of "fair use," that user may be liable for copyright infringement.

# **ICPSR 36955**

## **State of Michigan: Taking Action on Flint Water Test Results, 2015-2017**

### **Variable Description and Frequencies**

**Note:** Frequencies displayed for the variables are not weighted. They are purely descriptive and may not be representative of the study population. Please review any sampling or weighting information available with the study.

Summary statistics (minimum, maximum, mean, median, and standard deviation) may not be available for every variable in the codebook. Conversely, a listing of frequencies in table format may not be present for every variable in the codebook either. However, all variables in the dataset are present and display sufficient information about each variable. These decisions are made intentionally and are at the discretion of the archive producing this codebook.

# Sentinel Testing Results

## SENTINELTYPE: Sentinel Type (Sentinel or Extended Sentinel)

Value	Label	Unweighted Frequency	%
1	Sentinel	3165	73.7 %
2	Extended Sentinel	1130	26.3 %
	<b>Total</b>	<b>4,295</b>	<b>100%</b>

Based upon 4,295 valid cases out of 4,295 total cases.

- Minimum: 1
- Maximum: 2

Location: 1-2 (width: 2; decimal: 0)

Variable Type: numeric

## SAMPLE\_NUMBER: Sample Number

Value	Label	Unweighted Frequency	%
LG34789	-	1	0.0 %
LG34790	-	1	0.0 %
LG34791	-	1	0.0 %
LG34792	-	1	0.0 %
LG34793	-	1	0.0 %
LG34794	-	1	0.0 %
LG34795	-	1	0.0 %
LG34796	-	1	0.0 %
LG34797	-	1	0.0 %
LG34798	-	1	0.0 %
LG34799	-	1	0.0 %
LG34800	-	1	0.0 %
LG34801	-	1	0.0 %
LG34802	-	1	0.0 %
LG34803	-	1	0.0 %
LG34804	-	1	0.0 %
LG34805	-	1	0.0 %
LG34806	-	1	0.0 %
LG34807	-	1	0.0 %
LG34808	-	1	0.0 %
LG34809	-	1	0.0 %
LG34810	-	1	0.0 %
LG34811	-	1	0.0 %

Value	Label	Unweighted Frequency	%
LG34812	-	1	0.0 %
LG34813	-	1	0.0 %
LG34814	-	1	0.0 %
LG34815	-	1	0.0 %
LG34816	-	1	0.0 %
LG34817	-	1	0.0 %
LG34818	-	1	0.0 %
LG34819	-	1	0.0 %
LG34820	-	1	0.0 %
LG34821	-	1	0.0 %
LG34822	-	1	0.0 %
LG34823	-	1	0.0 %
LG34824	-	1	0.0 %
LG34825	-	1	0.0 %
LG34826	-	1	0.0 %
LG34827	-	1	0.0 %
LG34828	-	1	0.0 %
LG34829	-	1	0.0 %
LG34830	-	1	0.0 %
LG34831	-	1	0.0 %
LG34832	-	1	0.0 %
LG34833	-	1	0.0 %
LG34834	-	1	0.0 %
LG34835	-	1	0.0 %
LG34836	-	1	0.0 %
LG34837	-	1	0.0 %
LG34838	-	1	0.0 %
	<b>Total</b>	<b>4,295</b>	<b>100%</b>

Please note that only the first 50 response categories are displayed in the PDF codebook. To view all response categories, please analyze the data file in the statistical package of your choice (SAS, SPSS, Stata, R).

Based upon 4,295 valid cases out of 4,295 total cases.

*Location:* 3-23 (width: 21; decimal: 0)

*Variable Type:* character

---

## DATE\_SUBMITTED: Date Submitted

Value	Label	Unweighted Frequency	%
01-APR-2016	-	27	0.6 %
01-MAR-2016	-	5	0.1 %

Value	Label	Unweighted Frequency	%
02-APR-2016	-	1	0.0 %
02-MAR-2016	-	413	9.6 %
02-MAR-2017	-	1	0.0 %
03-MAR-2016	-	75	1.7 %
04-APR-2016	-	49	1.1 %
04-MAR-2016	-	34	0.8 %
05-APR-2016	-	13	0.3 %
05-MAR-2016	-	2	0.0 %
06-MAR-2016	-	26	0.6 %
07-JUN-2016	-	2	0.0 %
07-MAR-2016	-	31	0.7 %
08-MAR-2016	-	4	0.1 %
09-MAR-2016	-	14	0.3 %
10-MAR-2016	-	4	0.1 %
11-MAR-2016	-	3	0.1 %
13-APR-2016	-	310	7.2 %
13-MAR-2016	-	4	0.1 %
14-APR-2016	-	289	6.7 %
14-JUN-2016	-	1	0.0 %
15-APR-2016	-	26	0.6 %
15-MAR-2016	-	16	0.4 %
16-FEB-2016	-	174	4.1 %
16-MAR-2016	-	464	10.8 %
17-FEB-2016	-	1	0.0 %
17-MAR-2016	-	85	2.0 %
17-NOV-2016	-	130	3.0 %
18-AUG-2016	-	137	3.2 %
18-MAR-2016	-	43	1.0 %
18-NOV-2016	-	10	0.2 %
19-AUG-2016	-	13	0.3 %
19-JUL-2016	-	92	2.1 %
19-MAR-2016	-	2	0.0 %
19-SEP-2016	-	1	0.0 %
20-JUL-2016	-	68	1.6 %
20-MAR-2016	-	39	0.9 %
21-FEB-2016	-	4	0.1 %
21-JUL-2016	-	5	0.1 %
21-JUN-2016	-	3	0.1 %
21-NOV-2016	-	8	0.2 %

Value	Label	Unweighted Frequency	%
21-SEP-2016	-	126	2.9 %
22-AUG-2016	-	12	0.3 %
22-FEB-2016	-	1	0.0 %
22-FEB-2017	-	110	2.6 %
22-JUL-2016	-	2	0.0 %
22-JUN-2016	-	130	3.0 %
22-MAR-2016	-	1	0.0 %
22-SEP-2016	-	30	0.7 %
23-FEB-2016	-	1	0.0 %
	<b>Total</b>	<b>4,295</b>	<b>100%</b>

Please note that only the first 50 response categories are displayed in the PDF codebook. To view all response categories, please analyze the data file in the statistical package of your choice (SAS, SPSS, Stata, R).

Based upon 4,295 valid cases out of 4,295 total cases.

*Location:* 24-34 (width: 11; decimal: 0)

*Variable Type:* character

---

## DATE\_POSTED: Date Posted

Value	Label	Unweighted Frequency	%
01-MAR-2016	-	615	14.3 %
02-AUG-2016	-	347	8.1 %
02-SEP-2016	-	162	3.8 %
06-MAR-2017	-	143	3.3 %
06-OCT-2016	-	158	3.7 %
10-MAY-2016	-	625	14.6 %
13-APR-2016	-	661	15.4 %
15-APR-2016	-	648	15.1 %
17-JUN-2016	-	171	4.0 %
19-DEC-2016	-	149	3.5 %
23-MAR-2016	-	616	14.3 %
	<b>Total</b>	<b>4,295</b>	<b>100%</b>

Based upon 4,295 valid cases out of 4,295 total cases.

*Location:* 35-45 (width: 11; decimal: 0)

*Variable Type:* character

---

## RESULT\_LEAD: Results Lead (PPB)

Value	Label	Unweighted Frequency	%
0	-	1503	35.0 %

Value	Label	Unweighted Frequency	%
1	-	475	11.1 %
2	-	603	14.0 %
3	-	378	8.8 %
4	-	257	6.0 %
5	-	164	3.8 %
6	-	122	2.8 %
7	-	107	2.5 %
8	-	78	1.8 %
9	-	58	1.4 %
10	-	60	1.4 %
11	-	38	0.9 %
12	-	43	1.0 %
13	-	26	0.6 %
14	-	27	0.6 %
15	-	17	0.4 %
16	-	20	0.5 %
17	-	21	0.5 %
18	-	12	0.3 %
19	-	12	0.3 %
20	-	12	0.3 %
21	-	14	0.3 %
22	-	16	0.4 %
23	-	8	0.2 %
24	-	7	0.2 %
25	-	5	0.1 %
26	-	7	0.2 %
27	-	5	0.1 %
28	-	3	0.1 %
29	-	4	0.1 %
30	-	10	0.2 %
31	-	6	0.1 %
32	-	3	0.1 %
33	-	6	0.1 %
34	-	5	0.1 %
35	-	3	0.1 %
36	-	2	0.0 %
37	-	3	0.1 %
38	-	7	0.2 %
39	-	4	0.1 %



Value	Label	Unweighted Frequency	%
40	-	1	0.0 %
41	-	5	0.1 %
42	-	5	0.1 %
43	-	6	0.1 %
44	-	6	0.1 %
45	-	1	0.0 %
47	-	1	0.0 %
48	-	1	0.0 %
49	-	2	0.0 %
50	-	2	0.0 %
	<b>Total</b>	<b>4,295</b>	<b>100%</b>

Please note that only the first 50 response categories are displayed in the PDF codebook. To view all response categories, please analyze the data file in the statistical package of your choice (SAS, SPSS, Stata, R).

Based upon 4,295 valid cases out of 4,295 total cases.

- Mean: 11.64
- Median: 2.00
- Mode: 0.00
- Minimum: 0
- Maximum: 5986
- Standard Deviation: 123.39

*Location:* 46-50 (width: 5; decimal: 0)

*Variable Type:* numeric

---

## RESULT\_COPPER: Results Copper (PPB)

Value	Label	Unweighted Frequency	%
0	-	2437	56.7 %
50	-	141	3.3 %
60	-	241	5.6 %
70	-	225	5.2 %
80	-	185	4.3 %
90	-	145	3.4 %
100	-	126	2.9 %
110	-	91	2.1 %
120	-	88	2.0 %
130	-	75	1.7 %
140	-	65	1.5 %
150	-	54	1.3 %
160	-	37	0.9 %
170	-	42	1.0 %

Value	Label	Unweighted Frequency	%
180	-	36	0.8 %
190	-	29	0.7 %
200	-	25	0.6 %
210	-	18	0.4 %
220	-	22	0.5 %
230	-	24	0.6 %
240	-	11	0.3 %
250	-	18	0.4 %
260	-	15	0.3 %
270	-	4	0.1 %
280	-	15	0.3 %
290	-	13	0.3 %
300	-	5	0.1 %
310	-	8	0.2 %
320	-	7	0.2 %
330	-	6	0.1 %
340	-	2	0.0 %
350	-	8	0.2 %
360	-	3	0.1 %
370	-	4	0.1 %
380	-	5	0.1 %
390	-	3	0.1 %
400	-	2	0.0 %
410	-	4	0.1 %
420	-	1	0.0 %
430	-	3	0.1 %
450	-	3	0.1 %
460	-	2	0.0 %
480	-	2	0.0 %
490	-	3	0.1 %
510	-	3	0.1 %
530	-	2	0.0 %
540	-	1	0.0 %
580	-	2	0.0 %
600	-	1	0.0 %
640	-	1	0.0 %
	<b>Total</b>	<b>4,295</b>	<b>100%</b>

Please note that only the first 50 response categories are displayed in the PDF codebook. To view all response categories, please analyze the data file in the statistical package of your choice (SAS, SPSS, Stata, R).

Based upon 4,295 valid cases out of 4,295 total cases.

- Mean: 64.13
- Median: 0.00
- Mode: 0.00
- Minimum: 0
- Maximum: 11650
- Standard Deviation: 235.59

*Location:* 51-56 (width: 6; decimal: 0)

*Variable Type:* numeric

## ADDRESS: Address

Value	Label	Unweighted Frequency	%
1026 MAXINE ST	-	2	0.0 %
1108 LIPPINCOTT BLVD	-	1	0.0 %
1109 NELSON ST	-	1	0.0 %
1117 SOUTH DR	-	2	0.0 %
1206 BLANCHARD AVE	-	1	0.0 %
1209 NEUBERT AVE	-	2	0.0 %
1220 AVENUE B	-	2	0.0 %
1233 WASHINGTON AVE	-	2	0.0 %
1297 KEARSLEY PK BLVD	-	2	0.0 %
1351 N BALLENGER HWY	-	2	0.0 %
1379 WASHINGTON AVE	-	2	0.0 %
139 GREEN ST	-	2	0.0 %
1402 WALDMAN AVE	-	2	0.0 %
1410 BLUEBERRY LN	-	2	0.0 %
1514 WELCH BLVD	-	2	0.0 %
1523 PINGREE AVE	-	1	0.0 %
1613 PARK ST	-	2	0.0 %
1614 PARK ST	-	2	0.0 %
1617 PARK ST	-	2	0.0 %
1618 WOODSLEA DR	-	2	0.0 %
1626 BROOKSIDE DR	-	2	0.0 %
1626 HUGHES AVE	-	2	0.0 %
1629 PONTIAC ST	-	2	0.0 %
1704 PARK ST	-	2	0.0 %
1712 PARK ST	-	1	0.0 %
1713 ARIZONA AVE	-	2	0.0 %
1713 PARK ST	-	2	0.0 %

Value	Label	Unweighted Frequency	%
1726 WALNUT CREEK	-	1	0.0 %
1726 WALNUT CREEK DR	-	1	0.0 %
1810 KANSAS AVE	-	2	0.0 %
1907 MONTCLAIR AVE	-	2	0.0 %
1915 COPEMAN BLVD	-	2	0.0 %
1920 GLENDALE AVE	-	2	0.0 %
202 OLIVER ST	-	2	0.0 %
2030 E COURT ST	-	2	0.0 %
2041 CHURCH ST	-	2	0.0 %
210 GREEN ST	-	2	0.0 %
2120 WINDEMERE AVE	-	2	0.0 %
214 E LIVINGSTON DR	-	2	0.0 %
2233 MT ELLIOT AVE	-	1	0.0 %
2233 MT ELLIOTT AVE	-	1	0.0 %
2305 JOLIET ST	-	2	0.0 %
2309 LEITH ST	-	2	0.0 %
2317 BROOKSIDE DR	-	2	0.0 %
2319 CALUMET ST	-	2	0.0 %
2326 COPEMAN BLVD	-	2	0.0 %
2332 COPEMAN BLVD	-	2	0.0 %
2401 HILLS ST	-	2	0.0 %
2402 COPEMAN BLVD	-	1	0.0 %
2405 SLOAN ST	-	2	0.0 %
	<b>Total</b>	<b>4,295</b>	<b>100%</b>

Please note that only the first 50 response categories are displayed in the PDF codebook. To view all response categories, please analyze the data file in the statistical package of your choice (SAS, SPSS, Stata, R).

Based upon 4,295 valid cases out of 4,295 total cases.

*Location:* 57-79 (width: 23; decimal: 0)

*Variable Type:* character

## CITY: City

Value	Label	Unweighted Frequency	%
FLINT	-	4295	100.0 %
	<b>Total</b>	<b>4,295</b>	<b>100%</b>

Based upon 4,295 valid cases out of 4,295 total cases.

*Location:* 80-84 (width: 5; decimal: 0)

*Variable Type:* character

---

## ZIP\_CODE: Zip Code

Value	Label	Unweighted Frequency	%
48502	-	18	0.4 %
48503	-	1587	36.9 %
48504	-	1059	24.7 %
48505	-	593	13.8 %
48506	-	267	6.2 %
48507	-	640	14.9 %
48522	-	1	0.0 %
48532	-	130	3.0 %
	<b>Total</b>	<b>4,295</b>	<b>100%</b>

Based upon 4,295 valid cases out of 4,295 total cases.

- Mean: 48505.18
- Median: 48504.00
- Mode: 48503.00
- Minimum: 48502
- Maximum: 48532
- Standard Deviation: 4.95

*Location:* 85-90 (width: 6; decimal: 0)

*Variable Type:* numeric

---

## SITE\_CODE: Site Code

Value	Label	Unweighted Frequency	%
FS000 1	-	5	0.1 %
FS000 2	-	5	0.1 %
FS000 4	-	5	0.1 %
FS000 5	-	5	0.1 %
FS000 7	-	3	0.1 %
FS001 2	-	12	0.3 %
FS001 3	-	5	0.1 %
FS001 4	-	5	0.1 %
FS001 7	-	1	0.0 %

Value	Label	Unweighted Frequency	%
FS001 8	-	5	0.1 %
FS002 2	-	5	0.1 %
FS002 3	-	3	0.1 %
FS002 5	-	5	0.1 %
FS002 7	-	5	0.1 %
FS002 8	-	5	0.1 %
FS002 9	-	5	0.1 %
FS003 0	-	5	0.1 %
FS003 4	-	4	0.1 %
FS003 5	-	5	0.1 %
FS003 6	-	3	0.1 %
FS003 7	-	5	0.1 %
FS003 9	-	1	0.0 %
FS004 0	-	5	0.1 %
FS004 1	-	5	0.1 %
FS004 4	-	12	0.3 %
FS004 5	-	4	0.1 %
FS004 6	-	12	0.3 %
FS004 9	-	5	0.1 %
FS005 0	-	4	0.1 %
FS005 2	-	12	0.3 %
FS005 4	-	6	0.1 %
FS005 5	-	3	0.1 %

Value	Label	Unweighted Frequency	%
FS005 6	-	5	0.1 %
FS005 7	-	5	0.1 %
FS006 1	-	5	0.1 %
FS006 3	-	5	0.1 %
FS007 4	-	5	0.1 %
FS007 5	-	5	0.1 %
FS007 7	-	5	0.1 %
FS007 9	-	5	0.1 %
FS008 4	-	11	0.3 %
FS008 6	-	10	0.2 %
FS008 7	-	5	0.1 %
FS008 8	-	1	0.0 %
FS009 1	-	4	0.1 %
FS009 3	-	5	0.1 %
FS009 6	-	5	0.1 %
FS009 7	-	5	0.1 %
FS010 1	-	4	0.1 %
FS010 2	-	2	0.0 %
	<b>Total</b>	<b>4,295</b>	<b>100%</b>

Please note that only the first 50 response categories are displayed in the PDF codebook. To view all response categories, please analyze the data file in the statistical package of your choice (SAS, SPSS, Stata, R).

Based upon 4,295 valid cases out of 4,295 total cases.

*Location:* 91-96 (width: 6; decimal: 0)

*Variable Type:* character

---

## SERVICE\_LINE\_MATERIAL: Service Line Material

Value	Label	Unweighted Frequency	%
Copper	-	2586	60.2 %
Galvanized	-	685	15.9 %
Lead	-	852	19.8 %
Other	-	16	0.4 %
Plastic	-	10	0.2 %
Unknown	-	146	3.4 %
	<b>Total</b>	<b>4,295</b>	<b>100%</b>

Based upon 4,295 valid cases out of 4,295 total cases.

*Location:* 97-106 (width: 10; decimal: 0)

*Variable Type:* character

## SAMPLE\_LOCATION: Sample Location

Value	Label	Unweighted Frequency	%
	-	650	15.1 %
AFTER WHOLE HOUSE FILTER	-	1	0.0 %
BASEMENT	-	2	0.0 %
BASEMENT BY PASS FOR HOUSE FILTER	-	1	0.0 %
BASEMENT FAUCET WITHOUT FILTER	-	1	0.0 %
BASEMENT SINK	-	1	0.0 %
BATHROOM	-	558	13.0 %
BATHROOM (2)	-	1	0.0 %
BATHROOM 1	-	1	0.0 %
BATHROOM HOT WATER	-	1	0.0 %
BATHROOM UPSTAIRS	-	2	0.0 %
BATHROOM WITH FILTER	-	2	0.0 %
BATHROOM WITHOUT	-	1	0.0 %
BATHROOM WITHOUT FAUCET FILTER	-	5	0.1 %
BATHROOM WITHOUT FILTER	-	97	2.3 %
KIT W/O FAUCET FILTER, WHOLE HOUSE FILTR	-	1	0.0 %
KITCEHN	-	1	0.0 %
KITCHEN	-	2490	58.0 %
KITCHEN - NO FILTER	-	1	0.0 %
KITCHEN BATHROOM	-	1	0.0 %
KITCHEN BYPASSED FILTER	-	1	0.0 %
KITCHEN WIHTOUT FILTER	-	1	0.0 %
KITCHEN WITH FILTER	-	42	1.0 %
KITCHEN WITHOUT	-	2	0.0 %
KITCHEN WITHOUT FAUCET FILTER	-	14	0.3 %



Value	Label	Unweighted Frequency	%
KITCHEN WITHOUT FILER	-	1	0.0 %
KITCHEN WITHOUT FILTER	-	396	9.2 %
KITCHEN WITHOUT FILTER, * WHOLE HOUSE FI	-	1	0.0 %
KITCHEN/BATHROOM	-	1	0.0 %
KITHCEN WITH FILTER	-	1	0.0 %
KITHCEN WITHOUT FILTER	-	2	0.0 %
KTICHEN WITHOUT FAUCET FILTER	-	1	0.0 %
LAUNDRY SINK	-	1	0.0 %
MAIN BATHROOM	-	1	0.0 %
MAIN LINE	-	1	0.0 %
MASTER BATHROOM	-	1	0.0 %
POINT OF ENTRY	-	1	0.0 %
SERVICE LINE IN BASEMENT	-	1	0.0 %
UPSTAIRS BATHROOM WITHOUT FILTER	-	1	0.0 %
WITH FILTER	-	1	0.0 %
WITHOUT A FILTER	-	2	0.0 %
WITHOUT FILTER	-	4	0.1 %
	<b>Total</b>	<b>4,295</b>	<b>100%</b>

Based upon 4,295 valid cases out of 4,295 total cases.

Location: 107-146 (width: 40; decimal: 0)

Variable Type: character

---

## SERVICE\_LINE\_SOURCE: Service Line Source

Value	Label	Unweighted Frequency	%
	-	16	0.4 %
DNR QAQC	-	2	0.0 %
Field Check	-	1262	29.4 %
Field Checked	-	450	10.5 %
Not Listed in Data	-	2540	59.1 %
UM Flint	-	25	0.6 %
	<b>Total</b>	<b>4,295</b>	<b>100%</b>

Based upon 4,295 valid cases out of 4,295 total cases.

Location: 147-164 (width: 18; decimal: 0)

Variable Type: character

---

## SENTINEL\_GROUP\_NUMBER: Sentinel Group Number

Value	Label	Unweighted Frequency	%
1	-	615	14.3 %
2	-	616	14.3 %
3	-	661	15.4 %
4	-	648	15.1 %
5	-	625	14.6 %
	<b>Missing Data</b>		
.	-	1130	26.3 %
	<b>Total</b>	<b>4,295</b>	<b>100%</b>

Based upon 3,165 valid cases out of 4,295 total cases.

- Mean: 3.02
- Median: 3.00
- Mode: 3.00
- Minimum: 1
- Maximum: 5
- Standard Deviation: 1.40

Location: 165-166 (width: 2; decimal: 0)

Variable Type: numeric

---

## SENTINELROUND: Sentinel Round

Value	Label	Unweighted Frequency	%
	-	3165	73.7 %
ES2	-	180	4.2 %
ES3	-	167	3.9 %
ES4	-	162	3.8 %
ES5	-	158	3.7 %
ES6	-	149	3.5 %
ES7	-	143	3.3 %
X1	-	171	4.0 %
	<b>Total</b>	<b>4,295</b>	<b>100%</b>

Based upon 4,295 valid cases out of 4,295 total cases.

Location: 167-169 (width: 3; decimal: 0)

Variable Type: character