



Liberty – Yermo (PWS No. CA3610118)

Verification of Lead Status Unknown

November 8, 2023

Acronyms

LCRR	Lead and Copper Rule Revision
LSL	Lead Service Line
PWS	Public Water System
SL	Service Line

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Background

The Lead and Copper Rule Revision (LCRR) requires the PWS to develop an inventory to identify the materials of service lines connected to the public water distribution system (40 CFR §141.84(a)). The PWS must also review sources of information to identify service line materials for the initial inventory. The water system may use sources of information if approved by the State (40 CFR §141.84(a)(3)) such as any identification method to assess service lines materials (40 CFR §141.84(a)(3)(iv)).

One identification method or verification strategy is a statistical approach. The statistical approach allows for completing a service line inventory with a 95% level of statistical confidence (with ±5% margin of error and 50% sample proportion).

A key factor in the success of the strategy mentioned above is the use of a randomly generated list of unknown service lines to be physically inspected. If ANY service line is found to be an LSL (either through the initial records review or the verification process), then this framework will not be used, and an alternate process will be discussed with the State. If NO service line is found to be lead through the records review and verification process, then the remaining unknown service lines will be classified as non-lead, and the submitted inventory will be final (e.g., containing all non-lead service lines). If, in the future, an LSL is found, then the water system will contact the state within 30 days to discuss a path forward. **Since Liberty acquired Liberty - Yermo in January 2016, Liberty has not encountered any lead service lines.**

Known service lines are defined as service lines where the pipe materials are classified using records⁽¹⁾. Records that can be used to classify a SL are mentioned in 40 CFR §141.84 (a)(3)(i),(ii),(iii),(iv). Records showing that service lines were installed after the state lead ban (or local ordinance with an earlier lead ban) and service lines >2 inches (diameter allowance depends on state) will be considered known and classified as non-lead.

Unknown service lines are defined as a service line of unknown material with no/low confidence documented material history⁽¹⁾.

Identification methods or verification strategies are based on system size. The verification strategies for the identification of unknown service lines are:

- ✓ Interpolation: Best for small systems with less than 1,500 unknown service connections. For the interpolation method, the PWS must physically verify at least 20% of the total number of unknown service lines.
- ✓ Stratified Random Sampling: Best for medium systems (1,500 to 10,000 unknown service connections); to large systems (more than 10,000 unknown service connections.) For the stratified random sampling, the PWS must physically verify enough lines to reach a minimum 95% confidence level.

Identification Process

Before using the statistical approach to identify unknown service lines, Liberty completed the initial inventory using approved methodologies, such as the ones mentioned in 40 CFR §141.84 (a)(3), as well as post-1986 construction and larger pipe diameters, to categorize service lines. Based on the applied methodologies, no LSLs were found. Therefore, it is appropriate to use the statistical approach.

The statistical method includes the following steps:

- ✓ Step 1: Identification of all service lines of unknown material.
- ✓ Step 2: Identification of the number of service lines to be physically inspected.
- ✓ Step 3: Random selection of service lines for physical inspection.
- ✓ Step 4: Physical inspection of the service lines.
- ✓ Step 5: Record of the physical inspection process.
- ✓ Step 6: Results input of unknown service lines into the inventory.
- ✓ Step 7: Retention of identification records.

Step 1: Identification of all service lines of unknown material.

Table 1 shows the total of service connections in Liberty – Yermo (PWS. No. CA3610118).

Table 2 presents the total number of all the water service lines that could not be categorized using the approved methodologies shown in 40 CFR §141.84 (a)(3) for Liberty – Yermo (PWS No. CA3610118).

Table 1: Total of Service Connections

System Name	Total of Service Connections
Liberty Utilities – Yermo	312

Table 2: Service Lines with unknown materials

Category		Number of Service Lines
Public Side	Private Side	
Unknown	Unknown	228
Known (non-lead)	Unknown	15
Unknown	Known (non-lead)	3
Total		246

Step 2: Identification of the Number of Service Lines to be Physically Inspected.

Liberty – Yermo has fewer than 1,500 unknown service lines, so the interpolation method is appropriate. Using the interpolation method, the PWS must physically verify a minimum of 20% of the total number of unknowns. To ensure that the confidence level in the results is higher, Liberty is proposing the verification of 50% more than the minimum number required.

Table 3 presents the minimum and proposed number of unknown service lines to be physically verified.

Table 3: Minimum and Proposed Number of Unknown SLs to be Physically Verified

Statistical Approach	Total of Unknown SLs	Number of SLs to Verify (Minimum)	Number of SLs to Verify (Minimum x 1.5) (Proposed)
Interpolation	246	49	74

Step 3: Random Selection of Service Lines for Physical Inspection.

From the number of unknown service lines identified in Step 1 and the proposed number from Step 2, Liberty randomly selected service lines to be physically inspected as determined in Step 2. The selection was uniformly random and not based on any specific criteria, which could introduce bias.

The generation of the uniformly random set of service lines for inspection was created using a Microsoft Excel spreadsheet utilizing the RAND function. The RAND function in Excel is one of the functions specially designed for generating random numbers ⁽²⁾.

The list of the random set of service lines for physical inspection is presented in Appendix A.

Step 4: Physical inspection of the service lines.

The type of service line verification method that Liberty will use is:

- ✓ **Private Side:** Meter Pit Inspection.

At least one point of verification will be conducted for the portion of the unknown service line. The verification method includes meter pit inspection. If one or more of the original randomly selected sites cannot be verified, the next available location from the random number generation will be used. For example, if a system has 2,000 unknowns and has to verify 322 SLs but is only able to verify 312 SLs, then the next 10 SLs will be taken from the original random number list (e.g., 323 to 333).

Appendix B shows the LSL Field Investigation Sheet for a single site that Liberty will use in the verification process.

Step 5: Record of the physical inspection process.

Liberty will use a Microsoft Excel spreadsheet to enter the service line category and materials observed at each point. The four service line category types shown in 40 CFR §141.84 (4) are lead, non-lead, galvanized requiring replacement, and unknown. Liberty will use subclassification categories (e.g., copper, plastic) to capture the various material types for Liberty's records.

Appendix C shows the recordkeeping spreadsheet that will be used to record the findings.

Step 6: Results input of unknown service lines into the inventory.

For unknown service lines that will be inspected for the statistical sampling, Liberty will record the water system material identification method (physical inspection – meter pit inspection). Liberty will list the exact line material type in the inventory spreadsheet found in Appendix C.

For unknown service lines not needing to be inspected, Liberty will record the material identification method as “*statistical*” and service line material as *non-lead*.

Step 7: Retention of Identification Records.

Liberty will retain all the documentation of all service line identification efforts and will be available to the Division of Drinking water (DDW) if requested.

References

(1) Oregon Health Authority. Statistical Guidance for Evaluating Unknown Service Lines. March 2023.

(2) Cheusheva, Svetlana. How to generate random numbers in Excel: RAND and RANDBETWEEN functions. Available at: <https://www.ablebits.com/office-addins-blog/random-number-generator-excel/>

Appendix A: Random Set of Service Lines for Physical Inspection

Location	Year Built	Material on the Public Side	Material on the Private Side
37976 Grandview	1964	Unknown	Unknown
35988 Hillview	1963	Unknown	Unknown
622 E Williams- Front	1958	Unknown	Unknown
309 W Yermo	1940	Unknown	Unknown
35941 Calico Rd	1964	Unknown	Unknown
35820 Frontier	1962	Unknown	Unknown
38041 Fairway	1962	Unknown	Unknown
325 3rd St	1956	Non-Lead	Unknown
38716 Yermo	1951	Unknown	Unknown
40/46/48 School Road	NO DATA	Unknown	Unknown
36052 Dividing Line	1962	Unknown	Unknown
35978 Hillview	1963	Unknown	Unknown
309 E Williams	1958	Unknown	Unknown
38857 East Williams	1967	Unknown	Unknown
35987 Hillview	1963	Unknown	Unknown
634 E Williams	1962	Unknown	Unknown
426 E Yermo	1950	Unknown	Unknown
38721 Calico Blvd	NO DATA	Unknown	Unknown
440 E Williams	1960	Unknown	Unknown
238 North 3 Rd Street	1951	Unknown	Unknown
35774 Frontier	1962	Unknown	Unknown
490 W Yermo Rd	1935	Non-Lead	Unknown
35954 Hillview	1963	Unknown	Unknown
38779 E Williams	1980	Unknown	Unknown
35907 Calico Rd	1964	Unknown	Unknown
325 E Williams	1953	Non-Lead	Unknown
36005 Dividing Line	1962	Unknown	Unknown
38081 Fairway	1962	Unknown	Unknown
317 W Yermo	1930	Unknown	Unknown
35925 Calico Rd	1964	Unknown	Unknown
38743 E Williams	NO DATA	Unknown	Unknown
301 E Williams	1950	Unknown	Unknown
507 W Yermo	1957	Unknown	Unknown
390 W Yermo (38321 W Yermo Rd. Fire Station)	NO DATA	Unknown	Unknown
501 W Williams	1920	Unknown	Unknown
35765 Frontier	1962	Unknown	Unknown

Location	Year Built	Material on the Public Side	Material on the Private Side
37869 Grandview	1964	Unknown	Unknown
333 E Willams	1958	Unknown	Unknown
36036 Dividing Line	1962	Unknown	Unknown
37973 Fairway	1963	Unknown	Unknown
36029 Dividing Line	1962	Unknown	Unknown
35775 Frontier	1962	Unknown	Unknown
456 W Yermo	1946	Unknown	Unknown
37950 Fairway	1963	Unknown	Unknown
541 W Yermo	NO DATA	Unknown	Unknown
35725 Frontier	1962	Unknown	Unknown
38049 Fairway	1962	Unknown	Unknown
37943 Fairway	1963	Unknown	Unknown
35875 Frontier Ave	NO DATA	Unknown	Unknown
350 North 3 Rd Street	1942	Unknown	Unknown
338 North 3 Rd Street	1940	Unknown	Unknown
36152 1st St	NO DATA	Unknown	Unknown
331 North 3 Rd Street	1956	Unknown	Unknown
38526 Union Pacific	1953	Unknown	Unknown
35919 Calico	1964	Unknown	Unknown
35977 Hillview	1963	Unknown	Unknown
409 E Williams	1905	Unknown	Unknown
345 N 4th St	1921	Unknown	Unknown
537 W Yermo	1920	Unknown	Unknown
36045 Dividing Line	1962	Unknown	Unknown
36060 Skyview	1962	Unknown	Unknown
332 North 3rd Street	1942	Unknown	Unknown
38315 McCormick (Yermo Csd)	NO DATA	Unknown	Unknown
317 N 2nd St	1930	Unknown	Unknown
37912 Grandview	1964	Unknown	Unknown
37933 Grandview	1964	Unknown	Unknown
36184 Calico Blvd	NO DATA	Unknown	Unknown
602 E Williams	1953	Unknown	Unknown
333 W Williams	1950	Unknown	Unknown
603 E Williams	1963	Unknown	Unknown
346 N 2nd St	1953	Unknown	Unknown
317 3rd St	NO DATA	Unknown	Unknown
36037 Dividing Line	1962	Unknown	Unknown
570 Connell	1960	Unknown	Unknown

Appendix B: LSL Field Investigation Sheet – Single Site

LCRR Field Investigation Template

Date of Inspection: _____

Customer Name: _____

Address/Location of Service Line: _____

Meter Number: _____

Description of Meter and/or Location: _____

Material for Public Service Line

- Lead
- Galvanized Requiring Replacement
- Galvanized
- Non-Lead Copper
- Non-Lead Plastic
- Non-Lead – Other

Public Side Pipe Diameter

- 5/8 inch ½ inch
- 1 inch ¾ inch
- 1 ½ inch
- 2 inch

Material for Private Service Line

- Lead
- Galvanized Requiring Replacement
- Galvanized
- Non-Lead Copper
- Non-Lead Plastic
- Non-Lead - Other

Private Side Pipe Diameter

- 5/8 inch ½ inch
- 1 inch ¾ inch
- 1 ½ inch
- 2 inch

Is there a lead connector? (Y) / (N)

Is there a Lead Solder in the Service Line? (Y) / (N)

Describe any other fitting and equipment connected to the service line that contains lead (for example, a backflow preventer or meter containing lead):

Building Type:

- Single Family Home Building
- Multi-Family Home Other: _____

