



Locating the Lead in Pittsburgh

PWSA's Strategy to Find and Replace Lead Service Lines

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Pittsburgh Water and Sewer Authority, Pittsburgh, PA



Locating the Lead in Pittsburgh

- Background
- Timeline
- Lead Service Line Inventory
- Lead Service Line Identification Program
- Lead Service Line Replacement Program
- Post-Construction Sampling



Pittsburgh Water and Sewer Authority

Background

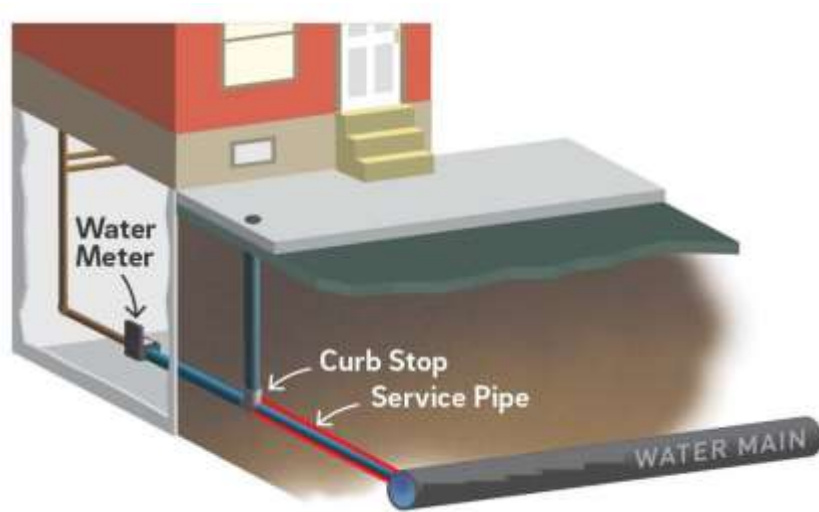
- Water Utility with ~80,000 Connections (71,000 Residential)
- Traditional corrosion control technology employed has been pH adjustment to 8.2 using lime/soda ash.
- Open reservoir precluded phosphate use.
- Three main pressure districts with fourteen sub-districts.
- Infrastructure dates to pre-1900s
- June 30, 2016: Exceeded Lead Action Level



Timeline



Service Line Ownership



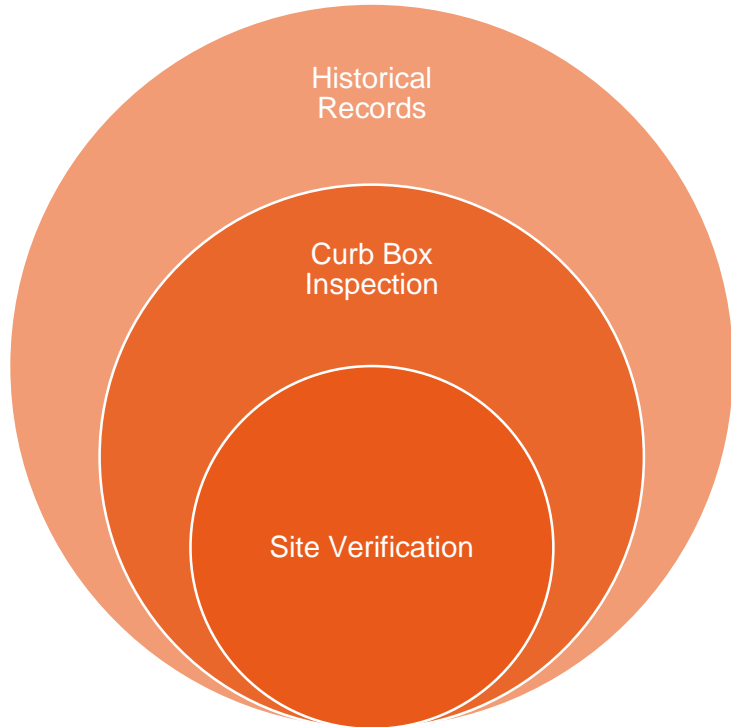
- PWSA Owned – Main to Curb Stop
 - Residential Service: 1” Diameter and Less
 - Single Unit
- Property Owner Responsibility
 - Curb Box to Property – Residential
 - Entire line – Commercial, Multi-Unit Residential

Locating the Lead in Pittsburgh

Lead Service Line Identification



Service Line Material Identification



Historical Record	Service Record	Curb Box Inspection	Reported Material	Action
Lead	None	Lead	Lead	Replace
Lead	None	Unknown	Possible Lead	Verify
Lead	Repair	NonLead	Possible Lead	Verify
No Data	None	Lead	Lead	Replace
No Data	None	Nonlead	Likely Nonlead	Verify (2018)
No Data	None	Unknown	Unknown	Verify

Historical Record Digitization

- Over 120,000 records
- Each Record Contains 1 to 8 half size (4"x5.5") Sheets
- Labor Intensive Data Entry and QA/QC
- Public Side Complete December 2017
- Private Side Complete May 2018
- \$13/Record



Historical Record Digitization

- Positive Identification of Non-lead
- Historical Presence of Lead
- Indicator for Lead Tailpiece

Total Current Customer Records	42,214
Public Lead	18,896
Public NonLead	29,162
No Data	512

METER SET 24-I-8
533 HATTERAS ST.

CITY OF PITTSBURGH
BUREAU OF WATER
DEPARTMENT OF PUBLIC WORKS

Number 4331
DISTRIBUTION DIVISION
INDEX 24
DATE 2-6-39

ORDER TO DRILLER:-
DRILL 5/8" CORPORATION 6" MAIN SERVICE 5/8" LEAD
PREMISE 1533 Hatteras St. BETWEEN
Behaven St. AND Lager St.
DRILL ON Hatteras St. DATE
OWNER Joseph Maritzel
PLUMBER WPA.
REMARKS Replacing old main.

CONTRACT CLERK
REPORT OF DRILLER:- DATE 2-6-39
DRILLED AS ORDERED 5/8" CORPORATION 5/8" LEAD SERVICE
ON S SIDE OF ST. FT. FROM
AND 205 FT. FROM W/PL of Lager St.
SYSTEM MAIN 6" DEPTH 4 FT. FROM P. L. 19 Ft

CURB BOX CURB COCK
SERVICE SUPPLIER 1533 Hatteras

REMARKS Replacing 4" male
5/8" female.

I hereby certify that the service pipe of record that stop cock and box of required standard were present such was limited.

CHECKED AND ENTERED }
7/10/85 Helen Sadowski
1533 HATTERAS ST

INDIVIDUAL METER RECORD

6-10-90
15" MAG
5/8" MAG

NEW METER
Rec'd 1-4" 1-10" 1-32"
Dial

Date 8/24/66 S Lieberman 14-X3
5823 Beacon St
MGR 1 1 1965
7/10/85 Helen Sadowski
1533 HATTERAS ST 24-I-8

CITY OF PITTSBURGH
DEPARTMENT OF PUBLIC WORKS
BUREAU OF WATER
SERVICE INSPECTION REPORT

DISTRIBUTION DIVISION 24-I-8/1 INDEX
SHEET INSPECTION NUMBER DATE 2/4/39
NUMBER 1533 Hatteras STREET 1911
CONNECTION ON Hatteras ST
205 FT. FROM W/PL of Lager St
FT. FROM
OWNER Joseph Maritzel
ADDRESS
OCCUPANTS
AS
MTRK NUMBER 1 LOCATED

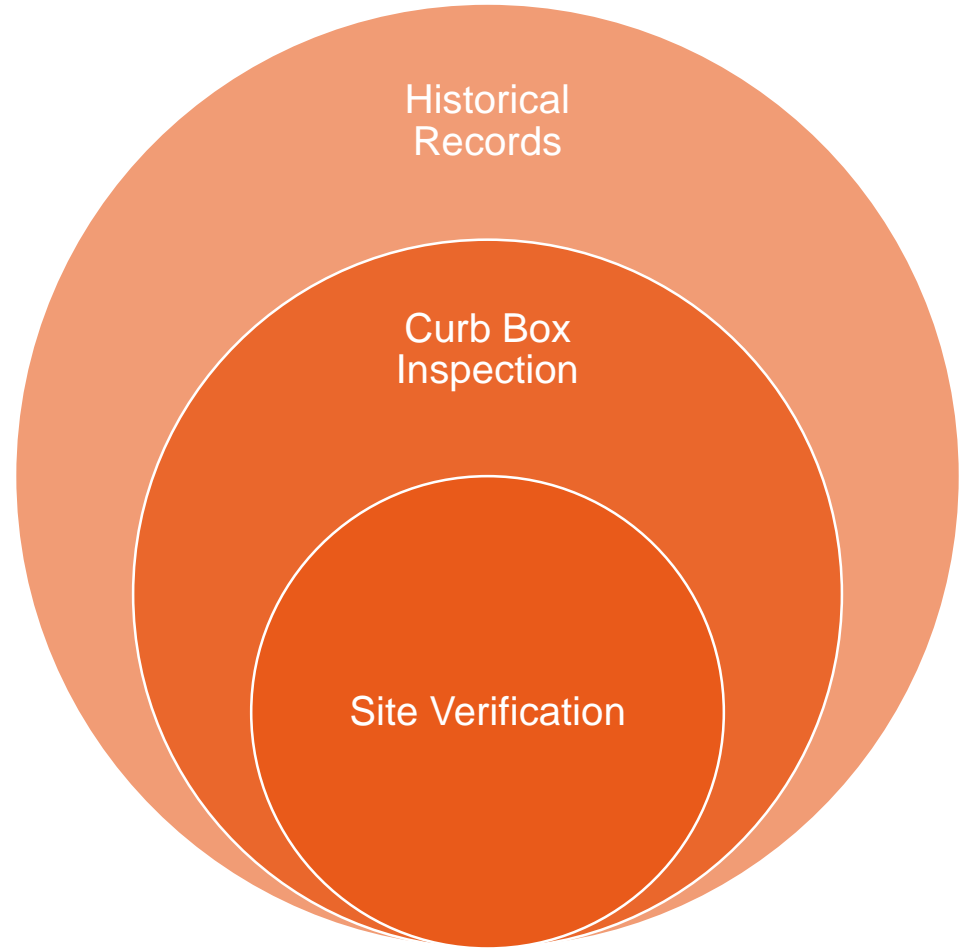
CURB BOX LOCATED
STOP AND WASTE LOCATED
SYSTEM MAIN 6" DEPTH 4 FT. FROM P. L. 19
SIZE CORPORATION COCK 5/8" SIZE OF SERVICE 5/8" KIND OF SERVICE 1/2"

CELLAR FREEZER

Historical Record Digitization

- Low false negative rate
(Historical records indicate non-lead, but found to be lead)
- High false positive rate
(Historical records indicate lead, but line has been replaced with non-lead)

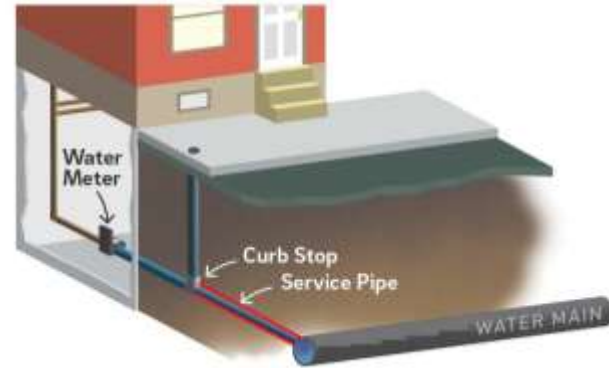
	Contract Excavation Result		
Record Material	Nonlead	Lead	Total
Nonlead	30	1	31
Lead	104	221	325
Total	134	222	356



Service Line Identification

Curb Box Inspection

- Camera Inserted Down Curb Box
- 200-400 Inspections/Work Order
- Work Orders rotates around city
- Positive Identification for lead
- Not all materials can be determined
- Snap-shot of material Curb Box
- Relatively non-invasive



Service Line Identification

Curb Box Inspection



Lead Service Line



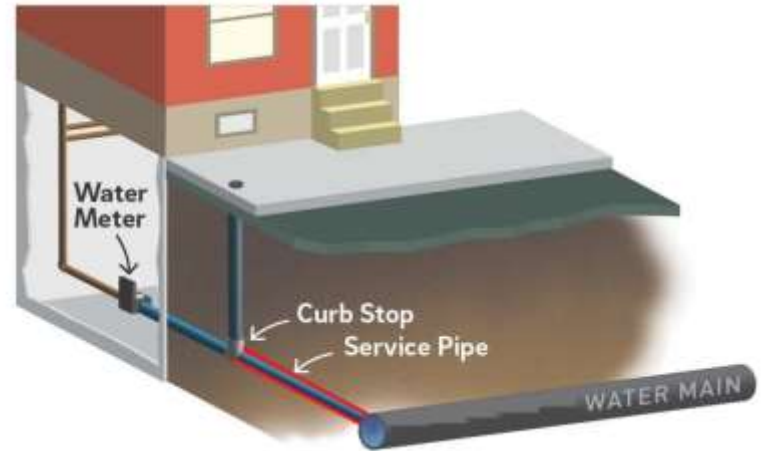
Non-Lead Service Line



Unable to Determine

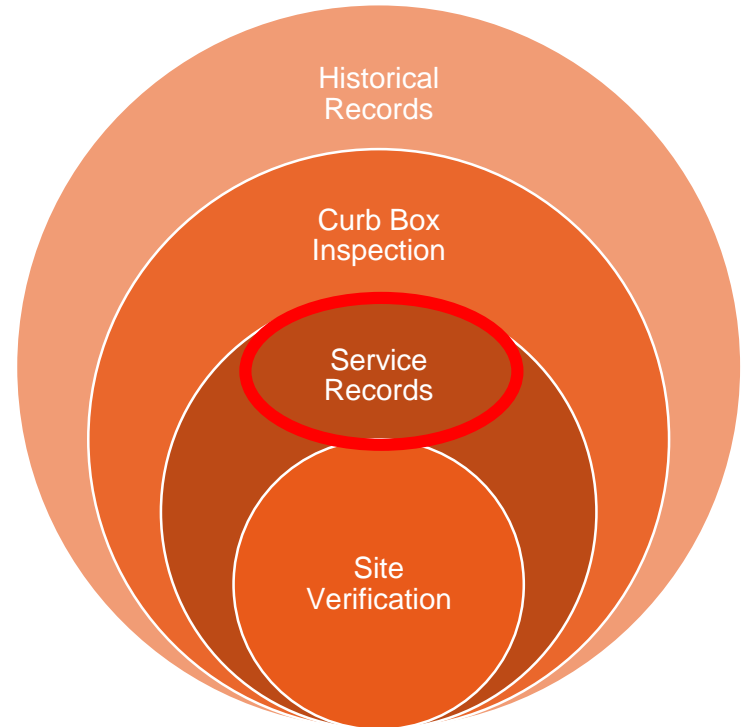
Curb Box Inspection Pitfalls

When the Curb Stop was Replaced



Curb Box Inspection Pitfalls

When the Curb Stop was Replaced



Service Line Material Identification Matrix

When do we dig?

Historical Record	Service Record	Curb Box Inspection	Reported Material	Action
Lead	None	Lead	Lead	Replace
Lead	None	Unknown	Possible Lead	Verify
Lead	Repair	Non-Lead	Possible Lead	Verify CBI
No Data	None	Lead	Lead	Replace
No Data	None	Non-lead	Likely Non-lead	Verify CBI
No Data	None	Unknown	Unknown	Verify
Non-lead	N/A	No Action	Non-Lead	No Action

Service Line Material Identification

Site Verification (Excavation)

- Dig Test Hole to Confirm Material Type
- More Conclusive than CBI
- Disruptive to Traffic
- Restoration Costs
- Could Temporarily Increase Lead in Water
- Replace if Lead is Found

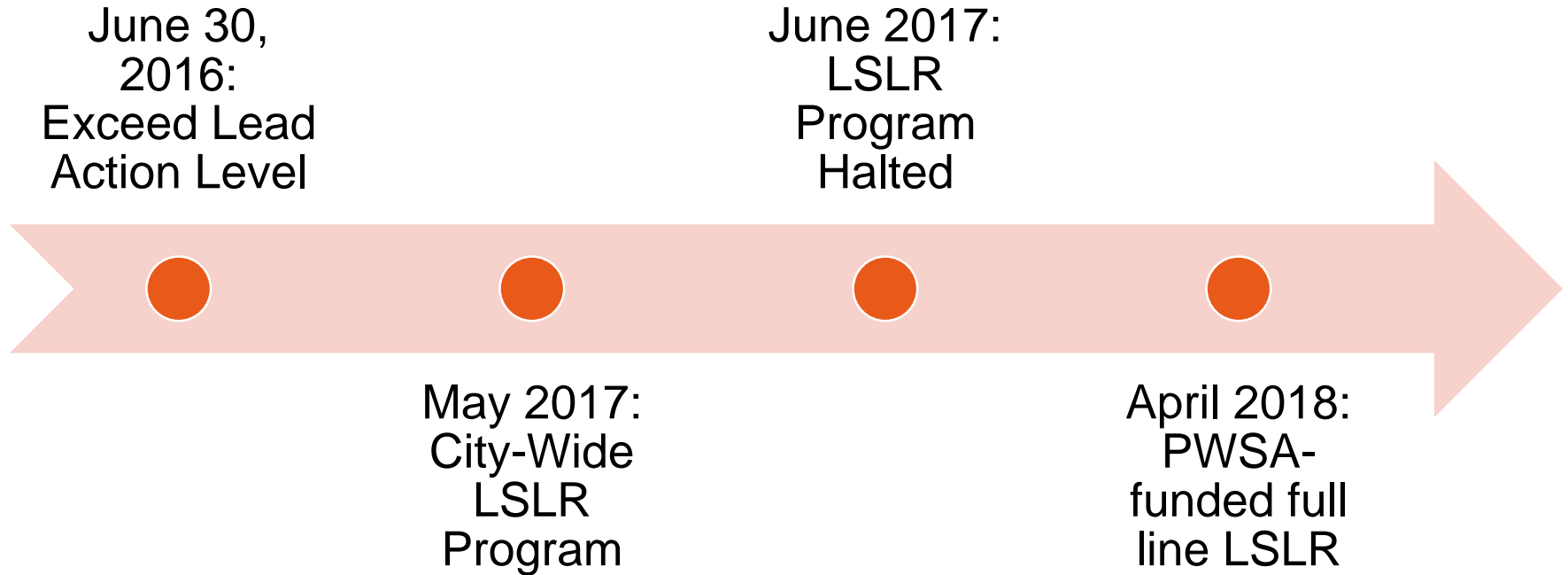


Locating the Lead in Pittsburgh

Lead Service Line Replacement



Lead Service Line Replacement Timeline



Lead Service Line Replacement

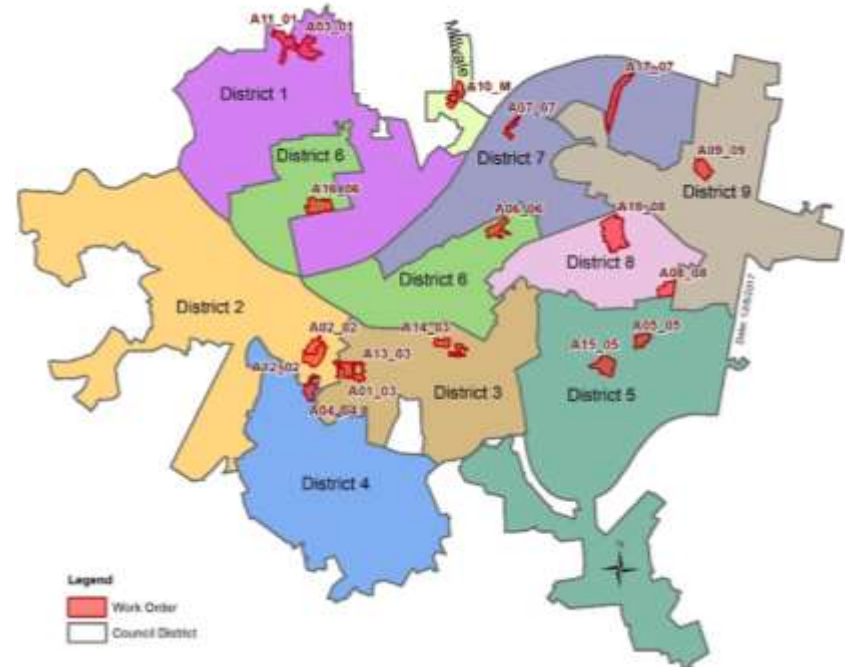
Consent Order Requirements

DEADLINE	LSLR REQUIRED (PUBLIC SIDE ONLY)
June 30, 2018	1,341
December 31, 2018	1,341*
Total	2,682
Completed to Date	820



Private Side Lead Service Line Replacement

- 2018 – PWSA Funded
- Neighborhood Based
- Community Environmental Program
- Emergency Replacements



Private Side Lead Service Line Replacement

- 45-Day Notice for Partial Replacement
- Agreement
- No Restoration
- Trenchless
- Inspection



Communications and Post-Construction



Pre and Post Construction Notifications

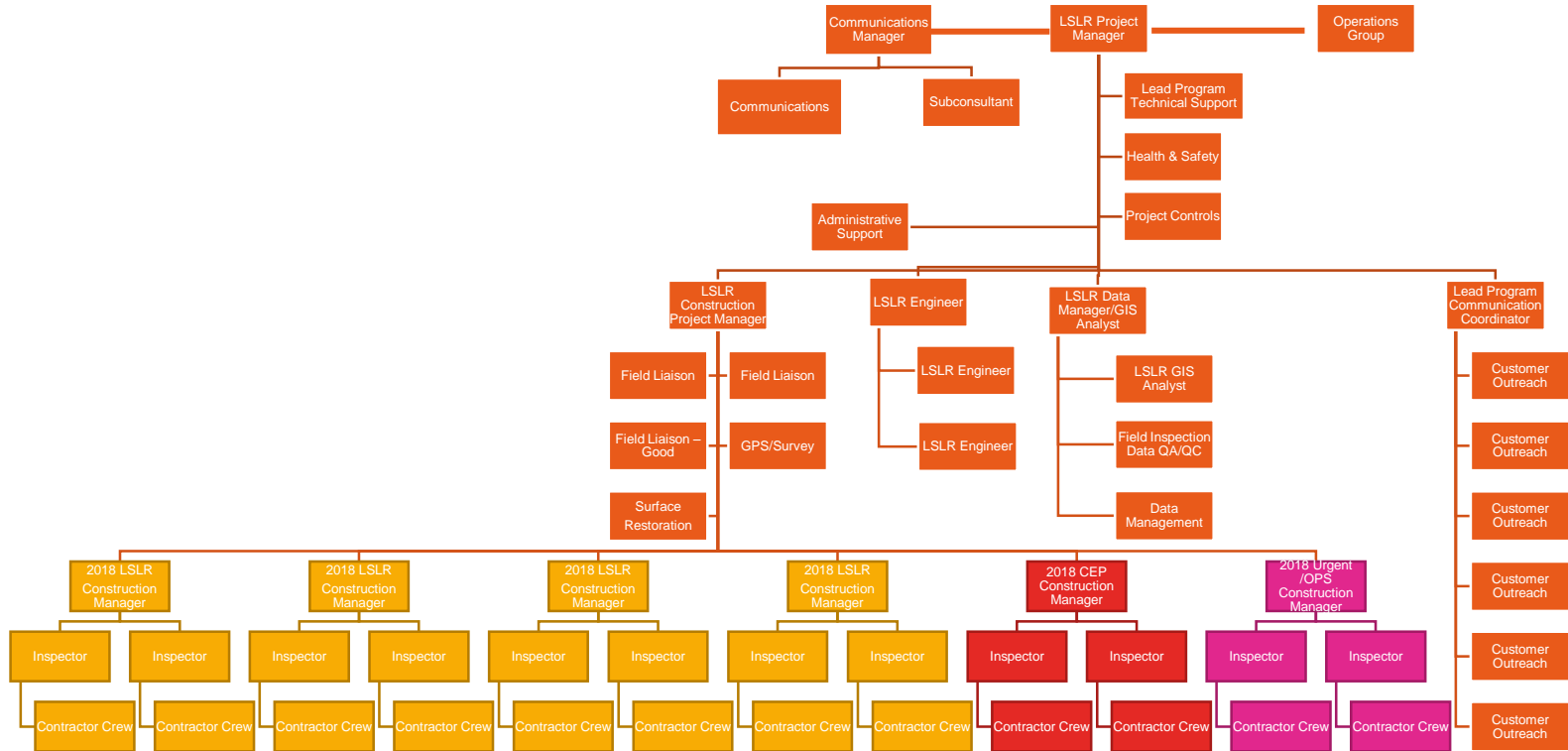


72-Hour Post Construction Water Sample for Partial Replacements



Water Pitcher Filter with Replacement Cartridges for Partial Replacements

Lead Service Line Replacement Program Organization



Summary

Identification

- Understand the Accuracy of the Data
- Realistic Timelines
- Staffing
- QA/QC

Replacement

- Notification Requirements for Partial Replacements
- Post-Construction Sampling Requirements
- Updated Owner Contact Information
- Restoration/Agreements
- Community Involvement



Thank you

