Lead Service Line Inventory Training

Presented by Division of Drinking Water's LCRR Unit

ddw-LSLReports@waterboards.ca.gov

CALIFORNIA
Water Boards

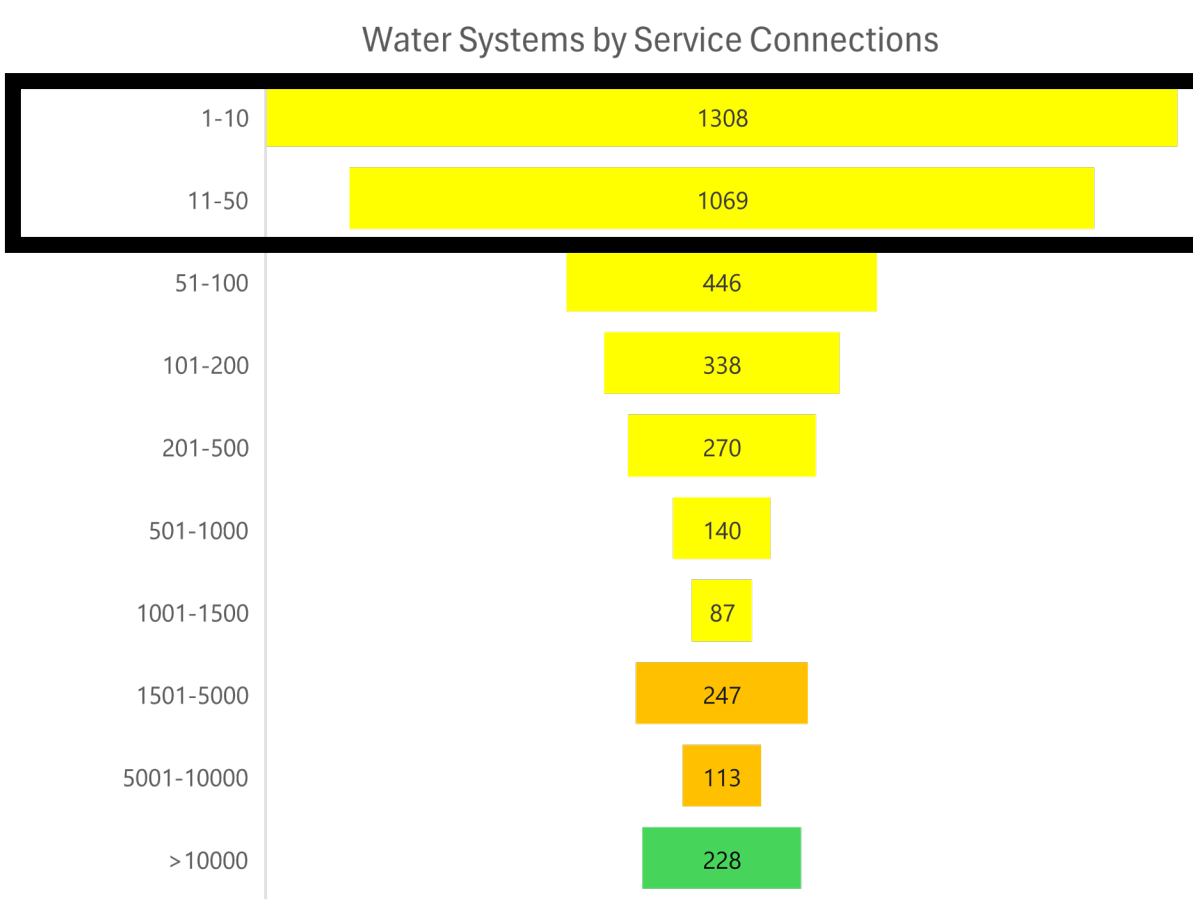
Housekeeping

- Please use the Q&A function – not chat
- If there is time at the end, we will take questions live
  - Please raise your hand and we will call on you in order
- Please remain muted to avoid background noise
- Please stay for the whole presentation if possible

Who needs to submit an inventory?

- A lead service line inventory (LSLI) is required as part of the USEPA's Lead and Copper Rule Revisions (LCRR)
- All Community and Non-Transient-Non-Community water systems are required to submit an LSLI
- Approx. 4300 water systems in California
- Inventory due date is October 16, 2024
- There is no extension to this date
- Email ddw-LSLReports@waterboards.ca.gov for any questions
- Please include your water system number in the subject line on all communications
- Request LSLI Assistance Lead Service Line Assistance (ca.gov)

Water System Service Connections



Service Connections	Number of water systems	% of total	
1-10	1308	30.8%	
11-50	1069	25.2%	
51-100	446	10.4%	86.3%
101-200	338	7.9%	
201-500	270	6.3%	
501-1000	140	3.3%	
1001-1500	87	2.0%	
1501-5000	247	5.8%	8.4%
5001-10000	113	2.6%	
>10000	228	5.3%	5.0%
Community & NTNC Water Systems	4286		

Getting started

- About ½ of all C & NTNC water systems have less than 50 reported service connections
- Fairly easy to investigate all unknown service lines
- Probably do not need an inventory plan for alternative verification methods (statistical, interpolation, etc) but you can consider interpolation, discussed later.

A few comments on the inventory & template

- Each service line must be reported.
- Each service line needs a unique locational identifier
  - A meter number is normally used, but for smaller systems, they may not be metered
  - Use some other identifier (building 1, manufacturing building, tasting room, processing shed, etc)
- Buildings may have a shut off valve – use as a proxy for a meter
  - Identify the service line materials and size on each side of the valve
- If the entire system is owned/operated by the water system, you still need to complete the system & customer side of the template
  - Likely the same information on the system and customer side.

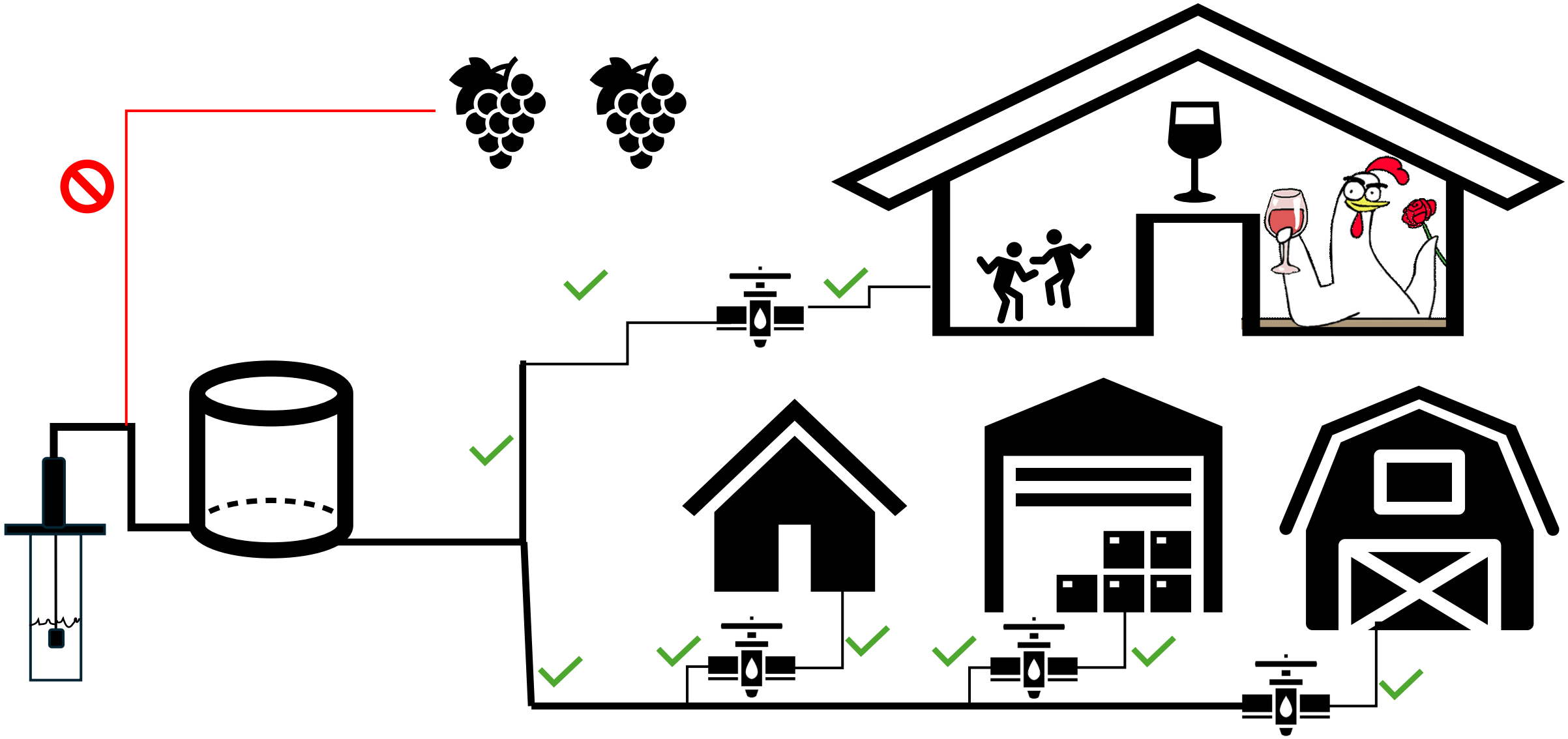
Starting your inventory

- First step: Determine the service lines with known materials
  - Review building records, water system replacement records, distribution maintenance records, etc. Enter a narrative of the types of records and how they were used in the inventory, tab 2
  - Use this information to enter information for service lines
    - Always enter the actual material if known
  - If a service line is greater than 4”, it can be entered as “non – lead – other”
    - You must enter the service line size in the inventory
    - Basis of determination is “service line diameter 4 inches or greater”
  - If a service line was installed after 1/1/1986, it can be entered as “non-lead other”
    - You must enter the date the service line was installed
    - Basis of determination is “Installation date is after state or local lead ban”

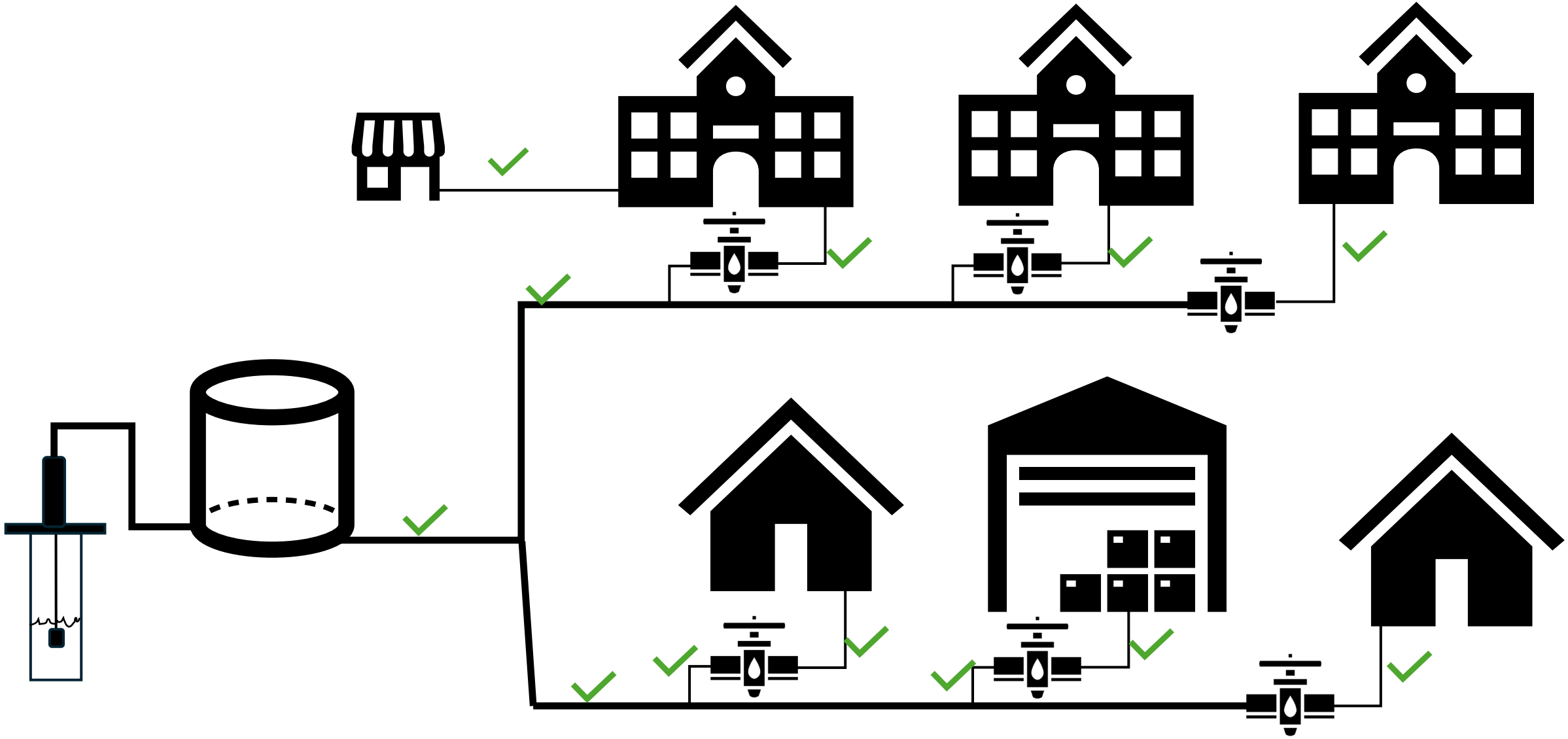
Starting your inventory (cont)

- After determining your known service lines, this leaves you with service lines with “unknown” material
- Smaller water systems may not have any unknowns, and can enter their service lines on the inventory template from the information in your records
  - DDW does not need a copy of these records, but you should maintain a copy for your records along with the inventory you submit to DDW
- We encourage you to use the DDW Inventory Template from our website https://www.waterboards.ca.gov/lead-copper-rule/water_system_resources.html

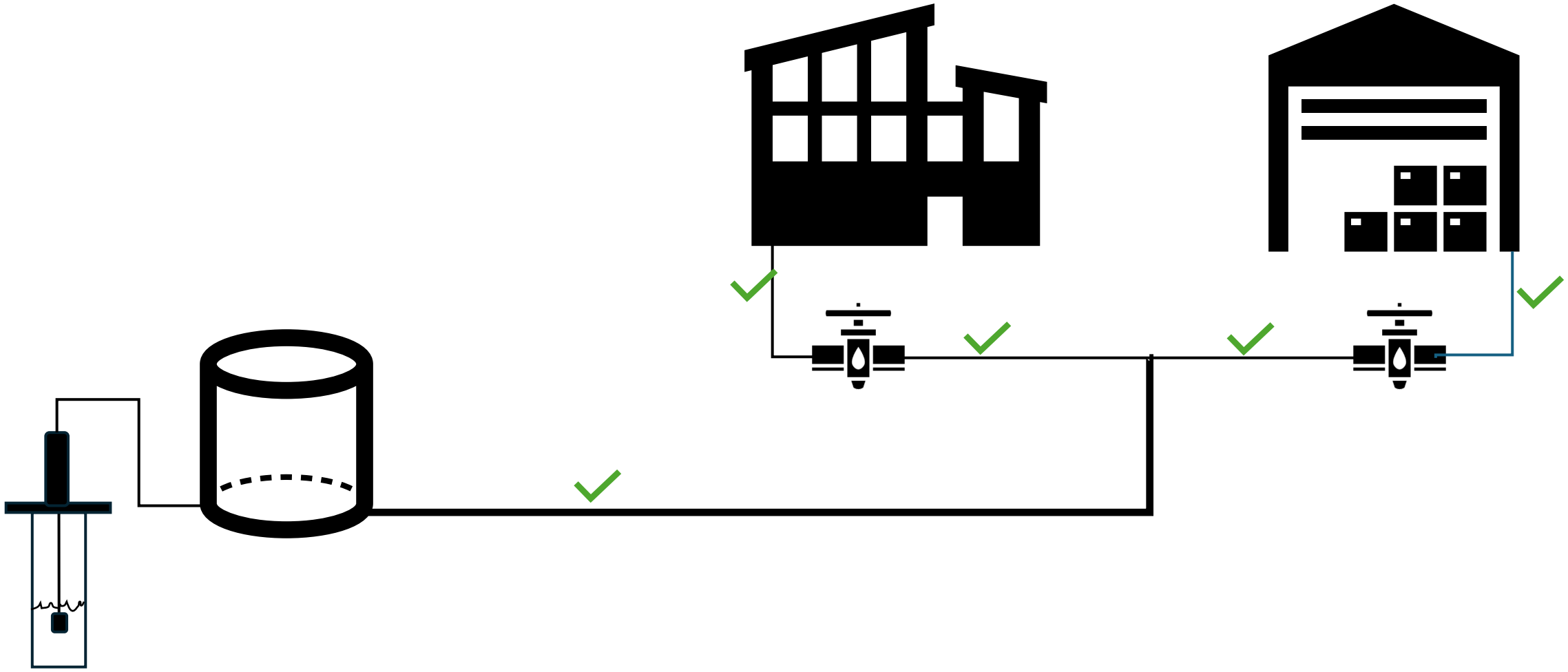
Winery



Schools & Colleges or Correctional Facilities



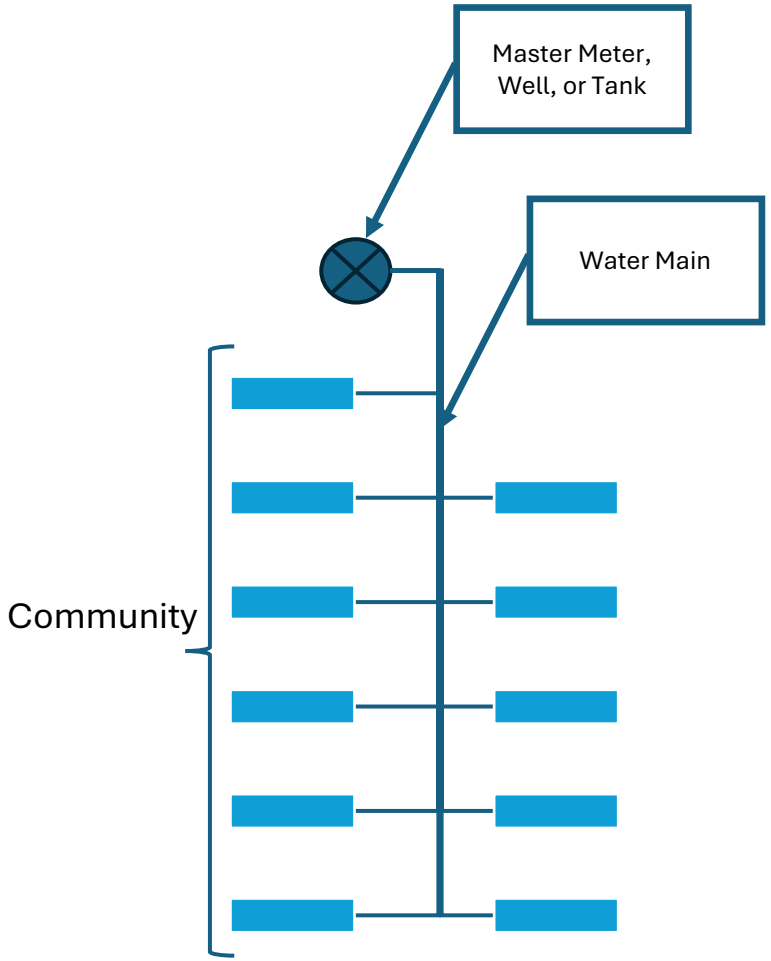
Manufacturing, Packing Plant, Service Station



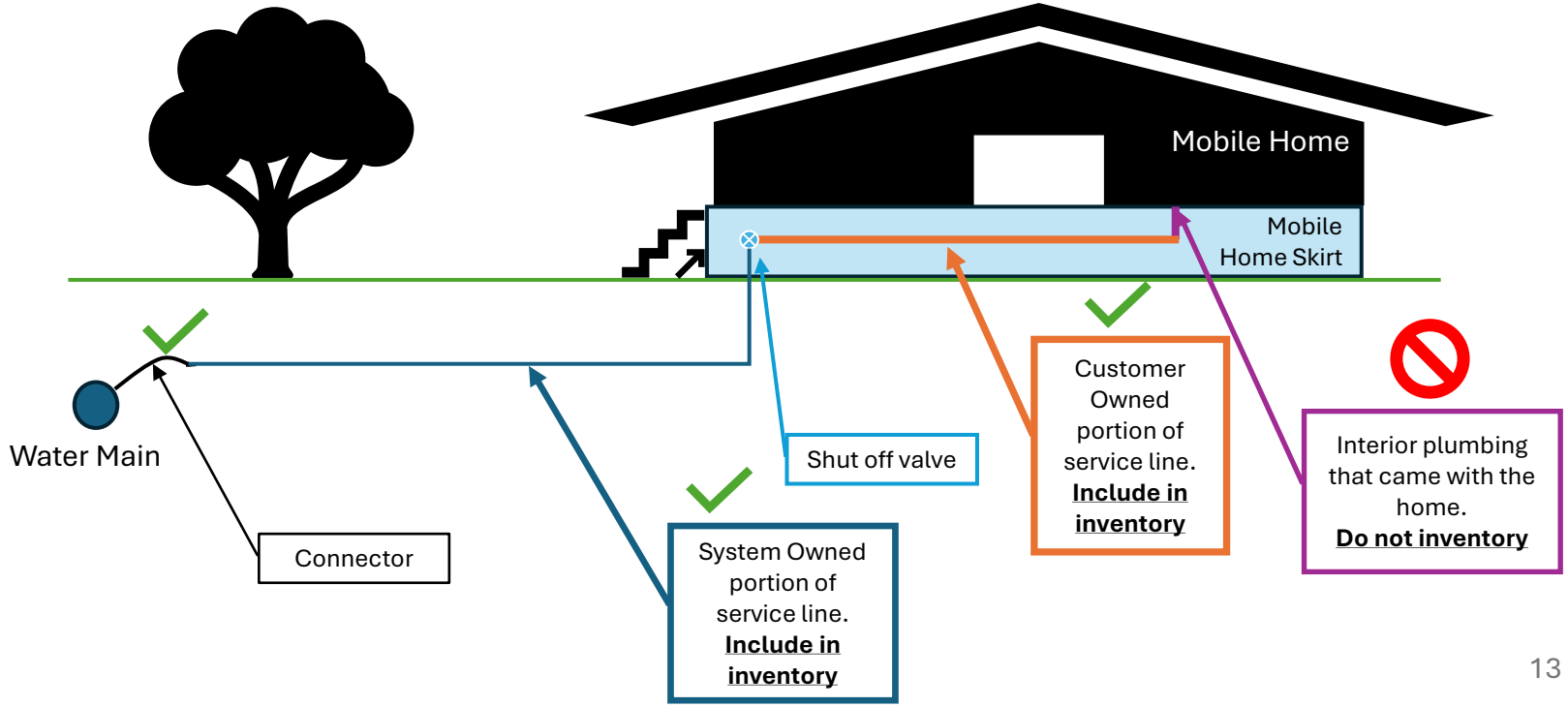
Summary

- Enter the distribution line from the tank/pressure tank (if you know the line size and material).
  - Use the same information on the “system” side and the “customer” side
- Enter each line that goes from the distribution line into each building.
- If a line goes from one building to another building, include that line.

Mobile Home/Manufactured Home Community



Note: This is a generalized visualization of a Mobile Home or Manufactured Home community.
The actual construction and configuration may be different for each community.



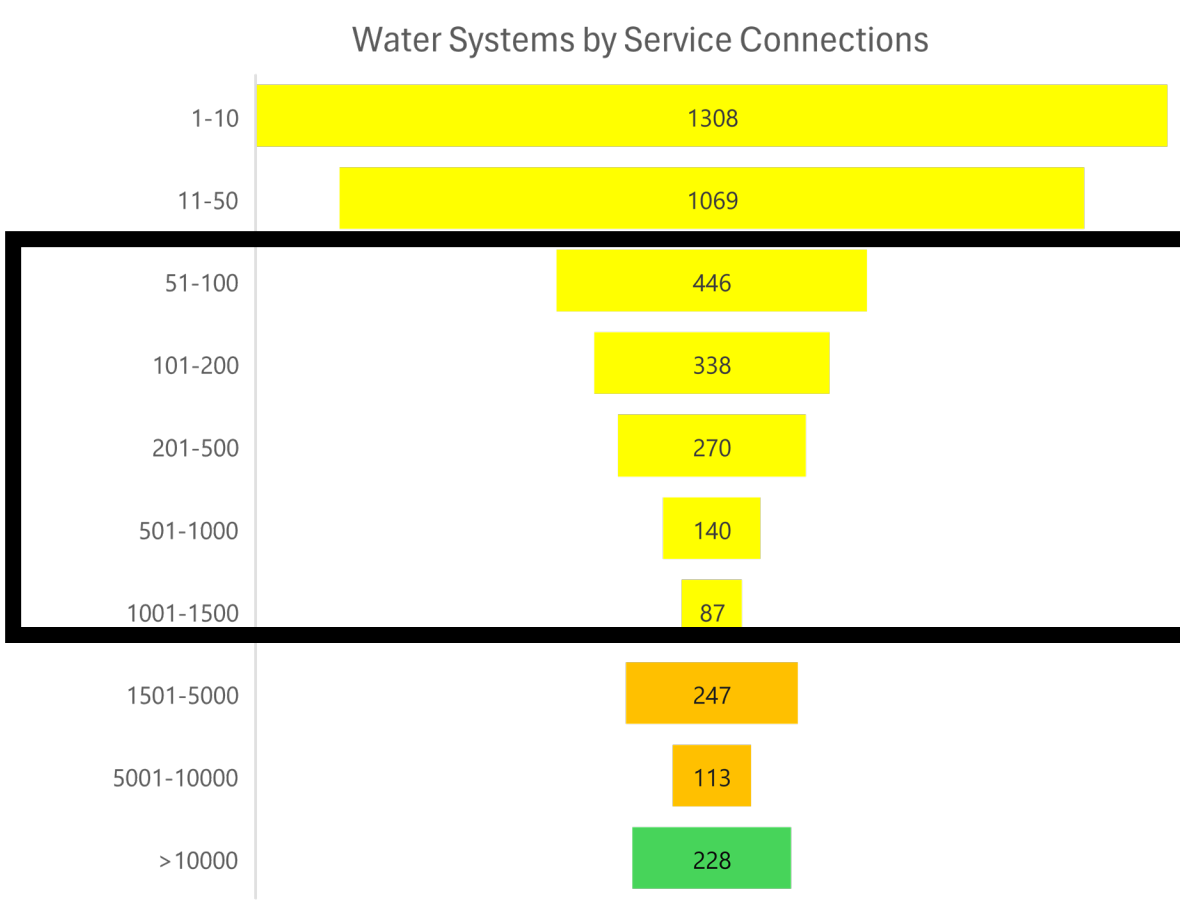
Mobile Home/Manufactured Home Community

- Present unique challenges in some cases.
- The customer portion is sometimes under the surround or “skirt” and cannot be seen without removing a portion of the surround.
- Access – when a community is connected to a water system via a master meter, there have been reported access issues.
  - Work with the owner/manager of the community to gain access or have them provide the information.
- Can consider interpolation (discussed later) for these communities.
  - Contact DDW at ddw-LSLReports@waterboards.ca.gov with a plan to visually inspect a percentage of the community.

Submit your inventory

- Submit to the LSLI Portal at https://lslinventory.waterboards.ca.gov/
- A step-by-step guidance document is available on the homepage
  - Also contains links to videos demonstrating the steps
- Registration required and multi-factor authentication required for login
  - If you encounter issues, please email us ddw-LSLReports@waterboards.ca.gov

Water System Service Connections



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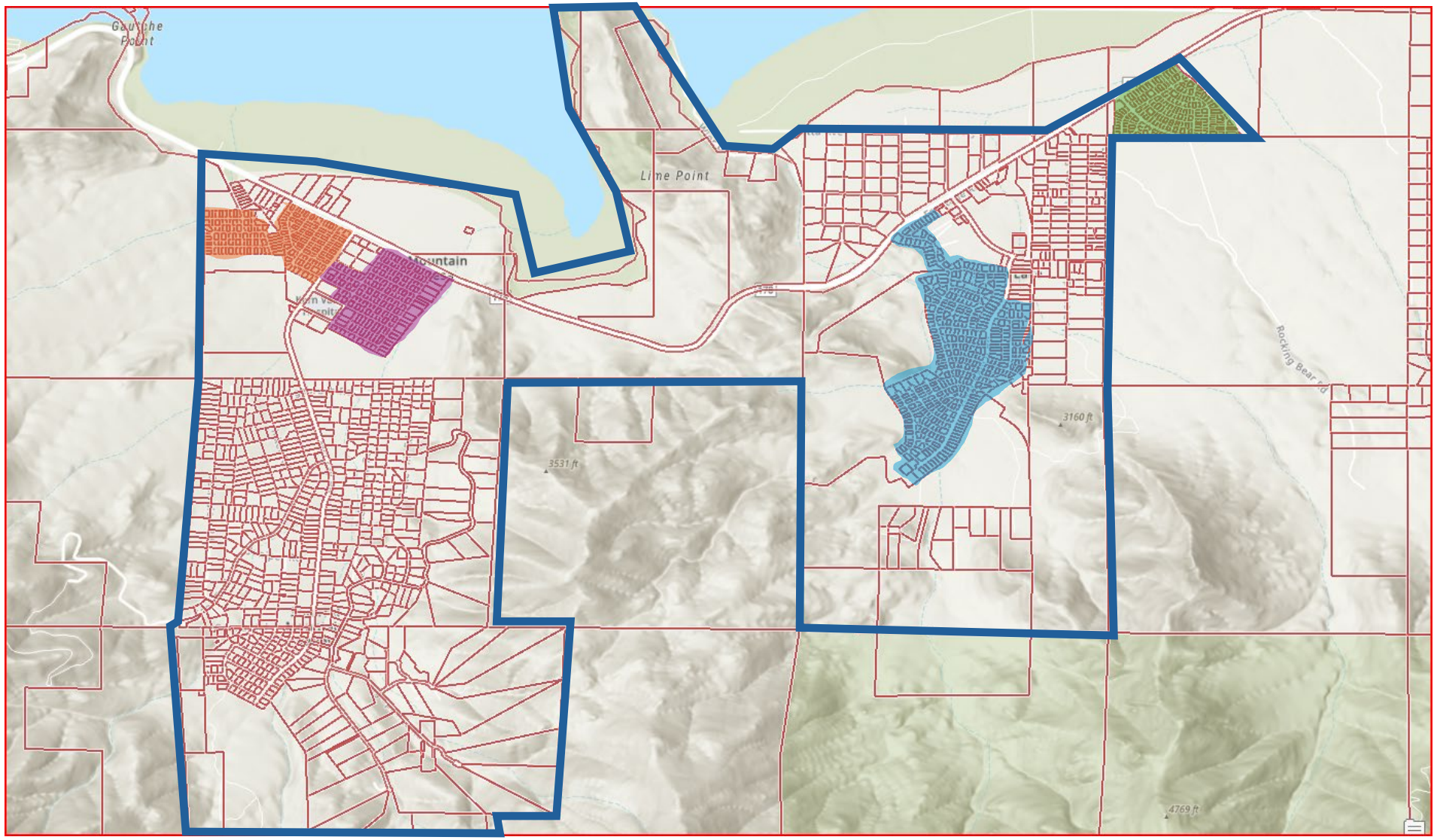
Community & NTNC Water Systems	4286		

System with about 750 connections



Starting your inventory

- First determine the service lines with known materials
  - Review building records, water system replacement records, distribution maintenance records, etc.
  - Use this information to enter information for service lines
    - Always enter the actual material if known
  - If a service line is greater than 4”, it can be entered as “non – lead – other”
    - Be sure to enter the service line size in the inventory
    - Basis of determination is “service line diameter 4 inches or greater”
  - If a service line was installed after 1/1/1986, it can be entered as “non-lead other”
    - Be sure to enter the date the service line was installed
    - Basis of determination is “Installation date is after state or local lead ban”

Starting your inventory (cont)

- After determining your known service lines, this leaves you with service lines with “unknown” material
- Depending on the system size, characteristics, and water system resources, you can use:
  - Use Interpolation – Physically inspect 20% of the unknown service lines
    - The remaining 80% of the lines will be categorized in the inventory as “non-lead-other” with a basis of “Interpolation”
  - Use Stratified Random Sampling
  - Both of these will require you to submit a plan to DDW for review and approval at ddw-LSLReports@waterboards.ca.gov

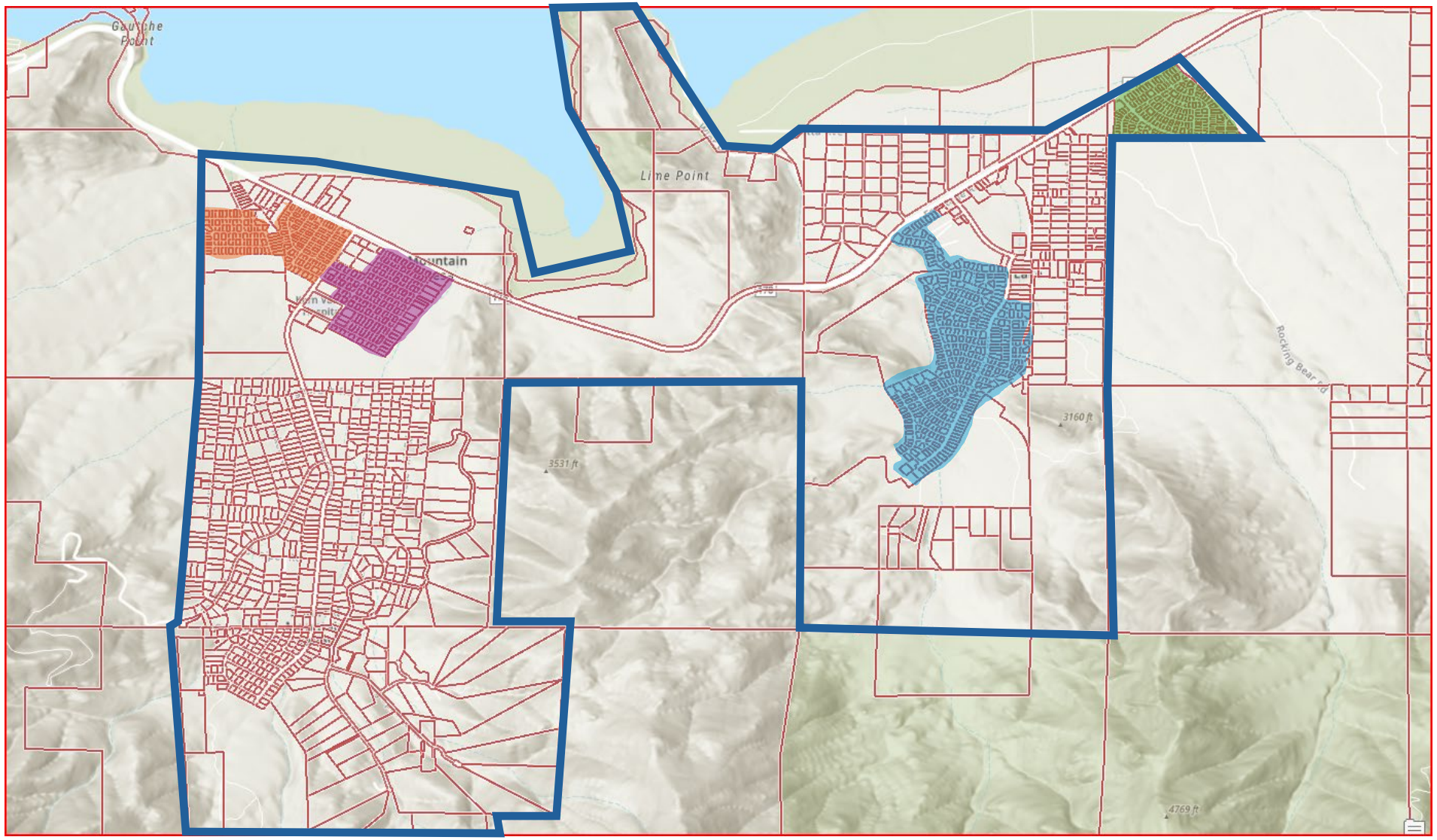
Interpolation

- Physically inspect 20% of all of the unknown service lines
  - The remaining 80% of the lines will be categorized in the inventory as “non-lead-other” with a basis of “Interpolation”
- If you have sub-divisions or tracts built at the same time by the same builder, but do not have the as-built records and they have unknown service line material
  - Propose to DDW a percentage or plan to investigate within the tract since all materials are not likely to change between homes
  - This may help to reduce the number of total physical verifications to be done
  - There can be multiple sub-divisions/tracts in the plan.

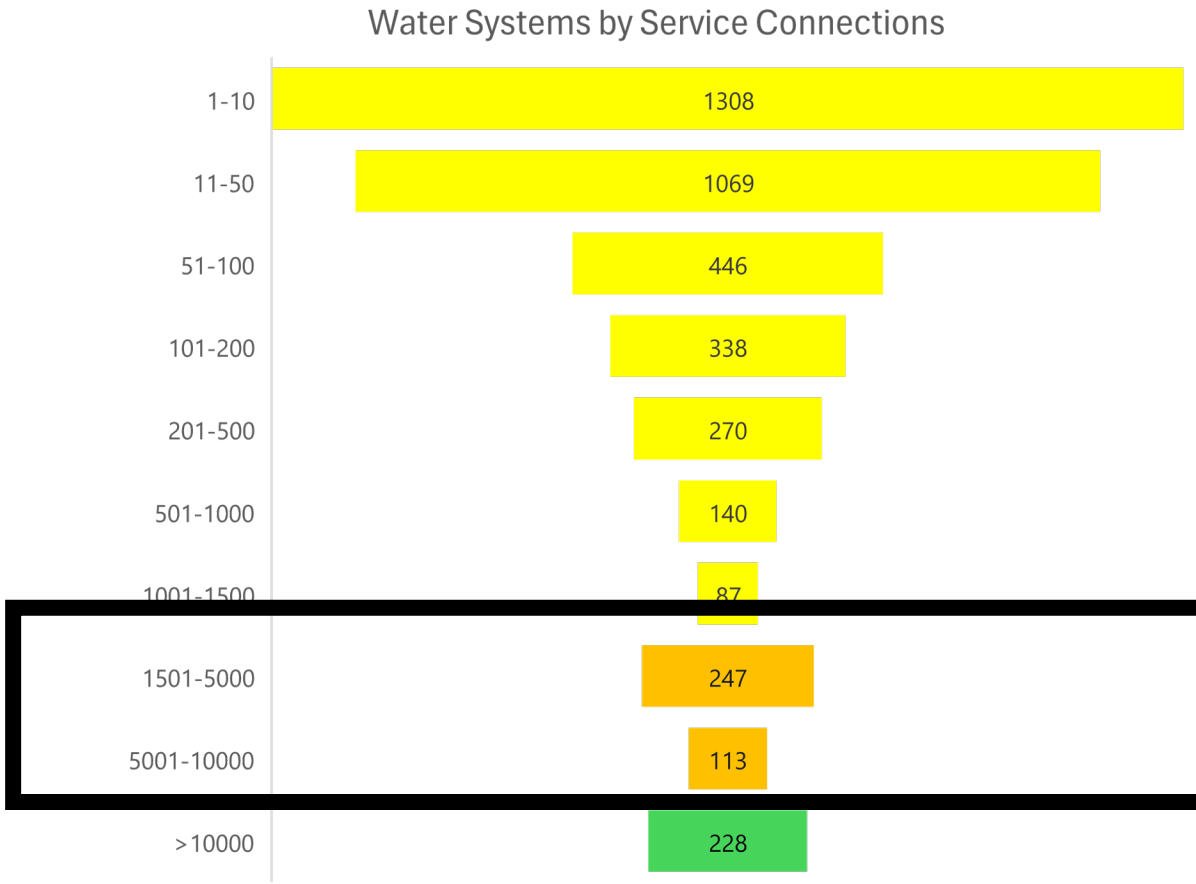
Interpolation (cont)

- Submit a plan to DDW for review and approval at ddw-LSLReports@waterboards.ca.gov
  - Include your water system number in the subject line
- Plan should include:
  - Characteristics of your system
  - Interpolation proposal for the entire system, and/or each sub-division/tract
- Field Investigation Procedure (magnet test, scratch test, visual documentation, etc)
  - Be sure to get and record all of the information about the service line since you've exposed it (actual material, size, etc)

System with about 750 connections



Water System Service Connections



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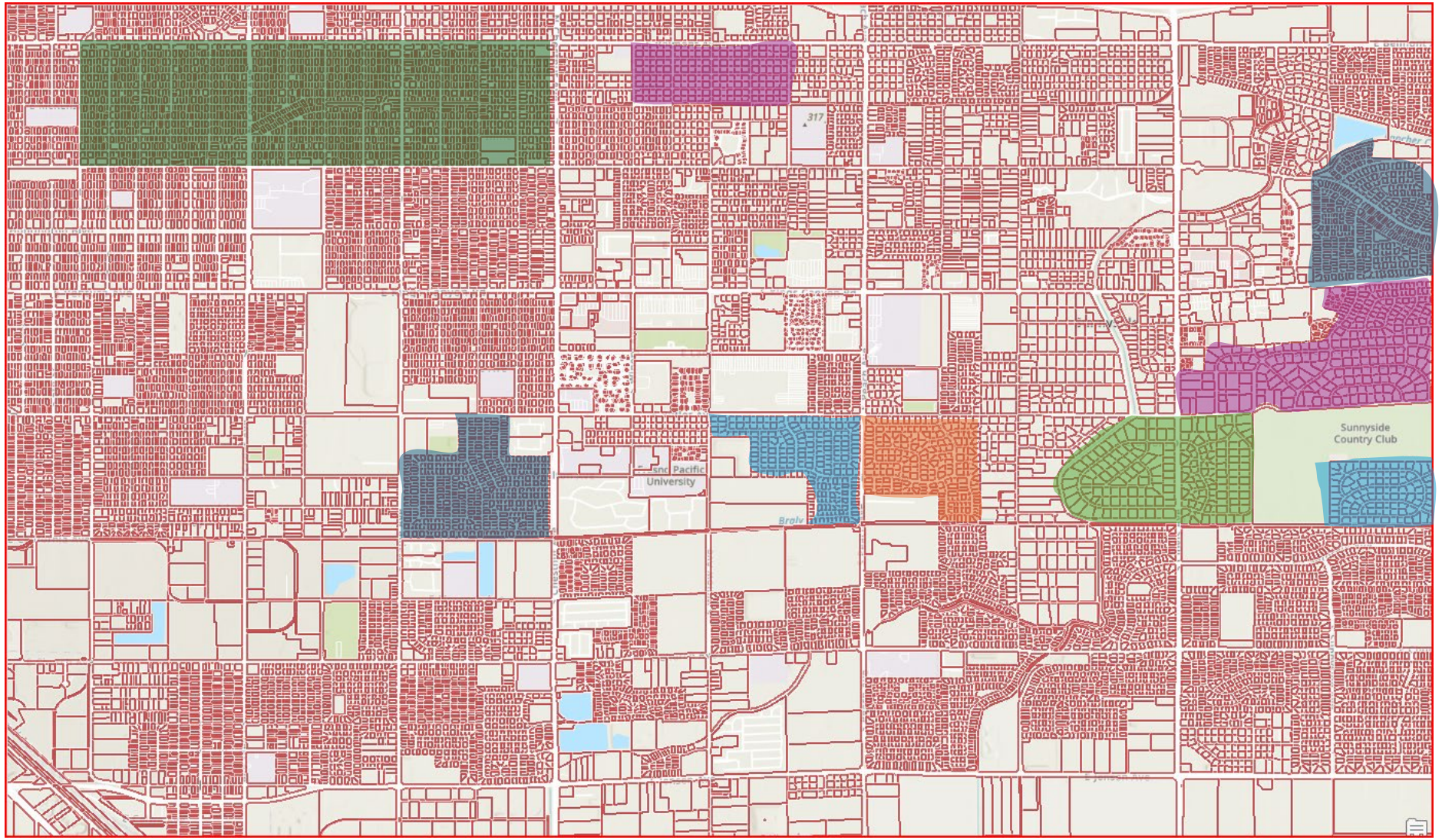
Community & NTNC Water Systems	4286		

Larger water system with sub-divisions (<10K SC)



Starting your inventory and creating a plan

- First determine the service lines with known materials
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    - Be sure to enter the date the service line was installed
    - Basis of determination is “Installation date is after state or local lead ban”

Starting your inventory and creating a plan (cont)

- After determining your known service lines, this leaves you with service lines with “unknown” material
- Depending on the system size, characteristics, and water system resources, you can:
  - Use Interpolation (slide 19) on sub-divisions with the same characteristics if you want. Each sub-division would be treated as an interpolation group
    - Propose a percentage to physically inspect to DDW for each sub-division
    - The remaining lines will be categorized in the inventory as “non-lead-other” with a basis of “Interpolation”
  - Use Stratified Random Sampling on the rest of the water system
  - You will need to submit a plan to DDW for review and approval at ddw-LSLReports@waterboards.ca.gov

Stratified Random Sampling (1,500-10,000 svc conn)

- For systems 1,500-10,000 service connections
  - Determine the year the service line installed or home built for each connection
- Example: 6,050 service connections
  - 1,050 are built after 1/1/1986 leaving 5,000 unknowns
  - Calculate the number of verifications to be done by using a 95% Confidence Level & 5% Margin of Error and 50% Sample Proportion.
  - Use the chart on the right (from EPA) or Sample Size Calculator
  - For 5,000 unknown connections, 357 verifications are required

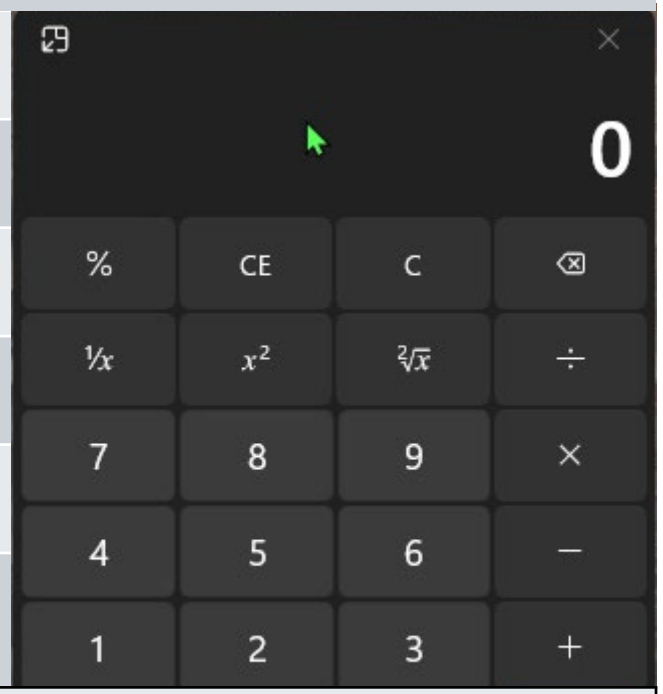
Number of "Unknown" Service Lines*	Number to Physically Verify
Fewer than 1,500	20% of "unknown" lines
1,500	306
1,600	310
1,700	314
1,800	317
1,900	320
2,000	322
2,200	327
2,400	331
2,600	335
2,800	338
3,000	341
3,500	346
4,000	351
4,500	354
5,000	357
6,000	361
7,000	364
8,000	367
9,000	368
10,000	370
15,000	375
20,000	377
30,000	379
40,000	381
60,000	382
90,000	383
225,000 or more	384

Bin/Group/Era based on service line installation

- Lead was found to be used in the 1940's as a result of material shortages due to WWII
  - A separate group should be created for 1940-1949
- It's more likely to find lead in older homes in general
  - Add additional verifications, if resources allow, to service lines dated 1939 and earlier

Stratified Random Sampling

Bin/Group/Era	# of connections	% of total unknown: 5000 (after subtracting post 1986)	357 Total verifications required. Multiply 357 by percentage of unknown for each bin/group/era
Unknown build/install date	500	10%	36
pre 1900	400	8%	29
1900-1939	1150	23%	82
1940-1949	500	10%	36
1950-1970	1200	24%	85
1971-1985	1250	25%	89
Post 1986 (no verification needed)	1050		
Total Unknowns	5000	Total to verify	357



Submit your plan to DDW

- Submit a plan to DDW for review and approval at ddw-LSLReports@waterboards.ca.gov
  - Include your water system number in the subject line
- Plan should include:
  - Characteristics of your system
  - Interpolation proposal for each sub-division/tract (if choosing to 'carve out' sub-divisions/tracts)
  - Stratified Random calculations
- Field Investigation Procedure (magnet test, scratch test, visual documentation, etc)
  - Be sure to get and record all of the information about the service line since you've exposed it (actual material, size, etc)
- List of randomly chosen service lines to be field investigated

Submit your inventory when complete

- Submit to the LSLI Portal at https://lslinventory.waterboards.ca.gov/
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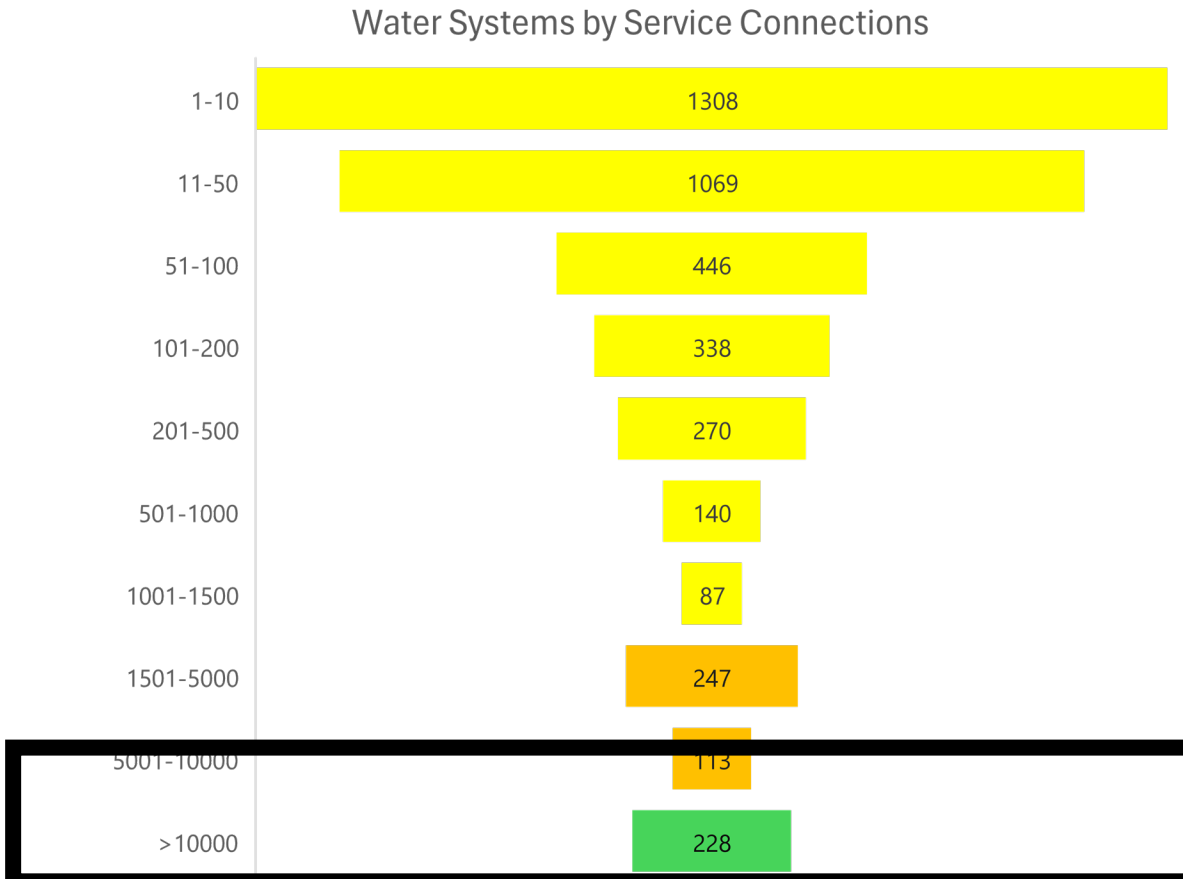
Water System Service Connections



Service Connections	Number of water systems	% of total	
1001-1500			
>10000	228	5.3%	5.0%
Community & NTNC Water Systems	4286		

Starting your inventory and creating a plan

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    - Propose a percentage to physically inspect to DDW for each sub-division
    - The remaining lines will be categorized in the inventory as “non-lead-other” with a basis of “Interpolation”
  - Use Stratified Random Sampling on the rest of the water system
  - You will need to submit a plan to DDW for review and approval at ddw-LSLReports@waterboards.ca.gov

Stratified Random Sampling > 10,000 Svc Conn.

- For systems > 10,000 service connections
  - Determine the year the service line installed or home built for each connection
- Example: 38,500 service connections
  - 2,200 are built after 1/1/1986 leaving 36,300 unknowns
  - Calculate the number of verifications to be done by using a 95% Confidence Level & 5% Margin of Error and 50% Sample Proportion **FOR EACH** group/era/bin
  - Use the chart on the right (from EPA) or Sample Size Calculator for each group/era/bin

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Fewer than 1,500	20% of "unknown" lines
1,500	306
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Bin/Group/Era based on service line installation

- Lead was found to be used in the 1940's as a result of material shortages due to WWII
  - A separate group should be created for 1940-1949
- It's more likely to find lead in older homes in general
  - Add additional verifications, if resources allow, to service lines dated 1939 and earlier

Stratified Random Sampling > 10,000 Svc Conn

Bin/Group/Era	# of connections	Calculate 95% Confidence Level, 5% Margin of Error, 50% Sample Proportion, or use chart
Unknown build/install date	3,800	351
pre 1900	2,500	335
1900-1939	6,000	361
1940-1949	2,300	331
1950-1970	15,700	377
1971-1985	6,000	361
Post 1986 (no verification needed)	2,200	
Total Unknowns	36,300	2,116

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Submit your plan to DDW

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  - Include your water system number in the subject line
- Plan should include:
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  - Interpolation proposal for each sub-division/tract (if choosing to 'carve out' sub-divisions/tracts)
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- Field Investigation Procedure (magnet test, scratch test, visual documentation, etc)
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- List of randomly chosen service lines to be field investigated

Submit your inventory >10,000 Svc Conn.

- Register at the LSLI Portal at https://lslinventory.waterboards.ca.gov/
- Multi-factor authentication required for login
  - If you encounter issues, please email us ddw-LSLReports@waterboards.ca.gov
- A step-by-step guidance document is available on the homepage
  - Also contains links to videos demonstrating the steps
- For systems with > 10,000 Service Connections, email ddw-LSLReports@waterboards.ca.gov when your inventory is complete
  - You will be given special instructions on submitting your inventory

Next steps – All water systems

- Public notification
  - IF your inventory contains any lead, galvanized requiring replacement (GRR), or UNKNOWN service lines, you must notify those customers within 30 days of submitting your inventory, and annually thereafter until their entire service connection is no longer lead, GRR, or unknown.
  - Also needs to be provided to any new customers at the time of service initiation.
  - Annual reporting to DDW by July 1st that notification was done.

Next steps – All water systems

- Inventory updates
  - If ALL of your service lines have been physically verified, and are non-lead, no updates are needed.
  - If any alternative method was used to build your inventory (interpolation, stratified random, etc), then an updated inventory will be due as the actual service line materials are determined during normal operations (line repairs, replacements, etc).
    - **Note: per implementation guidance from EPA (released April 2024), no longer required as part of the LCRR, but IS in the draft LCRI. Our recommendation is to update your inventory during normal operations since updates to DDW are likely to be required in the future.

Next steps – All water systems

- Public accessibility
  - The inventory must be made available to the public
  - Systems serving more than 50,000 people must post the inventory online
- For water systems with no lead, galvanized requiring replacement, or unknown service lines, a written statement declaring that the distribution system contains no lead or galvanized requiring replacement service lines may be used in lieu of posting the entire inventory.
  - Templates available on DDW's LCR website
- DDW will be posting inventory data online as submitted to us

Final thoughts

- Please contact DDW's LCRR Unit if you have any questions ddw-LSLReports@waterboards.ca.gov
- DDW LCR Website: https://www.waterboards.ca.gov/lead-copper-rule/water_system_resources.html
- For a more one-on-one discussion, please join one of our office hours
  - Every Wednesday 9am-10am and Thursday 2pm-3pm
  - Sign up at https://form.jotform.com/233597605893067
  - The sessions may have more than one water system in attendance at a time
  - They are non-structured, and you can ask any question and the LCRR Unit team will answer, or get back to you.