1,2,3-Trichloropropane (1,2,3-TCP)

Maximum Contaminant Level (MCL) Development Process

State Water Resources Control Board (State Water Board)
Division of Drinking Water

Public Workshop

July 20, 2016

Purpose of Meeting

- Overview of 1,2,3-Trichloropropane (1,2,3-TCP)
- Explain 1,2,3-TCP MCL development process
- Present preliminary staff recommendation for 1,2,3-TCP MCL
- Provide opportunity for discussion

This is not a formal public comment period

1,2,3-TCP - History and Background

1,2,3-Trichloropropane – What is it?

- Was used as industrial solvent and for degreasing
- Was an ingredient in soil fumigants widely used for many decades
- Moves to groundwater aquifer w/little soil adsorption

1,2,3-TCP - History and Background

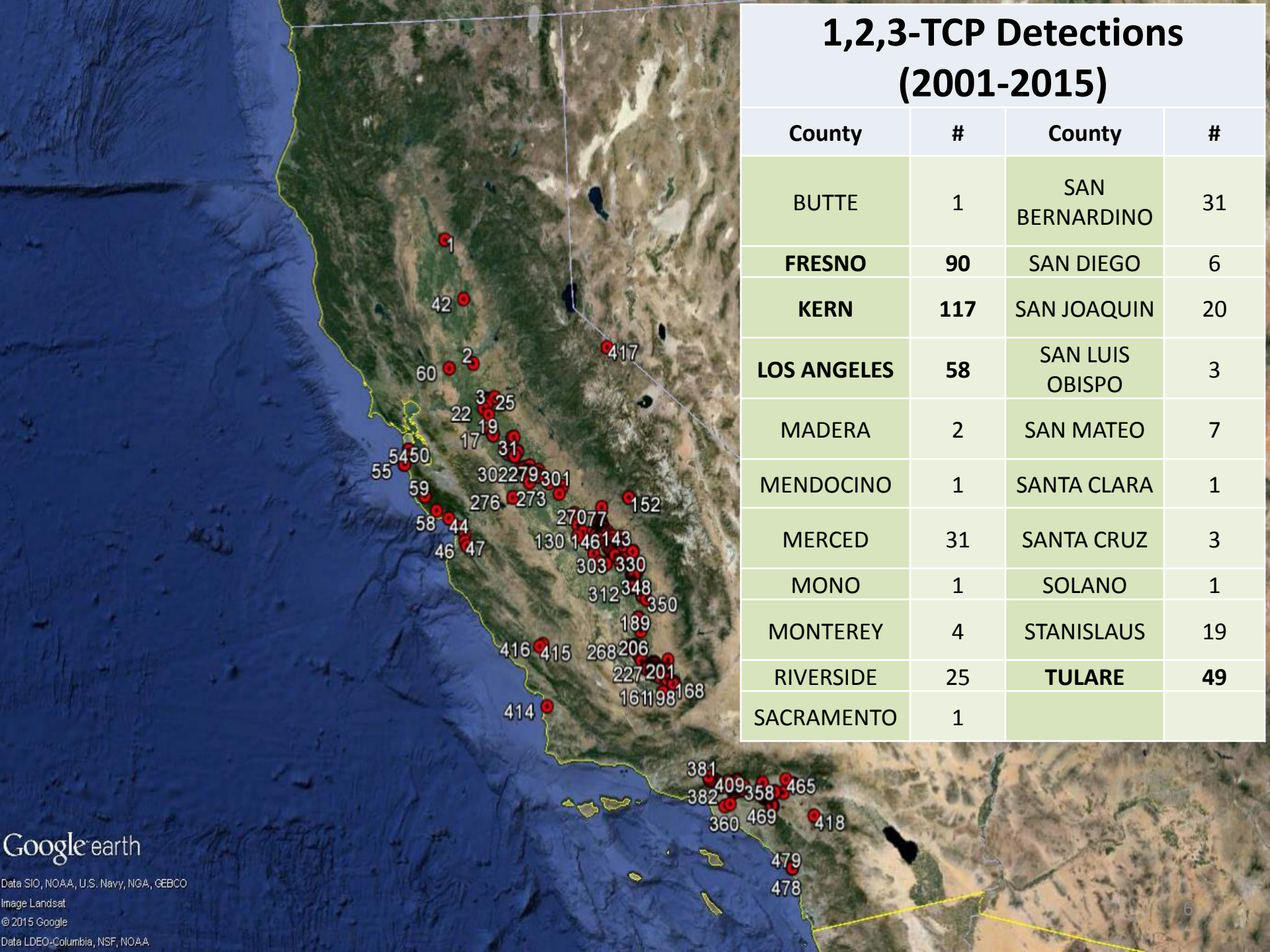
Previous Monitoring

- California Unregulated Chemical Monitoring Rule (UCMR) – January 2001-2003
- Federal UCMR3 May 2012-2015
- Some water systems continued to monitor for 1,2,3-TCP voluntarily
- Laboratory reporting limits varied

1,2,3-TCP Occurrence Data

- **2001-2015 Occurrence Data**:
  - **471 wells with confirmed detections above 5 parts per trillion (ppt)**
  - Range of Detections: **5 ppt to >10,000 ppt**

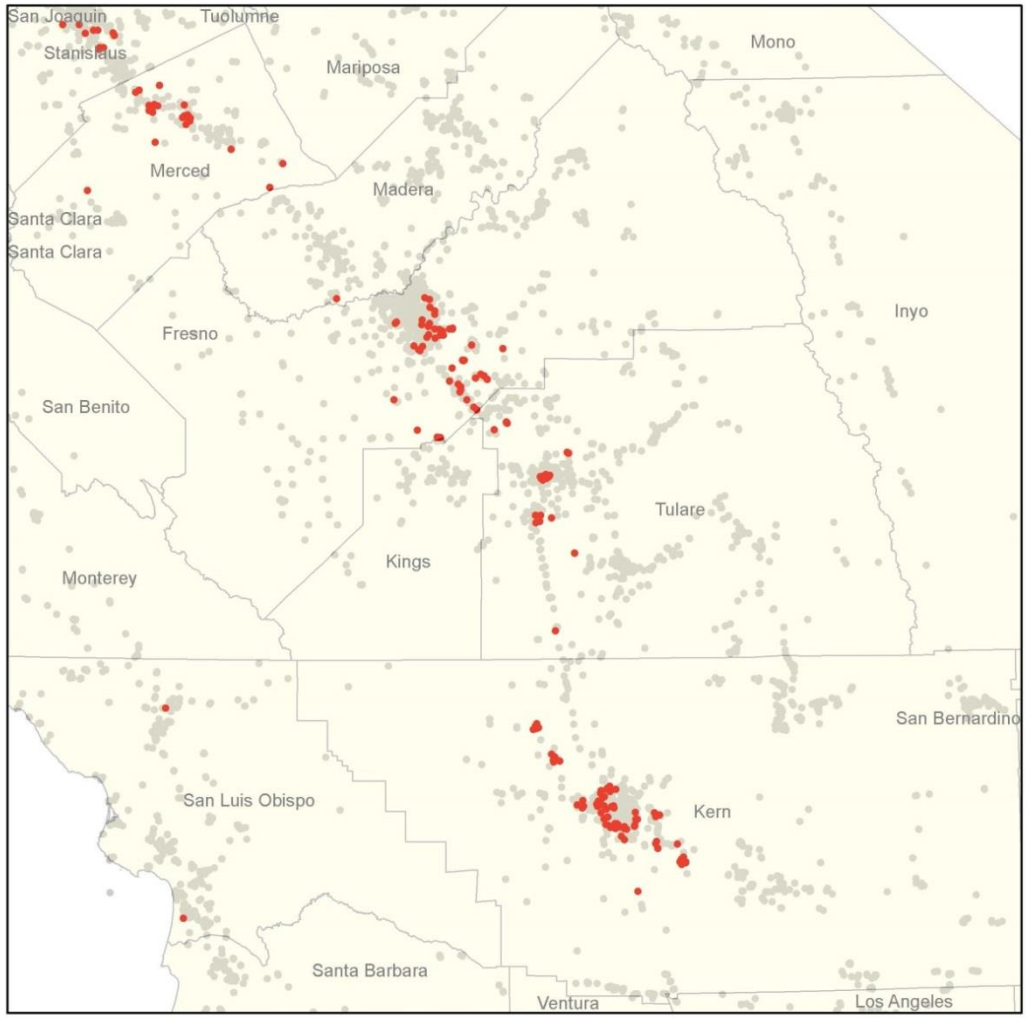
    (current laboratory reporting limit is 5 ppt)
- **Vast majority in groundwater**



1,2,3-TCP Detections (2001-2015)

County	#	County	#
BUTTE	1	SAN BERNARDINO	31
FRESNO	**90**	SAN DIEGO	6
KERN	**117**	SAN JOAQUIN	20
LOS ANGELES	**58**	SAN LUIS OBISPO	3
MADERA	2	SAN MATEO	7
MENDOCINO	1	SANTA CLARA	1
MERCED	31	SANTA CRUZ	3
MONO	1	SOLANO	1
MONTEREY	4	STANISLAUS	19
RIVERSIDE	25	**TULARE**	**49**
SACRAMENTO	1		

Sources with Average 1,2,3-TCP Concentration above 5 ppt (2001-2015)



1,2,3-TCP Concentrations Above 5 ppt

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Legend
- 1,2,3 Trichloropropane Detection above 5 ppt
- Drinking Water Wells

0 5 10 20 30 40 Miles

Average Concentration of 1,2,3-TCP Based on average of all samples for each well	*Number of wells impacted at each concentration*
150 ppt	20
70 ppt	60
35 ppt	104
15 ppt	174
7 ppt	245
5 ppt	**289**

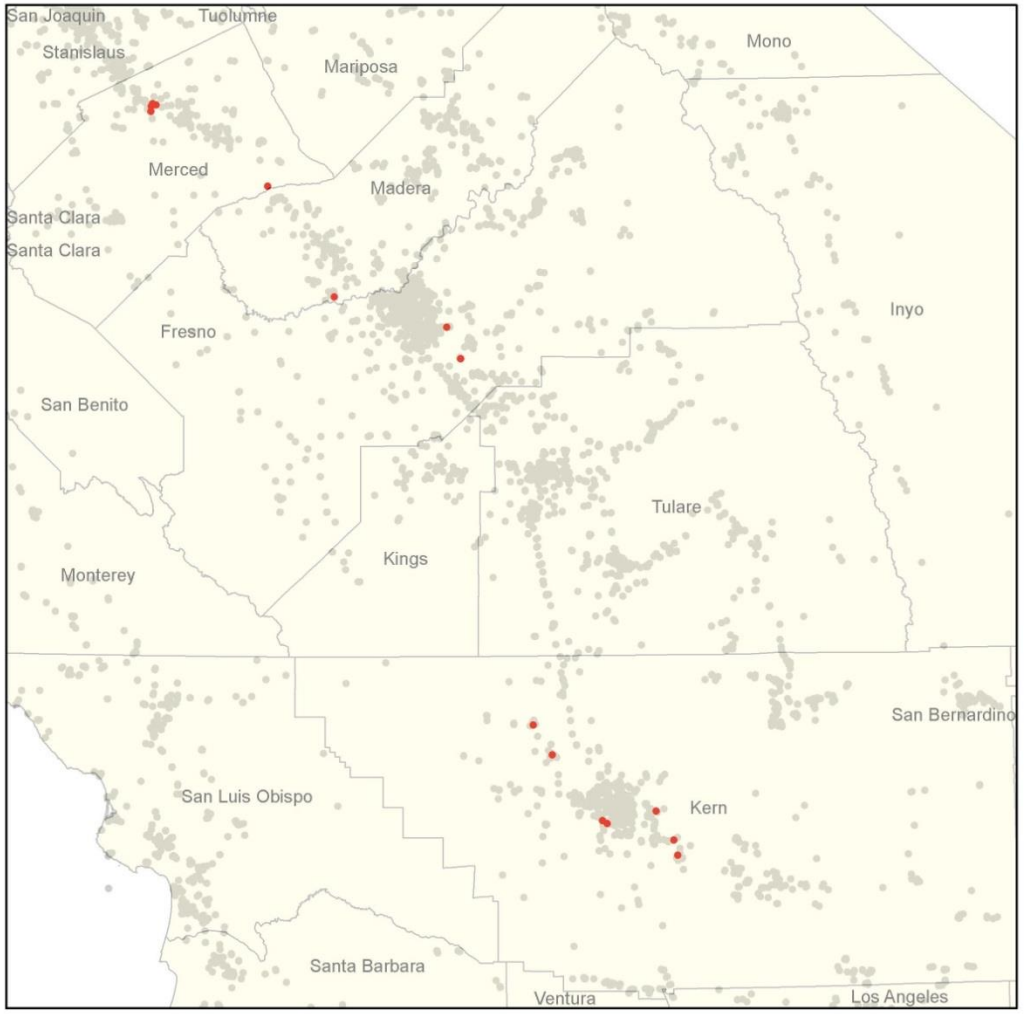
1,2,3-TCP = Trichloropropane
ppt = parts per trillion

Sources with Average 1,2,3-TCP Concentration above 150 ppt

(2001-2015)

1,2,3-TCP Concentrations Above 150 ppt

Draft



Legend

- 1,2,3 Trichloropropane Detection above 150 ppt
- Drinking Water Wells

0 5 10 20 30 40 Miles

Average Concentration of 1,2,3-TCP Based on average of all samples for each well	*Number of wells impacted at each concentration*
150 ppt	**20**
70 ppt	60
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1,2,3-TCP = Trichloropropane
ppt = parts per trillion

1,2,3-TCP Health Effects

- **1,2,3-TCP is a Carcinogen (cancer causing chemical)**
- **Drinking water**
  - Your body absorbs much or all of 1,2,3-TCP in the drinking water
- **Breathing the air in your house**
  - Your body absorbs some of the trace levels of 1,2,3-TCP that can be found in air in your house

1,2,3-TCP Health Effects

For any environmental contaminant, your exposure depends on:

- The length of time that you have been exposed (e.g., days, months, years)
- **Acute exposure:** short term (hours, days, weeks)
- **Chronic exposure:** long term (many months, years or lifetime)

Public Health Goal (PHG)

- The PHG of 0.7 ppt is based on chronic (long-term) exposure:
  - drinking 2 liters of water per day over a lifetime (70 years)
  - breathing air containing 1,2,3-TCP over a lifetime
- PHGs are **not regulatory requirements** and can be set lower than detection limits or treatment capability

1,2,3-TCP – PHG vs MCL

1,2,3-TCP PHG	1,2,3-TCP MCL
OEHHA, 2009	Set by State Water Board
PHG = 0.7 ppt	MCL has not been established
Not enforceable	Regulatory and enforceable
Does not consider technological or economic feasibility	Must be technologically and economically feasible.

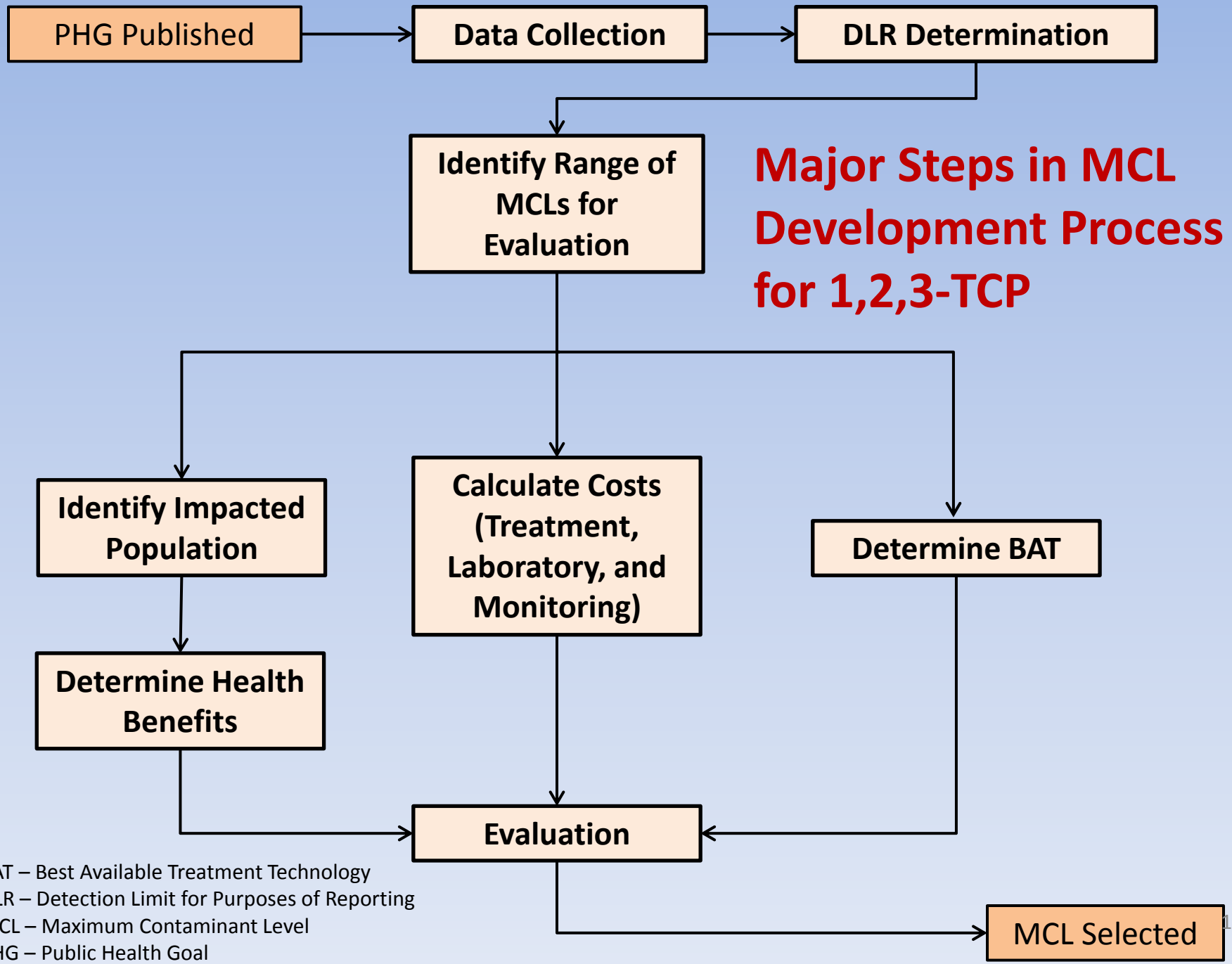
1,2,3-TCP – Current Notification Recommendations

- **State Water Board Notification Level – 5 ppt**
  - The water system informs its customers and consumers regarding 1,2,3-TCP presence and health concerns
  - Uses Consumer Confidence Report, separate mailing, or other

1,2,3-TCP MCL Development Process

Health and Safety Code Section 116365:

State Water Board must set the MCL at a level that is as close as feasible to the corresponding public health goal **placing primary emphasis on the protection of public health**, and that, to the extent **technologically and economically feasible…**

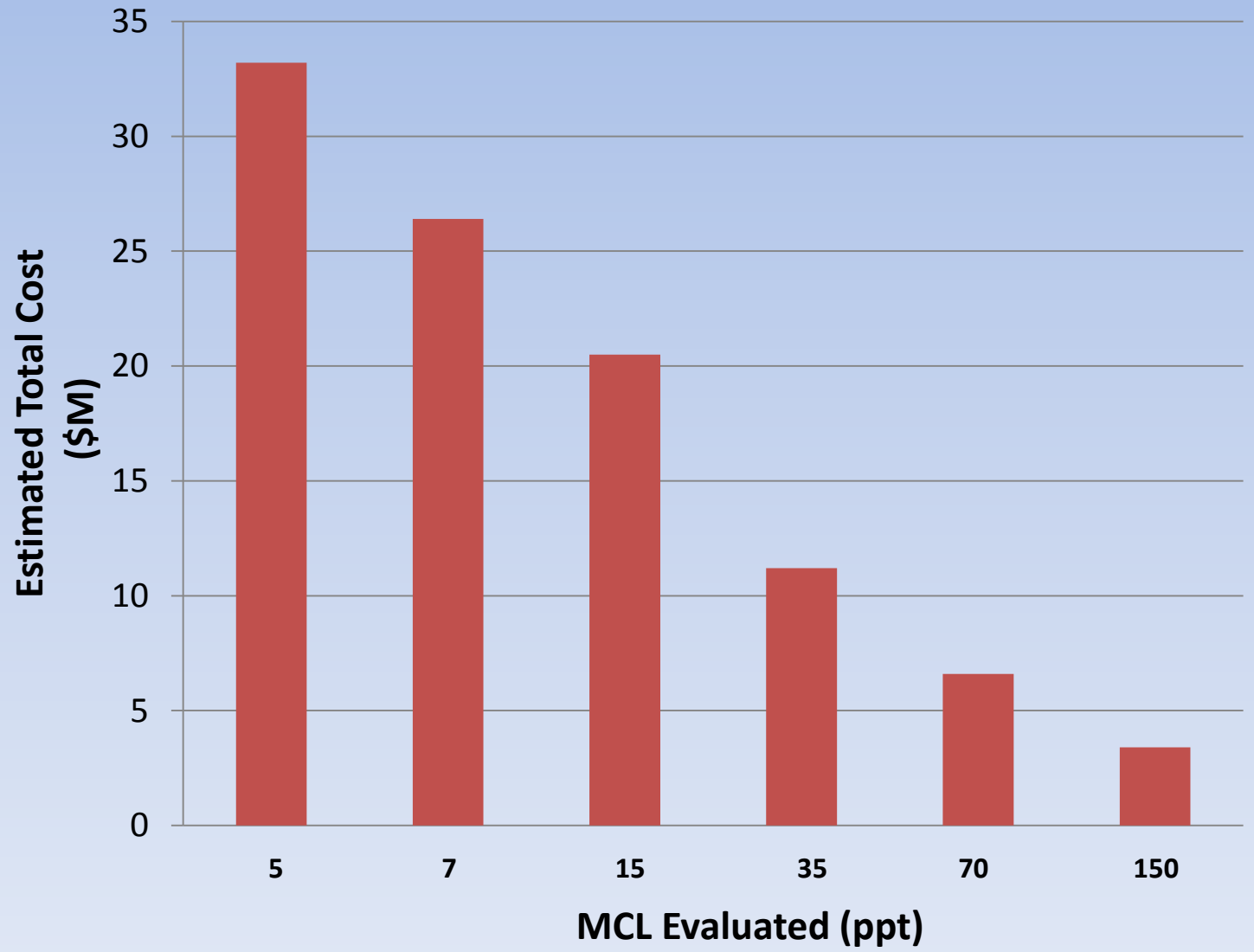


BAT – Best Available Treatment Technology
DLR – Detection Limit for Purposes of Reporting
MCL – Maximum Contaminant Level
PHG – Public Health Goal

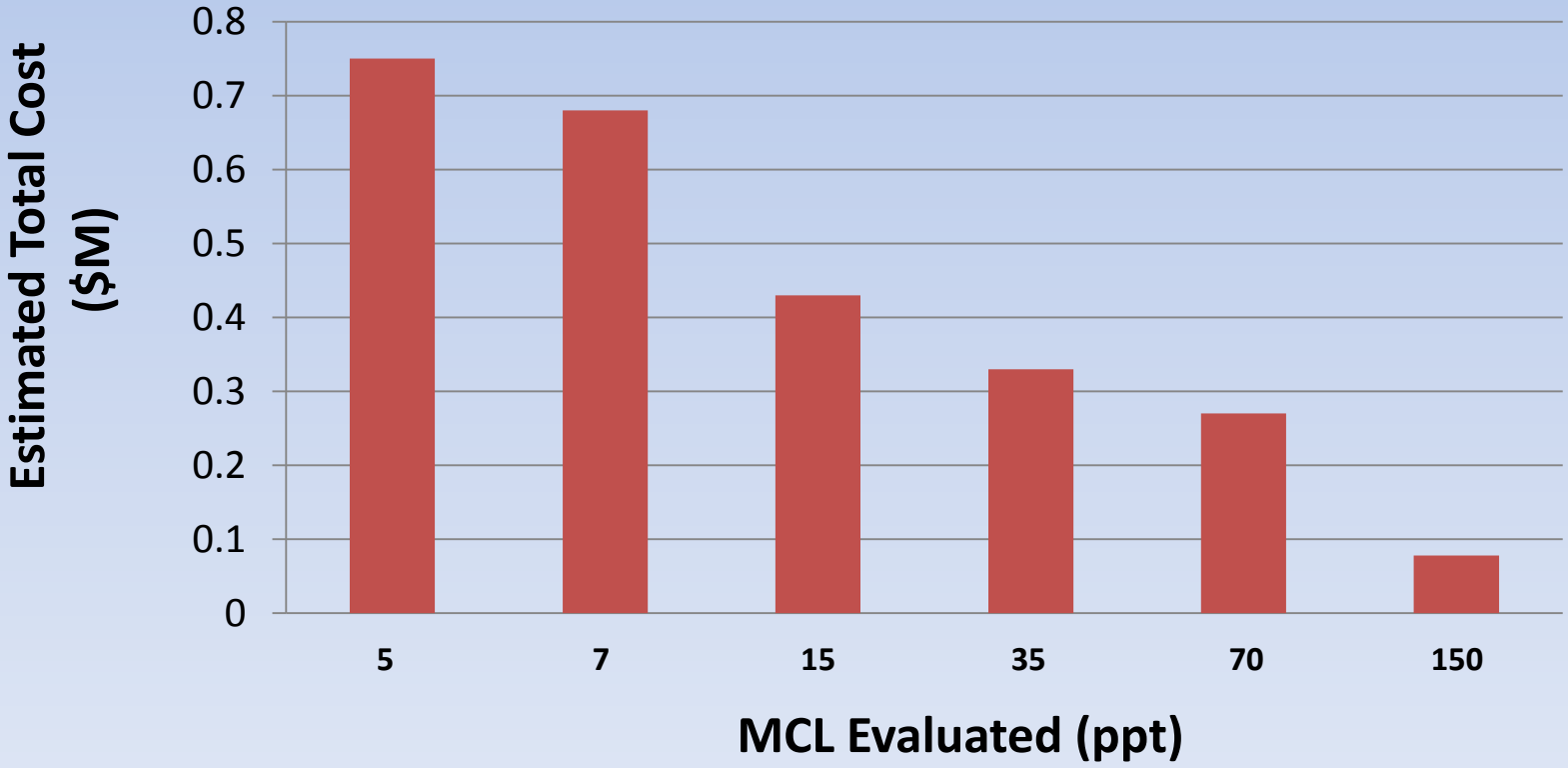
1,2,3-TCP MCL Development – Additional Requirements for Rulemaking

- **External Scientific Peer Review**
  - Health and Safety Code 57004
  - http://www.waterboards.ca.gov/water_issues/programs/peer_review/
- **Compliance with CEQA**
- **Major Regulations Analysis**
  - State Administrative Procedure Act requirement for any proposed regulation with economic impact > $50 million

DRAFT Total Annual Cost at 1,2,3-TCP MCL Review Points (Large Systems only)



DRAFT Total Annual Cost at 1,2,3-TCP MCL Review Points (Small Systems only)



Lifetime Cancer Risk For 1,2,3-TCP

MCL Review Point	Theoretical Increase in Lifetime Cancer Risk*	Estimated Population Protected by MCL at this level**	Total Annual Cost (in Million $)
0.7 (PHG)	1 in 1,000,000	More than 928,921	Unknown
5 (DLR)	1 in 142,857	928,921	$34M
7	1 in 100,000	754,503	$27M
15	1 in 47,619	601,556	$21M
35	1 in 20,000	342,501	$11M
70	1 in 10,000	190,634	$7M
150	1 in 4,673	94,826	$4M

* 2 liters of water per day for 70 years

** Population associated with known contaminated sources

Preliminary Staff Recommendation for 1,2,3-TCP MCL = 5 ppt

Preliminary Staff Recommendation – 1,2,3-TCP MCL

1,2,3-TCP MCL = **5 ppt** is based on the following considerations:

1. **Technical Feasibility:**
   - ELAP-Certified Laboratories – Analytical Detection Limit of 5 ppt
   - The standard treatment for 1,2,3-TCP (Granular Activated Carbon) is proven, cost-effective and reliable down to 5 ppt
2. **Economic Feasibility**
3. **Protection of Public Health:**
   - 5 ppt would result in a theoretical cancer risk of less than 1/100,000
   - GAC reduces inhalation exposure (not addressed by bottled water)

1,2,3-TCP MCL – Draft Regulation

- **Compliance**
  - Based on Running Annual Average (RAA)
  - May be out of compliance before collecting 4 quarterly samples
- **Monitoring**
  - Initial quarterly monitoring for 1 year – starts **January 2018**

1,2,3-TCP MCL – Draft Regulation

- **Monitoring (continued)**
  - Initial quarterly monitoring
  - Subsequent routine monitoring (every 3 years)
  - If 1,2,3-TCP is detected **at or above** the MCL
    - More frequent monitoring is then required to determine compliance with MCL
    - Consistent w/current regulations for Synthetic Organic Chemicals

1,2,3-TCP MCL – Draft Regulation

- **Consideration of Grandfathering of Sample Results for Initial Monitoring**
  - Sampling performed prior to MCL effective date may be eligible for use of initial monitoring

1,2,3-TCP MCL – Draft Regulation

- **Granular activated carbon (GAC) is expected to be the Best Available Technology (BAT)**
- **Consumer Confidence Report**
  - New language for 1,2,3-TCP health effects
  - New language for sources of 1,2,3-TCP contamination

1,2,3-TCP MCL – Draft Regulation

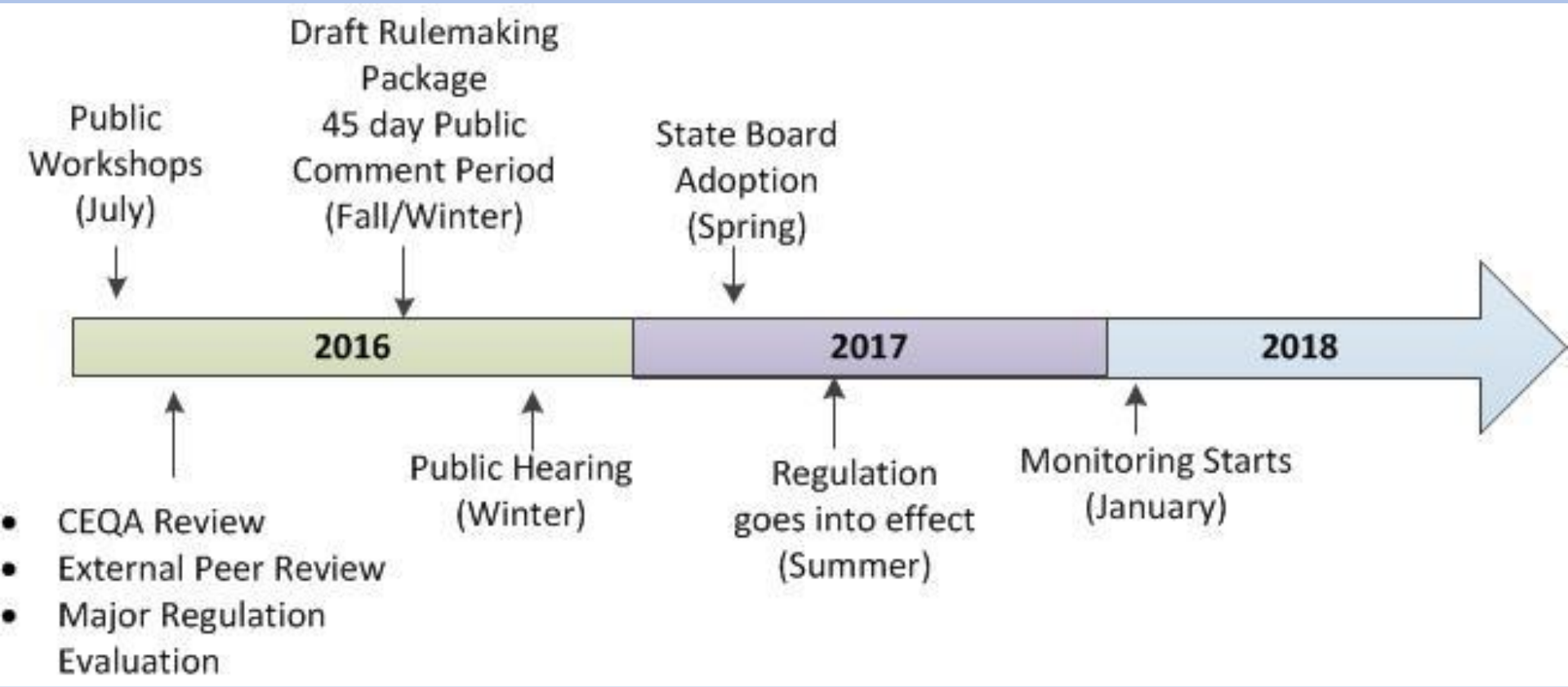
Well without treatment

GAC treatment system

1,2,3-TCP MCL – Some Implementation Options

- **Options for a well that is out of compliance:**
  - Provide treatment
  - Drill new well
  - Remove the well from use
  - Purchase water from a nearby utility
  - Consolidate with a nearby larger water system
  - Blend contaminated water with a clean source to reduce overall concentrations of 1,2,3-TCP to below MCL

1,2,3-TCP MCL – Schedule
(Dates may change)



Contact Information

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State Water Board Office of Public Participation

- Español: Ms. Mandy Roman (916) 341-5265

State Water Board Funding Resources

- **Division of Financial Assistance**,

  Drinking Water State Revolving Fund

  http://www.waterboards.ca.gov/drinking_water/services/funding/SRF.shtml

- **Funding application**:

  https://faast.waterboards.ca.gov/

- **California Financing Coordinating Committee (CFCC)**:

  http://cfcc.ca.gov/funding_fairs.htm

Resources Cont'd

- **Website:**
  http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/123TCP.shtml
- **Subscribe to Email List:**
  - Go to http://www.waterboards.ca.gov/resources/email_subscriptions/
  - Select "State Water Resources Control Board"
  - Fill in contact information with your email address and full name
  - Select category "Drinking Water" and then select the first box "Drinking Water Program Announcements"
  - You may select other categories as well
  - Click "subscribe"
- **Drinking Water Watch:**
  https://sdwis.waterboards.ca.gov/PDWW/

Questions