Irrigated Lands Regulatory Program (ILRP)

Drinking Water Well Monitoring

Frequently Asked Questions

Updated March 2020

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List of Acronyms & Abbreviations

Acronyms/Abbreviations	Definitions
APN	Assessor Parcel Number
CDPH	California Department of Public Health
Central Valley Water Board *or* Board	California Regional Water Quality Control Board, Central Valley Region
Coalition(s)	Third-party coalition group(s)
ELAP	Environmental Laboratory Accreditation Program
EPA	Environmental Protection Agency
General Order *or* Order	Waste discharge requirements *or* Permit
GeoTracker	State Water Board's groundwater database
ILRP	Irrigated Lands Regulatory Program
MCL	Maximum Contaminant Level
mg/L	Milligrams per Liter
State Water Board	State Water Resources Control Board

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Updated March 2020

The information contained in this Frequently Asked Questions is for general guidance purposes only and may be revised to answer new questions.

Overview

Background

On 7 February 2018 the State Water Board revised the General Order (Order) for the Eastern San Joaquin River Watershed. The revised Order includes a new drinking water well monitoring requirement. Beginning January 2019, East San Joaquin Water Quality Coalition members were required to monitor drinking water wells on their enrolled parcels for nitrogen. **All** coalitions will be required to start monitoring in accordance with the following schedule. The year indicates when the coalition members must begin monitoring.

2020

- Tulare Lake Basin Coalitions

2021

- Westside San Joaquin
- San Joaquin & Delta
- Grassland Drainage Area

2022

- Sacramento Valley
- California Rice Commission
- Western Tulare Lake Basin

Purpose

The purpose of this monitoring is to identify drinking water wells that have nitrate concentrations exceeding the State and Federal standards for safe drinking water, and notify well users of the potential for human health risks. <www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations#Inorganic>

1. What is considered a drinking water well?

A drinking water well is a groundwater well that is used to provide water for cooking/drinking.

2. Who is required to sample?

Coalition members or associated landowners with drinking water wells on enrolled parcels are required to sample.

3. When do I start sampling?

All coalitions will be required to start monitoring in accordance with the following schedule. The year indicates when the coalition members must begin monitoring.

2020

- Tulare Lake Basin Coalitions

2021

- Westside San Joaquin
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- Sacramento Valley
- California Rice Commission
- Western Tulare Lake Basin

Do I have to sample?

4. What if I don't use my drinking water well?

If you do not use your well to provide drinking water, you will not be required to monitor for nitrogen. You must, however, keep records (e.g., photos/bottled water receipts) establishing that the well is not used for drinking water.

To stop further sampling reminders, it is recommended that you contact Board staff to inform them of your exemption from monitoring your well.

5. Why do I have to sample my drinking water well?

Coalition members who have drinking water wells on their enrolled parcels, are required by their General Order to test for nitrate + nitrite as nitrogen.

Copies of the General Orders can be found on the ILRP's Regulatory Information & Adopted Orders webpage.
<www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/regulatory_information/>

6. Which drinking water well must be sampled?

All drinking water wells that are located on parcels enrolled under an ILRP third-party coalition must be sampled.

7. I am a coalition member who is leasing an enrolled parcel, but I don't have access to the drinking water well. How do I fulfill the monitoring requirement?

If you don't have access to the drinking water well, you are required to notify the landowner of the new monitoring requirements. The landowner is responsible for completing the drinking water well monitoring.

8. Do I have to sample my drinking water well if it was sampled previously?

You may submit drinking water well sampling results up to five years prior to your coalition's drinking water well monitoring start date as long as the nitrogen sampling 1) was completed using the EPA approved methods and 2) was completed by an ELAP laboratory certified for testing nitrate + nitrite as nitrogen. The data will need to be submitted into GeoTracker, which you can work with an ELAP laboratory to complete.

The laboratory will require you to have a completed Drinking Water Well Member Information Form that can be found online or is available upon request from Board staff. <www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/drinking_water/dw_member_info.pdf>

9. Do I have to sample my drinking water well if I have a filter or treatment system?

Yes, you must sample your drinking water well even if you are using a filter or treatment system. Samples should be collected from a point nearest the well head and before any water treatment system. This will help identify if treatment specifications are being met if the treatment system was installed to treat for excess nitrogen. Please note, nitrogen concentration is only one factor that must be evaluated in ensuring an appropriate functioning treatment system.

10. Do I have to sample my well if I provide bottled water or vended water for drinking and cooking?

No, you do not have to sample your well, but you must keep records (e.g., photos/bottled water receipts) establishing that the well is not used to provide water for drinking or cooking.

Labs, GeoTracker, Latitude & Longitude

11. What do I have to sample for?

Coalition members must sample for **nitrogen**, using EPA approved methods that measure **nitrate + nitrite as nitrogen**.

12. Where do I find an ELAP certified laboratory?

You can find a list of ELAP certified laboratories on the ILRP's Drinking Water Well Monitoring webpage. It is also available upon request from Board staff. <www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/drinking_water/dw_elap_labs_list.pdf>

Remember, ELAP certified laboratories must be used when analyzing drinking water well samples. When selecting an ELAP certified laboratory, make sure to verify that they can analyze your well sample for nitrate + nitrite as nitrogen and that they can upload data to GeoTracker.

13. How much will this cost?

The laboratory will be able to provide you with specific costs associated with analyzing your drinking water well sample. (Please note, the cost may be higher if you need the laboratory to sample your well for you.)

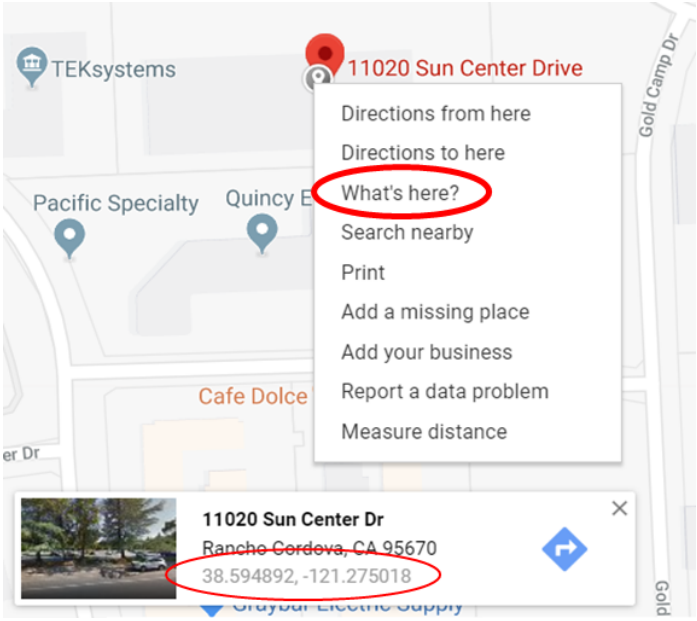
14. What is GeoTracker?

GeoTracker is a statewide database used to store publicly available groundwater data; however, the public is only able to see nitrogen concentrations associated with an APN.

Each drinking water well will have a GeoTracker account that is set up by the ELAP certified laboratory. The account has a unique identification number called a Global ID#. It is important to keep track of this Global ID# in order to maintain a history of the sample results associated with the corresponding drinking water well.

15. How do I find the latitude and longitude of my well using Google Maps?

While it is not required, it would be helpful to provide latitude and longitude information on your Drinking Water Well Member Information Form. Latitude and longitude can be found by using a computer or cell phone.



On a computer

Using Google Maps, search for the address the drinking water well is located on. Once the address is displayed on the map, using your mouse, right-click the location pin and select “What’s here?” A display box should appear near the bottom of the screen containing the latitude and longitude.

In this case the results are:

latitude = 38.594892,

longitude = -121.275018

On a cell phone

Using Google Maps, drop a location pin (by placing a finger on the map and holding in place) where the drinking water well is located. When a “Dropped pin” box comes up at the bottom of the screen, click on the box and scroll down to the location pin symbol for latitude and longitude information.

How to Sample

16. Who must collect the drinking water well sample(s)?

Drinking water well samples must be collected by someone who has knowledge and training in proper sampling methods, and chain of custody and quality assurance/quality control protocols. The individual collecting the sample, and all others that handle the sample, must sign a laboratory chain of custody form, in which the coalition member/landowner must maintain a copy.

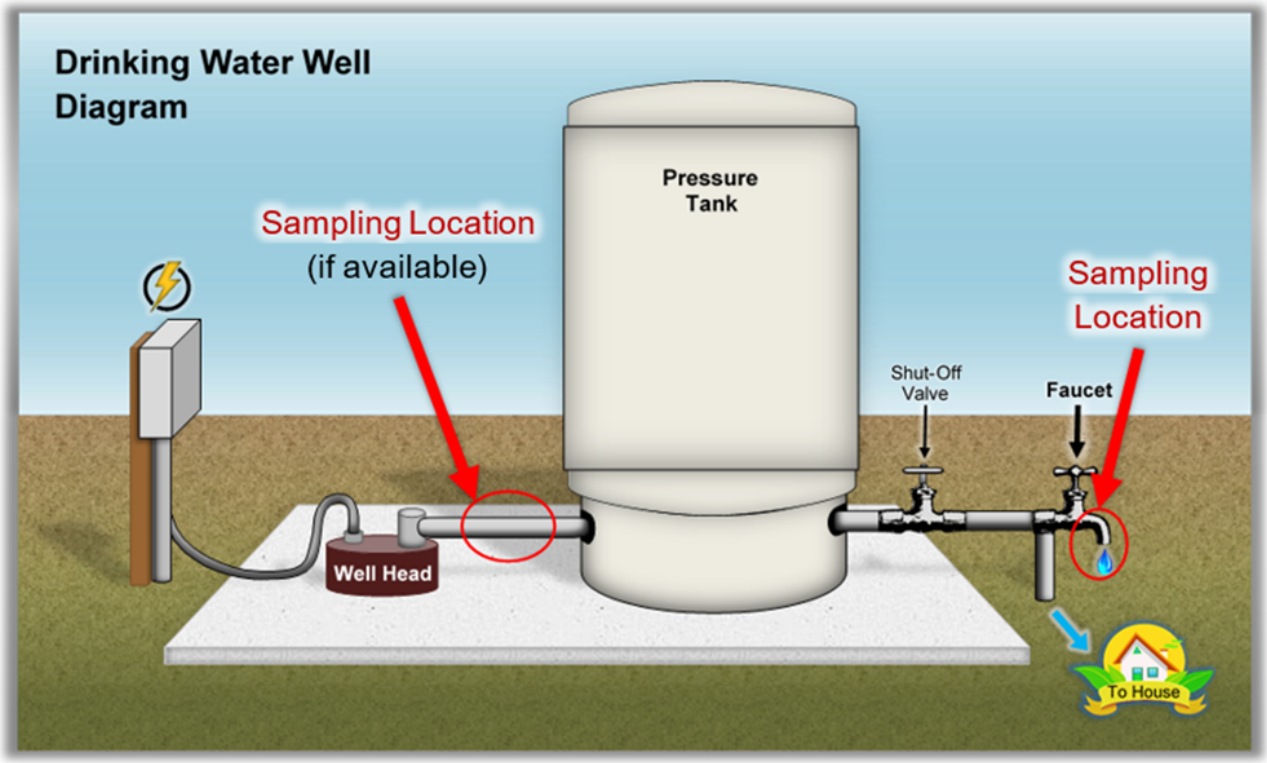
Many laboratories offering analytical services also provide sampling services. Additionally, some laboratories provide training and instruction on proper sampling methods and handling, and chain of custody and quality assurance/quality control protocols.

17. What kind of containers do I need to collect samples?

Special sampling kits/containers should be obtained from the ELAP certified laboratory you use. You should contact the laboratory to ensure you have the proper sampling containers for the nitrate + nitrite as nitrogen analyses and to confirm proper sample handling, transportation protocols, and hold times.

18. Where should the drinking water well sample(s) be collected?

The water sample must be collected from a sampling point as close to the well head as possible. If you are unable to collect a sample close to the well head, you can collect the sample from a cold-water spigot located before any filters or water treatment systems.



19. What if I cannot collect a sample before any filters or water treatment systems?

If it is not physically possible to obtain a sample before a filter or water treatment system, obtain the water sample where you can and note that it was a treated sample (by including "TRT-") at the beginning of your well name. See the Instructions included with the Drinking Water Well Member Information Form. <www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/drinking_water/dw_member_info.pdf>

20. How do I collect a sample?

First contact an ELAP certified laboratory for the appropriate sample bottles, chain of custody, sample procedures, and specific hold times for testing nitrate + nitrite as nitrogen. It is important that you follow the procedures provided by the laboratory to obtain acceptable data.

For where to collect the water sample from your drinking water well, see question 18.

21. When do I have to take my sample(s) to the lab?

You should take your samples to the lab as soon as possible to allow time for analytical testing; samples may need to remain on ice until received by the laboratory. Contact your laboratory for information on hold times and other procedures for collecting samples for nitrate + nitrite as nitrogen.

22. What do I have to do **after the first year** of sampling?

Coalition members/landowners whose first-year nitrate + nitrite as nitrogen sample result was equal to or less than 10 mg/L are required to collect and sample their drinking water well for another year. You should return to the same ELAP laboratory that sampled your drinking water well the previous year, while also using the same Global ID# for each well sampled.

If your first-year sample result was greater than 10 mg/L and you have notified all drinking water well users **and** the Central Valley Water Board, you can stop further sampling.

23. When can I stop sampling?

You may stop sampling if your drinking water well is taken out of service or no longer provides consumable water. You must however keep any records (e.g., photos/bottled water receipts) establishing that the well is not used as drinking/cooking water.

You may also stop sampling if your drinking water well sample result is greater than 10 mg/L and both, drinking water well users and the Central Valley Water Board, are notified.

Sampling Frequency and Results

24. What is the drinking water standard for nitrate?

The CDPH set the State drinking water standard or MCL for nitrate at 45 mg/L as nitrate or 10 mg/L as nitrogen. CDPH also set a State drinking water standard for nitrite at 1 mg/L. Since the toxicity of nitrate and nitrite are additive, CDPH also established a standard for the sum of nitrate + nitrite as nitrogen at 10 mg/L. Drinking water with nitrogen above the MCL is not safe for human consumption, especially for infants six months of age and younger, and pregnant or nursing women. The Water Board uses the MCL (and other water quality limits) as a basis for its regulatory actions regarding the protection of drinking water.

25. How often do I have to sample?

Coalition members must sample annually starting when their coalition was required to start sampling (see Overview section for dates), unless they submit three consecutive years of qualifying data from within the previous five years into GeoTracker (see question 8). The monitoring frequency is altered if the nitrogen concentration is below 8 mg/L for three consecutive years (see question 26) or above 10 mg/L (see question 28).

26. What if my nitrate + nitrite as nitrogen result is below 8 mg/L?

Coalition members may conduct sampling once every five years going forward if your nitrate + nitrite as nitrogen sample result is below 8 mg/L for three consecutive years.

27. What if my nitrate + nitrite as nitrogen result is equal to or greater than 8 mg/L and is less than or equal to 10 mg/L?

You must continue to sample your drinking water well annually if your nitrate + nitrite as nitrogen sample result is equal to or greater than 8 mg/L and is less than or equal to 10 mg/L.

28. What if my nitrate + nitrite as nitrogen result exceeds 10 mg/L?

You must provide notification to both the drinking water well user(s) **and** the Central Valley Water Board using the Drinking Water Notification Template if your sample result exceeds 10 mg/L (see question 29 for more information). **Once notification has been completed, no future sampling is required**.

If you are both the coalition member and the landowner and you, including your family, are the only users of the drinking water well, see question 30.

Notification Requirements

29. Do I have to notify users if there is an exceedance in my drinking water well?

Yes, if the sample result indicates that there is more than 10 mg/L of nitrate + nitrite as nitrogen in the well water, the coalition member/landowner must provide notice to the drinking water well

user(s); unless the user is also the landowner. Notice must be provided using the Drinking Water Notification Template within 10 days of learning of the exceedance. The coalition member/landowner must also send a completed and signed copy of the Drinking water Notification Template to the Central Valley Water Board via ILRP's general email <irrlands@waterboards.ca.gov>, or by mail to:

Central Valley Water Board
Irrigated Lands Regulatory Program
11020 Sun Center Drive, #200
Rancho Cordova, CA 95670

The Drinking Water Notification Template can be found on our Drinking Water Well Monitoring webpage.
<www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/drinking_water/dw_notification_temp.pdf>

30. Is notification required if the coalition member/landowner, including their family, are the only users?

If the coalition member/landowner answers "yes" to question 1j. on the Drinking Water Well Member Information Form, then the notification requirement is fulfilled. If the answer to question 1j. on the form is "no," then the Central Valley Water Board will follow up with the coalition member/landowner and request a completed and signed copy of the Drinking Water Notification Template, which can be returned to the Central Valley Water Board via ILRP's general email <irrlands@waterboards.ca.gov>, or by mail to:

Central Valley Water Board
Irrigated Lands Regulatory Program
11020 Sun Center Drive, #200
Rancho Cordova, CA 95670

31. What if I'm a coalition member and have completed the sampling requirement but, I'm NOT the landowner of the drinking water well?

If you – the coalition member – have sampled the drinking water well on your leased APN, you should provide notice to the landowner within 24 hours of learning of the exceedance. The landowner must then provide notice using the Drinking Water Notification Template to the drinking water well user(s) within nine days. Additionally, the landowner is responsible to send a signed copy of the Drinking Water Notification Template to the Central Valley Water Board as described in the answer to question 29.

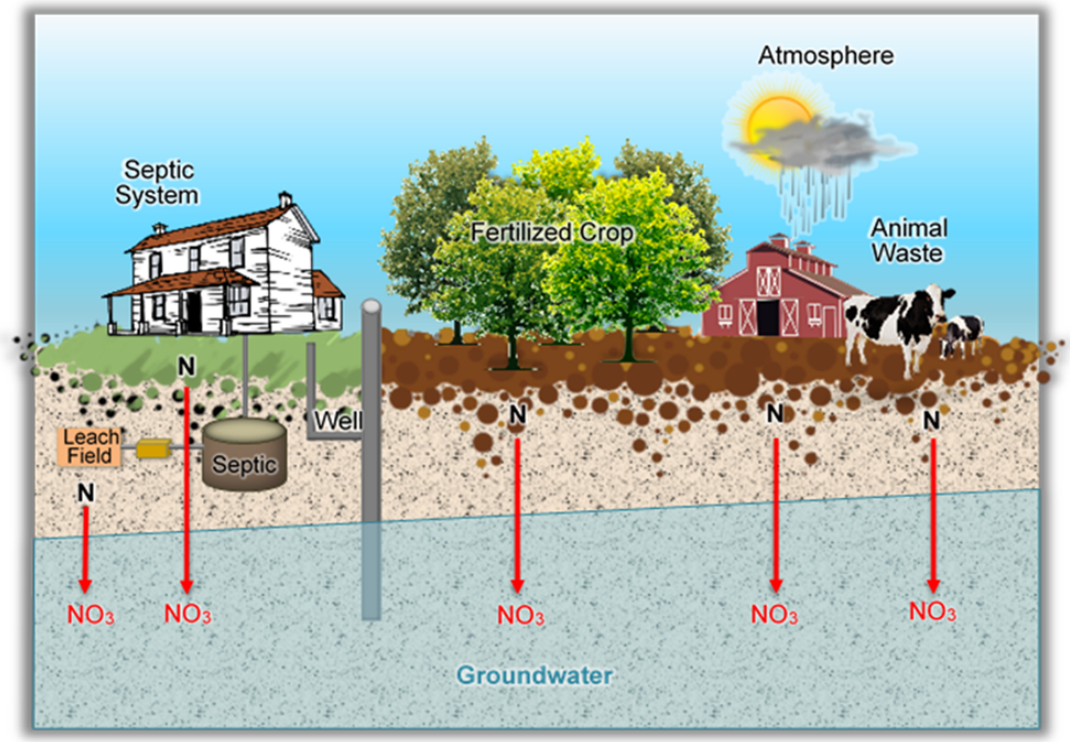
Nitrate and Health Concerns

32. What are common sources of nitrate?

Excess nitrate (NO_3) in soil is often found in rural and agricultural areas. NO_3 contamination in groundwater, and the most common sources of NO_3, are generally associated with septic

systems, fertilizer use, and confined animal feeding operations. In soil, NO_3 is highly mobile and can easily be transported to groundwater.

NO_3 is an essential source of nitrogen for plants and can occur naturally in surface and groundwater at levels that do not cause health problems. However, levels of NO_3 in excess of drinking water standards are dangerous to ingest, especially for infants and pregnant women.



33. What health concerns are associated with drinking water that has high nitrate levels (nitrate + nitrite as nitrogen above 10 mg/L)?

High nitrate levels can interfere with the ability of red blood cells to carry and distribute oxygen to the body, producing a condition called methemoglobinemia (MetHb). This is of greatest concern in infants; clinical effects on infants ingesting high levels of nitrate are often referred to as "blue baby syndrome." Symptoms include shortness of breath and blueness in the skin, which can develop rapidly in infants and deteriorate an infant's health over a period of days. **Warning:** If symptoms occur, seek medical attention immediately.

High nitrate levels may also reduce the oxygen-carrying ability in the blood of pregnant women, which can increase the risk of complications during pregnancy.

34. What can consumers do to reduce their exposure to nitrate in drinking water?

To reduce exposure to nitrate in drinking water, consumers can use bottled or vended water until an appropriate treatment system that removes nitrate is in place.

Drinking water may be treated to remove nitrate; however, home filters (e.g., Brita filters) do not remove nitrate from drinking water. Treatment technologies that remove nitrate include reverse osmosis, ion exchange, and distillation. The concentration of nitrate should be known prior to selecting a treatment system, as most treatment systems have limitations on the amounts of nitrate that can be removed.

Water supply pressure could also be a limiting factor in treatment systems. To ensure treated water remains safe to drink, treatment systems need to be operated and maintained per the treatment system manufacturer's instructions or directions. Each type of system has advantages and disadvantages, and no single system will correct all water quality problems. Please consult the State Water Board's residential water treatment approved list online. <www.waterboards.ca.gov/drinking_water/certlic/device/Documents/wtd2017/76Registered%20Models%20for%20Nitrate%20listing%20081117_WITH%20LINKS%20TO%20PDS.pdf>

Warning: Boiling water is not a solution, as it will concentrate nitrate levels. Also, **DO NOT** make infant formula with drinking water that contains nitrate levels above 10 mg/L (see question 33 for associated health concerns).

35. Can nitrate-contaminated water be used to bathe babies and children?

Yes, babies and children can be bathed, as well as showered, in water with high levels of nitrate. Nitrate is only a concern for ingestion (eating and drinking) and is not absorbed through your skin. Often, those who install water filter systems for nitrate install them for their kitchen sink faucet because they use that faucet for cooking and drinking water.

36. Can nitrate-contaminated water be used to wash fruits and vegetables before they are eaten?

Generally, fruits and vegetables can be washed with water containing high nitrate levels. The amount of water used for this purpose is small, and if the fruits and vegetables are wiped or blotted dry after washing, there should be no health risk.
Warning: The water should not be used for cooking.

37. How can I protect my drinking water well from nitrate contamination?

It is important to remember that you are living above your drinking water. Therefore, if you do not want to drink it, do not put it on the ground!

The State Water Board recommends that you create a zone of protection around your drinking water well and avoid storing, spraying, burying, dumping, or spilling chemicals or other substances within 50 feet of your well. Additionally, avoid housing your animals near your well, as their waste can also contaminate your drinking water.

You should also install your septic tank and leach field at least 100 feet away, and downgradient from your well. See the State Water Board Guide for Well Owners for more information. <www.waterboards.ca.gov/gama/docs/wellowner_guide.pdf>

Additional Information

What else might be in my groundwater?

In agricultural areas, the Regional Water Board recommends sampling for 1,2,3-trichloropropane (TCP) and the legacy soil fumigant 1,2-Dibromo-3-chloropropane (DBCP).

What is 1,2,3-TCP?

In the 1940s, the agricultural divisions of Dow Chemical and Shell started selling two soil fumigants, under the trade names of D-D and Telone, to help farmers manage crop damaging nematodes. However, one chemical in D-D and Telone is particularly toxic to humans and persistent in the environment – 1,2,3-TCP. 1,2,3-TCP is an exclusively man-made chlorinated hydrocarbon commonly used as an industrial solvent, cleaner, and degreaser; additionally, it is used in the production of paint thinners and varnish removers. TCP is also used in the production of other chemicals, which is how it became a contaminant in two commonly used soil fumigants used in California to manage nematodes.

Because TCP containing fumigants were extensively used in California, particularly in Kern, Tulare, and Fresno Counties, contamination of drinking water wells became widespread in those parts of the state. (Information is from TCP in California's Drinking Water <www.cleanwateraction.org/features/tcp-californias-drinking-water>.)

The maximum contaminant level for 1,2,3-TCP has been set to 0.005 micrograms per liter.

What is DBCP?

DBCP is the active ingredient in the nematicide Nemagon, also known as Fumazone. It is a soil fumigant formerly used in agriculture. <en.wikipedia.org/wiki/1,2-Dibromo-3-chloropropane>

The maximum contaminant level for DBCP has been set at 0.2 micrograms per liter.

How can I find out more information?

Visit the ILRP's Drinking Water Well Monitoring webpage for more information. <www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/drinking_water/>

ILRP Staff can also be reached at

Sacramento Office: Phone #: (916) 464-4611
Email: irrlands@waterboards.ca.gov

Fresno Office: Phone #: (559) 488-4396
Email: ilrpinfo@waterboards.ca.gov