

Chemical Applications and the Public Water Supply:

Understanding The Journey
From Chemical Spray Tank
to Water Storage Tank

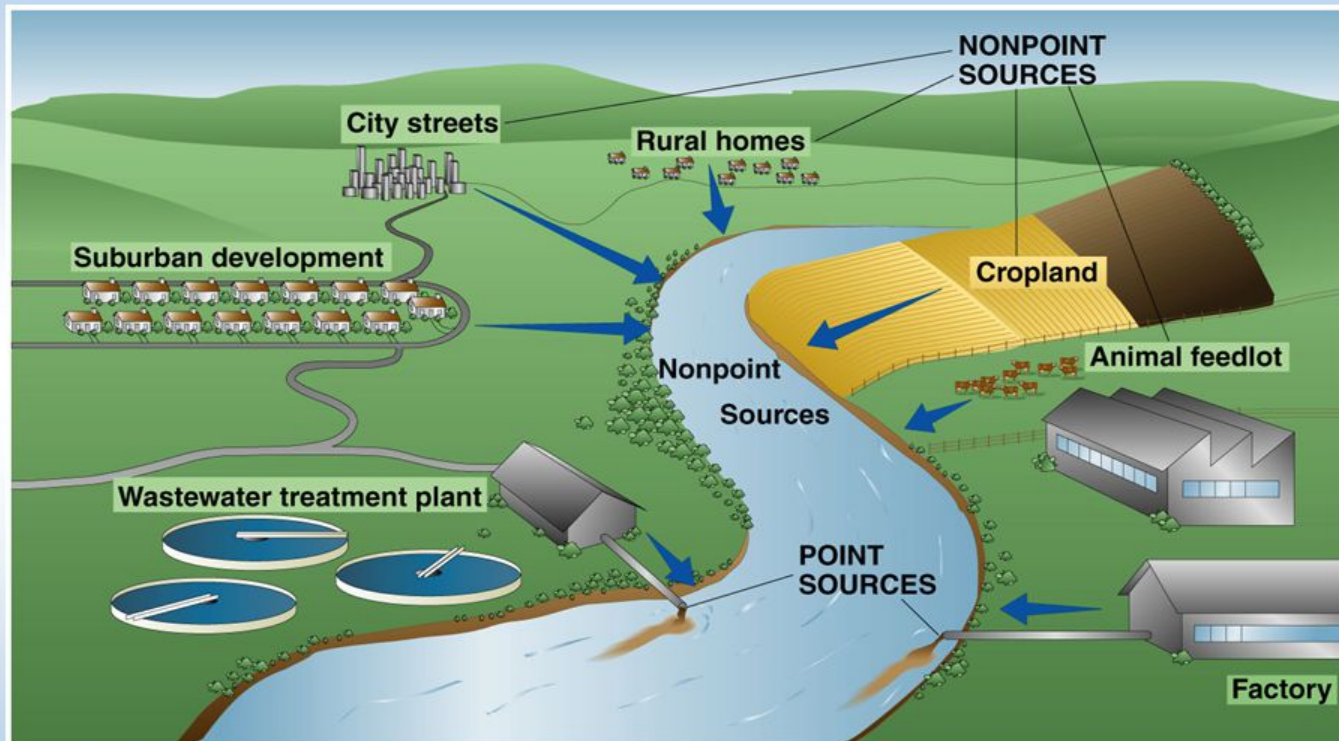


THE SMALL WATER SYSTEM

- 2,095 Water and Wastewater Systems in Colorado
- 98% Serve Communities with a population less than 10,000
- 94% of Americans are served by a public water supply
- 25% of Public Water Systems Use Groundwater
- 75% Surface Water

Sources of Contamination: Point and Non-Point Source

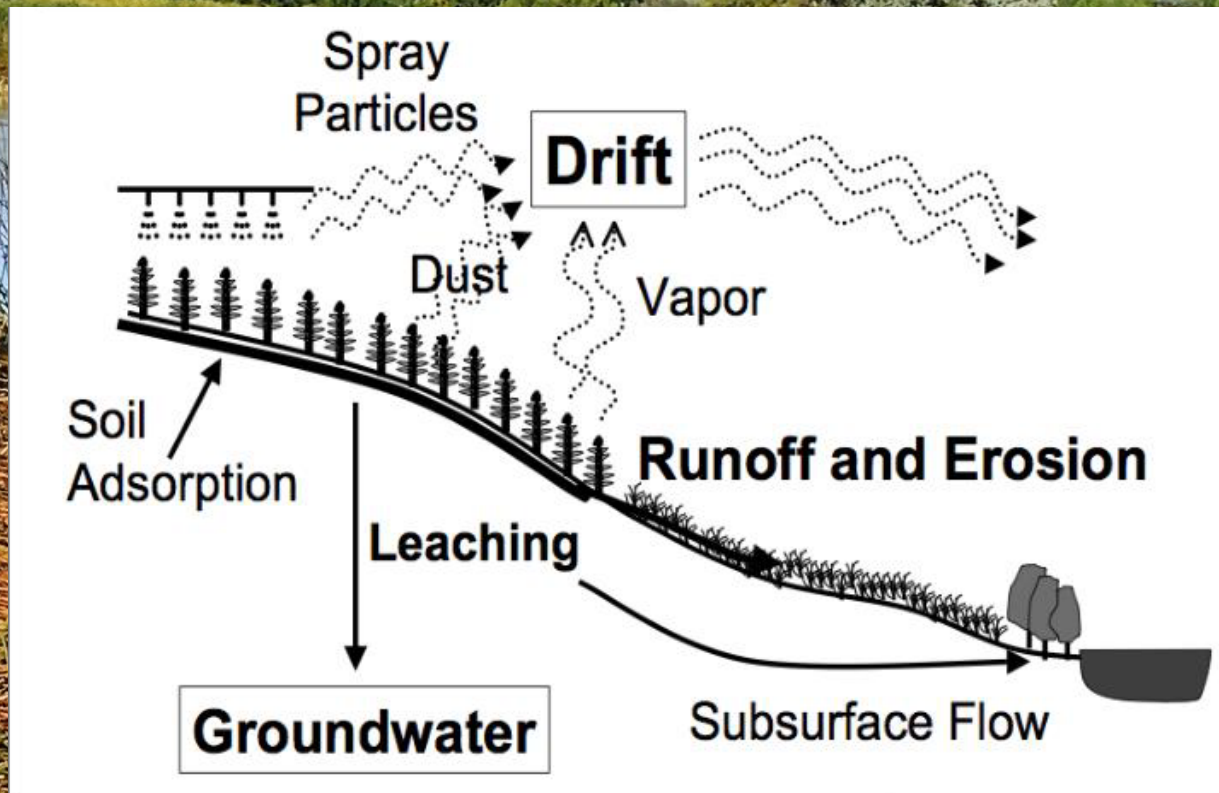
Point and nonpoint sources



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Herbicide Movement



Soil Texture and Herbicide Movement

- Gravel
- Sand
- Clay
- Humus



Environmental Fate of Herbicides

- Adsorption
- Transfer
- Degradation
 - Microbial
 - Chemical
 - Photo
 - Time



La Veta's Water Cycle



CDPHE Monitoring Schedules

<https://wqcdcompliance.com/schedules>



COLORADO

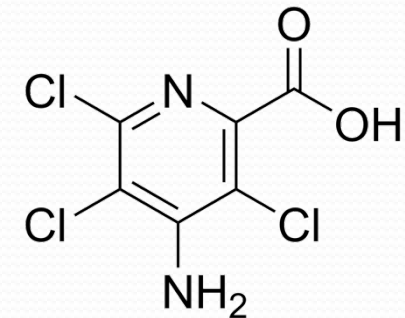
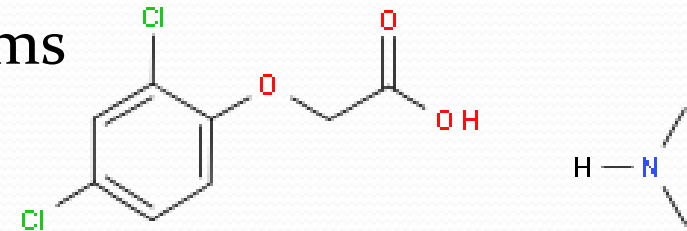
Department of Public
Health & Environment

Time Period Definitions		
Time Period	Start Date	End Date
First Quarter	January 1, 2018	March 31, 2018
Second Quarter	April 1, 2018	June 30, 2018
Third Quarter	July 1, 2018	September 30, 2018
Fourth Quarter	October 1, 2018	December 31, 2018
First 6 Months	January 1, 2018	June 30, 2018
Second 6 Months	July 1, 2018	December 31, 2018
Year	January 1, 2018	December 31, 2018

Analyte Group Definitions		
Analyte Group Name	Analytes in Group	Number of Analytes in Group
INORGANICS GROUP	ANTIMONY ARSENIC BARIUM BERYLLIUM CADMIUM CHROMIUM MERCURY NICKEL SELENIUM SODIUM THALLIUM	11
SYNTHETIC ORGANICS GROUP	1,2-DIBROMO-3-CHLOROPROPANE 2,4,5-TP 2,4-D ALDICARB ALDICARB SULFONE ALDICARB SULFOXIDE ATRAZINE BENZO(A)PYRENE BHC-GAMMA CARBOFURAN CHLORDANE DALAPON DI(2-ETHYLHEXYL) ADIPATE DI(2-ETHYLHEXYL) PHTHALATE DINOSEB DIQUAT ENDOTHALL ENDRIN ETHYLENE DIBROMIDE HEPTACHLOR HEPTACHLOR EPOXIDE HEXACHLOROBENZENE HEXACHLOROCYCLOPENTADIENE LASSO METHOXYCHLOR OXAMYL PENTACHLOROPHENOL PICLORAM SIMAZINE POLYCHLORINATED BIPHENYLS (PCB) TOXAPHENE	31
VOLATILE ORGANICS GROUP	1,1,1-TRICHLOROETHANE 1,1,2-TRICHLOROETHANE 1,1-DICHLOROETHYLENE 1,2,4-TRICHLOROBENZENE 1,2-DICHLOROETHANE 1,2-DICHLOROPROPANE BENZENE CARBON TETRACHLORIDE CHLOROBENZENE CIS-1,2-DICHLOROETHYLENE DICHLOROMETHANE ETHYLBENZENE O-DICHLOROBENZENE P-DICHLOROBENZENE STYRENE TETRACHLOROETHYLENE TOLUENE TRANS-1,2-DICHLOROETHYLENE TRICHLOROETHYLENE VINYL CHLORIDE XYLENES (TOTAL)	21

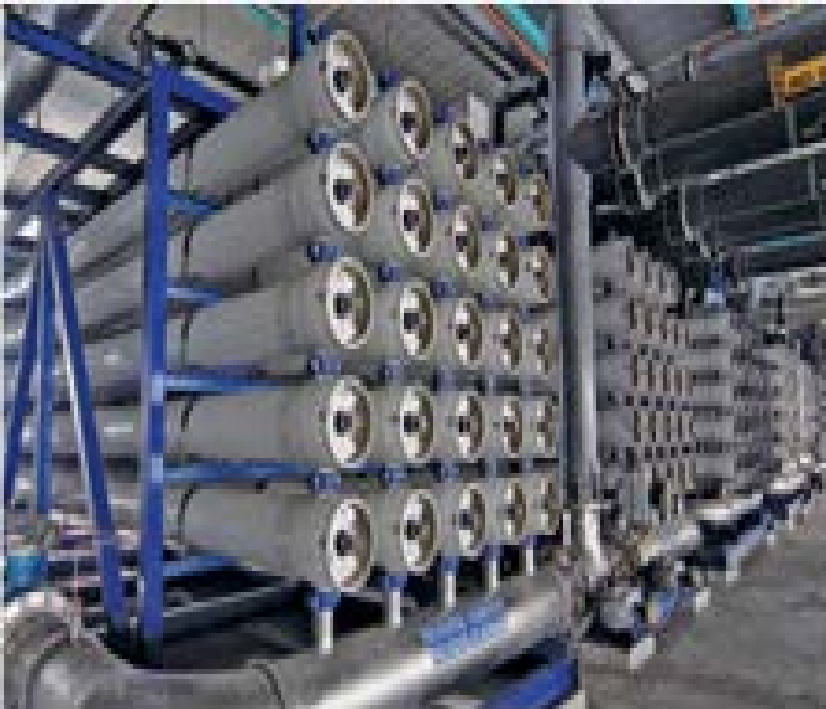
SOC's (Synthetic Organic Compounds)

- CDPHE Monitoring Schedule
- SOC Detection in Public Water Systems
- Causes
- Effects
- How do we treat or remove
- Remediation or correction of problem



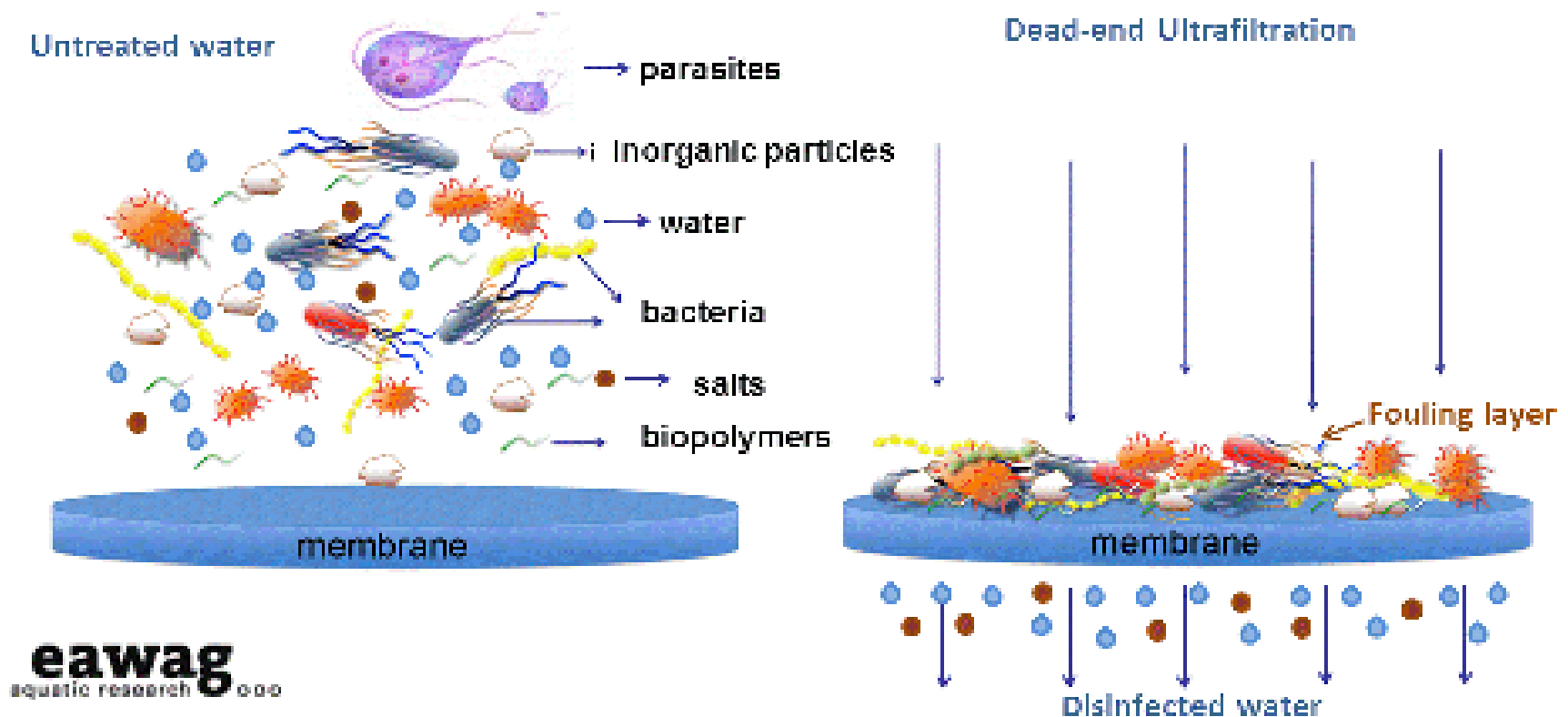
Membrane Filtration Plant

- Each cylinder contains hundreds of membrane cells.
- The cells are cleaned when they become fouled.



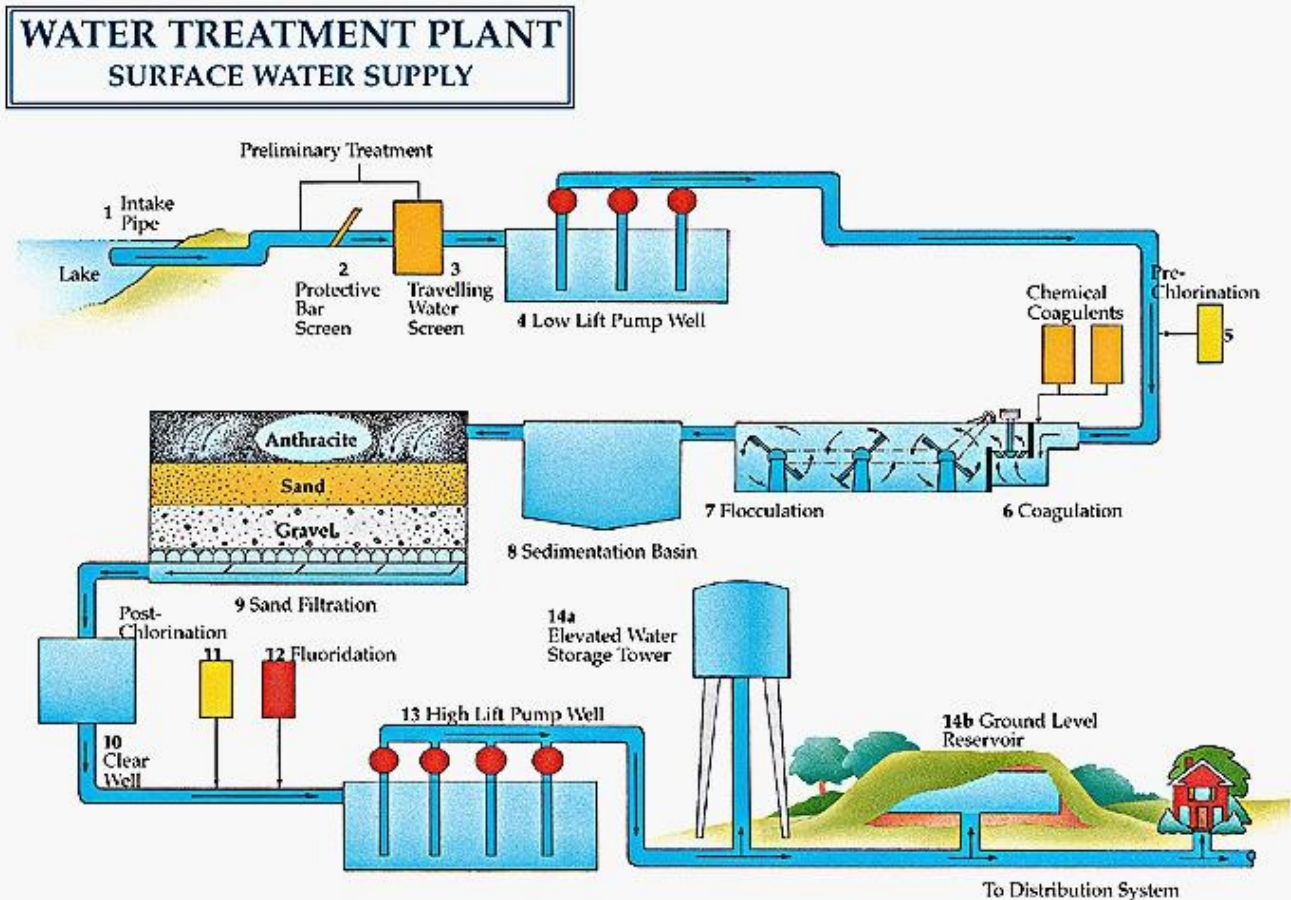
Membrane Filtration

- Water flows through, filter catches solids and other contaminants.



Conventional Filtration

- Coagulation & Flocculation
- Filtration
- Disinfectio



Eliminate Herbicides In Your Drinking Water

- Help protect your source water.
- Contact your water treatment operators and inform them when and where you are working.
- Inform them the analytes you are using can be found in the SOC testing.
- Perform your job as a professional that understands the environmental impact of the chemicals you use.
- Learn about the water ways and riparian corridor in the area you work.

QUESTIONS?

