



Source Water Protection – A Good Idea That Happens to Be a Regulatory Requirement



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Director of Business Development





Outline

- 1. Introduction**
- 2. Steps**
- 3. Regulation**
- 4. Closing Thoughts**
- 5. Q & A**

Introduction



SOURCE WATER PROTECTION PROGRAM

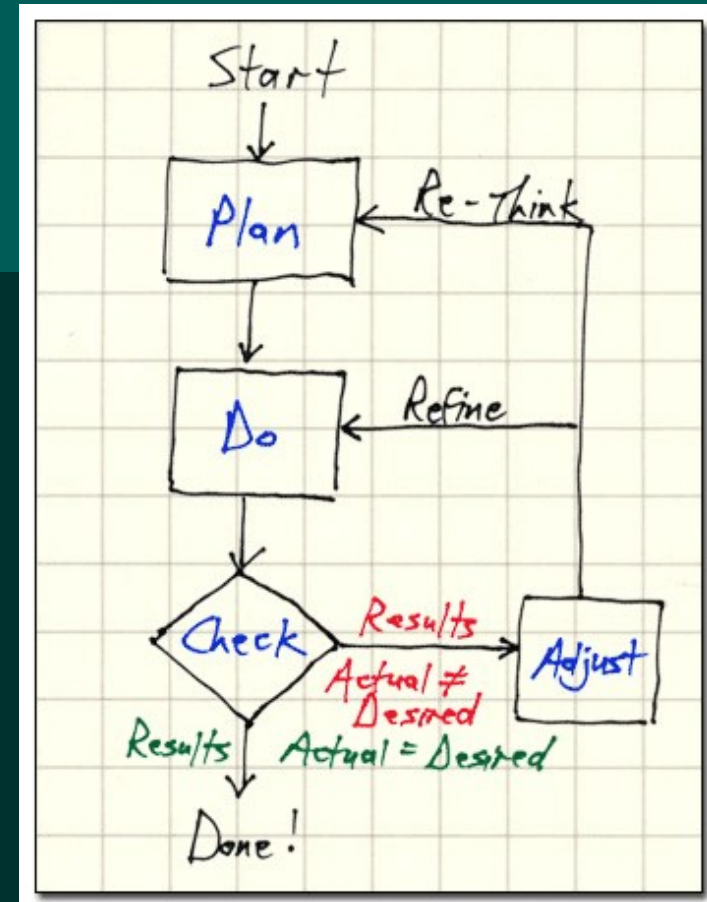
Planning and Doing Activities

that

Protect the Quality and Availability

of the

Utility's Source of Water Supply



SOURCE WATER PROTECTION IS PART OF A MULTI-BARRIER APPROACH

Best Possible Source



Source Water Protection



Water Treatment



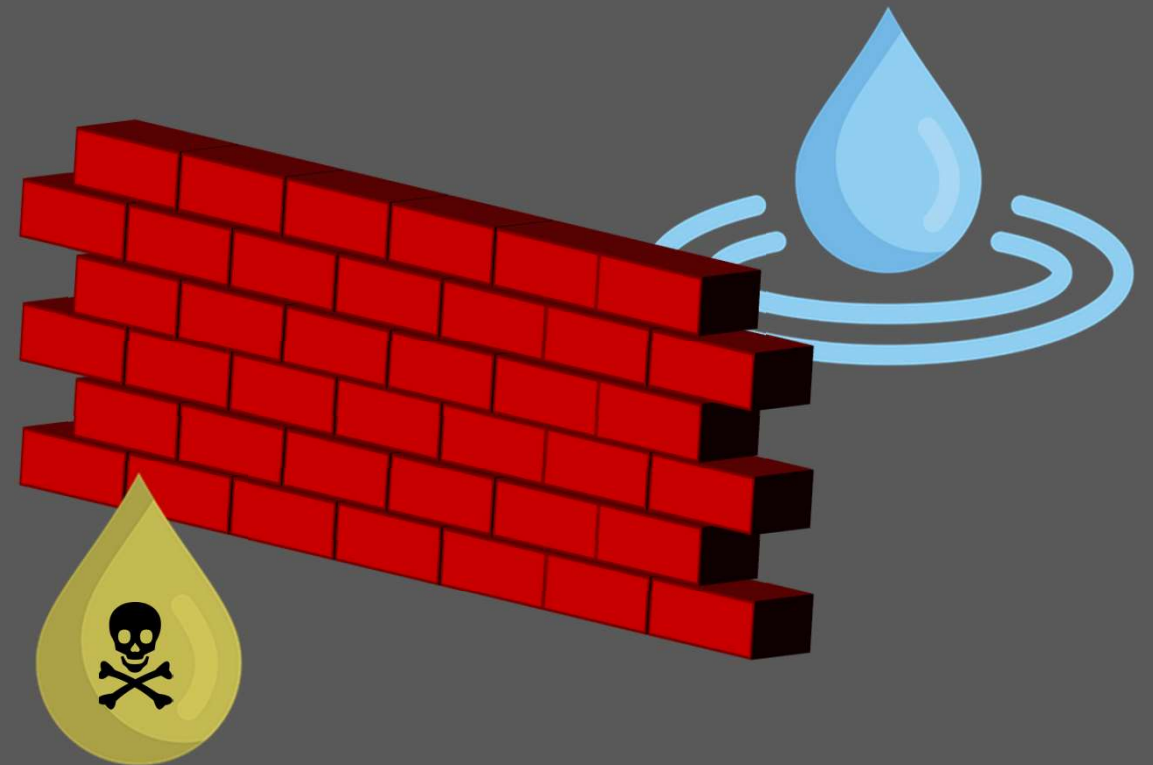
Distribution



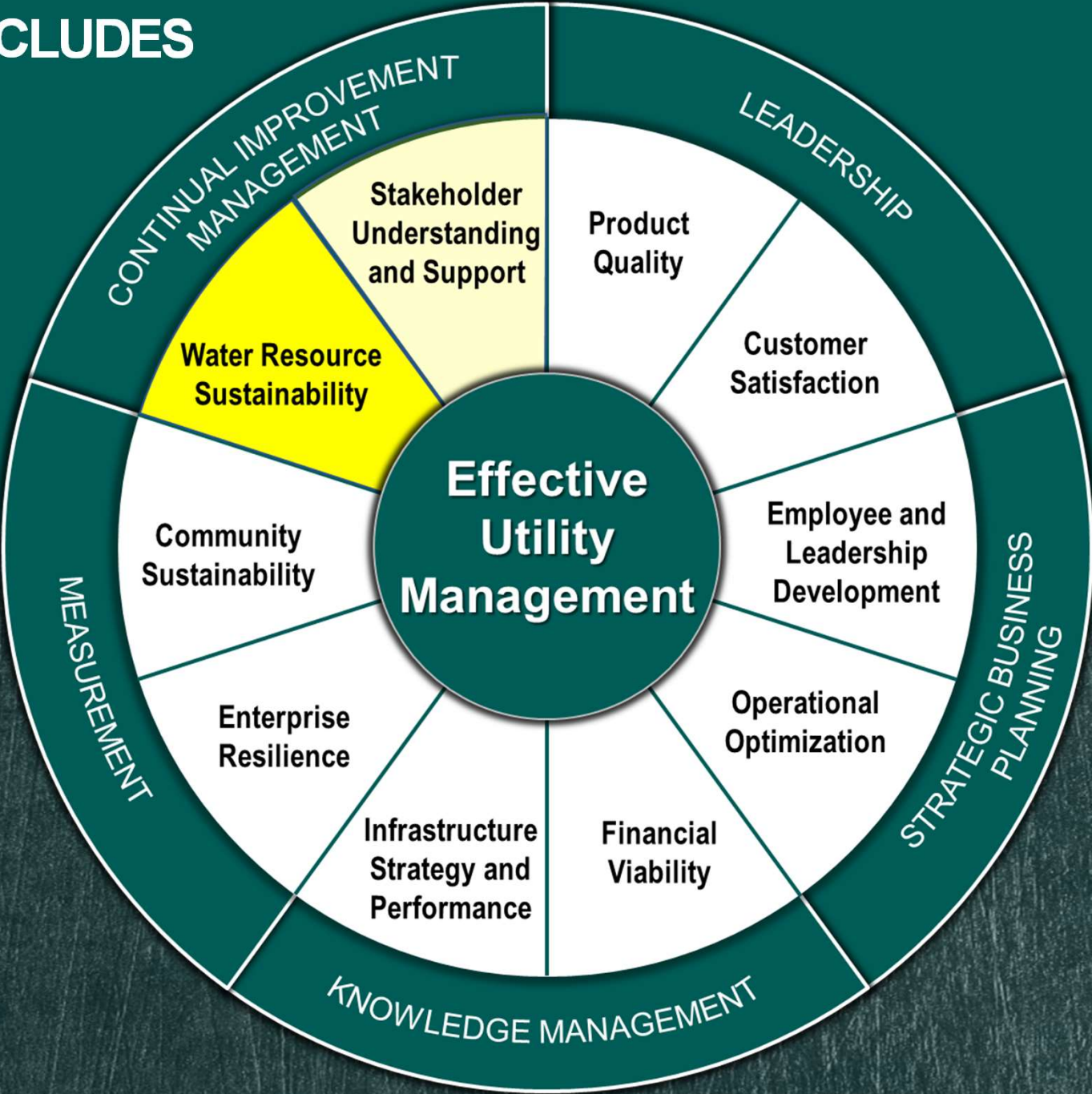
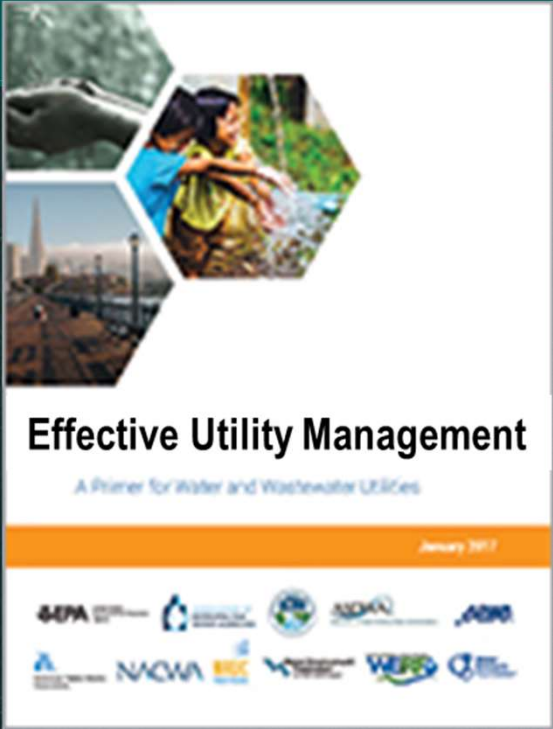
Monitoring



Emergency Response



EFFECTIVE UTILITY MANAGEMENT INCLUDES SOURCE WATER PROTECTION



SOURCE WATER PROTECTION MAKES SENSE

HIGH VALUE-

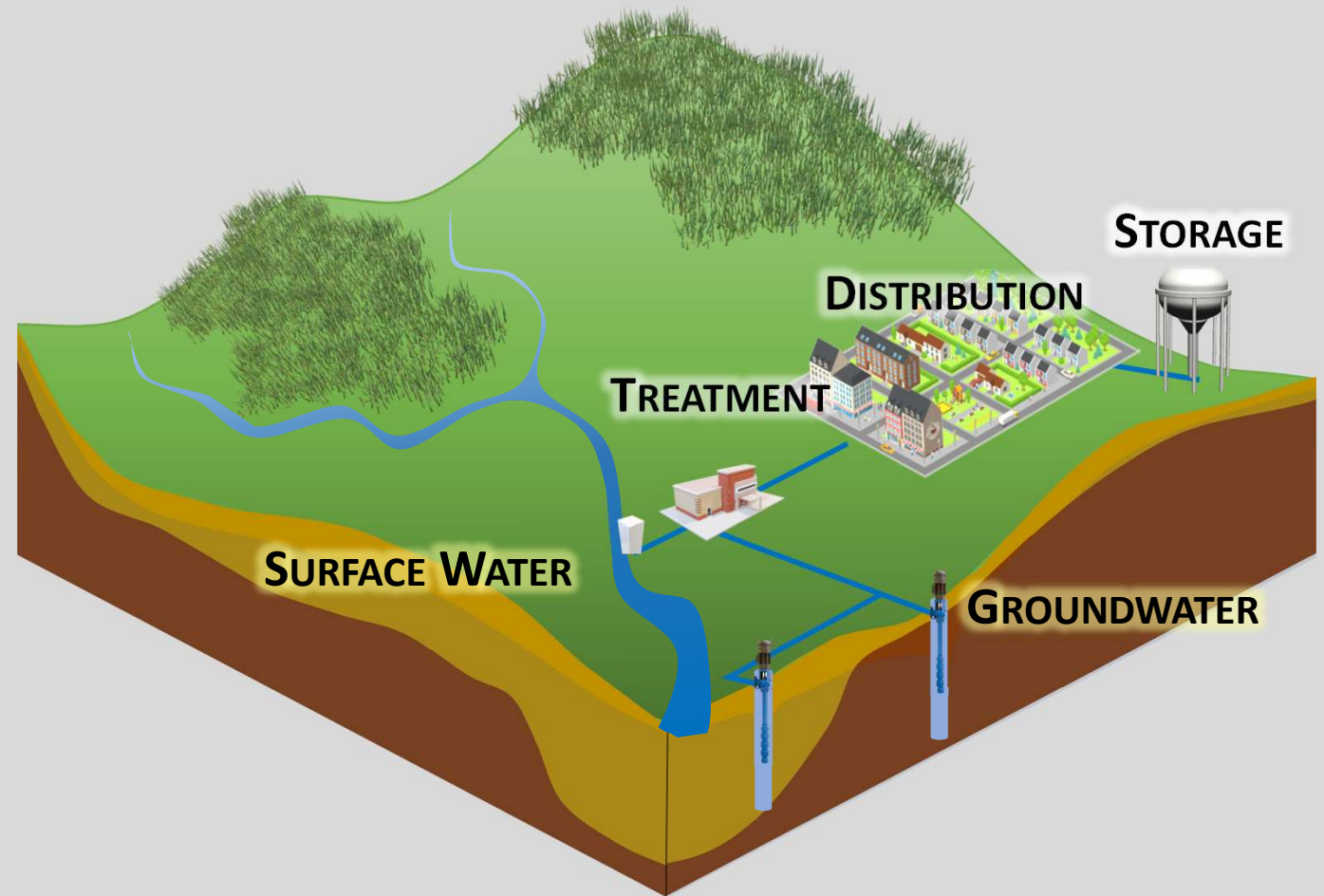
Everything Depends on the Source

COST EFFECTIVE -

Avoidance of Catastrophic Loss

INDIRECT BENEFITS –

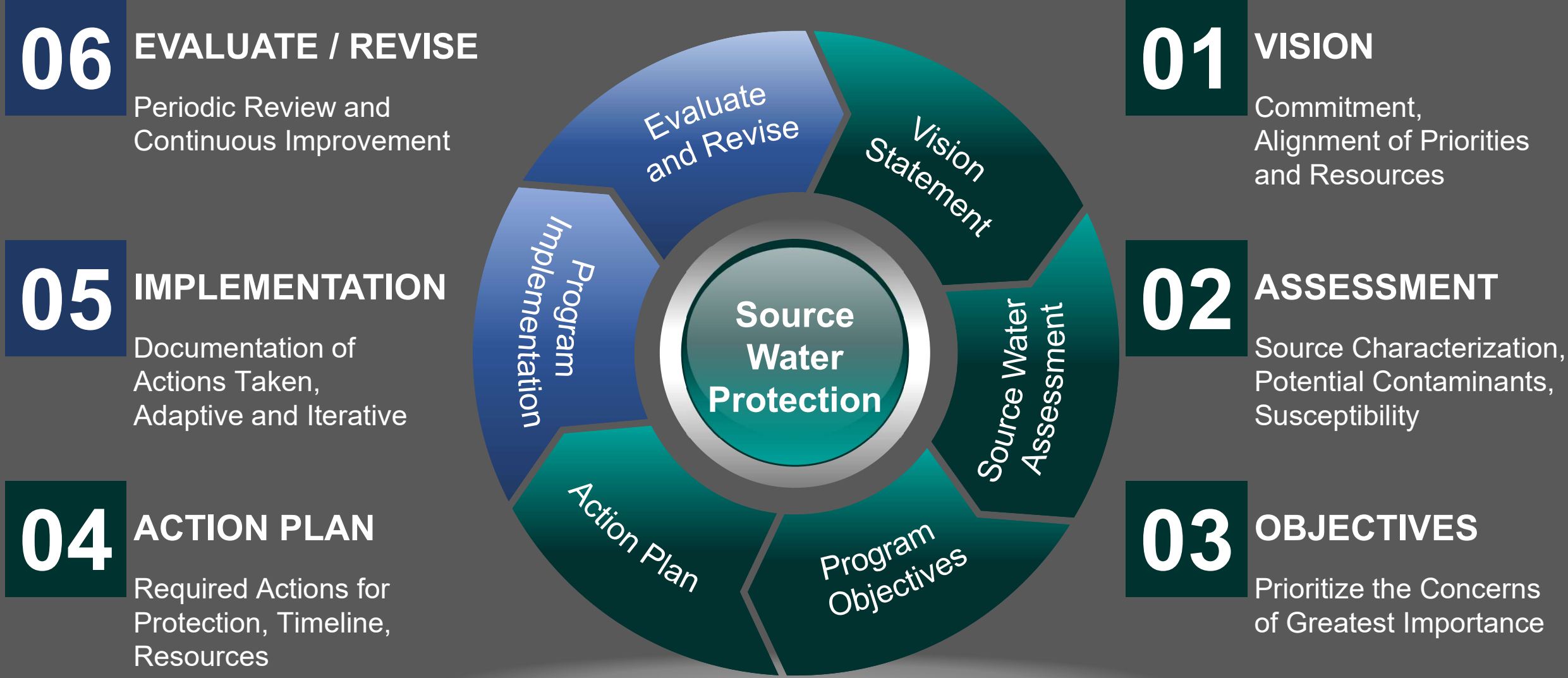
Consumer Confidence



Steps



SOURCE WATER PROTECTION PROGRAM STEPS



Based on: Source Water Protection Operational Guide to AWWA Standard G300

Regulation





Title 35 of the Illinois Administrative Code: Environmental Protection

Subtitle F: Public Water Supplies

Chapter I Pollution Control Board

Part 604: Finished Water and Raw Water Quality and Quantity



Illinois Environmental
Protection Agency

SUBPART C: SOURCE WATER PROTECTION PLAN

- 604.300 Purpose
- 604.305 Source Water Protection Plan Requirement and Contents
- 604.310 **Vision Statement**
- 604.315 **Source Water Assessment**
- 604.320 **Source Water Protection Plan Objectives**
- 604.325 **Action Plan**
- 604.330 Submission
- 604.335 Agency Approval
- 604.340 Evaluation and Revision

		MINIMUM REQUIRED	→	BEST- IN-CLASS
	VISION STATEMENT			
	ASSESSMENT			
	OBJECTIVES			
	ACTION PLAN			



VISION STATEMENT

MINIMUM
REQUIRED

The vision statement must include the following:

- a) the community water supply's **policy and commitment** to protecting source water;
- b) an explanation of the community water supply's **resources** to protect source water;
- c) an explanation of the **barriers** to protecting source water; and
- d) the names of the **individuals who developed** the vision statement



VISION STATEMENT

BEYOND
MINIMUM

STAKEHOLDER INVOLVEMENT

INTENSITY

	NOTIFY	PARTICIPATE	ENGAGE
	<i>Minimum Required</i> Consumer Confidence Report	Selective	Advisory Role
	Newsletter / Newspaper	<i>Best Practice</i> Limited	<i>Best-In-Class</i> Actively Solicit Input
	Social Media	Open	Consensus Building



ASSESSMENT

MINIMUM
REQUIRED

A community water supply may use a Source Water Assessment Program Fact Sheet prepared by the Agency to fulfill the requirements of the Assessment.

12/19/01



Illinois Environmental Protection Agency



Source Water Assessment Program ***FACT SHEET***

Prepared in cooperation with the U.S. Geological Survey

Information and data used in the preparation of this fact sheet provided by the Illinois EPA and are subject to revision



ASSESSMENT

MINIMUM REQUIRED

- 1) Importance of Source Water
- 2) List of Wells, Intakes, Interconnections
- 3) Delineation of Sources
- 4) Source Water Quality
- 5) Finished Water Quality
- 6) Potential Sources of Contamination
- 7) Source Water Susceptibility to Contamination
- 8) CWS's Efforts to Protect its Source Water

<http://dataservices.epa.illinois.gov/swap/factsheet.aspx>

Source Water Assessment Program Factsheets

Select Water System Type

Community

Select County

Kane

Search County

To view a summary version of the completed Source Water Assessments, you may search our records by county or public water supply name. This summary information describes pertinent sub-sections of each completed assessment including: Importance of Source Water; Susceptibility to Contamination Determination; and documentation/recommendation of Source Water Protection Efforts. However, summaries of Source Water Protection Efforts have not been documented for non-community water supplies. It should be noted that these Source Water Assessment summaries are presented in strict compliance with Illinois EPA's security policy on the release of sensitive information. Therefore, all locational data and maps pertaining to wells, aquifers and/or surface water intakes have been removed. To obtain a complete

Water Percentages:

Surface Water %	Surface Water Purchase %	Ground Water %	Ground Water Purchase %	Ground Water UDI %	Ground Water UDI Purchase %
0.00	0.00	100.00	0.00	0.00	0.00

Importance of Source Water:

The Village of Carpentersville (Facility Number 0890200) utilizes three active community water supply wells. Wells #5, #6, and #7 (Illinois EPA #20029, 20030, and 00601, respectively) supply an average of 3,000,000 gallons per day (gpd) to 9,500 services or a population of 33,000.

Well Data For This Facility:

Well ID	Well Description	Status	Depth	Minimum Setback	Pumpage	Aquifer Code	Aquifer Description	Max Zone
WL01582	WELL 6 (01582)	A	184.00	400				0
WL20029	WELL 5 (20029)	A	183.00	400	268445000	0101	Sand & Gravel	0
WL00601	WELL 7 (00601)	A	200.00	400	374257000	0101	Sand & Gravel	0

Intake Details:

No Data

Source Water Quality:

Carpentersville's wells have been sampled since April 22, 1982 for inorganic chemicals (IOC), volatile organic compounds (VOC), and synthetic organic compounds (SOC) as part of a Statewide Groundwater Monitoring Program. The VOC analyses did not detect quantifiable levels of any organic compound in well #5. However, wells #6 and #7 have had detections of a VOC, methyl tert-butyl ether (MTBE). MTBE concentration levels in these wells has been 1.1 and 1 parts per billion (ppb), respectively. There is no drinking water maximum concentration level (MCL) for MTBE. However, the Illinois EPA has established an MTBE standard of 70 ppb and the taste and odor threshold for MTBE is 20 to 40 ppb. The SOC analyses did not detect quantifiable levels of any organic compounds in wells #5 and #7. However, well #6 has had a detection of 2.4 < 5 TP (Silvex). The concentration levels of silvex in well #6 range from less than 0.05 to 0.14 ppb. The groundwater quality standard for silvex is 60 ppb. The IOC analyses indicate that concentrations of these chemicals are consistent with other sand and gravel aquifers of similar character in this part of Illinois. It is important to note that the IOC results were below the groundwater quality standards established under 35 Illinois Administrative Code Part 620.410.

Finished Water Quality:

As referenced in the Source Water Quality Section of this report, Carpentersville has mineralized groundwater. MTBE and silvex detected in the source water have not been detected in the finished water. Further information on finished water quality data tables of monitored parameters, contaminants detected, health advisory information, drinking water standards and maximum contaminant levels are available at <http://www.epa.gov/cgwrwr>. Similar information is also available in the Consumer Confidence Report supplied by the Village of Carpentersville to their customers.

Potential Sources of Contamination:

The sites labeled on the Wellhead Protection Planning Map and described in the following tables are considered "potential" sources of contamination. (Maps and tables are not available in the Visually Impaired Accessible version. However, the information presented in the maps and tables is summarized within the following text sections of this fact sheet.) These sites are predominantly identified through the Illinois EPA's Well Site Survey program based on the nature of their activity, the availability of data in electronic databases, and their geographic proximity to the source water protection area. In addition, the Illinois EPA made use of the information from its leaking underground storage tank database (<http://epadata.epa.state.us/land/utsearch.asp>) and site remediation program database (<http://epadata.epa.state.us/land/sprsearch.asp>) to further assess potential sources of contamination to the village's source water. These databases include information from the Illinois EPA Division of Land Pollution Control (LPC) and the Illinois Emergency Management Agency (IEMA). The following is a list of facilities contained within these databases. As a result of multiple possible contamination sources, individual sites may be listed in the table more than once in relation to a well.

6EVA4	Site Name	Street City ZIP Code
20001643	Community Unit School Dist. #220	2500 Helm Rd. Carpentersville 60110
20001907	James B. Day Co.	1 Day Ln. Carpentersville 60110
20001844	James B. Day Co.	1 Day Ln. Carpentersville 60110
20002042	Solo Petroleum	170 Lake Marion Rd. Carpentersville 60110
20002066	Community School Dist. #200	14 Ash St. Carpentersville 60110
900511	Meyer Material Co.	800 Bolt Rd. Carpentersville 60110

Site Data For This Facility:

Well ID	Site/GMZ ID	Map Code	Name	Distance	Status
WL20029	000000016	027D	VILLAGE OF CARPENTERSVILLE	660	I
WL20029	000000017	027D	VILLAGE OF CARPENTERSVILLE	750	I
WL20029	000000018	027D	CARPENTERSVILLE FIRE DEPT.	1280	I
WL20029	000000019	027D	JEWEL	670	A

Susceptibility To Contamination:

To determine Carpentersville's susceptibility to groundwater contamination, the following document was reviewed: a Well Site Survey, published in 1990 by the Illinois EPA. Based on the information obtained in this document, there are 3 potential sources of groundwater contamination that could pose a hazard to groundwater utilized by Carpentersville's community water supply. These include 1 auto repair shop, 1 store/sales, and 1 below ground fuel storage tanks. Information provided by the Carpentersville community water supply indicates that the following potential sources listed in the table are currently inactive (below ground storage of petroleum has been removed). Map Code #0919, 00917, and 00918. In addition, information provided by the Leaking Underground Storage Tank and Remedial Project Management Sections of the Illinois EPA indicated sites with on-going remediation that might be of concern. Based upon this information, the Illinois EPA has determined that the Carpentersville Community Water Supply's source water is susceptible to contamination. The Illinois EPA is in the process of delineating 5-year recharge area calculations for Carpentersville's wells. The land use within the areas around the wells was analyzed as part of this susceptibility determination. This land use includes open space, residential, and commercial properties.

Source Water Protection Efforts:

The Illinois Environmental Protection Act provides minimum protection zones of 400 feet for Carpentersville's wells. These minimum protection zones are regulated by the Illinois EPA. To further reduce the risk to the source water, a maximum protection zone may be established, which is authorized by the Illinois Environmental Protection Act and allows county and municipal officials the opportunity to provide additional potential source prohibitions up to 1,000 feet from their wells. To further minimize the risk to the village's groundwater supply, the Illinois EPA recommends the following additional activities be considered. First, the water supply staff may wish to conduct contingency planning. Contingency planning documents are a primary means to ensure that, through emergency preparedness, a community will minimize their risk of being without safe or adequate water. Second, the water supply staff is encouraged to review their cross connection control ordinance to ensure that it remains current and viable. Cross connections to either the water treatment plant (for example, at bulk water loading stations) or in the distribution system may negate all source water protection initiatives. Finally, the Illinois EPA recommends that the village investigate additional source water protection management options to address the land use activities within the wells' recharge area, once delineated. To further reduce the risk to source water, Carpentersville may wish to implement a wellhead protection program, which includes the proper abandonment of potential routes of groundwater contamination within the recharge area, once determined, management of potential sources of contamination and correction of any sanitary defects that might be present at the water treatment facility. This effort may result in the community water supply receiving a special exception permit from the Illinois EPA, which allows a reduction in monitoring and laboratory analysis costs.

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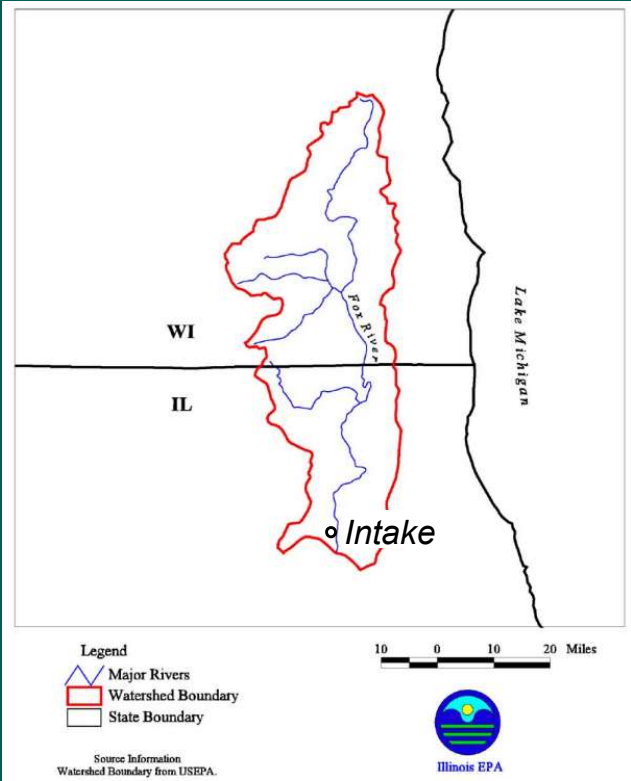
Report a Problem



ASSESSMENT – DELINEATION

MINIMUM REQUIRED

- A) for surface water, description of the watershed, map of the watershed, and intake locations;
- B) for groundwater, the well identification number, well description, well status and well depth; a description of setback zones, and a description of the aquifer for each well;

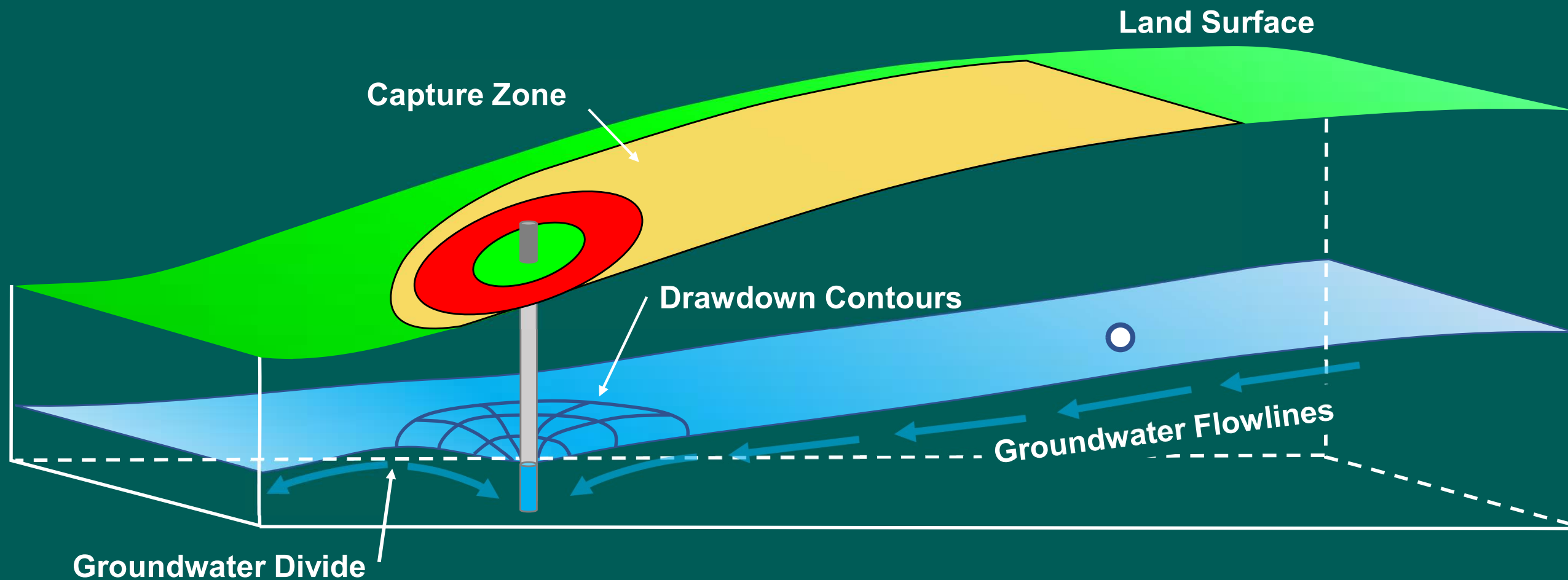


Well ID	Well Description	Status	Depth	Minimum Setback	Pumpage	Aquifer Description	Max Zone
WL00601	WELL 7 (00601)	A	200	400	374,257,000	Sand & Gravel	0
WL01582	WELL 8 (01582)	A	184	400	2,349,567	Sand & Gravel	0
WL20028	WELL 3 (20028)	I	72	400	720,000	Sand & Gravel	0
WL20029	WELL 5 (20029)	A	183	400	268,445,000	Sand & Gravel	0
WL20030	WELL 6 (20030)	A	182	400	322,431,000	Sand & Gravel	0



ASSESSMENT – GW DELINEATION

BEYOND
MINIMUM

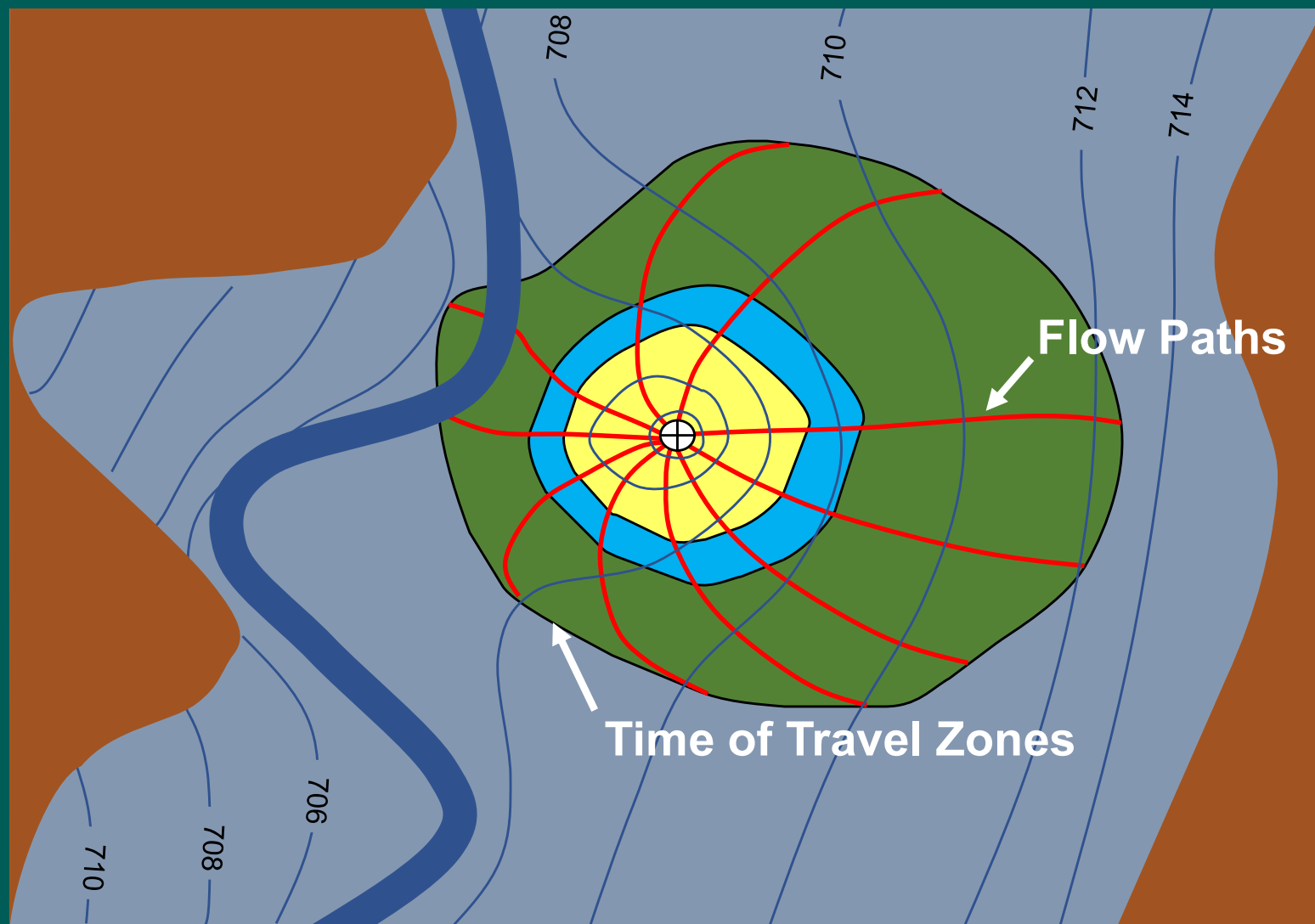




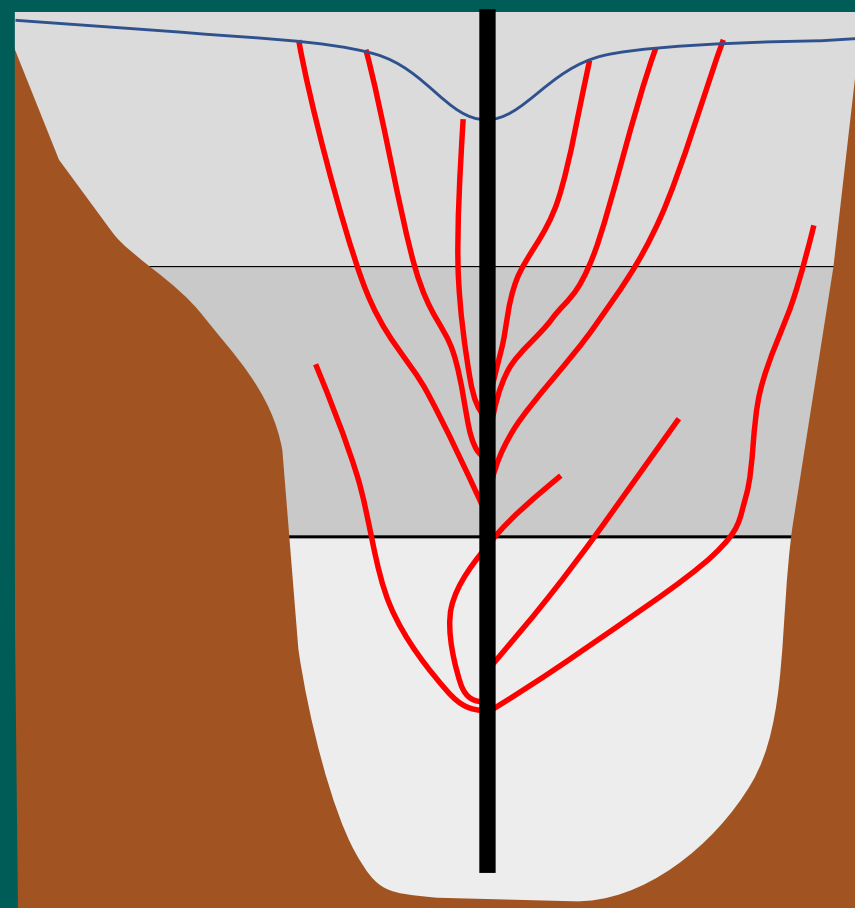
ASSESSMENT – GW DELINEATION

BEYOND
MINIMUM

Plan View



Cross Sectional View

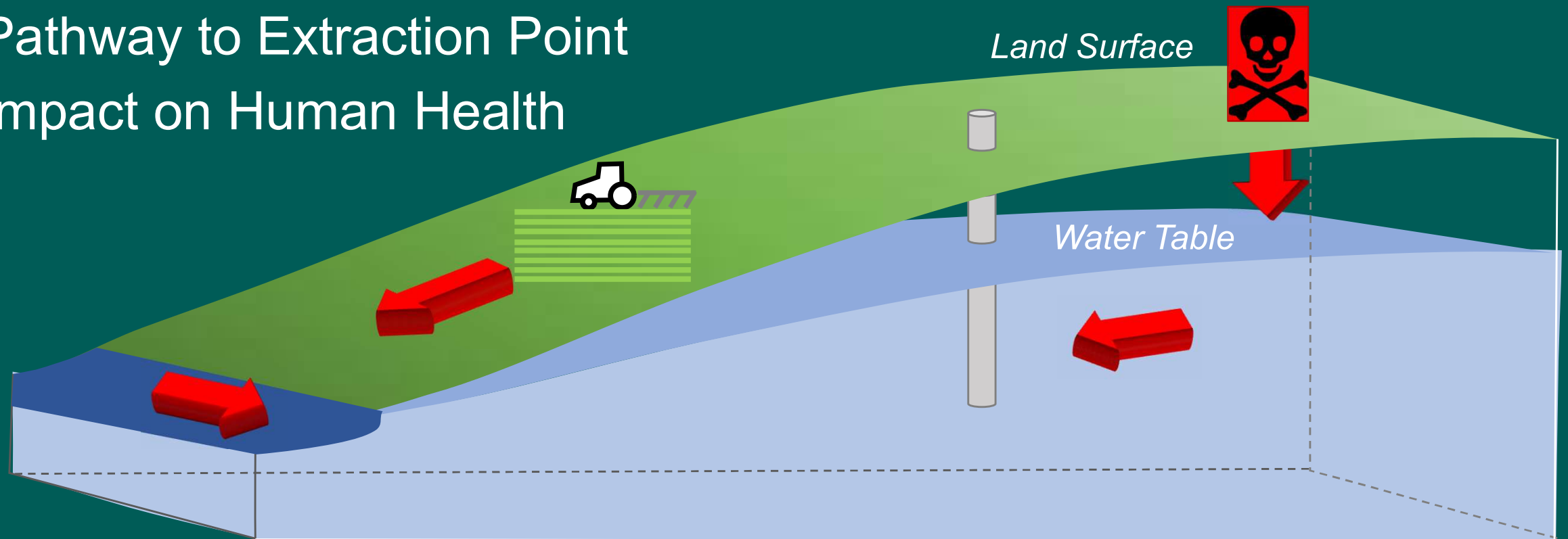




ASSESSMENT – SUSCEPTIBILITY

BEYOND MINIMUM

- Nature of Contaminant
- Storage, Handling, and Disposal Practices
- Pathway to Source Water
- Pathway to Extraction Point
- Impact on Human Health





OBJECTIVES

MINIMUM
REQUIRED

Source Water Protection Plan must contain a list of the community water supply's objectives for protecting source water.

- Can Include Developing Vision Statement / Conducting Source Water Assessment
- May Address Problems / Issues Identified in the Assessment
- Should Consider Current and Potential Future Issues



OBJECTIVES

BEYOND
MINIMUM

- Establish Defensible Protection Areas
- Inventory, Evaluate, and Revise Existing SWP Efforts
- Determine Preference for Voluntary versus Regulatory Approach
- Clarify Stakeholder Roles & Responsibilities
- Ensure Objectives Can Be Measured / Evaluated
- Document and Monitor Progress



ACTION PLAN

MINIMUM
REQUIRED

The Action Plan must include:

- Description of Projects, Programs, and Activities Developed to Meet Objectives
- Implementation Schedule
- Resources Needed
- Potential Problems / Obstacles to Implementation

LAND USE PLANNING

Comprehensive Plan –
Natural Resources Element

SITE PLAN REVIEWS

Ensure best management
practices are applied to new
sites

INVENTORY / INSPECTION

Local Fire Department /
Local Emergency Planning
Committee (LEPC)



Projects, Programs, Activities

EDUCATION

Local Schools, Civic Groups,
Municipal Departments

AWARENESS

Consumer Confidence
Report

CONTINGENCY PLAN

Early Warning Detection
System, Response Plan

SUBMISSION

Population Served	Develop and Submit by:
> 50,000	July 26, 2022
> 3,000 < 49,999	July 26, 2023
< 2,999	July 26, 2024

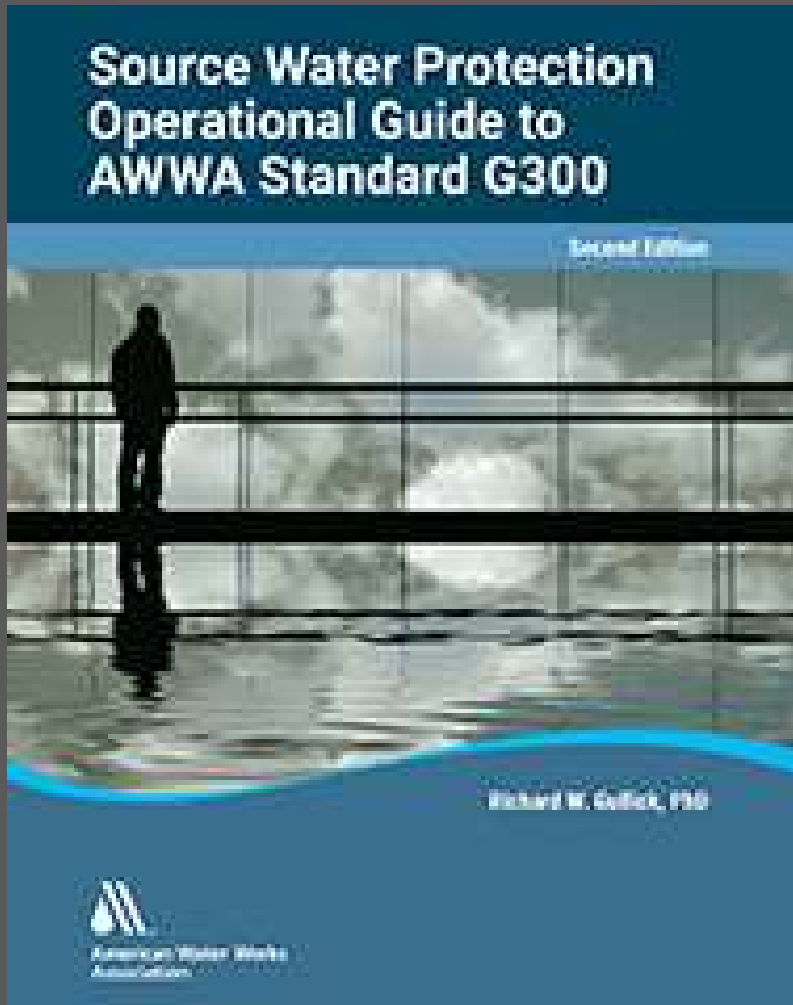
The Agency, not later than 45 days after the receipt of the source water protection plan, will either approve or disapprove the plan.

The community water supply must review, and revise as necessary, its source water protection plan no less frequently than every five (5) years.

Closing Thoughts



REGULATION or OPPORTUNITY



SOURCE WATER PROTECTION PROGRAM STEPS

06 EVALUATE / REVISE

Periodic Review and
Continuous Improvement

05 IMPLEMENTATION

Documentation of
Actions Taken,
Adaptive and Iterative

04 ACTION PLAN

Required Actions for
Protection, Timeline,
Resources



01 VISION

Commitment,
Alignment of Priorities
and Resources

02 ASSESSMENT

Source Characterization,
Potential Contaminants,
Susceptibility

03 OBJECTIVES

Prioritize the Concerns
of Greatest Importance

Based on: Source Water Protection Operational Guide to AWWA Standard G300



QUESTIONS?

THANK YOU!



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