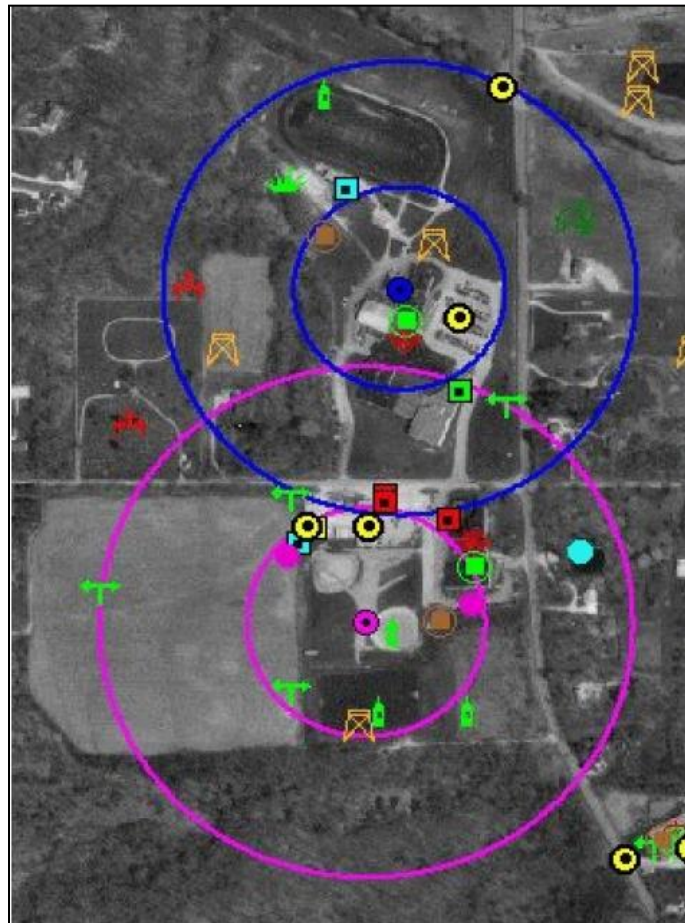


Division of Drinking and Ground Waters
Source Water Assessment and Protection Program

Potential Contaminant Source Inventory Process Manual



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1.0 INTRODUCTION

As part of the Source Water Assessment and Protection (SWAP) Program, Ohio EPA has developed process manuals for completing the three steps necessary to complete a drinking water source assessment for each Ohio public water system (PWS) using ground water as its primary source of drinking water. The three steps in a source water assessment for these systems are:

1. Delineate the area from which a public water supply receives its water (drinking water source protection area);
2. Inventory the significant potential contaminant sources within the protection area; and
3. Determine the susceptibility of the source water (aquifer) to contamination.

This revised process manual outlines the procedure for conducting a potential contaminant source inventory for the SWAP Program. The revisions made to the process reflect the lessons learned during the large scale efforts to complete all drinking water source assessments by January 2005.

2.0 WHAT IS A POTENTIAL CONTAMINANT SOURCE INVENTORY?

Once the protection area has been determined, the next step is to conduct a detailed inventory of the potential contaminant sources within the drinking water source protection area (also known as the protection area). The purpose of the potential contaminant source inventory (PCSI) is to identify any significant activity or land use that has the potential to contaminate the ground water supplying the PWS. The information collected during the inventory will be essential to the water supplier in developing effective protection strategies.

The level of detail that goes into the PCSI depends on the PWS type. The PCSI for community water systems serving municipalities focuses on off-site potential contaminant sources. Inventories for these systems are based on the guidance established under Ohio's Wellhead Protection Program. The PCSI for a non-municipal PWS includes all of the potential contaminant sources within the protection area but focuses on the potential contaminant sources on the facility's property, such as above ground storage tanks, chemical storage areas, utility sheds, and septic systems. The detailed on-site inventory for these types of facilities will allow the PWS to focus their protective strategies on those potential contaminant sources where it has the most direct control.

The PCSI process involves three steps: pre-site visit activities, site visit activities, and post-site visit activities. These steps are discussed in the following sections of this process manual.

3.0 PRE-SITE VISIT ACTIVITIES

When preparing to conduct a PCSI the pre-site visit activities will be determined by the type of new assessment as described in the new well siting process. Information to determine prior to the site visit includes whether the facility is subject to any enforcement actions; special entry requirements; and the best person to contact for access to the site. PDW staff may also be aware of any specific safety equipment or training required for entry to the site (this pertains mostly to industrial facilities). The inspector may also be able to provide information about special requirements for the site visit such as the need for a security clearance or if more than one person should participate for personal safety reasons.

Contact the PWS to schedule your site visit. During this initial contact discuss the SWAP Program and give the PWS contact a chance to ask questions regarding the site visit. Indicate who will be visiting and approximately how long the site visit is anticipated to last. Make sure you know how to get to the PWS; ask for driving directions if you need them. The owner/operator of a transient, non-community PWS is not required to meet with SWAP staff, but it is encouraged.

The following supplies should be available for each site visit:

- At least two copies of the delineation map; preferably using a recent aerial photograph as the base map. A larger map may be needed for large protection areas; if a map larger than 11x17 is needed please contact Central Office as soon as possible.
- Agency identification.
- Copies of the inventory forms (at least enough for each PWS scheduled that day).
- Business cards.
- SWAP brochures.
- Any necessary safety equipment. (This will depend on site-specific requirements; but work boots should always be carried.)
- Example SWAP report for the type of PWS you are visiting.

4.0 SITE VISIT ACTIVITIES

The purpose of the site visit is to identify all of the potential contaminant sources that exist within or very near the boundary of the delineated 5 year time-of-travel zone. The actual order of events that occur during the site visit is discretionary as long as all of the following information is obtained and the following tasks are performed at some point during the visit.

The PCSI for a community water system serving a municipality places emphasis on the off-site inventory; these systems can exert a greater degree of control over off-site

potential contaminant sources than any other type of public water system. The inventory serves several purposes: to confirm the locations of previously identified facilities; to identify new facilities that may be potential contaminant sources; to gather data about land uses in the protection area; and to gather information on the extent of regional potential contaminant sources such as areas served by household sewage treatment systems (residential septic systems).

- < **Conduct the site visit:** If someone is available, introduce yourself and explain why you are there (even if you already explained it on the telephone during your initial contact with the PWS). The site visit is an opportunity to educate the PWS owner/operator about the SWAP program, the Division and Ohio EPA. Remember, a meeting is not required for a transient, non-community PWS

Show the PWS contact(s) an example of a completed report and discuss the report contents.

Share the preliminary delineation/inventory map with the PWS contact, Discuss the protection area with the PWS contact and explain how the area was determined. If the database search indicated any potential sources present within the area, try to determine, with the assistance of the PWS, if those are properly located. Ask the three questions on the inventory form that refer to the presence of sewers, zoning, and home heating oil tanks. Be sure to record the responses.

Important information to collect for the report: In addition to the data that will be collected on the inventory forms, gather the following information:

Well locations: Confirm the location of the well or wells; GPS their locations if needed. Make sure to note if the system uses names different than those used by DDAGW.

Note the condition of the well(s): Note anything that appears out of the ordinary about the well. This may include a depression around the well or a loose or cracked well cap. Discuss any abnormalities with the PDW inspector for the facility.

Land use and zoning: Work with the system representative to describe the land use within the protection area and, if possible, identify any areas where zoning is in place. Please note that land use is different than zoning; land use captures the actual, current use of the land (e.g., agricultural, woodland, residential) while zoning describes how the land may legally be used (e.g., commercial, industrial, residential). An initial indication of the land use can be gleaned from aerial photos of the protection area. To the extent possible, land use should be described as an estimated percentage of the protection area (i.e, 60% commercial, 30%

residential, 10% agricultural). At a minimum make notes such as “primarily residential with some commercial and agricultural areas”.

Inventory date and public water system assistance: Capture the date the on-site inventory was completed and the names and titles of the public water system representatives who assisted in the inventory.

- < **Perform the on-site inventory:** The purpose of this activity is to locate any potential contaminant sources present on the PWSs property and will typically include the owner/operator of the PWS, if available.

Note the location of materials stored on the site in quantities above the expected normal household quantities. Ask how they use the materials. Additional questions will be site specific based on the type of facility and your observations. Additional questions (such as: “What is in the tank beside the building?”, “Do you have a heating oil tank in the basement?”, etc.) will be site specific based on the type of facility you are visiting and your observations. Use the on-site portion of the checklist (Appendix B) for collecting this information. Take the time to advise the PWS’ representative that materials stored near the well should be moved, if possible, to another location. Note whether the facility has a septic system or is served by a sewer system. Dumpsters and Porta Potties are mobile sources and should not, as a rule, be inventoried.

- < **Perform the off-site inventory:** Depending on the size of the area, this may be done by either walking or by driving through the protection area. The water system’s representative should be encouraged to accompany you during the inventory as they are likely to know some details about the area businesses. If they do not accompany you during the off-site inventory make arrangements to meet after the off-site inventory, they may be able to help determine how a specific facility should be coded. Any visible potential contaminant sources should be noted.

The inventory will not capture detailed information for each facility, rather it will identify the general types of facilities in the protection area. Record the name, address, and type of the business on the inventory form (Appendix B). Only use the public water system address for the drinking water treatment plant.

Off-site sources should be given codes listed as “Types of Potential Contaminant Sources and Their Codes” on the inventory form. Each off-site facility must be assigned one of these codes. For example, if you see a gas station in the protection area you should label it “gas station” with code C-15. You should not use the on-site codes to label the underground storage tanks at the gas station. It is safe to assume that all gas stations will have underground storage tanks. Similarly, cropland should be labeled “cropland” (code A-5) and the codes for on-site fertilizer/pesticide use

should not be used. Once again, we can safely assume that fertilizer and/or pesticides are used on the majority of Ohio's cropland.

Obtain as much information as possible about potential contaminant sources. This information will be important for SWAP staff when preparing the protective strategies pointers for the final report and for the public water system staff when prioritizing the sources when preparing their protection plan. For instance, try to determine if storm drains in the area empty to dry wells (Class V injection wells), a storm sewer system, or directly to a drainage ditch or stream.

Not all facility types or land uses are represented on the inventory forms. For these situations, an "other" code is available for each type of facility (agricultural, industrial, etc.); for example "Commercial, Other." It is not necessary to visit these facilities to determine their precise activities. If no additional information can be gleaned from these sources, leave the facility coded as "Other". If the delineated area does not extend off the system's property, an off-site inventory need not be performed.

Do not locate every septic system, underground storage tank, pole-mounted transformer or parking lot in the protection area. Areas served by sewers and un-sewered areas should be identified during the inventory and marked on the map. This information should be added to the text of the report. Other discrete off-site sources should be identified by the type of business, for example Fleet/truck/bus terminals, Garages (municipal) or Dairy facilities).

For municipal systems the PCSI should note the presence of the water treatment plant without going into great detail about the materials stored and used at the plant.

- < **Discuss your findings with the owner/operator before leaving the PWS:** Depending on the potential sources of contamination found in the protection area, offer any brochures that may provide useful information to the PWS contact. If you don't have them with you, offer to send them when you return to the office. Some brochures and fact sheets covering specific potential contaminant sources are available on the shared drive in the "Protective Strategies Materials" folder.

Before leaving discuss the approximate time frame in which you will be sending them their entire assessment (if possible). Make sure that you have the most current mailing address and name of the person to whom the final assessment should be sent. Also explain that the system staff will have the opportunity to review and comment on the assessment report before it is finalized. Give the PWS owner/operator a chance to ask questions.

5.0 POST SITE VISIT ACTIVITIES

The following steps should be performed as soon as possible after completing the onsite inventory:

- < **Potential Violations:** Report any indications of potential violations observed during the site visit to the appropriate Agency/Division/Unit.
- < **Follow-up:** Be sure to follow-up with any commitments made to the owner/operator during the site visit. Send all requested information to the owner/operator in a timely manner.
- < **Edit the Delineation and Inventory:** If necessary, make changes to delineation(s) based on observations made during site visit. This should be done before the inventory data are entered into the database.

Enter the PCSI information collected during the site visit into the Potential Contaminant Source Inventory GIS Project (Appendix A), including any changes in the location of potential sources of contamination identified in the initial database search based on the site visit. This should be completed as soon as possible after the site visit to ensure accuracy in placing points on the map.

Lines should not be put on the map for natural gas distribution and sewer lines because of the uncertainty of where the lines actually run. Information about these potential contaminant sources should be included in the potential contaminant source section of the report. Text can also be added to the standard layout for the small system report stating “Natural gas lines exist within the protection area” or “Sewer lines exist throughout the protection area.”

- < **PCSI Table for Municipal Systems:** To generate the table that will accompany the report to the public water system, open the table for the inventory coverage in the ArcGIS project. Use the query tool to select all records where the pwsid field contains the identification number for the system. Because pwsid is stored as a character field value needs to be in quotation marks .Select 'New Set' button to select all records matching the pwsid value. To export the selected records as a database table, go to the file menu and select export. The first dialog box asks which type of table to create. Select dBase and press OK. Save the data table to the folder titled databases in the swap area assessment folder. This file can now be printed or exported to a variety of formats including spreadsheet (excel), text file or html.

Appendix A

Off-Site Potential Contaminant Source Inventory Checklist

TYPES OF POTENTIAL CONTAMINANT SOURCES (& THEIR CODES)

COMMERCIAL SOURCES		INDUSTRIAL SOURCES		AGRICULTURAL SOURCES	
Airport/Abandoned Airfield	C-1	Asphalt/cement/concrete plants	I-1	Animal burial areas*	A-1
Auto repair shops/body shops	C-2	Chemical Plant	I-2	Animal feedlots*	A-2
Barber and beauty shops	C-3	Electronic manufacturing	I-3	Animal waste storage/disposal*	A-3
Boat services/repair/refinishing	C-4	Foundries and metal fabricators	I-4	Confined animal feedlots*	A-4
Car/boat/camper dealerships	C-5	Gravel pits & Quarries	I-5	Crops : corn, soybean, wheat	A-5
Car washes	C-6	Historic hazardous material site	I-6	Crops: orchards	A-6
Carpet/tile stores	C-7	Machine/metalworking shops	I-7	Crops: other	A-7
Cemeteries*	C-8	Metal finishing/plating	I-8	Dairy facility*	A-8
Dry cleaners	C-9	Military Base	I-9	Drainage canals/tiles	A-9
Equipment rental/repair shops	C-10	Mine wastes (gob piles/tailings)	I-10	Farm chemical distributor	A-10
Fleet/truck/bus terminals	C-11	Mines: abandoned	I-11	Farm machinery repair areas	A-11
Food Processor	C-12	Mining: surface/ strip mines	I-12	Greenhouses/Nurseries	A-12
Funeral services / crematories	C-13	Mining: underground	I-13	Pasture*	A-13
Furniture repair/finishing/ manufacturing shops	C-14	Petroleum product production & storage companies	I-14	Pesticide/fertilizer/petroleum storage & transfer areas	A-14
Gas stations (existing & abandoned/historic)	C-15	Plastics/synthetics producers	I-15	Silage storage (bulk)	A-15
Golf courses	C-16	Power plants	I-16	Silviculture (logging)	A-16
Hardware/lumber/parts stores	C-17	Wood preserving/treating	I-17	Other Agricultural Sources	A-17
Heating oil companies	C-18	Wood/paper/pulp mills	I-18		
Hospitals*	C-19	Electric Substations	I-20	WASTE DISPOSAL SOURCES	
Junk yards (scrap and auto)	C-20	Other Industrial Sources	I-19	Abandoned dumps	W-1
Laundromats	C-22	MUNICIPAL SOURCES		Inactive/closed landfills	W-3
Lawn/farm stores	C-23	Ground water recharge ponds	M-1	Industrial landfills	W-4
Marina/boat docks	C-24	Composting/yard waste facility	M-2	Municipal landfills	W-5
Medical/dental offices/clinics*	C-25	Drinking water treatment plants	M-4	Residual waste landfills	W-6
Paint stores	C-26	Garages (municipal)	M-5	Hazardous wastes landfills	W-7
Pest control companies	C-27	Salt storage areas	M-6	Radioactive waste disposal	W-8
Print Shops/photo shops	C-28	Recycling facilities*	M-7	Unknown status landfills	W-9
Railroad yards/ maintenance	C-29	Schools (bus areas/garages)	M-8	Other Waste Disposal Sources	W-10
Research laboratories	C-30	Storm water basins	M-9		
Veterinary offices*	C-31	Wastewater treatment plant*	M-10		
Welding shops	C-32	Wastewater application	M-11		
Other Commercial Sources	C-33	Other Municipal Sources	M-12		

* potential pathogen source

Appendix B

On-Site Potential Contaminant Source Inventory Checklist

POTENTIAL SOURCES OF CONTAMINATION CHECKLIST

SYSTEM NAME:	PWS ID#:
ADDRESS:	CONTACT PERSON:
COUNTY:	PHONE NUMBER:
TOWNSHIP:	DATE OF INVENTORY:

ON-SITE (Property) SOURCES (Please note the any specific information regarding the source under the "comments" section.)

Potential Contaminant Source	COMMENTS - Substances present, amount, type of storage, emergency response plans, maintenance, etc..
Above Ground Storage Tanks	
Chemical Drums/ Storage	
Chemical Spills	
Chemical/petroleum pipelines	
Combined Sewer overflows*	
Fertilizer Application	
Floor drains (to septic tank/ well)	
Gas Lines	
Industrial pipelines	
Lagoon/Pond/Pit	
Material stockpiles	
Pesticide Application	
Salt/Deicing Storage Piles	
Septic Systems (discharging)* stream or surface water)*	
Septic Systems (leachfield)*	
Sewer Lines*	
Sinkholes	
Storm Drains	
Surface Impoundments	
Underground Storage Tanks	
Wells: oil and gas	
Wells: brine injection	
Wells: not in use	
Utility Shed	
Other _____	
Other _____	

* potential pathogen source

Practices to reduce spills or releases employed on-site:

