**Source Water Assessment Program (SWAP) Limitations**

**Potential Contaminant Source Data**

To maintain a common basis for assessing sources of public drinking water in North Carolina, only regulatory agency databases with state-wide coverage were used to develop the inventory of Potential Contaminant Sources (PCSs).  Within these databases, only those PCSs with available location data could be used.  It is recognized that some problems exist with respect to the accuracy, reliability, quality and completeness of the data obtained from regulatory agency databases.

Considering fiscal and schedule constraints, the North Carolina Public Water Supply Section and the TAC Advisory Committee determined that the assessments for approximately 6,000 sources of drinking water must be based on established statewide data.  Also, it was determined that analysis of the data and creation of the assessment reports would need to be an automated process utilizing a Geographic Information System (GIS).  Therefore, it must be recognized that the assessment results are based on limited data and analysis techniques.

**Potential Contamination Source Information**

All PCS datasets are provided to Public Water Supply "as is." Therefore the accuracy of the location data is unverified.  The Public Water Supply Section makes no claim or guarantee of data quality, correctness, completeness or validity and does not warranty or assure this data in any way. Unless otherwise noted, all data containing latitude and longitude in decimal degrees was included in the assessments.  Records that do not have location information are not used.  A GIS shapefile is created using the latitude and longitude in decimal degrees.  Each record is checked to determine if the plotted location of the record matched with the value given in the county field for the record.  Any record that does not have a matching county location is not included in the assessments.

Animal Operations

This database contains permitted facilities for animal operations consisting of swine, cattle, poultry and horse farms that are required to have Certified Animal Waste Management Plans (CAWMP). Animal operations are defined by General Statute 143-215.10B as feedlots involving more than 250 swine, 100 confined cattle, 75 horses, 1,000 sheep, or 30,000 poultry with a liquid waste management system.

Division of Water Resources (DWR) rules mandate that all facilities in operation prior to January 1, 1994 register with the division.  Since January 1, 1994 any new facilities were required to obtain a CAWMP before starting their animal operation. In addition, any facilities in operation prior to January 1, 1994 were required to obtain a CAWMP by December 31, 1997. As of January 1, 1997 all new facilities were required to obtain a permit from DWR prior to construction and be certified prior to startup, and all existing facilities were to be permitted by DWR over the next 5 years.

Data was obtained from the Division of Water Resources, Regional Operations Section, Animal Feeding Operations Branch in January of 2015.  For additional information about this data, contact the Animal Feeding Operations staff by phone at 919-807-6464 or click here <http://deq.nc.gov/about/divisions/water-resources/water-resources-permits/wastewater-branch/animal-feeding-operation-permits/afo-program-summary> to visit their web site.

CERCLIS Sites

The Superfund program was created by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and amended by the Superfund Amendments and Reauthorization Act.   The acts established authority for the government to respond to the release/threat of release of hazardous wastes, including cleanup and enforcement actions.  The Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) is a database used by the U.S. Environmental Protection Agency to track activities conducted under its Superfund program.  CERCLIS contains data on potentially hazardous waste sites that have been reported to the EPA.  Sites investigated because of a potential for releasing hazardous substances into the environment are added to the CERCLIS inventory.  EPA learns of these sites through notification by the owner, citizen complaints, state and local government identification, and investigations by EPA programs other than Superfund.

Data was obtained from the Division of Waste Management, Superfund Section in December of 2013.  For additional information about this data, contact the Superfund Section by phone at 919-707-8329 or click here <https://deq.nc.gov/about/divisions/waste-management/superfund-section/federal-remediation-branch> to visit their web site.

National Priority List Sites

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), amended by the Superfund Amendments and Reauthorization Act, created the Superfund program.  The acts established authority for the government to respond to the release/threat of release of hazardous wastes, including cleanup and enforcement actions.  Long-term cleanups at National Priority List (NPL) sites last more than a year while short term /emergency cleanups are usually completed in less than a year.  Sites are listed on the NPL upon completion of a Hazard Ranking System (HRS) screening, public solicitation of comments about the proposed site, and after all comments have been addressed.  Section 105(a)(8)(B) of CERCLA, as amended, requires that the statutory criteria provided by the HRS be used to prepare a list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States.   This list, which is Appendix B of the National Contingency Plan, is the NPL.

The identification of a site for the NPL is intended to guide EPA in determining which sites warrant further investigation to assess the nature and extent of the human health and environmental risks associated with a site, identifying what CERCLA-financed remedial actions may be appropriate, notifying the public of sites EPA believes warrant further investigation; and serving notice to potentially responsible parties that EPA may initiate CERCLA-financed remedial action.  Inclusion of a site on the NPL does not in itself reflect a judgment of the activities of its owner or operator, it does not require those persons to undertake any action, nor does it assign liability to any person.  The NPL serves primarily informational purposes, identifying for the States and the public those sites or other releases that appear to warrant remedial actions.

Data was obtained from the U.S. EPA, Region 4 Superfund Program in January of 2015.   For additional information about this data, contact the program by phone at 404-562-9634 or click here <https://www.epa.gov/superfund/search-superfund-sites-where-you-live> to visit their web site.

Non-Discharge Permits

The non-discharge database identifies industrial and municipal facilities that are permitted to operate any sewer system, treatment works, disposal system, petroleum contaminated soil treatment system, animal waste management system, storm water management system or residual disposal/utilization system which does not discharge to surface waters of the state, including systems which discharge waste onto or below land surface.

Data was obtained from the Division of Water Resources, Water Quality Permitting Section, Non-Discharge Permitting Unit in January of 2015.  For additional information about this data, contact the unit staff by phone at 919-807-6453 or click here <http://deq.nc.gov/about/divisions/water-resources/water-resources-permits/wastewater-branch/non-discharge-permitting> to visit their web site.

NPDES Permits

The National Pollutant Discharge Elimination System (NPDES) database identifies facilities permitted for the operation of point source discharges to surface waters in accordance with the requirements of Section 402 of the Federal Water Pollution Control Act.  Point sources are discrete conveyances such as pipes or man-made ditches.   Industrial, municipal, and other facilities must obtain permits if their discharges go directly to surface waters.  The NPDES permit program controls water pollution by regulating point sources that discharge pollutants into public waters.

Data was obtained from the Division of Water Resources, Water Quality Permitting Section, NPDES Wastewater Permitting and Compliance Program in June of 2015.   For additional information about this data, contact the program staff by phone at 919-807-6300 or click here <http://deq.nc.gov/about/divisions/water-resources/water-resources-permits/wastewater-branch/npdes-wastewater-permits> to visit their web site.

Old Landfill Sites

Locations of non-permitted landfills that closed prior to January 1, 1983, when waste disposal permitting regulations commenced. These sites are not currently in operation.

Data was obtained from the Division of Waste Management, Superfund Section, Inactive Hazardous Sites Branch (IHSB) in January of 2015.  For additional information about this data, contact the Division of Waste Management staff by phone at 919-707-8200 or click here <http://portal.ncdenr.org/web/wm/sf/ihs/ihsoldlf> to visit their web site.  Since 2000 the IHSB has conducted a geographic inventory of the old landfills in 46 counties throughout North Carolina.  Although they are working to inventory the old landfill sites statewide, the geographic locations of these sites in the remaining counties are much less reliable.  You may contact the IHSB for a list of the 46 counties.

PCB Sites

This database identifies generators, transporters, commercial storers and/or brokers and disposers of Polychlorinated Biphenyls (PCBs).  Concern over the toxicity and persistence in the environment of PCBs resulted in the Toxic Substances Control Act (TSCA) that prohibited the manufacture, processing, and distribution in commerce of PCBs.   Thus, TSCA legislated true "cradle to grave" (i.e., from manufacture to disposal) management of PCBs in the United States.  PCBs are mixtures of synthetic organic chemicals with the same basic chemical structure and similar physical properties ranging from oily liquids to waxy solids.  Due to their non-flammability, chemical stability, high boiling point and electrical insulating properties, PCBs were used in hundreds of industrial and commercial applications including electrical, heat transfer, and hydraulic equipment, plastics and rubber and many other applications.

Data was obtained from the Environmental Protection Agency, Office of Pollution Prevention and Toxics in March of 2015.  For additional information about this data, contact the PCB staff at 404-562-8512 or click here: <https://www.epa.gov/pcbs/learn-about-polychlorinated-biphenyls-pcbs> to visit their web site.

This data was processed additionally in the following manner:

Each record that contained a physical address that could be address matched using the Geographic Data Technology address database was included in the assessments.   Public Water Supply Section staff performed the address matching.

Pollution Incidents

This database contains information regarding the release of pollutants into the environment that have or are likely to have, impact on the ground water resources of the State.  The initial information regarding these releases is usually obtained from concerned citizens or responsible parties, who report a release to the Department of Environmental Quality.  After an incident is reported, regional office staff investigate the reported incident and enter the results of their investigation into a statewide database.  This database contains an inventory of reported incidents from leaking underground storage tanks and sites contaminated with dry cleaning solvents.  Substances released into the environment include gasoline and solvents used in the dry cleaning process.

There are two main sources for this data.  The Division of Waste Management, Underground Storage Tank Section provided information on the pollution incidents that resulted from a leaking underground storage tank.  The Division of Waste Management, Dry-cleaning Solvent Cleanup Act Program provided information on their sites.  In January 2015, data was obtained from the Underground Storage Tank Section.  For additional information about this data, contact the UST section staff by phone at 919-707-8171 or click here <http://portal.ncdenr.org/web/wm/ust> to visit their web site.  In January of 2015, data was obtained from the Division of Waste Management, Dry-cleaning Solvent Cleanup Act Program.  For Additional information contact the staff by phone at 919-707-8369 or visit their web site at <http://portal.ncdenr.org/web/wm/dsca>

RCRA Hazardous Waste Generators/Transporters

This database has records for all hazardous waste generators and transporters as defined by the Resource Conservation Recovery Act (RCRA).  Hazardous waste as defined by RCRA is waste material that exhibits ignitability, corrosivity, reactivity, or toxicity. Chemical, metal, and furniture manufacturing are some examples of processes that create hazardous waste.  RCRA tightly regulates all hazardous waste from "cradle to grave" (i.e., from manufacture to disposal).

Data was obtained from the Division of Waste Management, Hazardous Waste Section in January of 2015.  For additional information about this data, contact the Hazardous Waste Section staff by phone at 919-707-8200 or click here <http://deq.nc.gov/about/divisions/waste-management/waste-management-rules/hazardous-waste-rules> to visit the web site.

RCRA TSD Sites

Treatment/Storage/Disposal (TSD) sites are facilities that are engaged in the activities of the treatment, storage, or disposal of hazardous waste.  Under the RCRA, TSD activity can occur only at facilities that received or stored hazardous waste after November 19, 1980, the effective date of the RCRA regulations.

Data was obtained from the Division of Waste Management in January of 2015. For additional information about this data, contact Hazardous Waste Section staff by phone at 919-707-8202 or click here <http://deq.nc.gov/about/divisions/waste-management/waste-management-permits/hazardous-waste-section-permits> to visit their web site.

Septage Disposal Sites

This database contains information on permitted, dedicated sites where septage is land applied.  The Septage Management Program assures that septage (a fluid mixture of untreated and partially treated sewage solids, liquids and sludge of human or domestic origin that is removed from a septic tank system) is managed in a responsible, safe and consistent manner across the state.

Data was obtained from the Division of Waste Management, Solid Waste Section in January of 2015.  For additional information about this data, contact the Septage Management Program staff by phone at 919-707-8280 or click here <https://deq.nc.gov/about/divisions/waste-management/waste-management-rules/septage> to visit their website.

Soil Remediation Sites

This database contains information on permitted, dedicated sites where soil contaminated by leaking petroleum or chemical storage tanks can be taken for bioremediation.  Bioremediation is a treatment process that uses naturally occurring microorganisms (yeast, fungi, or bacteria) to break down, or degrade, hazardous substances.  These microorganisms break down organic compounds such as petroleum products that are hazardous to humans into harmless products, mainly carbon dioxide and water.

Data was obtained from the Division of Waste Management, Underground Storage Tank Section, Corrective Action Branch in January of 2015.  For additional information about this data, contact the Corrective Action Branch staff by phone at 919-707-8171 or click here <http://deq.nc.gov/about/divisions/waste-management/underground-storage-tanks-section/corrective-action-branch> to visit their web site.

Solid Waste Facilities

Solid waste includes garbage, construction debris, commercial refuse, sludge from water supply or waste treatment plants, or air pollution control facilities, and other discarded materials.  The database contains an inventory of closed, unlined landfills that were primarily operated by municipalities.

How to manage solid waste has been a problem for decades.  In the early 1960s, cities and towns across the country practiced open air burning of trash.  In response, Congress passed the Solid Waste Disposal Act in 1965 as part of the amendments to the Clean Air Act.  This was the first federal law that required environmentally sound methods for disposal of household, municipal, commercial, and industrial waste.  However, the initial design of the "sanitary" landfill fouled ground water, soil, surface water, and air because of improper disposal methods.  Engineers have since designed new liners and leachate treatment systems to prevent environmental degradation.

Data was obtained from the North Carolina Division of Waste Management, Solid Waste Section in January of 2015.  For additional information about this data, contact the Solid Waste Section staff by phone at 919-707-8200 or click here <http://deq.nc.gov/about/divisions/waste-management/solid-waste-section> to visit their website.

Tier II Sites

This database contains an inventory of facilities that store types and amounts of hazardous materials and are subject to the reporting requirements of SARA Title III Section 312, Emergency Planning and Community Right to Know Act.  Tier II forms require basic facility identification information, employee contact information for both emergencies and non-emergencies, and information about chemicals stored or used at the facility including:

* The chemical name or the common name as indicated on the MSDS;
* An estimate of the maximum amount of the chemical present at any time during the preceding calendar year and the average daily amount;
* A brief description of the manner of storage of the chemical;
* The location of the chemical at the facility; and
* An indication of whether the owner of the facility elects to withhold location information from disclosure to the public.

Data was obtained from the Department of Public Safety, Division of Emergency Management in November of 2013.  For additional information about this data contact the Division of Emergency Management staff at 919-436-2746 or click here <http://www.ncdps.gov/Emergency-Management/Hazardous-Materials/EPCRA-Tier-2> to visit their website.

UIC Permits

The Underground Injection Control (UIC) Program protects groundwater quality by preventing illegal waste disposal and by regulating the construction and operation of wells used for injecting [approved substances](https://ncdenr.s3.amazonaws.com/s3fs-public/Approved%20Remediation%20Additives-Tracers%204-01-2016%20%282%29.xlsx), aquifer recharge, and other activities. The most common types of injection wells in North Carolina are used for:

* [Aquifer Storage and Recovery (ASR)](http://deq.nc.gov/about/divisions/water-resources/water-resources-permits/wastewater-branch/ground-water-protection/aquifer-storage-recovery)
* [Geothermal Heating and Cooling](http://deq.nc.gov/about/divisions/water-resources/water-resources-permits/wastewater-branch/ground-water-protection/geothermal)
* [In-Situ Groundwater Remediation](http://deq.nc.gov/about/divisions/water-resources/water-resources-permits/wastewater-branch/ground-water-protection/in-situ-groundwater-remediation)
* [Stormwater infiltration](http://deq.nc.gov/about/divisions/water-resources/water-resources-permits/wastewater-branch/ground-water-protection/stormwater-injection) - effective May 1, 2012

Data was obtained from the Division of Water Resources, Water Quality Regional Operations Section in January of 2015.  For additional information about this data, contact the UIC Program staff by phone at 919-807-6496 or click here <https://deq.nc.gov/about/divisions/water-resources/water-resources-permits/wastewater-branch/ground-water-protection/injection-wells> to visit their web site.

UST Permits

An underground storage tank system (UST) is a tank and any underground piping connected to the tank that has at least 10 percent of its combined volume underground.  The federal UST regulations apply only to underground tanks and piping storing either petroleum or certain hazardous substances.  These facilities are regulated under Subtitle I of RCRA and must be registered with the state and receive an operating permit annually.  Until the mid-1980s, most USTs were made of bare steel, which is likely to corrode over time and allow UST contents to leak into the environment.  Faulty installation or inadequate operating and maintenance procedures also can cause USTs to release their contents into the environment.  The greatest potential hazard from a leaking UST is that the petroleum or other hazardous substance can seep into the soil and contaminate ground water.  A leaking UST can also present other health and environmental risks, including the potential for fire and explosion.  The facilities shown in this database have tanks registered with the UST Section.

Data was obtained from the Division of Waste Management, Underground Storage Tank Section in March of 2015.  For additional information about this data, contact the Underground Storage Tank Section staff by phone at 919-707-8171 or click here <http://deq.nc.gov/about/divisions/waste-management/underground-storage-tanks-section> to visit their web site.