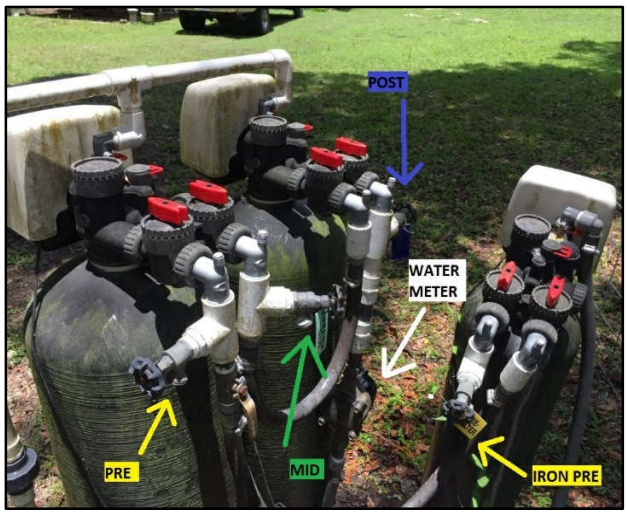
WELL SURVEILLANCE TECHNICAL GUIDE



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On the Cover

Upper Left Robbie Herrick Lake County purging a well
Upper Right Stephanie Armstrong Alachua County with a GPS data-logger
Lower Left James Parnell (DEP) for a picture of a GAC Filter system with Pre, Mid, and Post labels
Lower Right Robbie Herrick Lake County taking a sample

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Chapter 1—Introduction

The Well Surveillance Program within the Bureau of Environmental Health's Water Section manages several programs to identify and monitor areas in Florida where contaminated drinking water is suspected and may pose a threat to public health. The Well Surveillance Program is composed of the program office and County Health Department (CHD) staff who conduct well sampling and geolocation services under an interagency contract with the Florida Department of Environmental Protection (DEP). The contract focuses on wells in proximity to sites that are known or suspected sources of contamination to the drinking water aquifer. These sites are managed by several different DEP Programs. These programs are the Petroleum Restoration Program (PRP), formerly known as the State Underground Petroleum Environmental Response Act (SUPER Act), Drinking Water Toxics Program (Toxics), Drycleaner Solvent Cleanup Program (DSCP), Waste Cleanup Program (WC) and other water programs beyond the scope of this Technical Guide. The program office coordinates with the CHDs to locate potable wells and conduct water sampling for contaminants of concern. Chemical analysis of water samples is conducted at the DEP laboratory in Tallahassee.

This technical guide is prepared as a reference manual and training guide for Department of Health (DOH) staff. This guide is intended to define acceptable protocols and practices consistent with the goals of the program. Compliance with these standards will be evaluated at each CHD.

Basic training is a combination of online and in person. Online training is available at any time. In-person training is conducted by program office staff at various locations around the state on an as-needed basis. If staff are in need of training, contact the program office staff to set up a training session. New personnel to the program should go through the online training modules prior to the in-person training. You can find more information on our SharePoint site at: https://floridahealth.sharepoint.com/sites/DISEASECONTROL/EH/ehwater/Well-Surveillance/SitePages/Well%20Surveillance%20Training%20Overview.aspx.

Petroleum Restoration Program (formerly known as the SUPER Act Program)

In 1986, the Florida Legislature created the SUPER Act Program in response to groundwater contamination resulting from leaking underground petroleum storage tanks. The primary authority for the program was given to the DEP. DEP oversees the clean-up activities around petroleum facilities that have had a loss of petroleum product. The DOH was given authority to provide field and laboratory services, toxicological risk assessments, investigations of drinking water contamination complaints, and public education (section 376.3071(4) (g), Florida Statutes (F.S)). DEP contracted with the DOH to conduct well surveys and sampling around known or suspected contaminated facilities. A major portion of the contract is dedicated to conducting investigations for the purpose of prioritizing cleanup funding in accordance with Chapter 62-771, Florida Administrative Code (FAC) (Priority Ranking Rule). Funding for the PRP is provided through the Inland Protection Trust Fund.

Drinking Water Toxics Program

Discovery of extensive groundwater contamination of wells with ethylene dibromide (EDB) in the early 1980s led to widespread public concern about the water quality of Florida's private potable wells. The Florida Legislature enacted the Water Quality Assurance Trust Fund in 1983 to protect public health and the environment. This trust fund gave DEP the responsibility to investigate wells or areas that may be at risk due to chemical release and to provide an

alternative water source to a homeowner whose well is found to contain contaminants above the primary maximum contamination level (MCL) or health advisory level (HAL). The program is limited to anthropogenic chemical contaminants that present an unacceptable risk to the homeowner by any source not already covered by another program (petroleum, drycleaner, lead, bacteria). DEP contracted with DOH to perform sampling of residential potable wells and to provide information and support to the homeowner and the DEP.

Drycleaning Solvent Cleanup Program (DSCP)

In 1994, the Florida Legislature established the state-funded DSCP to clean up properties that are contaminated because of the operations of a drycleaning facility or wholesale supply facility. The program is administered by the DEP. The statute was sponsored by the drycleaning industry to address environmental, economic, and liability issues resulting from drycleaning solvent contamination. The DEP is now requesting investigations of specific drycleaning facilities at sites being considered for cleanup.

Waste Cleanup Program (WC)

The Waste Cleanup Program (WC) is an umbrella term for a number of cleanup efforts by DEP. The Waste Site Cleanup Section deals with the remediation of hazardous waste sites where enforcement has been unsuccessful or only partially successful. These sites include sites from the Florida National Priority List (Superfund sites) and sites within the State Funded Cleanup Program.

The State Funded Cleanup Program addresses sites where there are no viable responsible parties, the site poses an imminent hazard, does not qualify for Superfund, or is a low priority for the federal Environmental Protection Agency.

Program Goals

The objective of the Well Surveillance Program is to protect the health of Floridians and visitors to the state from potential contaminants in their drinking water. Each CHD is responsible for implementing the Petroleum Restoration, Toxics, and Drycleaner programs for its county unless prior arrangements are made for other counties to assist.

To achieve these goals, CHD staff must be adequately trained in field sampling methods, the use of software programs, and use of Global Positioning System (GPS) equipment.

The Well Surveillance Program is composed of five activities: well surveys, complaint sampling, monitoring areas of concern due to known contamination, public information, and assisting DEP with remediation. These activities will be described in detail in the following chapters.

Chapter 2—Well Surveillance Overview

Well Surveys

The goal of a well survey is to identify potable wells within an area and to sample a sufficient number of representative wells to determine if ground water contamination is present. Well surveys represent the largest single function under the contract, depending upon availability of funds. The purpose of well surveys is to:

- Assist DEP in creating and maintaining a risk-based prioritization system of contaminated sites to determine the order of cleanup.
- Identify wells within an area that are potentially at risk for contamination.
- Sample a representative number of wells sufficient to identify and delineate any contamination that may be present.

Most CHDs will receive regularly-scheduled requests from the program office to conduct a well survey around a specified facility, risk source, or contaminated well. These CHDs are expected to complete the survey and any associated sampling by the due date given on the request.

The well survey should:

- Locate the facility or risk source requested and GPS, <u>if necessary.</u>
- Locate (and GPS, <u>if necessary</u>) **<u>all</u>** potable wells within 500 feet of the facility or risk source.
- Locate up to 10 potable wells within ¼ mile if there are fewer than 10 wells within 500 feet.
- Locate **<u>all</u>** large (> 150,000 gallon per day design capacity) Public Water Supply (PWS) wells within ½ mile.
- Occasionally, if requested by DEP or the program office, a CHD will be asked to step out to ½ mile or greater to locate 10 representative wells.

Samples should be collected from up to 10 potable wells, if available. Wells should be selected to provide surrounding coverage and priority should be given to wells closest to the source or PWS wells.

CHDs are expected to complete the survey and any associated sampling by the due date given on the request. If the CHD is unable to complete the requested survey by the due date, they must request assistance or an extension from the program office as soon as possible, but no later than one week before the survey due date.

Complaints and Investigative Sampling

The CHDs are the main point of contact for residents having health concerns about potable water. The Well Surveillance Program provides funding for CHDs to pursue reasonable investigations. In addition, the legislature has established funds specifically for sampling of newly installed potable wells within certain areas defined in Chapter 62-524, FAC.

For a citizen-initiated complaint, the CHD should respond within two working days, or earlier, if required by local rule or policy. Field personnel should try to determine if there is an observable water quality issue (such as odor, color, film or taste) that would indicate a potential problem.

Interview the complainant to determine why they believe there is a problem. Investigate leads of potential problems in the neighborhood. Based on the interview, CHD personnel will determine if a sample should be collected and for what parameters. It is very important to document observations and conversations regarding a particular complaint.

Once that decision is made, a request to sample must be submitted to the program office for approval. If the program office does not concur, the CHD staff making the request will be notified and should then direct the homeowner to a private laboratory. There is a link to a spreadsheet on our SharePoint site. The DEP website also provides a searchable database of certified laboratories https://floridadep.gov/dear/florida-dep-laboratory/content/nelap-certified-laboratory-search.

Use good judgment when beginning a complaint investigation. The program is not an extension of the mortgage industry or a subsidy for private homeowners. Each well owner is responsible for their own well. Florida provides support to help people who have non-naturally occurring contamination through no fault of their own.

On occasion, DEP directly requests well sampling from the CHD. The CHD must send the request, along with any supporting documentation to the program office for scheduling.

With permission from the Program office, CHDs may also initiate an investigation based on their knowledge of their area or documented complaints. CHDs should focus on areas where wells are near chemical plants, petroleum facilities, drycleaners, farming operations, or chemical spills. One or two samples collected from nearby potable wells could detect migrating plumes. For potable wells in the vicinity of active, known petroleum contamination sites, it is good practice to sample two to four representative wells at least every three years, even if contamination has not been found in the past.

If investigative sampling is requested based on an MCL/HAL violation (or substantial increase in contaminant concentration) of a nearby potable well, CHDs should propose to sample additional wells in the vicinity. CHD staff may propose to sample up to 10 wells around the original well. For point source contamination, such as petroleum and dry-cleaning solvents, wells proposed for investigative sampling should be within one-half mile of the original well. For non-point source contamination, such as fumigants, pesticides, nitrates,and others, CHD staff may be required to look at a larger area as parcels within these areas may be located more than one-half mile apart (for example, farms, orange groves, or others).

Some counties have delineated zones as defined in Chapter 62-524, FAC. All newly-constructed wells within the zone must meet strict construction requirements and have a sample collected by the CHD as part of the permit process. Unless otherwise directed, newly-constructed wells in a delineated zone should have samples charged to TOX-DCEH. CHDs can identify delineated zones located in their county by using EHWater, DEP's MapDirect, or the KMZ file located at \\dchp00vfp01\CHDshare\DCEH\Water\WellSurveillance_KMZ_files for Google Earth.

Re-sampling and Confirmation Samples

Confirmation samples should be collected for wells that exceed the MCL or HAL. Confirmation samples are run to ensure the detected chemical is not the result of lab error, sampler error, sample container issues, small spills immediately around the well head or other instances where the violation is a one-time occurrence. They should not be run in the following circumstances:

- MCL or HAL for Total Trihalomethanes (THMs), or secondary metals.
- If the well is located in an area of known contamination (unless otherwise requested by the program office or DEP).

Re-sampling will be performed on potable wells with confirmed concentrations greater than one-half MCL or HAL (or greater than 8 mg/L for nitrates or 8 µg/L for arsenic). The program office will schedule re-sampling of wells based on the Water Supply Restoration Funding (WSRF) Filter Sampling Guidance. CHDs will receive this information two ways: 1.) in the weekly email (Samples.xls list), or 2.) as an email discussing the Well Surveillance Area as a whole. The program office needs the observations and the firsthand knowledge of these sites to accurately administer the sampling program. CHDs should respond to the emails if there are any changes or observations that may affect the interpretation of the site. Also, if the CHD believes that certain wells not on the well tracking list should be sampled routinely, they should consult with the program office.

Confidential Information

In general, state, county and municipal records are public and are open for review by any person. However, there are some exceptions to this. Chapter 119, F.S., governs public records, including exemptions. For purposes of this section, confidential information may be broken into two categories: health-related records and state agency personnel records.

Agency Personnel Records

Section 119.071(4)(d)2., F.S. lists 20 categories of government employee (as of 2021) that may request some of their data be exempted from disclosure. Potentially exempt data is limited to home addresses, phone numbers, dates of birth and photographs. In general, this section applies to sworn and non-sworn investigators, judges, prosecutors and similar jobs. Note that the person in question or the employing agency must submit a written request for maintenance of the exemption.

Well data and samples that have a request from someone who falls under one of these exemptions should not have the name or address on either the well GPS or sample records. If existing records need to be redacted, please let the program office know and provide a copy of the written request. Data that is redacted or left off records due to an exemption must have the basis for the exemption stated, including the statutory citation.

If the confidential person is the property owner, try to use the resident's, agent's or operator's non-confidential contact information. If the confidential person is the resident, agent or operator of the property, try to use the owner's non-confidential contact information. Confidential persons may also opt to use the contact information of a family member residing at the property (for example, spouse).

Health-related Records

Section 119.0712(1), F.S., states that records relating to an individual's personal health are exempt from disclosure. This section does not require that the person request the exemption. Exemption of all personal identifying information is the default. Personal identifying information may include, but not be limited to:

- Name
- Address
- Social Security Number
- Property ID
- Telephone Number

In the past, the program office had taken confidential medical complaint samples due to requests from physicians or Department clinics as part of medical diagnosis. However, the DEP has determined that they are not able to fund such sampling. That leaves three ways to handle a confidential medical sample:

- Such complaints can, *with the resident's consent*, be sampled as normal citizen complaints, without reference to medical treatment or diagnosis.
- Such complaints can be referred to a private lab.
- The CHD may take the sample at its own expense and send it through the system as confidential.

If the CHD opts to take the sample at its own expense, a Florida Unique Well Identification Number (FLUWID) shall be assigned to the well, but will not be affixed to the well. The FLUWID tag and all records, including GPS location and address, must be placed in a file and stored with the designated confidential records custodian. Each CHD should have a designated person with access to a locked file cabinet. A confidential identifier code should be established by the county.

Except for the confidential identifier code, no identifiable information is to be entered into the program office database or the lab submittal form. At most, only the FLUWID, city, sampling information and results should be entered. The name and address fields shall be entered as confidential identifier code "Confidential," or some similar notation. The actual GPS location, if recorded at all, should be stored in the confidential file that is retained by the confidential records custodian. A public location will be established, which will be at 28° N 84° W (this is a point in the northern Gulf of Mexico). The public location enables the data to be processed within existing procedures without compromising the confidential information. Follow-up sampling in the case of an MCL or HAL exceedance will be handled normally, under a different FLUWID associated with the well in question (assuming the original sample was confidential). However, follow-up samples will not reference the medical complaint.

Note that the state email system is considered public record. Personal identifiable information may not be sent via email unless it is encrypted. Otherwise, it must be sent by interoffice courier in a sealed envelope or by hand. All employees have encrypting keys.

If a confidential person no longer requests confidentiality, or a person without a claim of confidentiality becomes the new resident or owner of the property, the contact information should be updated accordingly. The county should maintain an internal cross-reference containing the confidential identifier (if assigned) so that the historical records can be located if needed.

Notification

CHDs must notify the potable well owner or resident of analytical results for the sample(s) collected from their well and help them understand what effects these chemicals, if present,

could have on their health. Unless contaminants are detected greater than the MCL or HAL in a well that has not previously had an MCL or HAL exceedance, results must be provided within 10 business days of receipt of the results from the DEP lab.

If contaminants are detected at levels greater than the MCL or HAL in a well that has not previously had an MCL or HAL exceedance, the CHD must contact the owner or resident within one business day of receipt of results from the DEP lab. CHD personnel may be instructed to provide the initial notification on a weekend or holiday if, in the judgement of the program office or DEP program management, the concentration is such that a delay in notification would pose an acute risk to the well user or public health.

Written results should include the laboratory analysis report and an explanation of how to read them. If there are elevated levels, it is recommended that the appropriate water fact sheets be included in the notification letter. See Appendix J for a list of available fact sheets. Results for MCL or HAL exceedances that have been resampled and confirmed (or if otherwise instructed by the program office) should include information on the Water Supply Restoration Funding Program (WSRF), contact information and a copy of the WSRF application.

Well Restoration Assistance

Once a concentration greater than an MCL or HAL (excluding secondary MCLs or THMs) has been confirmed, the WSRF is responsible for remediation. Remediation under the WSRF can include assistance to connect the affected residence to a public water system (such as city water), the installation and maintenance of a filter system to remove contaminants or a bottled water delivery service. On occasion, the CHD may be requested to assist by talking to the owners or residents, delivering bottled water coupons or bottled water directly.

A Note on Secondary Metals and Trihalomethane MCLs

DEP's WSRF does not offer assistance to well owners whose wells have high levels of THMs or secondary MCLs (SMCLs, such as iron, aluminum or total dissolved solids). THMs are almost invariably caused by halogen disinfection of the water while SMCLs are based on aesthetic or cosmetic effects rather than any health-related reason.

Summary of Activities

Well Surveys

- GPS designated facility or risk source (if necessary).
- Locate and GPS (if necessary) all potable wells within 500 feet of the facility or risk source.
- Sample up to 10 potable wells, if present, within one-quarter mile of facility or risk source.
- Locate, GPS (if necessary) and sample all large (150,000 gallons-per-day or greater) PWS wells within one-half mile.

Investigative Sampling

- Evaluate all citizen potable well complaints to determine if sampling is warranted and consult with the program office for approval prior to sampling.

- GPS and sample newly installed potable wells within delineated zones.
- GPS and sample potable wells that are nearby potential sources of contamination, with program office approval.
- GPS and sample potable wells that are near wells a recent exceedance or substantial increase in contaminant concentration, with program office approval.

Re-sampling and Confirmation Sampling

- If any potable wells sampled around a requested facility or well surveillance area have an MCL orHAL, a confirmation sample may be needed.
- Perform sampling and GPSing of wells within Well Surveillance Tracking areas as directed.
- Communicate observations and suggestions about Well Surveillance Tracking areas.
- Perform sampling at filter systems as directed by DEP.

Notification

- Notify the property owner or resident of the analytical results in writing every time their well is sampled.
- Owner or resident must be notified within one business day if there is an MCL or HAL violation.

Water Restoration Assistance

- Assist DEP in getting permission to provide alternative water supply.
- Distribute bottled water coupons, filled bottled water containers or a temporary water supply as needed.

Chapter 3—Well Surveillance Activities

Preliminary Office Activities

The following preliminary office activities will help reduce the time in the field and greatly aid in completing an accurate well survey.

1. Determine the location of the facility, risk source or property. The following resources should be consulted:
   a. Oculus. http://depedms.dep.state.fl.us/Oculus/servlet/login
   b. DEP Map Direct, particularly the maps listed under the Division of Waste Management. https://ca.dep.state.fl.us/mapdirect/
   c. EHWater. https://gis.floridahealth.gov/ehwater/
   d. Florida Water Management Inventory. http://www.floridahealth.gov/environmental-health/drinking-water/flwmi/index.html
   e. Program office kml files. \\dchp00vfp01\CHDShare\DCEH\Water\WellSurveillance_KML_Files\
   f. Previous well surveys conducted in the area and found in Laserfiche or Oculus.

2. Determine if there is currently location (GPS) data for the facility in question. If the data is collected with a field GPS unit, it must be accurate to within 5 m. Survey 123 should be configured such that it will not collect the point if the data is not within 5 m. If location data is obtained via high-quality aerial photo, such as ArcMap, EH Water or Google Earth, appropriate documentation, such as a site plan from Oculus, must be provided or referenced. The program office may also request that new GPS data be collected.

3. Use EHWater or Google Earth Pro (with program office .kml files) to identify any known potable wells within one-quarter mile and large DEP PWS wells within one-half mile of the facility. The CHD staff will need to confirm the location of each known well and be able to identify any discrepancy between the program office database and the actual location of the well in the field.

4. Use other available resources to help identify potential potable wells in the area. These may include, but not be limited to:
   a. Local property appraiser data.
   b. Local utility water meter listings or the Florida Water Management Inventory.
   c. Local well permitting databases (typically the local water management district).

5. Search Oculus to find site histories, including previous DOH well survey submittals, facility site assessment reports containing consultant well surveys, maps showing leaking tanks or contamination areas and other documents. Review the site assessment reports regarding possible plume(s) and their groundwater flow direction. Appendix A provides a step-by-step procedure to navigate through Oculus. Oculus should have site plans or sketches for most petroleum and dry-cleaner sites

6. Each CHD should keep an updated list of all GPSed wells by FLUWID and by street address. Take this list with you to the field to confirm status of wells in the area you are visiting. Personnel with smart phones or other devices that can access the nternet in the field can also use them to access EHWater.i

7. Before going into the field, check all equipment that may be used. This will include a GPS collection device with charged batteries or car charger, measuring device, maps, FLUWID tags, sample bottles, field notebook or other authorized recording system and sample permission door hangers.

Field Activities

1. If an accurate GPS point does not already exist, use an approved GPS device or the Survey123 application on a DOH approved device to collect location data of the facility or risk source.
    a. Petroleum sites should be centered around the oldest eligible discharge point if it can be located (or unless otherwise directed).
    b. Dry-cleaner sites should be centered at the backdoor of the facility.

2. If accurate GPS points for wells does not already exist, use an approved-GPS device or the Survey123 application to collect location data for the wells that will be sampled.
    a. Collect GPS data for all potable wells within 500 feet. If there are fewer than 10 wells, continue searching out to the ¼ mile (or as otherwise requested). Sample up to 10 wells in accordance with the guidelines in Chapter 4.
    b. If you cannot get access to the well property, assign a FLUWID and collect a street-side GPS location at the center of the property along the street. Store the FLUWID tag in your files until you can obtain permission.
    c. If there is no address for the property, use the parcel identification number. All counties should have a property appraiser website where these numbers are available.
    d. Wells which are < 150,000 gallons per day (gpd) and have been sampled within a year will count as part of the 10 required wells and do not need to be resampled.

3. A sample should be collected from each large (> 150,000 gpd) community PWS well located within ½ mile, unless the well has been sampled within the past 3 years.

4. If several wells are clustered together or on a line radiating out from the facility, it is not necessary to sample all 10 wells. A smaller number may serve as a representative sampling.

5. Keep a list of all potable wells in your county by FLUWID and by address to confirm that the well has a FLUWID or the number or status of the well has changed. A table can be downloaded from http://www.floridahealth.gov/environmental-health/drinking-water/well-surveys.html. You may also contact the program office for a list.

A note on re-tagging wells: Wells that are assigned a FLUWID, but no longer have one visible on the well, should not be re-tagged. A reprint of the original FLUWID tag should be requested from the program office or using the Survey123 application. Wells that have been assigned a 9-digit WSRF ID number should be tagged with a proper FLUWID and re-GPSed. When a new well is drilled and the old well is either abandoned or becomes an irrigation well, a new FLUWID tag is assigned to the new well and a comment is put in the database. Carrying the lists noted above with you in the field will help you avoid retagging a well which has already been issued a FLUWID.

Permission Issues and Record Keeping

You must obtain permission from the owner or resident to place a FLUWID tag, GPS, or sample all private wells. Efforts to obtain permission may include contacting the resident/owner on a field visit, placing door hangers, sending letters and making phone calls. The owner's name and mailing address should be available through the county tax collector's office or county property appraiser's office.

Keep a record of all attempts to secure permission to sample, refusals to allow sampling and permission to sample in a field book (or electronic record keeping system). The DEP/DOH contract requires field notes be kept and this information be made available upon request. Well sampling refusals must also be noted on the well surveys. CHDs may also consider keeping a list for regular rechecking of wells where access was refused to see if sampling is possible (particularly in contaminated areas). Records should include the following:

- Denial of permission: Identify the person, address and date. Please make a note of the reason for refusal if possible. This information will be required on the final well survey document.
- Date and address of door hangers left or follow-up site visits.
- Address, date, email address, and phone number of attempted phone or mail contacts.

You should record comments from the property owner about the well or site (such as peculiar tastes, odors, changes in water quality), or in the neighborhood (unusual activities or potential discharges of contamination).

If an error is made on a form or in handwritten field notes, please make the corrections by drawing a single line through the error, write in the correct information, initial and date the correction. Avoid obscuring the error or otherwise making it unreadable.

Abandoned vs Inactive Wells

It can often be difficult to determine whether a well is temporarily or permanently out of service. This determination can have a significant effect on the priority score for some sites, so it is important to ensure that we make the decision based on the best information available.

To ensure consistency, please use the following definitions:

- **Active Well**— The well is being used on a regular basis or will be used within a reasonable period of time (2–3 months).
- **Inactive Well**— The well has not been regularly used within the past 6–12 months but is maintained in such a state that it could be used.
- **Abandoned Well**— The well has been permanently discontinued, properly plugged, or the well is in such a state of disrepair that it cannot be used for its intended purpose or for observation purposes.

Active vs Inactive Wells

While both active and inactive potable wells are shown on well surveys, they are not handled in the same manner by DEP when scoring a site. Therefore, it is important to do our best to determine the appropriate status. Wells are often determined to be inactive when the property is vacant. Some of the things to consider are:

- How long has the property been vacant?
- How well is the property being maintained?
- What is the condition of the structures on the property?
- Is there evidence that the property will become occupied in a short time period?
  Example: There is a “For Rent” sign in the front yard.
- Does the property owner or agent visit periodically to maintain and check on things?
- Is it possible that the property is being used for a different purpose than what it may be zoned for or been used for historically?
  Example: A former gas station where the owner uses it for his woodworking hobby would best be classified as “active.”

In addition, utility wells are often disconnected from the system for various reasons. Some things to consider are:

- Standby or emergency supply wells. Are they exercised and plumbed into the system on a regular basis (active) or are they kept strictly for emergency purposes and need work to make them functional (inactive)?
- Down for maintenance—how long is the maintenance expected to take?

Inactive vs Abandoned Wells

Abandoned wells do not show on well surveys. It is assumed that an abandoned well has been (or will be) plugged, making it impossible to use, though this is by no means absolute. Well Surveillance is not a regulatory program, so the determination of whether a well is abandoned should be made with caution. If in doubt whether a well is abandoned or is merely inactive, it is best to leave it as inactive. Some CHDs have contracted with the local water management districts and are the permitting authority, so their determination may carry more weight.

If the well has been plugged or the local permitting authority has sent a letter instructing the owner to plug the well, then it is abandoned. Also, if a utility well has been removed from the system, and the PWS authority has stated that the well will not be used by the system again, then we can safely call the well abandoned.

Post-Fieldwork Office Activities

Survey Completion

There are two things that are required for a survey to be considered complete: field work and sampling. If field work (not including sample collection and analysis) for a survey has been completed, notification must be sent to the Global GPS data address, HSE_GPSdata@flhealth.gov. Either of the following will trigger a draft map and survey to be made:

- GPS data for the facility or risk source in question has been submitted to the program office. The facility or risk source should be the last data sent as this will initiate map generation. To avoid redundant work, please confirm that any new well GPS data associated with the survey has been sent prior to, or at the same time as, the facility data. Please do not send facility information first.
- If the program office already has accurate GPS data for the facility, an email should be sent stating that all work for the survey has been completed.

Information on well sampling for surveys is received via an annotation on the DRAFT survey in Laserfiche. Add annotations to the DRAFT survey by using text boxes. Once the DRAFT map is annotated by CHD, the sampler will sign off, complete all metadata and change the metadata status to “Completed by County.” This indicates to the program office that they can complete the FINAL survey once the results from any sampled wells are received and are entered into the database. Further details on Laserfiche can be found below and in Appendix G.

GPS Data

GPS data is one of the most important pieces of information collected in the field. Accurate GPS location is the cornerstone of the surveys that are produced and provided to DEP. Such data should be collected by CHD staff by using an approved GPS device or the Survey123 application. If the data is collected using an approved GPS device, such as a Ranger, the data must be submitted to the program office by using the Manual GPS Submission Process (See Appendix E). GPS data collected using Survey123 is submitted to the program office from within the application (See Appendix D).

Under certain circumstances, location data may be collected from a desktop GIS program such as ArcMap, EHWater or Google Earth Pro. In such circumstances, care should be taken to select a location based on information known from the field, site maps or other documents available in OCULUS.

Well Status and Information Changes

Any changes in well status, such as a previously-GPSed well becoming inactive or abandoned, a residence connecting to public water or address change should be emailed to HSE_GPS_WellCorrections@FLHealth.gov.

Contact Information

CHD staff are responsible for providing contact information for wells sampled under the Well Surveillance Program. After submitting GPS coordinates for new wells to the program office, the contact information will need to be entered into the county contact spreadsheet. The spreadsheet is at \\dchp00vfp01\CHDshare\DCEH\Water\WellSurveillance_ContactFiles. It is important to update this information immediately after collecting the water sample as this information is used to complete the sample information received from the lab. Fill out any relevant fields under Column P through Column AC. Please note, data in Columns A through O cannot be changed on this spreadsheet. If there is an error in one of these columns, send an email to HSE_GPS_WellCorrections@FLHealth.gov.

Please review Appendix F for an example of how to add or update contact information for a well site.

Web Laserfiche

Laserfiche is a document storage system that allows users to archive numerous documents electronically. It also permits users to add annotations to the documents stored within the system. Web-based Laserfiche is a portal that gives CHDs access to these documents via the intranet. For more information on the use of Laserfiche, see Appendix G.

The Well Surveillance Program uses Laserfiche for two purposes:

- Storing and archiving of important documents.
- Allowing counties to view DRAFT well surveys and annotate any information that is pertinent to completing the well survey.

Both of these uses will be explained below. Prior to using Laserfiche, you will need to obtain a username and password. Contact information may be found in Appendix P.

Using Web Laserfiche to Access Archived Documents

1. In order to access Laserfiche, browse to http://dit00swapeh0001/Laserfiche.
2. Log in using your username and password.
3. Once logged in, you will see a list of folders in the left pane of the browser, and the same folders in the right pane of your browser. You should see the following folders:
    a. Comparison Project Files
    b. Contamination Areas (archived maps/reports for Well Surveillance Areas)
    c. County Evaluations (archived evaluations for each county)
    d. County Working Files (where current requests are kept and annotated)
    e. DEP Lab Reports
    f. Draft Requests—Archived well surveys that the CHD has signed and annotated
    g. Facilities (archived requests)— these are the finalized well surveys sent to DEP which you can print out for your records
    h. Pool Records
    i. Send to DEP in Process—where files that have undergone final Quality Assurance (QA) review are held prior to sending to DEP
    j. State Working Files—where requests are QAed and prepped for DEP
4. To find an archived document, navigate through the folder structure or use the search feature.
5. Double-click on the document on the right pane to open the document.
6. If you want to save or print the document, export the file as a pdf by clicking on Export (in the menu above the report pane) and then select PDF.

Using Web Laserfiche to Complete Active Well Survey Requests

1. Browse to https://dit00swapeh0001/Laserfiche and log in using your user name and password.
2. Double-click the “County Working Files” folder, then double-click on your county folder.
3. Double-click on the well survey request that you want to complete.
4. Add the appropriate annotation (text box) to the following:
    a. Any well that was sampled. Put the sample date (adding the sample ID is recommended, but not required). If the draft survey states that the sample meets contract specifications, you do not need to annotate.
    b. A well where you could not obtain or were denied access. Write a brief statement describing what happened and include date(s).
    c. Any information that we should be aware of, such as name changes, address changes, wells that are abandoned or inactive or have converted to central water (note current use, if any). If you need to add much more detail, send an email to HSE_GPS_WellCorrections@flhealth.gov and to the program office staff assigned to your CHD.

5. Place your electronic signature on the “Reviewers signature” line on the survey. Reference Appendix G for instructions on how to create and use your electronic signature.
6. On the left of your browser window, there will be a number of blank fields associated with the request. Fill those fields out. Change the “status” field to “Completed by County.” The site will remain on the unfinished status list until this step is completed.
7. If you want to save or print the document, export the file as a pdf by clicking on Export (in the menu above the report pane) and then selecting PDF.
8. Close the survey. Click “YES” when prompted to save your changes.

Program office staff will periodically browse through all county folders looking for surveys that have been marked “Completed by County.” They will be moved out of your county folder and into the QA process once they have been completed.

Chapter 4—Sample Collection

FDEP Sample Kit Request Form

Florida Department of Environmental Protection
Bureau of Laboratories
Lab Sample Kit Request Form

Date Created: Date Required: (please allow 2 weeks)
(required information)

Number of Wells Requiring Samples:

Type of Analysis:
- ☐ VOC
- ☐ Nitrate/Nitrite
- ☐ Fumigants
- ☐ EDB
- ☐ Semi VOC
- ☐ P Metals *(Program office approval required)*
- ☐ S Metals *(Program office approval required)*
- ☐ Diquat/Paraquat
- ☐ Bromacil/Diuron
- ☐ Organic Pesticides

Individual Screens
- ☐ Aluminum
- ☐ Arsenic
- ☐ Beryllium
- ☐ Cadmium
- ☐ Copper
- ☐ Lead
- ☐ Nickel
- ☐ PFAS
- ☐ Antimony
- ☐ Barium
- ☐ Boron
- ☐ Chromium
- ☐ Fluoride
- ☐ Mercury
- ☐ Iron
- ☐ 1,4-Dioxane
- ☐ Zinc
- ☐ Cyanide
- ☐ Thallium
- ☐ Sodium
- ☐ Silver
- ☐ Selenium
- ☐ AFIT Sample

Other (please specify):

☐ Analysis only (no bottles requested)
☐ Send case(s) of -
☐ Send vial(s) of -

Mailing Address:

Project: **Choose Project**

Requested By:
Phone Number: - - ext

County:

Comments:

☐ **Emergency bottle request-3 days or less**

If you have any questions regarding this request, please call the FDEP Lab 850-245-8077.

Laboratory Comments:

Email

Send to: DLDCEHDEPBOLRequest@flhealth.gov

Sample Kit Requests 11/21/2018

Guidelines for Ordering Lab Sample Kit

The following are guidelines for ordering a Lab Sample Kit:

1. Send the proper sample order form via email to the lab distribution list (DL DCEH DEP BOL Request).
2. Allow two weeks for delivery (up to three weeks if bottles are requested on Thursday or Friday).
3. Do not order more than five coolers per week.

Sample Kit Request Fillable form:

DATE CREATED:	Enter the date that the request is being made.
DATE REQUIRED:	Enter the date that the sample kit is required by.
NUMBER OF WELLS REQUIRING SAMPLES	Indicate the number of wells that will be sampled with the kit.
TYPE OF ANALYSIS:	Indicate the type of analysis that will be conducted on the samples.
ANALYSIS ONLY:	Check this box if you already have bottles and don't require additional bottles sent to you.
SEND CASES/ VIALS:	Check the appropriate box if and indicate the number of vials or cases of preservative requested. Select the desired preservative (nitric acid or sulfuric acid) from the drop-down list.
REQUESTED BY:	Enter the name of the employee making the sample kit request.
PROJECT:	Enter the project that the sample(s) will be charged to.
MAILING ADDRESS:	Enter the address to which the sample kit should be mailed.
PHONE NUMBER, EXT:	Enter the telephone number and extension (if applicable) for the person submitting the sample kit request.
COUNTY:	Enter the name of the CHD requesting the sample kit.
COMMENTS:	Enter any comments that are relevant to the laboratory or which may influence the contents of the sample kit.
EMERGENCY BOTTLE REQUEST	Check this box if the program office has approved a rush bottle request.

Guideline for Collecting Samples

The following are guidelines you should be aware of before sampling:

1. Reimbursement for sample collection may be delayed until a proper FLUWID tag has been attached and the well has been GPSed. If you are not sure about a particular well, please contact the program office or download the wells table from http://www.floridahealth.gov/environmental-health/drinking-water/well-surveys.html if no well exists at the address on the Wells Table, please GPS and tag the well.

2. Each type of analytical testing has a specific bottle(s), preservative, temperature requirement and sample collection method. The laboratory provides a cooler with the appropriate sample bottles, documentation and preservatives (when requested). All sample bottles should be returned in the same cooler in which they were shipped.

3. If you have bottles that are more than four months old, please recycle the glass and plastic bottles; do not ship them back to the lab. Unpreserved glass and plastic bottles may be recycled as is. Pre-preserved bottles will require the HCl be disposed of by pouring down the sink with copious amounts of water. This acid is 1:1 and is safely disposed of in this way.

4. Everything in the cooler must stay together at all times. If a trip blank is included with the sample kit, it must stay with the bottles and be returned with the cooler. Samples from the same program, but different sites, may be shipped together using one trip blank. Make sure the sample bottles and trip blank are always together and clearly labeled.

5. Unless otherwise specified in the sample instructions or requested by the program office, wells must be purged for 15 minutes. Large PWS wells can be purged 5 minutes. If the sample port or hose bib is located after the tank and the tank is greater than 50 gallons, then purge at least 1 minute for every 10 gallons that the tank holds. Purging is required to ensure that fresh water is collected. Fresh water will provide an accurate assessment of its chemical makeup.

6. Be aware that several analyses require multiple bottles to make up a single sample (see below).

7. Many analyses require addition of preservative at the time of sampling (usually acid). If that is the case, fill the sample container approximately 90% full, add the preservative, and then finish collecting the sample. Remember the three As—Always Add Acid.

8. At the time of collection, fill out the label on the sealed plastic bag with FLUWID, Collection date, and Time 24 hour (hh:mm). Each label will have a pre-assigned RQ ID number, the required preservative and the list of analytical tests printed on it by the lab.

9. Samples that require cooling MUST BE IMMEDIATELY PLACED ON WET ICE (see Tables 1 and 2 below). Seal bottles inside the sealed plastic bags provided to preserve the labels. After the initial cooling, samples must remain at 4° C (39° F). Store samples and produce your ice in clean refrigerator, freezers or sufficient wet ice.

10. Samples that require temperature as a preservation may be stored in a refrigerator overnight at or below 4° C if being held until the next shipping day. Do not place samples in a refrigerator with any chemicals, volatile products or foods. Sample bottles must not be kept in refrigerators for more than three days (Friday through Monday).

11. Enclose the DEP Sample Submittal Form for each sample and the DOH Chain of Custody form in the provided plastic bag and tape to the underside of the cooler lid. Bottles should be placed in sealed plastic bags and then placed in the supplied black bag, along with fresh wet ice. Make sure that you secure the bag with a zip tie. The contract shipper may reject shipments if there is spillage. Samples must be shipped to the DEP lab via overnight delivery to ensure that the samples arrive at the lab at the proper temperature.

12. Samples received by the lab above 6° C will be qualified and a Nonconformance Report (NCR) generated for the sample. If samples are received that are above 6° C (except metals), are improperly preserved or have exceeded their hold time, the DEP laboratory staff will notify the program office and ask if the samples are to be analyzed and qualified, or cancelled (not analyzed). If the samples are cancelled due to an error on the part of the CHD, it may not be reimbursed.

13. If preservatives are shipped with the samples, the unused vials <u>must</u> <u>not</u> be returned to the lab. They should be retained at the CHD for use in a future sample event.

14. Samples must be received at the lab by noon on Friday. Usually this means that the samples should be shipped by Thursday afternoon. Samples should not be shipped on Fridays as the laboratory does not receive samples on the weekends. Samples collected on Friday must be refrigerated over the weekend and shipped overnight to the lab on Monday. You must ship samples to the lab so that the laboratory has time to fully analyze within the appropriate holding time.

15. Always use the FLUWID for potable wells. The DOH Chain of Custody Form and all DEP Sample Submittal Forms must be filled out completely and legibly. Make a copy of these forms for your records. Note: It is highly recommended that the fillable forms are used whenever possible.

16. Guard against cross-contamination of water samples during sampling or transit. Also, be cautious about contaminating your samples through your hands and clothing. **DO NOT** fill up your gas tank the day you are sampling.

17. If a result is greater than the MCL or HAL, the program office will contact you by email or phone to let you know. If, for any reason, you are not notified and you observe an MCL or HAL violation on results when you receive them, please contact program office staff immediately.

Volatile Organic Compound (VOC) Samples

VOCs are collected more often than any other parameter in the Well Surveillance Program. This section is specific to collecting VOC samples. VOCs can easily move out of a water sample into the air, or vice versa, altering the accuracy of the analytical results. Please review the DEP's Standard Operating Procedures (FS 2300 Drinking Water Sampling) for collection of VOC samples. VOC samples should be taken in accordance with the procedures above with the following additions:

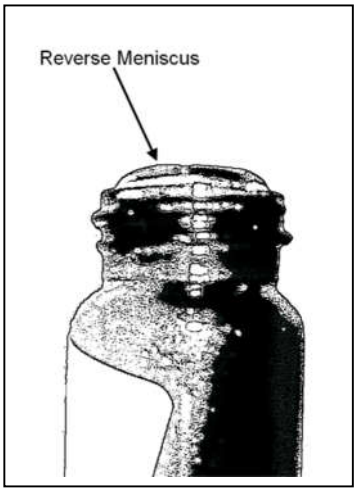
Sample containers

1. Analysis of VOCs requires a glass sample vial, sealed with a Teflon-coated septum.
2. Duplicate samples must be collected. Each set of VOC vials sent from the DEP lab may include an additional two vials. These are for laboratory Quality Control and should always be filled. The lab can run the analysis with one bottle if one breaks. Samples will be rejected if all bottles are broken.
3. Visually inspect the glass vials to assure that there are no glass, lid or septum defects (the rim must have no nicks or visible depressions, the septum must not be deformed, among others). If defects are present or the sample container or septum does not appear to be clean, the vial must be discarded.
4. Be careful not to overfill the bottle as this could flush out the HCl preservative already in the bottle.

Preservation

VOC sample vials come pre-preserved with hydrochloric acid to kill bacteria. Samples must be placed on wet ice immediately after sample collection. Samples must be shipped within 72 hours.

Sample collection protocols (VOC samples)



1. All fuel, solvents or exhaust sources that could cause VOC contamination should be situated away and downwind of the sampling site if possible.
    a. Fuels or solvents must not be stored in, or transported in, a vehicle with sample bottles.
    b. Cautiously sample around drycleaner facilities making sure no volatile fumes from the facility contacts the sample bottles or cooler.
2. Samples shall not be aerated during sample collection.
    a. Caution must be exercised when filling a vial to avoid any turbulence that could promote aeration.
    b. Carefully pour the sample down the side of the vial to minimize turbulence. As a rule, it is best to gently pour the last few drops into the vial so that surface tension holds the water in a reverse meniscus (a bulge over the rim of the vial).
3. Do not allow anything to touch the rim of the sample container or cap.
4. The sample must be collected so that there are no more than two pinhead-sized air bubbles in the container after the screw cap and septum seal are applied.
    a. The cap with the septum should be quickly applied (make sure Teflon side of septum is down). Some sample may overflow, but air space in the bottle must be eliminated.
    b. Turn the bottle over and tap it to check for bubbles. If any are present, remove the cap, add a few more drops of sample, recap and test for bubbles. REPEAT ONLY ONCE.
5. All labels must be marked with the FLUWID, the sample date and the sample time. Make a note of any samples that appear highly contaminated or appear to effervesce.
6. Place each group of two (or four) vials in the provided sealed plastic bag, and immediately place on wet ice. Note: Make certain you label all the bags before placing them in ice water.
7. Pack and ship as detailed above.

Nitrite-Nitrate Samples (TNO3)

Note: Samples must be preserved at the time of collection. If you do not have the appropriate acid vials on hand, you must wait until you do.

1. Fill the sample bottle slowly from the tap and leave a small head space.
2. Open the sulfuric acid vial and pour it into the container carefully. Place the sample immediately on wet ice.
3. Pack and ship within 72 hours using wet ice.

Other Analytical Methods

The following section briefly describes other drinking water analyses to be conducted by the Well Surveillance Section for the Drinking Water Toxics Program. The name of the analysis is given, along with any synonyms, the type of bottle used, the preservative if needed and any special instructions. The laboratory will provide sample bottles, preservatives and sampling instructions.

Semi-volatile Organic Compounds (SVOC)

- Bottle: 1000 mL amber bottle (2 bottles required)
- Preservative: ice
- Holding Time: 7 days (from collection to analysis)
- Shipped chilled using wet ice within 72 hours

Carbamates

- Bottle: 40 mL glass bottle
- Preservative: sodium thiosulfate in bottle; 1 ml monochloroacetic acid added in the field
- Holding Time: 28 days (from collection to analysis)
- Shipped chilled using wet ice within 72 hours

Fumigants—several volatile pesticides including EDB

- Bottle: 40 mL amber vials (2 bottles required)
- Preservative: HCl pre-preserved
- Holding Time: 14 days (from collection to analysis)
- Shipped chilled using wet ice within 72 hours

Herbicides

- Bottle: 1000 mL amber bottle
- Preservative: ice
- Holding Time: 14 days (from collection to analysis)
- Shipped chilled using wet ice within 72 hours

Metals—Primary and Secondary

- Bottle: 500 ML plastic bottle
- Preservative: Nitric Acid
- Ice is not needed for shipment

Chlorinated Pesticides

- Bottle: 500 mL amber glass (2 bottles required)
- Preservative: ice
- Holding Time: 7 days
- Shipped chilled using wet ice within 72 hours

Bromacil—(includes Bromacil and Diuron)

- Bottle: 250 ml glass bottle
- Preservative: ice
- Shipped chilled using wet ice within 72 hours

AFIT—Suite of analytes (Arsenic, Iron, Silica, Sulfate and Total Phosphorus) specifically for wells with arsenic concentration < 50 µg/L. This is only performed once on a well before the installation of a point-of-entry filter. These results help DEP to evaluate the chemical environment and to provide information that will be used to predict filter life expectancy and effectiveness.

Sample Information Tables

Tests listed within one row can share the same container. All test codes ending with "–R" are for EPA SW846 methods (RCRA, Waste). All other tests are for the Clean Water Act methods.

Table 1: Frequently Requested Inorganic Analyses in Aqueous Matrices

Test Description	Bottle Type	Preservative
Metals		
W-ICP, W-ICPMS, W-HG-H, W-ICP-R, W-ICPMS-R	500 mL to 1L clear plastic bottle. Use 1L if more than 2 tests are requested.	Nitric acid[1]
Field Filtered Metals (without mercury): W-ICP-F, W-ICPMS-F	125 mL to 250 mL clear plastic bottle. Use 250 mL if more than 1 test is requested.	Nitric acid[1]
Field Filtered Metals with Mercury: W-HG-H-F, W-ICP-F, W-ICPMS-F	500 mL clear plastic bottle	Nitric acid[1]
Nutrients and Major Anions		
Acid Preserved Nutrients: W-NH_3, W-TKN, W-NO_2NO_3, W-TP, W-TOC	Clear plastic bottle[2] 500 mL for 4 or more tests	Sulfuric acid[1] and ice
Acid Preserved, Field Filtered Nutrients: W-NH_3-F, W-NO_2NO_3-F, W-TKN-F, W-TP-F, W-DOC	Clear plastic bottle[2] 500 mL for 4 or more tests	Sulfuric acid[1] and ice
Unpreserved Nutrients and Major Anions: W-ALK, TURBIDITY, W-COLOR, W-NO_3-IC, W- SO_4-IC, W-CL-IC, W-TDS, W-COND, W-F, W-TSS, W-PO_4, W-NO_2 etc.	Clear plastic bottle[2] 125 mL and up to 1 L	Ice
Unpreserved, Field Filtered Nutrients and Major Anions: W-ALK-F, W-SO_4-IC-F, W-CL-IC-F, W-PO_4-F, W-F-F, W-SI-ICP-F, W-NO_2-F etc.	Clear plastic bottle[2] 125 mL and up to 1 L	Ice

1. Preserve to pH < 2.0. Add 1 mL of concentrated nitric acid or sulfuric acid for up to 500 mL of sample volume. For nutrient analyses, adjust the amount of acid for smaller sample volume. Excess acid may cause interference with some nutrient analyses.
2. Bottle size may vary depending on the number and types of tests requested.

Table 2: Frequently Requested Organic Analyses in Aqueous Matrices

Test Description	Bottle Type	Preservative
Pesticides / Herbicides		
W-PESTNP-R, W-PST-CL-R, W-PCB-R, W-PSCL-TQ, W-PSNP-TQ	1L amber glass bottle	Ice
W-PC-AA-SF, W-NP-AA-SF	1L amber glass bottle	Ice
W-AHB-AA-R, W-AHERB-AA, W-UHB-AA, W-UHERB-AA and W-SUC-AA-RR	1L amber glass bottle	Ice
W-PDQUAT	250 mL brown plastic	1 mL sulfuric acid[1] and ice
W-AHB-AA-R or W-AHERB-AA	1L amber glass bottle	Ice
W-CARB[2]	1L amber glass bottle	Monochloroacetic acid
W-FUM	40 mL amber glass vial	Ice
W-GLYPH	40 mL amber glass vial	Ice
Base Neutral, Acid Extractable and Petroleum Products		
W-BNA, W-PAH or W-BNA-R	1L amber glass bottle	Ice
W-FL-PRO	1L amber glass bottle	Sulfuric acid[1] and Ice
W-1-4-DIOX (1,4-Dioxane)[3]	1L amber glass bottle	Sodium Bisulfate
Purgeables		
W-VOC-MS, W-8260B-HP, W-FUMGNT, W-624-AA, or W-VOC-R	40 mL glass vial: fill to top (no air in vial)	Ice[4]
W-VOC-MS-A, W-FUMGNT-A, W-8015c, or W-VOC-A-R	40 mL glass vial: fill to top (no air in vial)	Hydrochloric acid[5] and ice

1. Preserve to pH < 2.0. Add 1 mL of concentrated sulfuric acid per 250 mL and 2 ml concentrated sulfuric acid per 1 liter of sample volume.
2. Sample containers are pre-preserved with monochloroacetic acid solution by DEP lab staff.
3. Refer to Appendix 4 for details on W-1,4 Dioxane collection and preservation.
4. Add up to 3 mg of sodium thiosulfate per 40 mL of sample volume when residual chlorine is present.
5. Sample containers are pre-preserved with hydrochloric acid by DEP lab staff.

Table 3: Holding Times for Frequently Requested Analyses in Water

Analysis	Holding Time
BOD, CBOD, Chlorophyll	48 Hours
Turbidity, Color, Nitrate, Ortho-Phosphate, Nitrite	48 Hours
TDS, TSS, Sulfide	7 days
Alkalinity, Cyanide	14 days
NH_3, TKN, TP, NO_2NO_3, TOC	28 days
SO_4, Chloride, Fluoride, Conductivity, Silica	28 days
Mercury	28 days
Metals, (except mercury and Cr VI)	6 months
Organics (Pesticides, BNA, Herbicides, TRPH)	7 days
Volatiles (Preserved on ice)	7 days
Volatiles (Preserved on ice and with acid)	14 days

NOTE: The holding time represents the time in which the sample must be analyzed after collection, not the amount of time that the sampler has to ship it to the lab. It is DOH policy that samples must be shipped within 72 hours after collection unless additional time is authorized by the program office.

DOH Chain of Custody Form

FLORIDA DEPARTMENT OF HEALTH
CHAIN OF CUSTODY FOR THE WELL SURVEILLANCE PROGRAM

Request ID:

Insert the RQ number associated with the samples being shipped.

County ID:

Insert the County Name for the samples being shipped.

Requestor's Name:

Insert the name of the individual who requested the bottles.

PLEASE RETURN THE ORIGINAL OF THIS FORM WITH SAMPLE SUBMITTAL FORMS AND THE COOLER PACKING WORKSHEET TO THE LAB.

COLLECTOR(S) (PRINT): _____ _____ _____

COLLECTOR(S) (SIGN): _____ _____ _____

Insert the name samplers who collected the samples being shipped. Each sampler must sign below thier name.

Choose the Sample Type from the Drop Down List.

Add any comments about the sample in the space provided.

FLUWID or TRIP BLANK	SAMPLE TYPE	ADDITIONAL INFORMATION	DATE MM/DD/YY	TIME HH:MM	INITIALS

Insert sample collection date and military time for each sample.

The person who collected the sample on each row must initial here

Do Not Use For Samples

Insert date and military time samples are relinquished to the lab or shipping company.

Signature of CHD staff who is dropping off or shipping samples

RELINQUISHED BY (SIGNATURE): _____ DATE/TIME: _____ ☐EST ☐CST

Indicate time zone here.

If samples are being shipped, check this box and choose the shipping company from the Drop Down List

SHIPPING METHOD: ☐ FedEx TRACKING #: _____

Insert tracking number for shipped sample containers here.

☐DROP OFF

If samples are being dropped off at the DEP lab, check this box.

THIS SECTION IS TO BE COMPLETED BY THE LABORATORY

Rec'd /Inspected By: _____ Rec'd/Inspected Date: _____

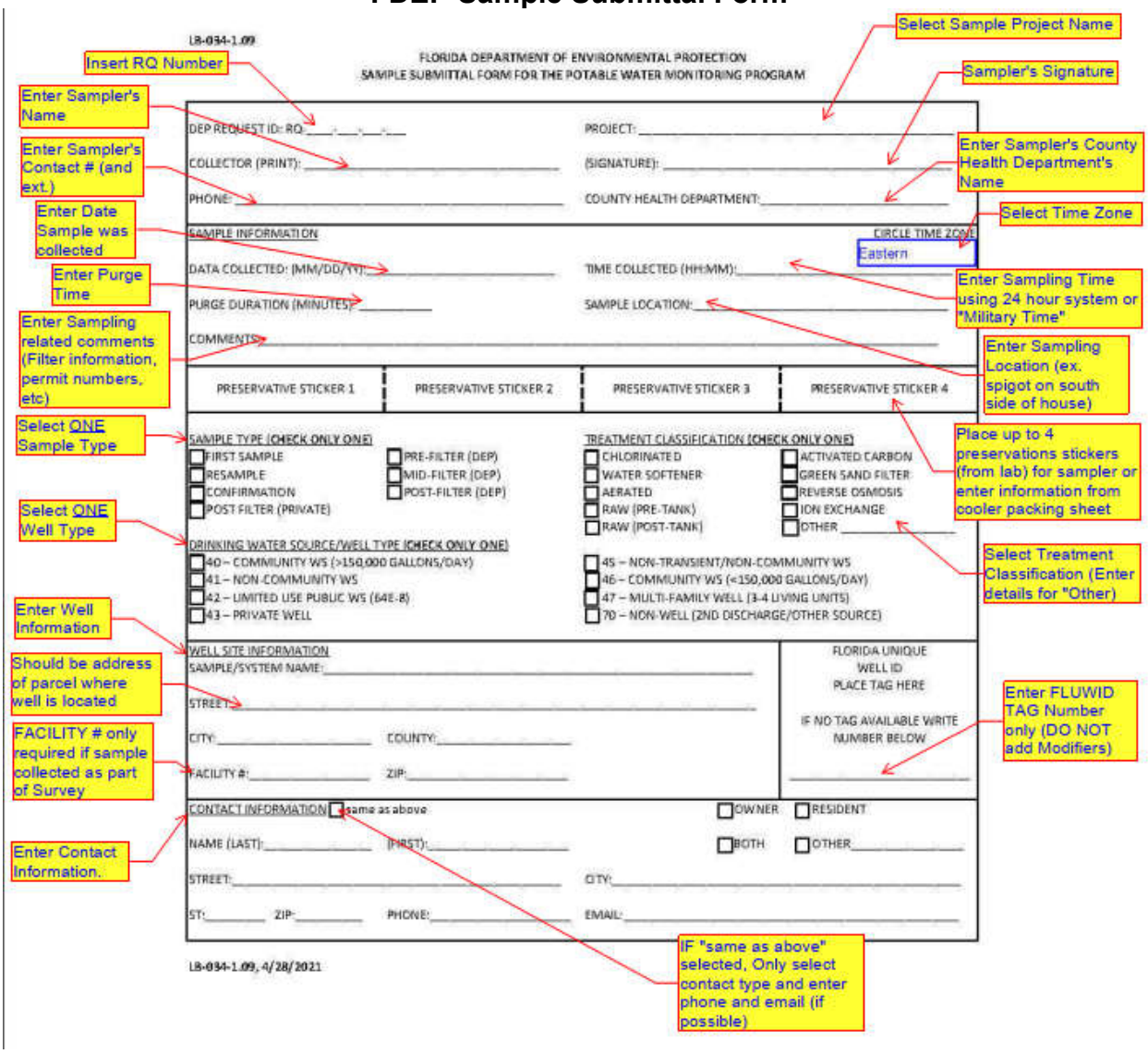
Sample Receipt Temperature (Degrees Centigrade): _____

4/1/2013

Chain of Custody Fillable Form

REQUEST ID:	RQ number from the cooler.
COUNTY ID:	Input the name of the CHD of the sampler.
COLLECTOR:	Input and sign the names of all collectors for samples being included in the chain of custody.
FLUWID:	Input “Trip Blank” or any FLUWIDS for wells sampled and included with the Chain of Custody.
SAMPLE TYPE:	Select the sample type from the drop-down list (First, resample, pre, mid, post). Leave the sample type blank for a trip blank.
ADDITIONAL INFO:	Use this space to place comments related to the sample that the lab or program office should make note of.
DATE	Input the date that the sample was collected (MM/DD/YY).
TIME:	Input the time that the sample was collected (HH:MM).
INITIALS:	Each sampler should initial the sample(s) that they collected.
RELINQUISHED BY:	The signature, date and time that the cooler was packed for shipping should be noted here.
SHIPPING METHOD:	Check the box for and select the shipping company (FedEx, UPS, USPS, DHL) from the drop-down box and input the tracking number. If the cooler is being dropped off to the lab, check the box next to drop off.

FDEP Sample Submittal Form



Laboratory Submittal Fillable Form

DEP REQUEST ID:	RQ number from the cooler
PROJECT:	The program codes are **SUPER, DSCP, TOX-DCEH, TOX-DEP, WC, FC**, and **Other**. TOX-DEP and Other should only be used when requested by the program office.
COLLECTOR:	Printed or typed name of the field sample collector.
SIGNATURE:	Signature of the field sample collector.
PHONE:	Field sample collector's work phone number including area code and extension.
COUNTY HEALTH DEPARTMENT:	The county or agency that collected the sample
DATE COLLECTED:	Provide the Month, Day and Year (mm/dd/yy) the sample was collected.
TIME COLLECTED:	Provide the Hour (HH) and Minute (MM) (using a 24-hour clock). Indicate whether time is for the Eastern or Central time zone.
PURGE DURATION:	Provide the number of minutes the well water was purged before the initial sample container was filled. This should be a minimum of 10 minutes. If the faucet is located after the tank and the tank is greater than 50 gallons, flush the tank at least one time and record the volume. Always check the raw (pre-tank) or raw (post-tank) box under treatment classification.
SAMPLE LOCATION:	Location of sample collection (such as the hose bibb or spigot location)
COMMENTS:	Any additional information about the sample site.
PRESERVATION STICKERS:	Place the stickers for the preservative associated with the sample in the allotted space on the form
SAMPLE TYPE:	Only check *one* for each sample. **NOTE:** If sampling a filter, select pre-, mid- or post-filter ONLY.
TREATMENT CLASSIFICATION:	The type of water treatment, if any, should be identified with a check in the appropriate box:

Chlorinated*	Activated Carbon
Water Softener	Green Sand Filter
Aerated	Reverse Osmosis
Raw (Pre-tank)	Ion Exchange
Raw (Post-tank)	Other_____

NOTE: If "Other" is selected, please include details in the space provided.
NOTE: Permeation samples must have the chlorinated box checked.

DRINKING WATER SOURCE/WELL TYPE:	Check the appropriate box to identify the well type as defined in Chapter 62-550.200, FAC, and Chapter 64E-8.001, FAC. **40** Community Water System (> 150,000 gallons/day) **41** Non-Community Public Water System **42** Limited Use Public Water System (Ch. 64E-8, F.A.C) **43** Private Water Well **45** Non-Transient/Non-Community Water System **46** Community Water System (< 150,000 gallons/day) **47** Multi-Family Well (3–4 living units) **50** Irrigation Well **51** Irrigation Well (where DEP has requested a sample) **60** Permeation **70** Non-Well (2nd discharge from same well/other water source—describe) Note: Codes 50, 60 and 70 are not reimbursable unless prior approval is obtained from the program office.
SAMPLE/SYSTEM NAME:	Homeowner or business name of site.
STREET:	The physical address of the well in US Postal Service format. Avoid punctuation.
CITY:	The city the well is located.
ZIP:	The zip code the well is located.
COUNTY:	The county where the well is sampled
FACILITY NUMBER:	If applicable, this is the associated facility or risk source Facility ID. This number is required for EACH facility or risk source in order for CHDs to receive reimbursement under the SUPER Act, DSCP or Toxics programs (Example: 9512345, DOH9123, ERIC_4536).
FLORIDA UNIQUE WELL ID:	Florida Unique Well ID (FLUWID). EVERY potable well sampled must have a FLUWID assigned to it. If the well has not previously had a FLUWID number attached to it, place one of the four plastic FLUWID bar code stickers in the box. Otherwise, input the FLUWID number in the appropriate location in the box.
SAME AS ABOVE BOX:	Check this box if the contact address information is the same as the information listed in the Well Site information above.
NAME (LAST, FIRST):	Use full names, be consistent in spelling and ALWAYS get permission from the resident/owner prior to sampling. Check appropriate box to identify person as either: Owner — Both (owner/Resident) Resident — Other _____

STREET:	This is for mailing purposes. Do not abbreviate street names and always use US Postal Service abbreviations for street suffixes like St. or Ave.
CITY:	Mailing address city.
STATE:	Mailing address state.
ZIP:	Provide five-digit zip codes.
PHONE:	Best contact phone number including area code ***If a second contact is necessary, place the information in the "Comments" section of the form.***
EMAIL:	Email address for the contact, if applicable.

NOTE: *Please use fillable forms and complete all lines. If handwriting is unavoidable, please print clearly. Prior to shipping, please compare the sample bottles and Request forms to verify that the correct FLUWID is associated with each sample ID. You can access all laboratory forms by clicking on the link below and searching for the forms.*
https://floridahealth.sharepoint.com/sites/DISEASECONTROL/EH/ehwater/Well-Surveillance/Sampling%20and%20Laboratory%20Documents/Forms/AllItems.aspx

Definitions

First Sample:	The first time a sample has been collected.
Resample	A revisit to a well. The revisit may be due to improper initial collection or assessment of changes over time.
Confirmation	A resample taken specifically to confirm an MCL or HAL exceedance. Unless otherwise requested by DEP or the program office, this will only be used after the first exceedance of a particular contaminant.
Post-filter (Private)	Samples collected after a privately-owned filter (not maintained by DEP). Note that these must have approval from the program office.
Pre-filter (DEP)	These samples are collected before water flows into the filter device (AKA Raw Water). They are samples coming directly from the well and are collected last (to avoid the possibility of cross-contamination).
Mid-filter (DEP)	These samples are collected between the first and second filter canisters and are collected second. Most Ion Exchange and Reverse Osmosis systems do not have mid-points, so no mid-filter will be collected.
Post-filter (DEP)	These samples are collected after the GAC filter treatment system and Ultraviolet light unit, or after all other treatments and are collected first.

Chapter 5—Laboratory Reports

This chapter provides a brief explanation of Florida DEP Laboratory Report. A sample report is provided on the following page and briefly described. The results of the sample analyses are used to determine if there is a potential for adverse health effects in contamination. CHD field staff should be familiar with this report and be able to identify exceedances of MCLs and HALs, and understand the list of qualifiers.

Note: A one-page guide on how to read the lab report can be found in Appendix I. The full listing of qualifiers can be found in Appendix J.

Understanding the Laboratory Report

At first review, sample results may seem intimidating, but with a few simple guidelines, they can easily be understood. Please refer to the list below and the following pages to understand the data elements on the Laboratory Report.

A. **SAMPLE INFORMATION:** This is basic information of the sample: the who, what, and where.

B. **CHEMICALS ANALYZED:** This is the list of chemicals that the lab tested for in the water sample.

C. **RESULTS:** This is the chemical concentration detected in the sample. If the chemical was not detected in the sample, this number is the Method Detection Limit (MDL).

D. **QUALIFIERS:** This is a one- or two-letter code that provides additional information about the result. A qualifier usually indicates precision or accuracy.

E. **UNITS:** This is the unit of measurement of the chemical concentration. Typically, these are measured in ug/L which equals parts per billion or mg/L which equals parts per million.

F. **BATCH ID:** A batch is a set of samples (no more than 20) that are analyzed together as a group.

G. **QC CODES:** Failure of a Quality Control (QC) sample: QC samples are used to estimate accuracy and precision. Minor QC failures are not grounds for rejecting a sample.

Definitions

MCL **Maximum Contaminant Level.** The established safe concentration used by Public Water Systems. Typically based upon an average adult drinking 2 L of water per day for a 70-year life span. This is a regulatory limit set by the US EPA or FL DEP.

MDL **Method Detection Limit.** The lowest concentration of a chemical that the laboratory equipment can accurately quantify.

HAL **Health Advisory Level.** The concentration of a substance in drinking water where consumption over a lifetime is not expected to result in adverse health effects. Typically based on an average adult drinking 2 L of water per day for a 70-year life span. Guidance concentration—not a legal or regulatory limit.

PQL **Practical Quantification Limit.** The minimum concentration where the reported result is considered accurate.

Common Result Qualifiers

Some of the most common or important result qualifiers are listed below. The full listing can be found in Appendix J.

C Result exceeds Maximum contamination level (MCL).

E Analyte not detected; quality control out of range; result is the method detection limit.

H or HA Value exceeds DOH Health Advisory Level (HAL).

I Approximate result between method detection limit and practical quantification limit; supporting evidence for identity.
This means the lab is reasonably sure the chemical was in the water sample, but the concentration is so low they are not confident in the accuracy of the value.

J Approximate result; quality control out of range.
This means that the result is valid, but the value is an approximation.

M Method approved only as a screen for this analyte.

P No valid trip blank result for this analyte; result is suspect.

Q Method detection limit reflects sample dilution due to Matrix or interference effects

S Analyte not screened; result is the method detection limit.

U Analyte not detected; result is the method detection limit, if applicable.

X Analyte detected in both the sample and the trip blank.

Y Analysis from improperly preserved sample; result is suspect.

Guidance Concentrations

The DOH keeps the latest MCL and HAL for all chemical contaminants at their web site.
http://www.floridahealth.gov/environmental-health/drinking-water/chemicals-hals.html

See Appendix H for copy of listing at the time of publication.

Errors in the Lab Report

Occasionally there may be an error in the laboratory report. Some are the result of laboratory errors while others result from sampler error. When the error is a laboratory error, please notify the program office immediately and submit all supporting documentation from the sampling event. Usually, sampler errors can be traced back to errors in the Laboratory Submittal Forms. In those cases, the sampler should edit the Laboratory Submittal Form and associated Chain of

Custody Form and submit it to the appropriate program office staff. The forms will be reviewed and forwarded to the lab for correction.

When correcting a lab form, the sampler should draw a single line through the error, write in the correct information near the error and initial and date the correction. Please refrain from scratching through the incorrect data making it unreadable.

Chapter 6—Notifying Owners of Sample Analysis Results

In addition to obtaining the owner's or resident's permission prior to sampling a private well, it is required that the well owner or residential user be notified in writing of the laboratory results.

Regardless of whether the laboratory results indicate detectable compounds or not, the laboratory report (or a summary of the results and a notice allowing them to request the lab report) must be sent to the owner or user of the well within 10 business days. The CHD should include an explanation of how to read the laboratory report and some information on the potential toxicological effects of any detected contaminants exceeding MCL orHAL levels. Examples of Water Fact Sheets for select chemicals are provided in Appendix K and are kept updated at the Department website http://www.floridahealth.gov/environmental-health/drinking-water/chemicals-hals.html.

An example of a notification letter is provided in Appendix L. The program office has developed a program that automatically generates these letters (available on the SharePoint site) if the CHDs wish to use it. CHDs may also develop their own notification letters. These letters should be sent to the well owner or resident within two weeks of receipt of sample results. A copy must be kept in the CHD files.

CHDs have electronic access to these results on the laboratory network drive. The lab will email CHDs when new results are available. If you do not have access to the appropriate folder, please contact the lab or the program office.

MCL or HAL Violations for Non-Filtered Wells

Under the DEP/DOH contract, CHDs are expected to contact affected parties within one business day of receipt of the lab results. The initial notification may be verbal (with appropriate documentation) or via email. If so, CHD personnel must follow up with a written copy of the sample results, along with an explanatory letter regarding the analysis results, within 10 business days.

In addition, once you recognize there is contamination in a well above an MCL or HAL, it is important to take the following steps to ensure that safe drinking water is provided to the affected party:

1. Notify the well owner or residential user within one business day after you receive the sample results. CHD personnel may be instructed to provide the initial notification sooner (weekend or holiday) if, in the judgement of the program office or DEP program management, the concentration is such that a delay in notification would pose a serious risk to the well user or public health.

2. Once the residential owner or well owner is notified, document the date and time of the contact

Please note that MCL and HAL values are considered safe by DOH. The level becomes unsafe when the concentration rounds up to the next significant figure. The significant figures are determined in Chapter 62-550, FAC, or the published MCL/HAL list. Also keep in mind that action levels are based on lifetime exposures, and unless the concentration of contaminants are significantly above the MCL or HAL, there is no immediate need to replace the drinking water

source. In most cases, the DEP Water Supply Restoration Funding Program will have a filter system installed within a few weeks of discovery or connect the owner or resident to public water within a reasonable length of time. Please contact the program office if you believe that immediate corrective action is required.

When PWS wells regulated by the DEP are sampled and found to be contaminated above the MCL or HAL, notify the system and the drinking water section at the local DEP district office or approved CHD within one business day. Document the date and time of this notification.

It is important to convey to affected parties and the public that drinking water above a guidance concentration may increase a person's chance of adverse health effects only if the contaminant is ingested over the course of a lifetime. Another instance when a positive finding is not significant to health is when "I" or "T" qualifiers are listed on the laboratory report. These levels are generally considered too low to have any adverse effects on health. If you have any questions, please contact the program office toxicologist.

Delineated Area Sampling

Chapter 62-524, FAC, requires that the DOH sample potable wells drilled in certain groundwater contamination areas. The DOH is also responsible for sending letters notifying the permit applicant that the well is clear to use or not based on the sample results. A letter template can be found in Appendix L.

Chapter 7—Sampling Filter Systems

DEP determines the type of filter based on the contaminant present in the water. The most common filter types in the Well Surveillance Program are GAC and reverse osmosis filters. These are typically used to reduce VOC, pesticides, arsenic or nitrate levels in contaminated drinking water wells. The illustration below shows a typical GAC filter setup for petroleum- or solvent-related contamination. The effectiveness of filters in removing a contaminant is related to:

- The type and concentration of contaminant
- The quantity of water usage
- The type of filter being used

Large contaminant concentrations and high water use rates reduce the filter life. Water entering and leaving the filter should be tested by the CHD as requested by the DEP to ensure that the treatment system is working properly.

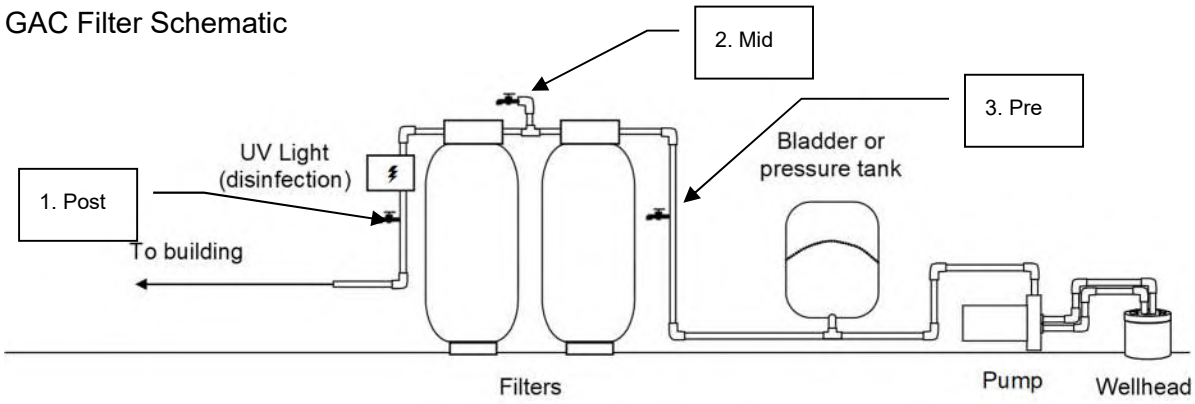
In addition, bacteria may grow on the surface of a carbon filter. Water should be disinfected after it passes through the filter to ensure its safety. Many types of disinfection systems are available. Ultraviolet (UV) radiation is one type of system shown to work effectively and efficiently to eliminate bacteria problems in water. Another system uses a chlorinator (more common). DEP GAC filter systems use UV disinfection unless the well owner maintains a chlorination system.

The following guidelines should be used for sampling GAC and POE filter systems.

1. Record the water meter reading on the sample request form.
2. Check the UV light (if there is one) and attempt to ensure that it is working.
3. Collect samples in the following locations and in the following order:
    a. **Post-filter**
    b. **Mid-filter (if applicable)**
    c. **Pre-filter**

    The post-filter sample should be collected **first** so your hands will not contaminate the other samples.

GAC Filter Schematic

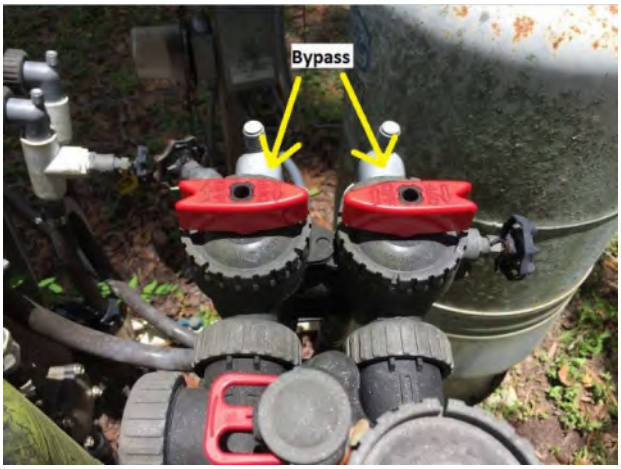


Please note that DEP directs sampling of all filtered wells. This includes Petroleum Restoration, DSCP, Waste Cleanup and Toxics filters.

See Appendix M for copies of the different WSRF filter and maintenance guides.

WATER SUPPLY RESTORATION PROGRAM POINT OF ENTRY (POE) ARSENIC FILTER INSPECTION DIAGRAMS

FILTER BYPASSED



FILTER ONLINE

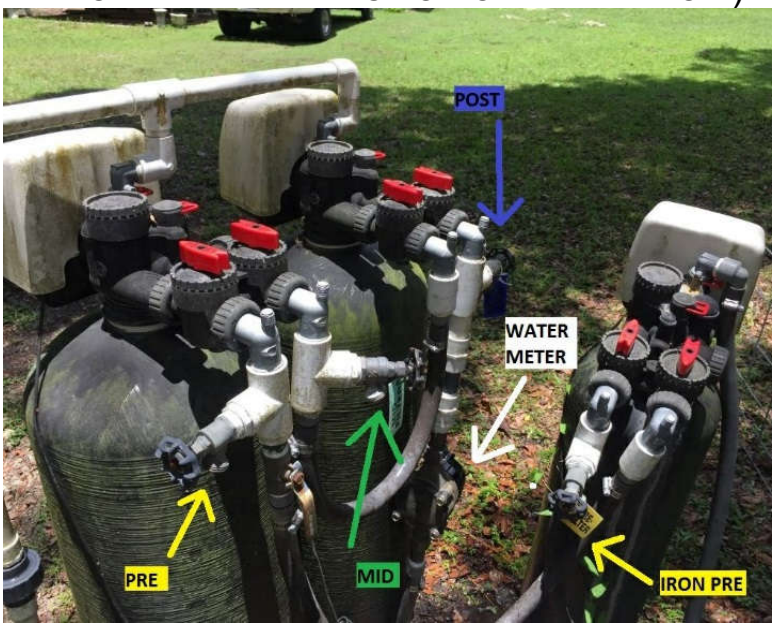
POWER RESET

Display screens (below) should display the approximate time of day. If not, please confirm that transformers are plugged into the receptacle and that the ground fault interrupter (GFI) breaker is not tripped. Attempt to re-set if tripped.

DISPLAY SCREENS

FILTERS, SAMPLE TAPS AND WATER METERS

(THE RED BYPASS HANDLES POINT IN THE DIRECTION OF WATERFLOW)



Filter Photographs by County Personnel

A

B

A sampler may come across wells with several different arrangements. Some places will be tidy (Photos A & B; others not so tidy.) As, you can see in photo C. The GAC filters are disconnected and laying on the ground. A bladder tank is laying on its side in the far background. If you come across a situation like this, please call the WSRF. They will contact the vendor to re-install the filter or recover State's property depending on the situation.

Below are more typical GAC Filters

Below is an interconnected four-tank system. There is only one Pre-filter, one Mid-filter and one Post-filter sampling port each.

Below is a 6 tank sysytem, 3 tanks in series and 3 in parallel.

Well owners or residents are responsible to report leaks or other problems with a filter, changes in contact information and changes in their well setup. If you notice deficiencies in a filter or well setup (such as a new well) while sampling, please report that to WSRF staff at 833-337-9773.

Chapter 8—Reimbursement

During the first week of every calendar quarter, each CHD will receive a report summarizing the reimbursable Well Surveillance activities completed in the previous quarter. Please review the reimbursement form you receive via email for accuracy and report any problems. The program office will try to resolve any issues regarding the reimbursement form as quickly as possible. The returned reimbursement form must contain a certification signature, title and date. Reimbursement will be provided for approved items in accordance with the contracted fee schedule (Appendix N).

Chapter 9—Well Surveillance Program Evaluation

All CHDs that perform the Well Surveillance program will be scheduled for a program Evaluation (this includes the PRP, Drycleaner and Toxics on a four-year cycle to determine if they are following the policies and procedures outlined in this technical guide and the DEP Well Surveillance Contract. This will be accomplished either by program office staff visiting the CHD location (Onsite Evaluation) or through a Program Self-Evaluation done by the CHD supervisor(s). The latter method is used when the program determines CHDs overall work quality is good and the CHD is not required to have an onsite evaluation based on the score on the previous evaluation. The evaluator(s) will review well survey, sample data and related information maintained in CHD files to adequately complete the evaluation (a minimum of one year's data to a maximum of three years data depending on the quantity of work accomplished). The administrative evaluation consists of three parts:

1. **Preliminary Activities** include evaluation of records kept within the program office database regarding timely completion of well survey requests, water sampling, work on well surveillance areas, requested re-sampling and other routine tasks.

2. **Office Activities** include a review of the recorded documents and file management procedures for eligible facilities, wells and well surveillance areas. It also includes activities, such GPS data accuracy and submittal to the program office, updating contact information, field notes, use of Laserfiche, EHWater, Oculus and other systems.

3. **Field Activities** include onsite evaluation of the accuracy and completeness of well surveys, well surveillance areas, the competency of field staff in collecting drinking water samples for laboratory analysis and the use of GPS equipment to obtain location coordinates of facilities (risk sources) and wells, and sending them to the program office.

These three activities are evaluated in terms of acceptable standards that apply across the state. Objectivity is a fundamental goal in developing this evaluation. These standards are evaluated numerically and deal with both present and past activities. Scores are calculated by percent of possible points as follows:

Rating	Percent
Exceptional	90 to 100
Above Expectation	80 to 89.9
Meets Expectation	75 to 79.9
Below Expectation, Requires Corrective Action Plan	70 to 74.9
Unacceptable, Requires Corrective Action Plan & Follow up Review	<70

Preliminary Activities (38% of total score)

The following items will be evaluated by program office staff. Copies of the raw data may be sent to the CHD if there is a question or upon request.

1. **Well Survey Response Time.** Percentage of surveys that were done within the amount of time assigned.
2. **Assigned Sampling.** Percentage of scheduled samples or re-samples completed by the due date.

In addition, well survey complaints and coolers rejected by the laboratory will be noted in this section for informational purposes only.

Office Activities (24% of total score)

Each CHD will be evaluated on their record-keeping and office organization. The evaluation tool includes checks on the following:

1. **General Files**. This looks at the general storage of appropriate records, such as sample results, facility rescores, reimbursement files and filter systems.
2. **Facility Files.** Looks at 10 randomly selected facility files to determine if the CHD is properly filing and documenting information, such as, sample results; survey forms and maps, sampling permission issues and sample notification.
3. **Office Data Maintenance and Use**. This looks at the accuracy of GPS data contained within the files, the ability to provide accurate GPS data to the program office, the ability to locate relevant information using OCULUS or Lasefiche, the presence and completeness of field notes and the ability to display information using EHWater, ArcMap or Google Earth.
4. **Lab Submittal Information**. This looks at the completeness and accuracy of laboratory submittal forms for the survey with the largest number of samples collected during the evaluation period. In the event that more than one survey has the same number of samples, the most recent survey will be evaluated.
5. **Training**. This determines if the staff working in the Well Surveillance Program has the required training to conduct the activities for the program.

Field Activities (38% of total score)

CHDs will be evaluated on their field abilities. This will include their ability to sample, locate and identify wells, familiarity with GPS equipment and accuracy of information. The evaluation tool includes the following:

1. **Sampling Equipment.** This looks at the ability of the CHD to order the correct number and types of sample bottles. Additionally, it checks to see if the CHD has access to refrigerator and ice to store samples.
2. **Sampling Method.** This checks the CHD personnel's ability to properly sample a well (including gaining permission to sample a private well).
3. **Lab Submittal Information**. This notes the ability to complete all forms required to submit a sample to the lab for analysis.
4. **GPS (field).** This determines whether CHD personnel can properly use their GPS equipment.
5. **Well Survey Accuracy.** Field visits will be made to 3–5 sites to determine the survey accuracy by checking the number and location of wells reported on the last survey and the number located in the field.

6. **Well Point and Laboratory Submittal Form Accuracy.** Field visits will be made to 5–10 wells to determine if the FLUWID, address, casing diameter and casing material were accurately recorded. The accuracy of the GPS point and laboratory submittal forms will also be evaluated.

If a specific item does not apply to the CHD being evaluated, no points will be deducted from the evaluation and “N/A” will be selected in the evaluation tool for that item. If a CHD receives a score of less than 80%, the next evaluation for that CHD **must** be an onsite evaluation.

Note: Appendix O has a copy of the Evaluation Tool form.

Glossary

Delineated Area—A surface area identified pursuant to Rule 62-524.420, FAC, within which groundwater contamination is known to exist or which encompasses vulnerable areas or areas which the Florida Department of Environmental Protection provides subsidy for restoration or replacement of contaminated drinking water supplies.

New Potable Well-Any excavation that is drilled or bored, or converted from non-potable water use, after delineation in an area delineated pursuant to Rule 62-524.400, FAC, when the intended use of such excavation is for the location and acquisition of ground water, which supplies water for human consumption. This does not include repair of an existing potable water well.

Potable—Water that is satisfactory for human consumption, dermal contact, culinary purposes and dishwashing.

Abbreviations, Acronyms and Symbols

AFIT	Arsenic Filter Installation Test
BACT	Bacteriological sample
CDV	Cattle dip vat
DCEH	Division of Disease Control and Health Protection, Bureau of Environmental Health
DEP	**Florida** Department of Environmental Protection
DGPS	Differentially Corrected Global Positioning System
DSCP	Drycleaner Solvent Cleanup Program
DOH	Department of Health
EDB	Ethylene Dibromide
ERIC	Environmental Restoration Integrated Cleanup
FAC	Florida Administrative Code
FC	PFAS-specific surveys ("FC" because Fire Colleges were the first sources that were surveilled)
FLUWID	Florida Unique Well Identification Number
GAC	Granulated Activated Carbon
GPS	Global Positioning System
HAL	Health Advisory Level
LU	Limited Use Public Water System
MCL	Maximum Contamination Level
µg/L	Micrograms per liter
mg/L	Milligrams per liter
ng/L	Nanograms per liter
NO_2	Nitrite
NO_3	Nitrate
P505	Organic Pesticides Analysis Method
PFAS	Per- and Poly-fluoro Alkyl Substances
PRP	Petroleum Restoration Program (formerly SUPER Act)
PWS	Public Water System
RO	Reverse Osmosis
SVOC	Semi-Volatile Organics (EPA method 525)
SUPER Act	State Underground Petroleum Environmental Response Act (see Petroleum Restoration Program)
TNO3	Total Nitrate+Nitrite
Toxics	Drinking Water Toxics Program
VOC	Volatile Organic Chemicals
WC	Waste Cleanup Program
WSRF	Water Supply Restoration Funding Program (formerly the Water Supply Restoration Program (WSRP))

List of Appendices

A. Using OCULUS
B. EH Water Quick Start
C. Putting it All Together: Finding the Site
D. Survey123
E. Manual GPS Submission
F. Updating Contact Information
G. Laserfiche Web Access User Guide
H. MCL/HAL Listing
I. How to Read the Lab Report
J. Lab Qualifiers
K. Water Fact Sheets
L. Letter Templates
M. WSRF Filter and Maintenance Guidance
N. Fee Schedule
O. Evaluation Process and Summary Report
P. Useful Websites
Q. Contact Information

Appendix A
Using Oculus

Using Oculus

Updated 5/14/2021

<u>Section 1:</u> Storage Tanks

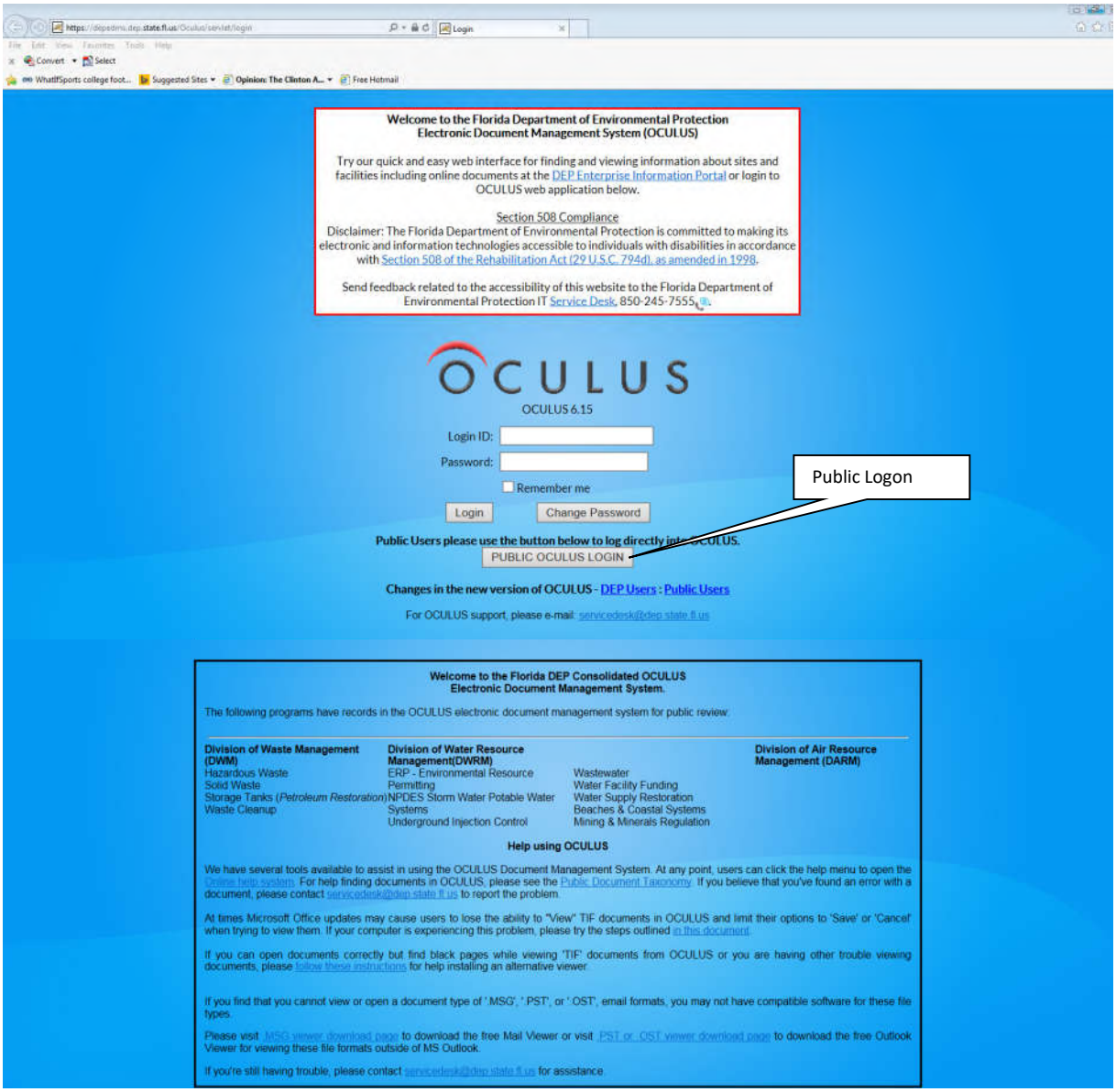
<u>Section 2:</u> Dry Cleaners

<u>Section 3:</u> Water Supply Restoration Program (WSRF)

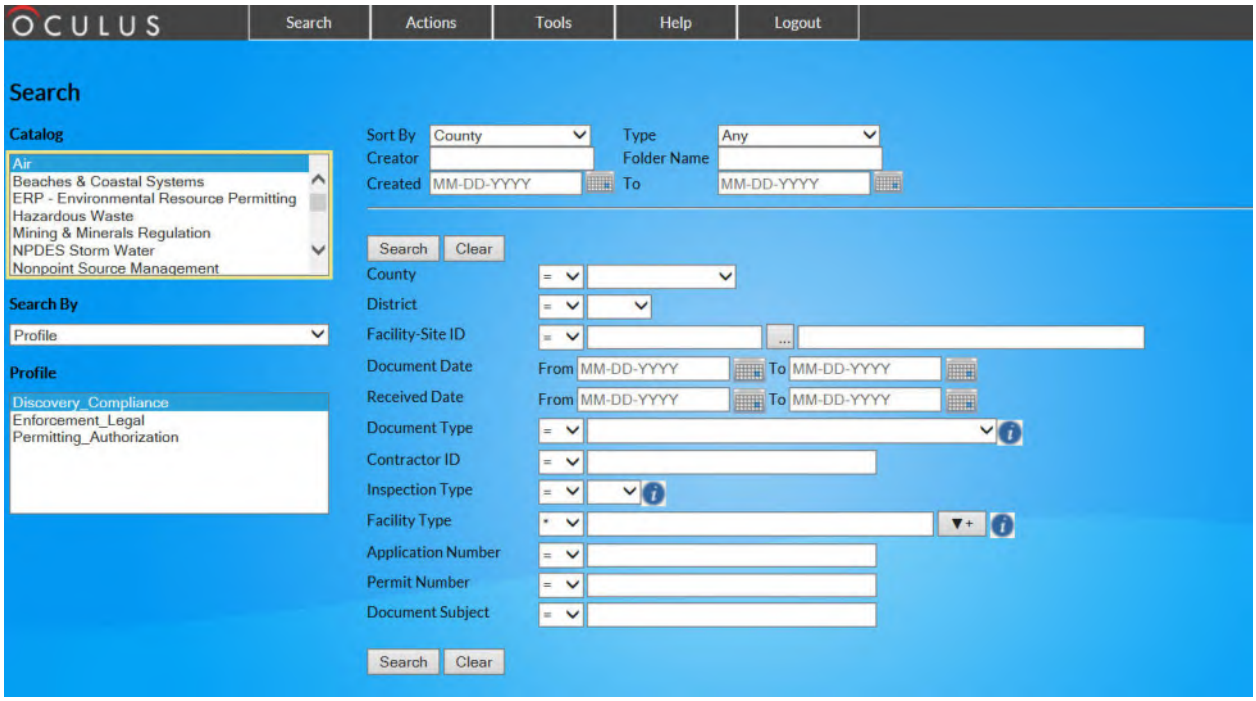
<u>Section 1: Storage Tanks</u>

1. Go to http://depedms.dep.state.fl.us/Oculus/servlet/login

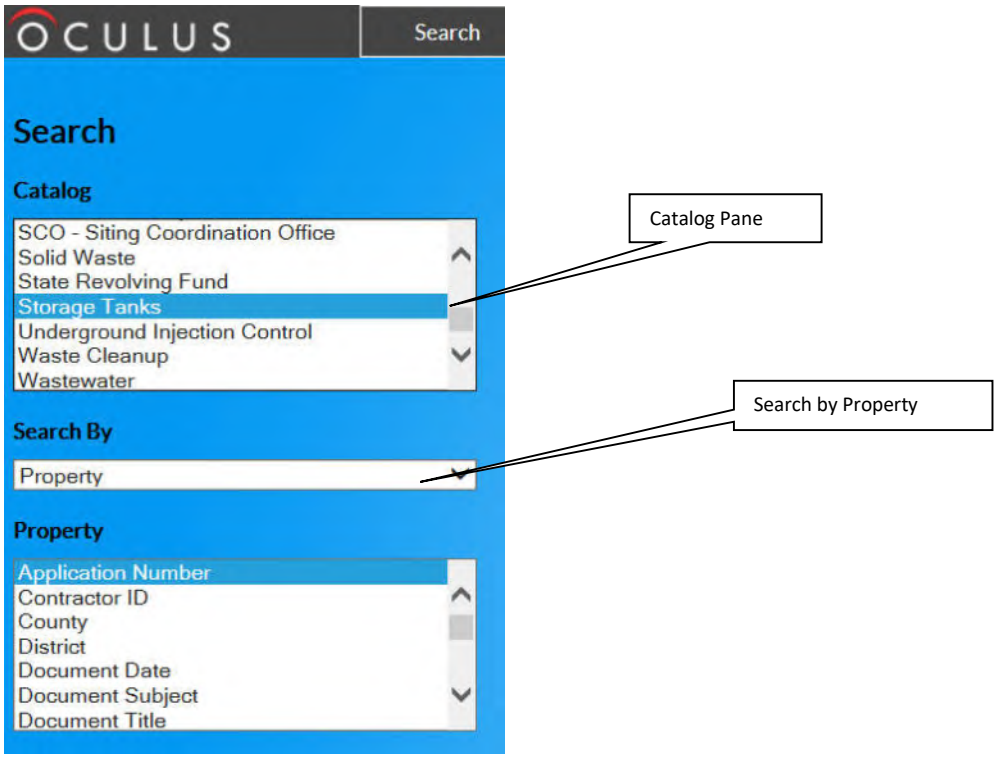
2. Click on the “PUBLIC OCULUS LOGIN” button..



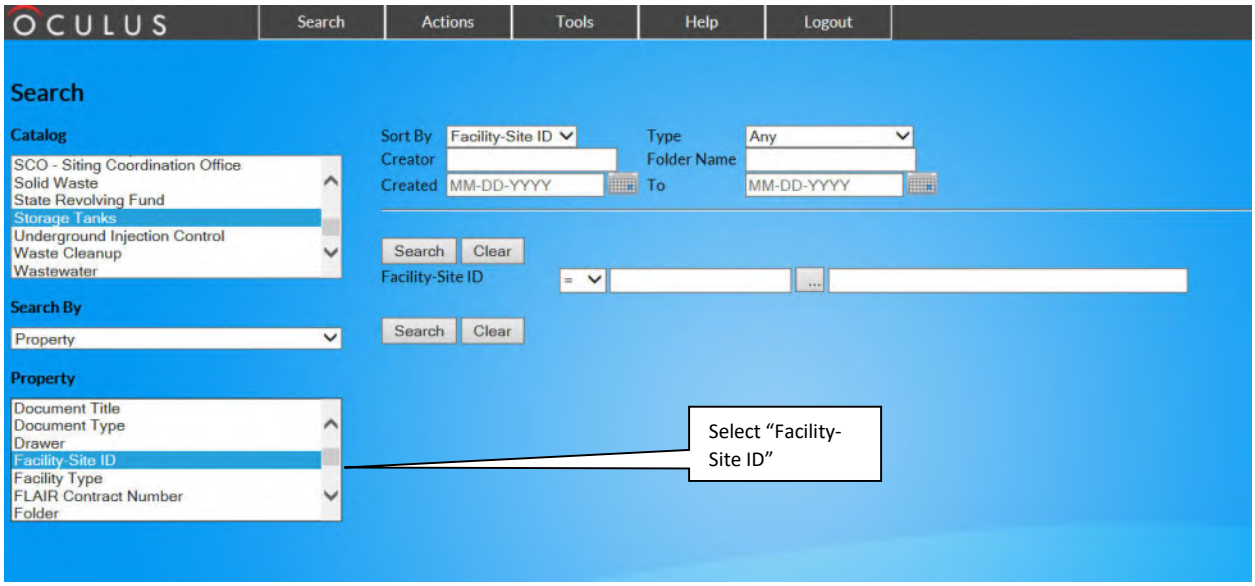
3. When you enter, the default Search Catalog will be “Air” and the Search By category will be “Profile.”



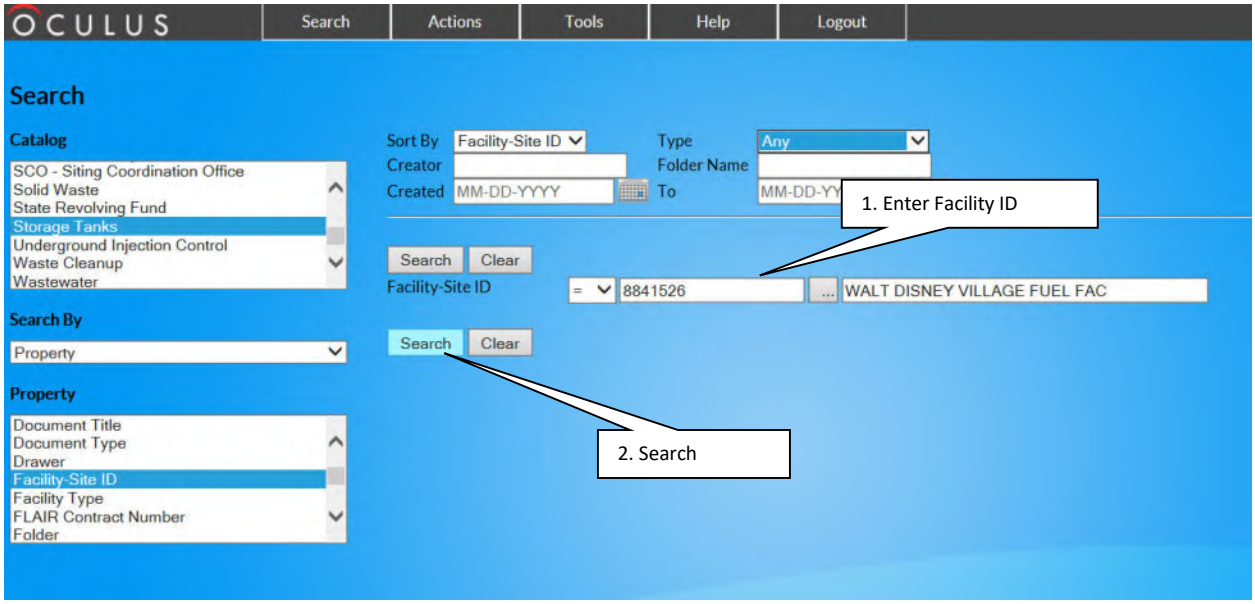
4. Change the Catalog to your chosen project (Storage Tanks for Petroleum) and the “Search By” category to “Property.”



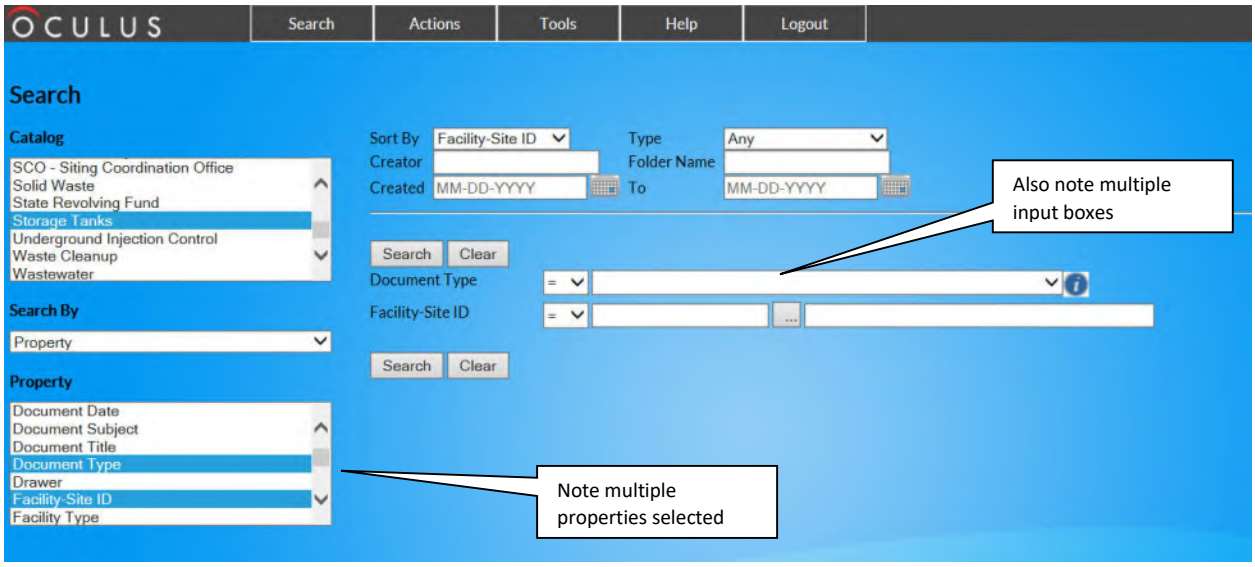
5. Under the Property list, click Facility-Site ID to highlight it. You will notice that the search form on the right will change.



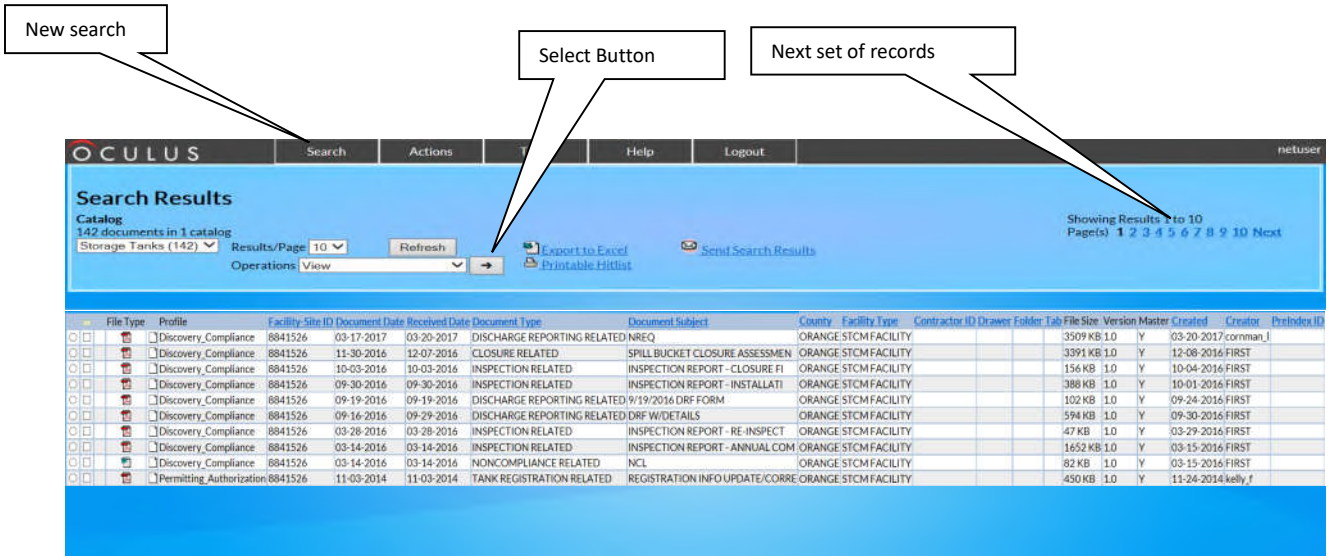
6. Type the Facility ID into the search box and click the Search button. The facility name should automatically populate.



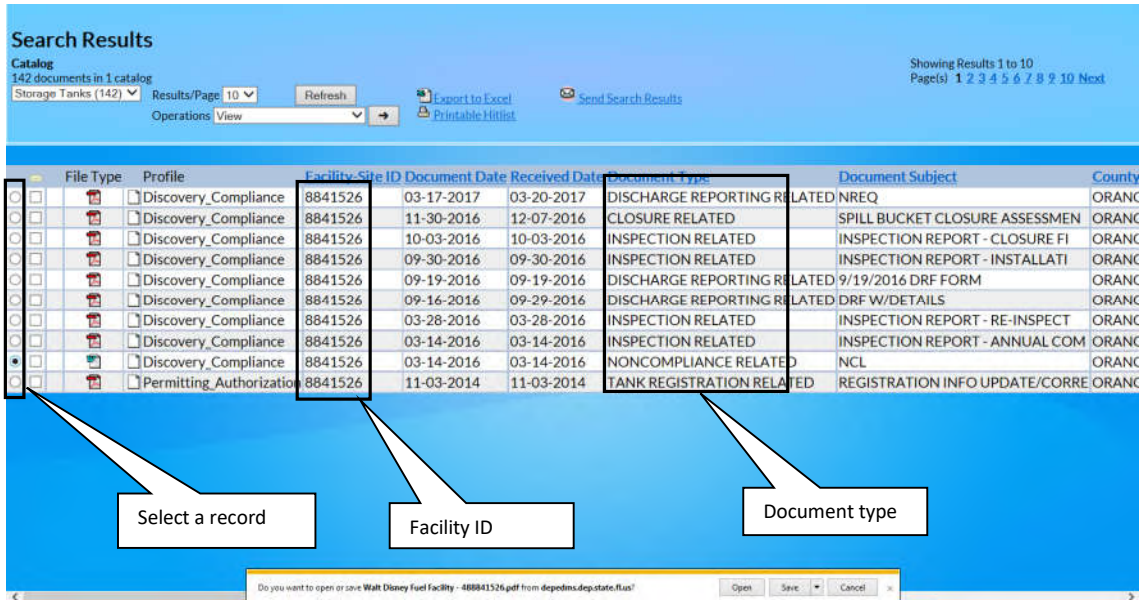
7. Note: if you want to narrow your search, you can query on multiple categories by holding down the Ctrl key and clicking each one you want to use.



8. Once you are done, click the Search button. You should now see the Search Results screen. Some useful points are illustrated below. Click on “Document Date” to search for documents in chronological order or click on “Document Type” to search for groups of specific documents (i.e., “Site Assessment Related” or “Potable Well Survey”).



10. Select the record you are interested in and then click the Select button or just click on the file type icon. The file will download. Your browser default will determine whether the file opens automatically, or you need to open it manually. Most newer files are Adobe Acrobat format (*.pdf), but there are still a number of multipage *.tif files.



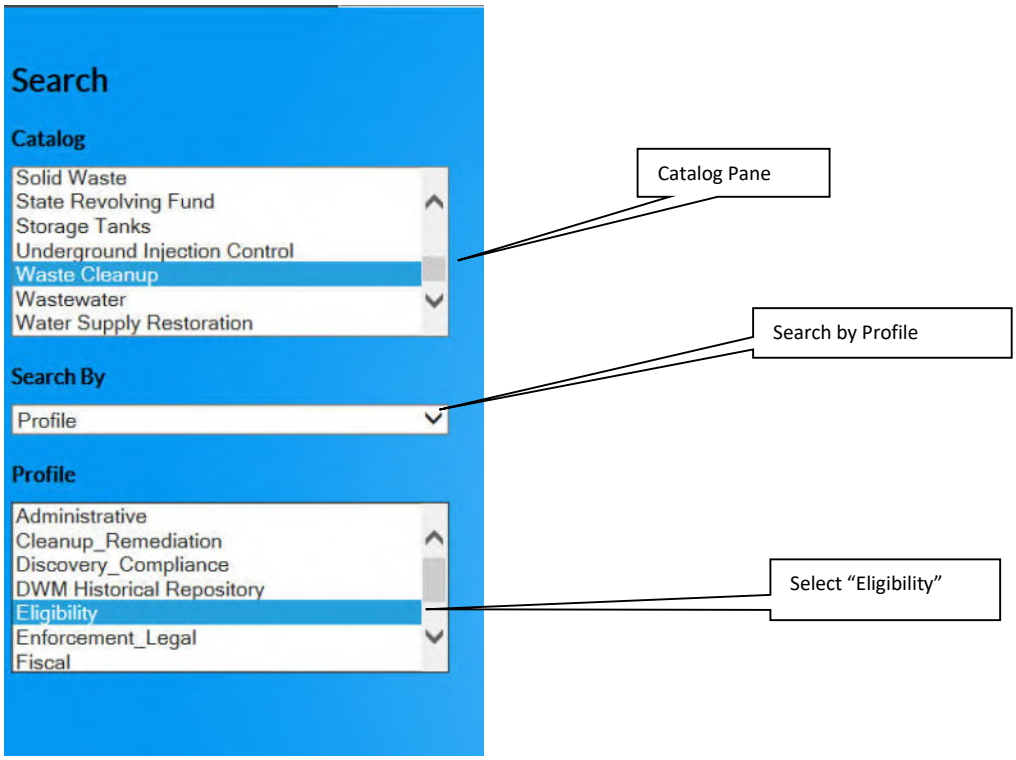
For purposes of the Well Surveillance Program, some of the document types you will want to focus on are listed below:

- SITE ASSESSMENT RELATED—This usually will include a site assessment report containing historical information and, importantly, a site plan.
- SOURCE REMOVAL RELATED—Usually includes a site plan and lots of information on how and when the tanks were removed.
- ELIGIBILITY PACKET RELATED—Often includes discharge reports with some form of site sketch.
- MONITORING PLANS AND REPORTS RELATED—This will also often have a site plan.
- POTABLE WELL SURVEY/SAMPLING—Old DOH well surveys. Sometimes useful.
- SOURCE REMOVAL RELATED—Tank closure reports, generally. These will often include a site plan of some description. Usefulness of these plans is spotty.
- INSPECTION RELATED—Compliance or removal inspections. The newer ones are in pdf format and often have pictures that can be used to determine the tank location.

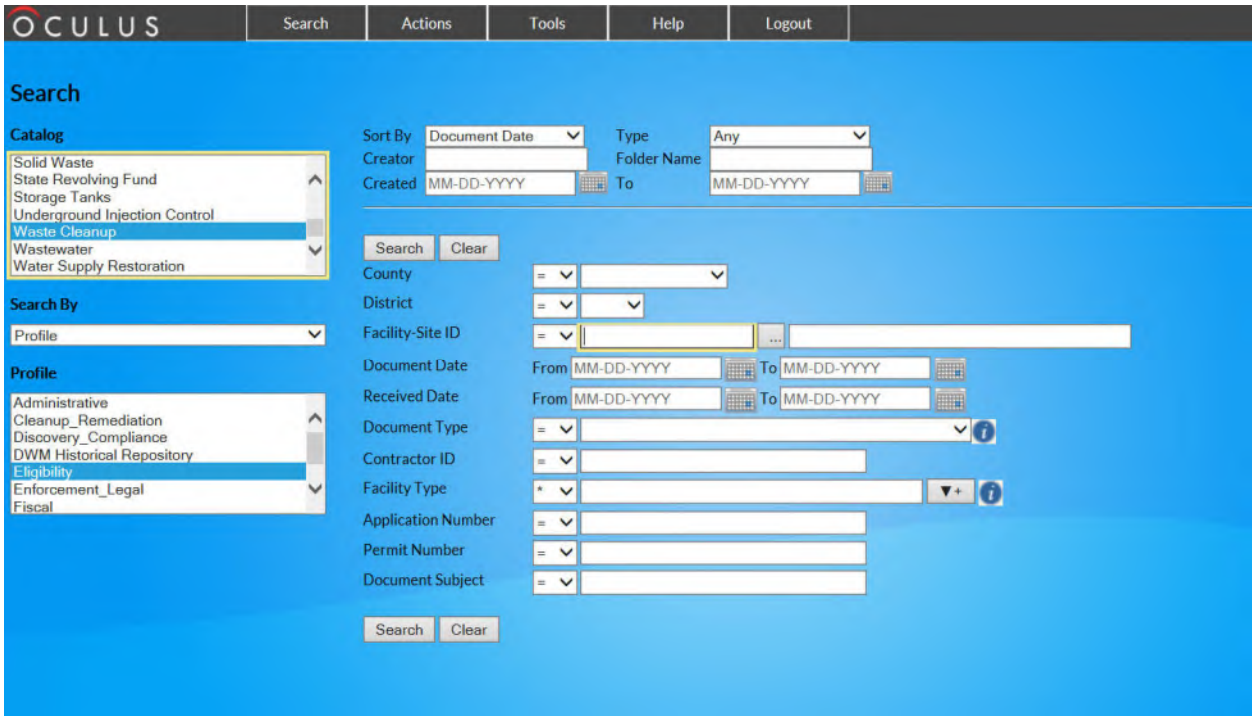
Section 2: Dry Cleaners

1. Click on the “PUBLIC OCULUS LOGIN” button.
2. As before, the default Search Catalog will be “Air” and the Search By category will be “Profile.”

3. Change the Catalog to your chosen project (Waste Cleanup for Dry Cleaners) and the Search by: category to “Profile.”

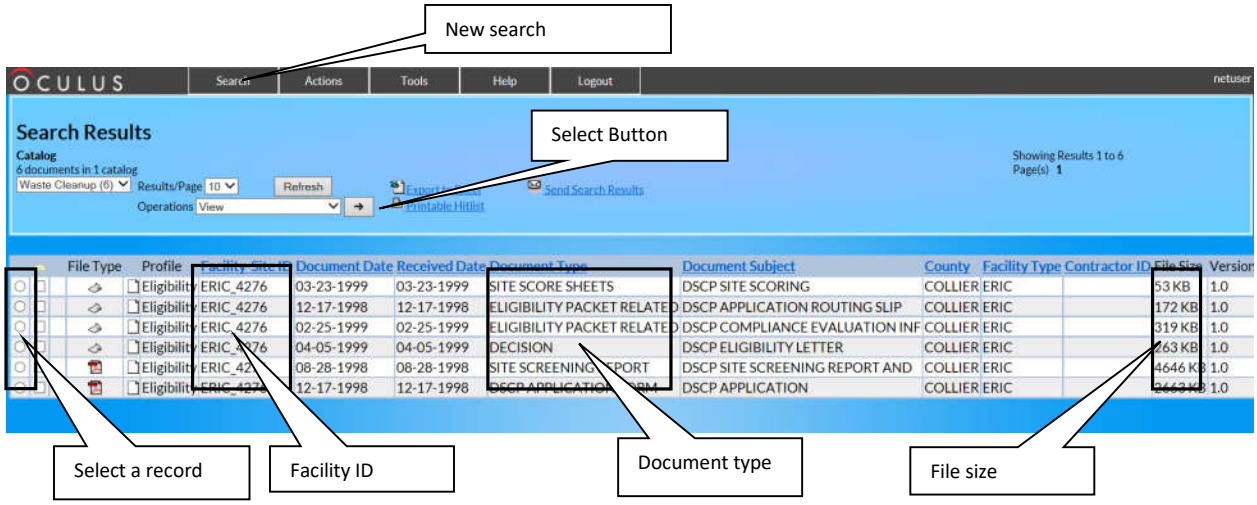


4. Under the Profile list, click “Eligibility” to highlight it. The search form on the right will change.

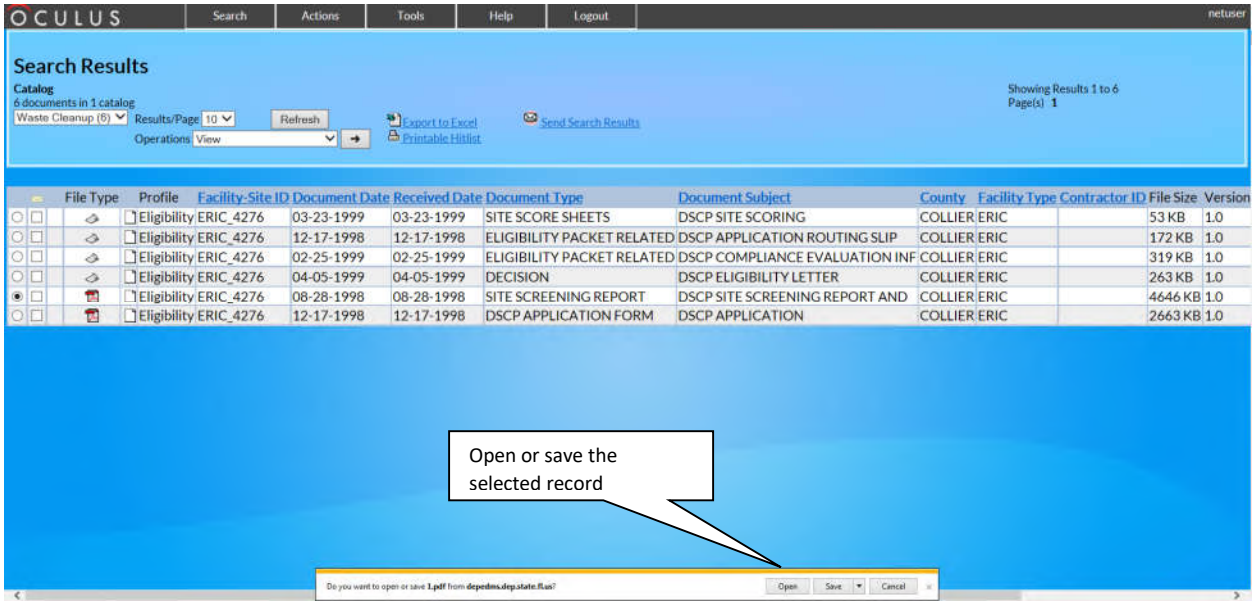


5. Type the Facility ID into the search box and click the Search button. The facility name should automatically populate. If you want to reduce the amount of documents choose the “Site Screening Report” in the Document Type drop down list.

6. Once you are done, click the Search button. You should now see the Search Results screen. Some useful points are illustrated below. Click on “Document Date” to search for documents in chronological order or click on “Document Type” to search for groups of specific documents (i.e., “Site Assessment Related”).



7. Select the record you are interested in and then click the Select button or just click on the file type icon. The file will download. Your browser default will determine whether the file opens automatically, or you need to open it manually. Most newer files are Adobe Acrobat format (*.pdf), but there are still a number of multipage *.tif files.



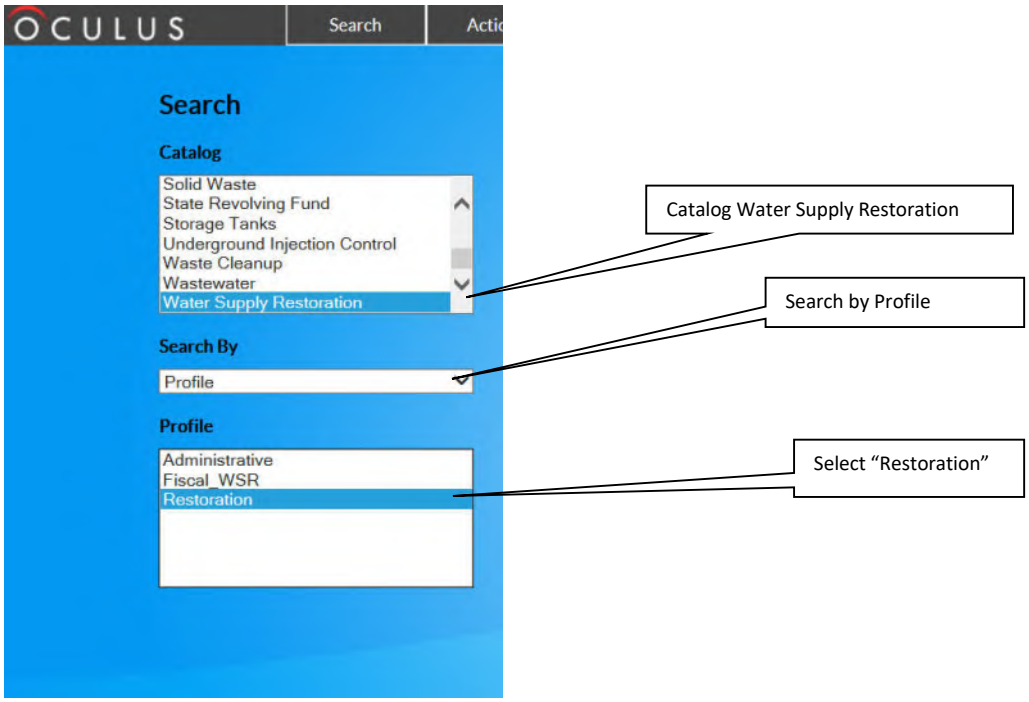
For purposes of the Dry Cleaning program the document type you will want to focus on is the Site Screening Report listed below:

- SITE ASSESSMENT RELATED—This usually will include a Facility Identification, lab analysis's, and importantly, a site plan.
- Note, that when we need to GPS a Dry Cleaner we normally choose the back door.

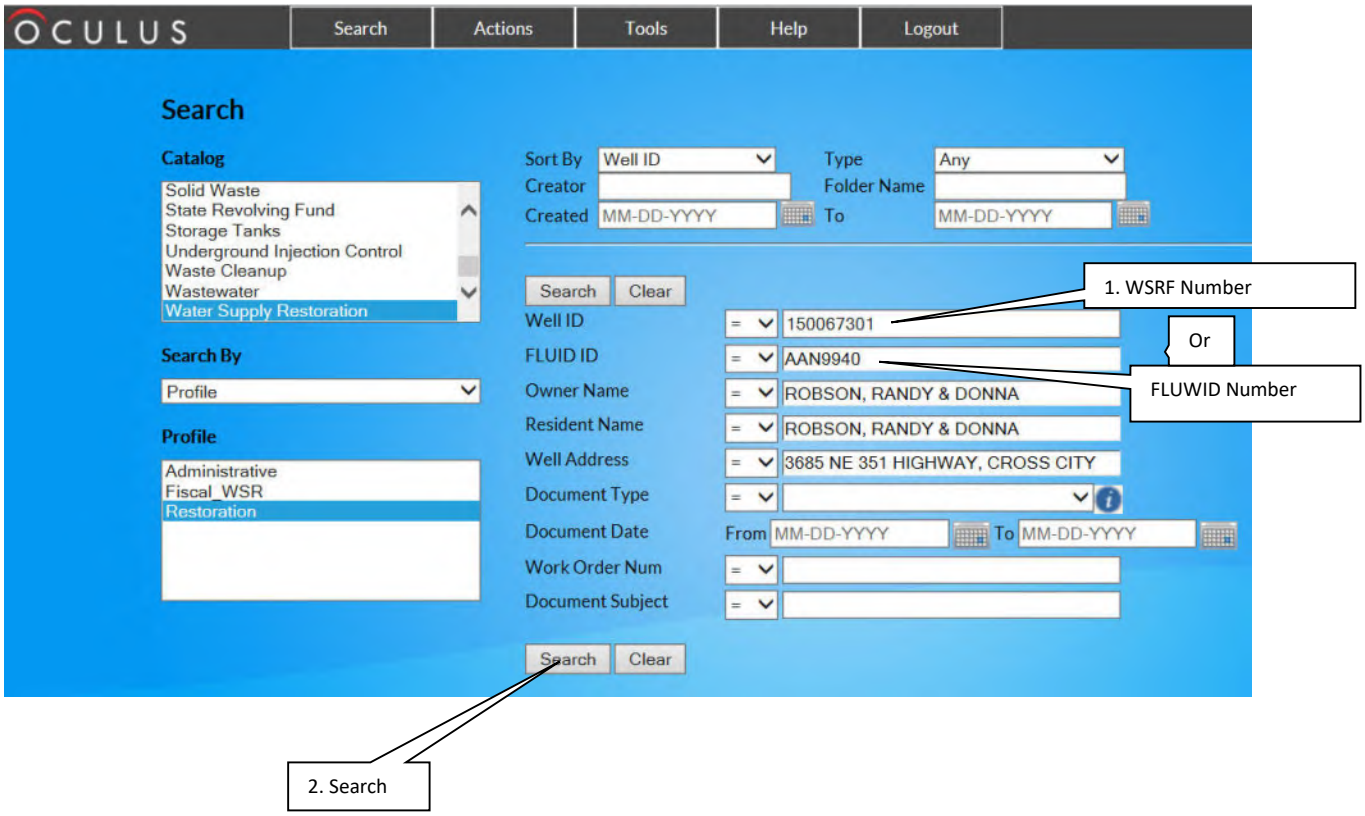
Section 3: Water Supply Restoration Funding Program (WSRF)

1. Click on the "PUBLIC OCULUS LOGIN" button.
2. As before, when you enter, the default Search Catalog will be "Air" and the Search By category will be "Profile."

3. Change the Catalog to your chosen project (Water Supply Restoration) and the Search by: category to “Profile.”



4. Under the Profile list, click “Restoration” to highlight it. You will notice that the search form on the right will change. You can type either the WSRF number or The FLUWID number. You will get the same results.



5. Once you are done, click the Search button. You should now see the Search Results screen.
6. Select the record you are interested in and then click the Select button or just click on the file type icon. The file will download. Your browser default will determine whether the file opens automatically, or you need to open it manually. Most newer files are Adobe Acrobat format (*.pdf), but there are still a number of multipage *.tif files.

For purposes of the WSRF program the document type you will want to focus on is the “Filter Exchange FE” under Document Type. It will have the latest information for homeowner contact. Below are the different meanings under document type.

- OC—Outgoing Correspondence DEP has contacted the homeowner to see if they want to participate in the program. Note: This is entirely voluntary.
- AR—Application Related The Homeowner wishes to participate in the program to have safe drinking water.
- WO— Work Order Related DEP contacts a contractor after they received the application back from the homeowner.
- FE — Filter Exchange The contractor will change out the old filter for a new filter. This goes on indefinitely till the raw water is safe to drink.

Appendix B
EH Water Quick Start

Well Surveillance

Quick Start Guide to EH Water

Opening Map

Copy the following address into your browser window address bar. The map should open after downloading.

https://gis.flhealth.gov/ehwater/

Map Tools

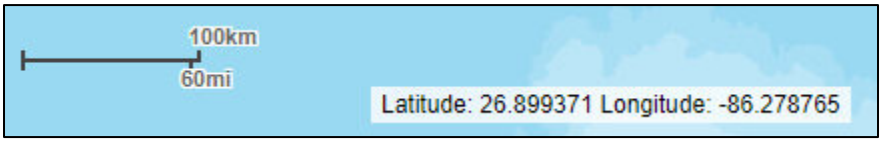
Navigation Tools: The Navigation tool is found on the left side of the map.

Zoom in (**+**) and Zoom out (**-**): Clicking on the plus or minus tools will allow *you to zoom in or zoom out of the map.* Left click the map and drag open a rectangle to the extent of the map.

Full Extent (Home Button): Clicking on the home icon will bring the viewer back to the entire state of Florida, which the initial extent of the map page.

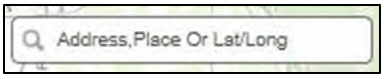
My Location (Home): Clicking this cross-hair button will prompt the user to allow the browser to access your location.

Scale and Coordinate Tools: You will find the scale and coordinate tools at the bottom left side of the map.

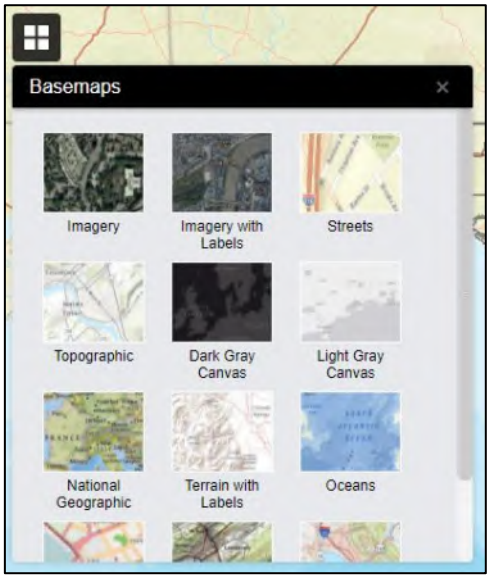


Scale tool: The scale tool shows the current scale of the map in kilometers and miles. This will change as you change map extents.

Coordinates: The latitude and longitude of the cursor is shown below the scale bar. It changes as the cursor is moved.



Find an Address: The address search widget, is an open widget type which always shows on the map on top left corner of the application window next to the navigation tools. After entering the address, place name or coordinates it will begin the search if the string matches the autocomplete search result. Alternatively, you may click on the locate button. The result returned will snap the map to the address location with a pop-up information window on the map. Clicking the clear button to close the window, clears data from the address or coordinate boxes.



Basemaps Selector: The basemap widget shows the maps that are used to display the geographic relationships between layer data. You can choose any one according to your needs – a street map (standard road map) or an aerial map (satellite photograph). The map selector buttons are located in the upper left corner. Clicking on the either button will change the basemap accordingly. Note that basemaps are based on historic data and may not show more recent changes.

Draw: If you click on the palette icon, the draw tool will open. You can select between point, straight line, polyline, freehand polyline, triangle, rectangle, circle, ellipse, straight polygon, freehand polygon, or text. Clicking on the appropriate tool will allow you to select color, weight and other graphic settings. Text is entered into a text box which is then placed in the correct position on the map by clicking the location. Note that the drawings on the map will not disappear when the tool is closed. This is to facilitate printing of drawing graphics that you added to the map area. Once text is placed on the map it cannot be moved only cleared by clicking on "Clear."

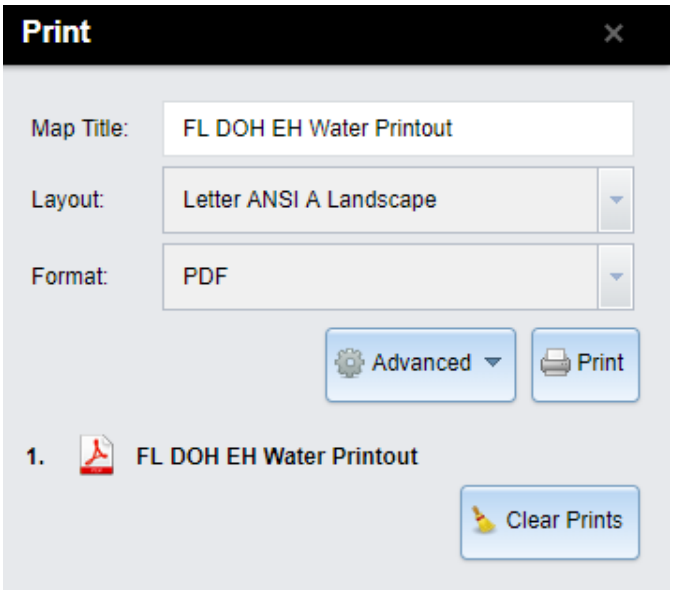
Measurement: If you click on the ruler icon, the Measurement tool will open. You can choose between area and distance measurement. In addition to measurements, there is a map latitude and longitude location which works as you move the mouse cursor. There is a drop down to select the measurement units. You can draw a polygon and close it by double clicking to get area or draw a line. To get distance, single click results in a straight line, next, double click the results at the end of the measurement. Note that the measurement graphic on the map will disappear when the tool is closed.

Widgets Toolbar:

Some map tools expand into individual windows to perform certain functions and show additional information. These tools may also be called “widgets.” They are found at the top right of the header above the map. If you hover over an icon on the tool bar, the tool name will appear. When you click on an icon, a window will appear over the map on the right side of your window. To close a window, click on the “x” in the upper right corner of the pop-up window.

Bookmarks: If you click on the bookmark tool, a window will open listing the individual counties of Florida. Click on the county to move the map to that region. You may also add your own bookmark by clicking in the “Enter a Bookmark Name to Save” under the “My Bookmarks” section of the window. This will add your current extent as a bookmark. This bookmark should remain until you remove it by clicking on the minus sign next to “Select My Bookmark.”

Print: If you click on the printer icon, the map printing tool will open. You may enter a title to be printed on the map. When you click the print button, your standard print menu will appear. The map and any drawn figures or labels you are displaying on your map will be printed. To print the map horizontally on the paper, make sure your printer preference is set to landscape.



The map will Print to a PDF Format which can then be opened into a new browser tap when you click on it.

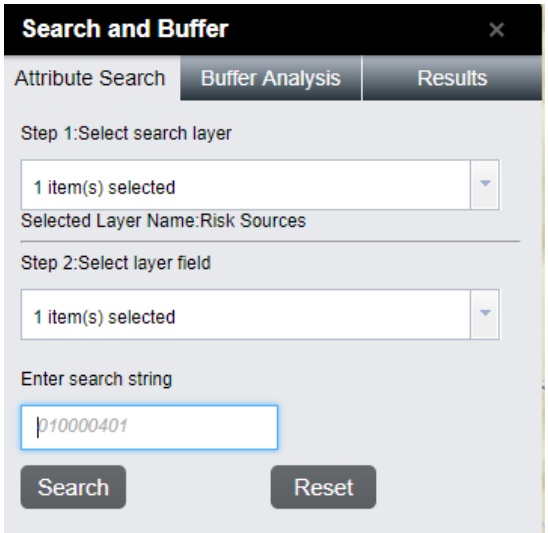
You can change the Map Scale/Extent by clicking on the “Advanced” button. For Maps in Portrait, the following forced scales work best for the associated buffer size:

500 ft. buffer – Force Scale 2000
0.25-mile buffer – Force Scale 5000
0.50-mile buffer – Force Scale 10000

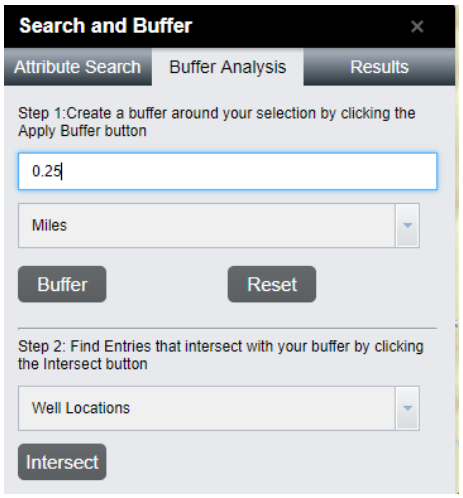
Click on “Clear Prints” to remove the old PDFs.

See last page of document for an example of an EH Water Printout.

Search and Buffer: If you click on the icon pictured to the left, you will bring up the Search and Buffer tool. You may search specific layers by field attributes.

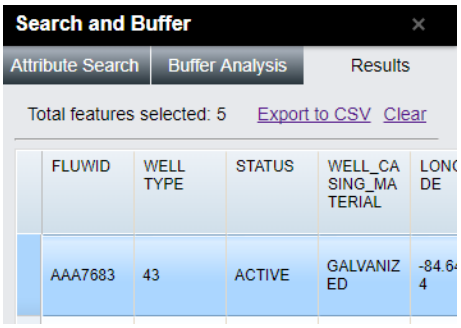


Under “Step 1: Select search layer” of the “Attribute Search” tap, choose the layer you wish to search (i.e. Risk Sources). Under “Step 2: Select layer field,” choose the field you want to search (i.e. Facility ID). Under “Enter search string” enter the Facility ID (or FLUWID if you are searching Well Locations) in the textbox. Click “Search” to display results in results tab. The map will zoom to the location of the item searched for.



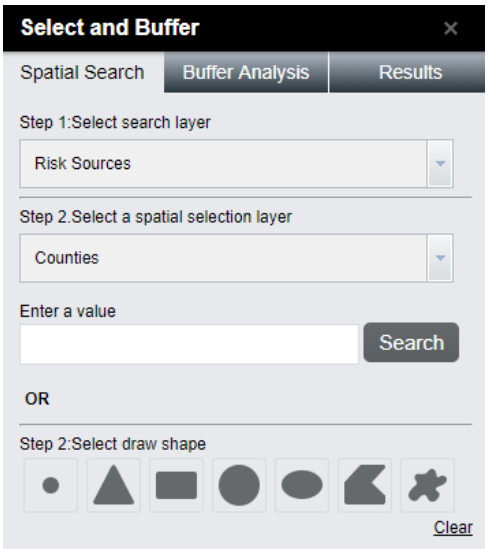
Click on the “Buffer Analysis” tab at the top of the “Search and Buffer” window. Under “Step 1: Create a buffer around your selection by clicking the Apply Buffer button” enter the buffer size (0.25 or 0.50). Choose the appropriate unit (miles) from the drop-down menu. Click on “Buffer.”

Under “Step 2: Find Entries that intersect with your buffer by clicking the Intersect button” choose the items you are searching for (i.e. Well Locations). Click on “Intersect.”



Any features selected will appear in the “Results” tab of the “Search and Buffer” window. You can export these results to an Excel spreadsheet by clicking on “Export to CSV.” Once you are finish with those results, you will need to click on “Clear” before beginning a new search.

Select and Buffer: If you click on the icon pictured to the left, you will bring up the Select and Buffer tool. You may search specific layers by shape.

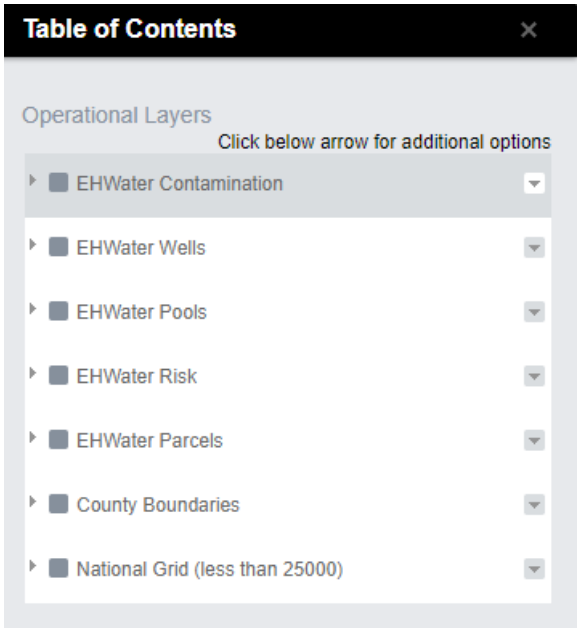


Under “Step 1: Select search layer” of the “Spatial Search” tap, choose the layer you wish to search (i.e. Risk Sources). Under “Step 2: Select draw shape,” select the desired selection tool from point, straight line, freehand line, rectangle, circle, straight polygon, or freehand polygon. Draw the shape on the map using the mouse. The elements within that figure will display in the form of a list in the “Results” tab.

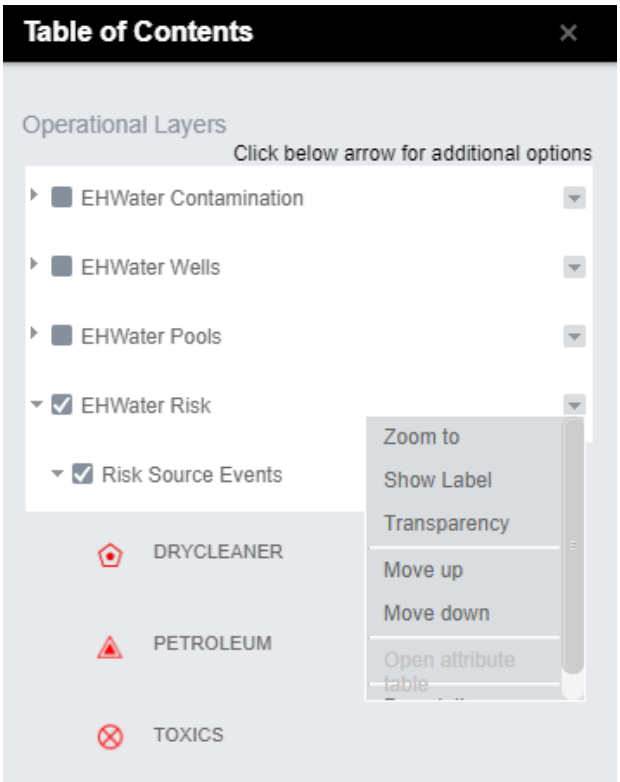
You can draw a buffer around the selected features and export your results using the same procedures described under “Search and Buffer.”

Map Layers and Map Services:

Information displayed by the map is stored in the form of map layers. You may select the layers you wish to display by clicking the layer stack icon button in the widgets toolbar. This will open the “Table of Contents” window with a drop-down list showing all available layers with check boxes. Click the check box to select layers.



Map Services: Map services contain more than one layer and are grouped together. The services are designated in the “More…” dropdown box by a triangle on the left side of the service name. To see what layers are available in the map service, you must click on the triangle to expand the list of layers. They may have one or more levels of layers. Click on the checkbox to select a layer. Note that to turn a layer on, any upper level categories in the service and the service must also be checked. To remove a layer, uncheck the box.



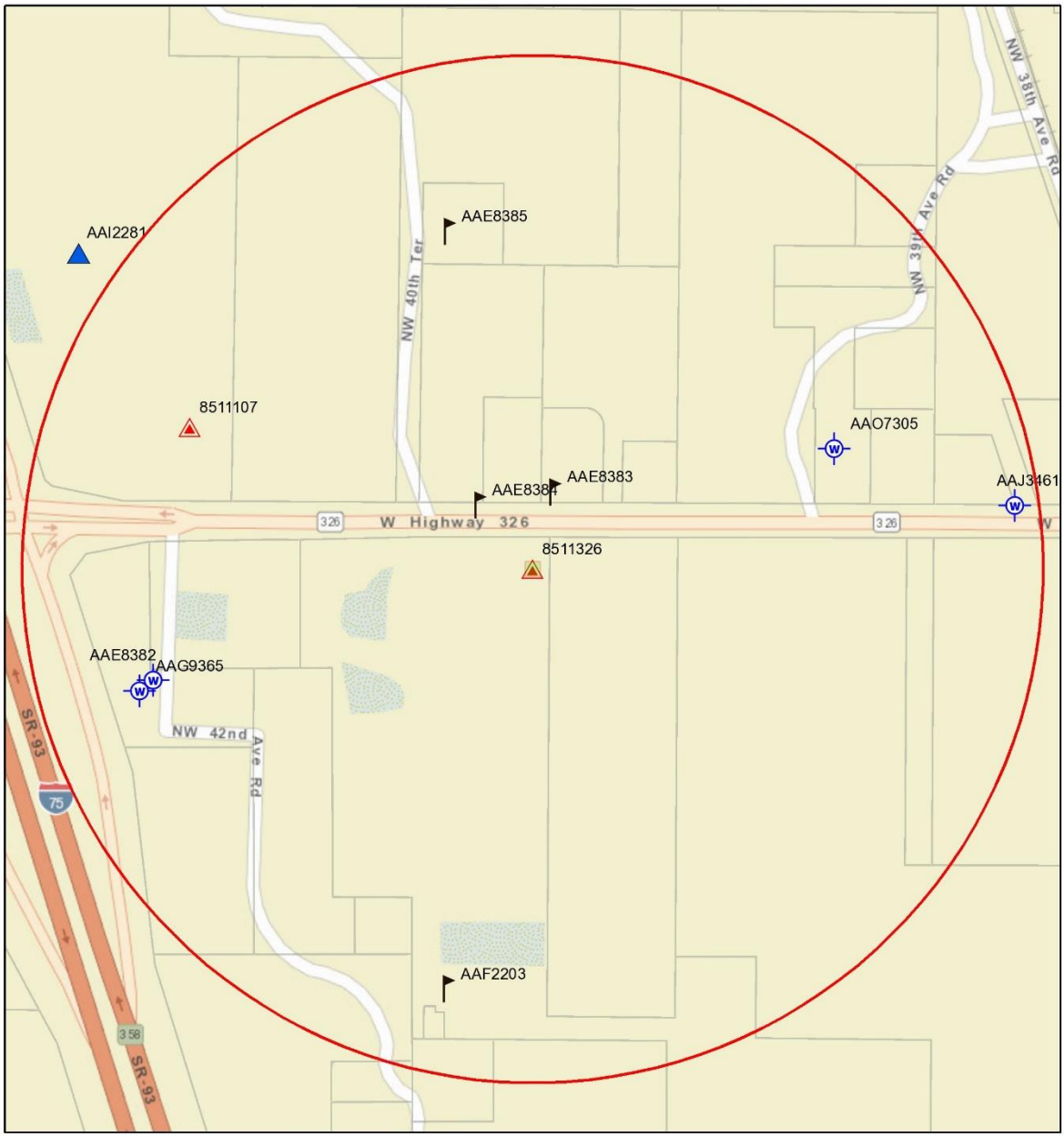
To view a layer's symbology, click on the triangle to exapand the list a final time.

Note, some layers have labels that can be turned on by clicking the triangle to the right of the layer or service name.

Click on "Show Label" to label the features in the layer. By clicking on "Transparency" you can adjust the appearance of the labels and features by increasing or decreasing their trasnparency.

Clicking on the "Legend" button in the widgets toolbar will open the "Legend" window. This window will display any layers you have selected from the "Table of Contents" window.

FL DOH EH Water Printout



December 20, 2017

1:5,000

0 0.04 0.08 0.16 mi

0 0.0475 0.095 0.19 km

VOC (in past 12 months)

- >MCL/HAL
- >=1/2 MCL/HAL
- <1/2 MCL/HAL and >=1/4 MCL/HAL
- <1/4 MCL/HAL
- Sampled, No Detects
- Not Sampled within 12 months
- Never Sampled for this Analysis

Delineated Zone (62-524)

- Delineated Zone (62-524)

Risk Source Events

- DRYCLEANER
- PETROLEUM
- TOXICS

Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community
Mike Berry

FL DOH
FL DOH

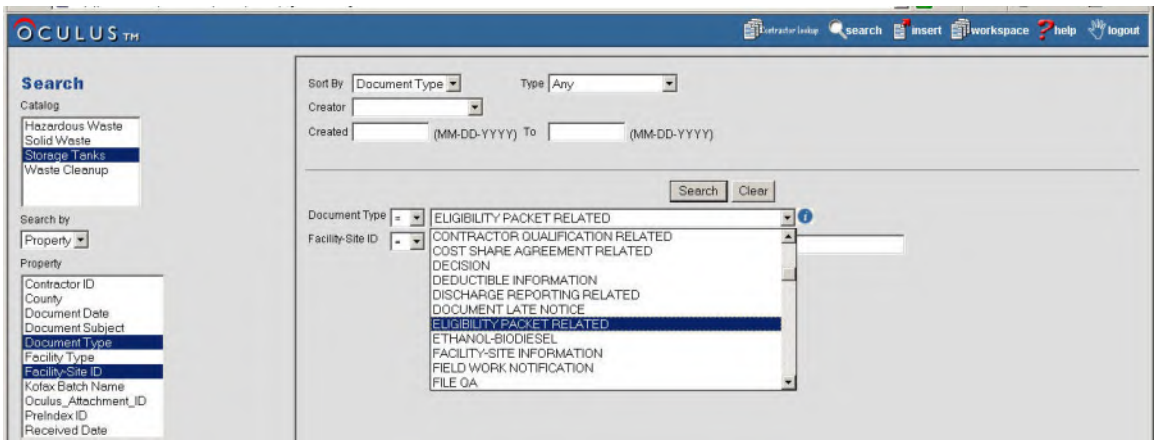
Appendix C
Finding the Site

Putting it all together. Finding the site.

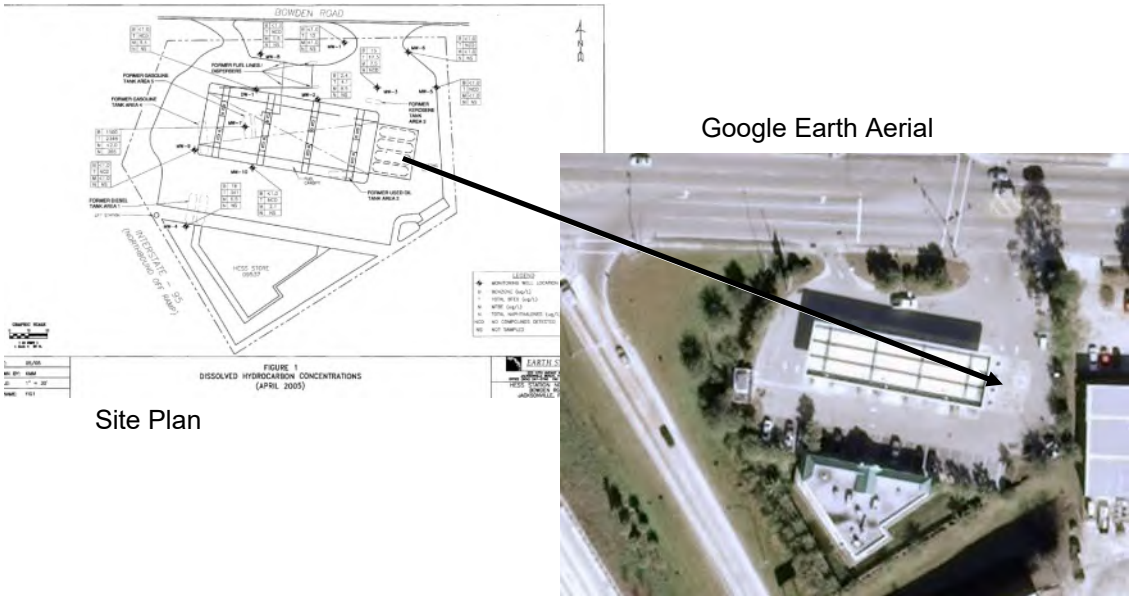
1. Check Oculus for a site plan.

   Best found under the following document types:

- SITE ASSESSMENT RELATED
- MONITORING PLANS AND REPORTS RELATED
- CLOSURE RELATED
- ELIGIBILITY PACKET RELATED
- DISCHARGE REPORTING RELATED
- SOURCE REMOVAL RELATED

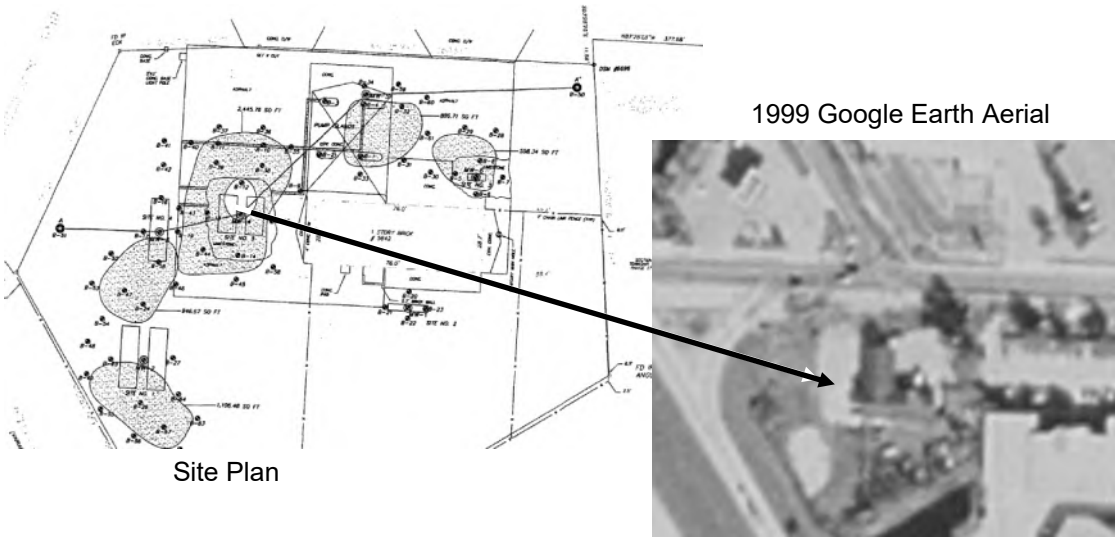


2. If a site plan exists, check it against aerial photograph to see if the location is obvious.



Both ArcMap and Google Earth can be set to display the latitude and longitude of your cursor location, so one of these two are probably the best tool for this job. See “Setting the Display” below to properly set up both programs.

3. If the current aerial does not match the site plan, try to check some previous years. Google Earth often has aerials going back to the early 1990's.



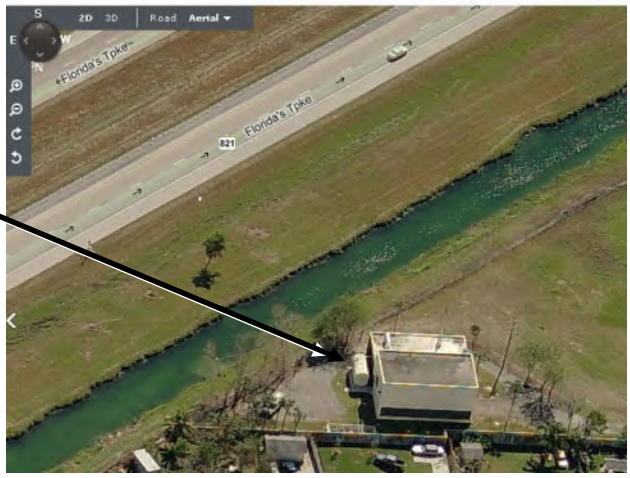
Some other places to get historic aerials online (also check with your particular county's surveyor's office, too):
http://ufdcweb1.uflib.ufl.edu/ufdc/?c=flap
(Florida Aerial Photography, run by the UF Digital Collection)

http://www.historicaerials.com/
(Historic Aerials.com)

http://www.dot.state.fl.us/surveyingandmapping/apac.shtm
(FDOT Survey and Mapping Office—requires free registration and you'll need a Mr.SiD viewer of some kind if you're not using ArcMap—links are on the site.)

4. If there is no site plan, some digging is in order. Check Oculus for inspections (INSPECTION RELATED). Many of the recent ones have photographs that can be used to help identify the tank locations.

Inspection Photo



Bing "Bird's Eye" Aerial

Inspection Photo

Google Earth Street View

Bing and Google street views work well here.

The files named 8839847_Comparison and 9809576_Comparison can be found in Laserfiche under \Comparison Project Files\Sent to DEP. These files show a couple further examples of the use of inspection photos.

5. On occasion, there will be little of value in Oculus. If you have a local tanks program contact, make good use of them. A list of local program contacts can be found at:
http://www.dep.state.fl.us/waste/quick_topics/publications/pss/CountyDistrictContact_01Dec09.pdf

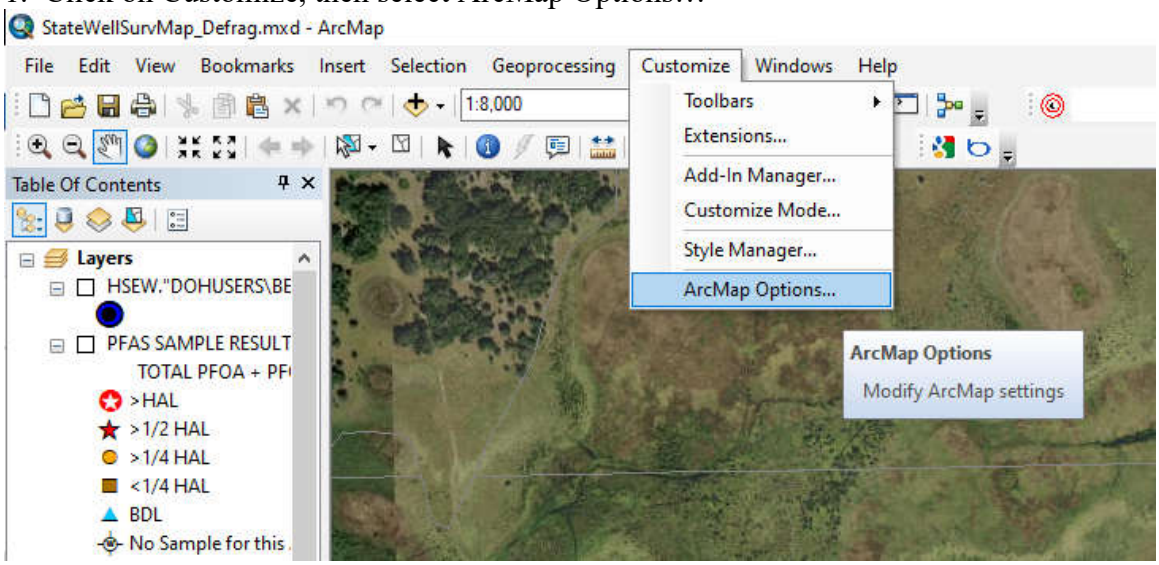
6. Also, location information will be spotty or non-existent and even your local contacts may be unable to help. In that case, a best guess based on parcel information cross-checked with Facility owner information may be the best that can be done.

Setting the Coordinate Display

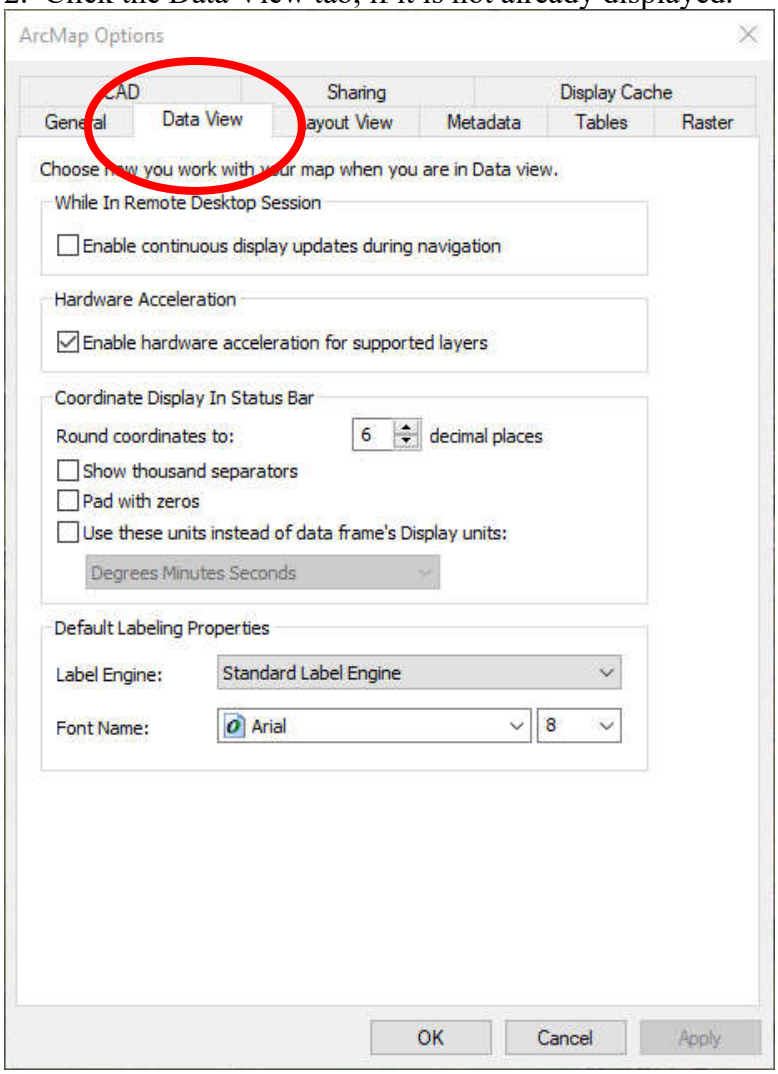
ArcMap

The coordinates of where your cursor is located can be displayed in ArcMap in several ways. The latitude and longitude is what we need to use. We will also need to set the number of decimal places to 6, so that the data will be useful.

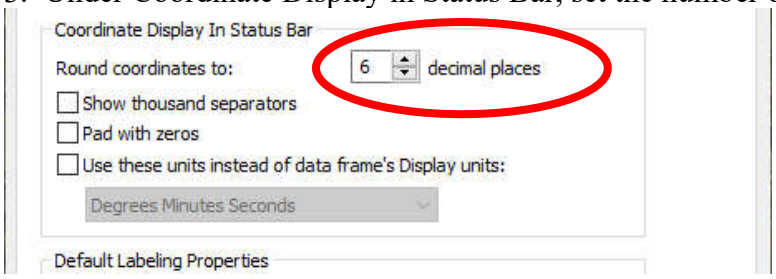
1. Click on Customize, then select ArcMap Options…



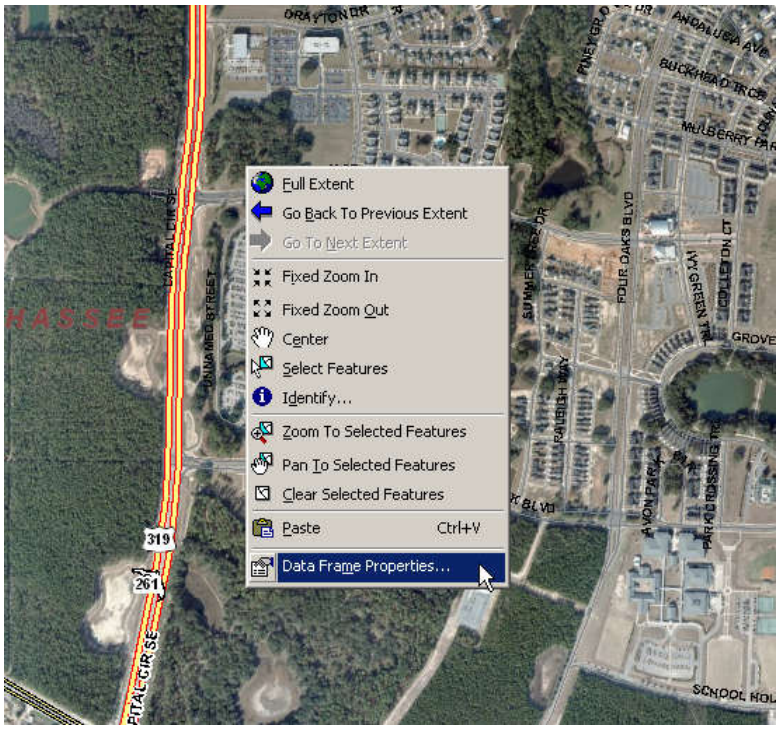
2. Click the Data View tab, if it is not already displayed.



3. Under Coordinate Display in Status Bar, set the number of decimal places to 6. Then click OK.

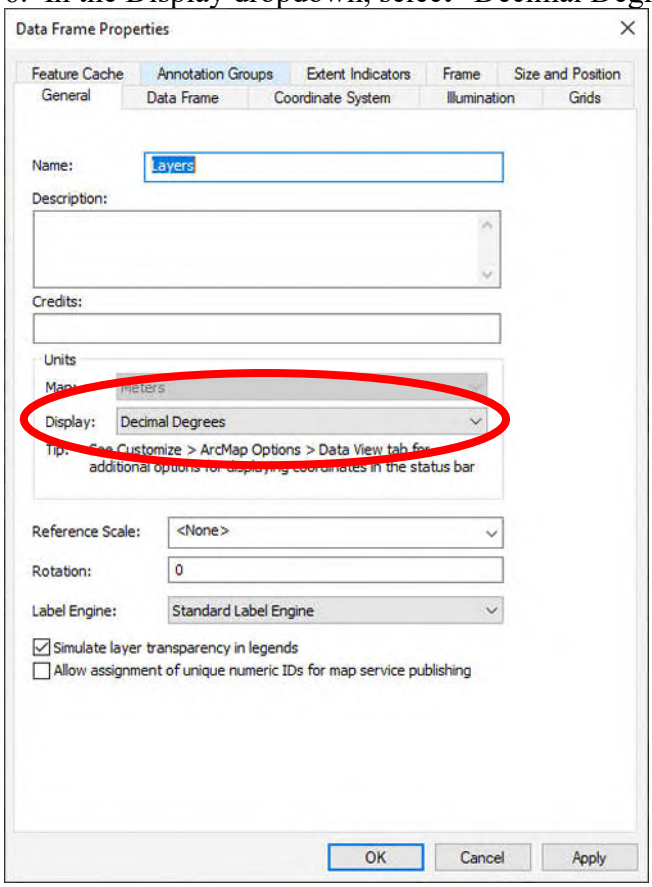


4. In data view, right click and select “Data Frame Properties…”



5. Select the “General” tab if it is not already displayed.

6. In the Display dropdown, select “Decimal Degrees,” then Click OK.



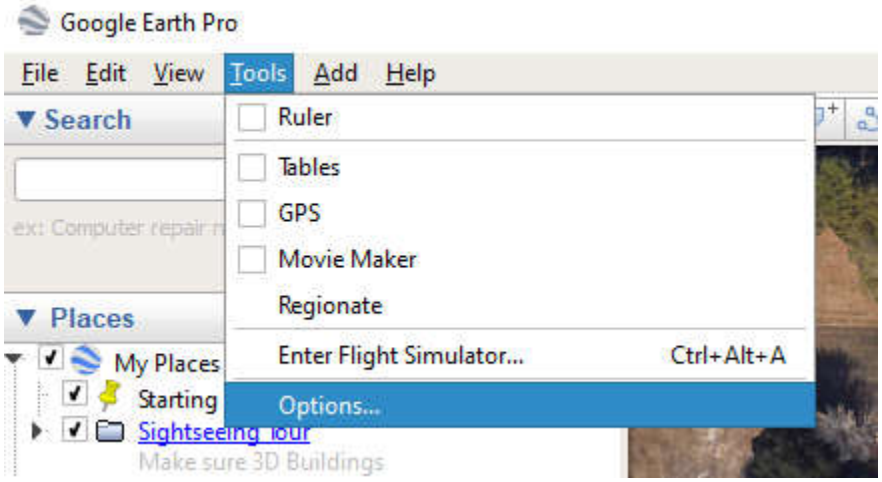
7. The status bar in the lower right-hand corner should now display the lat/lon of your cursor in decimal degrees out to 6 decimal places.

Note that the coordinates displayed are Longitude, **then** Latitude (following the X,Y Cartesian system as opposed to the more common Lat/Lon display that you may be used to). Don't get confused when doing data entry.

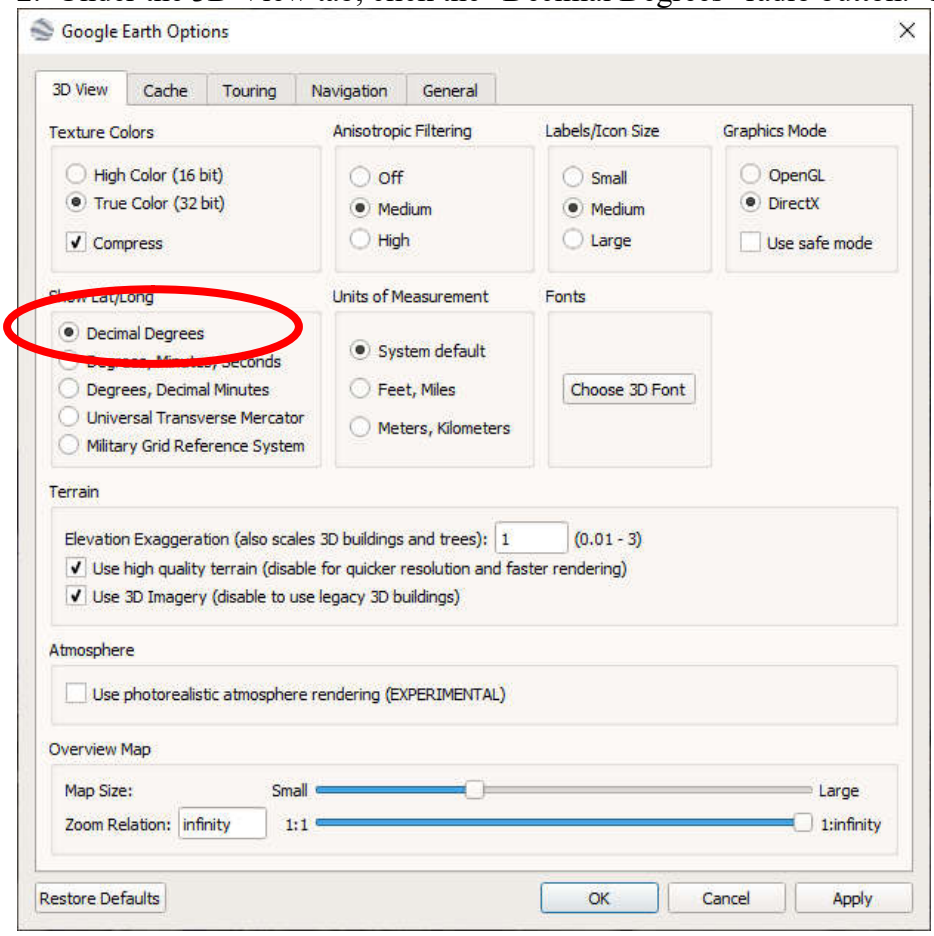
Google Earth

Google Earth can also be set to display the latitude/longitude in several different ways. We need 6 decimal points, at least. Fortunately, Google Earth defaults to 6, so the setup is a bit easier.

1. Click Tools, and then select Options…



2. Under the 3D View tab, click the "Decimal Degrees" radio button. Then click OK.



3. The latitude and longitude of your cursor should now display at the bottom of the screen in decimal degrees out to 6 decimal points.

Appendix D
Survey123

Survey123 for ArcGIS Well Surveillance Program User Guide

Version 1.2 (August 2019)

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About this User Guide

This User Guide is intended to provide working knowledge of the Survey123 application for use within the Well Surveillance Program. It is not intended to provide information of the use of the Survey123 application in other programs. Well Surveillance Program Office staff worked closely with GIS staff within our agency to provide a useful tool for collecting the data that we need which also works with the Program Office database. Questions about general Survey123 application design should be forwarded to such GIS staff and not to the Program Office Staff.

There are many images used in this User Guide. These images may differ slightly from the what users see in the app on their device. These differences are the result when the images were captured and inserted into this User Guide and does not constitute any difference in functionality. Some of the images in this User Guide were captured during the development of the Survey123 application for the Well Surveillance Program and will slightly differ from what is seen on the application when it is in use by County Health Department staff.

Introduction

Survey123 for ArcGIS (Survey123) is a form-based data gathering application by ESRI. It allows Florida Department of Health (DOH) Well Surveillance Program staff to collect location (GPS) and other data in the field, using smartphones, tablets, or other mobile devices. See System Requirements to make sure that your field device meets the minimum requirements.

Staff will use Survey123 to collect data and GPS information in the field and submit the information to the program office. Data can be sent from the field (using device data or Wi-Fi) or from the CHD office (using DOH Wi-Fi).

Benefits of using Survey123

There are many benefits to using the Survey123 application. Some benefits are listed below:

1. Survey123 cuts the time needed to collect a GPS point.
2. Survey123 is a one-step process that eliminates the need to export and email a text file to the program office.
3. Survey123 shows the GPS location on a map that is visible when the mobile device.is connected to Wi-Fi or cellular data. This should reduce the need to re-GPS certain facilities or wells.
4. Survey123 allows the user to collect data from multiple facilities and/or wells and to submit them later. The data is stored on the device until the user is ready to send it.
5. Survey123 allows the user to edit information any time prior to submitting the data to the Program Office.
6. Survey123 allows previously sent information to be copied onto a new form for use or editing. This cuts down on duplicate data entry.
7. Survey123 allows users to take and submit photographs. These can be useful during future visits or to make the Program Office aware of noteworthy changes within the field.
8. Survey123 can be installed on devices that are already used in the field by many CHDs. It eliminates the need for a separate GPS device.
9. Survey123 uses drop-down lists where possible to reduce the amount of data entry needed when completing field activities.
10. Survey123 data entry can use talk to text capability and device memory for commonly-used words, further reducing data entry requirements for staff.

What you need to use Survey123

In order to use Suvey123, you must have a state-issued device that meets the minimum requirements, an ArcGIS Organization login, and the Survey123 application. Before being assigned a login, County Health Department Staff will be required to complete Well Surveillance Survey123 training. Once complete, the Program Office will request an account for you, and you will receive an email notification that the account is created. To get the Survey123 application, download the app from Apps at Work - Mobile Iron. If you do not have Apps at Work – Mobile Iron, see your Information Technology (IT) staff to get it installed onto the device you will use.

Initial Setup of Survey123 on your device

Once the Survey123 app is installed on your device, you must download the Well Surveillance forms. In Survey123, these are called surveys. However, to prevent confusion with Well Surveillance Surveys, we have opted to call them forms throughout this document.

If you click on the Survey123 application and see the Survey123 initial sign-in screen (Figure 1), continue to follow the steps below to set up your app. If you do not see the sign-in screen, skip to the Using Survey 123 section of this User Guide.

Figure 1- Survey123 initial Sign-In Screen

Please NOTE:
In order for the photo functions within the application to work, the application must be allowed to access the device's camera. You may have to adjust your device's settings to allow access.

Follow these steps to complete the initial setup.

1. Open the Survey123 application.
2. Click the “Sign-In” button at the bottom of the application window. This will open the Sign In screen (Figure 2).
3. Sign In using your ArcGIS Organization Username and Password. This will open the My Surveys screen (Figure 3).
4. Click the “Get Surveys” button. This will open the “Download Surveys” screen (Figure 4) of the application.

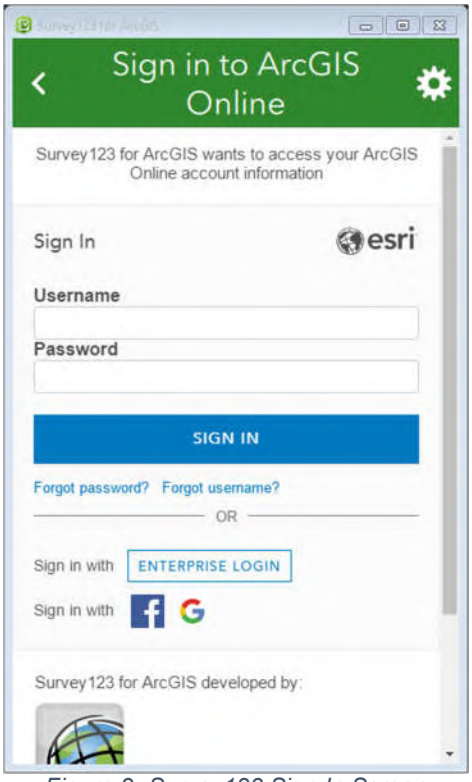


Figure 2- Survey123 Sign In Screen

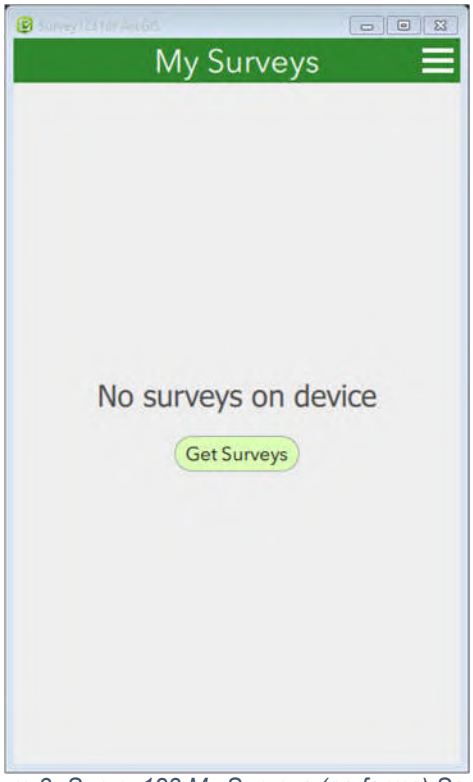


Figure 3- Survey123 My Surveys (no forms) Screen

5. Click on the following forms to add them to your device. See the Using Survey123 section of this User Guide for details on each form.
    - Well Surveillance- Facility GPS
    - Well Surveillance- Well GPS & Sampling
    - Well Surveillance- Well Sampling

    After each form is downloaded to the device successfully, you will see a “Download Completion Pop-Up” screen (Figure 5). Click OK to proceed.

Please NOTE:
You may see other forms available on the Download Surveys Screen. It is very important that you select the correct forms to use for the Well Surveillance Program.

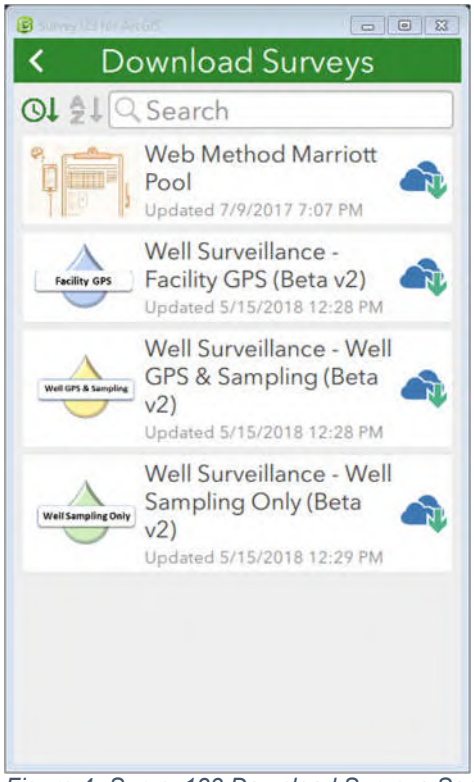


Figure 4- Survey123 Download Surveys Screen

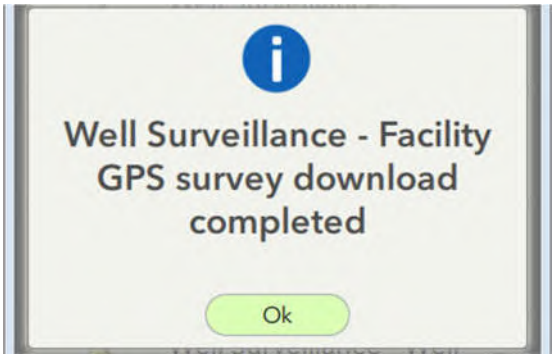


Figure 5- Download Completion Pop-Up Screen

6. After all forms are successfully downloaded, click the left facing arrow at the top of the "Download Surveys" screen to return to the "My Surveys" screen, which should display all forms that have been downloaded to the device. After you have downloaded the forms you need, the icon to the right of each form on the Download Surveys screen will change from a down pointing arrow (Figure 6) to a circular arrow (Figure 7).

Figure 6- Ready for Download Icon

Figure 7- Form Downloaded/ Update Form Icon

Figure 8- Menu Icon

Please NOTE:
If you are missing any of your downloaded forms, click the Menu Icon (Figure 8) on "My Surveys" screen and repeat steps 5 & 6 for the missing form(s).

Please NOTE:
Occasionally Survey123 will have to be updated. The Program Office will advise you of when t updates occur. When prompted, click the Menu Icon and repeat steps 5 & 6 to update your form(s).

Using Survey123

Open the Survey123 application when you get to the location to begin using it. You will have 3 forms listed in the My Surveys (with forms) Screen (Figure 9).

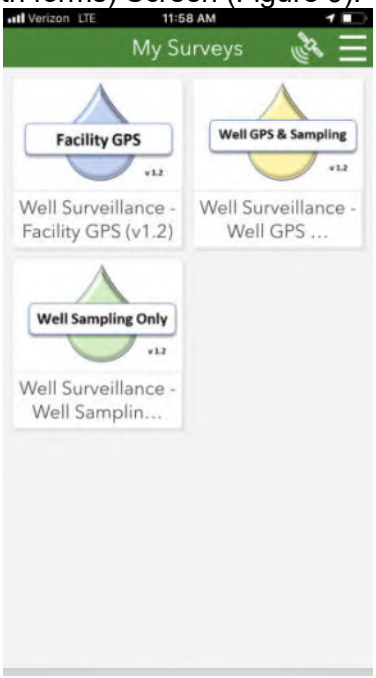


Figure 9- My Surveys (with forms) Screen

You must choose the appropriate form for the work you are doing at the location. The list below identifies which form to use for each circumstance.

- **Well Surveillance- Facility GPS Form**- Use this form when collecting GPS and other data from DEP facilities (ex. gas station, dry cleaner, superfund site).
- **Well Surveillance- Well GPS & Sampling Form**- Use this form when collecting GPS information with or without well sampling.
- **Well Surveillance- Well Sampling Only Form**- Use this form when sampling a well *but collecting GPS information is not required.*

Using the Facility GPS Form

Follow these steps to use this form.

1. Locate and go to the facility that you are tasked to collect the data from.
2. Go to the location on the site that you are going to GPS (ex. tank pit area, back door of dry cleaning facility)
3. Open the Survey123 application and select the Well Surveillance- Facility GPS Form.
4. Select the “Collect” button (Figure 10) to open the form.

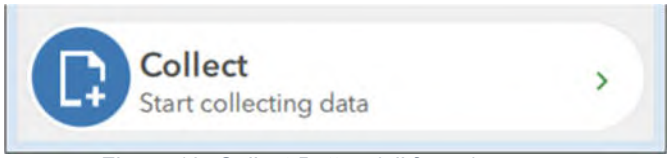


Figure 10- Collect Button (all forms)

5. Complete all form fields that you are able to complete. Some fields are required. Required fields are indicated with a red asterisk (*). You cannot save the form without completing required fields.

Field Name	Required Field	Field Description
Facility ID	Yes	The facility ID number or ERIC number assigned to the facility by DEP or DOH.
Logging Date	Yes	This information is auto populated when you open the form. It is editable.
Facility Location	Yes	This is where the latitude and longitude of the facility will be captured. The information bar (Figure 11) will also indicate when location is within the 5-meter accuracy radius required by the DEP contract. You can move the map so that the location pin is in another location if you are collecting an offset point or you can see in the map that the location is not where it should be.
GPS Type	Yes	The type of location information. Select GPS or DPHO from the drop-down list. Use GPS if you allow the device to locate the position. Choose DPHO if you choose the position on the map.
Facility Name	Yes	The name of the facility about which data is being collected.
House Number	No	The numerical portion of the facility address.
Predirection	No	Directional selection if the street address begins with a direction. Select the appropriate choice from the drop-down list.
Prefix	No	Some addresses have street types in types before the street name (ex. 123 Road Main Road). This is rare but it does occur. Select from the drop-down list if appropriate.
Street	Yes	The street name on which the facility is located.
Suffix	No	The street type (ex. St., Rd, Ave.).
Post Direction	No	The post directional. Select from the drop-down list if the street address ends with a direction.
City	Yes	The city where the facility is located.
Zip Code	Yes	The postal zip code where the facility is located.
County	Yes	The County in which the facility is located. This is a drop-down list.
Comments	No	Comments associated with the facility, if desired (ex. noteworthy information).
Type	Yes	The type of facility (survey requested). Choose Petroleum, Drycleaner, Cattle Dip Vat, Landfill, Row Crop, Citrus Crop, Nursery, Cafo or Other from the drop-down list.
Inspector	Yes	The name of the CHD staff member who is collecting the data.
Inspector County	Yes	The County name (identification) of the CHD home office that the inspector works from.
Project ID	Yes	The project identification for which you are collecting facility data. Choose DSCP, SUPER, TOX-DCEH, TOX-DEP, OTHER from the drop-down. TOX-DEP AND OTHER *should not be used* without expressed permission from the Program Office.

Agency	Yes	This is auto populated with FDOH. It should not be changed.
Take a Photo	No	There is enough room for 5 photos. These can be used to photograph noteworthy things at the site (ex. remedial system, current facility name, unknown facility well). Only one photo field is initially shown. As photos are added to the form, a new empty photo field will appear. For every photo added to the form, a brief description of the photo must be entered into the allotted field.

6. Click the Save Icon in the bottom left of the application window (Figure 12) to save the form. When the form is saved, the user has the option to send now or send later. If the device has a data plan, the user can send now. If not, the user can send when logged into the DOH Wi-Fi at the home office

Figure 11- Location Information Bar (Facility Form Shown)

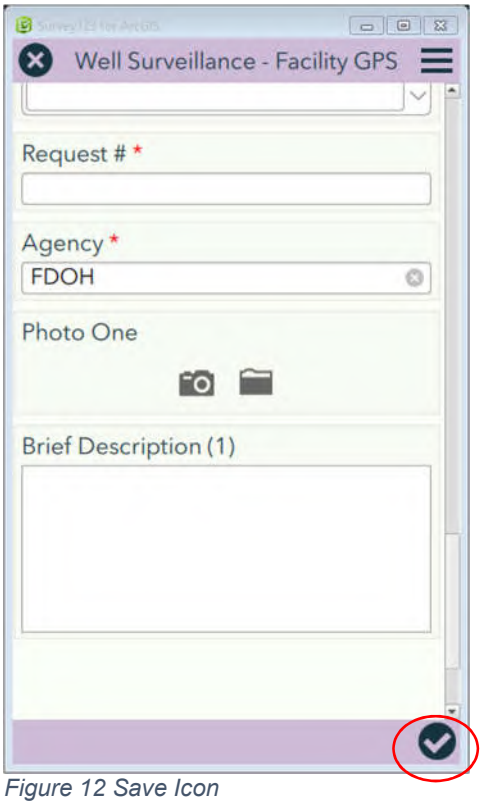


Figure 12 Save Icon

Please NOTE:
When a user opens a map, there is now a search box that can be used to locate the parcel by address. PLEASE DO NOT USE THE SEARCH BOX. Using it removes the check for the 5-meter accuracy threshold and will only locate the parcel, not the location of the contamination source or the well on the property in question (Figure 15).

Using the Well GPS & Sampling Form

Follow these steps to use this form.

1. Locate and go to the address of the well that you are tasked to collect the data from.
2. Go to the location of the well.
3. Open the Survey123 application and select the Well Surveillance- Well GPS & Sampling Form.

4. Select the “Collect” button to open the form.
5. Complete all form fields that you are able. Some fields are required. Required fields are indicated with a red asterisk (*). You cannot save the form without completing required fields.

Field Name	Required Field	Field Description
FLUWID	Yes	The Florida Unique Well Identification number that is assigned to each well.
Logging Date	Yes	This information is auto populated when you open the form. It is editable.
Location of Well	Yes	This is where the latitude and longitude of the well will be captured. The information bar (Figure 11) will also indicate when location is within the 5-meter accuracy radius required by the DEP contract. You can move the map so that the location pin is in another location if you are collecting an offset point or you can see in the map that the location is not where it should be.
GPS Type	Yes	The type of location information. Select GPS(VERIFIED), GPS or DPHO from the drop-down list. Use GPS(VERIFIED) if you allow the device to locate the position. Choose DPHO if you choose the position on the map. Choose GPS if you would like to have the Program Office confirm the location of the point. (Upon approval, you would change the GPS Type to GPS(VERIFIED) and resend the point.
StreetSide Point	Yes	GPS point taken along the side of the property or at the wellhead. Choose “Yes” if you are collecting a point along the edge of the property in the public right of way due to lack of permission to enter. Choose “No” if you are collecting a point at the well head.
Business Name	No	The name of the business associated with the well, if applicable.
Resident First Name	No	The first name of the resident or other non-resident contact (ex. business contact) associated with the well.
Resident Last Name	Yes	The last name of the resident or other non-resident contact (ex. Business contact) associated with the well.
Resident Type	No	Type of resident or contact. Select Owner, Resident, Agent or Operator from the drop-down list.
House Number	No	The numerical portion of the facility address.
Predirection	No	Directional selection if the street address begins with a direction. Select the appropriate choice from the drop-down list.
Prefix	No	Some addresses have street types in types before the street name (ex. 123 Road Main Road). This is rare but it does occur. Select from the drop-down list if appropriate.
Street	Yes	The street name on which the facility is located.
Suffix	No	The street type (ex. St., Rd, Ave.).
Post Direction	No	The post directional. Select from the drop-down list if the street address ends with a direction.
City	Yes	The city where the well is located.
Zip Code	Yes	The postal zip code where the well is located.
Parcel Id	No	The parcel number for the property.
Phone Number	No	The telephone number for the resident of the parcel or the business on the parcel.

Phone Ext	No	The extension for the telephone number.
Well County	Yes	The County in which the well is located. This is a drop-down list.
Permit Number	No	The permit number associated with the well, if available. This will be the Limited Use or Public Water Supply (PWS) permit number if collecting data for a Limited use or PWS Well
Well Type	Yes	This is the type of well that is being sampled. Select one of the following types from the drop-down list. • 40- Community Well (>150,000 gpd) • 41- Non-Community Well • 42- Limited Use Well • 43- Private Well • 45- Non-Transient • 46- Community Well (<150,000 gpd) • 50- Irrigation • 47- Multi Family Well • 70- Non Well
Well Status	Yes	The functional status of the well. Select Active, Inactive or Abandoned from the drop-down list.
Comments	No	Comments associated with the facility, if desired (ex. noteworthy information).
Casing Material	Yes	Casing material. Select one of the following casing materials from the drop-down list: • Black Steel • Cast Iron • Galvanized • Other • PVC • Unknown
Casing Diameter	No	Casing diameter in inches. Select the appropriate diameter from the drop-down list: • 1.5 • 2 • 3 • 4 • 6 • 8 • 10 • 12 • 14 • 16 • 18 • 20 • 22 • 24
Casing Length	No	The casing length (in feet), if known.
Well Depth	No	The depth of the well (in feet), if known.
Sanitary Seal	No	Does the well have a sanitary seal. Select Yes or No from the drop-down list, if known.
Inspector	Yes	The name of the CHD staff member who is collecting the data.

Inspector County	Yes	The County name (or identification) of the CHD home office that the inspector works from.
Project ID	Yes	The project identification for which you are collecting well data. Choose DSCP, SUPER, TOX-DCEH, TOX-DEP, OTHER from the drop-down. TOX-DEP AND OTHER should not be used without expressed permission from the Program Office
Request #	No	The Request Number if this sampling is associated with a Survey Request.
Agency	Yes	This is auto populated with FDOH. It should not be changed.
Is this well being sampled?	Yes	Select “Yes” if you are sampling the well. Select “No” if you are not sampling the well.
Take a Photo	No	There is enough room for 5 photos. These can be used to photograph noteworthy things at the site (ex. remedial system, current facility name, unknown facility well). Only one photo field is initially shown. As photos are added to the form, a new empty photo field will appear. Within a photo field, please select; Filter Issues, Laboratory Submittal Form, Sample Location, Well Issues or Other from the drop-down list of photo categories. If “Other” is selected, please add details about the photo in the “Describe Other” field.

6. Click the check in the bottom left of the application window to save the form. When the form is saved, the user has the option to send now or send later. If the device has a data plan, the user can opt to send now. If not, the user can opt send when logged into the DOH Wi-Fi at the home office.

Using the Well Sampling Form

Follow these steps to use this form.

1. Open the Survey123 application and select the Well Surveillance- Well Sampling Form. This form does not collect location data so this form can be completed from any location.
2. Select the “Collect” button to open the form.
3. Complete all form fields that you are able. Some fields are required. Required fields are indicated with a red asterisk (*). You cannot save the form without completing required fields.

Field Name	Required Field	Field Description
FLUWID	Yes	The Florida Unique Well Identification number that is assigned to each well.
Well’s County	Yes	The County in which the well is located from the drop-down list.
Name of Inspector	Yes	The name of the CHD staff member who is collecting the data.
Inspector County	Yes	The County name (or identification) of the CHD home office that the inspector works from.
Comments	No	Comments associated with the well, if desired (ex. noteworthy information).
Take a Photo	No	There is enough room for 5 photos. These can be used to photograph noteworthy things at the site (ex. remedial system, current facility name, unknown facility well). Only one photo field is initially shown. As photos are added to the form, a new empty

		photo field will appear. Within a photo field, please select; Filter Issues, Laboratory Submittal Form, Sample Location, Well Issues or Other from the drop-down list of photo categories. If “Other” is selected, please add details about the photo in the “Describe Other” field. Photos can be attached to a form by taking a photo directly from the form (photo is not saved in device’s gallery) or by attaching a photo from the device’s gallery.

4. Click the check in the bottom left of the application window to save the form. When the form is saved, the user has the option to send now or send later. If the device has a data plan, the user can opt to send now. If not, the user can opt send when logged into the DOH Wi-Fi at the home office.

Collecting Data

To begin collecting data, click to open appropriate form from the My Surveys Screen and click the Collect button (Figure 13).

Data collection in Survey123 is accomplished using both text fields and drop-down lists. Drop-down lists in Survey123 include a data entry filter function. Users may begin typing item in the drop-down list and the application will filter out list items that does not contain the typed characters. The full drop-down list can be displayed by clicking the down arrow located in the right side of the field.

Complete the fields on the form. Required fields must be completed in order to save the form. If a required field is missing data, an error message will be displayed (Figure 14). If multiple required fields are missing, the error message will only show the first required field that is empty.

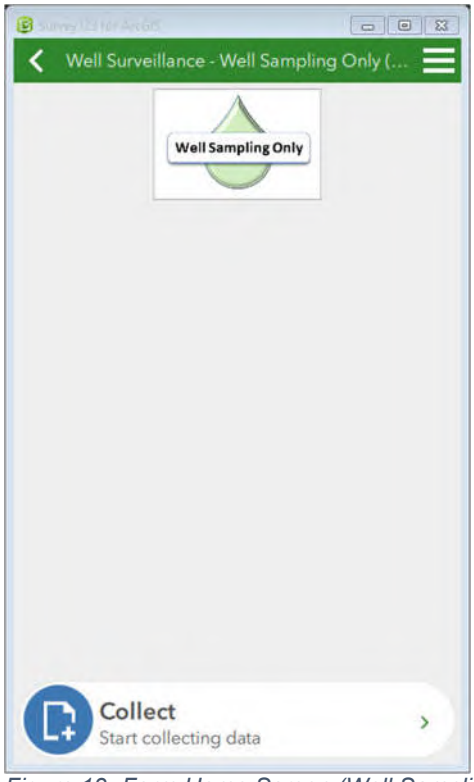


Figure 13- Form Home Screen (Well Sampling Form Shown)

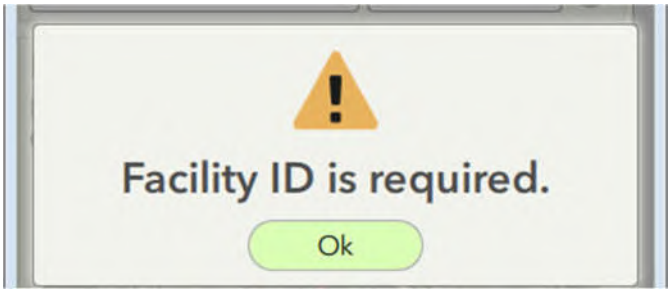


Figure 14- Required Field Error Message

Collecting GPS Data

The Facility GPS and the Well Sampling & GPS forms require the user to collect the latitude and longitude of the facility or well in question. There are 2 ways to collect the GPS data

1. Allow the Survey123 application to determine the GPS location. Click the Target Button (Figure 15) to reset the map location to your current area.
    - If the point does not meet a 5-meter accuracy requirement, the Location Information Bar will be red with “Coordinates are not within the accuracy threshold of 5 m.” If this happens, wait a few minutes, then click the Target Button again to re-GPS the location. If the 5 meter accuracy requirement cannot be achieved after attempting to re-GPS, consider collecting it as a DHPO point.
    - If the point does meet the 5-meter accuracy requirement, the Location Information Bar will be grey with the current latitude and longitude information with “± 5 m.”
    - Select “GPS” from the GPS Type drop-down list.
2. Select the location on the Survey123 application map. This can only be used if the device has available data on a data plan or the device is connected to a Wi-Fi network
    - To select the facility or well location on the map, click on the map in the location field of the form to open a larger Location Map (Figure 15).

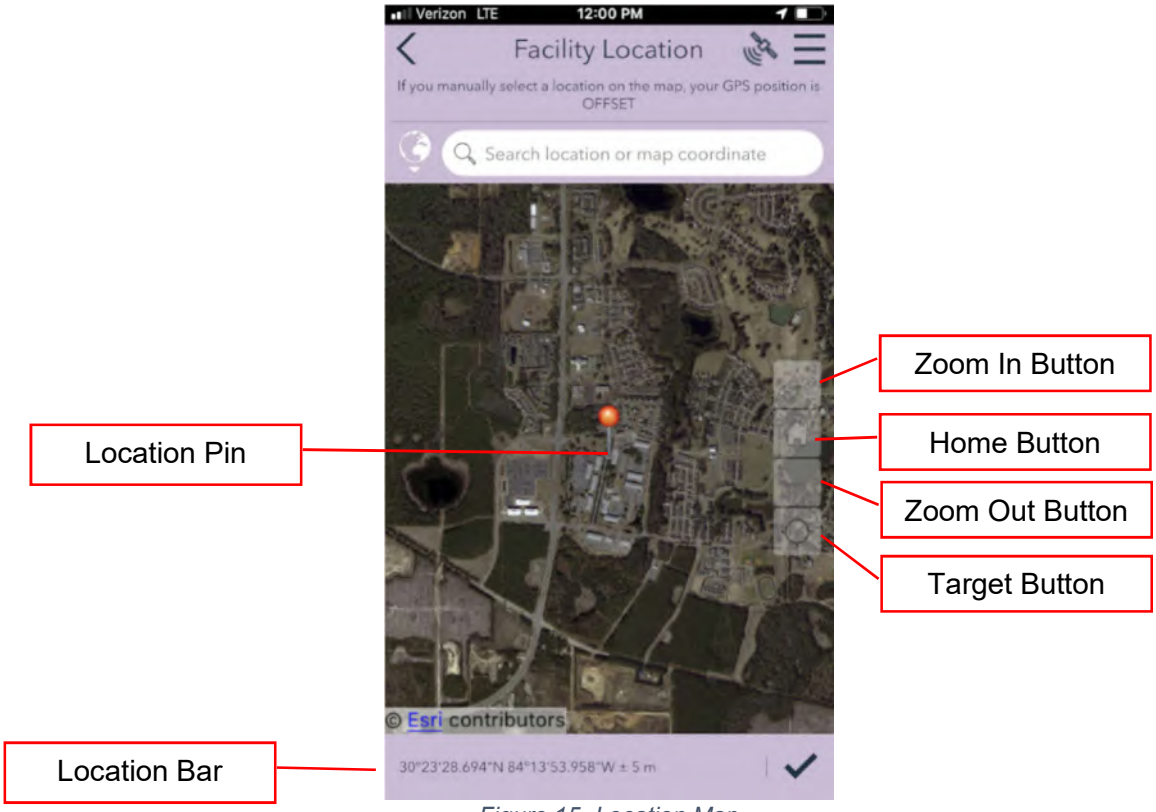


Figure 15- Location Map

- The Zoom In Button is to increase the magnification of the map view.
- The Home Button places the location pin at a predetermined location. This button is not used within the Well Surveillance Program
- The Zoom Out Button is to decrease the magnification of the map view.
- The target button is to locate current position of the device on the map.
- The Location Bar shows the current latitude and longitude of the Location Pin. It also allows for manual input of latitude and longitude to relocate the Location Pin (Figure 16).

- Move the map so that the pin is located where the GPS point should be located.
- Click the Save Icon on the location bar to collect the point. This will return the user to the main form.
- Select “DPHO” from the GPS Type drop down list of the form.

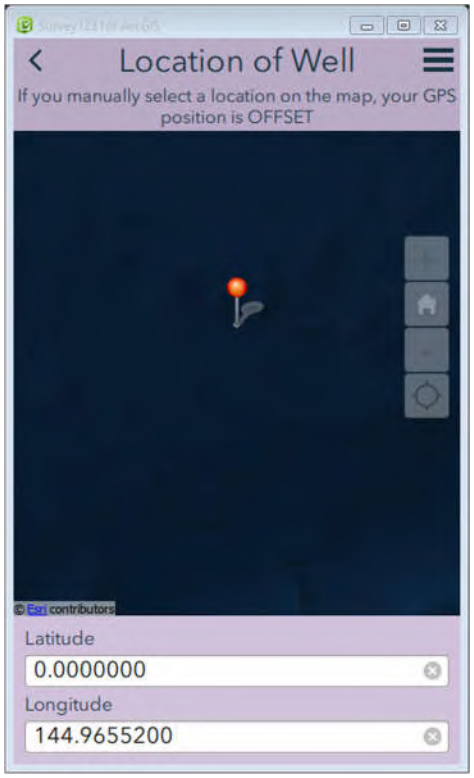


Figure 16- Latitude/ Longitude Entry in Map View

Incomplete Surveys

If the form has not been saved, users can stop collecting data. To stop collecting data, click the Exit Icon located in the top left corner of the Form Information Bar (Figure 17). A "Confirm Close" pop up message will appear giving the user 3 choices (Figure 18)

- Close this survey and lose changes- Choose this option to completely delete the form.
- Continue this survey- Choose this option to go back to the form to collect additional data.
- Save this survey in Drafts- Choose this option to save the form.

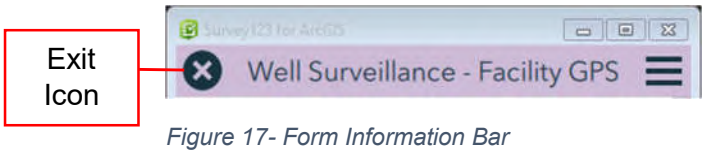


Figure 17- Form Information Bar

Figure 18- Confirm Close Pop Up

Survey123 Draft Box

When the user opts to save an incomplete survey, the incomplete form is saved in the Draft Box, and the Draft Box Icon (Figure 19) appears in the Form Home Screen. The Icon shows the number of draft forms that are contained in the Draft Box. Click on the Icon to view incomplete

forms. The incomplete forms are named with the feature identification (Facility ID or FLUWID) and the collection date (date surveyed). The date and time the form was last modified is also listed for each form. The forms in the Draft Box can be sorted and searched. See the Storage Boxes section of this User Guide for details on sorting and searching.

To complete a form, select it from the list to re-open the form. See the Editing a Form section of this User Guide for details on editing.

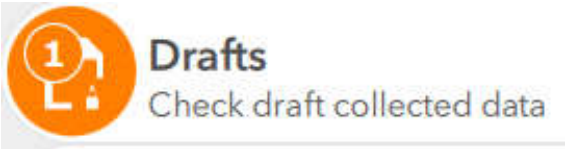


Figure 19- Draft Box Icon

Submitting Data

Once the data collection is complete a "Survey Completed" Notification is shown (Figure 20). The user is given 3 options for submitting the data.

- Send Later- This allows the collected data to be saved on the device so that it can sent at a later time using the DOH (or other approved) Wi-Fi. The forms with the collected data are stored in the Survey123 Outbox. The icon on the My Surveys screen will show the number of completed forms that are waiting to be submitted (Figure 21).
- Send Now- This allows the data within the form to be submitted immediately using available Wi-Fi or device data subscription. The sent forms are stored in the Survey123 Sent Box.
- Continue this survey- This allows a selected form can be opened and edited. When editing is complete, users are again given the options to send later, send now or continue with this survey.

When switching from your device data plan to Wi-Fi (or vice versa), you must first close the Survey 123 application, get onto the Wi-Fi (or data plan) then reopen the application. **Survey123 does not automatically switch within the application.**

Please NOTE:
Once a user selects "Send Later" for a form, the user must continue to opt for "Send Later" for all subsequent data collected within that type of form. If the user opts "Send Now" for a *subsequent data point on a particular form, Survey123 will send all data in the Outbox for that form.*

Please NOTE:
Please familiarize yourself with the data plan associated with your device. If you don't have the data allowance in your plan to submit Survey123 data, please use the "Send Later" option to submit the submitted forms when you are connected to the DOH Wi-Fi in your home office.

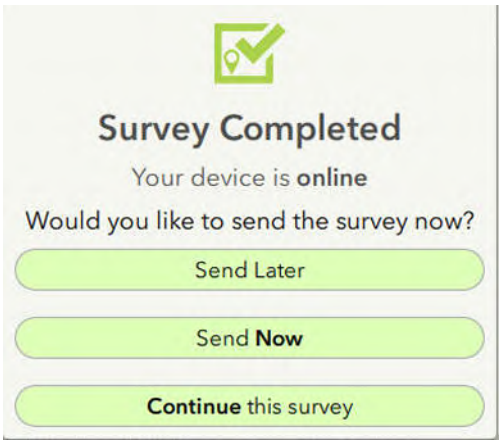


Figure 208- Survey (Form) Completed Notification

Figure 21- My Surveys Screen showing 1 completed form in the Facility GPS Outbox to be submitted

Survey123 Outbox

The Outbox is where completed forms are stored while waiting to be submitted to the Program Office. Each form has its own Outbox. Completed forms remain there until they are deleted or submitted.

The form icon on the My Surveys Screen indicates the number of forms that are waiting to be sent in the upper left-hand corner. In Figure 21, for example, there is one Facility GPS form that is complete and ready to be submitted.

The Survey123 Outbox Icon appears in the Home Screen for a form it has been completed and the user chooses the “Send Later” option (Figure 22).

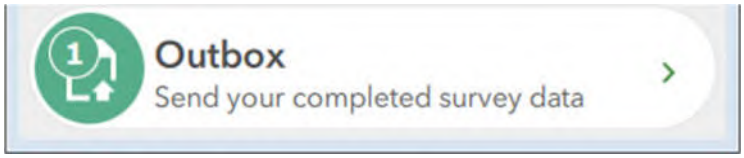


Figure 22- Survey123 Outbox Icon showing 1 completed form to be submitted.

To see the data in the Outbox, open the form in which data was collected (Facility GPS, Well GPS & Sampling, or Well Sampling). Click on the Outbox button located on the bottom of the form’s Home Screen to display the list of completed forms. The completed forms are named with the feature identification (Facility ID or FLUWID) and the collection date (date surveyed). The date and time the form was last modified is also listed for each form.

Storage Boxes- Sorting and Searching

The forms located a Storage Box (Draft Box, Outbox or Sent Box) is sorted by data collection time by default. Users can opt to sort by ascending or descending collection time or file name. To sort the data, click the sort by time (Figure 23) or sort by file name (Figure 24) icons at the top of the Storage Box. Users may search by FLUWID for wells and Facility ID for facilities (or Risk Source) by typing it into the search box to the right of the sort buttons.

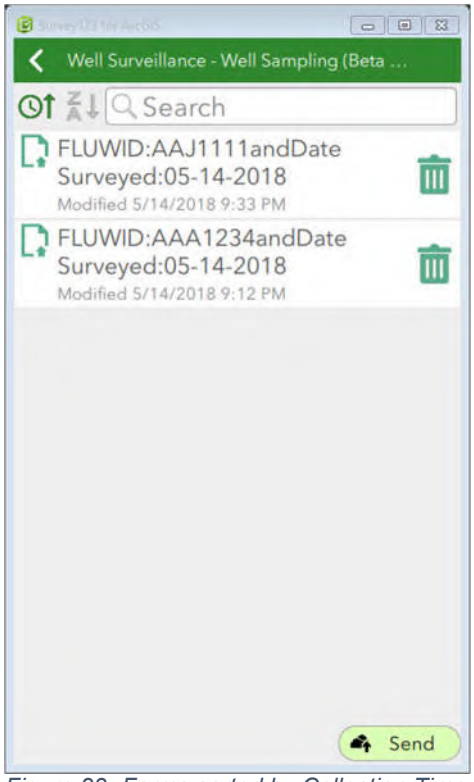


Figure 23- Forms sorted by Collection Time (Clock)

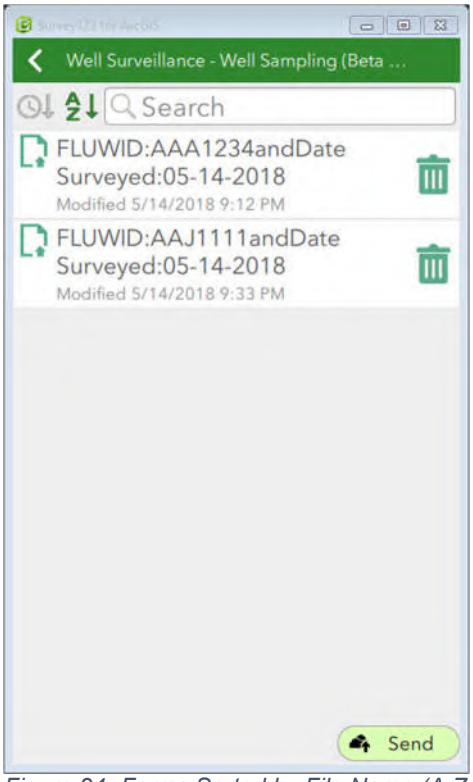


Figure 24- Forms Sorted by File Name (A-Z or Z-A)

While forms are in the Outbox, Survey123 users can edit the data or delete the form. To edit data, click on the desired file in the list. Correct any data that requires editing and click on the check box in the lower left-hand corner (Figure 12) to complete the form. This will overwrite previously saved data for the facility or well in question.

Click the Send button located in the bottom right-hand corner of the Outbox to send all completed forms. Once the data is sent, the completed forms move to the Sent Box.

Survey123 Sent Box

Once a completed form is sent from the application, it is submitted to the Program Office. The completed form moves from the Outbox to the Sent Box and a Sent Button (Figure 25) appears on the form Home Screen.

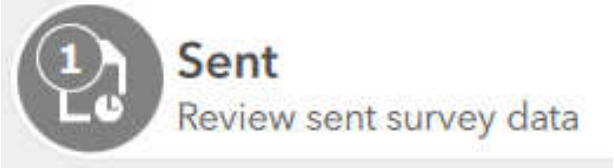


Figure 25- Survey123 Sent Box

The Survey123 Sent Box is where all sent data is stored until it is deleted (emptied). Just as in the Outbox, Sent Box forms are named with the feature identification (Facility ID or FLUWID) and the collection date (date surveyed). Similarly, the forms are also organized by data collection time by default. This data can be sorted by ascending or descending collection time or file name, or searched. See the Storage Boxes section of this User Guide for details on sorting and searching. In addition, the forms in the Sent Box can be shown in list form (default) or as locations on a map. To view collected data on a map, the user must select the map button in the lower left-hand corner of the Sent Box (Figure 26). To use the view map option, the device must have available data or be connected to Wi-Fi.

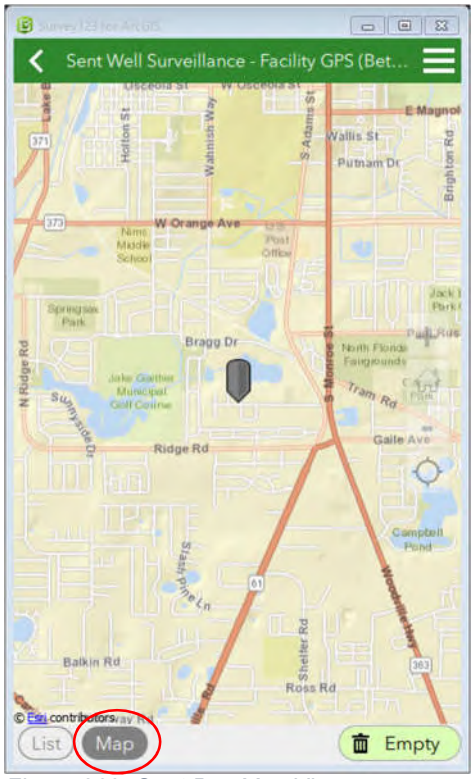


Figure 269- Sent Box Map View

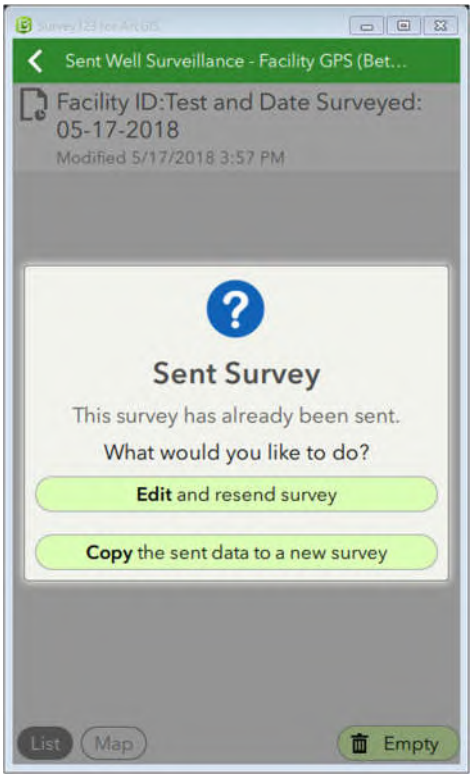


Figure 27- Sent Form Options

Clicking on a on an item on the list or a point on the map will open the Sent Form Options. When an item is selected from the Sent Box, the user has 2 options (Figure 27).

1. Edit and resend survey- This allows a form to be edited and resent. It will overwrite the previously sent data. Before editing and resending a completed and submitted form, make sure it is absolutely necessary. Once it is done, the previous data will no longer be accessible to the Survey123 user or the Program Office.
2. Copy the sent data to a new survey- This allows all of the data on the form to be copied onto a new form that can be edited. If sent, this form will create a new entry and will not overwrite the original form (from which the data was copied). It is vital to adjust the location date and time on the form manually before saving it and submitting it to the Program Office. (See the Update Date and Time Fields section of this manual for details)

Files in the Sent Box can be permanently deleted from the device by clicking the “Empty” button located in the lower right-hand corner of the Sent Box.

Editing a Form

Completed forms in the Survey123 Outbox or Sent Box can be edited. To edit select the form type and locate the form in the Outbox or Sent Box. Click on the field that requires editing and input the correct information. Update the logging date and time fields before saving or submitting the data to the program office.

Update Logging Date and Time Fields

When editing a Facility GPS or Well Sampling & GPS form, the user must adjust the logging date and time. **This data is not automatically updated when a form is edited.** The Program Office uses the logging date to determine what data needs to be uploaded into the Well Surveillance Program Office database.

The logging date and time can be adjusted by clicking on the logging date and time fields. **Failure to adjust the logging date and time will prevent the data from being imported into the Program Office database.**

Deleting a Form

Forms may be deleted from any of the Storage Boxes. To delete a form from the Draft Box or Outbox, locate the form. Each form has an associated Delete Icon (Figure 28). Click the Icon to delete the form. A “Confirm Delete” pop up will appear (Figure 29). Click “Yes” to confirm that you want to delete the form. Click “No” to return the form to the Storage Box.

Once a form is deleted it cannot be recovered.

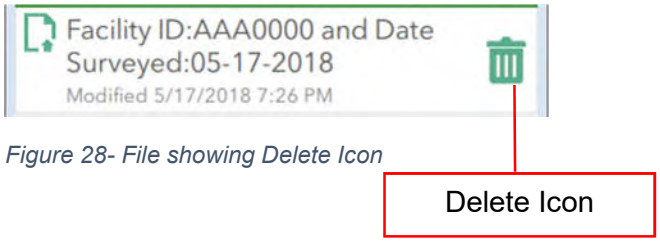


Figure 28- File showing Delete Icon

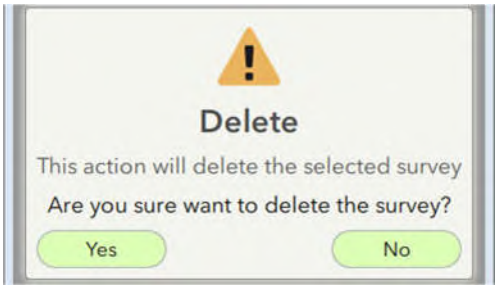


Figure 29- Confirm Delete Pop Up

Forms in the Sent Box cannot be deleted individually. To delete all forms in the Sent Box, click the Empty Icon located in the bottom right-hand corner of the Sent Box. Once deleted, these forms cannot be recovered.

Figure 30- Sent Box Empty Icon

Survey123 Form Updates

On occasion, you may be asked by the Program Office to get updated Survey123 forms. If it is a simple update, you simply need to click the menu icon and follow steps 5 and 6 of the initial setup (see p7). Click on each form that you use to refresh the forms on your device to incorporate the changes. Any data that has been collected on the device will remain on the device after the update.

On other occasions, you may be asked to delete existing forms and get updated ones. This will occur when there are changes to the functionality of the forms. Before deleting old forms, please make sure that all data that has been collected has been submitted to the Program Office. When the forms are deleted, all data that has been collected on that form will also be deleted. Forms are deleted from the My Surveys (forms) screen within the application (Figure 8). Each form must be deleted separately.

To delete a form:

1. Click on the form to open it.
2. Click the Menu Icon (Figure 9) and select "Delete Survey" (Figure 31).

Repeat steps 1 & 2 for all forms on your device.

Once all the forms are deleted, follow the Initial Setup instructions to get the new forms.

Please NOTE:
Updating forms will be initiated by the Program Office. County Health Department Staff will be advised when they should update forms and whether deleting old forms is required.

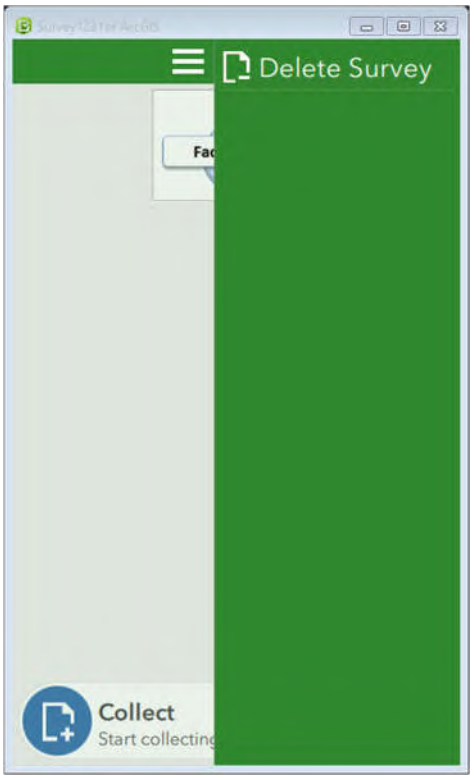


Figure 31 Delete Survey Screen

Data Download

Data collected using the Survey123 application can be viewed and downloaded by users with an active account. To download data, go to https://survey123.arcgis.com/.

To access the data that has been collected using the Survey123 application:

1. Click on Sign In in the upper right corner of the Welcome Screen (Figure 32).
2. Enter your assigned Username and Password into the Survey 123 for ArcGIS Login Screen (Figure 33). This will show all forms that we use and all data that is available in each form. The number of data points in each form is indicated next to the word "Records" for each form.

Please Note: *This is the total number of points collected by all samplers in all counties. To get the specific county data, you will have to export the data and sort it for your use.*

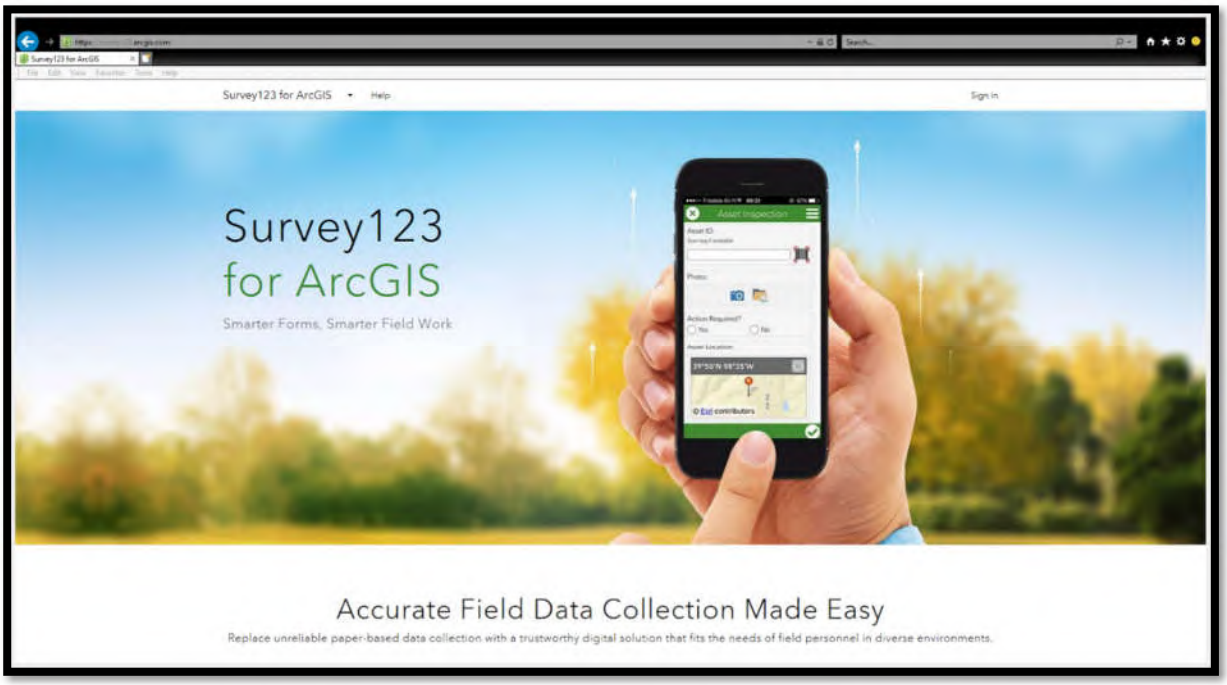


Figure 32- Survey123 for ArcGIS Welcome Screen

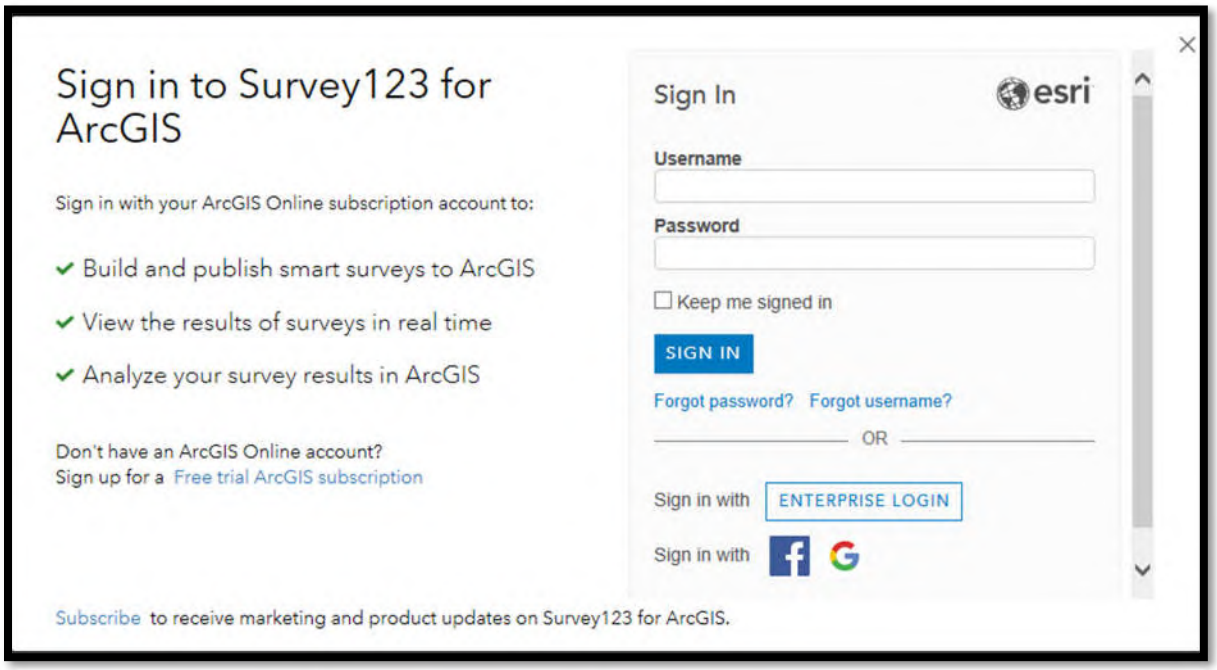


Figure 3310- Survey123 for ArcGIS Login Screen

3. Click the Data Button on the form that you wish to download data from (Figure 34) to show all data that has been collected using the Survey123 to date (Figure 35).

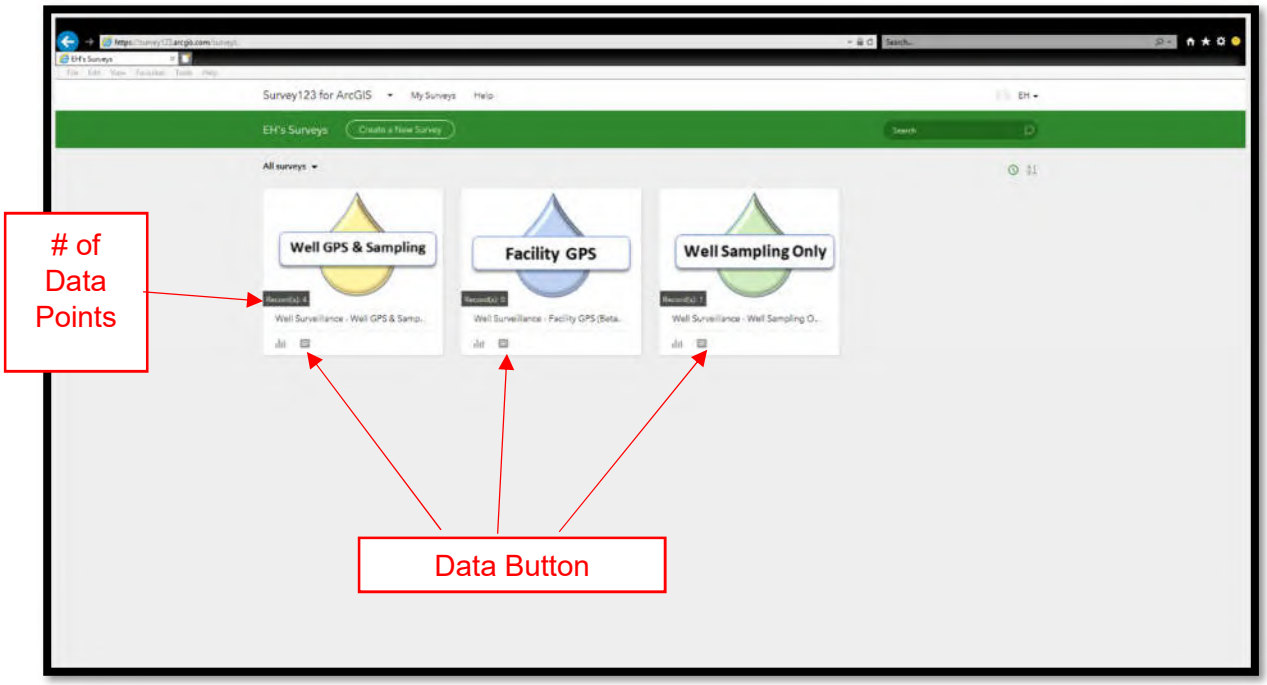


Figure 34- My Surveys Online Screen

4. Click on the Date Filter Button in the upper left corner of the window. This will open a Calendar Popup (Figure 36).

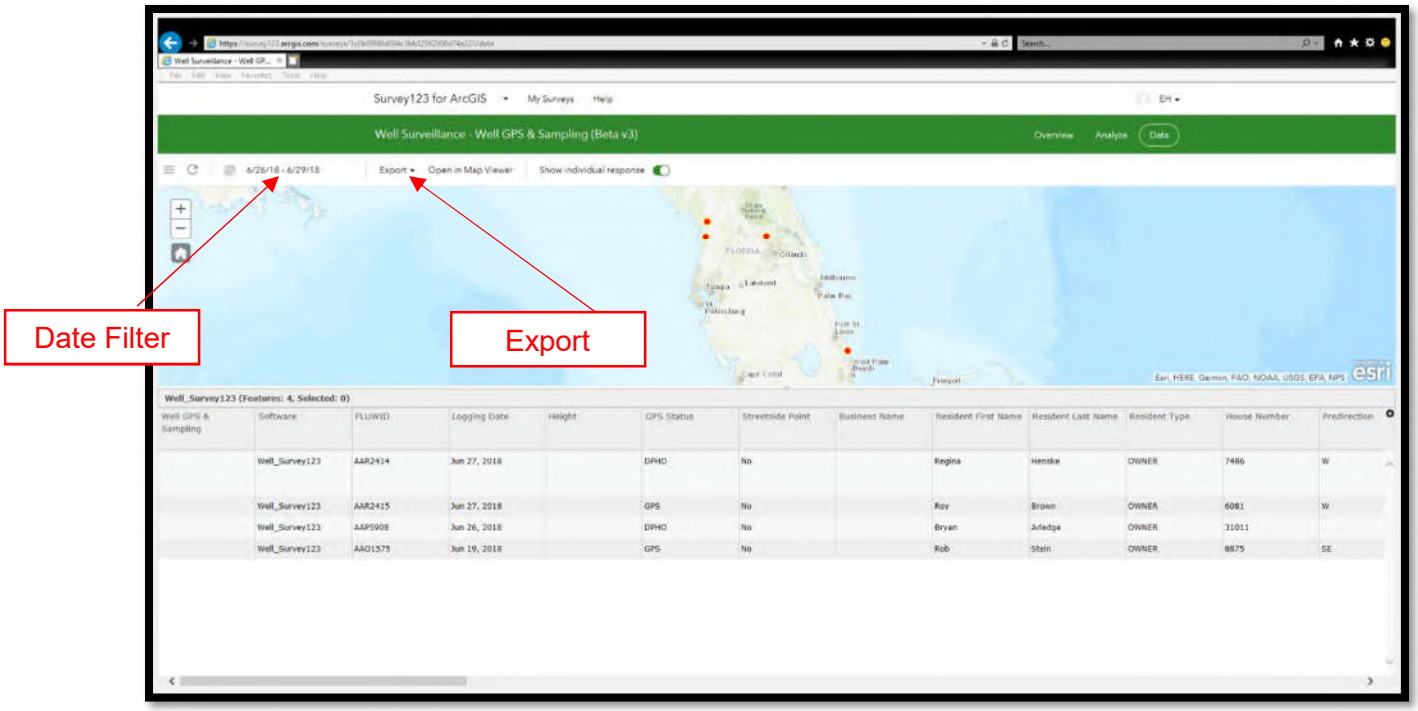


Figure 35- All Data Screen

5. Select the date range from which you would like to download data and click the “Apply” button in the lower left corner of the calendar popup. This will filter the data that is on the screen. You may select a pre-defined or custom date range:
    - Since Survey Creation- This is the default and will show all data since the first point was collected
    - Today
    - Last 7 Days
    - Last 30 Days
    - Custom Range- This allows you to define the date range from which you would like to download data.

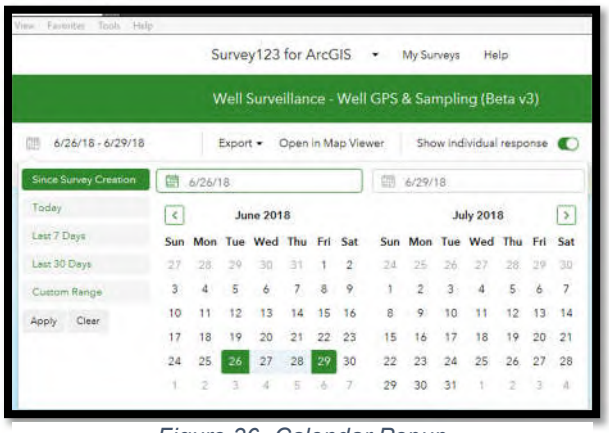


Figure 36- Calendar Popup

6. Click the Export button to the right of the Date Filter and select the format. You can download data in the following formats:
    - CSV
    - Excel
    - KML
    - Shapefile
    - File Geodatabase

To access the photos that have been collected using the Survey123 application:

1. Locate the data point containing the photos from the All Data Screen (Figure 35).
2. Click on the row containing the photo to open the data window (Figure 37) associated with that point on the right side of the all data screen.
3. Scroll down the data window to locate the photos.

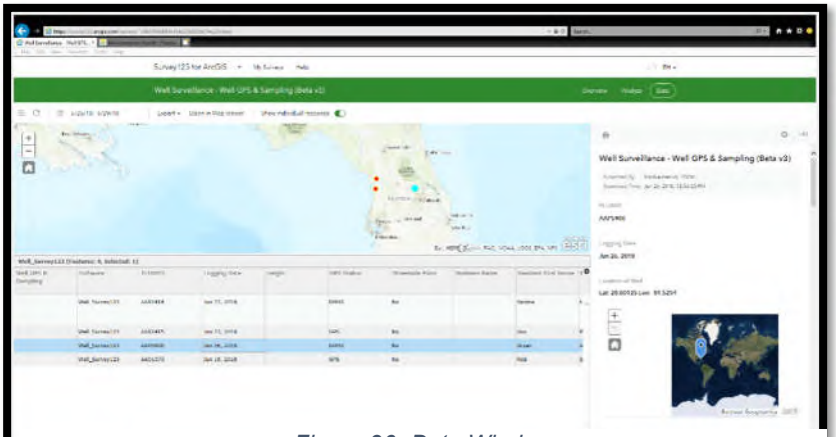


Figure 36- Data Window

4. Click on the desired photo to open the Photo Download Screen (Figure 38)
5. Click the Download Icon in the upper right corner of the Download Screen.
6. Save the photos as desired.

Figure 37- Download Screen

Alternatively, you can click the Filter Button at the top of the page on which all data is listed and select any field in Survey123 to filter by. For example, you can filter and download on data collected by a specific inspector, by a specific county, only wells with street side points, etc.

System Requirements

Survey123 Supported Browsers

The following browsers are supported. For best performance, use the latest version.

- Chrome
- Firefox
- Safari
- Edge
- Internet Explorer 11

Survey123 Field Application Supported Operating Systems

The following operating systems (with minimum versions) are supported for the Survey123 field app:

Operating system	OS version
Windows	• Windows 10 Pro and Windows 10 Enterprise (32 bit and 64 bit [EM64T]) • Windows 8.1, Windows 8.1 Pro, and Windows 8.1 Enterprise (32 bit and 64 bit [EM64T]) • Windows 7 Ultimate, Enterprise, Professional, and Home Premium (32 bit and 64 bit [EM64T]) SP1 • Windows Server 2012 Standard and Datacenter (64 bit [EM64T]) • Windows Server 2008 R2 Standard, Enterprise, and Datacenter (64 bit [EM64T]) SP1 • Windows Server 2008 Standard, Enterprise, and Datacenter (32 bit and 64 bit [EM64T]) SP2
Ubuntu	16.04 LTS (64 bit) or later
Mac OS X	10.10 (Yosemite) or later
Android	4.1 (Jelly Bean) or later
iOS	9 or later
Windows Phone	10 or later

The following operating systems (with minimum versions) are supported for Survey123 Connect:

Operating system	OS version
Windows	• Windows 10 Pro and Windows 10 Enterprise (32 bit and 64 bit [EM64T]) • Windows 8.1, Windows 8.1 Pro, and Windows 8.1 Enterprise (32 bit and 64 bit [EM64T]) • Windows 7 Ultimate, Enterprise, Professional, and Home Premium (32 bit and 64 bit [EM64T]) SP1

Operating system	OS version
	• Windows Server 2012 Standard and Datacenter (64 bit [EM64T]) • Windows Server 2008 R2 Standard, Enterprise, and Datacenter (64 bit [EM64T]) SP1 • Windows Server 2008 Standard, Enterprise, and Datacenter (32 bit and 64 bit [EM64T]) SP2
Ubuntu	16.04 LTS (64 bit) or later
Mac OS X	10.10 (Yosemite) or later

Issues have been reported when running Survey123 on some Windows 7 and Windows Server 2008 machines, as well as on older hardware that may have had an operating system upgrade. Hardware requirements that must also be considered include the following:

- CPU—2.2 GHz minimum or higher; Hyper-Threading Technology (HTT) or multicore recommended.
- Processor—Intel Pentium 4, Intel Core Duo, or Xeon processors; SSE2 minimum.
- Graphics card—An independent graphics card with a hardware acceleration driver.
- OpenGL—Version 2.1 or later is required.

The same environments as above are also supported in VMWare virtual machines.

Glossary

Abandoned Well- A well, the use of which has been permanently discontinued, or is in such a state of disrepair that it cannot be used for its intended purpose or for observation purposes.
Active Well- The well is being used on a regular basis or will be used within a reasonable period of time (2-3 months)
Agent- Person or business authorized to act on owner's behalf.
CHD- County Health Department
Community Well- Public water system well that serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.
DCEH- Division of Disease Control, Bureau of Environmental Health
DPHO- Digital Aerial Photos
DSCP- Project ID used for all Drycleaning Program related sampling,
GPD- Gallons Per Day. This is used to describe well capacity.
GPS- Global Positioning System.
Inactive Well- The well has not been regularly used within the past 6-12 months, but is maintained in such a state that it could be used.
Limited Use Well- Public water system wells which are not covered or included in the Florida Safe Drinking Water Act.
Multi Family Well- Water system well that provides piped water to three (3) or four (4) residences, one of which may be a rental residence.
Non-Comm Well- (Transient Non-Community Well) A well which serves at least twenty-five people or fifteen connections or, but the population is characterized as flow-through traffic, such as with stores, RV parks, hotels or churches that are open at least 60 days a year.
Non-Transient Non-Community- Well that provides water to the same 25 individuals for six months or more each year. These systems include schools, factories or large businesses with their own drinking water supplies.
Non Well- This is the designation for any sampling that is not from a well (ex. Surface water). This sampling occurs extremely rarely and would be a special request from the Program Office.
Operator- Person or business who does business at a property.
Owner- Person or business who owns something, i.e. the property the well is located on.
Private Well- Water well that provides piped water to one or two residences, one of which may be a rental residence.
PVC- Poly vinyl chloride. This is a material that is used for well casings and other conduit construction.
PWS- Public Water System that provides water to 25 or more people for at least 60 days each year or serves 15 or more service connections.
Resident- An individual (or group of individuals) who lawfully reside at a premise on a property. This may or may not be the property owner.
StreetSide Point- A GPS location collected when access to the property is denied. It should be collected from the approximate mid-point of the property in right of way (or street).
SUPER- Project Id used for all Petroleum Program related sampling. Acronym stood for State Underground Petroleum Environmental Response Act.
TOX-DCEH- Project ID used for all sampling related to the Water Supply Restoration Program (Filter sites, bottled water sites, etc.).
TOX-DEP- Project ID used for all sampling completed by Department of Environmental Protection (DEP) staff for the Well Surveillance Program.

WC- Project ID used for all Waste Cleanup Site related sampling.

Appendix D
Manual GPS Submission

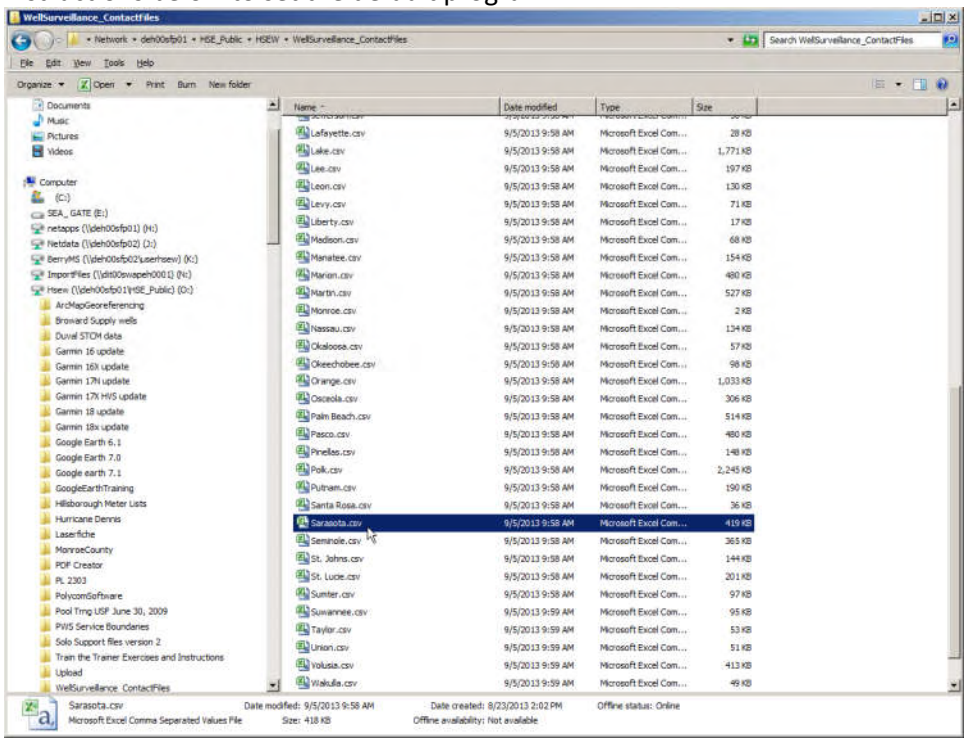
Document in process

APPENDIX F
Updating Contact Information

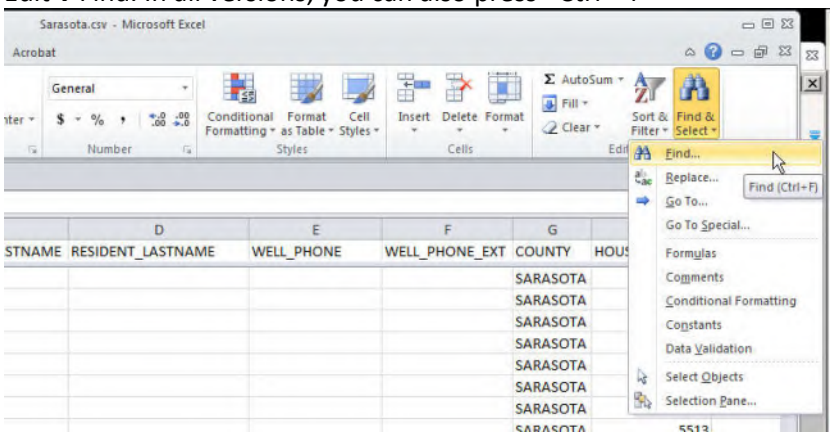
Update Contact Information

1. Browse to the following network drive:
\\hsd00sdisease01\CHD_Share\DCEH\Water\WellSurveillance_ContactFiles

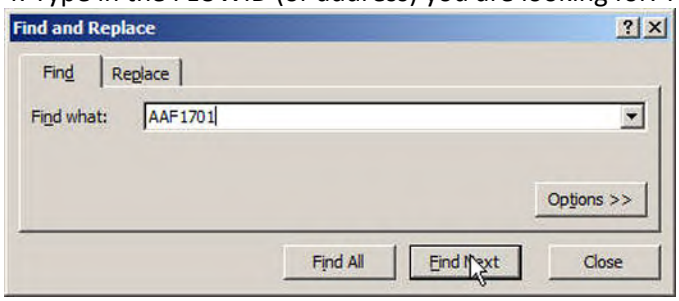
2. Open the csv file by double-clicking on the file name. It should open in MS Excel. If it does not, follow the instructions below to set the default program.



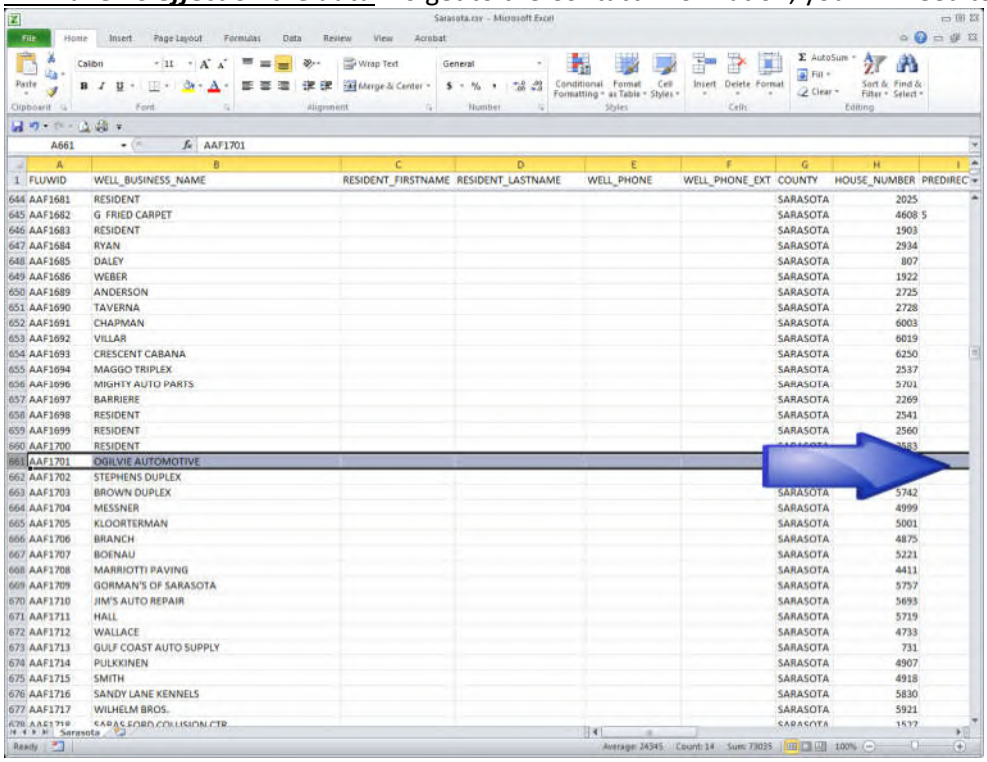
3. Find the FLUWID you are looking for. In Excel 2010, it is under the Home tab. In previous versions, click Edit→Find. In all versions, you can also press <Ctrl><F>



4. Type in the FLUWID (or address) you are looking for. Then "Find Next."



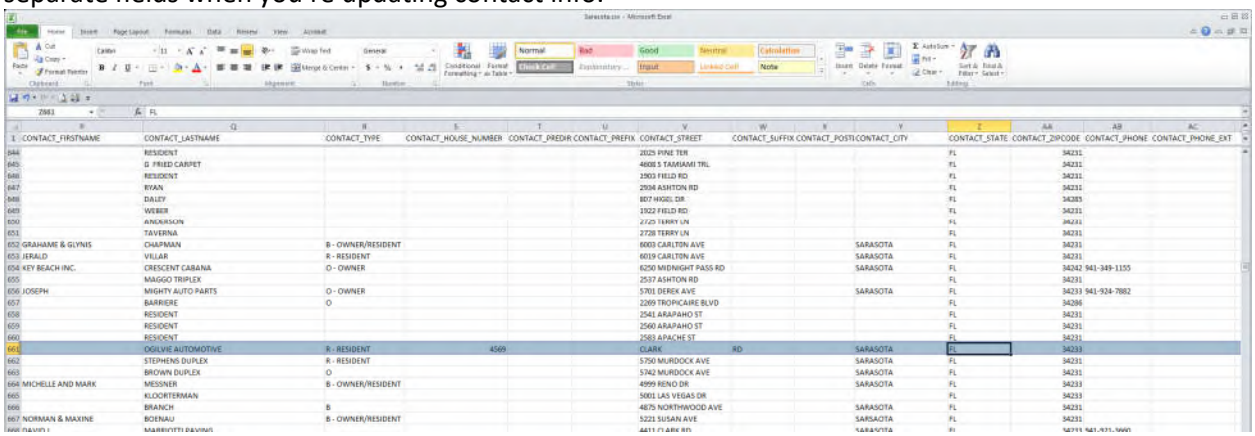
5. Please be aware that the first several columns are physical addresses. We left these in to make it easier to confirm that the well you are editing is the one your are indeed interested in. However, ***<u>changing these columns will have no effect on the data</u>***. To get to the Contact information, you will need to scroll to the right.



	A	B	C	D	E	F	G	H	I
1	FLUWID	WELL_BUSINESS_NAME	RESIDENT_FIRSTNAME	RESIDENT_LASTNAME	WELL_PHONE	WELL_PHONE_EXT	COUNTY	HOUSE_NUMBER	PREDIREC
644	AAF1681	RESIDENT					SARASOTA	2025	
645	AAF1682	G FRIED CARPET					SARASOTA	4608 S	
646	AAF1683	RESIDENT					SARASOTA	1903	
647	AAF1684	RYAN					SARASOTA	2934	
648	AAF1685	DALEY					SARASOTA	807	
649	AAF1686	WEBER					SARASOTA	1922	
650	AAF1689	ANDERSON					SARASOTA	2725	
651	AAF1690	TAVERNA					SARASOTA	2728	
652	AAF1691	CHAPMAN					SARASOTA	6003	
653	AAF1692	VILLAR					SARASOTA	6019	
654	AAF1693	CRESCENT CABANA					SARASOTA	6250	
655	AAF1694	MAGGO TRIPLEX					SARASOTA	2537	
656	AAF1696	MIGHTY AUTO PARTS					SARASOTA	5701	
657	AAF1697	BARRIERE					SARASOTA	2269	
658	AAF1698	RESIDENT					SARASOTA	2541	
659	AAF1699	RESIDENT					SARASOTA	2560	
660	AAF1700	RESIDENT							
661	AAF1701	OGILVIE AUTOMOTIVE							
662	AAF1702	STEPHENS DUPLEX							
663	AAF1703	BROWN DUPLEX					SARASOTA	5742	
664	AAF1704	MESSNER					SARASOTA	4999	
665	AAF1705	KLOORTERMAN					SARASOTA	5001	
666	AAF1706	BRANCH					SARASOTA	4875	
667	AAF1707	BOENAU					SARASOTA	5221	
668	AAF1708	MARRIOTTI PAVING					SARASOTA	4411	
669	AAF1709	GORMAN'S OF SARASOTA					SARASOTA	5757	
670	AAF1710	JIM'S AUTO REPAIR					SARASOTA	5693	
671	AAF1711	HALL					SARASOTA	5719	
672	AAF1712	WALLACE					SARASOTA	4733	
673	AAF1713	GULF COAST AUTO SUPPLY					SARASOTA	731	
674	AAF1714	PULKKINEN					SARASOTA	4907	
675	AAF1715	SMITH					SARASOTA	4918	
676	AAF1716	SANDY LANE KENNELS					SARASOTA	5830	
677	AAF1717	WILHELM BROS.					SARASOTA	5921	

6. Look between Columns P and AC. If the contact information is accurate, you do not need to do anything. Otherwise, make your edits and save the file.

7. Please note that address information is split into several different columns. That is because it is easier to put multiple fields together to make a single address than it is to pull a single address field apart. All data in a single cell is due to legacy information being imported into the contact table. We would ask that you input in the separate fields when you're updating contact info.



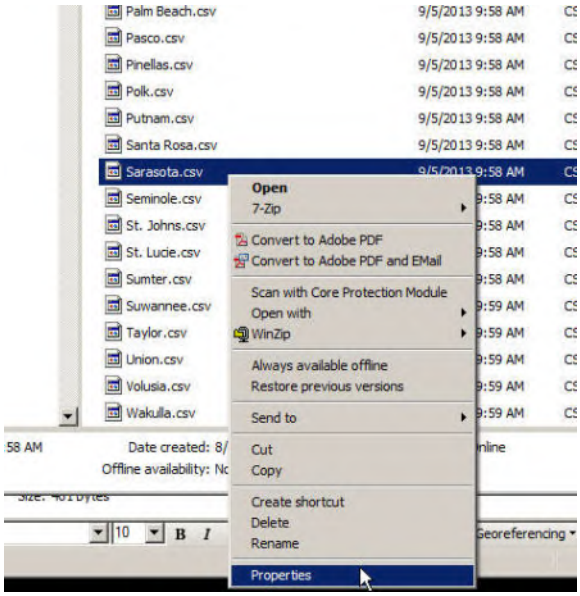
	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC
1	CONTACT_FIRSTNAME	CONTACT_LASTNAME	CONTACT_TYPE	CONTACT_HOUSE_NUMBER	CONTACT_PREDIR	CONTACT_PREFIX	CONTACT_STREET	CONTACT_SUFFIX	CONTACT_POSTI	CONTACT_CITY	CONTACT_STATE	CONTACT_ZIPCODE	CONTACT_PHONE	CONTACT_PHONE_EXT
644		RESIDENT					2025 PINE TER				FL	34231		
645		G FRIED CARPET					4608 S TAMIAMI TRL				FL	34231		
646		RESIDENT					1903 FIELD RD				FL	34231		
647		RYAN					2934 ASHTON RD				FL	34231		
648		DALEY					807 HIGEL DR				FL	34285		
649		WEBER					1922 FIELD RD				FL	34231		
650		ANDERSON					2725 TERRY LN				FL	34231		
651		TAVERNA					2728 TERRY LN				FL	34231		
652	GRAHAME & GLYNIS	CHAPMAN	B - OWNER/RESIDENT				6003 CARLTON AVE			SARASOTA	FL	34231		
653	JERALD	VILLAR	R - RESIDENT				6019 CARLTON AVE			SARASOTA	FL	34231		
654	KEY BEACH INC.	CRESCENT CABANA	O - OWNER				6250 MIDNIGHT PASS RD			SARASOTA	FL	34242	941-349-1155	
655		MAGGO TRIPLEX					2537 ASHTON RD				FL	34231		
656	JOSEPH	MIGHTY AUTO PARTS	O - OWNER				5701 DEREK AVE			SARASOTA	FL	34233	941-924-7882	
657		BARRIERE	O				2269 TROPICAIRE BLVD				FL	34286		
658		RESIDENT					2541 ARAPAHO ST				FL	34231		
659		RESIDENT					2560 ARAPAHO ST				FL	34231		
660		RESIDENT					2583 APACHE ST				FL	34231		
661		OGILVIE AUTOMOTIVE	R - RESIDENT	4569			CLARK	RD		SARASOTA	FL	34233		
662		STEPHENS DUPLEX	R - RESIDENT				5750 MURDOCK AVE			SARASOTA	FL	34231		
663		BROWN DUPLEX	O				5742 MURDOCK AVE			SARASOTA	FL	34231		
664	MICHELLE AND MARK	MESSNER	B - OWNER/RESIDENT				4999 RENO DR			SARASOTA	FL	34233		
665		KLOORTERMAN					5001 LAS VEGAS DR				FL	34233		
666		BRANCH	B				4875 NORTHWOOD AVE			SARASOTA	FL	34231		
667	NORMAN & MAXINE	BOENAU	B - OWNER/RESIDENT				5221 SUSAN AVE			SARSAOTA	FL	34231		

8. Save the file and exit once you are finished.

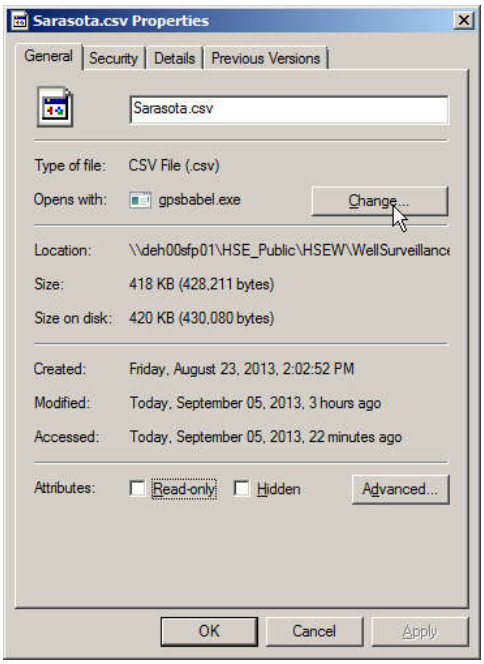
<u>Setting the Default program</u>

If the csv file does not open in MS Excel, then try the following steps.

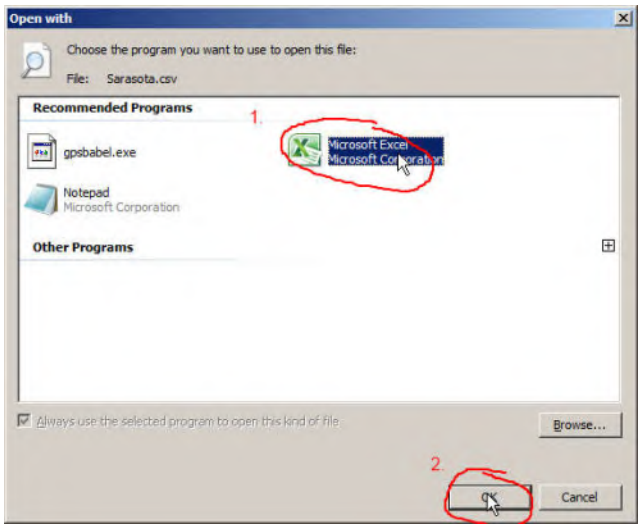
1. Right-click on the file and select “Properties”



2. Click “Change”



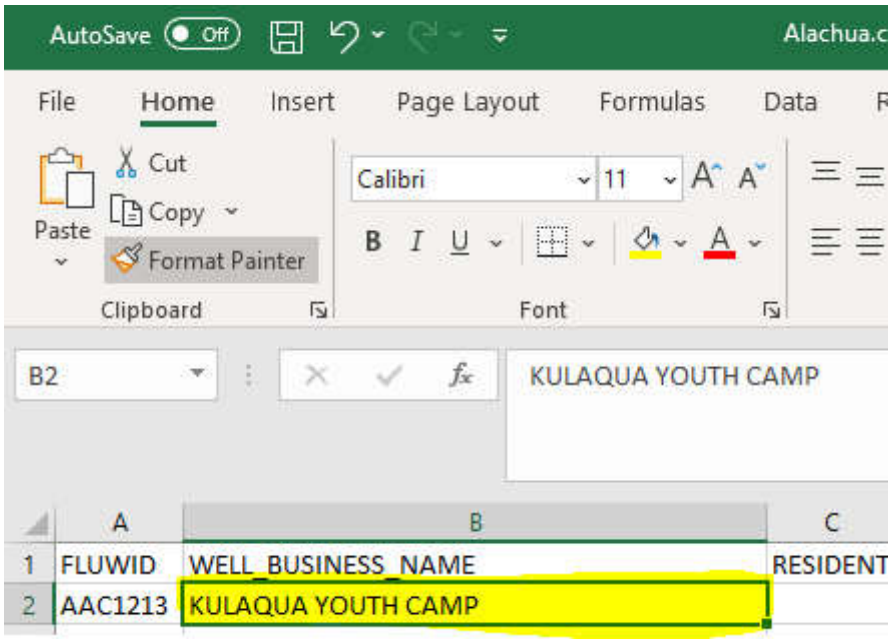
3. One of the recommended programs should be Microsoft Excel. Click Excel, then “OK”



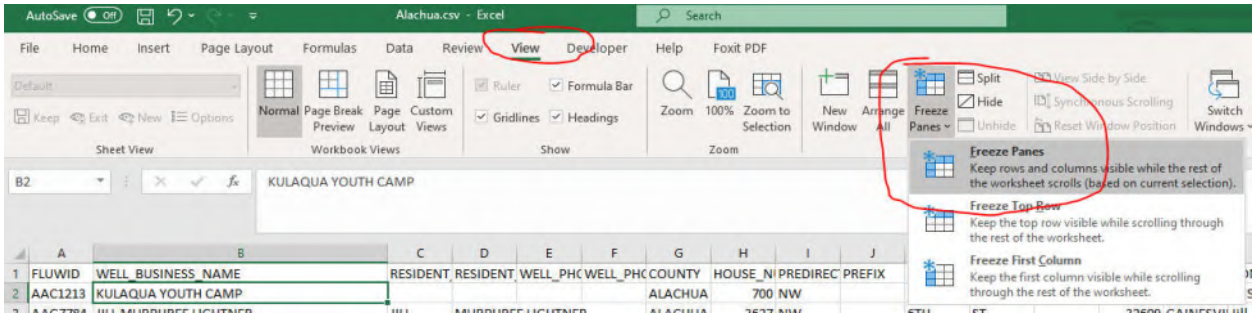
Freezing the First Row and Column

It often helps to freeze the first row or column so that the FLUWID and column headers are visible as you scroll to the right. Here’s one way to do that.

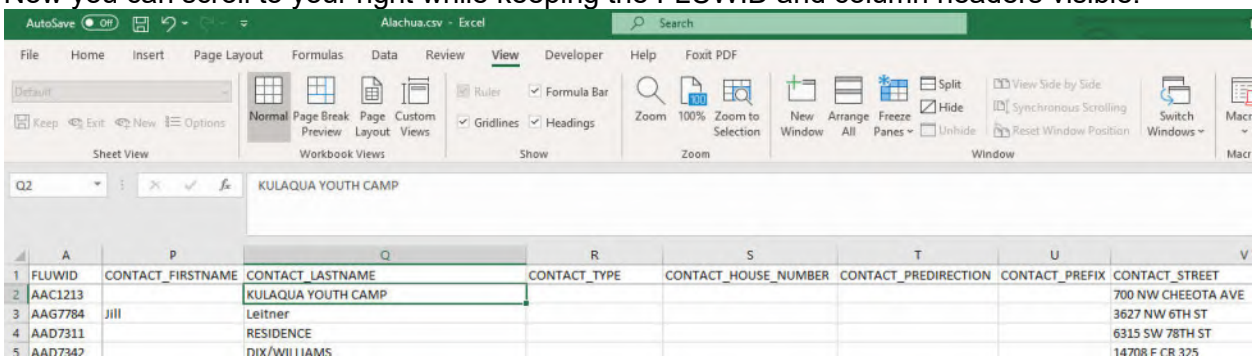
1. Click cell B2 (second column, second row).



2. Click the “View” tab, and then “Freeze Panes”. Select “Freeze Panes” from the dropdown list.



3. Now you can scroll to your right while keeping the FLUWID and column headers visible.



Appendix G
Laserfiche

Laserfiche Web Access
v 9.x

User Guide

Last Revision 05/14/2021

Laserfiche is the Well Surveillance Program's electronic archive system. It allows the Program Office to share reports, maps, and other data with the County Health Departments (CHDs).

Logging In

To log in to the Well Surveillance Laserfiche portal, you must first be registered in the system. The user name and password for Laserfiche are separate from your network login credentials. *If you don't have a user name and password, please contact the program office and one will be set up for you.*

Once you have your login credentials, point your web browser to http://dit00swapeh0001/laserfiche/ You will see the login screen (Fig. 1). Make sure that the "This is a public…" radio button is selected. Enter your user name and password and then click the "Login" button.

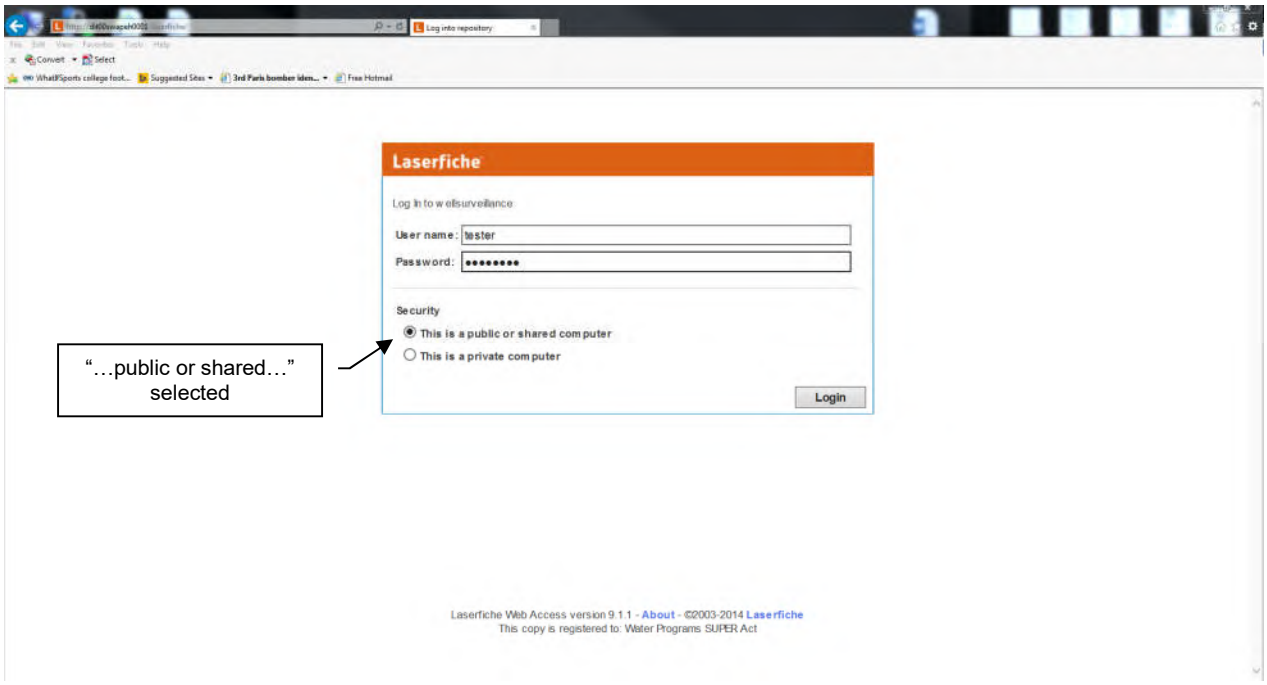


Figure 1. Login Screen

Root Folder

Once you have logged in, you will see the root folder. There are several things that you should be familiar with (Fig. 2).

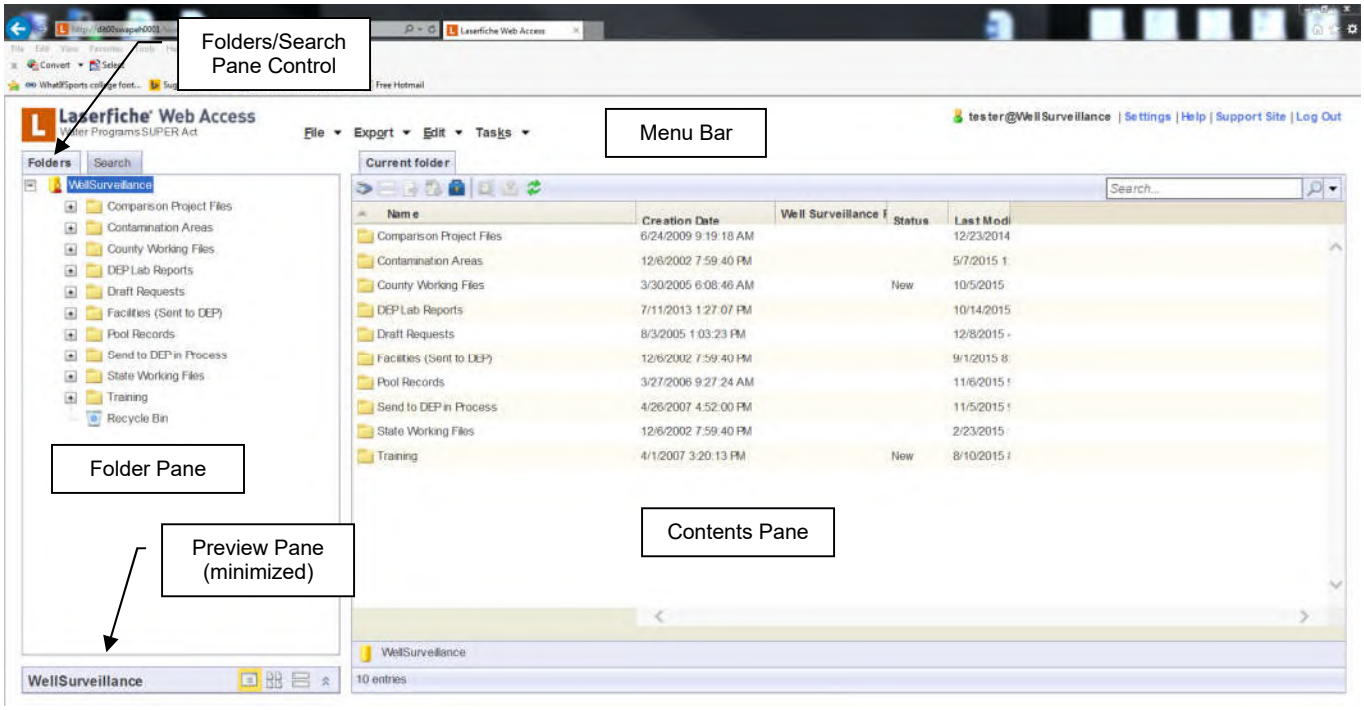


Figure 2. Root Folder

Folder Pane:

This pane shows a standard tree view of your folders. Clicking on the plus signs to the left of a folder will expand them. You can navigate between folders by selecting them. The selected folder will then be displayed in the contents pane.

Not displayed is the Search Pane. Clicking the tab control on top of the pane will toggle between search and folder panes.

Contents Pane:

This pane shows the currently selected folder or document. New in version 9.x is a tabbed view.

Preview Pane:

This pane allows you to see a thumbnail view of the document being displayed in the contents pane. You can also view metadata or a preview of a document selected in a folder (though not yet opened).

Menu Bar:

This bar contains nested menus that allow you to utilize many of the functions and tools in Laserfiche 9.

County Working Folder

If you select "County Working Files" in the folder pane and expand it (by clicking the plus sign to the left of the folder), you should see at least two subfolders: the county (or counties) that you are responsible for and a trash can folder.

Viewing Metadata:

Selecting your county folder will display a list of any files in the contents pane (Fig. 3).

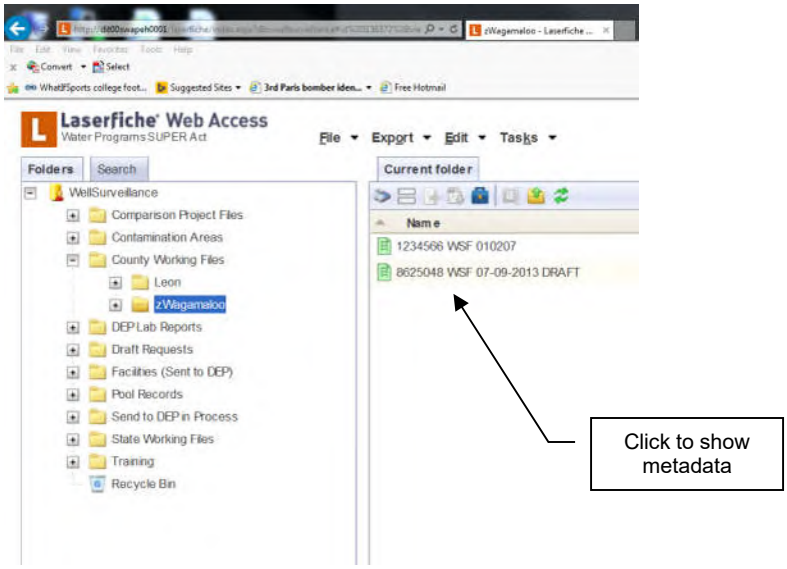
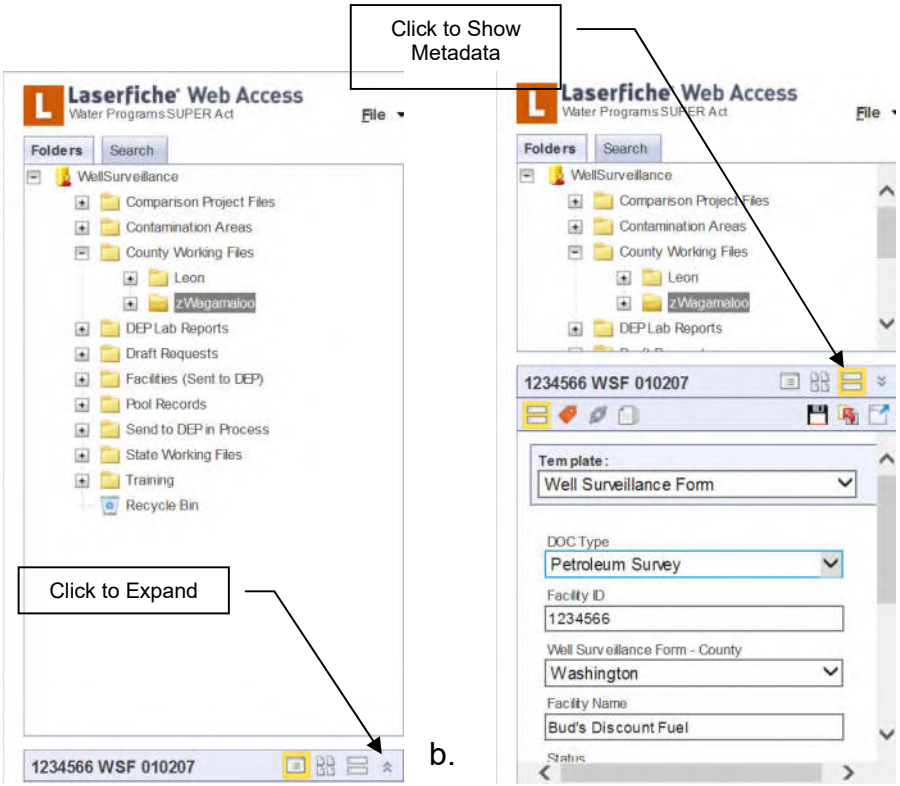


Figure 3. County Working Folder



By default, only the name of the file is displayed. However, each file in Laserfiche is assigned metadata, which gives you information about the file, such as the type, the status, etc. You can get more information about a file by viewing its metadata in the preview pane.

Figure 4: Viewing Metadata in the Metadata Pane

To view the metadata, make sure that the document is selected, then expand the preview pane (Fig. 4a). Select the metadata icon, if necessary (Fig. 4b).

Column Headers:

There is another way to get information about a document at a glance: change the column headers in the contents pane. First, right-click on the column header and select "Configure Columns" (Fig. 5a).

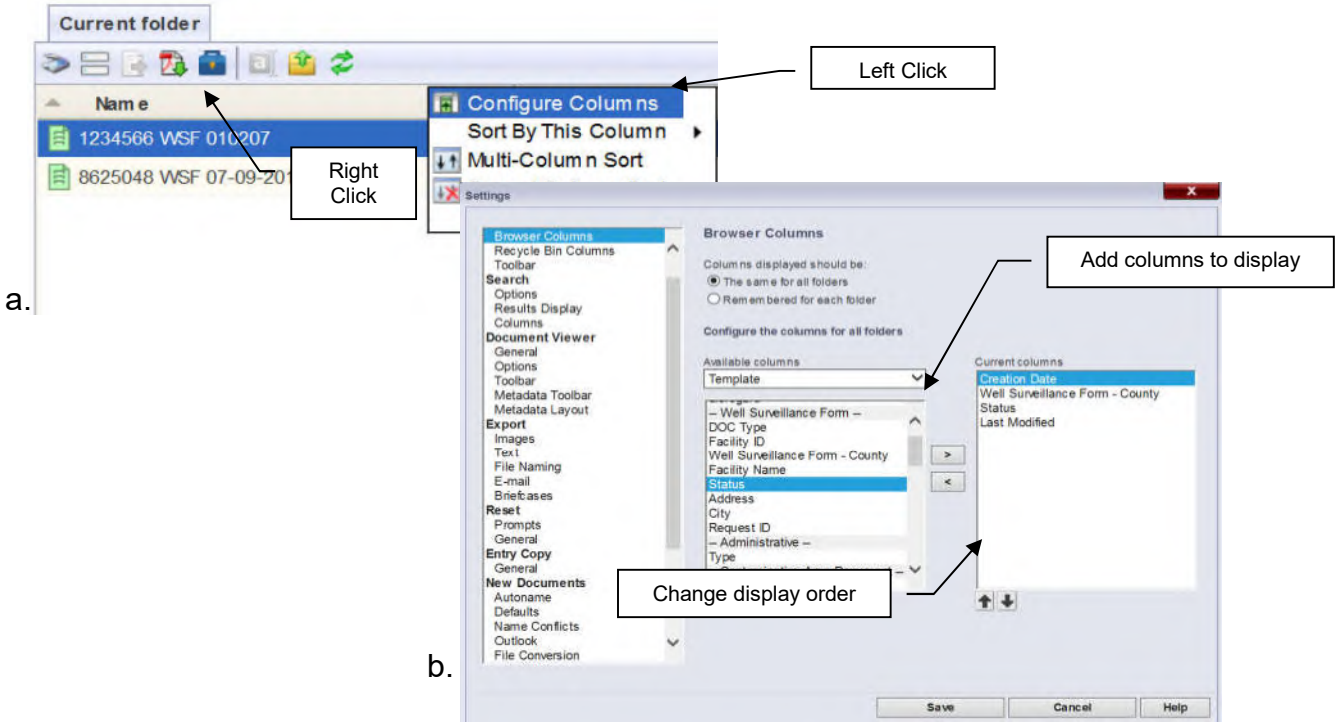


Figure 5. Changing Browser Columns

In the settings window, you can move columns from the "Available Columns" pane to the "Current Columns" pane using the left/right arrow buttons between the two panes (Fig. 5b). You can control the order that they display by moving them up or down in the current column pane by using the up/down arrow buttons below the pane.

Note that the default list of columns contains general categories, such as creation date, number of pages, etc. You can add the metadata fields, by selecting "Template" in the dropdown menu just above the available columns pane.

You can also choose to display selected column headers in all folders or just the current one.

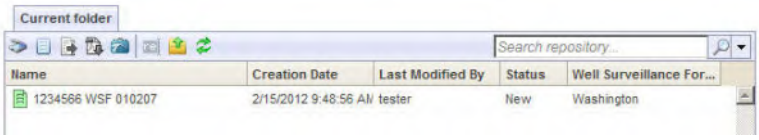
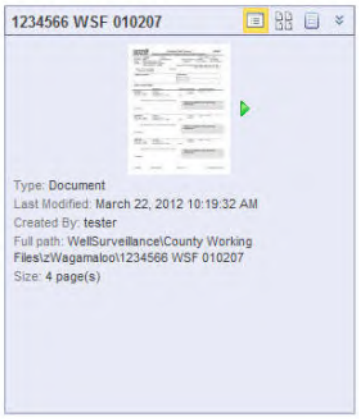


Figure 6. Column Headers

Once you have added your columns, click "Save". Your column headers should now be visible in the content pane (Fig. 6).

Previewing Documents:
You can preview selected documents page by page (Fig. 7a) or you can view thumbnails (Fig. 7b) by clicking on the appropriate control in the preview pane.

a. 

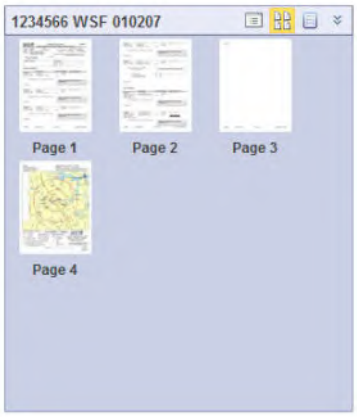
b. 

Figure 7: Preview Pane

Opening Documents:
To open a document, double-click on the document name. It will open in a new tab.

Document Viewer

Once a document has been opened, the view in the browser window changes significantly (Fig. 8). You should be familiar with this view. All panes in this view can be toggled on and off by using the appropriate controls in the document viewer toolbar.

Image Pane: This is the primary pane, and it shows the document itself and any annotations.

Metadata Pane: This pane displays the metadata associated with the document.

Thumbnails Pane: This pane provides a view of your document showing several pages at once. You can do several things with your document in this pane:

- Rotate pages: Right click on an image and select “Rotate.”
- Move pages: Click and drag images to move them within the document.
- Jump to page: Click on the thumbnail image and the image pane will jump to the selected page.
- Create new document from selected page: Right-click on a thumbnail and select “New Document.”

Annotations Pane (not visible): This pane allows you to view and modify annotations within the current document. You can view the annotations pane by clicking the tab control on top of the metadata pane.

Text Pane (not visible): Many documents have a text file associated with them. This file can be extracted through Optical Character Recognition (OCR). This pane displays any text linked to the document.

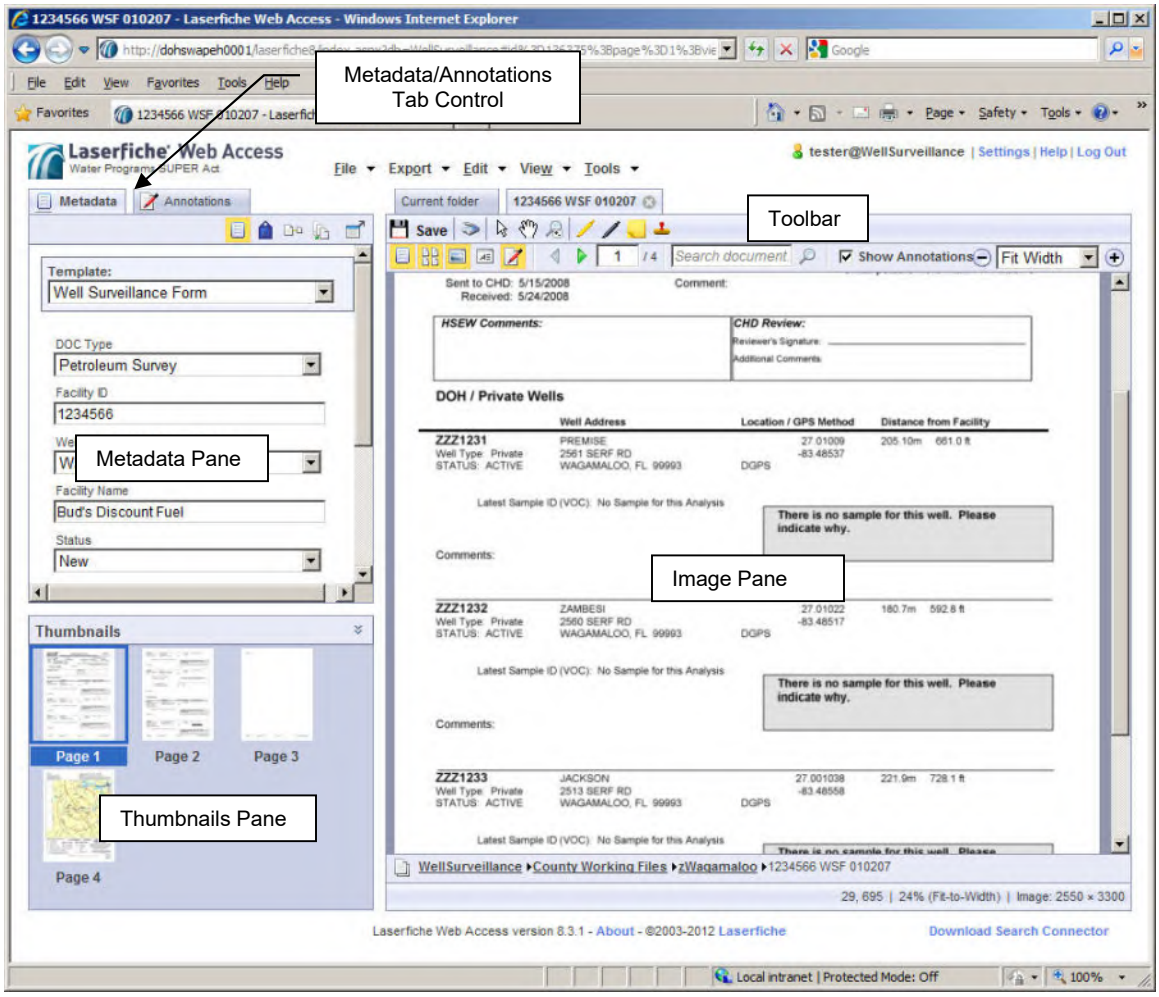


Figure 8. Document Viewer

Document Viewer Toolbar:
This toolbar (Fig. 9) allows you to execute frequently-used commands and operations. Some of the important tools are listed below.

Save: Saves all changes you made to the document.

Selection: Allows you to select annotations

Pan: Allows you scroll by moving the cursor in the desired direction.

Add Highlight: Allows you to highlight areas of the image. If there is OCR'd text in the area, it will also be selected.

Add Redaction: Allows you to redact a portion of an image. Also, like the highlighter, it will redact any OCR'd text in the area.

Add Sticky Note: This tool will allow you to add a sticky note to the image.

Add Stamp: This will bring up the stamp selection window and will allow you to add a stamp to a document.

Show Metadata: This toggles the metadata pane on and off.

Show Thumbnails: This toggles the thumbnail pane on and off.

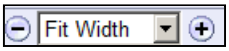
Show Image: This toggles the main image pane on and off.

Show Text: This toggles the OCR'd text on and off.

Show Annotations: This toggles the annotations pane on and off.

Navigation: Go to the previous/next page or jump to a specific page within a document.

Search OCR'd Text: Searches for text within a document.



Page Zoom: Allows you to zoom in or out.

You can customize the toolbar to add other frequently-used tools and remove tools that are rarely used. Simply right-click on the toolbar and select "Customize Toolbar…" (Fig. 9a). The settings window will open. Add controls to your toolbar by moving them from the "Available Actions" pane to the "Current Actions" pane (Fig. 9b).

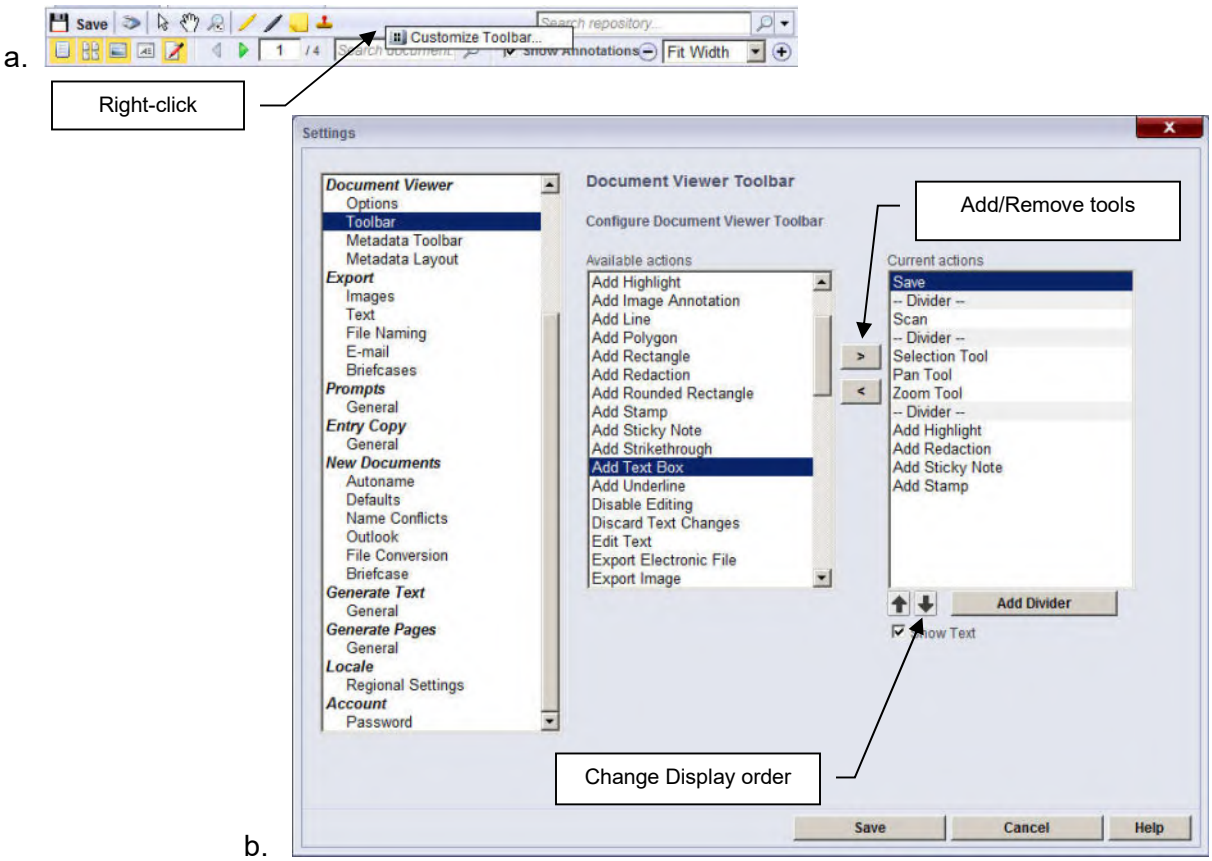


Figure 9. Customizing the Toolbar

Figure 10. Tools Menu

Annotations:

There are four annotation commands on the toolbar already: the highlight tool, the redaction tool, the stamp tool and the sticky note tool. These and others can be accessed through the Tools menu (Fig. 10). Other tools in are listed below.

Underline: Allows you to underline a block of text. If there is OCR'd text in the area, it will also be underlined in the OCR file.

Strikethrough: Allows you to line through a block of text in the document. If there is OCR'd text in the area, it will also be struck.

Rectangle: This allows you to add a rectangle to the

document.

Rounded Rectangle: This allows you to add a rounded rectangle to the document.

Ellipse: This allows you to add an ellipse or circle to the document.

Text Box: This allows you to add a text box to the document. The text can be edited at any time thereafter.

Callout Text: This allows you to add a callout box to the document. Like the text box, the text inside can be edited at any time thereafter.

Line: This allows you to add a line to a document.

Polygon: This allows you to add a free hand polygon or multi-vertex line to a document.

Freehand: This allows you to add a freehand scribble to the document.

Annotation Properties:
Depending upon the type of annotation, you can view and change appearances, color, style, font, or any text associated with the annotation. You can also view the metadata for the annotation. There are two ways to do this: using the annotation pane (Fig. 11) or by right-clicking on the annotation itself (Fig. 12).

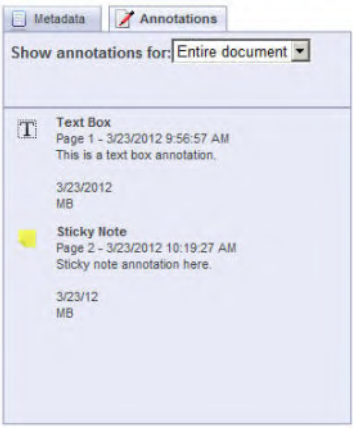
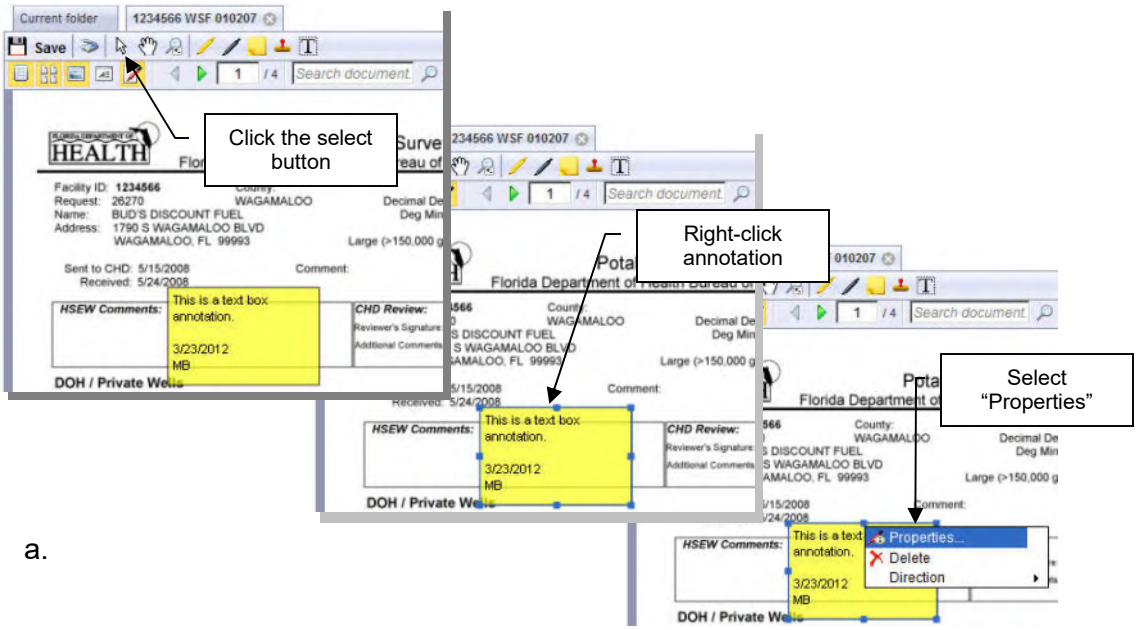


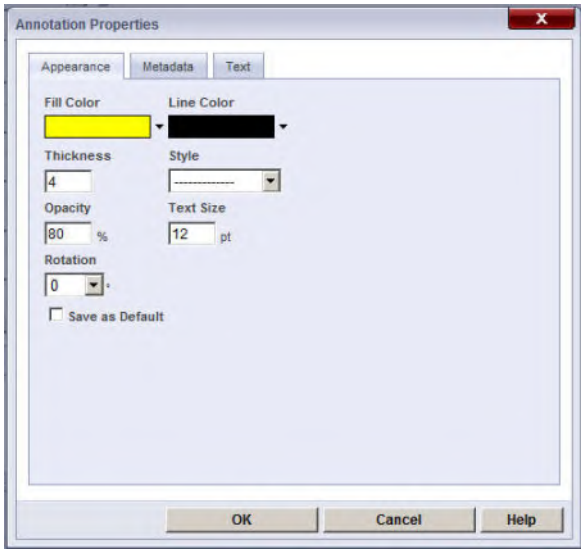
Figure 11. Annotation Pane

To open the annotation pane, make sure that it is selected in the document viewer toolbar (Fig. 8), and then click on the tab control above the metadata pane. You can jump to any annotation in the document by single-clicking on the annotation. You can open the properties window (Fig. 12b) either by double-clicking on the annotation or right-clicking and selecting "Properties."

To view an annotation's properties from the annotation itself, make sure that the selection tool has been chosen, then right-click on the annotation and select "Properties" (Fig. 12a).



a.



b.

Figure 12. Annotation Properties

The Annotation Properties window will appear (Fig. 12b) and you can view the properties as you need.

<u>Stamps</u>

You can add a stamp to your chosen document using the stamp tool. There are two types of stamps: public and private. Public stamps are available to anyone that has access to the Laserfiche server. Private stamps are available only to the individual who created the stamp.

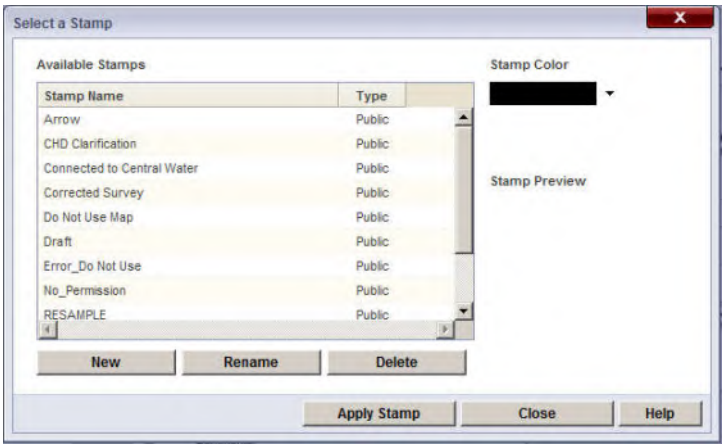


Figure 13. The Select a Stamp Window

To add a stamp to the document, click the stamp tool. The Select window will open (Fig. 13). Select the stamp you wish to use, click the "Apply Stamp" button, and then click on the document to place it.

If you want to create a custom private stamp, then click the "New" button located under the stamp name pane. The New Stamp window will open (Fig .14).

Make sure that you name your stamp something useful. Also, make sure that you select "Private" as the stamp type. You don't want the whole world using a stamp with your signature.

You now have two options as to how to make your stamp. You can select an existing image file of no more than approximately 250KB in size, or you can create a simple text stamp. Once you've either selected your image file or entered the stamp text, click the "Create" button. You will be sent back to the select window, where you will select your stamp and then apply it to your document.

Note: if you choose a color image file for your stamp, Laserfiche will convert it to a monochrome file.

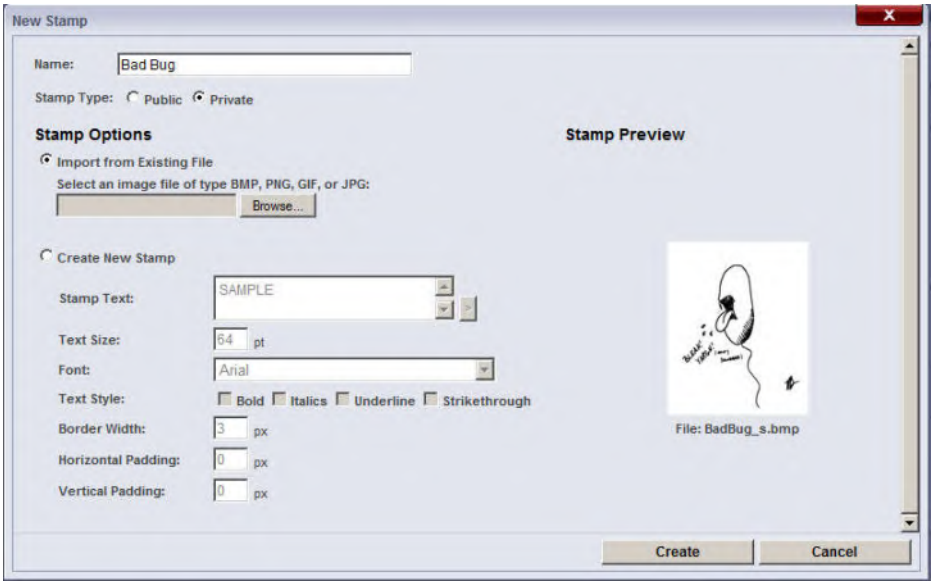


Figure 14. New Stamp Window

Searching

Laserfiche contains a very powerful search tool: its searching and annotation capabilities make it much more than a simple file cabinet. There are two main ways to search within this program (Fig. 15). There is a quick search tool in both the folder and the document views, and there is the search pane that allows more complex searches in the folder view.

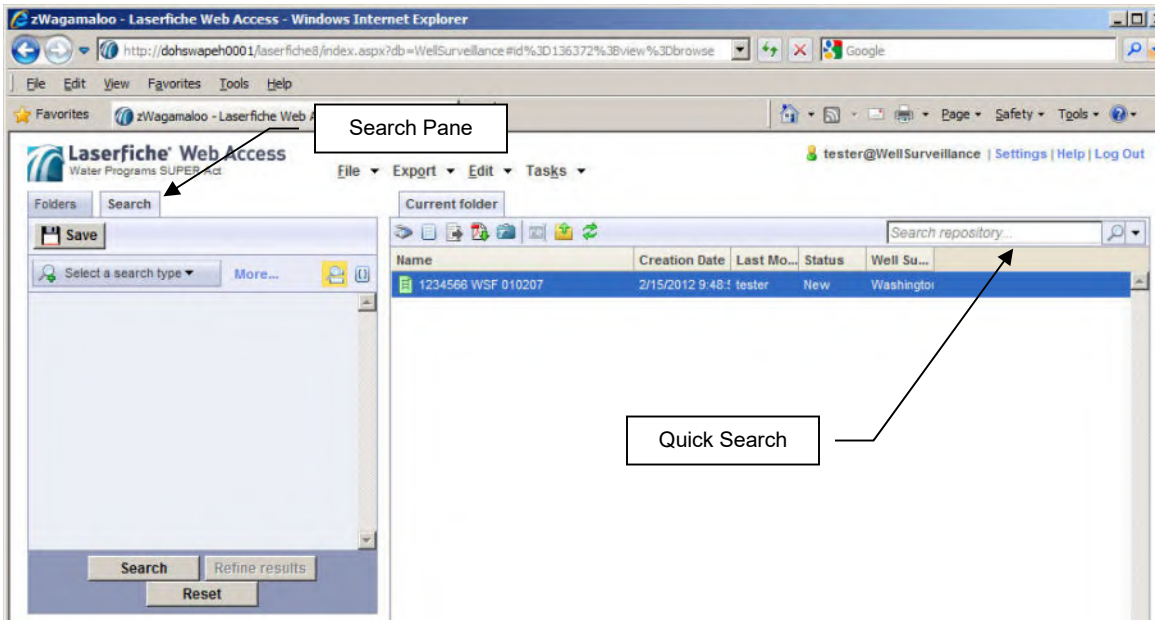


Figure 15. Search Methods

Quick Search

As the name implies, the quick search tool (Fig. 16) is best for quick, simple searches. You can set the quick search options at any time, and they will remain until changed. You have four basic options, any of which can be selected singly or as a group. Once you have set your options, type the search string into the text box and click the search key.

Search Text: A text search looks inside all OCR'd text within the repository for a specific search string. This is a relatively slow search.

Search Entry Names: This searches the file names within the repository. By default, it will search for file names containing the text, so there is no need to use wildcard characters (*, %, etc). This is a relatively fast search. *(Recommended)*

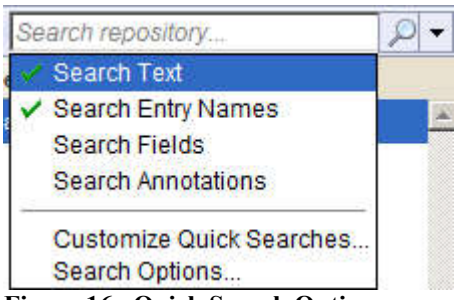


Figure 16. Quick Search Options

Search Fields: This searches the metadata fields of all documents in the repository. It is also a relatively fast search.

Search Annotations: This searches the annotations within the repository. Like the text search, it is relatively slow.

Search Pane

The search pane (Fig. 17) allows for more complex and specific searches. Like the quick search, you can select one or more categories to search in. In addition to the same four categories as the quick search, it contains several other categories which can be searched in any combination. If you find that the list is not enough, you can add more by selecting "More…" from the dropdown menu and adding them via the Search Attributes window (Fig. 18).

Some of the main search categories are listed below. Definitions for the others can be found in the attributes window.

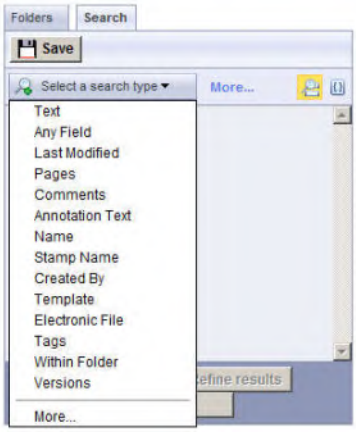


Figure 17. Search Category Dropdown List

Last Modified: Searches for documents within the repository that were created on a specific date or within a date range.

Pages: Searches for documents containing a certain number of pages or a page range. Also can search for documents with or without OCR'd text.

Template: This is similar to the any fields search, but it speeds things up by limiting the search to a specific metadata template.

Within Folder: This limits the search to specific folders within the repository. This can speed up a search considerably.

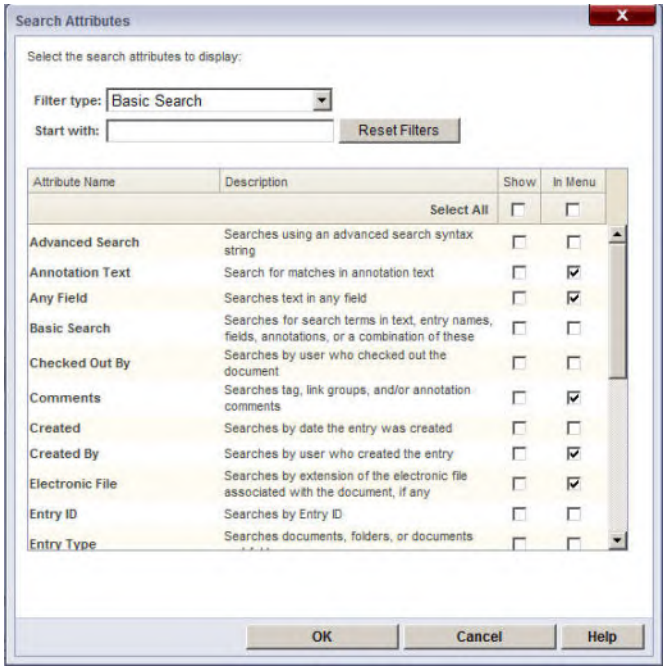


Figure 18. Search Attribute Window

Exporting Documents

Documents can be exported one of two ways, depending upon which view you are in. The toolbar in the folder view has an Export PDF button ( ). Simply select the document you wish to export and click the button. You can also select "PDF…" from the Export menu in both the folder or document views (Fig. 19).

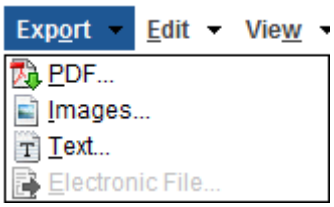


Figure 19. Export Menu

Selected Folder Information

Some of the folders you will see when you log in and their general contents are listed below.

Comparison Project Files: This folder contains files that review facility locations. Most of them compare DOH location data with DEP location data and come to a conclusion which is correct. There are other records which are copies of correspondence related to locations and don't necessarily compare datasets. Files are organized by county location.

Contamination Areas: This folder contains files that are related to well surveillance areas. Files are organized by WSA number.

Draft Requests: This folder contains draft surveys, including annotations. Files are organized by facility ID.

Facilities (Sent to DEP): This folder contains final versions of surveys that have been approved and sent to DEP for reimbursement. Files are organized by facility ID.

Send to DEP in Process: This folder contains surveys that have been completed, QA'd and undergone final supervisory review, but have not yet been sent to DEP. This is a temporary folder. Files located here will be moved to *Facilities (Sent to DEP)* once they have been sent on to DEP.

State Working Files: This folder contains surveys that have been reviewed by the CHDs and are in the final QA process. This is also a temporary folder. Files located here will be moved to *Draft Requests* once the QA has been completed. Some files which have gone through all but the final supervisory review are also temporarily stored here. They will be moved to *Send to DEP in Process* for final review and sending.

For More Information

For a more detailed guide, you can view the Laserfiche website manual by clicking on "Help" in the upper-right corner of your Laserfiche window.

Appendix H
MCL/HAL List

Florida Department of Health Environmental Health
Bureau of Environmental Health, Water Programs
Maximum Contaminant Levels and Health Advisory Levels

Last Update 8/4/2016

HAL = Health Advisory Level
MCL = Maximum Contaminant Level
SMCL = Secondary Maximum Contaminant Level
ug/L = micrograms per Liter or parts per billion
mg/L = milligrams per Liter or parts per million
MFL = million fibers per liter

Chemical Name		Units	MCL/HAL
1,1,1,2-TETRACHLOROETHANE	1	ug/L	HAL
ALPHA-BHC	0.04	ug/L	HAL
CHLORPROPHAM	1400	ug/L	HAL
GLYPHOSATE	700	ug/L	MCL
PENTACHLOROPHENOL	1	ug/L	MCL
1,1,1-TRICHLOROETHANE	200	ug/L	MCL
1,1,2,2-TETRACHLOROETHANE	1	ug/L	HAL
1,1,2-TRICHLOROETHANE	5	ug/L	MCL
1,1-DICHLOROETHANE	70	ug/L	HAL
1,1-DICHLOROETHYLENE	7	ug/L	MCL
1,2,3-TRICHLOROBENZENE	70	ug/L	HAL
1,2,3-TRICHLOROPROPANE	40	ug/L	HAL
1,2,4-TRICHLOROBENZENE	70	ug/L	MCL
1,2,4-TRIMETHYLBENZENE	35	ug/L	HAL
1,2-DICHLOROETHANE	3	ug/L	MCL
1,2-DICHLOROPROPANE	5	ug/L	MCL
1,3,5-TRIMETHYLBENZENE	35	ug/L	HAL
1,4-DIOXANE	0.35	ug/L	HAL
1-CHLOROBUTANE	2800	ug/L	HAL
2,3,7,8 TCDD (DIOXIN)	0.00003	ug/L	MCL
2,4,5-T	70	ug/L	HAL
2,4,5-TP (SILVEX)	50	ug/L	MCL
2,4-D	70	ug/L	MCL
2,4-DB	56	ug/L	HAL
2,4-DINITROTOLUENE	0.05	ug/L	HAL
2,6-DINITROTOLUENE	0.05	ug/L	HAL
2-BUTANONE	4200	ug/L	HAL
2-HEXANONE	280	ug/L	HAL
4,4'-DDD	0.1	ug/L	HAL
4,4'-DDE	0.1	ug/L	HAL
4,4'-DDT	0.1	ug/L	HAL
4-NITROPHENOL	56	ug/L	HAL

Chemical Name		Units	MCL/HAL
ACENAPHTHYLENE	210	ug/L	HAL
ACIFLUORFEN	1	ug/L	HAL
ALACHLOR	2	ug/L	MCL
ALDICARB (SUM OF ALL ALDICARBS)	7	ug/L	HAL
ALDICARB SULFONE (SUM OF ALDICARBS)	7	ug/L	HAL
ALDRIN	0.002	ug/L	HAL
ALLYL CHLORIDE	35	ug/L	HAL
ALPHA-CHLORDANE	2	ug/L	MCL
ALUMINUM	200	ug/L	SMCL
AMETRYN	63	ug/L	HAL
ANTHRACENE	2100	ug/L	HAL
ANTIMONY	6	ug/L	MCL
ARSENIC	10	ug/L	MCL
ASBESTOS	7	MFL	MCL
ATRAZINE	3	ug/L	MCL
BARIUM	2000	ug/L	MCL
BENTAZON	210	ug/L	HAL
BENZENE	1	ug/L	MCL
BENZO(A)ANTHRACENE	0.2	ug/L	HAL
BENZO(A)PYRENE	0.2	ug/L	MCL
BENZO(B)FLUORANTHENE	0.2	ug/L	HAL
BENZO(G,H,I)PERYLENE	210	ug/L	HAL
BENZO(K)FLUORANTHENE	0.5	ug/L	HAL
BERYLLIUM	4	ug/L	MCL
BETA-BHC	0.02	ug/L	HAL
BORON	600	ug/L	HAL
BROMACIL	90	ug/L	HAL
BROMOBENZENE	4000	ug/L	HAL
BROMOCHLOROMETHANE	91	ug/L	HAL
BROMODICHLOROMETHANE	80	ug/L	MCL
BROMOFORM	80	ug/L	MCL
BROMOMETHANE	9.8	ug/L	HAL
BUTACHLOR	259	ug/L	HAL
BUTYL BENZYL PHTHALATE	140	ug/L	HAL
BUTYLATE	350	ug/L	HAL
C/T-1,3-DICHLOROPROPENE	0.4	ug/L	HAL
C-1,2-DICHLOROETHYLENE	70	ug/L	MCL
C-1,3-DICHLOROPROPYLENE	0.4	ug/L	HAL
CADMIUM	5	ug/L	MCL
CARBARYL	700	ug/L	HAL
CARBOFURAN	40	ug/L	MCL
CARBON DISULFIDE	350	ug/L	HAL
CARBON TETRACHLORIDE	3	ug/L	MCL
CHLORAMBEN	110	ug/L	HAL
CHLORDANE	2	ug/L	MCL

Chemical Name		Units	MCL/HAL
CHLORIDE	250000	ug/L	SMCL
CHLOROBENZILATE	0.1	ug/L	HAL
CHLOROETHANE	12	ug/L	HAL
CHLOROFORM	80	ug/L	MCL
CHLOROMETHANE	2.7	ug/L	HAL
CHLORONEB	91	ug/L	HAL
CHLOROPICRIN	7.3	ug/L	HAL
CHLOROTHALONIL	1.5	ug/L	HAL
CHLORPYRIPHOS (DURSBAN)	21	ug/L	HAL
CHROMIUM	100	ug/L	MCL
CHRYSENE	4.8	ug/L	HAL
CIS-PERMETHRIN	350	ug/L	HAL
COLOR	15	UNITS	SMCL
COPPER	1000	ug/L	SMCL
CYANIDE	200	ug/L	MCL
CYCLOATE	35	ug/L	HAL
DACTHAL (DCPA)	70	ug/L	HAL
DALAPON	200	ug/L	MCL
DELTA-BHC	2.1	ug/L	HAL
DI(2-ETHYLHEXYL)ADIPATE	400	ug/L	MCL
DI(2-ETHYLHEXYL)PHTHALATE	6	ug/L	MCL
DIBENZ(A,H)ANTHRACENE	0.2	ug/L	HAL
DIBROMOCHLOROMETHANE (as sum of THM)	80	ug/L	MCL
DIBROMOCHLOROPROPANE	0.2	ug/L	MCL
DIBROMOMETHANE	70	ug/L	HAL
DICAMBA	210	ug/L	HAL
DICHLORODIFLUOROMETHANE	1000	ug/L	HAL
DICHLOROMETHANE (MECL)	5	ug/L	MCL
DICHLORPROP	35	ug/L	HAL
DICHLORVOS	0.1	ug/L	HAL
DIELDRIN	0.002	ug/L	HAL
DIETHYL PHTHALATE	5600	ug/L	HAL
DIMETHYL PHTHALATE	70000	ug/L	HAL
DI-N-BUTYLPHTHALATE	700	ug/L	HAL
DINOSEB	7	ug/L	MCL
DIPHENAMID	210	ug/L	HAL
DIQUAT	20	ug/L	HAL
ENDOSULFAN I (TOTAL)	42	ug/L	HAL
ENDOSULFAN II (TOTAL)	42	ug/L	HAL
ENDOTHALL	100	ug/L	MCL
ENDRIN	2	ug/L	MCL
EPTC	180	ug/L	HAL
ETHOPROP	0.7	ug/L	HAL
ETHYLBENZENE	30	ug/L	SMCL
ETHYLBENZENE	700	ug/L	MCL

Chemical Name		Units	MCL/HAL
ETHYLENE DIBROMIDE (EDB)	0.02	ug/L	MCL
ETHYLMETHACRYLATE	630	ug/L	HAL
ETRIDIAZOLE	175	ug/L	HAL
FENARIMOL	455	ug/L	HAL
FLUORENE	500	ug/L	HAL
FLUORIDE	2000	ug/L	SMCL
FLUORIDE	4000	ug/L	MCL
FLURIDONE	560	ug/L	HAL
FOAMING AGENTS	500	ug/L	SMCL
Gamma-CHLORDANE	2	ug/L	MCL
HALOACETIC ACIDS (TOTAL)	60	ug/L	MCL
HEPTACHLOR	0.4	ug/L	MCL
HEPTACHLOR EPOXIDE	0.2	ug/L	MCL
HEXACHLOROBENZENE (HCB)	1	ug/L	MCL
HEXACHLOROBUTADIENE	0.5	ug/L	HAL
HEXACHLOROCYCLOPENTADIENE	50	ug/L	MCL
HEXACHLOROETHANE	1	ug/L	HAL
HEXAZINONE0	230	ug/L	HAL
INDENO(1,2,3-CD)PYRENE	0.2	ug/L	HAL
IRON	300	ug/L	SMCL
ISOPHORONE	37	ug/L	HAL
ISOPROPYLBENZENE (CUMENE)	700	ug/L	HAL
LEAD	15	ug/L	MCL
LINDANE (G-BHC)	0.2	ug/L	MCL
MANGANESE	50	ug/L	SMCL
M-DICHLOROBENZENE	600	ug/L	HAL
MERCURY	2	ug/L	MCL
METHACRYLONITRILE	5	ug/L	HAL
METHIOCARB	35	ug/L	HAL
METHOMYL	180	ug/L	HAL
METHOXYCHLOR	40	ug/L	MCL
METHYL ACRYLATE	210	ug/L	HAL
METHYL BUTYL KETONE (2-HEXANONE)	280	ug/L	HAL
METHYL ETHYL KETONE (2-BUTANONE)	4200	ug/L	HAL
METHYLMETHACRYLATE	25	ug/L	HAL
METHYL-TERT-BUTYL-ETHER	35	ug/L	HAL
METOLACHLOR	110	ug/L	HAL
METRIBUZIN	180	ug/L	HAL
MEVINPHOS	1.8	ug/L	HAL
MOLINATE	14	ug/L	HAL
MOLYBDENUM	100	ug/L	HAL
MONOCHLOROBENZENE	100	ug/L	MCL
NAPHTHALENE	100	ug/L	HAL
NAPROPAMIDE	700	ug/L	HAL
N-BUTYLBENZENE	280	ug/L	HAL

Chemical Name		Units	MCL/HAL
NICKEL	100	ug/L	MCL
NITRATE	10000	ug/L	MCL
NITRATE & NITRITE (TOTAL)	10000	ug/L	MCL
NITRITE	1000	ug/L	MCL
NORFLURAZON	280	ug/L	HAL
N-PROPYLBENZENE	280	ug/L	HAL
O-CHLOROTOLUENE	100	ug/L	HAL
O-DICHLOROBENZENE	600	ug/L	MCL
OXAMYL	200	ug/L	MCL
PCB-AROCHLOR	0.5	ug/L	MCL
P-CHLOROTOLUENE	100	ug/L	HAL
P-DICHLOROBENZENE	75	ug/L	MCL
PEBULATE	350	ug/L	HAL
PERFLUOROOCTANE SULFONATE (PFOS)	0.07	ug/L	HAL
PERFLUOROOCTANOIC ACID (PFOA)	0.07	ug/L	HAL
PFOA & PFOS (TOTAL)	0.07	ug/L	HAL
pH	<6.5 or >8.5	UNITS	SMCL
PHENANTHRENE	210	ug/L	HAL
PICLORAM	500	ug/L	MCL
POLYCHLORINATED BIPHENYLS (PCBs)	0.5	ug/L	MCL
PROMETRYN	28	ug/L	HAL
PRONAMIDE	53	ug/L	HAL
PROPACHLOR	91	ug/L	HAL
PROPAZINE	10	ug/L	HAL
PROPOXUR (BAYGON)	2.8	ug/L	HAL
PYRENE	210	ug/L	HAL
SEC-BUTYLBENZENE	280	ug/L	HAL
SELENIUM	50	ug/L	MCL
SILVER	100	ug/L	SMCL
SIMAZINE	4	ug/L	MCL
SODIUM	160000	ug/L	MCL
STIROFOS	1.5	ug/L	HAL
STYRENE	100	ug/L	MCL
SULFATE	250000	ug/L	MCL
T-1,2-DICHLOROETHYLENE	100	ug/L	MCL
T-1,3-DICHLOROPROPYLENE	0.4	ug/L	HAL
TEBUTHIURON	490	ug/L	HAL
TERBACIL	91	ug/L	HAL
TERBUTRYN	330	ug/L	HAL
TERT-BUTYLBENZENE	280	ug/L	HAL
TETRACHLOROETHYLENE	3	ug/L	MCL
THALLIUM	2	ug/L	MCL
TOLUENE	40	ug/L	SMCL
TOLUENE	1000	ug/L	MCL
TOTAL DISSOLVED SOLIDS	500000	ug/L	SMCL

Chemical Name		Units	MCL/HAL
TOTAL PCBS	0.5	ug/L	MCL
TOXAPHENE	3	ug/L	MCL
TRANS-PERMETHRIN50 TRIADEMIFON (BAYLETON)	350	ug/L	HAL
TRIBUTYL TIN OXIDE	4.4	ug/L	HAL
TRICHLOROETHYLENE	3	ug/L	MCL
TRICHLOROFLUOROMETHANE	2100	ug/L	HAL
TRIFLURALIN	4.5	ug/L	HAL
VANADIUM	0.049	mg/L	HAL
VERNOLATE	7	ug/L	HAL
VINYL CHLORIDE	1	ug/L	MCL
XYLENES	10000	ug/L	MCL
ZINC	5000	ug/L	SMCL

Appendix I
How to Read the Lab Report

HOW TO READ THE LAB REPORT

Below is an example Laboratory Report that should look similar to the one you received. The number of chemicals on this example has been reduced for simplicity. Your report will include all the chemicals that were analyzed in the water sample.

DWASTEWELL-2013-99-99-99
Serial Number: 00999999
Chemical Analysis Report
Page 3 of 46

Sample Location: SMITH; 123 N WAGAMALOO ST. Collection Date/Time: 06/20/2013 11:30 AM

Field ID: ZZZ1234; FIRST SAMPLE Matrix: W-DRINKING

A

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Failures
9999999	EPA 8260C	Acetone	5.0	U	ug/L	Z256444	
		Benzene	0.20	U	ug/L	Z256444	LCS
		Bromodichloromethane	0.20	U	ug/L	Z256444	
		Bromoform	0.20	U	ug/L	Z256444	
		Bromomethane	0.20	U	ug/L	Z256444	
		2-Butanone	5.0	U	ug/L	Z256444	CCV
		Carbon disulfide	0.20	U	ug/L	Z256444	
		Carbon tetrachloride	0.20	U	ug/L	Z256444	
		Chlorobenzene	0.20	U	ug/L	Z256444	
		Chloroethane	0.20	U	ug/L	Z256444	
		Chloroform	0.27	I	ug/L	Z256444	
		Chloromethane	0.20	U	ug/L	Z256444	
		o-Chlorotoluene	0.20	U	ug/L	Z256444	

B C D E F G

A. SAMPLE INFORMATION
This is basic information of the sample: the who, what, and where. If you find a mistake in your information or if you have a question, please contact your county Department of Health office.

B. CHEMICALS ANALYZED
This is the list of chemicals that the lab tested for in your water sample.

C. RESULTS
This is the chemical concentration detected in the sample. If the chemical was not detected in the sample, this number is the Method Detection Limit (MDL).

D. QUALIFIERS
This is a one or two-letter code that provides additional information about the result. A qualifier usually indicates precision or accuracy.

E. UNITS
This is the unit of measurement of the chemical concentration. Typically, these are measured in ug / L which equals parts per billion or mg / L which equals parts per million.

F. BATCH ID
A batch is a set of samples (no more than 20) that are analyzed together as a group.

G. QC FAILURES
Failure of a Quality Control (QC) sample. QC samples are used to estimate accuracy and precision. Minor QC failures are not grounds for rejecting a sample.

COMMON ABBREVIATION DEFINITIONS

ug – microgram. *1/1,000,000 of a gram.*

mg—milligram. *1/1,000 of a gram.*

L – Liter

MCL – Maximum Contaminant Level. *The established safe concentration used by Public Water Systems. Typically based upon an average adult drinking 2 L of water per day for a 70 year life span.*

MDL – Method Detection Limit. *The lowest concentration of a chemical that the laboratory equipment can accurately quantify.*

PARTIAL LIST OF LABORATORY QUALIFIERS

U – Indicates that the chemical was analyzed for but not detected. A value associated with this qualifier means this is the laboratory's method detection limit (MDL).

I – Approximate result between MDL and practical quantification limit. *(This means the lab is reasonably sure that the chemical was in the water sample, but the concentration is so low that they are not confident that the concentration that they are reporting is correct.)*

J – Estimated value

PARTIAL LIST OF QC FAILURE CODES

LCS – *A Laboratory Control Sample (LCS) evaluates the recovery process by adding a known quantity of each chemical of interest to a control sample. The LCS is processed in exactly the same manner as the environmental samples. A LCS qualifier indicates that the sample group did not meet minimum performance criteria and the resulting values may be biased higher or lower.*

CCV –*A Continuing Calibration Verification (CCV) is a check to see if the instrument calibration has stayed within defined criteria. The CCV is a laboratory sample containing a known quantity of the chemicals of interest. A CCV sample is analyzed with each batch of samples.*

Appendix J
Lab Qualifiers

RESULT QUALIFIER KEY

A	Result based on countable colonies as indicated (TSA[1] only or MEA[2] only).
B	Potential lead risk to children; contact the program office.
C	Result exceeds Maximum contamination level (MCL) as in Chap. 62-550 or 520, F.A.C.
D	Confirmation test performed beyond holding time; result is suspect.
E	Analyte not detected; quality control out of range; result is the method detection limit.
F	Result exceeds allowable level (Manual for the Certification of Labs, EPA 1991).
G	Result based on dissolved ions, i.e., the sample was filtered by the lab.
H or HA	Value exceeds DOH Health Advisory Level (HAL).
I	Approximate result between method detection limit and practical quantification limit; supporting evidence for identity.
J	Approximate result; quality control out of range.
K	Approximate result; result out of calibrated range of instrument.
L	Wipe sample (such as a particle swab) included significant particles of debris.
M	Method approved only as a screen for this analyte.
N	Analyte not reported due to interference; result is the method detection limit.
O	Method not approved for this analyte; result for informational purposes only.
P	No valid trip blank result for this analyte; result is suspect.
Q	Method detection limit reflects sample dilution due to Matrix or interference effects
R	Result exceeds recommended lead level of 0.50% by weight.
S	Analyte not screened; result is the method detection limit.
T	Peak detected; supporting evidence for identity; result is the method detection limit.
U	Analyte not detected; result is the method detection limit, if applicable.
V	Analyte detected in the sample and laboratory reagent blank; result is suspect.
W	Result is the sum of three components.
X	Analyte detected in both the sample and the trip blank.
Y	Analysis from improperly preserved sample; result is suspect.
Z	Zero result with qualifier indicates colonies TNTC[3].

[1] Trypticase Soy Agar
[2] Malt Extract Agar
[3] Too Numerous To Count

Appendix K
Water Fact Sheets

Updates:
Lead fact sheet updated March 8, 2022

Chemicals in Private Drinking Water Wells
Fact Sheet
Florida Department of Health, Bureau of Environmental Health

This fact sheet discusses possible health risks from exposure to low levels of 1,1-dichloroethylene typically found in drinking water wells.

1,1-Dichloroethylene (1,1-DCE)

What is 1,1-dichloroethylene?

1,1-Dichloroethylene (1,1-DCE) is a synthetic liquid also called 1,1-dichloroethene. 1,1-DCE has a mild, sweet smell similar to chloroform. Nearly all the 1,1-DCE industry uses goes to make solvents/degreasers, adhesives, synthetic fibers, refrigerants, food packaging, and coating resins.

During the early 1980s, the United States produced about 90,700 tons per year of 1,1-DCE. Evaporation during production of 1,1-DCE or in wastewater may release 1,1-DCE. It can also release into the air when used to make plastic wrap, adhesives, and synthetic fiber. 1,1-DCE may also exist in groundwater as the result of the breakdown of other similar chemicals.

How might exposure to 1,1-DCE in drinking water occur?

- Usually found in ground water as breakdown product of closely related chemicals.
- Drinking water may contain 1,1-DCE as a result of improper disposal of wastes.

What is the standard for 1,1-DCE in drinking water?

The Florida Department of Environmental Protection's drinking water standard for 1,1-DCE is 7 micrograms per liter (7 ug/L). There is no required sampling of private drinking water wells.

How can 1,1-DCE affect my health?

Drinking water standards are set at very low levels. Drinking water every day at or below the drinking water standard for your entire lifetime is unlikely to cause illness.

To set drinking water standards, scientists study reports of people exposed to chemicals at work. They also study reports of experiments with animals. From these reports, they determine a "no-effect level" or level that doesn't cause illness. Then, to be on the safe side, scientists set drinking water standards hundreds or thousands of times <u>less</u> than the "no-effect level." Therefore, drinking water with levels slightly above the drinking standard for a short time period does not significantly increase the risk of illness. The risk of illness, however, increases as the level of chemical increases and the length of time you drink the water increases.

The type and severity of health effects associated with exposure to a particular chemical depends on a number of factors:

- How much of the chemical was someone exposed to each time?
- How long did the exposure last?
- How often did the exposure occur?
- What was the route of exposure (eating, drinking, or breathing?)

How chemical exposures may affect someone can range widely from one person to the next. The drinking water standard is set to protect the most sensitive individuals. A number of personal factors also determine health effects. These include:

- How old are they?
- What gender are they?

- Is the person generally healthy or do they already have other health problems?
- What are their health habits? (For instance, do they drink alcohol or smoke tobacco?)
- How likely are chemical exposures to effect someone, in general?

Drinking water with levels of 1,1-DCE well above the drinking water standard for a long time increases the risk of liver and kidney damage.

How likely is 1,1-DCE to cause cancer?

The ability of 1,1-DCE to cause cancer in humans is unknown. The International Agency for Research on Cancer has determined that 1,1-DCE is not classifiable as to its ability to cause cancer in humans. The U.S. Environmental Protection Agency has determined that 1,1-DCE could possibly cause cancer in humans. The drinking water standard is set to protect against the risk of cancer.

Is there a medical test for 1,1-DCE exposures?

Tests can detect 1,1-DCE in the breath, urine, blood, and body tissues. Breath tests are now the most common way to show recent exposures. These tests require specialized equipment, so are not available at all doctor offices. Your physician can tell you where to get these tests.

Tests can assess damage to systems including the lung, liver and kidney function. However, the tests cannot pinpoint the cause of the damage. Seek medical advice if you have any symptoms that you think relate to chemical exposure.

Is it safe to keep drinking water with 1,1-DCE in it?

Levels of 1,1-DCE less than the drinking water standard of 7 ug/L are not likely to cause illness. Drinking water with levels slightly above the standard for a short time period does not significantly increase the risk of illness. However, because health risks increase as the levels of a chemical (or how long a person drinks it) increases, it is best to drink water that meets standards.

For additional health information, please call the Florida Department of Health at 850-245-4240 or visit us online at www.floridahealth.gov/environmental-health/drinking-water/Chemicals-HALs.html

For more information about the health effects from exposure to 1,1-DCE in different situations and at higher levels than those usually found in drinking water wells, please see the U.S. EPA Consumer Fact Sheet for 1,1-dichloroethylene at http://water.epa.gov/drink/contaminants/basicinformation/1-1-dichloroethylene.cfm

Chemicals in Private Drinking Water Wells
Fact Sheet
Florida Department of Health, Bureau of Environmental Health

This fact sheet discusses possible health risks from exposure to low levels of 1,2-Dichloropropane typically found in drinking water wells.

1,2-Dichloropropane

What is 1,2-dichloropropane?

1,2-Dichloropropane is a colorless, flammable liquid. It smells like chloroform and it is somewhat soluble in water. Some uses are as a solvent or pesticide.

Production in the United States has gone down over the past 20 years. Most uses have discontinued. Today, almost all goes towards making tetrachloroethylene and several other related chlorinated chemicals.

How might exposure to 1,2-dichloropropane in drinking water occur?

- Run-off into surface water.
- Leaching into ground water
- Getting into drinking water from improper handling of waste

Most people are not likely to be exposed to this chemical since it is no longer used very much. However, people who live near a waste site containing 1,2-dichloropropane could come into contact by drinking contaminated groundwater.

What is the standard for 1,2-dichloropropane in drinking water?

The Florida Department of Environmental Protection's drinking water standard for 1,2-dichloropropane is 5 micrograms per liter (5 ug/L). There is no required sampling of private drinking water wells.

How can 1,2-dichloropropane affect my health?

Drinking water standards are set at very low levels. Drinking water every day at or below the drinking water standard for your entire lifetime is unlikely to cause illness.

To set drinking water standards, scientists study reports of people exposed to chemicals at work. They also study reports of experiments with animals. From these reports, they determine a "no-effect level" or level that doesn't cause illness. Then, to be on the safe side, scientists set drinking water standard hundreds or thousands of times <u>less</u> than the "no-effect level." Therefore, drinking water with levels slightly above the standard for a short time does not significantly increase the risk of illness. Health risks increase as the levels of a chemical (or how long a person drinks it) increases.

The type and severity of health effects associated with exposure to a particular chemical depends on a number of factors:

- How much of the chemical was someone exposed to each time
- How long did the exposure last?
- How often did the exposure occur?
- What was the route of exposure (eating, drinking, or breathing)?

How chemical exposures may affect someone can range widely from one person to the next. A number of personal factors also determine health effects. These include:

- How old are they?

- What gender are they?
- Is the person generally healthy or do they already have other health problems?
- What are their health habits? (For instance, do they drink alcohol or smoke tobacco?)
- How likely are chemical exposures to affect someone, in general?

Little information is available concerning likely health effects from drinking water with the low levels of 1,2 dichloropropane typically found in ground water near contaminated sites.

Can drinking water with 1,2-dichloropropane in it cause cancer?

The ability of 1,2-dichloropropane to cause cancer in humans is unknown. 1,2-dichloropropane causes cancer in some animal experiments. Based on this information, the U.S. Environmental Protection Agency has classified it as a probable human carcinogen. The drinking water standard is set to protect against the risk of cancer.

Is there a medical test for 1,2-dichloropropane exposures?

Urine and blood tests can find out if an exposure has occurred. Such tests cannot predict harmful effects. Because tests take special equipment, a doctor's office usually cannot do them.

Is it safe to keep drinking water with (chemical) in it?

Levels of 1,2-dichloropropane less than the drinking water standard are not likely to cause illness. Drinking water with levels slightly above the drinking water standard for a short time period does not significantly increase the risk of illness. However, because health risks increase as the levels of a chemical (or how long a person drinks it) increases, it is best to drink water that meets standards.

For additional health information, please call the Florida Department of Health at 850-245-4240 or visit us online at www.floridahealth.gov/environmental-health/drinking-water/Chemicals-HALs.html

For more information about the health effects from exposure to 1,2-dichloropropane in different situations and at higher levels than those usually found in drinking water wells, please see the ATSDR ToxFAQs for 1,2-dichloropropane at www.atsdr.cdc.gov/toxfaqs/tfacts134.pdf

Chemicals in Private Drinking Water Wells
Fact Sheet
Florida Department of Health, Bureau of Environmental Health

This fact sheet discusses possible health risks from exposure to low levels of 1,4-dioxane typically found in drinking water wells.

1,4-dioxane

What is 1,4-dioxane?

1,4-dioxane (*p*-dioxane or dioxane) is a man-made chemical that was widely used as a stabilizer in many solvents and cleaners. It has been used in the manufacture of some dyes, adhesives, and lubricants. It has also been found as an impurity in some consumer products, such as antifreeze, shampoos, and cosmetics.

How might exposure to 1,4-dioxane in water occur?

- Drinking water containing 1,4-dioxane.
- Some 1,4-dioxane in water can turn to vapor while you are showering or doing laundry.
- Most 1,4-dioxane will evaporate before it can pass through your skin, but some may be absorbed.

What is the safe standard for 1,4-dioxane in drinking water?

The Florida Department of Health drinking water standard for 1,4-dioxane is 0.35 micrograms per liter (0.35 µg/L). There is no required sampling of private drinking water wells.

How can 1,4-dioxane affect my health?

Drinking water standards are set at very low levels. Drinking water every day with concentrations of 1,4-dioxane at or below the standard for your entire lifetime is unlikely to cause illness.

Depending on risk factors stated below, health effects from drinking high levels of 1,4-dioxane can include: liver damage, kidney damage, and certain cancers (liver, kidney, nasal, mammary gland).

To set drinking water standards, scientists study reports of people exposed to chemicals at work. They also study reports of experiments with animals. From these reports, they determine a “no-effect level” or level that is very unlikely to cause illness. Then, to be on the safe side, scientists set drinking water guidelines hundreds or thousands of times <u>less</u> than the “no-effect level.” Therefore, drinking water with levels slightly above the 1,4-dioxane standard for a short time does not significantly increase the risk of illness. The risk of illness, however, increases as the level of chemical increases and the length of time you drink the water increases.

The type and severity of health effects associated with exposure to a particular chemical depends on a number of factors:

- How much of the chemical was someone exposed to each time?
- How long did the exposure last?
- How often did the exposure occur?

- What was the route of exposure (eating, drinking, or breathing)?

How chemical exposures may affect someone can range widely from one person to the next. A number of personal factors also determine health effects. These include:

- How old are they?
- What gender are they?
- Does the person have other health problems?
- What are their health habits? (For instance, do they drink alcohol or smoke tobacco?)

How likely is 1,4-dioxane to cause cancer?

The U.S. EPA has determined that 1,4-dioxane is a likely human carcinogen. Animal studies imply that drinking water with high levels of 1,4-dioxane may lead to cancers in the liver, kidneys, nasal passages, and mammary glands. The standard for 1,4-dioxane in drinking water is set to protect against the cancer risk.

Is there a medical test for 1,4-dioxane exposure?

There are special tests that can determine if you have been exposed to 1,4-dioxane. When 1,4-dioxane enters your body, it breaks down into other chemicals very quickly. Because of this, these tests should be done shortly after the exposure. These tests cannot tell you whether harmful health effects will occur.

Is it safe to keep drinking water with 1,4-dioxane in it?

Levels of 1,4-dioxane less than the drinking water standard are not likely to cause illness. Drinking water with levels slightly above the drinking water standard for a short time does not significantly increase the risk of illness. However, because health risks increase as the levels of a chemical (or how long a person drinks it) increases, it is best to drink water that meets standards.

For additional health information, please call the Florida Department of Health at 850-245-4240 or visit us online at www.floridahealth.gov/environmental-health/drinking-water/Chemicals-HALs.html

For more information about the health effects from exposure to 1,4-dioxane in different situations and at higher levels than those usually found in drinking water wells, please see the ATSDR ToxFAQs for 1,4-dioxane at https://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=954&tid=199

Chemicals in Private Drinking Water Wells
Fact Sheet
Florida Department of Health, Bureau of Environmental Health

This fact sheet discusses possible health risks from exposure to low levels of arsenic typically found in drinking water wells.

Arsenic

What is arsenic?

Arsenic is a naturally occurring metal. It is in rocks and soil, water, and air. Arsenic is also in plants and animals. There are trace amounts of it in all living matter.

Wood preserving takes up nearly 90% of man-made arsenic in the United States. Other uses include making pesticides, paints, dyes, metals, drugs, soaps, and semi-conductors.

Arsenic deposited on the ground from industrial or agricultural uses tends to stay in the top few feet of soil for a long time. When dissolved in water, arsenic has no smell, taste, or color. This is true even at high levels.

How might exposure to arsenic in drinking water occur?

- Water that seeps through the rock dissolves some arsenic and carries it into aquifers, under the ground, where water is stored. Some aquifers are used for drinking water.
- Drinking water that contains arsenic as a result of proper or improper use or disposal of wastes.

What is the standard for arsenic in drinking water?

The Florida Department of Environmental Protection drinking water standard for arsenic is 10 micrograms per liter (10 ug/L). There is no required sampling of private drinking water wells.

How can arsenic affect my health?

Drinking water standards are set at very low levels. Drinking water every day at or below the standard for your entire lifetime is unlikely to cause illness.

To set drinking water standards, scientists study reports of people exposed to chemicals at work. They also study reports of experiments with animals. From these reports, they determine a “no-effect level” or level that doesn’t cause illness. Then, to be on the safe side, scientists set drinking water standards hundreds or thousands of times <u>less</u> than the “no-effect level.” Therefore, drinking water with levels slightly above the standard for a short time does not significantly increase the risk of illness. However, the risk of illness increases as the level of chemical increases and the length of time you drink the water increases.

The type and severity of health effects associated with exposure to a particular chemical depends on a number of factors:

- How much of the chemical was someone exposed to each time?
- How long did the exposure last?
- How often did the exposure occur?
- What was the route of exposure (eating, drinking, or breathing)?

How chemical exposures may affect someone can range widely from one person to the next. A number of personal factors also determine health effects. These include:

- How old are they?
- What gender are they?

- Is the person generally healthy or do they already have other health problems?
- What are their health habits? (For instance, do they drink alcohol or smoke tobacco?)
- How likely are chemical exposures to effect someone, in general?

Health effects from exposure to arsenic in drinking water typically take years to develop. At low levels, darkening of the skin (hyperpigmentation) may take years to develop.

Too much direct sunlight and cigarette smoking may worsen the effects of arsenic exposure. Apart from arsenic, stopping smoking and reducing excess sun exposure reduces the risk of many diseases.

How likely is arsenic to cause cancer?

The World Health Organization, the U.S. Department of Health and Human Services, and the U.S. Environmental Protection Agency have all determined exposure to inorganic arsenic increases the risk of cancer in humans. These include cancers of the lung, skin, bladder, liver, kidney, and prostate. The drinking water standard is set to protect against the risk of cancer.

Is there a medical test for arsenic exposures?

There are tests to measure the level of arsenic in blood, urine, hair, or fingernails. The urine test is the most reliable test for arsenic exposure occurring within the last few days. Tests on hair and fingernails can measure exposure to high levels of arsenic over the past 6-12 months. These tests can determine if exposure to above-average levels of arsenic. They cannot predict how the arsenic levels in your body will affect your health.

Is it safe to keep drinking water with arsenic in it?

Levels of arsenic less than the drinking water standard are not likely to cause illness. Drinking water with levels slightly above the standard for a short time period does not significantly increase the risk of illness. However, because health risks increase as the levels of a chemical (or how long a person drinks it) increases, it is best to drink water that meets standards.

For additional health information, please call the Florida Department of Health at 850-245-4240 or visit us online at www.floridahealth.gov/environmental-health/drinking-water/Chemicals-HALs.html

For more information about the health effects from exposure to arsenic in different situations and at higher levels than those usually found in drinking water wells, please see the ATSDR ToxFAQs for arsenic at: www.atsdr.cdc.gov/toxfaqs/tfacts2.pdf

Chemicals in Private Drinking Water Wells
Fact Sheet
Florida Department of Health, Bureau of Environmental Health

This fact sheet discusses possible health risks from exposure to low levels of benzene typically found in drinking water wells.

Benzene

What is benzene?

Benzene is a colorless liquid. It has a sweet odor. Benzene evaporates quickly into the air. In water, it dissolves slightly. It is highly flammable. Benzene occurs in nature. It also forms through human activities.

Benzene is widely used in the United States. In fact, it ranks in the top 20 chemicals for the volume produced. Some industries use benzene to make other chemicals, as well as plastics, resins, and nylon and synthetic fibers. Some types of rubbers, lubricants, and dyes also use benzene. Detergents, drugs, and pesticides also use it. Natural sources include volcanoes and forest fires. It is also a natural part of crude oil, gasoline, and cigarette smoke.

How might exposure to benzene in drinking water occur?

- Gasoline spills and leakage from underground gasoline storage tanks or from hazardous waste sites containing benzene can contaminate well water.

What is the standard for benzene in drinking water?

The Florida Department of Environmental Protection's drinking water standard for benzene is 1 microgram per liter (1 ug/L). There is no required sampling of private drinking water wells.

How can benzene affect my health?

Drinking water standards are set at very low levels. Drinking water every day at or below the standard for your entire lifetime is unlikely to cause illness.

To set drinking water standards, scientists study reports of people exposed to chemicals at work. They also study reports of experiments with animals. From these reports, they determine a "no-effect level" or level that doesn't cause illness. Then, to be on the safe side, scientists set drinking water standards hundreds or thousands of times <u>less</u> than the "no-effect level. Therefore, drinking water with levels slightly above the standard for a short time does not significantly increase the risk of illness. The risk of illness, however, increases as the level of chemical increases and the length of time you drink the water increases.

The type and severity of health effects associated with exposure to a particular chemical depends on a number of factors:

- How much of the chemical was someone exposed to each time?
- How long did the exposure last?
- How often did the exposure occur?
- What was the route of exposure? (Did someone eat, drink or breathe the chemical into their body?)

How chemical exposures may affect someone can range widely from one person to the next. A number of personal factors also determine health effects. These include:

- How old are they?
- What gender are they?
- Is the person generally healthy or do they already have other health problems?
- What are their health habits? (For instance, do they drink alcohol or smoke tobacco?)
- How likely are chemical exposures to effect someone, in general?

Drinking water with levels of benzene well above the drinking water standard for a long time increases the risk of affecting the blood. Benzene can affect the bone marrow that makes blood cells. It can cause a decrease in red blood cells. This can lead to anemia. It can also cause excessive bleeding. In some cases, benzene can affect the immune system. That can increase the chance of infection.

How likely is benzene to cause cancer?

The U.S. Department of Health and Human Services has determined that benzene can cause cancer in humans. Long-term exposure to high levels of benzene can cause leukemia. Leukemia is cancer of the blood-forming white blood cells. The drinking water standard is set to protect against the risk of leukemia.

Is there a medical test for benzene exposures?

Several tests can show exposure to benzene. There is a test for measuring benzene in the breath, but it must occur shortly after exposure. Blood tests can also detect benzene. However, since benzene disappears rapidly from the blood, measurements are accurate only for recent exposures.

In the body, benzene converts to products called metabolites. Urine tests can show levels of this product. However, this test must occur shortly after exposure. It is not a reliable way to determine how much benzene the exposure was to because the metabolites in urine could have other sources.

Is it safe to keep drinking water with benzene in it?

Levels of benzene less than the drinking water standard are not likely to cause illness. Drinking water with levels slightly above the standard for a short time does not significantly increase the risk of illness. However, because health risks increase as the levels of a chemical (or how long a person drinks it) increases, it is best to drink water that meets standards.

For additional health information, please call the Florida Department of Health at 850-245-4240 or visit us online at:
http://www.floridahealth.gov/environmental-health/drinking-water/Chemicals-HALs.html

For more information about the health effects from exposure to this chemical in different situations and at higher levels than those usually found in drinking water wells, please see the ATSDR ToxFAQs for benzene at: http://www.atsdr.cdc.gov/toxfaqs/tfacts3.pdf

Chemicals in Private Drinking Water Wells
Fact Sheet
Florida Department of Health, Bureau of Environmental Health

This fact sheet discusses possible health risks from exposure to low levels of di(2-ethylhexyl) phthalate (DEHP) typically found in drinking water wells.

Di(2-ethylhexyl) phthalate (DEHP)

What is DEHP?

Di(2-ethylhexyl) phthalate (DEHP) is a colorless liquid with almost no odor. Another name for this chemical is bis(2-ethylhexyl) phthalate. Plastic manufacturers commonly add DEHP to their products to make them flexible.

How might exposure to DEHP in drinking water occur?

- Drinking water from a contaminated well
- Living near uncontrolled hazardous waste sites containing DEHP products

What is the standard for DEHP in drinking water?

The Florida Department of Environmental Protection drinking water standard for DEHP is 6 micrograms per liter of water (6 ug/L). There is no required sampling of private drinking water wells.

How can DEHP affect my health?

To protect health, drinking water standards are set at very low levels. Drinking water every day at or below the drinking water standard for your entire lifetime is unlikely to cause illness.

To set drinking water standards, scientists study reports of people exposed to chemicals at work. They also study reports of experiments with animals. From these reports, they determine a “no-effect level” or level that does not cause illness. Then, to be on the safe side, scientists typically set drinking water standards hundreds or thousands of times <u>less</u> than the “no-effect level.” Therefore, drinking water with levels slightly above the standard for a short time does not significantly increase the risk of illness. The risk of illness, however, increases as the level of DEHP increases and the length of time you drink the water increases.

The type and severity of health effects associated with exposure to a particular chemical depends on a number of factors:

- How much of the chemical was someone exposed to each time?
- How long did the exposure last?
- How often did the exposure occur?
- What was the route of exposure (eating, drinking, or breathing)?

How chemical exposures may affect someone can range widely from one person to the next. The drinking water standard is set to protect the most sensitive individuals exposed to a chemical. A number of personal factors also determine health effects. These include:

- How old are they?
- What gender are they?
- Is the person generally healthy or do they already have other health problems?
- What are their health habits? (For instance, do they drink alcohol or smoke tobacco?)
- How likely are chemical exposures to effect someone, in general?

Drinking water with levels of DEHP well above the drinking water standard for extended periods increases the risk of damage to the liver and testes.

How likely is DEHP to cause cancer?

The ability of DEHP to cause cancer in humans is unknown. The U.S. Department of Health and Human Services (DHHS) and the U.S. Environmental Protection Agency (EPA) consider DEHP as reasonably likely to cause cancer. The agencies based these findings solely on liver cancer in rats and mice. The International Agency for Research on Cancer has stated that it cannot classify DHEP as to its ability to cause cancer. The drinking water standard is set to protect against the risk of cancer.

Is there a medical test for DEHP exposures?

A special urine or blood test can measure a breakdown product of DEHP called mono(2-ethylhexyl) phthalate (MEHP). The test can only detect recent exposure because DEHP is rapidly broken down then eliminated from your body. This test is not routinely available at the doctor's office because it requires special equipment.

Is it safe to keep drinking water with DEHP in it?

Levels of DEHP less than the drinking water standard of 6 ug/L are not likely to cause illness. Drinking water with levels slightly above the standard for a short time does not significantly increase the risk of illness. However, because health risks increase as the levels of a chemical (or how long a person drinks it) increases, it is best to drink water that meets standards.

For additional health information, please call the Florida Department of Health at 850-245-4240 or visit us online at www.floridahealth.gov/environmental-health/drinking-water/Chemicals-HALs.html

For more information about the health effects from exposure to DEHP in different situations and at higher levels than those usually found in drinking water wells, please see the ATSDR ToxFAQs for DEHP at www.atsdr.cdc.gov/toxfaqs/tfacts9.pdf

Chemicals in Private Drinking Water Wells
Fact Sheet
Florida Department of Health, Bureau of Environmental Health

This fact sheet discusses possible health risks from exposure to low levels of dibromo-3-chloropropane (DBCP) typically found in drinking water wells.

Dibromo-3-chloropropane (DBCP)

What is dibromo-3-chloropropane?

Dibromo-3-chloropropane (also known as 1,2-dibromo-3-chloropropane or DBCP) is a colorless synthetic liquid with a sharp smell. You can taste DBCP in water at very low concentrations.

Until 1979, farmers used DBCP to kill pests that harmed crops. Some fire retardants also use DBCP.

How might exposure to DBCP in drinking water occur?

- Drinking water from a contaminated well
- Breathing air contaminated with DBCP
- Living near uncontrolled hazardous waste sites containing DBCP products

What is the standard for DBCP in drinking water?

The Florida Department of Environmental Protection's drinking water standard for DBCP is 0.2 micrograms per liter of water (0.2 ug/L). There is no required sampling of private drinking water wells.

How can DBCP affect my health?

To protect health, drinking water standards are set at very low levels. Drinking water every day at or below the drinking water standard for your entire lifetime is unlikely to cause illness.

To set drinking water standards, scientists study reports of people exposed to chemicals at work. They also study reports of experiments with animals. From these reports, they determine a "no-effect level" or level that does not cause illness. Then, to be on the safe side, scientists typically set drinking water standards hundreds or thousands of times <u>less</u> than the "no-effect level." Therefore, drinking water with levels slightly above the standard for a short time does not significantly increase the risk of illness. However, because health risks increase as the levels of a chemical (or how long a person drinks it) increases, it is best to drink water that meets standards.

The type and severity of health effects associated with exposure to a particular chemical depends on a number of factors:

- How much of the chemical was someone exposed to each time?
- How long did the exposure last?
- How often did the exposure occur?
- What was the route of exposure (eating, drinking, or breathing)?

A number of personal factors also determine health effects. These include:

- How old are they?
- What gender are they?
- Is the person generally healthy or do they already have other health problems?
- What are their health habits? (For instance, do they drink alcohol or smoke tobacco?)
- How likely are chemical exposures to effect someone, in general?

Drinking water with levels of DBCP well above the drinking water standard for an extended period increases the risk of low fertility and kidney damage.

How likely is DBCP to cause cancer?

The ability of DBCP to cause cancer in humans is unknown. The U.S. Department of Health and Human Services considers DBCP as reasonably anticipated to cause cancer. In animal studies, DBCP caused stomach and kidney cancer. The ability of DBCP to cause these same cancers in humans is unknown. The drinking water standards is set to protect against cancer.

Is there a medical test for DBCP exposures?

Tests are available that measure the amount of DBCP in exhaled air, blood, and samples of tissues from the body. These tests may require special equipment and they may not be available in your doctor's office.

Is it safe to keep drinking water with DBCP in it?

Levels of DBCP less than the drinking water standard of 0.2 ug/L are not likely to cause illness. Drinking water with levels slightly above the standard for a short time period does not significantly increase the risk of illness. However, because health risks increase as the levels of a chemical (or how long a person drinks it) increases, it is best to drink water that meets standards.

For additional health information, please call the Florida Department of Health at 850-245-4240 or visit us online at www.floridahealth.gov/environmental-health/drinking-water/Chemicals-HALs.html

For more information about the health effects from exposure to DBCP in different situations and at higher levels than those usually found in drinking water wells, please see the ATSDR ToxFAQs for dibromo-3-chloropropane at www.atsdr.cdc.gov/toxfaqs/tfacts36.pdf

Chemicals in Private Drinking Water Wells
Fact Sheet
Florida Department of Health, Bureau of Environmental Health

This fact sheet discusses possible health risks from exposure to low levels of dieldrin typically found in drinking water wells.

Dieldrin

What is Dieldrin?

Dieldrin is a synthetic chemical used to kill insects. It has a chemical structure similar to aldrin. Aldrin quickly breaks down to dieldrin. Pure aldrin and dieldrin are white powders with a mild chemical odor. The less pure commercial powders have a tan color.

From the 1950s until 1970, wide use of dieldrin on corn and cotton occurred. Because of concerns about damage to the environment and potentially to human health, the U.S. Environmental Protection Agency (EPA) banned all uses of aldrin and dieldrin in 1974, except to control termites. In 1987, the U.S. EPA banned all uses.

How might exposure to dieldrin in drinking water occur?

- It is everywhere in the environment, but at very low levels.
- In drinking water, it breaks down very slowly.

What is the standard for dieldrin in drinking water?

The Florida Department of Health drinking water guideline for dieldrin is 0.002 micrograms per liter (0.002 ug/L). There is no required sampling of private drinking water wells.

How can dieldrin affect my health?

Drinking water guidelines are set at very low levels. Drinking water every day at or below the guideline for your entire lifetime is unlikely to cause illness.

To set drinking water guidelines, scientists study reports of people exposed to chemicals at work. They also study reports of experiments with animals. From these reports, they determine a “no-effect level” or level that doesn’t cause illness. Then, to be on the safe side, scientists set these guidelines hundreds or thousands of times <u>less</u> than the “no-effect level.” Therefore, drinking water with levels slightly above the guideline for a short time does not significantly increase the risk of illness. The risk of illness, however, increases as the level of chemical increases and the length of time you drink the water increases.

The type and severity of health effects associated with exposure to a particular chemical depends on a number of factors:

- How much of the chemical was someone exposed to each time?
- How long did the exposure last?
- How often did the exposure occur?
- What was the route of exposure (eating, drinking, or breathing)?

How chemical exposures may affect someone can range widely from one person to the next. A number of personal factors also determine health effects. These include:

- How old are they?
- What gender are they?
- Is the person generally healthy or do they already have other health problems?
- What are their health habits? (For instance, do they drink alcohol or smoke tobacco?)
- How likely are chemical exposures to effect someone, in general?

Little information is available about what kind of health risks are likely from drinking water with low levels of dieldrin. Other types of dieldrin exposure at higher levels, like applying pesticides, has provided more knowledge about what health effects might occur.

How likely is dieldrin to cause cancer?

The ability of dieldrin to cause cancer in humans is unknown. Dieldrin causes liver cancer in mice. The International Agency for Research on Cancer has determined dieldrin is not classifiable as to whether it causes cancer in humans. The U.S. EPA has determined that dieldrin is a probable human carcinogen. The drinking water guideline is set to protect against the risk of cancer.

Is there a medical test for dieldrin exposures?

There are laboratory tests that can measure dieldrin in your blood, urine, and body tissues. Dieldrin stays in the body for months. The tests cannot tell you whether harmful health effects will occur. These tests are not routinely available at the doctor's office because they require special equipment.

Is it safe to keep drinking water with dieldrin in it?

Levels of dieldrin less than the drinking water guideline are not likely to cause illness. Drinking water with levels slightly about the drinking water guideline for a short time does not significantly increase the risk of illness. However, because health risks increase as the levels of a chemical (or how long a person drinks it) increases, it is best to drink water that meets standards.

For additional health information, please call the Florida Department of Health at 850-245-4240 or visit us online at www.floridahealth.gov/environmental-health/drinking-water/Chemicals-HALs.html

For more information about the health effects from exposure to dieldrin in different situations and at higher levels than those usually found in drinking water wells, please see the ATSDR ToxFAQs for aldrin/dieldrin at www.atsdr.cdc.gov/toxfaqs/tfacts1.pdf

Chemicals in Private Drinking Water Wells
Fact Sheet
Florida Department of Health, Bureau of Environmental Health

This fact sheet discusses possible health risks from exposure to low levels of ethylene dibromide (EDB) typically found in drinking water wells.

Ethylene dibromide (EDB)

What is ethylene dibromide?

Ethylene dibromide (EDB) is a colorless, heavy organic liquid with a mildly sweet chloroform-like odor. It is also known as 1,2-dibromoethane. Trade names include Bromofume and Dowfume.

Farmers used it to kill nematodes (worms) in soil around citrus, peanuts, and cotton plants. Anti-knock gasoline mixtures used it, particularly in aviation fuel. Other uses were as a solvent for resins, gums, and waxes; in waterproofing products; and in making dyes and drugs.

How might exposure to EDB in drinking water occur?

- Drinking contaminated well water
- Breathing vapors from contaminated water
- Bathing with contaminated water

What is the standard for EDB in drinking water?

The Florida Department of Environmental Protection's drinking water standard for EDB is 0.02 micrograms per liter (0.02 ug/L). There is no required sampling of private drinking water wells.

How can EDB affect my health?

Drinking water standards are set at very low levels. Drinking water every day at or below the standard for your entire lifetime is unlikely to cause illness.

To set drinking water standards, scientists study reports of people exposed to chemicals at work. They also study reports of experiments with animals. From these reports, they determine a "no-effect level" or level that does not cause illness. Then, to be on the safe side, scientists set drinking water standards hundreds or thousands of times <u>less</u> than the "no-effect level." Therefore, drinking water with levels slightly above the standard for a short time does not significantly increase the risk of illness. The risk of illness, however, increases as the level of chemical increases and the length of time you drink the water increases.

The type and severity of health effects associated with exposure to a particular chemical depends on a number of factors:

- How much of the chemical was someone exposed to each time?
- How long did the exposure last?
- How often did the exposure occur?
- What was the route of exposure (eating, drinking, or breathing)?

How chemical exposures may affect someone can range widely from one person to the next. A number of personal factors also determine health effects. These include:

- How old are they?
- What gender are they?
- Is the person generally healthy or do they already have other health problems?
- What are their health habits? (For instance, do they drink alcohol or smoke tobacco?)

- How likely are chemical exposures to effect someone, in general?

Finding EDB in private drinking water wells remains rare, but when it happens, it is mostly only at low levels. Drinking water with levels of EDB well above the drinking water standard for an extend period may increase the risk of birth defects.

How likely is EDB to cause cancer?

The ability of EDB to cause cancer in humans is unknown. In rats and mice, EDB causes skin, lung, nose, stomach and liver cancer. The International Agency for Research on Cancer has determined they do not have enough proof to say that EDB causes cancer in humans but they do have enough to say it causes cancer in animals. The U.S. Environmental Protection Agency has determined EDB as a probable human carcinogen. The drinking water standard is set to protect against the risk of cancer.

Is there a medical test for EDB exposures?

If you suspect EDB exposures have affected you, your doctor can do a medical exam to test liver, kidney, nerve and reproductive system functions. These tests indicate whether damage has occurred but may not tell what caused the damage.

Is it safe to keep drinking water with EDB in it?

Levels of EDB less than the drinking water standard of 0.02 ug/L are not likely to cause illness. Drinking water with levels slightly above the standard for a short time does not significantly increase the risk of illness. However, because health risks increase as the levels of a chemical (or how long a person drinks it) increases, it is best to drink water that meets standards.

For additional health information, please call the Florida Department of Health at 850-245-4240 or visit us online at www.floridahealth.gov/environmental-health/drinking-water/Chemicals-HALs.html

For more information about the health effects from exposure to EDB in different situations and at higher levels than those usually found in drinking water wells, please see the ATSDR ToxFAQs for EDB at www.atsdr.cdc.gov/toxfaqs/tfacts37.pdf

Chemicals in Private Drinking Water Wells
Fact Sheet
Florida Department of Health, Bureau of Environmental Health

This fact sheet discusses possible health risks from exposure to low levels of iron typically found in drinking water wells.

Iron

What is iron?

Iron is a naturally occurring metal as well as one of the earth's most plentiful chemicals. It makes up at least five percent of the earth's crust. Rainfall seeping through the soil dissolves iron in the earth's surface. From there, rain carries the iron into almost every kind of natural water supply. This includes private drinking water wells. Although iron occurs naturally in ground water, it is rarely at concentrations greater than 10,000 micrograms per liter (ug/L).

Iron exists in a number of forms in water. Water with high iron levels can form reddish brown particles that settle to the bottom of a glass of water. When iron combines with tea, coffee, and other beverages, it can produce an inky, black appearance and a harsh, unacceptable taste. Vegetables cooked in water containing excessive iron turn dark and look unappealing.

Concentrations of iron as low as 300 ug/L can leave reddish brown stains on plumbing fixtures, tableware and laundry that can be very hard to remove. When these deposits break loose from water piping, rusty water will flow through the faucet.

Finally, excess iron may cause the growth of iron bacteria. Iron bacteria leave a reddish brown or yellow slime that can clog plumbing. The slime can also cause an offensive odor. You may notice this slime or sludge in your toilet tank.

How might exposure to iron in drinking water occur?

- Iron occurs naturally in groundwater.

What is the standard for iron in drinking water?

The Florida Department of Environmental Protection (DEP) drinking water standard for iron is 300 micrograms per liter (300 ug/L). DEP bases this secondary drinking water standard on taste and appearance rather than on any harmful health effect. In most cases, no adverse health effects exist from iron in drinking water. At higher levels, iron can cause changes in the look, smell, and color of the water. Too much iron can cause a rusty color, sediment, metallic taste, and reddish or orange staining. There is no required sampling of private drinking water wells.

How can iron affect my health?

Drinking water standards are set at very low levels. Drinking water every day at or below the standard for your entire lifetime is unlikely to cause illness.

To set drinking water standards, scientists study reports of people exposed to chemicals at work. They also study reports of experiments with animals. From these reports, they determine a “no-effect level” or level that doesn’t cause illness. Then, to be on the safe side, scientists set drinking water standards hundreds or thousands of times <u>less</u> than the “no-effect level.” Therefore, drinking water with levels slightly above the drinking water standard for a short time does not significantly increase the risk of illness. The risk of illness, however, increases as the level of chemical increases and the length of time you drink the water increases.

The type and severity of health effects associated with exposure to a particular chemical depends on a number of factors:

- How much of the chemical was someone exposed to each time?
- How long did the exposure last?
- How often did the exposure occur?
- What was the route of exposure (eating, drinking, or breathing)?

How chemical exposures may affect someone can range widely from one person to the next. A number of personal factors also determine health effects. These include:

- How old are they?
- What gender are they?
- Is the person generally healthy or do they already have other health problems?
- What are their health habits? (For instance, do they drink alcohol or smoke tobacco?)
- How likely are chemical exposures to effect someone, in general?

Iron is not hazardous to health, but can cause taste or appearance problems. Essential for good health, iron helps transport oxygen in the blood. Most tap water in the United States supplies approximately 5 percent of the dietary requirement for iron. At considerably higher concentrations, iron causes taste, odor, and staining problems.

The amount of iron in water is usually low. The body does not readily absorb the chemical form of the iron found in water. The iron bacteria also do not pose a health problem.

How likely is iron to cause cancer?

Iron is unknown to cause cancer in people.

Is there a medical test for exposure to iron?

There is a simple test your doctor can do to see what the levels of iron are in your blood.

Is it safe to keep drinking water with high levels of iron in it?

You can keep using your water without health concerns. Iron in drinking water is not likely to cause illness. Excess iron can, however, can give water a metallic taste. It may also stain clothes, sinks, and tubs.

Because taste and staining problems increase as the iron level increases, you should seek drinking water that meets the standard.

For additional health information: Please call the Florida Department of Health at 850-245-4240 or visit us online at www.floridahealth.gov/environmental-health/drinking-water/Chemicals-HALs.html

For more information about iron: Please see the U.S. Environmental Protection Agency's Secondary Drinking Water Regulations at http://water.epa.gov/drink/contaminants/index.cfm#List

Chemicals in Private Drinking Water
Fact Sheet
Florida Department of Health, Bureau of Environmental Health

This fact sheet discusses possible health risks from exposure to low levels of lead typically found in drinking water.

Lead

What is lead?

Lead is a naturally occurring bluish-gray metal found in small amounts in the earth's crust. All parts of the environment contain lead. Much if it comes from human activities, such as burning fossil fuels, mining, and manufacturing.

How might exposure to lead in drinking water occur?

Lead rarely occurs naturally in water. It typically enters drinking water by leaching out of plumbing or equipment. Lead service lines and plumbing are primary sources. However, older homes may also have solder, brass fixtures, or well pumps with lead-containing parts.

What is the standard for lead in drinking water?

The U.S. Environmental Protection Agency (EPA) has set an action level for lead at 15 micrograms per liter of water (15 µg/L). Public drinking water utilities that exceed this level in more than 10 percent of samples must treat the water to prevent lead from leaching into it.

There is no required sampling of private drinking water wells.

How can lead affect my health?

Lead affects the nervous system in adults and children. Long-term exposure may lead to muscle weakness, kidney damage, high blood pressure, reproductive problems in both men and women, and miscarriage.

How likely is lead to cause cancer?

The U.S. EPA has determined that lead is a probable human carcinogen. The U.S. Department of Health and Human Services (DHHS) has determined that lead and lead compounds are reasonably anticipated to be human carcinogens.

How can lead affect children?

Children are more vulnerable to lead poisoning than adults. Low levels of lead may cause low birth weight, decreased mental abilities, or learning difficulties. Higher levels may lead to anemia, severe stomachache, or brain damage.

How can I tell if my water has lead in it?

The older your home is, the higher the chance that the plumbing contains lead. If your water comes from a private well, you will need to have your water tested. The Department of Environmental Protection maintains a database of state-certified laboratories here: https://fldeploc.dep.state.fl.us/aams/loc_search.asp.

Public drinking water utilities are required to test for lead on a regular basis. If your water comes from a utility, you can check with them to see what their sample results have been and what they are doing to ensure that lead does not leach into the water.

Is there a medical test for lead exposures?

A blood test is available to measure the amount of lead in your blood and to estimate the amount of your exposure to lead. Blood tests commonly screen children for lead poisoning. X-rays can measure lead in teeth and bones, but this test remains less readily available. A level of concern for blood has been set at 3.5 micrograms per decliter of blood (3.5 µg/dL) by the Centers for Disease Control and Prevention (CDC).

What can I do if my drinking water has lead in it?

You can take several steps to minimize your exposure to lead.

- For water that you drink, mix into beverages, make ice, or cook with, use a water filter certified to remove lead and replace the filter when recommended by the manufacturer.
- Only use cold water for drinking, cooking, brushing teeth, making ice, or making baby formula. Hot water is more likely to leach lead from the plumbing.
- Regularly clean the faucet aerator or screen.
- Use commercially bottled water for drinking, making ice, cooking, or brushing teeth.
- Flush your water tap and pipes for a minute prior to drinking the water. You can avoid wasting water by taking a shower or doing laundry.

For additional health information, please call the Florida Department of Health at 850-245-4240 between 8:00 a.m. and 5:00 p.m. or visit us online at www.floridahealth.gov/environmental-health/drinking-water/Chemicals-HALs.html

For more information about the health effects from exposure to lead in different situations and at higher levels than those usually found in drinking water wells, please see the ATSDR ToxFAQs for lead at www.atsdr.cdc.gov/toxfaqs/tfacts13.pdf

Chemicals in Private Drinking Water Wells
Fact Sheet
Florida Department of Health, Bureau of Environmental Health

This fact sheet discusses possible health risks from exposure to low levels of manganese typically found in drinking water wells.

Manganese

What is manganese?

Manganese is a naturally occurring metal found in many types of rocks. Pesticides, such as maneb or mancozeb also contain manganese. Methylcyclopentadienyl manganese tricarbonyl (MMT) is a fuel additive in some gasolines.

Manganese is an essential trace element and is necessary for good health. Manganese is in foods, like grains and cereals. Some other food, like tea, may contain high amounts of it. Humans need a small amount of manganese in the diet for good health.

How might exposure to manganese in drinking water occur?

- Natural deposits
- Disposal of wastes
- Deposits from airborne sources.

What is the standard for manganese in drinking water?

The Florida Department of Environmental Protection (DEP) drinking water standard for manganese is 50 micrograms per liter (50 ug/L). DEP bases this secondary drinking water standard on taste and appearance rather than on any harmful health effect. No adverse health effects are generally associated with manganese in drinking water. At higher levels, there may be a change in the look, smell, or color of the water. There is no required sampling of private drinking water wells.

How can manganese affect my health?

Drinking water standards are set at very low levels. Drinking water every day at or below the standard for your entire lifetime is unlikely to cause illness.

To set drinking water standards, scientists study reports of people exposed to chemicals at work. They also study reports of experiments with animals. From these reports, they determine a “no-effect level” or level that doesn’t cause illness. Then, to be on the safe side, scientists set drinking water standards hundreds or thousands of times <u>less</u> than the “no-effect level. Therefore, drinking water with levels slightly above the standard for a short time does not significantly increase the risk of illness. The risk of illness, however, increases as the level of chemical increases and the length of time you drink the water increases.

The type and severity of health effects associated with exposure to a particular chemical depends on a number of factors:

- How much of the chemical was someone exposed to each time?
- How long did the exposure last?
- How often did the exposure occur?
- What was the route of exposure (eating, drinking, or breathing)?

How chemical exposures may affect someone can range widely from one person to the next. A number of personal factors also determine health effects. These include:

- How old are they?
- What gender are they?
- Is the person generally healthy or do they already have other health problems?
- What are their health habits? (For instance, do they drink alcohol or smoke tobacco?)
- How likely are chemical exposures to effect someone, in general?

Children need to take in a small amount of manganese daily for good health and to grow. It is constantly present in the mother as the fetus develops during pregnancy. A nursing mother also transfers it to her infant in breast milk at levels that needed for proper growth.

In rare cases, some people lose the ability to remove excess manganese from their bodies. In these cases, they develop nervous system problems from manganese exposure.

How likely is manganese to cause cancer?

The U.S. Environmental Protection Agency has determined that manganese is not classifiable as to whether it causes cancer in humans.

Is there a medical test for manganese exposures?

Tests are available that show levels of manganese in different body fluids. Tests of levels of manganese in blood, urine, feces, and scalp hair can determine exposure to excess levels of manganese if greater than normal. However, these tests cannot predict how the levels in your tissues will affect health. Your doctor can take samples and send them to a testing laboratory.

Is it safe to keep drinking water with manganese in it?

You can continue to use your water without health concerns. Manganese in drinking water is not likely to cause illness. Excess manganese can, however, can cause taste and staining problems.

Because taste and staining problems increase as the manganese level increases, you should seek drinking water that meets the drinking water standard.

For additional health information, please call the Florida Department of Health at 850-245-4240 or visit us online at www.floridahealth.gov/environmental-health/drinking-water/Chemicals-HALs.html

For more information about the health effects from exposure to manganese in different situations and at higher levels than those usually found in drinking water wells, please see the ATSDR ToxFAQs for manganese at www.atsdr.cdc.gov/toxfaqs/tfacts151.pdf

Chemicals in Private Drinking Water Wells
Fact Sheet
Florida Department of Health, Bureau of Environmental Health

This fact sheet discusses possible health risks from exposure to low levels of methyl tert-*butyl ether (MTBE) typically found in drinking water wells.*

Methyl *tert*-butyl ether (MTBE)

What is methyl *tert*-butyl ether?

Methyl *tert*-butyl ether (MTBE) is a synthetic flammable liquid with a distinctive, disagreeable odor. Since the 1980s, adding MTBE to unleaded gasoline has helped make it burn more efficiently.

How might exposure to MTBE in drinking water occur?

- Drinking contaminated well water
- Living near uncontrolled hazardous waste sites containing MTBE products
- Breathing vapors released in a home's indoor air from water with MTBE in it

What is the standard for MTBE in drinking water?

The Florida Department of Health's drinking water guideline for MTBE is 35 micrograms per liter of water (35 ug/L). There is no required sampling of private drinking water wells.

How can MTBE affect my health?

To protect health, drinking water guidelines are set at very low levels. Drinking water every day at or below the drinking water standard for your entire lifetime is unlikely to cause illness.

To set drinking water guidelines, scientists study reports of people exposed to chemicals at work. They also study reports of experiments with animals. From these reports, they determine a "no-effect level" or level that does not cause illness. Then, to be on the safe side, scientists typically set drinking water guidelines hundreds or thousands of times <u>less</u> than the "no-effect level." Therefore, drinking water with levels slightly above the guideline for a short time does not significantly increase the risk of illness. The risk of illness, however, increases as the level of MTBE increases and the length of time you drink the water increases.

The type and severity of health effects associated with exposure to a particular chemical depends on a number of factors:

- How much of the chemical was someone exposed to each time?
- How long did the exposure last?
- How often did the exposure occur?
- What was the route of exposure (eating, drinking, or breathing)?

How chemical exposures may affect someone can range widely from one person to the next. A number of personal factors also determine health effects. These include:

- How old are they?
- What gender are they?
- Is the person generally healthy or do they already have other health problems?
- What are their health habits? (For instance, do they drink alcohol or smoke tobacco?)
- How likely are chemical exposures to effect someone, in general?

There is little information on the effects in people drinking water contaminated with MTBE. Studies with rats and mice suggest that drinking water with MTBE in it may cause gastrointestinal irritation, liver and kidney damage, and nervous system effects.

How likely is MTBE to cause cancer?

The U.S. Department of Health and Human Services, the International Agency for Research on Cancer, and the U.S. Environmental Protection Agency have not classified MTBE as to its ability to cause cancer.

Is there a medical test for MTBE exposures?

Tests of exhaled air, blood and urine can detect MTBE for up to 1 or 2 days after exposure. These tests are not available at most doctors' offices, but special laboratories with the right equipment can do them. There is no other special test for detecting MTBE exposure.

Is it safe to keep drinking water with MTBE in it?

Levels of MTBE less than the drinking water guideline of 35 ug/L are not likely to cause illness. Drinking water with levels slightly above the guideline for a short time does not significantly increase the risk of illness. However, because health risks increase as the levels of a chemical (or how long a person drinks it) increases, it is best to drink water that meets standards.

For additional health information, please call the Florida Department of Health at 850-245-4240 or visit us online at www.floridahealth.gov/environmental-health/drinking-water/Chemicals-HALs.html

For more information about the health effects from exposure to methyl *tert*-butyl ether in different situations and at higher levels than those usually found in drinking water wells, please see the ATSDR ToxFAQs for MTBE at www.atsdr.cdc.gov/toxfaqs/tfacts91.pdf

Chemicals in Private Drinking Water Wells
Fact Sheet
Florida Department of Health, Bureau of Environmental Health

This fact sheet discusses possible health risks from exposure to low levels of nitrates typically found in drinking water wells.

Nitrates

What are nitrates?

Nitrates are chemicals found in nature. Bacteria in soil change nitrogen into nitrates. Nitrogen comes from plants, fertilizer, and animal or human waste. Drinking water commonly contains low levels of nitrates; less than three thousand micrograms per liter (3,000 ug/L). You cannot see or taste nitrates. Therefore, water that tastes good might contain nitrates.

How might exposure to nitrates in drinking water occur?

- Drinking nitrate contaminated well water is the most likely type of exposure..

What are the current guidelines for nitrates in drinking water?

The Florida Department of Environmental Protection drinking water standard for nitrates is 10 thousand micrograms per liter (10,000 ug/L). There is no required sampling of private drinking water wells. However, private well owners are encouraged to test their well for nitrates on a regular basis.

How can nitrates affect my health?

The type and severity of health effects associated with exposure to a particular chemical depends on a number of factors:

- How much of the chemical was someone exposed to each time?
- How long did the exposure last?
- How often did the exposure occur?
- What was the route of exposure (eating, drinking, or breathing)?

How chemical exposures may affect someone can range widely from one person to the next. The drinking water standard is set to protect the most sensitive individuals. A number of personal factors also determine health effects. These include:

- How old are they?
- What gender are they?
- Is the person generally healthy or do they already have other health problems?
- What are their health habits? (For instance, do they drink alcohol or smoke tobacco?)
- How likely are chemical exposures to effect someone, in general?

Nitrates can affect red blood cells. It can reduce the cells' ability to carry oxygen to the body. In most cases, for adults and children affected blood cells quickly go back to normal. However, the blood cells of infants younger than six months can take much longer to do so. As a result, infants given water with more than 10,000 ug/L nitrates may develop a serious health condition due to the lack of oxygen. This is also true of infant formula or foods made with water with more than 10,000 ug/L nitrates. We call this medical condition **methemoglobinemia**. Many people call it "blue baby syndrome" since low oxygen in the blood causes babies to have blue-colored skin. Some studies show that diarrhea can make this problem even worse.

An infant with moderate to serious “blue baby syndrome” may have a brownish-blue color due to the lack of oxygen. This condition may be hard to detect in infants with dark skin. In mild to moderate cases, babies may have the same symptoms as when they have a cold or another infection. They may act fussy, tired, have diarrhea, or vomit. While there is a simple blood test to see if an infant has “blue baby syndrome,” doctors may not think to do this test for babies with mild to moderate symptoms. Many other common illnesses cause the same symptoms.

If your baby has a brownish-blue color, bring your baby to a hospital immediately. There is a medication (methylene blue) that will quickly make your baby’s blood go back to normal.

Tests of breast milk have detected nitrates, also. However, there are no confirmed reports of “blue baby syndrome” being caused by a nursing mother who drank well water high in nitrates.

Some people have conditions that make them more likely to have health problems from nitrates. This includes:

- People who don’t have enough stomach acids.
- People with an inherited lack of the enzyme that converts affected red blood cells back to normal (this is called methemoglobin reductase).

How likely are nitrates to cause cancer?

No proof of a link to cancer from nitrates in drinking water exists.

Is there a medical test for exposure to nitrates?

There is a simple blood test to see if an infant has “blue baby syndrome,” but doctors may not think to do this test for babies with mild to moderate symptoms.

Is it safe to keep drinking water with nitrates in it?

The best way to prevent “blue baby syndrome” is not to give your baby water with more than 10,000 ug/L nitrates. Infants under one year of age should not drink water exceeding the drinking water standard of 10,000 ug/L of nitrates. Nitrates in water will not have a long-lasting effect on your baby. If your baby does not have any of the symptoms of “blue baby syndrome” you do not need to bring your baby to the doctor.

Are there any special considerations for nitrates?

Boiling water will kill bacteria that are in well water but will not reduce the level of nitrates. In fact, boiling water with nitrates in it can increase the amount in the water. High levels of nitrates may mean that is likely other contaminants are in your well water. Nitrates in well water from human or animal waste may also have bacteria and viruses. Wells with nitrate contamination from fertilizers may also contain pesticides.

For additional health information, please call the Florida Department of Health at 850-245-4240 or visit us online at www.floridahealth.gov/environmental-health/drinking-water/Chemicals-HALs.html

For more information about the health effects from exposure to nitrates in different situations and at higher levels than those usually found in drinking water wells, please see the U.S. EPA consumer fact sheet at http://water.epa.gov/drink/contaminants/

Chemicals in Drinking Water
Fact Sheet
Florida Department of Health, Bureau of Environmental Health

This fact sheet discusses possible health risks from exposure to low levels of PFOS and PFOA typically found in drinking water.

Perfluorooctane Sulfonate (PFOS)
Perfluorooctanoic Acid (PFOA)

What are PFOS and PFOA?

Perfluorooctane Sulfonate (PFOS) and Perfluorooctanoic Acid (PFOA) are part of a group of chemicals called perfluoroalkyl substances (PFASs). These are a family of man-made compounds that do not occur naturally. They break down very slowly. PFOS and PFOA are the most common and the best-studied of these compounds. Most exposures occur through consumer products and food. They may also get into drinking water wells.

In the past, these chemicals served to make products resist stains, grease, and water.
They were used in many common products, such as:

- Carpet
- Clothing and other fabrics
- Non-stick cookware and other consumer goods
- Some firefighting foams

Most production of PFOS and PFOA has stopped, but there are still some uses.

How might exposure to PFOS and PFOA occur?

- Drinking contaminated well water
- Nursing infants exposed to contaminated breast milk
- Contact with water or soil near where manufacturers or firefighters used them

What is the standard for PFOS and PFOA in drinking water?

The U.S. Environmental Protection Agency (EPA) has set a health advisory level (HAL) of 0.07 micrograms per liter (0.07 µg/L) for both PFOS and PFOA. If both chemicals are present in the water, this level applies to their combined concentrations. This level is set to be protective for both cancer and non-cancer effects over a lifetime. There is no required sampling of private drinking water wells.

How can PFOS and PFOA affect my health?

Drinking water standards are set at very low levels. Drinking water every day at or below the standard for your entire lifetime is unlikely to cause illness.

To set drinking water standards, scientists study reports of people exposed to chemicals at work. They also study reports of experiments with animals. From these reports, they determine a “no-effect level” or level that does not cause illness. Then, to be on the safe side, scientists set drinking water standards hundreds or thousands of times <u>less</u> than the “no-effect level.” Therefore, drinking water with levels slightly above the standard for a short time does not significantly increase the risk of illness. The risk of illness, however, increases as the level of chemical increases and the length of time you drink the water increases.

The type and severity of health effects associated with exposure to a particular chemical depends on a number of factors:

- How much of the chemical was someone exposed to each time?
- How long did the exposure last?
- How often did the exposure occur?
- What was the route of exposure (eating, drinking, or breathing)?

How chemical exposures may affect someone can range widely from one person to the next. A number of personal factors also determine health effects. These include:

- How old are they?
- What gender are they?
- Is the person generally healthy or do they already have other health problems?
- What are their health habits? (For instance, do they drink alcohol or smoke tobacco?)
- How likely are chemical exposures to affect someone, in general?

Drinking water with levels of PFOS and PFOA well above the drinking water standard for an extended period may increase the risk of low birth weight, developmental problems, liver damage, kidney damage, immune system disorders, high cholesterol, or thyroid disease.

How likely are PFOS and PFOA to cause cancer?

The U.S. EPA has determined that there is some evidence that PFOA can cause cancer in humans. Animal and human studies indicate that PFOA may cause liver, pancreatic, testicular, or kidney cancer. The International Agency for Research on Cancer has determined that PFOA is possibly carcinogenic to humans. There is very limited information on the ability of PFOS to cause cancer.

Is there a medical test for PFOS or PFOA exposures?

The Florida Department of Health does not recommend blood testing. It is currently not known how PFOS and PFOA levels in blood relate to your health. However, you should make any decisions on treatment or testing with your doctor.

Is it safe to keep drinking water with PFOS or PFOA in it?

Levels of PFOS and PFOA less than the drinking water advisory level of 0.07 µg/L are not likely to cause illness. Drinking water with levels slightly above the standard for a short time does not significantly increase the risk of illness. However, because health risks increase as the levels of a chemical (or how long a person drinks it) increases, it is best to drink water that does not exceed the advisory level.

For additional health information, please call the Florida Department of Health at 850-245-4240 or visit us online at www.floridahealth.gov/environmental-health/drinking-water/Chemicals-HALs.html

For more information about the health effects from exposure to PFOS or PFOA in different situations and at higher levels than those usually found in drinking water wells, please see the EPA Drinking Water Health Advisory page at www.epa.gov/ground-water-and-drinking-water/drinking-water-health-advisories-pfoa-and-pfos

Chemicals in Drinking Water
Fact Sheet
Florida Department of Health, Bureau of Environmental Health

This fact sheet discusses possible health risks from exposure to low levels of radionuclides found in drinking water.

Radionuclides

What are radionuclides?

Radionuclides are radioactive forms of chemicals. They are not stable and will emit radiation over time, forming different, more stable chemicals (a process called decay). When this happens, energy is released as alpha particles, beta particles, or gamma radiation.

Alpha particles are easily blocked by thin clothing or even paper. Some beta particles can enter the upper layer of human skin and cause burns, but most cannot. Gamma rays are pure energy. They can travel long distances and pass completely through the human body. Gamma rays can easily damage tissue and DNA.

Fortunately, radionuclides found in Florida mostly give off alpha or beta particles. These chemicals must enter your body to affect your health.

How might exposure to radionuclides in water occur?

Some areas of Florida naturally have uranium and radium in the soil. Water that seeps through this soil dissolves some of these substances, and they are then carried into underground aquifers. Some of these aquifers are used for drinking water.

What is the standard for radionuclides in drinking water?

The Florida Department of Environmental Protection sets drinking water standards for uranium, combined radium, and total alpha radiation (called gross alpha particle activity).

The standard for uranium is 30 micrograms per liter (30 µg/L). The standard for radium is not the amount of the chemical, but the amount of radiation given off by the two most common forms (called isotopes). The standard for combined radium is 5 picoCuries per liter (5 pCi/L). The standard for gross alpha particle activity is 15 picoCuries per liter (15 pCi/L).

How can radionuclides affect my health?

Drinking water standards are set at very low levels. Drinking water every day at or below the standard for your entire lifetime is unlikely to cause illness.

To set drinking water standards, scientists study reports of people exposed to chemicals at work. They also study reports of experiments with animals. From these reports, they determine a “no-effect level” or level that doesn’t cause illness. Then, to be on the safe side, they set drinking water standards hundreds or thousands of times <u>less</u> than the “no-effect level.” Therefore, drinking water with levels slightly above the standard for a short time does not significantly increase the risk of illness. However, the risk of illness increases as the level of chemical increases and the length of time you drink the water increases.

The type and severity of health effects associated with exposure to a particular chemical depends on a number of factors:

- How much of the chemical was someone exposed to each time?
- How long did the exposure last?
- How often did the exposure occur?
- What was the route of exposure (eating, drinking, or breathing)?

How chemical exposures may affect someone can range widely from one person to the next. A number of personal factors also determine health effects. These include:

- How old are they?
- What gender are they?
- Is the person generally healthy or do they already have other health problems?
- What are their health habits? (For instance, do they drink alcohol or smoke tobacco?)

Drinking water that has high levels of uranium over a long period of time may cause kidney or lung damage. These non-cancer effects are due to chemical processes, and not radiation. The alpha particles given off by uranium is assumed to increase your cancer risk, but uranium has not been linked to any specific cancer type.

Drinking water that has high levels of radium over a long period of time may cause anemia, fractured teeth, or cataracts. It can also cause bone, liver, or breast cancer.

Is there a medical test for radionuclide exposure?

Special urine tests can determine if you have been exposed to radium. Uranium can be measured in blood, urine, hair, or other tissues. These tests cannot predict your health risks.

Is it safe to keep drinking water with radionuclides in it?

Levels of radionuclides less than the drinking water standard are not likely to cause illness. Drinking water with levels slightly above the standard for a short time period does not significantly increase the risk of illness. However, health risks increase as the levels of a chemical, or how long a person drinks it, increases. Because of this, it is best to drink water that meets standards.

For additional health information, please call the Florida Department of Health at 850-245-4250 or visit us online at www.floridahealth.gov/environmental-health/drinking-water/Chemicals-HALs.html

For more information about the health effects from exposure to radionuclides in different situations and at higher levels than those usually found in drinking water wells, please see the ATSDR ToxFAQs for uranium at: https://www.atsdr.cdc.gov/toxfaqs/tfacts150.pdf or radium at: https://www.atsdr.cdc.gov/toxfaqs/tfacts144.pdf

Chemicals in Private Drinking Water Wells
Fact Sheet
Florida Department of Health, Bureau of Environmental Health

This fact sheet discusses possible health risks from exposure to low levels of sodium typically found in drinking water wells.

Sodium

What is sodium?

Sodium is a naturally occurring metal found in drinking water. Common table salt consists of sodium and chloride. Every water supply contains some level of sodium.

Sodium is an essential nutrient. Most of the sodium we take in is from food. The National Research Council recommends that health adults consume between 500 and 2400 milligrams of sodium per day (mg/day).

Drinking water contributes only a small fraction to a person's overall sodium intake. Limiting the amount of sodium in drinking water, however, helps people who are on a sodium (salt) restricted diet.

How might exposure to sodium in drinking water occur?

- Sodium occurs naturally in ground water, especially near coastal areas.
- It may also stem from man-made contamination. These include: use of road de-icing salts, discharges from water softeners, human or animal waste disposal, and leachate from landfills.

What is the standard for sodium in drinking water?

The Florida Department of Environmental Protection drinking water standard for sodium is 160 milligrams per liter (160 mg/L). This level protects individuals on low sodium (salt) diets. There is no required sampling of private drinking water wells.

When considering the health importance of sodium, the U.S. Environmental Protection Agency (EPA) assumes that water users consume two liters of water per day. EPA recognizes that, on average, 20 percent of a person's daily sodium intake is from drinking water. The rest of an average person's sodium intake is usually from food. Persons on a sodium-restricted diet should evaluate all possible sources of sodium when they are trying to reduce overall intake. It is easier and cheaper to make dietary changes than change the amount of sodium in drinking water.

Very high sodium levels gives water a salty taste and makes it undrinkable.

How can sodium affect my health?

Drinking water standards are set at very low levels. Drinking water every day at or below the drinking water standard for your entire lifetime is unlikely to cause illness.

To set drinking water standards, scientists study reports of people exposed to chemicals at work. They also study reports of experiments with animals. From these reports, they determine a "no-effect level" or level that doesn't cause illness. Then, to be on the safe side, scientists set drinking water standards hundreds or thousands of times <u>less</u> than the "no-effect level." Therefore, drinking water with levels slightly above the standard for a short time does not significantly increase the risk of illness. The risk of illness, however, increases as the level of chemical increases and the length of time you drink the water increases.

The type and severity of health effects associated with exposure to a particular chemical depends on a number of factors:

- How much of the chemical was someone exposed to each time?
- How long did the exposure last?
- How often did the exposure occur?
- What was the route of exposure (eating, drinking, or breathing)?

How chemical exposures may affect someone can range widely from one person to the next. A number of personal factors also determine health effects. These include:

- How old are they?
- What gender are they?
- Is the person generally healthy or do they already have other health problems?
- What are their health habits? (For instance, do they drink alcohol or smoke tobacco?)
- How likely are chemical exposures to effect someone, in general?

Excess sodium in drinking water is a health risk for those individuals on a sodium-restricted diet. If you are on a sodium-restricted diet, consult a physician or registered dietitian.

To reduce the risks of adverse health effects due to sodium, consult a physician or registered dietitian to plan a healthy diet that reduces the sodium content in your total food intake.

How likely is sodium to cause cancer?

Sodium does not cause cancer.

Is there a medical test for sodium exposures?

Sodium is an important electrolyte the body needs needed for normal functions. The body has many means of controlling the balance of sodium. Blood or urine tests can show the levels of sodium in the body.

Is it safe to keep drinking water with sodium in it?

Levels of sodium less than the drinking water standard are not likely to cause illness. For those individuals on a sodium-restricted diet, drinking water with levels slightly above the drinking water standard for a short time period does not greatly increase the risk of illness. However, because health risks increase as the levels of a chemical (or how long a person drinks it) increases, it is best to drink water that meets standards.

For additional health information, please call the Florida Department of Health at 850-245-4240 or visit us online at www.floridahealth.gov/environmental-health/drinking-water/Chemicals-HALs.html

For more information about the health effects from exposure to sodium in different situations and at higher levels than those usually found in drinking water wells, please see the EPA fact sheet on sodium in groundwater at http://water.epa.gov/scitech/drinkingwater/dws/ccl/sodium.cfm

Chemicals in Private Drinking Water Wells
Fact Sheet
Florida Department of Health, Bureau of Environmental Health

This fact sheet discusses possible health risks from exposure to low levels of tetrachloroethylene typically found in drinking water wells.

Tetrachloroethylene

What is tetrachloroethylene?

Tetrachloroethylene or perchloroethylene (PCE) is a synthetic, nonflammable liquid. It evaporates easily into the air and has a sharp, sweet odor. Other names for it include tetrachloroethene or perc.

Dry cleaners use PCE on fabrics. PCE also de-greases metals. Industry uses PCE to make other chemicals or consumer products.

How might exposure to PCE in drinking water occur?

- Drinking contaminated well water
- Living near uncontrolled hazardous waste sites containing PCE

What is the standard for PCE in drinking water?

The Florida Department of Environmental Protection drinking water standard for PCE is 3 micrograms per liter of water (3 ug/L). There is no required sampling of private drinking water wells for it.

How can PCE affect my health?

To protect health, drinking water standards are set at very low levels. Drinking water every day at or below the standard for your entire lifetime is unlikely to cause illness.

To set drinking water standards, scientists study reports of people exposed to chemicals at work. They also study reports of experiments with animals. From these reports, they determine a “no-effect level” or level that does not cause illness. Then, to be on the safe side, scientists typically set standards hundreds or thousands of times <u>less</u> than the “no-effect level.” Therefore, drinking water with levels slightly above the standard for a short time does not significantly increase the risk of illness. The risk of illness, however, increases as the level of PCE increases and the length of time you drink the water increases.

The type and severity of health effects associated with exposure to a particular chemical depends on a number of factors:

- How much of the chemical was someone exposed to each time?
- How long did the exposure last?
- How often did the exposure occur?
- What was the route of exposure (eating, drinking, or breathing)?

How chemical exposures may affect someone can range widely from one person to the next. A number of personal factors also determine health effects. These include:

- How old are they?
- What gender are they?
- Is the person generally healthy or do they already have other health problems?
- What are their health habits? (For instance, do they drink alcohol or smoke tobacco?)
- How likely are chemical exposures to effect someone, in general?

The health effects of drinking water or breathing air with low levels of PCE are not well known.

How likely is PCE to cause cancer?

It is unknown if PCE causes cancer in humans. The U.S. Department of Health and Human Services anticipates it may cause cancer. Studies show links with PCE to cause liver tumors in mice and kidney tumors in male rats. The drinking water standard is set to protect against the risk of cancer.

Is there a medical test for (chemical) exposures?

Tests of exhaled air can show levels of PCE in someone's body. Stored in body fat, it slowly releases through breathing, so tests can show it for weeks after an exposure to high levels. There is also a blood test for it and trichloroacetic acid, a breakdown product of PCE. These tests are simple. These tests are not available in most doctors' offices, but special laboratories with the right equipment can perform them.

Is it safe to keep drinking water with PCE in it?

Levels of PCE less than the drinking water standard of 3 ug/L are not likely to cause illness. Drinking water with levels slightly above the drinking water standard for a short time does not significantly increase the risk of illness. However, because health risks increase as the levels of a chemical (or how long a person drinks it) increases, it is best to drink water that meets standards.

For additional health information: Please call the Florida Department of Health at 850-245-4240 or visit us online at www.floridahealth.gov/environmental-health/drinking-water/Chemicals-HALs.html

For more information about the health effects from exposures in different situations and at higher levels than those usually found in drinking water wells, please see the ATSDR ToxFAQs for PCE at www.atsdr.cdc.gov/toxfaqs/tfacts18.pdf

Chemicals in Private Drinking Water Wells
Fact Sheet
Florida Department of Health, Bureau of Environmental Health

This fact sheet discusses possible health risks from exposure to low levels of thallium typically found in drinking water wells.

Thallium

What is thallium?

The earth's crust contains trace amounts of pure thallium, a bluish-white metal. In the past, thallium came from byproducts from smelting other metals. Since 1984, the United States has not produced it. Currently, all the thallium comes from imports and past reserves.

In its pure form, thallium is odorless and tasteless. It sometimes combines with other substances like bromine, chlorine, fluorine, and iodine.

Manufacturing electronic devices, switches, and closures is the main use of thallium, primarily for the semiconductor industry. It also has limited use in the manufacture of special glass and for certain medical procedures. Thallium also exists in cigarette smoke.

How might exposure to thallium in drinking water occur?

- By living near hazardous waste sites where thallium has contaminated well water.
- Eating homegrown fruits and vegetables contaminated with thallium from well water.

What is the standard for thallium in drinking water?

The Florida Department of Environmental Protection drinking water standard for thallium is 2 micrograms per liter (2 ug/L). There is no required sampling of private drinking water wells.

How can thallium affect my health?

Drinking water standards are set at very low levels. Drinking water every day at or below the standard for your entire lifetime is unlikely to cause illness.

To set drinking water standards, scientists study reports of people exposed to chemicals at work. They also study reports of experiments with animals. From these reports, they determine a "no-effect level" or level that does not cause illness. Then, to be on the safe side, scientists set drinking water standards hundreds or thousands of times <u>less</u> than the "no-effect level." Therefore, drinking water with levels slightly above the standard for a short time does not significantly increase the risk of illness. The risk of illness, however, increases as the level of chemical increases and the length of time you drink the water increases.

The type and severity of health effects associated with exposure to a particular chemical depends on a number of factors:

- How much of the chemical was someone exposed to each time?
- How long did the exposure last?
- How often did the exposure occur?
- What was the route of exposure (eating, drinking, or breathing)?

How chemical exposures may affect someone can range widely from one person to the next. A number of personal factors also determine health effects. These include:

- How old are they?

- What gender are they?
- Is the person generally healthy or do they already have other health problems?
- What are their health habits? (For instance, do they drink alcohol or smoke tobacco?)
- How likely are chemical exposures to effect someone, in general?

No one knows what the effects are from ingesting low levels of thallium over a long time. No birth defects came in when children of mothers exposed to low levels of thallium in vegetables and fruits their mothers ate.

No studies have shown if breathing or ingesting thallium affects human reproduction. Studies showed rats that ingested thallium for several weeks had some adverse reproductive effects. Animal data suggest that the male reproductive system may be prone to damage by low levels of thallium.

How likely is thallium to cause cancer?

The U.S. Department of Health and Human Service, the International Agency for Research on Cancer, and the U.S. Environmental Protection Agency have not classified thallium as to whether it cause cancer in humans. No studies are available in people or animals on the carcinogenic effects of breathing, ingesting or touching thallium. The drinking water standard is set to protect against the risk of cancer.

Is there a medical test for thallium exposures?

There are medical tests available to measure levels of thallium in urine and hair. Blood tests can also measure thallium. Blood tests do not serve as a good marker of exposure since it only stays in blood a very short time. These tests are also not routinely available at the doctor's office because they require special equipment. They also cannot determine if adverse health effects will occur from exposure to thallium.

Is it safe to keep drinking water with thallium in it?

Levels of thallium less than the drinking water standard of 2 ug/L are not likely to cause illness. Drinking water with levels slightly above the standard for a short time does not significantly increase the risk of illness. However, because health risks increase as the levels of a chemical (or how long a person drinks it) increases, it is best to drink water that meets standards.

For additional health information, please call the Florida Department of Health at 850-245-4249 or visit us online at www.floridahealth.gov/environmental-health/drinking-water/Chemicals-HALs.htm

For more information about the health effects from exposure to thallium in different situations and at higher levels than those usually found in drinking water wells, please see the ATSDR ToxFAQs for thallium at www.atsdr.cdc.gov/toxfaqs/tfacts54.pdf

Chemicals in Drinking Water
Fact Sheet
Florida Department of Health, Bureau of Environmental Health

This fact sheet discusses possible health risks from exposure to low levels of total trihalomethanes typically found in drinking water.

Total Trihalomethanes (TTHMs)

What are Total Trihalomethanes?

Trihalomethanes are a group of chemicals that can form when organic matter in water is treated with halogen disinfectants such as chlorine. The most common of these chemicals is trichloromethane (also called chloroform), but others, such as dibromochloromethane, bromodichloromethane, or bromoform can also be found. The sum of these four chemicals is referred to as total trihalomethanes (TTHMs).

How might exposure to TTHMs in water occur?

TTHMs are present at low levels in most chlorinated water supplies. Chlorine is added to these drinking water supplies to control microbes such as *E. coli* or *Salmonella* that can cause serious illness.

What is the standard for TTHMs in drinking water?

The Florida Department of Environmental Protection's drinking water standard for TTHMs is 80 micrograms per liter (80 µg/L). Utility companies are required to test for TTHMs every quarter and this standard is compared to a one-year running average of samples.

How can TTHMs affect my health?

Depending on risk factors stated below, health effects from drinking high levels of TTHMs can include: liver, kidney, or central nervous system damage. Drinking water every day with concentrations of TTHMs at or below the standard for your entire lifetime is unlikely to cause illness. In addition, any risk from disinfection byproducts is much lower than the risk of illness from drinking water that has not been disinfected.

How likely are TTHMs to cause cancer?

EPA has set standards for TTHMs in water because there is a slight possibility of an increased risk of bladder or colorectal cancer over a lifetime of drinking water with TTHMs above 80 parts per billion (ppb). The slight risk occurs after decades of drinking water with high levels of TTHMs. This risk is small compared to the risk of potentially deadly infectious diseases in drinking water that is not disinfected.

How do scientists determine drinking water standards?

Drinking water standards are set at very low levels. To set drinking water standards, scientists review laboratory experiments and study reports of people exposed to high levels of chemicals when available. Then they use this information to estimate the risk of illness.

For chemicals that cause illness other than cancer, scientists find the level that is not thought to cause any harmful effects. Then, to be on the safe side, they set drinking water guidelines hundreds or thousands of times less than this "no-effect level." For chemicals believed to cause cancer, the technique is different. Scientists use worst-case assumptions to work out the lifetime risk of cancer at various concentrations of the chemical. They then set the level where the risk becomes so small it is practically zero. The worst-case assumptions used ensure that any errors are on the side of safety.

Because the standards are based upon lifetime exposure, drinking water with levels slightly above the standard for a short time does not significantly increase the risk of illness. The risk of illness, however, increases as the level of chemical increases and the length of time you drink the water increases.

How chemical exposures may affect someone can range widely from one person to the next. A number of personal factors also determine health effects. These include:

- How old is the person?
- What gender are they?
- Does the person have other health problems?
- What are their health habits? (For instance, do they drink alcohol or smoke tobacco?)

Is there a medical test for TTHM exposure?

There are special tests that can determine if you have been exposed to TTHMs. There is no reliable test to determine how much you have been exposed to and these tests cannot tell you whether harmful health effects will occur.

Is it safe to keep drinking water with TTHMs in it?

Citizens have the right to know about the quality of their drinking water. They should be aware of problems that may cause an immediate health problem and of those problems that are a concern when exposure occurs over many decades. That being said, levels of TTHMs less than the drinking water standard are not likely to cause illness. Drinking water with levels slightly above the drinking water standard for a short time does not significantly increase the risk of illness either. However, because health risks increase as the levels of a chemical (or how long a person drinks it) increases, it is best to drink water that meets standards.

For additional health information, please call the Florida Department of Health at 850-245-4240 or visit us online at www.floridahealth.gov/environmental-health/drinking-water/Chemicals-HALs.html

For more information about the health effects from exposure to TTHMs and other disinfection byproducts, please see the US CDC Safe Water Page at https://www.cdc.gov/safewater/chlorination-byproducts.html

Chemicals in Private Drinking Water Wells
Fact Sheet
Florida Department of Health, Bureau of Environmental Health

This fact sheet discusses possible health risks from exposure to low levels of toluene typically found in drinking water wells.

Toluene

What is toluene?

Toluene is a clear, colorless liquid with a distinctive smell. It occurs naturally in crude oil and in the Tolu tree. Making gasoline and other fuels from crude oil produces toluene. So does making coke from coal.

Manufacturers use toluene to make paints, paint thinners, fingernail polish, lacquers, adhesives and rubber. Some printing and leather tanning processes also require toluene.

How might exposure to toluene in drinking water occur?

- Drinking contaminated well water
- Living near uncontrolled hazardous waste sites containing toluene products

What is the standard for toluene in drinking water?

The Florida Department of Environmental Protection drinking water standard for toluene is 1,000 micrograms per liter (1,000 ug/L). Concentrations above 40 ug/L can give the water a bad taste or smell. There is no required sampling of private drinking water wells.

How can toluene affect my health?

To protect health, drinking water standards are set at very low levels. Drinking water every day at or below the drinking water standard for your entire lifetime is unlikely to cause illness.

To set drinking water standard, scientists study reports of people exposed to chemicals at work. They also study reports of experiments with animals. From these reports, they determine a “no-effect level” or level that does not cause illness. Then, to be on the safe side, scientists typically set drinking water standard hundreds or thousands of times <u>less</u> than the “no-effect level.” Therefore, drinking water with levels slightly above the standard for a short time does not significantly increase the risk of illness. The risk of illness, however, increases as the level of chemical increases and the length of time you drink the water increases.

The type and severity of health effects associated with exposure to a particular chemical depends on a number of factors:

- How much of the chemical was someone exposed to each time?
- How long did the exposure last?
- How often did the exposure occur?
- What was the route of exposure (eating, drinking, or breathing)?

How chemical exposures may affect someone can range widely from one person to the next. A number of personal factors also determine health effects. These include:

- How old are they?
- What gender are they?
- Is the person generally healthy or do they already have other health problems?
- What are their health habits? (For instance, do they drink alcohol or smoke tobacco?)
- How likely are chemical exposures to effect someone, in general?

At levels well above the drinking water standard, toluene may affect the nervous system causing tiredness, confusion, weakness, drunken-type actions, memory loss, nausea, loss of appetite, hearing loss, and color vision loss. These symptoms usually disappear when exposure stops.

How likely is toluene to cause cancer?

Studies in humans and animals generally indicate that toluene does not cause cancer.

Is there a medical test for toluene exposures?

Exhaled air, urine, and blood tests can measure the level of toluene or its breakdown products in your body. To determine exposure, tests of your urine or blood must occur within 12 hours. Several other chemicals also change into the same breakdown products as toluene, so some of these tests are not specific for it.

Is it safe to keep drinking water with toluene in it?

Levels of toluene less than the drinking water standard of 1,000 ug/L are not likely to cause illness. Drinking water with levels slightly above the drinking water standard for a short time period does not significantly increase the risk of illness. However, because health risks increase as the levels of a chemical (or how long a person drinks it) increases, it is best to drink water that meets standards.

For additional health information, please call the Florida Department of Health at 850-245-4240 or visit us online at www.floridahealth.gov/environmental-health/drinking-water/Chemicals-HALs.html

For more information about the health effects from exposure to toluene in different situations and at higher levels than those usually found in drinking water wells, please see the ATSDR ToxFAQs for toluene at www.atsdr.cdc.gov/toxfaqs/tfacts56.pdf

Chemicals in Private Drinking Water Wells
Fact Sheet
Florida Department of Health, Bureau of Environmental Health

This fact sheet discusses possible health risks from exposure to low levels of trichloroethylene typically found in drinking water wells.

Trichloroethylene (TCE)

What is trichloroethylene?

Trichloroethylene (TCE) is a synthetic, colorless liquid. It has a somewhat sweet odor and a sweet, burning taste. Trichloroethene is another term for it.

Industry mainly uses TCE to remove grease from metal parts. Some types of paint and spot removers contain TCE. During production, usage and disposal, TCE can get into groundwater and surface water.

How might exposure to TCE in drinking water occur?

- Drinking contaminated well water
- Living near uncontrolled hazardous waste sites containing TCE products
- Breathing vapors released in a home's indoor air from water with TCE in it

What is the standard for TCE in drinking water?

The Florida Department of Environmental Protection drinking water standard for TCE is 3 micrograms per liter of water (3 ug/L). There is no required sampling of private drinking water wells.

How can TCE affect my health?

To protect health, drinking water standards are set at very low levels. Drinking water every day at or below the drinking water standard for your entire lifetime is unlikely to cause illness.

To set drinking water standards, scientists study reports of people exposed to chemicals at work. They also study reports of experiments with animals. From these reports, they determine a "no-effect level" or level that does not cause illness. Then, to be on the safe side, scientists typically set drinking water standards hundreds or thousands of times <u>less</u> than the "no-effect level." Therefore, drinking water with levels slightly above the standard for a short time does not significantly increase the risk of illness. The risk of illness, however, increases as the level of TCE increases and the length of time you drink the water increases.

The type and severity of health effects associated with exposure to a particular chemical depends on a number of factors:

- How much of the chemical was someone exposed to each time?
- How long did the exposure last?
- How often did the exposure occur?
- What was the route of exposure? (Did someone eat, drink or breathe the chemical into their body?)

How chemical exposures may affect someone can range widely from one person to the next. The drinking water standard is set to protect the most sensitive individuals. A number of personal factors also determine health effects. These include:

- How old are they?
- What gender are they?
- Is the person generally healthy or do they already have other health problems?
- What are their health habits? (For instance, do they drink alcohol or smoke tobacco?)

- How likely are chemical exposures to effect someone, in general?

Drinking water with concentrations of TCE well above the drinking water standard for long periods may cause liver and kidney damage, impaired immune system function, and impaired fetal development in pregnant women. The extent of some of these effects, however, is not clear. Breathing TCE from the household use of water with concentrations well above the drinking water standard may cause headaches, lung irritation, dizziness, poor coordination, and difficulty concentrating.

How likely is TCE to cause cancer?

It is unknown if TCE causes cancer in humans. The National Toxicology Program anticipates that TCE may cause cancer in humans. Some studies on animals suggest that high levels of it cause liver, kidney or lung cancer. The drinking water standard is set to protect against the risk of cancer.

Is there a medical test for TCE exposures?

Several tests can show exposure to TCE. A breath test can measure levels of TCE, but only soon after exposure. Blood and urine tests can detect TCE and its breakdown products for up to one week after exposure. However, exposure to similar chemicals can produce the same breakdown products, so the detection is not absolute proof of exposure to TCE.

Is it safe to keep drinking water with TCE in it?

Levels of TCE less than the drinking water standard of 3 ug/L are not likely to cause illness. Drinking water with levels slightly above the standard for a short time does not significantly increase the risk of illness. However, because health risks increase as the levels of a chemical (or how long a person drinks it) increases, it is best to drink water that meets standards.

For additional health information: Please call the Florida Department of Health at 850-245-4240 or visit us online at www.floridahealth.gov/environmental-health/drinking-water/Chemicals-HALs.html

For more information about the health effects from exposure to TCE in different situations and at higher levels than those usually found in drinking water wells, please see the ATSDR ToxFAQs for TCE at www.atsdr.cdc.gov/toxfaqs/tfacts19.pdf

Chemicals in Private Drinking Water Wells
Fact Sheet
Florida Department of Health, Bureau of Environmental Health

This fact sheet discusses possible health risks from exposure to low levels of vinyl chloride typically found in drinking water wells.

Vinyl Chloride

What is vinyl chloride?

Vinyl chloride is a synthetic, colorless gas. It burns easily. It is not stable at high temperatures. Vinyl chloride has a mild, sweet odor. Vinyl chloride occurs in ground water when some kinds of solvents break down. Industry uses it to make polyvinyl chloride (PVC).

Other names for vinyl chloride include chloroethene, chloroethylene, and ethylene monochloride.

How might exposure to vinyl chloride in drinking water occur?

- It can get into groundwater when disposed of improperly.
- As a liquid, vinyl chloride evaporates easily.

What is the standard for vinyl chloride in drinking water?

The Florida Department of Environmental Protection drinking water standard for vinyl chloride is 1 microgram per liter (1 ug/L). There is no required sampling of private drinking water wells.

How can vinyl chloride affect my health?

To protect health, drinking water standards are set at very low levels. Drinking water every day at or below the standard for your entire lifetime is unlikely to cause illness.

To set drinking water standards, scientists study reports of people exposed to chemicals at work. They also study reports of experiments with animals. From these reports, they determine a “no-effect level” or level that doesn’t cause illness. Then, to be on the safe side, scientists set drinking water standards hundreds or thousands of times less than the “no-effect level.” Therefore, drinking water with levels slightly above the standard for a short time does not significantly increase the risk of illness. The risk of illness, however, increases as the level of chemical increases and the length of time you drink the water increases.

The type and severity of health effects associated with exposure to a particular chemical depends on a number of factors:

- How much of the chemical was someone exposed to each time?
- How long did the exposure last?
- How often did the exposure occur?
- What was the route of exposure (eating, drinking, or breathing)?

How chemical exposures may affect someone can range widely from one person to the next. The drinking water standard is set to protect the most sensitive individuals. A number of personal factors also determine health effects. These include:

- How old are they?
- What gender are they?
- Is the person generally healthy or do they already have other health problems?
- What are their health habits? (For instance, do they drink alcohol or smoke tobacco?)
- How likely are chemical exposures to effect someone, in general?

How likely is vinyl chloride to cause cancer?

The U.S. Department of Health and Human Services has determined that vinyl chloride causes cancer. Studies in workers who have breathed it over many years showed an increased risk of several kinds of cancer:

- Liver
- Brain
- Lung and
- Some cancers of the blood

The drinking water standard is set to protect against the risk of cancer. Levels of vinyl chloride less than the standard are not likely to cause cancer. Drinking water with levels slightly above the standard for a short time does not significantly increase the risk of cancer. However, because the risk of cancer increases with how much of a chemical a person comes into contact with, how often an exposure occurs and how long the exposure lasts, you should seek drinking water that meets the drinking water standard.

Is there a medical test for exposures to vinyl chloride?

The results of several tests can sometimes show if exposures have occurred. Tests of your breath can measure vinyl chloride, but the test must occur shortly after exposure. This is not helpful for measuring very low levels of vinyl chloride. The amount of the major breakdown product of vinyl chloride, thiodiglycolic acid, in the urine may give some information about exposure. However, if the test does not occur shortly after exposure, the results may not remain reliable.

Vinyl chloride can bind to genetic material in your body. Tests of your blood and other tissues can measure the amount of this binding. It will give information about an exposure to vinyl chloride, but not precisely enough to predict the effects. These tests are not available at most doctors' offices, but only at special laboratories.

Is it safe to keep drinking water with vinyl chloride in it?

Levels of vinyl chloride less than the drinking water standard are not likely to cause illness. Drinking water with levels slightly above the standard for a short time does not significantly increase the risk of illness. However, because health risks increase as the levels of a chemical (or how long a person drinks it) increases, it is best to drink water that meets standards.

For additional health information, please call the Florida Department of Health at 850-245-4240 or visit us online at http://www.floridahealth.gov/environmental-health/drinking-water/Chemicals-HALs.html

For more information about the health effects from exposure to vinyl chloride in different situations and at higher levels than those usually found in drinking water wells, please see the ATSDR ToxFAQs for vinyl chloride at www.atsdr.cdc.gov/toxfaqs/tfacts20.pdf

Chemicals in Private Drinking Water Wells
Fact Sheet
Florida Department of Health, Bureau of Environmental Health

This fact sheet discusses possible health risks from exposure to low levels of xylenes typically found in drinking water wells.

Xylenes

What are xylenes?

Xylenes are a group of three closely related chemicals. Xylenes are a colorless, sweet-smelling, flammable liquid. Xylenes occur naturally in petroleum and coal tar. They form during forest fires.

Chemical industries produce xylenes from petroleum. They are one of the top 30 chemicals produced in terms of volume. Xylenes serve as cleaning agents, thinner for paint and in paints and varnishes.

How might exposure to xylenes in drinking water occur?

- Drinking water from a well contaminated with xylenes
- Living near uncontrolled hazardous waste sites containing xylene products
- Breathing vapors released in a home's indoor air from water with xylenes in it

What is the standard for xylenes in drinking water?

The Florida Department of Environmental Protection drinking water standard for xylenes is 10,000 micrograms per liter of water (10,000 ug/L). There is no required sampling of private drinking water wells for xylenes.

How can xylenes affect my health?

To protect health, drinking water standards are set at very low levels. Drinking water every day at or below the drinking water standards for your entire lifetime is unlikely to cause illness.

To set drinking water standards, scientists study reports of people exposed to chemicals at work. They also study reports of experiments with animals. From these reports, they determine a "no-effect level" or level that does not cause illness. Then, to be on the safe side, scientists typically set drinking water standards hundreds or thousands of times <u>less</u> than the "no-effect level." Therefore, drinking water with levels slightly above the standards for a short time does not significantly increase the risk of illness. The risk of illness, however, increases as the level of xylenes increases and the length of time you drink the water increases.

The type and severity of health effects associated with exposure to a particular chemical depends on a number of factors:

- How much of the chemical was someone exposed to each time?
- How long did the exposure last?
- How often did the exposure occur?
- What was the route of exposure? (Did someone eat, drink or breathe the chemical into their body?)

How chemical exposures may affect someone can range widely from one person to the next. The drinking water standard is set to protect the most sensitive individuals exposed to a chemical. A number of personal factors also determine health effects. These include:

- How old are they?
- What gender are they?
- Is the person generally healthy or do they already have other health problems?

- What are their health habits? (For instance, do they drink alcohol or smoke tobacco?)
- How likely are chemical exposures to effect someone, in general?

Drinking water with levels of xylenes well above the drinking water standard for extended periods increases the risk of damage to the nervous system, liver and kidneys.

How likely are xylenes to cause cancer?

The ability of xylenes to cause cancer in humans is unknown. The International Agency for Research on Cancer has determined that xylenes are not classifiable as to its ability to cause cancer in humans.

Is there a medical test for xylene exposures?

Laboratory tests can detect xylenes or its breakdown products in exhaled air, blood, or urine. There is a high degree of agreement between the levels of exposure to xylenes and the levels of xylenes breakdown products in the urine. However, a urine sample must be provided very soon after exposure ends because xylenes quickly leave the body. These tests are not routinely available at your doctor's office.

Is it safe to keep drinking water with xylenes in it?

Levels of xylenes less than the drinking water standard of 10,000 ug/L are not likely to cause illness. Drinking water with levels slightly above the standard for a short time does not significantly increase the risk of illness. However, because health risks increase as the levels of a chemical (or how long a person drinks it) increases, it is best to drink water that meets standards.

For additional health information, please call the Florida Department of Health at 850-245-4240 or visit us online at www.floridahealth.gov/environmental-health/drinking-water/Chemicals-HALs.html

For more information about the health effects from exposure to xylenes in different situations and at higher levels than those usually found in drinking water wells, please see the ATSDR ToxFAQs for xylenes at www.atsdr.cdc.gov/toxfaqs/tfacts71.pdf

Appendix L
Letter Templates

<The following is a template. Each CHD can modify as needed.>

Letter Date

Mr/Ms XXXXXXXX
Or Current Resident
Address
City, FL Zip

Florida Unique Well ID: XXX####
Sample ID: TLH-####-#######
Sampler:

RE: Water Sample Results

Dear Sir or Madam:

On XXXXXXXX XX, XXXX, a water sample was collected from your well by the Florida Department of Health (DOH) and sent to the Florida Department of Environmental Protection (DEP) Laboratory for analyses. Your well was sampled as part of DOH's effort, together with the DEP, to ensure safe drinking water for all citizens and visitors.

This letter is to inform you of the sampling results. Attached is the laboratory summary report listing the analytical results from the physical and chemical tests performed and a brochure on How to Read the Laboratory Report.

<if there were no chemicals detected>
The results show that all chemicals sampled for were below laboratory detection levels. Based on these results, the use of your water for domestic purposes should not result in adverse health effects.

<if there were chemicals detected at levels above MCL or HAL>
The following chemical compounds were detected in concentrations greater than State and Federal safe drinking water limits.

Chemical	Concentration	Units	MCL	HAL

<if there were chemicals detected at levels above SMCL>
The following chemical compounds were detected in concentrations greater than Florida secondary drinking water limits. Secondary standards reflect non-health based concerns and are often referred to as nuisance constituents.

Chemical	Concentration	Units	SMCL

<if there were chemicals detected at levels below the MCL or HAL>
The following chemical compounds were detected, but in concentrations below State or Federal safe drinking water limits.

Chemical	Concentration	Units	MCL	HAL

<If there were detects, but with no MCL/HAL violations>
All other chemicals tested for were below laboratory detection levels. Based on these results, the use of your water for domestic purposes should not result in adverse health effects.

<If there were MCL or HAL violations and a confirmation sample is necessary>
A representative from the Department of Health in XXXXXX County will shortly resample your well to confirm the result.

<If there were MCL or HAL violations and a confirmation sample is not necessary>
We recommend that your water supply not be used for drinking purposes for a prolonged period. This advisory is based on health concerns. A representative from the DEP should shortly contact you with information on obtaining a clean water supply.

<Conclusion>
If you have any questions please contact the Department of Health in XXXXXXXX County at (XXX) XXX-XXXX for more information.

Thank you for allowing the DOH to test your private well water.

Sincerely,

Signature Block
Name of County Health Department

Enclosure(s)

Letter Date

Sr. o Sra. XXXXXX
O recidencial actual
Dirección Residencial
Ciudad, Florida Código Postal

Florida Unique Well ID: XXX####
Sample ID: TLH-####-#######
Sampler:

RE: Resultados de muestra de agua

Estimado(a) Señor or Señora:

En XXXXXXXX XX, XXXX, el Departamento de Salud de la Florida (DOH) recolectó una muestra de agua de su pozo y la envió al Laboratorio del Departamento de Protección Ambiental (DEP) de la Florida para su análisis. A su pozo se le hizo una muestra como parte del esfuerzo del DOH, junto con el DEP, para garantizar el agua potable para todos los ciudadanos y visitantes.

Esta carta es para informarle de los resultados de la muestra. Se adjunta el informe resumido del laboratorio que enumera los resultados analíticos de las pruebas físicas y químicas realizadas y un folleto sobre cómo leer el informe del laboratorio.

<If there were no chemicals detected>
Los resultados muestran que todos los productos químicos de muestra estaban por debajo de los niveles de detección de laboratorio. En base a estos resultados, el uso de su agua para fines domésticos no debe tener efectos adversos para la salud.

<if there were chemicals detected at levels above MCL or HAL>
Los siguientes compuestos químicos se detectaron en concentraciones mayores que los límites del agua potable estatal y federal.

Químico	Concentración	Unidades	MCL	HAL

<if there were chemicals detected at levels above SMCL>
Los siguientes compuestos químicos se detectaron en concentraciones mayores que límites secundarios de agua potable de Florida. Las normas secundarias reflejan dudas que no se basan en la salud y, a menudo, se las denomina elementos inconvenientes.

Químico	Concentración	Unidades	SMCL

<if there were chemicals detected at levels below the MCL or HAL>
Se detectaron los siguientes compuestos químicos, pero en concentraciones inferiores a los límites de agua potable estatal o federal.

Químico	Concentración	Unidades	MCL	HAL

<If there were detects, but with no MCL/HAL violations>
Todos los otros productos químicos probados estaban por debajo de los niveles de detección de laboratorio. En base a estos resultados, el uso de su agua para fines domésticos no debe tener efectos adversos para la salud.

<If there were MCL or HAL violations and a confirmation sample is necessary>
Un representante del Departamento de Salud en el condado XXXXXX pronto volverá a tomar una muestra de su pozo para confirmar el resultado.

<If there were MCL or HAL violations and a confirmation sample is not necessary>
Recomendamos que su suministro de agua no se use para beber durante un período prolongado. Este aviso se basa en problemas de salud. Un representante del DEP debe ponerse en contacto con usted pronto para obtener información sobre cómo obtener un suministro de agua limpia.

<Conclusion>
Si tiene alguna pregunta, comuníquese con el Departamento de Salud del Condado de XXXXXXXX al (XXX) XXX-XXXX para obtener más información.

Gracias por permitirle al DOH examinar su agua de pozo privada.

Sinceramente,

Signature Block
Name of County Health Department

Archivo adjuto (s)

<The following is a template for notifying delineated area well owners of their results. Each CHD can modify as needed>

Letter Date

Owner Name
Mailing Address
City, FL Zip

Florida Unique Well ID: XXX####
Permit: XXXXXX

RE: **Water Well Sample Results**

Dear Sir or Madam:

On XXXXXX XX, XXXX, the Florida Department of Health (DOH) collected a water sample from the well located at STREET ADDRESS as part of the clearance process for water wells constructed within areas delineated by Chapter 62-524, Florida Administrative Code. The sample was sent to the Florida Department of Environmental Protection (DEP) Laboratory to be analyzed for LIST OF ANALYTES OR GROUP NAMES.

This letter is to inform you of the sampling results. Enclosed is the laboratory report listing chemicals tested for, their concentration, and instructions on how to read the laboratory report.

<if there were no chemicals detected>
The results show that all chemicals sampled for were below laboratory detection levels. Based upon these results, use of your well for domestic purposes should not result in adverse health effects. Accordingly, this well is cleared for use.

<if there were chemicals detected at levels above MCL or HAL>
The following chemical compounds were detected in concentrations greater than State and Federal safe drinking water limits.

Chemical	Concentration	Units	MCL	HAL

<if there were chemicals detected at levels below the MCL or HAL>
The following chemical compounds were detected, but in concentrations below State or Federal safe drinking water limits.

Chemical	Concentration	Units	MCL	HAL

<If there were detects, but with no MCL/HAL violations>
All other chemicals tested for were below laboratory detection levels. Based on these results, the use of your water for domestic purposes should not result in adverse health effects. Accordingly, this well is cleared for use.

<If there were MCL or HAL violations and a confirmation sample is not necessary>

One or more of the chemicals analyzed were above state safe drinking water levels. Accordingly, this well may not be used until appropriate treatment has been installed which will remove the contaminants.

A representative from the DEP should shortly contact you with information on treatment and restoration of your well water. Should you wish to contact them directly, you can reach them at 1-833-DEP-WSRF (1-833-337-9773) or on the web at https://floridadep.gov/wra/water-supply-restoration. We apologize for any inconvenience and appreciate your cooperation in this matter.

<Conclusion>
If you have any questions about your test results or the drinking water program, please contact the Department of Health in XXXXXX County at (XXX) XXX-XXXX.

Sincerely,

Signature Block
XXXXX County Health Department

Enclosures: Laboratory Report DXXXWELL-XXXX-XX-XX-XX
"How To Read the Laboratory Report" instructions

cc: WMD REPRESENTATIVE
Jamie Shakar, Florida Department of Environmental Protection
Edward A. Bettinger, Florida Department of Health

Appendix M
WSRF Filter Guidance

We normally exchange this type of filter/contamination on an annual schedule. When a filter comes up for an annual exchange we look at the history/levels. If we see 4 or more consistent low levels we send our filter removal letter (FR). If we see 1-3 samples with low levels, we usually stop the annual exchange and wait for more raw water samples, anticipating a FR. If we see regular quarterly filter sampling, we stop the annual exchange and watch the quarterly sample results for breakthrough.

NEW VIOLATIONS AND RAW WATER SAMPLING

Elevated levels

If a well contains more than 1/2 the MCL/HAL (except for arsenic with a concentration greater than 8 ug/L or nitrates) and less than a MCL/HAL, four quarterly samples shall be collected to determine variability of the contaminant. If it appears reasonably likely that the well water will shortly exceed the MCL/HAL, additional samples may be collected.

Criteria for Owner Contact

If any sample exceeds the MCL/HAL, a confirmation sample should be collected as soon as practicable, but in no fewer than 3 months. The original and all follow-up samples including the confirmation sample shall be averaged to determine if the water sampled exceeded the MCL/HAL. This does not include samples where there is a strong indication of a onetime event (i.e., TCE after plumbing repairs). Bottled water may be offered after the initial MCL/HAL violation if the occupants are highly susceptible, such as infants or pregnant women.

No response from homeowner/occupant.

If the homeowner has not responded to the DEP's offer, DOH should attempt to resample every 2 years except for wells that represent a significant increase in risk (i.e., wells with arsenic greater than 50 ug/L, benzene or vinyl chloride greater than 5 ug/L) will be resampled annually. If the homeowner refuses offers of assistance, DOH should make no attempt to resample unless requested by DEP. Periodically, DEP will review the property records to identify changes in ownership. DEP will inform DOH whenever there is a change in the filter status (i.e., owner refused help, well receives a filter, filter is no longer being maintained by DEP, or a change in the generic type of filter being used).

Wells with a confirmed MCL/HAL, and the owner does not respond, shall be sampled every other year until they have 4 samples with an average concentration below ½ the MCL/HAL value. At that point DEP can stop sending letters to the homeowner. No additional samples are needed.

Sampling criteria for wells qualified for filters

In order to establish a baseline concentration, the DOH will collect an additional sample within 6 to 12 months after the MCL/HAL confirmation sample. Based on the concentration in this

sample, regular sampling should be scheduled as detailed below. Contaminated wells with available PWS should only be resampled with permission from DEP.

Rescheduling sample events at WSRP filtered sites based on concentration

General

The following guidance schedules for individual wells or contamination areas can be changed in order to adapt to unusual circumstances after consultation and agreement between DEP and DOH. If three consecutive samples remain in the same range, then samples should be scheduled as if they are in the next higher bracket (except for quarterly samples).

Nitrates **MCL = 10.0 mg/L**

Nitrate Conc. (mg/L)	Schedule (Pre-filter only)
>20	3-4 years
10.5 - 20	2-3 years
8-10.49	6 months – 1 year
<8	3 months

Ethylene Dibromide **MCL = 0.02 ug/L**

EDB Conc. (ug/L)	Schedule (Pre-filter only)
> 0.1	3-4 years
0.05-0.1	2-3 years
0.025-0.05	1-2 years
"I" qualified – 0.0249	0.5 year
<0.01 or "U" qualified	3 months

Arsenic **MCL= 10.0 ug/L**

Point-of-entry (POE) filters should be sampled quarterly. DOH is to continue to sample until they are notified by DEP that DEP's sampler will take over the sampling (i.e., Hernando and Hillsborough Co. where DEP has the lead on POE sampling).

Non-POE sampling should be scheduled as below.

As Conc. (mg/L)	Schedule (Pre-filter only)
>0.030	1 year
0.020-0.030	2 years
0.0105-0.020	3 years

0.008-0.01049	6 months
<0.008	3 months

Methyl Tert-Butyl Ether (MTBE)

MTBE Conc. (ug/L)	**Schedule**
> 35	3 months (pre, mid, and post-filter)
17-35	6 months (pre-filter only)
<16.9	3 months (pre-filter only)

Benzene or Vinyl Chloride **MCL = 1.0 ug/L**

Concentration (ug/L)	**Schedule**
>10	3 months (pre, mid and post-filter)
>1	3 months (pre-filter only)
0.25 – 1	6 months (pre-filter only)
BDL – 0.25 (or "I" qualifier)	3 months (pre-filter only)

Other Contaminants

MCL/HAL multiple	**Schedule**
>20 x	3 months (pre, mid and post-filter)
10 – 20 x	1 years (pre-filter only)
5 – 10 x	2-3 years (pre-filter only)
1 – 5 x	1-2 years (pre-filter only)
0.5 – 1 x	3 - 6 months for 4 times then as needed (pre-filter only)
BDL – 0.5 x (or "I" qualifier)	as needed

Dieldrin **MCL = 0.002 ug/L**

Filter removal

Once raw water sample results have dropped to levels where health effects are no longer a concern, 4 raw water samples will be collected by DOH or appropriate DEP district office. To account for possible seasonal and activity changes over a year, samples should be collected quarterly or as close as possible. Whenever possible, DOH should attempt to obtain samples from different quarters to check for seasonal fluctuations.
Filter maintenance will be terminated and an offer of filter removal made after none of the 4 samples report a violation and the average of four quarterly samples are below the ½ MCL/HAL (except for arsenic and nitrate with an action value of 0.8 MCL).

One-half (½) the method detection limit will be used as a surrogate value for non-detection values. The sampler will collect 1 additional raw water samples after DEP stops maintaining the filter. If any of the samples exceeds an MCL/HAL then the sampling will continue until 4

consecutive samples do not report a MCL/HAL and the average is below ½ MCL/HAL (except for arsenic and nitrate with an action value of 0.8 MCL).

After the quarterly sampling ends, the owner will be told that they can contact the sampler to request 2 more annual samples. Sampling will continue if either of these additional annual samples exceeds ½ MCL/HAL.

If any of the post-maintenance samples show an MCL violation, then filter maintenance shall resume.

Appendix N
Fee Schedule

ATTACHMENT B
RATE SCHEDULE

The Contractor shall be compensated in accordance with the following rates as evidenced by an executed Task Assignment Notification Form or Task Assignment Change Order Form.

FEE SCHEDULE

1. Drinking Water Well Survey/ Well Location

Potable Well Survey and Sampling (as outlined in Task 1 Scope of Work) 1/4 mile to ½ mile	$225.00/Survey
Updated Potable Well Survey (as outlined in Task 6 Scope of Work)	No Charge if <3 years old
Potable Well Survey with radius ½ mile to 1 mile	$420.00/Survey
Potable Well Survey with radius 1 mile to 2 miles	$630.00/Survey
Potable Well Survey with radius >2 miles	$1,120.00/Survey
GPS Well Location or Well Property Location	$15.00/Location

2. Drinking Water Sample Collection

Three or Less Water Samples from the same well	$95.00/Well
More than three Water Samples from the same well	$110.00/Well

3. Out of County (additional fee for above services) $25.00/Survey/Location/Sample

4. Department Requested Contractor Site Visit
(no GPS location or well sampling required) $50.00/Location

Note: Items 1-4 include travel expenses.

5. Cost Reimbursement as Authorized by an Executed Task Assignment

A. Support Services

For the performance of support services, excluding travel, the Contractor shall be compensated on a cost reimbursement basis based on the current Contractor cost analysis provided to the Department for support- staff salary, employee benefits, 5% indirect costs, and overhead expenses and as specified in each executed Task Assignment Notification Form. These costs shall be invoiced on a quarterly basis within twelve (12) business days of the end of the quarter.

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Appendix O
Evaluation Process and Summary Report

An electronic copy of this evaluation report can be downloaded from our SharePoint site at:

https://floridahealth.sharepoint.com/sites/DISEASECONTROL/EH/ehwater/Well-Surveillance/SitePages/Home.aspx

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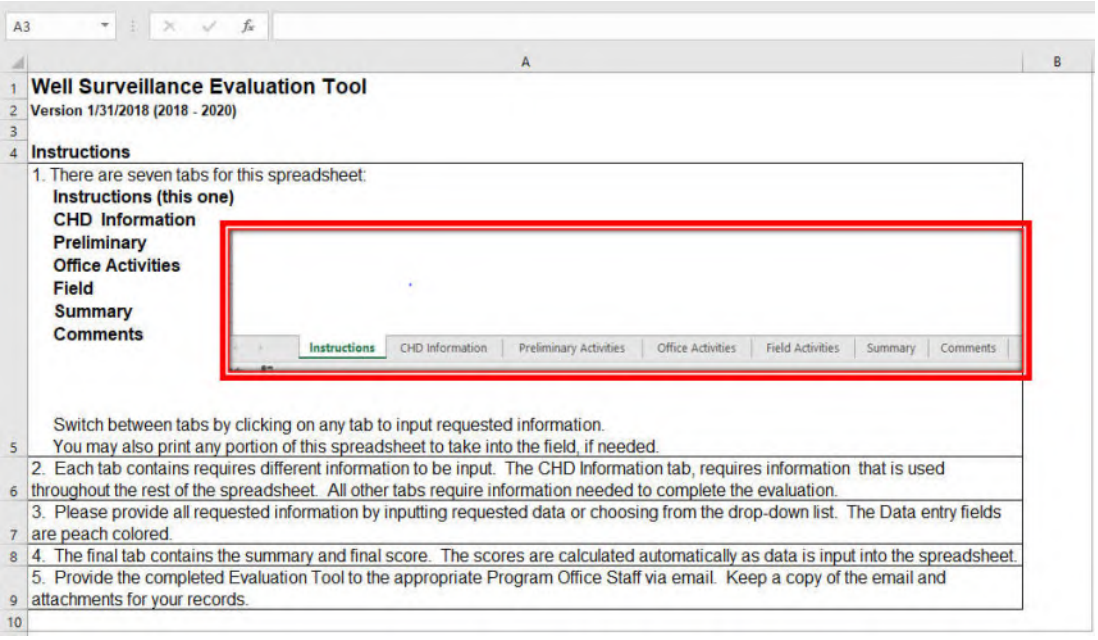
Instructions- The first tab of the EvalautionTool includes instructions on how to complete the tool.



Well Surveillance Evaluation Tool

Version 1/31/2018 (2018 - 2020)

Instructions

1. There are seven tabs for this spreadsheet:
   - **Instructions (this one)**
   - **CHD Information**
   - **Preliminary**
   - **Office Activities**
   - **Field**
   - **Summary**
   - **Comments**

Instructions | CHD Information | Preliminary Activities | Office Activities | Field Activities | Summary | Comments

Switch between tabs by clicking on any tab to input requested information.
You may also print any portion of this spreadsheet to take into the field, if needed.

2. Each tab contains requires different information to be input. The CHD Information tab, requires information that is used throughout the rest of the spreadsheet. All other tabs require information needed to complete the evaluation.

3. Please provide all requested information by inputting requested data or choosing from the drop-down list. The Data entry fields are peach colored.

4. The final tab contains the summary and final score. The scores are calculated automatically as data is input into the spreadsheet.

5. Provide the completed Evaluation Tool to the appropriate Program Office Staff via email. Keep a copy of the email and attachments for your records.

CHD Information- The second tab of the evalution tool requires input of data associated with the evaluation being conducted.

	A	B
1	County Name	
2	Evaluation Cycle	
3	Evaluation Date	
4	Evaluation Type	
5	Evaluator	
6		
7	# of Surveys Completed	
8	# of Samples Collected	
9	Primary Sampler	
10	Back Up Sampler	
11	Supervisor	
12	Manager	
13	Administrator	
14	Additional Counties	
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		

Preliminary Activities- The third tab of the evaluation tool is where samples and surveys completed on time or late are evaluated.

	A	B	C	D
1	**County**			**Enter Date in**
2				**CHD Information**
3	**Preliminary Activities**			**Tab**
4				
5	**Percentage of Requested Surveys Completed on time (60 points possible)**			
6	Total # of Surveys Completed		0	
7	> 95% (60 points)	☐		-
8	90 - 94% (45 points)	☐		-
9	85 - 89% (30 points)	☐		-
10	80 - 84% (15 points)	☐		-
11	< 80 % (0 points)	☐		-
12	NA	☐		-
13	**Total Survey Points**			0
14				
15	**Percentage of Requested Samples Collected on time (40 points possible)**			
16	Total # of Surveys Completed		0	
17	> 95% (40 points)	☐		-
18	90 - 94% (30 points)	☐		-
19	85 - 89% (20 points)	☐		-
20	80 - 84% (10 points)	☐		-
21	< 80 % (0 points)	☐		-
22	NA	☐		-
23	**Total Sample Points**			0
24				
25	**Other- Informational Purposes Only**			
26	Well Survey Complaints?			
27	Rejected Sample Coolers?			
28				
29	**Scores for Preliminary Activities**			
30	**Max Possible**			100
31	Actual			0
32	Percentage			0.00%
33				
34	**NOTE: NA scores are not counted in average.**			

Office Activities- This section will evaluate the filing system and other information within County Health Department Files. Sections that repeat have been hidden to preserve space.

	A	B	C	D
1	**County**	**Enter Date in CHD**		
2		**Information Tab**		
3	**Office Activities**			
4				
5	**General Files**			
6	Max Score = 8			
7	Facility Files organized by FAC ID (2)			0
8	Well Files organized by FLUWID or cross referenced in Facility Files (2)			0
9	Ability to retrieve FLUWID tags for Street Side GPS'd wells (2)			0
10	Ability to search and locate files for WSRP wells (2)			0
11	**Total General File Points**			**0**
12				
13	**Facility Files (REVIEW 10 files, if available)**			
14	**(Up to 25 pts possible per file)**			
15	Facility ID			
16	Max Score = 0			
17	Final Complete Well Survey (1)			0
18	Date received from County			
19	Documented Sampling Permission attempted (1)			0
20	Documented Sampling Permission received (6)			0
21	Sample Date			
22	Number of Samples Collected			
23	Sample Results Filed (5)			0
24	Documented Notification of Results (6)			0
25	Sampling forms complete and correct (6)			0
26	**Total for Facility**			**0**
144				
145	**Office Data Maintenance and Use**			
146	**(Up to 29 points possible)**			
147	Max Score = 29			
148	Demonstrates ability to get accurate GPS data (2)			0
149	Demonstrates ability to provide accurate GPS data to Program Office (2)			0
150	Demonstrates ability to update contact info. (4)			0
151	Locate Owner Information in OCULUS for WSRP Sites (3)			0
152	Provided field notes/ call logs upon request (3)			0
153	Send files to correct HSEW email address (3)			0
154	Review/Approve survey using Laserfiche (2)			0

	A	B	C	D
155	Search for Facility using Laserfiche (2)			0
156	Locate facility data using Oculus (4)			0
157	Display existing location data using EHWater or Desktop GIS (ArcMap, GoogleEarth) (4)			0
158	**Total for Office Data Maintenance and Use**			**0**
159				
160	**Lab Submittal Information**			
161	Survey Number (survey with the most samples)			
162	Facility ID			
163	Max Score = 28			
164	Collector name, signature, relinquish date (2)			0
165	Sample type, treatment class (2)			0
166	Sample date and time (2)			0
167	Water source type (40, 41, 42...) (2)			0
168	Casing material, diameter, depth (2)			0
169	Sample location noted (2)			0
170	Well name and address (2)			0
171	FLUWID, Facility ID, Agency (6)			0
172	Contact Information (4)			0
173	Chain of Custody properly filled out (4)			0
174	**Total Lab Submittal Information Points**			**0**
175				
176	**Training**			
177	**(Up to 4 points possible)**			
178	Max Score = 4			
179	CHD staff attended and passed Well			
180	Surveillance training course (4)			0
181	**Total for Training/Customer Satisfaction**			**0**
182				
183	**Scores for Office Activities**			
184	**Max Possible**			**69**
185	Actual			0
186	Percentage			**0.00%**
187				
188	*Total maximum points is calculated based on the number of files reviewed			
189	and applicability of individual items.			
190				
191	**NOTE**: "**0**" is a calculated score depending on actual findings and actual number of sites			
192	and wells evaluated.			

Field Activities- This section will evaluate the field activities of the County Health Department Personnel. Sections that repeat have been hidden to preserve space

	A	B	C	D
1	**County**	**Enter Date in CHD Information Tab**		
2				
3	**Field Activities**			
4				
5				
6	**Sampling Equipment**			
7	Max Score = 13			
8	In good standing with laboratory bottle ordering system (5)			0
9	Refrigerator available to store bottles (3)			0
10	Technical Guide available (paper or electronic version) (2)			0
11	Street atlas or county map (1)			0
12	Up-to-date well listing available (2)			0
13	**Total Sampling Equipment Points**			**0**
14				
15	**Sampling Method**			
16	Max Score = 38			
17	Purge well according to instructions (4)			0
18	Unscrew cap w/out touching septum (2)			0
19	Bottle unrinsed (2)			0
20	Bottle filled at angle (2)			0
21	Produce proper meniscus (2)			0
22	Check for bubbles (2)			0
23	Label has date, time, and FLUWID (10)		!	0
24	Vials in sealed plastic bags when iced (2)			0
25	Chill bottles immediately on wet ice (4)			0
26	Enclose field blank vials in cooler (4)			0
27	Analysis request forms in plastic bag (4)			0
28	**Total Sampling Method Points**			**0**
29				
30	**Lab Submittal Information**			
31	Max Score = 28			
32	Collector name, signature, relinquish date (2)			0
33	Sample type, treatment class (2)			0
34	Sample date and time (2)			0
35	Water source type (40, 41, 42...) (2)			0
36	Correct Project ID (2)			0
37	Sample location noted (2)			0
38	Well name and address (2)			0
39	FLUWID, Facility ID, Agency (6)			0

40	Contact Information (4)		0
41	Chain of Custody properly filled out (4)		0
42	**Total Lab Submittal Information Points**		**0**
43			
44	**GPS Field**		
45	Max Score = 15		
46	Turn on device and prepare to collect GPS data (2)		0
47	Locate a facility or well and collect GPS point (4)		0
48	Locate a facility or well and collect offset/DPHO point (4)		0
49	Collect Streetside point (2)		0
50	Complete all required data fields (3)		0
51	**Total GPS Field Points**		**0**
52			
53	**Well Survey Accuracy (REVIEW 3 to 5 files)**		
54	**(Up to 60 pts possible per file)**		
55	Facility ID		
56	Max Score = 0		
57	Number of wells found in field		
58	Number of wells on survey		
59	Facility location accurate (10)		0
	Number of wells on survey = number of wells found in field (up to 10) Yes (25) Missing 1 well (10)		
60	Missing >1 well (0)		0
	If wells were missing, can those missing wells change the DEP score for the site? Yes- Missed the only well or the 10th well (0) No- Missed wells that were not the only or 10th well (25)		
61	NA- There are no wells associated with this survey		0
62	**Total Well Accuracy Points**		**0**
63			
	Well Point and Laboratory Submittal Form Accuracy		
100	**(REVIEW 5 to 10 wells)**		
101	**(Up to 11 pts possible per file)**		
102	Well FLUWID		
103	Max Score = 0		
104	Well Address Correct (2)		0
105	Well GPS point is accurate vs aerial photo (3)		0
106	FLUWID correct (4)		0
107	Lab Submittal Form Complete (1)		0

108	Lab Submittal Form Correct (1)		0
109	**Total Well Point and Laboratory Form points**		**0**
191			
192	**Scores for Field Activities**		
193	**Max Possible**		**94**
194	Actual		0
195	Percentage		**0.00%**
196			
197	*Total maximum points is calculated based on the number of files reviewed		
198	and applicability of individual items.		
199			
200	**NOTE**: "0" is a calculated score depending on actual findings and actual number of sites		
201	and wells evaluated.		
202	**NOTE: NA scores are not counted in average.**		

Summary- This section summarizes the scores earned on the evaluation in an easy to read format.

	A	B	C	D	E
1	**County**		**Enter Date in CHD Information Tab**		
2					
3	**Evaluation Summary**				
4					
5			**Enter Evaluator in CHD Information Tab**		
6	Evaluator(s)		**NA**		
7	Primary Sampler		**Enter Sampler in CHD Information Tab**		
8	Back Up Sampler		**NA**		
9					
10			**Percentage**	**Actual Points**	**Possible Points**
11	**Preliminary Activities**		**0.00%**	**0**	**100**
12					
13	**Office Activities**		**0.00%**	**0**	**69**
14	General Files			**0**	**8**
15	Facility Files			**0**	**0**
16	Office Data Management and Use			**0**	**29**
17	Lab Submittal Information			**0**	**28**
18	Training			**0**	**4**
19					
20	**Field Activities**		**0.00%**	**0**	**94**
21	Sampling Equipment			**0**	**13**
22	Sampling Method			**0**	**38**
23	Lab Submittal Information			**0**	**28**
24	GPS Field			**0**	**15**
25	Well Survey Accuracy			**0**	**0**
26	Well Point And Laboratory Submittal Accuracy			**0**	**0**
27					
28	**Weighted Score**				
29	Preliminary Activities (38%)		**0.00%**		
30	Office Activities (24%)		**0.00%**		
31	Field Activities (38%)		**0.00%**		
32	**Final Score**		**0.00%**		
33					
34	**Unacceptable. Requires Corrective Action Plan & 12-**				
35	**Month Re-Evaluation by Program Office**				
36					

36		
37	**Ratings:**	
38	Exceptional	90-100%
39	Above Expectation	80-89.9%
40	Meets Expectation	75-79.9%
41	Below Expectation/ Requires Corrective Action	
42	Plan	70-74.9%
43	Unacceptable/ Requires Corrective Action Plan	
44	& 12-Month Re-Evaluation by Program Office	<70%
45		
46		
47	**Next Cycle's Evaluation Informarion:**	
48	On Site Evalution Required?	Yes
49		
50	See DOHM 160-4 (6-2018)	

Comments This section allows the program office to note Required Corrections, Recommendation and general comments about the evaluation.

	A	B
1	**County**	**Enter Date in CHD Information Tab**
2		
3	**Comments**	
4	**Please number each item under each heading. Use Alt+Enter to add a new line item. Enter NA if there are no comments to enter.**	
5		
6	**Required Corrections:**	
7		
8		
9	**Recommendations:**	
10		
11		
12	**Comments:**	
13		

Appendix P
Some Useful Websites

Florida Department of Health
http://www.floridahealth.gov

Well Surveillance Internet Site
http://www.floridahealth.gov/environmental-health/drinking-water/well-surveys.html

Well Surveillance SharePoint Site
https://floridahealth.sharepoint.com/sites/DISEASECONTROL/EH/ehwater/Well-Surveillance/SitePages/Home.aspx

Chemical Contaminants - HALs and Chemical Fact Sheets
http://www.floridahealth.gov/environmental-health/drinking-water/chemicals-hals.html

MCL/HAL list
http://www.floridahealth.gov/environmental-health/drinking-water/_documents/hal-list.pdf

EHWater
https://gis.floridahealth.gov/ehwater/

LaserFiche Login
http://dit00swapeh0001/laserfiche

Florida Department of Environmental Protection
https://floridadep.gov/

Oculus
http://depedms.dep.state.fl.us/Oculus/servlet/login

Health Effects Language for Certain Contaminants
https://floridadep.gov/water/source-drinking-water/content/standards-and-health-effects-drinking-water-contaminants

Water Supply Restoration Funding Program
https://floridadep.gov/wra/water-supply-restoration

Agency for Toxic Substances and Disease Registry (ATSDR)
http://www.atsdr.cdc.gov

ToxFAQs—Hazardous Substance Fact Sheets
https://wwwn.cdc.gov/TSP/ToxFAQs/ToxFAQsLanding.aspx

Toxicological Profiles—Much more in depth information on chemical contaminants
https://www.atsdr.cdc.gov/toxprofiledocs/index.html

Water Management District Websites

South Florida WMD
http://www.sfwmd.gov
Southwest Florida WMD
http://www.swfwmd.state.fl.us
Northwest Florida WMD
http://nwfwmd.state.fl.us
St. Johns River WMD
http://sjr.state.fl.us
Suwannee River WMD
http://www.srwmd.state.fl.us

US EPA Water Web Page

https://www.epa.gov/environmental-topics/water-topics

Florida Geographic Data Library

http://www.fgdl.org

Appendix Q
Contact Information

Contact Information

Bob Vincent
Water Section Administrator
850-245-4578
Bob.Vincent@flhealth.gov

Michael Berry
Contract Manager
850-901-6486
Michael.Berry@flhealth.gov

Sharonda Perkins-Davis
Environmental Manager
850-245-4069
Sharonda.PerkinsDavis@flhealth.gov

GPS Equipment and Training
Janelle Bourgoin
Environmental Consultant
850-901-6489
Janelle.Bourgoin@flhealth.gov

Well Surveillance Sampling
Mark Higginbotham
Environmental Specialist III
850-901-6500
Joseph.Higginbotham@flhealth.gov

Survey Scheduling
Larry Waszink
Office Automation Specialist II
850-901-6921
Larry.Waszink@flhealth.gov

QA/QC
Ritha Mtenga
Environmental Specialist II
850-901-6508
Ritha.Mtenga@flhealth.gov

Database Manager
Irena Stoilova
Distributed Computer Systems Spec.
850-901-6516
Irena.Stoilova@flhealth.gov