

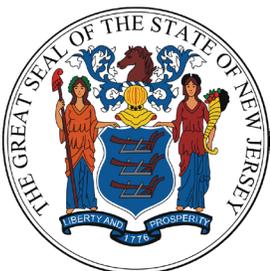
New Jersey
Department of
Environmental Protection



Well Search E-Tools Instructions

Version 1.0

November 14, 2011



Well Search E-Tools Instructions

Table of Contents

I	Well Search E-Tools Overview	5
	A. Utilizing Well Search Spreadsheet and other Tools	
	B. Understanding NJDEP's Well Database	
II	Instruction for Use of E-Tools.....	6
	A. Overview	
	B. Dataminer's "X Y Well Search"	
	1. GeoWeb Assistance	
	2. Description of the X/Y Tool	
	3. Submit Request NJDEP Well Search	
	C. Capturing and Refining X & Y Well Search Table Results	
	D. Refine X/Y Results	
	1. Free Mapping Tools	
	2. ArcMap 9.x	
	a. Download Free Layers	
	b. Add Layers to ArcMap	
	c. Create Shapefiles	
	i. Flow Direction Known, Geology Unconsolidated	
	ii. 1,000 foot, 1/2 mile & 1 mile Shapefiles	
	iii. Flow Direction Unknown, Bedrock Geology	
	iv. Select Atlas Cells	
	v. Select Wells	
	d. Refine Location by Parcel Match	
	E. Door to Door Survey, Additional Information and Biennial Certifications	
III	Coordinate Methods	12
	A. Approx. Addr. Match	
	B. Digital Image	
	C. GIS Parcel Centroid	
	D. GPS	
	E. Prop Loc – Hard Copy	
	F. Other/Unknown	
	G. Survey frm Benchmark	

IV	<u>Door to door Survey</u>	15
	A. Finding Unpermitted Wells	
	B. Canvass Area, Determine Well Status and Update Coordinates	
V	<u>Complete and Submit the Well Search Spreadsheet</u>	16
	A. Complete The Well Search Spreadsheet	
	1. <u>Case Info Tab</u>	
	i. Well Search for	
	ii. Program Interest Number	
	iii. Source Coordinate X	
	iv. Source Coordinate Y	
	v. Groundwater Flow Direction	
	vi. Applicable Well Types	
	vii. Update	
	viii - xii Contact Information	
	2. <u>Well Search Info Tab</u>	
	i. Download Document	
	ii. Permit Number	
	iii. Well Use	
	iv. Potentially Potable	
	v. Document	
	vi. Physical Address	
	vii. County	
	viii. Municipality	
	ix. Block	
	x. Lot	
	xi. Location Method	
	xii. Easting (X)	
	xiii. Northing (Y)	
	xiv. Distance (miles)	
	xv. Drilling Start Date	
	xvi. Drilling End Date	
	xvii. Proposed Depth	
	xviii. Proposed Capacity	
	xix. Finished Depth	
	xx. Finished Capacity	
	xxi. Sealed Date	
	xxii. Coord_Method	
	xxiii. Top_Open_Int	
	xxiv. Bot_Open_Int	
	xxv. Static_Level	

- xxvi. Status
- xxvii. Well Sampled?

B. Submit The Well Search Spreadsheet

VI	Tutorials and other On-Line Resources.....	21
VII	Frequently Asked Questions	21
VIII	Well Search Flow Chart.....	23

Well Search Spreadsheet Instructions

I. Well Search E-Tools Overview

A. Utilizing the Well Search Spreadsheet and other Tools

To promote efficient completion of Receptor Evaluation requirements found at N.J.A.C. 7:26E-1.17, the Department is providing on-line tools to assist in identification and mapping of potable wells located within one-half mile of each point of groundwater contamination, and all irrigation, industrial wells, and wells with water allocation permits located within one mile¹ of each point of groundwater contamination. Note that monitor well information and other non-receptor well types are not required to be mapped or submitted for the receptor evaluation spreadsheet.

NJDEP's "Dataminer" well data query is called "XY Well Search" and can be found at <http://www13.state.nj.us/Dataminer> under the "Site Remediation" Category. It is the primary on-line tool for acquiring well data. The "Well Search Spreadsheet" is at <http://www.nj.gov/dep/srp/srra/forms> and is the on-line reporting tool.

While current on-line tools do not completely eliminate the need to request a well search conducted by NJDEP staff from the Water Supply program, they represent advancement toward an automated process. In addition, **the on-line process does not eliminate the need to verify well locations/information, conduct a door to door survey for wells or otherwise contact owners to determine well status.** If submission of the spreadsheet occurs prior to verification of well information or contact with a well owner, the spreadsheet column named "status" must be left blank (see [FAQ 1](#)).

This document complements Receptor Evaluation instructions at <http://www.nj.gov/dep/srp/srra/forms>. NJDEP's Forms and GIS web pages will change to reflect the development of new tools and procedures, so users should check the above noted pages and <http://www.nj.gov/dep/srp/qis> when initiating well searches to take advantage of improvements.

¹ Note: The Water Allocation Diversion permits are data managed separately from the well drilling permits. However, some irrigation and industrial wells nevertheless approach the 100,000 gallon per day threshold for Diversion permits. These are significant in terms of pumpage but are not found in the Diversion Permit universe of wells. The XY Search allows you to call out these wells separately.

B. Understanding NJDEP's Well Database

Effective use of these new tools is more likely if you understand NJDEP's well location system. The 718,000 plus well permits stored in the legacy database are predominantly numbered by the Atlas Grid System. This system was designed in the late 1800s and updated in the 1970's to cover the State in cells that have dimensions of about 1,000 feet east to west and 1,200 feet north to south. Each permit was assigned to the Atlas cell number in which it was located.

Conversion of the Atlas cell numbers to State Plane Coordinates (SPC) was accomplished at various times since the 1970s with new permits being assigned point positions either near the center or near the corner of the cell in which it is located.

Like any database, the permit database contains transcription errors and your return may contain some. Users should also keep in mind that data from permits only assure that permission to drill a well had been granted and not actual proof that the well was completed. [Later in this document](#) we will discuss methods to overcome various forms of inaccuracy.

Finally, as of July 2008, the Atlas Grid System was abandoned and all permits issued included accurate GPS electronic locations. The "X/Y Well Search" documents these new type permits in that the permit numbers start with "P" or "E".

II. Instruction for Use of E-Tools

A. Overview

First steps to identify wells of interest for further evaluation include using the on-line XY Well Search and checking the NJ GeoWeb GIS for Public Supply Wells² and Well Head Protection Areas. Once this is complete and wells are identified that require additional information, a [Well Search Request Form](#) should be forwarded to the Bureau of Water Systems and Well Permitting to obtain additional information, including well permits, well records and a Water Allocation Diversion Permit radial search.

B. Dataminer's "X Y Well Search"

1. GeoWeb - The investigator establishes X & Y coordinates for "point(s)³ of groundwater contamination" to serve as centroid(s) of the "X/Y Well Search" noted below. You can determine a point's X and Y by using NJDEP's NJ GeoWeb tool (<http://www.state.nj.us/dep/gis/geoweb splash.htm>). At GeoWeb, navigate to your site and then, zooming to the 1:1000 ft scale, use the Advanced

² These represent the [highest accuracy](#) in location data available for wells.

³ Per 7:26E-1.17(a)1i: "within one-half mile of each point of groundwater contamination"

Tools>Measure>View Coordinates tool. Click this tool at your point and the X & Y coordinates appear. In addition Geoweb provides coverages of public supply wells and wellhead protection areas that should be evaluated.

2. Navigate to the Dataminer query "XY Well Search", at http://datamine2.state.nj.us/DEP_OPRA/OpraMain/categories?category=WS+Well+Permits. This query returns a report of approved/accepted well documents that have been electronically data managed by NJDEP and meet the geographic search criteria. The search criteria are based on user entry of a point of groundwater contamination (see Fig. 1) as per N.J.A.C. 7:26E-1.17 and on selection of the ½ or 1 mile distance from the query dropdown list. The query adds a buffer of 1,350 feet to the selected distance to accommodate the older atlas grid location method formerly used by the NJDEP and well drillers.

The selected distance and the buffer create the square geographic search area. The report returned from the query displays twenty-one columns of information, including much of what is found on well permits, well records and well decommissionings such as permit numbers, well type, drill date, proposed depth, X / Y coordinates and often tax lot data. This information can be used to remove permits that may not be of interest because of when they were constructed [[Biennial Certifications](#)] and can be use to refine the position of wells as described in Sections C and D below.

For security reasons, Public Community Supply wells [and replacements] and future potable test wells display "REDACTED" in the well tax lot column and in the X (easting) and Y (northing) coordinate columns. The X and Y information can instead be gained by downloading GIS data for Public Community Supply Wells at <http://www.state.nj.us/dep/njgs/geodata/dgs97-1.htm> or by viewing the locations at GeoWeb (or sending an OPRA request to NJDEP to obtain these layers).

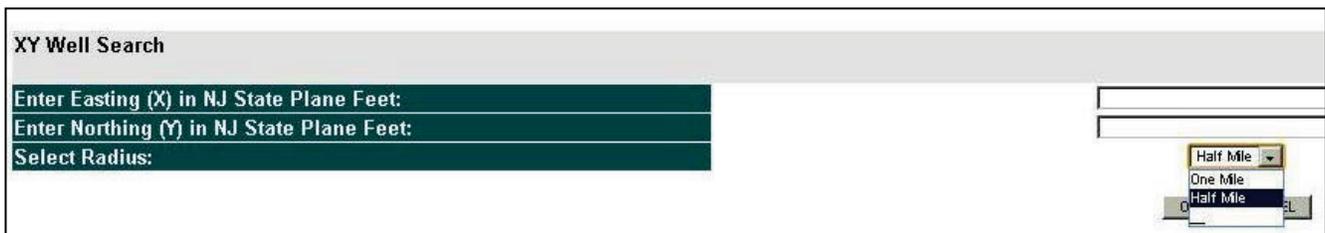


Figure 1: The "XY Well Search" webpage interface

3. Request a Water Supply Program search

After capturing the report from the XY Well Search and saving it as a "Raw Potable Results" spreadsheet, the user will identify specific well(s) of interest and refine locations as discussed in Sections II-C and II-D below. The user will likely require additional well information which can be requested from NJDEP as

discussed in Section II-E below. Information from the NJDEP well documents search is then used to further refine locations and depth data in the "Raw Potable Results" spreadsheet which is later used to complete the Well Search Spreadsheet as described at Section V.

C. Capturing and Refining X & Y Well Search Table Results

Your on-line query for wells within 1/2 and 1 mile will return a table(s) as shown in Figure 2.

Download Document	Permit Number	Well Use	Potentially Potable	Document	Physical Address	County	Municipality	Block	Lot
	2.5E+09	Domestic	Yes	Permit		Monmouth	Millstone Twp		
	2.8E+09	Domestic	Yes	Permit		Monmouth	Roosevelt Boro		
	2.8E+09	Domestic	Yes	Permit		Monmouth	Millstone Twp		
	2.8E+09	Domestic	Yes	Permit		Monmouth	Millstone Twp		
	2.8E+09	Domestic	Yes	Permit		Monmouth	Millstone Twp		

(Table continued)

Location Method	Easting (X)	Northing (Y)	Distance (miles)	Drilling Start Date	Drilling End Date	Proposed Depth (feet)	Proposed Capacity (gal/min)	Finished Depth (feet)	Finished Capacity (gal/min)	Sealed Date
Prop Loc - Hard Copy	501547	501755	0.44			70	8			
Prop Loc - Hard Copy	501548	497809	0.5			120	10			
Prop Loc - Hard Copy	505739	496394	1.28			60	10			
Prop Loc - Hard Copy	505735	504489	1.37			90	10			
Prop Loc - Hard Copy	505734	505905	1.55			90	10			

Figure 2: XY search results tabbed to "All Wells". Note tax lot and depth columns may be empty.

Copy all records from the table to a blank spreadsheet and save it to your hard drive. By sorting that spreadsheet on the "Potentially Potable" column and deleting records with a "no" result, you will have refined the table to only domestic, public or non-public community, commercial, irrigation, industrial, agricultural and livestock well types. Save this as a spreadsheet named "Raw Potable Results". The column "[Location Method](#)" documents the original method used to produce the X and Y values stored in NJDEP's database. As per Section III below, you *may* later change these X and Y values using a different method and document that change when you complete the Well Search Spreadsheet (see Section V) based on your review of well permits and/or your door to door survey.

D. Refine X/Y Results

- Free Mapping Tools** Refinements of location can be accomplished using free GIS mapping tools. These tools do not have all the functionality of recent versions of ArcGIS, but they can achieve much of the same well location analysis explained below. Instructions for each of these tools is not yet available, but in the following sections the general concepts are discussed.

- a. **NJ Geoweb** has measurement and graphics tools that can be used in conjunction with Atlas Grid and tax parcels⁴ to limit your search to the potentially impacted area and the receptor wells inside that area (see GIS instruction below). However, NJ Geoweb cannot display the wells captured in the query.
- b. **ArcGIS Explorer**⁵ can display shape files and the captured wells and any other free layer when expressed as a KML file⁶.
- c. **Google Earth** can display well locations, tax lots and many other free layers as KMLs.

2. Using ArcGIS 9.x (or higher) to Refine Well Locations

- a. **Download Layers:** From the NJDEP GIS download page (<http://www.nj.gov/dep/gis>) download the Public Community Water-Supply Wells ([FAQ 7](#)), Well Head Protection Areas, Well Program Atlas Sheet Grid, Known Contaminated Sites List (KCSL), Water Purveyor Service Areas, appropriate aerial photograph(s), Municipal Boundary, Parcel (Tax) Data by County or Municipality⁷, roads, hydrography and any other layers you believe may be useful. Public Non-Community Wellhead Protections areas can be found at the NJ Geologic Survey web page.
- b. **Add Layers:** From ArcMAP add the Raw Potable Results table from your on-line search ([FAQ 8](#)) and display X & Y ([FAQ 3](#)), add the Atlas Grid, Water Purveyors, KCSL ([FAQ 5](#)), municipal boundaries, Public Community Supply Wells and the Well Head Protection Areas over the aerial image.
- c. **Define the “Door to Door” Well Survey Area Via GIS for Sampling:** The following GIS procedures vary depending on geologic setting (consolidated versus unconsolidated) and whether the groundwater flow direction is known. In either case, the procedure reduces the size of the area you initially survey for potential sampling to a smaller area based on the facts of each case. We call this the “Focused Search Area”.

The procedures result in depiction of GIS buffer(s) and other Shapefiles that serve as a surrogate regulatory extents of contamination when the actual extent is not yet known. They are based on N.J.A.C. 7:26E-1.17 which states that sampling must take place 1,000 feet from a point or points of groundwater contamination when groundwater flow direction is not known, or that when groundwater flow direction is known, sampling should take place in areas 250

⁴Where spreadsheet “Coord_Meth” equals “parcel match”, bias location to the residential structure, not center of lot.

⁵Download free software <http://www.esri.com/software/arcgis/explorer/download.html>. Requires Microsoft .NET.

⁶The NJDEP has a KML conversion tool to allow display of any tabular data such as wells or sample locations. Email srpgis@dep.state.nj.us to request this tool and make the subject line of the email “Request KML conversion tool”.

⁷ https://njgin.state.nj.us/NJ_NJGINExplorer

feet upgradient, 500 feet sidegradient and 1,000 feet downgradient of contamination.

- i. Where aquifer geology is unconsolidated and groundwater flow direction is known, create a parabolic GIS shapefile with its closed end 250 feet upgradient of the **source**⁸, its open end oriented toward the prevailing groundwater flow direction and ending 1,000 feet from the downgradient point or points of groundwater contamination.
- ii. Create a 2,640 feet (1/2 mile) buffer from the source area point. At this time, your project should look similar to Figure 3
- iii. Where groundwater flow unknown and/or aquifer geology is bedrock⁹, create a 1,000 ft radius GIS shapefile from the point or points of groundwater contamination. Create a parabolic GIS shapefile that is oriented with its open end toward the downgradient direction of groundwater flow.

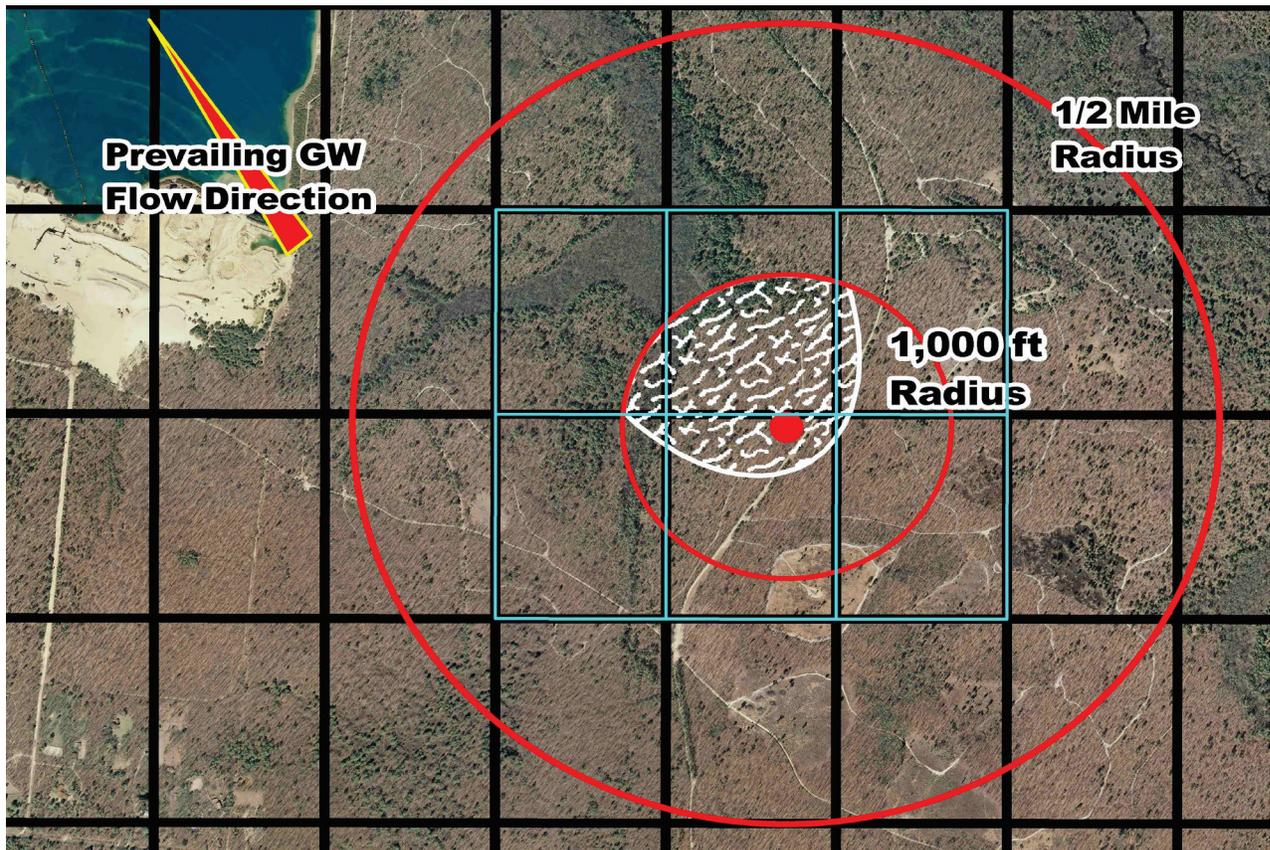


Figure 3: Aerial image with Atlas Grid and shape files for 1000 ft, 2640 ft radius and parabola.

⁸ Being the same point you chose to input coordinates into the Case Info Tab ([FAQ 5](#))

⁹ Since plume migration in bedrock is often preferential along strike and down dip and subject to significant change based on pumping, groundwater flow direction cannot be reliably fixed and you should assume that all domestic wells within the 1,000 foot radius are potentially impacted.

- iv. Using the appropriate shape file noted above, select Atlas cells. These cells represent the "Focused Search Area" within which wells are more likely to be impacted and for which you should conduct your initial door to door survey. Recall that the locations you receive from the on-line search are predominantly Atlas cell centroids and that the actual well location could be anywhere inside the Atlas cell¹⁰. Exceptions to this are any permit that starts with "P or E" or community supply wells.
- v. Create a shape file from the on-line well table (ie, the well "event theme"). Use the selected "Focused Search Area" Atlas cells noted above to perform a GIS "select by location" of these wells (see Figure 4). Export the resulting selected records from the shapefile into a new shapefile of "potentially impacted wells". This is the subset of wells (excepting noted above) that you will need to review more closely to provide more accurate locations.



Figure 4: Selected Atlas Grid Cell used to select wells.

- d. Parcel Match: As noted in Figure 2, some of the well records in the new shape file have tax lot data, but many will not. Using your GIS tax parcel data, you may match this data to a better location for the wells and update the X and Y in your "Raw Potable Results" spreadsheet and in your "potentially impacted wells" shape file. Note that the numbers assigned to GIS tax parcels may not match the lot numbers that existed when the well was permitted. But in

¹⁰ Recall also that some of these permits were not drilled and that some wells exist which do not have permits and are therefore not included in the on-line permit search.

general, parcel match is a helpful tool. There are commercial tax information services that may also help you find these wells.

E. Additional Info, Door to Door Surveys, and Biennial Certifications

Since tax parcels are not present in the database for all permit records, it is likely that for an initial well search you will need to request additional data from NJDEP to refine locations. Submit the http://www.state.nj.us/dep/watersupply/radius_wellsearchform.pdf¹¹ to wellpermitting@dep.state.nj.us and request the permit and well records for the limited number of permit numbers that you identified in your Focused Search Area. Also request the Water Allocation Diversion Radial search for 1 mile. Attach a spreadsheet of just those permit numbers for the wells of interest and in the body of the email provide your contact information (name, telephone number, company name, and mailing address), name of the site associated with your request and a statement that you conducting an SRP receptor search and need well permits and records for permit numbers in the attached spreadsheet. The Subject Line of the email must include the Program Interest number for the site and the words SRP Receptor Search. The well permitting program staff will notify you of the fee and email you results once that fee is paid.

Depending on the amount of [time left in your receptor evaluation regulatory timeframe](#), you may choose to wait for NJDEP to provide the well permit and record data that could help you refine well locations before you attempt to find wells with a door to door survey. If additional time is needed beyond the regulatory timeframe to complete the process, a Remediation Timeframe Extension Request (<http://www.nj.gov/dep/srp/srra/forms>) must be submitted in accordance with the regulations.

Biennial Certifications and Well Search Updates: The X/Y Well Search provides all the information needed for Biennial Certification well searches. This assumes that the initial search found all older wells and that any newer well was installed after [obtaining a permit](#). The Well Search Spreadsheet should be used for reporting any new wells found during this process. Where no new wells are found, use the spreadsheet to indicate that in the Case Info Tab in the field "Were applicable well types found?".

III. Coordinate Method Definitions

Once you have access to the well permits/records of interest and the Water Allocation Radius Search data, you will be able to make location refinements as discussed below and to provide depth and construction details for wells of interest, depending on what information is on the permit or record. You will change the X and Y values accordingly and adding construction details in the "Raw Potable Results" spreadsheet. A number of fields (see Fig. 5) in the Well Permit can be used singly or in tandem to refine well locations. Based on the age of the well permit you receive, some fields may not be present or populated with information. Where

¹¹ Fill this out and make a pdf document of it so that you can send it by email.

you refine locations, update the "Coord_Method" column of the Well Search Spreadsheet (see Section V).

Locations in the Water Allocation universe of well data are generally more reliable than Water Permitting location data, so where permits are found in both data sets, it is suggested that you use the location data from the Water Allocation data set. When you submit the Water Allocation supplied X and Y coordinates in the well search submission to the NJDEP, you need only select "Water Allocation universe" in the field "Document". If you do find an error in the Water Allocation location data and correct it, select the appropriate method from the dropdown in the "Coord_Method" column. Otherwise, leave that column blank for any reported Water Allocation well. A similar process holds true for any location information provided for Safe Drinking Water Public Supply Wells via GIS data. Select Safe Drinking universe in the Document column. It is even less likely for Public Supply wells that you will find coordinate mistakes, but if you do, select the appropriate location correction method from the dropdown in the "Coord_Method" column.

Municipality: Fig. 5, purple circle. Municipality is NOT a Coordinate Method but is a check method to help determine if the well driller or subsequent data entry person created a transposition error of Atlas Grid values. This is only an indicator because township lines do cross Atlas cells, but in checking the municipality listed in the permit versus the Atlas location in GIS you may find a wide discrepancy indicative of a transcription error.

DWR-133
6/03

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
TRENTON, NJ

MAIL TO
NJDEP
BUREAU OF WATER ALLOCATION
PO BOX 426
TRENTON, NJ 08625-0426

Permit No. 3200027720

PERMIT TO DRILL WELL

Prop Loc - Hard Copy

VALID ONLY AFTER APPROVAL BY THE DEEP

Approx. Addr. Match

COORD # 32.32.8 19

Property Owner Mr. Chris Pratt

Driller Glenn Robbins Water Well Serv. Inc.

Address 2826 Mullica River Dr.
Sweetwater NJ 08037

Address P.O. Box 705
Egg Harbor City NJ 08215

Name of Facility Residence

Diameter of Well 4 Inches

Proposed Depth of Well 100 Feet

Method of Drilling Rotary
(Cable tool, Rotary, etc.)

GIS Parcel Centroid

Municipality

Drinking Water Supply* (see #7 on reverse)

LOCATION OF WELL

Lot # 15 Block 4201 Municipality Atlantic

State Atlas Map No. 39-38

Other/Unknown

Digital Image

Mullica River

Mullica River Drive

PROPOSED WELL LOCATION (NAD 83 HORIZONTAL DATUM)
NJ STATE PLANE COORDINATE IN US SURVEY FEET

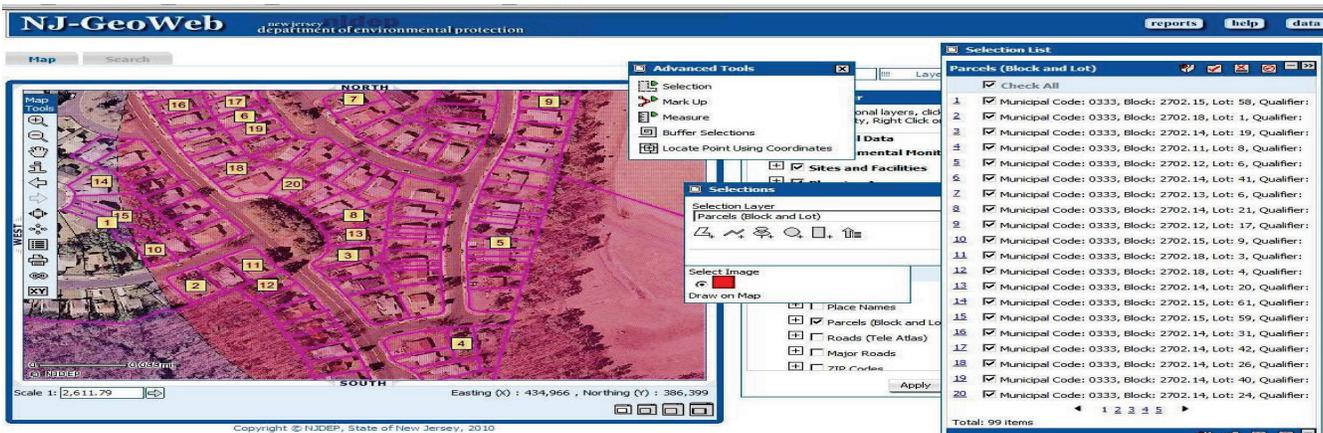
NORTHING _____ OR EASTING _____
LATITUDE 0' _____ " LONGITUDE 0' _____ "

Fig 5: Permit and various field definitions which may be available to refine location.

A. Approx. Addr. Match: Fig. 5, red circle. This method should be selected if you use the address field found in the permit. Modern web based address match services actually use a hybrid address/parcel match which is highly accurate, but some results are still too variable to consider this method generally accurate. While it is likely to improve the accuracy from the Atlas Grid location, NJDEP considers all Address Match coordinates “approximate”.

B. Digital Image: Fig. 5, black circle. This could be acquired either with a Driller’s Sketch that shows the well location with measurements to control points (buildings, roads, etc.) as shown in Fig 5 or if field visits for potable sampling reveal that the Drillers Sketch is not accurate, with new measurements to controls points. Driller’s sketches that lack measurements can only produce approximate well locations equivalent to an Atlas Cell centroid (see Prop Loc – Hard Copy).

C. GIS Parcel Centroid: Fig. 5, blue circle. This method refers to the use of GIS tax maps to acquire coordinates. It is a generally accurate method if the tax map is used in conjunction with street names and GIS aerial imagery and if the location is biased toward residential buildings in the image. Where the method is purely a tax parcel centroid, it can actually decrease accuracy when large and/or long lots exist (greater than 2 acres). Try to match the location to the actual dwelling visible in the image.



D. GPS: Someone has been to the well site with a GPS to acquire coordinates.

E. Prop Loc – Hard Copy Fig. 5, brown circle. This method is the name given to the former process by which NJDEP assigned Atlas Grid Numbers to a well permit. The X and Y coordinates given for these permits were later converted to a centroid or corner location for that Atlas Grid Number. Since most of the database managed well permits have these type coordinates, it is likely that most of the wells returned to you by the “XY Well Search”

will be this type and are likely to be outside your Focused Search Area and therefore outside the canvass area. In these instances, you will not refine the X and Y but will simply report back these records to NJDEP as per the original online report. In a limited number of instances, this Coordinate Method may also be the one you select from the dropdown in column "Coord_Method" when you report back to NJDEP. That will be the case if you attempt to refine the position of a well using a Drillers Sketch but find that the sketch either locates the well outside your Focused Search Area or that the sketch does not provide enough information for you to refine the location further than within the Atlas Grid. In the first instance you will select "Outside Canvass" from the Status Column and in the second instance you will select "Owner Unavailable" since you were unable to locate the well.

F. Other/Unknown: Any Scan and Recompile Coordinates or coordinate types not covered by the dropdown choices. Scan and Recompile (see Fig. 5, grey circle) is a process by which a diagram of unknown spatial accuracy is registered to a base map of known quality. In the instance of Figure 5 the permit image indicates the position of the well within the Atlas cell and landmarks including roads and a river. Where no other method of locating the wells exists, the NJDEP considers this a possible but often unreliable method.

G. Survey from Benchmark: Coordinates supplied by a licensed surveyor.

IV. Door to Door Survey

A. Finding Unpermitted Wells As mentioned in a footnote above, some wells in the predicted impact area may not have a permit found in the on-line search. A GIS check of the Water Purveyor Service Areas may help identify this problem, however domestic or irrigation wells may still exist in areas with purveyor service. Where a water purveyor area does not exist in a potential impact area and where aerial imagery shows buildings but the on-line search shows no wells or too few wells, it is possible that buildings outside the water purveyor area have wells without permits.

B. Canvass Area, Determine Well Status, Update Coordinates
Canvass your area using the refined well search list and information about which locations should have wells but were not in the search list (see aerial image vs. water purveyor review above). You may be able to conduct a canvass of owners via tax and phone records¹². Once completed, update the X and Y values in the Raw Potable Results table and input either GPS or Digital Image (if you measure to control points) in the "Coord_Method" field.

¹² You may be able to access tax and phone data on-line from many state, county and commercial sources.

V. Complete and Submit Well Search Spreadsheet

The Well Search Spreadsheet has Case Info and Well Search Info tabs. Modifications to the schema of these tabs is evaluated by our software as a [failed submission](#) and will be returned for correction. Always use the dropdown values. Where values in columns with dropdowns repeat many times, it is suggested that you select that value from the dropdown for the first record and then copy/paste that valid value to any other rows for which it is appropriate.

A. Complete The Well Search Spreadsheet

1. Case Info Tab

- i. **Well Search For:** This is the Name of Site as it is known to the NJDEP including its full physical address with zip code.
- ii. **Program Interest Number** for your site is available from your NJDEP contact or at http://datamine2.state.nj.us/dep/DEP_OPRA. This is a code, abbreviated as PI and also known as the "preferred ID" which has 5, 6 or 10 characters and is a text field. It is a generally a unique ID for the entire Site Remediation Program and is not a case specific identifier such as an incident number [eg, 98-12-08-1534-57] or a Bureau specific case number [eg, ISRA case E-9324].
- iii. **Source Coordinate X:** This is not a longitude or latitude value, it is a State Plane Coordinate (also known as the "easting") expressed in feet for the North American Datum system of 1983. It is a six digit integer between 193,624 and 659481 (do not enter units) which represents the "point of groundwater contamination" closest to the discharge area. Please compare the proximity of this location to the NJDEP's [KCSL](#) point for the site. Notify <http://www.state.nj.us/dep/srp/kcsnj/correctionsform1.htm> of the correct location if there is a significant difference (use professional judgment).
- iv. **Source Coordinate Y:** This is not a longitude or latitude value, it is a State Plane Coordinate (also known as the "northing"), and is expressed in feet for the North American Datum system of 1983. It is a 5 to 6 digit integer between 35,035 and 919,467 (do not enter units) which represents the "point of groundwater contamination" closest to the discharge area. Please compare the proximity of this location to the NJDEP's [KCSL](#) point for the site. Notify <http://www.state.nj.us/dep/srp/kcsnj/correctionsform1.htm> of the correct location if there is a significant difference (use professional judgment).
- v. **Groundwater Flow Direction:** While this can be variable across a site and through time, the user should select one "prevailing" or

- predominant direction for the site when possible. (use professional judgment). For sites where this is not possible, variable flow is available in the dropdown for selection.
- vi. **Applicable Well Types Found?:** For those occasions when none of the well types described in the rules were found, the Well Search Tab will be empty and this field should contain a "No" value to indicate that the empty table is not an error.
 - vii. **Submission an Update?:** A Yes response indicates that the submittal is and update. A No response indicates it is the very first submission.
 - viii. **Author:** This is the name of the company which prepared the Receptor Evaluation. Only place the name of the company on this line. Please enter all this information into a single cell.
 - ix. **Author Street Address:** In a single cell key in the following information with commas as follows: street number and street name, town, state, zip code.
 - x. **LSRP overseeing work:** In a single cell key in the following information with commas as follows: Name of individual, License number. If no LSRP, input "none".
 - xi. **Professional Who Prepared Spreadsheet:** Name of person who completed the spreadsheet
 - xii. **Email contact:** Email for the person who completed the spreadsheet.
 - xiii. **Phone Contact:** Phone number for the person who completed the spreadsheet.

2. Well Search Info Tab

The first 21 columns of this tab are meant to accommodate the "Raw Potable Results" table formed with data from the "XY Well Search" (the Query) and modified/refined as noted above for the Focused Search Area. The "Raw Potable Results" table should be pasted into the Well Search Spreadsheet template on the "WellSearchInfo" tab at cell A1. This will overwrite the column headers provided in the table with headers from the Raw Potable Results table. The field names for all the columns in the tab are discussed below.

- i. **Download Document: User does not input data to this field.** The Query uses this field to return links for viewing a permit image if one is available.
- ii. **Permit Number: Mandatory Field.** The Query always contains a permit number for any data returned. User inputs data to this field only if the user finds a well not returned by the Query and the user has a permit number for that well. In such instances, a permit number should be entered exactly as shown on permit, including

dashes, or if no permit number is known, key in the word "Undocumented".

- iii. **Well Use:** Mandatory Field. The Query will always return a value for this field. User inputs a value from the dropdown to this field only if user determines that the field value by NJDEP was in error, or if user finds a well not contained in the Query return table.
- iv. **Potentially Potable:** User does not input data to this field. The Query will always have a Yes or No value as a means to initially sort out remedial type wells from potable for the purpose of determining which are well types required by the rule.
- v. **Document:** The Query is the primary source for X and Y coordinates, but for some wells the user may have 3 sets of increasingly accurate location data. The accuracy hierarchy from lower to higher is the Query, Water Allocation data, Public Community Well GIS (Safe Drinking Water) data. Accordingly, for any well returned by the Query for which the user does not refine the X and Y locations, the user should leave the Document field alone. If the user obtains Water Allocation or Safe Drinking Water GIS locations for a well, they should input the higher accuracy X and Y locations and change Document field to indicate what type of record is being used. Also, if a well is found which was not reported by the Query and the user acquires a Well Permit or Well Record, the user should select the appropriate Document type from the dropdown.
- vi. **Physical Address:** The Query will may not populate this field. User should enter the Street Address for the location of the well if one is obtained.
- vii. **County:** Mandatory Field. The Query will always populate this field. User should only input a value if the NJDEP value is found to be incorrect or if user finds a well not contained in the Query return table.
- viii. **Municipality:** Mandatory Field. The Query will always populate this field. User should only input a value if the NJDEP value is found to be incorrect or if user finds a well not contained in the Query return table.
- ix. **Block:** Mandatory Field. The Query will often not populate this field. Within the focused search area, the user should always input the newest tax block data into this field.
- x. **Lot:** Mandatory Field. The Query will often not populate this field. Within the focused search area, the user should always input the newest tax block data into this field.
- xi. **Location Method:** User does not input data into this field. It is only for informational purposes for data supplied by the Query.

- xii. **Easting (X):** Mandatory Field. The Query will always populate this field, but generally with a surrogate Atlas Grid value. User should refine values in this field for any well in the Focused Search Area.
- xiii. **Northing (Y):** Mandatory Field. The Query will always populate this field, but generally with a surrogate Atlas Grid value. User should refine values in this field for any well in the Focused Search Area.
- xiv. **Distance (miles):** User does not input data into this field. This field is provided as a general guide to distance from source
- xv. **Drilling Start Date:** User does not input data into this field. The Query will often not populate this field. If populated, this field is provided as a means to sort wells by date for biennial certifications.
- xvi. **Drilling End Date:** The Query will often not populate this field. User should input a value in this field if one is acquired.
- xvii. **Proposed Depth (feet):** It is important that User should not input a value in this field.
- xviii. **Proposed Capacity (gal/min):** The Query may populate this field. User should not input a value in this field.
- xix. **Finished Depth (feet):** Mandatory Field. For any well in the Focused Search Area, it is very important to populate this field if the Query did not provide data. NJDEP understands that the User may not always be able to acquire this data. Leave field empty in such instances.
- xx. **Finished Capacity (gal/min):** The Query may populate this field.
- xxi. **Sealed Date:** The Query may populate this field. The user should use the Status field if it is determined that the well has been sealed.
- xxii. **Coord_Method:** Mandatory Field. For any well records in which you refined the X and Y values (ie, changed them from an original set given to you by NJDEP or found a well not given to you by NJDEP), select the proper value from the dropdown in the column. Any well for which you did not refine coordinates should have a blank [null] value in this column. As noted in the Canvass Section above, any location where you field verify the well location will be either "GPS" or "Digital Image".
- xxiii. **Top_Open_Int:** Top of Open Interval is the number of feet from the ground surface to the top of the screen or top of the open bore hole. Found on Well Record. NJDEP understands that the User may not always be able to acquire this data. Leave field empty in such instances.
- xxiv. **Bot_Open_Int:** Bottom of Open Interval is the number of feet from the ground surface to the top of the screen or top of the open bore hole. Found on Well Record. NJDEP understands that the

User may not always be able to acquire this data. Leave field empty in such instances.

- xxv. **STATIC_LEVEL:** This field is not returned by the Query. This field is on the Well Record as measured in feet from ground surface.
- xxvi. **STATUS: Mandatory Field.** For any well location where you have attempted/made contact with the owner or otherwise have updated information about well status, select the proper value from the dropdown in the "Status" column. For any well location that was outside your Focused Search Area, select "outside canvass area". Status of "Inactive" means the owners claims the well is not in use or says they are not aware of it. Status of "owner unavailable" can be used if you could not contact the owner or if they refuse to speak.
- xxvii. **WELL_SAMPLED?:** If sampling was conducted at a well relative to the Receptor Evaluation, provide the date of sampling in this field. The format is MM/DD/YYYY. For any well not sampled, leave the field blank.

B. Submit The Well Search Spreadsheet

Once your Well Search Spreadsheet is complete and well location/information for the focused search area has been updated submit the spreadsheet to srpgis_wrs@dep.state.nj.us. Also submit a paper copy of the spreadsheet along with the Receptor Evaluation Form as per instructions for the form. In order for the Department to process the spreadsheet efficiently and accurately it is important that the following instructions be strictly followed.

Email subject line should provide only the Program Interest number and the suffix "WRS". If the DEP Program Interest Number is 000123, the subject line should be 000123, WRS. The body of email provides the basic information needed to identify the environmental company and LSRP overseeing work, the professional who should be contacted if a submission has technical GIS problems and site identification information. To standardize the delivery of this information, please copy the field names below. Paste these field names into your email without changes to their content or order. Key in information as needed after each field name.

Name of GIS author Company and mailing address:
Name and license of any LSRP overseeing work:
Name of professional performing GIS work:
Email for Professional performing GIS work:
Phone Number for Professional performing GIS work:
Program Interest Number for Site:
Name of Site as known to NJDEP:
Physical address of Site:

If you have comments about how to improve the spreadsheet or the process in general, send it in a separate email to srpgis@dep.state.nj.us.

Name the attached Well Search Spreadsheet file(s) with the Program Interest number of the site, the date of the submission (or updated submission) and "WRS" (which is the designation for Well Receptor Survey). An example of how to name the file is: If the DEP Program Interest Number is 013164 and the Date of Submittal is May 13, 2010, the spreadsheet file name should be 000123_051310WRS.

VI Tutorials and other On-Line Resources

Keep checking the NJDEP GIS web page for additional tips and instruction regarding our on-line products and well searches.

VII Frequently Asked Questions

- 1. Must the door to door survey occur before submitting Spreadsheet?**
Regulatory deadlines must be observed as the first priority but you should endeavor to conduct the door to door survey prior to submitting the spreadsheet. If the door to door survey is completed after the spreadsheet submission deadline, update the spreadsheet and email it again after deadline. Note: see date field in file naming protocols.
- 2. Can I modify the Wells Search Spreadsheet to fix problems?** No. NJDEP's automated screening of this table will cause your submission to fail if you change table structure or formats. Improvements: If you have comments about the need to change the table structure or other comments please send a separate email to srpgis@dep.state.nj.us . Name the email Well Search Spreadsheet Suggestion.
- 3. My table doesn't display in GIS. What's wrong?** X and Y field must be number values. Replace any text (like "not available") in those fields with a zero which will be understood to mean that no coordinate was available.
- 4. How can I limit the search by date?** Sort original "capture" table by date.
- 5. To what point does the Source X and Y Coordinates Refer [Case Info Tab]?**
This is a "point of groundwater contamination" closest to the discharge area. It should also be close to NJDEP's **Known Contaminated Site List** point for the site. If you believe it is not close (use professional judgment) then please notify NJDEP via <http://www.state.nj.us/dep/srp/kcsnj/correctionsform1.htm> .

6. **The Dataminer query did not return the proper results. What's wrong?** You may have reversed your original X and Y coordinates in the Well Search Assistant or transposed coordinates in the Dataminer query.
7. **I can't find Public Community Supply Wells or Well Head Protection Areas.** Submit an OPRA request to NJDEP for the GIS layers.
8. **My permit numbers were changed when I brought my table into GIS. What's Wrong?** If you are working with Excel, importing the table to GIS will yield varying results depending on the data type of the record in the first row of the table. To avoid this problem, select the whole Excel table and sort the Permit field so that the first data row contains any "alpha record" (ie, a "P" or "E" well) that might be in the table. Then export the table (save as) to a dbf format which will cause excel to export all the permit records as text, preserving both any alpha records and any purely integer type permit numbers.

Well Searches at a Glance

