



PICATINNY ARSENAL CLASSIFICATION EXCEPTION AREA BIENNIAL CERTIFICATION

Prepared By:

JUNE 2008


Shaw Shaw Environmental, Inc.
111 Howard Boulevard, Suite 110
Mt. Arlington, NJ 07856



U.S. Army Corps of Engineers
Baltimore District

FINAL

**Total Environmental Restoration Contract
(TERC) Number W912DR-05-R-0026**



DEPARTMENT OF THE ARMY
INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, PICATINNY ARSENAL
PICATINNY ARSENAL, NEW JERSEY 07806-5000

July 2, 2008

Transmitted Via Certified Letter

Environmental Affairs Division

SUBJECT: Picatinny Arsenal notification for biennial certification of the Classification Exception Area.

New Jersey Department of Environmental Protection
Division of Water Supply, Bureau of Safe Drinking Water
401 East State Street, P.O Box 426
Trenton, NJ 08625-0426

Dear Sir/Madam:

This letter serves as notification for biennial certification of the Classification Exception Area (CEA) and Well Restriction Area at Picatinny Arsenal. A copy of the CEA biennial certification document and New Jersey Department of Environmental Protection approval letter are enclosed. The NJDEP approved the certification per the attached letter from Mr. Greg Zalaskus.

A CEA is an administrative restriction used for properties exhibiting concentrations of contaminants greater than state criteria. This designation does not mean that all groundwater at Picatinny Arsenal contains contaminants at levels above State criteria. The CEA was established in 2003 for the entire arsenal to bring the arsenals groundwater into compliance with state requirements while the Installation Restoration Program is ongoing.

Please contact me at (973) 724-6748 if you have questions regarding this submission.

Sincerely,

A handwritten signature in blue ink, appearing to read "Ted Gabel", is located below the "Sincerely," text.

Ted Gabel
Project Manager for
Installation Restoration

Enclosures (2)

Notification Copies Furnished:
J. Bramhall, Morris County Clerk

G. Voight-Cherna, Wharton Town Clerk
M. Cilurso, Rockaway Town Clerk
D. Costanzo, Dover Health Department
D. Costello, Denville Town Clerk
C. DeGennaro, Jefferson Health Department
L. Magnotti, Jefferson Town Clerk
J. Norgalis, Denville Health Department
H. Steinberg, Morris County Health Management Office
D. Trocchio, Rockaway Health Department
M. Verga, Dover Town Clerk
M. Zachok, Wharton Health Department
Bureau of Safe Drinking Water, NJDEP
Bureau of Water Allocation, NJDEP



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New Jersey Department of Environmental Protection

Biennial Certification Monitoring Report for a
Ground Water Classification Exception Area (CEA)

I. Site Background Information

A. Facility Name and Location:

Site Name at the time the CEA was issued: Picatinny Arsenal
Current Site/Property Name (if different than above): _____
Site/Property Street Address: _____
Municipality (-ies): Picatinny Arsenal County (ies): Morris
Blocks (Impacted On-Site): _____ Lots (Impacted On-Site): _____
Blocks (Impacted Off-Site): _____ Lots (Impacted Off-Site): _____
Year of Tax map from which this information is obtained: _____

B. Person Submitting Biennial Certification for the CEA:

Person Responsible (Name of Individual or Legal Entity): Ted Gabel
Name of Business responsible for submitting this report: Picatinny Restoration Program Office
Relationship to the Site (check as appropriate): Owner ☒, Operator ☐, Lessee ☐,
Person Conducting Cleanup ☐, Other ☐ (describe) _____
Street Address: AMSTA-AR-PSR, Building 319, Picatinny Arsenal,
City: Picatinny Arsenal State: New Jersey Zip: 07806-5000
Telephone Number: 973-724-6748
FAX Number: 973-724-5398
E-mail Address: ted.gabel@us.army.mil

C. All Current Owner, Lessee(s) and Operator(s)

Owner

Contact Person Name: Same as above
Contact Person Affiliation: _____
Business Name: _____
Street Address: _____
City: _____ State: _____ Zip: _____
Telephone Number: _____
FAX Number: _____
E-mail Address: _____

Lessee(s)

Contact Person Name: NA
Contact Person Affiliation: _____
Business Name: _____
Street Address: _____

City: _____
Telephone Number: _____
FAX Number: _____
E-mail Address: _____

State: _____

Zip: _____

Operator(s)

Contact Person Name: NA
Contact Person Affiliation: _____
Business Name: _____
Street Address: _____
City: _____
Telephone Number: _____
FAX Number: _____
E-mail Address: _____

State: _____

Zip: _____

D. Case Specific Information (Complete all that apply)

- Program Interest Name: Picatinny Arsenal
- Program Interest Number: SRPID-NJ3210020704
- Known Contaminant Site List (KCSL) Number (if available): _____
- Incident Report Number (10 or 12 Digit Case Number): NJ3210020704
- Industrial Site Recovery Act Number: _____
- UST Registration Number (7 digits): _____
- Date Department approved CEA: July 2, 2002
- Name and Bureau of assigned Case Manager at the time the CEA was issued: Greg Zalaskus

E. Existing Site Conditions

- Describe the physical characteristics of the site
Partially developed (30%) 6,493 acre site containing about 900 buildings
- Describe the current site operations
Research, development, engineering & production support for advance weapon systems
- Describe each remedial action that included the CEA. Please check and describe, as required, the appropriate selection below.
☒ Natural Attenuation
☒ Other (please describe below)

Area D Groundwater Remedial Action

Under an interim ROD, a hydraulic barrier pump and treatment system was installed in Area D in 1992 to capture a groundwater TCE plume and prevent contaminated groundwater from discharging into Green Pond Brook. The system extracted about 100 GPM from six wells to capture the plume, treated groundwater by air stripping and carbon filtration, and discharged the treated water to Green Pond Brook. The final ROD for Area D Groundwater was signed in September 2004. The final ROD specified monitored natural attenuation (MNA) and the installation of a permeable reactive barrier for treatment of TCE contaminated groundwater. The interim pump and treat system was shutdown in May 2007, and replaced by installation/operation of a permeable reactive barrier (PRB) that will treat TCE in groundwater and protect Green Pond Brook. PRB compliance sampling in Green Pond Brook to monitor effectiveness of the PRB began in September 2007. There should be no adverse impact on current groundwater quantity or quality from future operation of the PRB. Groundwater sampling as part of the MNA remedy was also started in September 2007.

Site 23 Remedial Action

The ROD for Site 23 (Post Farm Landfill) was signed on December 20, 2004, and proposed a remedy including long term monitoring of groundwater wells and implementation of land use controls. The Remedial Design Plan, including the Land Use Implementation Plan and Long Term Monitoring Plan, have been approved and implemented during the subject CEA biennial period. The proposed remedy is passive (i.e. groundwater monitoring and land use controls), and will not impact groundwater supplies in PTA.

Area E Groundwater

The ROD for Area E Groundwater was signed on September 28, 2007. The remedy selected in the ROD was for MNA of groundwater. The implementation of the MNA remedy was instituted in September 2007. There should be no adverse impact to groundwater quality or quantity resulting from implementation of this MNA remedy.

II. CEA Protectiveness Evaluation

A. Inspection and Evaluation of the CEA

(The appropriate box on the left must be checked for each of the following items.)

1. Changes to Laws and Regulations

- a. Are there any subsequently promulgated or modified laws or regulations, which apply to the remedial action, which includes the CEA? **Complete Columns 1 and 2 of Attachment 1: Comparison of Applicable Laws and Regulations.**

Yes ☒ No ☐ (If No, proceed to #2 below)

If Yes, complete **Column 3 of Attachment 1: Comparison of Applicable Laws and Regulations** providing the actions taken to demonstrate how the remedial action, which includes the CEA, conforms to current statutes and regulations.

Column 3 is completed in **Attachment 1.**

2. Evaluation of Future Water Uses

- a. Are there any planned changes within the 25-year water use planning horizon for the aquifer(s), in which the CEA is located, since the Department established the CEA or the last completed biennial review, whichever is more recent? Ensure that all sources in **Attachment 2: Results of the 25-Year Water Use Planning Review** have been reviewed and are checked off.

Yes ☒ No ☐ (If No, proceed to #3)

If **Yes**, provide details of the changes in **Attachment 2: Results of the 25-Year Water Use Planning Review**.

Planned changes in future PTA water use is provided in **Attachment 2**.

- b. Will any of the proposed changes in the ground water use, identified above, possibly influence the protectiveness of the remedial action that includes the ground water CEA?

Yes ☐ No ☒ (If No, proceed to #3)

Provide explanations in **Attachment 2: Results of the 25-Year Water Use Planning Review**.

See **Attachment 2**.

- c. Is there a need to reevaluate the fate and transport of the ground water contamination plume and to revise the CEA to ensure that the remedial action remains protective of the public health and safety and the environment?

Yes ☐ No ☒ (If No, proceed to #3)

If **Yes**, provide a brief explanation below and attach the revised CEA model prepared in accordance with N.J.A.C. 7:26E-8.6(b) 10. Provide calculations and a scaled map including delineation of the plume extent and all Blocks and Lots that are within the extent of the CEA and include this in **Attachment 3: Revised CEA**.

3. Well Search

- a. Have there have been any actual changes in ground water use, pursuant to N.J.A.C. 7:26E-8.6(a) 3., since the Department established the ground water CEA or the last completed biennial review, whichever is more recent? Provide results of well searches in **Attachment 4: Well Search**

Yes ☐ No ☒ (If No, proceed to #4 below)

A well search (dated Oct 2007) is provided in **Attachment 4**.

- b. Have any of the actual changes in the ground water use, identified above, influenced or may influence the protectiveness of the remedial action that includes the ground water CEA?

Yes ☐ No ☒ (If No, proceed to #4 below)

If **Yes**, provide explanations in **Attachment 4: Well Search**.

4. Ground Water Monitoring Wells associated with the CEA

- a. During inspections was the physical integrity of each well acceptable and the security measures adequate as documented in an inspection log? Include the inspection logs in **Attachment 5: Maintenance Records for Monitoring Wells**.

Yes ☒ No ☐ (If Yes, proceed to #5 below)
Well Maintenance Records are provided in Attachment 5.

If No, describe the associated problem(s) and how each of the situations was corrected.

- b. Include in **Attachment 6: Well Abandonment Forms** copies of the well abandonment forms for all monitoring well(s) used to establish the ground water CEA that have been decommissioned since the previously submitted biennial certification or establishment of the CEA, whichever is later.

Well Abandonment Forms are provided in **Attachment 6**. Well Abandonment Forms are also included in **Attachment 5** as part of the Well Maintenance Reports.

5. Land Use Disturbance

- a. Has there been any land use disturbance, such as the installation of a detention basin, that intercepted the water table within the area of the ground water CEA?

Yes ☐ No ☒ (If No, proceed to #6 below)

If **Yes**, present the data and evaluation required in accordance with N.J.A.C. 7:26E-8.6(a) 5 and 8.6(b) 7. Present the sampling results, and the associated reduced laboratory data deliverables Quality Assurance/Quality Control (QA/QC) package as per N.J.A.C. 7:26E-2.1 (a) 13ii. and evaluation in **Attachment 7: Results of Land Use Disturbance Analysis**.

6. CEA Status (check the appropriate box below)

Present the sampling results, the associated reduced laboratory data deliverables Quality Assurance/Quality Control package pursuant to N.J.A.C. 7:26E-2.1 (a) 13ii and evaluation in **Attachment 8: Results of Ground Water Analysis** for the appropriate situation, as necessary.

☒ The currently effective termination date of the CEA has not passed and no ground water sampling has been conducted.

*PTA regularly monitors groundwater quality and updates the sampling database. Summary groundwater data is provided in **Attachment 8**.

☐ The currently effective termination date of the CEA has passed and the required ground water samples were collected and evaluated in accordance with N.J.A.C. 7:26E-8.6(a) 7ii, or reference 8.6(a) 8. Do the sampling results confirm that the contaminant concentrations are at or below the applicable Ground Water Quality Standards throughout the entire ground water CEA?

Yes ☐ No ☒ If **Yes** provide the results of the analysis in **Attachment 8: Results of Ground Water Analysis** and then proceed to III. Certification, below.

If **No**, present the data, an explanation of why ground water contamination is still present and a re-evaluation of the ground water quality standards pursuant to N.J.A.C. 7:26E-8.3(b), 8.6(b) 10 and 8.6(b) 13. Present this information in **Attachment 8: Results of Ground Water Analysis**

A summary of groundwater sampling data for the overburden and bedrock aquifer is provided in **Attachment 8**

☐ The currently effective termination date of the CEA has not passed, however ground water samples have been voluntarily collected and evaluated in accordance with N.J.A.C. 7:26E-8.6(a) 7ii or 8.6(a) 6ii.

III. Certification

A. Certification, Copying and Reporting Requirement

Provide both a paper and an electronic copy of this certification, in accordance with N.J.A.C. 7:26E-8.6(c)2, to the following people. Provide documentation in **Attachment 9 Name and Address Copy List** confirming that each of the following groups of people received a copy of the Certification:

1. The municipal and county clerks for each municipality and county in which any real property overlying the CEA is located;
2. The local, county and regional health department for each municipality and county in which any real property overlying the CEA is located;
3. Each owner of the real property which is overlying the CEA; and
4. Each current operator at the real property which is overlying the CEA.

B. Person Responsible for the Biennial Certification: *(The following certification shall be signed according to N.J.A.C. 7:26E-1.5, N.J.A.C. 7:26C-1.2 and the covenant not to sue (if issued) as follows:*

1. *For a Limited Liability Company a member of the Limited Liability Company; or*
2. *For a Corporation by a person authorized by a resolution of the board of directors to sign the document. A copy of the resolution, certified as a true copy by the secretary of the corporation, shall be submitted along with the certification; or*
3. *For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or*
4. *For a municipality, State, federal or other public agency by either a principal executive officer or ranking elected Official.*

"I certify under penalty of law that I have personally examined and am familiar with the information submitted herein and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge I believe that the submitted information is true, accurate, and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate, or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement, which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties."

I also understand that in order to maintain the benefits of the Covenant Not to Sue, the engineering and institutional controls (as applicable) must be evaluated and maintained to remain protective of public health and safety and of the environment.

Based upon all of the information that I have provided above, I hereby certify that the remedial action(s) for which this Classification Exception Area was established remain protective of public health and safety and of the environment.

Name (print or type): Ted Gabel
Title: Project Manager for Environmental Restoration
Signature: *Ted Gabel*
Name of Limited Liability Company, Corporation or General or Limited Partnership: _____
Date: _____

Sworn to & Subscribed before me

On this 1st Day of July 2008

Kimberly Pelka
Notary

Kimberly A. Pelka
Notary Public of New Jersey
My Commission Expires: 21 June 2010

Attachments to the CEA Biennial Certification

Attachment 1: Comparison of Applicable Laws and Regulations

Evaluation of Laws and Regulations must include, but is not limited to the following list. These Statutes and Regulations can be found at the following web sites

<http://www.njleg.state.nj.us/> OR http://www.state.nj.us/dep/legal/nj_env_law.htm.

List all statutes and regulations that are applicable.	Subsequent changes that apply to the CEA	Actions taken to conform the CEA with current statutes and regulations
Spill Compensation Control Act, N.J.S.A. 58:10-23.11 et seq.	None	NA
Brownfields and Contaminated Site Remediation Act, N.J.S.A. 58:10B-1 et seq.	None	NA
Water Pollution Control Act, N.J.S.A. 58:10A-1, et seq.	None	Conducted air monitoring at PTA day care center
Technical Requirements for Site Remediation, N.J.A.C. 7:26E	Air monitoring requirements for day care facilities in proximity to GW contamination	
Procedures for Department Oversight of the Remediation of Contaminated Sites, N.J.A.C. 7:26C	None	NA
Underground Storage Tank Regulations, N.J.A.C. 7:14B	None	NA
Industrial Site Recovery Act Regulations, N.J.A.C. 7:26B	None	NA
Others (Specify) New Jersey Water Quality Criteria	Revised MCL for selected COC's.	Revised COC sampling detection limits as needed.

Attachment 2: Evaluation of Future Water Uses (Results of the 25-Year Water Use Planning Review)

All plans, records and other relevant information shall be obtained from the following sources, without limitation. Please check the following boxes to confirm that the following sources were evaluated.

- ☐ i. The New Jersey Water Master Plan;
- ☒ ii. Department of Environmental Protection, Bureau of Water Allocation
- ☒ iii. Municipal master plans; Picatinny Arsenal Real Property Master Plan
- ☐ iv. Zoning Plans;
- ☐ v. Local water purveyor plans and planning data pertaining to the existence of water lines and proposed future installation of water lines;
- ☒ vi. Local Planning Officials;
- ☐ vii. Local and county ordinances restricting installation of potable wells; and
- ☐ viii. County and local boards of health

a. Changes within the 25-year water use planning horizon (as appropriate):

PTA potable water is currently provided by three wells with an aggregate yield of 2.01 MGD. Primary supply well 131 yields 1.008 MGD, with secondary and reserve wells (302D and 410) capable of producing 0.720 MGD and 0.282 MGD, respectively. The PTA Master Plan Environmental Assessment indicates that potable water use averages 0.64 MGD, and is expected to increase to 1.24 MGD through the year 2012. The future projected water demand is well below the average draw of 1.83 MGD allowed by the NJDEP Water Allocation Permit (2005)

Non potable service water is provided to Building 660 by an onsite bedrock well. Non potable service water is also withdrawn from Lake Denmark at Building 1219 and Picatinny Lake at Building 506A to service 110 buildings.

b. Determination of actual or proposed changes in the ground water use above have influenced or may influence the protectiveness of the remedial action that includes the ground water CEA (as appropriate):

The projected increase in PTA water demand should not have an adverse impact on the protectiveness of current or proposed remedial actions.

Attachment 3: Revised CEA - NA

Attachment 4: Well Search

A well search was conducted by the NJDEP Bureau of Water Allocation on (date) for all large capacity diversion sources (>100,000 GPD) within a five mile radius of the center of PTA. The NJDEP well search is provided in **Attachment 4**. The NJDEP well location plot was modified to include the PTA/CEA boundary, and is also shown in **Attachment 4**. There are no new water supply wells identified in the well search within the confines of PTA/CEA.

Attachment 5: Maintenance Records for Monitoring Wells

- ☐ No monitoring wells, associated with this site, are present.
☒ Monitoring wells and records, associated with this site, are enclosed.

A Well Maintenance Report is provided in **Attachment 5** (CD), along with a summary of well repairs.

Attachment 6 Well Abandonment Forms

- ☐ No Well Abandonment Forms required at this time
☒ Well Abandonment Forms enclosed

The most recent Well Abandonment Forms are provided in **Attachment 6**. Well Abandonment Forms are also included in the Well Maintenance Reports, provided in **Attachment 5**.

Attachment 7 Results of Land Use Disturbance - NA

Attachment 8 Results of Ground Water Analysis

Groundwater sampling was conducted at selected locations on PTA since the CEA was submitted in July 2002, and the database was updated accordingly. The data is presented as the maximum detected concentration for each compound that exceeds NJDEP groundwater quality standards in wells installed in the overburden (unconsolidated) and bedrock (consolidated) aquifers. The database includes all wells sampled after 1994 (inception of currently used low flow sampling methods) and reflects the most recent sampling data for each well.

Attachment 9 Name and Address Copy List

The name and address copy list is provided in **Attachment 9**.

Picatinny Arsenal
Biennial CEA Certification Monitoring Report
Attachment No. 4

Well Search



State of New Jersey

Department of Environmental Protection

Bradley M. Campbell
Commissioner

WATER SUPPLY ADMINISTRATION
BUREAU OF WATER ALLOCATION
P.O. BOX 426
TRENTON, NEW JERSEY 08625-0426
TEL.# 609-292-2957
FAX.# 609-633-1495

mes E. McGreevey
Governor

Your recent request for a 5 mile computer radius search of our data base for large capacity diversion sources regulated by the Bureau of Water Allocation has been completed. The Bureau of Water Allocation is no longer providing information on nearby contaminated sites, as the information in our database is outdated. Please access the Department's web site at www.nj.gov/dep/gis/imapnj/imapnj.htm to obtain this information or contact the Department's Site Remediation Program.

Water Allocation Withdrawal Point and Monitoring Location Radius Map

The enclosed map includes Water Withdrawal Points permitted by the Bureau of Water Allocation. In addition, there are may be a few regulated points which are monitored only for ambient conditions. Normally the data for this map is updated at least once per month, and the data is always subject to revision. The sequence numbers on the data printout correspond to the numbers next to the points on the map. (e.g., find point number 6 on the map and go to the corresponding row on the data printout for the details about that particular well or intake). There is a light gray line and shading that marks the one-mile and five-mile radius circles. The unlabeled dots on the map are other equipment that is regulated by Water Supply, typically the proposed locations of other wells not regulated as a water allocation withdrawal point. All coordinates provided are now in NJ State Plane coordinates in US Feet, NAD83, which is the standard by state law. The estimated absolute accuracy of each point is provided in feet from the noted location. The columns in the data printout are as follows:

Sequence Number: The number that corresponds with the same number on the map

PI ID Number (Preferred NJEMS ID): Water Allocation Facility Identification Number

PI Name: Facility Name

Activity Number: The current effective number for the Permit, Certification, Registration, Equivalency.
(Note that the PI ID Number + the Activity Number combination is unique)

SI Category Code: WSWL = Well, WSIN = Intake

SI Designation: State Well permit Number or Intake Number

SI Description: Source Local Name

Distance from XY Origin: Distance of the point to the center of the Map, in feet

County Code: See Attached Code Tables

Municipality Code: See Attached Code Tables

SPC83X, SPC83Y: NJ State Plane coordinates in US Feet, NAD83

XY Accuracy + Units Code: Estimated accuracy of the x and y coordinates

Dep to Top of Open Interval + Units (Dep to Btm of Open Interval + Units): For wells, the depth to the top and the bottom of the screen or open hole, in feet.

Z (Elevation): Elevation in feet above sea level of the ground surface of the point

Z Accuracy + Units Code: Estimated accuracy of the Z (Elevation) coordinate

Geologic Unit Code: See Attached Code Tables

Hydrogeologic Unit Code: See Attached Code Tables

Rated Pump Capacity + Units Code: Rated pump capacity of the source + rated pump capacity units

BRDGSUBJITEMID: Temporary mapping ID, ignore

Water Allocation Codes

COUNTY CODE	MUNICIPALITY CODE	COUNTY	MUNICIPALITY
01	01	Atlantic	Absecon City
01	02	Atlantic	Atlantic City
01	03	Atlantic	Brigantine City
01	04	Atlantic	Buena Boro
01	05	Atlantic	Buena Vista Twp
01	06	Atlantic	Corbin City
01	07	Atlantic	Egg Harbor City
01	08	Atlantic	Egg Harbor Twp
01	09	Atlantic	Estell Manor City
01	10	Atlantic	Folsom Boro
01	11	Atlantic	Galloway Twp
01	12	Atlantic	Hamilton Twp
01	13	Atlantic	Hammonton Town
01	14	Atlantic	Linwood City
01	15	Atlantic	Longport Boro
01	16	Atlantic	Margate City
01	17	Atlantic	Mullica Twp
01	18	Atlantic	Northfield City
01	19	Atlantic	Pleasantville City
01	20	Atlantic	Port Republic City
01	21	Atlantic	Somers Point City
01	22	Atlantic	Ventnor City
01	23	Atlantic	Weymouth Twp
02	01	Bergen	Allendale Boro
02	02	Bergen	Alpine Boro
02	03	Bergen	Bergenfield Boro
02	04	Bergen	Bogota Boro
02	05	Bergen	Carlstadt Boro
02	06	Bergen	Cliffside Park Boro
02	07	Bergen	Closter Boro
02	08	Bergen	Cresskill Boro
02	09	Bergen	Demarest Boro
02	10	Bergen	Dumont Boro
02	11	Bergen	Elmwood Park Boro
02	12	Bergen	East Rutherford Boro
02	13	Bergen	Edgewater Boro
02	14	Bergen	Emerson Boro
02	15	Bergen	Englewood City
02	16	Bergen	Englewood Cliffs Boro
02	17	Bergen	Fair Lawn Boro
02	18	Bergen	Fairview Boro
02	19	Bergen	Fort Lee Boro
02	20	Bergen	Franklin Lakes Boro
02	21	Bergen	Garfield City
02	22	Bergen	Glen Rock Boro
02	23	Bergen	Hackensack City
02	24	Bergen	Harrington Park Boro
02	25	Bergen	Hasbrouck Heights
02	26	Bergen	Haworth Boro
02	27	Bergen	Hillsdale Boro
02	28	Bergen	Hohokus Boro
02	29	Bergen	Leonia Boro
02	30	Bergen	Little Ferry Boro
02	31	Bergen	Lodi Boro
02	32	Bergen	Lyndhurst Twp
02	33	Bergen	Mahwah Twp
02	34	Bergen	Maywood Boro
02	35	Bergen	Midland Park Boro
02	36	Bergen	Montvale Boro
02	37	Bergen	Moonachie Boro
02	38	Bergen	New Milford Boro
02	39	Bergen	North Arlington Boro

02	40	Bergen	Northvale Boro
02	41	Bergen	Norwood Boro
02	42	Bergen	Oakland Boro
02	43	Bergen	Old Tappan Boro
02	44	Bergen	Oradell Boro
02	45	Bergen	Palisades Park Boro
02	46	Bergen	Paramus Boro
02	47	Bergen	Park Ridge Boro
02	48	Bergen	Ramsey Boro
02	49	Bergen	Ridgefield Boro
02	50	Bergen	Ridgefield Park Village
02	51	Bergen	Ridgewood Village
02	52	Bergen	River Edge Boro
02	53	Bergen	River Vale Twp
02	54	Bergen	Rochelle Park Twp
02	55	Bergen	Rockleigh Boro
02	56	Bergen	Rutherford Boro
02	57	Bergen	Saddle Brook Twp
02	58	Bergen	Saddle River Boro
02	59	Bergen	South Hackensack Twp
02	60	Bergen	Teaneck Twp
02	61	Bergen	Tenafly Boro
02	62	Bergen	Teterboro Boro
02	63	Bergen	Upper Saddle River
02	64	Bergen	Waldwick Boro
02	65	Bergen	Wallington Boro
02	66	Bergen	Washington Twp
02	67	Bergen	Westwood Boro
02	68	Bergen	Woodcliff Lake Boro
02	69	Bergen	Wood-Ridge Boro
02	70	Bergen	Wyckoff Twp
03	01	Burlington	Bass River Twp
03	02	Burlington	Beverly City
03	03	Burlington	Bordentown City
03	04	Burlington	Bordentown Twp
03	05	Burlington	Burlington City
03	06	Burlington	Burlington Twp
03	07	Burlington	Chesterfield Twp
03	08	Burlington	Cinnaminson Twp
03	09	Burlington	Delanco Twp
03	10	Burlington	Delran Twp
03	11	Burlington	Eastampton Twp
03	12	Burlington	Edgewater Park Twp
03	13	Burlington	Evesham Twp
03	14	Burlington	Fieldsboro Boro
03	15	Burlington	Florence Twp
03	16	Burlington	Hainesport Twp
03	17	Burlington	Lumberton Twp
03	18	Burlington	Mansfield Twp
03	19	Burlington	Maple Shade Twp
03	20	Burlington	Medford Twp
03	21	Burlington	Medford Lakes Boro
03	22	Burlington	Moorestown
03	23	Burlington	Mount Holly Twp
03	24	Burlington	Mount Laurel Twp
03	25	Burlington	New Hanover Twp
03	26	Burlington	North Hanover Twp
03	27	Burlington	Palmyra Boro
03	28	Burlington	Pemberton Boro
03	29	Burlington	Pemberton Twp
03	30	Burlington	Riverside Twp
03	31	Burlington	Riverton Boro
03	32	Burlington	Shamong Twp
03	33	Burlington	Southampton Twp

Water Allocation Codes

03	34	Burlington	Springfield Twp
03	35	Burlington	Tabernacle Twp
03	36	Burlington	Washington Twp
03	37	Burlington	Westampton Twp
03	38	Burlington	Willingboro Twp
03	39	Burlington	Woodland Twp
03	40	Burlington	Wrightstown Boro
04	01	Camden	Audubon Boro
04	02	Camden	Audubon Park Boro
04	03	Camden	Barrington Boro
04	04	Camden	Bellmawr Boro
04	05	Camden	Berlin Boro
04	06	Camden	Berlin Twp
04	07	Camden	Brooklawn Boro
04	08	Camden	Camden City
04	09	Camden	Cherry Hill Twp
04	10	Camden	Chesilhurst Boro
04	11	Camden	Clementon Boro
04	12	Camden	Collingswood Boro
04	13	Camden	Gibbsboro Boro
04	14	Camden	Gloucester City
04	15	Camden	Gloucester Twp
04	16	Camden	Haddon Twp
04	17	Camden	Haddonfield Boro
04	18	Camden	Haddon Heights Boro
04	19	Camden	Hi-Nella Boro
04	20	Camden	Laurel Springs Boro
04	21	Camden	Lawnside Boro
04	22	Camden	Lindenwold Boro
04	23	Camden	Magnolia Boro
04	24	Camden	Merchantville Boro
04	25	Camden	Mount Ephraim Boro
04	26	Camden	Oaklyn Boro
04	27	Camden	Pennsauken Twp
04	28	Camden	Pine Hill Boro
04	29	Camden	Pine Valley Boro
04	30	Camden	Runnemede Boro
04	31	Camden	Somerdale Boro
04	32	Camden	Stratford Boro
04	33	Camden	Tavistock Boro
04	34	Camden	Voorhees Twp
04	35	Camden	Waterford Twp
04	36	Camden	Winslow Twp
04	37	Camden	Woodlynne Boro
05	01	Cape May	Avalon Boro
05	02	Cape May	Cape May City
05	03	Cape May	Cape May Point Boro
05	04	Cape May	Dennis Twp
05	05	Cape May	Lower Twp
05	06	Cape May	Middle Twp
05	07	Cape May	North Wildwood City
05	08	Cape May	Ocean City
05	09	Cape May	Sea Isle City
05	10	Cape May	Stone Harbor Boro
05	11	Cape May	Upper Twp
05	12	Cape May	West Cape May Boro
05	13	Cape May	West Wildwood Boro
05	14	Cape May	Wildwood City
05	15	Cape May	Wildwood Crest Boro
05	16	Cape May	Woodbine Boro
06	01	Cumberland	Bridgeton City
06	02	Cumberland	Commercial Twp
06	03	Cumberland	Deerfield Twp
06	04	Cumberland	Downe Twp

06	05	Cumberland	Fairfield Twp
06	06	Cumberland	Greenwich Twp
06	07	Cumberland	Hopewell Twp
06	08	Cumberland	Lawrence Twp
06	09	Cumberland	Maurice River Twp
06	10	Cumberland	Millville City
06	11	Cumberland	Shiloh Boro
06	12	Cumberland	Stow Creek Twp
06	13	Cumberland	Upper Deerfield Twp
06	14	Cumberland	Vineland City
07	01	Essex	Belleville Town
07	02	Essex	Bloomfield Town
07	03	Essex	Caldwell Boro
07	04	Essex	Cedar Grove Twp
07	05	Essex	East Orange City
07	06	Essex	Essex Fells Boro
07	07	Essex	Fairfield Twp
07	08	Essex	Glen Ridge Boro Twp
07	09	Essex	Irvington Town
07	10	Essex	Livingston Twp
07	11	Essex	Maplewood Twp
07	12	Essex	Millburn Twp
07	13	Essex	Montclair Town
07	14	Essex	Newark
07	15	Essex	North Caldwell Boro
07	16	Essex	Nutley Town
07	17	Essex	Orange City
07	18	Essex	Roseland Boro
07	19	Essex	South Orange Village
07	20	Essex	Verona Boro
07	21	Essex	West Caldwell Twp
07	22	Essex	West Orange Town
08	01	Gloucester	Clayton Boro
08	02	Gloucester	Deptford Twp
08	03	Gloucester	East Greenwich Twp
08	04	Gloucester	Elk Twp
08	05	Gloucester	Franklin Twp
08	06	Gloucester	Glassboro Boro
08	07	Gloucester	Greenwich Twp
08	08	Gloucester	Harrison Twp
08	09	Gloucester	Logan Twp
08	10	Gloucester	Mantua Twp
08	11	Gloucester	Monroe Twp
08	12	Gloucester	National Park Boro
08	13	Gloucester	Newfield Boro
08	14	Gloucester	Paulsboro Boro
08	15	Gloucester	Pitman Boro
08	16	Gloucester	South Harrison Twp
08	17	Gloucester	Swedesboro Boro
08	18	Gloucester	Washington Twp
08	19	Gloucester	Wenonah Boro
08	20	Gloucester	West Deptford Twp
08	21	Gloucester	Westville Boro
08	22	Gloucester	Woodbury City
08	23	Gloucester	Woodbury Heights Boro
08	24	Gloucester	Woolwich Twp
09	01	Hudson	Bayonne City
09	02	Hudson	East Newark Boro
09	03	Hudson	Guttenberg Town
09	04	Hudson	Harrison Town
09	05	Hudson	Hoboken City
09	06	Hudson	Jersey City
09	07	Hudson	Kearny Town
09	08	Hudson	North Bergen Twp

Water Allocation Codes

09	09	Hudson	Secaucus Town
09	10	Hudson	Union City
09	11	Hudson	Weehawken Twp
09	12	Hudson	West New York Town
10	01	Hunterdon	Alexandria Twp
10	02	Hunterdon	Bethlehem Twp
10	03	Hunterdon	Bloomsbury Boro
10	04	Hunterdon	Califon Boro
10	05	Hunterdon	Clinton Town
10	06	Hunterdon	Clinton Twp
10	07	Hunterdon	Delaware Twp
10	08	Hunterdon	East Amwell Twp
10	09	Hunterdon	Flemington Boro
10	10	Hunterdon	Franklin Twp
10	11	Hunterdon	Frenchtown Boro
10	12	Hunterdon	Glen Gardner Boro
10	13	Hunterdon	Hampton Boro
10	14	Hunterdon	High Bridge Boro
10	15	Hunterdon	Holland Twp
10	16	Hunterdon	Kingwood Twp
10	17	Hunterdon	Lambertville City
10	18	Hunterdon	Lebanon Boro
10	19	Hunterdon	Lebanon Twp
10	20	Hunterdon	Millford Boro
10	21	Hunterdon	Raritan Twp
10	22	Hunterdon	Readington Twp
10	23	Hunterdon	Stockton Boro
10	24	Hunterdon	Tewksbury Twp
10	25	Hunterdon	Union Twp
10	26	Hunterdon	West Amwell Twp
11	01	Mercer	East Windsor Twp
11	02	Mercer	Ewing Twp
11	03	Mercer	Hamilton Twp
11	04	Mercer	Hightstown Boro
11	05	Mercer	Hopewell Boro
11	06	Mercer	Hopewell Twp
11	07	Mercer	Lawrence Twp
11	08	Mercer	Pennington Boro
11	09	Mercer	Princeton Boro
11	10	Mercer	Princeton Twp
11	11	Mercer	Trenton City
11	12	Mercer	Washington Twp
11	13	Mercer	West Windsor Twp
12	01	Middlesex	Carteret Boro
12	02	Middlesex	Cranbury Twp
12	03	Middlesex	Dunellen Boro
12	04	Middlesex	East Brunswick Twp
12	05	Middlesex	Edison Twp
12	06	Middlesex	Helmetta Boro
12	07	Middlesex	Highland Park Boro
12	08	Middlesex	Jamesburg Boro
12	09	Middlesex	Old Bridge Twp
12	10	Middlesex	Metuchen Boro
12	11	Middlesex	Middlesex Boro
12	12	Middlesex	Milltown Boro
12	13	Middlesex	Monroe Twp
12	14	Middlesex	New Brunswick City
12	15	Middlesex	North Brunswick Twp
12	16	Middlesex	Perth Amboy City
12	17	Middlesex	Piscataway Twp
12	18	Middlesex	Plainsboro
12	19	Middlesex	Sayreville Boro
12	20	Middlesex	South Amboy City
12	21	Middlesex	South Brunswick Twp

12	22	Middlesex	South Plainfield Boro
12	23	Middlesex	South River Boro
12	24	Middlesex	Spotswood Boro
12	25	Middlesex	Woodbridge Twp
13	01	Monmouth	Allenhurst Boro
13	02	Monmouth	Allentown Boro
13	03	Monmouth	Asbury Park City
13	04	Monmouth	Atl Highlands Boro
13	05	Monmouth	Avon-By-The-Sea-Boro
13	06	Monmouth	Belmar Boro
13	07	Monmouth	Bradley Beach Boro
13	08	Monmouth	Brielle Boro
13	09	Monmouth	Colts Neck Twp
13	10	Monmouth	Deal Boro
13	11	Monmouth	Eatontown Boro
13	12	Monmouth	Englishtown Boro
13	13	Monmouth	Fair Haven Boro
13	14	Monmouth	Farmingdale Boro
13	15	Monmouth	Freehold Boro
13	16	Monmouth	Freehold Twp
13	17	Monmouth	Highlands Boro
13	18	Monmouth	Holmdel Twp
13	19	Monmouth	Howell Twp
13	20	Monmouth	Interlaken Boro
13	21	Monmouth	Keansburg Boro
13	22	Monmouth	Keyport Boro
13	23	Monmouth	Little Silver Boro
13	24	Monmouth	Loch Arbour Village
13	25	Monmouth	Long Branch City
13	26	Monmouth	Manalapan Twp
13	27	Monmouth	Manasquan Boro
13	28	Monmouth	Marlboro Twp
13	29	Monmouth	Matawan Boro
13	30	Monmouth	Aberdeen Twp
13	31	Monmouth	Middletown Twp
13	32	Monmouth	Millstone Twp
13	33	Monmouth	Monmouth Beach Boro
13	34	Monmouth	Neptune Twp
13	35	Monmouth	Neptune City Boro
13	36	Monmouth	Tinton Falls Boro
13	37	Monmouth	Ocean Twp
13	38	Monmouth	Oceanport Boro
13	39	Monmouth	Hazlet Twp
13	40	Monmouth	Red Bank Boro
13	41	Monmouth	Roosevelt Boro
13	42	Monmouth	Rumson Boro
13	43	Monmouth	Sea Bright Boro
13	44	Monmouth	Sea Girl Boro
13	45	Monmouth	Shrewsbury Boro
13	46	Monmouth	Shrewsbury Twp
13	47	Monmouth	Lake Como Boro
13	48	Monmouth	Spring Lake Boro
13	49	Monmouth	Spring L Heights Boro
13	50	Monmouth	Union Beach Boro
13	51	Monmouth	Upper Freehold Twp
13	52	Monmouth	Wall Twp
13	53	Monmouth	West Long Branch Boro
14	01	Morris	Boonton Town
14	02	Morris	Boonton Twp
14	03	Morris	Butler Boro
14	04	Morris	Chatham Boro
14	05	Morris	Chatham Twp
14	06	Morris	Chester Boro
14	07	Morris	Chester Twp

Water Allocation Codes

14	08	Morris	Denville Twp
14	09	Morris	Dover Town
14	10	Morris	East Hanover Twp
14	11	Morris	Florham Park Boro
14	12	Morris	Hanover Twp
14	13	Morris	Harding Twp
14	14	Morris	Jefferson Twp
14	15	Morris	Kinnelon Boro
14	16	Morris	Lincoln Park Boro
14	17	Morris	Madison Boro
14	18	Morris	Mendham Boro
14	19	Morris	Mendham Twp
14	20	Morris	Mine Hill Twp
14	21	Morris	Montville Twp
14	22	Morris	Morris Twp
14	23	Morris	Morris Plains Boro
14	24	Morris	Morristown Town
14	25	Morris	Mountain Lakes Boro
14	26	Morris	Mount Arlington Boro
14	27	Morris	Mount Olive Twp
14	28	Morris	Netcong Boro
14	29	Morris	Parsippany Troy-Hills
14	30	Morris	Long Hill Twp
14	31	Morris	Pequannock Twp
14	32	Morris	Randolph Twp
14	33	Morris	Riverdale Boro
14	34	Morris	Rockaway Boro
14	35	Morris	Rockaway Twp
14	36	Morris	Roxbury Twp
14	37	Morris	Victory Gardens Boro
14	38	Morris	Washington Twp
14	39	Morris	Wharton Boro
15	01	Ocean	Barnegat Light Boro
15	02	Ocean	Bay Head Boro
15	03	Ocean	Beach Haven Boro
15	04	Ocean	Beachwood Boro
15	05	Ocean	Berkeley Twp
15	06	Ocean	Brick Twp
15	07	Ocean	Dover Twp
15	08	Ocean	Eagleswood Twp
15	09	Ocean	Harvey Cedars Boro
15	10	Ocean	Island Heights Boro
15	11	Ocean	Jackson Twp
15	12	Ocean	Lacey Twp
15	13	Ocean	Lakehurst Boro
15	14	Ocean	Lakewood Twp
15	15	Ocean	Lavallette Boro
15	16	Ocean	Little Egg Harbor
15	17	Ocean	Long Beach Twp
15	18	Ocean	Manchester Twp
15	19	Ocean	Mantoloking Boro
15	20	Ocean	Ocean Twp
15	21	Ocean	Ocean Gate Boro
15	22	Ocean	Pine Beach Boro
15	23	Ocean	Plumsted Twp
15	24	Ocean	Point Pleasant Boro
15	25	Ocean	Point P Beach Boro
15	26	Ocean	Seaside Heights Boro
15	27	Ocean	Seaside Park Boro
15	28	Ocean	Ship Bottom Boro
15	29	Ocean	South Toms River Boro
15	30	Ocean	Stafford Twp
15	31	Ocean	Surf City Boro
15	32	Ocean	Tuckerton Boro

15	33	Ocean	Barnegat Twp
16	01	Passaic	Bloomington Boro
16	02	Passaic	Clifton City
16	03	Passaic	Haledon Boro
16	04	Passaic	Hawthorne Boro
16	05	Passaic	Little Falls Twp
16	06	Passaic	North Haledon Boro
16	07	Passaic	Passaic City
16	08	Passaic	Paterson City
16	09	Passaic	Pompton Lakes Boro
16	10	Passaic	Prospect Park Boro
16	11	Passaic	Ringwood Boro
16	12	Passaic	Totowa Boro
16	13	Passaic	Wanaque Boro
16	14	Passaic	Wayne Twp
16	15	Passaic	West Milford Twp
16	16	Passaic	West Paterson Boro
17	01	Salem	Alloway Twp
17	02	Salem	Elmer Boro
17	03	Salem	Elsinboro Twp
17	04	Salem	Lower Alloways Creek
17	05	Salem	Mannington Twp
17	06	Salem	Oldmans Twp
17	07	Salem	Penns Grove Boro
17	08	Salem	Pennsville Twp
17	09	Salem	Pilesgrove Twp
17	10	Salem	Pittsgrove Twp
17	11	Salem	Quinton Twp
17	12	Salem	Salem City
17	13	Salem	Carneys Point Twp
17	14	Salem	Upper Pittsgrove Twp
17	15	Salem	Woodstown Boro
18	01	Somerset	Bedminster Twp
18	02	Somerset	Bernards Twp
18	03	Somerset	Bernardsville Boro
18	04	Somerset	Bound Brook Boro
18	05	Somerset	Branchburg Twp
18	06	Somerset	Bridgewater Twp
18	07	Somerset	Far Hills Boro
18	08	Somerset	Franklin Twp
18	09	Somerset	Green Brook Twp
18	10	Somerset	Hillsborough Twp
18	11	Somerset	Manville Boro
18	12	Somerset	Millstone Boro
18	13	Somerset	Montgomery Twp
18	14	Somerset	North Plainfield Boro
18	15	Somerset	Peapack-Gladstone
18	16	Somerset	Raritan Boro
18	17	Somerset	Rocky Hill Boro
18	18	Somerset	Somerville Boro
18	19	Somerset	So Bound Brook Boro
18	20	Somerset	Warren Twp
18	21	Somerset	Watchung Boro
19	01	Sussex	Andover Boro
19	02	Sussex	Andover Twp
19	03	Sussex	Branchville Boro
19	04	Sussex	Byram Twp
19	05	Sussex	Frankford Twp
19	06	Sussex	Franklin Boro
19	07	Sussex	Fredon Twp
19	08	Sussex	Green Twp
19	09	Sussex	Hamburg Boro
19	10	Sussex	Hampton Twp
19	11	Sussex	Hardyston Twp

Water Allocation Codes

19	12	Sussex	Hopatcong Boro
19	13	Sussex	Lafayette Twp
19	14	Sussex	Montague Twp
19	15	Sussex	Newton Town
19	16	Sussex	Ogdensburg Boro
19	17	Sussex	Sandyston Twp
19	18	Sussex	Sparta Twp
19	19	Sussex	Stanhope Boro
19	20	Sussex	Stillwater Twp
19	21	Sussex	Sussex Boro
19	22	Sussex	Vernon Twp
19	23	Sussex	Walpack Twp
19	24	Sussex	Wantage Twp
20	01	Union	Berkeley Heights Twp
20	02	Union	Clark Twp
20	03	Union	Cranford Twp
20	04	Union	Elizabeth City
20	05	Union	Fanwood Boro
20	06	Union	Garwood Boro
20	07	Union	Hillside Twp
20	08	Union	Kenilworth Boro
20	09	Union	Linden City
20	10	Union	Mountainside Boro
20	11	Union	New Providence Boro
20	12	Union	Plainfield City
20	13	Union	Rahway City
20	14	Union	Roselle Boro
20	15	Union	Roselle Park Boro
20	16	Union	Scotch Plains Twp
20	17	Union	Springfield Twp
20	18	Union	Summit City
20	19	Union	Union Twp
20	20	Union	Westfield Town
20	21	Union	Winfield Twp
21	01	Warren	Allamuchy Twp
21	02	Warren	Alpha Boro
21	03	Warren	Belvidere Town
21	04	Warren	Blairstown Twp
21	05	Warren	Franklin Twp
21	06	Warren	Frelinghuysen Twp
21	07	Warren	Greenwich Twp
21	08	Warren	Hackettstown Town
21	09	Warren	Hardwick Twp
21	10	Warren	Harmony Twp
21	11	Warren	Hope Twp
21	12	Warren	Independence Twp
21	13	Warren	Knowlton Twp
21	14	Warren	Liberty Twp
21	15	Warren	Lopatcong Twp
21	16	Warren	Mansfield Twp
21	17	Warren	Oxford Twp
21	19	Warren	Phillipsburg Town
21	20	Warren	Pohatcong Twp
21	21	Warren	Washington Boro
21	22	Warren	Washington Twp
21	23	Warren	White Twp

UNITS CODE	UNITS DESC
cm	Cubic feet per minute
ft	Feet
gh	gal/hr
gm	gal/min
in	inches

kx	kilometers
me	meters
mi	miles
BY	BGY (Billion Gallons per Year)
CM	cm (Centimetres)
GD	Gallons Per Day
MD	Million Gallons Per Day
MG	Million Gallons per minute
MM	Million Gallons Per Month
TD	Thousand Gallons Per Day
TM	Thousand Gallons per minute
WM	Million Gallons Per Year

HYDROGEOLOGIC UNIT CODE	HYDROGEOLOGIC UNIT DESC (The HYDROGEOLOGIC UNIT DESC is a concatenation of the map code and unit description)
30	non-glacial surficial material
40	gacu glacial aquifers and confining units
45	oc bedrock outcrop
79	undivided glacial deposits
110	ct or dt continuous or discontinuous till
116	m morainic deposits
120	l lake-bottom sediment
129	sg glacial sand and gravel
985	cpacu coastal plain aquifers and confining units
992	hb Holly Beach water-bearing zone
994	ec estuarine clay
996	es estuarine sand aquifer
999	cps coastal plain surficial aquifers
1448	cycu Cohansey confining unit
1449	cyac Cohansey aquifer
1451	kcas Kirkwood-Cohansey water-table aquifer system
1454	kac Atlantic City "800-foot" sand aquifer
1455	kg Rio Grande water-bearing zone
1456	ppa Piney Point aquifer
1465	wbcu Wildwood-Belleplain confining unit
1525	ccu composite confining unit
1805	vta Vincentown aquifer
2151	rbs Red Bank sand
2355	mlwa Mount Laurel-Wenonah aquifer
2475	mawcu Marshalltown-Wenonah confining unit
2505	eas Englishtown aquifer system
2525	mewcu Merchantville-Woodbury confining unit
2660	prma Potomac-Raritan-Magothy aquifer system
2662	prmau upper Potomac-Raritan-Magothy aquifer
2664	prmam middle Potomac-Raritan-Magothy aquifer
2666	prmal lower Potomac-Raritan-Magothy aquifer
2802	prmcu Potomac-Raritan-Magothy confining unit
2905	prmpcu Potomac confining unit
3025	Fractured-rock aquifers of the Newark basin part of the Piedmont Province
3050	ba Brunswick aquifer
3199	bs basalt

Water Allocation Codes

3799	db diabase
5110	lf Lockatong Formation
5405	sf Stockton Formation
6050	Fractured-rock aquifers of the Valley & Ridge Province, Highlands Province, and Trenton and Manhattan Prongs of the Piedmont Province
6125	gpk rocks of the Green Pond Mountain Region, Kittatinny Mountain, and Minisink Valley
8199	mfs Martinsburg Formation and Jutland klippe sequence
8399	jlk Jacksonburg limestone, Kittatinny Supergroup and Hardyston quartzite
8999	imr igneous and metamorphic rocks

End Aquifer Codes

GEO FORMATION CODE	GEO FORMATION DESC (The GEO FORMATION DESC is concatenation of the NJGS Geo num, the geologic map code and the formation description)
10	100 Cz Cenozoic Era
20	102 Q Quaternary System
30	104 Qh Holocene Series
40	106 Qp Pleistocene
50	1000 T Tertiary System
60	1002 Tpl Pliocene Series
70	1004 Tpm Pliocene-Miocene Series
80	1006 Tm Miocene Series
90	1008 To Oligocene Series
100	1010 Te Eocene Series
110	1012 Tpa Paleocene Series
120	2000 M Mesozoic Era
130	2100 K Cretaceous System
140	3000 JTr Jurassic & Triassic Systems
150	3100 J Jurassic System
160	5000 Tr Triassic System
170	6000 Pal Paleozoic Era
180	6100 D Devonian System
190	7000 DS Devonian and Silurian Systems
200	7100 S Silurian System
210	8000 O Ordovician System
220	8500 OCu Ordovician & Cambrian Systems, undivided
230	8700 C Cambrian System
240	9000 Pc Precambrian
250	9100 Pz Proterozoic Eon
260	9200 Zu late Proterozoic rocks, unifferentiated
270	9300 Yu Middle Proterozoic rocks, undifferentiated
280	50 ebo Extensive bedrock outcrop (suficial sediment generally absent)
290	60 sbo Scattered bedrock outcrop
300	30 * Recent sediment
310	25 af Artificial fill
320	160 Qs Swamp and marsh deposits
330	136 x Non-glacial material
340	170 Qal Alluvium
350	172 Qalb Alluvium and boulder lag
360	174 Qalfp Floodplain deposits

370	176 Qalc Channel deposits
380	180 Qac Alluvium and colluvium
390	190 Qmm Estuarine deposits
400	200 Qaf Alluvial-fan deposits
410	210 Qst Stream-terrace deposits
420	220 Qta Talus
430	221 Qtl Lower-terrace deposits
440	223 Qtu Upper-terrace deposits
450	225 Qrt Raritan-terrace deposits
460	227 Qtf Fluvial deposits (pre-Illinoian)
470	230 Qe Eolian deposits
471	235 Qes Eolian deposits - sheet sand
472	240 Qed Eolian deposits - sand dunes
480	800 Qc Colluvium
490	810 Qcg Gneiss colluvium
500	820 Qcb Basalt colluvium
510	830 Qcd Diabase colluvium
520	840 Qcs Slate colluvium
530	850 Qcc Conglomerate colluvium
540	860 Qcq Quartzite colluvium
550	870 Qcsg Sand and gravel colluvium
560	880 Qcsi Sand and silt colluvium
570	885 Qccb Carbonate colluvium
580	890 Qct Till colluvium
590	900 Qw Weathered bedrock
600	910 Qwg Weathered gneiss
610	920 Qwb Weathered basalt
620	930 Qwd Weathered diabase
630	940 Qws Weathered slate
640	950 Qwc Weathered conglomerate
650	960 Qwcb Weathered carbonate
660	962 Qwcp Weathered coastal plain formation
670	970 Qwq Weathered quartzite
680	980 Qwsc Weathered schist
690	40 * Glacial aquifers and confining units
700	110 t Till
710	300 Qt Till (Quaternary)
720	310 Qtw Till (late Wisconsinan)
730	312 Qtwr Rahway till (late Wisconsinan)
740	314 Qtwn Netcong till (late Wisconsinan)
750	316 Qtwk Kittatinny Mountain till (late Wisconsinan)
760	318 Qtwqc Till derived from quartzite and conglomerate (late Wisconsinan)
770	320 Qtwc Till derived from carbonate rock (late Wisconsinan)
780	322 Qtwg Till derived from gneiss (late Wisconsinan)
790	324 Qtwss Till derived from gray slate (late Wisconsinan)
800	326 Qtwrs Till derived from red shale (late Wisconsinan)
810	328 Qtwb Till derived from basalt and diabase (late Wisconsinan)
820	350 Qti Till (Illinoian)
830	352 Qtif Flanders till (Illinoian)

Water Allocation Codes

840	354 Qtib Bergen till (Illinoian)
850	370 Qtj Till (Jerseyan)
860	112 ct Continuous till
870	114 dt Discontinuous till
880	305 Qlt Discontinuous till (generally less than 10 feet)
890	130 it Till (Illinoian age)
900	132 jt Till (Jerseyan age)
910	380 Qtl Tillstone lag
920	129 sg Sand and gravel
930	70 * Kames and kame terraces
931	71 Qk Kames
932	72 Qkt Kame terraces
940	77 * Outwash deposits
950	119 d Deltaic sediment
960	121 id Lacustrine-fan sediment (Illinoian age)
970	122 f Fluvial sediment
980	124 fl Fluvial over lacustrine sediment
990	126 lf Fluvial sediment (Illinoian age)
1000	128 ic Ice-contact sediment
1010	134 js Sand and gravel (Jerseyan age)
1020	400 Qsd Stratified drift
1030	410 Qsdw Stratified drift (late Wisconsinan)
1040	450 Qsdi Stratified drift (Illinoian)
1050	500 Qsdj Stratified drift (Jerseyan)
1060	408 Qsdd Glaciolacustrine sand and gravel
1070	420 Qsdwd Glaciolacustrine sand and gravel (late Wisconsinan)
1080	460 Qsdd Glaciolacustrine sand and gravel (Illinoian)
1090	520 Qsdjd Glaciolacustrine sand and gravel (Jerseyan)
1100	406 Qsdde Glaciolacustrine deltaic deposits
1110	422 Qsdwde Deltaic deposits (late Wisconsinan)
1120	462 Qsdide Deltaic deposits (Illinoian)
1130	522 Qsdjde Deltaic deposits (Jerseyan)
1140	407 Qsdlf Lacustrine-fan deposits
1150	424 Qsdwlf Lacustrine-fan deposits (late Wisconsinan)
1160	464 Qsdllf Lacustrine-fan deposits (Illinoian)
1170	524 Qsdjlf Lacustrine-fan deposits (Jerseyan)
1180	409 Qsdf Glaciofluvial sand and gravel
1190	440 Qsdwlf Glaciofluvial sand and gravel (late Wisconsinan)
1200	480 Qsdif Glaciofluvial sand and gravel (Illinoian)
1210	540 Qsdjlf Glaciofluvial sand and gravel (Jerseyan)
1220	404 Qsdvf Valley-outwash deposits
1230	442 Qsdwvf Valley-outwash deposits (late Wisconsinan)
1240	482 Qsdifv Valley-outwash deposits (Illinoian)
1250	542 Qsdjfv Valley-outwash deposits (Jerseyan)
1260	403 Qsdf Meltwater-terrace deposits
1270	444 Qsdwft Meltwater-terrace deposits (late Wisconsinan)
1280	484 Qsdift Meltwater-terrace deposits (Illinoian)
1290	544 Qsdjft Meltwater-terrace deposits (Jerseyan)
1300	120 l Lake-bottom sediment
1310	400 Qsd Stratified drift

1320	410 Qsdw Stratified drift (late Wisconsinan)
1330	450 Qsdi Stratified drift (Illinoian)
1340	500 Qsdj Stratified drift (Jerseyan)
1350	402 Qsdlb Glaciolacustrine lake-bottom deposits
1360	430 Qsdwlb Glaciolacustrine lake-bottom deposits (late Wisconsinan)
1370	470 Qsdlib Glaciolacustrine lake-bottom deposits (Illinoian)
1380	530 Qsdjlb Glaciolacustrine lake-bottom deposits (Jerseyan)
1390	116 m Morainic deposits
1400	700 Qm Morainic deposits
1410	710 Qmw Moraines (late Wisconsinan)
1420	720 Qmi Moraines (Illinoian)
1430	118 im Morainic deposits (Illinoian age)
1440	79 * Glacial deposits, undivided
1450	80 * Glacial lake deposits
1470	405 Qgl Glaciolacustrine sediment
1480	600 Qic Ice-contact deposits
1490	982 njcp New Jersey Coastal Plain Province
1500	999 * Surficial sediment (thicker than 50 feet overlying coastal plain aquifers and confining units)
1510	993 Qbs Beach sand
1520	1050 Tsg Sand and gravel near Cape May
1530	1090 Tpb Pensauken and Bridgeton Formations
1540	1100 Tp Pensauken Formation
1550	1200 Tb Bridgeton Formation
1560	1205 TQb Bridgeton Formation (arkosic phase)
1570	1210 TQbg Bridgeton Formation (glauconitic phase)
1580	1250 Tg Upland gravel
1590	1300 Tbh Beacon Hill Formation
1600	990 Qcm Cape May Formation
1610	993 Qbs Beach sand
1620	990 Qcm Cape May Formation
1630	1390 Tc Unnamed Formation at Cape May
1640	990 Qcm Cape May Formation
1650	1390 Tc Unnamed Formation at Cape May
1660	1400 Tch Cohansey Formation
1670	1400 Tch Cohansey Formation
1680	1400 Tch Cohansey Formation
1690	1450 Tck Cohansey & Kirkwood Formations
1700	1500 Tk Kirkwood Formation
1710	1460 Tkb Kirkwood Formation - Belleplain member
1720	1460 Tkb Kirkwood Formation - Belleplain member
1730	1470 TkW Kirkwood Formation - Wildwood member
1740	1500 Tk Kirkwood Formation
1750	1454 Tkls Kirkwood Formation - lower member (sand facies)
1760	1500 Tk Kirkwood Formation
1770	1480 Tks Kirkwood Formation - Shiloh Marl member
1780	1505 Tkai Kirkwood Formation - Alloway Clay member
1790	1530 Tsp Sewell Point Formation
1800	1540 Tai Absecon Inlet Formation

Water Allocation Codes

1810	1459 Tkl Kirkwood Formation - lower member (silt and clay facies)
1820	1550 TKsm Shark River Formation through Navesink Formations
1830	1600 Tsr Shark River Formation
1840	1700 Tmq Manasquan Formation
1850	1705 Tmqd Manasquan Formation - Deal member
1860	1690 Tmqvl Manasquan and Vincentown Formations
1870	1900 Thl Hornerstown Formation
1880	1790 Tvht Vincentown and Hornerstown Formations
1890	2154 Krbsh Red Bank Formation - Sandy Hook member
1900	2200 Kl Tinton Formation
1910	2250 Kns Navesink Formation
1920	2260 Kc4 Kc4 cycle (subsurface equivalent of Red Bank and Navesink Formations)
1930	2460 Kc3 Kc3 cycle (subsurface equivalent of Marshalltown, Wenonah, and Mount Laurel Formations)
1950	1605 Tsrtr Shark River Formation - Toms River member
1960	1452 Tac Atlantic City Formation
1970	1800 Tvt Vincentown Formation
1980	2150 Krb Red Bank Formation
1990	2152 Krbs Red Bank Formation - Shrewsbury member
2000	2260 Kc4 Kc4 cycle (subsurface equivalent of Red Bank and Navesink Formations)
2010	2300 Kml Mount Laurel Formation
2020	2350 Kmw Mount Laurel and Wenonah Formations
2030	2400 Kw Wenonah Formation
2040	2460 Kc3 Kc3 cycle (subsurface equivalent of Marshalltown, Wenonah, and Mount Laurel Formations)
2050	2400 Kw Wenonah Formation
2060	2450 Kmt Marshalltown Formation
2070	2470 Kc2 Kc2 cycle
2080	2605 Kc1 Kc1 cycle (subsurface equivalent of Merchantville, Woodbury, and Englishtown Formations)
2090	2500 Ket Englishtown Formation
2100	2540 Kwbm Woodbury and Merchantville Formations
2110	2530 Kwbm Woodbury, Merchantville, and Cheesquake Formations
2120	2550 Kwb Woodbury Formation
2130	2600 Kmv Merchantville Formation
2140	2605 Kc1 Kc1 cycle (subsurface equivalent of Merchantville, Woodbury, and Englishtown Formations)
2150	2610 Kcq Cheesquake Formation
2160	2704 Kmcb Magothy Formation - Cliffwood beds
2170	2706 Kmmb Magothy Formation - Morgan beds
2180	2710 Kmas Magothy Formation - Amboy Stoneware Clay member
2190	2650 Kmrp Magothy, Raritan, and Potomac Formations
2200	2700 Kmg Magothy Formation
2210	2720 Kmob Magothy Formation - Old Bridge Sand member

2220	2740 Kmss Magothy Formation - Sayerville Sand member
2230	2730 Kmsa Magothy Formation - South Amboy Fire Clay member
2240	2810 Krwc Raritan Formation - Woodbridge Clay member
2250	2815 Krbr Raritan Formation - Bass River Formation
2260	2800 Kr Raritan Formation
2270	2820 Krfs Raritan Formation - Farrington Sand member
2280	2900 Kp Potomac Formation
2290	2900 Kp Potomac Formation
2300	2901 Kp3 Potomac Formation, Unit 3 (upper subsurface)
2310	2902 Kp2 Potomac Formation, Unit 2 (middle subsurface)
2320	2903 Kp1 Potomac Formation, Unit 1 (lower subsurface)
2330	2997 njp New Jersey Piedmont Province
2340	3010 JTrns Newark Supergroup
2350	3200 Jbs Basalt
2360	3300 Jh Hook Mountain basalt
2370	3500 Jp Preakness basalt
2380	3550 Jps Preakness sandstone (between basalt flows)
2385	3555 Jpg Preakness gabbroid
2390	3700 Jo Orange Mountain basalt
2400	3800 Jd Diabase and granophyre [polygon label]
2410	3801 Jd Diabase dike [line label]
2420	3850 Jg Granophyre
2430	3030 JTrbg Brunswick Group (Passaic Formation through Boonton Formation)
2440	3070 Trb Brunswick Formation (superceded by Passaic, Feltville, Towaco, and Boonton Formations)
2450	2830 Krfc Raritan Formation - Raritan Fire Clay member
2460	3110 Jb Boonton Formation
2470	3400 Jt Towaco Formation
2480	3600 Jf Feltville Formation
2490	4000 JTrp Passaic Formation
2500	4100 Trpg Passaic Formation - gray bed [includes JTrpg labels on some maps]
2510	4150 Trpgh Passaic Formation - gray-bed hornfels [includes JTrpgh labels on some maps]
2520	4200 JTrph Passaic Formation - hornfels
2530	4500 JTrps Passaic Formation - sandstone
2540	4505 JTrpst Passaic Formation - siltstone and mudstone
2550	4510 JTrpms Passaic Formation - sandy mudstone
2560	4509 JTrpm Passaic Formation - mudstone
2570	3120 Jbc Boonton Formation - basalt-clast conglomerate
2580	3130 Jbcg Boonton Formation - gneiss-clast conglomerate
2590	3140 Jbcq Boonton Formation - quartzite-clast conglomerate
2600	3450 Jtc Towaco Formation - conglomerate
2610	3650 Jfc Feltville Formation - conglomerate
2620	3900 JTrc Conglomerate
2630	3925 JTrcpc Cobble and pebble conglomerate

Water Allocation Codes

2640	3950 JTrcq Quartzite-clast conglomerate
2650	3960 JTcrsh Shale-clast conglomerate
2660	3970 JTrcf Limestone-clast conglomerate
2670	4250 JTpcq Passaic Formation - quartzite-clast conglomerate
2680	4300 JTpcf Passaic Formation - limestone-clast conglomerate
2690	4350 JTpcsh Passaic Formation - shale-clast conglomerate
2700	4400 JTpsc Passaic Formation - conglomeratic sandstone
2710	4450 JTpsp Passaic Formation - conglomerate and pebbly-sandstone
2720	5100 Trf Lockatong Formation
2730	5150 Trlr Lockatong Formation - red bed
2740	5200 Trlh Lockatong Formation - hornfel
2750	5250 Trla Lockatong Formation - arkosic-sandstone
2760	5300 Trls Lockatong Formation - sandstone
2770	5305 Trlc Lockatong Formation - conglomerate
2780	5310 Triscq Lockatong Formation - quartz-cobble conglomerate
2790	5350 Trisc Lockatong Formation - sandstone and conglomerate
2800	5400 Trs Stockton Formation
2810	5425 Trsc Stockton Formation - conglomerate
2820	5450 Trss Stockton Formation - cobble conglomerate and sandstone [includes Trssc labels on some maps]
2830	5500 Trscq Stockton Formation - quartz-cobble conglomerate
2840	6025 njvr New Jersey Valley and Ridge Province
2850	6125 * Green Pond Mountain Region, Kittatinny Mountain, and Minisink Valley
2860	6130 gp Green Pond Mountain Region part of the New Jersey Highlands
2870	6150 Dsk Skunemunk conglomerate
2880	6200 Dbv Belvale sandstone
2890	6250 Dcw Cornwall shale
2900	6300 Dm Marcellus shale
2910	6350 Db Buttermilk Falls and Onondaga limestones, undivided
2920	6360 Don Onondaga limestone
2930	6400 Dkec Kanouse sandstone, Esopus Formation, and Connelly conglomerate, undivided
2940	6450 Dkn Kanouse sandstone
2950	6500 Ds Schoharie Formation
2960	6550 De Esopus Formation
2970	6600 Dcc Connelly conglomerate
2980	6650 Do Oriskany Group, undivided
2990	6720 Drs Ridgely sandstone
3000	6740 Dsc Shriver chert
3010	6760 Dg Glenane Formation
3020	6800 Dh Helderberg Group, undivided
3030	6820 Dp Port Ewen shale
3040	6840 Dmn Minisink limestone and New Scotland Formation, undivided
3050	6860 Dmi Minisink limestone
3060	6880 Dn New Scotland Formation
3070	6881 Dnm New Scotland Formation - Maskenozha member
3080	6882 Dnf New Scotland Formation - Flatbrookville member

3090	6900 Dkc Kalberg Limestone, Coeymans limestone, Manlius limestone, and Coeymans Formation, undivided
3100	6885 Dc Coeymans Formation
3110	6901 Dcs Coeymans Formation - Stormville member
3120	6902 Dcsi Coeymans Formation - Shawnee Island member
3130	6903 Dcpv Coeymans Formation - Peters Valley member
3140	6904 Dcdl Coeymans Formation - Depue Limestone member
3150	6920 Dkl Kalkberg limestone
3160	6940 Dcl Coeymans limestone
3170	6960 Dml Manlius limestone
3180	6961 Dmir Manlius limestone - Ravena member
3190	6962 Dmlt Manlius limestone - Thacker member
3200	7150 DSr Rondout Formation
3210	7151 DSm Rondout Formation - Mashpacong member
3220	7152 DSrd Rondout Formation - Duttonville member
3230	7153 DSrwd Rondout Formation - Whiteport Dolomite member
3240	7200 DSrd Rondout and Decker Formations, undivided
3250	7250 Sd Decker Formation
3260	7300 Sbv Bossardville limestone
3270	7400 Sbv Berkshire Valley Formation
3280	7500 Sp Poxono Island Formation
3290	7550 Sbp Berkshire Valley and Poxono Island Formations, undivided [includes Spbv labels on some maps]
3300	7600 Sb Bloomsburg red beds
3310	7700 Sl Longwood shale
3320	7705 Shf High Falls Formation (Superceded by the Longwood shale and Bloomsbury red beds)
3330	7800 Sg Green Pond conglomerate [includes Sgp labels on some maps]
3340	7900 Ss Shawangunk Formation
3350	8100 SObu Beemerville Intrusive Suite
3360	8120 SObs Nepheline syenite [includes Obs labels on some maps]
3370	8140 SObl Lamprophyre, tinguaite, bostonite, and malgite, undifferentiated [includes Obf, Obp, Obb, Obn, Obl labels on some maps]
3380	8160 SObb Ouachitite breccia or volcanic breccia [includes Obo, Ovb, Oub, labels on some maps]
3390	8200 Om Martinsburg Formation, undivided
3400	8210 Omh Martinsburg Formation - High Point member [includes Omhp labels on some maps]
3405	8215 Omhs Martinsburg Formation - High Point member, sandstone facies
3410	8220 Omhph Martinsburg Formation - High Point member, hornfel
3420	8230 Omr Martinsburg Formation - Ramseyburg member
3425	8235 Ombr Martinsburg Formation - slate and graywacke facies
3430	8240 Omrh Martinsburg Formation - Ramseyburg member, hornfel
3440	8250 Omb Martinsburg Formation - Bushkill member
3450	8260 Omhb Martinsburg Formation - Bushkill member, hornfel

Water Allocation Codes

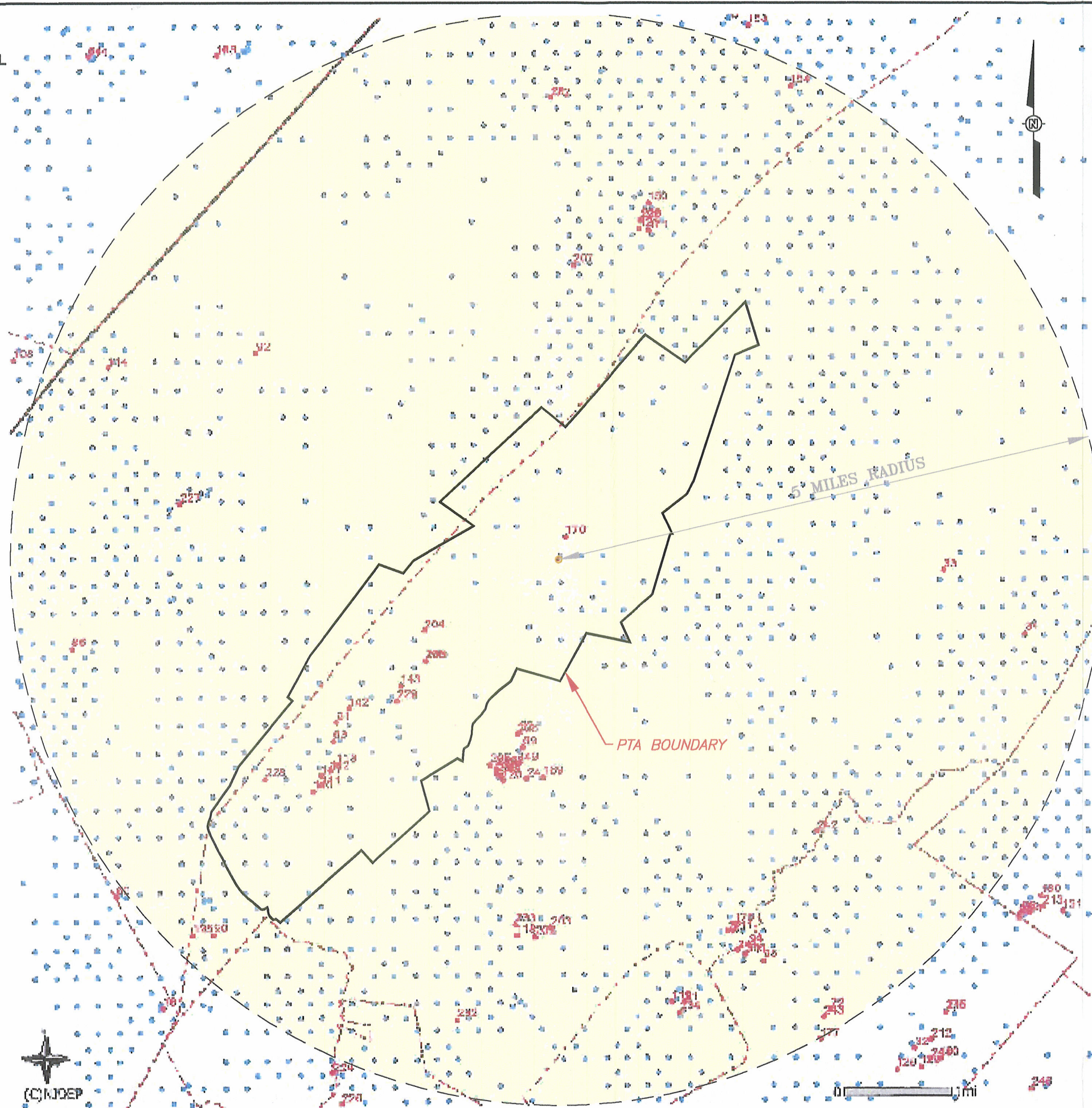
3460	8300 OCjt Jutland klippe sequence, undifferentiated [includes Ojt labels on some maps]
3470	8320 OC/tb Jutland klippe sequence, Unit B of Perissoratis and other (1979) [includes O/tb labels on some maps]
3480	8340 OC/jta Jutland klippe sequence, Unit A of Perissoratis and other (1979) [includes O/jta labels on some maps]
3490	8400 Oj Jacksonburg limestone
3500	8410 Oju Jacksonburg limestone, undivided
3510	8420 Ojr Jacksonburg limestone, cement rock facies
3520	8440 Ojl Jacksonburg limestone, cement limestone facies
3530	8450 Ojw Jacksonburg Limestone and sequence at Wantage
3540	8460 Ow Sequence at Wantage
3550	8490 Oj+ All Paleozoic units above Beekmantown Group, undivided
3560	8550 OCjk Jacksonburg limestone and Kittatinny Supergroup, undivided
3570	8575 OCjwb Jacksonburg limestone, sequence at Wantage, and Beekmantown Group, undivided
3580	8600 Ock Kittatinny Supergroup
3590	8602 Ocku Upper Kittatinny
3600	8604 Ockm Middle Kittatinny
3610	8606 Ockl Lower Kittatinny
3620	8610 Ob Beekmantown Group, undivided
3630	8620 Obu Beekmantown Group, upper part
3640	8630 Obl Beekmantown Group, lower part
3650	8640 Oo Ontelaunee Formation
3660	8642 Ooh Ontelaunee Formation - Harmonyvale member
3670	8644 Oobr Ontelaunee Formation - Beaver Run member
3680	8650 Oe Epler Formation
3690	8652 Oel Epler Formation - Lafayette member
3700	8654 Oebs Epler Formation - Big Springs member
3710	8656 Oebr Epler Formation - Branchville member
3720	8660 Or Rickenback dolomite
3730	8662 Orh Rickenback dolomite - Hope member
3740	8664 Orl Rickenback dolomite - lower member
3750	8670 Os Stonehenge Formation
3760	8750 OCa Allentown dolomite
3770	8752 OCau Allentown dolomite - upper member
3780	8754 OCal Allentown dolomite - Limeport member
3790	8800 Cl Leithsville Formation
3800	8820 Clw Leithsville Formation - Walkill member
3810	8840 Clha Leithsville Formation - Hamburg member
3820	8860 Clc Leithsville Formation - Calfon member
3830	8900 Clh Leithsville Formation and Hardyston quartzite, undivided
3840	8920 Ch Hardyston quartzite
3850	8930 Cc Chickies quartzite
3860	8999 * Igneous and metamorphic rocks
3870	9970 Yg Gneiss, granofels, and migmatite
3880	9210 * Schistose rocks
3890	9220 CZm Manhattan schist
3900	9240 CZs Serpentinite
3910	9250 CZw Wissahickon Formation
3920	9260 Zch Chestnut Hill Formation

3930	9340 * Granitic rocks
3940	9270 db Diabase dikes (unknown age)
3950	9280 Zd Diabase dikes
3960	9290 Zv Metabasalt (includes Metavolcanic rocks)
3970	9350 Ygm Mount Eve granite
3980	9400 Ybi Byram Intrusive Suite
3990	9420 Ybh Hornblende granite
4000	9440 Ybs Hornblende syenite
4010	9460 Ybb Biotite granite
4020	9480 Yba Microperthite alaskite
4030	9500 Ylh Lake Hopatcong Intrusive Suite
4040	9520 Ypg Pyroxene granite
4050	9540 Yps Pyroxene syenite
4060	9560 Ypa Pyroxene alaskite
4070	9800 Yl Losee Metamorphic Suite
4080	9840 Yla Albite-oligoclase granite
4090	9900 Yd Diorite
4100	9960 Yma Microantiperthite alaskite
4110	9980 Ygb Gabbro
4120	9875 Yun Rocks of uncertain origin
4130	9590 * Gneissic rocks
4140	9595 bg Baltimore gneiss [not present in New Jersey]
4150	9600 Ys Syenite gneiss
4160	9700 Yms Metasedimentary rocks
4170	9710 Yk Potassic-feldspar gneiss
4180	9720 Ym Microcline gneiss
4190	9730 Yb Biotite-quartz-feldspar gneiss
4200	9740 Ymh Hornblende-quartz-feldspar gneiss
4210	9750 Ymp Clinopyroxene-quartz-feldspar gneiss
4220	9760 Yp Pyroxene gneiss
4230	9762 Ypb Pyroxene gneiss with abundant biotite
4240	9764 Yph Pyroxene gneiss with abundant hornblende
4250	9766 Ypbh Pyroxene gneiss with abundant biotite and hornblende
4260	9770 Ype Pyroxene-epidote gneiss
4270	9790 Yq Quartzite
4280	9795 Ye Epidote gneiss
4290	9820 Ylo Quartz-oligoclase gneiss
4300	9860 Ylb Biotite-quartz-oligoclase gneiss
4310	9870 Ylh Hornblende-quartz-oligoclase gneiss
4320	9880 Yh Hypersthene-quartz-plagioclase gneiss
4330	9910 Ya Amphibolite
4340	9920 Yam Migmatite
4350	9930 Ymg Monazite gneiss
4360	9940 Yhp Hornblende-plagioclase gneiss
4370	9950 Ybp Biotite-plagioclase gneiss
4380	9780 Yf Franklin marble [includes Ymr labels on some maps]
4390	9785 Yfi Franklin limestone
4400	9788 Ywi Wildcat marble

100,00 GPD WATER WITHDRAWAL
POINTS WITHIN 5 MILES OF :

X: 483994
Y: 775536

1" = 63,360"



LEGEND

- Water Allocation, Diversion and Monitoring Locations
- Subject Items
- Municipalities
- Counties

FIGURE WAS MODIFIED FROM PLOT PRODUCED
BY NJDEP, BUREAU OF WATER ALLOCATION
P.O. BOX 426, TRENTON, NJ 08625

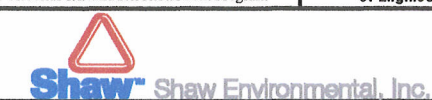
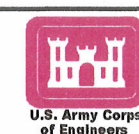
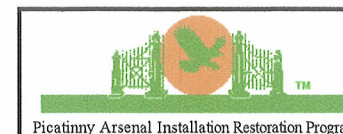


FIGURE No. 1

WELL SEARCH LOCATION MAP
PLOTTED BY NJDEP ON 10/18/2007
PICATINNY ARSENAL, DOVER, NEW JERSEY

100,000 GPD WATER WITHDRAWAL POINTS
 WITHIN 10 Miles OF :
 X : 483994
 Y : 775536

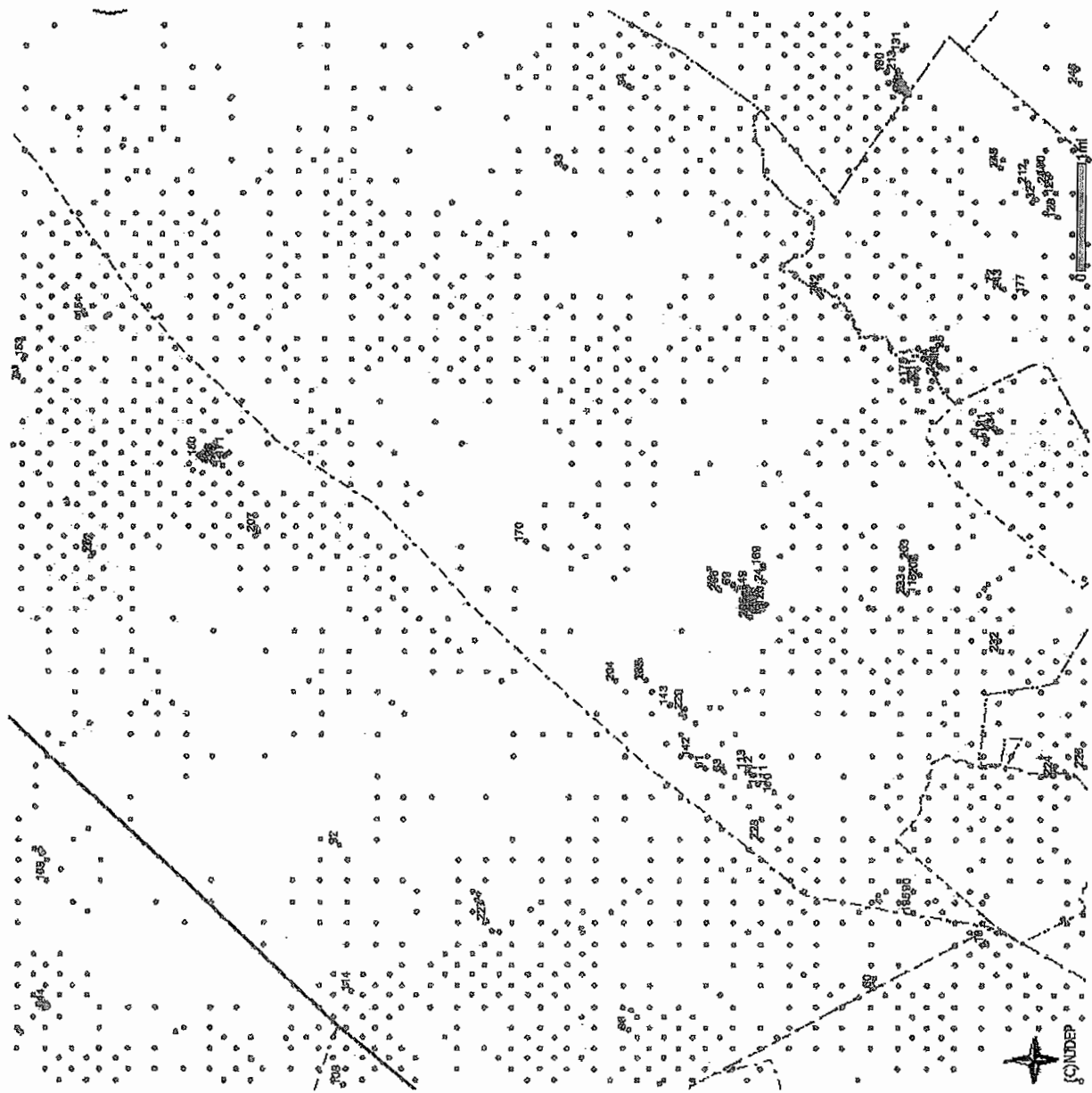
SCALE : 1 : 63,360

PLOT PRODUCED BY :
 NJDEP
 WATER SUPPLY
 BUREAU OF WATER ALLOCATION
 P.O. Box 426
 TRENTON, NJ 08625
 DATE : 10/8/2007

SUBJECT TO REVISION

40 57 46
 N 31 E

- Legend
- Water Allocation, Diversion and Monitoring Locations
 - Subject Items
 - Municipalities
 - Counties



Withdrawal Points Tabular Data

Sequence Number (BWA)	PI ID Number (Preferred NJEMS ID)	PI Name	Activity Number	SI Category Code	SI Designation	SI Description	Distance From XY Origin - ft. (BWA)	County Code	Municipality Code	SPC33X	SPC33Y	XY Accuracy + Units	Dep to Top of Open Interval + Units	Dep To Btm of Open Interval + Units	Z Accuracy + Units (Elevation)	Z Accuracy + Units Code	Geologic Unit Code	Hydrogeologic Unit Code	Rated Pump Capacity + Units Code	BRDGBWASURITEMID (BWA)
1 5295		ROXBURY TWP WATER DEPT	WAP950001	WSWL	4500000289	WELL 6	52663.07	14	36	441506.72	744419.14	100ft	61ft	90ft	1100	10Feet	3930	8999	50gm	399K
2 5295		ROXBURY TWP WATER DEPT	WAP950001	WSWL	2500029414	WELL 12	44598.98	14	36	443681.54	756457.09	100ft	50ft	75ft	910	10Feet	1020	129	300gm	592K
3 2123P		HERCULES INC	WAP010001	WSWL	4500000310	WELL 1	37104.72	14	36	458827.07	748270.63				720	10Feet	1440	79	850gm	782K
4 5287		HOPATCONG BOROUGH WATER DEPT	WAP020002	WSWL	4200000007	WELL 1	37658.58	19	12	446967.22	768664.55	100ft	23ft	79ft	1070	20Feet	3860	8999	40gm	17K
5 5287		HOPATCONG BOROUGH WATER DEPT	WAP020002	WSWL	2200042294	WELL 16	32507.47	19	12	451802.45	771011.95	100ft	270ft	400ft	970	20Feet	3860	8999	50gm	12604
6 4066PS		LAKE MOHAWK GOLF CLUB	WAP030001	WSIN	INTAKE 1	LAKE MOHAWK	42010.25	19	18	446920.00	795295.00	100ft			730	10Feet			250gm	683K
6 4066PS		LAKE MOHAWK GOLF CLUB	WAP030001	WSIN	INTAKE 1	LAKE MOHAWK	42010.25	19	18	446920.00	795295.00	100ft			730	10Feet			500gm	683K
7 5358		SPARTA TWP WATER UTILITIES	WAP980001	WSWL	2200018519	GREEN TREE 1 WELL	39163.94	19	18	448230.16	791498.40	100ft	60ft	300ft	988		3860	8999	36gm	421K
8 5358		SPARTA TWP WATER UTILITIES	WAP980001	WSWL	2200036968	GREEN TREE 3 WELL	38286.46	19	18	449380.83	791901.12		120ft	297ft	960		240	8999	44gm	1550K
9 5358		SPARTA TWP WATER UTILITIES	WAP980001	WSWL	2200000068	SENECA LAKE WELL 1	35382.25	19	18	451215.58	788862.02	100ft	127ft	207ft	854		3580	8399	77gm	1211K
10 11097W		SKYVIEW GOLF CLUB	WUR060001	WSIN	INTAKE 1	POND 1 (CORRECTED)	47811.24	19	18	451016.00	810154.00	100ft			744	5Feet			1200gm	1127K
11 11097W		SKYVIEW GOLF CLUB	WUR060001	WSWL	2200038401	WELL 2	47117.55	19	18	451636.00	809786.00	100ft	63ft	350ft	765	5Feet	3930	8999	40gm	1127K
12 5358		SPARTA TWP WATER UTILITIES	WAP980001	WSWL	4200000010	WELL 1	40673.41	19	18	452693.02	801509.26	100ft			723		3580	8399	141gm	617K
13 11181W		FARLEY WATERWORKS INC	WUR020001	WSWL	2500060316	WELL 1	28920.73	14	36	464725.67	753968.63		251ft	495ft			3830	8399	70gm	826K
14 5358		SPARTA TWP WATER UTILITIES	WAP980001	WSWL	2200029376	WATERS EDGE WELL 1	31674.76	19	18	472696.81	805127.94	100ft	81ft	398ft	1198		3860	8999	66gm	234K
15 5251		OGDENSBURG BOROUGH WATER DEPT	WAP970001	WSWL	2200013188	WELL 3	47729.82	19	16	465663.63	819605.98						1020	129	200gm	991K
16 5359		FRANKLIN BORO	WAP960001	WSWL	2200030011	WELL B	50259.85	19	06	467887.83	823145.58	500ft	65ft	225ft	576		4390	8999	380gm	781K
17 10796W		HILLSIDE ESTATES AT FRANKLIN	WUR940001	WSWL	2200004557	WELL 2	49719.84	19	06	469559.69	823108.70	100ft			642	5Feet	3930	8999	30gm	331K
18 11256W		TRANSBANC INTERNATIONAL INVESTORS CORP	WUR060001	WSWL	2200042248	NEW WELL	52565.10	19	06	469875.11	826169.73	300ft	140ft	275ft	566.9	20Feet	3760	8399	25gm	483K
19 2074P		HOWMET CORP	WAP980001	WSWL	2500014562	WELL 2	29011.54	14	35	484478.03	746528.65		124ft	134ft	548		1020	129	400gm	653K

20	2412P	MCWILLIAMS FORGE CO INC	WAP980001	WSWL	4500000364	WELL 1	28241.37	14	34	485533.54	747337.90	100ft	203ft	536	11Feet	3860	8999	100gm	9494
21	5144	ROCKAWAY BOROUGH WATER DEPT	WAP000001	WSWL	4500000348	WELL 1	22273.23	14	34	489933.68	753698.67	40ft		535	10Feet	980	129	400gm	7890
22	5248	ROCKAWAY TWP WATER DEPT	WAP030001	WSWL	2500015364	WELL 7	19764.61	14	35	492125.00	757521.72	100ft	88ft	524.96	5Feet	1020	129	880gm	6135
23	2200P	TILCON NEW YORK INC	WAP060001	WSIN	INTAKE LOCATION 2	DREDGE POND INTAKES (2) & DREDGE (RECIRCULATING)	8615.00	14	35	482071.32	767138.34	300ft		1100	20Feet	3930	8999	3200gm	12347
23	2200P	TILCON NEW YORK INC	WAP060001	WSIN	INTAKE LOCATION 2	DREDGE POND INTAKES (2) & DREDGE (RECIRCULATING)	8615.00	14	35	482071.32	767138.34	300ft		1100	20Feet	3930	8999	4000gm	12347
24	11207W	MT HOPE HYDRO INC	WUR040001	WSIN	SHAFT 1	NEW LEONARD SHAFT	10742.65	14	35	482376.71	764915.87	150ft		820	40Feet			300gm	7015
25	2058P	BOWLING GREEN GOLF CLUB INC	WAP000001	WSWL	2200008677	WELL 1	22299.99	14	14	483804.25	797835.33	500ft	65ft	860	20Feet	3580	8399	20gm	14264
26	10280W	LAKE TAMARACK WATER CO	WUR040001	WSWL	WELL # UNKNOWN	WELL 6	49905.81	19	11	482920.80	825430.43	40ft		1040	20Feet	3760	8399		7015
27	2195P	WARNER LAMBERT CO LLC	WAP980001	WSWL	25000003447	WELL 4	47071.81	14	23	498768.40	730843.21			421		1020	129	250gm	13518
28	5238	MOUNTAIN LAKES BOROUGH WATER DEPT	WAP990001	WSWL	2500014698	WELL 5	34931.53	14	25	503756.38	746732.63					1020	129	1000gm	5935
29	5236	PARSIIPPANY TROY HILLS TWP WATER DEPT	WAP010001	WSWL	2500013259	WELL 14	48363.82	14	29	507144.36	733073.22	100ft	70ft	290	20Feet	1020	129	700gm	14025
30	10522W	T1 PARSIIPPANY INC	WUR940001	WSWL	2500011750	DIFFUSION2	41233.69	14	29	507523.11	741674.99		158ft	360	10Feet	3860	8999		11028
31	2573E	DENVILLE TECHNICAL PK	WUR040001	WSWL	2500064338	DP-1 (PROPOSED)	21176.92	14	08	492996.00	756368.00	200ft	10ft	525	20Feet	4090	8999	2gm	14612
32	10622W	INDEPENDENCE PLATING CORP	WUR890001	WSWL	26000000755	WELL 1	29290.35	16	08	501143.07	751791.27							200gm	1355
33	5268	CITY OF JERSEY CITY	WAP020001	WSYT	SPLIT ROCK RESERVOIR	RESERVOIR	18731.34			502711.53	774828.72	1800ft		840	20Feet				7463
34	5109	BOONTON TOWN WATER DEPT	WAP990001	WSWL	25000039193	WELL 4-R	22983.76	14	01	506659.89	771729.50	500ft	116ft	580		1020	129	550gm	12427
35	5236	PARSIIPPANY TROY HILLS TWP WATER DEPT	WAP010001	WSWL	2500011628	WELL 10	42150.03	14	29	509366.69	741878.62	100ft	119ft	322	20Feet	1020	129	500gm	14030
36	5236	PARSIIPPANY TROY HILLS TWP WATER DEPT	WAP010001	WSWL	2500011627	WELL 9	42870.54	14	29	510288.70	741676.91	100ft	60ft	320	20Feet	1020	129	540gm	305
37	2206P	Pfizer, Inc	WAP980001	WSWL	2500011876	WELL 3	50295.24	14	29	513905.27	735102.25	500ft	60ft	80ft		1020	129	450gm	10711
38	5236	PARSIIPPANY TROY HILLS TWP WATER DEPT	WAP010001	WSWL	4500000033	WELL 4	45730.68	14	29	514283.82	741275.46	500ft	52ft	300	20Feet	1020	129	250gm	11147

39	5151	FAYSON LAKE WATER CO	WAP040003	WSWL	2200042313	WELL 7	46292.50	14	15	530205.19	778271.15	100ft	58ft	98ft	620	20Feet	1020	129	160gm	6224
40	5151	FAYSON LAKE WATER CO	WAP040003	WSWL	2200007045	WELL 4	46373.86	14	15	530288.43	778241.65	40ft	48ft	90ft	620	20Feet	1020	129	0gm	10074
41	5128	BUTLER BOROUGH WATER DEPT	WAP990001	WSIN	INTAKE 1	KAKIBOUT RESERVOIR	46388.08	14	15	529272.90	785617.59								6gm	285E
42	5295	ROXBURY TWP WATER DEPT	WAP950001	WSWL	2500013067	WELL 5	52661.32	14	36	441583.32	744317.78	100ft	25ft	100ft	1100	10Feet	3950	8999	50gm	13872
43	5287	HOPATCONG BOROUGH WATER DEPT	WAP020002	WSWL	2200042293	WELL 14	42968.47	19	12	444650.19	758262.20	100ft	36ft	65ft	875	10Feet	3860	8999	30gm	285E
44	5287	HOPATCONG BOROUGH WATER DEPT	WAP020002	WSWL	4200000008	WELL 4	41518.12	19	12	443309.06	767258.10	500ft			1010	20Feet	3860	8999	40gm	90C
45	5358	SPARTA TWP WATER UTILITIES	WAP980001	WSWL	4200000011	WELL 5	45470.01	19	04	441021.41	790399.42	100ft			731		3860	8999	110gm	617C
46	5295	ROXBURY TWP WATER DEPT	WAP950001	WSWL	2500024717	WELL 11	49742.28	14	36	446113.25	743296.78	100ft	95ft	550ft	1010	10Feet	3950	8999	17gm	970E
47	4028PS	COUNTY CONCRETE CORP	WAP990001	WSIN	LAMINGTON RIVER	RUTGERS POND	41930.83	14	36	457283.80	743213.04	0							3600gm	3081
48	2123P	HERCULES INC	WAP010001	WSWL	4500000311	WELL 2	37104.72	14	36	458827.07	748270.63				720	10Feet	1440	79	850gm	14E
49	5287	HOPATCONG BOROUGH WATER DEPT	WAP020002	WSWL	2500007325	WELL 8	39357.90	19	12	446457.02	763701.76	100ft	32ft	93ft	1010	20Feet	3860	8999	60gm	786C
50	5287	HOPATCONG BOROUGH WATER DEPT	WAP020002	WSWL	4500000283	MARINER	38193.54	19	12	448103.91	762471.70	100ft	ft	53ft	940	20Feet	3860	8999	35gm	1182E
51	10387W	MT ARLINGTON SERVICE	WUR930001	WSWL	2500011821	WELL 5	33947.54	14	26	453853.38	759915.47			275ft	1180	10Feet	3860	8999		975S
52	5338	UNITED WATER NJ ARLINGTON HILLS	WAP030001	WSWL	2500033916	WELL 1A	37009.66	14	26	454457.12	753235.61	100ft	83ft	98ft	795	10Feet	1410	116	300gm	7811
53	5287	HOPATCONG BOROUGH WATER DEPT	WAP020002	WSWL	2200000020	WELL 2	37336.91	19	12	447502.38	767634.30	100ft	44ft	147ft	940	20Feet	3860	8999	40gm	212E
54	5287	HOPATCONG BOROUGH WATER DEPT	WAP020002	WSWL	2200000096	WELL 3	37125.80	19	12	447740.13	767555.24	100ft	39ft	74ft	940	20Feet	3860	8999	75gm	177
55	5358	SPARTA TWP WATER UTILITIES	WAP980001	WSWL	2200036871	AUTUMN HILL WELL 1	38242.69	19	04	448302.78	789271.93		99ft	800ft	1000		240	8999	57gm	12074
56	5358	SPARTA TWP WATER UTILITIES	WAP980001	WSWL	2200027478	NEWSTAR WELL 2	32647.79	19	18	454513.58	789565.04	100ft	50ft	500ft	975		3860	8999	141gm	8131
57	5358	SPARTA TWP WATER UTILITIES	WAP980001	WSWL	2200027868	BUTTONWOOD WELL 2	31329.94	19	18	456508.49	790573.98		63ft	300ft	1045	40Feet	3860	8999	60gm	5801
58	5358	SPARTA TWP WATER UTILITIES	WAP980001	WSWL	2200027867	BUTTONWOOD WELL 1	31329.94	19	18	456508.49	790573.98		131ft	500ft	606		3860	8999	72gm	1169S
59	10380W	WELDON QUARRY CO	WUR040001	WSWL	2200020903	WELL H0-W3	28745.73	19	12	456960.84	785311.07			198ft	1080	10Feet	4130	8999		1075S
60	5295	ROXBURY TWP WATER DEPT	WAP950001	WSWL	2500021483	WELL 7	26904.18	14	36	462494.41	759361.42	100ft	200ft	202ft	710	10Feet	1020	129	35gm	213C
		TOWN OF																		

61	5100	DOVER WATER COMMISSION	WAP060001	WSWL	4500000281	WELL 3	28657.17	14	09	473381.30	748916.35	40ft	52ft	74ft	590.06	10Feet	1020	129	1600gm	1389x
62	5100	TOWN OF DOVER WATER COMMISSION	WAP060001	WSWL	2500016024	WELL 5	28914.79	14	09	473384.98	748637.76	40ft	44ft	64ft	555	10Feet	1020	129	1500gm	1184x
63	2450E	US ARMY ARMAMENT RESEARCH DEV	EQP970002	WSWL	2500059202	WW-4A	14019.30	14	35	473049.77	766774.05				692.92		1020	129	50gm	949x
64	5358	SPARTA TWP UTILITIES	WAP980001	WSWL	2200035866	SUNSET LAKES WELL 2	33162.83	19	18	461580.38	799978.39		48.5ft	603ft	1120		240	8999	35gm	412
65	5225	NEWTON TOWN WATER UTILITY	WAP010001	WSIN	MORRIS LAKE		36469.56	19	18	463119.67	805441.16	500ft								1427x
66	5358	SPARTA TWP UTILITIES	WAP980001	WSWL	2200029375	WATERS EDGE WELL 2	31674.76	19	18	472696.81	805127.94	100ft	60ft	348ft	1198		3860	8999	62gm	813x
67	5251	OGDENSBURG BOROUGH WATER DEPT	WAP970001	WSWL	2200035210	WELL 4	47504.57	19	16	464820.63	818999.73				569		4390	8999	350gm	597x
68	2200P	TILCON NEW YORK INC	WAP060001	WSWL	2500038268	WELL 15	10353.55	14	35	481631.93	765455.54	300ft	59ft	200ft	813	20Feet	3930	8999	20gm	837x
69	2200P	TILCON NEW YORK INC	WAP060001	WSWL	4500040569	WELL 14	9298.38	14	35	482231.10	766406.33	300ft			961	20Feet	3930	8999	5gm	1435x
70	5307	JEFFERSON TWP	WAP950001	WSWL	2200006028	WHITE RK 2	26581.40	14	14	486990.94	801948.01	100ft	67ft		910		3860	8999	125gm	970x
71	2573E	DENVILLE TECHNICAL PK	WUR040001	WSWL	2500064339	DP-2 (PROPOSED)	21176.92	14	08	492996.00	756368.00	200ft	10ft	30ft	525	20Feet	4090	8999	2gm	1257x
72	5257	DENVILLE TWP WATER DEPT	WAP990001	WSWL	2500005142	WELL 4	25468.07	14	08	497093.22	753695.33	40ft	96ft	116ft	512	10Feet	980	129	550gm	1191x
73	5109	BOONTON TOWN WATER DEPT	WAP990001	WSWL	2500059661	WELL 1-R (TW-1)	28316.94	14	01	506437.72	758270.32	500ft	143ft	163ft	550		1020	129	550gm	725
74	5109	BOONTON TOWN WATER DEPT	WAP990001	WSWL	2500007495	WELL 5	28616.55	14	01	506787.44	758234.54	100ft	75ft	106ft	510	10Feet	1020	129	375gm	141
75	10931W	HIGHLANDER DR	WUR040001	WSWL	2200001345	WELL 1	39628.98	16	15	501975.10	810850.73	500ft	30ft	156ft	930	20Feet	2850	6125	30gm	1257x
76	5236	PARSHIPANY TROY HILLS TWP WATER DEPT	WAP010001	WSWL	2500007620	WELL 7	51311.67	14	29	514520.77	734293.25	100ft	56ft	66ft	280	20Feet	1020	129	500gm	974x
77	5123	NEWARK CITY WATER DEPT	WAP000001	WSIN	INTAKE 1	CHARLOTTEBURG RESERVOIR	37097.91	16	15	512928.04	798753.60	1000ft			680	20Feet			0gm	314x
78	10218W	JOS L MUSCARIELLE INC	WUR940001	WSWL	2500019464	WELL 2	52453.60	14	36	438259.84	749849.43	1000ft	97ft	105ft	1040	100Feet	4130	8999	0gm	1017x
79	11222W	PRC LASER CORP	WUR040001	WSWL	2500016000	WELL BLDING # 1	47276.33	14	36	443921.36	750450.89	200ft	50ft	170ft	940	20Feet	4030	8999	65gm	171x
80	11222W	PRC LASER CORP	WUR040001	WSWL	2500015052	WELL BLDING # 2	47276.33	14	36	443921.36	750450.89	200ft	43ft	73ft	960	20Feet	4030	8999	20gm	171x
81	5358	SPARTA TWP UTILITIES	WAP980001	WSWL	2200024665	SUSSEX MILLS WELL 2	49681.03	19	18	444808.89	806077.37		53ft	222ft	650	60Feet	3860	8999	90gm	404
82	5058	MORRIS COUNTY MUA	WAP050001	WSWL	2500022600	ALAMATONG 4	51768.57	14	32	454531.71	732968.74	100ft	103ft	161ft	700	10Feet	1020	129	1000gm	20x
83	5287	HOPATCONG BOROUGH WATER DEPT	WAP020002	WSWL	2500009585	WELL 12	38655.70	19	12	447040.09	764191.35	100ft	66ft	165ft	1000	20Feet	3860	8999	60gm	8

84	5338	UNITED WATER NJ ARLINGTON HILLS	WAP030001	WSWL	2500036115	WELL 2	37070.90	14	26	454380.33	753235.73	100ft	76ft	91ft	795	10Feet	1410	116	300gm	134
85	5287	HOPATCONG BOROUGH WATER DEPT	WAP020002	WSWL	2500021763	SQUIRE	39193.81	19	12	446340.06	764656.39	100ft	50ft	148ft	1000	20Feet	3860	8999	75gm	591
86	B00161	HORN FARM	AGC980001	WSIN	POND 1		23894.68	03	29	460470.02	771341.07	500ft			50	10Feet			500gm	638
87	5358	SPARTA TWP WATER UTILITIES	WAP980001	WSWL	2200036967	GREEN TREE WELL 4	38286.46	19	18	449380.83	791901.12		50ft	197ft	980		240	8999	35gm	553
88	11097W	SKYVIEW GOLF CLUB	WUR060001	WSWL	2200037182	WELL 1	47696.98	19	18	451125.00	810100.00	100ft	95ft	300ft	765	5Feet	3930	8999	80gm	351
89	5358	SPARTA TWP WATER UTILITIES	WAP980001	WSWL	2200036869	EAGLES NEST WELL 2	40247.67	19	18	458600.97	806762.60		193ft	275ft	930		3760	8399	163gm	411
90	11126W	PONDVIEW ESTATES	WUR010001	WSWL	2500029036	WELL TW-2	24661.11	14	35	467207.82	757469.34	1000ft			720	5Feet	3860	8999	150gm	5641
91	2403P	US ARMY ARMAMENT RESEARCH DEV	WAP990001	WSWL	2500031898	WELL 131	13334.68	14	35	473213.79	767686.92	40ft	115ft	190.7ft	710	20Feet	1020	129	700gm	5851
92	5307	JEFFERSON TWP	WAP950001	WSWL	2200020087	WELDON RD	17620.77	14	14	469504.43	785583.95	100ft	55ft		840		3860	8999	340gm	197
93	2074P	HOWMET CORP	WAP980001	WSWL	2500024272	WELL R-1	28705.77	14	35	484324.52	746832.29				545		1020	129	150gm	1047
94	2573E	DENVILLE TECHNICAL PK	WUR040001	WSWL	2500064125	EW1	20872.50	14	35	493174.00	756791.00	100ft	34.4ft	44.4ft	526.9	20Feet	4090	8999	7gm	471
95	2573E	DENVILLE TECHNICAL PK	WUR040001	WSWL	2500064340	DP-3 (PROPOSED)	21845.12	14	08	493847.70	756039.86	ft			525	20Feet	4090	8999		10587
96	5109	BOONTON TOWN WATER DEPT	WAP990001	WSWL	4500000285	WELL 2	28315.35	14	01	506250.19	758031.83	100ft	20ft	38ft	550	10Feet	1020	129	250gm	14
97	5236	PARSHIPANY TROY HILLS TWP WATER DEPT	WAP010001	WSWL	2500012718	WELL 12	46448.05	14	29	511674.29	738237.37	100ft	70ft	100ft	300	20Feet	1020	129	300gm	6084
98	5236	PARSHIPANY TROY HILLS TWP WATER DEPT	WAP010001	WSWL	2500007545	WELL 4A	45806.61	14	29	514283.91	741174.26	100ft	120ft	150ft	300	20Feet	1020	129	900gm	14031
99	11135W	STATE FARM MUTUAL AUTO INSURANCE	WUR010001	WSWL	2500056630	WELL 1	49611.46	14	29	516361.40	737938.02	500ft			331	10Feet	1440	79	100gm	4775
100	5151	FAYSON LAKE WATER CO	WAP040003	WSWL	2200028707	WELL 6	46345.52	14	15	530258.43	778269.13	40ft	50ft	81ft	620	20Feet	1020	129	200gm	37
101	5287	HOPATCONG BOROUGH WATER DEPT	WAP020002	WSWL	2500059851	WELL 15	42879.10	19	12	444762.00	758230.00	100ft	77ft	500ft	890	10Feet	3860	8999	30gm	4742
102	10770W	GREEN HILL ESTATES	WUR950001	WSWL	2200009971	WELL 2	51441.55	19	07	441664.83	804768.18	1000ft	40ft	96ft	1000	20Feet			30gm	87
103	5358	SPARTA TWP WATER UTILITIES	WAP980001	WSWL	2200025190	WELL 6	46113.17	19	18	444719.74	799702.06	100ft	50ft	830ft	829		3860	8999	52gm	4214
104	10575W	BETA REALTY GROUP	WUR880001	WSWL	2500005732	WELL 2	45763.48	14	32	456893.11	738659.84	500ft	47ft	65ft	700	10Feet	1020	129	200gm	1781
105	5295	ROXBURY TWP WATER DEPT	WAP950001	WSWL	2500001042	WELL 2	42446.21	14	36	447285.72	754223.80	100ft	88ft	98ft	1030	10Feet	1020	129	250gm	1387
106	5358	SPARTA TWP WATER UTILITIES	WAP980001	WSWL	2200027477	NEWSTAR WELL 1	52578.53	19	18	454590.25	789564.92	100ft	50ft	301ft	975		3860	8999	35gm	3835

[illegible]

155	5236	PARSIPPANY TWP HILLS TWP WATER DEPT	WAP010001	WSWL	2500007381	WELL 1A	44045.84	14	29	511671.83	741273.21	100ft	102ft	138ft	300	20Feet	1020	129	420gm	14032
156	11012W	BOONTON ELECTRONICS	WUR980001	WSWL	2500025494	WELL 5	49707.88	14	29	515670.59	737228.98	500ft			293		1020	129	200gm	2922
157	5165	STANHOPE BOROUGH WATER DEPT	WAP000001	WSWL	4500000030	WELL 2	51916.55	20	19	435728.83	756409.07	500ft					4130	8999	125gm	11945
158	5358	SPARTA TWP WATER UTILITIES	WAP980001	WSWL	2200000174	WELL 7	44727.67	19	18	444791.21	797070.78	100ft	29ft	195ft	866		3860	8999	51gm	6167
159	5101	ROXBURY WATER CO	WAP990001	WSWL	2500054660	MW-1	46055.92	14	36	458514.83	744628.04									1316
160	10387W	MT ARLINGTON SERVICE	WUR930001	WSWL	2500009929	WELL 1	35286.91	14	26	451444.76	761907.41	100ft		97ft	1180	10Feet	3860	8999		14142
161	10265W	BYRAM HOMEOWNERS WATER SYSTEM	WUR040001	WSWL	2200023490	WELL 2	40116.48	19	04	445644.39	787312.12	200ft	51ft	275ft	1000	20Feet	4130	8999	100gm	5810
162	10380W	WELDON QUARRY CO	WUR040001	WSWL	2200019888	WELL HO-W6	28347.35	19	12	457498.05	785613.88			148ft	1080	10Feet	4130	8999		10766
163	5358	SPARTA TWP WATER UTILITIES	WAP980001	WSWL	2200036864	STONEBRIDGE WELL 1	29320.64	19	18	467787.94	799971.32		51ft	350ft	1012		3860	8999	13gm	10095
164	5358	SPARTA TWP WATER UTILITIES	WAP980001	WSWL	2200036876	HIDDEN GLEN 1 WELL	31809.75	19	18	472850.21	805330.21		52ft	350ft	1180		240	8999	24gm	2345
165	5358	SPARTA TWP WATER UTILITIES	WAP980001	WSWL	2200036473	HIDDEN GLEN 2 WELL	31809.75	19	18	472850.21	805330.21		51.5ft	425ft	1236	40Feet	3860	8999	120gm	12062
166	5100	TOWN OF DOVER WATER COMMISSION	WAP060001	WSWL	2500010565	WELL 4	28203.60	14	09	480638.35	747532.83	40ft	120ft	138ft	555	10Feet	1020	129	1100gm	3852
167	2412P	MCWILLIAMS FORGE CO INC	WAP980001	WSWL	2500023743	PRESSURE RELIEF WELL	28952.93	14	34	485630.16	746629.51		114ft	134ft			3860	8999		9487
168	2403P	US ARMY ARMAMENT RESEARCH DEV	WAP990001	WSIN	INTAKE 1	LAKE PICATINNY B506A	8100.29	14	35	477549.32	770628.34	400ft			715	20Feet			1500gm	14382
168	2403P	US ARMY ARMAMENT RESEARCH DEV	WAP990001	WSIN	INTAKE 1	LAKE PICATINNY B506A	8100.29	14	35	477549.32	770628.34	400ft			715	20Feet			600gm	14382
169	2200P	TILCON NEW YORK INC	WAP060001	WSIN	INTAKE LOCATION 1	MILL POND INTAKES (3) (EMERGENCY USE)	10593.97	14	35	483209.53	764971.23	300ft			788	20Feet	3930	8999	1500gm	6408
169	2200P	TILCON NEW YORK INC	WAP060001	WSIN	INTAKE LOCATION 1	MILL POND INTAKES (3) (EMERGENCY USE)	10593.97	14	35	483209.53	764971.23	300ft			788	20Feet	3930	8999	240gm	6408
169	2200P	TILCON NEW YORK INC	WAP060001	WSIN	INTAKE LOCATION 1	MILL POND INTAKES (3) (EMERGENCY USE)	10593.97	14	35	483209.53	764971.23	300ft			788	20Feet	3930	8999	3000gm	6408
170	2403P	US ARMY ARMAMENT RESEARCH DEV	WAP990001	WSIN	INTAKE 3	LAKE DENMARK B1219	1101.60	14	35	484381.90	776567.03	400ft			820	20Feet			750gm	8411
171	2520P	BERKSHIRE VALLEY GOLF COURSE	WAP990001	WSWL	2200039317	C11	16465.89	14	14	488555.22	791357.55	500ft		122ft	761		970	129	25gm	12422

172 2058P	BOWLING GREEN GOLF CLUB INC	WAP000001	WSWL	INTAKE 1	POND 1	22299.99	14	14	483804.25	797835.33	500ft				860	20Feet			1200gm	10253
173 5307	JEFFERSON TWP	WAP950001	WSWL	2200005978	WHITE RCK1	26891.72	14	14	487067.63	802251.59	100ft	44ft			910		3860	8999	270gm	3831
174 10280W	LAKE TAMARACK WATER CO	WUR040001	WSWL	WELL # UNKNOWN	WELL 3	46451.66	19	11	480909.93	821885.34	40ft				1050	20Feet	3760	8399		9004
175 5248	ROCKAWAY TWP WATER DEPT	WAP030001	WSWL	25000062712	WELL 9	19622.83	14	35	492470.08	757838.58	50ft	88ft	148ft		520	5Feet	1020	129	380gm	9695
176 2573E	DENVILLE TECHNICAL PK	WUR040001	WSWL	25000064126	EW2	21176.92	14	35	492996.00	756368.00	100ft	42ft	52ft		524.8	20Feet	4090	8999	25gm	8627
177 5257	DENVILLE TWP WATER DEPT	WAP990001	WSWL	2500009515	WELL 5	26453.20	14	08	496593.05	752276.21	40ft	178ft	198ft		507	10Feet	980	129	1000gm	995E
178 5238	MOUNTAIN LAKES BOROUGH WATER DEPT	WAP990001	WSWL	4500000301	4 TOWPATH	28881.94	14	25	502678.11	753512.21							1020	129	400gm	772E
179 5109	BOONTON TOWN WATER DEPT	WAP990001	WSWL	4500000284	WELL 1	28251.21	14	01	506326.84	758234.27	100ft	20ft	43ft		550	10Feet	1020	129	250gm	13E
180 5109	BOONTON TOWN WATER DEPT	WAP990001	WSWL	2500012046	WELL 6, 30-2" WELLPOINTS (EMERGENCY USE)	28578.10	14	01	507358.44	759080.45	500ft		55ft		488	10Feet	1020	129	550gm	1163E
181 5236	PARSIIPPANY TROY HILLS TWP WATER DEPT	WAP010001	WSWL	2500018850	WELL 18	42797.24	14	29	509904.74	741474.23	100ft	109ft	127ft		310	20Feet	1020	129	750gm	11984
182 2206P	PFIZER, INC	WAP980001	WSWL	4500000256	WELL 4	50235.41	14	29	514212.37	735406.11	500ft		95ft		283		1020	129	450gm	1271E
183 2206P	PFIZER, INC	WAP980001	WSWL	2500006488	WELL 1	50570.47	14	29	514366.33	735102.66	500ft	75ft			283		1020	129	275gm	1474E
184 5236	PARSIIPPANY TROY HILLS TWP WATER DEPT	WAP010001	WSWL	4500000032	WELL 3	48764.38	14	29	520043.94	742698.14	100ft	49ft	75ft		300	20Feet	1020	129	350gm	2257
185 5151	FAYSON LAKE WATER CO	WAP040003	WSWL	2200014633	WELL 5	46942.92	14	15	530233.96	778300.50	40ft				620	20Feet	1020	129	100gm	613E
186 5109	BOONTON TOWN WATER DEPT	WAP990001	WSIN	INTAKE 1	TAYLORTOWN RESERVOIR	46744.59	14	21	529965.59	783999.52	0								1400gm	1242E
187 5101	ROXBURY WATER CO	WAP990001	WSWL	2500005279	WELL 2	51921.06	14	36	450939.30	735496.00	100ft	118ft	160ft		710	10Feet	2620	3050	150gm	1396E
188 10387W	MT ARLINGTON SERVICE	WUR950001	WSWL	2500011292	WELL 2	34239.80	14	26	452672.52	761702.98	100ft		200ft		1180	10Feet	3860	8999		42E
189 5287	HOPATCONG BOROUGH WATER DEPT	WAP020002	WSWL	2200028355	WELL 3A	37125.80	19	12	447740.13	767535.24	100ft	60ft	500ft		940	20Feet	3860	8999	68gm	212E
190 5287	HOPATCONG BOROUGH WATER DEPT	WAP020002	WSWL	2200021308	RIVER STYX	35212.07	19	12	449543.26	768251.44	100ft	50ft	475ft		930	20Feet	3860	8999	70gm	591E
191 5358	SPARTA TWP WATER UTILITIES	WAP980001	WSWL	2200036872	AUTUMN HILL WELL 2	38242.69	19	04	448302.78	789271.93		101ft	500ft		1000		240	8999	66gm	1010E
192 5358	SPARTA TWP WATER UTILITIES	WAP980001	WSWL	2200001132	WELL 8	38441.98	19	18	452072.41	796956.38	100ft	106ft	215ft		776		3860	8999	64gm	621E
193 5358	SPARTA TWP WATER	WAP980001	WSWL	2200001906	WELL 10	38415.47	19	18	452379.66	797360.66	100ft	170ft	206ft		763		3860	8999	92gm	10141

[illegible]

Sequence Number (BWA)	PI ID Number (Preferred NIEWS ID)	PI Name	Activity Number	SI Category Code	SI Designation	SI Description	Distance From XY Origin - ft. (BWA)	County Code	Municipality Code	SPC83X	SPC83Y	XY Accuracy + Units Code	Dep to Top of Open Interval + Units	Dep To Bin of Open Interval + Units	Z (Elevation)	Z Accuracy + Units Code	Geologic Unit Code	Hydrogeologic Unit Code	Rated Pump Capacity + Units Code	BRDGBWASUBJITEMID (BWA)
196 5071		WHARTON BOROUGH WATER DEPT	WAP980001	WSWL	2500002172	WELL 1	28562.47	14	39	473266.27	749064.65	1000ft	32ft	42ft	690	10Feet	1020	129	500gm	4145
197 5358		SPARTA TWP WATER UTILITIES	WAP980001	WSWL	2200005233	HIGHLAND 1 WELL	30655.68	19	18	474305.46	804620.71	100ft	108ft	198ft	1178		3860	8999	20gm	8126
198 10667W		FRANKLIN QUARRY	WUR910001	WSIN	POND		50473.25	19	06	464364.66	822036.21	0							750gm	6317
199 5257		DENVILLE TWP WATER DEPT	WAP990001	WSWL	2500019071	WELL 6	30531.73	14	32	484091.75	745004.58	40ft			546	10Feet	980	129	700gm	9957
200 2206P		PRIZER, INC	WAP980001	WSWL	2500028829	WELL 6	39663.82	14	29	485550.48	735902.89	1000ft	60ft	80ft	283		1020	129	450gm	14744
201 2412P		MCWILLIAMS FORGE CO INC	WAP980001	WSIN	ROCKAWAY RIVER	INTAKE 1	28342.41	14	34	485553.51	747236.70				536	1Feet			1000gm	1741
202 5248		ROCKAWAY TWP WATER DEPT	WAP030001	WSWL	2500059753	FH-13(TW-8)	18324.80	14	35	482715.62	757255.97	50ft	81ft	595ft	786.12	10Feet	240	8999	110gm	6138
203 5248		ROCKAWAY TWP WATER DEPT	WAP030001	WSWL	2500064805	FH-14(TW-9)	17835.30	14	35	483488.99	757707.99	50ft	89ft	550ft	785	20Feet	240	8999	110gm	379
204 2403P		US ARMY ARMAMENT RESEARCH DEV	WAP990001	WSIN	INTAKE 4	LAKE PICATINNY (FIRE PROTECTION)	7331.89			477520.53	772092.82	400ft			825	20Feet			2500gm	14384
205 2200P		TILCON NEW YORK INC	WAP060001	WSWL	2500039062	WELL 8	10517.10	14	35	480650.87	765564.39	300ft	52ft	365ft	889	20Feet	3930	8999	60gm	10337
206 2200P		TILCON NEW YORK INC	WAP060001	WSWL	4500040567	WELL 11	8740.11	14	35	481985.82	767029.77	300ft	51ft	250ft	1080	20Feet	3930	8999	5gm	8370
207 5307		JEFFERSON TWP	WAP950001	WSWL	2200011225	PADEREWSKI	14192.77	14	14	484841.66	789703.56	100ft	50ft		810		3860	8999	75gm	2083
208 2520P		BERKSHIRE VALLEY GOLF COURSE	WAP990001	WSWL	2200039321	IRR-2	16853.63	14	14	488171.98	791863.60									727
209 10280W		LAKE TAMARACK WATER CO	WUR040001	WSWL	2200006346	WELL 8	48469.29	19	11	480966.03	823910.79	40ft			1035	20Feet	3760	8399		13720
210 2195P		WARNER LAMBERT CO LLC	WAP980001	WSWL	2500000731	WELL 3	46663.80	14	23	498384.04	731146.69				390		1020	129	150gm	1783
211 5248		ROCKAWAY TWP WATER DEPT	WAP030001	WSWL	2500014324	WELL 6	19860.47	14	35	492355.31	757521.72	40ft	99.5ft	163.2ft	524.2	10Feet	1020	129	500gm	14101
212 4065PS		ROCKAWAY RIVER COUNTRY CLUB	WAP960001	WSIN	INTAKE 2	POND (CORRECTED)	29424.04	14	08	501910.80	752196.35	500ft							1070gm	13045
213 MR0012		HAMILTON FARMS	AGC030001	WSWL	2500062168	WELL 1	28949.37	14	02	507427.78	758539.00	200ft	76ft	96ft	510	20Feet	4290	8999	60gm	14619
214 5123		NEWARK CITY WATER DEPT	WAP000001	WSYT	CHARLOTTEBURG RESERVOIR	PEQUANNOCK RIVER	37097.91			512928.04	798753.60	1000ft			680	20Feet				14959
215 5180		MONTVILLE	WAP020001	WSWL	2200013497	9/INDIANI	52093.14	14	21	535101.59	765453.29	100ft	209ft	242ft	196	10Feet	1020	129	1000gm	11739

216	10218W	JOS L MUSCARELLE INC	WUR940001	WSWL	2500018208	WELL 1	51819.51	14	36	438500.11	750724.70	1000ft	124ft	155ft	1000	100Feet	4130	8999	0gm	8222
217	5358	SPARTA TWP WATER UTILITIES	WAP980001	WSWL	2200008146	WELL 12	47692.17	19	18	441341.72	796875.40	100ft	41ft	176ft	858		3860	8999	48gm	403
218	2154P	CREST AGGREGATES AKA LIMECREST QUARRY DEV LLC	WAP940001	WSWL	2200005245	PLANT WELL	52743.58	19	01	443743.36	809621.43		59ft	250ft	600		4390	8999	150gm	10463
219	5101	ROXBURY WATER CO	WAP990001	WSWL	2500034457	WELL 1A	51117.90	14	36	452475.75	735291.05	100ft	155ft		700	10Feet	3790	8399	200gm	13968
220	5287	HOPATCONG BOROUGH WATER DEPT	WAP020002	WSWL	2200001097	WELL 5	34341.43	19	12	449904.95	771376.73	100ft	20ft	120ft	940	20Feet	3860	8999	60gm	7867
221	10265W	BYRAM HOMEOWNERS WATER SYSTEM	WUR040001	WSWL	2200018673	WELL 1	40598.00	19	04	444861.37	786346.78	200ft	50ft	350ft	1000	20Feet	4130	8999	100gm	2011
222	5358	SPARTA TWP WATER UTILITIES	WAP980001	WSWL	2200005381	PANORAMA WELL	38366.77	19	18	449535.05	792406.84	100ft	60ft	174ft	992		3580	8399	33gm	6217
223	5358	SPARTA TWP WATER UTILITIES	WAP980001	WSWL	2200036870	EAGLES NEST WELL 1	50248.42	19	18	458617.84	818906.37		167ft	225ft	780		240	8999	192gm	12073
224	5071	WHARTON BOROUGH WATER DEPT	WAP980001	WSWL	2500015799	WELL 3	27129.99	14	39	472883.64	750785.27	1000ft	39ft	65ft	618	10Feet	1020	129	700gm	10032
225	5071	WHARTON BOROUGH WATER DEPT	WAP980001	WSWL	2500008675	WELL 2	28562.47	14	39	473266.27	749064.65	1000ft	27ft	32ft	690	10Feet	1020	129	500gm	317
226	5100	TOWN OF DOVER WATER COMMISSION	WAP060001	WSWL	2500013542	WELL 1	28363.52	14	09	473289.04	749270.15	40ft	44ft	64ft	591.65	10Feet	1020	129	1500gm	5946
227	5307	JEFFERSON TWP	WAP950001	WSWL	2200028661	E SHWNE TR	18432.75	14	14	465771.82	778317.26	1000ft	389ft	443ft	780		3860	8999	250gm	7827
228	11126W	PONDVIEW ESTATES	WUR010001	WSWL	2500034857	WELL TW-3	17744.97	14	35	469748.18	764955.35	1000ft	81ft	101ft	700	5Feet	3860	8999	130gm	3726
229	2403P	US ARMY ARMAMENT RESEARCH DEV	WAP990001	WSWL	4500000366	WELL 410	10429.98	14	35	476125.59	768689.28	40ft		108ft	710	20Feet	1020	129	500gm	13802
230	10796W	HILLSIDE ESTATES AT FRANKLIN	WUR940001	WSWL	2200010165	WELL 1	51649.84	19	06	470416.39	825369.53	1000ft			594	5Feet	3930	8999	60gm	9990
231	2412P	MCWILLIAMS FORGE CO INC	WAP980001	WSWL	2500014015	WELL 2	27851.14	14	34	485784.06	747742.62	100ft	147ft	148ft	536	1Feet	3860	8999	100gm	11433
232	10725W	TOWNSQUARE VILLAGE HOMEOWNERS	WUR950001	WSWL	2500032122	WELL 3	22805.26	14	35	478957.00	753284.00	500ft	87ft	497ft	700	20Feet	3930	8999	90gm	12226
233	5248	ROCKAWAY TWP WATER DEPT	WAP030001	WSWL	2500059752	PH-12(TW-6)	17808.91	14	35	481794.61	757863.51	50ft	100ft	440ft	827.07	10Feet	240	8999	60gm	14098
234	5144	ROCKAWAY BOROUGH	WAP000001	WSWL	2500018231	WELL 6	22701.56	14	34	490162.44	754218.60	40ft	54ft	83ft	535	10Feet	980	129	400gm	2141

235	2403P	US ARMY ARMAMENT RESEARCH DEV	WAP990001	WSIN	INTAKE 2	LAKE PICATINNY B506B	8100.29	14	35	477549.32	770628.34	400ft						715	20Feet			2000gm	4498
236	2200P	TILCON NEW YORK INC	WAP060001	WSWL	2500045252	WELL 7A	10588.53	14	35	480935.70	765398.77	300ft	14ft	370ft	871	3930	8999	871	20Feet	3930	8999	765gm	7693
237	2200P	TILCON NEW YORK INC	WAP060001	WSWL	2500036780	WELL 7	10588.53	14	35	480935.70	765398.77	300ft	51ft	426ft	871	3930	8999	871	20Feet	3930	8999	300gm	14354
238	2200P	TILCON NEW YORK INC	WAP060001	WSWL	2500032123	WELL 9	10812.74	14	35	480955.03	765159.71	300ft	51ft	281ft	879	3930	8999	879	20Feet	3930	8999	15gm	2580
239	5358	SPARTA TWP WATER UTILITIES	WAP980001	WSWL	2200001627	SUMMIT LAKE WELL	50753.60	19	11	482665.62	826272.37	100ft	30ft	127ft	1002	3860	8999	1002			8999	44gm	14163
240	5236	PARSIPPANY TROY HILLS TWP WATER DEPT	WAP010001	WSWL	2500021431	WELL 19	50197.32	14	29	506454.16	730644.15	100ft	106ft	134ft	290	1020	129	290	20Feet	1020	129	700gm	10023
241	2573E	DENVILLE TECHNICAL PK	WUR040001	WSWL	2500052633	EW3	20829.10	14	08	492595.00	756566.00	100ft	55ft	70ft	528.04	4090	8999	528.04	20Feet	4090	8999	50gm	2830
242	5248	ROCKAWAY TWP WATER DEPT	WAP030001	WSWL	2500009626	WELL 8	18225.79	14	35	496499.97	762278.36	100ft	89ft	119ft	525.37	1020	129	525.37	5Feet	1020	129	500gm	14100
243	5257	DENVILLE TWP WATER DEPT	WAP990001	WSWL	4500000324	WELL 1	25631.72	14	08	496773.40	753317.67	40ft			520	980	129	520	10Feet	980	129	450gm	11912
244	4063PS	ROCKAWAY RIVER COUNTRY CLUB	WAP960001	WSWL	2500048749	WELL 1	30151.79	14	08	501911.17	751285.59	500ft			503.8	1020	129	503.8	10Feet	1020	129	3000gm	11018
245	5238	MOUNTAIN LAKES BOROUGH WATER DEPT	WAP990001	WSWL	4500000300	3 TOWPATH	28881.94	14	25	502678.11	753512.21					1020	129			1020	129	400gm	10
246	5238	MOUNTAIN LAKES BOROUGH WATER DEPT	WAP990001	WSWL	4500000302	2 TOWER H	34427.34	14	25	506826.76	749770.15					1020	129			1020	129	300gm	193
247	5236	PARSIPPANY TROY HILLS TWP WATER DEPT	WAP010001	WSWL	2500018849	WELL 17	43799.49	14	29	511901.88	741779.37	100ft	106ft	139ft	310	1020	129	310	20Feet	1020	129	700gm	6083
248	5236	PARSIPPANY TROY HILLS TWP WATER DEPT	WAP010001	WSWL	2500027259	WELL 20	51287.40	14	29	517284.89	736522.24	100ft	65ft	95ft	270	1020	129	270	20Feet	1020	129	700gm	2258
249	5268	CITY OF JERSEY CITY	WAP020001	WSIN	BOONTON RESERVOIR	RESERVOIR	44797.61	14	29	520681.00	749829.00	500ft			300			300	10Feet			77.78TM	5541
250	MR0009	CONDURSOS RIVER FRONT FARM	AGC030001	WSIN	CROOKED BROOK	POND 1	50381.60	14	21	527714.35	750500.21	1000ft				2440	3050			2440	3050	500gm	10841
251	MR0009	CONDURSOS RIVER FRONT FARM	AGC030001	WSIN	CROOKED BROOK	STREAM 1	50448.20	14	21	527791.14	750500.32	500ft										100gm	4955

Picatinny Arsenal
Biennial CEA Certification Monitoring Report
Attachment No. 5

Maintenance Records for Monitoring Wells (CD)

Attachment 5

A PTA Well Maintenance Report was prepared in 2006, and is included in this Report (provided as CD – attached to rear cover). Well repair recommendations were provided in the Report, with follow-on repairs conducted during June 2006. A summary of well repairs is provided on the following page (Attachment 5). Well tags, including well permit number and ID were installed on 29 wells during the week of January 5, 2007.

Attachment 5
Summary of Major Well Repairs

AREA	WELL #	NECESSARY REPAIRS	REPAIRS MADE	DATE REPAIRED
E	MW-12L	Guard Posts Down	Re-install 2 Guard Posts	6/14/06
F	142MW-3	Well Destroyed by Snow Plow	Replaced well	6/28/06
F	138MW-3	Broken Flush Mount Cover Assembly	New Flush Mount/Pad	6/14/06
F	61MW-1B	Broken Flush Mount Cover Assembly	New Flush Mount/Pad	6/14/06
L	162MW-1	Fallen Tree Next to Well Needs to be Removed		
L	161MW-1B	Broken Flush Mount Cover Assembly	New Flush Mount/Pad	6/13/06
L	35MW-3	Guard Post Down	Re-install Guard Post	6/13/06
L	91MW-3	Guard Post Down	Re-install Guard Post	6/13/06
L	168MW-1	Well Destroyed by Snow Plow	Replaced well	6/28/06
L	171MW-4	Broken Flush Mount Cover Assembly	New Flush Mount/Pad	6/13/06
L	DM10-1	Guard Post Down	Re-install Guard Post	6/13/06

Picatinny Arsenal
Biennial CEA Certification Monitoring Report
Attachment No. 6

Well Abandonment Forms

DWR-020
7/02

New Jersey Department of Environmental Protection
Water Supply Element / Bureau of Water Allocation

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Allocation
PO Box 426
Trenton, NJ 08625-0426

WELL PERMIT # 25-33434
of well sealed

DATE WELL SEALED 5/23/05

PROPERTY OWNER US ARMY ARDEC

ADDRESS Route 15 North Picatinny Arsenal NJ 07806

WELL LOCATION

Street & No., Township, County

1179-3

Well No.

N/A

Lot No.

N/A

Block No.

USE OF WELL PRIOR TO ABANDONMENT: MONITORING

REASON FOR ABANDONMENT: NO longer NEEDED

WAS A NEW WELL DRILLED? ☐ YES ☒ NO

PERMIT # OF NEW WELL

TOTAL DEPTH OF WELL

20.2'

DIAMETER

2"

CASING LENGTH

10.2'

SCREEN LENGTH

10

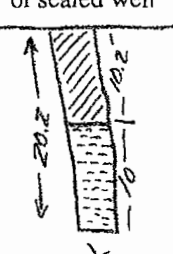
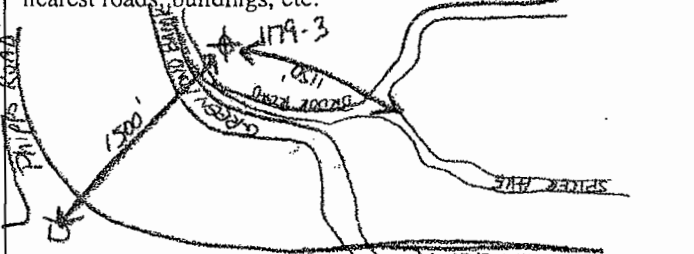
NUMBER OF CASINGS

1

MATERIAL USED TO DECOMMISSION WELL:

3 Gallons of Water
53 Lbs. of Cement
2 Lbs. of Bentonite
1 Lbs. of Sand/Gravel
(none if well is contaminated)

FORMATION: ☐ Consolidated
☒ Unconsolidated

Cross-section of sealed well	Draw a sketch showing distance and relations of well site to nearest roads, buildings, etc.
	
AS-BUILT WELL LOCATION (NAD 83 HORIZONTAL DATUM) NJ STATE PLACE COORDINATE IN US SURVEY FEET	
NORTHING: _____ EASTING: _____ OR LATITUDE: _____ LONGITUDE: _____	

To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☒ YES ☐ NO CASING MATERIAL: PVC

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS: _____

IF "YES", AUTHORIZATION GRANTED BY _____ ON _____
(NJDEP Official) (Date)

Was an alternative decommissioning method used and/or approval to decommission granted by a DEP official? ☐ YES ☒ NO

IF "YES", authorization granted by _____ ON _____
(NJDEP Official) (Date)

I certify that this well was sealed in accordance with N.J.A.C. 7:9D-3 et seq.

MAAC HAGE
Performing Work (Print or Type)
Name of NJ Licensed Well Driller

PO Box 423 WEST CREEK NJ 08092
Address
MAAC HAGE
Signature of NJ Licensed Well Driller Performing Work

6/16/05
Mailing Date
JD 23173
Registration #

COPIES: White - Water Allocation Yellow - Owner Pink - Health Dept Goldenrod - Driller

DWR-020
9/05

New Jersey Department of Environmental Protection
Division of Water Supply - Bureau of Water Systems & Well Permitting

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Systems & Well Permitting
PO Box 426
Trenton, NJ 08625-0426

WELL PERMIT # 25-98207
of well sealed

DATE WELL SEALED 11/19/07

PROPERTY OWNER

US Army ARDEC

ADDRESS

ENV. AFFAIRS OFFICE SMCAR PISCATAWAY ARSENAL

WELL LOCATION

WATER RD & 521ST STREET DOVER TWP. MORRIS
Street & No., Township, County

147 MW-1

Well No.

N/A

Lot No.

N/A

Block No.

USE OF WELL PRIOR TO ABANDONMENT: monitoring

REASON FOR ABANDONMENT: decommission

WAS A NEW WELL DRILLED? ☐ YES ☐ NO

PERMIT # OF NEW WELL

TOTAL DEPTH OF WELL

54

DIAMETER

4"

CASING LENGTH

44' length

SCREEN LENGTH

10

NUMBER OF CASINGS

1

MATERIAL USED TO DECOMMISSION WELL:

35

Gallons of Water

569

Lbs. of Cement

25

Lbs. of Bentonite

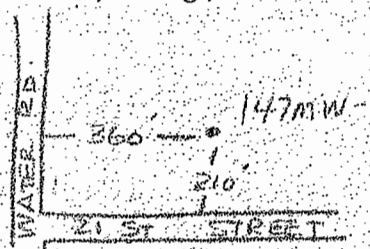
Lbs. of Sand/Gravel

(none if well is contaminated)

Cross-section
of sealed well



Draw a sketch showing distance and relations of well site to nearest roads, buildings, etc.



AS-BUILT WELL LOCATION
(NAD 83 HORIZONTAL DATUM)
NJ STATE PLACE COORDINATE IN US SURVEY FEET

NORTHING: _____

EASTING: _____

OR

LATITUDE: _____

LONGITUDE: _____

FORMATION:

☐ Consolidated

☒ Unconsolidated

To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☒ YES ☐ NO

CASING MATERIAL: sch 40 PVC

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS: _____

IF "YES", AUTHORIZATION GRANTED BY _____

ON _____

(NJDEP Official)

(Date)

Was an alternative decommissioning method used and/or approval to decommission granted by a DEP official? ☐ YES ☐ NO

IF "YES", authorization granted by _____

ON _____

(NJDEP Official)

(Date)

I certify that this well was sealed in accordance with N.J.A.C. 7:9D-3 et seq.

William Petley

Performing Work (Print or Type)

Name of NJ Licensed Well Driller

265 Env SVS PO Box 923 W. CREEK NJ

Address

08092

Mailing Date

Signature of NJ Licensed Well Driller Performing Work

Registration # JO003761

COPIES: White - Water Allocation

Yellow - Owner

Pink - Health Dept.

Goldenrod - Driller

DWR-020
9/05

New Jersey Department of Environmental Protection
Division of Water Supply - Bureau of Water Systems & Well Permitting

Mailed
on 2/21/07
JW

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Systems & Well Permitting
PO Box 426
Trenton, NJ 08625-0426

WELL PERMIT # 25-48203
of well sealed

DATE WELL SEALED 1/19/07

PROPERTY OWNER US ARMY ARDEC

ADDRESS ENVIRON AFFAIRS OFFICE SMCAR PICATINNY ARSENAL

WELL LOCATION WATER RD & 21ST ST DOVER TWP. MORRIS
Street & No., Township, County

50 MW-1

N/A

N/A

Well No.

Lot No.

Block No.

USE OF WELL PRIOR TO ABANDONMENT: monitoring

REASON FOR ABANDONMENT: decommission

WAS A NEW WELL DRILLED? ☐ YES ☒ NO

PERMIT # OF NEW WELL

TOTAL DEPTH OF WELL 50
DIAMETER 4
CASING LENGTH 40
SCREEN LENGTH 10
NUMBER OF CASINGS 1

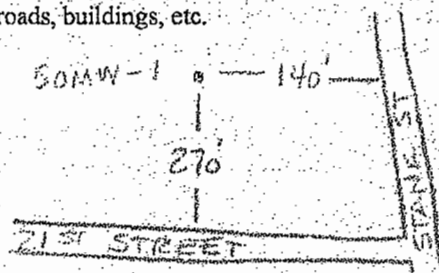
MATERIAL USED TO DECOMMISSION WELL

33 Gallons of Water
525 Lbs. of Cement
23 Lbs. of Bentonite
Lbs. of Sand/Gravel
(none if well is contaminated)

FORMATION: ☐ Consolidated
☒ Unconsolidated



Draw a sketch showing distance and relations of well site to nearest roads, buildings, etc.



AS-BUILT WELL LOCATION
(NAD 83 HORIZONTAL DATUM)
NJ STATE PLACE COORDINATE IN US SURVEY FEET

NORTHING: _____ EASTING: _____

LATITUDE: _____ LONGITUDE: _____

To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☒ YES ☐ NO

CASING MATERIAL: PVC Sch 40

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS: _____

IF "YES", AUTHORIZATION GRANTED BY _____ ON _____
(NJDEP Official) (Date)

Was an alternative decommissioning method used and/or approval to decommission granted by a DEP official? ☐ YES ☐ NO

IF "YES", authorization granted by _____ ON _____
(NJDEP Official) (Date)

I certify that this well was sealed in accordance with N.J.A.C. 7:9D-3 et seq.

Performing Work (Print or Type)
Name of NJ Licensed Well Driller

Signature of NJ Licensed Well Driller Performing Work

Mailing Date
Registration #

COPIES: White - Water Allocation Yellow - Owner Pink - Health Dept. Goldenrod - Driller

DWR-020
9/05

New Jersey Department of Environmental Protection
Division of Water Supply - Bureau of Water Systems & Well Permitting

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Systems & Well Permitting
PO Box 426
Trenton, NJ 08625-0426

WELL PERMIT # 25-48206
of well sealed

DATE WELL SEALED 1/19/07

PROPERTY OWNER US Army ARDEC

ADDRESS ENVIRON AFFAIRS OFFICE SMCAL PICATINNY ARSENAL

WELL LOCATION Water Rd & 21st St Dover Twp Morris

Street & No., Township, County

50MW 4

N/A

N/A

Well No.

Lot No.

Block No.

USE OF WELL PRIOR TO ABANDONMENT: monitoring

REASON FOR ABANDONMENT: decommission

WAS A NEW WELL DRILLED? ☐ YES ☒ NO

PERMIT # OF NEW WELL _____

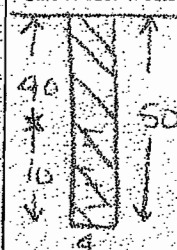
TOTAL DEPTH OF WELL 50
DIAMETER 4
CASING LENGTH 40
SCREEN LENGTH 10
NUMBER OF CASINGS 1

MATERIAL USED TO DECOMMISSION WELL:

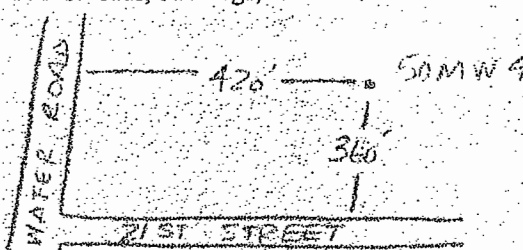
23 Gallons of Water
25 Lbs. of Cement
23 Lbs. of Bentonite
2 Lbs. of Sand/Gravel
(none if well is contaminated)

FORMATION: ☐ Consolidated
☒ Unconsolidated

Cross-section
of sealed well



Draw a sketch showing distance and relations of well site to nearest roads, buildings, etc.



AS-BUILT WELL LOCATION
(NAD 83 HORIZONTAL DATUM)
NJ STATE PLACE COORDINATE IN US SURVEY FEET

NORTHING: _____ EASTING: _____

LATITUDE: _____ OR _____
LONGITUDE: _____

To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☒ YES ☐ NO

CASING MATERIAL: sch 40 PVC

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS: _____

IF "YES", AUTHORIZATION GRANTED BY _____ ON _____
(NJDEP Official) (Date)

Was an alternative decommissioning method used and/or approval to decommission granted by a DEP official? ☐ YES ☐ NO

IF "YES", authorization granted by _____ ON _____
(NJDEP Official) (Date)

I certify that this well was sealed in accordance with N.J.A.C. 7:9D-3 et seq.

William Petty 565 EAV. SRVC POB W 423 WEST CREEK NJ 08092 2/2/07
Performing Work (Print or Type) Address Mailing Date
Name of NJ Licensed Well Driller

Signature of NJ Licensed Well Driller Performing Work

Registration # 10013761

COPIES: White - Water Allocation

Yellow - Owner

Pink - Health Dept.

Goldenrod - Driller

DWR-020
9/05

New Jersey Department of Environmental Protection
Division of Water Supply - Bureau of Water Systems & Well Permitting

WELL ABANDONMENT REPORT

MAIL TO: Bureau of Water Systems & Well Permitting
PO Box 426
Trenton, NJ 08625-0426

WELL PERMIT # 25-48204
of well sealed

DATE WELL SEALED 1/19/07

PROPERTY OWNER U.S. ARMY ARDEC
ADDRESS ENVIRON AFFAIRS OFFICE SMCAR PICATINNI ARSENAL
WELL LOCATION Water Rd & 21st ST. DOVER TWP. MORRIS
Street & No., Township, County

50MW-2 N/A N/A
Well No. Lot No. Block No.

USE OF WELL PRIOR TO ABANDONMENT: MONITORING

REASON FOR ABANDONMENT: decommission

WAS A NEW WELL DRILLED? ☐ YES ☒ NO

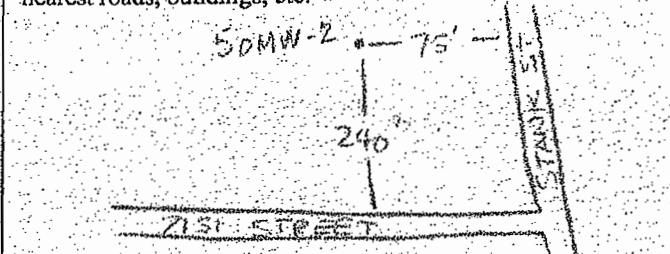
PERMIT # OF NEW WELL

TOTAL DEPTH OF WELL 50
DIAMETER 4
CASING LENGTH 40
SCREEN LENGTH 10
NUMBER OF CASINGS 1

MATERIAL USED TO DECOMMISSION WELL:

33 Gallons of Water
525 Lbs. of Cement
23 Lbs. of Bentonite
- Lbs. of Sand/Gravel
(none if well is contaminated)

FORMATION: ☐ Consolidated
☒ Unconsolidated

Cross-section of sealed well 	Draw a sketch showing distance and relations of well site to nearest roads, buildings, etc. 
AS-BUILT WELL LOCATION (NAD 83 HORIZONTAL DATUM) NJ STATE PLACE COORDINATE IN US SURVEY FEET NORTHING: _____ EASTING: _____ OR LATITUDE: _____ LONGITUDE: _____	

To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☒ YES ☐ NO

CASING MATERIAL: Sch 40 PVC

WERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS: _____

IF "YES", AUTHORIZATION GRANTED BY _____ ON _____
(NJDEP Official) (Date)

Was an alternative decommissioning method used and/or approval to decommission granted by a DEP official? ☐ YES ☐ NO

IF "YES", authorization granted by _____ ON _____
(NJDEP Official) (Date)

I certify that this well was sealed in accordance with N.J.A.C. 7:9D-3 et seq.

Performing Work (Print or Type) William Petley Address SGS ENV. SVCS PO Box 475 West Creek, NJ 08092 Mailing Date 2/2/07
Name of NJ Licensed Well Driller William Petley Signature of NJ Licensed Well Driller Performing Work William Petley Registration # J0013761

COPIES: White - Water Allocation Yellow - Owner Pink - Health Dept. Goldenrod - Driller

Picatinny Arsenal
Biennial CEA Certification Monitoring Report
Attachment No. 8

Results of Ground Water Analysis

Picatinny Arsenal
Biennial CEA Certification Monitoring Report
Attachment No. 8
Maximum Detected Contaminant Concentrations at Bedrock Wells

Contaminant	Concentration ¹ ug/L	GWQC ²
RDX	30	0.3
Aluminum	10900	200
Arsenic	5.8	3
Beryllium	1	1
Cadmium	11.4	4
Iron	5800	300
Lead	46.0	5
Manganese	1650	50
Sodium	74900	50000
bis(2-Ethylhexyl)phthalate	6.10	3
Benzene	3.8	1
Carbon tetrachloride	9.9	1
1,2-Dichloroethane	2	2
1,1-Dichloroethene	2	1
Methylene chloride	15.0	3
Tetrachloroethene	9.1	1
Trichloroethene	130	1

¹ Maximum concentration detected

² New Jersey Groundwater Quality Criteria

Picatinny Arsenal
Biennial CEA Certification Monitoring Report
Attachment No. 8
Maximum Detected Contaminant Concentrations at Overburden Wells

Contaminant	Concentration ¹ ug/L	GWQC ²
1,1,1-Trichloroethane	30	250000
1,1-Dichloroethene	38.2	5
1,2-Dichloroethane	4.81	0.3
2,4,6-Trinitrotoluene	82	1.2
2-Butanone	4200	200
Aluminum	25500	3
Arsenic	387	1
Benzene	2.4	4
Beryllium	3.1	70
beta-BHC	0.12	300
bis(2-Ethylhexyl)phthalate	200	5
Bromodichloromethane	4.7	50
Cadmium	303	2
Carbon tetrachloride	301	100
Chloride	1550000	50000
Chromium	1060	0.5
cis-1,2-Dichloroethene	1440	2000
Dibromochloromethane	4.2	0.04
Iron	125000	3
Lead	64.4	1
Manganese	12200	1
Mercury	2.2	300
Methylene chloride	32.5	1
Nickel	271	1
Perchlorate	48.4	2
RDX	220	1
Sodium	13300000	70
Tetrachloroethene	93.2	3
Thallium	6.3	1
Trichloroethene	6790	30
Vinyl chloride	559	1
Zinc	6900	1

¹ Maximum concentration detected

² New Jersey Groundwater Quality Criteria

Picatinny Arsenal
Biennial CEA Certification Monitoring Report
Attachment No. 9

Name and Address Copy List

Attachment 9 – Name and Address Copy List

Ms. Joan Bramhall
Morris County Clerk
Hall of Records Administration Building
Court Street
P.O. Box 315
Morristown, NJ 07963-0315

Ms. Gabrielle Voight-Cherna
Wharton Town Clerk
10 Robert Street
Wharton, New Jersey 07885

Ms. Mary Cilurso
Rockaway Town Clerk
65 Mt. Hope Road
Rockaway, New Jersey 07866

Mr. Donald Costanzo
Dover Town Board of Health
37 North Sussex St.
Dover, New Jersey 07801

Ms. Donna Costello
Denville Town Clerk
1 St. Mary's Place
Denville, New Jersey 07834

Ms. Cindee DeGennaro
Jefferson Health Department
1033 Weldon Road
Lake Hopatcong, New Jersey 07849

Ms. Lydia Magnotti
Jefferson Town Clerk
1033 Weldon Road
Lake Hopatcong, New Jersey 07849

Mr. James H. Norgalis
Denville Health Officer
1 St. Mary's Place
Denville, New Jersey 07834

Mr. Howard Steinberg
Morris County Health Management Office
W. Hanover Ave.
Parsippany, NJ 07054

Ms. Diane Trocchio
Rockaway Acting Director of Health and Welfare
65 Mt. Hope Road
Rockaway, New Jersey 07866

Ms. Marge Verga
Dover Town Clerk
37 North Sussex St.
Dover, New Jersey 07801

Mr. Mathew Zachok
Wharton Health Officer
10 Robert Street
Wharton, New Jersey 07885

New Jersey Department of Environmental Protection
Division of Water Supply, Bureau of Water Allocation
401 East State Street, P.O Box 426
Trenton, NJ 08625-0426

New Jersey Department of Environmental Protection
Division of Water Supply, Bureau of Safe Drinking Water
401 East State Street, P.O Box 426
Trenton, NJ 08625-0426