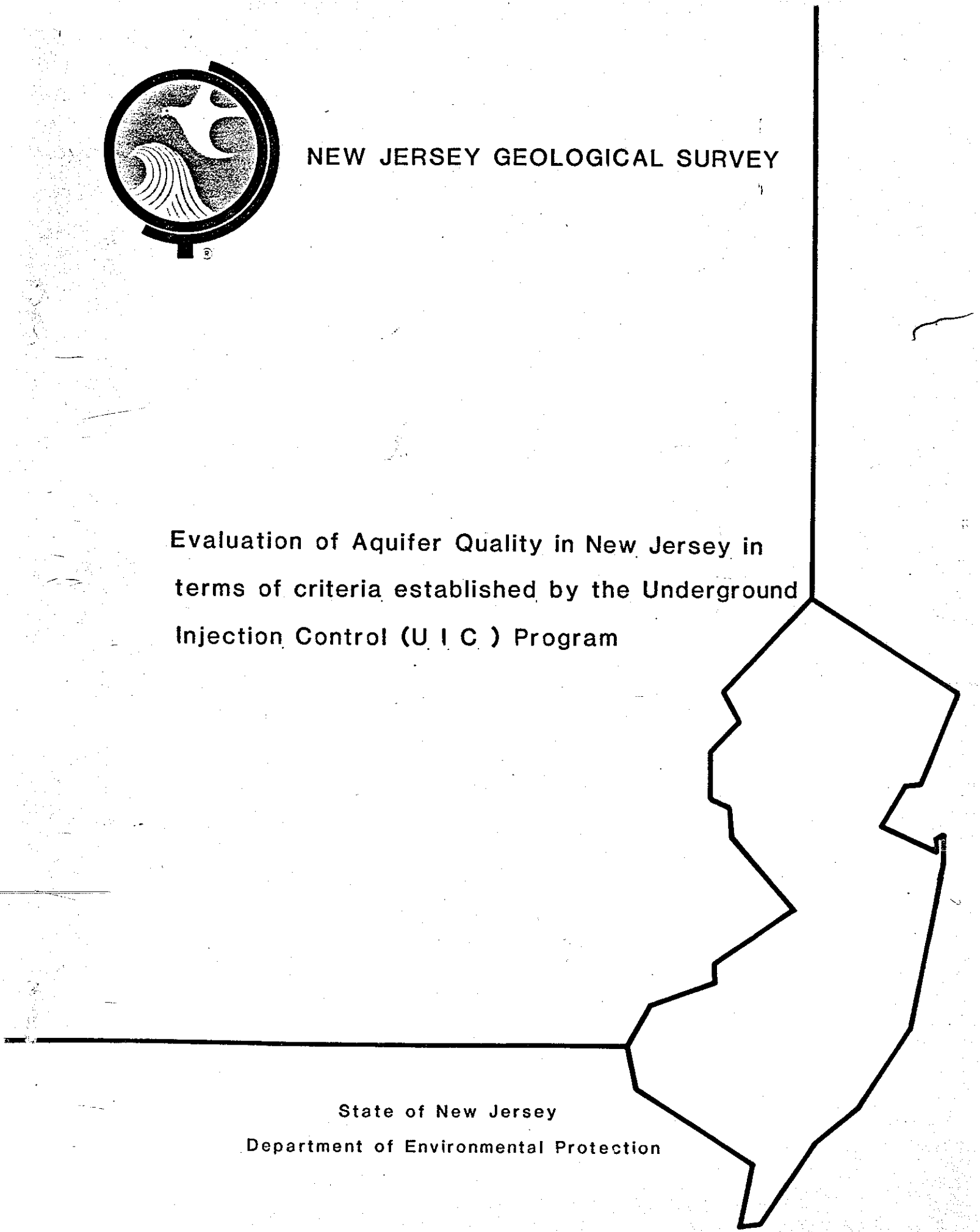
NEW JERSEY GEOLOGICAL SURVEY

Evaluation of Aquifer Quality in New Jersey in terms of criteria established by the Underground Injection Control (U I C) Program



State of New Jersey

Department of Environmental Protection

Evaluation of Aquifer Quality in New Jersey in Terms of Criteria Established by the Underground Injection Control (UIC) Program

compiled by
Garry Morrison and Robert Canace

Division of Water Resources
New Jersey Geological Survey

John W. Gaston, Jr., P.E., Director
Frank J. Markewicz, Acting State Geologist
Haig F. Kasabach, Deputy State Geologist

Trenton
1983

Contents

Tables

Figures

Evaluation of Aquifer Quality in New Jersey in Terms of Criteria Established by the Underground Injection Control (UIC) Program

Background

This report presents the status of ground water quality in terms of total dissolved solids (TDS) for various aquifers in the State of New Jersey, for the purpose of implementing the State Underground Injection Control (UIC) Program. (44 FR 23738).

The New Jersey U.I.C. program has been established in response to United States Environmental Protection Agency efforts, under the Safe Drinking Water Act of 1974, to help individual states establish programs to protect "Underground Sources of Drinking Water" (USDW) from deterioration due to underground injection practices.

Protection Under The Act

The Federal UIC regulations propose that all aquifers presently used as drinking water sources, or aquifers designated as possible drinking water sources be protected. In order for an aquifer or part of an aquifer to be targeted for protection under the act, the aquifer must be classified as a USDW, which is defined as an aquifer or its portion which:

1) Supplies any public water system; or contains a sufficient quantity of ground water to supply a public water system, and;

2) Currently supplies drinking water for human consumption; or;

3) Contains fewer than 10,000 mg/l total dissolved solids and;

4) Is not an "Exempted Aquifer".

Exempted Aquifers

An aquifer or part of an aquifer may be determined under 40 CFR 122.35 to be an "Exempted Aquifer" if it meets the following criteria:

1) It does not currently serve as a source of drinking water, and;

2) It cannot now and will not in the future serve as a source of drinking water because:

   a) It is mineral, hydrocarbon, or geothermal energy producing;

b) It is situated at a depth or location which makes recovery of water for drinking water purposes economically or technologically impractical;

c) It is so contaminated that it would be economically or technologically impractical to render that water fit for human consumption, or;

d) It is located over a Class III well mining area subject to subsidence or collapse.

Ground Water Quality

For the purpose of this report, the concentration of total dissolved solids (TDS) is used as an indication of ground water quality in a well, or aquifer, in addition to being used to determine an aquifer's qualification as a USDW. The attached tables are designed to give an overall view of the present quality of ground water in New Jersey.

Source of Data

The data used in this report was retrieved from the national WATSTORE computer system located in Reston, Virginia. The system, which is used by the United States Geological Survey, (USGS), contains physical, hydrologic and geologic data collected by the USGS, in cooperation with the New Jersey Department of Environmental Protection (NJDEP). The information was collected as part of U.S.G.S. and State water resource investigations and water quality monitoring programs and is incorporated into the WATSTORE system under a separate file called the Ground Water Site Inventory (GWSI) file. This well information was selected primarily because of its availability.

As can be seen from the number of wells listed in Table I and shown on the enclosed map, there is a limited amount of data available in some geographic areas. Because the USGS has conducted a larger number of studies in the Coastal Plain, a greater amount of water quality information is available from counties located in the southern part of the state. The information on TDS concentrations for individual wells was selected from the available data for each county. Wells with more than one TDS analysis were considered to produce a more reliable TDS value and better represent the present background water quality for a given aquifer. Where multiple TDS analyses for a well were not available, wells with single samplings were used to give a representative water quality value for an individual aquifer or a specific geographic area, especially in areas of sparse sampling data. Where many wells provided data covering a single aquifer within a small geographic area, only a few selected wells were used to represent the ground water quality at the particular location.

Aquifer Tables

In Table I the locations of selected wells monitored for total dissolved solids (TDS) are listed by county. The table includes the range and average of TDS concentrations from sampling results for selected wells. The location of a sampled well is designated by its latitude and longitude, and is represented in the table by a "Well ID Number", which corresponds to the numbers on the map (figure 2). Other information in the table includes the geologic formation, the number of times a well has been sampled, and a site-specific well identifier that consists of the name of the well owner and, in some cases, a well number designated by the well owner or by the State.

In Table II, "Statistical Data of Aquifer TDS Values", the mean, median, and standard deviation for total dissolved solids for individual aquifers are tabulated. The information in this table was compiled from all TDS values that were in the GWSI file for New Jersey at the time of this report. Other information in Table II includes the geologic formation and aquifer symbol, the number of wells sampled per site, the number of samples taken per well, and the range of TDS values reported.

Table III, "Record of Selected Wells with Total Dissolved Solids Greater Than 1000 mg/l", lists those wells included in the GWSI file that exhibit values for TDS which are considered to exceed normal background values for the aquifers. Some wells appearing in the table do not appear on the map, because for some areas, as mentioned previously, there is an abundance of data and they were excluded to preserve the clarity of the map.

Relationship Between TDS and Salinity in Aquifers

Elevated concentrations of TDS in Coastal Plain aquifers are most often associated with saline ground waters. The presence of saline ground waters in Coastal Plain Formations has been attributed primarily to several possible sources:

1. Naturally occurring "connate" water trapped in sediments when they were deposited in the sea;

2. Water made saline through the leaching of salts contained in sediments in earlier geologic epochs, and;

3. Infiltration of sea water into sediments.

Saline ground water can enter fresh water aquifers through natural processes or through disturbances in the equilibrium of the fresh water system. Some researchers contend that a natural rise in sea level is occurring in response to the effects of the present post-glacial epoch, causing the fresh water/saline water boundary in Coastal Plain Formations to migrate inland. This phenomenon represents a potential regional change in aquifer quality in some

formations, but would most likely occur at an extremely slow rate. Localized changes in water quality related to saline water are a result of changes in the dynamic equilibrium of the fresh water system at well pumping centers. Cases of saltwater intrusion of fresh water aquifers are documented for several locales in the Atlantic Coastal Plain and in the Newark area of the Triassic Newark Basin of New Jersey. Where salt water intrusion associated with ground water withdrawals brings about elevated levels of dissolved solids in aquifers, the resulting concentrations of dissolved solids are generally less than the 10,000 mg/l criteria established under the UIC regulations to define a USDW.

Salt water intrusion represents a response to local ground water diversion and is not an indication of regional ground water quality. In some cases the changes in water quality brought about can be arrested or even reversed through proper water management practices.

Salt water intrusion into New Jersey aquifers has been studied extensively by the U.S. Geological Survey. Increases in the salinity of aquifers attributable to ground water withdrawals occurs in the aquifers and counties listed below:

Aquifer	County
Cohansey Sand	Atlantic, Cape May
Kirkwood Sand	Ocean, Cape May
Magothy-Raritan (Kmr, undiffereniated)	Gloucester, Salem
Old Bridge Sand (Kmr)	Middlesex
Farrington Sand (Kmr)	Middlesex
Glacial Drift and Brunswick Formation	Essex

In general, a hydrologic interface exists between fresh water and saline water zones. This interconnection is demonstrated by cases of salt water intrusion wherein an increase in the concentration of chlorides with time will take place in certain formations during the pumping of wells, as a result of the landward migration of the freshwater/saline water front. During periods of reduced pumpage, the chloride concentrations may decline as the front retreats again.

A generalization between water quality and depth cannot easily be made, because water quality may improve or worsen with depth. For example, the salt water front in the Upper Rio Grande aquifer (Kirkwood Formation) occurs farther inland than the salt water front in the Lower Rio Grande aquifer (Gill, 1962). Another example of lack of correlation between inland migration of salt water and depth can be cited in the Atlantic City Area where fresh water is pumped from the "200 foot sand" of the Cohansey Formation and "800 foot sand" of the Kirkwood Formation but saltwater has been encountered in the "100 foot sand" of the Cohansey and below the "800 foot sand".

Magothy-Raritan Formation

Total dissolved solids concentrations in the ground water in the Magothy-Raritan Formation are elevated locally by salt water intrusion, and regionally in the base of the formation, downdip of its outcrop area. Localized salt water intrusion has caused the concentrations of dissolved solids to exceed 10,000 mg/l in a few instances. In contrast, natural concentrations of dissolved solids in the ground water in excess of 10,000 mg/l, and as high as 44,500 mg/l, have been measured in deeper portions of the formation in Cumberland County.

Localized salt water intrusion into the Magothy-Raritan Formation has occurred in the Delaware and Raritan Bay Areas. Salt water intrusion linked to overdevelopment of ground water has impaired the Old Bridge Sand aquifer in Middlesex County. In the same vicinity widespread encroachment by salt water from Raritan Bay has raised TDS levels in the Farrington Sand aquifer. Intrusion into the Farrington Member of the Magothy-Raritan has also been linked to heavy pumpage, and to the dredging of the Washington Canal. Concentrations of dissolved solids associated with the encroachment of salt water into the Old Bridge and Farrington Sands are well below 10,000 mg/l.

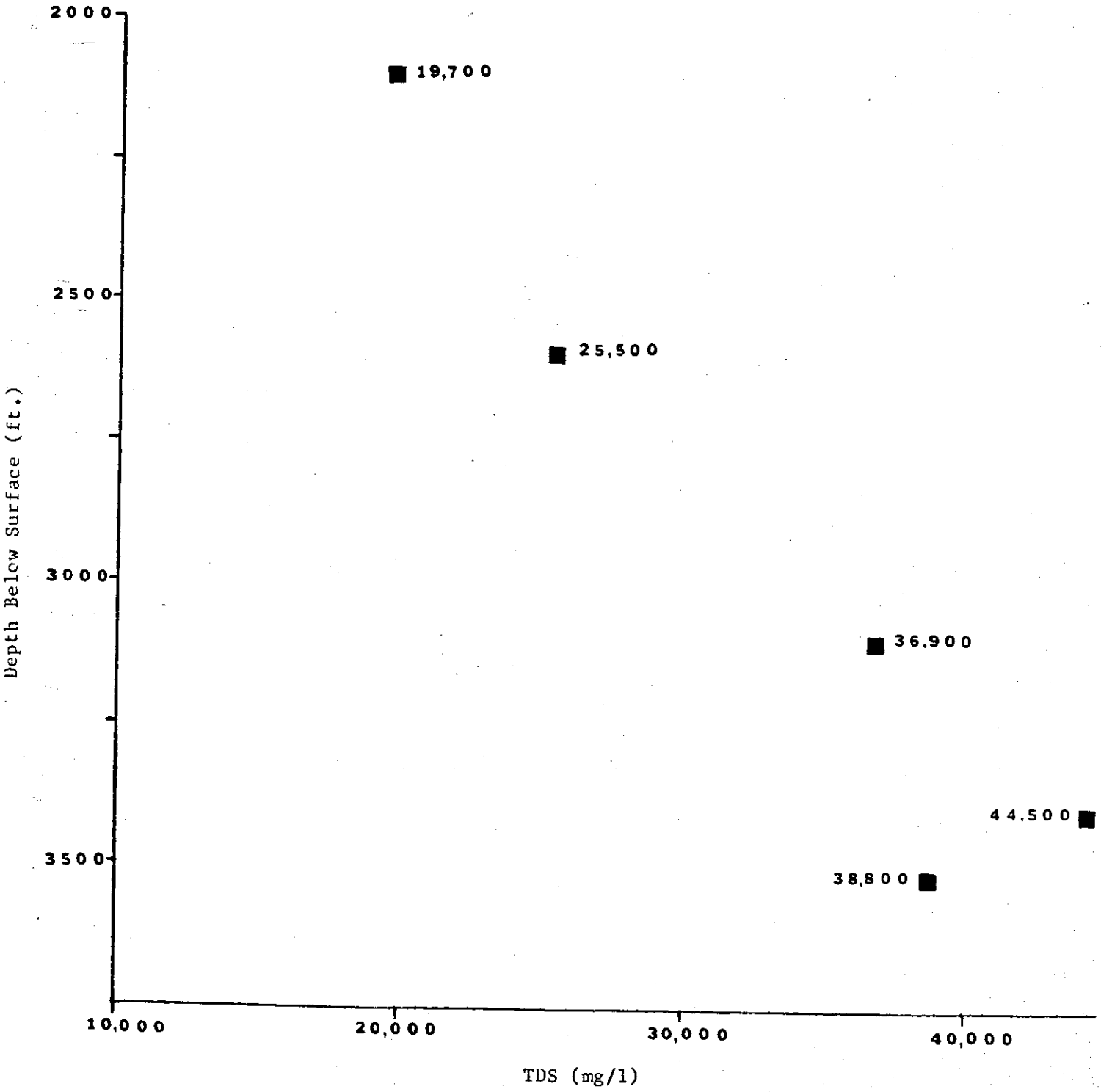
In the Delaware Bay region concentrations of dissolved solids in the range of 1000 to 2500 mg/l are associated with areas experiencing salt water intrusion.

On a regional scale, the quality of ground water in the Magothy-Raritan Formation downdip of its outcrop area, at depths exceeding approximately 1500 feet, exceeds the USDW criteria of 10,000 mg/l.

At the USGS Ragovin observation well in Cumberland County concentrations of TDS in excess of 19,700 mg/l have been measured (Table III). Total dissolved solids concentrations increase with depth in the formation, as determined from measurements in the Ragovin well (fig. 1). Although no additional monitor wells are available to detect trends to the southeast (seaward), even higher concentrations of TDS would probably be encountered in the formation seaward of Cumberland County. Additional monitor wells would be required to accurately delineate a trend in TDS in the Magothy-Raritan in the southern Coastal Plain of New Jersey.

Chloride concentrations can be used as an indicator of those areas not likely to meet the 10,000 mg/l TDS criteria. From information in the USGS Salinity Outpost Network, Meisler (1980) has delineated, on the basis of depth, those areas of the Coastal Plain where the concentration of chloride would approximate 10,000 mg/l. It is assumed that these zones would also represent zones where TDS exceeds 10,000 mg/l. The 10,000 mg/l isobaths from Meisler's report were included on figure 3.

Fig. 1 Concentration of Total Dissolved Solids in Magothy-Raritan Formation vs. Depth Below Surface (Data from USGS Ragovin Observation Well)



The U.S. Geological Survey in 1976 conducted an inventory of geologic deposits beneath the Atlantic Coastal Plain in order to delineate potential underground waste storage sites (Brown and Reid, 1976). Potential consolidated and unconsolidated sand-dominated and clay-dominated units of Early Jurassic to Early Cretaceous age were identified.

Three potential waste storage reservoir sands were identified. The sand units delineated are present beneath Atlantic, Burlington, Cumberland, Ocean and Cape May Counties at a depth of 1800 feet or greater. These units correspond to the Potomac-Raritan-Magothy Group. Although these units represent potentially suitable subsurface injection zones in their evaluation, there is insufficient information available to evaluate their stratigraphic relationship with potential cap (confining) units or overlying aquifers, and little information available concerning ground water quality in the sands, other than that discussed for the Magothy-Raritan Formation above.

Conclusions

In summary, the data compiled for this report indicate that water quality in New Jersey's aquifers generally meets the criteria for USDWs. Localized instances of elevated TDS concentrations are attributable to salt water encroachment, along coastal areas, or to ground water contamination.

Regional trends of higher TDS concentrations in specific portions of aquifers are related to prehistoric sea levels. When sea level rose it initiated the inland movement of seawater and pushed the connate salt water found in some aquifers landward. Some evidence exists that the 10,000 mg/l of TDS criteria for a USDW is exceeded in the seaward portions of some aquifers. Well log and water quality data is very sparse in the deep, seaward portions of New Jersey's aquifers and would need to be obtained before the exemption of any aquifer portion could be considered.

Index of Geologic Symbols used in Tables*

Symbol	Formation
BRCK	Brunswick
CKKD	Cohansey/Kirkwood (Combined)
CNSY	Cohansey
CPMY	Cape May
CRNL	Cornwall
EGLS	Englishtown
ESPS	Esopus
FRNG	Farrington
HGFL	High Falls
KRKD	Kirkwood (Undifferentiated)
KRKDL	Kirkwood (Lower)
KRKDU	Kirkwood (Upper)
KTTN	Kittatinny
LCKG	Lockatong
MCVL	Merchantville
MGRR	Magothy-Raritan (Undifferentiated)
MLRL	Mount Laurel Sand
MLRW	Mount Laurel/Wenonah
MNSQ	Manasquan
MRBG	Martinsburg
ODBG	Old Bridge
OTSH	Pleistocene Outwash
02WG	Watchung
PCMB	Precambrian
PLCC	Pleistocene/Cohansey (Combined)
PNPN	Piney Point
PNSK	Pennsauken
SCKN	Stockton
SNGK	Shawangunk
TILL	Pleistocene Till
VNCN	Vincentown

* The geologic symbols listed above are those used in the U.S.G.S. WATSTORE computer file system and are different than those used in figure 2.

TABLE I - SAMPLING RESULTS IN MG/L FROM SELECTED WELLS MONITORED FOR TOTAL DISSOLVED SOLIDS (TDS) IN NEW JERSEY

COUNTY - ATLANTIC

Well ID #	Aquifer	Local Well Identifier	Latitude / Longitude	# of Samples	Total Dissolved Solids Range / Average
304	CNSY	N.J. Highway Authority 1	39-18-19 / 74-37-04	1	18200-18200 / 18200
305	KRKDL	O'Byrne, J.F.1	39-18-49 / 74-34-50	1	177-177 / 177
306	KRKDL	Longport Boro WD2	39-18-59 / 74-31-22	1	125-125 / 125
307	CNSY	NJWC-ATLCO-Kirklin Avenue	39-20-01 / 74-35-22	3	48-75 / 63
308	KRKDL	Ventnor City WD 6	39-20-32 / 74-28-55	1	109-109 / 109
309	KRKDL	President Hotel - New	39-20-58 / 74-27-11	1	125-125 / 125
310	PLCC	Golden Sands Motel	39-21-00 / 74-27-15	1	27500-27500 / 27500
311	CNSY	Atlantic City WD 12	39-25-48 / 74-31-08	2	50-51 / 51
312	CNSY	NJWC-ATL Co - Mill Road	39-21-58 / 74-33-17	1	59-59 / 59
313	CNSY	Atlantic Co. WD - Delilah R	39-24-32 / 74-31-13	1	32-32 / 32
314	CNSY	Atlantic City WD 3	39-24-43 / 74-30-35	1	49-49 / 49
315	KRKDL	Brigantine City WD 2-29	39-24-56 / 74-21-22	1	103-103 / 103
316	CNSY	Atlantic City WD 8	39-25-08 / 74-30-34	3	61-786 / 489
317	CNSY	Hamilton Twp. MUA 3-28	39-27-14 / 74-43-43	2	96-121 / 109
318	KRKDL	USGS-Oceanville 1 OBS	39-27-54 / 74-27-01	1	105-105 / 105
319	KRKDL	Egg Harbor City WW4	39-32-14 / 74-38-25	1	82-82 / 82
320	CNSY	Scholler Bros. 2-57	39-33-31 / 74-44-25	2	18-26 / 22
321	CNSY	Ramsberg - Amatol 8 OBS	39-35-57 / 74-41-14	1	19-19 / 19
322	CNSY	U.S. Army - Training School	39-36-46 / 74-46-04	1	16-16 / 16
323	CNSY	Pleasant Mills - Thurston Ave	39-37-43 / 74-38-57	1	44-44 / 44
324	CNSY	Bruno, John 52	39-37-48 / 74-48-36	2	68-68 / 68
325	KRKD	Hammonton WD 1-22	39-37-59 / 74-48-24	2	39-51 / 45
326	PLCC	USGS - Mullica 5G3	39-40-28 / 74-39-57	3	18-28 / 24
327	CKKD	Atlantic City WD 7	39-25-12 / 74-30-31	2	49-51 / 50

COUNTY - ATLANTIC (cont.)

Well ID #	Aquifer	Local Well Identifier	Latitude / Longitude	# of Samples	Total Dissolved Solids Range / Average
328	CNSY	Silver Sands Motel	39-21-04 74-27-07	1	26800-26800 26800
329	CNSY	USGS - Wharton TRCT 2G OBS	39-40-36 74-40-01	4	16-20 17
330	KRKDL	USGS - Jobs Point OBS	39-18-27 74-37-10	2	127-137 132

COUNTY - BERGEN

Well ID #	Aquifer	Local Well Identifier	Latitude / Longitude	# of Samples	Total Dissolved Solids Range / Average
1	TILL	Oakland Boro WD BUSH 5	41-01-25 74-15-04	4	155-355 242
2	TILL	Park Ridge Boro WD 5-55	41-01-50 74-02-30	1	188-188 188
3	PCMB	BSA-Camp Tamerack 1940	41-02-30 74-14-43	1	56-56 56
4	TILL	Oakland Boro WD SOONS 7	41-03-01 74-13-27	1	155-155 155
5	TILL	Oakland Boro SOONS 8	41-03-03 74-13-32	2	123-155 139
6	BRCK	Ramsey Boro WD Woodland	41-03-17 74-09-53	1	177-177 177
7	BRCK	Ramsey Boro WD Darlington	41-03-34 74-09-35	1	155-155 155
8	PCMB	BSA-Camp Glen Gray 3	41-03-50 74-14-30	1	79-79 79
9	BRCK	Immaculate Conception SEM.	41-04-14 74-11-17	1	227-227 227
10	BRCK	Ramsey Boro WD Central 1	41-04-47 74-09-05	1	183-183 183
11	PCMB	BSA-Camp Yaw Paw 1 1	41-05-14 74-13-46	1	124-124 124
12	TILL	Mahwah Twp. WD Ford 1	41-05-42 74-10-24	2	113-138 126
13	TILL	Mahwah Twp. WD Ford 4	41-05-43 74-10-23	2	118-173 146

COUNTY - BURLINGTON

Well ID #	Aquifer	Local Well Identifier	Latitude	/ Longitude	# of Samples	Total Dissolved Solids Range	/ Average
473	CKKD	Allen, Chester 4	39-35-33	74-26-35	1	54-54	54
474	CNSY	Green Bank ST For Nusery	39-36-50	74-34-27	1	25-25	25
475	CNSY	Lake Absegami 2	39-37-31	74-25-31	1	26-26	26
476	CNSY	Mullica 41S	39-37-48	74-38-17	1	50-50	50
477	CNSY	Mullica 43S	39-38-09	74-33-49	1	25-25	25
478	CKKD	Mullica 12D	39-38-32	74-36-08	1	32-32	32
479	CNSY	Mullica 40S	39-39-44	74-37-14	1	23-23	23
480	CNSY	Mullica 39S	39-39-45	74-38-48	1	18-18	18
481	CKKD	Mullica 6D	39-40-09	74-32-51	1	32-32	32
482	CNSY	Mullica 47S	39-40-50	74-30-37	1	28-28	28
483	CNSY	Mullica 44S	39-41-04	74-34-40	1	16-16	16
484	CNSY	Mullica 48S	39-41-43	74-28-28	1	16-16	16
485	CKKD	USGS-Oswego Lake 1 OBS	39-42-08	74-26-45	2	20-24	22
486	CNSY	Mullica 26S	39-42-08	74-40-31	1	20-20	20
487	CNSY	Mullica 37S	39-42-26	74-39-48	1	22-22	22
488	CKKD	Mullica 4D	39-43-00	74-38-30	1	14-14	14
489	CKKD	Mullica 13D	39-43-05	74-33-57	1	22-22	22
490	CNSY	Mullica 49S	39-43-12	74-28-21	1	28-28	28
491	CNSY	Arthur Sooy 5	39-43-12	74-32-13	1	23-23	23
492	CNSY	Mullica 36S	39-43-29	74-37-18	1	18-18	18
493	CNSY	Mullica 35S	39-44-05	74-39-58	1	58-58	58
494	CNSY	Mullica 27S	39-44-06	74-41-27	1	18-18	18
495	PLCC	USGS-Atsion 2 OBS	39-44-22	74-43-09	1	55-55	55
496	CNSY	Small, Lesson	39-44-34	74-43-42	1	16-16	16

COUNTY - BURLINGTON (cont.)

Well ID #	Aquifer	Local Well Identifier	Latitude / Longitude	# of Samples	Total Dissolved Solids Range / Average
497	PLCC	N.J. Bur Pks Penn St Forest	39-45-11 / 74-23-06	1	53-53 / 53
498	CNSY	Mullica 21S	39-45-20 / 74-45-11	1	26-26 / 26
499	CNSY	Mullica 52S	39-45-31 / 74-43-56	1	15-15 / 15
500	CNSY	Mullica 55S	39-45-36 / 74-35-42	1	18-18 / 18
501	CNSY	Mullica 31S	39-46-36 / 74-37-39	1	24-24 / 24
502	CNSY	Prickett, Leah	39-47-38 / 74-44-39	1	29-29 / 29
503	CKKD	Mullica 3D	39-48-12 / 74-40-31	1	60-60 / 60
504	CNSY	Mullica 10S	39-48-34 / 74-47-15	1	10-10 / 10
505	CNSY	Mullica 32S	39-48-48 / 74-36-56	1	46-46 / 46
506	CNSY	W.J. Busby Store	39-49-18 / 74-32-11	1	44-44 / 44
507	CNSY	Mullica 8S	39-49-40 / 74-31-43	1	6-6 / 6
508	CNSY	Bates, Lena 38	39-50-13 / 74-30-27	1	100-100 / 100
509	CNSY	Ryba, Ronald	39-50-50 / 74-44-05	1	75-75 / 75
510	CNSY	USGS-Leb for Sawml OBS 2	39-52-10 / 74-31-05	1	22-22 / 22
511	MGRR	Medford WC 4	39-53-16 / 74-49-46	1	115-115 / 115
512	MGRR	Evesham MUA 1	39-53-33 / 74-54-40	1	148-148 / 148
513	MGRR	Evesham MUA 2	39-53-44 / 74-55-03	1	153-153 / 153
514	CNSY	USGS Lebanon St. Forest 18V	39-54-13 / 74-28-05	1	15-15 / 15
515	MGRR	Medford WC 3	39-54-13 / 74-49-22	1	125-125 / 125
516	MGRR	USGS-Medford 1 OBS	39-55-24 / 74-50-25	1	136-136 / 136
517	MGRR	Mt. Laurel MUA 1	39-56-07 / 74-56-48	1	97-97 / 97
518	CKKD	J.J. White - Irrigation 1	39-56-08 / 74-29-00	1	114-114 / 114
519	EGLS	Grossman, Saul 1	39-56-47 / 74-52-29	1	139-139 / 139
520	MGRR	Moorestown Twp. WD 6	39-57-02 / 74-58-08	1	89-89 / 89

COUNTY - BURLINGTON (Cont.)

Well ID #	Aquifer	Local Well Identifier	Latitude / Longitude	# of Samples	Total Dissolved Solids Range / Average
521	MGRR	Fred Worth and Sons 1	39-57-50 / 74-51-07	1	66-66 / 66
522	MLRM	Pemberton Boro WD 3	39-58-01 / 74-41-20	1	116-116 / 116
523	EGLS	Burl. Co. Inst-Evergreen 3	39-58-02 / 74-38-25	2	118-122 / 120
524	MGRR	Haines, William Jr.-Farm 2	39-58-30 / 74-53-02	1	167-167 / 167
525	MGRR	Campbell Soup 1 OBS	39-58-38 / 74-59-05	1	59-59 / 59
526	MGRR	Permutit Corp. Ionac 2	39-58-39 / 74-42-49	2	95-100 / 98
527	EGLS	US Army - Ft Dix 11	39-58-59 / 74-31-22	1	28-28 / 28
528	MGRR	Rancocas Woods WC 1	39-59-23 / 74-51-33	1	172-172 / 172
529	MGRR	Mt. Holly WC 3	39-59-35 / 74-46-51	2	110-118 / 114
530	MGRR	Moorestown Twp. WD 4	39-59-36 / 74-54-52	2	101-115 / 108
531	EGLS	US Army - Ft Dix 9	39-59-41 / 74-32-47	4	10-173 / 101
532	MGRR	US Army - Ft Dix 4	39-59-49 / 74-36-55	8	78-107 / 87
533	MGRR	N.J. WC - Del Valley WC 13	40-00-02 / 75-00-44	2	59-77 / 66
534	MGRR	U.S. Army - Ft Dix 1	40-00-34 / 74-36-21	9	76-140 / 91
535	MGRR	Mt. Holly WC 5	40-00-41 / 74-48-09	1	108-108 / 108
536	MGRR	Willingboro MUA 3	40-01-39 / 74-53-25	1	111-111 / 111
537	MGRR	U.S. Air Force - McGuire D	40-01-41 / 74-35-25	11	64-89 / 84
538	MGRR	Taylor 20BS	40-01-47 / 74-59-34	2	144-161 / 153
539	MGRR	Willingboro MUA 4	40-01-52 / 74-54-35	3	40-62 / 47
540	MGRR	Hercules Powder Co. 1	40-05-24 / 74-49-51	2	41-81 / 61
541	MGRR	Workman, James 1	40-05-32 / 74-48-33	1	104-104 / 104
542	MGRR	Trnpke Jct Ind Park 1	40-06-32 / 74-42-34	1	101-101 / 101
543	MGRR	Gray, Francis 1	40-07-49 / 74-36-30	2	73-77 / 75
544	MGRR	Liptak, EA 1	40-07-52 / 74-39-44	1	105-105 / 105

COUNTY - BURLINGTON (Cont.)

Well ID #	Aquifer	Local Well Identifier	Latitude	/ Longitude	# of Samples	Total Dissolved Solids Range	/ Average
545	MGRR	N.J. Dept. DEF - Nat Guard 1	40-08-00	74-43-09	3	83-87	85
546	KRKD	USGS - Oswego Lake 20BS	39-42-08	74-26-45	2	30-80	55
547	MGRR	USGS - Medford 40BS	39-55-25	74-50-26	3	104-153	137
548	MGRR	Burlington City WD 3	40-04-53	74-51-21	2	196-203	200
549	MGRR	US Air Force - McGuire C	40-01-50	74-34-28	14	70-97	94
550	MGRR	US Air Force - McGuire A	40-02-16	74-36-07	16	82-109	89
551	MGRR	Willingboro MUA DCB - 28	40-03-08	74-53-25	2	100-116	108
552	MGRR	Columbus WC 2 2	40-04-12	74-43-23	3	110-120	114

COUNTY - CAMDEN

Well ID #	Aquifer	Local Well Identifier	Latitude	/ Longitude	# of Samples	Total Dissolved Solids Range	/ Average
412	PLCC	M & R Refractory 1	39-40-15	74-50-30	1	19-19	19
413	MNSQ	Ancora State Hospital 1	39-40-46	74-52-08	1	175-175	175
414	PLCC	Ancora State Hospital 4	39-41-05	74-51-34	1	15-15	15
415	CNSY	Mullica 17S	39-41-48	74-48-10	1	23-23	23
416	CKKD	Mullica 7D	39-42-04	74-49-21	1	16-16	16
417	MGRR	USGS - New Brooklyn Pk 10B	39-42-15	74-56-17	2	663-670	667
418	CNSY	Mullica 18S	39-42-24	74-47-13	1	25-25	25
419	CNSY	Winslow WC 2-71 OBS	39-42-35	74-57-28	2	62-63	63
420	CNSY	Winslow WC 3-71 OBS	39-43-11	74-57-07	2	28-40	34
421	PLCC	Certain Teed 1	39-44-17	74-55-38	1	13-13	13
422	CNSY	Mullica 15S	39-44-31	74-49-41	1	63-63	63
423	CNSY	Mullica 14S	39-44-38	74-48-38	1	23-23	23
424	PLCC	Camden Co. - Reg. High Sch. 1	39-44-43	74-54-34	1	50-50	50
425	CNSY	Mullica 13S	39-44-55	74-50-43	1	22-22	22
426	MLRW	Johns-Manville Prod. Co. 1	39-45-22	74-56-25	1	134-134	134
427	CNSY	Mullica 12S	39-45-53	74-47-39	1	18-18	18
428	MLRW	Camden Co. - Vo Tech HS	39-45-56	74-58-35	1	137-137	137
429	PLCC	Giordano, Al	39-46-13	74-53-53	1	53-53	53
430	PLCC	Bennett, R - Home Well	39-46-20	75-00-32	1	120-120	120
431	MGRR	Pine Hill MUA 1	39-46-41	74-59-09	1	137-137	137
432	MLRW	Pine Valley GC 1-55	39-47-02	74-58-24	1	117-117	117
433	MLRW	Owens Corning - Berlin 1	39-47-05	74-54-44	1	118-118	118
434	MLRW	Bennett, R - Boiler	39-47-19	75-01-46	1	100-100	100
435	MGRR	Berlin Boro WD 9	39-47-38	74-56-14	1	132-132	132

COUNTY - CAMDEN (Cont.)

Well ID #	Aquifer	Local Well Identifier	Latitude	Longitude	# of Samples	Total Dissolved Solids Range	Average
436	MGRR	Garden St WC Blackwood 1	39-48-06	75-04-26	2	124-140	132
437	EGLS	Clementon Boro WD 8	39-48-32	74-59-15	3	103-105	104
438	MLRW	US Air Force - Gibbsboro 2	39-49-23	74-57-14	13	86-198	102
439	MLRW	New Jersey WC - Laurel 4	39-49-27	75-00-25	2	136-178	157
440	MLRW	Camden Lime Co. 1	39-49-54	74-55-30	1	113-113	113
441	MCVL	Marsh, Edward	39-50-26	75-05-02	1	107-107	107
442	MGRR	New Jersey WC - Somrdal 14	39-50-41	75-05-53	3	110-122	115
443	MGRR	New Jersey WC - Runmede 19	39-50-56	75-04-20	2	116-119	118
444	MGRR	New Jersey WC - Ashland 17	39-51-24	74-59-52	2	130-136	133
445	MGRR	Bellmawr Boro WD 4	39-51-46	75-05-42	2	102-124	113
446	MGRR	Hussman Refridg. Co.	39-52-38	75-00-30	1	141-141	141
447	MGRR	New Jersey WC - Haddon 15	39-52-38	75-03-16	2	108-109	109
448	MGRR	Bellmawr Boro WD 3	39-52-21	75-06-38	4	110-133	120
449	MGRR	Haddonfld Boro WD - Layn 2	39-53-23	75-01-58	2	129-137	133
450	MGRR	Gloucester City WD 40	39-53-49	75-06-51	5	120-142	132
451	MGRR	USGS - Glouc City CG Base 1	39-53-55	75-07-38	3	184-168	178
452	MGRR	Haddon Twp. WD 2	39-54-03	75-03-22	1	129-129	129
453	MGRR	Collingswood Boro WD 7	39-54-26	75-05-14	2	118-147	133
454	MGRR	New Jersey WC - Ellis 23	39-54-38	75-01-07	2	121-125	123
455	MGRR	New Jersey WC - Kingstn 25	39-54-55	74-59-29	2	122-132	127
456	MGRR	SJ Port Comm. NY Ship 7	39-54-55	75-07-16	2	135-155	145
457	MGRR	Collingswood Boro WD 3	39-55-22	75-04-32	1	105-105	105
458	MGRR	Camden City WD - City 6N	39-55-27	75-06-46	4	445-494	473
459	MGRR	Camden City WD - City 2B	39-55-50	75-07-29	1	289-289	289

COUNTY - CAMDEN (Cont.)

Well ID #	Aquifer	Local Well Identifier	Latitude / Longitude	# of Samples	Total Dissolved Solids Range / Average
460	MGRR	Camden City WD - City 13	39-55-57 / 75-05-35	7	76-340 / 132
461	MGRR	RCA - Cherry Hill 1	39-56-02 / 75-01-32	2	135-150 / 143
462	MGRR	Merch-Penn WCOM - Brown 1	39-56-27 / 75-04-04	1	39-39 / 39
463	MGRR	Merch-Penn WCOM - Wdbine 1	39-56-52 / 75-03-07	1	86-86 / 86
464	MGRR	Merch-Penns WCOM-Marion 2	39-57-11 / 75-02-20	1	48-48 / 48
465	MGRR	New Jersey WC - Camden 51	39-57-20 / 75-05-13	1	244-244 / 244
466	MGRR	Camden City WD - Puchack 5	39-58-35 / 75-03-08	5	60-104 / 83
467	MGRR	Camden City WD - Mooris 6	39-59-01 / 75-03-20	8	70-164 / 110
468	MGRR	Camden City WD - City 11	39-55-12 / 75-06-40	4	84-273 / 177
469	MGRR	Camden City WD - Delair 1	39-58-48 / 75-03-47	7	117-252 / 146
470	MLRW	US Air Force - Gibbsboro 1	39-49-27 / 74-57-15	12	81-108 / 95

COUNTY - CAPE MAY

Well ID #	Aquifer	Local Well Identifier	Latitude	/ Longitude	# of Samples	Total Dissolved Solids Range	/ Average
257	CNSY	USGS-West Cape May 10BS	38-56-07	74-55-52	1	742-742	742
258	CNSY	Harbeson-Walker Refinery Co. 2	38-56-43	74-57-55	1	441-441	441
259	CNSY	Harbeson-Walker Refinery Co. 1	38-56-45	74-58-03	1	982-982	982
260	CNSY	USGS-Cape May Canal 50B	38-57-48	74-55-33	1	208-208	208
261	KRKDL	Wildwood WD Pine 1	38-59-32	74-48-51	1	456-456	456
262	CPMY	Wildwood WD Rio Grand 37	39-01-40	74-53-48	1	111-111	111
263	KRKDL	Stone Harbor WD 4	39-03-01	74-45-45	2	231-438	335
264	KRKDU	Stone Harbor WD - Sh Man 1	39-03-31	74-46-04	1	718-718	718
265	KRKDL	Avalon Boro WD 5-61	39-06-15	74-43-01	1	166-166	166
266	KRKDL	Sea Isle City WD 5	39-07-47	74-42-41	2	150-151	151
267	KRKDL	Aramingo W.C. 1	39-11-52	74-39-27	1	166-166	166
268	CNSY	USAF Palermo 2	39-14-22	74-40-41	8	30-40	35
269	KRKDL	NJWC-Ocean City Dist. 10	39-16-42	74-34-47	1	137-137	137
270	KRKDL	NJWC-Ocean City Dist. 5	39-17-10	74-34-08	1	125-125	125

COUNTY - CUMBERLAND

Well ID #	Aquifer	Local Well Identifier	Latitude	/ Longitude	# of Samples	Total Dissolved Solids Range	/ Average
275	KRKD	Moores Berch Fire Dept.	39-11-18	74-57-05	2	72-156	114
280	CPMY	Cumberland Co. - Heislerville 1	39-13-50	75-00-18	1	128-128	128
281	CNSY	Cumberland Co. - Heislerville 2	39-13-50	75-00-18	1	155-155	155
282	KRKD	NJDIA Leesburg SP Farm 1	39-13-56	74-57-51	2	156-167	162
283	KRKD	Fortescue Realty 3	39-14-20	75-10-23	1	156-156	156
284	PNPN	Gandy, Miles-Gandys Beach	39-16-18	75-13-54	1	375-375	375
285	PNPN	Money Isl Marina 1	39-17-04	75-14-15	1	422-422	422
286	PNPN	Bay Point Rod & Gun Club 1	39-17-46	75-15-10	1	440-440	440
287	KRKD	Cumberland Co.-Jones Island 1	39-18-30	75-12-08	1	138-138	138
288	PNPN	Sea Breeze Tavern 1	39-19-26	75-19-20	1	414-414	414
289	MLRW	NJDEP-Holton Farms	39-21-24	75-19-04	1	867-867	867
290	CNSY	Millville City WD 15	39-23-37	75-02-18	1	51-51	51
291	KRKD	Millville WD 13	39-23-37	75-02-23	1	77-77	77
292	MGRR	De Rosa - Ragovin 10BS	39-25-12	74-52-12	1	38800-38800	38800
293	KRKD	Cumberland Co. - Fairgrounds 1	39-25-27	75-06-42	1	26-26	26
294	CNSY	Bridgeton City WD 1A	39-25-55	75-14-15	1	48-48	48
295	CNSY	Cumberland Co. - Vocation Sch 2	39-27-31	75-09-24	1	21-21	21
296	KRKD	Vineland WSU 9	39-28-11	75-02-36	2	58-62	60
297	CNKD	Vineland WSU 6	39-29-57	75-00-19	2	43-47	45
298	CNSY	Cumberland Co. - Bostwick LK 1	39-31-41	75-16-03	1	74-74	74
299	PNPN	Cumberland Co. - Bostwick LK 2	39-31-44	75-15-58	1	291-291	291

COUNTY - ESSEX

Well ID #	Aquifer	Local Well Identifier	Latitude	/ Longitude	# of Samples	Total Dissolved Solids Range	/ Average
65	BRCK	Ablon Finishes 1	40-43-53	74-08-00	1	4880-4880	4880
66	OTSH	Commonwealth WC 50	40-44-27	74-22-22	1	298-298	298
67	BRCK	South Orange WD 3A	40-44-29	74-16-04	1	489-489	489
68	OTSH	Commonwealth WC 46	40-44-32	74-21-11	1	240-240	240
69	OTSH	East Orange WD H	40-45-19	74-20-01	1	256-256	256
70	OTSH	East Orange WD F	40-45-40	74-22-05	1	279-279	279
71	BRCK	East Orange WD North	40-45-43	74-20-41	1	191-191	191
72	BRCK	Livingston WD 4	40-47-08	74-19-13	1	220-220	220
73	O2WG	Essex Fells WD 8	40-49-56	74-18-03	1	192-192	192
74	OTSH	Livingston WD 5	40-48-37	74-20-48	1	408-408	408
75	OTSH	Essex Fells WD 1A	40-49-53	74-17-15	2	239-265	252

COUNTY - GLOUCESTER

Well ID #	Aquifer	Local Well Identifier	Latitude / Longitude	# of Samples	Total Dissolved Solids Range / Average
372	MGRR	Clayton Boro WD 3	39-39-12 / 75-05-22	5	543-587 / 565
373	MGRR	Glassboro Boro WD 3	39-42-05 / 75-07-58	1	417-417 / 417
374	MGRR	Glassboro Boro WD 2	39-42-41 / 75-06-42	3	315-345 / 326
375	MGRR	Glassboro Boro WD 4	39-43-08 / 75-07-53	1	313-313 / 313
376	MGRR	Pitman Boro WD P1	39-44-05 / 75-07-45	3	297-317 / 310
377	MGRR	So. Jersey WS Co. 1	39-44-08 / 75-13-30	3	538-578 / 561
378	MGRR	Washington Twp. MUA 6-64	39-44-37 / 75-02-50	1	186-186 / 186
379	MGRR	Swedesboro Boro WD 1	39-44-37 / 75-18-35	2	135-202 / 169
380	MGRR	Del Monte Corp. 10	39-44-38 / 75-19-14	1	174-174 / 174
381	CNSY	Brett, C	39-45-25 / 75-06-40	1	125-125 / 125
382	MGRR	Edenwood WC 1	39-46-41 / 75-11-09	2	276-286 / 281
383	MGRR	Mantua WC 2	39-47-12 / 75-10-08	2	241-243 / 242
384	MGRR	Wenonah Boro WD 1	39-47-43 / 75-09-02	2	186-206 / 196
385	MGRR	Wenonah Boro WD 2	39-47-51 / 75-09-12	1	190-190 / 190
386	MGRR	E Greenwich Twp. WD 2	39-47-55 / 75-13-27	2	280-375 / 328
387	MGRR	Penns Grove WC - Bridgeport 1	39-47-55 / 75-21-08	3	82-205 / 134
388	MGRR	Greenwich Twp. WD 2	39-48-51 / 75-15-26	1	94-94 / 94
389	MGRR	W. Deptford Twp. WD 3	39-49-12 / 75-10-26	4	190-237 / 215
390	MGRR	Shell Chem. Co. 3	39-49-19 / 75-12-56	2	402-425 / 414
391	MGRR	Shell Chem. Co. 1	39-49-17 / 75-13-07	1	464-464 / 464
392	MGRR	Greenwich Twp. WD 3	39-49-19 / 75-16-19	2	63-72 / 68
393	MGRR	Paulsboro ED 4-51	39-49-29 / 75-14-47	3	78-479 / 252
394	MGRR	Greenwich Twp. WD 1	39-49-32 / 75-17-22	1	165-165 / 165
395	MGRR	Hercules Chem. Gibbstown 2	39-49-48 / 75-16-39	1	141-141 / 141

COUNTY - GLOUCESTER (Cont.)

Well ID #	Aquifer	Local Well Identifier	Latitude / Longitude	# of Samples	Total Dissolved Solids Range / Average
396	MGRR	Mobil Oil-Greenwich 44	39-49-58 / 75-15-12	2	304-435 / 370
397	MGRR	EI Dupont Repauno 20	39-50-16 / 75-17-38	2	1280-1460 / 1370
398	MGRR	Woodbury WD - Park Lot 3	39-50-17 / 75-09-28	4	147-201 / 178
399	MGRR	Paulsboro Boro WD 2	39-50-23 / 75-14-42	2	124-156 / 140
400	MGRR	Essex Chem. - Olin 1-1954	39-50-51 / 75-13-49	1	66-66 / 66
401	MGRR	National Park Boro WD 1	39-51-46 / 75-10-53	2	111-210 / 161
402	MGRR	Texaco Eagle Pt. 6-PROD	39-51-53 / 75-09-46	2	169-186 / 178
403	MGRR	Texaco Eagle Pt. 2	39-52-07 / 75-09-30	2	154-158 / 156
404	MGRR	Westville Boro WD 4	39-52-21 / 75-07-37	5	119-177 / 138
405	MGRR	Gloucester Casew Auth. 1	39-50-20 / 75-13-40	1	218-218 / 218
406	MGRR	W Deptford Twp. WD 4	39-48-21 / 75-10-26	2	185-220 / 203
407	MGRR	EI Dupont Repauno 3	39-49-36 / 75-17-47	4	140-284 / 237

COUNTY - HUDSON

Well ID #	Aquifer	Local Well Identifier	Latitude / Longitude	# of Samples	Total Dissolved Solids Range / Average
63	BRCK	Keystone Metal Co. 3	40-47-13 / 74-03-36	1	282-282 / 282
64	OTSH	Mundet Cork Co. 1	40-48-05 / 74-01-30	1	2840-2840 / 2840
65	BRCK	Keystone Metal Co. 2	40-47-17 / 74-03-35	1	450-450 / 450

COUNTY - HUNTERDON

Well ID #	Aquifer	Local Well Identifier	Latitude / Longitude	# of Samples	Total Dissolved Solids Range / Average
144	LCKG	Titanium-Zirconium CO 3	40-30-30 / 74-58-21	1	1610-1610 / 1610
145	BRCK	Flemington WC Plant	40-30-38 / 74-52-10	1	262-262 / 262
146	BRCK	Flemington WC Capner	40-30-43 / 74-51-44	1	518-518 / 518
147	BRCK	Frenchtown WC 1	40-31-40 / 75-03-35	1	236-236 / 236
148	BRCK	Riegel Paper - Alexandria 5	40-33-23 / 75-04-59	1	184-184 / 184
149	OTSH	Riegal Paper - Hughville 1	40-37-09 / 75-09-25	1	203-203 / 203
150	BRCK	Clinton WD - Beaver	40-38-36 / 74-50-03	1	214-214 / 214
151	PCMB	Califon WC - SPR VYI	40-44-16 / 74-46-45	1	122-122 / 122
152	KTTN	Riegal Paper-Hughville 5	40-37-08 / 75-09-32	1	201-201 / 201

COUNTY - MERCER

Well ID #	Aquifer	Local Well Identifier	Latitude / Longitude	# of Samples	Total Dissolved Solids Range / Average
199	MGRR	Garden State WC-R Frost 10	40-13-05 / 74-39-21	1	59-59 / 59
200	PRWG	E. Windsor MUA-Twin R6	40-15-36 / 74-29-20	1	37-37 / 37
201	ODBG	Hightstown WD 1	40-16-21 / 74-31-29	1	27-27 / 27
202	FRNG	Hightstown Rug-Kentile 1	40-17-17 / 74-33-52	1	23-23 / 23
203	BRCK	Pennington WD-K Georg 41	40-20-01 / 74-47-01	1	247-247 / 247
204	MGRR	Allentown WD 1	40-10-52 / 74-35-25	2	80-80 / 80
205	MGRR	Hamilton Square WC 6	40-13-53 / 74-39-53	2	28-42 / 35
206	SCKN	Hopewell WC-Burton Ave. 1	40-23-40 / 74-45-53	2	190-244 / 217

COUNTY - MIDDLESEX

Well ID #	Aquifer	Local Well Identifier	Latitude	/ Longitude	# of Samples	Total Dissolved Solids Range	/ Average
164	FRNG	Cranbury Twp. WD 1-062	40-18-42	74-30-55	1	40-40	40
165	OQBG	Cranbury Twp. WD 2	40-18-42	74-30-55	1	134-134	134
166	FRNG	NJ Tpke. Service Area 7S-1	40-19-16	74-29-20	1	79-79	79
167	ODBG	NJ Water Co.-Jamesburg 6	40-20-51	74-26-04	1	32-32	32
168	ODBG	Badishe Products Co. 1	40-21-30	74-28-21	1	64-64	64
169	ODBG	Duhernal WC 13	40-22-53	74-22-47	1	71-71	71
170	ODBG	Duhernal WC 11-42	40-23-08	74-22-52	1	22-22	22
171	ODBG	Old Bridge Twp. MUA-Brn 2	40-23-45	74-18-38	1	40-40	40
172	ODBG	Duhernal WC 1-38	40-24-04	74-22-05	1	29-29	29
173	ODBG	Duhernal WC 18-51	40-24-14	74-22-03	1	72-72	72
174	FRNG	E. Brunswick Twp. WD 2	40-24-56	74-24-42	1	40-40	40
175	ODBG	Perth Amboy WD 3	40-25-35	74-20-14	1	109-109	109
176	FRNG	South River Boro WD 2	40-25-56	74-21-41	1	41-41	41
177	ODBG	Sayreville Boro WD K	40-26-17	74-19-45	1	103-103	103
178	ODBG	Oschwald Brick 1	40-26-32	74-14-59	1	31-31	31
179	FRNG	Thomas and Chadwick 1	40-26-47	74-22-27	1	35-35	35
180	ODBG	Old Bridge Twp. MUA-LH 1	40-27-00	74-14-59	1	33-33	33
181	FRNG	South Amboy City WD 8	40-28-22	74-16-30	1	36-36	36
182	FRNG	NL Industries 4	40-28-35	74-18-15	1	36-36	36
183	FRNG	Jersey Central P&L- Werner 6	40-29-23	74-16-48	1	51-51	51
184	FRNG	Old Bridge Twp. MUA-Brn 3	40-23-50	74-18-34	1	36-36	36
185	FRNG	Carborundum Co. 1	40-30-46	74-18-27	1	178-178	178
186	FRNG	Chevron Oil Co. 2	40-32-00	74-16-20	2	165-172	169
187	FRNG	Haagen Dazs Inc.	40-32-33	74-16-33	2	360-384	372
188	FRNG	South River Boro WD 3	40-25-59	74-21-42	1	35-35	35

COUNTY - MONMOUTH

Well ID #	Aquifer	Local Well Identifier	Latitude	Longitude	# of Samples	Total Dissolved Solids Range	Average
207	MLRW	Hopkins, Russell	40-06-17	74-30-37	1	120-120	120
208	MLRW	Herbert, Thomas	40-06-20	74-30-58	1	113-113	113
209	KRKD	Brielle Boro WD 1	40-06-44	74-03-44	3	41-80	55
210	EGLS	Brielle Boro WD 2	40-06-45	74-03-45	3	109-111	110
211	KRKD	Manasquan Boro WD 5	40-07-14	74-03-29	1	44-44	44
212	MLRW	Miklau, Hans	40-07-35	74-31-27	1	195-195	195
213	EGLS	Sea Girt Boro WD 4	40-08-00	74-02-31	1	122-122	122
214	MLRW	G. Thompson Med Home 2	40-08-17	74-07-44	1	110-110	110
215	EGLS	Wall Twp. WD - Allenwood 1	40-08-23	74-04-55	1	105-105	105
216	EGLS	Spring Lake Boro WD 1	40-08-49	74-02-07	1	114-114	114
217	MLRW	Carousel Farms	40-09-18	74-28-12	1	164-164	164
218	EGLS	Wall Twp. WD - Rt. 34	40-10-28	74-06-38	1	107-107	107
219	EGLS	U.S. Army-Imperial Park 2	40-10-53	74-03-41	1	116-116	116
220	MGRR	Rokeach and Sons 1 4-DP	40-11-34	74-10-14	2	49-52	51
221	MLRW	Avon-By-The-Sea WD 2	40-11-36	74-01-20	1	141-141	141
222	MLRW	Mon Con WC - Ocean Gr 21	40-12-16	74-01-08	2	127-151	139
223	EGLS	Mon Con WC - Ocean Gr 20	40-12-23	74-01-04	1	113-113	113
224	MGRR	Adelphia WC - Hovbilt Co. 1	40-12-46	74-15-16	2	31-59	45
225	MGRR	Schroth, Emil	40-12-55	74-11-47	1	43-43	43
226	MGRR	Roosevelt Boro WD 1	40-13-12	74-28-02	1	48-48	48
227	EGLS	Allenhurst Boro WD 4	40-14-01	74-00-25	1	125-125	125
228	EGLS	Freehold Twp. WD - Koenig 2	40-14-12	74-16-06	1	147-147	147
229	ODBG	3M Company 1	40-14-36	74-15-25	1	41-41	41
230	ODBG	Battleground CC - Irrigat	40-15-37	74-20-12	1	30-30	30

COUNTY - MONMOUTH (Cont.)

Well ID #	Aquifer	Local Well Identifier	Latitude	/ Longitude	# of Samples	Total Dissolved Solids Range	/ Average
231	EGLS	Freehold Twp. WD 5	40-16-24	74-15-02	1	47-47	47
232	ODBG	Freehold Boro WD 3	40-16-33	74-17-28	4	30-41	46
233	EGLS	Freehold Twp. WD-PT IVY 1	40-16-54	74-17-36	1	142-142	142
234	FRNG	Englishtown Boro WD 1	40-17-44	74-21-35	1	17-17	17
235	MLRW	George Wendel	40-18-48	74-13-24	1	87-87	87
236	ODBG	Red Bank Boro WD 1B - 50	40-20-47	74-04-20	1	52-52	52
237	MGRR	Bamm Hollow CC 1	40-21-06	74-08-10	1	42-42	42
238	MLRW	Fiemer, A	40-22-55	74-10-10	1	134-134	134
239	MGRR	Highlands Boro WD 1	40-24-01	73-59-34	1	50-50	50
240	ODBG	Aberdeen MUA-Matawan 1	40-23-59	74-12-33	1	30-30	30
241	EGLS	Atlantic Highlands Boro WD 2	40-24-41	74-02-34	1	65-65	65
242	EGLS	Lily Tulip Cup Co.-Stnby	40-24-42	74-08-43	1	110-110	110
243	FRNG	W Keansburg WC-Holmdel 4	40-24-43	74-10-10	1	40-40	40
244	FRNG	US Army-Ft. Hancock 5	40-27-05	73-59-59	3	61-95	75
245	ODBG	Sandy Hook SP OBS 1	40-25-36	73-59-05	1	96-96	96
246	ODBG	Keyport Boro WD 5	40-26-24	74-11-45	2	27-89	58
247	ODBG	Union Beach Boro WD 1-62	40-26-32	74-10-49	1	237-237	237
248	MGRR	Avon WD 30BS	40-11-37	74-01-21	2	58-64	61
249	MGRR	Asbury Park WD-Amer 2	40-12-32	74-00-57	2	58-63	61
250	MLRW	Aldrich W Co. 1	40-08-40	74-13-40	1	91-91	91

COUNTY - MORRIS

Well ID #	Aquifer	Local Well Identifier	Latitude / Longitude	# of Samples	Total Dissolved Solids Range / Average
85	OTSH	USGS-Chatham Recreation OBS	40-44-32 / 74-22-53	1	220-220 / 220
86	OTSH	USGS-Greenhouse OBS	40-45-22 / 74-23-07	1	295-295 / 295
87	OTSH	USGS-Braidburn Club OBS	40-46-09 / 74-22-46	1	219-219 / 219
88	OTSH	USGS-Esso Six Inch OBS	40-47-03 / 74-24-52	1	167-167 / 167
89	OTSH	USGS-Driver 1 OBS	40-47-38 / 74-24-06	1	158-158 / 158
90	OTSH	USGS-Clemens 1 OBS	40-48-16 / 74-23-59	1	180-180 / 180
91	OTSH	USGS-Sandoz Chem. 1 OBS	40-48-26 / 74-23-47	1	172-172 / 172
92	OTSH	USGS-Green Acres OBS	40-49-37 / 74-22-00	1	220-220 / 220
93	OTSH	USGS Homestead	40-50-01 / 74-21-30	1	158-158 / 158
94	OTSH	USGS Troy Meadows 2 OBS	40-50-02 / 74-23-24	1	197-197 / 197
95	PCMB	N.J. DOT US Highway 46	40-51-02 / 74-48-00	1	74-74 / 74
96	OTSH	US Army-Picatinny 130	40-56-25 / 74-34-10	6	112-209 / 179
97	OTSH	USGS-Morris Treatment 2	40-48-22 / 74-27-24	1	136-136 / 136

COUNTY - OCEAN

Well ID #	Aquifer	Local Well Identifier	Latitude / Longitude	# of Samples	Total Dissolved Solids Range / Average
558	KRKDU	Long Beach Twp. WD-2	39-32-06 / 74-15-48	3	139-700 / 327
559	KRKDL	Beach Haven Boro WD-8	39-33-46 / 74-14-30	2	58-68 / 63
560	KRKDL	Mystic Island WC-2	39-34-28 / 74-22-02	1	50-50 / 50
561	KRKDL	Long Beach WC Terrace-2	39-35-10 / 74-13-30	2	50-56 / 53
562	KRKDL	Tuckerton WWCO 4-26	39-36-10 / 74-20-31	2	55-57 / 56
563	KRKDL	Long Beach WC-Brant 2	39-37-24 / 74-11-51	1	86-86 / 86
564	KRKDL	Surf City Boro WD-3	39-39-12 / 74-10-22	1	85-85 / 85
565	CKKD	Union-Unknown Flowing	39-44-44 / 74-12-10	2	35-35 / 35
566	MNSQ	Barnegat Light Boro WD-2	39-45-24 / 74-06-32	1	233-233 / 233
567	CKKD	Indian Surf Beach 1-59	39-46-13 / 74-12-15	1	40-40 / 40
568	CKKD	USGS-Garden St Pkwy OBS-1	39-47-42 / 74-14-20	3	23-35 / 27
569	MGRR	USGS-Island Beach OBS-3	39-48-29 / 74-05-35	4	1370-1480 / 1425
570	CNSY	WM 14B WM-14B	39-53-17 / 74-23-06	1	22-22 / 22
571	CNSY	WM 13C WM 13C	39-53-17 / 74-24-02	1	22-22 / 22
572	CKKD	Stafford WC Fawn Lakes 1	39-45-11 / 74-18-30	1	20-20 / 20
573	EGLS	Lavallette Boro WD 3	39-57-41 / 74-04-37	5	176-352 / 239
574	EGLS	Lavallette Boro WD 2	39-58-08 / 74-04-21	3	210-233 / 220
575	MGRR	Toms River Chem 84 OBS	39-59-30 / 74-14-21	1	140-140 / 140
576	KRKD	Ocean Co. WC Normandy 2	39-59-56 / 74-03-44	1	668-668 / 668
577	MGRR	Lakehurst NAS 32-64	40-01-05 / 74-22-44	3	51-70 / 59
578	KRKD	Brick Twp. MUA Shore AC-2	40-01-21 / 74-06-02	1	110-110 / 110
579	CKKD	Lakehurst NAS 4-42	40-02-07 / 74-19-47	2	11-21 / 16
580	EGLS	Ocean Co. WC Mantolking 6	40-02-10 / 74-03-10	2	122-146 / 134
581	EGLS	Lakewood Twp. MUA 2	40-02-50 / 74-10-44	2	105-128 / 117

COUNTY - OCEAN (Cont.)

Well ID #	Aquifer	Local Well Identifier	Latitude	/ Longitude	# of Samples	Total Dissolved Solids Range	/ Average
582	MGRR	Jackson Twp. MUA SCM-3	40-03-19	74-19-57	5	71-118	85
583	EGLS	N.J. WC Lakewood WC7	40-03-54	74-13-10	2	80-107	94
584	EGLS	N.J. WC Bayhead WC6	40-04-05	74-02-44	4	113-128	124
585	MGRR	Pt. Pleasant Boro WD7	40-04-09	74-04-06	3	80-95	88
586	EGLS	USGS Collier Mills TW1	40-04-14	74-27-01	3	90-103	96
587	EGLS	Lakewood WC8	40-04-43	74-13-52	1	108-108	108
588	EGLS	Pt. Pleasant Boro WD3	40-04-59	74-03-59	2	120-120	120
589	CKKD	Pt. Pleasant Boro WD4	40-05-01	74-04-55	2	71-138	96
590	CKKD	Pt. Pleasant Beach Boro WD-10	40-05-51	74-02-43	2	267-569	418
591	MGRR	Brick Twp. MUA Hollywd 1	40-06-14	74-07-06	1	42-42	42
592	EGLS	N.J. WC Lakewood Div 6	40-06-22	74-13-29	2	73-109	91
593	EGLS	Jackson Twp. MUA MUA 3	40-06-54	74-17-15	2	100-110	105
594	CKKD	Berkeley WC - Pinewall	39-52-48	74-10-11	1	25-25	25
595	CKKD	Ocean Gate Boro WD 3	39-55-28	74-08-26	1	78-78	78
596	CKKD	Toms River WC 21	39-57-15	74-12-31	2	82-85	84
597	CKKD	Lakehurst WD 1R	40-00-39	74-19-30	1	48-48	48
598	MLRW	Ocean Co. WC - Bayhead 3	40-04-05	74-02-43	1	120-120	120
599	MNSQ	Seaside Hts. Boro WD 2	39-56-36	74-04-39	4	142-177	157
600	VNCN	US Air Force - Bomarc 1	40-01-49	74-26-31	9	12-24	18

COUNTY - PASSAIC

Well ID #	Aquifer	Local Well Identifier	Latitude / Longitude	# of Samples	Total Dissolved Solids Range / Average
20	BRCK	Rutts Hut Restaurant	40-49-28 / 74-07-32	1	563-563 / 563
21	BRCK	JL Prescott Co. 1	40-51-21 / 74-06-42	1	504-504 / 504
22	PCMB	Windbeam WC - Windbeam 5	41-07-20 / 74-14-42	1	159-159 / 159
23	BRCK	Haledon Borotilt Sts PG	40-56-11 / 74-11-22	1	223-223 / 223
24	BRCK	Hawthorne WD Main FLD 5	40-57-28 / 74-09-21	1	315-315 / 315
25	BRCK	Hawthorne WD Utter Ave.	40-57-41 / 74-08-44	1	248-248 / 248
26	BRCK	Hawthorne WD Goffle Hill	40-58-14 / 74-09-46	1	240-240 / 240
27	OTSH	Wanaque WD - Haskell OBS	41-02-09 / 74-17-04	7	90-196 / 157
28	PCMB	Windbeam WC - Windbeam 4	41-05-23 / 74-15-55	1	155-155 / 155

COUNTY - SALEM

Well ID #	Aquifer	Local Well Identifier	Latitude	/ Longitude	# of Samples	Total Dissolved Solids Range	/ Average
334	VNCN	Salem City WD - Quinton 3	39-32-53	75-24-25	1	254-254	254
335	MLRL	Salem City WD - Keasb CK 5	39-33-37	75-27-19	2	256-340	298
336	MGRR	USGS - Salem 1 OBS	39-33-48	75-27-55	1	3910-3910	3910
337	MLRW	Elmer Boro WD 3	39-35-34	75-10-18	2	197-201	199
338	MLRW	Salem Mem Hospital 1	39-35-38	75-26-40	1	166-166	166
339	MGRR	NJ Dep - Ft. Mott State Pk 1	39-36-20	75-33-10	3	289-346	312
340	MGRR	Pennsville Twp. WD 4	39-37-54	75-31-48	2	121-130	126
341	MGRR	Acme Markets 1	39-38-48	75-20-10	2	380-384	382
342	MGRR	Woodstown Boro WD 1	39-39-04	75-19-46	4	478-522	505
343	MGRR	EI Dupont-Course Land 3A	39-39-12	75-24-36	1	318-318	318
344	MGRR	Richman Ice Cream 1	39-39-28	75-21-47	2	245-250	248
345	MGRR	EI Dupont-Course Land 4A	39-39-42	75-22-34	1	333-333	333
346	MGRR	Pennsville Twp. WD 3	39-39-54	75-30-13	2	78-122	100
347	MGRR	Pennsville Twp. WD 1	39-39-58	75-30-45	4	140-304	228
348	MGRR	EI Dupont-Course Land 2A	39-40-00	75-24-39	1	273-273	273
349	MGRR	Atl City El-Deepwater 6	39-41-00	75-30-30	2	242-383	313
350	MGRR	N.J. Tpke. Service Area IN-1	39-41-39	75-23-49	2	104-111	108
351	MGRR	EI Dupont-Carney Pt. 4	39-41-53	75-29-28	1	833-833	833
352	MGRR	Penns Grove WC-Layton 11	39-42-05	75-26-57	2	593-606	600
353	MGRR	EI Dupont-Carney Pt. 7	39-42-12	75-27-51	1	353-353	353
354	MGRR	Penns Grove WSC - Pedtn 11	39-44-34	75-25-14	2	45-96	71
355	VNCN	Salem City WD 2	39-33-39	75-27-18	1	791-791	791
356	MGRR	US Army - Pinns Pt. Cem	39-36-41	75-33-22	3	314-529	437
357	MGRR	Woodstown Boro WD 2	39-39-04	75-19-46	2	521-542	532
358	MGRR	Penns Grove WC - Layne 1	39-42-56	75-27-18	2	515-523	519

COUNTY - SOMERSET

Well ID #	Aquifer	Local Well Identifier	Latitude / Longitude	# of Samples	Total Dissolved Solids Range / Average
138	BRCK	Rocky Hill MC 2	40-24-06 / 74-38-52	1	184-184 / 184
139	BRCK	GSA Bell Mead Bldg. T-147	40-29-10 / 74-40-28	2	567-1020 / 794
140	BRCK	Bound Brook MD 3	40-33-44 / 74-32-02	2	368-391 / 380

COUNTY - SUSSEX

Well ID #	Aquifer	Local Well Identifier	Latitude / Longitude	# of Samples	Total Dissolved Solids Range / Average
37	OTSH	Andover Boro MC 1	40-59-32 / 74-44-17	2	242-274 / 258
38	OTSH	Sparta Twp. MD 1965 TW	41-04-59 / 74-38-49	2	291-300 / 296
39	HGFL	NPS White Russian	41-05-42 / 74-57-33	3	24-102 / 50
40	SNGK	NPS Hemlock Pond	41-06-23 / 74-54-06	2	26-89 / 58
41	KTTN	Branchville Boro MD 1	41-08-51 / 74-44-43	1	210-210 / 210
42	SNGK	High Pt. St. Pk. - Toll Gate	41-18-31 / 74-40-16	1	108-108 / 108

COUNTY - UNION

Well ID #	Aquifer	Local Well Identifier	Latitude / Longitude	# of Samples	Total Dissolved Solids Range / Average
123	BRCK	General Gum Products 2	40-37-28 / 74-15-53	2	329-607 / 468
124	BRCK	United Labs Inc. 1	40-38-32 / 74-14-08	1	390-390 / 390
125	BRCK	Elizabethtown WC - Chandler	40-39-03 / 74-15-05	1	336-336 / 336
126	BRCK	Scotch Plains Twp. 2	40-39-25 / 74-22-34	1	224-224 / 224
127	BRCK	Venneri, A 1	40-39-29 / 74-17-42	1	258-258 / 258
128	BRCK	White Lab 3 OBS	40-40-27 / 74-16-44	2	312-331 / 322
129	BRCK	Elizabethtown WC - Grassman OB	40-40-55 / 74-13-02	2	338-388 / 363
130	BRCK	Union County Parks OBS	40-41-06 / 74-17-19	1	277-277 / 277
131	OTSH	Temple Bnai Abraham 1	40-41-08 / 74-18-26	1	258-258 / 258
132	BRCK	Emeloid Co. Inc. 2	40-41-31 / 74-13-32	1	1100-1100 / 1100
133	BRCK	Pyro Plastics Co. 1	40-41-36 / 74-17-16	1	238-238 / 238
134	BRCK	Cooper Alloy Co. 4	40-42-15 / 74-14-32	1	354-354 / 354
135	BRCK	Elastic Stop Nut 3	40-42-18 / 74-16-46	1	271-271 / 271
136	BRCK	CIBA Pharmaceutical 6	40-43-41 / 74-22-48	3	236-934 / 500

COUNTY - WARREN

Well ID #	Aquifer	Local Well Identifier	Latitude	/ Longitude	# of Samples	Total Dissolved Solids Range	/ Average
52	KTTN	Ingersol Rand 2	40-41-34	75-10-09	1	263-263	263
53	MRBG	W Brook Creamry 2	40-58-27	74-50-56	1	252-252	252
54	MRBG	Blair Academy 2	40-58-35	74-56-38	1	344-344	344
55	HGFL	NJDEP Worthington SP 4	41-00-45	75-05-07	1	77-77	77
56	HGFL	NPS Millbrook NPS	41-04-30	74-57-46	1	104-104	104
57	TILL	NJ Fish Game - Pequest 2	40-50-07	74-56-59	1	253-253	253
58	HGFL	NPS Lake Coventry	41-04-37	74-57-27	1	82-82	82
59	KTTN	NJ Fish Game - Pequest 5	40-49-44	74-58-08	1	283-283	283
60	KTTN	NJ Fish Game - Pequest 4	40-50-17	74-56-48	1	292-292	292

TABLE II - STATISTICAL DATA OF AQUIFER TDS VALUES IN MG/L

AQUIFER/ FORMATION	SYMBOL	NO. OF WELLS SAMPLED	NO. OF SAMPLES TAKEN	TDS RANGE	MEAN	MEDIAN	STANDARD DEVIATION
Brunswick	BRCK	46	50	54-4880	426.28	253.00	699.88
Cape May	CPMY	5	5	111-212	154.00	128.00	45.63
Cohansey	CNSY	132	168	6-2680	402.74	33.00	2794.04
Cohansey/Kirkwood (Combined)	CKKD	225	244	3-569	60.01	44.00	69.92
Cornwall	CRNL	1	1	134-134	134.00	-	-
Englishtown	EGLS	50	74	10-233	116.30	110.00	40.23
Esopus	ESPS	1	1	175-175	175.00	-	-
Farrington	FRNG	30	36	17-384	80.17	40.00	94.81
High Falls	HGFL	4	6	24-104	78.25	79.50	22.19
Kirkwood (Undifferentiated)	KRKD	20	28	12-668	125.55	93.50	143.94
Kirkwood (Lower)	KRKDL	31	38	42-456	128.00	103.00	100.03
Kirkwood (Upper)	KRKDU	3	5	76-718	373.67	142.00	323.53
Kittatinny	KTTN	6	6	201-292	242.83	236.50	41.18
Lockatong	LCKG	4	4	159-1610	562.75	241.00	700.47
Magothy-Raritan (Undifferentiated)	MGRR	476	894	25-44500	659.26	641.79	3895.52
Manasquan	MNSQ	12	17	30-238	151.75	172.00	62.79

AQUIFER/ FORMATION	SYMBOL	NO. OF WELLS SAMPLED	NO. OF SAMPLES TAKEN	TDS RANGE	MEAN	MEDIAN	STANDARD DEVIATION
Martinsburg	MRBG	3	3	252-344	290.00	252.00	48.04
Merchantville	MCVL	2	2	107-130	118.50	118.50	16.26
Mount Laurel/ Wenonah	MLRW	68	101	46-867	173.94	128.50	134.11
Old Bridge	ODBG	31	35	22-237	68.68	52.00	48.04
Pennsauken	PNSK	2	2	165-482	323.50	323.50	224.15
Piney Point	PNPN	6	6	288-440	371.67	418.00	67.10
Pleistocene/Cohansey (Combined)	PLCC	27	35	13-27500	1326.00	50.00	5396.07
Pleistocene Outwash	OTSH	32	40	112-2840	304.38	224.50	466.77
Pleistocene Till	TLL	8	14	113-355	180.75	164.00	42.07
Precambrian	PCMB	7	7	56-159	109.86	122.00	40.70
Shawangunk	SNGK	2	3	26-108	83.00	83.00	35.36
Stockton	SCKN	13	15	117-300	176.08	160.00	52.40
Vincentown	VNCN	23	40	12-791	146.61	101.00	156.79
Watchung	O2WG	1	1	192-192	192.00	-	-

Table III - Records Of Selected Wells With Total Dissolved Solids Greater Than 1000 mg/l

Well ID #	County	Local Well Identifier	Aquifer	Latitude	Longitude	# of Samples	Total Dissolved Solids Range	Total Dissolved Solids Average
310	Atlantic	Golden Sands Motel	PLCC	39-21-00	74-27-15	1	27500-27500	27500
304	Atlantic	N.J. Highway Authority 1	CNSY	39-18-19	74-37-04	1	18200-18200	18200
328	Atlantic	Silver Sands Motel	CNSY	39-21-04	74-27-07	1	26800-26800	26800
-	Camden	NJDEP-Harrison Ave. 2	MGRR	39-57-11	75-02-20	1	2200-2200	2200
-	Cumberland	Cumber Co-Back Neck RD 1	PLCC	39-19-59	75-21-52	1	6940-6940	6940
292	Cumberland	De Rosa-Ragovin 1 OBS	MGRR	39-25-12	74-52-12	6	19700-44500	33,933
65	Essex	Ablon Finishes 1	BRCK	40-43-53	74-08-00	1	4880-4880	4880
397	Gloucester	E I DuPont Repauno 20	MGRR	39-50-16	75-17-38	2	1280-1460	1370
-	Gloucester	Mobil Oil-Greenwich 45	MGRR	39-50-05	75-15-23	1	1380-1380	1380
-	Gloucester	Pureland WC Test Well 3	MGRR	39-46-08	75-21-35	1	1510-1510	1510
64	Hudson	Mundet Cork Co 1	OTSH	40-48-05	74-01-30	1	2840-2840	2840
144	Hunterdon	Titanium-Zirconium Co 3	LCKG	40-30-30	74-58-21	1	1610-1610	1610
569	Ocean	USGS-Island Beach 3 OBS	MGRR	39-48-29	74-05-35	4	1370-1480	1425
-	Salem	E I DuPont-Ranney 4	MGRR	39-40-58	75-29-18	1	1280-1280	1280
-	Salem	E I DuPont-Ranney 5	MGRR	39-41-10	75-29-55	1	2010-2010	2010
336	Salem	USGS-Salem 1 OBS	MGRR	39-33-48	75-27-55	1	3910-3910	3910
-	Salem	USGS-Salem 3 OBS	MGRR	39-33-48	75-27-55	1	1400-1400	1400
139	Somerset	GSA Belle Mead Bldg T-147	BRCK	40-29-10	74-40-28	1	1020-1020	1020
132	Union	Emeloid Co Inc 2	BRCK	40-41-31	74-13-32	1	1100-1100	1100

GM:T:G1

Selected References

1. Appel, Charles A. (1962). Salt Water Encroachment Into Aquifers of the Raritan Formation in the Sayreville Area, Middlesex County, New Jersey; New Jersey Division of Water Policy and Supply, Special Report 17, 47pp.

2. Barksdale, Henry C.; R.W. Sundstrom and M.S. Brunstein (1936). Supplementary Report on the Ground Water Supplies of the Atlantic City Region; New Jersey State Water Policy Commission, Special Report 6, 139 pp.

3. Barksdale, Henry C., et al (1943). The Ground Water Supplies of Middlesex County New Jersey: New Jersey State Water Supply Commission, Special Report 8. 159 pp.

4. Brown, Philip M. and Majorie S. Reid (1976). Geologic Evaluation of Waste-Storage Potential In Selected Segments of the Mesozoic Aquifer System Below the Zone of Fresh Water, Atlantic Coastal Plain, North Carolina Through New Jersey; U.S. Geological Survey Professional Paper 881, 47 pp.

5. Environmental Protection Agency (1979). Federal Register, Volume 44, Number 116, Thursday, June 14; pp. 34246-34257.

6. Environmental Protection Agency (1980). Federal Register, Volume 45, Number 123, Tuesday, June 24; p. 42502.

7. Gill, Harold E. (1962). Ground Water Resources of Cape May County, New Jersey; New Jersey Division of Water Policy and Supply, Special Report 18, 170 pp.

8. Havens and Emerson, Inc.; Parsons, Brinckerhoff, Quade and Douglas, Inc., Wastewater and Gaston, Inc.; Water Resources Engineers, Inc.; and Geraghty and Miller, Inc. (1980). Source Material: Task VII Watershed Management - Ground Water Management Appendices for the New Jersey Statewide Water Supply Plan; New Jersey Department of Environmental Protection, Division of Water Resources.

9. Herpers, Henry and Henry C. Barksdale (1951). Preliminary Report on the Geology and Groundwater Supplies of the Newark, New Jersey Area; New Jersey Division of Water Policy and Supply, Special Report 10, 51 pp.

10. Meisler, Harold (1980). Preliminary Delineation of Salty Ground Water in the Northern Atlantic Coastal Plain; U.S. Geological Survey Open File Report 81-71, Reston, Va., 38 pp (unpublished).

11. New Jersey Department of Environmental Protection (1981). Regulations Concerning the New Jersey Pollutant Discharge Elimination System; Division of Water Resources, N.J.A.C. 7:14A-1 et seq.

12. New Jersey Department of Environmental Protection (1980). Response to Comments Concerning the Adoption of the New Jersey Pollutant Discharge Elimination System Regulations (NJPDES); Division of Water Resources, N.J.A.C. 7:14A-1 et seq.

13. Schaeffer, Fred (1983). Distribution of Chloride Concentrations in the Principal Aquifers of the New Jersey Coastal Plain, 1977-1981; U.S. Geological Survey Water Resources Investigation 83-4061 (in print).

14. Seaber, Paul R. (1963). Chloride Concentrations of Water From Wells in the Atlantic Coastal Plain of New Jersey, 1923-61; New Jersey Division of Water Policy and Supply, Special Report 22, 250 pp.