

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA750)

Migration of Contaminated Groundwater Under Control

Facility Name: Roche Vitamins Inc. (formally Hoffmann-La Roche)
Facility Address: 205 Roche Drive Belvidere, NJ
Facility EPA ID #: NJD042321042

1. Has all available relevant/significant information on known and reasonably suspected releases to the groundwater media, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC), been **considered** in this EI determination?

X If yes - check here and continue with #2 below.

 If no - re-evaluate existing data, or

 if data are not available skip to #6 and enter "IN" (more information needed) status code.

Justification:

The following information was obtained from Groundwater Investigation and Remedial Activities Report dated October 2, 1992. This report was prepared by Metcalf & Eddy, Inc. on behalf of Hoffmann La Roche Inc..

NJDEP conducted two separate RCRA facility assessments (RFAs) of the Hoffmann La Roche facility. The purpose of these RFAs was to identify all potential solid waste management units (SWMUs), any areas of concern (AOC), and any areas in which releases occurred. NJDEP identified six SWMUs, including two RCRA regulated units (one now closed and the other no longer regulated), one AOC and four areas in which releases occurred at the site. The SWMUs, AOC and Releases are as follows:

SWMUs

1. 2,000-Gallon Above Ground Waste Lube Oil Tank
This above ground storage tank (AST) was a regulated unit under Hoffmann-La Roche's RCRA permit. The tank was situated in a clay-lined dike from 1969 to 1987. In 1987, the tank was moved to a concrete-lined dike. There has been no history of release from this tank and no further action was recommended for this area. This tank was removed from NJ permit in 1996 due to the de-regulation of waste oil in NJ.
2. Drum Storage Area
This was a RCRA regulated and permitted unit. It was constructed in accordance with regulatory requirements with no history of spills. Therefore, no further action was required for this SWMU. This unit was cleaned closed on 1/28/99.
3. Former Compost Pile
Hoffmann-La Roche treated by composting Mycelia cake contaminated with methanol, a highly biodegradable hazardous substance. This material was generated during the production of lasalocid. Hoffman La-Roche handled Mycelia cake as a hazardous waste because it contained methanol. Treatment of this material took place on lined asphalt to prevent discharges to the environment. Hoffmann-La Roche terminated these activities prior to May 1981. After this time the composted Mycelia waste was removed to an off-site permitted disposal facility. A no release determination was made in the RFAs and no further action was required.

4. 12,000-Gallon centrifuge Oil Tank
Hoffmann-La Roche uses this tank for operation of its on-site diesel cogeneration plant. The oil was collected and sent off site in accordance with applicable regulations. This tank was designated as a protective filer and removed from RCRA jurisdiction by letter dated May 21, 1984 since it does not and never has contained waste oil. No further action was required for this area.
5. Pequest Sludge Farm
This facility was established as a cooperative experimental venture with Rutgers University to evaluate land based treatment and disposal of sewage sludge and its impact on agriculture. The facility was remediated to state and federal standards. No further action was required for this area.
6. Delaware Sludge Farm
This facility was also established as a cooperative experimental venture with Rutgers University to evaluate land based treatment and disposal of sewage sludge and its impact on agriculture. The facility was remediated to state and federal standards. No further action was required for this area.

AOC and RELEASES

1. Leaking Process Sewers (AOC)
Hoffmann- La Roche had experienced leaks in its underground process sewer lines since as far back as 1975. The material released included wastewater with dissolved amounts of acetone, chloroform, toluene, and sodium sulfate. These compounds were detected in the groundwater in well pw5 in the parts per million range (ppm). Hoffman La Roche has been addressing this AOC since 1975 through remedial measures, groundwater monitoring and natural attenuation.
2. No. 6 Fuel Oil UST
On November 9, 1982, a leak was discovered in a 30,000-gallon No. 6 fuel oil UST. The amount of the oil released was estimated to be 4,000-gallons. Any remaining oil was removed from the tank. The tank was cleaned and visually inspected. Several 1/4 to 1/2 inch holes were observed in a side wall area of the tank, approximately 3 feet up from the bottom. The asphalt, overburden and soils surrounding and below the tank were excavated to access the released oil and oil contaminated soil. A sump pump was used to evacuate oil that collected in the excavation. The contaminated soil was sent for disposal to SCA Chemical Services in Model City, New York, on April 20 and 21, 1983. The tank was repaired by welding metal plates over the holes. Soil adjacent to the tank was completely excavated, and a concrete vault was constructed around the tank. The vault area was backfilled with sand and the surface was paved. According to an internal memorandum dated June 24, 1985, an NJDEP inspector recommended that this case be closed based on the information provided by Hoffmann-La Roche and a follow up inspection by the Warren County Health Department. No further action was recommended for the area.
3. No. 6 Fuel Oil Aboveground Storage Tank
On March 15, 1983, a leak was discovered in a discharge pipeline from a 700,000-gallon No. 6 fuel oil aboveground storage tank. A spool piece in the discharge pipe had ruptured releasing approximately 5,500-gallons of oil into the earthen dike that surrounded the tank. A vacuum truck was used to pump out approximately 3,500-gallons of the fuel oil and placed it back into the tank for later use. The remaining oil was removed and disposed of Off-site.
The portion of the earthen dike area that had been contaminated with oil was scraped up, staged, and covered with a tarpaulin within the dike area. This material was sent to CECOS International facility for proper disposal. An NJDEP internal memorandum dated June 24, 1983 determined this spill to be properly remediated. No other spill has occurred in this area.

4. Sulfuric Acid Release

On January 23, 1985, a spill of 100% sulfuric acid occurred from a corroded overhead pipe. The pipeline runs between the tank farm and the production area in a pipe rack over an asphalt road. Approximately 200 to 300-gallons of sulfuric acid leaked and was contained on the roadway. The spill was contained with sand and sorbants and then neutralized using sodium bicarbonate. The material was pumped into the facility's wastewater treatment plant. The asphalt surface affected by the spill was properly remediated and the corroded section of the pipe was replaced. Inspection of the area by the local Health Department confirmed the spill was properly remediated. No further action was recommended for this area.

5. Diesel Fuel Release

On December 16, 1988, a diesel fuel release occurred in the parking lot as a result of trucking operations. The release occurred from a truck delivery to the facility and was remediated using absorbent material. A total of two 55-gallon drums of spill and absorbent material were collected and properly disposed of. A copy of the disposal receipt was sent to NJDEP on January 10, 1989. NJDEP recommended no further action for this spill.

2. Is **groundwater** known or reasonably suspected to be "**contaminated**"¹ above appropriately protective "levels" (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

 X If yes - continue after identifying key contaminants, citing appropriate "levels," and referencing supporting documentation.

_____ If no - skip to #8 and enter "YE" status code, after citing appropriate "levels," and referencing supporting documentation to demonstrate that groundwater is not "contaminated."

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s): Contaminants of concern were originally identified as being those associated with the manufacturing of Vitamin C, namely acetone, toluene, chloroform, sulfate, chloride ions, sodium ions, COD, and TDS. The source of release to groundwater was confirmed through leaks in the process sewer lines, which handled process wastewater containing parts per million ranges of these contaminants, to an on-site treatment plant. Contaminated groundwater was detected in the upper aquifer, which consists of glacial deposits and is the principal water producing aquifer underlying the site. The glacial deposits are underlain by two consolidated bedrock formations. These formations are generally tight, not a good source of potable water and are believed to form an effective barrier for any downward (vertical) migration of contamination.

Sampling data from 1996 to present confirmed that Chloroform is the only compound detected at concentrations in excess of the Class II-A Cleanup Criteria of 6ppb. The highest concentration of chloroform ever detected at the site was 8400ppb from well pw5 in December 1981. Well pw5 is located in the vicinity of the production area, where the sewer line brakes occurred. However, the most recent groundwater sampling data for July 1999 confirms that only two monitoring wells, pw5 and 9(J), which are both located in the production area, contained slightly elevated levels of chloroform at 8ppb. This information is documented in Groundwater Investigation and Remedial Activities Summary Report October 2, 1992 and the attached sampling data tables. Data tables were obtained from Remedial Action Progress Report dated February 24, 1997, Compliance Monitoring Well Analytical Report 2nd Quarter 1997, 1998 & 1999, and the Well Water Data Reports for July 1997, 1998, & 1999.

Footnotes:

¹"Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriate "levels" (appropriate for the protection of the groundwater resource and its beneficial uses).

3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater"² as defined by the monitoring locations designated at the time of this determination)?

X If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the "existing area of groundwater contamination"².

_____ If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the "existing area of groundwater contamination"²) - skip to #8 and enter "NO" status code, after providing an explanation.

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

Glacial deposits are the principal water producing aquifer underlying the site. Groundwater is located at approximately 60 feet below the surface. The glacial deposits are underlain by two consolidated bedrock formations, the Jacksonburg Limestone and Martinsburg Shale. Well yields in each of these bedrock formations are considered poor and generally less than 50 gpm. Fractures within the bedrock tend to be isolated and not interconnected. These formations are generally tight, not a good source of potable water and are believed to form an effective barrier for any downward (vertical) migration of contamination. Therefore, the glacial deposit aquifer is the only area in which groundwater contamination is a concern for the facility

Beginning in 1975 Hoffman-La Roche undertook a detailed and comprehensive investigation into the potential groundwater contamination at the site. This effort identified leaks in the process sewer lines as the source for the groundwater contamination. Hoffman-La Roche then undertook extensive remedial activities, as delineated in Question #1, to identify and replace broken sewer lines and remove contaminated soil. From 1984 to 1995 the facility installed and operated a groundwater recovery system, in which contaminated groundwater was extracted and treated under their New Jersey Pollution Discharge Elimination System (NJPDES) permit. In 1993 Hoffmann- La Roche submitted a Groundwater Monitoring Plan to NJDEP as part of their proposal for Natural Attenuation. Hoffmann-La Roche has voluntarily implemented this plan since 1995. Groundwater sampling data from 1996 to present has concluded that groundwater contamination is hydraulically controlled on-site and is continuing to decrease to levels just above 6 ppb. This monitoring has also concluded that there has been no exceedance of groundwater standards at the compliance wells in the past four years. The above information is documented in the groundwater Investigation and Remedial Activities Summary Report October 2, 1992, the attached Groundwater Elevation Map and Chloroform Concentration Map and the attached groundwater data tables. The Groundwater Elevation and Chloroform Concentration Maps were obtained from the October, 1997 Remedial Action Progress Report Addendum. Data tables were obtained from Remedial Action Progress Report dated February 24, 1997, Compliance Monitoring Well Analytical Report 2nd Quarter 1997, 1998 & 1999, and the Well Water Data Reports for July 1997, 1998, & 1999.

² "existing area of contaminated groundwater" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of "contamination" that can and will be sampled/tested in the future to physically verify that all "contaminated" groundwater remains within this area, and that the further migration of "contaminated" groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

4. Does "contaminated" groundwater **discharge** into **surface water** bodies?

_____ If yes - continue after identifying potentially affected surface water bodies.

X If no - skip to #7 (and enter a "YE" status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater "contamination" does not enter surface water bodies.

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s): In general, groundwater at the site flows in a northerly direction towards the Delaware River. The groundwater sampling data for the compliance wells and productions wells located in the northern portion of the site indicate that no groundwater contamination is migrating into the Delaware River. This information is documented in the attached groundwater sampling data tables, groundwater flow map and the groundwater concentration map. The data tables were obtained from Remedial Action Progress Report dated February 24, 1997, Compliance Monitoring Well Analytical Report 2nd Quarter 1997, 1998 & 1999, and the Well Water Data Reports for July 1997, 1998, & 1999. The Groundwater Elevation and Chloroform Concentration Maps were obtained from the October, 1997 Remedial Action Progress Report Addendum.

7. Will groundwater **monitoring** / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the "existing area of contaminated groundwater?"

X If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the "existing area of groundwater contamination."

_____ If no - enter "NO" status code in #8.

_____ If unknown - enter "IN" status code in #8.\

Rationale and Reference(s): Currently the facility remedial action is conducting monitored natural attenuation. Since submission of the groundwater monitoring plan in December 1993 Hoffmann La Roche has implemented the well sampling schedule proposed in the plan and will continue to do so. The ground water monitoring plan established a program to monitor groundwater quality hydraulically up gradient, down gradient and within the production area of the facility. Production area wells PW 5, PW9(J) C,D,PW-8, P and S have been and will be sampled on a monthly basis. The proposed compliance wells A,B, F, N and I have been and will continue to be sampled on a quarterly bases. Sampling data has confirmed that contamination has continuously shown to decrease at the production area and no contamination is migrating from the facility. This information is documented in the attached groundwater data tables, Groundwater Elevation Map, and Chloroform Concentration Map. The maps were obtained from the October, 1997 Remedial Action Progress Report Addendum. Data tables were obtained from the February 24, 1997 Remedial Action Progress Report, Compliance Monitoring Well Analytical Report 2nd Quarter 1997, 1998 & 1999, and the Well Water Data Reports for July 1997, 1998, & 1999.

A CEA is presently being developed for the facility and will be forwarded to NJDEP for approval. The proposed CEA boundary is documented on the attached Proposed CEA map. CEA map was obtained from the October, 1997 Remedial Action Progress Report Addendum.

8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

YE - Yes, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the Hoffman La Roche facility, EPA ID # **NJD042321042**, located at 205 Roche Drive Belvidere, NJ. Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater" This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

NO - Unacceptable migration of contaminated groundwater is observed or expected.

IN - More information is needed to make a determination.

Completed by: Frances Viscovich
Frances Viscovich, Project Manager
RCRA Programs Branch
EPA Region 2

Date: 9/30/99

Barry Tornick
Barry Tornick, Section Chief
RCRA Programs Branch
EPA Region 2

Date: 9/30/99

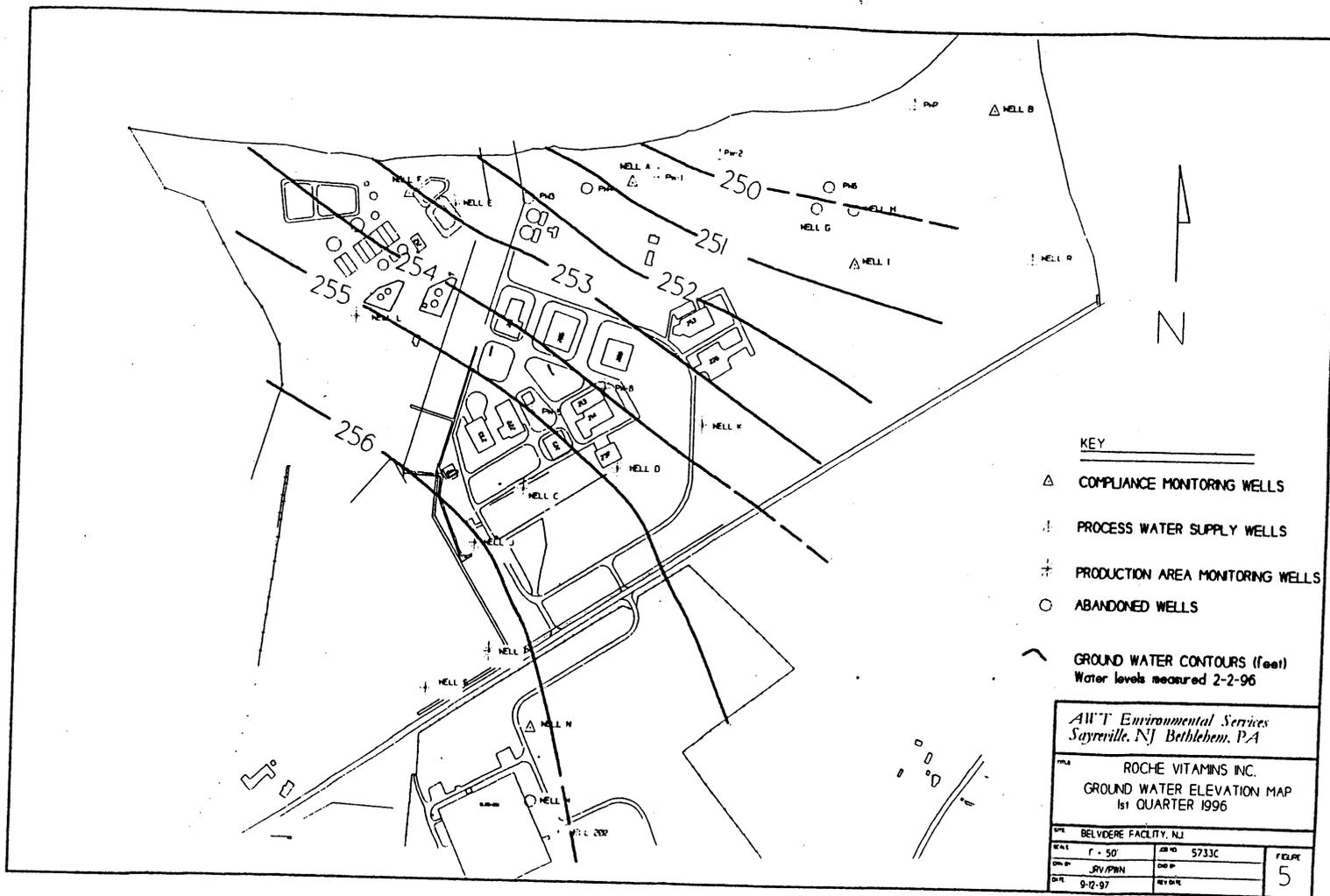
Approved by: R. Basso
Raymond Basso, Chief
RCRA Programs Branch
EPA Region 2

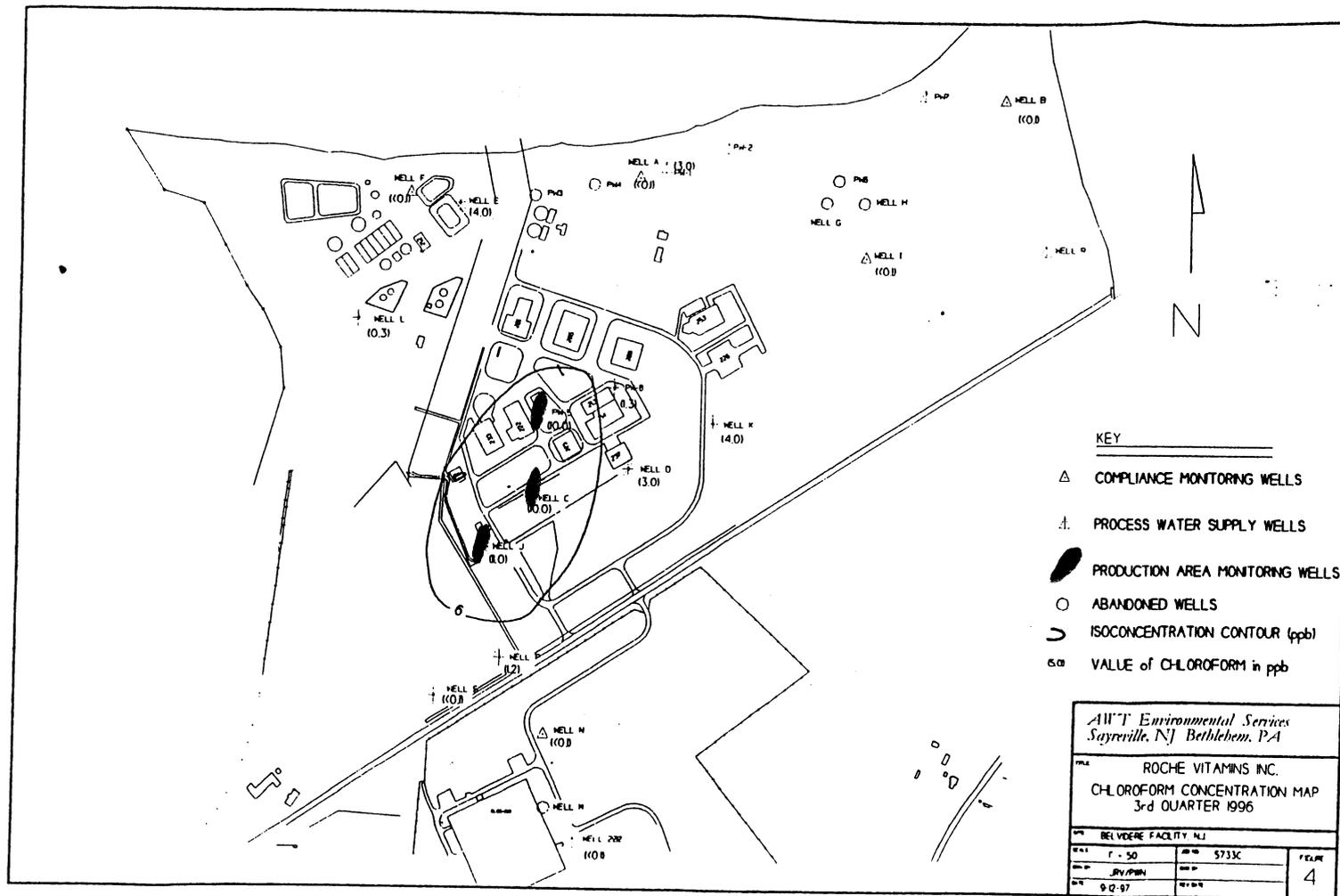
Date: 9/30/99

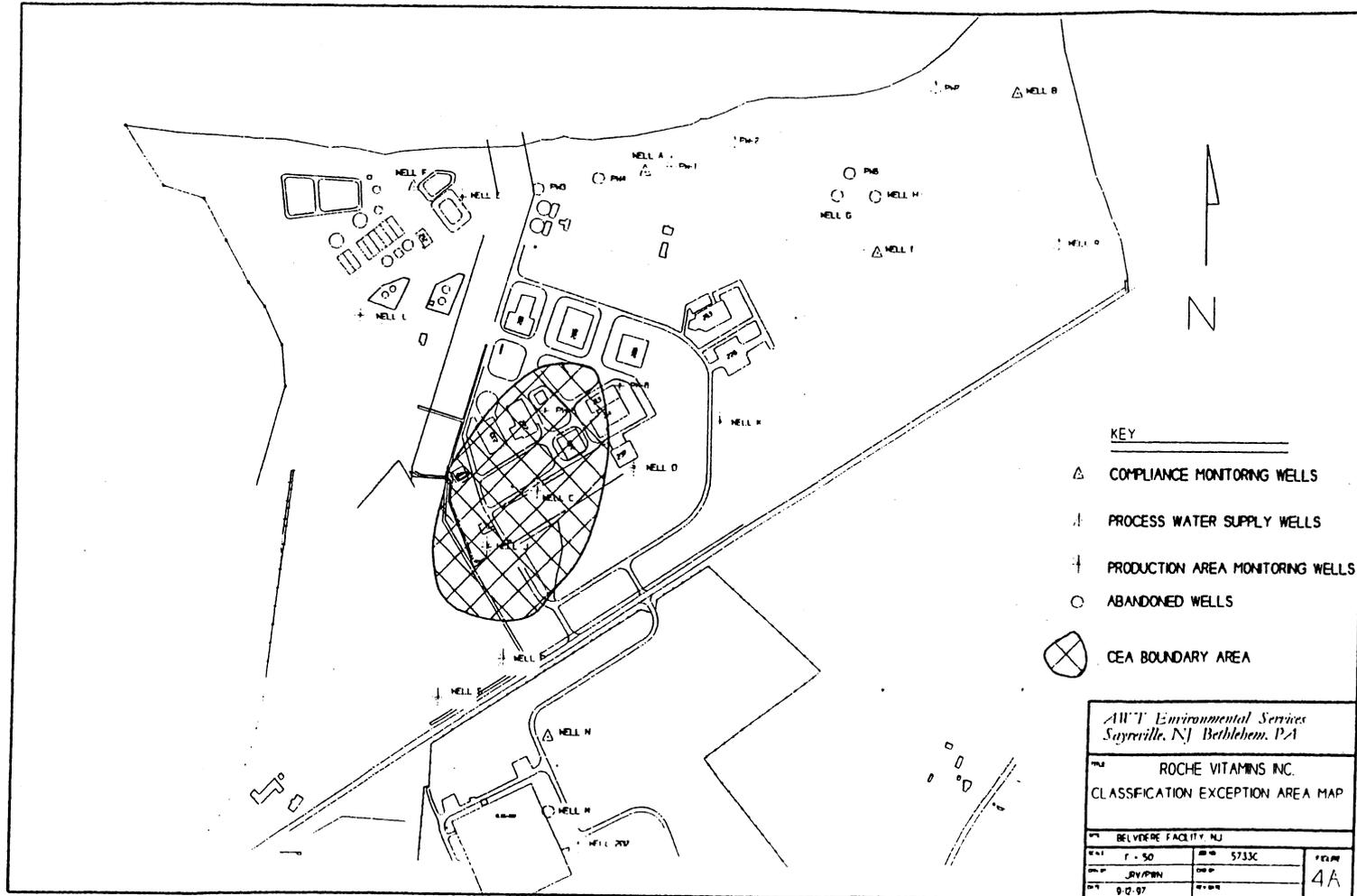
Locations where References may be found:
USEPA Region II 290 Broadway NY, NY 10007-1866 RCRA File room 15 th floor

Contact telephone and e-mail numbers

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- KEY
- △ COMPLIANCE MONITORING WELLS
 - ┆ PROCESS WATER SUPPLY WELLS
 - ⊕ PRODUCTION AREA MONITORING WELLS
 - ABANDONED WELLS
 - ⊗ CEA BOUNDARY AREA

<i>AWT Environmental Services</i> Sayreville, NJ Bethlehem, PA		
ROCHE VITAMINS INC. CLASSIFICATION EXCEPTION AREA MAP		
BELVEDERE FACILITY NJ		
DATE	REV NO	REV
7 - 50	5733C	
BY	CHK BY	SCALE
JRY/PBN		4A
0-0-87		

7/11/99
R. J. J.

COMPLIANCE MONITORING WELL ANALYTICAL REPORT 2ND QUARTER 1999
ROCHE VITAMINS INC., BELVIDERE, NEW JERSEY
ALL ANALYSES PERFORMED BY ROCHE VITAMINS INC CERTIFICATION # 21320

SAMPLING DATE: 6/10/99- WELLS A, B, I, N; 6/15/99- WELL F

<u>PARAMETER</u>	<u>DETECTION LIMIT</u>	WELL A	WELL B	WELL F	WELL I	WELL N
TDS (mg/l)	10 mg/l	589	293	829	405	426
CHLORIDES (mg/l)	1 mg/l	63	16	40	34	77
SULFATES (mg/l)	5 mg/l	80	27	212	33	20
SODIUM (mg/l)	1 mg/l	52	7.5	85	17	66
TOC (mg/l)	1 mg/l	6.0	3.8	9.0	3.4	4.8
COD (mg/l)	1 mg/l	6	ND	12	7	ND
CHLOROFORM (mcg/l)	0.1 mcg/l	0.10	ND	ND	2.29	0.15
<i>Standard GPPK</i> TOLUENE (mcg/l)	0.1 mcg/l	ND	ND	ND	ND	ND
CYCLOHEXANE (mcg/l)	1 mcg/l	ND	ND	ND	ND	ND
BENZENE (mcg/l)	0.1 mcg/l	ND	ND	ND	ND	ND
ACETONE (mg/l)	1 mg/l	ND	ND	ND	ND	ND
METHANOL (mg/l)	1 mg/l	ND	ND	ND	ND	ND
PYRIDINE (mg/l)	1 mg/l	ND	ND	ND	ND	ND
ETHYL ACETATE (mg/l)	1 mg/l	ND	ND	ND	ND	ND
ETHANOL (mg/l)	1 mg/l	ND	ND	ND	ND	ND

ND= NONE DETECTED, BELOW THE DETECTION LIMIT NOTED FOR EACH PARAMETER

COMPLIANCE MONITORING WELL ANALYTICAL REPORT 2ND QUARTER 1998
 ROCHE VITAMINS INC., BELVIDERE, NEW JERSEY
 ALL ANALYSES PERFORMED BY ROCHE VITAMINS INC CERTIFICATION # 21320

SAMPLING DATE: 6/23/98- WELLS A, B, F, N; 6/25/98- WELL I

PARAMETER	DETECTION LIMIT	WELL A	WELL B	WELL F	WELL I	WELL N
TDS (mg/l)	10 mg/l	581	288	726	431	410
CHLORIDES (mg/l)	1 mg/l	57	13	30	45	62
SULFATES (mg/l)	5 mg/l	62	25	176	36	25
SODIUM (mg/l)	1 mg/l	38	5.8	79	19	53
TOC (mg/l)	1 mg/l	3.3	2.6	6.3	3.9	2.6
COD (mg/l)	1 mg/l	ND	ND	ND	ND	ND
CHLOROFORM (mcg/l)	0.1 mcg/l	0.54	ND	ND	1.42	0.15
<i>Standard G.P.P.C</i> TOLUENE (mcg/l)	0.1 mcg/l	ND	ND	ND	ND	ND
CYCLOHEXANE (mcg/l)	1 mcg/l	ND	ND	ND	ND	ND
BENZENE (mcg/l)	0.1 mcg/l	ND	ND	ND	ND	ND
ACETONE (mg/l)	1 mg/l	ND	ND	ND	ND	ND
METHANOL (mg/l)	1 mg/l	ND	ND	ND	ND	ND
PYRIDINE (mg/l)	1 mg/l	ND	ND	ND	ND	ND
ETHYL ACETATE (mg/l)	1 mg/l	ND	ND	ND	ND	ND
ETHANOL (mg/l)	1 mg/l	ND	ND	ND	ND	ND

ND= NONE DETECTED, BELOW THE DETECTION LIMIT NOTED FOR EACH PARAMETER

COMPLIANCE WELL ANALYTICAL REPORT 2ND QUARTER 1997
 ROCHE VITAMINS INC., BELVIDERE, NEW JERSEY
 ALL ANALYSES PERFORMED BY ROCHE VITAMINS INC CERTIFICATION # 21320

SAMPLING DATES: 6/12/97- WELLS A, F 6/16/97- WELLS B, I, N

<u>PARAMETER</u>	<u>DETECTION LIMIT</u>	WELL A	WELL B	WELL F	WELL I	WELL N
TDS (mg/l)	10 mg/l	453	274	514	439	566
CHLORIDES (mg/l)	1 mg/l	47	12	26	43	135
SULFATES (mg/l)	5 mg/l	37	26	65	36	24
SODIUM (mg/l)	1 mg/l	22	5.4	38	22	66
TOC (mg/l)	1 mg/l	ND	ND	1	ND	ND
COD (mg/l)	1 mg/l	ND	1	ND	ND	ND
CHLOROFORM (mcg/l)	0.1 mcg/l	0.34	ND	ND	1.32	0.11
TOLUENE (mcg/l)	0.1 mcg/l	ND	ND	ND	ND	ND
CYCLOHEXANE (mcg/l)	1 mcg/l	ND	ND	ND	ND	ND
BENZENE (mcg/l)	0.1 mcg/l	ND	ND	ND	ND	ND
ACETONE (mg/l)	1 mg/l	ND	ND	ND	ND	ND
METHANOL (mg/l)	1 mg/l	ND	ND	ND	ND	ND
PYRIDINE (mg/l)	1 mg/l	ND	ND	ND	ND	ND
ETHYL ACETATE (mg/l)	1 mg/l	ND	ND	ND	ND	ND
ETHANOL (mg/l)	1 mg/l	ND	ND	ND	ND	ND

ND= NONE DETECTED, BELOW THE DETECTION LIMIT NOTED FOR EACH PARAMETER

Table 3
Hoffmann-La Roche
Belvidere, NJ Facility
Ground Water Chloroform Concentrations (in ppb)
Standard 6 ppb

Well	1st Quarter 1996			Third Quarter 1996		
	January	February	March	August	September	October
A	<1	NA	NA	<1	NA	NA
B	<1	NA	NA	<1	NA	NA
F	<1	NA	NA	<1	NA	NA
I	2.12	NA	NA	<1	NA	NA
N	<1	NA	NA	<1	NA	NA
C	4	8.85	5	10	10	3
D	6	5.3	4	3	3	3
E	NA	4.9	NA	NA	NA	NA
J	8	9.62	12	10	10	10
K	5	5.09	5	4	4	4
L	NA	17.8	NA	NA	NA	NA
P	2	2.51	3	1	1	1
S	<1	<1	<1	<1	<1	<1
PW-5	13	10.8	11	10	10	8
PW-8	2	1.24	1.24	1	1	1
PW-1	3	3	5	3	3	2
PW-2	NA	NA	NA	NA	NA	NA
PW-7	NA	NA	NA	NA	NA	NA
PW-200	<1	<1	<1	<1	<1	<1

Well Water Data

July 15, 1999

<u>Parameters/(Units)</u>	<u>Detection Limit</u>	<u>#1</u>	<u>#5</u>	<u>#8</u>	<u>#9</u>	<u>#200</u>	<u>C</u>	<u>D</u>	<u>K</u>	<u>P</u>	<u>S</u>
TDS (mg/l)	1 mg/l	385	675	493	519	358	582	425	384	526	NA
Chlorides (mg/l)	1 mg/l	NA	83	NA	49	NA	86	NA	NA	38	NA
Sulfate (mg/l)	5 mg/l	NA	83	NA	37	NA	38	NA	NA	38	NA
Sodium (mg/l)	0.5 mg/l	NA	52	NA	19	NA	40	NA	NA	18	NA
TOC (mg/l)	1 mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COD (mg/l)	1 mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform (mcg/l) <i>Standard 6ppb</i>	0.1 ppb	1	8	1	8	ND	2	3	3	2	ND
Toluene (mcg/l)	0.1 ppb	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cyclohexane (mcg/l)	1 ppb	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene (mcg/l)	0.1 ppb	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone (mg/l)	1 ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methanol (mg/l)	1 ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyridine (mg/l)	1 ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Acetate (mg/l)	1 ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethanol (mg/l)	1 ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride (mcg/l)	0.1 ppb	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethylene (mcg/l)	0.1 ppb	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethylene (mg/l)	0.1 ppb	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:

1. ND = None Detected at the level indicated; NA = Not Analyzed for this parameter or compound
2. The static groundwater levels taken on July 15, 1999, in Wells 1, A, C, and P were 246.68 ft., 246.67 ft., 248.12ft., and 248.57 ft., respectively. The Delaware River level was 245.93 ft. Well 5 was pumping at time of sampling.
3. Well 8 was operated for 10 day(s) during the month of July with a total of 505,800 gallons withdrawn at an average of 50,580 GPD. Well was pumping at time of sampling
4. Well 9 was operated for - 0- day(s) during the month of July with a total of -0- gallons withdrawn at an average of -0- GPD. The static groundwater level taken on July 15, 1999, was 248.70 ft.
5. All analyses performed by Roche Vitamins Inc., NJ Certification Number 21320.

08/18/99

Well Water Data

July 20, 1998

<u>Parameters/(Units)</u>	<u>Detection Limit</u>	<u>#1</u>	<u>#5</u>	<u>#8</u>	<u>#9</u>	<u>#200</u>	<u>C</u>	<u>D</u>	<u>K</u>	<u>P</u>	<u>S</u>
TDS (mg/l)	1 mg/l	512	563	466	533	365	533	436	387	457	NA
Chlorides (mg/l)	1 mg/l	71	50	NA	30	NA	57	NA	NA	NA	NA
Sulfate (mg/l)	5 mg/l	48	62	NA	41	NA	43	NA	NA	NA	NA
Sodium (mg/l)	0.5 mg/l	32	40	NA	17	NA	21	NA	NA	NA	NA
TOC (mg/l)	1 mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COD (mg/l)	1 mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform (mcg/l)	Standard 0.1 ppb	3	10	<1	9	<1	2	3	4	2	ND
Toluene (mcg/l)	6ppb 0.1 ppb	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cyclohexane (mcg/l)	1 ppb	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene (mcg/l)	0.1 ppb	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone (mg/l)	1 ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methanol (mg/l)	1 ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyridine (mg/l)	1 ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Acetate (mg/l)	1 ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethanol (mg/l)	1 ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride (mcg/l)	0.1 ppb	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethylene (mcg/l)	0.1 ppb	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethylene (mg/l)	0.1 ppb	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:

1. ND = None Detected at the level indicated; NA = Not Analyzed for this parameter or compound
2. The static groundwater levels taken on July 20, 1998, in Wells 1, 5, A, C, and P were 247.85 ft., 252.80 ft., 248.27 ft., 252.85 ft., and 253.91 ft., respectively. The Delaware River level was 246.35 ft.
3. Well 8 was operated for 1 day(s) during the month of July with a total of 600 gallons withdrawn at an average of 600 GPD. The static groundwater level taken on July 20, 1998 was 250.91 ft.
4. Well 9 was operated for -0- day(s) during the month of July with a total of -0- gallons withdrawn at an average of -0- GPD. The static groundwater level taken on July 20, 1998, was 253.76 ft.
5. All analyses performed by Roche Vitamins Inc., NJ Certification Number 21320.

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Hoffmann-La Roche Inc., Belvidere, NJ 07823

Well Water Data

July 17, 1997

Parameters/(Units)	Detection	#1	#5	#8	#9	#200	C	D	K	P	S
	Limit										
TDS (mg/l)	1 mg/l	498	598	416	472	324	496	403	359	382	NA
Chlorides (mg/l)	1 mg/l	NA	81	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate (mg/l)	5 mg/l	NA	71	NA	NA	NA	NA	NA	NA	NA	NA
Sodium (mg/l)	0.5 mg/l	NA	44	NA	NA	NA	NA	NA	NA	NA	NA
TOC (mg/l)	1 mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COD (mg/l)	1 mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform (mcg/l)	Standard 0.1 ppb	2	6	<1	9	<1	3	2	3	1	ND
Toluene (mcg/l)	0.1 ppb	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cyclohexane (mcg/l)	1 ppb	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene (mcg/l)	0.1 ppb	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone (mg/l)	1 ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methanol (mg/l)	1 ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyridine (mg/l)	1 ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Acetate (mg/l)	1 ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethanol (mg/l)	1 ppm	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride (mcg/l)	0.1 ppb	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorethylene (mcg/l)	0.1 ppb	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (mg/l)	0.1 ppb	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES:

1. ND = None Detected at the level indicated; NA = Not Analyzed for this parameter or compound
2. The static groundwater levels taken on July 17, 1997, in Wells 5, A, C, and P were 250.34 ft., 247.08 ft., 250.28 ft. and 251.28 ft., respectively. The Delaware River level was 246.06 ft. Well 1 was pumping at time of sampling.
3. Well 8 was operated for 11 days during the month of July for a total of 361,100 gallons withdrawn at an average of 32,800 GPD. The static groundwater level taken on July 17, 1997, was 248.70 ft.
4. Well 9 was operated for 2 days during the month of July with a total of 890 gallons withdrawn at an average of 445 GPD. The static groundwater level taken on July 17, 1997, was 251.28 ft.
5. All analyses performed by Roche Vitamins Inc., NJ Certification Number 21320.