

VILLAGE OF BARRINGTON HILLS

Board of Health NOTICE OF MEETING



Tuesday, August 11, 2015 ~ 7:30 pm
112 Algonquin Road

AGENDA

1. Call to Order & Roll Call
2. Public Comment
3. [Vote] Minutes May 12, 2015
4. Level II Program Results Discussion
5. Trustee's Report
6. Adjournment

Chairman: Gwynne Johnston

NOTICE AS POSTED

**VILLAGE OF BARRINGTON HILLS
BOARD OF HEALTH MEETING
May 12, 2015**

The regular meeting of the Village of Barrington Hills Board of Health was called to order at 7:30 p.m. by Chairman Johnston.

Board of Health Members Present: Gwynne Johnston, Chairman
Shirley Conibear, M.D.
Anne Majewski, M.D.

Board of Health Members Absent: Frank J. Konicek, M.D., Vice Chairman

Others Present: Michael Harrington, Village Trustee
Dan Strahan, Village Engineer
Peder Finnberg, Heritage Land Consultants
Robert Soos, Soos & Associates

APPROVAL OF MINUTES: Dr. Majewski made a motion to approve the minutes of the February 10, 2015 meeting of the Board of Health. The motion was seconded by Dr. Conibear and approved unanimously.

SEPTIC VARIANCE – 170 OLD SUTTON ROAD: Peder Finnberg, the design engineer for the property owner, presented a request for variance with regard to the proposed septic system. Mr. Finnberg noted that the Village septic code requires a minimum separation of 24” between the bottom of the septic system and the limiting layer. Based on soil tests performed at the site the depth to the limiting layer was found to be 37” deep in the area of the proposed septic system, precluding the possibility of installing a trench system meeting Village requirements. To meet the setback requirement, Mr. Finnberg proposed approximately 10-12” of fill to increase the elevation of the trench relative to the limiting layer.

Mr. Strahan noted that the Village Code allowed for an administrative variance for up to one foot of fill in repair situations but does not include such a provision for a new system. He also explained that the purpose of the variance is not to fill over an existing system but rather to allow for a trench to be placed higher in the soil profile as the applicant was requesting.

Chairman Johnston asked questions regarding the topography and surrounding drainage conditions. After further discussion, Dr. Conibear made a motion to approve the request for variance. The motion was seconded by Dr. Majewski and approved unanimously.

SEPTIC CODE AMENDMENTS – SECTION 4-2-7: Mr. Strahan noted that the amendments had been previously reviewed by the Board of Health and forwarded on to

the Illinois Department of Public Health (IDPH). The Village had received a pre-approval letter from the IDPH, subject to correction of a few typographical errors. Mr. Strahan then reviewed the scope of the proposed amendments.

Dr. Conibear asked about the requirement to conduct additional soil testing

After further discussion, a motion was made by Dr. Conibear to approve the amendments as presented. The motion was seconded by Dr. Majewski and approved unanimously.

A separate motion was made by Dr. Conibear to present the amendments to the Village Board of Trustees for final approval. The motion was seconded by Dr. Majewski and approved unanimously.

LEVEL II PROGRAM RESULTS DISCUSSION: Mr. Strahan presented the results of groundwater sampling that had been taken on March 17, 2015 and submitted to the Illinois State Water Survey (ISWS) for analysis. Results were received on April 23, 2015 and provided in the Board packets. Mr. Strahan noted that ISWS had reported that four samples seem to have passed through a water softener and thus were not considered raw groundwater samples. It was noted that the Village Engineer's office had coordinated with each location and the representatives had indicated that no water softener was present. Mr. Strahan noted that these four locations would be retested along with two other locations at which samples could not previously be taken.

It was noted that the predominant parameter of concern for the remaining locations was iron. Also, the Village Engineer's office was going to coordinate with the Jesuit retreat house regarding the water testing results for the deep well results pertaining to barium and strontium.

Mr. Kosin noted the value of the study to establish a baseline for future analysis.

Chairman Johnston suggested that the Village draft a letter to Janet Agnoletti and BACOG expressing thanks for support of the project.

PUBLIC COMMENT: No public comment was given.

TRUSTEE'S REPORT: Trustee Harrington noted that he had reiterated to the Board that another Board of Health member would be needed.

ADJOURNMENT: Dr. Majewski motioned to adjourn at 8:07 PM. Dr. Conibear seconded the motion. All present said aye.

Memorandum

To: Village of Barrington Hills - Board of Health
Dan Strahan, Gewalt Hamilton Associates, Inc.

From: Caitlin Burke, Gewalt Hamilton Associates, Inc.

Date: August 6, 2015

Re: Village of Barrington Hills – June 2015 Well Water Quality Testing Results

Location	Main Parameters of Concern	Notes
New Friends Wesleyan Church	Iron	Moderately mineralized and very hard. Softener seems to be effectively removing iron and hardness.
Presbyterian Church of Barrington	None	Moderately mineralized and very hard. Softener seems to be effectively removing hardness.
Barrington United Methodist	None	Moderately mineralized and very hard. Softener seems to be effectively removing iron and hardness.
St. Mark's Church*	Dissolved Solids	Highly mineralized and soft.
St. John Nepomucene Chapel	Iron	Lightly mineralized and naturally soft.
Barrington Hills Country Club	Iron	Moderately mineralized and very hard.

*May have passed through a softener, even though it was sampled at an outdoor spigot.

The results of the Level 2 Groundwater Quality Testing performed on June 16, 2015, show that for all locations, the content of *arsenic* in the samples are well below the Federal Maximum Contaminant Level (MCL) of 10 µg/L, and the content of *nitrate* in the samples are well below the Federal MCL of 10 mg/L.

Parameters of concern are explained below:

- High levels of **dissolved solids** may impart an unpleasant taste to the water.
- High levels of **iron** present only aesthetic concerns – potential staining of porcelain and laundry, increased turbidity due to oxidized iron, and formation of scale in hot water heaters.

August 4, 2015

St. John Nepomucene Chapel
9500 Church Road
Barrington, IL 60010

To Whom It May Concern:

We are enclosing a copy of the partial analysis made on a sample of untreated water collected June 16, 2015, from your well near Barrington in McHenry County. The relevant sample number is: 237965.

The analysis shows this sample to be lightly mineralized and naturally soft. The iron content of this water is at a level which can result in the staining of porcelain and laundry. A major portion of the turbidity in this sample appears to be due to the previously soluble iron which oxidized and became insoluble after the water was exposed to air. The hardness in this sample is fairly low. It may cause the formation of a small amount of scale in hot water heaters, but I would not expect this to be significant.

The arsenic content is well below the Federal Maximum Contaminant Level (MCL) of 10 µg/L. The nitrate (as N) content is below the Federal Maximum Contaminant Level of 10 mg/L.

None of the other parameters tested appear unusual or excessive for Illinois ground water. However, our laboratory is only capable of identifying a limited number of the contaminants found in the Safe Drinking Water Act. Testing for bacteria, radionuclides, and synthetic organic contaminants, if desired, must be arranged through other laboratories. A listing of such laboratories can be found at www.epa.state.il.us/well-water/list-accredited-labs.html or in your yellow pages under "water".

If we can be of further assistance, please let us hear from you.

Sincerely,



Daniel L. Webb
Lab Supervisor, Chemistry & Technology Section
217/244-0625

jt



2204 Griffith Drive • Champaign, IL 61820
T 217-333-2210 • F 217-333-4983
www.isws.illinois.edu

WATER SAMPLE DATA
LABORATORY SAMPLE NUMBER: 237965

SOURCE: PRIVATE WELL
WELL#:
LOCATION: BARRINGTON
COUNTY: MCHENRY
TOWNSHIP: 43N
RANGE: 09E
SECTION: 19
PLOT:
TREATMENT:

OWNER: ST JOHN NEPOMUCENE CHAPEL
WELL DEPTH:
DATE COLLECTED: 6/16/2015
DATE RECEIVED: 6/17/2015
FIELD TEMPERATURE (F): ND
COMMENTS: SAMPLE COLLECTED FROM WELL PUMP.
PAGE 3 OF 3.

PARAMETER	RESULT	UNITS	PARAMETER	RESULT	UNITS
Iron (Total Fe):	1.08	mg/L	Fluoride (F):	<	0.07 mg/L
Potassium (K):	1.19	mg/L	Chloride (Cl):		0.63 mg/L
Calcium (Ca):	20.2	mg/L	Nitrate (NO3-N):		0.25 mg/L
Magnesium (Mg):	0.294	mg/L	Phosphorus (P):	<	0.073 mg/L
Sodium (Na):	1.23	mg/L	Sulfate (SO4):		2.28 mg/L
			Sulfur (S):		1.01 mg/L
			Bromide (Br)	<	0.08 mg/L
Aluminum (Al):	<	37 µg/L			
Arsenic (As):	<	0.95 µg/L			
Barium (Ba):		29.2 µg/L			
Beryllium (Be):	<	0.55 µg/L			
Boron (B):	<	23 µg/L			
Chromium (Cr):	<	5.8 µg/L	Turbidity (Lab, NTU):	6.4	NTU
Cobalt (Co):	<	13 µg/L	Color (PCU):	12.0	PCU
Copper (Cu):		20.5 µg/L	pH (Lab):	7.03	
Lithium (Li):	<	110 µg/L			
Manganese (Mn):		43.6 µg/L			
Molybdenum (Mo):	<	22 µg/L			
Nickel (Ni):	<	43 µg/L			
Strontium (Sr):		39.7 µg/L			
Tin (Sn):	<	86 µg/L			
Titanium (Ti):	<	0.56 µg/L	Alkalinity (CaCO3):	47	mg/L
Vanadium (V):	<	47 µg/L	Hardness (as CaCO3):	51.6	mg/L
Zinc (Zn):		47.5 µg/L	Silica (SiO2):	3.56	mg/L
			Total Dissolved Solids:	58	mg/L
			Non-Volatile Org. Carbon (Tot., as C):	3.01	mg/L

< = Below detection limit (i.e. < 1.0 = less than 1.0)

mg/L = milligrams per liter

ND = Not determined/Information not available

NTU = nephelometric turbidity units

µg/L = micrograms per Liter

hardness = (Ca mg/L * 2.497) + (Mg mg/L * 4.118)

1 mg/L = 1000 µg/L

PCU = platinum-cobalt units

Analyzed by: Omar Ali, Rita Bargon, Tanya Grandt, Ruth Ann Nichols, Kaye J Surratt, and Daniel L Webb

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www.isws.illinois.edu

August 4, 2015

St. Mark's Episcopal Church
337 Ridge Road
Barrington, IL 60010

To Whom It May Concern:

We are enclosing a copy of the partial analysis made on a sample of untreated water collected June 16, 2015, from your 184 foot well near Barrington in Lake County. The relevant sample number is: 237966.

The analysis shows this sample to be highly mineralized but soft. The iron and manganese levels are low enough that I would not expect staining due to these elements. Some waters are naturally soft, and while it is possible this is the case for this sample, the very low calcium and magnesium levels (=hardness; low), coupled with the low iron level and fairly high sodium level, lead me to believe this water has passed through a softener. Perhaps the outside water spigot is connected to a softener (it could be difficult to collect an unsoftened sample if there are no taps/spigots before the softener).

The arsenic content is well below the Federal Maximum Contaminant Level (MCL) of 10 µg/L. The nitrate (as N) content is well below the Federal Maximum Contaminant Level of 10 mg/L.

The water has a high dissolved solids content. This can impart a taste to the water that some individuals may find unpleasant.

None of the other parameters tested appear unusual or excessive for Illinois ground water. However, our laboratory is only capable of identifying a limited number of the contaminants found in the Safe Drinking Water Act. Testing for bacteria, radionuclides, and synthetic organic contaminants, if desired, must be arranged through other laboratories. A listing of such laboratories can be found at www.epa.state.il.us/well-water/list-accredited-labs.html or in your yellow pages under "water".

If we can be of further assistance, please let us hear from you.

Sincerely,



Daniel L. Webb

Lab Supervisor, Chemistry & Technology Section
217/244-0625

jt

cc: Caitlin Burke, **BACOG**



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WATER SAMPLE DATA
LABORATORY SAMPLE NUMBER: 237966

SOURCE: PRIVATE WELL

WELL#:

LOCATION: BARRINGTON HILLS

COUNTY: LAKE

TOWNSHIP: 43N

RANGE: 09E

SECTION: 28

PLOT: 8F

TREATMENT:

OWNER: ST MARKS CHURCH

WELL DEPTH: 184.00

DATE COLLECTED: 6/16/2015

DATE RECEIVED: 6/17/2015

FIELD TEMPERATURE (F): ND

COMMENTS: SAMPKLE COLLECTED FROM OUTSIDE
GARDEN SPIGOT ON THE SIDE OF BLDG. PAGE 3 OF 3.

PARAMETER	RESULT	UNITS	PARAMETER	RESULT	UNITS
Iron (Total Fe):	0.140	mg/L	Fluoride (F):	0.25	mg/L
Potassium (K):	1.17	mg/L	Chloride (Cl):	63.7	mg/L
Calcium (Ca):	0.431	mg/L	Nitrate (NO3-N):	<	0.04 mg/L
Magnesium (Mg):	0.167	mg/L	Phosphorus (P):	<	0.073 mg/L
Sodium (Na):	279	mg/L	Sulfate (SO4):	78.7	mg/L
			Sulfur (S):	28.0	mg/L
			Bromide (Br)	<	0.08 mg/L
Aluminum (Al):	<	37 µg/L			
Arsenic (As):	<	0.95 µg/L			
Barium (Ba):		2.11 µg/L			
Beryllium (Be):	<	0.55 µg/L			
Boron (B):		28 µg/L			
Chromium (Cr):	<	5.8 µg/L	Turbidity (Lab, NTU):	7.4	NTU
Cobalt (Co):	<	13 µg/L	Color (PCU):	3.4	PCU
Copper (Cu):		25.9 µg/L	pH (Lab):	7.74	
Lithium (Li):	<	110 µg/L			
Manganese (Mn):	<	1.5 µg/L			
Molybdenum (Mo):	<	22 µg/L			
Nickel (Ni):	<	43 µg/L			
Strontium (Sr):		1.31 µg/L			
Tin (Sn):	<	86 µg/L			
Titanium (Ti):	<	0.56 µg/L			
Vanadium (V):	<	47 µg/L	Alkalinity (CaCO3):	409	mg/L
Zinc (Zn):		21.5 µg/L	Hardness (as CaCO3):	1.77	mg/L
			Silica (SiO2):	22.1	mg/L
			Total Dissolved Solids:	676	mg/L
			Non-Volatile Org. Carbon (Tot., as C):	0.57	mg/L

< = Below detection limit (i.e. < 1.0 = less than 1.0)

mg/L = milligrams per liter

ND = Not determined/Information not available

NTU = nephelometric turbidity units

µg/L = micrograms per Liter

hardness = (Ca mg/L * 2.497) + (Mg mg/L * 4.118)

1 mg/L = 1000 µg/L

PCU = platinum-cobalt units

Analyzed by: Omar Ali, Rita Bargon, Tanya Grandt, Ruth Ann Nichols, Kaye J Surratt, and Daniel L Webb





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T 217-333-2210 • F 217-333-4983
www.isws.illinois.edu

August 4, 2015

Presbyterian Church of Barrington
6 Brinker Road
Barrington, IL 60010

To Whom It May Concern:

We are enclosing a copy of the partial analysis made on a sample of untreated water collected June 16, 2015, from your well near Barrington in Cook County. The relevant sample number is: 237967.

The analysis shows this sample to be moderately mineralized and very hard. The iron and manganese levels are low enough that I would not expect staining due to these elements. The hardness in this sample is sufficient to cause the formation of a large amount of scale in hot water heaters, and to increase consumption of soap when used for washing or laundry purposes.

The arsenic content is well below the Federal Maximum Contaminant Level (MCL) of 10 µg/L. The nitrate (as N) content is well below the Federal Maximum Contaminant Level of 10 mg/L.

If we compare these recent results with what appears to be a softened sample from March 2015, a couple interesting points should be made. The softener seems to be doing a good job of removing the hardness. The March results would indicate that the softener was not completely removing the iron. The detected level was 1.55 mg/L. Many softeners will reduce this to less than the staining level (0.3 mg/L). However, because the recent results (June sampling) show fairly low iron in the untreated water (already less than 0.3 mg/L), I would not expect iron to be a problem (and it should be noted that softeners do not usually add iron).

None of the other parameters tested appear unusual or excessive for Illinois ground water. However, our laboratory is only capable of identifying a limited number of the contaminants found in the Safe Drinking Water Act. Testing for bacteria, radionuclides, and synthetic organic contaminants, if desired, must be arranged through other laboratories. A listing of such laboratories can be found at www.epa.state.il.us/well-water/list-accredited-labs.html or in your yellow pages under "water".

If we can be of further assistance, please let us hear from you.

Sincerely,

Daniel L. Webb
Lab Supervisor, Chemistry & Technology Section
217/244-0625

jt

cc: Caitlin Burke, **BACOG**

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WATER SAMPLE DATA
LABORATORY SAMPLE NUMBER: 237967

SOURCE: PRIVATE WELL
WELL#:
LOCATION: BARRINGTON HILLS
COUNTY: COOK
TOWNSHIP: 42N
RANGE: 09E
SECTION: 03
PLOT:
TREATMENT:

OWNER: PRESBYTERIAN CHURCH OF BARRINGTON
WELL DEPTH:
DATE COLLECTED: 6/16/2015
DATE RECEIVED: 6/17/2015
FIELD TEMPERATURE (F): ND
COMMENTS: SAMPLE COLLECTED FROM BACK SPIGOT IN THE GARDEN. PAGE 3 OF 3.

PARAMETER	RESULT	UNITS	PARAMETER	RESULT	UNITS
Iron (Total Fe):	0.131	mg/L	Fluoride (F):	0.17	mg/L
Potassium (K):	2.94	mg/L	Chloride (Cl):	59.5	mg/L
Calcium (Ca):	84.6	mg/L	Nitrate (NO3-N):	< 0.04	mg/L
Magnesium (Mg):	42.8	mg/L	Phosphorus (P):	< 0.073	mg/L
Sodium (Na):	17.7	mg/L	Sulfate (SO4):	10.7	mg/L
			Sulfur (S):	3.81	mg/L
			Bromide (Br)	< 0.08	mg/L
Aluminum (Al):	< 37	µg/L			
Arsenic (As):	< 0.95	µg/L			
Barium (Ba):	87.9	µg/L			
Beryllium (Be):	< 0.55	µg/L			
Boron (B):	34	µg/L			
Chromium (Cr):	< 5.8	µg/L	Turbidity (Lab, NTU):	0.3	NTU
Cobalt (Co):	< 13	µg/L	Color (PCU):	4.2	PCU
Copper (Cu):	97.0	µg/L	pH (Lab):	7.81	
Lithium (Li):	< 110	µg/L			
Manganese (Mn):	37.4	µg/L			
Molybdenum (Mo):	< 22	µg/L			
Nickel (Ni):	< 43	µg/L			
Strontium (Sr):	195	µg/L			
Tin (Sn):	< 86	µg/L			
Titanium (Ti):	< 0.56	µg/L	Alkalinity (CaCO3):	314	mg/L
Vanadium (V):	< 47	µg/L	Hardness (as CaCO3):	387	mg/L
Zinc (Zn):	18.1	µg/L	Silica (SiO2):	19.2	mg/L
			Total Dissolved Solids:	434	mg/L
			Non-Volatile Org. Carbon (Tot., as C):	2.43	mg/L

< = Below detection limit (i.e. < 1.0 = less than 1.0)

mg/L = milligrams per liter

ND = Not determined/Information not available

NTU = nephelometric turbidity units

µg/L = micrograms per Liter

hardness = (Ca mg/L * 2.497) + (Mg mg/L * 4.118)

1 mg/L = 1000 µg/L

PCU = platinum-cobalt units

Analyzed by: Omar Ali, Rita Bargon, Tanya Grandt, Ruth Ann Nichols, Kaye J Surratt, and Daniel L Webb

August 4, 2015

New Friends Wesleyan Church
174 Old Sutton Road
Barrington, IL 60010

To Whom It May Concern:

We are enclosing a copy of the partial analysis made on a sample of untreated water collected June 16, 2015, from your 165 foot well near Barrington in Cook County. The relevant sample number is: 237968.

The analysis shows this sample to be moderately mineralized and very hard. The iron content of this water is at a level which can result in the staining of porcelain and laundry. A major portion of the turbidity in this sample appears to be due to the previously soluble iron which oxidized and became insoluble after the water was exposed to air. The hardness in this sample is sufficient to cause the formation of a large amount of scale in hot water heaters, and to increase consumption of soap when used for washing or laundry purposes.

The arsenic content is well below the Federal Maximum Contaminant Level (MCL) of 10 µg/L. The nitrate (as N) content is well below the Federal Maximum Contaminant Level of 10 mg/L.

Although we did not test a softened sample this time, if we use the results from March 2015 for comparison, your softener seems to be operating efficiently, removing both the iron and the hardness from the raw water.

None of the other parameters tested appear unusual or excessive for Illinois ground water. However, our laboratory is only capable of identifying a limited number of the contaminants found in the Safe Drinking Water Act. Testing for bacteria, radionuclides, and synthetic organic contaminants, if desired, must be arranged through other laboratories. A listing of such laboratories can be found at www.epa.state.il.us/well-water/list-accredited-labs.html or in your yellow pages under "water".

If we can be of further assistance, please let us hear from you.

Sincerely,



Daniel L. Webb
Lab Supervisor, Chemistry & Technology Section
217/244-0625

jt

cc: Caitlin Burke, **BACOG**

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WATER SAMPLE DATA
LABORATORY SAMPLE NUMBER: 237968

SOURCE: PRIVATE WELL

WELL#:

LOCATION: BARRINGTON HILLS

COUNTY: COOK

TOWNSHIP: 42N

RANGE: 09E

SECTION: 16

PLOT: 6A

TREATMENT:

OWNER: NEW FRIENDS WESLEYAN CHURCH

WELL DEPTH: 165.00

DATE COLLECTED: 6/16/2015

DATE RECEIVED: 6/17/2015

FIELD TEMPERATURE (F): ND

COMMENTS: SAMPLE COLLECTED FROM VALVE BEFORE SOFTENER. PAGE 3 OF 3.

PARAMETER	RESULT	UNITS	PARAMETER	RESULT	UNITS
Iron (Total Fe):	2.00	mg/L	Fluoride (F):	0.63	mg/L
Potassium (K):	3.12	mg/L	Chloride (Cl):	4.40	mg/L
Calcium (Ca):	67.2	mg/L	Nitrate (NO3-N):	< 0.04	mg/L
Magnesium (Mg):	44.2	mg/L	Phosphorus (P):	< 0.073	mg/L
Sodium (Na):	18.9	mg/L	Sulfate (SO4):	40.3	mg/L
			Sulfur (S):	13.9	mg/L
			Bromide (Br)	< 0.08	mg/L
Aluminum (Al):	< 37	µg/L			
Arsenic (As):	< 0.95	µg/L			
Barium (Ba):	136	µg/L			
Beryllium (Be):	< 0.55	µg/L			
Boron (B):	164	µg/L			
Chromium (Cr):	< 5.8	µg/L	Turbidity (Lab, NTU):	19.4	NTU
Cobalt (Co):	< 13	µg/L	Color (PCU):	2.2	PCU
Copper (Cu):	15.1	µg/L	pH (Lab):	8.02	
Lithium (Li):	< 110	µg/L			
Manganese (Mn):	17.3	µg/L			
Molybdenum (Mo):	< 22	µg/L			
Nickel (Ni):	< 43	µg/L			
Strontium (Sr):	730	µg/L			
Tin (Sn):	< 86	µg/L			
Titanium (Ti):	< 0.56	µg/L	Alkalinity (CaCO3):	329	mg/L
Vanadium (V):	< 47	µg/L	Hardness (as CaCO3):	350	mg/L
Zinc (Zn):	308	µg/L	Silica (SiO2):	17.9	mg/L
			Total Dissolved Solids:	380	mg/L
			Non-Volatile Org. Carbon (Tot., as C):	0.82	mg/L

< = Below detection limit (i.e. < 1.0 = less than 1.0)

mg/L = milligrams per liter

ND = Not determined/Information not available

NTU = nephelometric turbidity units

µg/L = micrograms per Liter

hardness = (Ca mg/L * 2.497) + (Mg mg/L * 4.118)

1 mg/L = 1000 µg/L

PCU = platinum-cobalt units

Analyzed by: Omar Ali, Rita Bargon, Tanya Grandt, Ruth Ann Nichols, Kaye J Surratt, and Daniel L Webb



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August 4, 2015

Barrington Hills Country Club
300 W. County Line Road
Barrington, IL 60010

To Whom It May Concern:

We are enclosing a copy of the partial analysis made on a sample of untreated water collected June 16, 2015, from your 240 foot well near Barrington in Lake County. The relevant sample number is: 237969.

The analysis shows this sample to be moderately mineralized and very hard. The iron content of this water is at a level which can result in the staining of porcelain and laundry. A major portion of the turbidity in this sample appears to be due to the previously soluble iron which oxidized and became insoluble after the water was exposed to air. The hardness in this sample is sufficient to cause the formation of a large amount of scale in hot water heaters, and to increase consumption of soap when used for washing or laundry purposes.

The arsenic content is well below the Federal Maximum Contaminant Level (MCL) of 10 µg/L. The nitrate (as N) content is below the Federal Maximum Contaminant Level of 10 mg/L.

The aesthetic quality of this water would likely be improved with the addition of a water softener to remove iron and hardness.

None of the other parameters tested appear unusual or excessive for Illinois ground water. However, our laboratory is only capable of identifying a limited number of the contaminants found in the Safe Drinking Water Act. Testing for bacteria, radionuclides, and synthetic organic contaminants, if desired, must be arranged through other laboratories. A listing of such laboratories can be found at www.epa.state.il.us/well-water/list-accredited-labs.html or in your yellow pages under "water".

If we can be of further assistance, please let us hear from you.

Sincerely,

Daniel L. Webb
Lab Supervisor, Chemistry & Technology Section
217/244-0625

jt

cc: Caitlin Burke, **BACOG**

WATER SAMPLE DATA
LABORATORY SAMPLE NUMBER: 237969

SOURCE: INDUSTRIAL/COMMERCIAL WELL

WELL#: 1

LOCATION: BARRINGTON

COUNTY: LAKE

TOWNSHIP: 43N

RANGE: 09E

SECTION: 34

PLOT: 1A

TREATMENT:

OWNER: BARRINGTON HILLS COUNTRY CLUB

WELL DEPTH: 240.00

DATE COLLECTED: 6/16/2015

DATE RECEIVED: 6/17/2015

FIELD TEMPERATURE (F): ND

COMMENTS: SAMPLE COLLECTED AT SPIGOT BEFORE
SOFTENER. PAGE 3 OF 3.

PARAMETER	RESULT	UNITS	PARAMETER	RESULT	UNITS
Iron (Total Fe):	2.15	mg/L	Fluoride (F):	0.22	mg/L
Potassium (K):	2.27	mg/L	Chloride (Cl):	50.5	mg/L
Calcium (Ca):	97.3	mg/L	Nitrate (NO3-N):	0.12	mg/L
Magnesium (Mg):	50.9	mg/L	Phosphorus (P):	< 0.073	mg/L
Sodium (Na):	13.9	mg/L	Sulfate (SO4):	36.2	mg/L
			Sulfur (S):	12.6	mg/L
			Bromide (Br):	< 0.08	mg/L
Aluminum (Al):	< 37	µg/L			
Arsenic (As):	< 0.95	µg/L			
Barium (Ba):	71.3	µg/L			
Beryllium (Be):	< 0.55	µg/L			
Boron (B):	51	µg/L			
Chromium (Cr):	< 5.8	µg/L	Turbidity (Lab, NTU):	9.9	NTU
Cobalt (Co):	< 13	µg/L	Color (PCU):	2.2	PCU
Copper (Cu):	116	µg/L	pH (Lab):	7.75	
Lithium (Li):	< 110	µg/L			
Manganese (Mn):	29.2	µg/L			
Molybdenum (Mo):	< 22	µg/L			
Nickel (Ni):	< 43	µg/L			
Strontium (Sr):	258	µg/L			
Tin (Sn):	112	µg/L			
Titanium (Ti):	< 0.56	µg/L	Alkalinity (CaCO3):	347	mg/L
Vanadium (V):	< 47	µg/L	Hardness (as CaCO3):	453	mg/L
Zinc (Zn):	89.0	µg/L	Silica (SiO2):	20.1	mg/L
			Total Dissolved Solids:	488	mg/L
			Non-Volatile Org. Carbon (Tot., as C):	1.41	mg/L

< = Below detection limit (i.e. < 1.0 = less than 1.0)

mg/L = milligrams per liter

ND = Not determined/Information not available

NTU = nephelometric turbidity units

µg/L = micrograms per Liter

hardness = (Ca mg/L * 2.497) + (Mg mg/L * 4.118)

1 mg/L = 1000 µg/L

PCU = platinum-cobalt units

Analyzed by: Omar Ali, Rita Bargon, Tanya Grandt, Ruth Ann Nichols, Kaye J Surratt, and Daniel L Webb



2204 Griffith Drive • Champaign, IL 61820
T 217-333-2210 • F 217-333-4983
www.isws.illinois.edu

August 4, 2015

Barrington United Methodist
98 Algonquin Road
Barrington, IL 60010

To Whom It May Concern:

We are enclosing a copy of the partial analysis made on a sample of untreated water collected June 16, 2015, from your 277 foot well near Barrington in Cook County. The relevant sample number is: 237970.

The analysis shows this sample to be moderately mineralized and very hard. The iron content of this water is at a level which can result in the staining of porcelain and laundry. A major portion of the turbidity in this sample appears to be due to the previously soluble iron which oxidized and became insoluble after the water was exposed to air. The hardness in this sample is sufficient to cause the formation of a large amount of scale in hot water heaters, and to increase consumption of soap when used for washing or laundry purposes.

The arsenic content is well below the Federal Maximum Contaminant Level (MCL) of 10 µg/L. The nitrate (as N) content is well below the Federal Maximum Contaminant Level of 10 mg/L.

Although we did not test a softened sample this time, if we use the results from March 2015 for comparison, your softener seems to be operating efficiently, removing both the iron and the hardness from the raw water.

None of the other parameters tested appear unusual or excessive for Illinois ground water. However, our laboratory is only capable of identifying a limited number of the contaminants found in the Safe Drinking Water Act. Testing for bacteria, radionuclides, and synthetic organic contaminants, if desired, must be arranged through other laboratories. A listing of such laboratories can be found at www.epa.state.il.us/well-water/list-accredited-labs.html or in your yellow pages under "water".

If we can be of further assistance, please let us hear from you.

Sincerely,

Daniel L. Webb
Lab Supervisor, Chemistry & Technology Section
217/244-0625

jt

cc: Caitlin Burke, **BACOG**



2204 Griffith Drive • Champaign, IL 61820
T 217-333-2210 • F 217-333-4983
www.isws.illinois.edu

WATER SAMPLE DATA
LABORATORY SAMPLE NUMBER: 237970

SOURCE: PRIVATE WELL
WELL#:
LOCATION: BARRINGTON HILLS
COUNTY: COOK
TOWNSHIP: 42N
RANGE: 09E
SECTION: 15
PLOT: 7A
TREATMENT:

OWNER: BARRINGTON UNITED METHODIST CHURCH
WELL DEPTH: 277.00
DATE COLLECTED: 6/16/2015
DATE RECEIVED: 6/17/2015
FIELD TEMPERATURE (F): ND
COMMENTS: SAMPLE COLLECTED FROM SPIGOT BEFORE SOFTENER. PAGE 3 OF 3.

PARAMETER	RESULT	UNITS	PARAMETER	RESULT	UNITS
Iron (Total Fe):	1.79	mg/L	Fluoride (F):	0.59	mg/L
Potassium (K):	2.42	mg/L	Chloride (Cl):	2.57	mg/L
Calcium (Ca):	54.2	mg/L	Nitrate (NO3-N):	< 0.04	mg/L
Magnesium (Mg):	41.1	mg/L	Phosphorus (P):	< 0.073	mg/L
Sodium (Na):	19.4	mg/L	Sulfate (SO4):	3.71	mg/L
			Sulfur (S):	1.32	mg/L
			Bromide (Br)	< 0.08	mg/L
Aluminum (Al):	< 37	µg/L			
Arsenic (As):	< 0.95	µg/L			
Barium (Ba):	124	µg/L			
Beryllium (Be):	< 0.55	µg/L			
Boron (B):	184	µg/L			
Chromium (Cr):	< 5.8	µg/L	Turbidity (Lab, NTU):	15.1	NTU
Cobalt (Co):	< 13	µg/L	Color (PCU):	2.2	PCU
Copper (Cu):	21.4	µg/L	pH (Lab):	8.07	
Lithium (Li):	< 110	µg/L			
Manganese (Mn):	18.8	µg/L			
Molybdenum (Mo):	< 22	µg/L			
Nickel (Ni):	< 43	µg/L			
Strontium (Sr):	1185	µg/L			
Tin (Sn):	< 86	µg/L			
Titanium (Ti):	< 0.56	µg/L			
Vanadium (V):	< 47	µg/L	Alkalinity (CaCO3):	325	mg/L
Zinc (Zn):	244	µg/L	Hardness (as CaCO3):	305	mg/L
			Silica (SiO2):	20.2	mg/L
			Total Dissolved Solids:	318	mg/L
			Non-Volatile Org. Carbon (Tot., as C):	1.53	mg/L

< = Below detection limit (i.e. < 1.0 = less than 1.0)

mg/L = milligrams per liter

ND = Not determined/Information not available

NTU = nephelometric turbidity units

µg/L = micrograms per Liter

hardness = (Ca mg/L * 2.497) + (Mg mg/L * 4.118)

1 mg/L = 1000 µg/L

PCU = platinum-cobalt units

Analyzed by: Omar Ali, Rita Bargon, Tanya Grandt, Ruth Ann Nichols, Kaye J Surratt, and Daniel L Webb





UNDERSTANDING YOUR WATER QUALITY ANALYSIS

Having your well water tested is an important step to ensure safe drinking water. The U.S. Environmental Protection Agency establishes drinking water standards, such as maximum contaminant levels (MCL) and secondary maximum contaminant levels (SMCL), and public water supplies are required to test their water routinely for a list of regulated contaminants. For private well owners, however, water testing is their responsibility. The following guide is intended to help customers understand the results of their water quality analysis.

Analyte	Description	MCL (or SMCL, if noted)	Source	Websites (for more information)
Alkalinity	Measure of bicarbonate, carbonate, or hydroxide constituents; not detrimental to humans; IDPH recommends 30-400 mg/L for drinking water.		IDPH	http://www.idph.state.il.us/envhealth/pdf/DrinkingWater.pdf
Aluminum	Above the SMCL may result in colored water.	0.05 to 0.2 mg/L	US EPA	http://water.epa.gov/drink/contaminants/secondarystandards.cfm
Arsenic	Naturally occurring in some groundwater throughout Illinois. EPA indicates some people who drink water containing arsenic in excess of the MCL for many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.	0.010 mg/L (=10 µg/L)	ISWS	http://www.isws.illinois.edu/gws/archive/arsenic/ilsources.asp
			US EPA	http://water.epa.gov/drink/contaminants/index.cfm
Barium	Naturally occurring, possible discharge of drilling wastes and metal refineries; erosion of natural deposits. Some people who drink water containing barium in excess of the maximum contaminant level (MCL) for many years could experience an increase in their blood pressure.	2 mg/L	US EPA	http://water.epa.gov/drink/contaminants/index.cfm
				http://water.epa.gov/drink/contaminants/basicinformation/barium.cfm
Beryllium	Naturally enters water through the weathering of rocks and soils or from industrial wastewater discharges. Some people who drink water containing beryllium in excess of the maximum contaminant level (MCL) for many years could develop intestinal lesions.	0.004 mg/L (=4 µg/L)	US EPA	http://water.epa.gov/drink/contaminants/index.cfm
				http://water.epa.gov/drink/contaminants/basicinformation/beryllium.cfm
Calcium	(See hardness)			
Chloride	Naturally occurring; runoff from road deicing; pollution from brine or industrial or domestic wastes; high levels can cause salty taste and be corrosive to iron pipe.	SMCL = 250 mg/L	IDPH	http://www.idph.state.il.us/envhealth/pdf/DrinkingWater.pdf
			US EPA	http://water.epa.gov/drink/contaminants/secondarystandards.cfm
Chromium	Found naturally in rocks, plants; most common forms of chromium that occur in natural waters are trivalent chromium (chromium-3), and hexavalent chromium (chromium-6). Chromium-3 is a nutritionally essential element in humans and is often added to vitamins as a dietary supplement. Chromium-3 has relatively low toxicity and would be a concern in drinking water only at very high levels of contamination; Chromium-6 is more toxic and poses potential health risks (allergic dermatitis, possibly carcinogenic).	0.1 mg/L	US EPA	http://water.epa.gov/drink/contaminants/index.cfm
Color	Visible tint in the water (yellow/tan/brown); can be caused by decaying vegetation.	SMCL = 15 units	US EPA	http://water.epa.gov/drink/contaminants/secondarystandards.cfm
Copper	Short-term = gastrointestinal distress, and with long-term exposure may experience liver or kidney damage. Treatment technique regulation-action level 1.3 mg/L; SMCL = 1.0 mg/L (above SMCL = metallic taste; blue-green staining)	1.3 mg/L; 1.0 mg/L	US EPA	http://water.epa.gov/drink/contaminants/basicinformation/copper.cfm
Fluoride	Commonly added to community supplies (to 1 mg/L) to promote dental health. Excessive consumption over a lifetime may lead to increased likelihood of bone fractures in adults, and may result in effects on bone leading to pain and tenderness. Children may have an increased chance of developing pits in the tooth enamel, along with a range of cosmetic effects to teeth. EPA has both an MCL and a SMCL.	4 mg/L	US EPA	http://water.epa.gov/drink/contaminants/index.cfm
		SMCL = 2 mg/L	US EPA	http://water.epa.gov/drink/contaminants/secondarystandards.cfm

Analyte	Description	EPA MCL or SMCL	Source	Websites (for more information)
Hardness	Generally caused by calcium and magnesium minerals. Affects consumption of soap; causes scale. Generally removed using a water softener. Calcium can form scale when heated. IDPH: The following is a measure of hardness (expressed in mg/L as calcium carbonate): 0 - 100 Soft 100 - 200 Moderate 200 - 300 Hard 300 - 500 Very hard 500 - 1,000 Extremely hard May also be expressed in grains per gallon. The conversion formula is: 1 gpg = 17.1 mg/L.		ISWS	http://www.isws.uiuc.edu/pubdoc/C/ISWSC-118.pdf
			IDPH	http://www.idph.state.il.us/envhealth/pdf/DrinkingWater.pdf
Iron	Naturally occurring as soluble Iron (II), but oxidizes to Iron(III); rusty color; sediment; metallic taste; reddish or orange staining; removed by physical filtration, iron filter, water softener	SMCL = 0.3 mg/L	IDPH	http://www.idph.state.il.us/envhealth/factsheets/ironFS.htm
			IDPH	http://www.idph.state.il.us/envhealth/pdf/DrinkingWater.pdf
			US EPA	http://water.epa.gov/drink/contaminants/secondarystandards.cfm
Magnesium	(See hardness)			
Manganese	Naturally occurring; black to brown color; black staining; bitter metallic taste	SMCL = 0.05 mg/L	US EPA	http://water.epa.gov/drink/contaminants/secondarystandards.cfm
Nickel	No current EPA limit; has potential to cause the following health effects from long-term exposure at levels above the MCL: decreased body weight; heart and liver damage; dermatitis.	Old MCL = 0.1 mg/L	US EPA	http://www.epa.gov/ogwdw/pdfs/factsheets/ioc/tech/nickel.pdf
Nitrate	Often used in fertilizer. Infants below six months who drink water containing nitrate in excess of the maximum contaminant level (MCL) could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome (methemoglobinemia).	10 mg/L as N	US EPA	http://water.epa.gov/drink/contaminants/basicinformation/nitrate.cfm
pH	Low pH: bitter metallic taste; corrosion high pH: slippery feel; soda taste; deposits desirable range = 6.5-8.5	SMCL = 6.5-8.5	US EPA	http://water.epa.gov/drink/contaminants/secondarystandards.cfm
			IDPH	http://www.idph.state.il.us/envhealth/pdf/DrinkingWater.pdf
Sodium	No current federal drinking water standard; high levels may be associated with hypertension in some individuals, but typically the majority of sodium ingestion is from food rather than drinking water. Water softening will increase sodium.		US EPA	http://water.epa.gov/scitech/drinkingwater/dws/ccl/sodium.cfm
Sulfate	Naturally occurring; high levels can cause laxative effect, especially if changing from water supply with low sulfates. Coal mining can contribute. IDPH states: 0-250 mg/L=acceptable; 250-500 mg/L=can be tolerated; 500-1000 mg/L=undesirable; over 1000 mg/L=unsatisfactory	SMCL = 250 mg/L	ISWS	http://www.isws.uiuc.edu/pubdoc/C/ISWSC-118.pdf
			IDPH	http://www.idph.state.il.us/envhealth/pdf/DrinkingWater.pdf
			US EPA	http://water.epa.gov/drink/contaminants/unregulated/sulfate.cfm
Total Dissolved Solids	Measure of the total amount of dissolved minerals/substances in water; high levels may cause salty taste IDPH states: less than 500 mg/L= satisfactory; 500 - 1000 mg/L= less than desirable; 1000-1500 mg/L= undesirable; over 1500 mg/L= unsatisfactory	SMCL = 500 mg/L	US EPA	http://water.epa.gov/drink/contaminants/secondarystandards.cfm
			IDPH	http://www.idph.state.il.us/envhealth/pdf/DrinkingWater.pdf
Turbidity	Turbidity refers to cloudiness of water. Often due to sand, silt, clay, or precipitated iron (see also iron). Turbidity has no health effects, but can be an indication of the presence of disease-causing organisms.	n/a. See EPA website for info	US EPA	http://water.epa.gov/drink/contaminants/index.cfm
Zinc	Metallic taste	SMCL = 5 mg/L	US EPA	http://water.epa.gov/drink/contaminants/secondarystandards.cfm

Notes:

MCL = Maximum Contaminant Level (Set by US EPA and is generally the maximum level allowed for public water systems)

SMCL = Secondary Maximum Contaminant Level (non-mandatory guidelines for aesthetic considerations; generally analyte is not considered a risk to human health)

US EPA = United States Environmental Protection Agency

IDPH = Illinois Department of Public Health

mg/L = milligrams per liter; this is the same as parts per million (ppm)

µg/L = micrograms per liter; this is the same as parts per billion (ppb)

List of all EPA drinking water contaminants: <http://water.epa.gov/drink/contaminants/index.cfm>