

C1 1133

SEQUENCE NO. (MDE USE ONLY)

STATE OF MARYLAND WELL COMPLETION REPORT

THIS REPORT MUST BE SUBMITTED WITHIN 45 DAYS AFTER WELL IS COMPLETED.

(THIS NUMBER IS TO BE PUNCHED IN COLS. 3-6 ON ALL CARDS)

FILL IN THIS FORM COMPLETELY PLEASE TYPE

COUNTY NUMBER A 520415

ST/CO USE ONLY DATE Received MM DD YY

DATE WELL COMPLETED MM DD YY 10 9 2010

Depth of Well 22 400 26 (TO NEAREST FOOT)

PERMIT NO. FROM "PERMIT TO DRILL WELL" HO-95-2002

OWNER Greenfield Farms Inc STREET OR RFD Pritchard Dr - Access Dr TOWN Clarksville SUBDIVISION Willow Pond SECTION LOT 3

WELL LOG Table with columns: DESCRIPTION, FEET (FROM, TO), check if water bearing. Includes handwritten entries for Sand, Gray mica, and Rock.

GROUTING RECORD Form with fields for WELL HAS BEEN GROUTED, TYPE OF GROUTING MATERIAL, CEMENT, BENTONITE CLAY, NO. OF BAGS, NO. OF POUNDS, GALLONS OF WATER, DEPTH OF GROUT SEAL.

CASING RECORD Form with fields for casing types (ST, CO, PL, OT), MAIN CASING TYPE, Nominal diameter, Total depth.

OTHER CASING (if used) Form with fields for diameter, depth.

SCREEN RECORD Form with fields for screen type, insert appropriate code, DEPTH (nearest ft.).

PUMPING TEST Form with fields for HOURS PUMPED, PUMPING RATE, METHOD USED TO MEASURE PUMPING RATE, WATER LEVEL, TYPE OF PUMP USED.

PUMP INSTALLED Form with fields for DRILLER INSTALLED PUMP, TYPE OF PUMP INSTALLED, CAPACITY, PUMP HORSE POWER, PUMP COLUMN LENGTH, CASING HEIGHT.

NUMBER OF UNSUCCESSFUL WELLS: 0 WELL HYDROFRACTURED Y N

CIRCLE APPROPRIATE LETTER A A WELL WAS ABANDONED AND SEALED WHEN THIS WELL WAS COMPLETED E ELECTRIC LOG OBTAINED P TEST WELL CONVERTED TO PRODUCTION WELL

I HEREBY CERTIFY THAT THIS WELL HAS BEEN CONSTRUCTED IN ACCORDANCE WITH COMAR 26.04.04 "WELL CONSTRUCTION" AND IN CONFORMANCE WITH ALL CONDITIONS STATED IN THE ABOVE CAPTIONED PERMIT...

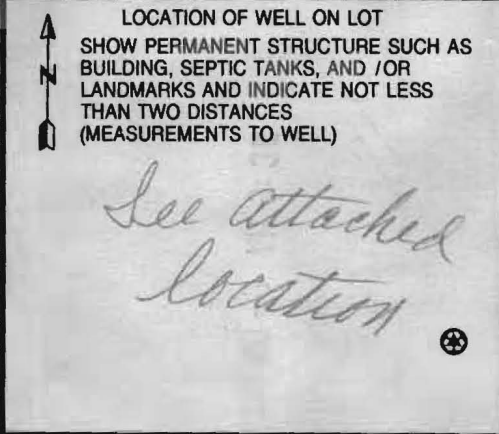
DRILLERS LIC. NO. MSD024 DRILLERS SIGNATURE (MUST MATCH SIGNATURE ON APPLICATION) LIC. NO. MSD027

Table with columns: A, C, H, S, C, R, E, N and rows for well depth and slot size.

GRAVEL PACK IF WELL DRILLED WAS FLOWING WELL INSERT F IN BOX 68

MDE USE ONLY (NOT TO BE FILLED IN BY DRILLER) T (E.R.O.S.) W Q

TELESCOPE CASING LOG INDICATOR OTHER DATA



B 1 3489 SEQUENCE NO. (MDE USE ONLY) **STATE OF MARYLAND** STATE PERMIT NUMBER HO-95-2002
 1 2 3 6 70 fill in this form completely 79

APPLICATION FOR PERMIT TO DRILL WELL
534010 please type

Date Received (APA) 08 30 10
OWNER INFORMATION
 8 MM DD YY 13
Greenfield Homes Inc
 15 Last Name Owner First Name 34
6656 Luster Drive
 36 Street or RFD 55
Highland Md 20777
 57 Town 70 State 72 Zip 76

B 3 Howard LOCATION OF WELL
 8 COUNTY 21
Willow Pond
 23 SUBDIVISION 42
 SECTION 3 LOT 3
 44 46 48 50
Clarksville
 52 NEAREST TOWN 71
 MILES FROM TOWN (enter 0 if in town) 1 M I
 73 76 77 78

DRILLER INFORMATION
Joseph L Mayne M S D 024
 Driller's Name 76 License No. 81
Joseph L Mayne Well Drilling
 Firm Name
5512 Ridge Rd Mt Airy Md 21771
 Address
Joseph Mayne 8-24-2010
 Signature Date

B 4
 1 2 DIRECTION OF WELL FROM TOWN (CIRCLE BOX)
 11 NEAR WHAT ROAD 30
Prestwick Access Dr
 ON WHICH SIDE OF ROAD (CIRCLE APPROPRIATE BOX)
 NORTH N NORTH EAST E
 WEST W SOUTH S
 34 37 DISTANCE FROM ROAD
0.60
 ENTER FT OR MI 38 39
 TAX MAP: 34 BLK: 17 PARCEL 382

B 2 **WELL INFORMATION**
 1 2 APPROX. PUMPING RATE 4
 (GAL. PER MIN.) 8 500 12
 AVERAGE DAILY QUANTITY NEEDED 14 20
 (GAL. PER DAY)

USE FOR WATER (CIRCLE APPROPRIATE BOX)
 DOMESTIC POTABLE SUPPLY & RESIDENTIAL IRRIGATION
 FARMING (LIVESTOCK WATERING & AGRICULTURAL IRRIGATION)
 INDUSTRIAL, COMMERCIAL, DEWATERING
 PUBLIC WATER SUPPLY WELL
 TEST, OBSERVATION, MONITORING
 GEO-THERMAL

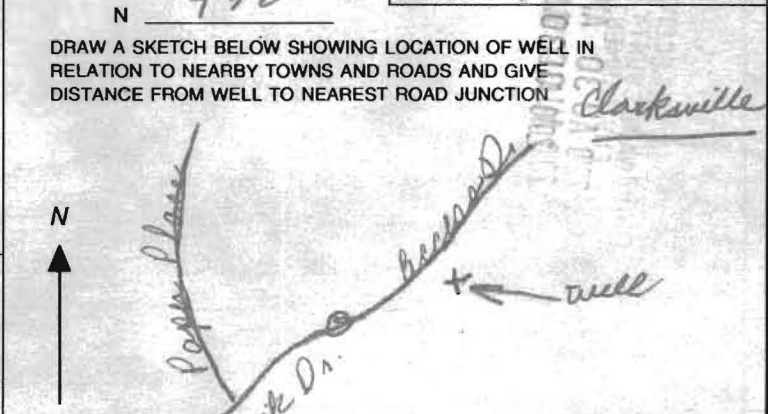
NOT TO BE FILLED IN BY DRILLER HEALTH DEPARTMENT APPROVAL
Howard (13) A520415
 COUNTY NAME COUNTY NO.
 STATE SIGNATURE _____ INSERT S → 41
 DATE ISSUED 9/24/2010 Bruan Baker 9/24/2011
 43 MM DD YY 48 CO SIGNATURE EXP/DATE
 NORTH GRID 496 000 EAST GRID 814 000
 50 55 57 63

APPROXIMATE DEPTH OF WELL 400 FEET
 24 28
 APPROXIMATE DIAMETER OF WELL 6 NEAREST INCH

SHOW MAJOR FEATURES OF BOX & LOCATE WELL WITH AN X
 SOURCES OF DRILLING WATER
 1. 10' H₂O
 2. 50' casing
 3. 400'
14 bags Radium Sample collected
2gpm
strong
 WRITE THE BOX NUMBER FROM THE MAP HERE
 E 8144
 N 496

METHOD OF DRILLING (circle one)
 BORED (or Augered) JETTED Jetted & DRIVEN
 30 AIR-ROTARY AIR-PERCussion ROTARY (Hydraulic Rotary)
 37 CABLE REVERSE-ROTARY DRIVE-POINT
 other _____

REPLACEMENT OR DEEPEMED WELLS (CIRCLE APPROPRIATE BOX)
 THIS WELL WILL NOT REPLACE AN EXISTING WELL
 THIS WELL WILL REPLACE A WELL THAT WILL BE ABANDONED AND SEALED
 THIS WELL WILL REPLACE A WELL THAT WILL BE USED AS A STANDBY-CONTACT LOCAL APPROVING AUTHORITY FOR POLICY ON STANDBY WELLS
 THIS WELL WILL DEEPEM AN EXISTING WELL
 PERMIT NUMBER OF WELL TO BE REPLACED OR DEEPEMED (IF AVAILABLE) 41 _____ 52



Not to be filled in by driller (MDE OR COUNTY USE ONLY)
 APPROX. PERMIT NUMBER _____ G _____
 PERMIT No. HO-95-2002
 70 71 72 73 74 75 76 77 78 79

SPECIAL CONDITIONS Radium Sample Required Minimum of 50' of Steel Casing Needed
 NOTE - APPROVING AUTHORITIES SHOULD USE SEPARATE SHEET IF NEEDED

FIELD DATA SHEET
HOWARD COUNTY WELL YIELD TEST

Well Permit No. HO - 95-2002
 Location of property (road) Westwick Dr
 Subdivision Willow Pond Lot 3 Block _____ Plat _____ Sec. _____
 Well Driller Joseph Mays Owner Greenfield Homes

Depth of well 400
 Distance of measuring point (M.P.) above ground 2
 Static water level (S.W.L.) below M.P. 11

High rate pumping -- reservoir drawdown

Time pump started 8:25 Pumping rate 20 gpm
 Total time 30 min to reach pumping water level 331 ft. below M.P.

Recovery pump test data - observations to be recorded every 15 minutes

TIME (in 15 minute intervals)	WATER LEVEL below M.P.	PUMPING RATE time to fill <u>81</u> gallon bucket	FLOW METER READING (if used)	CALCULATED FLOW (gallons per minute)
8:40	167	3 sec		20 gpm
8:55	331	4		15
9:10	331	30		2
9:25	331	30		2
9:40	330	30		2
9:55	330	30		2
10:10	330	30		2
10:25	330	30		2
10:40	330	30		2
10:55	330	30		2
11:10	330	30		2
11:25	330	30		2
11:40	330	30		2
11:55	330	30		2
12:10	330	30		2
12:25	330	30		2
12:40	330	30		2
12:55	330	30		2
1:10	330	30		2
1:25	330	30		2
1:40	330	30		2
1:55	330	30		2
2:10	330	30		2
2:25	330	30		2
2:40	330	30		2
2:55	330	30		2

**HOWARD COUNTY HEALTH DEPARTMENT
BUREAU OF ENVIRONMENTAL HEALTH
WATER AND SEWERAGE PROGRAM
TEL: (410)313-2640 FAX: (410)313-2648**

Information Form for the Installation of the Well Pump, Pitless Adapter, and Supply Piping

NOTE: The installer is responsible for requesting an inspection prior to 9 am on the day of the desired inspection. No work is to be covered until approved by the Health Department. All installations must comply with the National Standard Plumbing Code (NSPC, as amended locally) and COMAR 26.04.04 (MD Well Construction Regulations). Submission of a complete form is required prior to Use and Occupancy approval.

Company Name: Gartland Plumbing Telephone #: 410-875-5303
Address: 1620 W. Old Liberty
Sykesville MD 21284

(Must circle one) Licensed Plumber Licensed Well Driller Licensed Well Pump Installer
License # and name of individual responsible for the field installation:

Name (Print): Joseph Gartland III License# 6352

*A licensed individual must perform the actual installation. Apprentices must be under the direct supervision of a licensed journeyman or master plumber, pump installer or well driller. Licenses may be subjected to field verification.

Name of Property Owner: Wang Ya Heng Telephone #: 410-440-4065
Subdivision: Willow Pond Lot #: 3 Well Tag #: HO-95-2002
Site Address: 6498 Presstwick Dr
Clarksville, MD 21029

Submersible Pump Data

Make: Goulds
Model #: 7ES6 1-HP
Pump Capacity 10 GPM
Well Yield: 10 GPM

Pitless Adapter

Make: W.S.C.
Model#: P-100-SS
Depth: 42 (36" min)
NSF approved: Yes

Well Cap and Electric Conduit

Two piece watertight cap:
Screened, vented well cap:
Cap secured to casing:
Conduit min 18" B.G.:
Conduit secured to well cap:

Depth of well encountered at time of pump installation: 400 (feet)

If pump capacity exceeds well yield, a low water cut off switch is required by NSPC 1990 Section 17.8.4

Torque arrestors or Cable guards are required - Must circle one

Safety rope, if used, attached to inside of well casing with eye bolt Yes

Piping to house

Type: Poly
PSI: 160 (160 psi min)
Depth of supply line: 48 (36" min)

House Connection

PVC sleeved to undisturbed soil at wall penetration: Yes
Approximate length of sleeve: 20'
Sleeve caulked and sealed properly: Yes

} skew under footer thru floor

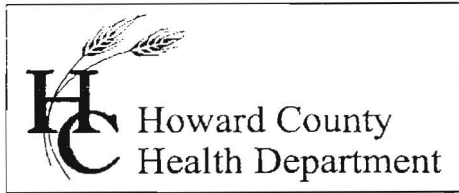
The water supply line is required to be at least ten feet from the septic tank, pump chamber, sewage piping, distribution box, drainfields, and sewage reserve area. If this cannot be accomplished, contact this office for approval prior to installation.

[Signature]
Signature of company representative responsible for installation

Oct 4, 2012
date

For Health Department Use Only - Not to be completed by Installer

Date Insp. Requested: _____ Date Insp. Approved: 10/4/2012 BB
Inspection Data: Pitless adapter and water supply line at least 36" below grade
Two piece cap installed and attached to casing securely
Elec. conduit extends at least 18" below grade/attached to cap properly
Safety rope installed inside of well casing
Correct well tag attached properly and casing 8" above finished grade
Water supply line sleeved adequately at house connection Under Footer
Adequate grout observed below pitless adapter



Bureau of Environmental Health
7178 Gateway Drive Columbia, MD 21046
(410) 313-2640 Fax (410) 313-2648
TDD (410) 313-2323 Toll Free 1-866-313-6300
website: www.hchealth.org

Peter L. Beilenson, M.D., M.P.H., Health Officer

January 5, 2011

Greenfield Homes, Inc.
6656 Luster Drive
Highland, Maryland 20777

RE: Willow Pond Lot 3
Prestwick Drive
Well Tag: HO - 95 - 2002

To Whom It May Concern:

A sample was collected during a yield test on October 7, 2010 and submitted to the Department of Health & Mental Hygiene Laboratories to assess the possible presence of **Gross Alpha** and **Gross Beta** in the future well water supply. **Gross Alpha** and **Gross Beta** measure the total alpha and beta particle activity in a water supply. These naturally occurring radioactive nuclides have been demonstrated to be present in a certain type of geologic formation known as the Baltimore Gneiss which exists in your area of development within the County.

Results from this screening revealed a **Gross Alpha** of 227.8 ± 11.0 picocuries/liter (pCi/L); while the **Gross Beta** level was 105.7 ± 4.7 pCi/L. The **Gross Alpha** result was well above its **maximum contaminant level (MCL)** of 15 pCi/L, while the **Gross Beta** level was well above its targeted value of 50 pCi/L (roughly equivalent to the **annual dose rate of 4 millirems/year**).

At the time of testing and with respect to these parameters, the future well water supply **does not** appear safe for all uses. Additional testing **for these parameters, plus Radium 226 and Radium 228** will be required to secure the future Use & Occupancy. Given the very high findings for both **Gross Alpha** and **Gross Beta**, the installation of a water softener system and / or a reverse osmosis system will be necessary. **Both pre and post short and long term Gross Alpha and Beta, plus a post Radium 226 / 228** will be needed to properly evaluate the effectiveness of the installed treatment. Given that it typically takes up to one month to perform and receive back the **Radium** analyses, plan accordingly. Also note, this is in addition to other standard testing parameters (bacteria, nitrate, turbidity and sand) that will still be required.

A copy of the test results is enclosed for your information. Please call this office at **410-313-1773** if you have any further questions or to discuss additional testing requirements.

Sincerely,

Bert Nixon, Director
Bureau of Environmental Health

Enclosure
cc: Barry Glotfelty, MDE Water Mgmt.
✓ Well & Septic property file



Bureau of Environmental Health
7178 Gateway Drive Columbia, MD 21046
(410) 313-2640 Fax (410) 313-2648
TDD (410) 313-2323 Toll Free 1-866-313-6300
website: www.hchealth.org

Peter L. Beilenson, M.D., M.P.H., Health Officer

May 2, 2011

Greenfield Homes, Inc.
6656 Luster Drive
Highland, Maryland 20777

RE: Willow Pond Lot 3 Follow-up
Prestwick Drive
Well Tag: HO - 95 - 2002

To Whom It May Concern:

A series of follow-up samples were collected during a simulated yield test on April 7, 2011 and submitted to the Department of Health & Mental Hygiene Laboratories (DHMH) and Florida Radiochemistry (FRC), to help assess the level of treatment necessary to address high **Gross Alpha** and **Gross Beta** findings from the initial yield test back in October 2010. A portable treatment set-up was constructed to enable a series of samples to be collected after a sediment filter and prior to and after a softener and reverse osmosis (R/O) device to determine what level or combination of treatment would be needed to adequately address existing contaminant levels.

Pre-treatment short term results from this screening revealed a **Gross Alpha** of 348.8 ± 13.0 picocuries/liter (pCi/L); while the **Gross Beta** level was 106.6 ± 4.8 pCi/L. The **Gross Alpha** result was way above its **maximum contaminant level (MCL)** of 15 pCi/L, while the **Gross Beta** level was above its targeted value of 50 pCi/L (roughly equivalent to the **annual dose rate of 4 millirems/year**).

Post-sediment filter long term results from this screening revealed a **Gross Alpha** of 323.0 ± 7.9 pCi/L; while the **Gross Beta** level was 95.1 ± 2.6 pCi/L. The **Gross Alpha** result was again well above the **MCL** of 15 pCi/L, while the **Gross Beta** level was above the targeted value of 50 pCi/L.

Post-treatment long term results (after water softener only) revealed a **Gross Alpha** of 316.0 ± 7.8 pCi/L; while the **Gross Beta** level was 91.7 ± 2.5 pCi/L. Here the **Gross Alpha** result remained well above the **MCL** of 15 pCi/L, while the **Gross Beta** level was again well above the targeted value of 50 pCi/L.

Post-treatment long term results (after water softener and R/O devices) revealed a **Gross Alpha** of 1.1 ± 0.8 pCi/L; while the **Gross Beta** level was 2.4 ± 0.9 pCi/L. Here the **Gross Alpha** result was below the **MCL** of 15 pCi/L, while the **Gross Beta** level was also below the targeted value of 50 pCi/L.

A post-treatment **Radium** sample was taken (after the softener system) to assess the presence of **Radium 226** or **Radium 228** following treatment. These naturally occurring isotopes of radium are considered the most important due to their longer half-lives and health significance. Results (post softener) revealed a **Radium 226** level of 0.5 ± 0.2 pCi/L; while the **Radium 228** level was $< 0.7 \pm 0.7$ pCi/L. Here the **combined Radium 226 / 228** was well below the **MCL** of 5 pCi/L.

At this time, your treated well water supply (for radium using the softener system) appears safe for all uses. When evaluating the short and long term findings, levels for **Gross Alpha** and **Gross Beta** appear to have limited levels of short term particle contaminants (based upon only slightly lower readings for post-sediment filter (pre-treated) long term values vs. short term levels). Somewhat surprisingly, long term softener treated **Gross Alpha** and **Gross Beta** levels were virtually unchanged (and well above standards) while the treated softener / R/O long term **Gross Alpha** and **Gross Beta** test results were substantially lower (as would be expected) and well below standards.

Send Report To:

State of Maryland
DHMH - Laboratories Administration

Division of Environmental Chemistry
RADIATION LABORATORY

201 W. Preston Street, Baltimore, Maryland 21201
John M. DeBoy, Dr. P. H., Director

Howard County Health Department
Bureau of Environmental Health
7178 Columbia Gateway Drive
Columbia, Maryland 21046

LABORATORY ANALYSIS REQUEST

Sample Bottle No. A: HOMI2002 No. B: _____ Field Blank Bottle No. 1: No B: _____

Plant/Site Name: Willow Pond County: Howard

Sample Source: @ Well Location: HO-95-2002
(well no, lab sink, sample tap, etc.)

County: 1 3 Plant No.

CHECK (one per box)

Drinking Water	<input checked="" type="checkbox"/>
Landfill	<input type="checkbox"/>
Stream	<input type="checkbox"/>
Other	<input type="checkbox"/>

Community	<input type="checkbox"/>
Non-community	<input type="checkbox"/>
Private	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

Source (raw water)	<input checked="" type="checkbox"/>
Distribution (treated)	<input type="checkbox"/>
MCL	<input type="checkbox"/>

Emergency	<input type="checkbox"/>
Routine	<input checked="" type="checkbox"/>
Recheck	<input type="checkbox"/>
Special	<input type="checkbox"/>

Collector: Michael Johnson (MS9883) Telephone No.: 410-313-1771

Date Collected: 10/07/10 Time Collected: _____ a.m. 12:30 p.m.

Nitric Acid Preserved: Yes No Iced: Yes No

Submitters Code: Federal Project: Field Data: _____ pH _____ Chlorine _____

Remarks: Sample preserved to pH < 3.0

✓	Test	EPA Code	Laboratory No.	Results (pCi/L)	Date Analyzed	Date Reported
✓	Gross Alpha	4000				
✓	Gross Beta	4100				
	Radon-222 Bottle A	4004				
	Radon-222 Bottle B	4004				
	Field Blank #A	4004				
	Field Blank #B	4004				
	Tritium					
	Ra - 226	4020				
	Ra - 228	4030				
	Total Uranium	4006				

Date Received: ___/___/___

Supervisor: _____



State of Maryland
DHMH-Laboratories Administration
Division of Environmental Chemistry
INORGANICS ANALYTICAL LABORATORY
201 W. Preston Street, Baltimore, Maryland 21201
Robert Myers, Ph.D., Acting Director

Certificate of Analysis

HOWARD CO ENVIRONMENTAL HLTH
7178 COLUMBIA GATEWAY DRIVE
COLUMBIA, MD 21046

Lab Project No E11004472 Date Coll. 04/07/2011 Date Received: 04/07/2011 Submitted By: M. Johnson

Field ID: HOMJ2002TPre
Lab No.: E11004472001

<u>Analyte</u>	<u>Method</u>	<u>Result</u>	<u>Units</u>	<u>Date Analyzed</u>
Turbidity	EPA 180.1	1.7	NTU	04/08/2011

Comments:

Approved by:



Approval date: 04/11/2011

This document contains confidential health information that is privileged, confidential and exempt from disclosure under law. If you have received this information in error, please call (410) 767-5034 and arrange for return or destruction.

Send Report To:

Howard County Health Department
Bureau of Environmental Health
7178 Columbia Gateway Drive
Columbia, Maryland 21046

~~State of Maryland
DHMH - Laboratories Administration
Division of Environmental Chemistry
RADIATION LABORATORY
201 W. Preston Street, Baltimore, Maryland 21201
John M. DeBoy, Dr. P. H., Director~~

Florida Radiochemistry
Services, Inc.

LABORATORY ANALYSIS REQUEST

HOMJ 2002 PSTWS

Sample Bottle No. A: _____ No. B: _____ Field Blank Bottle No. 1: _____ No B: _____

Plant/Site Name: Willow Pond Prestwick Dr lot #3 County: Howard

Sample Source: Water Softener Tap Location: HO-95-2002
(well no, lab sink, sample tap, etc.)

County: 1 3 Plant No.

CHECK (one per box)

Drinking Water	<input checked="" type="checkbox"/>
Landfill	<input type="checkbox"/>
Stream	<input type="checkbox"/>
Other	<input type="checkbox"/>

Community	<input type="checkbox"/>
Non-community	<input type="checkbox"/>
Private	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

Source (raw water)	<input type="checkbox"/>
Distribution (treated)	<input checked="" type="checkbox"/>
MCL	<input type="checkbox"/>

Emergency	<input type="checkbox"/>
Routine	<input checked="" type="checkbox"/>
Recheck	<input type="checkbox"/>
Special	<input type="checkbox"/>

Collector: M. Johnson (CM59883)

Telephone No.: 410-313-1781

Date Collected: 4/7/11

Time Collected: 11:30 a.m. _____ p.m.

Nitric Acid Preserved: Yes No

Iced: Yes No

Submitters Code:

Federal Project:

Field Data: _____
pH Chlorine

Remarks: Post-Treatment (after water softener) Ra 226/228
Sample pH preserved to < 2.0

✓	Test	EPA Code	Laboratory No.	Results (pCi/L)	Date Analyzed	Date Reported
	Gross Alpha	4000				
	Gross Beta	4100				
	Radon-222 Bottle A	4004	1104147-04	2.4, 2.3	4-25-11	4-26-11
	Radon-222 Bottle B	4004				
	Field Blank #A	4004				
	Field Blank #B	4004		15.1	4-25-11	
	Tritium					
✓	Ra - 226	4020	1104147-03	0.5	04-25-11	04-26-11
✓	Ra - 228	4030	1104147-03	0.2	4-25-11	4-26-11
	Total Uranium	4006			4-22-11	

Date Received: / /

Supervisor: _____

•Tel. No.: (410) 767 - 5537 •Fax No: (410) 333- 5373

Send Report To:

State of Maryland
DHMH - Laboratories Administration
Division of Environmental Chemistry
RADIATION LABORATORY
201 W. Preston Street, Baltimore, Maryland 21201
John M. DeBoy, Dr. P. H., Director

Florida Radiochemistry
Services, Inc.

LABORATORY ANALYSIS REQUEST

HOMJ 2002 PSTWS

Sample Bottle No. A: _____ No. B: _____ Field Blank Bottle No. 1: _____ No B: _____

Plant/Site Name: Willow Pond Prestwick Dr Lot #3 County: Howard

Sample Source: Water Softener Tap Location: H0-95-2002
(well no, lab sink, sample tap, etc.)

County: 1 2 Plant No.

CHECK (one per box)

Drinking Water	<input checked="" type="checkbox"/>
Landfill	<input type="checkbox"/>
Stream	<input type="checkbox"/>
Other	<input type="checkbox"/>

Community	<input type="checkbox"/>
Non-community	<input type="checkbox"/>
Private	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

Source (raw water)	<input type="checkbox"/>
Distribution (treated)	<input checked="" type="checkbox"/>
MCL	<input type="checkbox"/>

Emergency	<input type="checkbox"/>
Routine	<input checked="" type="checkbox"/>
Recheck	<input type="checkbox"/>
Special	<input type="checkbox"/>

Collector: M. Johnson (MJ9883)

Telephone No.: 410-313-1781

Date Collected: 4/7/11

Time Collected: 11:30 a.m. _____ p.m.

Nitric Acid Preserved: Yes No

Iced: Yes No

Submitters Code: Federal Project:

Field Data: _____
pH _____ Chlorine _____

Remarks: Post-Treatment (after water softener) An 226/228
sample pH preserved to < 2.0

✓	Test	EPA Code	Laboratory No.	Results (pCi/L)	Date Analyzed	Date Reported
	Gross Alpha	4000				
	Gross Beta	4100				
	Radon-222 Bottle A	4004		2.4		
	Radon-222 Bottle B	4004				
	Field Blank #A	4004				
	Field Blank #B	4004				
	Tritium					
✓	Ra - 226	4020	1104147-03	0.5	04-25-11	04-26-11
✓	Ra - 228	4030	1104147-03	0.2	4-25-11	4-26-11
	Total Uranium	4006			4-22-11	

Date Received: ___/___/___

Supervisor: _____

•Tel. No.: (410) 767 - 5537 •Fax No: (410) 333- 5373

Send Report To:

Howard County Health Department
Bureau of Environmental Health
7178 Columbia Gateway Drive
Columbia, Maryland 21046

State of Maryland
DHMH Laboratories Administration
Division of Environmental Chemistry
RADIATION LABORATORY
201 W. Preston Street, Baltimore, Maryland 21201
John M. DeBoy, Dr. P. H., Director

Florida Radiochemistry
Services, Inc.

LABORATORY ANALYSIS REQUEST

HOMJ2002PSTLTWSRO

Sample Bottle No. A: _____ No. B: _____ Field Blank Bottle No. 1: _____ No B: _____

Plant/Site Name: Willow Pond Prestwick Dr Lot #3 County: Howard - HO-95-2002

Sample Source: RO Tap Location: Well - after water softener & RO sys.
(well no, lab sink, sample tap, etc.)

County: 1 3 Plant No.

CHECK (one per box)

Drinking Water
Landfill
Stream
Other

Community
Non-community
Private
Other

Source (raw water)
Distribution (treated)
MCL

Emergency
Routine
Recheck
Special

Collector: Michael Johnson (MJ9883) Telephone No.: 410-313-1781

Date Collected: 4/7/11 Time Collected: 11:30 (a.m.) _____ p.m.

Nitric Acid Preserved: Yes No Iced: Yes No

Submitters Code: Federal Project: Field Data: _____
pH _____ Chlorine _____

Remarks: Post Treatment (after water softener & RO system) Long Term Gross Alpha
Samples preserved to 2.0 & Gross Beta

Long Term

✓	Test	EPA Code	Laboratory No.	Results (pCi/L)	Date Analyzed	Date Reported
✓	Gross Alpha	4000	1104147-02	1.1	4-16-11	4-26-11
✓	Gross Beta	4100	1104147-02	2.4	4-16-11	4-26-11
	Radon-222 Bottle A	4004				
	Radon-222 Bottle B	4004				
	Field Blank #A	4004				
	Field Blank #B	4004				
	Tritium					
	Ra - 226	4020				
	Ra - 228	4030				
	Total Uranium	4006				

Date Received: ___ / ___ / ___

Supervisor: _____

•Tel. No.: (410) 767 - 5537 •Fax No: (410) 333- 5373

Send Report To:

State of Maryland
DHMH - Laboratories Administration
Division of Environmental Chemistry
RADIATION LABORATORY
201 W. Preston Street, Baltimore, Maryland 21201
John M. DeBoy, Dr. P. H., Director

Florida Radiochemistry
Services, Inc.

LABORATORY ANALYSIS REQUEST

HOMJ2002PSTLTWSRO

Sample Bottle No. A: _____ No. B: _____ Field Blank Bottle No. 1: _____ No B: _____

Plant/Site Name: Willow Pond Prestwick Dr Lot #3 County: Howard - HO-95-2002

Sample Source: RO Tap Location: Will - after water softener & RO sys
(well no, lab sink, sample tap, etc.)

County: 1 3 Plant No.

CHECK (one per box)

Drinking Water	<input checked="" type="checkbox"/>
Landfill	<input type="checkbox"/>
Stream	<input type="checkbox"/>
Other	<input type="checkbox"/>

Community	<input type="checkbox"/>
Non-community	<input type="checkbox"/>
Private	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

Source (raw water)	<input type="checkbox"/>
Distribution (treated)	<input checked="" type="checkbox"/>
MCL	<input type="checkbox"/>

Emergency	<input type="checkbox"/>
Routine	<input checked="" type="checkbox"/>
Recheck	<input type="checkbox"/>
Special	<input type="checkbox"/>

Collector: Michael Johnson (MJ9883) Telephone No.: 410-313-1781

Date Collected: 4/7/11 Time Collected: 11:30 a.m. p.m.

Nitric Acid Preserved: Yes No Iced: Yes No

Submitters Code: Federal Project: Field Data: _____
pH _____ Chlorine _____

Remarks: Post Treatment (after water softener & RO system) Long Term Gross Alpha
Samples preserved to 2.0 Gross Beta

✓	Test	EPA Code	Laboratory No.	Results (pCi/L)	Date Analyzed	Date Reported
✓	Gross Alpha	4000	1104147-02	1.1	4-16-11	4-26-11
✓	Gross Beta	4100	1104147-02	2.4	4-16-11	4-26-11
	Radon-222 Bottle A	4004	1104147-01	323	4-16-11	4-26-11
	Radon-222 Bottle B	4004				
	Field Blank #A	4004	1104147-01	95.1	4-16-11	
	Field Blank #B	4004				4-26-11
	Tritium					
	Ra - 226	4020				
	Ra - 228	4030				
	Total Uranium	4006				

Date Received: ___/___/___

Supervisor: _____

•Tel. No.: (410) 767 - 5537 •Fax No.: (410) 333- 5373

Send Report To:

Howard County Health Department
Bureau of Environmental Health
7178 Columbia Gateway Drive
Columbia, Maryland 21046

State of Maryland
DHMH - Laboratories Administration
Division of Environmental Chemistry
RADIATION LABORATORY
201 W. Preston Street, Baltimore, Maryland 21201
John M. DeBoy, Dr. P. H., Director

*Florida Radiochemistry
Services, Inc.*

LABORATORY ANALYSIS REQUEST

HOMJ 2002 PSTLTWS

Sample Bottle No. A: _____ No. B: _____ Field Blank Bottle No. 1: _____ No B: _____

Plant/Site Name: Willow Pond Prestwick Dr Lot #3 County: Howard

Sample Source: Water Softener Tap Location: HO-95-2002
(well no, lab sink, sample tap, etc.)

County: 1 3 Plant No.

CHECK (one per box)

Drinking Water
Landfill
Stream
Other

Community
Non-community
Private
Other

Source (raw water)
Distribution (treated)
MCL

Emergency
Routine
Recheck
Special

Collector: Michael Johnson (CMT9883) Telephone No.: 410-313-1781

Date Collected: 4/7/11 Time Collected: 11:30 a.m. _____ p.m.

Nitric Acid Preserved: Yes No Iced: Yes No

Submitters Code: Federal Project: Field Data: _____ pH _____ Chlorine _____

Remarks: Post Treatment (After water softener) Long Term Gross Alpha & Beta
Sample preserved to < 2.0

Long Term

✓	Test	EPA Code	Laboratory No.	Results (pCi/L)	Date Analyzed	Date Reported
✓	Gross Alpha	4000	1104147-05	351	04-16-11	04-26-11
✓	Gross Beta	4100	1104147-05	85.2	04-26-11	04-26-11
	Radon-222 Bottle A	4004				
	Radon-222 Bottle B	4004				
	Field Blank #A	4004				
	Field Blank #B	4004				
	Tritium					
	Ra - 226	4020				
	Ra - 228	4030				
	Total Uranium	4006				

Date Received: ___/___/___

Supervisor: _____

•Tel. No.: (410) 767 - 5537 •Fax No: (410) 333- 5373

Send Report To:

State of Maryland
DHMH - Laboratories Administration
Division of Environmental Chemistry
RADIATION LABORATORY
201 W. Preston Street, Baltimore, Maryland 21201
John M. DeBoy, Dr. P. H., Director

Florida Radiochemistry Services, Inc.

LABORATORY ANALYSIS REQUEST

Sample Bottle No. A: HOMJ2002 PSTLTWS No. B: _____ Field Blank Bottle No. 1: _____ No B: _____

Plant/Site Name: Willow Pond Pristick Dr Lot #3 County: Howard

Sample Source: Water Softener Tap Location: HO-95-2002
(well no, lab sink, sample tap, etc.)

County: 1 2 Plant No.

CHECK (one per box)

Drinking Water
Landfill
Stream
Other

Community
Non-community
Private
Other

Source (raw water)
Distribution (treated)
MCL

Emergency
Routine
Recheck
Special

Collector: Michael Johnson (MJ9883) Telephone No.: 410-313-1781

Date Collected: 4/7/11 Time Collected: 11:30 a.m. _____ p.m.

Nitric Acid Preserved: Yes No Iced: Yes No

Submitters Code: Federal Project: Field Data: _____ pH _____ Chlorine _____

Remarks: Post Treatment (After water softener) Long Term Gross Alpha & Beta Sample pH preserved to 5.20

Long Term

✓	Test	EPA Code	Laboratory No.	Results (pCi/L)	Date Analyzed	Date Reported
✓	Gross Alpha	4000	1104147-05	351	04-16-11	04-26-11
✓	Gross Beta	4100	1104147-05	85.2	04-16-11	04-26-11
	Radon-222 Bottle A	4004	-			
	Radon-222 Bottle B	4004				
	Field Blank #A	4004				
	Field Blank #B	4004				
	Tritium					
	Ra - 226	4020				
	Ra - 228	4030				
	Total Uranium	4006				

Date Received: ___/___/___

Supervisor: _____

•Tel. No.: (410) 767 - 5537 •Fax No.: (410) 333- 5373

Send Report To:

State of Maryland
DHMH - Laboratories Administration
Division of Environmental Chemistry
RADIATION LABORATORY
201 W. Preston Street, Baltimore, Maryland 21201
John M. DeBoy, Dr. P. M., Director

~~Food~~
~~REX~~
Florida Radiochemistry
Services, Inc.

LABORATORY ANALYSIS REQUEST

Sample Bottle No. A: _____ No. B: _____ Field Blank Bottle No. 1: _____ No B: _____

Plant/Site Name: Willow Pond 201#3 Prestwick Dr County: Howard

Sample Source: Sediment Filter Tap Location: HO-95-2002
(well no, lab sink, sample tap, etc.)

County: 1 3 Plant No.

CHECK (one per box)

Drinking Water
Landfill
Stream
Other

Community
Non-community
Private
Other

Source (raw water)
Distribution (treated)
MCL

Emergency
Routine
Recheck
Special

Collector: Michael Johnson (MS9883) Telephone No.: 410-313-1781

Date Collected: 4/7/11 Time Collected: 11:30 a.m. _____ p.m.

Nitric Acid Preserved: Yes No

Iced: Yes No

Submitters Code: Federal Project:

Field Data: _____
pH Chlorine

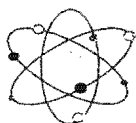
Remarks: Post Treatment Sediment Filter - long Term Gross Alpha/Beta

✓	Test	EPA Code	Laboratory No.	Results (pCi/L)	Date Analyzed	Date Reported
✓	Gross Alpha	4000	1104147-01	323	4-16-11	4-26-11
✓	Gross Beta	4100	1104147-01	25.1	4-16-11	4-26-11
	Radon-222 Bottle A	4004				
	Radon-222 Bottle B	4004				
	Field Blank #A	4004				
	Field Blank #B	4004				
	Tritium					
	Ra - 226	4020				
	Ra - 228	4030				
	Total Uranium	4006				

Date Received: / /

Supervisor: _____

long Term



Florida Radiochemistry Services, Inc.

Analysis Report

LONG TERM POST SED.	LONG TERM POST R/O SOFTWARE	RADIUM POST SOFTWARE	LONG TERM POST SOFTWARE
------------------------	-----------------------------------	----------------------------	-------------------------------

Lab Sample I.D. 1104147-01 1104147-02 1104147-03 1104147-04

Client I.D. MJ2002PSTLTIJ2002PSTLTWOMJ2002PSTWMJ2002PSTLT

Gross Alpha	323	1.1	316
Error +/-	7.9	0.8	7.8
MDL	1.0	1.1	0.9
EPA Method	900.0	900.0	900.0
Prep Date	04/15/11	04/15/11	04/15/11
Prep Time	06:28	06:28	06:28
Analysis Date	04/16/11	04/16/11	04/16/11
Analysis Time	05:29	05:29	05:29
Analyst	MJN	MJN	MJN

Gross Beta	95.1	2.4	91.7
Error +/-	2.6	0.9	2.5
MDL	1.4	1.3	1.3
EPA Method	900.0	900.0	900.0
Prep Date	04/15/11	04/15/11	04/15/11
Prep Time	06:28	06:28	06:28
Analysis Date	04/16/11	04/16/11	04/16/11
Analysis Time	05:29	05:29	05:29
Analyst	MJN	MJN	MJN

Radium 226	0.5
Error +/-	0.2
MDL	0.2
EPA Method	903.1
Prep Date	04/15/11
Prep Time	10:35
Analysis Date	04/25/11
Analysis Time	14:55
Analyst	MJN

Radium 228	<0.7
Error +/-	0.4
MDL	0.7
EPA Method	Ra-05
Prep Date	04/15/11
Prep Time	10:35
Analysis Date	04/22/11
Analysis Time	14:50
Analyst	PJ

Units pCi/l pCi/l pCi/l pCi/l



TRACE LABORATORIES, INC
 5 North Park Drive
 Hunt Valley, MD 21030 USA
 Telephone: 410/584-9099 / Fax: 410/584-9117
 Website: www.tracelabs.com / Email: info@tracelabs.com

Maryland State Certified Laboratory #318

CERTIFICATE OF ANALYSIS

Requester:

Greenfield Homes
 1818 Liberty Road
 Eldersburg, Maryland 21784

S/O Number: 93988-1

Report Date: August 18, 2014

Treated Sample

Property Sampled: 6498 Prestwick Drive, 21029
Sample Location: R/O Test Line
Residual Chlorine: <0.1 mg/L

Building Permit #: B12002517
Sampler ID #: 7483AM
Samples Iced: Yes

County: Howard **Subdivision:** Willow Pond **Lot #:** 3

Date/Time Collected in Field: August 4, 2014 11:32 am
Date/Time Received in Lab: August 4, 2014 4:24 pm

Well Tag #: HO-95-2002
Well Condition: 2-Piece Cap, Satisfactory

Water Treatment/Conditioning: Softener, Sediment Filters (2), Reverse Osmosis (R/O)

PARAMETER	METHOD	MCL	RESULT (pCi/L)	COMMENT
Radium 226	EPA 903.1	5 pCi/L Combined	0.6 ± 0.1	Pass
Radium 228	EPA Ra-05		<0.9 ± 0.6	

The results in this report relate only to those items tested. If any additional information or clarification of this report is required, please contact us. This test report shall not be reproduced except in full without the written approval of Trace Laboratories Inc.

'OK' reb 8/21/2014

Katherine C. Higgs
 Katherine C. Higgs
 Manager - Drinking Water Testing



TRACE LABORATORIES, INC
 5 North Park Drive
 Hunt Valley, MD 21030 USA
 Telephone: 410/584-9099 / Fax: 410/584-9117
 Website: www.tracelabs.com / Email: info@tracelabs.com

Maryland State Certified Laboratory #318

CERTIFICATE OF ANALYSIS

Requester:

Greenfield Homes
 1818 Liberty Road
 Eldersburg, Maryland 21784

S/O Number: 93988-2

Report Date: August 18, 2014

Raw Sample

Property Sampled: 6498 Prestwick Drive, 21029
Sample Location: Pressure Tank Tap ✓
Residual Chlorine: <0.1 mg/L ✓

Building Permit #: B12002517
Sampler ID #: 7483AM
Samples Iced: Yes

County: Howard **Subdivision:** Willow Pond **Lot #:** 3

Date/Time Collected in Field: August 4, 2014 12:47 pm
Date/Time Received in Lab: August 4, 2014 4:24 pm

Well Tag #: HO-95-2002
Well Condition: 2-Piece Cap, Satisfactory

Water Treatment/Conditioning: N/A – Raw Sample ✓

PARAMETER	METHOD	MCL	RESULT (pCi/L)	COMMENT
Radium 226	EPA 903.1	5 pCi/L Combined	0.9 ± 0.2 ✓	Pass
Radium 228	EPA Ra-05		1.4 ± 0.7 ✓	

The results in this report relate only to those items tested. If any additional information or clarification of this report is required, please contact us. This test report shall not be reproduced except in full without the written approval of Trace Laboratories Inc.

'OK'
 red 8/21/2014

Katherine C. Higgs
 Katherine C. Higgs
 Manager - Drinking Water Testing



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 5 North Park Drive
 Hunt Valley, MD 21030 USA
 Telephone: 410/584-9099 / Fax: 410/584-9117
 Website: www.tracelabs.com / Email: info@tracelabs.com

Maryland State Certified Laboratory #318

CERTIFICATE OF ANALYSIS

Requester:

Greenfield Homes
 1818 Liberty Road
 Eldersburg, Maryland 21784

S/O Number: 93619-2

Report Date: July 2, 2014

Property Sampled: 6498 Prestwick Drive, 21029
Sample Location: R/O Test Line
Residual Chlorine: <0.1 mg/L

Building Permit #: B12002517
Sampler ID #: 7483AM
Samples Iced: Yes

County: Howard **Subdivision:** Willow Pond **Lot #:** 3

Date/Time Collected in Field: June 27, 2014 12:38 pm
Date/Time Received in Lab: June 27, 2014 3:59 pm

Well Tag #: HO-95-2002
Well Condition: 2-Piece Cap, Satisfactory

Water Treatment/Conditioning: Softener, Sediment Filters (2), Reverse Osmosis (R/O)

PARAMETER	METHOD	MCL (pCi/L)	RESULT (pCi/L)	COMMENT
Gross Alpha	EPA 900.0	15	<0.6 ± 0.4 ✓	Pass [+]
Gross Beta	EPA 900.0	50	6.2 ± 1.3 ✓	Pass [+]

[+] NOTE: The primary sources of gross alpha activity in water are Radium-224, Radium-226, and/or Uranium. Gross alpha levels between 5 and 15 pCi/L are considered moderate, and levels greater than 15 pCi/L are considered high. When levels are moderate or high, treatment or further testing is recommended and in certain cases may be required by the health department. Gross beta activity in water is primarily from Radium-228.

The results in this report relate only to those items tested. If any additional information or clarification of this report is required, please contact us. This test report shall not be reproduced except in full without the written approval of Trace Laboratories Inc.

'OK' reb 7/15/14

Katherine C. Higgs
 Katherine C. Higgs
 Manager – Drinking Water Testing

MCL: Maximum Contamination Level, an enforceable level established by the EPA
 *SMCL: Secondary Maximum Contamination Level, a level recommended by the EPA
 ***A non-enforceable parameter that may cause cosmetic effects or aesthetic effects (such as taste, color or odor) in drinking water.



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Hunt Valley, MD 21030 USA

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Maryland State Certified Laboratory #318

CERTIFICATE OF ANALYSIS

Requester:

Greenfield Homes
1818 Liberty Road
Eldersburg, Maryland 21784

S/O Number: 93619-1

Report Date: July 2, 2014

Property Sampled: 6498 Prestwick Drive, 21029
Sample Location: Pressure Tank Tap
Residual Chlorine: <0.1 mg/L

Building Permit #: B12002517
Sampler ID #: 7483AM
Samples Iced: Yes

County: Howard Subdivision: Willow Pond Lot #: 3

Date/Time Collected in Field: June 27, 2014 12:33 pm
Date/Time Received in Lab: June 27, 2014 3:59 pm

Well Tag #: HO-95-2002
Well Condition: 2-Piece Cap, Satisfactory

Water Treatment/Conditioning: N/A - Raw Sample

Table with 5 columns: PARAMETER, METHOD, MCL/*SMCL, RESULT, COMMENT. Rows include Total Coliform, E. coli, Nitrate, Turbidity, pH (Field), and Sand.

The results in this report relate only to those items tested. If any additional information or clarification of this report is required, please contact us. This test report shall not be reproduced except in full without the written approval of Trace Laboratories Inc.

Handwritten signature 'OK' and date 7/15/14

Handwritten signature Katherine C. Higgs and printed name/manager title

MCL: Maximum Contamination Level, an enforceable level established by the EPA
*SMCL: Secondary Maximum Contamination Level, a level recommended by the EPA
***A non-enforceable parameter that may cause cosmetic effects or aesthetic effects (such as taste, color or odor) in drinking water.

Williams, Jeffrey

From: Williams, Jeffrey
Sent: Friday, August 01, 2014 10:15 AM
To: 'raminor@comcast.net'
Cc: Greenfield Wayne
Subject: RE: Willow Pond lot 3

I talked with Bert this morning. Given the very high numbers pre-treatment on lot 3 and the relatively high numbers post treatment on lot 6, on both of these cases we need to see the radium test results to confirm that the treatment devices are working properly. We are ready with the temp deviation for lot 3 when we get a temp deviation request.

Moving forward, I will reiterate to our staff that our standard protocol is to require alpha, beta, and radium tests post-treatment in order to confirm that the levels across the board are down below the thresholds and are able to be approved for a deviation. Thanks and sorry for the confusion.

Jeff

From: raminor@comcast.net [mailto:raminor@comcast.net]
Sent: Thursday, July 31, 2014 4:58 PM
To: Williams, Jeffrey
Cc: Greenfield Wayne
Subject: Re: Willow Pond lot 3

Jeff

Thanks for getting back with me. I have Trace coming out Monday to collect samples. Did you have a chance to look at Lot 6 / 6495 Predtwick Dr. For it's numbers?

Thanks
Rick

Sent from Xfinity Connect Mobile App

----- Original Message -----

From: Jeffrey Williams
To: Rick Minor
Sent: July 31, 2014 at 3:50 PM
Subject: Willow Pond lot 3

Hi Rick. I don't see Bert around this afternoon. I'm sure I will catch up to him tomorrow for a definitive answer. However, looking at the file, I see that the post-treatment beta levels were still pretty high (actually higher than the pre-treatment levels). We typically see radium 226/228 levels more closely correlate to the beta numbers than the alpha numbers. For that reason, I'm pretty confident that he will not be comfortable waiving the radium tests here. We want to make sure that the treatment devices are getting all the numbers down.

Again, I'm sorry that there was some misstatements in our office to cause this hassle, but hopefully with the temporary deviations and the additional tests, we can get to the point of a normal deviation without major problems. Thanks

Jeff Williams
Program Supervisor, Well & Septic Program
Bureau of Environmental Health

Bureau of Environmental Health

8930 Stanford Boulevard, Columbia, MD 21045

Main: 410-313-1771 | Fax: 410-313-2648

TDD 410-313-2323 | Toll Free 1-866-313-6300

www.hchealth.org

Facebook: www.facebook.com/hocohealth

Twitter: HowardCoHealthDep

Maura J. Rossman, M.D., Health Officer

AGREEMENT FOR APPROVAL OF AN INDIVIDUAL DRINKING WELL WITH AN ON-SITE TREATMENT SYSTEM

This agreement is entered into by and between the Howard County Health Department ("the Health Department") and Wonpyo Hong and Hyeong-Ah Choi ("the Owner").

WHEREAS, the Owner owns a tract of land at street address 6498 Prestwick Drive, Clarksville, MD 21029, and the deed and subdivision plat of the property is recorded among the Land Records of Howard County, Maryland, Tax Map # 0034, Block #9999, Parcel # 0444, Deed Reference # 14102/00200 and Tax Account # 05-593277("the Property").

WHEREAS, the Property lacks an available public drinking water source and is required to have an individual well as the source of drinking water for the residence of the property.

WHEREAS, the Owner has installed a residential drinking well under well permit **HO-95-2002** that has been tested by the Health Department (or a private laboratory certified to perform testing) for radionuclide particles. In that the results of the tests have shown that the gross alpha particle content and/or the gross beta particle content and/or the combined radium 226/228 levels far exceed the standards of 15 picocuries per liter (pCi/L), 4 millirems per year (mrem/yr) and/or 5pCi/L respectively, the Health Department strongly recommends water tests for radionuclides six months after the owner occupies the residence so that an effective maintenance level for the treatment devices may be determined.

WHEREAS, The Maryland Department of the Environment (MDE) has promulgated rules and regulations under which a Certificate of Potability may be issued and has delegated the authority to issue such Certificate to the Health Department.

WHEREAS, MDE regulations permit the Health Department to issue as a special condition, a permanent deviation to the Certificate of Potability for individual wells where treatment has been installed to meet the maximum contaminate levels (MCL's) for radionuclides.

WHEREAS, MDE has determined that radium can be effectively removed from the drinking water by the use of treatment devices (e.g., ion exchange or reverse osmosis).

WHEREAS, the Owner is requesting that the Health Department issue a Certificate of Potability contingent upon installation and maintenance of a water treatment device to reduce radionuclides.

WHEREAS, neither the Owner nor the Health Department has knowledge of an alternative safe source of water for the Property.

NOW THEREFORE, the parties have agreed to the following terms and conditions:

1. The Owner will record this Agreement among the Land Records of Howard County, Maryland and provide confirmation to the Health Dept.

2. The Owner agrees to install **and maintain ion exchange and reverse osmosis devices**, which effectively reduce the gross alpha, gross beta and radium levels to below their respective MCL. **The Health Department shall verify that the treatment devices are operating effectively and the Owner agrees to allow access to the Health Department to collect follow-up sample(s).**
3. The Health Department shall issue a Certificate of Potability for the well once follow-up sampling shows acceptable gross alpha, gross beta (short and long term) and radium 226 / 228 levels.
4. The Owner agrees that there shall be no liability on part of the Health Department for any immediate or long term impacts to health or property, under any circumstance or including, but not limited to, treatment device failure, improper maintenance or installation, or defect. The Health Department does not warrant nor guarantee that the device will adequately or properly function and the Owner agrees to implement and pay for any necessary changes or corrections.
5. The Owner acknowledges and agrees that neither the Health Department nor any of its agents or employees, either officially or individually, underwrites the operation of any system or treatment device.
6. This Agreement shall not be construed to limit any authority of the Health Department to protect the public health, safety or enjoyment of property or to issue any other orders to take any other action, which is now or may hereafter be within its authority.
7. This agreement contains the entire agreement and understanding between the Health Department and the Owner. There are no additional terms other than as contained in this Agreement. This Agreement may not be modified except in writing signed by each of the parties or their authorized representatives.
8. The Agreement shall run with the land and binds the Owner, his heirs, successors, and assigns. The owner agrees to provide a copy of this agreement to any purchaser or lessee of the property.
9. The laws of the State of Maryland govern the provisions of all transactions.

The parties have signed and sealed this Agreement on the dates set forth below.

7/22/2014
 Date
 7/22/2014
 Date
 7/25/2014
 Date
 [Signature]
 Witness

 Witness

[Signature]
 Owner
 [Signature]
 Owner
 [Signature]
 Howard County Health Department

 WONPYO HONG

 HYEONG-AH CHOI

LR - Agreement
Recording Fee 20.00
Grantor/Grantee Name:
None
Reference/Control #: 33
LR - Agreement
Surcharge 40.00

SubTotal: 60.00

Total: 80.00
07/30/2014 08:00
CC18-NN
#3100400 / CC0500 -
Howard Co
Columbia/CC05.03.02 -
Register 02



Bureau of Environmental Health

8930 Stanford Blvd, Columbia, MD 21045
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Facebook: www.facebook.com/hocohealth
Twitter: HowardCoHealthDep

Maura J. Rossman, M.D., Health Officer

REQUEST FOR TEMPORARY DEVIATION TO
RADIUM STANDARDS FOR CERTIFICATE OF POTABILITY

DATE: 8-6-14 WELL PERMIT #: HO-95-2002

PROPERTY OWNER: Wonpyo Hong & Hyeon-Ah Choi
SUBDIVISION & LOT #: Willow Pond, Lot 3

PROPERTY ADDRESS: 6498 Prestwick Drive, Clarksville, MD 21029

TESTIMONIAL: Steps that will be taken, or that have already been taken, by the well owner or agent to bring the well into compliance with COMAR 26.04.04.09 (B) within forty-five (45) days. If post-treatment water samples have been taken, state the specific analyses that will be reported in results, e.g. Gross Alpha and Gross Beta and/or Radium.

Post treatment Gross Alpha and Gross Beta analyses have been completed and are within acceptable range. Post-treatment and raw water Radium 226/Radium 228 analyses are needed.

CONDITIONS:

- 1) Within forty-five (45) days, the well installed under permit # HO-95-2002 will be documented to have Gross Alpha level of 15 pCi/l, Gross Beta level 50 pCi/l, **and** sum of Radium 226 and Radium 228 at level 5 pCi/l or less (including reported margin of error) at the primary drinking tap as a result of installation of a water softener system, or at the reverse osmosis tap.
- 2) If the radium condition cannot be remediated to a level of Gross Alpha level of 15 pCi/l, Gross Beta level 50 pCi/l, **and** sum of Radium 226 and Radium 228 at level 5 pCi/l or less (including reported margin of error) via installation of a water softener treatment or reverse osmosis system, then drilling a replacement well would likely be necessary. Issuance of a Final Certificate of Potability will be delayed until the issue is resolved.

I hereby request that a Forty-five Day Temporary Deviation to COMAR 26.04.04.09 be granted for the well installed under permit #HO-95-2002. I am fully aware of the conditions under which this deviation will be granted, and of my responsibilities as the well owner which include advising any future buyer/tenant of the installation, condition and maintenance responsibilities of the radium removal device.

Prospective Owner's Original Signature(s) [Person(s) that intend to live in the dwelling.]

Wonpyo Hong Hyeon-Ah Choi

Prospective Owner's Day Time Phone Number(s)

410-440-4065 410-440-6211



Bureau of Environmental Health

8930 Stanford Blvd, Columbia, MD 21045
Main: 410-313-1771 | Fax: 410-313-2648
TDD 410-313-2323 | Toll Free 1-866-313-6300
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Maura J. Rossman, M.D., Health Officer

REQUEST FOR TEMPORARY DEVIATION TO
RADIUM STANDARDS FOR CERTIFICATE OF POTABILITY

DATE: 7/31/14 WELL PERMIT #: HO-95-2004

PROPERTY OWNER: Philip and Denise Green

SUBDIVISION & LOT #: Willow Pond, Lot 6

PROPERTY ADDRESS: 6495 Prestwick Drive, Clarksville, MD 21029

TESTIMONIAL: Steps that will be taken, or that have already been taken, by the well owner or agent to bring the well into compliance with COMAR 26.04.04.09 (B) within forty-five (45) days. If post-treatment water samples have been taken, state the specific analyses that will be reported in results, e.g. Gross Alpha and Gross Beta and/or Radium.

Post treatment Gross Alpha and Gross Beat analyses have been completed and are within acceptable range. Post-treatment and raw water Radium 226/Radium228 analyses are needed.

CONDITIONS:

- 1) Within forty-five (45) days, the well installed under permit # HO-95-2004 will be documented to have Gross Alpha level of 15 pCi/l, Gross Beta level 50 pCi/l, **and** sum of Radium 226 and Radium 228 at level 5 pCi/l or less (including reported margin of error) at the primary drinking tap as a result of installation of a water softener system, or at the reverse osmosis tap.
- 2) If the radium condition cannot be remediated to a level of Gross Alpha level of 15 pCi/l, Gross Beta level 50 pCi/l, **and** sum of Radium 226 and Radium 228 at level 5 pCi/l or less (including reported margin of error) via installation of a water softener treatment or reverse osmosis system, then drilling a replacement well would likely be necessary. Issuance of a Final Certificate of Potability will be delayed until the issue is resolved.

I hereby request that a Forty-five Day Temporary Deviation to COMAR 26.04.04.09 be granted for the well installed under permit #HO-95-2004. I am fully aware of the conditions under which this deviation will be granted, and of my responsibilities as the well owner which include advising any future buyer/tenant of the installation, condition and maintenance responsibilities of the radium removal device.

Prospective Owner's Original Signature(s) [Person(s) that intend to live in the dwelling.]

Philip Green Denise Green

Prospective Owner's Day Time Phone Number(s)

443-858-5125 443-858-4973

Bureau of Environmental Health

8930 Stanford Boulevard, Columbia, MD 21045

Main: 410-313-1771 | Fax: 410-313-2648

TDD 410-313-2323 | Toll Free 1-866-313-6300

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Maura J. Rossman, M.D., Health Officer

AGREEMENT FOR APPROVAL OF AN INDIVIDUAL DRINKING WELL WITH AN ON-SITE TREATMENT SYSTEM

This agreement is entered into by and between the Howard County Health Department ("the Health Department") and Wonpyo Hong and Hyeong-Ah Choi ("the Owner").

WHEREAS, the Owner owns a tract of land at street address 6498 Prestwick Drive, Clarksville, MD 21029, and the deed and subdivision plat of the property is recorded among the Land Records of Howard County, Maryland, Tax Map # 0034, Block #9999, Parcel # 0444, Deed Reference # 14102/00200 and Tax Account # 05-593277("the Property").

WHEREAS, the Property lacks an available public drinking water source and is required to have an individual well as the source of drinking water for the residence of the property.

WHEREAS, the Owner has installed a residential drinking well under well permit **HO-95-2002** that has been tested by the Health Department (or a private laboratory certified to perform testing) for radionuclide particles. In that the results of the tests have shown that the gross alpha particle content and/or the gross beta particle content and/or the combined radium 226/228 levels far exceed the standards of 15 picocuries per liter (pCi /L), 4 millirems per year (mrem/yr) and/or 5pCi/L respectively, the Health Department strongly recommends water tests for radionuclides six months after the owner occupies the residence so that an effective maintenance level for the treatment devices may be determined.

WHEREAS, The Maryland Department of the Environment (MDE) has promulgated rules and regulations under which a Certificate of Potability may be issued and has delegated the authority to issue such Certificate to the Health Department.

WHEREAS, MDE regulations permit the Health Department to issue as a special condition, a permanent deviation to the Certificate of Potability for individual wells where treatment has been installed to meet the maximum contaminate levels (MCL's) for radionuclides.

WHEREAS, MDE has determined that radium can be effectively removed from the drinking water by the use of treatment devices (e.g., ion exchange or reverse osmosis).

WHEREAS, the Owner is requesting that the Health Department issue a Certificate of Potability contingent upon installation and maintenance of a water treatment device to reduce radionuclides.

WHEREAS, neither the Owner nor the Health Department has knowledge of an alternative safe source of water for the Property.

NOW THEREFORE, the parties have agreed to the following terms and conditions:

1. The Owner will record this Agreement among the Land Records of Howard County, Maryland and provide confirmation to the Health Dept.

2. The Owner agrees to install **and maintain ion exchange and reverse osmosis devices**, which effectively reduce the gross alpha, gross beta and radium levels to below their respective MCL. **The Health Department shall verify that the treatment devices are operating effectively and the Owner agrees to allow access to the Health Department to collect follow-up sample(s).**
3. The Health Department shall issue a Certificate of Potability for the well once follow-up sampling shows acceptable gross alpha, gross beta (short and long term) and radium 226 / 228 levels.
4. The Owner agrees that there shall be no liability on part of the Health Department for any immediate or long term impacts to health or property, under any circumstance or including, but not limited to, treatment device failure, improper maintenance or installation, or defect. The Health Department does not warrant nor guarantee that the device will adequately or properly function and the Owner agrees to implement and pay for any necessary changes or corrections.
5. The Owner acknowledges and agrees that neither the Health Department nor any of its agents or employees, either officially or individually, underwrites the operation of any system or treatment device.
6. This Agreement shall not be construed to limit any authority of the Health Department to protect the public health, safety or enjoyment of property or to issue any other orders to take any other action, which is now or may hereafter be within its authority.
7. This agreement contains the entire agreement and understanding between the Health Department and the Owner. There are no additional terms other than as contained in this Agreement. This Agreement may not be modified except in writing signed by each of the parties or their authorized representatives.
8. The Agreement shall run with the land and binds the Owner, his heirs, successors, and assigns. The owner agrees to provide a copy of this agreement to any purchaser or lessee of the property.
9. The laws of the State of Maryland govern the provisions of all transactions.

The parties have signed and sealed this Agreement on the dates set forth below.

7/22/2014
Date

7/22/2014
Date

7/25/2014
Date

[Signature]
Witness

[Signature]
Owner

[Signature]
Owner

[Signature]
Howard County Health Department

Witness

LABORATORY ANALYSIS REQUEST

Sample Bottle No. A: HOMJ2002 No. B: _____ Field Blank Bottle No. 1: No B: _____

Plant/Site Name: Willow Pond LOT 3 County: Howard

Sample Source: 2 Well Location: HO-95-2002
(well no, lab sink, sample tap, etc.)

County: 1 3 Plant No.

CHECK (one per box)

Drinking Water	<input checked="" type="checkbox"/>
Landfill	<input type="checkbox"/>
Stream	<input type="checkbox"/>
Other	<input type="checkbox"/>

Community	<input type="checkbox"/>
Non-community	<input type="checkbox"/>
Private	<input checked="" type="checkbox"/>
Other	<input type="checkbox"/>

Source (raw water)	<input type="checkbox"/>
Distribution (treated)	<input type="checkbox"/>
MCL	<input type="checkbox"/>

Emergency	<input type="checkbox"/>
Routine	<input type="checkbox"/>
Recheck	<input type="checkbox"/>
Special	<input type="checkbox"/>

Collector: Michael Johnson (MS9883) Telephone No.: 410-213-1771

Date Collected: 10/07/10 cont Time Collected: _____ a.m. 12:30 p.m.

Nitric Acid Preserved: Yes No Iced: Yes No

Submitters Code: Federal Project: Field Data: _____
pH Chlorine

Remarks: Sample preserved to pH < 3.0

✓	Test	EPA Code	Laboratory No.	Results (pCi/L)	Date Analyzed	Date Reported
✓	Gross Alpha	4000	0594	227.8 ± 11.0	10/15/10	10/18/10
✓	Gross Beta	4100	0594	105.7 ± 4.7	" "	" "
	Radon-222 Bottle A	4004				
	Radon-222 Bottle B	4004				
	Field Blank #A	4004				
	Field Blank #B	4004				
	Tritium					
	Ra - 226	4020				
	Ra - 228	4030				
	Total Uranium	4006				

Date Received: 10/07/10

Supervisor: mscee

●Tel. No.: (410) 767 - 5537 ●Fax No.: (410) 333- 5373

Send Report To:

State of Maryland
DHMH - Laboratories Administration
Division of Environmental Chemistry
RADIATION LABORATORY

201 W. Preston Street, Baltimore, Maryland 21201
John M. DeBoy, Dr. P. H., Director

E001998 2-7

LABORATORY ANALYSIS REQUEST

Sample Bottle No. A: HOMJ2002 PRE No. B: _____ Field Blank Bottle No. 1: _____ No B: _____

Plant/Site Name: Willow Pond Pristwick Dr Lot #3 County: Howard

Sample Source: Pre-treatment tap @ well Location: Directly From Well - Pre-treatment
(well no, lab sink, sample tap, etc.)

County: 1 3 Plant No.

CHECK (one per box)

Drinking Water <input checked="" type="checkbox"/>	Community <input type="checkbox"/>	Source (raw water) <input checked="" type="checkbox"/>	Emergency <input type="checkbox"/>
Landfill <input type="checkbox"/>	Non-community <input type="checkbox"/>	Distribution (treated) <input type="checkbox"/>	Routine <input type="checkbox"/>
Stream <input type="checkbox"/>	Private <input type="checkbox"/>	MCL <input type="checkbox"/>	Recheck <input type="checkbox"/>
Other <input type="checkbox"/>	Other <input type="checkbox"/>		Special <input type="checkbox"/>

Collector: Michael Johnson (MS9883) Telephone No.: 410-313-1781

Date Collected: 4/7/11 cont Time Collected: 11:30 a.m. _____ p.m.

Nitric Acid Preserved: Yes No Iced: Yes No

Submitters Code: Federal Project: Field Data: _____
pH _____ Chlorine _____

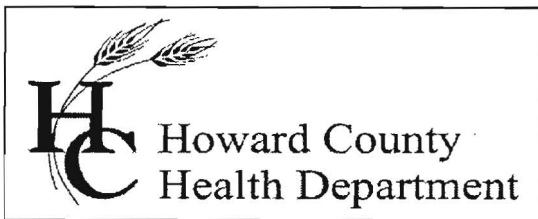
Remarks: Pre-treatment - Short term Gross Alpha & Gross Beta
preserved w/ HNO₃ to pH of < 2.0

✓	Test	EPA Code	Laboratory No.	Results (pCi/L)	Date Analyzed	Date Reported
✓	Gross Alpha	4000	1998	348.8 ± 13.0	04/14/11	04/15/11
✓	Gross Beta	4100	1998	106.6 ± 4.8		
	Radon-222 Bottle A	4004				
	Radon-222 Bottle B	4004				
	Field Blank #A	4004				
	Field Blank #B	4004				
	Tritium					
	Ra - 226	4020				
	Ra - 228	4030				
	Total Uranium	4006				
	Reported 04/15/11	α	323.2 ± 12.7	β 85.8 ± 4.3		

Date Received: 04/07/11

Supervisor: [Signature]

•Tel. No.: (410) 767 - 5537 •Fax No: (410) 333 - 5373



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Maura J. Rossman, M.D., Health Officer

INTERIM CERTIFICATE OF POTABILITY
PERMANENT DEVIATION FOR RADIUM
Expiration Date – FEBRUARY 21, 2015

August 21, 2014

Wonpyo Hong and Hyeong-Ah Choi
6498 Prestwick Drive
Clarksville, MD 21029

RE: Willow Pond, Lot 3
6498 Prestwick Drive
Building Permit: B12002517
Well Permit: HO-95-2002

Dear Homeowner:

This is to advise you that the septic system installation and water well construction for the above referenced property have been inspected and approved. Final approval of the septic system was granted on **5/30/2014**. Final approval of the well line connection to the dwelling was granted on **10/4/2012**. The well construction was completed on **10/7/2010**. Water samples were collected on **6/27/2014**.

The water sample results indicate that the water samples submitted for testing were free of coliform and fecal coliform bacteria at the time of sampling and are bacteriologically safe for drinking.

Gross Alpha and Beta samples were also collected on **10/7/2010**. Results showed a Gross Alpha level of **227.8 ± 11.0 pCi/L** and Gross Beta level of **105.7 ± 4.7 pCi/L**. **This exceeds the maximum contaminant level (MCL) of 15 pCi/L and/or 50 pCi/L, respectively.**

After installation of a radionuclide removal devices (water softener and kitchen tap reverse osmosis system), post-treatment water samples were collected on **6/27/2014** and indicated a Gross Alpha level of **< 0.6 ± 0.4 pCi/L**, a Gross Beta level of **6.2 ± 1.3 pCi/L**. A Radium 226/228 had a level of **< 1.5 ± 0.7 pCi/L** in a post-treatment sample obtained on **8/4/2014**.

This Department will grant a **permanent deviation** to the Interim Certificate of Potability on condition that the radionuclide removal system effectively maintains a Gross Alpha level of less than **15 pCi/L**, a Gross Beta level of less than **50 pCi/L**, and a Radium 226/228 level of less than **5 pCi/L**.

Furthermore, it will be necessary for you to comply with the following conditions:

1. The system must be properly operated and maintained continuously in accordance with the service contract for the life of the residence.

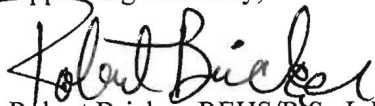
2. It is recommended that a Maryland certified water laboratory certified for radionuclide analysis perform a radionuclide analysis at six month intervals to determine an appropriate maintenance regime for the treatment devices. Yearly radionuclide analyses is recommended after a maintenance regime is established.
3. If you decide to sell or rent your home in the future, you must make any potential buyer/tenant aware of this permanent deviation. **A person who fails to make this disclosure is subject to the penalties set out in COMAR 26.04.04.12F Enforcement and Environment Article 9-1311, Annotated Code of Maryland.**

This certifies that the initial sampling requirements of COMAR 26.04.04 "Well Regulations" have been met for the water supply system installed under well permit HO-95-2002. Although the submitted sample results are in compliance with COMAR standards, the Health Department does not guarantee water supplies.

This Interim Certificate of Potability will expire **six months** from the date of issuance. Submission of a second bacteriological test indicating the water is free of coliform and fecal coliform bacteria is required prior to the expiration date, after which time a Final Certificate of Potability will be issued. **Failure to submit an additional sample and obtain a Final Certificate of Potability will result in a Notice of Violation and is punishable as a misdemeanor under the Annotated Code of Maryland, Environment Article, 9-1311, subject to a fine of up to \$500 or imprisonment not to exceed three months.**

Please contact (410) 313-1773 to schedule a final water sample appointment or contact a Maryland certified water quality laboratory to schedule a water sample. A list of laboratories certified by the state of Maryland may be found at the following website:
<http://www.mde.state.md.us/assets/document/WSP-Labs-2010apr16.pdf>

Approving Authority,


Robert Bricker, REHS/R.S., L.E.H.S.
Environmental Sanitarian
Well & Septic Program

cc: Howard County Dept. of Inspections, Licenses, and Permits
Community Hygiene Program
File