

February 29, 2016

Ms. Elizabeth Werner  
Hydrogeologist  
North Carolina Department of Environmental Quality  
Solid Waste Section  
1646 Mail Service Center  
Raleigh, NC 27699-1646

**RE: Phase 2A Stage 2 Well Abandonment  
Brownfield Road C&D Landfill  
Raleigh, North Carolina**

Dear Ms. Werner:

Smith Gardner, Inc. (S+G) recently completed the well abandonment for wells related to the Phase 2A Stage 2 landfill unit at the Brownfield Road C&D Landfill, on behalf of Wake Reclamation, LLC (a subsidiary of Waste Industries USA, Inc.). The following is a summary of the abandonment activities for this site.

### **Well Abandonment**

Construction on Phase 2A Stage 2 at the Brownfield Road C&D Landfill is planned to commence in early 2016. Four wells located in the Phase 2A cell footprint (G-4, G-18, G-19 and G-22), one well located in the Phase 2B footprint (G-15) and 3 wells located in the surrounding construction zone (P-15, Test Well 40 and Undesignated Well #2) were abandoned on December 7 & 8, 2015. Please note that although well G-15 is located in the future Phase 2B footprint, the well was hit and irreparably damaged, therefore, it was abandoned. Well locations are shown on **Figure 1**.

On December 7-8, 2015 S+G personnel met personnel from Geologic Exploration, Inc.<sup>1</sup> on site, for well abandonment. Wells located inside the proposed footprint for Phase 2A Stage 2 and Phase 2B (G-4, G-18, G-19, G-22 and G-15) were abandoned by over-drilling to the well bottom elevation with hollow stem augers and removing the well casing and screen. The boreholes were then grouted via the tremie method with a bentonite slurry and cement from the bottom of the borehole to the proposed subgrade in one continuous operation. For the three wells located outside the proposed footprint (P-15, Test Well 40 and Undesignated Well #2) the wells were properly abandoned in accordance with 2C Standards, by removal of the outer casing and as much pipe as possible, then grouting to the surface with a bentonite slurry and cement. The well abandonment records are provided in **Attachment 1**.

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<sup>1</sup> Geologic Exploration, Inc. 176 Commerce Blvd, Statesville, NC 28677

Ms. Werner  
February 29, 2016  
Page 2 of 2

Please contact us at (919) 828-0577 or by e-mail below if you have any questions or require any additional information.

Sincerely,  
**SMITH GARDNER, INC.**



Madeline German, P.G.  
Project Geologist  
[madeline@smithgardnerinc.com](mailto:madeline@smithgardnerinc.com)



Bobby J. Wolf, P.G.  
Project Geologist  
[bobby@smithgardnerinc.com](mailto:bobby@smithgardnerinc.com)

Attachment Figure 1 – Groundwater Well Abandonment Locations  
Attachment A – Well Abandonment Records

cc: Don Plessinger, Waste Industries  
Stacey Smith, P.E. – S+G  
File

H:\Projects\Brownfield Road\BROWNFIELD-15-2 (Ph2-Stage2)\Well Abandonment\Phase 2A Stage2-Well abandonment letter.docx



# WELL ABANDONMENT RECORD

This form can be used for single or multiple wells

## I. Well Contractor Information:

**BRIAN THOMAS**

Well Contractor Name (or well owner personally abandoning well on his/her property)

**A - 2581**

NC Well Contractor Certification Number

**GEOLOGIC EXPLORATION, INC**

Company Name

## 2. Well Construction Permit #:

List all applicable well construction permits (i.e. County, State, Variance, etc.) if known

## 3. Well use (check well use):

### Water Supply Well:

- |  |  |
|--|--|
| <input type="checkbox"/> Agricultural                        | <input type="checkbox"/> Municipal/Public                  |
| <input type="checkbox"/> Geothermal (Heating/Cooling Supply) | <input type="checkbox"/> Residential Water Supply (single) |
| <input type="checkbox"/> Industrial/Commercial               | <input type="checkbox"/> Residential Water Supply (shared) |
| <input type="checkbox"/> Irrigation                          |  |

### Non-Water Supply Well:

- |  |                                   |
|--|-----------------------------------|
| <input checked="" type="checkbox"/> Monitoring | <input type="checkbox"/> Recovery |
|--|-----------------------------------|

### Injection Well:

- |  |   |
|--|---|
| <input type="checkbox"/> Aquifer Recharge                    | <input type="checkbox"/> Groundwater Remediation  |
| <input type="checkbox"/> Aquifer Storage and Recovery        | <input type="checkbox"/> Salinity Barrier         |
| <input type="checkbox"/> Aquifer Test                        | <input type="checkbox"/> Stormwater Drainage      |
| <input type="checkbox"/> Experimental Technology             | <input type="checkbox"/> Subsidence Control       |
| <input type="checkbox"/> Geothermal (Closed Loop)            | <input type="checkbox"/> Tracer                   |
| <input type="checkbox"/> Geothermal (Heating/Cooling Return) | <input type="checkbox"/> Other (explain under 7g) |

4. Date well(s) abandoned: 12/08/15

## 5a. Well location:

**WASTE INDUSTRIES**

Facility/Owner Name

Facility ID# (if applicable)

**2600 BROWNFIELD ROAD RALEIGH 27610**

Physical Address, City, and Zip

**WAKE**

County

Parcel Identification No. (PIN)

5b. Latitude and longitude in degrees/minutes/seconds or decimal degrees:  
(if well field, one lat/long is sufficient)

35° 42' 34.39" N 78° 30' 12.79" W

## CONSTRUCTION DETAILS OF WELL(S) BEING ABANDONED

Attach well construction record(s) if available. For multiple injection or non-water supply wells ONLY with the same construction/abandonment, you can submit one form.

6a. Well ID#: G-4

6b. Total well depth: 60.0 (ft.)

6c. Borehole diameter: 8.0 (in.)

6d. Water level below ground surface: 43.0 (ft.)

6e. Outer casing length (if known): \_\_\_\_\_ (ft.)

6f. Inner casing/tubing length (if known): \_\_\_\_\_ (ft.)

6g. Screen length (if known): \_\_\_\_\_ (ft.)

For Internal Use ONLY:

## WELL ABANDONMENT DETAILS

7a. Number of wells being abandoned: 1  
For multiple injection or non-water supply wells ONLY with the same construction/abandonment, you can submit one form.

7b. Approximate volume of water remaining in well(s): 75.0 (gal.)

## FOR WATER SUPPLY WELLS ONLY:

7c. Type of disinfectant used: \_\_\_\_\_

7d. Amount of disinfectant used: \_\_\_\_\_

## 7e. Sealing materials used (check all that apply):

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Neat Cement Grout | <input type="checkbox"/> Bentonite Chips or Pellets |
| <input type="checkbox"/> Sand Cement Grout            | <input type="checkbox"/> Dry Clay                   |
| <input type="checkbox"/> Concrete Grout               | <input type="checkbox"/> Drill Cuttings             |
| <input type="checkbox"/> Specialty Grout              | <input type="checkbox"/> Gravel                     |
| <input type="checkbox"/> Bentonite Slurry             | <input type="checkbox"/> Other (explain under 7g)   |

7f. For each material selected above, provide amount of materials used:

156.0 GALLONS

7g. Provide a brief description of the abandonment procedure:

WELL ABANDONED VIA TREMIE PIPE WITH

PORTLAND BENTONITE SLURRY

WELL OVERDRILLED WITH 4 1/4 AUGERS

## 8. Certification:



12/21/15

Signature of Certified Well Contractor or Well Owner

Date

By signing this form, I hereby certify that the well(s) was (were) abandoned in accordance with 15A NCAC 02C .0100 or 2C .0200 Well Construction Standards and that a copy of this record has been provided to the well owner.

## 9. Site diagram or additional well details:

You may use the back of this page to provide additional well site details or well abandonment details. You may also attach additional pages if necessary.

## SUBMITTAL INSTRUCTIONS

10a. **For All Wells:** Submit this form within 30 days of completion of well abandonment to the following:

Division of Water Quality, Information Processing Unit,  
1617 Mail Service Center, Raleigh, NC 27699-1617

10b. **For Injection Wells:** In addition to sending the form to the address in 10a above, also submit one copy of this form within 30 days of completion of well abandonment to the following:

Division of Water Quality, Underground Injection Control Program,  
1636 Mail Service Center, Raleigh, NC 27699-1636

10c. **For Water Supply & Injection Wells:** In addition to sending the form to the address(es) above, also submit one copy of this form within 30 days of completion of well abandonment to the county health department of the county where abandoned.

# WELL ABANDONMENT RECORD

This form can be used for single or multiple wells

## 1. Well Contractor Information:

**BRIAN THOMAS**

Well Contractor Name (or well owner personally abandoning well on his/her property)

**A - 2581**

NC Well Contractor Certification Number

**GEOLOGIC EXPLORATION, INC**

Company Name

## 2. Well Construction Permit #:

List all applicable well construction permits (i.e. County, State, Variance, etc.) if known

## 3. Well use (check well use):

### Water Supply Well:

- |  |  |
|--|--|
| <input type="checkbox"/> Agricultural                        | <input type="checkbox"/> Municipal/Public                  |
| <input type="checkbox"/> Geothermal (Heating/Cooling Supply) | <input type="checkbox"/> Residential Water Supply (single) |
| <input type="checkbox"/> Industrial/Commercial               | <input type="checkbox"/> Residential Water Supply (shared) |
| <input type="checkbox"/> Irrigation                          |  |

### Non-Water Supply Well:

- |  |                                   |
|--|-----------------------------------|
| <input checked="" type="checkbox"/> Monitoring | <input type="checkbox"/> Recovery |
|--|-----------------------------------|

### Injection Well:

- |  |   |
|--|---|
| <input type="checkbox"/> Aquifer Recharge                    | <input type="checkbox"/> Groundwater Remediation  |
| <input type="checkbox"/> Aquifer Storage and Recovery        | <input type="checkbox"/> Salinity Barrier         |
| <input type="checkbox"/> Aquifer Test                        | <input type="checkbox"/> Stormwater Drainage      |
| <input type="checkbox"/> Experimental Technology             | <input type="checkbox"/> Subsidence Control       |
| <input type="checkbox"/> Geothermal (Closed Loop)            | <input type="checkbox"/> Tracer                   |
| <input type="checkbox"/> Geothermal (Heating/Cooling Return) | <input type="checkbox"/> Other (explain under 7g) |

4. Date well(s) abandoned: 12/08/15

## 5a. Well location:

**WASTE INDUSTRIES**

Facility/Owner Name

Facility ID# (if applicable)

**2600 BROWNFIELD ROAD RALEIGH 27610**

Physical Address, City, and Zip

**WAKE**

County

Parcel Identification No. (PIN)

5b. Latitude and longitude in degrees/minutes/seconds or decimal degrees:  
(if well field, one lat/long is sufficient)

35° 42' 34.39" N 78° 30' 12.79" W

## CONSTRUCTION DETAILS OF WELL(S) BEING ABANDONED

Attach well construction record(s) if available. For multiple injection or non-water supply wells ONLY with the same construction abandonment, you can submit one form.

6a. Well ID#: G-18

6b. Total well depth: 42.0 (ft.)

6c. Borehole diameter: 8.0 (in.)

6d. Water level below ground surface: 30.0 (ft.)

6e. Outer casing length (if known): \_\_\_\_\_ (ft.)

6f. Inner casing/tubing length (if known): \_\_\_\_\_ (ft.)

6g. Screen length (if known): \_\_\_\_\_ (ft.)

For Internal Use ONLY:

## WELL ABANDONMENT DETAILS

7a. Number of wells being abandoned: 1  
For multiple injection or non-water supply wells ONLY with the same construction abandonment, you can submit one form.

7b. Approximate volume of water remaining in well(s): 75.0 (gal.)

## FOR WATER SUPPLY WELLS ONLY:

7c. Type of disinfectant used: \_\_\_\_\_

7d. Amount of disinfectant used: \_\_\_\_\_

## 7e. Sealing materials used (check all that apply):

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Neat Cement Grout | <input type="checkbox"/> Bentonite Chips or Pellets |
| <input type="checkbox"/> Sand Cement Grout            | <input type="checkbox"/> Dry Clay                   |
| <input type="checkbox"/> Concrete Grout               | <input type="checkbox"/> Drill Cuttings             |
| <input type="checkbox"/> Specialty Grout              | <input type="checkbox"/> Gravel                     |
| <input type="checkbox"/> Bentonite Slurry             | <input type="checkbox"/> Other (explain under 7g)   |

7f. For each material selected above, provide amount of materials used:

109.0 GALLONS

7g. Provide a brief description of the abandonment procedure:

WELL ABANDONED VIA TREMIE PIPE WITH

PORTLAND BENTONITE SLURRY

WELL OVERDRILLED WITH 4 1/4 AUGERS

## 8. Certification:



12/21/15

Signature of Certified Well Contractor or Well Owner

Date

By signing this form, I hereby certify that the well(s) was (were) abandoned in accordance with 15A NCAC 02C .0100 or 2C .0200 Well Construction Standards and that a copy of this record has been provided to the well owner.

## 9. Site diagram or additional well details:

You may use the back of this page to provide additional well site details or well abandonment details. You may also attach additional pages if necessary.

## SUBMITTAL INSTRUCTIONS

10a. **For All Wells:** Submit this form within 30 days of completion of well abandonment to the following:

Division of Water Quality, Information Processing Unit,  
1617 Mail Service Center, Raleigh, NC 27699-1617

10b. **For Injection Wells:** In addition to sending the form to the address in 10a above, also submit one copy of this form within 30 days of completion of well abandonment to the following:

Division of Water Quality, Underground Injection Control Program,  
1636 Mail Service Center, Raleigh, NC 27699-1636

10c. **For Water Supply & Injection Wells:** In addition to sending the form to the address(es) above, also submit one copy of this form within 30 days of completion of well abandonment to the county health department of the county where abandoned.

# WELL ABANDONMENT RECORD

This form can be used for single or multiple wells

## 1. Well Contractor Information:

**BRIAN THOMAS**

Well Contractor Name (or well owner personally abandoning well on his/her property)

**A - 2581**

NC Well Contractor Certification Number

**GEOLOGIC EXPLORATION, INC**

Company Name

## 2. Well Construction Permit #:

List all applicable well construction permits (i.e. County, State, Variance, etc.) if known

## 3. Well use (check well use):

<b>Water Supply Well:</b>	
<input type="checkbox"/> Agricultural	<input type="checkbox"/> Municipal/Public
<input type="checkbox"/> Geothermal (Heating/Cooling Supply)	<input type="checkbox"/> Residential Water Supply (single)
<input type="checkbox"/> Industrial/Commercial	<input type="checkbox"/> Residential Water Supply (shared)
<input type="checkbox"/> Irrigation	
<b>Non-Water Supply Well:</b>	
<input checked="" type="checkbox"/> Monitoring	<input type="checkbox"/> Recovery
<b>Injection Well:</b>	
<input type="checkbox"/> Aquifer Recharge	<input type="checkbox"/> Groundwater Remediation
<input type="checkbox"/> Aquifer Storage and Recovery	<input type="checkbox"/> Salinity Barrier
<input type="checkbox"/> Aquifer Test	<input type="checkbox"/> Stormwater Drainage
<input type="checkbox"/> Experimental Technology	<input type="checkbox"/> Subsidence Control
<input type="checkbox"/> Geothermal (Closed Loop)	<input type="checkbox"/> Tracer
<input type="checkbox"/> Geothermal (Heating/Cooling Return)	<input type="checkbox"/> Other (explain under 7g)

4. Date well(s) abandoned: 12/08/15

## 5a. Well location:

**WASTE INDUSTRIES**

Facility/Owner Name

Facility ID# (if applicable)

**2600 BROWNFIELD ROAD RALEIGH 27610**

Physical Address, City, and Zip

**WAKE**

County

Parcel Identification No. (PIN)

5b. Latitude and longitude in degrees/minutes/seconds or decimal degrees:  
(if well field, one lat/long is sufficient)

35° 42' 34.39" N 78° 30' 12.79" W

## CONSTRUCTION DETAILS OF WELL(S) BEING ABANDONED

Attach well construction record(s) if available. For multiple injection or non-water supply wells ONLY with the same construction abandonment, you can submit one form.

6a. Well ID#: G-19

6b. Total well depth: 88.0 (ft.)

6c. Borehole diameter: 8.0 (in.)

6d. Water level below ground surface: 40.0 (ft.)

6e. Outer casing length (if known): \_\_\_\_\_ (ft.)

6f. Inner casing/tubing length (if known): \_\_\_\_\_ (ft.)

6g. Screen length (if known): \_\_\_\_\_ (ft.)

For Internal Use ONLY:

## WELL ABANDONMENT DETAILS

7a. Number of wells being abandoned: 1  
For multiple injection or non-water supply wells ONLY with the same construction/abandonment, you can submit one form.

7b. Approximate volume of water remaining in well(s): 75.0 (gal.)

## FOR WATER SUPPLY WELLS ONLY:

7c. Type of disinfectant used: \_\_\_\_\_

7d. Amount of disinfectant used: \_\_\_\_\_

## 7e. Sealing materials used (check all that apply):

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Neat Cement Grout | <input type="checkbox"/> Bentonite Chips or Pellets |
| <input type="checkbox"/> Sand Cement Grout            | <input type="checkbox"/> Dry Clay                   |
| <input type="checkbox"/> Concrete Grout               | <input type="checkbox"/> Drill Cuttings             |
| <input type="checkbox"/> Specialty Grout              | <input type="checkbox"/> Gravel                     |
| <input type="checkbox"/> Bentonite Slurry             | <input type="checkbox"/> Other (explain under 7g)   |

7f. For each material selected above, provide amount of materials used:

229.0 GALLONS

7g. Provide a brief description of the abandonment procedure:

WELL ABANDONED VIA TREMIE PIPE WITH  
PORTLAND BENTONITE SLURRY

WELL OVERDRILLED WITH 4 1/4 AUGERS

## 8. Certification:

Brian Thomas  
Signature of Certified Well Contractor or Well Owner

12/21/15  
Date

By signing this form, I hereby certify that the well(s) was (were) abandoned in accordance with 15A NCAC 02C .0100 or 2C .0200 Well Construction Standards and that a copy of this record has been provided to the well owner.

## 9. Site diagram or additional well details:

You may use the back of this page to provide additional well site details or well abandonment details. You may also attach additional pages if necessary.

## SUBMITTAL INSTRUCTIONS

10a. **For All Wells:** Submit this form within 30 days of completion of well abandonment to the following:

Division of Water Quality, Information Processing Unit,  
1617 Mail Service Center, Raleigh, NC 27699-1617

10b. **For Injection Wells:** In addition to sending the form to the address in 10a above, also submit one copy of this form within 30 days of completion of well abandonment to the following:

Division of Water Quality, Underground Injection Control Program,  
1636 Mail Service Center, Raleigh, NC 27699-1636

10c. **For Water Supply & Injection Wells:** In addition to sending the form to the address(es) above, also submit one copy of this form within 30 days of completion of well abandonment to the county health department of the county where abandoned.

# WELL ABANDONMENT RECORD

This form can be used for single or multiple wells

## 1. Well Contractor Information:

**BRIAN THOMAS**

Well Contractor Name (or well owner personally abandoning well on his/her property)

**A - 2581**

NC Well Contractor Certification Number

**GEOLOGIC EXPLORATION, INC**

Company Name

## 2. Well Construction Permit #:

List all applicable well construction permits (i.e. County, State, Variance, etc.) if known

## 3. Well use (check well use):

### Water Supply Well:

- |  |  |
|--|--|
| <input type="checkbox"/> Agricultural                        | <input type="checkbox"/> Municipal/Public                  |
| <input type="checkbox"/> Geothermal (Heating/Cooling Supply) | <input type="checkbox"/> Residential Water Supply (single) |
| <input type="checkbox"/> Industrial/Commercial               | <input type="checkbox"/> Residential Water Supply (shared) |
| <input type="checkbox"/> Irrigation                          |  |

### Non-Water Supply Well:

- |  |                                   |
|--|-----------------------------------|
| <input checked="" type="checkbox"/> Monitoring | <input type="checkbox"/> Recovery |
|--|-----------------------------------|

### Injection Well:

- |  |   |
|--|---|
| <input type="checkbox"/> Aquifer Recharge                    | <input type="checkbox"/> Groundwater Remediation  |
| <input type="checkbox"/> Aquifer Storage and Recovery        | <input type="checkbox"/> Salinity Barrier         |
| <input type="checkbox"/> Aquifer Test                        | <input type="checkbox"/> Stormwater Drainage      |
| <input type="checkbox"/> Experimental Technology             | <input type="checkbox"/> Subsidence Control       |
| <input type="checkbox"/> Geothermal (Closed Loop)            | <input type="checkbox"/> Tracer                   |
| <input type="checkbox"/> Geothermal (Heating/Cooling Return) | <input type="checkbox"/> Other (explain under 7g) |

4. Date well(s) abandoned: 12/08/15

## 5a. Well location:

**WASTE INDUSTRIES**

Facility/Owner Name

Facility ID# (if applicable)

**2600 BROWNFIELD ROAD RALEIGH 27610**

Physical Address, City, and Zip

**WAKE**

County

Parcel Identification No. (PIN)

5b. Latitude and longitude in degrees/minutes/seconds or decimal degrees:  
(if well field, one lat/long is sufficient)

35° 42' 34.39" N 78° 30' 12.79" W

## CONSTRUCTION DETAILS OF WELL(S) BEING ABANDONED

Attach well construction record(s) if available. For multiple injection or non-water supply wells ONLY with the same construction/abandonment, you can submit one form.

6a. Well ID#: G-22

6b. Total well depth: 52.0 (ft.)

6c. Borehole diameter: 8.0 (in.)

6d. Water level below ground surface: 40.0 (ft.)

6e. Outer casing length (if known): \_\_\_\_\_ (ft.)

6f. Inner casing/tubing length (if known): \_\_\_\_\_ (ft.)

6g. Screen length (if known): \_\_\_\_\_ (ft.)

For Internal Use ONLY:

## WELL ABANDONMENT DETAILS

7a. Number of wells being abandoned: 1  
For multiple injection or non-water supply wells ONLY with the same construction/abandonment, you can submit one form.

7b. Approximate volume of water remaining in well(s): 75.0 (gal.)

## FOR WATER SUPPLY WELLS ONLY:

7c. Type of disinfectant used: \_\_\_\_\_

7d. Amount of disinfectant used: \_\_\_\_\_

## 7e. Sealing materials used (check all that apply):

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Neat Cement Grout | <input type="checkbox"/> Bentonite Chips or Pellets |
| <input type="checkbox"/> Sand Cement Grout            | <input type="checkbox"/> Dry Clay                   |
| <input type="checkbox"/> Concrete Grout               | <input type="checkbox"/> Drill Cuttings             |
| <input type="checkbox"/> Specialty Grout              | <input type="checkbox"/> Gravel                     |
| <input type="checkbox"/> Bentonite Slurry             | <input type="checkbox"/> Other (explain under 7g)   |

7f. For each material selected above, provide amount of materials used:

135.0 GALLONS

7g. Provide a brief description of the abandonment procedure:

WELL ABANDONED VIA TREMIE PIPE WITH

PORTLAND BENTONITE SLURRY

WELL OVERDRILLED WITH 4 1/4 AUGERS

## 8. Certification:



12/21/15

Signature of Certified Well Contractor or Well Owner

Date

By signing this form, I hereby certify that the well(s) was (were) abandoned in accordance with 15A NCAC 02C .0100 or 2C .0200 Well Construction Standards and that a copy of this record has been provided to the well owner.

## 9. Site diagram or additional well details:

You may use the back of this page to provide additional well site details or well abandonment details. You may also attach additional pages if necessary.

## SUBMITTAL INSTRUCTIONS

10a. **For All Wells:** Submit this form within 30 days of completion of well abandonment to the following:

Division of Water Quality, Information Processing Unit,  
1617 Mail Service Center, Raleigh, NC 27699-1617

10b. **For Injection Wells:** In addition to sending the form to the address in 10a above, also submit one copy of this form within 30 days of completion of well abandonment to the following:

Division of Water Quality, Underground Injection Control Program,  
1636 Mail Service Center, Raleigh, NC 27699-1636

10c. **For Water Supply & Injection Wells:** In addition to sending the form to the address(es) above, also submit one copy of this form within 30 days of completion of well abandonment to the county health department of the county where abandoned.

# WELL ABANDONMENT RECORD

This form can be used for single or multiple wells

## 1. Well Contractor Information:

**BRIAN THOMAS**

Well Contractor Name (or well owner personally abandoning well on his/her property)

**A - 2581**

NC Well Contractor Certification Number

**GEOLOGIC EXPLORATION, INC**

Company Name

## 2. Well Construction Permit #:

List all applicable well construction permits (i.e. County, State, Variance, etc.) if known

## 3. Well use (check well use):

### Water Supply Well:

- |  |  |
|--|--|
| <input type="checkbox"/> Agricultural                        | <input type="checkbox"/> Municipal/Public                  |
| <input type="checkbox"/> Geothermal (Heating/Cooling Supply) | <input type="checkbox"/> Residential Water Supply (single) |
| <input type="checkbox"/> Industrial/Commercial               | <input type="checkbox"/> Residential Water Supply (shared) |
| <input type="checkbox"/> Irrigation                          |  |

### Non-Water Supply Well:

- |  |                                   |
|--|-----------------------------------|
| <input checked="" type="checkbox"/> Monitoring | <input type="checkbox"/> Recovery |
|--|-----------------------------------|

### Injection Well:

- |  |   |
|--|---|
| <input type="checkbox"/> Aquifer Recharge                    | <input type="checkbox"/> Groundwater Remediation  |
| <input type="checkbox"/> Aquifer Storage and Recovery        | <input type="checkbox"/> Salinity Barrier         |
| <input type="checkbox"/> Aquifer Test                        | <input type="checkbox"/> Stormwater Drainage      |
| <input type="checkbox"/> Experimental Technology             | <input type="checkbox"/> Subsidence Control       |
| <input type="checkbox"/> Geothermal (Closed Loop)            | <input type="checkbox"/> Tracer                   |
| <input type="checkbox"/> Geothermal (Heating/Cooling Return) | <input type="checkbox"/> Other (explain under 7g) |

4. Date well(s) abandoned: 12/08/15

## 5a. Well location:

**WASTE INDUSTRIES**

Facility/Owner Name

Facility ID# (if applicable)

**2600 BROWNFIELD ROAD RALEIGH 27610**

Physical Address, City, and Zip

**WAKE**

County

Parcel Identification No. (PIN)

## 5b. Latitude and longitude in degrees/minutes/seconds or decimal degrees: (if well field, one lat/long is sufficient)

35° 42' 34.39" N 78° 30' 12.79" W

## CONSTRUCTION DETAILS OF WELL(S) BEING ABANDONED

Attach well construction record(s) if available. For multiple injection or non-water supply wells ONLY with the same construction abandonment, you can submit one form.

6a. Well ID#: G-15

6b. Total well depth: 65.0 (ft.)

6c. Borehole diameter: 8.0 (in.)

6d. Water level below ground surface: 10.0 (ft.)

6e. Outer casing length (if known): \_\_\_\_\_ (ft.)

6f. Inner casing/tubing length (if known): \_\_\_\_\_ (ft.)

6g. Screen length (if known): \_\_\_\_\_ (ft.)

For Internal Use ONLY:

## WELL ABANDONMENT DETAILS

7a. Number of wells being abandoned: 1  
For multiple injection or non-water supply wells ONLY with the same construction/abandonment, you can submit one form.

7b. Approximate volume of water remaining in well(s): 75.0 (gal.)

## FOR WATER SUPPLY WELLS ONLY:

7c. Type of disinfectant used: \_\_\_\_\_

7d. Amount of disinfectant used: \_\_\_\_\_

## 7e. Sealing materials used (check all that apply):

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Neat Cement Grout | <input type="checkbox"/> Bentonite Chips or Pellets |
| <input type="checkbox"/> Sand Cement Grout            | <input type="checkbox"/> Dry Clay                   |
| <input type="checkbox"/> Concrete Grout               | <input type="checkbox"/> Drill Cuttings             |
| <input type="checkbox"/> Specialty Grout              | <input type="checkbox"/> Gravel                     |
| <input type="checkbox"/> Bentonite Slurry             | <input type="checkbox"/> Other (explain under 7g)   |

## 7f. For each material selected above, provide a amount of materials used:

169.0 GALLONS

## 7g. Provide a brief description of the abandonment procedure:

WELL ABANDONED VIA TREMIE PIPE WITH  
PORTLAND BENTONITE SLURRY

WELL OVERDRILLED WITH 4 1/4 AUGERS

## 8. Certification:

Brian Thomas

12/21/15

Signature of Certified Well Contractor or Well Owner

Date

By signing this form, I hereby certify that the well(s) was (were) abandoned in accordance with 15A NCAC 02C .0100 or 2C .0200 Well Construction Standards and that a copy of this record has been provided to the well owner.

## 9. Site diagram or additional well details:

You may use the back of this page to provide additional well site details or well abandonment details. You may also attach additional pages if necessary.

## SUBMITTAL INSTRUCTIONS

10a. **For All Wells:** Submit this form within 30 days of completion of well abandonment to the following:

Division of Water Quality, Information Processing Unit,  
1617 Mail Service Center, Raleigh, NC 27699-1617

10b. **For Injection Wells:** In addition to sending the form to the address in 10a above, also submit one copy of this form within 30 days of completion of well abandonment to the following:

Division of Water Quality, Underground Injection Control Program,  
1636 Mail Service Center, Raleigh, NC 27699-1636

10c. **For Water Supply & Injection Wells:** In addition to sending the form to the address(es) above, also submit one copy of this form within 30 days of completion of well abandonment to the county health department of the county where abandoned.

# WELL ABANDONMENT RECORD

This form can be used for single or multiple wells

## I. Well Contractor Information:

**BRIAN THOMAS**

Well Contractor Name (or well owner personally abandoning well on his/her property)

**A - 2581**

NC Well Contractor Certification Number

**GEOLOGIC EXPLORATION, INC**

Company Name

## 2. Well Construction Permit #:

List all applicable well construction permits (i.e. County, State, Variance, etc.) if known

## 3. Well use (check well use):

### Water Supply Well:

- |  |  |
|--|--|
| <input type="checkbox"/> Agricultural                        | <input type="checkbox"/> Municipal/Public                  |
| <input type="checkbox"/> Geothermal (Heating/Cooling Supply) | <input type="checkbox"/> Residential Water Supply (single) |
| <input type="checkbox"/> Industrial/Commercial               | <input type="checkbox"/> Residential Water Supply (shared) |
| <input type="checkbox"/> Irrigation                          |  |

### Non-Water Supply Well:

- |  |                                   |
|--|-----------------------------------|
| <input checked="" type="checkbox"/> Monitoring | <input type="checkbox"/> Recovery |
|--|-----------------------------------|

### Injection Well:

- |  |   |
|--|---|
| <input type="checkbox"/> Aquifer Recharge                    | <input type="checkbox"/> Groundwater Remediation  |
| <input type="checkbox"/> Aquifer Storage and Recovery        | <input type="checkbox"/> Salinity Barrier         |
| <input type="checkbox"/> Aquifer Test                        | <input type="checkbox"/> Stormwater Drainage      |
| <input type="checkbox"/> Experimental Technology             | <input type="checkbox"/> Subsidence Control       |
| <input type="checkbox"/> Geothermal (Closed Loop)            | <input type="checkbox"/> Tracer                   |
| <input type="checkbox"/> Geothermal (Heating/Cooling Return) | <input type="checkbox"/> Other (explain under 7g) |

4. Date well(s) abandoned: 12/08/15

## 5a. Well location:

**WASTE INDUSTRIES**

Facility/Owner Name

Facility ID# (if applicable)

**2600 BROWNFIELD ROAD RALEIGH 27610**

Physical Address, City, and Zip

**WAKE**

County

Parcel Identification No. (PIN)

5b. Latitude and longitude in degrees/minutes/seconds or decimal degrees:  
(if well field, one lat/long is sufficient)

35° 42' 34.39" N 78° 30' 12.79" W

## CONSTRUCTION DETAILS OF WELL(S) BEING ABANDONED

Attach well construction record(s) if available. For multiple injection or non-water supply wells ONLY with the same construction/abandonment, you can submit one form.

6a. Well ID#: P-15

6b. Total well depth: 25.0 (ft.)

6c. Borehole diameter: 2.0 (in.)

6d. Water level below ground surface: 5.0 (ft.)

6e. Outer casing length (if known): \_\_\_\_\_ (ft.)

6f. Inner casing/tubing length (if known): \_\_\_\_\_ (ft.)

6g. Screen length (if known): \_\_\_\_\_ (ft.)

For Internal Use ONLY:

## WELL ABANDONMENT DETAILS

7a. Number of wells being abandoned: 1  
For multiple injection or non-water supply wells ONLY with the same construction/abandonment, you can submit one form.

7b. Approximate volume of water remaining in well(s): 3.25 (gal.)

## FOR WATER SUPPLY WELLS ONLY:

7c. Type of disinfectant used: \_\_\_\_\_

7d. Amount of disinfectant used: \_\_\_\_\_

## 7e. Sealing materials used (check all that apply):

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Neat Cement Grout | <input type="checkbox"/> Bentonite Chips or Pellets |
| <input type="checkbox"/> Sand Cement Grout            | <input type="checkbox"/> Dry Clay                   |
| <input type="checkbox"/> Concrete Grout               | <input type="checkbox"/> Drill Cuttings             |
| <input type="checkbox"/> Specialty Grout              | <input type="checkbox"/> Gravel                     |
| <input type="checkbox"/> Bentonite Slurry             | <input type="checkbox"/> Other (explain under 7g)   |

7f. For each material selected above, provide amount of materials used:

4.0 GALLONS

7g. Provide a brief description of the abandonment procedure:

WELL ABANDONED VIA TREMIE PIPE WITH  
PORTLAND BENTONITE SLURRY

## 8. Certification:



12/21/15

Signature of Certified Well Contractor or Well Owner

Date

By signing this form, I hereby certify that the well(s) was (were) abandoned in accordance with 15A NCAC 02C .0100 or 2C .0200 Well Construction Standards and that a copy of this record has been provided to the well owner.

## 9. Site diagram or additional well details:

You may use the back of this page to provide additional well site details or well abandonment details. You may also attach additional pages if necessary.

## SUBMITTAL INSTRUCTIONS

10a. **For All Wells:** Submit this form within 30 days of completion of well abandonment to the following:

Division of Water Quality, Information Processing Unit,  
1617 Mail Service Center, Raleigh, NC 27699-1617

10b. **For Injection Wells:** In addition to sending the form to the address in 10a above, also submit one copy of this form within 30 days of completion of well abandonment to the following:

Division of Water Quality, Underground Injection Control Program,  
1636 Mail Service Center, Raleigh, NC 27699-1636

10c. **For Water Supply & Injection Wells:** In addition to sending the form to the address(es) above, also submit one copy of this form within 30 days of completion of well abandonment to the county health department of the county where abandoned.

# WELL ABANDONMENT RECORD

This form can be used for single or multiple wells

## I. Well Contractor Information:

**BRIAN THOMAS**

Well Contractor Name (or well owner personally abandoning well on his/her property)

**A - 2581**

NC Well Contractor Certification Number

**GEOLOGIC EXPLORATION, INC**

Company Name

## 2. Well Construction Permit #:

List all applicable well construction permits (i.e. County, State, Variance, etc.) if known

## 3. Well use (check well use):

### Water Supply Well:

- Agricultural  Municipal/Public
- Geothermal (Heating/Cooling Supply)  Residential Water Supply (single)
- Industrial/Commercial  Residential Water Supply (shared)
- Irrigation

### Non-Water Supply Well:

- Monitoring  Recovery

### Injection Well:

- Aquifer Recharge  Groundwater Remediation
- Aquifer Storage and Recovery  Salinity Barrier
- Aquifer Test  Stormwater Drainage
- Experimental Technology  Subsidence Control
- Geothermal (Closed Loop)  Tracer
- Geothermal (Heating/Cooling Return)  Other (explain under 7g)

4. Date well(s) abandoned: 12/08/15

## 5a. Well location:

**WASTE INDUSTRIES**

Facility/Owner Name

Facility ID# (if applicable)

**2600 BROWNFIELD ROAD RALEIGH 27610**

Physical Address, City, and Zip

**WAKE**

County

Parcel Identification No. (PIN)

## 5b. Latitude and longitude in degrees/minutes/seconds or decimal degrees: (if well field, one lat/long is sufficient)

35° 42' 34.39" N 78° 30' 12.79" W

## CONSTRUCTION DETAILS OF WELL(S) BEING ABANDONED

Attach well construction record(s) if available. For multiple injection or non-water supply wells ONLY with the same construction/abandonment, you can submit one form.

6a. Well ID#: UD-2

6b. Total well depth: 56.0 (ft.)

6c. Borehole diameter: 2.0 (in.)

6d. Water level below ground surface: 5.0 (ft.)

6e. Outer casing length (if known): \_\_\_\_\_ (ft.)

6f. Inner casing/tubing length (if known): \_\_\_\_\_ (ft.)

6g. Screen length (if known): \_\_\_\_\_ (ft.)

For Internal Use ONLY:

## WELL ABANDONMENT DETAILS

7a. Number of wells being abandoned: 1  
For multiple injection or non-water supply wells ONLY with the same construction abandonment, you can submit one form.

7b. Approximate volume of water remaining in well(s): 8.25 (gal.)

## FOR WATER SUPPLY WELLS ONLY:

7c. Type of disinfectant used: \_\_\_\_\_

7d. Amount of disinfectant used: \_\_\_\_\_

## 7e. Sealing materials used (check all that apply):

- Neat Cement Grout  Bentonite Chips or Pellets
- Sand Cement Grout  Dry Clay
- Concrete Grout  Drill Cuttings
- Specialty Grout  Gravel
- Bentonite Slurry  Other (explain under 7g)

## 7f. For each material selected above, provide amount of materials used:

9.0 GALLONS

## 7g. Provide a brief description of the abandonment procedure:

WELL ABANDONED VIA TREMIE PIPE WITH PORTLAND BENTONITE SLURRY

## 8. Certification:



12/21/15

Signature of Certified Well Contractor or Well Owner

Date

By signing this form, I hereby certify that the well(s) was (were) abandoned in accordance with 15A NCAC 02C .0100 or 2C .0200 Well Construction Standards and that a copy of this record has been provided to the well owner.

## 9. Site diagram or additional well details:

You may use the back of this page to provide additional well site details or well abandonment details. You may also attach additional pages if necessary.

## SUBMITTAL INSTRUCTIONS

10a. **For All Wells:** Submit this form within 30 days of completion of well abandonment to the following:

**Division of Water Quality, Information Processing Unit,  
1617 Mail Service Center, Raleigh, NC 27699-1617**

10b. **For Injection Wells:** In addition to sending the form to the address in 10a above, also submit one copy of this form within 30 days of completion of well abandonment to the following:

**Division of Water Quality, Underground Injection Control Program,  
1636 Mail Service Center, Raleigh, NC 27699-1636**

10c. **For Water Supply & Injection Wells:** In addition to sending the form to the address(es) above, also submit one copy of this form within 30 days of completion of well abandonment to the county health department of the county where abandoned.

# WELL ABANDONMENT RECORD

This form can be used for single or multiple wells

## 1. Well Contractor Information:

**BRIAN THOMAS**

Well Contractor Name (or well owner personally abandoning well on his/her property)

**A - 2581**

NC Well Contractor Certification Number

**GEOLOGIC EXPLORATION, INC**

Company Name

## 2. Well Construction Permit #:

List all applicable well construction permits (i.e. County, State, Variance, etc.) if known

## 3. Well use (check well use):

### Water Supply Well:

- |  |  |
|--|--|
| <input type="checkbox"/> Agricultural                        | <input type="checkbox"/> Municipal/Public                  |
| <input type="checkbox"/> Geothermal (Heating/Cooling Supply) | <input type="checkbox"/> Residential Water Supply (single) |
| <input type="checkbox"/> Industrial/Commercial               | <input type="checkbox"/> Residential Water Supply (shared) |
| <input type="checkbox"/> Irrigation                          |  |

### Non-Water Supply Well:

- |  |                                   |
|--|-----------------------------------|
| <input checked="" type="checkbox"/> Monitoring | <input type="checkbox"/> Recovery |
|--|-----------------------------------|

### Injection Well:

- |  |   |
|--|---|
| <input type="checkbox"/> Aquifer Recharge                    | <input type="checkbox"/> Groundwater Remediation  |
| <input type="checkbox"/> Aquifer Storage and Recovery        | <input type="checkbox"/> Salinity Barrier         |
| <input type="checkbox"/> Aquifer Test                        | <input type="checkbox"/> Stormwater Drainage      |
| <input type="checkbox"/> Experimental Technology             | <input type="checkbox"/> Subsidence Control       |
| <input type="checkbox"/> Geothermal (Closed Loop)            | <input type="checkbox"/> Tracer                   |
| <input type="checkbox"/> Geothermal (Heating/Cooling Return) | <input type="checkbox"/> Other (explain under 7g) |

4. Date well(s) abandoned: 12/08/15

## 5a. Well location:

**WASTE INDUSTRIES**

Facility/Owner Name

Facility ID# (if applicable)

**2600 BROWNFIELD ROAD RALEIGH 27610**

Physical Address, City, and Zip

**WAKE**

County

Parcel Identification No. (PIN)

5b. Latitude and longitude in degrees/minutes/seconds or decimal degrees:  
(if well field, one lat/long is sufficient)

35° 42' 34.39" N 78° 30' 12.79" W

## CONSTRUCTION DETAILS OF WELL(S) BEING ABANDONED

Attach well construction record(s) if available. For multiple injection or non-water supply wells ONLY with the same construction/abandonment, you can submit one form.

6a. Well ID#: TW-40

6b. Total well depth: 20.0 (ft.)

6c. Borehole diameter: 2.0 (in.)

6d. Water level below ground surface: 5.0 (ft.)

6e. Outer casing length (if known): \_\_\_\_\_ (ft.)

6f. Inner casing/tubing length (if known): \_\_\_\_\_ (ft.)

6g. Screen length (if known): \_\_\_\_\_ (ft.)

For Internal Use ONLY:

## WELL ABANDONMENT DETAILS

7a. Number of wells being abandoned: 1  
For multiple injection or non-water supply wells ONLY with the same construction/abandonment, you can submit one form.

7b. Approximate volume of water remaining in well(s): 2.5 (gal.)

## FOR WATER SUPPLY WELLS ONLY:

7c. Type of disinfectant used: \_\_\_\_\_

7d. Amount of disinfectant used: \_\_\_\_\_

## 7e. Sealing materials used (check all that apply):

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Neat Cement Grout | <input type="checkbox"/> Bentonite Chips or Pellets |
| <input type="checkbox"/> Sand Cement Grout            | <input type="checkbox"/> Dry Clay                   |
| <input type="checkbox"/> Concrete Grout               | <input type="checkbox"/> Drill Cuttings             |
| <input type="checkbox"/> Specialty Grout              | <input type="checkbox"/> Gravel                     |
| <input type="checkbox"/> Bentonite Slurry             | <input type="checkbox"/> Other (explain under 7g)   |

7f. For each material selected above, provide a amount of materials used:

3.25 GALLONS

7g. Provide a brief description of the abandonment procedure:

WELL ABANDONED VIA TREMIE PIPE WITH  
PORTLAND BENTONITE SLURRY

## 8. Certification



12/21/15

Signature of Certified Well Contractor or Well Owner

Date

By signing this form, I hereby certify that the well(s) was (were) abandoned in accordance with 15A NCAC 02C .0100 or 2C .0200 Well Construction Standards and that a copy of this record has been provided to the well owner.

## 9. Site diagram or additional well details:

You may use the back of this page to provide additional well site details or well abandonment details. You may also attach additional pages if necessary.

## SUBMITTAL INSTRUCTIONS

10a. For All Wells: Submit this form within 30 days of completion of well abandonment to the following:

Division of Water Quality, Information Processing Unit,  
1617 Mail Service Center, Raleigh, NC 27699-1617

10b. For Injection Wells: In addition to sending the form to the address in 10a above, also submit one copy of this form within 30 days of completion of well abandonment to the following:

Division of Water Quality, Underground Injection Control Program,  
1636 Mail Service Center, Raleigh, NC 27699-1636

10c. For Water Supply & Injection Wells: In addition to sending the form to the address(es) above, also submit one copy of this form within 30 days of completion of well abandonment to the county health department of the county where abandoned.