

Via Email

September 16, 2014

Department of Environment and Natural Resources
Groundwater Protection Branch.
1636 Mail Service Center
Raleigh, NC 27699-1636

Attention: Mr. Eric Smith, PG

Re: Injection Event Record
Former ATL No. 48
240 Sugar Lake Rd.
Pittsboro, NC
H&H Job No. DOT-515

Dear Eric:

On behalf of the North Carolina Department of Transportation, Hart and Hickman, PC (H&H) is submitting the attached Injection Event Record, injection well construction records, and a SRS-FR injection summary table associated with Injection By Rule Permit No. WI0500735. If you have any questions, please do not hesitate to contact us at (704) 586-0007.

Very truly yours,

Hart & Hickman, PC



Jeff Albano, PG
Project Geologist



Matt Bramblett, PE
Principal

Attachments:

Cc: Mr. Ethan Caldwell, NCDOT (Via Email)

INJECTION EVENT RECORD

North Carolina Department of Environment and Natural Resources – Division of Water
Resources **Permit Number** WI0500735

1. Permit Information

NC DOT
Permittee

ATL No. 48
Facility Name

240 Sugar Lake Rd, Pittsboro, NC
Facility Address

2. Injection Contractor Information

Hart and Hickman, PC
Injection Contractor / Company Name

2923 South Tryon St., Suite 100
Street Address

<u>Charlotte</u>	<u>NC</u>	<u>28203</u>
City	State	Zip Code

(704) 586-0007
Area code – Phone number

3. Well Information

Number of wells used for injection 5

Well names 48IW-1 through 48IW-5

Were any new wells installed during this injection event?

Yes No

If yes, please provide the following information:

Number of Monitoring Wells 0

Number of Injection Wells 5

Type of Well Installed (Check applicable type):

Bored Drilled Direct-Push
 Hand-Augured Other (specify) _____

Please include a copy of the GW-1 form for each well installed.

Were any wells abandoned during this injection event?

Yes No

If yes, please provide the following information:

Number of Monitoring Wells _____

Number of Injection Wells _____

Please include a copy of the GW-30 for each well abandoned.

4. Injectant Information

SRS®-FRL, large droplet emulsified oil product, and BAC-9 bioenhancement culture (marketed by Terra Systems as TSI-DC)

Injectant Type

Concentration 3.1 - 9.7 % SRS-FR, 100% TSI-DC

If the injectant is diluted please indicate the source dilution fluid. Municipal water (High Point, NC)

Total Volume Injected 1,521 gal (SRS-FR), 2,180 gal (chase water) 1.85 gal (TSI-DC)

Volume Injected per well 20 - 619 gallons (SRS-FR) 0.37 gallons (TSI-DC)

5. Injection History

Injection date(s) Aug 4-8, 2014 (SRS-FR) Aug 29, 2014 (TSI-DC)

Injection number (e.g. 3 of 5) 1 of 1 (SRS-FR), 1 of 1 (TSI-DC)

Is this the last injection at this site?

Yes No

I DO HEREBY CERTIFY THAT ALL THE INFORMATION ON THIS FORM IS CORRECT TO THE BEST OF MY KNOWLEDGE AND THAT THE INJECTION WAS PERFORMED WITHIN THE STANDARDS LAID OUT IN THE PERMIT.

SIGNATURE OF INJECTION CONTRACTOR DATE

Hart and Hickman, PC
PRINT NAME OF PERSON PERFORMING THE INJECTION



NON RESIDENTIAL WELL CONSTRUCTION RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFICATION # 4220

1. WELL CONTRACTOR:

Will Keyes

Well Contractor (Individual) Name
SAEDACCO Inc

Well Contractor Company Name
9088 Northfield Drive

Street Address
Fort Mill SC 29707

City or Town State Zip Code

() (803) 548-2180
Area code Phone number

2. WELL INFORMATION:

WELL CONSTRUCTION PERMIT# _____

OTHER ASSOCIATED PERMIT#(if applicable) _____

SITE WELL ID #(if applicable) 48-IW-1

3. WELL USE (Check One Box) Monitoring Municipal/Public

Industrial/Commercial Agricultural Recovery Injection

Irrigation Other (list use) _____

DATE DRILLED 7/24/14

4. WELL LOCATION:

240 Sugar Lake Rd. Pittsboro
(Street Name, Numbers, Community, Subdivision, Lot No., Parcel, Zip Code)

CITY: Pittsboro COUNTY Chatham

TOPOGRAPHIC / LAND SETTING: (check appropriate box)

Slope Valley Flat Ridge Other _____

LATITUDE _____ " DMS OR 3X.XXXXXXXXXX DD

LONGITUDE _____ " DMS OR 7X.XXXXXXXXXX DD

Latitude/longitude source: GPS Topographic map
(location of well must be shown on a USGS topo map and attached to this form if not using GPS)

5. FACILITY (Name of the business where the well is located.)

S T Wooten

Facility Name Facility ID# (if applicable)

240 Sugar Lake Rd. Pittsboro, NC 27312

Street Address

Pittsboro NC 27312

City or Town State Zip Code

Contact Name

Mailing Address

City or Town State Zip Code

()
Area code Phone number

6. WELL DETAILS:

- a. TOTAL DEPTH: 50
- b. DOES WELL REPLACE EXISTING WELL? YES NO
- c. WATER LEVEL Below Top of Casing: 37 FT.
(Use "+" if Above Top of Casing)

d. TOP OF CASING IS _____ FT. Above Land Surface*
*Top of casing terminated at/or below land surface may require a variance in accordance with 15A NCAC 2C .0118.

e. YIELD (gpm): _____ METHOD OF TEST _____

f. DISINFECTION: Type _____ Amount _____

g. WATER ZONES (depth):

Top _____	Bottom _____	Top _____	Bottom _____
Top _____	Bottom _____	Top _____	Bottom _____
Top _____	Bottom _____	Top _____	Bottom _____

7. CASING:	Depth	Diameter	Thickness/ Weight	Material
Top _____	Bottom _____	Ft. _____	_____	_____
Top _____	Bottom _____	Ft. _____	_____	_____
Top _____	Bottom _____	Ft. _____	_____	_____

8. GROUT:	Depth	Material	Method
Top <u>0</u>	Bottom <u>32</u>	Ft. <u>Portland</u>	<u>Pumped</u>
Top _____	Bottom _____	Ft. _____	_____
Top _____	Bottom _____	Ft. _____	_____

9. SCREEN:	Depth	Diameter	Slot Size	Material
Top <u>35</u>	Bottom <u>50</u>	Ft. <u>2" in.</u>	<u>.10 in.</u>	<u>PVC</u>
Top _____	Bottom _____	Ft. _____	_____	_____
Top _____	Bottom _____	Ft. _____	_____	_____

10. SAND/GRAVEL PACK:	Depth	Size	Material
Top <u>34</u>	Bottom <u>50</u>	Ft. <u>2a</u>	<u>Sand</u>
Top _____	Bottom _____	Ft. _____	_____
Top _____	Bottom _____	Ft. _____	_____

11. DRILLING LOG	Top	Bottom	Formation Description
	<u>0</u>	<u>10</u>	<u>Orange clay</u>
	<u>10</u>	<u>20</u>	<u>Silty clay</u>
	<u>20</u>	<u>30</u>	<u>Weathered rock</u>
	<u>30</u>	<u>50</u>	<u>Blue bed rock</u>
	/	/	_____
	/	/	_____
	/	/	_____
	/	<u>20</u>	_____
	/	/	_____
	/	/	_____

12. REMARKS:
Well installed at 50' using sonic drilling technol

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

Will Keyes 7/30/2014
SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE

Will Keyes
PRINTED NAME OF PERSON CONSTRUCTING THE WELL



NON RESIDENTIAL WELL CONSTRUCTION RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFICATION # 4220

1. WELL CONTRACTOR:

Will Keyes

Well Contractor (Individual) Name
SAEDACCO Inc

Well Contractor Company Name
9088 Northfield Drive

Street Address
Fort Mill SC 29707

City or Town State Zip Code

() (803) 548-2180

Area code Phone number

2. WELL INFORMATION:

WELL CONSTRUCTION PERMIT# _____

OTHER ASSOCIATED PERMIT#(if applicable) _____

SITE WELL ID #(if applicable) 48-IW-2

3. WELL USE (Check One Box) Monitoring Municipal/Public
 Industrial/Commercial Agricultural Recovery Injection
 Irrigation Other (list use) _____
 DATE DRILLED 7/24/14

4. WELL LOCATION:

240 Sugar Lake Rd. Pittsboro

(Street Name, Numbers, Community, Subdivision, Lot No., Parcel, Zip Code)

CITY: Pittsboro COUNTY Chatham

TOPOGRAPHIC / LAND SETTING: (check appropriate box)
 Slope Valley Flat Ridge Other _____

LATITUDE _____ " DMS OR 3X.XXXXXXXXXX DD
 LONGITUDE _____ " DMS OR 7X.XXXXXXXXXX DD

Latitude/longitude source: GPS Topographic map
 (location of well must be shown on a USGS topo map and attached to this form if not using GPS)

5. FACILITY (Name of the business where the well is located.)

S T Wooten

Facility Name Facility ID# (if applicable)
240 Sugar Lake Rd. Pittsboro, NC 27312

Street Address
Pittsboro NC 27312

City or Town State Zip Code

Contact Name _____

Mailing Address _____

City or Town State Zip Code

() _____

Area code Phone number

6. WELL DETAILS:

a. TOTAL DEPTH: 50

b. DOES WELL REPLACE EXISTING WELL? YES NO

c. WATER LEVEL Below Top of Casing: 37 FT.
 (Use "+" if Above Top of Casing)

d. TOP OF CASING IS _____ FT. Above Land Surface*
 *Top of casing terminated at/or below land surface may require a variance in accordance with 15A NCAC 2C .0118.

e. YIELD (gpm): _____ METHOD OF TEST _____

f. DISINFECTION: Type _____ Amount _____

g. WATER ZONES (depth):
 Top _____ Bottom _____ Top _____ Bottom _____
 Top _____ Bottom _____ Top _____ Bottom _____
 Top _____ Bottom _____ Top _____ Bottom _____

7. CASING:	Depth	Diameter	Thickness/Weight	Material
Top	Bottom	Ft.		
Top	Bottom	Ft.		
Top	Bottom	Ft.		

8. GROUT:	Depth	Material	Method
Top	Bottom	Ft.	
Top	Bottom	Ft.	
Top	Bottom	Ft.	

9. SCREEN:	Depth	Diameter	Slot Size	Material
Top	Bottom	Ft.	in.	
Top	Bottom	Ft.	in.	
Top	Bottom	Ft.	in.	

10. SAND/GRAVEL PACK:	Depth	Size	Material
Top	Bottom	Ft.	
Top	Bottom	Ft.	
Top	Bottom	Ft.	

11. DRILLING LOG	Top	Bottom	Formation Description
	0	10	Orange clay
	10	20	Silty clay
	20	30	Weathered rock
	30	50	Blue bed rock
	/	/	
	/	/	
	/	20	
	/	/	
	/	/	

12. REMARKS:
Well installed at 50' using sonic drilling technol

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

Will Keyes 7/30/2014
 SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE

Will Keyes
 PRINTED NAME OF PERSON CONSTRUCTING THE WELL



NON RESIDENTIAL WELL CONSTRUCTION RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFICATION # 4220

1. WELL CONTRACTOR:

Will Keyes

Well Contractor (Individual) Name
SAEDACCO Inc

Well Contractor Company Name
9088 Northfield Drive

Street Address
Fort Mill SC 29707

City or Town State Zip Code

() (803) 548-2180
Area code Phone number

2. WELL INFORMATION:

WELL CONSTRUCTION PERMIT# _____

OTHER ASSOCIATED PERMIT#(if applicable) _____

SITE WELL ID #(if applicable) 48-IW-3

3. WELL USE (Check One Box) Monitoring Municipal/Public

Industrial/Commercial Agricultural Recovery Injection

Irrigation Other (list use) _____

DATE DRILLED 7/24/14

4. WELL LOCATION:

240 Sugar Lake Rd. Pittsboro

(Street Name, Numbers, Community, Subdivision, Lot No., Parcel, Zip Code)

CITY: Pittsboro COUNTY Chatham

TOPOGRAPHIC / LAND SETTING: (check appropriate box)

Slope Valley Flat Ridge Other _____

LATITUDE _____ " DMS OR 3X.XXXXXXXXXX DD

LONGITUDE _____ " DMS OR 7X.XXXXXXXXXX DD

Latitude/longitude source: GPS Topographic map
(location of well must be shown on a USGS topo map and attached to this form if not using GPS)

5. FACILITY (Name of the business where the well is located.)

S T Wooten

Facility Name Facility ID# (if applicable)

240 Sugar Lake Rd. Pittsboro, NC 27312

Street Address

Pittsboro NC 27312

City or Town State Zip Code

Contact Name

Mailing Address

City or Town State Zip Code

()
Area code Phone number

6. WELL DETAILS:

a. TOTAL DEPTH: 47

b. DOES WELL REPLACE EXISTING WELL? YES NO

c. WATER LEVEL Below Top of Casing: 37 FT.
(Use "+" if Above Top of Casing)

d. TOP OF CASING IS _____ FT. Above Land Surface*
*Top of casing terminated at/or below land surface may require a variance in accordance with 15A NCAC 2C .0118.

e. YIELD (gpm): _____ METHOD OF TEST _____

f. DISINFECTION: Type _____ Amount _____

g. WATER ZONES (depth):

Top _____ Bottom _____ Top _____ Bottom _____

Top _____ Bottom _____ Top _____ Bottom _____

Top _____ Bottom _____ Top _____ Bottom _____

7. CASING:	Depth	Diameter	Thickness/ Weight	Material
Top	Bottom	Ft.		
Top	Bottom	Ft.		
Top	Bottom	Ft.		

8. GROUT:	Depth	Material	Method
Top	Bottom	Ft.	
Top	Bottom	Ft.	
Top	Bottom	Ft.	

9. SCREEN:	Depth	Diameter	Slot Size	Material
Top	Bottom	Ft.	in.	
Top	Bottom	Ft.	in.	
Top	Bottom	Ft.	in.	

10. SAND/GRAVEL PACK:	Depth	Size	Material
Top	Bottom	Ft.	
Top	Bottom	Ft.	
Top	Bottom	Ft.	

11. DRILLING LOG	Top	Bottom	Formation Description
	0	10	Orange clay
	10	20	Silty clay
	20	30	Weathered rock
	30	47	Blue bed rock
	/	/	
	/	/	
	/	/	
	/	20	
	/	/	
	/	/	

12. REMARKS:
Well installed at 47' using sonic drilling technol

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

Will Keyes 7/30/2014
SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE

Will Keyes
PRINTED NAME OF PERSON CONSTRUCTING THE WELL



Non Residential WELL CONSTRUCTION RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFICATION # 4220

1. WELL CONTRACTOR:

Will Keyes

Well Contractor (Individual) Name
SAEDACCO Inc

Well Contractor Company Name
9088 Northfield Drive

Street Address
Fort Mill SC 29707

City or Town State Zip Code

() (803) 548-2180

Area code Phone number

2. WELL INFORMATION:

WELL CONSTRUCTION PERMIT# _____

OTHER ASSOCIATED PERMIT#(if applicable) _____

SITE WELL ID #(if applicable) 48-IW-4

3. WELL USE (Check One Box) Monitoring Municipal/Public
 Industrial/Commercial Agricultural Recovery Injection
 Irrigation Other (list use) _____

DATE DRILLED 7/24/14

4. WELL LOCATION:

240 Sugar Lake Rd. Pittsboro

(Street Name, Numbers, Community, Subdivision, Lot No., Parcel, Zip Code)

CITY: Pittsboro COUNTY Chatham

TOPOGRAPHIC / LAND SETTING: (check appropriate box)
 Slope Valley Flat Ridge Other _____

LATITUDE _____ " DMS OR 3X.XXXXXXXXXX DD
 LONGITUDE _____ " DMS OR 7X.XXXXXXXXXX DD

Latitude/longitude source: GPS Topographic map
 (location of well must be shown on a USGS topo map and attached to this form if not using GPS)

5. FACILITY (Name of the business where the well is located.)

S T Wooten

Facility Name Facility ID# (if applicable)
240 Sugar Lake Rd. Pittsboro, NC 27312

Street Address
Pittsboro NC 27312

City or Town State Zip Code

Contact Name _____

Mailing Address _____

City or Town State Zip Code

() _____

Area code Phone number

6. WELL DETAILS:

a. TOTAL DEPTH: 50

b. DOES WELL REPLACE EXISTING WELL? YES NO

c. WATER LEVEL Below Top of Casing: 37 FT.
 (Use "+" if Above Top of Casing)

d. TOP OF CASING IS _____ FT. Above Land Surface*
 *Top of casing terminated at/or below land surface may require a variance in accordance with 15A NCAC 2C .0118.

e. YIELD (gpm): _____ METHOD OF TEST _____

f. DISINFECTION: Type _____ Amount _____

g. WATER ZONES (depth):
 Top _____ Bottom _____ Top _____ Bottom _____
 Top _____ Bottom _____ Top _____ Bottom _____
 Top _____ Bottom _____ Top _____ Bottom _____

7. CASING:	Depth	Diameter	Thickness/Weight	Material
Top	Bottom	Ft.		
Top	Bottom	Ft.		
Top	Bottom	Ft.		

8. GROUT:	Depth	Material	Method
Top	Bottom	Ft.	
Top	Bottom	Ft.	
Top	Bottom	Ft.	

9. SCREEN:	Depth	Diameter	Slot Size	Material
Top	Bottom	Ft.	in.	
Top	Bottom	Ft.	in.	
Top	Bottom	Ft.	in.	

10. SAND/GRAVEL PACK:	Depth	Size	Material
Top	Bottom	Ft.	
Top	Bottom	Ft.	
Top	Bottom	Ft.	

11. DRILLING LOG	Top	Bottom	Formation Description
	0	10	Orange clay
	10	20	Silty clay
	20	30	Weathered rock
	30	50	Blue bed rock
	/	/	
	/	/	
	/	20	
	/	/	
	/	/	

12. REMARKS:
Well installed at 50' using sonic drilling technol

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

Will Keyes 7/30/2014
 SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE

Will Keyes
 PRINTED NAME OF PERSON CONSTRUCTING THE WELL



NON RESIDENTIAL WELL CONSTRUCTION RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFICATION # 4220

1. WELL CONTRACTOR:

Will Keyes

Well Contractor (Individual) Name
SAEDACCO Inc

Well Contractor Company Name
9088 Northfield Drive

Street Address
Fort Mill SC 29707

City or Town State Zip Code

() (803) 548-2180

Area code Phone number

2. WELL INFORMATION:

WELL CONSTRUCTION PERMIT# _____

OTHER ASSOCIATED PERMIT#(if applicable) _____

SITE WELL ID #(if applicable) 48-IW-5

3. WELL USE (Check One Box) Monitoring Municipal/Public

Industrial/Commercial Agricultural Recovery Injection

Irrigation Other (list use) _____

DATE DRILLED 7/24/14

4. WELL LOCATION:

240 Sugar Lake Rd. Pittsboro

(Street Name, Numbers, Community, Subdivision, Lot No., Parcel, Zip Code)

CITY: Pittsboro COUNTY Chatham

TOPOGRAPHIC / LAND SETTING: (check appropriate box)

Slope Valley Flat Ridge Other _____

LATITUDE _____ " DMS OR 3X.XXXXXXXXXX DD

LONGITUDE _____ " DMS OR 7X.XXXXXXXXXX DD

Latitude/longitude source: GPS Topographic map
(location of well must be shown on a USGS topo map and attached to this form if not using GPS)

5. FACILITY (Name of the business where the well is located.)

S T Wooten

Facility Name Facility ID# (if applicable)

240 Sugar Lake Rd. Pittsboro, NC 27312

Street Address

Pittsboro NC 27312

City or Town State Zip Code

Contact Name

Mailing Address

City or Town State Zip Code

() _____
Area code Phone number

6. WELL DETAILS:

a. TOTAL DEPTH: 50

b. DOES WELL REPLACE EXISTING WELL? YES NO

c. WATER LEVEL Below Top of Casing: 37 FT.
(Use "+" if Above Top of Casing)

d. TOP OF CASING IS _____ FT. Above Land Surface*

*Top of casing terminated at/or below land surface may require a variance in accordance with 15A NCAC 2C .0118.

e. YIELD (gpm): _____ METHOD OF TEST _____

f. DISINFECTION: Type _____ Amount _____

g. WATER ZONES (depth):

Top _____ Bottom _____ Top _____ Bottom _____

Top _____ Bottom _____ Top _____ Bottom _____

Top _____ Bottom _____ Top _____ Bottom _____

7. CASING:	Depth	Diameter	Thickness/ Weight	Material
Top	Bottom	Ft.		
Top	Bottom	Ft.		
Top	Bottom	Ft.		

8. GROUT:	Depth	Material	Method
Top	Bottom	Ft.	
Top	Bottom	Ft.	
Top	Bottom	Ft.	

9. SCREEN:	Depth	Diameter	Slot Size	Material
Top	Bottom	Ft.	in.	
Top	Bottom	Ft.	in.	
Top	Bottom	Ft.	in.	

10. SAND/GRAVEL PACK:	Depth	Size	Material
Top	Bottom	Ft.	
Top	Bottom	Ft.	
Top	Bottom	Ft.	

11. DRILLING LOG

Top	Bottom	Formation Description
0	10	Orange clay
10	20	Silty clay
20	30	Weathered rock
30	50	Blue bed rock
/	/	
/	/	
/	/	
/	20	
/	/	
/	/	

12. REMARKS:

Well installed at 50' using sonic drilling
technol

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

Will Keyes 7/30/2014
SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE

Will Keyes
PRINTED NAME OF PERSON CONSTRUCTING THE WELL

Table 1.
SRS-FR Injection Summary
ATL No. 48
Pittsboro, North Carolina
H&H Job No. DOT-515

Well ID	SRS FR (gal)	Sodium Bicarbonate (lbs)	Dilution Water (gal)	Chase Water (gal)
48IW-1	65.5	15	553.5	315
48IW-2	1	-	19	10
48IW-3	65.5	15	406.5	980
48IW-4	44	10	271	485
48IW-5	44	10	271	390
Total	220	50	1,521	2,180

Notes:

gal = gallons, lbs = pounds

SRS-FR injection conducted on August 4 - 8, 2014.