hart hickman
SMARTER ENVIRONMENTAL SOLUTIONS

Via E-Mail

March 6, 2017

NC DEQ - DWR
1636 Mail Service Center
Raleigh, NC 27699-1636

Attention: Mr. Michael Rogers, PG

Re: UIC Permit Injection Event Record and Status Update – WI0500883
Former ATL Site No. 48
Pittsboro, North Carolina
H&H Job No. DOT-515

Dear Michael:

On behalf of the North Carolina Dept. of Transportation (NCDOT), Hart and Hickman, PC (H&H) is submitting the attached injection event record for the injection of Pepsi Bottling Ventures' (PBV) Beverage Remediation Product (BRP) on February 21, 2017 at the former Asphalt Testing Laboratory No. 48 in Pittsboro, North Carolina. Per the approved Underground Injection Control (UIC) permit application, approximately 2,500 gallons of BRP was injected into the infiltration gallery to enhance the biodegradation of trichloroethene, 1,1,1-trichlorethane, and their degradation products. Approximately 875 pounds of sodium bicarbonate and approximately 75 pounds sodium hexametaphosphate were mixed with the BRP to add buffering capacity and support the growth of biomass within the aquifer, respectively.

Prior to the addition of sodium bicarbonate and sodium hexametaphosphate, a sample was collected of the BRP and analyzed for total organic carbon (TOC) and density. The analytical laboratory report is attached. The BRP contained 108 g/L of TOC at a density of 1.114 g/mL. To extrapolate the approximate concentration of high fructose corn syrup (HFCS) from the carbon only TOC concentration, the TOC concentration was multiplied by the g/mole of fructose (180 g/mole) divided by the g/mole of organic carbon in fructose (72 g/mole). As a result, the HFCS concentration was determined to be approximately 270 g/L.

PBV is currently accumulating BRP for the next phase of the injection plan (injection into the existing bedrock injection wells). The accumulation of BRP has been slower than expected and the date that the next batch of BRP will be available is unknown. According to the monitoring plan in the approved UIC permit application, the performance monitoring will begin following the final injection event. In addition, performance monitoring was previously conducted for an infiltration gallery injection, but performance monitoring has not been conducted following a bedrock injection event, because BRP has not been injected into bedrock to date. Due to the unknown schedule regarding BRP availability, the NCDOT plans to begin performance monitoring one month following the first bedrock injection event (2 – 2,500 gallon batches of BRP).

If you have any questions or need further information, please do not hesitate to contact us at 704-586-0007.

Sincerely,

Hart & Hickman, PC

Greg Kanellis, PE
Senior Project Engineer

Matt Bramblett, PE
Principal

Attachment:
Laboratory Analytical Report

Enclosure

cc: Ms. Stephanie Grubbs, NC DEQ (via email)
Mr. Jason Prosser, NCDOT (via email)
Mr. Brian Gurganus, S.T. Wooten Corp. (via email)
Mr. Layton Long, Chatham County Health Dept. (via email)
Ms. Anne Lowry, Chatham County Health Dept. (via email)

North Carolina Department of Environmental Quality – Division of Water Resources

INJECTION EVENT RECORD (IER)

Permit Number WI0500883

1. **Permit Information**
   North Carolina Department of Transportation
   Attn: Jason Prosser, PG
   Permittee
   S.T. Wooten Asphalt Plant
   Former ATL Site 048
   Facility Name
   240 Sugar Lake Road
   Pittsboro, Chatham County NC 27312
   Facility Address (include County)

2. **Injection Contractor Information**

   Hart & Hickman, P.C.
   Injection Contractor / Company Name

   Street Address 2923 South Tryon Street, Suite 100

   Charlotte, NC 28203
   City State Zip Code

   (704) 586-0007
   Area code – Phone number

3. **Well Information**

   Number of wells used for injection None, injected into infiltration gallery

   Well IDs

   Were any new wells installed during this injection event?
   ☐ Yes ☒ No

   If yes, please provide the following information:

   Number of Monitoring Wells

   Number of Injection Wells

   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**

   Beverage Remediation Product (BRP)
   Injectant(s) Type
   270 g/L of high fructose corn syrup
   42 g/L of Na-bicarbonate
   Concentration 3.6 g/L of Na-hexametaphosphate

   If the injectant is diluted please indicate the source dilution fluid.

   Total Volume Injected (gal) 2,500 gal

   Volume Injected per well (gal) 2,500 gal

5. **Injection History**

   Injection date(s) 2/21/2017

   Injection number (e.g. 3 of 5) 1st to infiltration gallery under this permit

   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.

Gregory Kanellis 3/6/2017
SIGNATURE OF INJECTION CONTRACTOR DATE

Greg Kanellis
PRINT NAME OF PERSON PERFORMING THE INJECTION

Submit the original of this form to the Division of Water Resources within 30 days of injection.
Attn: UIC Program, 1636 Mail Service Center, Raleigh, NC 27699-1636, Phone No. 919-807-6464

Form UIC-IER
Rev. 3-1-2016

PRISM LABORATORIES, INC.
Full-Service Analytical & Environmental Solutions

NC Certification No. 402
NC Drinking Water Cert No. 37735
SC Certification No. 99012

Case Narrative

03/06/2017

Hart & Hickman (Raleigh)
Greg Kanellis
3334 Hillsborough St.
Raleigh, NC 27607

Project: DOT.515 Pittsboro
Project No.: WBS34613.313
Lab Submittal Date: 02/23/2017
Prism Work Order: 7020444

This data package contains the analytical results for the project identified above and includes a Case Narrative, Sample Results and Chain of Custody. Unless otherwise noted, all samples were received in acceptable condition and processed according to the referenced methods.

Data qualifiers are flagged individually on each sample. A key reference for the data qualifiers appears at the end of this case narrative.

Narrative Notes:

TOC analysis was subcontracted to GCAL. Laboratory report is attached.

Please call if you have any questions relating to this analytical report.

Respectfully,

PRISM LABORATORIES, INC.

Robbi A. Jones

President/Project Manager

Reviewed By Robbi A. Jones

President/Project Manager

Data Qualifiers Key Reference:

A	Density determined at 22 Degrees C.
BRL	Below Reporting Limit
MDL	Method Detection Limit
RPD	Relative Percent Difference
*	Results reported to the reporting limit. All other results are reported to the MDL with values between MDL and reporting limit indicated with a J.

PRISM LABORATORIES, INC. Full-Service Analytical & Environmental Solutions

Sample Receipt Summary

03/06/2017

Prism Work Order: 7020444

Client Sample ID	Lab Sample ID	Matrix	Date Sampled	Date Received
IG-Batch	7020444-01	Water	02/21/17	02/23/17

Samples were received in good condition at 1.7 degrees C unless otherwise noted.

449 Springbrook Road - P.O. Box 240543 - Charlotte, NC 28224-0543
Phone: 704/529-6364 - Toll Free Number: 1-800/529-6364 - Fax: 704/525-0409

Hart & Hickman (Raleigh)
Attn: Greg Kanellis
3334 Hillsborough St.
Raleigh, NC 27607

Project: DOT.515 Pittsboro

Project No.: WBS34613.313
Sample Matrix: Water

Client Sample ID: IG-Batch
Prism Sample ID: 7020444-01
Prism Work Order: 7020444
Time Collected: 02/21/17 14:00
Time Submitted: 02/23/17 08:20

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
General Chemistry Parameters									
Density	**1.114 A**	**g/mL**	**0.001000**		**1**	***In-house**	**3/2/17 15:13**	**HMBJ**	**P7C0044**

449 Springbrook Road - P.O. Box 240543 - Charlotte, NC 28224-0543
Phone: 704/529-6364 - Toll Free Number: 1-800/529-6364 - Fax: 704/525-0409

Hart & Hickman (Raleigh)
Attn: Greg Kanellis
3334 Hillsborough St.
Raleigh, NC 27607

Project: DOT.515 Pittsboro

Project No: WBS34613.313

Prism Work Order: 7020444
Time Submitted: 2/23/2017 8:20:00AM

General Chemistry Parameters - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7C0044 - NO PREP										
Duplicate (P7C0044-DUP1)		**Source: 7020444-01**		Prepared & Analyzed: 03/02/17						
Density	1.114	0.001000	g/mL		1.114			0.02	20	

Subcontracted Analyses

The following analyses were subcontracted to Gulf Coast Analytical Labs , Inc.

Lab Number	Analysis
7020444-01	TOC (Sub)

CHAIN OF CUSTODY RECORD

PRISM LABORATORIES, INC. | Full-Service Analytical & Environmental Solutions

449 Springbrook Road • Charlotte, NC 28217
Phone 704/529-6364 • Fax: 704/525-0409

PAGE 1 OF 1 QUOTE # TO ENSURE PROPER BILLING: _____

Project Name: DOT. SIS Pittsboro 34613.3.13
Short Hold Analysis: (Yes) (No) UST Project: (Yes) (NO)
*Please ATTACH any project specific reporting (QC LEVEL I II III IV) provisions and/or QC Requirements
Invoice To: accountspayable@harthickman.com
Address: 2923 S. Tryon Street ~~Parkway~~ Ste. 100
Charlotte, NC 28203
Purchase Order No./Billing Reference WBS. 34613.3.13

Client Company Name: Hart & Hickman
Report To/Contact Name: Greg Kunellis
Reporting Address: 3334 Hillsboro St.
Raleigh, NC 27607
Phone: 919-847-4241 Fax (Yes) (No): _____
Email Address: G-kunellis@harthickman.com
EDD Type: PDF ✓ Excel ✓ Other _____
Site Location Name: Pittsboro DOT. SIS
Site Location Physical Address: Pittsboro, NC

Requested Due Date ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days ☐ 5 Days
"Working Days" ☐ 6-9 Days ☑ Standard 10 days ☐ Rush Work Must Be Pre-Approved
Samples received after 14:00 will be processed next business day.
Turnaround time is based on business days, excluding weekends and holidays.
(SEE REVERSE FOR TERMS & CONDITIONS REGARDING SERVICES RENDERED BY PRISM LABORATORIES, INC. TO CLIENT)

LAB USE ONLY

	YES	NO	N/A
Samples INTACT upon arrival?	✓		
Received ON WET ICE?	✓		
PROPER PRESERVATIVES indicated?	✓		
Received WITHIN HOLDING TIMES?	✓		
CUSTODY SEALS INTACT?			✓
VOLATILES rec'd W/OUT HEADSPACE?	✓		
PROPER CONTAINERS used?	✓		

TEMP: Therm ID: IRT-11 Observed: 2.4 °C / Corr: 1.7 °C

TO BE FILLED IN BY CLIENT/SAMPLING PERSONNEL

Certification: NELAC____ DoD____ FL____ NC ✓
SC____ OTHER_____ N/A_____
Water Chlorinated: YES___ NO ✓
Sample Iced Upon Collection: YES ✓ NO___

CLIENT SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED MILITARY HOURS	MATRIX (SOIL, WATER OR SLUDGE)	SAMPLE CONTAINER *TYPE SEE BELOW	NO.	SIZE	PRESERVATIVES	ANALYSIS REQUESTED: TOC	ANALYSIS REQUESTED: Density	REMARKS	PRISM LAB ID NO.
IG-Batch	2/21/17	1400	water	VOA/P	4	40mL/1L 250mL plastic	HCL	X	X		01

PRESS DOWN FIRMLY - 3 COPIES

Sampler's Signature _____ Sampled By (Print Name) Jeffrey Ollis Affiliation H&H

Upon relinquishing, this Chain of Custody is your authorization for Prism to proceed with the analyses as requested above. Any changes must be submitted in writing to the Prism Project Manager. There will be charges for any changes after analyses have been initialized.

		Date	Military/Hours
Relinquished By: (Signature)	Received By: (Signature)	2-22-17	12:26
Relinquished By: (Signature)	Received By: (Signature)	~~2-22-17~~	~~12:47~~
Relinquished By: (Signature)	Received For Prism Laboratories By:	2/23/17	0820

Additional Comments: RPT 2/23/17 0750

Method of Shipment: NOTE: ALL SAMPLE COOLERS SHOULD BE TAPED SHUT WITH CUSTODY SEALS FOR TRANSPORTATION TO THE LABORATORY. SAMPLES ARE NOT ACCEPTED AND VERIFIED AGAINST COC UNTIL RECEIVED AT THE LABORATORY.

☐ Fed Ex ☐ UPS ☐ Hand-delivered ☐ Prism Field Service ☐ Other BRAUER 1-COOLER

COC Group No. 7020444

PRISM USE ONLY

Site Arrival Time:
Site Departure Time:
Field Tech Fee:
Mileage:

DES:	UST:	GROUNDWATER:	DRINKING WATER:	SOLID WASTE:	RCRA:	CERCLA	LANDFILL	OTHER:
NC ☐ SC	☐ NC ☐ SC	☐ NC ☐ SC	☐ NC ☐ SC	☐ NC ☐ SC	☐ NC ☐ SC	☐ NC ☐ SC	☐ NC ☐ SC	☐ NC ☐ SC
	☐ _____	☐ _____	☐ _____	☐ _____	☐ _____	☐ _____	☐ _____	☐ _____

SEE REVERSE FOR TERMS & CONDITIONS

CONTAINER TYPE CODES: A = Amber C = Clear G= Glass P = Plastic; TL = Teflon-Lined Cap VOA = Volatile Organics Analysis (Zero Head Space)

ORIGINAL

ACCESS
ANALYTICAL, INC.

ANALYTICAL REPORT

CLIENT
Prism Laboratories
PO Box 240543
Charlotte, NC 28224

ATTENTION
Robbi Jones

PROJECT ID
7020444

LABORATORY REPORT NUMBER
217022408

DATE
03/03/2017

Primary Data Review By

Authorized Signature

Secondary Data Review By

Ashley B. Amick
Project Manager, Access Analytical, Inc.
aamick@accessanalyticalinc.com

PLEASE NOTE:

- **Unless otherwise noted, all analysis on this report performed at Gulf Coast Analytical Labs (GCAL), 7979 Innovation Park Dr., Baton Rouge, LA 70820.**
- **GCAL is SCDHEC certified laboratory # 73006, NCDENR certified lab # 618, GA certified lab # LA-01955, NELAP certified laboratory # 01955**
- Local support services for this project are provided by Access Analytical, Inc.. Access Analytical is a representative of GCAL serving clients in the SC/NC/GA areas. All questions regarding this report should be directed to your local Access Analytical representative at 803.781.4243 or toll free at 888.315.4243.

Laboratory Endorsement

Sample analysis was performed in accordance with approved methodologies provided by the Environmental Protection Agency or other recognized agencies. The samples and their corresponding extracts will be maintained for a period of 30 days unless otherwise arranged. Following this retention period the samples will be disposed in accordance with GCAL's Standard Operating Procedures.

Common Abbreviations that may be Utilized in this Report

ND	Indicates the result was Not Detected at the specified reporting limit
NO	Indicates the sample did not ignite when preliminary test performed for EPA Method 1030
DO	Indicates the result was Diluted Out
MI	Indicates the result was subject to Matrix Interference
TNTC	Indicates the result was Too Numerous To Count
SUBC	Indicates the analysis was Sub-Contracted
FLD	Indicates the analysis was performed in the Field
DL	Detection Limit
DL	Diluted analysis – when appended to Client Sample ID
LOD	Limit of Detection
LOQ	Limit of Quantitation
RE	Re-analysis
CF	HPLC or GC Confirmation
00:01	Reported as a time equivalent to 12:00 AM

Reporting Flags that may be Utilized in this Report

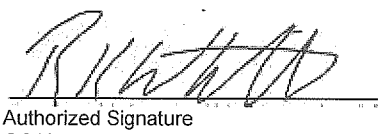
J or I	Indicates the result is between the MDL and LOQ
J	DOD flag on analyte in the parent sample for MS/MSD outside acceptance criteria
U	Indicates the compound was analyzed for but not detected
B or V	Indicates the analyte was detected in the associated Method Blank
Q	Indicates a non-compliant QC Result (See Q Flag Application Report)
*	Indicates a non-compliant or not applicable QC recovery or RPD – see narrative
E	The result is estimated because it exceeded the instrument calibration range
E	Metals - % diference for the serial dilution is > 10%
P	RPD between primary and confirmation result is greater than 40

Sample receipt at GCAL is documented through the attached chain of custody. In accordance with NELAC, this report shall be reproduced only in full and with the written permission of GCAL. The results contained within this report relate only to the samples reported. The documented results are presented within this report.

This report pertains only to the samples listed in the Report Sample Summary and should be retained as a permanent record thereof. The results contained within this report are intended for the use of the client. Any unauthorized use of the information contained in this report is prohibited.

I certify that this data package is in compliance with The NELAC Institute (TNI) Standard 2009 and terms and conditions of the contract and Statement of Work both technically and for completeness, for other than the conditions in the case narrative. Release of the data contained in this hardcopy data package and in the computer readable data submitted has been authorized by the Quality Assurance Manager or his/her designee, as verified by the following signature.

Estimated uncertainty of measurement is available upon request. This report is in compliance with the DOD QSM as specified in the contract if applicable.



Authorized Signature
GCAL Report 217022408

Case Narrative

Client: Access Analytical **Report:** 217022408

Gulf Coast Analytical Laboratories received and analyzed the sample(s) listed on the Report Sample Summary page of this report. Receipt of the sample(s) is documented by the attached chain of custody. This applies only to the sample(s) listed in this report. No sample integrity or quality control exceptions were identified unless noted below.

GENERAL CHEMISTRY

In the SM 5310 B-2011 analysis, sample 21702240801 (IG-BATCH) had to be diluted in order to bracket the Total Carbon and/or Total Inorganic Carbon concentrations within the calibration range of the instrument. The Total Organic Carbon is based on the difference between the Total Carbon and the Inorganic Carbon.

Summary of Compounds Detected

IG-BATCH				
	Collect Date	02/21/2017 14:00	**GCAL ID**	21702240801
	Receive Date	02/24/2017 09:50	**Matrix**	Water

SM 5310 B-2011

CAS#	Parameter	Result	DL	LOQ	Units
C-012	Total Organic Carbon	108000	600	4000	mg/L

General Chemistry QC Summary

Analytical Batch 605404		Client ID	MB605404		LCS605404				LCSD605404				
		GCAL ID	1658922		1658923				1658924				
		Sample Type	MB		LCS				LCSD				
		Prep Date	NA		NA				NA				
		Analysis Date	03/01/2017 09:49		03/01/2017 08:54				03/01/2017 14:15				
		Matrix	Water		Water				Water				
SM 5310 B-2011		Units Result	mg/L DL	Spike Added	Result	%R	Control Limits%R		Spike Added	Result	%R	RPD	RPD Limit
Total Organic Carbon	C-012	0.30U	0.30	50.0	47.5	95	90 - 110		50.0	48.2	96	1	20

Analytical Batch 605404		Client ID	AVE E (002) TOC		1658523MS				1658523MSD				
		GCAL ID	21702271901		1658925				1658926				
		Sample Type	SAMPLE		MS				MSD				
		Prep Date	NA		NA				NA				
		Analysis Date	03/01/2017 10:10		03/01/2017 10:33				03/01/2017 10:58				
		Matrix	Water		Water				Water				
SM 5310 B-2011		Units Result	mg/L DL	Spike Added	Result	%R	Control Limits%R		Spike Added	Result	%R	RPD	RPD Limit
Total Organic Carbon	C-012	8.4	0.30	50.0	56.5	96	80 - 120		50.0	59.0	101	4	20

Analytical Batch 605404		Client ID	U31PS201G		1658867MS				1658867MSD				
		GCAL ID	21702282901		1658927				1658928				
		Sample Type	SAMPLE		MS				MSD				
		Prep Date	NA		NA				NA				
		Analysis Date	03/01/2017 18:07		03/01/2017 18:29				03/01/2017 18:49				
		Matrix	Water		Water				Water				
SM 5310 B-2011		Units Result	mg/L DL	Spike Added	Result	%R	Control Limits%R		Spike Added	Result	%R	RPD	RPD Limit
Total Organic Carbon	C-012	75.4	3.0	500	581	101	80 - 120		500	580	101	0	20

SAMPLE RECEIVING CHECKLIST

GCAL ANALYTICAL LABORATORIES, LLC

* 2 1 7 0 2 2 4 0 8 *

SAMPLE DELIVERY GROUP 217022408

Client PM SAB3 4565 - Access Analytical	**Transport Method** FEDEX
Profile Number 80251	**Received By** Reese, Sean M.
Line Item(s) 34 - Water-TOC/ MEE /Formaldehyde/8082	**Receive Date(s)** 02/24/17

CHECKLIST	YES	NO	NA
Samples received with proper thermal and chemical preservation?	☑	☐	☐
Radioactivity is <1600 cpm? If no, record cpm value in notes section.	☑	☐	☐
When used, were custody seals intact?	☑	☐	☐
COC relinquished and complete (including sample IDs, collect dates/times, and sampler name)?	☑	☐	☐
Short holds or RUSH samples received?	☐	☑	☐
All containers received in good condition and within hold time?	☑	☐	☐
All sample labels and containers received match the chain of custody?	☑	☐	☐
Preservation checked at receipt? Exceptions: VOC, Coliform, TOC, Oil and Grease, DOC	☐	☐	☑
Preservative added to any containers?	☐	☐	☑
VOC water containers received with headspace < 6mm?	☐	☐	☑
Received filtered sample volume for dissolved analysis?	☐	☐	☑
Trip blank present in all coolers containing VOC waters?	☐	☐	☑
Samples collected in containers provided by GCAL?	☐	☑	☐

COOLERS

Airbill	Thermometer ID: E29	Temp(°C)
7785 0316 6109		0.2

DISCREPANCIES

None

LAB PRESERVATIONS

None

NOTES

Revision 1.6

Page 1 of 1