

January 24, 2013

Mr. Ed Mussler, P.E.  
Branch Head  
NCDENR – Division of Waste Management  
1646 Mail Service Center  
Raleigh, NC 27699-1646

**RE: Disposal of Scrap Glass from PPG Industries  
Davidson County C&D Landfill (SW Permit 29-06)  
Thomasville, North Carolina**

Dear Ed:

Davidson County has requested Smith Gardner, Inc. (S+G) evaluate the potential for disposal of scrap glass in their construction and demolition debris (C&D) landfill unit. The scrap glass is generated at PPG Industries' (PPG) Lexington, North Carolina plant and is currently being disposed of by the County in their municipal solid waste (MSW) landfill unit. Our evaluation consisted of a review of the pertinent rules regarding the disposal of industrial waste in a C&D landfill and a review of the results of a laboratory analysis of a sample of the waste provided by PPG.

### **Waste Stream Information**

The scrap glass from PPG's Lexington plant comes from the production of fiberglass. The scrap glass, which is kept separate from other mill waste streams, is placed in roll-off containers at the plant and delivered to the landfill. Based on recent data, approximately 12,000 tons of scrap glass is disposed of at the Davidson County Landfill each year.

### **Relevant Solid Waste Rules**

According to 15A NCAC.0542(e)(4) industrial solid waste is excluded from disposal at C&D facilities unless a demonstration has been made and is approved by the Division that the landfill meets the requirements of 15A NCAC.0503(2)(d)(ii)(A). These requirements state that the landfill shall have

*"a design that ensures the groundwater standards established under 15A NCAC 2L will not be exceeded in the uppermost aquifer at the compliance boundary established by the Division in accordance with 15A NCAC 2L. The design shall be based upon modeling methods that are acceptable to the Division which shall include at a minimum, the following factors:*

- 1. The hydrogeologic conditions of the facility and surrounding lands;*
- 2. The climatic factors of the area; and*
- 3. The volume and physical and chemical characteristics of the leachate."*

Mr. Ed Mussler  
January 24, 2013  
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The hydrogeologic conditions and climatic factors have been evaluated in prior permitting actions for the landfill<sup>1, 2, 3</sup>, which is unlined except for the Phase 1 portion which incorporated a geosynthetic clay liner (GCL) placed over the prepared subgrade. The key requirement is Item 3 relative to the volume and characteristics of the leachate. To be approved for disposal in an unlined landfill, it is obviously desirable that the leachate from the proposed waste not indicate any toxicity.

### Laboratory Results

To evaluate the anticipated leachate from the scrap glass, S+G requested that PPG provide an analysis of the waste in accordance with EPA Method 1311 – Toxicity Characteristic Leaching Procedure (TCLP) with the leachate from this procedure analyzed for metals using EPA Method 6010, for mercury using EPA Method 7470, and for volatile constituents using EPA Method 8260. The **attached** results from Pace Analytical (December 21, 2012) indicate there were no detectable concentrations of these constituents within the leachate generated from this material.

### Conclusion

Based on the results of the laboratory analysis which demonstrate the inert-nature of the waste, S+G does not feel that modeling is necessary. Further, given the level of segregation of this waste from other mill wastes, the chance for contamination with other PPG wastes is not likely and would easily be detected by landfill operations staff. Thus, we request on behalf of Davidson County that this waste be approved for disposal in the C&D landfill.

Please contact us at 919-828-0577 or by e-mail (below) if you have any questions or require any additional information. S+G would also welcome the opportunity to discuss this request with you further.

Sincerely,  
**SMITH GARDNER, INC.**



Joan A. Smyth, P.G.  
Senior Hydrogeologist  
[joan@smithgardnerinc.com](mailto:joan@smithgardnerinc.com)



Pieter K. Scheer, P.E.  
Senior Engineer  
[pieter@smithgardnerinc.com](mailto:pieter@smithgardnerinc.com)

Attachment: TCLP Laboratory Report

Cc: Charlie Brushwood, Davidson County  
John Murray, P.E., DWM  
Hugh Jernigan, DWM  
Brigette Tinsley, PPG

H:\Projects\Davidson County (NC)\DAVDCO-10-2 [C&DLF Phase 3-4]\PPG Waste Letter 1-24-13.docx

<sup>1</sup> *Permit to Construct Application, Davidson County C&D Landfill - Phase 1*, G. N. Richardson and Associates, Inc., July 2000.

<sup>2</sup> *Permit to Construct Application, Davidson County C&D Landfill - Phase 2*, G. N. Richardson and Associates, Inc., as revised through August 2005.

<sup>3</sup> *Permit Amendment Application, Davidson County C&D Landfill - Phases 3 & 4*, Richardson Smith Gardner and Associates, Inc., as revised through April 2011.

December 21, 2012

Ms. Brigette Tinsley  
PPG-Lexington

Lexington, NC 27292

RE: Project: Scrap Glass  
Pace Project No.: 92141068

Dear Ms. Tinsley:

Enclosed are the analytical results for sample(s) received by the laboratory on December 06, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Kevin Godwin for  
Erin Waters  
erin.waters@pacelabs.com  
Project Manager

Enclosures



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, Inc..



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(336)623-8921

**Pace Analytical Services, Inc.**  
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Asheville, NC 28804  
(828)254-7176

**Pace Analytical Services, Inc.**  
9800 Kinsey Ave. Suite 100  
Huntersville, NC 28078  
(704)875-9092

## CERTIFICATIONS

Project: Scrap Glass  
Pace Project No.: 92141068

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### Charlotte Certification IDs

9800 Kinsey Ave. Ste 100, Huntersville, NC 28078  
North Carolina Drinking Water Certification #: 37706  
North Carolina Field Services Certification #: 5342  
North Carolina Wastewater Certification #: 12  
South Carolina Certification #: 99006001

Florida/NELAP Certification #: E87627  
Kentucky UST Certification #: 84  
West Virginia Certification #: 357  
Virginia/VELAP Certification #: 460221

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### Asheville Certification IDs

2225 Riverside Dr., Asheville, NC 28804  
Florida/NELAP Certification #: E87648  
Massachusetts Certification #: M-NC030  
North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40  
South Carolina Certification #: 99030001  
West Virginia Certification #: 356  
Virginia/VELAP Certification #: 460222

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## REPORT OF LABORATORY ANALYSIS



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### SAMPLE SUMMARY

Project: Scrap Glass  
Pace Project No.: 92141068

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Lab ID	Sample ID	Matrix	Date Collected	Date Received
92141068001	SCRAP GLASS-basement	Other	12/06/12 07:30	12/06/12 15:35

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**SAMPLE ANALYTE COUNT**

Project: Scrap Glass  
 Pace Project No.: 92141068

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92141068001	SCRAP GLASS-basement	EPA 6010	JMW	7	PASI-A
		EPA 7470	SH1	1	PASI-A
		EPA 8260	DLK	15	PASI-C

**REPORT OF LABORATORY ANALYSIS**

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## ANALYTICAL RESULTS

Project: Scrap Glass

Pace Project No.: 92141068

**Sample: SCRAP GLASS-basement Lab ID: 92141068001** Collected: 12/06/12 07:30 Received: 12/06/12 15:35 Matrix: Other

**Results reported on a "dry-weight" basis**

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>6010 MET ICP, TCLP</b>		Analytical Method: EPA 6010 Preparation Method: EPA 3010						
		Leachate Method/Date: EPA 1311; 12/18/12 23:30						
Arsenic	ND mg/L		0.050	1	12/19/12 22:30	12/20/12 14:19	7440-38-2	
Barium	ND mg/L		0.050	1	12/19/12 22:30	12/20/12 14:19	7440-39-3	
Cadmium	ND mg/L		0.0050	1	12/19/12 22:30	12/20/12 14:19	7440-43-9	
Chromium	ND mg/L		0.025	1	12/19/12 22:30	12/20/12 14:19	7440-47-3	
Lead	ND mg/L		0.025	1	12/19/12 22:30	12/20/12 14:19	7439-92-1	
Selenium	ND mg/L		0.10	1	12/19/12 22:30	12/20/12 14:19	7782-49-2	
Silver	ND mg/L		0.025	1	12/19/12 22:30	12/20/12 14:19	7440-22-4	
<b>7470 Mercury, TCLP</b>		Analytical Method: EPA 7470 Preparation Method: EPA 7470						
		Leachate Method/Date: EPA 1311; 12/18/12 23:30						
Mercury	ND ug/L		0.20	1	12/20/12 11:45	12/21/12 11:29	7439-97-6	
<b>8260 MSV TCLP</b>		Analytical Method: EPA 8260						
Benzene	ND ug/L		190	38		12/11/12 02:13	71-43-2	
2-Butanone (MEK)	ND ug/L		380	38		12/11/12 02:13	78-93-3	
Carbon tetrachloride	ND ug/L		190	38		12/11/12 02:13	56-23-5	
Chlorobenzene	ND ug/L		190	38		12/11/12 02:13	108-90-7	
Chloroform	ND ug/L		190	38		12/11/12 02:13	67-66-3	
1,4-Dichlorobenzene	ND ug/L		190	38		12/11/12 02:13	106-46-7	
1,2-Dichloroethane	ND ug/L		190	38		12/11/12 02:13	107-06-2	
1,1-Dichloroethene	ND ug/L		190	38		12/11/12 02:13	75-35-4	
Tetrachloroethene	ND ug/L		190	38		12/11/12 02:13	127-18-4	
Trichloroethene	ND ug/L		190	38		12/11/12 02:13	79-01-6	
Vinyl chloride	ND ug/L		190	38		12/11/12 02:13	75-01-4	
<b>Surrogates</b>								
1,2-Dichloroethane-d4 (S)	103 %		70-130	38		12/11/12 02:13	17060-07-0	1g
Toluene-d8 (S)	98 %		67-135	38		12/11/12 02:13	2037-26-5	
4-Bromofluorobenzene (S)	100 %		70-130	38		12/11/12 02:13	460-00-4	
Dibromofluoromethane (S)	105 %		70-130	38		12/11/12 02:13	1868-53-7	

### QUALITY CONTROL DATA

Project: Scrap Glass  
Pace Project No.: 92141068

QC Batch: MERP/4777      Analysis Method: EPA 7470  
QC Batch Method: EPA 7470      Analysis Description: 7470 Mercury TCLP  
Associated Lab Samples: 92141068001

METHOD BLANK: 893942      Matrix: Water  
Associated Lab Samples: 92141068001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	12/21/12 11:24	

LABORATORY CONTROL SAMPLE: 893943

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	2.5	2.8	113	80-120	

MATRIX SPIKE SAMPLE: 893945

Parameter	Units	92141774002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	ND	2.5	3.1	125	75-125	

SAMPLE DUPLICATE: 893944

Parameter	Units	92141068001 Result	Dup Result	RPD	Max RPD	Qualifiers
Mercury	ug/L	ND	ND		20	

### QUALITY CONTROL DATA

Project: Scrap Glass  
Pace Project No.: 92141068

QC Batch: MPRP/12233 Analysis Method: EPA 6010  
QC Batch Method: EPA 3010 Analysis Description: 6010 MET TCLP  
Associated Lab Samples: 92141068001

METHOD BLANK: 893868 Matrix: Water  
Associated Lab Samples: 92141068001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.050	12/20/12 14:06	
Barium	mg/L	ND	0.050	12/20/12 14:06	
Cadmium	mg/L	ND	0.0050	12/20/12 14:06	
Chromium	mg/L	ND	0.025	12/20/12 14:06	
Lead	mg/L	ND	0.025	12/20/12 14:06	
Selenium	mg/L	ND	0.10	12/20/12 14:06	
Silver	mg/L	ND	0.025	12/20/12 14:06	

LABORATORY CONTROL SAMPLE: 893869

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	2.5	2.7	109	80-120	
Barium	mg/L	2.5	2.4	94	80-120	
Cadmium	mg/L	2.5	2.4	95	80-120	
Chromium	mg/L	2.5	2.4	96	80-120	
Lead	mg/L	2.5	2.2	90	80-120	
Selenium	mg/L	2.5	2.7	106	80-120	
Silver	mg/L	1.2	1.3	104	80-120	

MATRIX SPIKE SAMPLE: 893873

Parameter	Units	92141774002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	ND	2.5	2.6	105	75-125	
Barium	mg/L	0.48	2.5	2.8	91	75-125	
Cadmium	mg/L	ND	2.5	2.3	93	75-125	
Chromium	mg/L	ND	2.5	2.4	94	75-125	
Lead	mg/L	ND	2.5	2.2	88	75-125	
Selenium	mg/L	ND	2.5	2.6	103	75-125	
Silver	mg/L	ND	1.2	1.3	100	75-125	

SAMPLE DUPLICATE: 893874

Parameter	Units	92141068001 Result	Dup Result	RPD	Max RPD	Qualifiers
Arsenic	mg/L	ND	ND		20	
Barium	mg/L	ND	.0052J		20	
Cadmium	mg/L	ND	ND		20	
Chromium	mg/L	ND	.0063J		20	
Lead	mg/L	ND	ND		20	



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### QUALITY CONTROL DATA

Project: Scrap Glass  
Pace Project No.: 92141068

SAMPLE DUPLICATE: 893874

Parameter	Units	92141068001 Result	Dup Result	RPD	Max RPD	Qualifiers
Selenium	mg/L	ND	ND		20	
Silver	mg/L	ND	ND		20	

### QUALITY CONTROL DATA

Project: Scrap Glass  
Pace Project No.: 92141068

QC Batch: MSV/21381 Analysis Method: EPA 8260  
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV TCLP  
Associated Lab Samples: 92141068001

METHOD BLANK: 887085 Matrix: Water  
Associated Lab Samples: 92141068001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1-Dichloroethene	ug/L	ND	5.0	12/10/12 15:44	
1,2-Dichloroethane	ug/L	ND	5.0	12/10/12 15:44	
1,4-Dichlorobenzene	ug/L	ND	5.0	12/10/12 15:44	
2-Butanone (MEK)	ug/L	ND	10.0	12/10/12 15:44	
Benzene	ug/L	ND	5.0	12/10/12 15:44	
Carbon tetrachloride	ug/L	ND	5.0	12/10/12 15:44	
Chlorobenzene	ug/L	ND	5.0	12/10/12 15:44	
Chloroform	ug/L	ND	5.0	12/10/12 15:44	
Tetrachloroethene	ug/L	ND	5.0	12/10/12 15:44	
Trichloroethene	ug/L	ND	5.0	12/10/12 15:44	
Vinyl chloride	ug/L	ND	5.0	12/10/12 15:44	
1,2-Dichloroethane-d4 (S)	%	100	70-130	12/10/12 15:44	
4-Bromofluorobenzene (S)	%	97	70-130	12/10/12 15:44	
Dibromofluoromethane (S)	%	105	70-130	12/10/12 15:44	
Toluene-d8 (S)	%	100	67-135	12/10/12 15:44	

LABORATORY CONTROL SAMPLE: 887086

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1-Dichloroethene	ug/L	50	50.8	102	70-141	
1,2-Dichloroethane	ug/L	50	49.6	99	70-139	
1,4-Dichlorobenzene	ug/L	50	47.9	96	70-141	
2-Butanone (MEK)	ug/L	100	92.4	92	63-150	
Benzene	ug/L	50	49.6	99	70-132	
Carbon tetrachloride	ug/L	50	49.5	99	70-150	
Chlorobenzene	ug/L	50	49.4	99	70-134	
Chloroform	ug/L	50	51.5	103	70-130	
Tetrachloroethene	ug/L	50	49.0	98	70-137	
Trichloroethene	ug/L	50	48.0	96	70-131	
Vinyl chloride	ug/L	50	49.0	98	56-144	
1,2-Dichloroethane-d4 (S)	%			103	70-130	
4-Bromofluorobenzene (S)	%			100	70-130	
Dibromofluoromethane (S)	%			105	70-130	
Toluene-d8 (S)	%			100	67-135	

## QUALIFIERS

Project: Scrap Glass  
Pace Project No.: 92141068

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### LABORATORIES

PASI-A Pace Analytical Services - Asheville

PASI-C Pace Analytical Services - Charlotte

### ANALYTE QUALIFIERS

1g 8260 results are from a total analysis which show that analytes are not present or that they are present but at such low levels that the appropriate regulatory levels could not possibly be exceeded, per Section 1.2 of Method 1311.



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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Scrap Glass  
Pace Project No.: 92141068

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92141068001	SCRAP GLASS-basement	EPA 3010	MPRP/12233	EPA 6010	ICP/11175
92141068001	SCRAP GLASS-basement	EPA 7470	MERP/4777	EPA 7470	MERC/4672
92141068001	SCRAP GLASS-basement	EPA 8260	MSV/21381		



# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A  
 Required Client Information:  
 Company: PPG Ind. Fiber Glass Products Inc.  
 Address: 473 New Jersey Church Road  
 Lexington NC, 27292  
 Phone: 336-357-8151 X317 Fax: 336-357-7171  
 Requested Due Date/AT: 5 copy - quickest

Section B  
 Required Project Information:  
 Report To: Bigette Tinsley  
 Copy To:  
 Purchase Order No.: VISA  
 Project Name: Scrap Glass  
 Project Number:

Section C  
 Invoice Information:  
 Attention: email copy to blinsley@ppg.com  
 Company Name: PPG Ind. Fiber Glass Products  
 Address: 473 New Jersey Church Rd. Lex. NC  
 PPG Code  
 Reference: Elin Waters  
 PPG Project Manager:  
 PPG Profile #: 2364-6  
 Requested Analysis Filled (Y/N)

REGULATORY AGENCY  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RORA  
 Site Location STATE: NC

ITEM #	Section D Required Client Information	Valid Matrix Codes MATRIX DRINKING WATER WASTE WATER WASTE WATER PRODUCT SCULPSOLID WILE WIRE WIP WIP AN OTHER TISSUE	CODE DW WT WW P SL WC WIP AN OT	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Analysis Test	Residual Chlorine (Y/N)	Face Project No./ Lab ID.
						COMPOSITE STREET	COMPOSITE ENDUSE						
1	SCRAP GLASS-basement								1	Unpreserved H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> HCl NaOH Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> Methanol Other	TCLP (Metals) Method 8260 Method 8270	N	92141868
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													

RELEASING BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
<i>[Signature]</i>	12/6/12	14:00	<i>[Signature]</i>	12/6/12	15:35	Temp in °C: 26.45
<i>[Signature]</i>	12/6/12	15:35	<i>[Signature]</i>	12/6/12	15:35	Received on Ice (Y/N):
<i>[Signature]</i>	12/6/12	15:35	<i>[Signature]</i>	12/6/12	15:35	Custody Sealed Cooler (Y/N):
<i>[Signature]</i>	12/6/12	15:35	<i>[Signature]</i>	12/6/12	15:35	Samples Intact (Y/N):

Take care when handling glass sample - may stick fingers.

Additional Comments:

Temp in °C: 26.45

Received on Ice (Y/N):

Custody Sealed Cooler (Y/N):

Samples Intact (Y/N):

Printer Name of Sampler: Bigette Tinsley

Signature of Sampler: *[Signature]*

Date Signed (MM/DD/YY): 12/06/12

