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07 January 2009

Bruce McClellan Paulus, Sokolowski and Sartor Engineering, PC 67A Mountain Boulevard Extension Warren, New Jersey 07059

RE: WBS 301 GROUT PERMEABILITY TEST RESULTS,
WATERLOO BARRIER® SYSTEM INSTALLATION,
OPERABLE UNIT NO. 1, BAY SHORE FORMER MANUFACTURED GAS PLANT (MGP)
SITE, BAY SHORE, SUFFOLK COUNTY, NEW YORK

Dear Mr. McClellan:

This cover letter and attachments are issued as an addendum to the "Waterloo Barrier® System Installation Report," dated August 2008, prepared by C3 Environmental Limited (C3) for National Grid US (National Grid). C3's proprietary pre-packaged silica fume-modified, cement based grout, "WBS 301," was utilized to seal joints of the Waterloo Barrier® System installed at National Grid's Bay Shore Former MGP site between May 3, 2007 and May 9, 2008.

Permeability testing of the WBS 301 grout was conducted in accordance with the technical specification included in the "Remedial Design Report, Phase I, Waterloo Barrier® System and Southern Cell Excavation for the Bay Shore Former Manufactured Gas Plant (MGP) Site, Operable Unit No. 1, Bay Shore, Suffolk County, New York," dated April 2007 and prepared by PS&SPC. On August 20, 2007 and on September 13, 2007, samples of the WBS 301 grout were collected from the grout mixing plant for permeability testing during the joint sealing activities. The testing samples were inadvertently damaged during the course of transportation; therefore, these samples could not be used for testing purposes.

In July 2008, C3 prepared two replacement samples of WBS 301 grout which were submitted for testing purposes. The mix design and all constituent elements including mixing of the WBS 301 grout cast in July 2008 were the same as the WBS 301 grout which was used to complete the installation of the Waterloo Barrier® System. Additionally, the July 2008 grout samples were cast using the same techniques, methods and procedures that were used to collect and cast the initial grout samples.

C3 is pleased to submit the following supporting attachments in regard to WBS 301 grout permeability testing:

## 1. Letter Report from Davro Testing Laboratory of Brampton, Ontario, October 20, 2008

The letter report includes permeability test results for two samples of WBS 201 cast in July 2008. The reported permeability measurements are  $89.48 \times 10^{-15}$  m/s and  $86.59 \times 10^{-15}$  m/s. The results demonstrate that the WBS 301 grout meets the minimum hydraulic conductivity of  $1 \times 10^{-5}$  cm/s as directed by the RDR Technical Specification Section 02261.

## 2. Affidavit signed by Minh Le of C3 on January 6, 2009

C3's affidavit attesting to grout mix WSB 301 being used for the August 2007, September 2007 and July 2008 permeability testing and the methods for grout mixing, sample collection, casting and testing were the same for both sets of samples.



## 3. Technical Data, WBS 301 – Waterloo Barrier® Grout Permeability Testing, February 2001

The Technical Data sheet for WBS 301 represents the independent testing results and established design baseline for permeability of 3.19x10<sup>-15</sup> m/s. The testing results for July 2008 grout samples are consistent with and within an order of magnitude as grout design baseline testing result.

If you have any questions, please do not hesitate to contact the undersigned at your convenience.

Yours truly,

C3 Environmental Limited

Minh Le, P.Eng.

Vice President & General Manager