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Transmitted Via Federal Express

January 11, 2005

Mr. Martin L. Doster, P.E.
Regional Hazardous Waste Remediation Engineer
Division of Environmental Remediation
New York State Department of Environmental Conservation
270 Michigan Avenue
Buffalo, New York 14203-2999

Re: Groundwater Monitoring Well Installation/Abandonment Report
Bern Metal/Universal Metal Site
Buffalo, New York
BBL Project #: 778.11.005

Dear Mr. Doster:

On behalf of the Cooperating Potentially Responsible Parties (CPRP) Group, Blasland, Bouck & Lee, Inc. (BBL) has prepared this letter to summarize the completion efforts associated with the installation of two new groundwater monitoring wells (i.e., RD-3R and RD-5) and the abandonment of monitoring well RD-3 and piezometer PZ-1 at the Bern Metal/Universal Metal Site (site) located in Buffalo, New York. These activities were performed in response to the New York State Department of Environmental Conservation's (NYSDEC's) July 8, 2004 letter to Mr. Dennis Sutton, P.G., C.P.G. (City of Buffalo) and R. Hugh Stephens, Esq. (Stephens & Stephens, LLP), which requested the abandonment and replacement of piezometer PZ-1 and groundwater monitoring well RD-3.

The groundwater monitoring well installation and well/piezometer abandonment activities were performed by Nothnagle Drilling, Inc., (Nothnagle) of Scottsville, New York as a subcontractor to and under the supervision of BBL, in accordance with the NYSDEC-approved *Operation, Maintenance, and Monitoring Plan* (OMM Plan), which was prepared by BBL (May 2003) and approved by the NYSDEC in a letter to BBL dated June 9, 2003.

The groundwater monitoring well installation and well/piezometer abandonment activities were performed between December 1 and 2, 2004, and the well development activities were performed by BBL on December 2, 2004 (RD-5) and December 13, 2004 (RD-3R). The groundwater monitoring well installation and development, as well as the well/piezometer abandonment activities, are summarized below.

Summary of New Groundwater Monitoring Well Installation Activities

The new groundwater monitoring wells were installed at the locations shown on the figure provided in Attachment 1. Monitoring well RD-5 was installed adjacent to piezometer PZ-1, and replacement monitoring well RD-3R was located based on the results of a soil boring program. Six direct-push soil

borings were installed to an approximate depth of 8 feet below ground surface (bgs) near well RD-3 in order to choose a location for the replacement well that might produce a sufficient volume of groundwater to collect samples. At the conclusion of the soil boring program, a location for replacement monitoring well RD-3R was chosen with the concurrence of Mr. Jaspal Walia (NYSDEC), as illustrated on the attached figure (Attachment 1).

In accordance with the OMM Plan, each monitoring well was constructed under the supervision of a BBL geologist using the following procedure:

- At RD-5, a drill rig with 4¼-inch-inside-diameter (I.D.) hollow-stem augers (HSAs) was used initially to drill the borehole. To enable the installation of a 4-inch-diameter monitoring well at location RD-3R, as requested by the NYSDEC, 6¼-inch-I.D. HSAs were used to advance the borehole.

- Soil sampling was performed at 4-foot intervals using a 1.5-inch-diameter MacroCore® sampler to identify the top of clay surface. The HSAs were advanced after each 4-foot MacroCore® sample was retrieved and logged, until the targeted well completion depth was reached. Completion specifications for each groundwater monitoring well (including well total depth, well screen and sandpack intervals, bentonite seal thickness and interval, and surface seal completion) were determined in the field by BBL based on the materials encountered during the sampling of soil from the boring.

- During the boring activities, the soil drill cuttings were placed in two steel 55-gallon drums, and were staged inside the main gate (located at the end of Bender Avenue) for subsequent offsite transportation/disposal.

- Both groundwater monitoring wells were constructed using Schedule 40 polyvinyl chloride (PVC) (2-inch-I.D. at RD-5 and 4-inch-I.D. at RD-3R) flush-thread riser pipe with Schedule 40 PVC 0.010-inch slotted well screen (i.e., continuous wrap screen). The well screen length was approximately 5 feet for each groundwater monitoring well.

- Following the installation of the PVC riser pipe and well screen, sandpack (00N Grade Morie) was placed from approximately 6 inches below the bottom of the well screen to a minimum of 1 foot above the well screen.

- Approximately 1.5 feet of hydrated bentonite chips were placed above the sandpack to approximately 1.5 feet bgs.

- Concrete surface seals (approximately 1.5 feet thick) were placed directly over the hydrated bentonite chips in monitoring wells RD-3R and RD-5. The surface of the pad was tapered to promote drainage away from the groundwater monitoring well. Within the concrete surface seal, a steel protective stick-up casing was installed over the groundwater monitoring wells and extended aboveground approximately 3 feet.

- The PVC riser pipe for each groundwater monitoring well was fitted with an expandable plug, and the protective casing was secured with keyed-alike locks.

Upon the completion of the groundwater monitoring well installations, BBL prepared a well log for each groundwater monitoring well to document the installation dimensions and materials used in construction. Copies of the well logs for both groundwater monitoring wells are included in Attachment 2.

In addition, BBL retained Wendel Duchscherer Survey of Lockport, New York to survey the location of both wells, as well as to obtain the elevation of the inner casing, top of well, and ground surface for the wells. The final location and survey information are shown on the figure included in Attachment 1.

Summary of Groundwater Monitoring Well Development Activities

Upon installation, the groundwater monitoring wells were developed by BBL to provide a hydraulic connection between the screened interval of the monitoring wells and the shallow aquifer. The monitoring wells were surged and purged using dedicated, disposable bailers, removing approximately two and seven well volumes at monitoring wells RD-3R and RD-5, respectively, due to low water volume and slow recharge rate in the wells.

Development water was removed from each groundwater monitoring well and was placed in one 55-gallon drum, which was staged inside the facility main gate for subsequent offsite transportation/disposal.

Groundwater Monitoring Well/Piezometer Abandonment

Monitoring well RD-3 and piezometer PZ-1 were originally installed on August 12, 2003. Copies of the well construction logs for the monitoring well and piezometer are presented in Attachment 3. The well construction logs for monitoring well RD-3 and piezometer PZ-1 indicate that 4¼-inch-I.D. HSAs were used to produce an approximately 8-inch-diameter borehole. The total depths for monitoring well RD-3 and piezometer PZ-1 were approximately 8 feet bgs and 10 feet bgs, respectively.

Monitoring well RD-3 and piezometer PZ-1 were abandoned in accordance with procedures set forth in 6 New York Code of Rules and Regulations Part 360. Under the observation of an onsite BBL geologist, Nothnagle performed the abandonment activities using a Power Probe 6610D drill rig. Prior to performing the abandonment activities, BBL's geologist measured and recorded the total depth of the monitoring well and piezometer and compared those depth measurements to the monitoring well construction logs. Prior to over-drilling, Nothnagle removed the protective well casings and surface completions at both locations.

Monitoring well RD-3 and piezometer PZ-1 were over-drilled by Nothnagle using 4¼-inch-I.D. HSAs to the original completion depth of 8 feet bgs and 10 feet bgs, respectively, as per the well construction logs. Prior to over-drilling, Nothnagle installed AWJ drill rods down the center of monitoring well RD-3 to be used as a guide during drilling. The 1-inch-I.D. PVC casing was pulled from the ground at piezometer PZ-1 to enable Nothnagle to install the AWJ drill rods to depth. The AWJ drill rods were used to confirm that the HSAs stay centered on the well during drilling. After over-drilling to the targeted depth was completed, the AWJ drill rods were removed. The boreholes were then sealed by pressure-injecting cement/bentonite grout, via the tremie method, to within approximately 1 foot bgs. The remainder of the borehole was filled with soil material to match the existing grade. The well abandonment logs for the monitoring well and piezometer are presented in Attachment 3.

Summary

The installation and development of the groundwater monitoring wells are now complete, and the three 55-gallon drums of soil drill cuttings and development water were transported offsite for disposal on December 16, 2004. If you have any questions regarding the information presented in this letter, please call me at (585) 385-0090, ext. 12.

Sincerely,

BLASLAND, BOUCK & LEE, INC.

Joseph Molina III

Joseph Molina III, P.E.
Vice President

JM/mey
Enclosure

cc: Mr. Jaspal Walia, P.E., New York State Department of Environmental Conservation
R. Hugh Stephens, Esq., Stephens & Stephens, LLP
Robert Glanville, Esq., Phillips, Lytle, Hitchcock, Blaine & Huber
David Flynn, Esq., Phillips, Lytle, Hitchcock, Blaine & Huber
Seth Davis, Esq., Huber, Lawrence & Abell
Richard Stanton, Esq., City of Buffalo
Brenda Joyce, Esq., Jaeckle, Fleischman & Mugel, LLP
Ms. Maria Kaouris, Honeywell
Ms. Tanya Alexander, National Fuel Gas
Mr. Joseph M. Simone, P.E., New York State Electric and Gas Corporation
Mr. Edward E. Peterson, General Motors Corporation
Mr. Dennis Sutton, City of Buffalo
Mr. William B. Popham, Blasland, Bouck & Lee, Inc.

Attachment 1

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Attachment 2

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Date Start/Finish: 12/2/04 **Drilling Company:** Nothnagle Drilling, Inc. **Driller's Name:** Jeff Switzer **Drilling Method:** Hollow Stem Augers **Bit Size:** NA **Auger Size:** 6-1/4-inch ID HSA **Rig Type:** Power Probe 6610D **Sampling Method:** 4' Macrocore	**Northing:** 1048734.7 **Easting:** 1080410.5 **Casing Elevation:** 592.85 ft. AMSL **Borehole Depth:** 9.00 ft. bgs **Surface Elevation:** 590.4 ft. AMSL **Geologist:** Michael R. Arlauckas	**Well/Boring ID:** RD-3R **Client:** Bern Metal / Universal Metals **Location:** Buffalo, New York

DEPTH	ELEVATION	Sample Run Number	Interval	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
										Locking protective casing.
0	590								Brown f-m SAND, trace angular rock fragments and organics, moist.	Concrete surface pad.
									Brown, f-m SAND, little angular f Gravel, trace Silt, trace Clay, moist.	
		1	0-4'	3.8					Brown, f-m SAND, little Silt, moist.	Hydrated bentonite chips (1.49' - 3.02' bgs).
									Dark brown to gray, f-c SAND, little black cinders, ash, coal, trace angular f Gravel, wet.	
5	585								Brown, SILTY CLAY, gray mottling, dry.	4-inch diameter SCH 40 PVC flush thread Riser (2.50' ags - 4.00' bgs).
		2	4'-8'	3.7					Brown, CLAY, gray mottling, dry.	Silica Sandpack (3.02' - 9.00' bgs).
		3	8'-9'	1.5						4-inch diameter SCH 40 PVC 0.010 slotted well screen (4.00' - 9.00' bgs).
10	580									
15	575									

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Remarks:

Date Start/Finish: 12/1/04
Drilling Company: Nothnagle Drilling, Inc.
Driller's Name: Jeff Switzer
Drilling Method: Hollow Stem Augers
Bit Size: NA
Auger Size: 4-1/4-inch ID HSA
Rig Type: Power Probe 6610D
Sampling Method: 4' Macrocore

Northing: 1048479.1
Easting: 1080420.4
Casing Elevation: 595.46 ft. AMSL

Borehole Depth: 9.00 ft. bgs
Surface Elevation: 593.0 ft. AMSL

Geologist: Michael R. Arlauckas

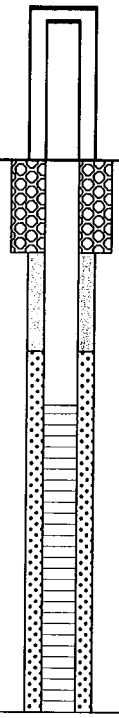
Well/Boring ID: RD-5

Client: Bern Metal / Universal Metals

Location: Buffalo, New York

DEPTH / ELEVATION	Sample Run Number	Interval	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
595								
0							× × × ×	(0.0' - 0.9') Gray, Rock Fragments, little f-m angular Gravel, moist.
								(0.9' - 2.3') Brown to Tan, f-m SAND, little angular to subangular f Gravel, moist.
	1	0-4'	3.8					(2.3' - 4.5') Brown, SILTY CLAY, some f Sand, trace subangular f Gravel, moist
590								
5								(4.5' - 6.7') Dark brown, SILT, some f Sand, trace subangular f Gravel and Clay, moist.
	2	4'-8'	3.7					
								(6.8' - 7.8') Brown, CLAY, little angular f Gavel, trace Silt, moist to damp.
585								
	3	8'-9.5'	1.5					(7.8' - 9.0') Brown, CLAY, moist.
10								
580								
15								

Well/Boring Construction



Locking protective casing.

Concrete surface pad.

Hydrated bentonite chips (1.51' - 3.12' bgs).

2-inch diameter SCH 40 PVC flush thread Riser (2.48' ags - 4.00' bgs).

Silica Sandpack (3.12' - 9.00' bgs).

2-inch diameter SCH 40 PVC 0.010 slotted well screen (4.00' - 9.00' bgs).

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Remarks:

Attachment 3

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Date Start/Finish: 08/12/03
Drilling Company: Nothnagle Drilling Inc.
Driller's Name: Kevin Busch
Drilling Method: Hollow Stem Auger
Bit Size: NA
Auger Size: 4-1/4" ID
Rig Type: BK-81
Sampling Method: 2' x 2-inch Split Spoon

Northing:
Easting:
Casing Elevation:

Borehole Depth: 10.0 ft.
Surface Elevation:

Geologist: Shawn P. Skelly

Well/Boring ID: PZ-1

Client: Bern Metals / Universal Metals

Location: Buffalo, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Piezometer Construction
0 / 0									Locking protective casing (3.1' ags - 0).
	S-1	0-2'	1.5'	4, 2, 6, 6	8	0.0		Gray, fine to medium GRAVEL, dry. Brown, fine to medium SAND, some fine Gravel, damp.	Concrete surface seal (0 - 1.0' bgs).
	S-2	2'-4'	1.6'	7, 7, 6, 6	13	0.0		Brown, Silty CLAY, little fine Gravel and little fine to medium Sand, damp.	Bentonite Seal (1.0' - 2.9' bgs).
	S-3	4'-6'	1.4'	3, 2, 2, 2	4	0.0		Dark brown, SILT, some fine Sand, some to little fine Gravel, little Clay and little Ash, damp to wet.	1-inch dia. Sch. 40 PVC flush thread riser (2.75' ags - 4.0' bgs).
5 / -5	S-4	6'-8'	1.4'	2, 3, 5, 8	8	0.0		Brown, CLAY, some fine Gravel, little Silt, little gray mottling, wet.	ØØN Sand Pack (2.9' - 10.0' bgs).
	S-5	8'-10'	1.8'	5, 8, 14, 14	22	0.0		Brown, CLAY, wet.	1-inch dia. Sch. 40 PVC 0.010-inch continuous slot Well Screen (4.0' - 9.0' bgs).
10 / -10									

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Remarks:
NA: Not applicable.

Water Level Data

Date	Depth	Elev.
08/22/03	6.93'	

Depth measured from top of casing

Project: 77811
Data File: PZ-1

Template:
Date: 08/27/03

Date Start/Finish: 12/1/04 **Drilling Company:** Nothnagle Drilling, Inc. **Driller's Name:** Jeff Switzer **Drilling Method:** Hollow Stem Augers **Bit Size:** NA **Auger Size:** 4-1/4-inch ID HSA **Rig Type:** Power Probe 6610D **Sampling Method:**	**Northing:** 1048472.4 **Easting:** 1080416.6 **Casing Elevation:** ft. AMSL **Borehole Depth:** 10 ft. bgs **Surface Elevation:** 592.9 ft. AMSL **Geologist:** Michael R. Arlauckas	**Well/Boring ID:** PZ-1 (Abandoned) **Client:** Bern Metals / Universal Metals **Location:** Buffalo, New York

DEPTH / ELEVATION	Sample Run Number	Interval	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
595									
0								Boring grouted to surface with cement/bentonite grout.	Cement/Bentonite grout from groundsurface to 10.0' bgs.
590									
5									
585									
10									
580									
15									

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Remarks:

Date Start/Finish: 08/12/03

Drilling Company: Nothnagle Drilling Inc.
Driller's Name: Kevin Busch
Drilling Method: Hollow Stem Auger
Bit Size: NA
Auger Size: 4-1/4" ID
Rig Type: BK-81
Sampling Method: 2' x 2-inch Split Spoon

Northing:
Easting:
Casing Elevation:

Borehole Depth: 8.0 ft.
Surface Elevation:

Geologist: Shawn P. Skelly

Well/Boring ID: RD-3

Client: Bern Metals / Universal Metals

Location: Buffalo, New York

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Piezometer Construction
0 / 0	S-1	0-2'	1.5'	1 2 10 4	11	0.0		Brown/tan, fine to medium SAND, trace Organics, dry.	Locking protective casing (3.10' ags - 0).
								Brown, fine to medium SAND, some fine Gravel, little Silt, dry.	Concrete surface seal (0 - 1.0' bgs).
	S-2	2'-4'	1.7'	6 5 5 6	10	0.0		Brown Silty CLAY, some to little fine Gravel and coarse Sand, dry.	Bentonite Seal (1.0' - 1.5' bgs). 2-inch dia. Sch. 40 PVC flush thread riser (2.65' ags - 2.35' bgs).
-5 / -5	S-3	4'-6'	1.8'	6 6 8 13	14	0.0		Brown, CLAY, little Silt, trace gray mottling.	2-inch dia. Sch. 40 PVC 0.010-inch continuous slot Well Screen (2.35' - 4.85' bgs).
	S-4	6'-8'	1.7'	12 20 20 18	14	0.0		Brown, CLAY, dry.	ØØN Sand Pack (1.5' - 8.0' bgs).

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Remarks:
NA: Not applicable.

Water Level Data

Date	Depth	Elev.
08/22/03	4.34'	

Depth measured from top of casing

Project: 77811
Data File: RD-3

Template:
Date: 08/27/03

Date Start/Finish: 12/2/04
Drilling Company: Nothnagle Drilling, Inc.
Driller's Name: Jeff Switzer
Drilling Method: Hollow Stem Augers
Bit Size: NA
Auger Size: 4-1/4-inch ID HSA
Rig Type: Power Probe 6610D
Sampling Method:

Northing: 1048714.8
Easting: 1080396.3
Casing Elevation: ft. AMSL

Borehole Depth: 8 ft. bgs
Surface Elevation: 590.8 ft. AMSL

Geologist: Michael R. Arlauckas

Well/Boring ID: RD-3 (Abandoned)

Client: Bern Metals / Universal Metals

Location: Buffalo, New York

DEPTH / ELEVATION	Sample Run Number	Interval	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0 / 590								Boring grouted to surface with cement/bentonite grout.	Cement/Bentonitte grout from groundsurface to 8.0' bgs.
5 / 585									
10 / 580									
15 / 575									

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Remarks: