URS

August 4, 2010

Michael J. Hinton, P.E.
New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 9
270 Michigan Avenue
Buffalo, New York 14203-2999

Re: Voluntary Cleanup Program
Niacet Corporation Site #V00373-9
Supplemental Investigations Scope of Work

Dear Mr. Hinton:

As discussed, URS Corporation – New York (URS) on behalf of Union Carbide Corporation (UCC) recently completed Treatability Studies for treatment of mercury-contaminated soils at the UCC Niacet Site in Niagara Falls, New York. The objective of the studies was to develop and evaluate various stabilization methods/procedures to determine the most cost-effective remedial approach.

Four potential remedial contractors were retained to perform the studies. Samples of soil containing visible beads of mercury were collected from the site and provided to the contractors for testing. Analysis of this soil by URS indicated a total mercury concentration of 11,400 mg/kg and a TCLP mercury concentration of 1.89 mg/L. Testing by the remedial contractors also showed the soil sample with visible mercury failing TCLP. As such, the soil would be classified as characteristically hazardous for mercury. This is a significant change from the initial testing performed by DEC during the previous site investigations which showed the soils passing TCLP, and being non-hazardous. This result may strictly be a function of the sample that was collected, as it appears to represent a 'worst-case' scenario based on the amount of visible mercury present in the sample. However, it does raise the question of whether or not other soils on site containing visible mercury and/or high concentrations of disseminated mercury might also fail TCLP. As you are aware, a limited number of samples were collected and analyzed by NYSDEC for TCLP during the site investigations conducted to date.

All four contractors found it extremely difficult to find a reagent mix that would eliminate the visible beads of mercury and reduce the TCLP mercury to < 0.2 mg/L following treatment. Only two of the four contractors were able to achieve this result, and in each case, only one formulation out of several dozen mixes, was successful. This indicates that it may be very difficult to stabilize the most highly contaminated soils under the variable field conditions that will be encountered during remediation (e.g. mercury type/concentrations, moisture content, grain size, visible vs disseminated mercury, temperature, etc.).

URS Corporation
77 Goodell Street
Buffalo, NY 14203
Tel: 716.856.5636
Fax: 716.856.2545

Based on the results obtained during the treatability studies, it was concluded that some supplemental investigation activities should be performed prior to finalizing the Remedial Action Work Plan. The proposed activities are described below:

PROPOSED SUPPLEMENTAL INVESTIGATIONS

Task 1 – Delineation of TCLP mercury Areas

In order to delineate the limits of mercury-contaminated soil failing TCLP, that consequently would be classified as characteristically hazardous, samples will be collected from those areas of the site previously identified as containing visible beads of mercury and/or having mercury concentrations > 260 mg/kg. It is anticipated that a total of approximately 20 samples will be collected at the locations shown on Figure 1. These samples will be analyzed for total and TCLP mercury. The results will be evaluated to determine if there is any correlation between the mercury concentration and TCLP results. The intent will be to see at what total mercury concentration, and above, that TCLP failure occurs, either some or all of the time. These soils subsequently would require treatment to render them non-hazardous prior to disposal offsite.

During the sample collection process an X-Ray Fluorescence (XRF) meter will be utilized to screen the soils and determine the relative level of mercury present in the soil. Readings will be obtained on the in-situ, undisturbed soil and also on the same soil after it has been homogenized by vigorous mixing/blending. The values obtained subsequently will be compared with the total mercury levels obtained from the laboratory analysis to determine if any direct correlation exists. If a reasonable correlation can be shown, then it may be possible to utilize the XRF for screening and delineating soils requiring treatment during the remediation portion of the project.

Task 2 – Mercury Speciation Analysis

Up until now it has been assumed, based on historical records, that the mercury present in the soils consisted solely, or primarily, of elemental mercury. However, based on the most recent Treatability Study results, it is suspected that other forms of mercury (i.e. more soluble) may be present. In order to determine the types of mercury present, two samples (one with visible beads of mercury and another with high concentration of disseminated mercury) will be submitted to a specialized laboratory for mercury speciation analysis. This data will be provided to the remedial contractors for use in determining the best possible reagents for stabilizing the mercury.

Task 3 – Supplemental Treatability Studies

Following completion of Task 1, samples of soil that exhibit TCLP exceedances will be provided to the two contractors that were successful in creating reagent mixes that stabilized the original soil with visible beads of mercury. Samples of soil with visible beads of mercury and/or varying concentrations of disseminated mercury will be provided, as appropriate. These soils will be subjected to additional bench-scale treatability studies based on the initial reagent formulations that were identified during the initial treatability studies. The objective will be to vary the amount of reagent, mixing methods, mixing time, reaction time, etc. to optimize the treatment approach and

determine the most cost-effective formulations. Additionally, the impact of variations in the soil type and mercury concentrations present on the treatment process will be assessed. Additional reagent mixes may be evaluated based on the results of the mercury speciation analysis.

Task 4 – Pilot-Scale Studies

Following completion of Tasks 1 through 3, full-scale pilot tests will be conducted using the most cost-effective reagent formulations identified by the treatability studies. The procedures for this testing are presented in Attachment 1.

Task 5 – Evaluation of Alternative Disposal Options

Inasmuch as the treatment/stabilization methods being developed may not be able to achieve the desired goals for some, or all, of the mercury-contaminated soils, alternative disposal options for these soils will be identified and evaluated. In particular, the option of excavating the mercury-contaminated soil, loading it into lined gondola railroad cars, and transporting the soil to the Stablex Facility in Canada for disposal will be further evaluated. This option would not require any onsite treatment prior to loading and transport.

Schedule

It is anticipated that the work outlined herein will be initiated during the latter half of August and be completed within about 2 - 3 months.

We would be pleased to meet with you at your convenience to discuss any aspects of this Work Plan. In the meantime, should you have any questions or require any additional information, please call me at 923-1225.

Sincerely,

URS Corporation – New York, Inc.

Robert R. Henschel, P.G.
Project Manager

cc: Tim King – UCC
Larry Montani – Niacet
Matt Forcucci – NYSDOH
File: 11171085 (C-1)

ATTACHMENT 1

PILOT-SCALE TESTING

Remedial Treatment Options to be Evaluated

Based on the results of the Supplemental Treatability Studies, those formulations that are most successful in eliminating visible mercury and reducing the TCLP mercury concentrations to <0.2 mg/L will be selected for full-scale pilot testing.

The remedial contractor(s) producing the most cost-effective formulation will be given the opportunity to conduct pilot-scale studies to optimize their stabilization mix and application procedures, and to determine if the proposed treatment alternative can be scaled up to full-size operation.

Testing Procedures

Representative samples of the mercury-contaminated soil utilized in the bench-scale testing will be excavated from those areas of the site having previously been identified as having visible mercury and/or concentrations of disseminated mercury high enough to fail TCLP analysis (characteristically hazardous). The excavated material (approximately 1,000 pounds) will be placed on poly sheeting over plywood and homogenized with an excavator bucket. The soil will be placed in a container or treatment cell. Baseline samples will be collected and analyzed for total and TCLP mercury.

The sample will be treated with the chemical reagent in varying concentrations (e.g. 1%, 2%, 3%, 4% and 5%), as appropriate based on the bench-scale test results. The samples will be thoroughly mixed with the reagent, covered and allowed to stand. Post-treatment samples will be collected at 24 hours and 48 hours after treatment (or other time intervals as appropriate based on the bench-scale test results) and analyzed for visible, total and TCLP mercury.

The results will be compared with the bench-scale test results to determine if similar results are achievable under scaled up conditions in the field. Additionally, the results will be compared with the landfill disposal criteria to ensure that they are met.

Application procedures and/or mixing methods will be adjusted, as necessary, prior to implementation of full-scale site remediation activities.

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NIAGARA FALLS BLVD.

SB-077, 95.5
SB-073, 103
SB-072, 270
BUILDING #10 MAINTENANCE
SB-075, 711
SB-074, 400
SB-071, 292
SB-076, 48.7
SB-069, 180
SB-106, 1.7
SB-070, 1070
SB-066, 65.9
BS-02, 13.4
BUILDING #11 WAREHOUSE
BUILDING #6 STORAGE
SB-064, 1240
SB-061/PZ-07, 433
SB-063/PZ-08, 426
SB-062, 634
BUILDING #3 STORAGE
SB-060, 12
SB-059, 631
SB-058, 119
SB-057, 41.3
BS-03, 1.7
BS-01, 5
47TH STREET
RAILROAD
BUILDING #4
COOLING POND
SB-056/MW-03, 23.5
SB-055, 3.2
BUILDING #4A
SB-053, 1600
SB-054/PZ-09, 51.7
SB-079, 23.7
BS-04, 1.9
BUILDING #17 TANK FARM
SB-052, 7.6
SB-049, 337
MW-01, 738
CITY SEWER TUNNEL
WASTE WATER STORAGE TANK FARM
SB-046/PZ-10, 38.4
SB-047, 8.8
BUILDING #17 PRODUCTION
SB-042, 29.7
SB-041, 26.7
SB-040, 109
SB-039, 276
SB-043, 17.7
SB-044/MW-06, 0.055
PIKES CREEK
BUILDING #107 WAREHOUSE
BUILDING #104 WAREHOUSE
SB-037, 8.6
SB-036, 20.8
SB-035, 13
SB-034, 97.2
SB-033/PZ-03, 387
SB-032, 104
BOILER HOUSE
SB-030, 26
SB-029/PZ-06, 9.4
SB-028, 26
SB-027/PZ-05, 52.4
SB-026, 53.2
SB-025, 0.301
BUILDING #105 TANK FARM
BUILDING #102 STORAGE
BUILDING #105 PRODUCTION
SB-021, 2
SB-020, 13.4
SB-019, 55.6
LAB
12,000 V SUBSTATION
SB-017/PZ-04, 7.1
SB-016, 25.1
SB-015, 118
SB-014, 7.9
SB-081/PZ-12, 30.8
BUILDING #106E TANK FARM
BUILDING #101 OFFICE
BUILDING #106 PRODUCTION
NITROG. SKID
SB-011, 1.5
SB-010, 1.1
SB-009/PZ-02, 66.2
SB-008, 21.7
SB-013, 2.3
BUILDING #108 WAREHOUSE
BUILDING #107 WAREHOUSE
SHIPPING OFFICE
SB-082/PZ-13, 166
SB-003, 1.9
SB-001, 0.113
SB-007/PZ-11, 1.4
SB-006, 2.2
SB-005, 13.1
SB-004, ND
SB-002/PZ-01, 73.3
RAILROAD

Legend

- Proposed Sampling Location
- Surface Soil Sample Location
- Visible Mercury Contamination

Mercury Concentrations:

- < 5.7 MG/KG
- 5.7 - 23 MG/KG
- > 23 - 260 MG/KG
- >260 MG/KG

Location ID — SB-073, 103 — Mercury Concentration (MG/KG)

120 0 120 Feet

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NIACET
PROPOSED SUPPLEMENTAL SAMPLING LOCATION

FIGURE 1