April 25, 2013 **DRAFT**

NPDES Compliance Coordinator
Nevada Division of Environmental Protection
Bureau of Water Pollution Control
901 South Stewart Street, Suite 4001
Carson City, Nevada 89701-5249

**Re: Report of Sludge Release from Fluidized Bed Reactor (FBR) Filter Press**
**Nevada Environmental Response Trust Site; Henderson, NV**
**NPDES Permit NV0023060**

Dear NPDES Compliance Coordinator:

The Nevada Environmental Response Trust (NERT) maintains NPDES Permit NV0023060 for discharge of treated water to the Las Vegas Wash, as part of their on-going effort to capture and treat groundwater containing perchlorate and chromium in the Henderson area. Per Section II.A.3., *Noncompliance, Unauthorized Discharge, Bypassing and Upset*, of the permit, ENVIRON International Corporation (ENVIRON), on behalf of NERT, called the NDEP Spill Reporting Hotline on March 22, 2013 to report a release of sludge that is generated in its Fluidized Bed Reactor (FBR) process, a component part of the treatment plant designed to biologically remove perchlorate. The release occurred on Friday, March 22, 2013 during dewatering (via filter press) of the sludge in preparation for off-site disposal. The sludge flowed north out of the D-1 building on to soil and pavement in the vicinity of the E Hut. Sludge was removed from the inside of the D-1 building using a vacuum truck and from outside paved areas using shovels, a pressure washer, and a shop vacuum. Sludge was removed from soil with shovels (no soil excavation was conducted). The sludge removed from inside the D-1 building and the ground surface was placed in a bin for off-site disposal at Republic Services Apex Landfill. This correspondence serves as written notification of the leak, which is detailed below.

Per Section II.A.3.b. of the permit, the written report shall include the following information:

i. Time and date of discharge

At approximately 2:30 AM on Friday March 22, 2013, an operator for Veolia Water North America (Veolia) started dewatering of approximately 5,000 gallons of sludge from one of the FBR unit's filter presses in the D-1 Building. The operator returned at 3:20 AM after collecting the daily treated effluent sample and observed the sludge coming out of the D-1 Building.

ii. Exact location and estimated amount of discharge

The sludge release occurred at the southeast corner of the D-1 Building and flowed north toward the E Hut at the NERT site in Henderson, Nevada. The location and extent of the leak is shown on the attached map (Figure 1). Much of the sludge was contained in a bin and concrete containment area, but a portion of the volume, estimated at 500 to 1,500 gallons, was released to soil and pavement.

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iii. Flow path and any bodies of water which the discharge reached

The leaked sludge flowed on asphalt and then on an unpaved surface for approximately 400 feet to the north of the D-1 building (see Figure 1). On the unpaved surfaces, water from the sludge infiltrated into the ground surface and sludge solids accumulated on soil in the area west and north of the E Hut. The pavement outside of the D-1 Building was stained as a result of the release. The discharge entered a rip rap channel that drains to the northeastern retention basin, but did not flow onto any roadway or into any body of water. The leaked sludge remained on NERT property.

iv. The specific cause of the discharge

The sludge release was caused when the operator did not fully close the door of the filter press unit after beginning dewatering. The cause of the release was operator error, not malfunctioning equipment.

v. The preventive and/or corrective actions taken.

A sample of the sludge was collected and sent to a laboratory for analysis of the constituents listed in Table 4 of the NERT Site Management Plan (SMP), with the exception of asbestos. The analytical laboratory reports are provided on a CD with this report. The sample results were screened against NDEP's Basic Comparison Levels (BCLs) and site-specific values, collectively called the Soil Remediation Goals (SRGs). In addition, the sample results were compared to sludge data from the current quarter and previous two quarters (collected per the NPDES permit) (Table 1). A limited number of the analytes were detected above the screening levels. Arsenic was detected in the sample of sludge that leaked from the filter press at 320 milligrams per kilogram (mg/kg), which exceeds the site-specific value of 7.2 mg/kg, but is consistent with historical sludge results (range of 160 to 560 mg/kg). All results of Toxicity Characteristic Leaching Procedure (TCLP) analysis on NPDES quarterly samples from the past 3 quarters, including arsenic, were below hazardous waste screening criteria (Table 2). In addition, two polyaromatic hydrocarbon (PAH) constituents, benzo(a)pyrene and dibenz(a,h)anthracene, were detected at concentrations slightly above their respective BCLs. A number of other volatile and semi-volatile organic compounds, PAHs, dioxins/furans, pesticides, metals, and salts were detected in the sludge sample; however, none were above screening criteria.

Based on the sludge analytical results, additional soil sampling is warranted to evaluate potential impacts to shallow soil in the area of the sludge release. ENVIRON proposes collection of shallow (less than 6 inches deep) soil samples from five locations along the path of the release (Figure 1). Additional vertical (deeper) samples will be collected concurrently. Shallow soil samples will be analyzed for the compounds detected in the sludge above screening criteria (i.e., arsenic, benzo(a)pyrene, and dibenz(a,h)anthracene). The results will be compared to each compound's respective SRG. If any reported concentrations for the shallow samples exceed a SRG, the deeper sample at that location will be analyzed to further vertically delineate the soil contamination. If all reported concentrations for the shallow samples are below the SRGs,

the deeper samples will not be analyzed. A small portion of the sludge release area overlaps with excavation control areas (ECAs) to the west/northwest of the E Hut. All work associated with the sludge release will be conducted in conformance with the SMP. The results of this investigation will be submitted to Mr. Weiquan Dong of the NDEP Bureau of Corrective Actions for review.

Future preventative action will include inspection of the filter press during dewatering prior to leaving the building.

Should you have any questions concerning this correspondence, please contact Kimberly Kuwabara at (510) 420-2525 or kkuwabara@environcorp.com. Thank you.

Sincerely,

**DRAFT**

John M. Pekala, PG
Senior Manager
Nevada CEM 2347, exp. 9/20/2014

**DRAFT**

Kimberly Kuwabara, MS
Senior Manager
Nevada CEM 2353, exp. 3/20/2015

cc. Cliff Lawson, Bureau of Water Pollution Control, NDEP
Joe Maez, Bureau of Water Pollution Control, NDEP
Greg Lovato, Bureau of Corrective Actions, NDEP
Shannon Harbour, Bureau of Corrective Actions, NDEP
James Dotchin, Bureau of Corrective Actions, NDEP
Weiquan Dong, Bureau of Corrective Actions, NDEP
Jay Steinberg, Nevada Environmental Response Trust
Andy Steinberg, Nevada Environmental Response Trust
Tanya O'Neill, Foley and Lardner LLP
Sachin Chawla, Veolia Water North America
Steve Kubacki, Veolia Water North America
Allan DeLorme, ENVIRON International Corporation

Attachments

| Table 1: Select FBR Biosolids Sample Results Compared to Soil Remediation Goals (SRG)s[1] | | | | | |
|---|---|---|---|---|---|
| Constituents[2] | Sludge Release Sample (3/22/2013) | 2nd Quarter 2013 (04/15/2013) | 1st Quarter 2013 (01/07/2013) | 4th Quarter 2012 (10/01/2012) | SRGs |
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| **VOCs** | | | | | |
| 2-Butanone | 7.1 | NA | NA | NA | 34,092 |
| 2-Hexanone | 0.045 | NA | NA | NA | 1,930 |
| 4-Methyl-2-pentanone | 0.074 | NA | NA | NA | 17,196 |
| Acetone | 24 | NA | NA | NA | 100,000 |
| Carbon disulfide | 2 | NA | NA | NA | 721 |
| Ethylbenzene | 0.038 | NA | NA | NA | 19.6 |
| Tetrachloroethene | 0.027 | NA | NA | NA | 3.28 |
| Toluene | 0.033 | NA | NA | NA | 521 |
| Trichloroethene | 8.8J | NA | NA | NA | 5.49 |
| 1,2,3-Trichloropropane | ND** | NA | NA | NA | 0.106 |
| Naphthalene | ND<0.005 | NA | NA | NA | 15.6 |
| m/p xylenes | 0.15 | NA | NA | NA | 214 |
| o-xylene | 0.043 | NA | NA | NA | 282 |
| Total xylenes | 0.19 | NA | NA | NA | 214 |
| **SVOCS** | | | | | |
| 4-methylphenol* | 15 | NA | NA | NA | 3,420 |
| **PAHs** | | | | | |
| Benzo(b)fluoranthene | 0.31 | NA | NA | NA | 2.34 |
| Anthracene | 0.16 | NA | NA | NA | 9,060 |
| Benzo(a)anthracene | 0.073 | NA | NA | NA | 2.344 |
| Benzo(a)pyrene | **0.27** | NA | NA | NA | 0.234 |
| Benzo(g,h,i)perylene | 1.20 | NA | NA | NA | 34,100 |
| Benzo(k)fluoranthene | 0.23 | NA | NA | NA | 23 |
| Chrysene | 0.056J | NA | NA | NA | 234 |
| Dibenz(a,h)anthracene | **0.41** | NA | NA | NA | 0.234 |
| Fluoranthene | 0.08 | NA | NA | NA | 24,400 |
| Indeno(1,2,3,c,d)pyrene | 0.61 | NA | NA | NA | 2 |
| Phenathrene | 0.07 | NA | NA | NA | 25 |
| Pyrene | 0.10 | NA | NA | NA | 19,300 |
| **Dioxins/Furans** | | | | | |
| TCDD TEQ[3] | 0.0000014 | NA | NA | NA | 0.0027 [a] |
| **Pesticides** | | | | | |
| Alpha-BHC | 0.23 | ND<0.074 | 0.17 | 0.29 | 270 |
| Beta-BHC | 0.25 | ND<0.074 | 0.31 | 0.49 | 54 |
| Delta-BHC | 0.13 | ND<0.074 | 0.38 | 0.18 | 270 |
| Gamma-Chlordane | 0.11 | ND<0.074 | 0.013 | 0.028 | No BCL |
| Endosulfan I | ND<0.086 | 75 J | ND<0.0045 | ND<0.0045 | 4,104 |
| **Metals** | | | | | |
| Arsenic | **320** | **160** | **560** | **440** | 7.2 [a] |
| Barium | 32.2 | NA | NA | NA | 100,000 |
| Chromium | 350 | 180 | 790 | 600 | 100,000 |
| Cobalt | 76.3 | NA | NA | NA | 337 |
| Copper | 200 | 120 | 250 | 220 | 42,200 |
| Lead | 0.450J | ND<1.2 | ND<1.5 | ND<1.5 | 800 [a] |
| Magnesium | 1,880 | NA | NA | NA | 100,000 |
| Manganese | 56.1 | NA | NA | NA | 24,900 |
| Molybdenum | 920 | 590 | 1,800 | 1,900 | 5,680 |
| Nickel | 35 | 16 | 53 | 47 | 21,800 |
| Selenium | 86 | 44 | 110 | 89 | 5,680 |
| Zinc | 300 | 170 | 600 | 420 | 100,000 |
| **Other** | | | | | |
| Ammonia by N | 4,300 | NA | NA | NA | 100,000 |
| Chloride | 5,300 | NA | NA | NA | No BCL |
| Fluoride | 30 | NA | NA | NA | 41,000 |
| Nitrate as N | 2.5J | NA | NA | NA | 100,000 |
| Sulfate | 11,000 | NA | NA | NA | No BCL |

| Table 1: Select FBR Biosolids Sample Results Compared to Soil Remediation Goals (SRG)s[1] | | | | | |
|---|---|---|---|---|---|
| Constituents[2] | Sludge Release Sample (3/22/2013) | 2nd Quarter 2013 (04/15/2013) | 1st Quarter 2013 (01/07/2013) | 4th Quarter 2012 (10/01/2012) | SRGs |
| | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |

Notes:

The sludge spill sample was also analyzed for PCBs, hexavalent chromium, mercury, cyanide, perchlorate, and sulfide. All results were ND.
Only detected results for VOCs, SVOCs, PAHs, dioxins/furans, and OCPs are provided (non-detects not shown).

NA = Not analyzed

ND = Not detected

J = The analyte was either detected at or greater than the SQL and less than the MRL, or did not meet any of the required QC criteria.

[1] SRGs consist of NDEP worker BCLs, or modified site-specific remediation goals.

[2] Detected in at least one sample. Results in bold exceed the SRGs.

[3] TEQ = Toxicity Equivalent Quantity, based on WHO 2005 TEFs for the 17 dioxin and furan congeners.

[a] Indicates a site-specific value.

* Cannot be separated from 3-methylphenol

**Laboratory reported that the VOC 1,2,3-trichloropropane was not detected, although the result was semi-quantitative.

| Table 2: Historical Toxicity Characteristic Leaching Procedure (TCLP) FBR Biosolids Sample Results | | | | |
|---|---|---|---|---|
| TCLP | Sludge Spill Sample (3/22/2013) | 2nd Quarter 2013 (04/03/2013)[a] | 1st Quarter 2013 (01/07/2013)[a] | 4th Quarter 2012 (10/01/2012)[a] |
| | mg/L | mg/L | mg/L | mg/L |
| Arsenic | NA | 0.80 | ND<0.05 | 0.06 |
| Barium | NA | 0.02 | 0.03 | 0.05 |
| Cadmium | NA | ND<0.01 | 0.01 | 0.05 |
| Chromium | NA | 0.02 | 0.03 | 0.04 |
| Lead | NA | 0.41 | ND<0.05 | ND<0.05 |
| Selenium | NA | ND<0.05 | ND<0.05 | ND<0.05 |
| Silver | NA | ND<0.05 | ND<0.05 | ND<0.05 |
| Mercury | NA | ND<0.001 | ND<0.002 | ND<0.002 |

NA = Not analyzed

ND = Not detected

[a] Samples for TCLP analysis were collected separately from standard quarterly sludge samples and were analyzed by Silver State Laboratories.


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# Location of Sludge Release and Proposed Soil Sampling Locations

Nevada Environmental Response Trust Site, Henderson, Nevada

Figure **1**

Drafter: EA/RS Date: 4/24/2013 Contract Number: 21-32100FA Approved by: Revised:

Path: H:\LePetomane\NERT\GIS\21321 00FA-F11\21321 00FA-F11-PropSoilMap1.mxd