Nursery Products
Planting a Better Tomorrow

August 11, 2010

Brianna Bergen
California Regional Water Quality Control Board
14440 Civic Drive, Suite 200
Victorville, CA 92392

Subject: Addendum to Corrective Action Cost Estimate
Known or Foreseeable Release Plan
Nursery Products Hawes Composting Facility
San Bernardino County, California

Dear Ms Bergen:

Nursery Products is pleased to submit this letter addendum to the Corrective Action Cost Estimate Known or Foreseeable Release Plan for the Hawes Composting Facility (Facility) in San Bernardino County, California. This addendum supplements and supersedes the Plan prepared by Nursery Products dated May 5, 2010. This addendum has been prepared for submittal to the Lahontan Regional Water Quality Control Board (RWQCB) and includes the revised pages as attachments.

If you have any questions concerning this addendum, please feel free to call.

Sincerely,

Chris Seney, P.E.

Nursery Products

Enclosures: Revised Pages

NURSERY PRODUCTS
HAWES COMPOSTING FACILITY

Corrective Action Cost Estimate
Known or Reasonably Foreseeable Releases

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August 2010

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1.0 INTRODUCTION

This is the corrective action cost estimate for the surface impoundments and waste pile that will be constructed at the Nursery Products Hawes Composting Facility in San Bernardino County California. This corrective action cost estimate was prepared in accordance with the requirements of Title 27 of the California Code of Regulation (CCR) to provide a budgetary cost required to respond to Known or a Reasonably Foreseeable Releases (KRFR) from the Facility.

2.0 DESCRIPTION OF SURFACE IMPOUNDMENTS

The surface impoundments will retain stormwater that occasionally falls on the site, but will be emptied within 30 days of receipt of water.

The engineered alternative presented for the surface impoundments is the single composite liner presented in the ROWD. This liner system includes (from bottom to top, in order of construction):

- 6 inches of prepared compacted native subgrade which is moisture conditioned and compacted to 90 percent of the maximum dry density per ASTM Standard D1557;
- Leak detection monitoring sump under the lower-most part of each surface impoundment that consists of a composite liner of geosynthetic clay and 60-mil High Density Polyethylene (HDPE)
- A GCL and 60-mil HDPE liner

The proposed engineered alternative consists of a synthetic FML as the primary liner for the surface impoundments. To provide additional resistance to downward migration of water, and to provide a smooth surface on which to install the FML, a GCL is included in the liner system beneath the FML. A GCL consists of powdered bentonite clay sewn in between two layers of synthetic fabric. The bentonite clay has a typical hydraulic conductivity of less than 1×10^{-8} cm/sec. Consequently, this engineered alternative liner provides a hydraulic conductivity that is two orders of magnitude lower than the prescriptive liner requirements. Additionally, situated below the FML, damage to the GCL from the natural wetting and drying cycles would be minimized. This design would also help protect the vadose zone if a leak were to occur in the FML because the GCL would hydrate to "self-repair" a leak in the FML, mitigating the downward migration of water from the basin. The surface impoundment engineered alternative liner design includes lined sumps below the lowest portions of the surface impoundments. Details regarding these leak detection sumps are included in the ROWD. The leak detection sumps allow detection of the vertical migration and removal of a water sample for testing.

3.0 DESCRIPTION OF THE WASTE PILE

The engineered alternative for the waste pile is the compacted native soil liner, graded to drain to the surface impoundments presented in the ROWD. This liner consists of a minimum of 12 inches of moisture conditioned native subgrade soil, compacted to a minimum relative compaction of 90 percent. Relative compaction is defined as the ratio of the in place dry density to the maximum density of a particular soil determined in accordance with ASTM D1557.

4.0 DESCRIPTION OF RELEASE SCENARIO #1

Scenario

The proposed single composite liner leaks into the lined sump below the lowest portions of the surface impoundments. The leak is detected by onsite personnel during their routine inspection of the sump.

- Assumed incident frequency: one incident per lifespan of the surface impoundments
- Assumed timing: at mid-life of the surface impoundment
- Assumed duration of the repair: two days (onsite)

The response is that the surface impoundment is taken off-line and the Lahontan Regional Water Quality Control Board (RWQCB) is immediately notified. The water is pumped from the "leaking" surface impoundment and sump into the non leaking surface impoundment. A leak location and liner repair work plan is submitted to the RWQCB.

Visual search for defect starts after formal approval of the work plan by the RWQCB. Search proceeds from the lowest point of the surface impoundment toward the edge. Measures are taken to protect the liner. Suspect areas identified by visual inspection are tested by CQA personnel and are repaired by a specialty contractor where necessary.

If a "defect" in the liner seam is not found, the process is repeated in the opposite direction. The search is stopped when the "defect" is found.

Upon completion of the repairs, a CQA repair report is prepared for submittal to the RWQCB.

5.0 DESCRIPTION OF RELEASE SCENARIO #2

Scenario

The vadose zone for each surface impoundment is monitored by a lysimeter. The lysimeters are monitored for moisture and should moisture be detected that would indicate that there is a leak in the surface impoundment.

- Assumed incident frequency: one incident per lifespan of the surface impoundments
- Assumed timing: at mid-life of the surface impoundment
- Assumed duration of the repair: two days (onsite)

The response is that the surface impoundment is taken off-line and the Lahontan Regional Water Quality Control Board (RWQCB) is immediately notified. The water is pumped from the "leaking" surface impoundment and sump into the non leaking surface impoundment. A leak location and liner repair work plan is submitted to the RWQCB.

Upon completion of the repairs, a CQA repair report is prepared for submittal to the RWQCB.

6.0 DESCRIPTION OF RELEASE SCENARIO #3

Scenario

Prior to the construction of the waste pile Nursery Products will analyze the native background soils to determine background concentrations for the monitoring parameters and constituents of concern listed in Table 3 (Attachment C) of Board Order No. R6V-2010-0010 (Monitoring and Reporting Program). Nursery Products will characterize soil constituents of concern below the waste pile area prior to discharge and report the data to the RWQCB in a background native soils report at least 60 days prior to operation of the facility. Annually, a minimum of 10 new locations within the native engineered fill of the waste pile footprint will be collected to a depth of 18 inches at each location at 6 inch intervals. The soil samples collected from the 6 inch depth will be analyzed to determine the concentrations of constituents of concern identified in Table 3 (Attachment C). If the results of those analyses indicate a measurably significant release, per Section III, Data Analysis, Board Order No. R6V-2010-0010 (Monitoring and Reporting Program), the 12 inch interval samples must be analyzed for those constituents that indicated the release. If the results of those analyses indicate a measurably significant release per Section III, Data Analysis, Board Order No. R6V-2010-0010 (Monitoring and Reporting Program), notification procedures will be followed per Section IV.G of Board Order No. R6V-2010-0010 (Monitoring and Reporting Program) and measures will be taken to replace the waste pile. Under this scenario the 18 inch sample was analyzed for constituents that indicated the release and this sample didn't indicate a release. Twenty feet from the sampling location will be measured in each direction and a total surface area of 1,600 square feet (40 feet by 40 feet) will be excavated at a depth of one foot. The excavated material will be classified and then loaded in to two trailers and hauled to a class II landfill. No composting will be done in the area until the waste pile is reconstructed to its original design specifications.

- Assumed incident frequency: two incidents per lifespan of the waste pile
- Assumed timing: 15 year increments
- Assumed duration of the repair: one days (onsite)

The response is that the area of the waste pile is taken off-line (no composting in that area) and the Lahontan Regional Water Quality Control Board (RWQCB) is immediately notified. A leak location and liner repair work plan is submitted to the RWQCB.

Upon completion of the repairs, a CQA repair report is prepared for submittal to the RWQCB.

7.0 COST ESTIMATE

Separate budgeting cost estimates have been prepared for the conceptual response to each of the above described simulated release scenarios, as follows:

Corrective Action Cost Estimates

Task	Scenario 1	Scenario 2	Scenario 3
Prepare a Work Plan	$2,000	$2,000	$500
Regulatory Interface	$1,000	$1,000	$500
Repair Costs	$12,000	$15,000	$4,000
Repair Documentation	$3,000	$3,000	1,000
Contingency (10%)	$1,800	$2,100	$600
Total	$19,800	$23,100	$6,600

Both budgetary cost estimates are based on the assumption that materials and equipment required for repairs are locally available. These cost estimates are in 2010 dollars and assume an annual inflation rate of 3% until the simulated releases occur. The total cost estimate includes preparation of the corrective action work plans (one for each conceptual scenario), regulatory notification and interface, repair costs, construction management, repair CQA, and preparation of the repair CQA reports. While none of simulated release scenarios are anticipated to occur, it is conservatively assumed that the releases will occur for each of the surface impoundments, hence, the total corrective action estimate for the surface impoundments is $85,800. While the waste pile release scenario is not anticipated to occur, it is conservatively assumed that two releases will occur for the waste pile and, hence, the total corrective action estimate for the waste pile is $13,200.

As a part of the Corrective Action Cost Estimate, Nursery Products will prepare and submit to Lahontan RWQCB a type of funding mechanism (financial instrument) to cover the corrective action total cost estimate of $99,000 (for all corrective action scenarios described above). The corrective action cost estimate should be reviewed and updated every year or as necessary to reflect changing site and market conditions. The Lahontan RWQCB will be identified as the beneficiary of the corrective action fund.

8.0 CLOSURE

I certify under penalty of perjury that I have personally examined and am familiar with the information submitted in this Corrective Action Cost Estimate and Known or Reasonably Foreseeable Releases for the Nursery Products Hawes Composting Facility, and based on my inquiry of those individuals immediately responsible for obtaining the information; I believe the information is true, accurate, and complete. My seal as a registered professional engineer licensed in the State of California is affixed below.