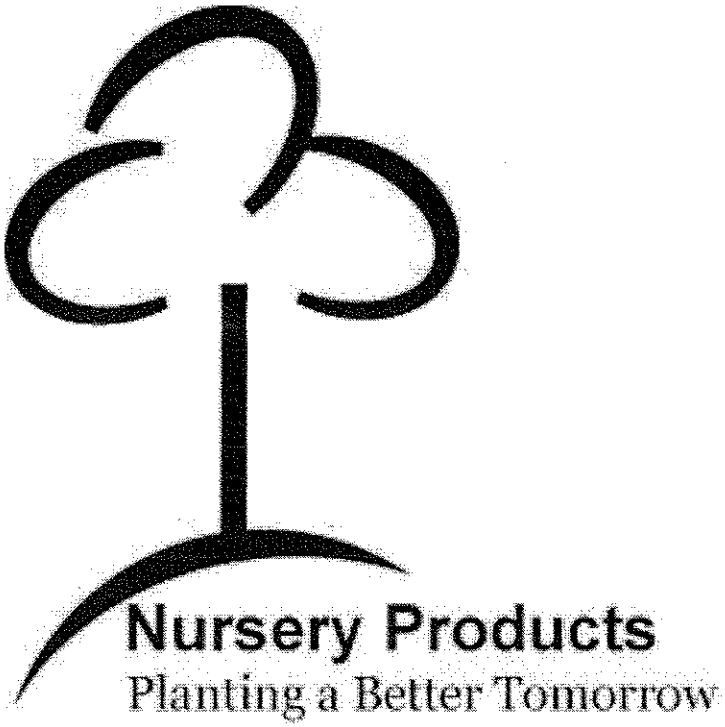
NURSERY PRODUCTS
HAWES COMPOSTING FACILITY



Corrective Action Cost Estimate
Known or Reasonably Foreseeable Releases

Prepared by:
Nursery Products
Suite 131
12277 Apple Valley Road
Apple Valley, CA 92308

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1.0 INTRODUCTION

This is the corrective action cost estimate for the surface impoundments (retention ponds) and waste pile (compost pad) 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 RETENTION BASINS

The retention basins 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 stormwater retention basins 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 stormwater retention basin. 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 proposed stormwater retention basin engineered alternative liner design includes lined sumps below the lowest portions of the stormwater retention basins. 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 COMPOST PAD

The engineered alternative presented for the composting pad liner is the compacted native soil liner, graded to drain to the stormwater retention basins 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 stormwater retention basin. The leak is detected by onsite personnel during their routine inspection of the sump.

- Assumed incident frequency: one incident per lifespan of the retention basins
- Assumed timing: at mid-life of the basin
- Assumed duration of the repair: two days (onsite)

The response is that the retention basin is taken off-line and the Lahontan Regional Water Quality Control Board (RWQCB) is immediately notified. The water is pumped from the "leaking" retention basin and sump into the non leaking retention basin. 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 retention basin 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 retention basin 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 retention basins
- Assumed timing: at mid-life of the basin
- Assumed duration of the repair: two days (onsite)

The response is that the retention basin is taken off-line and the Lahontan Regional Water Quality Control Board (RWQCB) is immediately notified. The water is pumped from the "leaking" retention basin and sump into the non leaking retention basin. 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 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
Prepare a Work Plan	$2,000	$2,000
Regulatory Interface	$1,000	$1,000
Repair Costs	$12,000	$15,000
Repair Documentation	$3,000	$3,000
Contingency (10%)	$1,800	$2,100
Total	$19,800	$23,100

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 15 years after construction of the retention ponds. 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 both types of simulated release scenarios are not anticipated to occur, it is conservatively assumed that both releases will occur and, hence, the total corrective action estimate is $42,900.

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 $42,900 (for both 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.

7.0 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.