INFORMATION SHEET

ORDER NO. R5-2014-XXX
COLUSA COUNTY DEPARTMENT OF PUBLIC WORKS
STONYFORD LANDFILL
COLUSA COUNTY

Background Information

The Stonyford Landfill is an active, Class III landfill on Ladoga-Stonyford Road about one mile south of downtown Stonyford. The facility comprises 6.3 acres of a 48-acre parcel owned by Colusa County. The facility includes the landfill (4.0 acres); associated monitoring systems (e.g., gas, groundwater, surface water); passive landfill gas vents; a former septage pond area; a drop-off area for recyclable materials, and other landfill-related facilities. The landfill has been in operation since 1974, accepting primarily household wastes from Stonyford and surrounding areas. The landfill currently accepts an average of about 5 cubic yards per day (about 1.25 tons per day) of compacted waste.

Landfill Design & Operations

The landfill was historically constructed without a base liner and leachate collection and recovery system (LCRS) and generally pre-dates current regulatory standards for waste containment under Title 27/Subtitle D regulations. A Subtitle D composite liner is therefore not required for the unit. Further, no lateral expansion beyond the existing 4.0-acre footprint is planned prior to the anticipated closure in the year 2036. Vertical development of the landfill will be limited by slope stability considerations and the facility's Solid Waste Facility Permit, which limits the maximum elevation of waste to 1,320 feet MSL.

Wastes were historically discharged to the landfill by the trench and fill method, and subsequently by the area fill cell method. The landfill is currently open one day a week (Saturday) to the public and 3 days a week to a franchise hauler. Average disposal rates noted above were estimated based on a 365-day operating year. The facility does not have a scale, so landfill tonnage must be estimated based on a volume conversion. As of December 2013, it was estimated that the landfill had reached approximately 62% of its estimated 149.2 kiloton capacity. Based on the remaining air space and current disposal rates, it is currently estimated that the landfill will reach capacity in the year 2036.

The facility formerly included two unlined ponds in the southern portion of the site historically used for disposal of septage and chemical toilet wastes classified as designated wastes under Title 27. Up to 400 gallons per week of septage and chemical toilet wastes from various offsite sources (e.g., septic tanks, U.S. Forest Service campgrounds) were historically discharged to the unlined septage ponds. Each pond was approximately 60 feet long, 10 feet wide, and 4 feet deep. The unlined ponds did not meet Title 27 standards for containment of designated liquid wastes, however. Title 27 requires that such wastes be stored in a classified (i.e., Class II) surface impoundment, a double-lined unit with an LCRS. Given the infeasibility of retrofitting the ponds, previous WDRs (Order 90-015) required that the Discharger cease operating (and submit a closure plan for) the ponds. In 1992, the facility ceased accepting septage and the ponds were closed/decommissioned in accordance with a final closure plan submitted under Order No. 90-115. The closed pond

INFORMATION SHEET (CON'T)

area was incorporated into the landfill footprint.

Site Description

The landfill was sited on a northwest trending topographic knob along the upstream end of an ephemeral stream at the west side of Indian Valley. The site generally slopes away from the knob toward the north and northeast at an average grade of about 7%. Surface elevations range from about 1330 feet MSL in the southwest corner of the site to about 1240 feet MSL in the northeast corner of the site. The uppermost aquifer at the site is confined to semi-confined and occurs in the clayey, gravelly alluvial deposits. Corresponding depths to groundwater range from about 55 feet upgradient to about 95 feet bgs downgradient. The groundwater gradient is about 0.04 ft/ft. to the northeast. The minimum separation between landfill wastes and groundwater is about 52 feet.

Groundwater Impacts

Low concentrations of volatile organic compounds (VOCs) were first confirmed in groundwater at the site in 1999, indicating a release from the landfill. None of the VOCs historically exceeded drinking water standards. except for benzene in MW-3, which was detected 4.2 µg/L compared to its 1 µg/L primary maximum contaminant level (MCL). Time series plots of VOC data did not indicate any obvious trends in VOC concentrations prior to the implementation of corrective action. No VOCs have been detected in any of the groundwater monitoring wells at the site since 2007 when the Discharger completed installation of passive landfill gas vents as a corrective action measure (see WDR Finding 57).

The Discharger attributed slightly elevated inorganic constituents detected at the site to spatial variability rather than a release from the landfill. See *2001 Annual and Second Semester Self-Monitoring Stonyford Class II Landfill Facility*, prepared by Montgomery Watson Harza. The report also stated that background well MW-1A appeared to have been completed in a different geological interval (shale) than the down gradient wells (alluvium) and therefore may not be representative of background water quality for the down gradient wells. The report recommended a spatial variability study including Stiff diagrams to assess the adequacy of well MW-1A for background monitoring.

Evaluation Monitoring Program

On 28 January 2002, Central Valley Water Board staff issued a letter requesting that the Discharger submit a report containing either (a) an assessment as to the adequacy of the background monitoring well (MW-1A) at the site; or (b) an Evaluation Monitoring Program (EMP) under Title 27 regulations to investigate the release. The letter was based on a review of the 2001 Second Half and Annual Report. In response to the letter, the Discharger submitted an EMP in lieu of a background monitoring well assessment, The EMP proposed installation and sampling of two monitoring wells (MWs-5 and 6) down

INFORMATION SHEET (CON'T)

gradient of the existing point of compliance well at the site (MW-3) to delineate the down gradient extent of the release.

The first monitoring event under the EMP was conducted in the First Half 2003. No VOCs or other organic compounds (e.g., semi-VOCs, pesticides) were detected in either of the two new wells and inorganic constituents were detected at or below background concentrations. Low to trace concentrations of VOCs and elevated general minerals continued to be detected on the point of compliance (MW-3), however.

Engineering Feasibility Study

On 4 February 2005, the Discharger submitted a Title 27 Preliminary Engineering Feasibility Study (EFS) in accordance with a schedule previously requested by Central Valley Water Board staff.[1] See Second Half and Annual 2004 monitoring report. The EFS was found to be incomplete, however, because it did not address landfill gas and leachate as possible sources of groundwater impacts at the site and did not consider the feasibility of corrective action measures to prevent such impacts, such as landfill gas controls and cover improvements. On 23 March 2005, Central Valley Water Board staff issued a Notice of Violation to the Discharger requesting submission of the required information in an addendum to the EFS report.

The Discharger subsequently submitted the EFS addendum as part of the First Half 2005 groundwater monitoring report. The report included the results of a 19 August 2004 soil sampling event conducted at the site that showed a wide range of VOCs at varying concentrations in the soil gas. The addendum concluded that both landfill gas and leachate could be the source of VOC impacts to groundwater at the site, but that it was not possible to determine which was actually the source due to limited sample data. The report also reiterated the position that the elevated concentrations of general minerals detected at the site could be due to natural spatial variability rather than impacts from the landfill. The EFS recommended further evaluation monitoring, including four additional quarterly soil sampling events to further assess landfill gas as a possible source of groundwater impacts at the site, and if warranted upon completion of this assessment, the installation of passive landfill gas controls as preventative corrective action measure.[2]

---

1. On 15 March 2004, Central Valley Water Board staff issued a staff enforcement letter to the Discharger requesting an addendum to the Second Half and Annual, 2003 monitoring report that includes a discussion of the status of Evaluation Monitoring and a schedule for submission of a Preliminary Engineering Feasibility Study required under Title 27 regulations.

2. The report stated, in part:

   Should further corrective action measures be deemed necessary following the assessment period, H&A/Colusa County will develop a workplan addressing the potential of landfill gas as a contamination source. The workplan may include, but will not be limited to, the installation of soil gas vents as well as a sampling and analysis plan for sampling of the already existing soil gas probes as well as the newly installed soil gas vents.

INFORMATION SHEET (CON'T)

Corrective Action Program

In response to the amended EFS, Central Valley Water Board staff requested the Discharger to submit a corrective action plan proposing installation of passive landfill gas controls at the site as described in WDR Findings 56 and 57.

Revised WDRs

These revised WDRs prescribe updated requirements for landfill operations and corrective action monitoring. The WDR findings describe various changes at the facility since 1999, including the installation of soil gas monitoring probes; the implementation of passive landfill gas controls as a corrective action measure; evaluation and corrective action monitoring results for the past 10 years; and updated financial assurances information. Updated requirements in the revised WDRs include, but are not limited to, the following:

- Background Monitoring – The WDRs require that a new well be installed to monitor background conditions in the upper zone of the uppermost aquifer beneath the site and to develop concentration limits for naturally occurring inorganic constituents. The WDRs further require that a lower zone background monitoring well be installed at the same location if the initial well boring log indicates that there are two saturated zones within the uppermost aquifer (upper and lower) that need to be separately monitored. A work plan and subsequent installation report for the new well(s) are due by **15 September 2014** and **31 January 2015,** respectively per WDR Provisions J.6.b and J.6.c.

- Financial Assurances – Revised corrective action cost estimates under Title 27 are due by **30 June 2015** per WDR Provision J.6.d. A financial assurances demonstration report for landfill closure, postclosure maintenance, and corrective action is due by **1 July each year** beginning in **2014** per WDR Provision J.6.a.

- Closure – A revised PCPCMP consistent with the findings and requirements of this Order is due by **15 March 2016** per WDR Provision J.6.e**.**

- Water Quality Protection Standard -- A revised Water Quality Protection Standard Report reflecting installation and monitoring of the new background wells is due by **31 January 2016** per WDR Provision J.6.f.

- Operations -- An updated topographic site survey is required to be performed every 10 years, beginning **31 October 2019** per Facility Specification C.2. The survey is also required under solid waste regulations and is necessary information for staff in conducting site inspections and updating WDRs.

- Geotracker -- The WDRs require that the Discharger establish and maintain an account with the SWRCB's Geotracker data base within 90 days of adoption of this Order. A report evidencing establishment of this account is due within 120 days of adoption of this Order. See Reporting Requirement H.2 and Provision J.6.g.

INFORMATION SHEET (CON'T)

Monitoring and Reporting Program

The monitoring and reporting program (MRP) in the revised WDRs requires corrective action monitoring for groundwater and detection monitoring for surface water. Soil gas and landfill gas monitoring is also required. Monitoring frequencies are generally quarterly for field parameters, semiannually for monitoring parameters, and every five years for Constituents of Concern. The monitoring parameters generally consist of volatile organic compounds (VOCs) and general minerals. Other constituents such as dissolved metals have not been included in semiannual monitoring because they have not been confirmed as part of the release from the unit.

As noted in the WDRs, the landfill was sited near the upstream end of an ephemeral stream. The stream has since been incorporated into the facility's storm water drainage controls so surface water monitoring under the MRP is limited to storm water monitoring. The MRP also requires that the Discharger maintain coverage under the General Industrial Storm Water Permit.

The site is drained by an ephemeral stream that flows north into an unnamed stream that is tributary to Stony Creek. Stony Creek flows north into the Stony Gorge Reservoir. Black Butte Lake, and thence into the Sacramento River near Hamilton City about 40 miles northeast of the site. (JDM)