SAN FRANCISCO BAY REGIONAL WATER QUALITY CONTROL BOARD

LAND DISPOSAL PROGRAM REPORT
August 2013

Program Description and Purpose:

This Water Board's Land Disposal Program (LDP) is administered by staff that comprise a section within the Board's Groundwater Protection and Waste Containment Division. This section (often referred to as the "landfill section") regulates facilities where wastes are disposed to land under permits issued under the authority of Chapter 15 and title 27 of the California Code of Regulations. The Chapter 15 hazardous waste regulations and title 27 non-hazardous waste regulations together compose a core regulatory program that is implemented by all nine Regional Water Boards. The regulations focus on protecting water quality through specifications for the design, construction, and operation of waste disposal facilities such as landfills. While the primary focus of the LDP is on landfills, LDP staff implement these regulations for a number of different types of facilities including:

- Municipal solid waste (MSW) landfills
- Hazardous waste disposal facilities*
- Non-hazardous waste surface impoundments (lined ponds)
- Waste disposal units within oil refineries and other industrial facilities
- Closed or abandoned mines

*Hazardous waste disposal facilities are regulated primarily by the Department of Toxic Substances Control, but the Water Boards are involved in protection of water quality at these facilities.

Many facilities that are regulated under the LDP are very large and diverse and pose a wide variety of threats to surface waterbodies as well as groundwater. Staff responsibilities for the regulated sites are broad and include:

- Groundwater monitoring, evaluation and cleanup;
- Surface water monitoring and sediment cleanup and protection;
- Erosion and stormwater runoff control;
- Wetland and sediment contamination issues derived from onsite pollution sources;
- Frequent inspections to verify compliance;
- Evaluation of compliance with California Environmental Quality Act (CEQA) requirements;
- Technical review of design and operation of waste containment units;
- Coordination with State, federal and local agencies; and
- Enforcement actions to respond to violations.

Legal Authority:

The State and Regional Water Boards are authorized to regulate discharges of waste to land under two sets of State regulations, Chapter 15 and title 27. These regulations address the discharge of both solid and liquid wastes to designated land disposal facilities. Chapter 15 pertains primarily to the discharge of hazardous waste, whereas title 27 focuses on the discharge of non-hazardous waste such as MSW or construction and demolition debris. Title 27 provides regulatory authority to the Water Boards and CalRecycle (formerly called the California Integrated Waste Management Board) and clearly defines the responsibilities assigned to each agency. The Department of Toxic Substances Control (DTSC) provides primary enforcement of Chapter 15; however, the Water Boards have an active role in the enforcement of water quality provisions of Chapter 15 at many waste disposal sites.

Function and Purpose of Regulations:

The regulations governing the disposal of waste to land consist of the following key elements:

- Definition and classification of wastes in order to determine the type/classification of the disposal unit that will receive the waste;
- Siting criteria for location of waste disposal units;
- Design and construction requirements for waste disposal units;
- Groundwater monitoring requirements;
- Closure design and post-closure monitoring requirements;
- Authority for the Regional Water Boards to adopt waste discharge requirements (WDRs) to establish site-specific requirements for regulatory compliance;
- Requirements for the discharger to provide documentation of financial assurance for waste unit closure, post closure maintenance, and corrective action.

The primary purpose of the regulations is to assure 1) the protection of human health and the environment, 2) ensure waste is properly contained or cleaned-up as appropriate, and 3) surface and groundwater are protected from the discharge of waste to land.

Land Disposal Program Work Elements:

Specific work element tasks performed by Water Board staff include the following:

- Water Board Orders: LDP staff implement Chapter 15 and title 27 requirements by issuing WDRs and Cleanup and Abatement Orders. These orders are written by program staff and must be updated, revised, and/or amended periodically to ensure regulatory compliance.
- Inspections: Active waste disposal facilities are inspected routinely (two or more times per year), with inspections focusing on the following operations:
    - construction of landfill base liner systems;
    - installation of groundwater and leachate monitoring wells;
    - construction of interim or final landfill cover systems;
    - maintenance and improvement of leachate management systems, gas collection systems, and stormwater runoff and erosion controls; and
    - ensuring compliance with other requirements contained within the facility's WDRs.

  Closed landfills are also inspected periodically to ensure that wastes remain properly contained and that post-closure land uses are in compliance with the facility's WDRs.
- Reports: About 20 – 25% of staff time is spent reviewing technical reports, such as:
    - Groundwater monitoring reports to look for evidence of leachate migration from disposal units;
    - Liner and cover system design reports;
    - Construction quality assurance reports that document that liner and cover systems were built in accordance with staff-approved design reports; and,
    - Closure and post-closure maintenance plans.
- Landfill closures and reuse: A growing portion of staff time is spent overseeing proposals for the reuse or redevelopment of closed landfills or sites in the process of closing. Historically, closed landfills were maintained as open space or designated as parks with public access for hiking, bird watching, etc. Over the past decade, however, several closed landfills in our region have been redeveloped as golf courses, office parks, retail stores, and hotels. The trend

toward land uses that involve part-time and full-time human occupancy inherently introduces greater risk to human health and therefore requires more scrutiny and active oversight from regulatory staff.

- Corrective actions: The amount of time spent overseeing corrective actions for waste containment units at major industrial facilities such as refineries and chemical plants is declining as the number of leaking disposal units declines. Several industrial facilities are currently closing inactive waste units that are no longer used. In our region, these units are often located in wetland or Bay-margin areas, and the closures are complicated by the need to ensure that threatened species and sensitive habitats are not damaged or destroyed in the closure process. Thus, ensuring compliance with the requirements of certified CEQA documents is now a significant part of staff's workload.

Available Resources:

For the current fiscal year, our region receives funding for 3.2 positions. This is roughly half of the funding provided a decade ago. Currently, five staff are assigned to the LDP and report to the LDP section leader, although none of the five works full-time on LDP issues. All staff in the LDP section also perform work on sites that are managed under other programs such as the Site Cleanup Program or the Department of Defense Program. The Water Boards have cost recovery arrangements for both of these programs so that staff time is billed to the responsible parties. Conversely, LDP funding is obtained primarily from WDR permit fees and funding from CalRecycle through MSW landfill disposal "tipping" fees. LDP sites may be enrolled in the Site Cleanup Program's Cost Recovery Program when corrective actions are needed to address leaks and discharges from disposal units.

A senior staff member (the LDP section leader) supervises the land disposal program. Supervision of the program includes tracking program workplan progress, training technical program staff, representation at program roundtable meetings, monitoring the program budget, and coordinating with the State Water Board and other agencies. Other members of the Board's management (e.g., Executive Officer, Assistant Executive Officer, and Groundwater Protection Division Chief) as well as Staff Counsel also may bill a portion of their time to the LDP.

Yearly workplan requirements have been somewhat stable depending upon funding apportioned to this region. Considerable effort has been placed over the last ten years to balance out workloads from year to year. Tentative fiscal year 2013/2014 workplan requirements are:

- Update, amend, or review 5 WDR orders;
- Conduct 40 site inspections;
- Review 70 Self-Monitoring Program (SMP) reports;
- Update or amend 5 facility SMPs
- Review 55 technical reports, including site development plans, closure plans, and financial assurance documents; and
- Review and/or prepare 3 CEQA documents (mitigated negative declarations, etc.).

Achievements:

Since the development of the LDP in 1984, most of the older, typically unlined waste disposal facilities that were not capable of complying with LDP's regulations have been closed. The newer facilities constructed with composite base liners and advanced leachate collection systems perform much better at containing waste and thereby protecting water quality. Overall, waste disposal

practices within our region have improved significantly in response to more stringent State and federal regulations.

The recent trend towards redevelopment and commercial reuse of closed landfills has improved landfill waste containment performance. Although redevelopment carries the risk of increasing infiltration if covers are penetrated, landfill redevelopments have generally resulted in better waste isolation through construction of improved covers. With onsite tenants, site owners do not need to be convinced of the importance of performing periodic site maintenance. In addition, many dischargers have been required to upgrade landfill gas collection systems, to improve stormwater management systems, and to upgrade groundwater monitoring systems. Such actions have resulted in significantly reducing adverse water quality and air quality impacts from the disposal units.

Issues, Obstacles, and Opportunities:

- Understaffing: The perennial problem of inadequate budgets and staffing issues has been particularly acute during the economic recession of the past several years. It remains a substantial challenge to provide adequate oversight of our region's industrial waste facilities and municipal waste disposal sites. Due to the large number of sites each staff member must manage, staff cannot provide diligent oversight of every site entrusted to them. Thus, periodic re-evaluation of priorities is necessary. Higher priority sites, such as the five petroleum refineries and the active municipal waste landfills, will continue to consume most of the LDP staff resources. Establishing and achieving core program goals in staffs' annual workplans assist in managing the large workload.
- Aging facilities: The older, closed waste disposal sites typically have poor waste containment features (such as a lack of liners) and are prone to water quality problems such as erosion and leakage. These sites continue to require long-term monitoring and staff oversight. As old closed waste disposal sites continue to age, problems that were not apparent in prior years sometimes become significant. Such sites may experience significant settlement, erosion, or even discharge of pollutants to State waters. Staff evaluate the impacts from or region's 90+ closed waste disposal sites by reviewing SMP reports and performing periodic site inspections. As necessary, staff require correction of problems, such as leachate releases, water ponding and erosion problems. WDRs may then be revised as appropriate. Enforcement action will be recommended if a violation occurs.
- Proposals for residential development over waste disposal sites: Although Board staff generally support beneficial reuse of closed landfills, the recent trend towards changing land uses to include residential occupancy presents significant concerns. Over the past decade, several closed landfills in this region have been redeveloped for commercial purposes such as office parks, retail stores, and hotels. Recently, municipalities are beginning to propose mixed-use (i.e., mixed commercial and residential) developments over closed landfills. For example, two mixed-use developments have been proposed in Santa Clara County, and one of these proposals (in Campbell) was approved by the City and the Local Enforcement Agency despite concerns voiced by Board staff. Although staff try to educate local agencies to the human health risks posed by residential development over landfills by not supporting such development, our review of title 27 regulations indicates that the Board does not have the authority to prevent such development from proceeding.
- Preparing for sea level rise: Another significant challenge for the long-term management of waste disposal sites has come to light in the past decade. The vast majority of waste disposal

sites in our region are located along the Bay margin at very low elevations. As sea level rises in response to global climate change, it can be expected that most of these sites will be at risk of being inundated beneath Bay water unless steps are taken to isolate them. Wave erosion of landfill covers can be expected to expose waste, causing significant water quality impacts. Currently, Board staff add provisions requiring review and planning for impacts from sea level rise to all updated WDRs for landfills located along the Bay margin.

- Recycling, composting, and reduced waste burial: Although greater recycling and reduced burial of waste is a goal of the State and most communities, this transition does present challenges of its own. Waste disposal regulations such as title 27 are designed to protect the environment from problems related to waste burial, such as the migration of contaminants into groundwater from disposal pits. However, the diversion of recyclable and compostable materials from disposal pits into surface piles also presents environmental problems that must be regulated and managed. Many of these operations are conducted outside of regulated landfills at locations with few engineered means of groundwater protection and most are constructed with only very rudimentary means to prevent runoff of stormwater that may have contacted these materials. The State Water Board is currently drafting regulations to manage recycling and composting facilities.

Land Disposal Program Outlook and Conclusion:

While ensuring that water quality is protected from the land disposal of waste has been part of the Regional Water Boards' mission since the founding of the Boards, the LDP has dwindled into one of the Board's smaller core regulatory programs. Currently available resources are not sufficient to maintain full implementation of the LDP. Our region has done a respectable job at maintaining workload consistency between successive years and meeting workload priorities, such as keeping WDRs up to date and regularly inspecting landfills. However, since 2003, funding has decreased from 7 positions to 3.2, with no decrease in workload. Any further loss of resources will certainly mean a reduction in the amount and quality of work we can do.

Workload projections over the next ten years indicate that the LDP will remain an ongoing effort. Waste disposal sites continuously require updated WDRs, facility inspections, and report reviews. The figure does not reflect discharger-generated requests for WDR updates, such as for commercial business or residential development upon older landfills or the addition of new sites.

The human health and environmental benefits derived from implementation of the LDP are well established. Although recycling is increasing and the proportion of waste going to landfills is decreasing, our region's growing population continues to generate an enormous volume of waste that must be managed properly. The need to ensure that waste disposal is performed in an environmentally sound manner that does not impair waters of the State will not diminish in the foreseeable future. Continued implementation of the LDP is necessary to prevent potential negative human health and environmental impacts.