

STAFF REPORT

CITY OF FOLSOM
FOLSOM CORPORATION YARD LANDFILL
SACRAMENTO COUNTY

Consideration of revised waste discharge requirements for clean closure of the Folsom Corporation Yard Landfill.

INTRODUCTION

The City of Folsom (Discharger or City) owns and operates the Folsom Corporation Yard Landfill, a 3.2 -acre closed landfill on Leidesdorff Street in Folsom. The Class III landfill operated from 1974 until 1987, accepting primarily street cleaning wastes and other debris. The landfill stopped accepting wastes in 1987 (before the applicability of Federal Subtitle D regulations) and, in 1996, was closed with a clay cover in accordance with Title 27 regulations. Subsequent monitoring confirmed previous testing showing impacts to shallow groundwater from the landfill, including elevated inorganic salts and dissolved metals. No significant reduction in these impacts has occurred since the landfill was closed. The Discharger now proposes to clean close the landfill and an adjacent fill area as a further corrective action measure. By clean closing the landfill, the Discharger hopes to reduce/eliminate long-term monitoring costs and improve land use options for the site.

BACKGROUND

The site overlooks Lake Natoma at a point about 3.3 miles downstream of the Folsom Dam and 2.6 miles upstream of the Nimbus Dam. Immediately south and west of the landfill within the river corridor area is the Folsom Lake State Recreation Area, a popular state park operated on Bureau of Reclamation land. The FLSRA includes recreational facilities such as a scenic bike trail, pedestrian pathway, and picnic tables. Areas of historical/cultural interest proximate to the landfill include the site of old China town to the northeast and historic Negro Bar, a gold rush era site, to the northwest. Other land uses in the area include a residential subdivision (Natoma Shores) to the east, a Veteran's Hall (next to the corporation yard on Leidesdorff Street) and the corporation yard to the north. Other corporation yard uses include employee offices, parking, vehicle and equipment storage, fleet maintenance, and household hazardous waste recycling.

The landfill is in the southern part of the city's 18-acre corporation yard, where the City formerly operated a wastewater treatment plant (WTP). The WTP was demolished in 1973 and the landfill was constructed in the former WTP's three clay-lined ponds. The pond liners were breached in places during landfill construction, however, and the landfill is considered unlined. It also does not have a leachate collection system. The landfill operated from 1974 until 1987, accepting primarily street cleaning wastes, construction and demolition debris, and green wastes from City operations. Residual household waste from cleaning garbage trucks was also discharged to the landfill. Although the facility was not open to the public, onsite public dumping occurred

immediately south of the landfill in a 1.1-acre unclassified fill area referred to as the “uncontrolled fill area”, or UFA.

In 1996, the landfill was graded and capped with a prescriptive clay cover in accordance with Chapter 15 (now Title 27), California Code of Regulations and WDRs Order No. 95-246. The top deck of the landfill (corresponding to the deepest portion of the former ponds) is in the northern part of the landfill, while the lower deck (corresponding to the shallowest portion of the former ponds) is at the southern end. The closure did not include the UFA, which was not regulated under WDRs Order No. 95-246 (the UFA has been included in the tentative WDRs, however).

SURFACE WATER MONITORING

Storm water drainage from the landfill is captured in perimeter swales and discharged along the western site perimeter. The Discharger monitors this discharge under the General Industrial Storm Water Permit, which also includes the corporation yard north of the landfill. Surface drainage from the site is generally toward Lake Natoma, about 600 feet to the west.

Neither the monitoring program under the existing WDRs (Revised MRP No. 95-246) or that under the tentative WDRs requires that the Discharger monitor Lake Natoma. The Discharger previously sampled the Lake in July 1995, however, for representative landfill constituents, including general minerals and iron. Sampling was conducted at points immediately upstream and downstream of the landfill. TDS, bicarbonate, and iron were detected at 26 mg/L, 14 mg/L and 0.22 mg/L (reported as total iron) downstream. Similar concentrations of these constituents were detected upstream. No exceedances were reported.

Any storm water or ground water discharge into the Lake from the landfill area, if it occurred, would likely be highly attenuated or diluted. The MRP under the tentative WDRs therefore does not require surface water monitoring of the lake. The proposed MRP requires that the Discharger continue monitoring storm water discharges from the landfill under the General Storm Water Permit, however.

GROUNDWATER MONITORING

The site is underlain by an upper layer of dredge tailings (about 10 feet thick under the landfill and up to 30 feet thick in other areas of the site) and then by the Mehrten formation, which consists primarily of low permeability deposits such as clay and mudflow. Shallow groundwater is within the dredge tailings layer, perched on top of the Mehrten. Lower zone groundwater is in the upper Mehrten, where higher measured piezometric heads indicate limited communication with the shallow zone. Shallow groundwater flow is generally radial, following the topography of the Mehrten,

while lower zone flow is generally to the west toward Lake Natoma. The lower zone may be in communication with the Lake. There are currently nine monitoring wells at the site, including seven shallow zone wells and two lower zone wells.

A Solid Waste Assessment Test (SWAT) completed in 1990 found likely impacts to groundwater from the landfill, including elevated total dissolved solids (TDS) and a few dissolved metals. Postclosure monitoring since 1996 has further characterized these impacts, which include TDS (634 mg/L), bicarbonate (327 mg/L), and sulfate (179 mg/L), arsenic (20 µg/L) and dissolved iron (14,000 µg/L). TDS, arsenic, and iron have been detected above drinking water standards. Methyl tert-butyl ether (MTBE, up to 20 µg/L) and low to trace concentrations of a few other volatile organic compounds (e.g., ethylbenzene, toluene, and xylenes) have also been detected in a few shallow wells. Spatial variability in the groundwater chemistry has also been detected in the lower zone. Time series plots of the monitoring data since landfill closure in 1996 do not indicate any clear rising or falling trends of any of the landfill constituents detected in groundwater.

VOCs and increasing concentrations of inorganic constituents detected at the northern end of the landfill (i.e., where the waste column is thickest) are consistent with the northern end of the landfill as the primary source of groundwater impacts from the landfill. The Discharger has attributed the VOCs and general minerals to possible effects of landfill leachate and/or landfill gas, but believes that the reducing effects of landfill on the groundwater geochemistry, rather than any direct leachate impact, may be the cause of the elevated dissolved iron and arsenic detected in shallow groundwater. This contention is supported by the fact that these constituents have not been detected at elevated concentrations at the southern end of the landfill, which may be beyond the reducing zone. The Discharger has also attributed the groundwater impacts and spatial variability to historical sources such as the old WTP and dredge tailings from mining activities.

CLEAN CLOSURE PLAN

Geotechnical investigations conducted in 2000, 2006, and 2008 as part of clean closure planning generally confirmed historical information as to the nature and extent of the wastes in the landfill and UFA areas. Primarily Construction and Demolition (C&D) and green wastes were found in the main landfill, while primarily household wastes were found in the UFA. The waste column ranged from about 15 feet thick (beneath the upper deck of the main landfill) to about 6 feet thick (beneath the UFA). About 42,000 cubic yards of waste (excluding landfill cover) were estimated to be in place in the main landfill and about 11,000 cubic yards in the UFA.

In May 2008, the City submitted an amended Report of Waste Discharge (RWD)

proposing to clean close the main landfill and UFA as a corrective action measure to address the groundwater impacts from the landfill. The Discharger's clean closure plan proposes that the landfill be excavated in three phases, beginning with the UFA immediately south of the landfill and proceeding northward with the lower/middle, and upper landfill deck areas (See Attachment 1). After excavation, the waste will be stockpiled onsite, sorted, and characterized for onsite reuse, or offsite disposal. With the exception of household hazardous waste (HHW) diverted to the HHW facility in the corporation yard, any hazardous waste will be removed from the site for disposal at an authorized Class I landfill. To the extent possible, excavated soil classified as clean fill will be used onsite as backfill. Confirmation sampling for representative constituents of concern, including specified soluble minerals and total metals, will be conducted at randomly selected nodes of a predetermined sampling grid in accordance with the Discharger Confirmation Sampling and Analysis Plan (CSAP) to verify removal of wastes. Step-out sampling and additional excavation, as necessary, would be conducted in the event of a failing node. After completion of confirmation sampling and any necessary additional excavation, the site would be backfilled, regraded for drainage, and re-vegetated.

By clean closing the landfill, the City hopes to reduce/eliminate long term monitoring and corrective action costs associated with the landfill and improve land use options for the site. The Discharger hopes to complete the project in the 2008 construction season. The plan includes contingency winterization measures in the event that construction extends into the wet season.

TENTATIVE WDRS

The tentative WDRs incorporate the Discharger's clean closure plan and prescribe requirements for landfill clean closure as a corrective action measure in accordance with Title 27 regulations. Discharge specifications in the WDRs specify cleanup goals for removal of landfill wastes and limit the amount of time any waste can remain onsite pending offsite disposal. The tentative WDRs also require that the Discharger obtain coverage under the General Storm Water Permit for Construction Activities and implement necessary measures to protect landfill facilities during the wet season and/or in the event of a significant work interruption. In addition, the WDRs require that the Discharger submit for approval an updated postclosure maintenance plan, including updated cost estimates for any facility-related repairs prior to removal of the landfill; subsequent groundwater corrective action monitoring; and any additional corrective action necessary to achieve compliance with the Water Quality Protection Standard (WQPS). The tentative WDRs require that the Discharger provide financial assurances in approved amounts and in an acceptable mechanism under Title 27. They also specify a minimum proof period (consisting of eight sampling events in one year) for demonstrating that all constituents of concern meet the WQPS.

The monitoring and reporting program (MRP) in the WDRs specifies the WQPS, including concentration limits for groundwater cleanup derived from statistical analysis of historical background data at the site. The MRP requires semiannual groundwater monitoring for regularly detected constituents, including field parameters, general minerals, and specified dissolved metals (arsenic and iron); and annual monitoring for less frequently detected constituents, including VOCs, major anions and cations, and a longer list of dissolved metals. The MRP also has a proof period where all constituents of concern must meet the WQPS. This period is three years, which includes six sampling events.

COMMENTS ON TENTATIVE WDRs

Written comments on the proposed Orders were required to be received by the Regional Water Board by 23 June 2008 in order to receive full consideration. Comments were received by the deadline from the following interested persons:

City of Folsom, Discharger

Laurie Laurent, resident of Natoma Shores Subdivision

Alan Wade, member, Save The American River Association (S.A.R.A.)

Dean Handy, resident of Natoma Shores Subdivision and member, W.A.T.E.R

The major issues discussed in the public comments are summarized below. A complete response to comments is provided in the agenda package.

Discharger Compliance

1. Wade/SARA objected to the tentative WDRs on the grounds that the discharger cannot be relied upon to comply with its WDRs, given its history of water quality violations.

No change recommended. The discharger is not in violation of its landfill WDRs and has a history of compliance with these WDRs. The proposed clean closure WDRs prescribe appropriate requirements for the clean closure project, which should result in improved water quality.

Project Documents

2. The Discharger objected to a provision in the WDRs requiring submission of final construction plans at least two months prior to the starting project construction, on the grounds that such requirement would delay the project.

Since the Discharger has already submitted the construction plans for the project as an amendment to the RWD, this provision is no longer necessary and has

been removed from the WDRs.

3. The Discharger requested that the due date for submitting an updated Post-Closure Maintenance Plan (PCMP) be extended to January 31, 2009 since several other deliverables (as-built plans, Clean Closure Results Report, etc.) are due within two months after completion of construction.

Staff does not recommend any change in response to this comment, since the updated PCMP will provide the basis for updating financial assurances that may be necessary if the project extends into the wet season.

4. Laurent commented that documents needed for commenting on the tentative WDRs had not been made available to the public, or were incomplete. Such information included detailed clean closure cost estimates; copies of amended RWD Appendix attachments; the construction bid request; project health and safety and vehicle circulation plans; evidence of project financial assurances, and a topographic map of the Mehrten formation. She indicated that without this information the public has not had an opportunity to respond to the tentative WDRs and/or prepare for the Board meeting.

The City submitted a demonstration of existing financial assurances in response to comments on the tentatives. Provisions 6 through 8 of the WDRs require that these assurances be updated. Detailed clean closure cost estimates were not required to prepare the tentative WDRs, however, as explained in Response ___ below. Topographic information regarding the Mehrten formation was included in the May 2008 Amended RWD (Appendix C). PDF copies of the amended RWD Appendix attachments and the construction bid package, including construction plans, were emailed to Laurent in response to her comments. She was also informed that the above information is available in the Regional Water Board files for public review.

Hazardous Wastes

5. Laurent, Wade/SARA and Handy commented that the landfill accepted all kinds of hazardous wastes such as cleaners, degreasers, automotive parts, and heavy metals not identified in the site investigation reports and not described in the WDR findings.

Nothing in the above descriptions of wastes that may be in the landfill support modification or denial of the proposed WDRs, which would regulate how wastes are removed, characterized and disposed of.

Site Characterization

6. Laurent commented that the City has not conducted an adequate investigation of the nature and extent of wastes at the site.

Geotechnical investigations of these areas conducted by the discharger in 2000, 2006, and 2008 have adequately characterized the nature and extent of wastes for this purpose, as noted in Finding 8 of the WDRs. Test pit logs and photos from these investigations indicate that the excavated waste consisted of soil mixed with organic matter, trash, and debris, consistent with the description in Finding 8 of the WDRs.

Landfill Closure

7. Wade commented that the area outside of the main landfill (i.e., UFA) should be closed in accordance with a CIWMB approved closure plan rather than clean closed.

Clean closure is a more effective corrective action measure than conventional closure because it involves removing, rather than merely covering, landfill wastes. Clean closure thus eliminates the source of pollution. Staff therefore supports the Discharger's proposal to clean close both areas and the WDRs implement appropriate requirements for the project in accordance with Title 27 regulations. Title 27 also requires that the Discharger obtain clean closure approvals from the CIWMB and Local Enforcement Agency.

Project Costs & Financial Assurances

8. Laurent and Wade commented that the City has underestimated the cost of clean closure of the landfill and has not provided detailed clean closure cost estimates and financial assurances.

Neither Title 27 nor the WDRs require financial assurances for clean closure where the landfill has already been closed, except as necessary to repair the final cover in the event that work is suspended for a significant period of time (i.e., greater than six months) or is not completed. The City has provided the estimated costs and demonstrated adequate financial assurances for such repairs.

Storm Water

9. Laurent and Wade commented that the storm water and site winterization requirements in the tentative WDRs are inadequate or not enforceable.

Staff disagrees. Storm Water Specification D.5 of the WDRs requires that the discharger implement site winterization measures by 31 October of each year. Most of the winterization measures required are best management practices implemented under the Storm Water Pollution Prevention Plan developed under the General Storm Water Permit, so submission of a winterization plan is not necessary. Both the landfill and UFA will be backfilled and graded for drainage as part of the clean closure work plan. Failure to comply with the facility monitoring requirements of the MRP would be a WDR violation subject to possible enforcement action.

Groundwater Monitoring

10. The Discharger objected to the inclusion of semi-volatile organic compounds, organophosphorous and organochlorine pesticides, chlorinated herbicides, and polychlorinated biphenyls in the monitoring and reporting program (MRP) as five-year constituents of concern. The Discharger also stated that monitoring for metals and volatile organic compounds (VOCs) should be limited to those analytes that have been detected previously.

Staff does not propose any change in response to this comment. A full Subtitle D constituents of concern list is justified because the landfill accepted household waste, is unlined, and does not have leachate collection and recovery system. The quality of the leachate from the landfill is therefore unknown. Also, the proposed COC list is the same as the current WDRs and only two five-year monitoring events have been conducted for the full COC list that was added to the MRP in 2001.

11. The Discharger commented that extending the compliance period three years following removal of the landfill is excessive given that clean closure will remove the landfill waste.

Since landfill clean closure is being conducted as a corrective action measure, the compliance period cannot end any sooner than three years after removal of the landfill wastes. The compliance period includes the minimum one-year proof period required for termination of corrective action measures under Title 27.

12. The Discharger object to intrawell monitoring requirements for the two lower zone wells (FCY-3 and FCY-7), stating that these wells are upgradient and not likely connected with the shallow perched zone immediately below the landfill.

No change. Both zones have similar concentrations of general minerals and communication between the zones has not been ruled out. Intrawell monitoring

of the lower zone is appropriate to monitor water quality trends in response to landfill clean closure.

Surface Water Monitoring

13. Wade commented that, given the proximity of the landfill to Lake Natoma [about 600 feet], constituents from the landfill may be entering the lake, or may enter the lake in the future. Monitoring of the lake should be required to protect its unusually strict water quality standards as a federally designated Wild and Scenic River.

As noted earlier, storm water or groundwater discharged from the landfill to the lake, if it occurred, would likely be highly attenuated or diluted. The landfill is considered a low threat to the lake. Removal of the landfill should further minimize any such threat. Discharge limits and surface water monitoring requirements for the lake are therefore not necessary and have not been included in the tentative WDRs and MRP.

Land Use

14. Wade commented that any plans for development of the site after clean closure is completed should consider the overburdened city infrastructure.

After successful completion of the proof/compliance period, the WDRs may be rescinded and, if rescinded, would no longer restrict the land use.

CHANGES TO TENTATIVE ORDER

The following changes were made to the tentative WDRs in response to comments:

1. WDR Provision (I.8.a), which required submission of project construction plans (including design, CQA, specifications, and schedule) at least two months prior to starting construction, has been removed, since the plans were submitted as an RWD amendment after issuance of the tentatives. WDR Finding 3 has also been revised to acknowledge submission of the plans.
2. Minor edits and clarifications to a few WDR findings.

No changes were made to the MRP in the tentative Order.