

Green Coalition for Responsible Waste / Resource Management

June 15, 2009

California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, California 94612

**Delivered by e-mail PDF Format
and US Mail**

**Re: Updated Waste Discharge Requirements and Rescission of order no. 95-110;
for Redwood Landfill, Inc, Novato, CA**

Dear Members of the Board and Staff:

Please accept these comments from the Green Coalition,¹ consider them in your deliberations concerning the application of Waste Management, Inc. (WMI) for the **UPDATED WASTE DISCHARGE REQUIREMENTS AND RESCISSION OF ORDER NO. 95-110; Redwood Landfill, Inc, Novato, CA (“WDR”)**, and include this comment letter (and the items referenced in it) in the permanent record of this matter. We appreciate the opportunity to submit these written comments.²

The Redwood Landfill, owned by Waste Management, Inc., comprises 220 acres of garbage piled 70 feet tall. It will grow to 166 feet under Waste Management’s proposal.

¹ We incorporate by reference the prior letters the Green Coalition submitted to Marin County in the Redwood Landfill FEIR process, as well as the prior letters submitted by attorney Brent Newell.

² The Green Coalition for Responsible Waste /Resource Management consists of 25 different environmental, community, and social justice organizations with thousands of members in Marin and Sonoma Counties: Sierra Club Marin Group, Sustainable Novato, Sustainable San Rafael, Sustainable Petaluma, Sustainable Marin, Friends of the Petaluma River, Madrone Audubon, Baykeeper, No Wetlands Landfill Expansion, Novato Democratic Club, Petaluma Tomorrow, Democracy for America, Green Builders of Marin, Friends of Novato Creek, Seniors for Peace, Grey Panthers of Marin, Environmental Action Committee of West Marin, Petaluma River Council, Daily-Acts, Novato Live Well Network, Green Gate, 6th Assembly District Democrats, Democratic Central Committee of Marin, and Sustainable Fairfax.

The Green Coalition has adopted four principles that guide our thinking and actions:

- (1) Ban Green and Organic Waste from the Dump, and Convert it to a Resource in a Manner that Reduces Greenhouse Gas.**
- (2) Require strong Earthquake, Groundwater, and Flood Protections at the Dump (before approving any expansion).**
- (3) Adopt a Mitigation Fee to Discourage Waste, to Fund Zero Waste Initiatives, and to Pay for an Independent Monitor who Reports to the Community (and helps assure implementation of the dozens of mitigation measures).**
- (4) Insist on a Real Financial Guarantee for the Inevitable Toxic Clean-up (so taxpayers don’t get stuck with the bill).**

For more information, go to www.greencoalitionmarin.org.

Redwood Landfill is below sea level, in a floodplain, in contact with groundwater, on old tidal channels and Bay mud subject to liquefaction, and between two faults that experts predict have more than a 99% chance of at least a 6.7 earthquake within the next 30 years.

In 2006 Redwood Landfill suffered a significant levee failure. The Landfill is next to San Antonio Creek, which connects to the Petaluma Marsh and River Estuary, and to the Bay.

We understand from Marin County Environmental Health Services division that the RWQCB is partially responsible for oversight and approval of the Landfill's leachate management system as well as its plan to improve the levees.

We are concerned that the Board's examination of the WDR adequately address substantial threats to the environment and human health that were revealed during the Marin County Final Environmental Impact Report (FEIR) hearing and subsequent meetings with the Local Enforcement Authority (LEA). These threats concern:

- **Waste In Contact with Groundwater**
- **Unresolved On-site Leachate Hazards Deficient Levees and Global Warming Induced Flooding**
- **Self Monitoring vs. Self Interest**
- **Failure to Adequately Address Climate Change**

Waste In Contact with Groundwater

As stated in the Final Environmental Impact Report on the landfill expansion: "Much of the base of the landfill, that is, where refuse contacts the underlying material, is already below sea level, and in contact with groundwater."

This violates "the prescriptive siting and operational requirement" under California Code Title 27, Section 2040 which provides:

"Existing landfills, waste piles, and surface impoundments shall be operated to ensure that wastes will be a minimum of five feet above the highest anticipated elevation of underlying groundwater."

Under state law, a rare exception applies only if the applicant demonstrates that five feet separation is not achievable and there is a "specific engineered alternative that (A) is consistent with the performance goal [of 5 feet separation] and (B) affords equivalent protection against water quality impairment." "Equivalent" protection must mean: as if the site were not sitting in groundwater, as it is today.

Of particular concern is the leachate generated by decomposing waste. This liquid can commonly contain dioxins, furans, PBDE's, phthalates, BPA, pesticides, solvents, ionizing radiation, pharmaceuticals, plastic monomers, asbestos, detergents, benzo a pyrene, and other toxic materials.

The Regional Water Quality Control Board staff's acceptance of the landfill's engineered alternative concludes – without independent analysis - that WMI's experimental leachate containment system or "LCRS" (the calculation of the hydraulic gradient of the site, Bay mud

properties, and the promise to forever pump this potentially toxic liquid away from the dump's perimeter) would be "equally protective" of groundwater. This is an uncritical acceptance of the landfill's speculative and hypothetical engineered alternative.

Major flaws in WMI's analysis are:

- The failure to identify all the sand lenses and silty channels that are under the site, which was built on historical Bay tidal lands. The FEIR states that:
 - "the effectiveness of the LCRS trench in maintaining the hydraulic gradient toward the trench in areas near or intersecting with [sand lenses or channel deposits] is particularly critical, due to the greater permeability within these deposits."³

But only 12 borings have been taken on this 222.5 acre site, and none have been taken since the early 1990s.

Establishing only one monitoring well for every 18.5 acres, and conducting a testing protocol on no more than a semi-annual basis, fails to protect the waters surrounding this landfill site.

There is far too great a risk that significant and potentially hazardous sand lenses and channel deposits have not been mapped, and that contamination of ground water will go undetected.

- The complete failure to explain the reversal of the hydraulic gradient away from the perimeter trench over a six month period in 2005-06 when the site was saturated with rain.⁴
- The admission that the calculation for the water balance model critical to support the hypothesis of the hydraulic gradient "is based on a simple model of 'some going up and some going down.'" No empirical measurement or calculation has been performed.⁵
- The failure to prepare an Operations Manual until after it is needed when the FEIR is certified. The Operations Manual should cover key elements such as leachate collection, conveyance, storage, treatment, discharge, monitoring, performance criteria, and "potential mitigation efforts as necessary in the event of failure of the performance criteria."⁶

In sum, the FEIR concluded that "Additional data are needed to understand the dynamics of the site's hydrology and to confirm the effectiveness of the LCRS system," and that the effectiveness of the LCRS must be more clearly demonstrated.⁷

This analysis has not been submitted.

³ FEIR at 2-24.

⁴ Memorandum dated Nov. 3, 2006 From Redwood Landfill to ESA re Leachate Management Issues at p. 11 (in EHS files and part of the FEIR record) ("11/3/06 Memo").

⁵ Telephone Notes by the Environmental Consultant dated November 8, 2007 (in EHS files and part of the FEIR record).

⁶ 11/3/06 Memo at 3.

⁷ FEIR at 2-24, 2-25.

The FEIR did not address how the risk of groundwater contamination will be mitigated. The public has been deprived of its right to understand whether the Mitigated Alternative will pose a substantial risk to groundwater contamination.

The Marin County Planning Commission, in the final EIR Mitigation Monitoring and Report Program (MMRP) Mitigation Measure 3.4.7K, reveals a concern for leachate contamination long past closure of the site. In the event of a catastrophic event there are no guarantees that Redwood will be able to operate pumps beyond the capacity of the backup generators.

Unresolved On-site Leachate Hazards

The WDR should not be finalized until the landfill's Leachate Management Plan of October 14, 2008 eliminates significant water contamination hazards by requiring off-site treatment of leachate.

- The leachate is never transported offsite for safe disposal. The past practice, and the proposed plan for the future, is to pump leachate from the holding pond on site and spray it on a daily basis around the landfill for "dust control." This enables the polluted leachate to come into contact with stormwater, which on a regular basis is allowed to run-off through pipes into San Antonio Creek. To address the obvious environmental risks, the "WDR" should require that leachate be periodically transported from the site to a proper treatment facility.
- The WDR indicates that the 2007 rainy season, as well as the recent increase in leachate extraction rates, demonstrate that the leachate storage capacity must be increased. This remediation perpetuates the conditions for contamination noted above. By far the most responsible solution is to require off-site disposal of leachate.
- The Leachate Facilities Leak and Spill Contingency Plan is inadequate. The alternatives listed - constructing a dike, temporary berms, excavation of additional channels, construction of a temporary storage pond in the oxbow, or pumping leachate into the unprotected stormwater pond – would all take time and planning incompatible with timely remedying of an existing leak or spill. The alternatives listed also would also risk further contamination of stormwater. The responsible solution, again, is to require off-site transport and treatment of leachate. Our letter to the LEA of November 5, 2008 addresses additional issues (attachment C).

Deficient Levees and Global Warming Induced Flooding

Surrounded on three sides by water, Redwood Landfill is ringed by levees.

In December 2006 a 350 foot portion of an upgraded levy failed. WMI's consultant concluded that "the failure was caused by insufficient shear strength of the underlying Bay Mud."

Accordingly, the FEIR required that WMI conduct additional slope stability analysis to determine whether the relevant safety factor can be met, and to develop a remedial action plan and new levee design if necessary. (Mitigation Measures 3.5.6b and 3.5.6c)

The FEIR concluded that, "If Global Warming Climate Change also causes an increase in the intensity and frequency of severe storms and flooding, the +9 mean sea level [levee height] may be inadequate to protect the site from flooding and from damage to essential environmental control systems."

Accordingly, the FEIR requires a new plan for long-term flood protection of the site, including the engineered basis for the plan and proof of financial assurance through the post-closure maintenance period. (Mitigation Measure 3.5.6d)

Waste Management, Inc. has produced neither an adequate long-term flood protection plan, nor proof of financial assurance through the post-closure maintenance period.

The paltry 5 page “Long-Term Flood Protection Plan” dated August 8, 2008 states little more than Waste Management Inc.’s conclusion that the 9 foot tall exterior levee will offer sufficient protection in the event of a 100 year flood.

The FEIR did not explain how these risks will be mitigated by the new plan under the MMRP. The RWQCB and the public have been deprived of any opportunity to evaluate whether a new plan will create a sufficient barrier against global warming-induced floodwaters.

Self Monitoring vs Self Interest

Under section B. Specifications #1 “The Discharger shall conduct monitoring activities according to the Self Monitoring Program (SMP) attached to this Order, and as may be amended by the Executive Officer, to verify the effectiveness of landfill environmental control systems including groundwater, surface water, leachate, and landfill gas containment, collection, treatment, and removal.”

The Self Monitoring Program is unacceptable. Comprehensive and frequent testing by an independent monitor is essential, as evidenced by the Consent Decree Redwood Landfill entered into with Northern California River Watch on October 20, 2008.

Under Waste Management Inc.’s Self Monitoring Program a number of toxic compounds often found in the leachates are not being monitored. These include dioxins, furans, PBDE's, phthalates, BPA, pesticides, other solvents, ionizing radiation, pharmaceuticals, plastic monomers, asbestos, detergents, benzo a pyrene, and others. It is inexcusable not to monitor these contaminants in the holding ponds in view of spills that have occurred in the past. For the same reason, it is irresponsible not to conduct off site down stream monitoring during heavy rainfall periods.

We have attached to this comment letter to be included as part of the public record comments by Lawrence Rose, M.D., M.P.H. on water testing. (Attachment A)

We urge the RWQCB to require an independent monitor to conduct more frequent and thorough testing at Redwood Landfill.

Failure to Adequately Address Climate Change

Recent findings by the Intergovernmental Panel on Climate Change (IPCC) and the Pacific Institute study conducted for the Bay Conservation Development Commission (BCDC) on the impacts of climate change are entirely ignored by the WDR.

http://www.pacinst.org/reports/sea_level_rise/

Study of ice sheet dynamics reveals that 1 m of sea level rise is possible. One study puts the upper limit at 1.4 m⁸.

⁸ FEIR comment letter Hydroikos, LTD May 8, 2008, Robert Coats, PhD

This means that the landfill's levee system – still under construction even though its completion was a condition of its 1995 permit – is flawed. Accordingly, to protect the environment and taxpayers in future years, relevant permits must require revisions to both the levees and the flood protection plan.

In addition, the Office of the California Attorney General's "Updated Global Warming Measures" of December 9, 2008 is not addressed in the WDR. While it is targeting local agencies and compliance under CEQA, the RWQCB has a very important role to play in California's fight against global warming – one of the most serious environmental effects facing the State today.

The WDR is silent on climate change.

Section C. Provisions:

In sum, it would not be enough to identify risks that are inadequately addressed and then to require the applicant to obtain more studies after WDR approval without knowing the additional future recommendations those reports and studies will deem necessary for compliance.⁹

This sequence deprives the Board and the public of the opportunity to evaluate the recommendations those studies will deem necessary for compliance.¹⁰

We have attached letters submitted to the Marin County Planning Commission's Environmental Impact Hearings, the Marin Environmental Health Services, and the Local Enforcement Authority.

Details on these issues are provided in our letters to Marin County dated: April 27, 2008 and November 5, 2008 and in the letter from our expert hydrologist dated April 30, 2008.

We look forward to the hearing, and hope that our expert comments submitted for the FEIR from, Craig Herzog (Geotechnical Engineer) and Robert Coats (Hydrologist) all of which we incorporate by reference and adopt as our own be part of the public record. (Attachments E & F) In addition, we have included as attachment E the 1914 USGS map of the sloughs underlying this site, with Redwood Landfill's monitoring wells superimposed on this map.

Very truly yours,

/s

Bruce Baum
Co- Coordinator
Green Coalition for Responsible Waste / Resource Management

⁹ See generally Protect the Marsh vs. County of Solano (Portero Hills Landfill, Inc.), No FCS026839, Cal. Super. Ct. (Feb. 26, 2007) (decision on petition of writ of mandate).

¹⁰ See generally Protect the Marsh vs. County of Solano (Portero Hills Landfill, Inc.), No FCS026839, Cal. Super. Ct. (Feb. 26, 2007) (decision on petition of writ of mandate).

Attachments:

A: SMP Comment letter, Lawrence Rose, MD, MPH

B: GCRWRM FEIR letter April 27, 2008

C: GCRWRM MMRP letter November 5, 2008

D: FEIR comments Craig Herzog, April 30, 2008

E: FEIR comments Robert Coats, April 30, 2008

F: 1914 USGS map

Lawrence Rose M.D., M.P.H
197 Lovell Ave.
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June 15, 2009

Mr. Bruce Baum
Green Coalition for Responsible Waste/
Resource Management
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San Anselmo, California 94960

**Re: Updated Waste Discharge Requirements and Rescission of order no. 95-110;
for Redwood Landfill, Inc, Novato, CA**

Dear Mr. Baum,

At the request of "No Wetlands Landfill Expansion," a member of the Green Coalition for Responsible Waste / Resource Management, and other members of the Green Coalition, I have reviewed the WDR and Self Monitoring Plan for Redwood Landfill. I am commenting on my Public Health Concerns¹ of the potential impact of Redwood Landfill on humans and the environment.

In review of the proposed Self Monitoring Plan (SMP) I find it does not ensure the highest level of public protection because it does not include comprehensive and frequent testing by an independent monitor.

In addition, I have reviewed the laboratory reports on samples taken from Redwood Landfill dated March 14, 2008 by Analytical Sciences² done from samples taken from landfill HLA borings/monitoring wells.

The samples were tested for volatile hydrocarbons, semi-volatile hydrocarbons, and CAM metals. A variety of toxic CAM metals were found (including mercury), as well as fluorides, nitrates, bromide, nitrite, phosphate, sulfide, and ammonia. These toxic compounds and metals are deadly to all forms of life. Since this landfill was created by filling tidal wetland slough channels there is a very real possibility that the leachate runoff during storms will reach the tidal lands, and the San Francisco Bay. From the

¹ **Relevant author credentials** : Lawrence Rose M.D., M.P.H., recently retired after 28 years as the Cal/OSHA senior Public Health Medical Officer, and is a specialist in Occupational/Environmental Medicine, and an Assistant Professor in the Department of Medicine at UCSF.

² Analytical Sciences, Petaluma Ca., Mark A. Valentini, Ph.D., Laboratory Director, **Lab Project: 8022109**; authorized by Waste Management Inc for Northern California River Watch.

Hydroikos Ltd analysis³ there has not been adequate testing of the LCRS trench system to insure that these toxics do not reach the wetlands, and the Bay.

Also a number of environmental/health scientific studies have shown that there are several toxins that are of particular concern for all life forms, ones that bioaccumulate and are thereby biomagnified in a variety of life forms in the Bay waters. These are a public health problem due to polluted edible fish and shell fish.

The chemicals and heavy metals that are of particular concern are: dioxins, furans, PCB's, pesticides, pharmaceuticals, plastics monomers and polymers, BPA and phalates, brominated flame retardants, mercury, solvents, detergents, and other petrochemical toxins. Studies by the CDC show that all Americans of all ages are carrying most of these toxins in their bodies. Studies have shown that many of these chemicals are hormone disruptors and concentrations down to parts per quadrillion can cause serious reproductive diseases in a variety of life forms that have very similar hormone systems to Homo Sapiens.

Responsible testing of any of the possible leachate runoff must include testing for these aforementioned chemicals, and metals to be certain these do not run into the tidelands or Bay waters under all weather conditions. A system must be determined for the long term isolation or detoxification of this toxic brew and must be tested.

In closing, I find the proposed Self Monitoring Program unacceptable. Comprehensive and frequent sample collection, storage, and analyses must be performed by an independent monitor, not to be hired by Waste Management or Redwood Landfill. These reports should be submitted to the Water Board and available for public inspection. This is essential to provide the public adequate protections beyond Redwood's closure.

Sincerely,

s/

Lawrence Rose M.D., M.P.H

³ FEIR comment letter May 8, 2008, Robert Coats, PhD