

Lincoln Center Environmental Remediation Trust

July 2, 2010

BY ELECTRONIC MAIL AND U.S. MAIL

James D. Marshall, Supervising Engineer
Regional Water Quality Control Board
Central Valley Region
11020 Sun Center Drive, Suite 200
Rancho Cordova, California 95650-6114

Re: Comments of the Lincoln Center Environmental Remediation Trust Regarding Tentative Order Amending Waste Discharge Requirements (NPDES No. CA 0084255)

Dear Mr. Marshall:

The Lincoln Center Environmental Remediation Trust (the "Trust") is pleased to provide the California Regional Water Quality Control Board, Central Valley Region ("Regional Board") with comments regarding the Tentative Order Amending National Pollutant Discharge Elimination System ("NPDES") Waste Discharge Requirements ("Draft Permit") issued by the Regional Board on June 2, 2010. I first want to express our appreciation for the Regional Board's proposal to modify the permit to fully protect the environment in two ways – to maintain stringent protections of surface waters, while simultaneously supporting the viability of the Trust's treatment system which removes PCE and PCE daughter compounds from the groundwater.

The Trust's sole function is to carry out the remediation of volatile organic compound hazardous substances ("VOCs") in soil and groundwater under and in the vicinity of Lincoln Center, under the terms of a court order issued by the federal District Court. Protection of California's water resources is an important, fundamental objective of the Trust.

As you know, the Trust has been actively investigating and remediating the Lincoln Center (the "Site") since 1999 and continues to successfully implement remedial activities at the Site. These remedial activities include groundwater extraction, soil vapor recovery, oxygen/ozone sparging systems, enhanced reductive dechlorination and related treatment equipment presently operating at and downgradient of the Site. To date this project has removed over 12,215 pounds of VOCs from the soil and groundwater at the Site.

In October 2005, the Regional Water Quality Control Board ("Regional Board") renewed the NPDES permit for discharges from the groundwater treatment system, pursuant to the Orders listed (the "2005 Orders"). The Orders contained new effluent limits for a number of constituents naturally present in groundwater. Such constituents were never contemplated in the design, selection and construction of the treatment system chosen for the groundwater cleanup at the Site. As such, the treatment system could not ensure compliance with the discharge limits for these constituents as set forth in the 2005 Orders. The Trust appealed the 2005 Orders to the State Water Resources Control Board by filing a Petition for Review on November 21, 2005. The Trust placed the Petition for Review in abeyance to

Mr. James D. Marshall
July 2, 2010
Page 2

allow time for further study of the feasibility of compliance and for negotiation of potential resolution with the Regional Board.

Since 2005, studies by the Trust have concluded that the Trust can meet the contested limits with the exception of barium and arsenic. The Trust and Regional Board Staff have agreed that a Mixing Zone Study submitted by the Trust to justify modification of the Permit to increase the limits for barium and arsenic. The dilution credit calculated in the study would support discharge at levels conservatively calculated in the Study as 573 ug/l for barium and 34 ug/l for arsenic ("Recommended Limits"). The Tentative Order proposes to reduce these limits based on the facility's past performance, specifying limits of 390 ug/l barium and 23 ug/l arsenic. The arsenic limit is achievable under currently contemplated conditions, i.e. the system should be able to operate within this limit without the reasonable potential for an exceedance. However, the barium limit of 390 ug/l is too low, and presents a significant risk of exceedance in the future. This would defeat the purpose of the modification as to barium, as you know.

Enclosed is a letter dated July 1, 2010 from Arcadis, the Trust's prime consultant responsible for operation of the system in compliance with applicable permits, explaining the barium limit issue and requesting that the limit be increased and certain reopener language be included. We concur, and make the same requests to the Regional Board on behalf of the Trust.

We understand that Regional Board Staff have indicated concurrence with the need to increase the limit, but we want to provide our comments for the record and to ensure that our position is understood. It is always important to both the Regional Board and dischargers that discharges comply with permits. However, in the case of the Trust's treatment system, it is particularly critical because the Trust is required to contract for compliant operation with its prime consultant, and does not have administrative resources to pay for penalties itself. (All cleanup costs are paid out of an insurance policy, which the insurer has pointed to as not covering penalties.) The Trust will not be able to successfully contract with a competent consulting firm if the consulting firm faces contractual exposure for penalties due to an inability to comply with the permit.

Please contact me if you have any questions. I can be reached at 510-237-1782. Thank you for your prompt attention to these comments.

Sincerely,



Mark A. Adams, P.G., Trustee
Lincoln Center Environmental Remediation Trust

cc: Ken Landau, Asst. Executive Officer, RWQCB Diana Messina, RWQCB
Joshua Palmer, RWQCB Duncan Austin, RWQCB
Roberto Cervantes, RWQCB Don Bradshaw, Arcadis
Lucas Goldstein, Arcadis Katharine Wagner, Downey Brand LLP



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Subject:

ARCADIS's Comments on the Effluent Limit for Barium of 390 Micrograms per Liter Proposed in Tentative Order (No. R5-2010-XXXX) Amending Waste Discharge Requirements Order No. R5-2005-0144 (NPDES No. CA0084255) for the Lincoln Center Environmental Remediation Trust Groundwater Treatment System, Stockton, California

Dear Mr. Adams:

On behalf of the Lincoln Center Environmental Remediation Trust ("the Trust"), ARCADIS is transmitting comments on the effluent limit for barium of 390 micrograms per liter ($\mu\text{g/L}$) that is proposed in Tentative Order (NO. R5-2010-XXXX) amending Waste Discharge Requirements Order No. R5-2005-0144 (National Pollutant Discharge Elimination System [NPDES] No. CA0084255) for the Lincoln Center Environmental Remediation Trust Groundwater Treatment System (GWTS) located in Stockton, California ("the Tentative Order"). The Tentative Order was issued by the Central Valley Regional Water Quality Control Board (RWQCB) office on June 2, 2010. A previous working draft version of the Tentative Order was transmitted to the Trust via e-mail from Mr. Jim Marshall on April 23, 2010 ("the April Draft Tentative Order"), which proposed an effluent limit for barium of 580 $\mu\text{g/L}$. However, the Tentative Order of June 2, 2010 sets forth an effluent limit for barium of 390 $\mu\text{g/L}$.

On November 17, 2009, LFR Inc., on behalf of the Trust, submitted to the RWQCB a report titled "Revised Fourteen-Mile Slough Dilution/Mixing Zone Study, Lincoln Center, Stockton, California (Waste Discharge Requirements [WDR] Order No. R5-2005-0144; NPDES Permit No. CA0084255)" ("the Mixing Zone Study"). The primary objective of the Mixing Zone Study was to gather information to determine whether it would be appropriate to adjust the effluent limits for barium and arsenic, which passed through the GWTS from naturally occurring background groundwater conditions, based on the assimilative capacity of a mixing zone to be identified in

ENVIRONMENT

Date:
June 29, 2010

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EM006750.0009.00323

Imagine the result

Fourteen-Mile Slough (“the Slough”). The Mixing Zone Study concludes that dilution of the treatment system discharge is occurring in the Slough at levels sufficient to justify proposing modification of the effluent limits. Empirical data collected during the Mixing Zone Study show that dilution of the treatment system discharge is taking place in the Slough. Final dilution credits of 3.0 and 8.3 are proposed for arsenic and barium, respectively (the “Dilution Credits”). These credits are based on effective dilution factors measured at the Interstate 5 (I-5) overpass, located approximately one mile from the Outfall. Based on these dilution credits, effluent limits of 34 µg/L and 573 µg/L for arsenic and barium, respectively, are proposed for the treatment system discharge.

In ARCADIS’s opinion, the proposed effluent limit for barium of 390 µg/L that is set forth in the Tentative Order does not allow for the consistent operation of the system and could result in violations depending upon several factors as discussed below. We request that the RWQCB reconsider the proposed effluent limit for barium for the following reasons.

The proposed effluent limit for barium of 390 µg/L does not consider the reasonable potential for exceedances based on statistical evaluation of historical data.

The reasonable potential for exceedances (“the RPA”) can be evaluated using historical data. During a recent call with the RWQCB on June 21, 2010, the RWQCB acknowledged that the RPA for barium, estimated as 99.9% upper confidence limit, is 415 µg/L. In ARCADIS’s opinion, operating the system with a limit of 390 µg/L would result in a significant risk of exceeding the effluent limit based on historical system effluent data.

The proposed effluent limit for barium of 390 µg/L does not allow for operational flexibility or optimization of the groundwater extraction system.

The Lincoln Center Groundwater Extraction and Treatment System (GWETS) currently comprises 21 A-Zone and 10 B-Zone groundwater extraction wells. During the summer of 2008, samples were collected at the treatment system influent for the A-Zone and B-Zone aquifers separately by selectively running the extraction wells. The sampling plan implemented ran each zone exclusively for an extended period of time to flush the conveyance line and achieve an overall equilibrium of the metals in each zone prior to sampling. The sampling was performed to determine relative contributions of the zones for total and dissolved arsenic, barium, iron, and total

dissolved solids. The results for the dissolved metals showed that almost all of the Arsenic and Barium were dissolved. Results were as follows:

	Arsenic (total) [µg/L]	Barium (total) [µg/L]
Proposed Effluent Limit	23	390
A Zone extraction wells	6.8	270
B Zone extraction wells	21	410

These results indicate that the B-Zone wells contribute significantly more arsenic and barium than do the A-Zone wells. Therefore, if the A-Zone wells were not pumped, effluent levels of arsenic and barium would be considerably higher than they have been historically. There is potential for a greater fraction of the GWETS influent to be derived from B-Zone wells in the future for operational reasons including: a) A-Zone wells foul more often than B-Zone wells, and b) the need for pumping in the A Zone may decrease as the size of the plume decreases. The Tentative Order’s revised limit of 23 µg/L for arsenic appears achievable if only the B Zone were pumped, but the limit of 390 µg/L for barium does not. The limit of 390 µg/L for barium does not allow for flexibility in the pumping scheme and would likely result in discharge violations.

Closing

ARCADIS notes that compounds and metals, including but not limited to barium and arsenic, detected within the groundwater influent of the GWETS are naturally occurring and are not associated with the targeted dry cleaner chemical remediation project that includes tetrachloroethene (PCE) and its degradation products. Additionally, the existing GWETS is designed to treat and remove PCE and its degradation products from the groundwater stream; and the GWETS is not designed to treat or remove the naturally occurring compounds or metals detected within the groundwater system. Given the information summarized in this letter, ARCADIS recommends that the discharge standards for barium be set to either the value recommended in the Mixing Zone Study (573 µg/L) or the 99.9% upper confidence limit (415 µg/L) and adding the following language to the Amended Order to

accommodate the uncertainty that will be encountered in running the system in the future:

“The calculation of the performance-based effluent limits for arsenic and barium may need to be reevaluated in the future, depending on the groundwater pumping schemes or relevant changes in either precipitation patterns or groundwater elevations. If the Discharger submits a report describing changes in the concentration of arsenic or barium in groundwater influent to the treatment system expected or encountered due to naturally occurring processes such as significant changes in precipitation patterns, increases or decreases in groundwater elevations, or due to changes in the distribution of VOCs that would require adjusting the pumping rates or installing additional extraction wells, this Order may be reopened to modify the effluent limitations for such constituents if justified based on the information.”

The requested increase to the barium limit is still well below any concentration identified by any scientific or regulatory source as having potential impacts on beneficial uses.

If you require additional information, please call Lucas Goldstein at 510.596.9535 or Don Bradshaw at 512.451.1188.

Sincerely,

ARCADIS U.S., Inc.



Lucas Goldstein, P.G., P.E.
Principal Engineer



Don Bradshaw, P.G. (5300)
Principal Hydrogeologist

Copies (electronic):

Katherine Wagner, Downey Brand