

# **Overview of LEHR Superfund Site Investigation and Remediation: The Public's Perspective**

G. Fred Lee, PhD, MSPH, DEE  
Technical Advisor, DSCSOC

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Where Do DOE and UCD Stand in Defining the Potential Public Health and Environmental Problem Impacts and Magnitude at LEHR?

What is Being Done to Clean Up (Remediate) the LEHR Site?

Problems with DOE and UCD Approaches to LEHR Site Investigation and Remediation Relative to the Public's Interests

Future Superfund Sites at UCD

## **Superfund Problems**

The US EPA Superfund Program is Justifiably Characterized as Highly Wasteful of Public and Private Funds.

DOE-Oakland and UCD's Activities at LEHR are Prime Examples of Why Superfund Has a Poor Reputation as a Credible, Cost-Effective Approach for Identification and Remediation of Hazardous Chemical Sites.

During the Past Year Highly Significant Problems Have Surfaced at LEHR that DSCSOC is Working to Get UCD, DOE and the Site Remediation Program Managers (RPMs) to Address.

## **LEHR Site Historical Perspectives**

It Has Been Known Since the 1950s that Landfilling of Solid and Liquid Wastes as Practiced at the LEHR Site by UCD Would Lead to Groundwater Pollution

UCD with DOE Support and a Lack of Regulatory Attention by the State and Local Regulatory Agencies Practiced Cheaper-than-Real-Cost Research and Waste Disposal at LEHR

    Saved Some Funds Initially - Now the Public is Paying Millions of Dollars for the Significant Errors Made by the Past UCD Administrations

Inappropriate Waste Management Practices at LEHR Site Became Well-Known in the mid-1980s

    Inadequate Action Taken by State and Local Regulatory Agencies, UCD Administration and DOE to Address Problems

## **DOE Environmental Survey Preliminary Report March 1988 - LEHR Site**

In 1988 DOE Finally Began to "Survey" its Facilities for Environmental Impacts. Environmental Problems at AEC/DOE Facilities Were Well-Known in the late 1950s.

In the late 1980s DOE Announced It Was Phasing Out DOE's Sponsoring of UCD's LEHR Activities and Terminating Operating Contract With UCD in 1989.

### Summary of Findings - March 1988 Preliminary Report

"The major preliminary findings of the Survey at the LEHR facility are:

- There are a number of deficiencies at the U.C. Davis Waste Packaging Facility that could result in mishandling and subsequent releases of hazardous, radioactive, and mixed wastes to the environment. The majority of the deficiencies were found in the area storing the LEHR/U.C. Davis waste. U.C. Davis and LEHR have taken steps to correct many of these deficiencies."

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**DOE Environmental Survey Preliminary Report  
March 1988 - LEHR Site (continued)**

- "• Neither the LEHR, U.C. Davis, nor SAN has a complete listing of radioactive sources for the LEHR facility. This could result in an inadvertent release to the environment, improper disposal, or loss of radioactive material.
- Radioactive and chemical waste burial sites on the LEHR facility constitute potential sources of groundwater contamination. These burial sites include unlined trenches, pits, and holes covered with native soil and/or gravel.
- The Imhoff tanks, inactive septic tanks, and associated leach fields constitute potential sources of groundwater contamination.
- Soils in the southwest corner of the site may be contaminated with organic chemical substances.
- Soils in the dog pen areas at LEHR and the U.C. Davis campus (the site of the original U.S. Atomic Energy Commission beagle project) may be contaminated with chlordane that was sprayed in the pens to control fleas."

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**DOE Environmental Survey Preliminary Report  
March 1988 - LEHR Site (continued)**

"LEHR has no program for periodic monitoring of discharges to surface waters (i.e., the South Fork of Putah Creek)."

"Potentially contaminated stormwater runoff. Stormwater runoff control at the LEHR facility is inadequate and may have resulted in off-site discharges of potentially contaminated stormwater."

"Lack of a comprehensive groundwater monitoring program. The lack of a comprehensive groundwater monitoring program at the LEHR precludes assessment of past and present environmental impacts of LEHR operations."

**Many of These Same Deficiencies Still Exist Today, Almost 10 Years After a DOE Contractor Identified Them.**

## **Ecology and Environment, Inc. 1989 Report to US EPA Preliminary Assessment of LEHR Site**

Wastes Deposited In:

UCD Campus Landfills, Waste Disposal Seepage Pits, Waste Disposal Trenches and Pits, Chemical Dispensing Area

"Wastes from site have migrated to soil and groundwater."

"The wastes deposited on site are highly toxic. These contaminants are also relatively soluble in water; therefore, the potential for contaminant migration to ground water is high."

"In November 1987, after consultants for DOE and UC Davis discovered the soil and ground water contamination, results were reported to the Regional Water Quality Control Board, Central Valley Region (RWQCB) and the Department of Health Services (DHS)."

## **Ecology and Environment, Inc. 1989 Report to US EPA**

"The Old Campus Landfill appears eligible for inclusion on the National Priorities List for the following reasons:

- Observed release to ground water;
- High ground water target population;
- High toxicity of contaminants on-site;
- High potential to release to surface water; and
- Potential for a high waste quantity."

US EPA 1990 Recommendation: "High-Priority Superfund Site Investigation"

## **LEHR Site Historical Perspectives**

Groundwater Pollution Documented at LEHR Site by UCD Landfills in 1987. Inadequate Action Taken by the UCD Administration and the Regional Water Quality Control Board to Protect Public's Interests.

Who Is Protecting the Public's Interests?

NOT the UCD Administration

NOT the Regional Water Quality Control Board

NOT DOE

Justification for the Public Not Trusting UCD, DOE and the Regulatory Agencies to Protect Their Interests



## Groundwater Pollution at LEHR

Many Areas of Groundwater Pollution by UCD Campus Landfills and Disposal Pits, LEHR Waste Disposal Trenches and Pits, and Leach Fields

Full Extent of Groundwater Pollution at LEHR Poorly Understood

- Many Local Areas of Pollution Near Waste Disposal Areas
- At Least One Large Offsite Chloroform Pollution Plume in HSU-2  
Extends Beyond One Mile Under Adjacent Property  
Polluted Ag Wells  
Could Be Threatening Private and Public Domestic Wells
- Pollution of HSU-4 Likely -- Not Yet Monitored  
Threat to Public and Private Domestic Wells

## Chloroform Issues

UCD L. Vanderhoef Administration, DOE and its Contractors Have Provided the Public with Highly Unreliable Information on the Public Health Hazards that Chloroform Pollution of Groundwater by Mismanagement of UCD's Campus Chloroform Wastes Represents to Groundwater Quality

Claimed: Drinking Water Standard (MCL) for Chloroform is 100 µg/L.

Implied: 100 µg/L of Chloroform an Acceptable Drinking Water Concentration for Neighbors' Well Water.

Implied: It is OK for UCD and DOE to Pollute Groundwater with Chloroform up to 100 µg/L.

Only Need to Clean Up LEHR Site and "West" Campus Landfill Site Chloroform-Polluted Groundwaters to 100 µg/L.

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## **Chloroform Issues (continued)**

The Facts:

The 100 µg/L Chloroform Value Is About 100 Times Higher than Normal Acceptable Drinking Water Cancer Risk in US Today.

There is No Drinking Water Standard (MCL) for Chloroform - Acceptable Cancer Risk Level is About 1 µg/L, not 100 µg/L.

The Groundwater Clean-Up Standard for Chloroform at LEHR and "West" Landfill site is 0.5 µg/L.

The Error in Reporting Chloroform Hazards Was Reported by DSCSOC to DOE, UCD and LEHR Site RPMs in the Summer 1995.

It Was Agreed by RPMs that UCD, DOE and Their Contractors Had Made a Significant Error in Reporting Chloroform Hazard Levels in Polluted Groundwater from UCD Landfills.

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## **Chloroform Issues (continued)**

During the Past Year, UCD L. Vanderhoef and DOE-Oakland Administrations Have Continued to Provide Unreliable, Deliberately Distorted Information on the Hazards that UCD Chloroform-Polluted Groundwaters at the LEHR and "West" Landfill Sites Represent to Public Health.

UCD L. Vanderhoef Administration and DOE-Oakland Administration Can Not Be Relied on to Provide Reliable Information to the Public on the LEHR Site and "West" Campus Landfill Impact on Public Health and the Environment.

Continue to Release Erroneous Information (Propaganda) After the Errors Have Been Pointed Out to Them.

## **UCD "West" Landfill**

UCD "West" Landfill Should be Part of LEHR Superfund Site Investigation and Remediation

Substantial Evidence for Radioactive Wastes and Hazardous Chemical Wastes from LEHR Deposited in "West" Landfill

Inadequate Investigation of "West" Landfill for Existing Pollution and Potential for Future Pollution

Unknown Fate of LEHR Site Radioactive Waste Sludges -- Deposited on Local Farms?

Needs to Be Investigated

## **LEHR Site Stormwater Runoff Water Quality Issues**

### Sources of Surface Water Pollution:

- Waste Management at LEHR Resulted in Contaminated Surface Soils with Hazardous Chemicals and Radioactive Wastes.
- UCD Cut Large Campus Stormwater Drainage Channel Through Top of Landfill 3, Exposing Hazardous and Radioactive Wastes.  
DOE Staff and Contractors Did Not Know that This Channel Drained into Putah Creek; It Was Obvious that This Occurred.
- Translocation of Hazardous and Radioactive Waste Components from Disposal Pits, Trenches and Landfills through Plant Roots Located in Wastes to Surface and Out Through Leaves and Flowers.

### Monitoring of Stormwater Runoff From LEHR by DOE and UCD Highly Inadequate and Unreliable

- Until DSCSOC Pointed Out the Channel Through Landfill 3 Could Pollute Putah Creek, No Monitoring of Stormwater that Passed through Exposed Hazardous and Radioactive Wastes Was Conducted by DOE and UCD.

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## **LEHR Site Stormwater Runoff Water Quality Issues (continued)**

February 1996 Monitoring of Landfill 3 Channel Stormwater Was Done Unreliably by UCD

Inadequate Analytical Methods

Unreliable Reporting and Interpretation of Data

Compare with Drinking Water Standards Rather than Aquatic Life Standards

DOE Monitoring of Stormwater Runoff No Better

Inadequate Analytical Methods, Sample Collection and Data Presentation

No Monitoring of Some LEHR Site Area Stormwater Runoff to Putah Creek

No Monitoring of Aquatic Life Toxicity in Runoff Waters and Especially in Putah Creek Waters

No Monitoring of Excessive Bioaccumulation of Hazardous Chemicals in Putah Creek Aquatic Life - Chlordane

Putah Creek Aquatic Life Could Be Hazardous if Used as Food

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## **LEHR Site Stormwater Runoff Water Quality Issues (continued)**

UCD Administration, Staff and its Contractors and DOE-Oakland and its Contractors Do Not Understand Surface Water Quality Issues

Large Amount of Public Funds Spent On Surface Water Studies  
Unreliable Information Developed

### **Stormwater Runoff Monitoring at LEHR by DOE and UCD Has Been a Waste of Public Funds**

Cannot Be Certain that Stormwater Runoff from LEHR Site Is Not Adversely Impacting Putah Creek Water Quality

DSCSOC Has Informed UCD and DOE that They Must Develop a Credible Stormwater Runoff Monitoring Program, i.e. Stop Wasting Public Funds in Carrying Out Inadequate, Unreliable Stormwater Runoff Monitoring from LEHR site.

If UCD and DOE Will Not Voluntarily Agree to Do this, Must Require DOE and UCD to Properly Investigate Stormwater Runoff Potential Impacts.

## **LEHR Site Remediation Approach**

At Most Sites, Reliably Define Offsite Groundwater Pollution Threat Before the Use of Limited Funds to Clean Up Site Pollution that Does Not Represent an Imminent Threat to Public Health and the Environment.

In 1995 DOE Ranked Investigation of Offsite Groundwater Pollution as a Low Priority for Funding Compared to Onsite Remediation Activities

Current UCD and DOE Approach Focuses On:

Onsite Issues to Enable Reuse of Site by UCD and to Allow DOE to Claim that It Cleaned Up the Site

Both the UCD L. Vanderhoef Administration and the DOE-Oakland Administration Are Placing the Public's Interests at Lower Priority for Funding than Self-Serving Site Clean-Up.

Demonstrate Some Type of Clean-Up Activities

September 1996 Removal of Septic Tank Concrete Vault to "Demonstrate" that "Remediation" is Taking Place at LEHR  
Facade Remediation - Wasting Public Funds

Not Addressing Real Water Quality Issues of Importance to Public

**LEHR Site Remediation Approach (continued)**

Delay of Onsite Remediation By Several Years While Offsite Groundwater Pollution is Defined Will Not Significantly Change Hazard That Currently Exists to Offsite Groundwater Users

Cannot be Certain that One or More Offsite Domestic Wells Are Most Threatened by Pollution Plumes in HSU-2 and HSU-4.

## **Other Current Problems with UCD's Waste Management Activities**

UCD Campus Wastewater Treatment Discharges to Putah Creek Near  
LEHR Revealed by LEHR Studies

Inadequate Treatment to Protect Putah Creek Designated Beneficial Uses

Fish and Aquatic Life

Aquatic Life Toxicity

Ammonia in Wastewater Discharges

UCD L. Vanderhoef Administration Stopped Monitoring

Ammonia in Wastewater Discharges as Part of LEHR

Investigation Rather than Correct Toxicity Problem

Allowed by the Regional Water Quality Control Board

Fish May Be Hazardous To Eat -- No Monitoring

Contact Recreation

Hazardous to Swim, Wade or Otherwise Have Contact with

Putah Creek Below UCD Campus Wastewater Treatment Plant

Discharge

Inadequate Disinfection - Little to No Dilution

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## **Other Current Problems with UCD's Waste Management Activities (continued)**

### **Groundwater Recharge**

**UCD Wastewater Discharges Have Polluted Groundwater  
Along Putah Creek with VOCs, Suspected Cancer-Producing  
Chemicals**

**Inadequate Regulation of UCD's Wastewater Discharges and  
Stormwater Runoff by the Regional Water Quality Control Board  
Behind-the-Scenes Deals Between the Board Chairman and UCD  
Public Not Aware of "Deals"  
RWQCB Staff Responsible for Regulation of UCD Fails to Require  
Conformance to Regulations**

## **Notices that Should Be Posted Near Putah Creek**

**Swimming and Wading in Putah Creek Could Cause Disease Due to Disease Organisms in UCD's Campus Inadequately Treated Wastewater Discharges**

"Meets Current Standards"

**Eating Fish From Putah Creek Could Cause Cancer Due to UCD's Wastewater Discharges**

UCD Refuses to Monitor for Bioaccumulation of Hazardous Chemicals Associated with Its Wastewater Discharges and Stormwater Runoff

**Fish Beware of UCD's Toxic Wastewater Discharges**

UCD Refuses to Monitor Putah Creek for Chronic Aquatic Life Toxicity

## **Future Superfund Sites at University of California, Davis**

Current Waste Management Practices by the UCD L. Vanderhoef Administration Will Lead to Future Superfund Sites at UCD.

Inadequate External Review of Potential Environmental Impacts of UCD's Research Involving Hazardous Chemicals.

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## **Future Superfund Sites (continued)**

UCD L. Vanderhoef Administration's "Dear Neighbor" Letter of October 2, 1996 on Methyl Bromide Use

"The procedure is conducted under the guidance of the county agricultural commissioner and is in accordance with the state Department of Pesticide Regulation." i.e. Will Meet Current Regulatory Standards.

Letter Tries to Convince Public that UCD Will Not Create Another LEHR Superfund Site While Doing Research with Methyl Bromide.

Issues that Need to Be Considered in Reviewing the Use of Methyl Bromide:

It Has Been Known for Years and Is Well-Known Today that Meeting Current Regulations and/or Current Regulatory Agency (CVRWQCB and US EPA) Staff Interpretation of Regulations Will Not Necessarily Protect Public Health and the Environment

Often Regulations Lag Behind Knowledge of Issues by One or More Decades

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## **Future Superfund Sites (continued)**

It Was Well-Known in the 1950s by Research at University of California, Berkeley and Discussed in Professional Society Solid Waste Manual that UCD Campus Landfills Would Pollute Groundwaters.

Information Ignored by UCD Administrations

UCD Has For Years Been Conducting Research At Less Than Real Cost Without Adequate Protection of Public Health and the Environment.

It is Well-Known that Current Pesticide Regulations Are Not Protective of Public Health and the Environment.

Each Year 200 Miles of Sacramento Valley Rivers and Streams Are Acutely Toxic Due to Current Pesticide Use in Accord with Current Department of Pesticide Regulations.

DPR Regulations Are Not Protective of Public Health and the Environment

## **Future Superfund Sites - Past and Current Record**

LEHR Site

With Respect to the Tens of Millions of Dollars Being Spent on LEHR Site Investigation and Remediation and the Highly Significant Damage that UCD's Past Waste Disposal Practices Have Done to the UCD Neighbors, UCD's L. Vanderhoef Administration and the Former LEHR Site Managers Claim "We Met the Existing Regulations."

### UCD West Landfill Proposed Expansion

UCD's "West" Campus Landfill Pollution of Groundwater with Chloroform, UCD's L. Vanderhoef Administration Claims, "We Met the Existing Regulations."

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## **Future Superfund Sites - Past and Current Record (continued)**

The UCD L. Vanderhoef Administration's Proposed Expansion of the West Campus Landfill

"We Will Meet Regulations."

UCD Dump Tender (Mr. Stagner) Stated at the UCD Spring 1996 Public Meeting Devoted to Review of the "West" Campus Landfill Pollution of Groundwaters

*The Proposed Landfill Expansion Will Pollute Groundwaters with Landfill Leachate and*

*UCD L. Vanderhoef Administration's Economic Analysis Which Attempted to Justify a New "West" Campus Landfill Does Not Include the Cost of Inevitable Groundwater Pollution by the Landfill.*

**The Proposed Expansion of UCD's "West" Campus Landfill Will Lead to a New UCD Superfund Site that Future Generations Will Have to Experience the Impacts of and Remediate.**

## **Future Superfund Sites - Past and Current Record (continued)**

Cannot Rely on the UCD L. Vanderhoef Administration to Protect Public Health and the Environment in UCD Research and Waste Management.

- Propose to Construct Landfill that Will Pollute Groundwater
- Provide Unreliable Information on Chloroform - 1996
- Inadequate Monitoring of LEHR Site, Campus Wastewater Discharge and Stormwater Runoff Impacts

Based on Past and Current Environmental Pollution Record, UCD Research with Hazardous Chemicals Such as Methyl Bromide Should Be Policed by a Third Party Independent Review Panel of Experts Who Are Accountable to the Public Who Could Be Impacted by Further Mismanagement of Hazardous Chemicals on the UCD Campus.

The Public Concerned with Putah Creek Water Quality and Those Concerned About the Long-Term Cost of Inadequate Waste Management Should Work With Governor Wilson and the Legislature to Require that UCD Properly Manage its Liquid and Solid Wastes and Properly Protect Public Health and the Environment from Hazardous Chemicals Used on Campus as Part of UCD Research.

## **Imminent Offsite Public Health Hazard**

Has the Highly Inadequate, Unreliable, Excessively Slow LEHR Site Investigation Resulted in Significant Damage to Public Health Due to Directly Caused Illness, i.e. Have Off-Site People Become Ill Due to LEHR Site Wastes?

No Evidence for Such Direct Illness.

There Has Been Significant Emotional Stress Due to Threat of Chemicals and Loss of Property Value.

Still Unknown Public Health Threat Due to Polluted Groundwater by UCD and DOE Wastes at LEHR Site.

LEHR Site Wastes Likely Have Damaged Aquatic Life in Putah Creek.  
May Still Be Causing Harm to Aquatic Life.

## Conclusions

- UCD and DOE Mismanagement of Radioactive and Hazardous Waste at the LEHR Site Has Resulted in Highly Significant Soil, Surface Water and Groundwater Pollution.
- This Pollution Was Predictable at the Time that LEHR Was Active (1960-1989).
- A Number of UCD's Neighbors Have Been Significantly Adversely Impacted by UCD's and DOE's Mismanagement of Wastes in UCD's Campus Landfills and at the LEHR Site.
- The Significant Groundwater Pollution at LEHR Has Been Documented Since 1987. Still Have Not Defined the Full Extent of Offsite and Onsite Pollution.
- Highly Significant Offsite Groundwater Pollution Has Occurred at LEHR With at Least One Hazardous Chemical Pollution Plume Extending Over a Mile Offsite.

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## **Conclusions (continued)**

- At this Time the Full Extent of Affected Groundwater Pollution is Unknown. Could Be Threatening Public and Private Domestic Water Supply Wells.
- Unreliable Monitoring of Stormwater Runoff Water Quality Impacts from LEHR Site By UCD and DOE.
- Significant Potential for Hazardous Chemical Adverse Impacts on Putah Creek Aquatic Life from LEHR Site Stormwater Runoff.
- UCD and DOE Place Offsite Public's Interests at Lower Priority for LEHR Site Funding than UCD's and DOE's Self-Serving Interests
- Need for Public Concerned with Putah Creek and Area Groundwater Quality as Well as Those Concerned with Appropriate Use of Public Funds to Work with Governor Wilson and the Legislature to Stop the UCD L. Vanderhoef Administration from Creating More Superfund Sites at the UCD Campus by Inappropriate Waste Management and Inadequately Funded and Managed Research.

**G. Fred Lee and Anne Jones-Lee**

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