Review of
Southern Pacific Railyard Site
Investigation, Remediation, and Redevelopment

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Nature of Review Performed

Independent Technical Advisors Asked to

- **Critically Review and Comment on**
  - **Information Available on the Current Degree of Contamination**
  - **Adequacy of RI/FS Being Conducted & Planned to Define Contamination and Its Hazards to Public Health & Environment**
  - **Past & Proposed Approaches for Remediation of the Contamination**
  - **Compatibility of Proposed Plans for Re-Development with Residual Contamination That Will Exist after Clean-Up of Site to Degree Accomplished & Proposed**

Lead Remediation Levels

Soil-Lead Levels

Adult Exposure:	**3,700 mg/kg – Health-Based**
	950 mg/kg – Arbitrary
Child Exposure:	**174 mg/kg – Health-Based**
(1 g dirt eaten/day)	
Vegetables Grown in Soil:	**50 mg/kg – Health-Based**

Soil-Lead Background Levels

Western US Soils:	**18 mg/kg**
Soils Overall:	**2 to 200 mg/kg**

Issues of Concern

- **Adequacy of "Low-Lead" Soil Veneers to Protect Children from Exposure to Higher Levels of Lead, Forever**
- **Ability of Deed Restrictions or Other Property-Use Restrictions to Protect Children from Being Exposed to Potentially Hazardous Situations**
- **Liability a City or Other Governmental Agency Responsible for Permitting Property Use Incurs in Association with Redevelopment at Remediated Superfund Sites**
- **Adequacy of RI/FS Process for Identifying the Hazards at Complex Superfund Sites**

Efficacy of Deed Restrictions

Will Deed Restrictions Prevent Children from Crossing the Street to Play in "Commercial / Industrial" Areas with 950 mg Pb/kg ?

Will Deed Restrictions Prevent Children from Eating Dirt in "Commercial / Industrial" Areas with 950 mg Pb/kg ?

Need Permanent Isolation of Commercial Industrial Areas from Residential / Recreational Areas

Cost of Removal of Dirt Containing 950 mg Pb/kg:
$0.5x10^{6}/ac-ft of Soil Removed

Guidance for Redeveloping "Remediated" Superfund Sites

Do Not Assume That Site Is Safe
What was "Negotiated" for Remediation in Past May Be Judged Inadequate at Time of Review

Review the Details of the RI/FS, ROD, and Actual Remediation Accomplished

Review Post-Remediation Monitoring and Agency(ies) Files on Site
Was the Site Adequately Investigated and Remediated?

Conduct Independent Sampling & Analysis of Site

Factors that Necessitate Re-Evaluation of the Adequacy of Site Remediation

Changes in Standards Used to Evaluate Hazard That a Chemical Represents to Public Health & Environment

e.g., Lead Water Quality Standard

Changes in Approach for Evaluating Hazard of Site

- **Now Use Concentrations of "Priority Pollutants"**
  - **Will Expand the Number of Chemicals Considered Hazardous**
  - **Will also Use Biological Responses**
    - **Carcinogens, Mutagens, Teratogens**
    - **Ames & Other Tests**

Conclusions

The Federal and State Superfund RIIFS and Remediation Processes, as Being Implemented Today, Do Not Necessarily Provide for Long-Term Protection of Public Health or the Environment

At Many Sites, the Chemicals Remaining after "Remediation" Will Be a Threat to Public Health and the Environment

Deed Restrictions and Other Land-Use Restrictions Will Not Necessarily Provide a High Degree of Assurance of Public Health Protection from Residual Chemicals Left at "Remediated" Superfund Sites

Developers and Property Users Should Be Made Aware That a '[1]Remediated" Superfund Site Can Still Be Highly Hazardous

To Improve Protection of Public Health and Environmental Quality, Those Responsible for Management of Superfund Site Investigations, Remediations, and Redevelopment Need to Consider Not Only the Plans for Immediate Re-Use but Also the Plausible Future Uses of the Remediated Site