

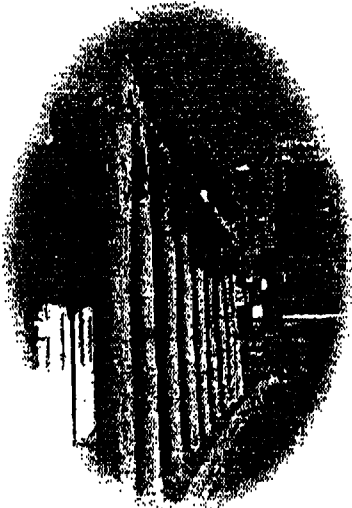
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# 13th Technical Information Exchange Workshop Program Book

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Sheraton Old Town Inn  
November 13-15, 2001  
Albuquerque, New Mexico



Sponsored by:  
U.S. Department of Energy  
Environmental Management  
Office of Integration and Disposition



Hosted by:  
Sandia National Laboratories



EES

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13<sup>th</sup> FIB

## Workshop at a Glance

**Morning****Wednesday, November 14, 2001**

7:30am - 8:30am

*Registration and refreshments*

Alvarado Ballroom A -- 8:30am - 11:15am

*Session XIII: Developing Long-term Stewardship Programs*

Alvarado Ballroom B -- 8:30am - 11:15am

*Session XIV: Effective Use of Regulator and Stakeholder Input: Case Studies*

Alvarado Ballroom C -- 8:30am - 11:15am

*Session XV: Cerro Grande Fire: Evacuating Environmental Effects and Erosion Mitigation Effectiveness*

Alvarado Ballroom D &amp; E -- 8:30am - 11:15am

*Exhibits and Posters*

Alvarado Ballroom F -- 8:30am - 11:15am

*Session XVI: Remedial Actions: Ground Water, Soils, and Landfills*

Alvarado Ballroom G -- 8:30am - 11:15am

*Session XVII: Cost Savings and Waste Elimination by Equipment/ Materials Reuse and Innovative Waste Packaging Systems*

Alvarado Ballroom H -- 8:30am - 11:15am

*Session XVIII: Case Studies of D&D Activities*

Weavers Room -- 8:30am - 11:15am

*Session XIX: Alternatives to Pump and Treat*

Potters Room -- 8:30am - 11:15am

*EM-6 Office of Project Management: Application of DOE Order 413.3 to EM Projects and Key Project Management Initiatives Part One*

Franciscan Ballroom -- 11:30am - 12:45pm

Keynote Luncheon

**Afternoon****Wednesday, November 14, 2001**

Alvarado Ballroom A -- 1:00pm - 4:30pm

*Session XX: Transitioning from Cleanup to Long-term Stewardship*

Alvarado Ballroom B -- 1:00pm - 4:30pm

*Session XXI: Enhancing Results Through Regulator and Stakeholder Working Relationships*

Alvarado Ballroom C -- 1:00pm - 4:30pm

*Session XXII: Waste Management: Success Stories, New Treatment Options, and Lessons Learned*

Alvarado Ballroom F -- 1:00pm - 4:30pm

*Session XXIII: Cost Engineering*

Alvarado Ballroom H -- 1:00pm - 4:30pm

*Session XXIV: Vadose Zone Characterization*

Turquoise Room -- 1:00pm - 4:30pm

*Session XXV: Innovative Treatment Remediation Demonstration*

Weavers Room -- 1:00pm - 4:30pm

*National Deactivation and Decommissioning Committee Meeting*

Potters Room -- 1:00pm - 4:30pm

*EM-6 Office of Project Management: Application of DOE Order 413.3 to EM Projects and Key Project Management Initiatives Part Two*

Alvarado Ballroom C -- 4:45pm - 5:30pm

Workshop Closeout

**All Day****Thursday, November 15, 2001**

Franciscan Room -- 7:00am - 2:00pm

*Continental breakfast and video prior to departure. Site Tour: Sandia National Laboratories Chemical Waste Landfill and the Corrective Action Management*

Turquoise Room -- 8:00am - 5:00pm

*Ad Hoc DOE GIS User's Group*Weavers Room -- 8:00am - 5:00pm  
*National Deactivation and Decommissioning Committee Meeting*Potters Room -- 8:00am - 5:00pm  
*Subsurface Contaminants Focus Area Workshop*

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**Morning Sessions****Wednesday, November 14, 2001**

Alvarado Ballroom C — 8:30am - 11:15am  
**Session XV - Cerro Grande Fire: Evaluating Environmental Effects and  
 Erosion Mitigation Effectiveness Panel Session**

8:30am - 8:40am

**Welcome and Instructions***Larry Maussen, Los Alamos National Laboratory*

8:40am - 9:10am

**Water-Quality Change Due to the Cerro Grande Fire, and its Potential Use as a Recharge Tracer***Michael Dale, New Mexico Environment Department DOE Oversight Bureau*

9:10am - 9:40am

**Effects of the Cerro Grande Fire on Environmental Restoration (ER) Activities at LANL's TA-16***Donald D. Hickmott, Los Alamos National Laboratory*

9:40am - 10:00am

**Break**

10:00am - 10:30am

**Conceptual Model of Mineralogical and Hydrochemical Impacts of the Cerro Grande Fire, Los Alamos, New Mexico***Patrick Longmire, Los Alamos National Laboratory*

10:30am - 11:00am

**Stabilization of Potential Release Sites (PRSs) in the Canada Del Buoy Watershed after the Cerro Grande Fire at Los Alamos National Laboratory***Barbara Hoditschek, U.S. Department of Energy Oversight Bureau*

11:00am - 11:15am

**Open Discussion**

Alvarado Ballroom F — 8:30am - 11:15am  
**Session XVI - Remedial Actions: Ground Water, Soils, and Landfills Interactive Poster Session**

8:30am - 8:40am

**Welcome and Instructions***Session Chair: Sue Collins, Sandia National Laboratories*

8:40am - 8:55am

**Acrobic Bioremediation of Soil and Groundwater Contaminated with Trichloroethylene***Amy Ashe, BioRemedial Technologies, Incorporated*

8:55am - 9:10am

**The Bioaccumulation and Uptake of Thorium in Native Grass Species and Tumbleweeds in a Semi-Arid Environment***Yvonne McClellan, Sandia National Laboratories*

9:10am - 9:25am

**Successful PCE Remediation using In-Situ Chemical Oxidation — Lessons Learned***Christopher Nelson, In-Situ Oxidative Technologies, Inc.*

9:25am - 9:40am

**Use of HRC™ to Remediate Groundwater at Low Flow, Low Permeability Sites***Anneke Primrose, Kaiser Hill/Rocky Flats Environmental Technology Site*

9:40am - 10:00am

**Break**

10:00am - 10:15am

**Passive Reactive Barriers Operation at Rocky Flats Environmental Technology Site***Anneke Primrose, Kaiser Hill/Rocky Flats Environmental Technology Site*

10:15am - 10:30am

**Use of Distillation to Remediate Contaminated Ground Water***R.B. Richardson, MACTEC Environmental Restoration Services*

10:30am - 10:45am

**Remediation of Radioactive Contamination in Surface Soils at Department of Energy Sites***Ralph F. Smiecinski, U.S. Department of Energy, Nevada*

10:45am - 11:15am

**Open Discussion**

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## Conceptual Model of Mineralogical and Hydrochemical Impacts of the Cerro Grande Fire, Los Alamos, New Mexico

Patrick Longmire<sup>1</sup>, Dale Counce<sup>1</sup>, Michael Dale<sup>2</sup>, Steve Chipera<sup>1</sup>,  
and Marjorie Snow<sup>1</sup>

1. Earth and Environmental Sciences Division, Los Alamos National Laboratory,
2. New Mexico Environment Department, DOE Oversight Bureau

The Cerro Grande fire significantly impacted several major watersheds near and within Los Alamos National Laboratory. Ash and charcoal produced from the fire contain Ba, Ca, CO<sub>3</sub>, Fe, Mg, Mn, K, Na, SiO<sub>2</sub>, Sr, U, and other trace elements. Calcite formed within the ash (420°C) according to the overall reaction:  $\text{CaC}_2\text{O}_4 \cdot \text{H}_2\text{O} \rightarrow \text{CaCO}_3 + \text{H}_2\text{O}(\text{g}) + \text{CO}(\text{g})$ . Ash is a major suspended constituent present in surface water. Elevated concentrations of dissolved Mn, Sr, U and other solutes have been observed in surface water and alluvial groundwater. Prior to the fire, native surface water was characterized by a Ca<sup>2+</sup>-Na<sup>+</sup>-HCO<sub>3</sub><sup>-</sup> composition with TDS < 120 mg/L and DOC < 15 mgC/L. Since the fire, surface water is characterized by a Ca<sup>2+</sup>-K<sup>+</sup>-HCO<sub>3</sub><sup>-</sup>-SO<sub>4</sub><sup>2-</sup> composition with TDS ranging from 450-1,000 mg/L and a substantial increase in DOC (≤100 mgC/L). Increased concentrations of HCO<sub>3</sub><sup>-</sup> provide ligands for complexing with dissolved U(VI) species. Modeling (MINTEQA2) was performed to quantify adsorption of solutes onto hydrous ferric oxide (HFO). Results from the diffuse layer model suggest that Zn<sup>2+</sup> and PO<sub>4</sub><sup>3-</sup> strongly compete with Sr<sup>2+</sup> and UO<sub>2</sub><sup>2+</sup>. This competition increases with increasing pH, which may account for increased concentrations of solutes in surface water and alluvial groundwater.