"Together...shaping the future of Electricity"

MGP Site Management Program

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Together...shaping the future of electricity

- Founded in 1973
- Objective, non-profit electricity collaborative research organization
- Technology development, integration, demonstration and application
- Broad technology portfolio ranging from near-term solutions to long-term strategic research (Technology Innovation Program)
One of the World’s Largest & Most Successful R&D Collaborations

- Over 700 North American members alone
- Over 130 international participants
- Independent electricity research
  - Major issue focus
  - Major opportunity focus
EPRI’s Role in the Technology Development to Commercialization Cycle

- **Basic Research & Development**
- **Collaborative Technology Development Integration Application**
- **Technology Commercialization**

Depends On The Specific Technology
Extensive Energy Research Program

Generation
Distributed Resources
Fossil Steam Plants
Combustion Turbines
Market Analysis
Renewables
Hydroelectric

Nuclear Power
Equipment Reliability
Nuclear Operations & Asset Management
High Performance Fuel
Nondestructive Evaluation
High Performance Workforce
Risk/Safety Mgt

Environment & Energy Analysis
Air Quality
Global Climate Change
Land & Groundwater
Water & Ecosystems
Electromagnetic Fields (EMF)
Occupational Health & Safety

Power Delivery & Markets
Transmission
Substations
Grid Reliability
Power Markets
Distribution
Power Quality
Energy Utilization
EPRI Fundamentals

• R&D generally performed by subcontractors (over 1600 ongoing projects)
• R&D not intended to develop alternatives for available suitable products
• Generalized research results accessible to public, commercialized (400 patents and 1000+ current products)
• EPRI owns results of research
Collaboratively Funded Manufactured Gas Plant (MGP) Site Management Issues

• Developing in-situ technologies that reduce or eliminate the need for “dig and haul”
• Forensics and Fingerprinting
  – MGP residuals
  – Non-Aqueous Phase Liquids (NAPLs)
• Off-site emissions/odor issues
• Methods and techniques for remediating sediments
• Human and ecological risks
EPRI’s MGP Research Portfolio

- Tars / NAPL
- Soils
- Groundwater
- Sediments
- Air Monitoring
  - Perimeter
  - Indoor Air

Characterization

Remediation

Environmental Risk and Liability Management
MGP Characterization in Soil

- EPRI is credited for validating some down-hole Screening Tools such as Tar Specific Green Optical Screening Tool (TarGOST®)
  - Rapid
  - Inexpensive
  - Reliable
Fluorescent Core Photography verifies TarGOST Results

“Light-end” LNAPL

Heavier DNAPL oil

Note: Fluorescent photography performed by PTS Laboratories, Santa Fe Springs, CA
Source Identification

• Using forensic techniques to identify and measure degradation products of hydrocarbon-type contaminants
• Additional line-of-evidence for the effectiveness of natural and engineered remediation projects
Air Monitoring: Fixed and Portable Air Monitors produce Total Hydrocarbon Concentration vs. Benzene readouts
MGP – Air Monitoring

Soil Vapor Intrusion – Indoor air quality

Finding better ways to monitor for and identify any potential MGP-related airborne contaminants
MGP Remediation

• Typically relies on ‘dig and haul’ technologies

Remediating sediments at an MGP site

Excavating soils at an MGP site

Foaming excavation
For odor control
Testing alternative strategies when dig and haul is not an option

- Using In-situ Technologies instead of ‘dig and haul’
  - Advanced Chemical Oxidation

- In-Situ Stabilization/Solidification
  - Barrier walls along rivers
  - Site wide solidification
  - High pressure grouts
EPRI MGP Program focuses on using R&D to assist in Reducing Long-Term Costs to Utility Industry

An investment in R&D during the RI Phase is anticipated to lower long term O&M costs