

# Winter Conference

Environmental  
Bankers  
Association



January 17 – 20, 2016  
Renaissance Long Beach Hotel  
Long Beach, California

# The Question

I need an estimate to clean up the environmental contamination at a site I am purchasing...closing on Friday!

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Principal

Technical Director – Site Mitigation

# The Answer

**Simple**

**Probably somewhere  
Between  
\$15,000 and \$12,730,000**

# Typical Statements/Questions

- I have a shopping center that might have had a dry cleaner operating from 1972 to 1985, there are no records...we are closing on Thursday...I need an estimate for my lender that when implemented, also satisfies the regulator.
- This site had a historic gas station, the only information available is that the site had 3 USTs and a waste oil tank, they were removed in 1976 and in 1978 the site was demolished and converted to a warehouse...what is the cost to clean up this site, if needed. I need before closing this Friday?

# Discussion Topics

- What is a Remedial Cost Estimate
- What information is needed to prepare an RCE
  - How long does it take to prepare an RCE
    - What is the dollar range of RCEs

# What is a Remedial Cost Estimate

- Definition
  - A Remedial Cost Estimate is a subset of ASTM E217-06 (Reapproved 2011) – “Standard Guide for Estimating Monetary Costs and Liabilities for Environmental Matters”
  - Other Terminology Used
    - Opinion of Cost: similar to RCE, less detailed
    - Estimate: one number, more detailed \$ support
    - Proposal: pending contract

# What is Included in an ASTM RCE

- An RCE includes but is not limited to:
  - Business decision making;
  - Communications and negotiations involving change of property ownership;
  - Regulatory requirements;
  - Third-party lawsuits;
  - Insurance premium calculation and claim settlement;
  - Change of property use;
  - Revitalization;
  - Compliance planning;
  - Construction;
  - Analysis of remedial alternatives;
  - Budgeting;
  - Strategic planning;
  - Financing; and,
  - Investment analysis by shareholders.

# RCE Content for this Discussion?

- **Not Included**

- Third-party lawsuits;
- Insurance coverage;
- Change of property use;
- Revitalization;
- Compliance planning;
- Construction;
- Financing; and,
- Investment analysis.

- **Included**

- Reason for RCE
- Site History and Use
- Reason for RCE
- Contamination Background
- Environmental Process
- Cost (Range?)

# Before Start – What to Know

- Drivers
- The Money
- Regulatory Involvement
- Site Information
- Contaminant and Media Information

# The RCE Driver?

- Buying
- Selling
- Asset Improvement
- Risk Management
- Regulatory Driven
  - Site without NFA
  - Reopener

# The Money Question?

- Funding
  - Loan reduction
  - Establish escrow / set-aside
  - Financial planning
- Cost recovery
  - Drawdown / close escrow
  - Insurance coverage
  - Past owner reimbursement of expenditures
  - Litigation

# Regulatory Involvement?

- Primary Drivers
  - Vapor intrusion / direct contact (soil / soil vapor)
  - Groundwater impact / quality
- Site not previously obtained NFA
  - Contamination presumed based in historic site use – no data
  - Site assessment not complete (plume delineation in soil / groundwater)
  - Remedial action not complete
  - Site assessment / remedial action complete but NFA not obtained
- Reopener
  - Past NFA, new Phase I, new regulations
  - Known contamination – no NFA
    - Not submitted to agency
      - No transaction to date
      - One or multiple transactions since identified / remediated

# Site Information is...?

- Use of RCE
- Location
  - State
  - City
- Historic operation
  - Type
  - Duration
- Possible contaminating action
  - Dry cleaner
  - Plating operation
  - Gasoline station
  - Unknown
- Site usage
  - Commercial
  - Industrial
  - School
  - Residential
  - Undeveloped
- Site environmental data

# Contaminants and Media Impacted?

- Type of contaminants
  - Dry cleaner (PCE and degradation products)
  - Plating operation (degreasers and metals)
  - Gasoline station (benzene and MTBE)
  - Petroleum sector sites
- Impacted media
  - Soil
  - Soil Vapor
  - Groundwater
  - (Surface water)

# Let's Proceed – Preparation Time

Simple Site – 3 days

Complex Site – 2 weeks

# Let's Proceed – RCE Content

- Site Background
- Work Performed to Date
- Contaminants Identified
- Anticipated Actions
- Cost Estimate(s)

# What Regulations and Agencies

- Regulations / Media
  - Vapor Intrusion
  - Soil
  - Groundwater
- Which Agency (California)
  - What are the Agencies
    - DTSC
    - RWQCBs
    - Local CUPA
      - OCHCA
      - LACFD – HHMD - Site Mitigation Unit

# Use of Database and Experience

- Remedial Cost Estimates (+75 sites for this discussion)
- Commercial, Industrial, School Sites
- Dry Cleaner, Gas Station, Tank Farms, Oil Fields, Petroleum Distribution Facilities
- Multiple States
- Risk Assessments (Vapor Intrusion Focus)
- Sub-slab Venting, Excavation, SVE, Groundwater Monitoring, Groundwater Remediation
  - Natural Attenuation, In-Situ Chemical Oxidation, Biostimulation / Bioaugmentation, Air Sparging, Pump & Treat, Flushing, others?
- System Operation & Maintenance
- System Decommissioning

# RCE Cost Distribution – 2014-15

## All Sites

**Minimum - \$5,000**

**Maximum - \$12,730,000**

**Average - \$710,774**

**Standard Deviation - \$1,410,374**

Minimum value 40th Percentile = \$100,000; Maximum value 90th percentile = \$2,316,500

### Notes:

1. Although generally minimal relative remediation costs, costs do not include the assessment (Phase I / Phase II) to initially identify contamination is present above action levels.
2. Although minimal relative to remediation costs, costs do not include regulatory oversight fees.
3. Costs presented reflect only those sites entered into the database; it is acknowledged there are sites that exceed the maximum cost presented.
4. Sites included in the database have not impacted drinking water wells.

# RCE Cost Distribution – 2014-15

## Dry Cleaner Sites

**Minimum - \$20,000**

**Maximum - \$1,630,750**

**Average - \$376,486**

**Standard Deviation - \$361,461**

Minimum value 40th Percentile = \$147,653; Maximum value 90th percentile = \$1,221,244

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# RCE Cost Distribution – 2014-15

## Gasoline UST & Petroleum Storage Sites

**Minimum - \$15,000**  
**Maximum - \$12,730,000**

**Average - \$866,256**  
**Standard Deviation - \$1,673,112**

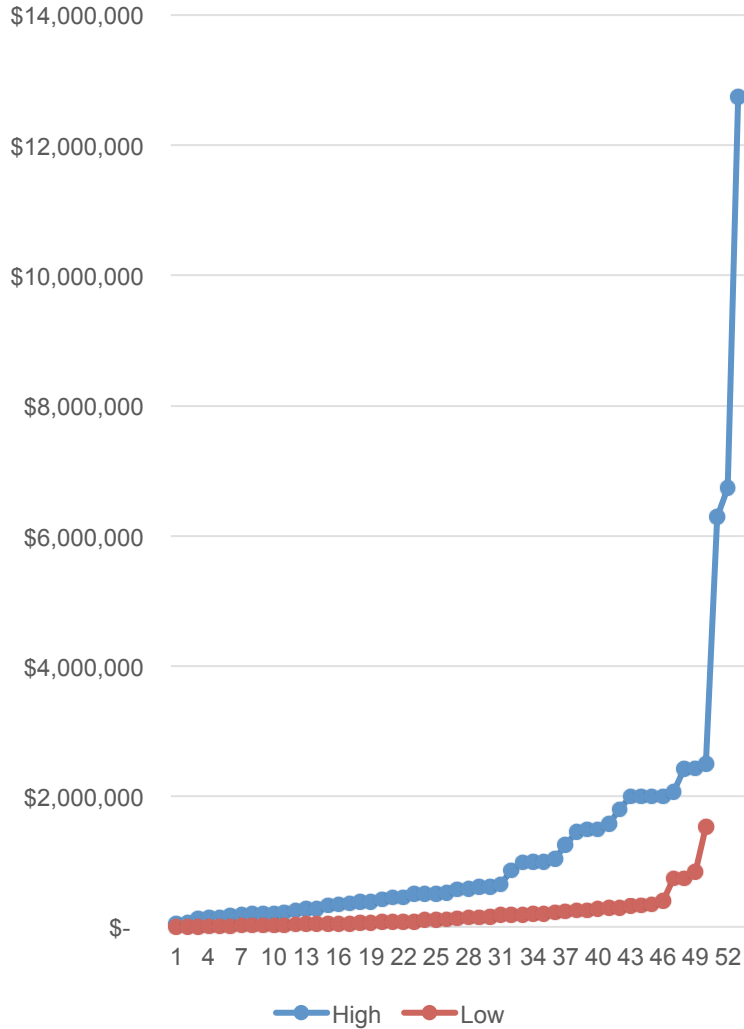
Minimum value 40th Percentile = \$77,000; Maximum value 90th percentile = \$2,444,816

### Notes:

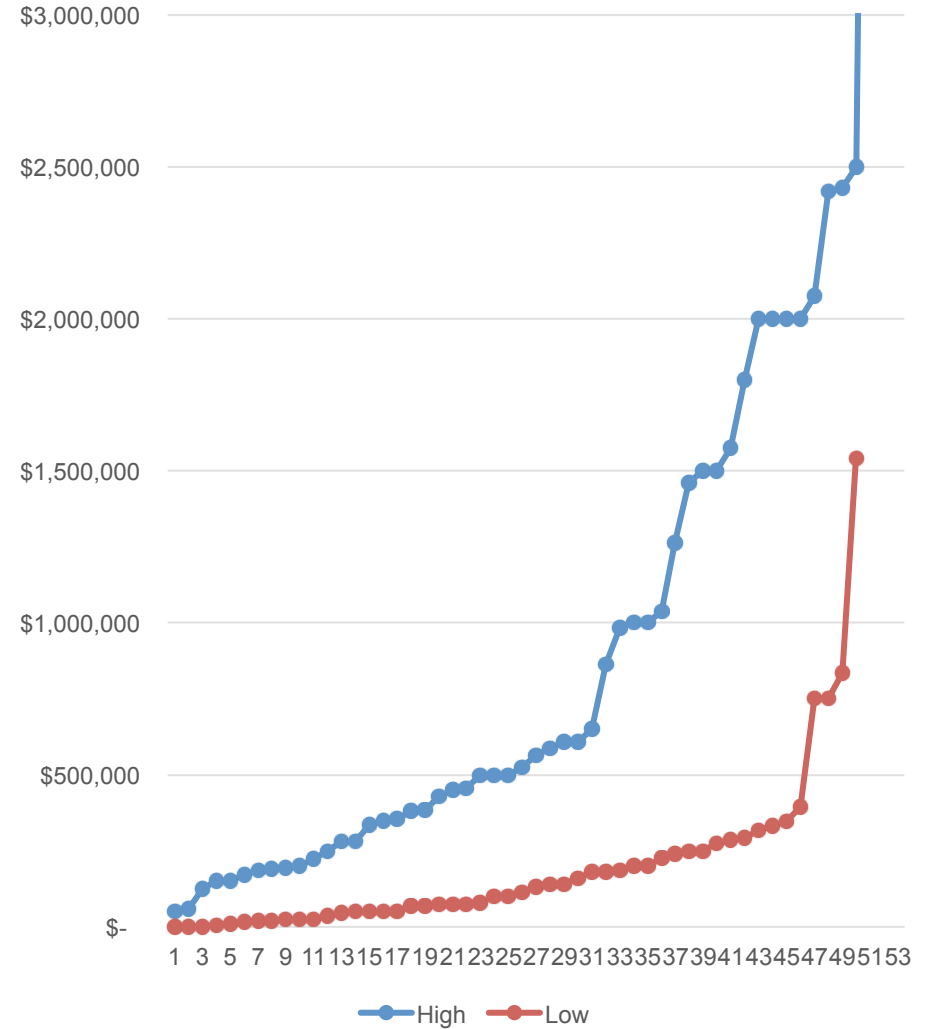
1. Industrial sites range from a low of \$480,700 to \$12,730,000
2. Although generally minimal relative remediation costs, costs do not include the assessment (Phase I / Phase II) to initially identify contamination is present above action levels.
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# Cost Estimate Distribution

RCE Estimates



RCE Estimates



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