

Vapor Intrusion and Environmental Liability **Learning From Past Mistakes**

Presented by:

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Vapor Intrusion In the News

BOZEMAN DAILY CHRONICLE

**Study planned to measure dry-cleaning
fluid vapor levels in Bozeman homes**



Dry Cleaning Contaminant Found in Denver Homes
State Health Department Testing Air, Starting Mitigation

NBC BAY AREA

**EPA Superfund Sites Cause New Toxic
Plume Concerns**

w c n c . c o m

**Officials to test for toxic vapors in
north Charlotte**

NewarkAdvocate.com
A GANNETT COMPANY

ODOT's costly clean-up in Newark to displace families

State agency attempting to buy 8 properties; has spent millions at site

The Salt Lake Tribune

Friday, February 1, 2013 Last Updated: 03:13 pm

**Utah cities grapple with tainted
well water**

Environment » Woods Cross, North Salt Lake grapple with PCE in water wells.

Democrat AND
Chronicle.COM
A GANNETT COMPANY

**Dry-cleaning chemical spills require cleanup
throughout Rochester area**

Daily Herald

big picture - local focus

Study: Toxins left after dry cleaning

Your Daily Camera Online
dailycamera

**Dry-cleaning chemical in downtown Boulder
groundwater 460 times state limit**

City officials never told about contamination

Hessian Attorneys at Law
& McKasy P.A.

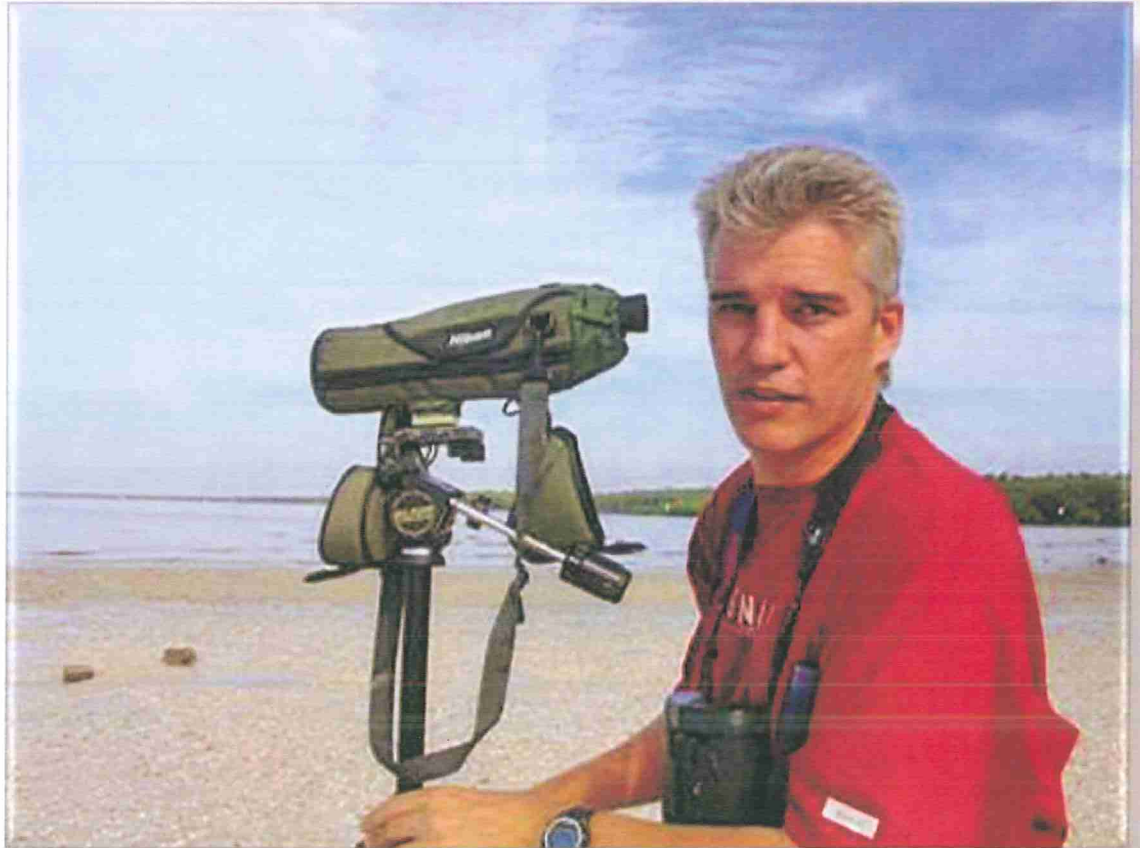
Environmental Due Diligence

- Meet CERCLA “All Appropriate Inquiries” Standard
- Assess Liability/Risk For Prospective Owners, Operators or Lenders
- Minimize Potential Legal Claims



Standard of Care

- ASTM Standard Practice - 2013 Revision
- ASTM Vapor Encroachment Screening



What Is Vapor Intrusion?

- General Definition:
“The Migration of Volatile Chemicals Into Structures”

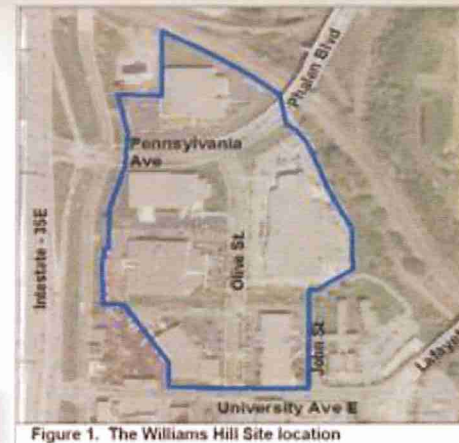


Figure 1. The Williams Hill Site location



Graphic: EPA investigating vapors in St. Louis Park

Thursday December 6, 2007



Vapor Sources

- Dry Cleaners



- Gas Stations



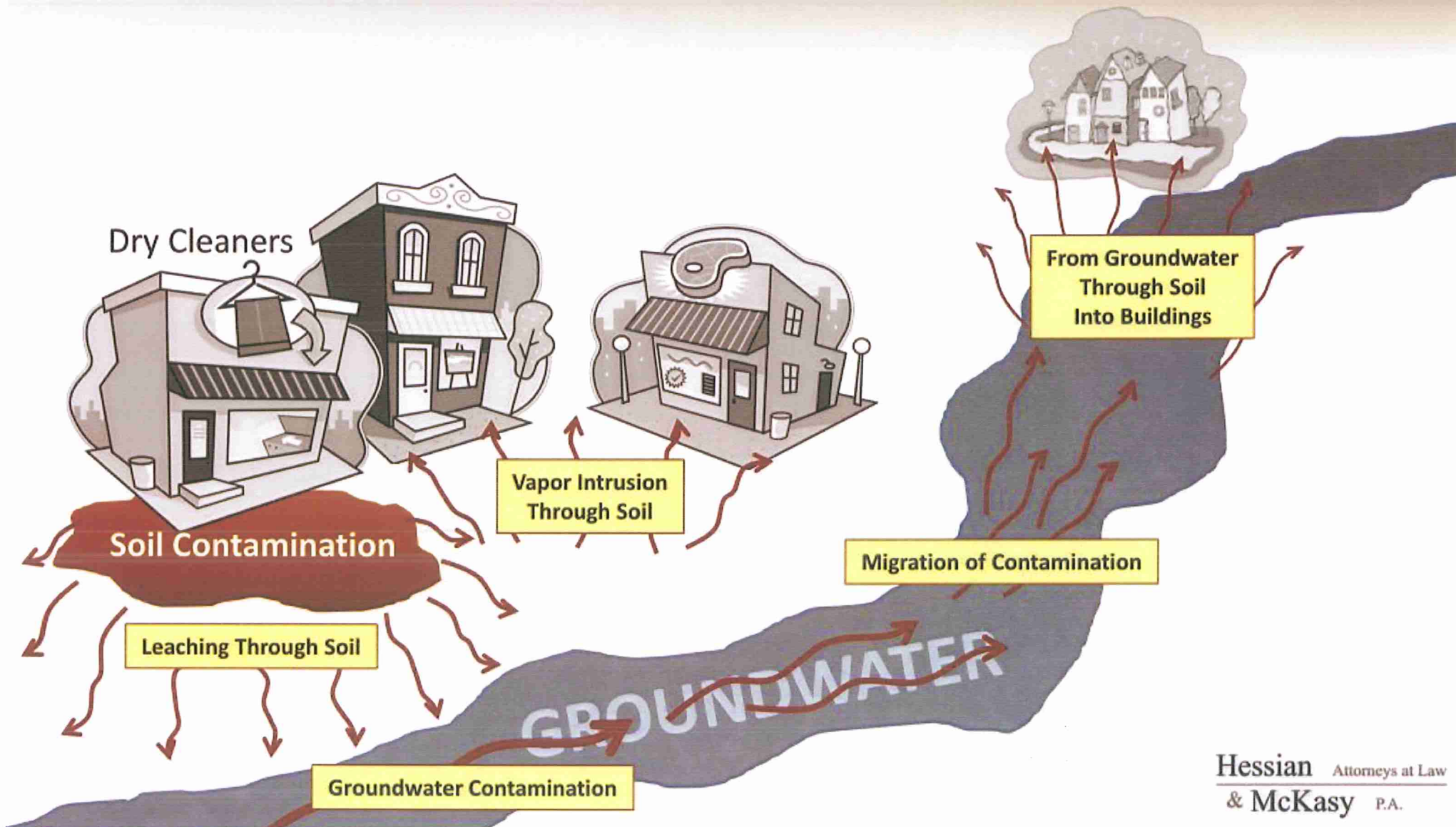
- Manufacturing



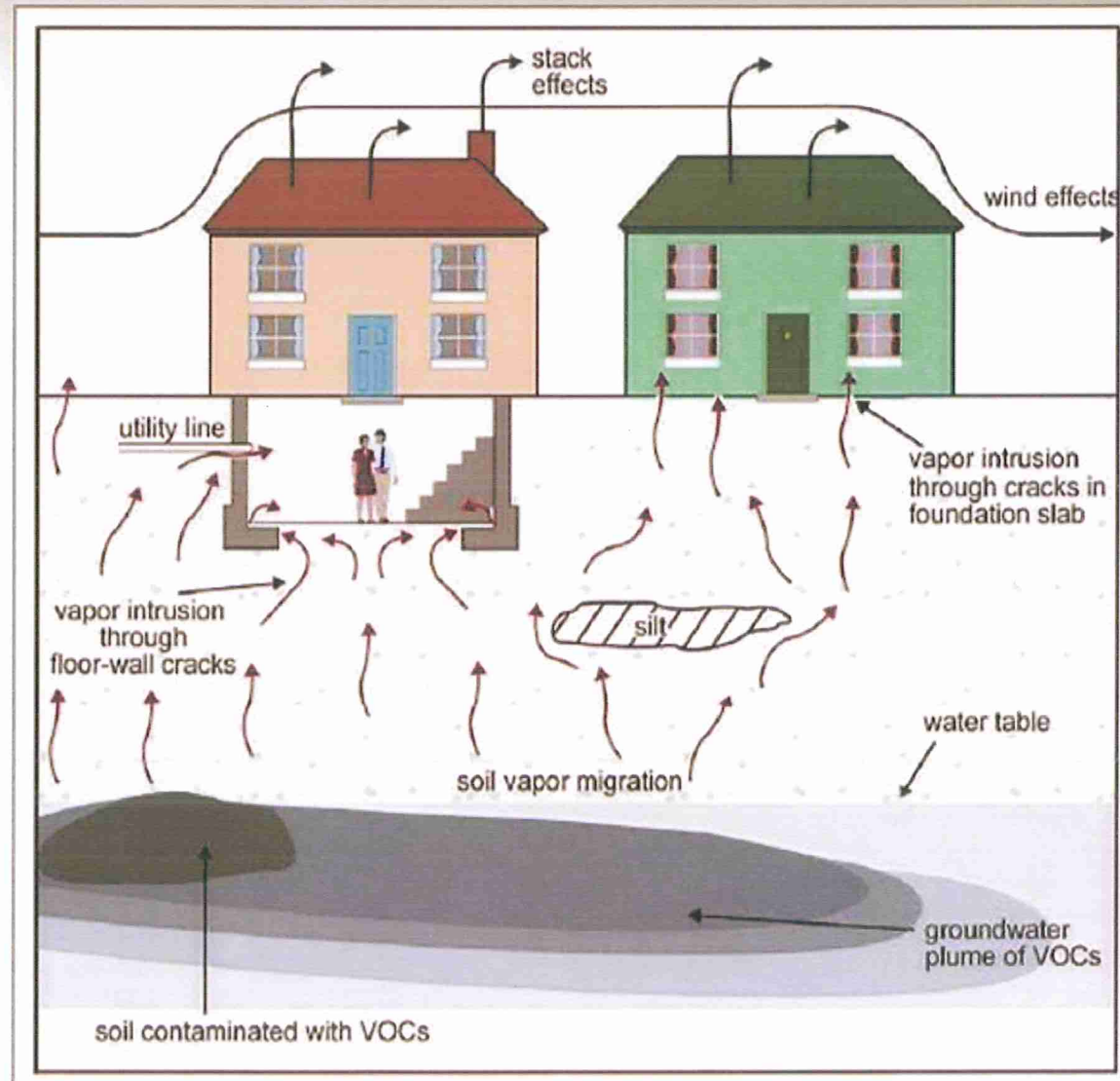
- Area-Wide



Migratory Pathways of VOCs into Buildings

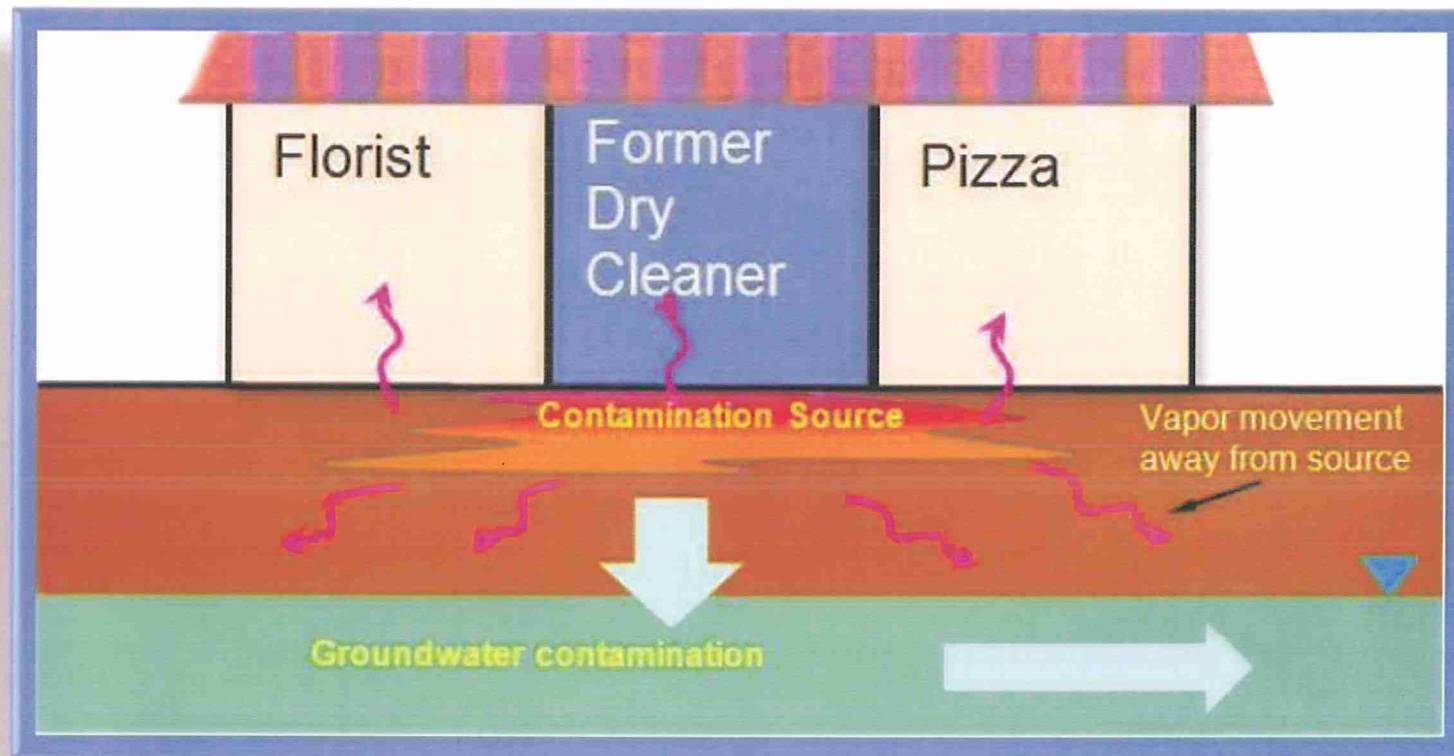


Migratory Pathways of VOCs into Buildings



Soil and Groundwater Contamination

- Soil gas sampling results adjacent to building can underestimate risk
- Sub-slab sampling required
- Groundwater plume serves as separate source for vapors



How Do You Know If There Is A Vapor Intrusion Problem?

- Tier 1: Preliminary Vapor Screening (Historical Review, Receptor Survey, Source Area Sampling)
- Tier 2: Subsurface Soil Vapor Sampling
- Tier 3: Indoor Air Sampling

Need to Compare Results to MPCA Intrusion Screening Values (ISVs)

[Residential and Commercial/Industrial and groundwater]



Vapor a Concern to Federal and State Authorities

- U.S. Environmental Protection Agency (EPA)



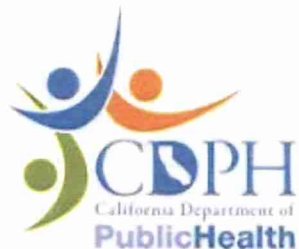
- State Environmental Agencies



- Occupational Safety and Health



- State or Local Health Authorities



Liability Concerns for Affected Parties



- Land Owners
- Tenants
- Lenders
- Neighbors

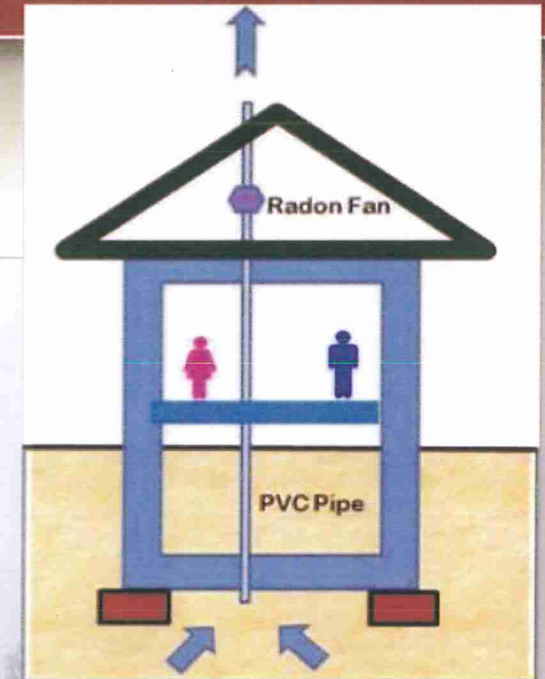


Vapor Intrusion Fixes

Mitigation Alternatives

- Source Removal
- Sealing Points of Entry
- HVAC Modifications
- Sub-slab Depressurization Systems
- Vapor Barrier
- Venting Systems (Active or Passive)

Possible Long-Term Monitoring, O&M,
and Institutional Control



QUESTIONS?

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Thanks!