

**A REVIEW OF LIABILITY  
&  
LOSS PREVENTION  
IN THE  
GEOLOGICAL CONSULTING BUSINESS**

by

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# Environmental Clients



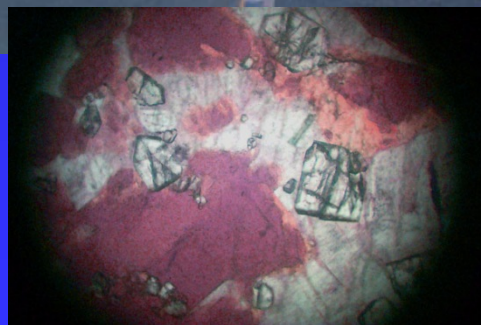
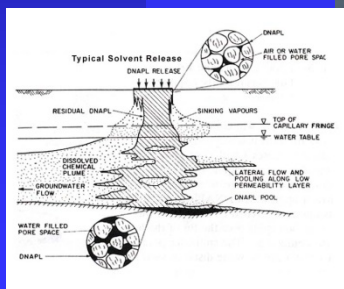
Process Wastes



Leaks

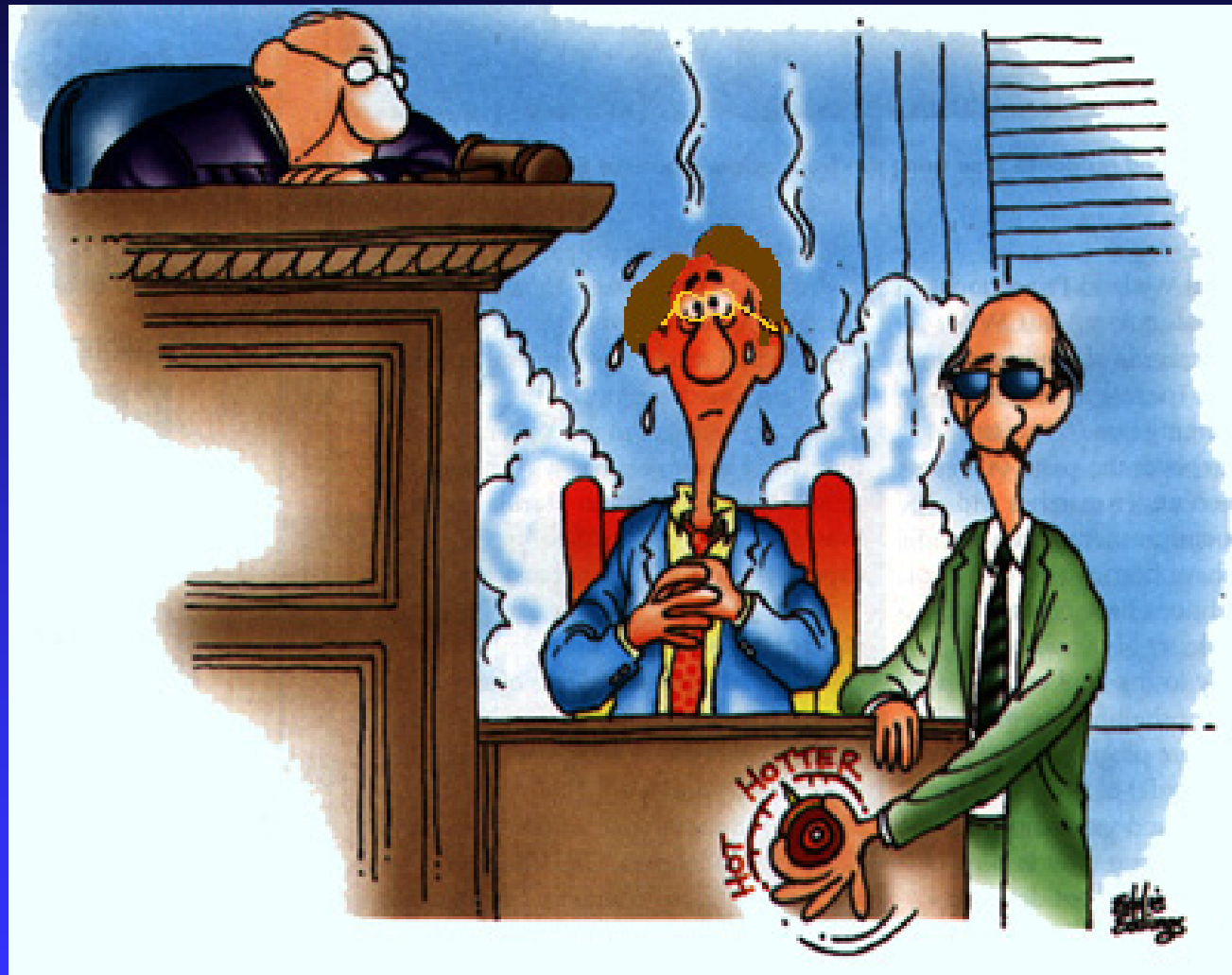


Waste Products



Special Investigations  
Environmental and Mining-Related Projects

# Your Business is to Avoid...



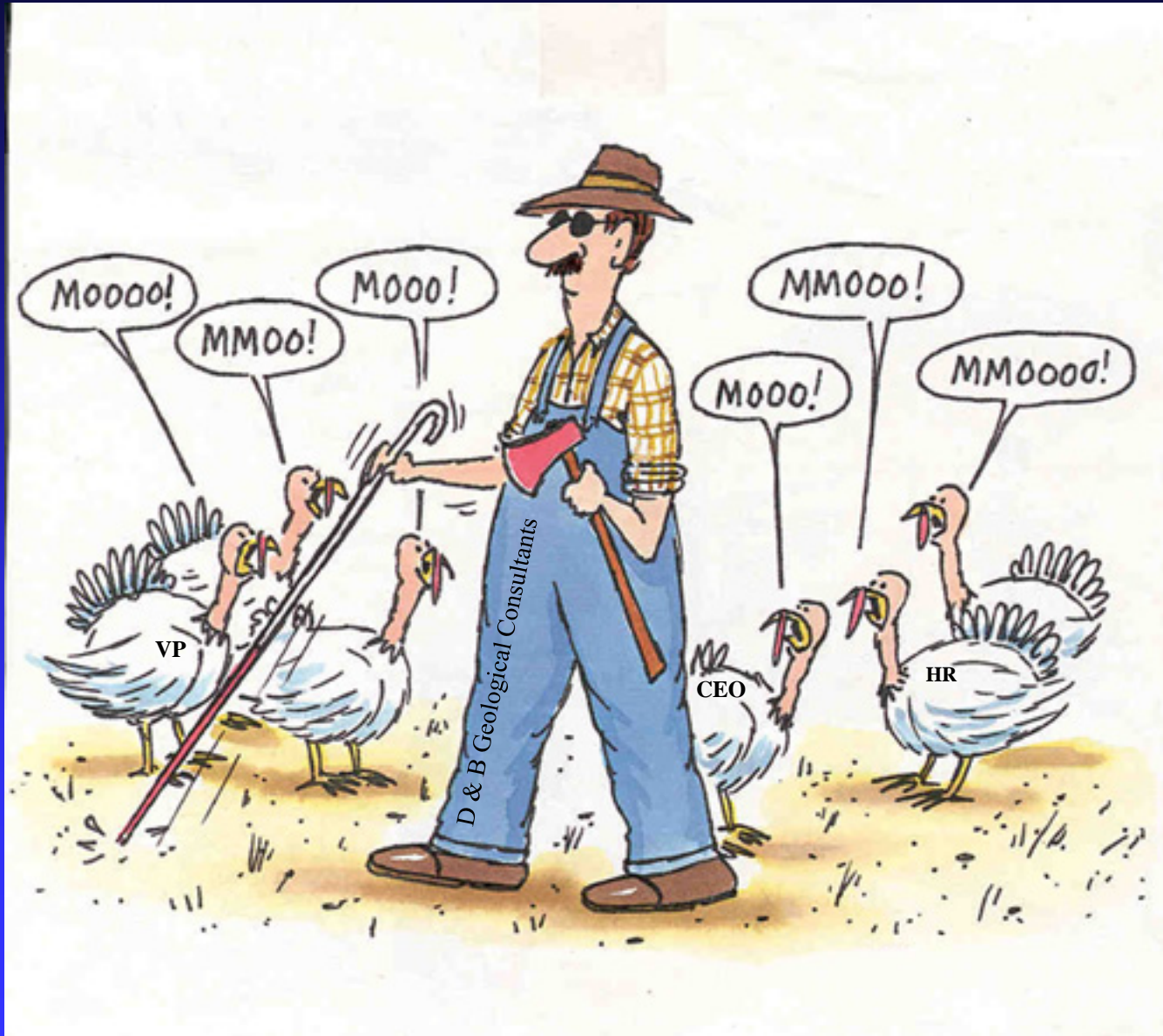
.....Unless You are an Expert Witness.



# Our Clients



# Our Business & Our Clients



# Factors to Consider



## Management QC/QA Issues:

Work Plans and Reports – Words can create liability

### Superlatives, Absolutes & Other Word Choices:

Suspect Word Usage	Alternate Usage	Comments
"minimize", "maximize" or "optimize" (as in "maximizing performance")	"reduce", "increase" or "improve"	No matter how much we try, someone can always identify a way we could have further improved.
"ensure" or "insure"	"facilitate"	Use of these words, and others, imply warranties and guarantees and negate the terms and conditions in our proposals, etc.

# Management QC/QA Issues:



## Superlatives, Absolutes & Other Word Choices:

Suspect Word Usage	Alternate Usage	Comments
"prevent" as in prevent cross-contamination)	"...reduce the opportunity for (or chance) for..."	We can't absolutely prevent anything, but we do reduce the likelihood for adverse events.
"The concentrations at the site range from ___ to ___ppm."	"The concentrations reported by the laboratory for the site samples ranged from ___ to ___ppm."	The actual concentrations are likely to exceed our results at some unsampled location.
"No hazardous constituents were detected at the site"	"No hazardous substances were reported above detection limits for site samples"	This is the possibility, no matter how remote, that hazardous substances are present (if only in small volumes) at some unsampled location.

# Management QC/QA Issues:



## Superlatives, Absolutes & Other Word Choices:

Suspect Word Usage	Alternate Usage	Comments
"The site poses no significant risk..."	Based on TCEQ (or EPA) risk analysis procedures and criteria, the risks posed by the site are within acceptable levels"	We don't want to assert absolute knowledge; rather we want to assert acceptability based upon agency guidance.
"...worst case..."	"a reasonable worst case..."	Someone can always think of a case that is worse.
"contaminated" or "contaminant"	"affected" or "constituent"	The term "contaminated" can mean "unfit for use", but just because the site is affected doesn't mean it is unfit for use.



# Management QC/QA Issues:



## Additional Superlatives

Superlatives to be Avoided	Suggested Substitutes
All	Some, Most, Usually
At least...All times...All Circumstances	All if practicable... Sometimes, In most cases...
Any	When practicable...
Best	Recommended
Complete Investigation	Scope limited to....
Critical	Might...May be....
It is essential...	Recommended...Advised
Extremely	Do Not Use or Use With Caution
Final	"
Inevitably	"

# Management QC/QA Issues:



## Additional Superlatives:

Superlatives to be Avoided	Suggested Substitutes
Maximum	Use With Caution
Minimum	"
Must. Must always, Must do, Shall	Should
Never	Usually
No, None	Use With Caution
Not less than...More than	"
Obvious	Apparent
Possible	Practicable
Properly	Recommended
Readily	May be...

# Management QC/QA Issues:



## Additional Superlatives:

Superlatives to be Avoided	Suggested Substitutes
Safe Unsafe...	(Quality, Explain, or Define)
Sound	"
Stable	"
Suitable	"
Sufficient	"
Thorough	"

# Management QC/QA Issues:



## Some Other Word Choices:

Eng/Geological Jargon	Preferable Usage
Approve	Review, Decide, Judge, Consider
Certification	Memorandum
Control, Regulate, Direct, Manage (of the project)	Control Pumping Test, Implement Sampling, Provide Guidance of
"...or equal..."	"...or equivalent..."
"It is essential..."	It is considered, advised, suitable, satisfactory, etc.
Examination or Determine	Observation, Review, Study, Evaluate, Look Over (the project).
Inspection	Observation, Review, Study, etc.
Insure that (to be sure)	...so that...



# Management QC/QA Issues:



## Some Other Word Choices:

Eng/Geological Jargon	Preferable Usage
Investigation	Exploration, Reconnaissance, Probe, Search, Walked
"It is necessary..."	Considered, Advised, Under Study, Observe, Suitable, Satisfactory, etc.
Required	Considered, Advised
Supervise	Observe, Review, Look Over, Guide, Guidance, etc.
Assure (to insure)	So that
Estimate	Approximate

# Management QC/QA Issues:



## Some Geological v. Engineering Terms:

Geological Term	Engineering Term	Level of Impact
Unit, Interval	Stratigraphy	High - Latter Means Something Else
Unit, Interval	Layer	Medium - Suggests Lack of Geological Training
Pumping Test	Pump Tests	Medium - Sloppy Usage - Not Testing Pumps
Sediments	Soils	High - Defined Soil Zone -Not General Term

# Management QC/QA Issues:



Some Words to be Placed in Context:

Inexact Words:
emissions
et cetera
hydrocarbons
law
nature
natural resources
oil
parameter
petroleum
regulation(s)
standard(s)

# Management QC/QA Issues:



Some Words to be Placed in Context:

Inflammatory Words:
catastrophe
contaminate
disaster
lethal
dump
toxic
spill
threat
Common Words Defined in Regulations:
best practicable technology
best conventional technology
best available technology
contaminant
discharge
disposal
drinking water supply
endangered species



# Interdisciplinary Relations



**Geoscientist Travels, especially overseas:**

## **Recommendations:**

- 1. Evaluate the foreign conditions and create and circulate a Crisis Management Plan for both U.S. and Overseas.**
- 2. Buy travel medical insurance protection for the Project's Overseas Travel. Include cost in proposal, bid, etc.**

# Useful References



**Abbott, D. M., Jr., 2004, “Commentaries”, Professional Ethics & Practices - Column 89, *The Professional Geologist*, Vol.41, No. 1, pp. 25-26.**

**Abbott, D. M., Jr., 2003, “Non-Disclosure Settlements and their Effect on Expert Witnesses,” Professional Ethics & Practices - Column 87, *The Professional Geologist*, Vol.40, No. 7, pp. 15-17.**

**Abbott, D. M., Jr., 2003, “Unfair Competition – North Carolina Bid Rigging Case,” Professional Ethics & Practices - Column 86, *The Professional Geologist*, Vol.40, No. 6, p. 16.**

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**American Council of Engineering Companies (<http://www.acec.org> )**

**Andrejko, M. J., 2004, “How to Control the Potential Financial Losses that can Arise from Contracts,” *The Professional Geologist*, Vol. 41, No. 1, pp. 31-32.**

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**Fletcher, C. D. and E. K. Paleologos, 2000, *Environmental Risk and Liability Management for Corporations and Consultants*, ISBN: 0-933637-03-9, published by: AIPG & GSA, 140 p.**

**Quatrochi, F. M., 1996, Groundwater Jurisdiction Under the Clean Water Act: The Tributary Groundwater Dilemma, Boston College Environmental Affairs Law Review, Vol. 23, No. 3, May 1, pp. 603-644. Accessed Internet Dated January 25, 2013:**

<http://lawdigitalcommons.bc.edu/cgi/viewcontent.cgi?article=1337&context=ealr>

**Skomsky, D. A., 2001, “Commentaries and Perspectives-Capabilities, Qualifications and Ethics,”** *Environmental Forensics*, Vol. 2, No. 4, pp. 283-286.



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Stephens, D. B., *et al.*, 1998, “A Comparison of Estimated and Calculated Effective Porosity,” *Hydrogeology Journal*, Vol. 6, No.1, pp. 156-165.

## ASTM

See <http://www.astm.org> for Updates.

See Attached ASTM List of Guidelines below:

**ASTM E1527 - 05** Standard Practice for Environmental Site Assessments:  
Phase I Environmental Site Assessment Process

**ASTM E2247 - 08** Standard Practice for Environmental Site Assessments:  
Phase I Environmental Site Assessment Process for Forestland or Rural  
Property



**ASTM E1903 - 11** Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process

**ASTM E1943 – 98 (2010)** Standard Guide for Remediation of Ground Water by Natural Attenuation at Petroleum Release Sites

**ASTM E2531 - 06e1** Standard Guide for Development of Conceptual Site Models and Remediation Strategies for Light Nonaqueous-Phase Liquids Released to the Subsurface

**ASTM E2173 – 07 (2011)** Standard Guide for Disclosure of Environmental Liabilities



**ASTM E1689 – 95 (2008) Standard Guide for Developing Conceptual Site Models for Contaminated Sites**

**ASTM E1848 – 96 (2008) Standard Guide for Selecting and Using Ecological Endpoints for Contaminated Sites**

**ASTM E2020 - 99a (2010) Standard Guide for Data and Information Options for Conducting an Ecological Risk Assessment at Contaminated Sites**

**ASTM E2600 - 10 Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions**

**ASTM E2018 - 08 Standard Guide for Property Condition Assessments: Baseline Property Condition Assessment Process**

**ASTM E1528 - 06 Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process**



**ASTM E2137 – 06 (2011) Standard Guide for Estimating Monetary Costs and Liabilities for Environmental Matters**

**ASTM D5730 - 04 Standard Guide for Site Characterization for Environmental Purposes With Emphasis on Soil, Rock, the Vadose Zone and Groundwater**

**ASTM D6235 – 04 (2010) Standard Practice for Expedited Site Characterization of Vadose Zone and Groundwater Contamination at Hazardous Waste Contaminated Sites**

**ASTM E1689 – 95 (2008) Standard Guide for Developing Conceptual Site Models for Contaminated Sites**

**ASTM E2020 - 99a (2010) Standard Guide for Data and Information Options for Conducting an Ecological Risk Assessment at Contaminated Sites**



**ASTM D7294 - 06** Standard Guide for Collecting Treatment Process Design Data at a Contaminated Site-A Site Contaminated With Chemicals of Interest

**ASTM E1739 – 95 (2010)e1** Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites

**ASTM D6432 - 11** Standard Guide for Using the Surface Ground Penetrating Radar Method for Subsurface Investigation

**ASTM D7663 - 12** Standard Practice for Active Soil Gas Sampling in the Vadose Zone for Vapor Intrusion Evaluations

**ASTM D7128 – 05 (2010)** Standard Guide for Using the Seismic-Reflection Method for Shallow Subsurface Investigation



**ASTM E2616 - 09** Standard Guide for Remedy Selection Integrating Risk-Based Corrective Action and Non-Risk Considerations

**ASTM D6235 – 04 (2010)** Standard Practice for Expedited Site Characterization of Vadose Zone and Groundwater Contamination at Hazardous Waste Contaminated Sites

**ASTM E1739 – 95 (2010)e1** Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites

**ASTM E1912 – 98 (2004)** Standard Guide for Accelerated Site Characterization for Confirmed or Suspected Petroleum Releases

**ASTM D6008 - 96(2005)** Standard Practice for Conducting Environmental Baseline Surveys (Federal Properties)

# Other Useful References (cont'd)

Ashraft, H.W., Jr. (2002), “Standard of Care in Professional :Liability Actions (A Guide for Design Professionals), Hanson, Bridgett, Marcus, Vlahos & Rudy, LLP, February, 10 p. [Accessed Internet Date: June 8, 2007: <http://www.terrarrg.com/images/pdfs/StandardofCare.pdf> ].

Cordiano, D. M., 2008, “An Environmental Consultant's Guide to Identifying and Avoiding Liability”, Day Pitney, LLP., Accessed Internet Date: March 26, 2008: <http://corporate.findlaw.com/litigation-disputes/an-environmental-consultant-s-guide-to-identifying-and-avoiding.html>

EPA, 2013, General Guidelines for All Appropriate Inquiries (AAI); Final Rule, [Internet Access Date: January 18, 2013: <http://www.epa.gov/brownfields/aai/aaigg.htm>].





# Useful References (cont'd)



Bronstein v. GZA GeoEnvironmental, Inc., 140 N.H. 253, 665 A.2d 369 (1995).

ASFE Position Re ASTM Standards [Accessed Internet Date: June 12, 2007: <http://www.asfe.org/clientresources/index.cfm?ac=message>].

Titanium Indus. v. S.E.A., Inc., 118 Ohio App. 3d 39, 691 N.E.2d 1087 (1997)

*ASFE News “All Appropriate Inquiry” Rules in Effect. “Environmental Professionals” Needed for “Innocent Landowner” Defense, Date: Feb 18, 2007 [Accessed Internet Date: June 8, 2007: [http://www.asfe.org/news/index.cfm?ac=newsdetails&N\\_ID=161](http://www.asfe.org/news/index.cfm?ac=newsdetails&N_ID=161) ].*

City of Mounds View, 263 N.W.2d at 424 (quoting City of Eveleth v. Ruble, 225 N.W.2d 521, 524 (Minn. 1974);

# Useful References (cont'd)



*Rossmoor Sanitation, Inc. v. Pylon Inc.*, 13 Cal. 3d 6ss, 119 Cal. Reporter. 449, 532 p. 2d 97 (1975).

*John E. Branagh & Sons v. Witcosky*, 242 Cal. App. 2d 835, 51 Cal. Rptr. 844 (1866); *Indiana State Highway Commission v. Thomas*, 346 N.E. 2d 252 (Ind. App. 1976).

*SCM Corp. v. Berkel, Inc.* 73 Cal. App. 3d 49, 140 Cal. Rptr. 559 (1977); *Ref-Chem Corp. v. El Paso Products Co.*, 506 S.W. 2d 701 (Tex. Civ. App. 1974).

*Pachowitz v. Milwaukee and Suburban Transport Corp.* 56 Wis. 2d 383, 202 N.W. 2d 268 (1872).

Witkin, James B., (2004), *Environmental Aspects of Real Estate and Commercial Transactions: From Brownfield's to Greenfield's*, American Bar Association, ISBN 15903 12872, 1,053 p. Also See: <http://www.brownfieldpros.org/>

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Vedda Price Attorneys, 2006, “eDiscovery Update: Know When and How to Hold’em”, Prepared February, Accessed the Internet June 5, 2007: [http://www.vedderprice.com/docs/pub/bb3d9461-8a03-4684-9284\\_f103ec839db4\\_document.pdf](http://www.vedderprice.com/docs/pub/bb3d9461-8a03-4684-9284_f103ec839db4_document.pdf)

Kincaid, S. M., 1988, *Comment: Cities Supplied by Sticks in the Mud: A Variation of the Settlement of Land and Structures Caused by Ground-Water Removal*, Boston College Environmental Affairs Law Review, Vol. 15, 349, Winter, 37 p. [<http://www.mdcampbell.com/GWFlowkincaid.pdf> ].

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Bost, R. C., M. D. Campbell, *et al.*, 2005a, *Flawed Geoscience in Forensic Environmental Investigations, Part II: How Daubert Affects the Scope and Bases for Expert Opinions*, Proc. 3<sup>rd</sup> NGWA Environmental Law & Ground Water Conference, July 21-22, 2005, Baltimore, MD, 27 p: <http://www.mdcampbell.com/Baltimore/> ].

Bost, R. C., M. D. Campbell, *et al.*, 2005b, *Flawed Geoscience in Forensic Environmental Investigations, Part III: How Daubert is a Surrogate for Ethical Questions Regarding Expert Opinions*, Proc. 3<sup>rd</sup> NGWA Environmental Law & Ground Water Conference, July 21-22, 2005, Baltimore, MD, 19 p: <http://www.mdcampbell.com/Baltimore/> ].

# Useful References (cont'd)



## Local Resources for State and Federal Issues:

**Houston Geological Society** (<http://www.hgs.org>)  
**and Wise Report in HGS website and in the News on the AIPG-TX website:** <http://www.aipg-tx.org/news.asp>

## **I2M Associates Web Portal:**

(<http://web.i2massociates.com/categories/about-this-portal.asp>), and a host of others search engines on the Internet, i.e., Google, Bing, etc.

## Selected E & O and Travel Insurance Companies:

**DPIC Companies** (<http://www.dpic.com> )

**Professional Practice Insurance Brokers** (<http://www.ppb.com>)

**RA&MCO Insurance Services** (<http://www.ramco-ins.com>)

**Travel Guard Insurance** (<http://www.travelguard.com/>)

**Allianz Travel Insurance** (<http://www.allianztravelinsurance.com/>)

# Thinking about the future ...

Get your copy of the EMD-AAPG Memoir 101:

*Energy Resources for Human Settlement  
in the  
Solar System and Earth's Future in Space*

For additional information, see I2M News:

[http://www.i2massociates.com/downloads/AAPG\\_Memoir\\_101-July18-2012.pdf](http://www.i2massociates.com/downloads/AAPG_Memoir_101-July18-2012.pdf)

**Also, have a look at the new, interactive I2M Web Portal:**

<http://web.i2massociates.com/categories/about-this-portal.asp>

See what I2M Associates, LLC has been doing: <http://i2massociates.com/news>

