

# Real and Near-Real-Time Data

**FASTER/CHEAPER/GOOD ENOUGH**

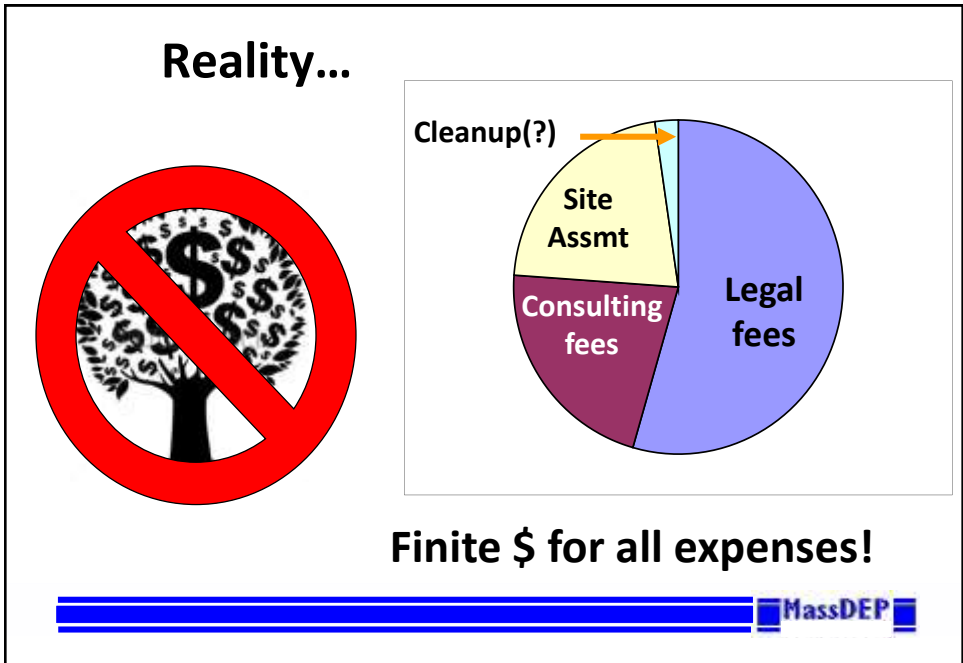
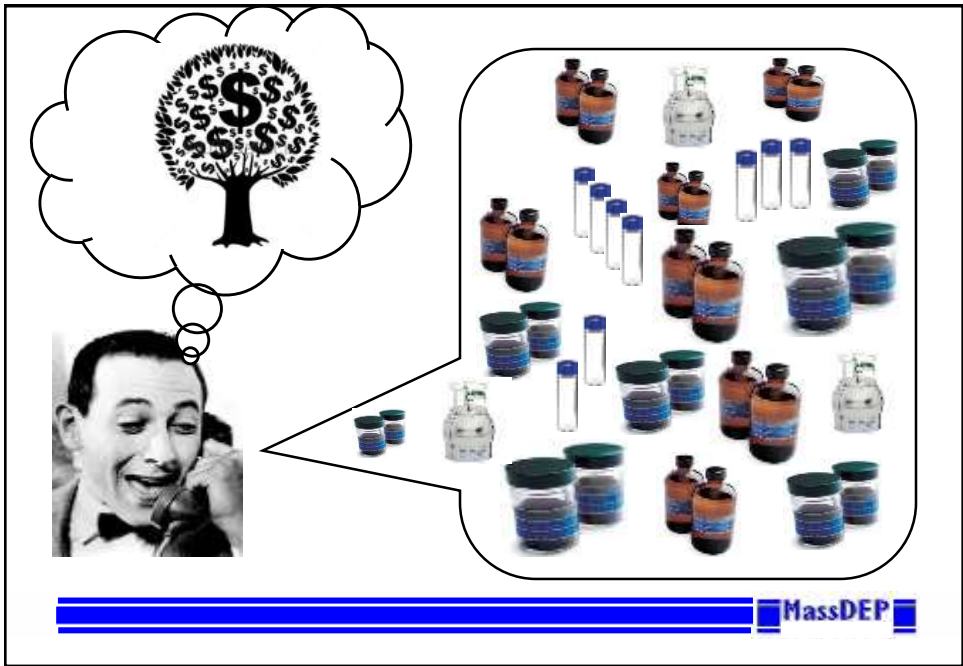
John Fitzgerald  
MassDEP



## Top 3 complaints of (state your name) regulators

- Insufficient site characterization
- Insufficient site characterization
- Insufficient site characterization





**Work Smarter**

~~**Not Harder**~~

**Spend Wisely**

**Engage Brain**

**Tell a good story**



geophysical

sensors

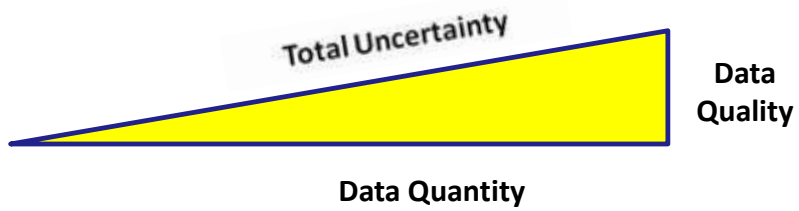
analytical

*"screening"*  
**Get more data**  
^





## Uncertainties in Site Characterization



MassDEP



Really?

Really?

MassDEP

***Don't let the Perfect be  
the enemy of the Good***

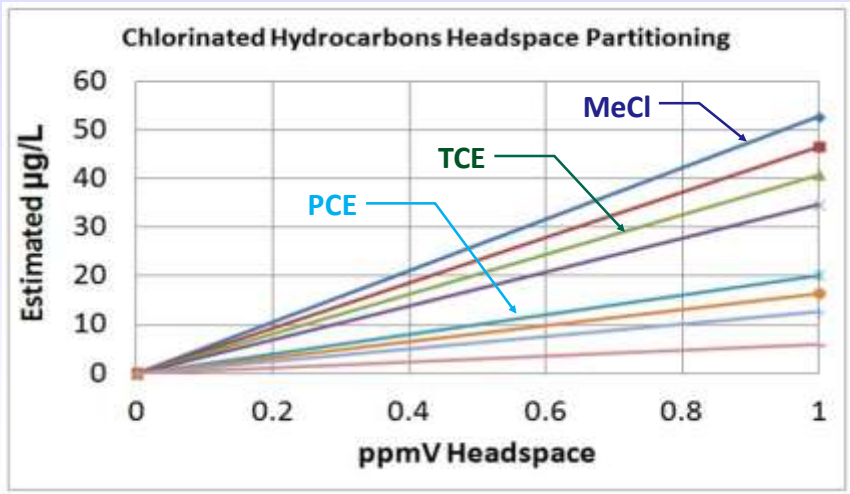
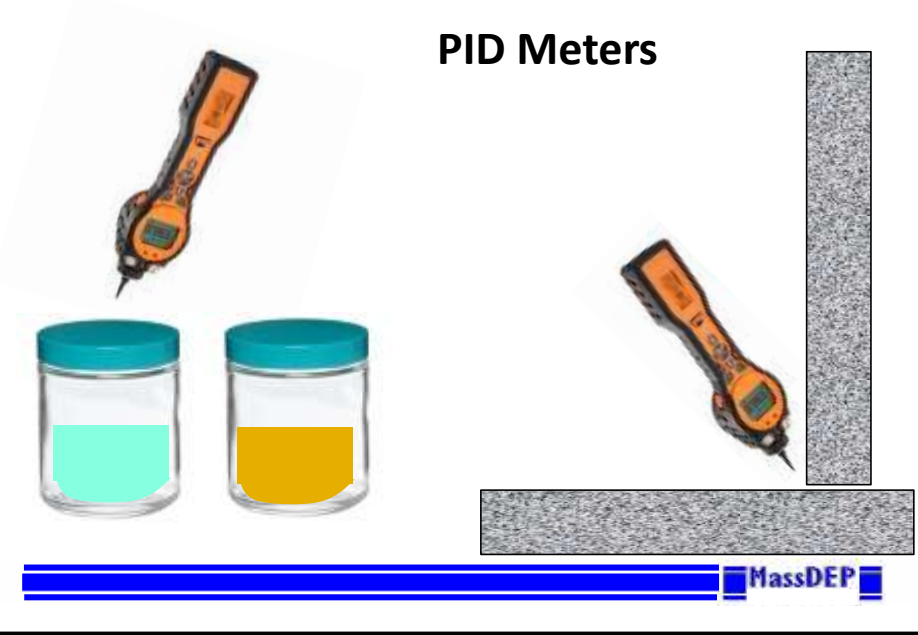
Voltaire



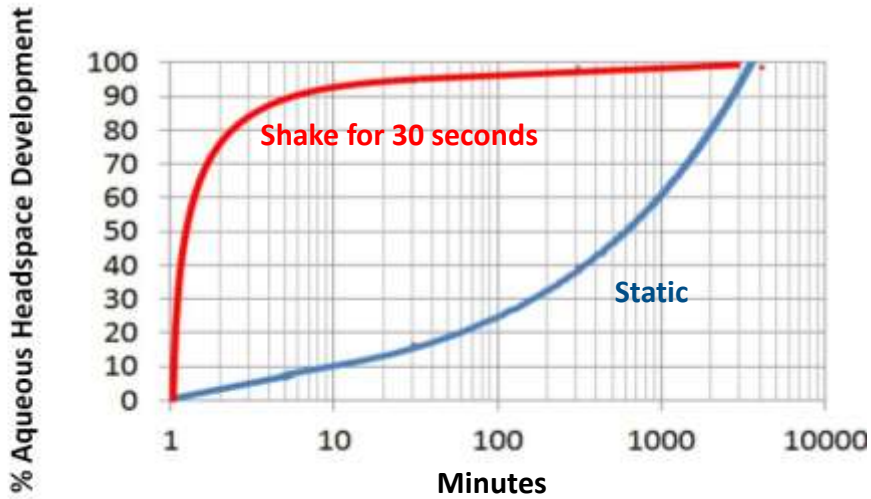
**Analytical Screening**



## PID Meters



## Dynamic Headspace Develop is Critical!



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## GC and GC/MS Headspace Data



Compound	Ca (ppbv)	C Factor	k Value (25°C)	k Source	Cw (ug/l)
Vinyl Chloride	10	0.002556	1.14	Mass DEP GW-2 Stds	0.06
Bromomethane		0.004457	0.301	Mass DEP GW-2 Stds	0.00
Chloroethane	70	0.002005	0.456	EPA	0.58
1,1-Dichloroethene	120	0.003965	1.107	EPA	1.13
Methylene Chloride	50	0.003474	8.98E-02	EPA	2.63
1,1-Dichloroethane		0.004048	0.229	EPA	0.00
Cis 1,2-Dichloroethyene	400	0.003965	0.167	EPA	13.85
Chloroform		0.004883	0.151	Mass DEP GW-2 Stds	0.00
1,2-Dichloroethane		0.004047	0.04	EPA	0.00
1,1,1-Trichloroethane	100	0.005457	0.705	DEP RISK	1.65
Benzene	250	0.003195	0.227	EPA	5.40

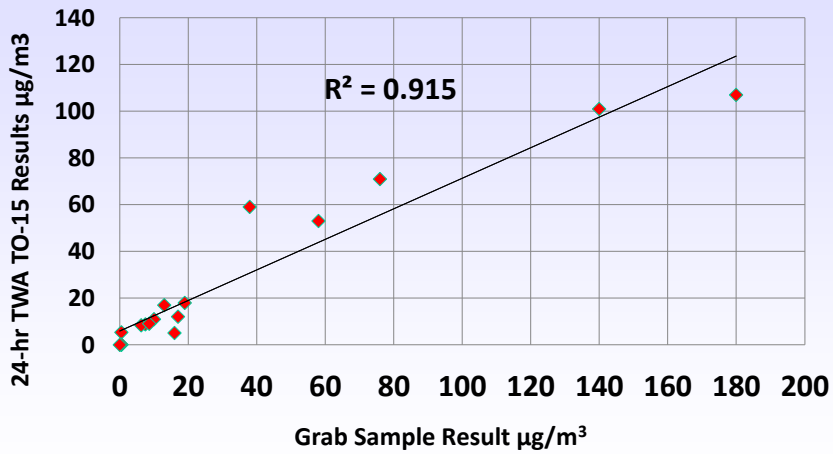
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## GC or GC/MS Air Sample Analysis



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## Grab Indoor Air TCE Results vs 24-hr TO-15



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## Bottom Line

	Groundwater Analysis by Headspace GC	Grab Air Sample Analysis by GC/MS	24-hour TWA Air Analysis by TO-15
Turn Around Time	24 hours	1 – 24 hours	7-10 days (24 hr RUSH)
Cost	\$50/ea	\$75/ea	\$340/ea (\$680 RUSH)

