



Gorham Silver Site:

a case study in risk communication

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Gorham Silver



History and fun facts:

- Operated 37 acre site from approx. 1890 to 1985
 - Manufactured silverware and bronze castings
 - Once largest silverware manufacturer in US
- Textron purchased property and business in 1967
 - Operated until 1985, sold in 1986
 - Providence foreclosed in 1990, facility razed 2001
- Present usage includes commercial health club, church, and public high school; undeveloped park area being remediated for public recreational usage (anticipated completion 2015 - 2016)

Urban Pond Procession



Risk communication is:



...about communicating ambiguity.

...as much about trust as information.

...constantly evolving as information about a site unfolds.

...will medical care lead the way, e.g., lead poisoning

Timeline



- 1980's: Site investigation started
- 1990: Purchase by City of Providence; Textron working cooperatively with City as responsible party
 - Chlorinated solvents in site groundwater;
 - Metals, PAHs, TPH and dioxin in soil and sediments
- 2001 remediation/redevelopment plans were for a commercial/industrial cleanup and reuse
- Site divided into 4 parcels
 - Parcel A: demediated/developed as retail building in 2002
 - Parcel B: Alvarez High school construction 2005
 - Parcel C: YMCA proposal never implemented
 - Parcel D: "Park parcel"

Timeline



- School construction triggered intense public debate about site usage, environmental and social concerns, causing distrust of City and DEM, and Superior Court involvement
- Newly adopted DEM rules about Environmental Justice prompted increased public/stakeholder participation
- 2005 Superior Court order signed by DEM and City provided way to allow school construction to proceed with requirements to insure site safe for occupancy when completed (2007) and into future (City maintains remedy)
- Stakeholders (City, Textron, EJ League, residents, DEM) still participate in ongoing quarterly meetings
- Site remedies: soil removal, capping, sub-slab vapor systems, groundwater treatment, sediment removal, ELUR

Risk Communication is easy during catastrophes



Definition of catastrophe: *An event with a health impact so large, an epidemiologic study can detect it. (David Ozonoff, Boston Univ)*

Spills, explosions, fires, etc.

- Take action: ICS
- Get Help: EPA
- RC: Run! Evacuate!



Find the polluter.



Uncertainty



- What's the difference between uncertainty, ambiguity and ignorance?
- What is an uncertainty factor?

Definitions for Uncertainty Factor



- One of several, generally 10-fold, default factors used in operationally deriving the RfD and RFC from experimental data. The factors are intended to account for (1) variation in susceptibility among the members of the human population (i.e., inter-individual or intraspecies variability); (2) uncertainty in extrapolating animal data to humans (i.e., interspecies uncertainty); (3) uncertainty in extrapolating from data obtained in a study with less-than-lifetime exposure (i.e., extrapolating from subchronic to chronic exposure); (4) uncertainty in extrapolating from a LOAEL rather than from a NOAEL; and (5) uncertainty associated with extrapolation when the database is incomplete.
- A fudge factor used when you don't know what you're talking about.
- A tool for setting standards that both protect public health and reflect our technical knowledge of things that don't help us answer simple questions.

Which correlate with longevity?



- Gender
- Race
- Ethnicity
- Address/zip code
- Occupation
- Income
- Level of education
- Home ownership
-

A: All, but zip code is best!

Predict longevity of residents below



\$1,095,000

**2 Bedrooms 3 Full Baths
2,240 Sq Ft. Condominium**



Eastside manufacturing site



**Price:\$139,500 Interior:
1,670 Sq Ft.; Gorham view**

Asbestos haz com standard



V. Covello school of RC for beleaguered public officials



What risk?



Uncertain health risks near brownfields pale compared to known hazards (zip code, smoking, etc.).

If we aren't trying to educate people about the most significant hazards in their lives or neighborhoods, what are we trying to do and why are we doing it?

RC: Builds a case for cleanup



Communicating trust vs. data



- 1st impressions in a few seconds
- Cultural vs. technical rationality
- Gorham case study:
 - Trusted messenger; counter-intuitive result

Trusted source of information



Invited to forum by
community activists
opposed to school
construction at site

Bilingual, caring, trusted

His constituents stopped
coming to meetings.
Why?

What do leaders say or do to make people lose interest?



- This whole situation irks me!
Or, Everything is going to be ok.
- Treat state staff with respect.
Or, These scum are beneath contempt.
- I trust these guys – they're ok.
Or, I trust no one & am skeptical of the process.

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“What...me worry?” is scary



Evolution of issues



1. Opposed to school
2. Slag pile
3. VOC migration to homes
4. VOCs in supermarket
5. VOCs in school
6. Park parcel
7. Stormwater
8. Impervious surface

Evolving concerns



- Gangs --- dirt
- Surface water
- Slag pile
- VOCs: homes, store, school
- Park parcel
- Stormwater
- Impervious surface



Resident's worst nightmare



The return of Mr. Neuman



What faces new participants?

- “What...me worry” bureaucrats
- It’s ok for polluters to pay for sampling
- Stormwater, not Gorham, pollutes the pond.
 - ...and by the way, you should dig up your driveway and redirect your downspouts!

Economic justification



Impacts on individuals



- Blood lead levels above 5 ug/dl defined as elevated.
- For kids a blood lead level of 6:
 - Will they read well?Or,
 - Will they need therapy/services?



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