Taylor Notes – Michael Fernandez (CWEST) Talk – WOU May 13, 2003

Social and Environmental Impacts of Catastrophic Geologic Events

Introduction –

Presentation provided overview of work conducted by the Hazardous Substance Research Center at OSU

HSRC – western region, funded by EPA, Goal: research and public health / outreach in relation to hazardous substances and contamination issues in communities (clearing house for information on remediation strategies, contaminant types, and public relations)

TOSC – technical outreach services to communities (community facilitator, document review, technical review for communities impacted by contaminants)

Most Common Contaminants in Communities

TCE - trichloroethylene – commonly used as a chlorinated solvent

Perchlorate

Used for degreasing, manufacturing, dry cleaning.

Chlorinated solvents – DNAPL's, sinkers, Maximum concentration limits on order of 5 ppb

Heavy metals (mercury, lead, arsenic)

Case Study – West Oakland, California – late 1980's – 1990's

1989 – Loma Prieta Earthquake – highway infrastructure damage in East Bay, Caltrans needed to replace I-580, and move it to new location; new alignment through industrial area and economically depressed neighborhood.

Calif. Env. Quality Act – in cases of new construction, must replace and enhance environment when using land

South Prescott Neighborhood – low income, minority – mixed race; Caltrans proposed to build a new community park as part of the highway construction - realignment

Local Contamination Sites

DC Metals – superfund site, across from proposed park site

Contaminants – vinyl chloride (carcinogenic)

Other sites: rail yard, junk yard, agricultural chemicals manufacturer

Park site contaminants: Benzene / benzopyrene (hydrocarbon related), lead, cadmium, arsenic, DDT, toxaphene (lead ~ !2,900 ppm, arsenic 59 ppm, chordane 69 ppm, benzopyrene 56 ppm)

Site Cleanup Process (park site required soil and groundwater remediation)

RI/FS – remedial investigation / feasibility study, characterize nature and extent of contaminants, identify methods and costs of remediation

Record of Decisions (ROD) – regulatory agency reviews RI/FS and makes declaration of required course of action

Remedial Action – implement remediation and construction activities

Risk Assessment – must not only identify contaminants, but statistically evaluate risk to life, property, and environment as related to the contamination

> Park Risk Analysis: Cancer Risk ~ 1 x 10^{-4} = 1/10,000 chance of cancer; lead blood levels in children ~ 15-29 micrograms / deciliter; hazard index 0.9-1.1
>
> Risk as related to remediation outcomes: remediation of recreational areas = lower standard, less contact time between individuals and contamination; remediation of residential areas = higher standard, more contact time between individuals and contamination

Final Results of Park Remediation: Lead = 264 ppm, arsenic = 5-6 ppm, chlordane ~ 0.28 ppm

Technical
Outreach
Services to
Communities

TOSC

Social and Environmental Impacts of Catastrophic Geological Events

Hazardous Substance Research Center

- Funded by EPA grant
- Research on cleanup of hazardous substances
- 5 university-based regional centers
- Western Region center - OSU and Stanford
- TOSC - community outreach

TOSC Objectives

- Provide technical assistance regarding chemical contaminants, regulatory processes, and cleanup technologies
- Provide information about public health and environmental risk issues
- Assist communities in getting their concerns considered in the decision-making process

Current TOSC Activities

- 15 Active communities
- Types of contamination vary
- Types of assistance tailored to community needs

Case Study

- Chester St. Block Club Association
  South Prescott neighborhood
  (Oakland, CA)
- Phased cleanup from 1999-2001

Collapse of Cypress Freeway during Loma Prieta Earthquake 1989

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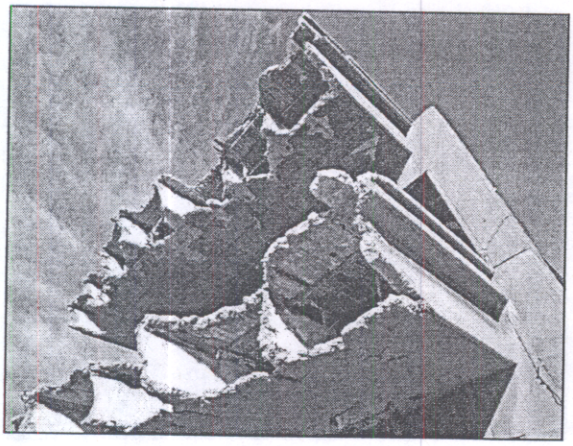

CALTRANS Plan to Replace Cypress Freeway

- Primarily through industrial section
- Partially through South Prescott neighborhood
- Neighborhood park proposed as mitigation measure

South Prescott Neighborhood

- Low income, working class
- Black, Hispanic, and SE Asian residents
- Surrounded by commercial and industrial activity
- Near Port of Oakland

Site Cleanup Process

- Remedial Investigation
- Feasibility Study
- Remedy Selection/Record of Decision
- Remedial Action

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Community Perspective

- Can we trust what the agencies are doing?
- Does the clean-up seem reasonable?
- Is it safe to use this park?
- Is it safe for kids to play here?

FYI: Acceptable Regulatory Levels	
Excess cancer risk	10^{-4} - 10^{-6}
Non-cancer risk, HI	< 1
Blood lead level	< 10 µg/dl

Community Files Title VI EJ Complaint

- 1500 dump truck loads later, community files EJ complaint vs. State of California
- Asks EPA in to investigate the cleanup process
- EPA suggests dispute resolution between Dept of Toxic Substances Control (DTSC) and community
- EPA suggests TOSC assist community with technical issues

Getting Community Consensus on TOSC Involvement

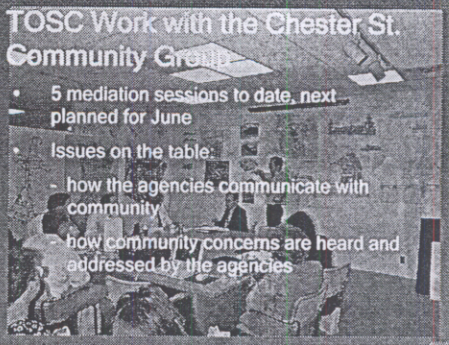
Concerns about connection with EPA:

Are we truly neutral?

Are we competent?

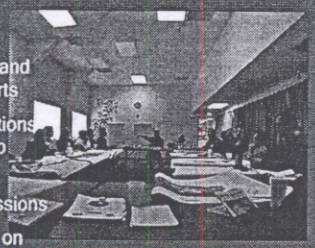
Can we help?

TOSC Work with the Chester St. Community Group



- 5 mediation sessions to date, next planned for June
- Issues on the table:
  - how the agencies communicate with community
  - how community concerns are heard and addressed by the agencies

TOSC Role in Mediation Process



- Review and interpret investigation and cleanup reports
- Answer questions about cleanup
- Participate in mediation sessions
- Provide input on community involvement

Contaminants Discovered During Investigation of Proposed Park Site

- Benzene
- Benzo(a)pyrene
- Lead
- Cadmium
- Arsenic
- DDT
- Toxaphene

Before Cleanup (max. concentrations)

- Lead 12,900 mg/kg
- Arsenic 59 mg/kg
- Chlordane 69 mg/kg
- Benzo(a)pyrene 56 mg/kg

Before Cleanup

- Cancer risk-resident ~1×10^{-4}
- Blood level-child 15 to 29 ug/dl
- Hazard Index-resident .9 to 1.1

Cleanup Goals

- Based on human health risk
- Initially established for a recreational scenario
- Actually achieved EPA residential cleanup goals (more stringent)

After Cleanup (Average concentrations)

	Conc.	Reduction from max
Lead	264 mg/kg	(1/49)
Arsenic	5.6 mg/kg	(1/10)
Chlordane	0.29 mg/kg	(1/240)
Benzo(a)pyrene	0.1 mg/kg	(1/560)

- Removed 15,000 cu yds. of contaminated soil
- Added three feet of clean fill

After: The New South Prescott Park

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