

SIEMENS

Disaster Day in Grand Rapids

Disasters happen.

MBP3-8 Workshop
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Siemens VDO Automotive

Disaster Day in Grand Rapids

Sam Seabright, P.E.:

- EHS Manager at Siemens for North/South America
- Office is at Auburn Hills, Michigan
- Certified EPA/RCRA Incident Commander
- Certified in Hazardous Material Emergency Response, per OSHA 29CFR 1910-120
- Certified in DOT/FAA/IATA Hazardous Materials Transportation and Security, per DOT HM 126
- Certified in 40-hour FMGlobal Property Protection Management
- Created many emergency response/business continuity plans, Conducted classes and seminars, organized workshops and conferences in several countries.



Disaster Day in Grand Rapids

A Disaster comes to You...

- Are you prepared? (do you have a Plan, Team, Risk Analysis?)
- What can happen? How probable? How bad can it be?
- Do you practice (drills, tabletop exercises, reviews)?
- What will happen: is **not** what you expect!
- How would it affect your Customers? Employees? Community?
- How can you plan ahead for recovery?

Your Business Continuity Plan

Why should you Plan for Emergencies and Disasters?

- Responsible corporate governance
- Protect assets- people, property, processes, products
- Protect the Brand and company image
- Fiduciary duty and legal responsibility

Your Business Continuity Plan

Operating Modes:

“Business Continuity”:

Normal operations, day-to-day routine without interruption. Time to create, plan, and improve.

“Emergency Mode”:

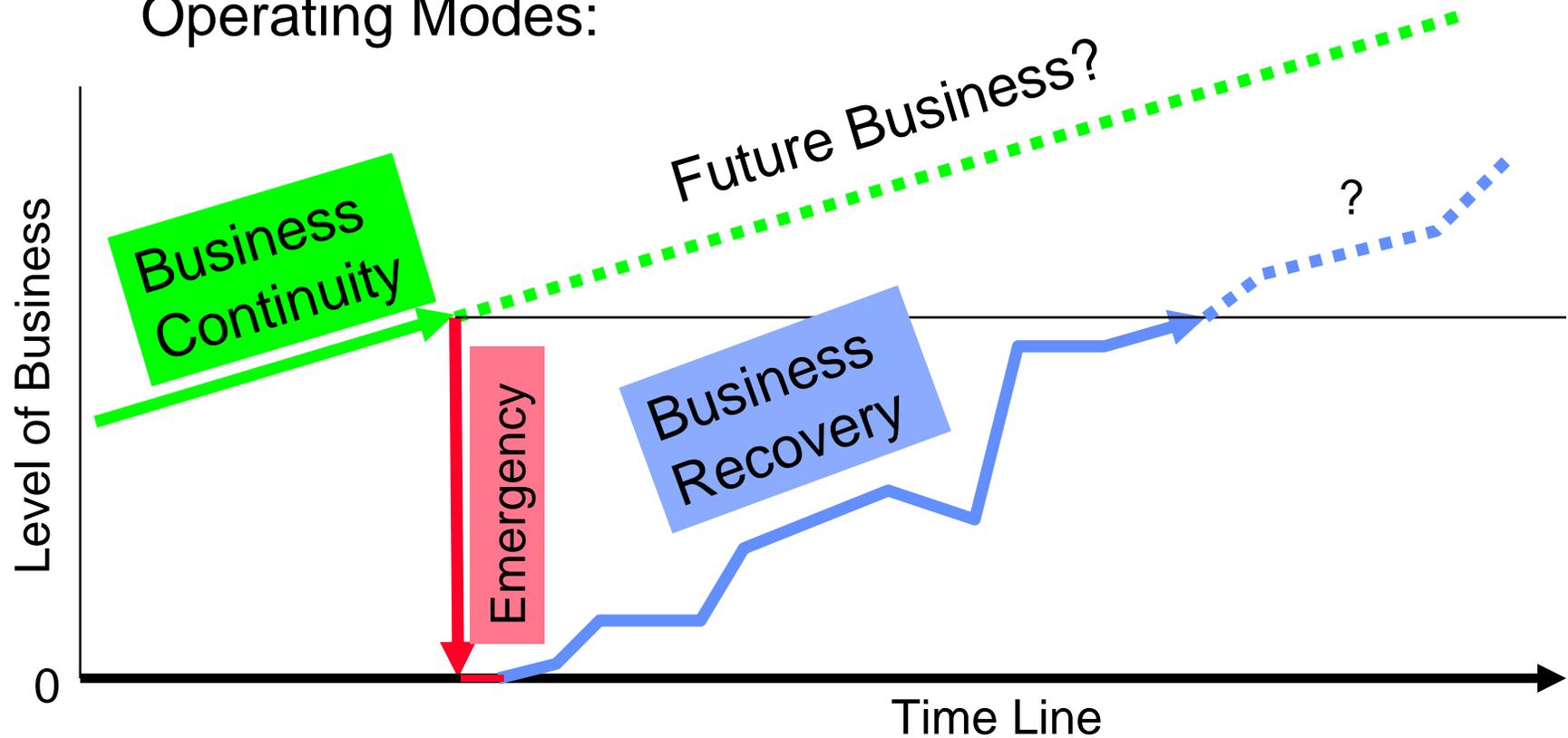
Dramatically changed environment. Production stops, fear and panic may set in, irrational acts are possible. Outside objective and professional help is urgently needed!

“Recovery” Mode:

Ramp-up to normal operations. Cleanup, reorganize, startup, and deal with psychological aftershocks.

Your Business Continuity Plan

Operating Modes:



Your Business Continuity Plan

Structure, Legal Basis, and Standards for the Plan:

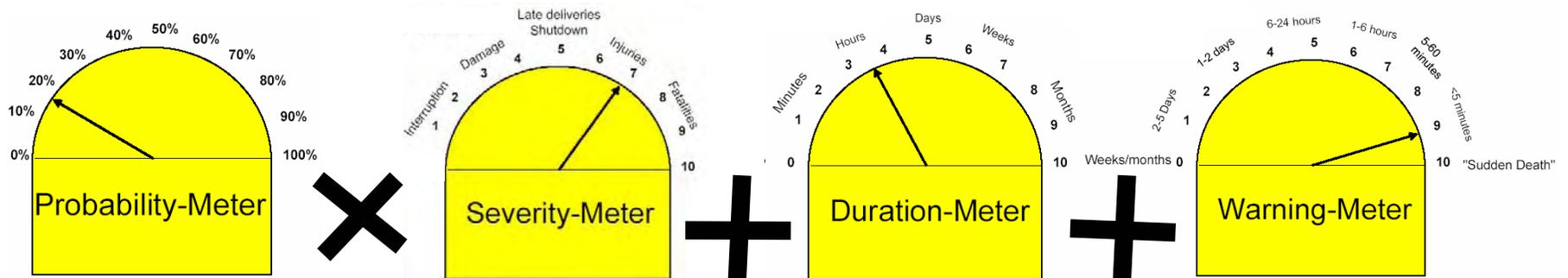
Overall Plan: general authority by P.L. 108-458 (amendment to the Homeland Security Act), NFPA 1600 standard, and Ontario reg. 380/04

Sub-Plans:

- **IT/Financial Security Plan: SOX, ISO 17799, COBIT, ITIL**
- **Fire and Medical Response Plans: OSHA 29 CFR 1910.120**
- **Environmental Plans: EPA/RCRA/CERCLA 40 CFR 126**
- **Shipping/Receiving Security: DOT 49 CFR 172**
- **Building Safety/Security: BOCA Code, Life Safety Code, NFPA**
- **Product issues: Quality, Warranty, Recalls, Service Parts**
- **Personnel Security Plan: FEMA 141, Michigan State Police Guidelines**
- **And other Subplans...**

Risk Analysis

- What is the Probability it will happen?
- How would the downtime affect our customers?
- What would be the Casualty expectation?
- What Property Damage might result?
- How long would business be interrupted?
- How much advance warning will we have?



Risk Analysis

Risk Analysis: how bad can it be?

Sample Risk Grid: for Auburn Hills

Event	Probability X (Warning + Severity + Duration) = Total ^{AA}				
Natural Events					
Hurricane/Typhoon	0	1	7	4	0
Rainstorm	10	6	3	3	120
Hailstorm	7	8	4	1	91
Lightning Strike *	8	10	8	0	144
Tornado *	6	9	9	2	120
Flooding	7	8	3	4	105
Unusual Freezing	1	7	6	3	16
Blizzard	9	5	3	3	99
Earthquake	1	10	5	2	17

Can include: Natural, Infrastructure, Person-caused, and "Other" events

Risk Analysis

Look at the situation from the Employees' viewpoint:

- Will I be out of work? How long?
- How do I find out what is happening?
- I need to get my own house repaired!
- Were any of my coworkers injured/killed?
- How do I get my paycheck?
- If I come to work, how secure is it?



Pay special attention to employees– Communicate!

Risk Analysis

Look at our situation from the Customers' viewpoint:

- Will products or services be delayed? How long?
- Will delivered product be the same quality? Same quantity?
- Are you going to shut us down? How long?
- Should we find an alternate supplier?
- Should we delay payments until the situation is resolved?
- Are there legal/contract issues? Cancel the contract?

Risk Analysis

Look at the situation from your Suppliers' viewpoint:

- Should we increase your orders- or decrease them- or stop them?
- To Where do you want them shipped? Do we have access?
- Are you able to pay us? Will there be payment delays?
- Will there be anyone there to receive products? Is there a fork lift?
- How can we help you to get back into operation?

Risk Analysis

Look at the situation from the Government's viewpoint:

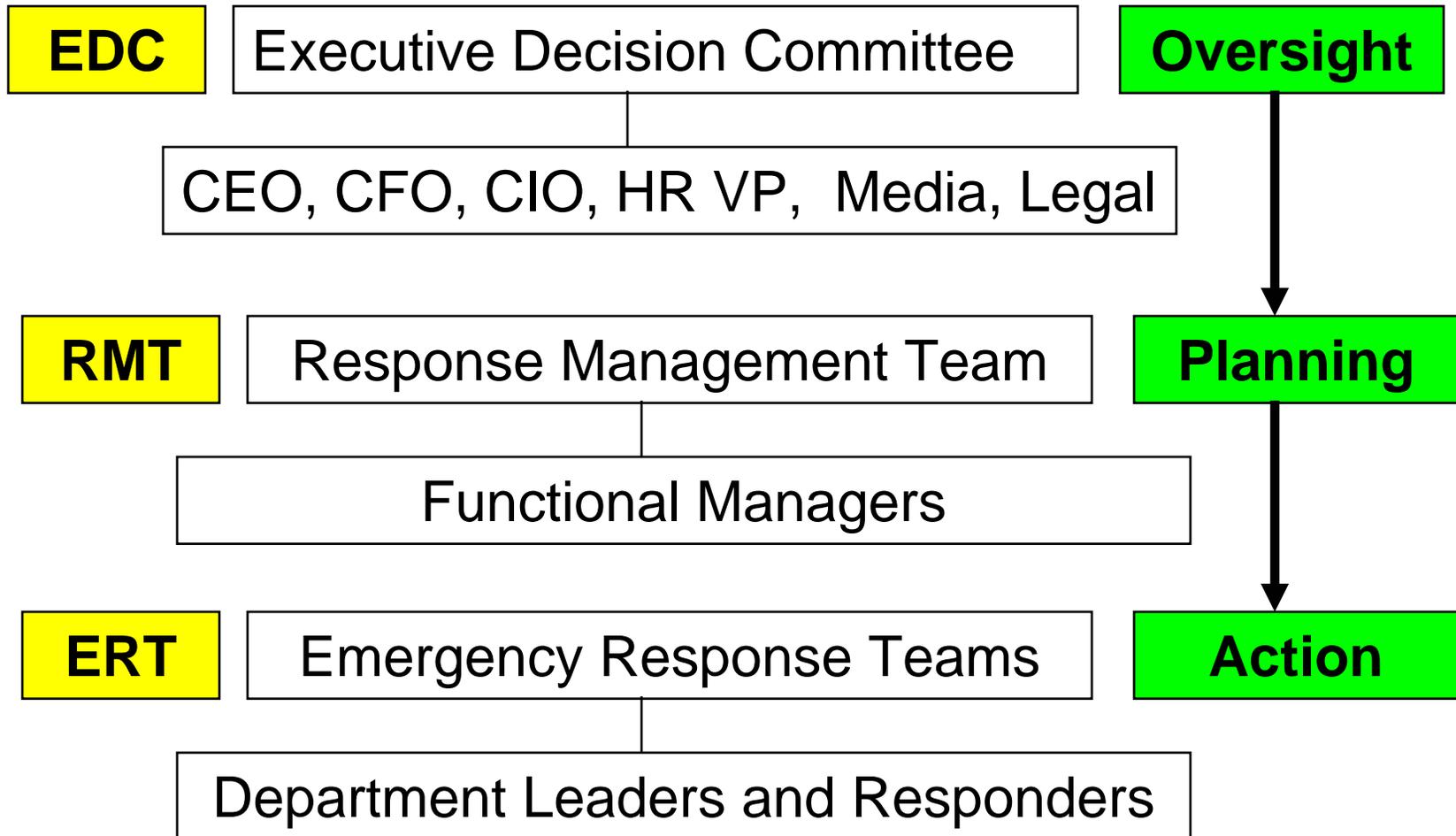
- Were any laws broken (did you provide a safe workplace?
Did you properly maintain the fire codes? etc.)
- Are you endangering the neighbors or general public?
- Are you just another case in a widespread disaster?
(We don't have time for you...)
- There are other places that need all our attention:
schools, hospitals, malls, nursing homes, etc.

Risk Analysis

Risk Analysis: doesn't Insurance pay for it anyway?

- Property/Casualty Insurance pays for building and product damage and business interruption.
- Insurance **does not** pay for:
 - \$100,000 deductible amount (\$200,000 if not sprinkled)
 - Personnel-related costs (payroll & benefits)
 - Loss of future business
 - Loss of Customers
 - Ongoing Leases and Rentals

The Teams – Structural Overview



The Teams – Structural Overview

Your Teams are the Key to success

- Cross-functional members
- Support and Participation of Top Management
- Develop close communications between departments
- Coordinate with outside Emergency Services
- Coordinate with Suppliers and Customers
- Coordinate with Siemens AG, insurers, etc.
- Have meetings and Document them

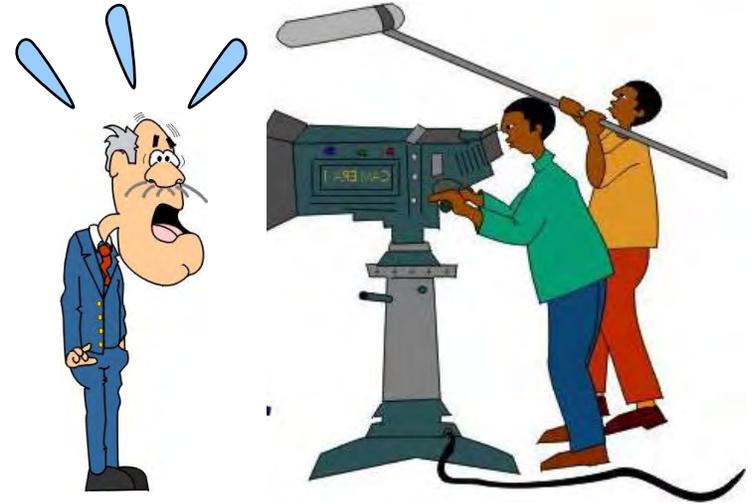
Business Recovery

News Media coverage:

Do not answer reporters' questions.

All news media must be referred to the Communications Department

Keep Communications advised of developing events.



Examples of Response and Recovery

**Let's look at
some
Examples**

Medical Emergencies

What Can happen:

- Heart Attack, Stroke, Gall Bladder attack.
- Work Injury.
- Labor Pains.
- Drug or Immune Reactions.
- Food Poisoning.
- What else?



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Medical Emergencies

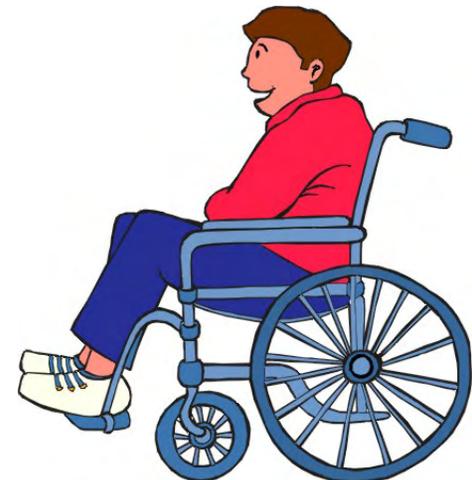
What to Do:

- Quickly Assess the situation.
- Get Help! Have someone call “O”, describe conditions
- Comfort or Aid the patient.
- Notify patient’s supervisor.
- After hours: call 9-911, give complete information.
- Be prepared to give an account or write a report.



Medical Emergency Recovery

- Keep in touch with the hospital to closely monitor prognosis
- Offer to help if possible (provide transportation, for example)
- Stay in touch with injured employees
- Bring injured employees back to work when they are able
- Provide accommodations:
 - Handicap parking permits
 - Ergonomic adjustments
 - Transportation to/from work
 - Modified duty work
 - Continue medical assistance, therapy
- Be aware of possible psychological factors:
 - Fear, uncertainty, depression



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Fire and Explosion

Fire is Caused by three Elements:

Fuel: paper, plastic, gas, flammable liquids.

Ignition Source: Heat, spark, electrical short.

Oxygen: Air, oxidizers (chlorine, oxygen, peroxides).



**Siemens has lost more property
and processes due to Fires than
from any other cause!**

Fire and Explosion

Other Factors to consider:

- Heat value of the fuel.
Example: HDPE plastic has 20,000 BTU per pound.
- Heat generated can weaken or destroy the building steel.
- Smoke generated; can be dense, irritating, toxic, acid.
- Smoke damage is more difficult and expensive to clean up than water damage
- Production equipment can be destroyed by heat, smoke, and water.

Fire and Explosion

Fire Protection includes

Prevention: remove one or more of the three Elements.

Detection: sight & smell, smoke alarms, heat detectors, sprinklers.

Response: For a small, incipient fire use ONE extinguisher.

If the fire grows too large
for one extinguisher...



Fire and Explosion

Fire Sprinklers will activate:

- Sprinkler heads detect the heat...
- Each head opens up when heat is sensed...
- When water starts flowing, the fire alarms are automatically actuated...
- The Fire Department is called automatically...
- If more than 4 sprinklers are activated, the building is probably lost!

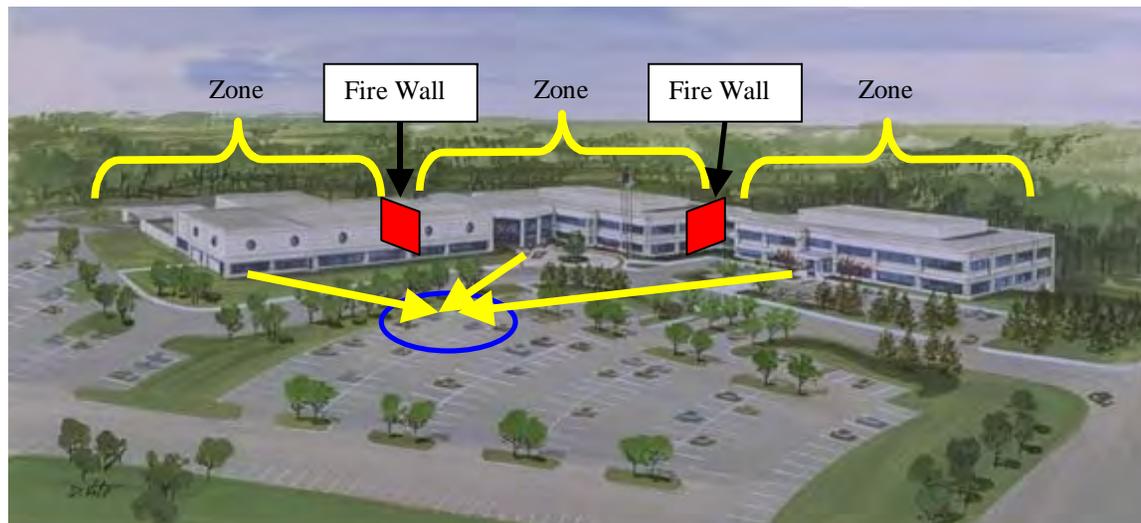


Ready Activated

Fire and Explosion

Emergency Response: Fire!

- Evacuation Routes:

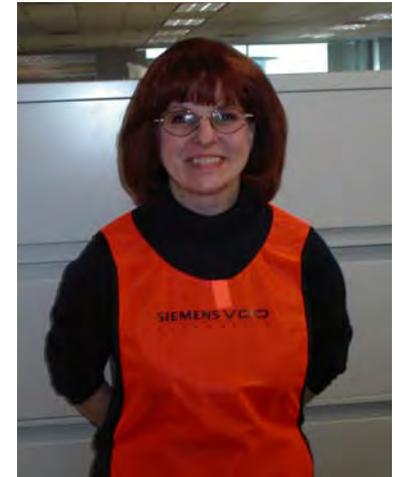


Auburn Hills

Fire and Explosion

Emergency Response: Fire!

- SHERT (Safety, Health and Emergency Response Team) coordinates evacuations.
- Main Lobby is the temporary Command Center.
- When Fire Department arrives, command is turned over to them. (Incident Command System in U.S.)
- For disaster conditions, command could be assumed by State or Federal agents. (Incident Command System in U.S.)



Recovery from a Fire



Immediate recovery actions:

- Restore/replace fire extinguishers and sprinkler heads
- Begin cleanup operations
- Restore heat/smoke/water damage
- Deal with fungus, rust, smell

Recovery from a Fire



Structural heat-damage repairs

- Prevent or control personnel access
- Construct temporary repairs, support or demolish weakened structures (time range: hours>>days)
- Provide increased security and fire protection measures
- Begin demolition procedures
- Design/construct mechanical repairs (sprinkler system repairs!)
- Repair/replace damaged equipment (days>>months>>years?)

Recovery from a Fire

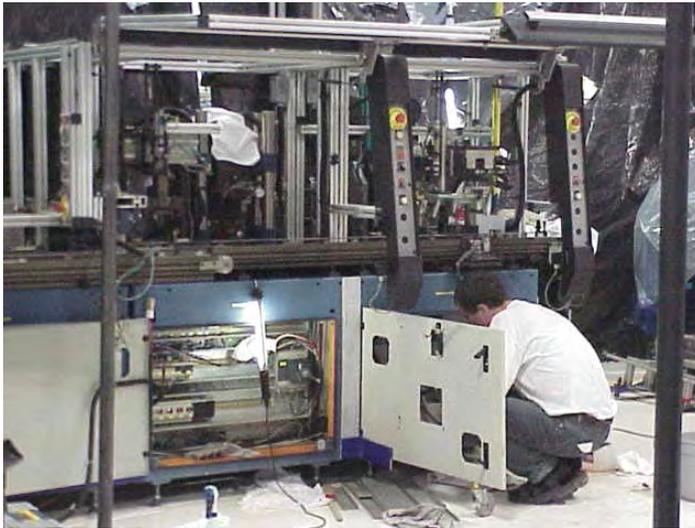


Smoke Damage Recovery:

- The lingering smell of smoke may be oppressive:
might need respirators, definitely need fans
- Must provide covers for equipment, etc. under cleanup area
- Smoke damage to electrical/electronic equipment is critical:
soot particles are electrically conductive and corrosive!
- Sticky soot is very difficult to remove: detergent, power washing, wiping, etc. may be needed (days>>weeks>>months?)
- Acid deposits can corrode precision machinery; must neutralize and remove acids and salts
- Contamination of processes and products must be addressed:
can clean up, repackage, or must destroy products?

Recovery from a Fire

Smoke Damage Recovery:



Cleaning soot from machinery



Cleaning soot from walls and ceiling



Removing burned items

Recovery from a Fire or Flood

Water Damage Recovery:

- Must immediately air out soaked carpeting, paper, fabrics, etc.
To prevent fungus growth
- Install temporary roofing to keep out more rain, dirt, etc.
- Must remove all water-damaged materials from the building
- Might need to do partial demolition: open up walls, electrical panels, flooring, etc. to air out and retard fungus
- Use wet/dry vacs but beware of electrical hazards (wet floor!)
- Water damage to electronic equipment is usually a lesser problem than smoke damage
- Prevent employees from re-entering the building until it is safe

Emergency Response

Utilities and Services Interruptions:

- Electricity: outages, “blips”, single phasing, brownouts, explosion
- Water: outages, contamination, low pressure
- Gas: outage or low pressure >> freezing pipes and sprinklers
- Sewer: stoppages, backups, flooding
- Highways: closures, spills, ice, collapse
- Airports: plane crashes
- Mail, freight and package delivery: strikes, terrorism, HazMats
- Telephone: outages, wet drops, contractor severings
- Computers: WAN outage, mainframe crashes

Recovery from Utilities and Services Interruptions

Electrical Interruptions:

- A "brownout" (voltage drop) can overheat motors and equipment; usually cleared by evening (hours)
- A dead short in a panel, transformer, or bus can result in an arc blast or explosion-
 - probability of fatalities or severe injuries
 - probability of shutdown by government authorities
 - possibility of restricted access to the plant
 - will need to order equipment repairs; shut down until equipment is repaired (days>>weeks)
- Must use extreme caution (lockout/tagout etc.) when restarting

Recovery from Utilities and Services Interruptions

Water Supply Interruption:

- Drop in or loss of pressure: results in toilets not flushing, inadequate sprinkler coverage, loss of process cooling, lost cantina service, etc.
- Might need to shut down building due to impaired health and fire protection (days)
- Contaminated water supply- might be a result of an interruption
 - Sprinklers and process water are usually O.K.
 - Might need porta-toilets and bottled water supply
 - Partial shutdown of Cantina
 - Usually longer than pressure loss (days>>weeks)

Recovery from Utilities and Services Interruptions

Gas Supply Interruption:

- Boilers, water heaters, HVAC are affected (hours>>days)
- Process boiler and water heaters shut down, even in summer
- Winter boiler/HVAC loss could be catastrophic: frozen sprinklers, extensive water damage, no fire protection (for weeks?):
 - Urgent need for supplemental heat: Salamanders, etc
 - Beware of Carbon Monoxide levels!

Recovery from Utilities and Services Interruptions

Sewer backup or Sump Pump failure:

- Toilets and/or Cantina shut down (hours>>days)
- Lower levels flooded
- Provide temporary toilets?
- Clean out and clean up, possible water damage (days)
- Might need to fumigate or fungicide

Chemical Spill Response

- Detect and Identify the Spill.
- Get Help! For large Spill, call the Fire Department for HAZMAT Response
- Locate Personal Protective Equipment.
- Stop the spill if it is Safe.
- Contain the spill from drain or soil.
- Clean up the spill, then decontaminate yourself.
- Document and report the incident.



Chemical Spill Recovery

- Clean up the spill or contract out
- Properly store, document, and plan to dispose all hazardous wastes
- Properly package all used protective equipment, tools, clothing, etc.
- Government authorities may restrict building access (hours>>days)
- Review and update the SPCC (Spill Prevention, Control and Countermeasures) Plan



Workplace Violence

Violence takes many forms:



- Homicide: second-leading cause of workplace deaths!
- Personal threats or harassment: physical, verbal, innuendo.
- Civil Disturbance: riots, strikes
- Road Rage
- Sabotage: specific and willful acts of destruction
- Terrorism: random acts of destruction
- Bomb threats: phoned, written or placed.

Workplace Violence

Homicide:

- Usual targets: HR Department, Foremen, Executives.
- Innocent Targets: Guards, Receptionist, almost anyone.
- Front Door security is critical; Need the ability to
Lock Out suspicious persons.
- Natural Reaction: Run and Hide!
- Many homicides have multiple victims and end in Suicide
- Very intense news media coverage
- Very great legal/governmental involvement



Workplace Violence

Civil Disturbance:

- People milling outside the building: angry, picketing, etc.
- Notify Plant Management.
- Stay inside the building.
- Do not interact with rioters.
- Do not answer news media.
(Refer them to the Siemens Communications Dept.)



Workplace Violence

Sabotage

- Malicious Vandalism by angry neighbors, employees, fanatics
- Arson
- Computer hackers, viruses, worms, etc.
- Horseplay and mischief

Notify Management, involve the Legal department

Workplace Violence

Terrorism

- Malicious Destruction of property
- Interrupting utilities and services
- Hijacking or Carjacking
- Abduction for ransom; assassination
- Threats made against employees, suppliers, customers



Notify Management, involve the Legal department

Workplace Violence

Bomb Threat:



Be on guard for suspicious-looking packages.

Report (but do not touch) such packages to your Supervisor.

Warn nearby people of the possible danger.

Follow the Bomb Threat Procedure and Checklist.

Examine your car for unusual objects, wires, door or hood ajar, etc.

Notify Management, involve the Legal department

Workplace Violence

Bomb Threat:



Called-in threats:

- Follow the Bomb Threat Procedure and Checklist.
- Notify the Police.
- Most telephoned threats are false.
- You have a Right-to-Refuse searching for a hidden bomb.
(Finding it could set it off!)

Notify Management, involve the Legal department

Workplace Violence

Receiving Suspicious packages or letters:

- Do not handle suspicious items!
- Notify the Shipping/Receiving and Safety managers
- Quarantine the item outside the building
- Notify the authorities (Police or fire department)
- Keep the item isolated for inspection by Police
- Could shut down Shipping/Receiving (hours>>days)



Recovering from Workplace Violence

Homicide, Terrorist Act, Bomb, etc.:

- Authorities will close the building (days>>weeks)
- Multiple investigators will appear
- Lots of News Media will appear
- Rampant rumors, especially among employees
- Great psychological aftershocks:
 - will need intensive consultation with some employees
 - some will probably need professional psychological help
- Even after returning, productivity will be low (weeks>>months)

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Natural Disasters

Caused by Mother Nature:



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Natural Disasters

During work hours:

- Storm/Wind/Tornado: Stay away from exterior windows. Do not exit the building.
- Ice Storm/Freeze/Blizzard: You will be told whether to leave; It might be safer to stay inside the plant.



Outside Work Hours:

- Listen to TV/Radio for updates, school and plant closings, etc.
- Call in if you can't make it.

Natural Disaster Recovery

Caused by Mother Nature:

- Clean up mud, debris, etc.
- Make temporary repairs.
- Call for help- if it is available!
- Restore utilities, access.
- Help others if you are not affected.



The Plant might be O.K.
but there are no workers!

Economic Disasters

Loss of Supplier:

- Could result in partial or complete plant shutdown.
- Could be a result from any of the above disasters, plus others such as strike, bankruptcy, lost orders, etc.



Preventive measures:

- Have backup suppliers and sources
- Scatter the warehousing
- In-house plus backup warehousing for critical components
- Special focus on resumption of business

Economic Recovery

Loss of Supplier:

- Start deliveries from backup suppliers and sources
- Use alternate warehousing
- Notify customers about alternate supply sourcing
- Need to re-verify quality
- How does this affect production costs?



Economic Disasters

Loss of Customer



- Reduction or cancellation of orders.
- Could result in partial or complete plant shutdown.
- Could be a result from any of the above disasters, plus others such as strike, bankruptcy, market collapse, etc.
- Issues with employees, equipment, stock, contracts, suppliers, etc.
- Special focus on regaining business.

Economic Recovery

Loss of Customer:

- Must implement urgent marketing initiatives to regain business.
- Must deal with employees' fears
- May take months or years to resolve, if ever



Economic Disasters

Interruptions of Communications, Networks or Computers:



- Switch to alternates: cell phones, laptops, outside services
(You might even be forced to talk with each other)
- Normally automated functions might need to be done manually
- Production may not be affected if there is a good Recovery Plan!
- Computer/Telecommunications Department usually has a separate, specialized IT Recovery Plan

Economic Disasters

Financial Disasters:



- Executive Fraud, Embezzlement, Conspiracy:
Notify the Legal Dept.- you are protected by the "Whistleblower Act"
- Class Action Lawsuit- Product, environmental, process, etc.
- Market collapse- recession, depression, etc.
- Stock Market crash- deflated capital value
- Currency exchange collapse

Economic Recovery

Financial Disasters:

Think—

- Enron...
- Holley Carburetor...
- Electrolux...
- Eastern Airlines...



...and is



next?

Plan your immediate response

General Response Actions:

1. Get Help!
2. Activate the Command Center
3. Convene the Business Recovery Team
4. Inform Management, Customers, Suppliers, Employees
5. Inform Property and Casualty Insurers
6. Assign recovery tasks to responsible managers and contractors
7. Begin estimating tasks, actions, and costs
8. Estimate lost production, delay time, and shutdown time

Plan your immediate response

Suggestions:

- Have critical phone numbers handy
- Have a battery-operated radio
- Have a bullhorn available
- Plan to get immediate backup help
- Know your role in an emergency
- Practice drills or table top emergency scenarios

Plan your business recovery

Suggestions:

- Have critical phone numbers handy offsite
- Plan to get immediate restoration help, e.g. Belfor:
U.S. and Mexico: 800-856-3333 or 248-594-1144
Canada: 888-432-1123
- Know your role in the cleanup and restoration procedure
- Do drills or table-top practice recovery scenarios
- Document restoration phases with notes, photos, etc.



Plan your business recovery

Risk Management-

- Notify Property/Casualty Insurance Company
- Notify Siemens Global Property Department
- Schedule insurance inspections
- Begin tabulating the damage and work to be done
Costs, schedule, alternative facilities, etc.
- Take detailed photos before cleanup is started.

Your Business Continuity Plan

Your Plan is your Roadmap-

- Keep a List of emergency contacts offsite in hard copy
- Contact anyone who can really help: contractors, utility companies, service providers
- Contact all employees: maybe they can help, if not they should stay away

Use NFPA 1600 as your Model

Your Business Recovery Plan

Your Plan is your Roadmap-



Recovering from: Disaster Day at Grand Rapids

You have finally recovered when it is...

Business as Usual!

Recovering from: Disaster Day at Grand Rapids

Questions?

STOP!

EMERGENCY!