Biological Event Restoration
• 2001 NYC Anthrax Response and Remediation Oversight
• Capital Hill Anthrax Response and Remediation
• USPS Mail Facility at Brentwood Anthrax Response and Remediation
• USPS Mail Facility at Hamilton, NJ - Anthrax Response and Remediation
• DTRA – Chem Bio Containment & Destruction SOP Development
• DTRA - Iraq WMD Identification, Safety and Destruction as Necessary
• DTRA - Russian Biological Weapons Proliferation Prevention
• DTRA – Ukraine WMD Interdiction and Elimination
• AMI Building / Boca Raton, FL - Anthrax Remediation
• Port Newark – Suspect Container Decontamination
• Utica - Mold Demonstration
• AMI – Contents
• Hudson Falls – Mold and Encapsulation Demo
Capital Hill Anthrax Response and Remediation
October, 2001 – Fumigation November (Hart) December (HVAC) - Clearance Accelerated
4 months  29 million dollars  Downtime: 4 months  Contents: Recovery/Disposal

USPS Mail Facility at Brentwood Anthrax Response and Remediation
October, 2001 – Fumigation December, 2002 – Clearance took over one year
14 months  189 million dollars  Downtime: 2+ years  Contents: Removed and Destroyed

USPS Mail Facility at Hamilton, NJ - Anthrax Response and Remediation
November, 2001 – Fumigation October, 2003 – Clearance took several months
23 months  75+ million dollars  Downtime 3+ years  Contents Removed and Destroyed

AMI Building / Boca Raton, FL - Anthrax Remediation
October 2001 but Remediation Began March, 2004  Fumigation July, 2004
4 months  less than 3 million dollars  Downtime 4 years?  Contents left in place, BUT Clearance less than one month, however – quarantine can not be lifted on boxes

Port Newark – Suspect Container Decontamination
August, 2004  Three Fumigations of Five Containers (1, 2+3, 4+5) 10 days less than 1 million

Utica - Mold Demonstration  8 days less than $500,000, 6000 sq ft., pre and post sampling NIOSH

Hudson Falls – Mold and Encapsulation Demo  6 days less than $500,000, 60,000 sq ft.
Fumigation Monday June 27, 2005
• Size of Structure – Not the Time and Cost Driver, mostly an issue of sampling
• Do not remove contents, do not do source reduction
• Pre-stage emitter and tent sufficient for size (regionally)
• Put in place the clearance software if high threat

• Capitol Hill – fumigation of 20,000; liquid decon of many buildings
• Brentwood
• Trenton
• Boca
Time Frames – to fumigation, to clearance, and downtime overall
Time (and people) is the largest contributor to cost
Time stretches to accommodate lead time, legal issues, debate and doubt
Time and cost can now be insured

- Capitol Hill – Resources
- Brentwood
- Trenton
- Boca Raton
Capitol Hill - doesn’t count

Brentwood – 3 Prime Contractors and multiple Subs – up to 400

Trenton – 3 Prime Contractors and multiple Subs – up to 300

Boca – Less than ten full time
Surge to 22 for 3 week of boxes effort
Surge to 56 for fumigation
Only 8 highly trained sampling crew

Utica/Hudson Falls – less than 15
for mobilization, fumigation, and breakdown. Minimal sampling
Remediation Costs are not downtime nor replacement
May be paying project costs in the downtime (Brentwood – indemnification)
(Trenton – waiting for Brentwood)

- Capitol Hill – over 20 buildings enormous federal resources
- Brentwood, 17 acres first time scaled up
- Trenton, downtime - bleach
- Boca Raton – nothing done for two and a half years
  Only private building
  No government funds
  No insurance to cover
## Lessons Learned

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<th>Post Event</th>
<th>Hindsight</th>
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<td>Humidity can be tough</td>
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<td>Automated PC Testing Needed</td>
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<td>Capitol Hill Ricin</td>
<td>Sampling Methodologies and Clearance Standard Needed</td>
<td>Airborne method needed, chronic low level toxin exposure?</td>
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<td>Brentwood &amp; Trenton</td>
<td>Insurance and Indemnification</td>
<td>Pick your type of response</td>
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<td>Pre-establish clearance criteria</td>
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<td>Bleach is very corrosive</td>
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<td>AMI</td>
<td>Tent, Tent, Tent</td>
<td>Visual Database Critical Asset</td>
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<td>Public involvement is great</td>
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<td>Third Party Contents are a problem</td>
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<td>Lemon Drop (Port Newark)</td>
<td>Preparedness is key</td>
<td>MCAD Critical Asset</td>
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<td>Must rely on intelligence</td>
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<td>Curb Rumor Mill</td>
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<td>Utica</td>
<td>Communicate with ALL</td>
<td>Eliminate source reduction practice</td>
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<td>AMI COI</td>
<td>Resolve Contents Before or Early</td>
<td>Need Policy or Law</td>
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### Notes:
- **Tent, Tent, Tent**: This likely refers to the use of tents in response efforts.
- **Post event stress**: This could indicate the psychological impact on responders.
- **Bleach is very corrosive**: Indicates a cautionary note on its use.
- **Visual Database Critical Asset**: Emphasizes the importance of maintaining a visual database.
- **Manual Titration is Just Fine**: Suggests a preference or practice for a certain method.
- **MCAD Critical Asset**: Represents a specific type of critical asset.
- **Pre-establish clearance criteria**: A proactive approach to clearances.
- **Pre-establish clearance authority**: Establishing who can authorize clearances.
- **Complete Fumigation is better than sampling**: Highlights a preference.
- **Post event stress**: Highlighting the emotional impact of events.
Bio•ONE Duties at Boca

All Project Operations, Public and Regulatory interface. No Owner oversight.

- Security
- Insurance
- Public affairs
- All State, Local, and Federal regulatory interaction
- HASP, RAP, SAP, ERP, AMP, CAP development
- All engineering
- All training
- All installation
- All removal
- All disposal
- All construction
- All testing
- All operations
- All sampling
AMI Building Closed

TWG / SSG
HASP
1st Entry

Engineering and Design
RAP/SAP Submitted

Begin Construction
Full System Test

October 2001
January 2004
February 2004
March 2004
April 2004
May 2004
June 2004
July 2004

Bio•ONE begins clean-up project
Mobilization

Building Assessment
Begin RAP/SAP

Paper Content Removal
Liquid crisis exemption

Final Crisis Exemption Issued
Building Fumigation
[ Lead Time   Legal Issues   Debate   Doubt ]

- Equipment Availability
- Prepared Event Response Software
- Enabling Agreements
- Site Agreements - Contents
- Pre-Engineered Insurance Product
- First Response, Community Communication
- Draft RAP, SAP, ERP, and HASP
- Established Clearance Criteria and Draft CAP
Rapid Fumigation Sequence

1. Activate enabling agreements – regulatory / commercial
2. Activate pre-developed plans (HASP, RAP, SAP etc.)
3. Activate pre-installed Clearance Plan and Software (critical asset)
4. Seal or Tent building as required – install carbon based NAU’s
5. Set up ChemGen™ & chem plant – (critical asset)
6. Install emitters (critical asset)
7. Install air transfer fans for high energy areas such as power rooms
8. Install monitoring lines and temperature / relative humidity meters, connect to process control center (critical asset)
9. Perform low level chlorine dioxide test
10. Install BI’s (critical asset)
11. Perform fumigation
12. Perform clearance tests
For all Biological and Chemical Events

Level 1
- Facility evaluation
- T&VA review
- Pre-developed RAP, SAP, STP (Sample Tracking Protocol), and SabreClear™ (Building Clearance Evaluation and Scenario Development System)
- 24 hour Event Coordinator response
- 72 hour BioRed Team and Asset response – As available

Level 2
- Staffed and Supplied Regional Response Centers
- Field training and exercises
- 24 hour asset response

Level 3
- Facility hardening, fixed asset installation, site specific insurance product
Historical
- 440 days
- 180 – 200 million

Start From Scratch
- Project Duration: 180 to 270 days
- Response Through Clearance Cost: $35 to 45 Million

With BioRed Preparation
- Project Duration: 34 to 90 days
- Response Through Clearance Cost: $15 to 25 Million

Insurance can now be obtained to guarantee the timeframe and cap the cleanup costs. Insurance would pay for business interruption beyond the time frame and costs above the established cap.
- Enabling agreements
- Pre-developed insurance & indemnity
- Pre-developed & Preliminary approved plans & SOPs
- Response cost cap insurance
- ChemGen™ response system
- Mobile Critical Asset Decontamination
- Mobile Personnel Decontamination
- Mobile Containment Systems
- Mobile BSL 3 Labs
- Mobile Chem & Process Labs
- Mobile Process Control & Command Center
- Mobile Logistics Support Unit
- Chemical Stockpile
- Pre-Positioned SID™ Kits
- SabreShield facility protection systems
- SabreClear™ sample tracking system and VR Database