



Emergency Management Issues (EMI) Subcommittee on
Consequence Assessment and Protective Actions (SCAPA)
Biosafety Working Group (BWG)

Meeting Highlights for the BWG
Wednesday, May 7, 2009; 11:30 AM EDT

Participants:

Dave Brekke, SNL	Doug Craig, ATL International
Dave Freshwater, SAIC	Cliff Glantz, PNNL
Dan Marsick, DOE/HS-13	Carl Mazzola, Shaw Environmental
John Nasstrom, NARAC	Rocky Petrocchi, URS
Jim Powers, NA-41	Frank Roberto, INL
Joe Terranova, BNL	Richard Thomas, Intercet
Gary Winner, ANL	Po-Yung Lu, ORNL

Meeting Highlights

I. Roll Call

Frank Roberto conducted a roll call and acknowledged that fourteen (14) individuals were present. This represents the largest meeting of the BWG thus far in its short existence.

II. Discussion

Frank Roberto led the discussion which included the following topics:

- 1. NARAC Biosafety Impact Tools:** John Nasstrom presented the latest advances in NARAC as they applied to consequence assessment from bioagent releases. He indicated that in an evaluation of this type it is critical to establish a reasonably accurate weaponized source term. NARAC has begun development of such a suite of source terms but it is looking to the DOE/NNSA community for input. John mentioned that the HOSPOT component of NARAC has been modified to establish bioagent impacts for Emergency Preparedness Hazard Assessment (EPHAs), but that this effort is in its early stages. With respect to modeling building indoor transport and infiltration/exfiltration, NARAC is collaborating with Lawrence Berkeley National Laboratory (LBNL), which has a lot of experience in modeling indoor pollution impacts. Cliff Glantz cautioned that the detailed ventilation of a building would need to be input to effectively implement an indoor air pollution transport and dispersion model. There was much discussion as to what would be the appropriate health effect indicators for exposures to bioagents. Suggestions included the use of the LC₅₀, LC₉₀, EC₅₀ and ID₅₀ as indicators, but consensus was not achieved. Carl Mazzola mentioned that a risk-informed probabilistic approach may ultimately need to be considered.
- 2. Offsite Protective Actions Versus Protecting Workers:** Frank Roberto stated that it is often difficult to determine offsite protective actions for biosafety-related emergency drills

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and exercises. National Institute of Health (NIH) and Centers for Disease Control (CDC) guidance is primarily focused on facility impacts and since the select agent rule has been promulgated, the Department of Health and Human Services (DHHS) is no longer hand waving. Dave Brekke stated that his interpretation of DOE O 151.1C EPHA guidance led his site to address low probability scenarios. NA-41 suggested that a White Paper be developed by the BWG on how to appropriately implement DOE O 151.1C. Rocky Petrocchi mentioned that there should be an effort to identify a corollary to AEGL/ERPG acute exposure limits to identify lethal zones and protective zones. Jim Powers indicated that there is no literature available to set thresholds for bioagents, although biotoxins have some information using lethal dose criteria. Frank Roberto raised a question associated with establishing a “normal healthy person” as opposed to people suffering from some type of immuno-suppression circumstances (e.g., AIDS, chemotherapy, organ transplant). Joe Terranova offered the thought that the route of entry (e.g., inhalation, ingestion, skin absorption) is another important factor that needs to be considered.

- 3. Biosafety Emergency Response:** Dan Brekke observed that emergency response for bioagent releases is a much different type of response that for radiological or hazardous chemical releases. Gary Winner indicated that a catastrophic natural hazardous phenomenon event would yield worse problems with secondary radiological and hazardous chemical releases. Frank Roberto stated that during the response to Hurricane Katrina in New Orleans, LA, the Governor actually forced the destruction of bioagents as a real-world emergency response. Po-Yung Lu mentioned that bioagents have a half-life when exposed to a non-host environment and their concentrations should be reduced to reflect this factor. Frank Roberto added that infectious agents can propagate through arthropod vectors (e.g., fleas) and that epidemiological trace-back studies would be useful. Joe Terranova asked what are CDC protective actions and Frank Roberto responded that for brucella, prophylaxis is considered. Jim Powers concluded that the site needs to talk to public health people to define their expectations and then establish which group takes on what responsibilities. In addition, all protective actions are bioagent-dependent. Public health agencies get involved if the release gets offsite and not before then. Countermeasures as strong as quarantine could be considered. Richard Thomas offered that a Monte Carlo analysis would be needed to simulate the spread of the disease using 5-10% of the population with compromised immune systems as an input parameter. This level of compromise is less than that of a hypersensitive population sample. NA-41 also stated that the DOE program is not yet at that point. The complexities that are being discussed are more applicable to public health and Department of Homeland Security (DHS) response to malevolent acts by terrorists. Gary Winner mentioned that the emergency program role stops at preparedness and recognition, followed by notification, determining route of spread and taking worker protection actions inclusive of prophylaxis. Therefore, public health should deal with offsite response. Joe Terranova also indicated that 99.99% HEPA filtration



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removes much of the airborne material prior to exiting the building. Jim Powers closed this lively discussion stating that the key is to develop a graded approach specific to the situation.

4. **AI 06-06:** Frank Roberto presented a report on the activities associated with addressing AI 06-06, where BWG had a commitment to have a draft prepared by this meeting. The slide presentation is attached as Attachment I. Frank indicated that INL has reviewed the COMIS and CONTAM zonal models which are designed for indoor transport and dispersion and using them shows that within one hour most of the aerosolized material has migrated away from the spill. CONTAM is being used at INL as part of an indoor release test bed -There was a comment that Computational Fluid Dynamics (CFD) models cannot address multiple spaces. Moreover, these models are very difficult to use and are very expensive to run.
5. **Biotoxin PACs:** Since there are a limited number of select agents and toxins (see attached file, source National Select Agent Registry) and some acute health effect information exists (i.e., ID₅₀), the BWG will develop a list of these for consideration in the Revision 25 PAC effort (**new AI**). The "Request a TEEL" form will be filled-out and submitted to NA-41 for approval.
6. **ABSA Affiliation:** Frank Roberto reported that the SCAPA BWG is discussing steps to establishing a formal alliance with the American Biological Safety Association (ABSA). This has been determined by ABSA to be preferable to having the SCAPA BWG become an affiliate for a number of reasons.
7. **EP & R Topical Meeting:** Frank Roberto mentioned that the BWG made four presentations at the recent Emergency Preparedness & Response (EP & R) Topical Meeting in Albuquerque, NM. These will be posted on the BWG web page.

III. Next SCAPA BWG Meeting

Frank Roberto indicated that next SCAPA BWG teleconference has not yet been scheduled. The next SCAPA BWG meeting is scheduled for **Wednesday, May 6, 2009** during the next EMI-SIG meeting in a west coast city.

IV. Adjournment

The meeting was adjourned at **12:30 p.m. EDT**. Frank and Cliff thanked everyone for their time and their contributions.