

**Summary Minutes of the US Environmental Protection Agency  
Science Advisory Board Meeting  
On Regional Science Programs  
US EPA Region 2  
New York, NY  
June 22-23, 2006**

**Purpose of the Meeting:** The Meeting was held to learn about EPA regional science activities and to consider for approval, one draft panel report and one standing committee letter. The agenda can be found in Attachment A.

**Members Participating in the Meeting:**

|                              |                        |
|------------------------------|------------------------|
| Dr. M. Granger Morgan, Chair | Dr. James Bus          |
| Dr. Trudy Ann Cameron        | Dr. Maureen Cropper    |
| Dr. Virginia Dale            | Dr. Kenneth Dickson    |
| Dr. Baruch Fischhoff         | Dr. James Johnson      |
| Dr. A. Myrick Freeman        | Dr. Meryl Karol        |
| Dr. Rogene Henderson         | Dr. Catherine Kling    |
| Dr. George Lambert           | Dr. Jill Lipotti       |
| Dr. Genevieve Matanoski      | Dr. David Rejeski      |
| Dr. Rebecca Parkin           | Dr. Deborah Swackhamer |
| Dr. Joan Rose                | Dr. Thomas L. Theis    |
| Dr. Robert Twiss             | Dr. Terry Young        |
| Dr. Lauren Zeise             |                        |

**MEETING SUMMARY**

**Thursday, June 22, 2006**

This meeting was announced in the *Federal Register* on May 24, 2006 (FR 71 29955-56) (see Attachment B of the physical file and the SAB website at <http://www.epa.gov/fedrgstr/EPA-SAB/2006/May/Day-24/sab7927.htm> . The meeting roster is in Attachment C and the sign-in sheets are in Attachment D.

**1. Convene the Meeting**

Mr. Thomas Miller, SAB Designated Federal Officer, convened the meeting. He noted that the meeting was an official meeting of the Chartered Science Advisory Board; the meeting complies with requirements of the FACA and EPA policy for expert advisory committees; and he provided logistical details regarding the meeting location. Mr. Miller thanked Region 2 personnel for hosting the meeting. SAB Members introduced themselves at this point and then Mr. Miller introduced the SAB Chair, Dr. Granger Morgan, who implemented the agenda.

Dr. Morgan welcomed the members to the meeting and thanked Region 2 participants for their support of the meeting.

## 2. Remarks from the Deputy Regional Administrator, US EPA Region 2—Kathleen Callahan:

Dr. Vanessa Vu introduced Ms. Kathleen Callahan, Deputy Regional Administrator, US EPA Region 2, who welcomed the SAB members and introduced them to Region 2. Region 2 is quite diverse and includes New York, New Jersey, the Virgin Islands, and Puerto Rico and these geographic areas represent a large and diverse populations and ecosystems. There are several highly visible environmental issues that are focused on Region 2. She thanked the SAB for its efforts to ensure that EPA reflects high standards in the science it uses in support of its mission.

## 3. Regional Science Programs and Tribal Issues-Dr. Roland Hemmett – EPA Region 2

Dr. Roland Hemmett discussed the regional science programs noting that components include the: Regional Science Council, the National Regional Science Council, the ORD Regional Science Liaisons, ORD's Hazardous Substance Technical Liaisons and Regional Office scientists. There is also a Lead Region Coordinator that represents the collective Regional science needs with ORD during the budget and planning processes (see Attachment E).

The **Regional Science Council** is a forum for discussing the region's science issues. It coordinates and recommends projects for funding under the Regional Applied research Effort (RARE) Program among other things. The RSC is composed of managers or senior policy advisors from each division, the Regional Science Liaison, and the Hazardous Substances Technical Liaison. The **National Regional Science Council** brings a Regional perspective to the development of Science Policy at EPA, provides a forum for discussing science issues and ideas, helps to strengthen Regional office science, and promotes increased communication and coordination between the Regions, ORD, and Program Offices. The NRSC is made up of the Chairpersons from each RSC. **Regional Science Liaisons** communicate and enhance the use of ORD science in the Regions. They provide support to the Lead Regional representative in the planning process, and coordinate the RARE projects. The RSL is an ORD employee. **Hazardous Substances Technical Liaisons** foster communications and provide/facilitate ORD technical support to the Regional Superfund program. HSTLs are also ORD employees.

Region 2 has participated in several collaborative efforts that either identify or develop needed science information and tools for the Regions. Such efforts include "Regional Science Needs Survey, the Regional Short Term Science Needs assessment, the 45-day assessment of the use of science in Regional decision making and ongoing science programs such as the Regional Applied research Effort, the Regional Methods Initiative, the Regional Research Partnership Program, and the Regional ORD Science Workshop series.

Region 2's Assessment of Science Needs is nearly completed and is to be delivered in July 2006. The assessment will lead to the development of a Regional science issues/needs agenda. This will in turn be used as input to the ORD planning and budgeting process. The assessment identified several issues, including:

- a) Difficulty in finding information on the EPA web site about EPA activities/science. The problem is tied to the search engine used by the system. (NOTE: The Board thought that this was an issue that it could provide some advice to the agency to improve the system's ability to search.).

- b) Some methods, standards, criteria and guidelines are outdated and need to be upgraded.
- c) Regional staff needs to be able to use state of the art methods that have a successful track record and they need to be able to keep up with the state of science.
- d) Regional staff needs to be assured that there are successful outcomes associated with their efforts.
- e) There is a need to look more holistically at ecosystems.
- f) We need to consider cumulative risk and not just the risk from a single isolated pollutant.
- g) We need to be able to “mine” the very large amount of data that exists within EPA ORD.
- h) Databases need to be integrated.
- i) Regions need statistical support from headquarters.

A Cross-Regional **Short Term Science Needs** document has recently been prepared that lists 14 short term science needs to be addressed in the current research planning process (see Attachment E2). Fourteen science topics were identified and these are now being further refined and defined by the NRSC:

- a) Fish tissue concentrations of mercury from watershed deposition;
- b) Refined methods for speciation of arsenic, chromium, and mercury in environmental media;
- c) Real-time pathogen indicators and microbial source tracking;
- d) Procedures for calculating non-cancer risks of non-regulated compounds;
- e) Marine and freshwater contaminated sediments;
- f) Compile and analyze existing vapor intrusion data and evaluation methods;
- g) Model/monitor the fate of mercury emissions across ecosystems;
- h) Treatment technologies for NAPLs, chlorinated solvents, chlorinated pesticides, dioxin, and metals;
- i) TMDL research;
- j) Pharmaceuticals and personal care products;
- k) Ballast water treatment on ships;
- l) Alternatives to chlorinated solvents;
- m) Mine waste management techniques involving remote telemetry and automated systems;
- n) Air monitoring and impact assessment for pesticide drift.

Dr. Hemmett also discussed recent activities of the **National EPA-Tribal Science Council**. The Council is prioritizing the their needs. The process being used is tribally-driven and is intended to develop a better understanding of tribal issues and EPA activities and to develop collaborative solutions. An overarching issue for Tribes is that “Tribal Traditional Lifeways,” which encompass unique cultural, spiritual, economic, and language practices of tribal communities, be integrated into risk assessments and decision making. For tribes, society is primary and economy secondary – arguably the reverse of the way that western cultures frame environmental issues. Dr. Hemmett provided SAB Members with copies of two papers – one on “Tribal Traditional Lifeways(see Attachment F1) and one on Tribal Science Priorities (see Attachment F2) as supplemental information.

Dr. Hemmett noted tribal priorities as: endocrine disrupting chemicals, dioxins, persistent bioaccumulative toxicant source reduction, pharmaceuticals in wastewater, habitat loss, environmental triggers of respirator distress, contaminated precipitation, and biological stressors. A growing concern is decontamination of methamphetamine labs. Priorities reflect consideration of “risk”, education, research, environmental justice, and restoration. The TSC is working on a project that hopes, in the short run, to integrate Tribal Traditional Lifeways into EPA’s current risk assessment policies and processes. In the

long run, the project seeks to develop a new paradigm for Agency consideration that focuses on human and ecological well-being.

SAB Members noted that it would be possible to replace the word “tribal” in Dr. Hemmett’s presentation with “people” and one would have a construct that would be an appropriate way to look at all EPA mission areas. Members asked what most distinguished the Tribal issues from environmental issues raised by non-tribal persons. Dr. Hemmett suggested that the difference was in “trust” which is a major factor with Tribes, but a characteristic which does not characterize many of the interactions they have with western cultures. Ms. Callahan also noted that in tribal culture, land has a special significance. Land is an integrating factor for tribes whereas with western cultures, we tend to compartmentalize our issues and look at them in pieces. Some members thought that adapting our environmental system to a traditional Lifeways focus might provide a useful way to reconceptualize EPA’s business. Members remembered an older EPA program that sought community based environmental decisions as such an approach. Members also noted that tribal populations are an example of a unique susceptible group.

#### **4. Regional Science Training Needs: Dr. Marian Olsen – EPA Region 2**

Dr. Olsen noted that much of the Regional Office work involves application and communications on scientific issues (see Attachment G). Often communications is with non-experts in communities who want to know about problems. Regions often use teams of health scientists and engineers to work on issues. Different disciplines bring different jargon and practices to the Team and each has training needs that must be met, especially in emerging areas. Regions must meet these challenges as well as the challenge of finding resources to provide training to their staff. Currently, Regions provide training through a variety of lectures, coursework, annual meetings, on-line courses, and telephone conference calls. Dr. Olsen asked the Board for its insights in use of on-line training and how it compared to more traditional approaches.

Members noted that things such as risk assessment are not learned quickly through a short training event. The best approach would likely involve allowing a trainee a sabbatical/detail for as much as a year to obtain specialized training such as that. The Regions need to press the issue with management to ensure they recognize the importance of the need and that significant resources will need to be allocated to allow it to be done well. Other approaches might involve workshops, combinations of online and face to face training, use of training during real events might be possible to a limited degree; interacting with other groups having similar issues; exploring “off the shelf” training packages on skills and issues of interest; and obtaining better math skills through training and software packages. Critical in all this is that there must be a commitment on the part of staff and management to obtaining and providing training in needed areas.

#### **5. Regional Science - Sediment Decontamination: Mr. Eric Stern, EPA Region 2**

Mr. Stern discussed the decontamination of contaminated sediments from the standpoint of sediments as a resource and their decontamination a part of a business model (see Attachment H). Economic handling of marine sediments will be a continuing issue over time because of the need for continuous dredging in NY ship channels and harbor. EPA has supported a collaborative research program on innovative sediment treatment technologies since at least 1992. The intent is to develop technologies that have beneficial uses, can be done in regional processing centers, can have cross program applications, and support environmental sustainability.

The program has evaluated technologies such as sediment washing, thermo-chemical rotary kilns, plasma-arc vitrification, base-catalyzed decomposition, rotary kiln with thermal desorption, solvent extraction, solidification/stabilization with oxidation, and fluidized bed reactors. Several have the potential for full/commercial scale beneficial use. Several of these have promising beneficial uses. Mr. Stern noted that it is often the case that “front end” issues (e.g., materials handling) and “back-end” issues (e.g., disposal or the beneficial use of treated materials) can be as large a developmental impediment as the actual treatment technology itself.

Mr. Stern discussed a NY/NJ Harbor Sediment Decontamination Program Demonstration that will use local dredged sediments and Superfund sediments and explore production of fill material, manufactured soil, light weight aggregate, and construction grade cement. Overall, the intent is to develop a long-term self sustaining enterprise that makes beneficial use of contaminated sediments. Uncertainties identified include unpredictable dredging volume estimates, unpredictable dredge cycles, construction schedules for Superfund, litigation, risk sharing, siting and permitting. In addition to the products that might come from these processes is the potential for using the technology in a business model to handle E-waste internationally (waste to energy).

Members noted the importance of a thorough “life-cycle” analysis of all benefits involved in deciding on the economics of the issue. The benefits of such programs go beyond the investors involved. There are also societal benefits to be gained that need to be understood and considered in decisions to use various technologies.

## **6. Emergency Response Management Structures: Dr. Eric Mosher, EPA Region 2**

Dr. Mosher’s presentation (see Attachment 1) noted that the need for a National Incident Management System (NIMS) was embedded within the Homeland Security Presidential Directive-5 that directs the implementation of NIMS. The directive for NIMS is confirmed in the Presidential Review of Katrina. NIMS is incorporated within the National response Plan (NRP) that according to the DHS Website “...establishes a comprehensive all-hazards approach to enhance the ability of the United States to manage domestic incidents. The plan incorporates best practices and procedures from incident management disciplines...and integrates them into a unified structure. It forms the basis for how the federal government coordinates with state, local and tribal governments and the private sector during incidents.”

NIMS provides interoperability and compatibility among federal, state and local responders by providing a set of core concepts, terminologies, and technologies covering: The Incident Command System; Unified Command and Area Command; Personnel and equipment identification; management of resources; qualifications/certifications/training of responders; and the collection, tracking and reporting of incident information and resources.

The NRP notes that Incidents of National significance (INS) can exist when agencies or departments ask DHS for assistance, state/local authorities are overwhelmed and ask for assistance, when more than one federal agency/department is substantially involved in the response, or the Secretary of DHS is directed by the President to manage the incident.

The Incident Command System has a Commander, Command Staff (Incident Commander, Information Officer, Safety Officer, Liaison Officer), and General Staff). The General Staff structure includes Incident Command and Sections for Operations, Planning, Logistics, and Finance/Administration (the presentation notes the substructures of each of these Sections).

The presentation also discusses the Chain of Command and Decision-Making Hierarchy against the organizational structure, specifically the EPA model for National Incident Coordination. In this hierarchy, policy and guidance go from the national level to the tactical level while incident information goes from the tactical to the national level. As an example national coordination which includes strategic direction and management objectives for the incident and cross-program support come from Agency senior management (e.g., the Administrator, Deputy Administrator, Regional and Assistant Administrators). Regional Coordination (by Regional senior management) provides strategic direction/management objectives and cross program support at that level. Actual tactical coordination, i.e., operational decision making occurs within the Incident Command System and focuses on the Incident or Area Commander. Throughout the whole system, communications up and down during the incident is critically important.

Finally, the presentation showed the management flow for incidents among National, Regional, and incident level components within the overall national structure. At the field/incident level, field response components (Operations, Planning, Logistics and Finance) work within the Incident Command System directed by Incident and/or on-scene coordinators who are in turn under the direction of a Joint Incident Commander.

At the Regional level, the Regional Response Team, works with States and other regional entities. The Incident Coordinator also interacts, communicates with and works under the policy guidance of regional Response Command structures. An important principle is that those who set the strategic goals should not insert themselves too far into the on-scene tactical decisions.

Members asked if there were on the shelf pre-packaged plans and techniques for events that could be anticipated (e.g., dirty bombs, category 5 hurricanes, etc.). Members were interested in having a taxonomy of things that might happen and the types of things they would need to respond to them. They further commented that the reality of actual issues is that we can provide scientific information to those affected by incidents, but we must plan ahead to ensure that we can give instructions that people understand. There is no time for evaluating messages when an incident occurs. The science to help us get messages right is not being done.

Members were also concerned that there be in place procedures and resources to determine what risks might be from specific threats, especially where first responders are concerned. EPA representatives noted that local capabilities in this area vary. There are some National Guardsmen trained to do this. There is a need for more work in this area. They also noted that EPA is not a first responder. The agency gets involved only when requested by others.

Members were also concerned about whether there are adequate amounts of equipment and laboratory capacity to do the increased sampling and analysis (along with quality assurance) for major events. Also, there is a need to do analyses of risk and whether it is safe to return to a location that has been effected. Members noted that public health principles demand protective measures when there is an event. The plan sounds like it might be piecemeal and recognize jurisdictional boundaries in ways that

might impact that protection. EPA representatives agreed that in these events that people do have high expectations for our responses. The reality is that we can't do all things immediately (location of sources, where contaminants have moved – the science is not always there to allow this to be done – especially rapidly. We now plan for what we know and react as best we can when something beyond that is needed. Representatives noted that the National Response Team is experienced and available in these events and along with that comes a rapid procurement mechanism to obtain resources that are needed – as they are available commercially at least.

## **7. Regional science Needs – Ecological Risk and Complex Sediment Sites – Mr. Mark Reiss, EPA Region 2**

Mr. Reiss introduced the topic noting that sediment assessments focus on whether the sediment is toxic and if the pollutants in the sediments bioaccumulate (i.e., from invertebrates through fish to humans) (see Attachment J). As noted in Mr. Stern's earlier presentation, New York Harbor has much dredging (approximately 400 km of channels yielding 3-5 Million cubic meters of dredge material per year). Nearly 40% surface sediments are acutely toxic to amphipods and 70% of the actual dredged materials do not qualify for ocean disposal. A toxics identification evaluation (TIE) process is conducted in an iterative manner to first exclude broad classes of toxics from sediments and then in a more research-like phase to fractionate the pool of organics present. The TIE methods do not seem to give enough specificity to allow TMDLs or target remediation. Region 2 and cooperators hope that advances in biomolecular techniques (genomics, proteomics) might help gain greater specificity. The Region noted that the SAB could help to answer two types of questions:

- a) How can statistical, chemical, bioassay, and biomolecular methodologies be used most effectively to identify contaminants in sediments that cause acute toxicity?
- b) Are there additional lines of research that might be of forensic value with respect to sediment toxicity?

Contaminated sediments must be assessed once they are known. Mr. Reiss stated that traditional ecological risk assessments are deterministic and based on individual lab studies on few species. They are based on a sparse literature and there is great uncertainty. Region 2 is moving towards Residue Based Assessments in which measured residues better approximate concentrations at a site and provide better evidence of accumulation. They can be incorporated into monitoring, remediation and regulatory programs. Region 2 is developing probabilistic tissue residue benchmarks (TRBs) to obtain a more robust analysis of the limited toxicological data and to address uncertainties in a quantitative manner. In this, Species Sensitivity Distributions (SSDs—statistical distributions describing the variation among a set of species responding to effects of a chemical) are used to derive the TRB which would then be carried forward into a risk assessment. There is much work to be done on this approach. Uncertainty bounds can vary greatly and TRVs derived from SSDs are not well suited for ecological risk assessments where specific species are of concern. Probabilistic methods are considered to be an improvement over deterministic methods and they should eventually enable better ecological risk assessments. There is, however, little residue data for many compounds and the understanding of relative potencies is poor. The SAB could help EPA answer:

- a) How one can appropriately relate potencies of similarly acting compounds in risk assessment?
- b) How can residue (dose) – effect data be best considered in modeling ecological risk? Are there any generalities that can be applied in these models?

SAB Members noted that this was good work that would have importance to other Regional Offices. They asked how ORD was involved in the significant research component that was involved. ORD is involved but the effort is only funded at a modest level. Members also asked if the assessment had been extended to human risk. The Region has not done so because there is the expectation that this is already done in human health risk assessment. Members noted that the SAB could provide comments during its annual science budget review to clarify the need for basic toxicology studies in addition to the ongoing specialized work it would be very valuable to Regional risk assessors.

### **8. Scientific Challenges – Anthrax Response -- Dr. Dennis Carney, EPA Region 3**

Dr. Carney noted that the anthrax response was unique in terms of its size, complexity, and the nature of the contamination (see Attachment K). It was the first large scale bioterrorism incident in the U.S. and the first time EPA faced biological weapons contamination. To that point our experience and ability to assess and decontaminate were limited. Response principles followed included strict adherence to science, resist politics, and where science was uncertain use redundancy.

Challenges were faced in areas of personnel protection measures (there were no existing EPA protocols for bioagent incidents). EPA reviewed other relevant standards, DCD biosafety level advice, adapted available techniques for field use as well as administered antibiotics prophylactically. This overprotective approach, though it reduced efficiency, did prove to protect personnel.

Sampling efficiency and detection limits were not known for *Bacillus anthracis* spores in the beginning. Thus, the teams sampled all horizontal surfaces in every room. In the areas of personnel decontamination there were no recognized/registered decontamination agents nor procedures available. For facility decontamination, standards and procedures were not existent. These were developed in close cooperation with the Office of Pesticides and others. EPA evaluated several agents and procedures for anthrax spore clean up. Ultimately the task was done with CLO<sub>2</sub>.

The final challenge was in determining how clean the facility needed to be to make it safe. EPA decided that there is truly known safe level for anthrax spores and set the clean-up level as zero detectable viable *Ba* spores. A Clearance Committee was established to evaluate the contamination, hot areas, decontamination types, implementation methods, and verification sampling processes for surfaces and for the air. Recommendations came from the Clearance Committee to DC, EPA, CDC, the Attending Physician of Congress and the Capitol Police Board. The building was declared to be clean and no illness has been reported in the ensuing 5 years.

Members asked if there were activities underway to register effective clean up agents (under FIFRA) now so they might be ready for predictable events in the future. The lead time for pesticide registration is certainly longer than two weeks. They also wondered if EPA were now doing preplanning for events such as this in the future – to which EPA replied it and other federal agencies are doing so. Members pointed out the importance of trust among the responding authorities. Representatives noted that some of this resulted from long term knowledge of each other among the participants and that EPA earned its trust through its day to day efforts.

## 9. EPA Response to Gulf Coast Hurricanes – Dr. Don Williams, EPA Region 6

Dr. Williams described EPA Region 6 activity after Hurricane Katrina during 2005 (see Attachment L). Region 6's experience was predominantly one of responding to massive flooding events in a major city, though there were other issues as well. The initial event (Katrina) occurred on August 29, 2005. The area was "unwatered by September 22 and it refolded when Rita hit. The completion of pumping out the water occurred on October 14, 2005. Sampling objectives were to assess acute impacts to emergency workers as well as residents returning to check on their property; identify hotspots; conduct chronic risk comparisons, and to determine impacts to Lake Pontchartrain. Sampling continues at the time of this presentation.

Dr. Williams noted that ambient air quality for this area of the state and Region are below health concern levels, VOC and trace atmospheric gas analyzer sampling indicated elevated readings of pollutants immediately following the hurricane but these have returned to pre-Katrina levels and all levels of air pollutants are below Louisiana ambient air standards and EPA screening levels. Some monitoring for contaminants was conducted ASPECT (airborne spectral-imagery of environmental contaminants technology). Sill response (oil) was mostly under a US Coast Guard lead. Sediment sampling was conducted in 4 phases to characterize the chemical nature of sediments. Results were evaluated against very conservative lifetime risk levels for screening results. There were no observed adverse health impacts. Several pollutants of interest were found (arsenic, pesticides, benzo-alpha-pyrene, petroleum, lead in soil).

Floodwaters came from Lake Pontchartrain. Sampling revealed elevated bacteria levels from commingling of floodwaters with sewage collections system waters. Average chemical concentrations were below short-term incidental ingestion and dermal levels.

Chemical analyses were conducted to detect over 200 organic chemicals and metals, petroleum hydrocarbons, water quality criteria, total coliform, fecal coliform, and E. coli. Toxicity testing was done. Turnaround time was 48 to 72 hours (as set by FEMA).

EPA needs that have emerged from that experience include: 1) acute risk screening levels, 2) rapid field analytical methods, 3) the ability to screen a large group of contaminants and identify those of concern, better data, risk communications (the internet was used, but much of the population could not access the internet during the event due to a power outage), enhanced remote sensing to look at smaller spills, and better techniques for dealing with molds. Information on the event is posted on the web at [www.epa.gov/katrina](http://www.epa.gov/katrina).

Members noted the limitations of focusing on E. coli as an indicator for health risks. In addition, they asked if EPA was thinking forward about agents that might be released in a disaster and developing acute risk screening levels for them? EPA noted that it is involved in the AEGL process but that will take a long time. Members also noted that EPA should take a lead in risk communications. People will get information from others, from the media, for example and the messages that come in that way might not be the ones that will help most. There is a need to do empirical research on whether the message is received.

## 10. EPA Response to Gulf Coast Hurricanes – Dr. Danny France, EPA Region 4

Dr. France described EPA Region 4 activity after Hurricane Katrina (see Attachment M). The Region 4 focus was different from that of Region 6. Region 4's problems focus on 250 mile long coast line and they conducted ground and/or aerial assessments of an area larger than 4,000 square miles. Much of this was along the Mississippi and Alabama coasts. Major damage was caused by the flood surge for as much as 2 to 5 miles inland from the coast. The result was an immense amount of debris to be addressed. Regional Office on-scene-coordinators were deployed to several command centers; water and wastewater teams supported the Corps of Engineers and FEMA and the SESD monitoring resources were deployed to investigate drinking water supplies, water quality in the gulf and soil and sediment studies. They also conducted then and continue to do air monitoring of debris burn sites (37 locations). Some assistance was given to communities. Special attention was given to sampling major RCRA (waste) and federal facilities as well as National Priorities List (Superfund) sites. Air and water quality monitoring were conducted. The water quality study was intended to give a preliminary picture of targeted pollutants in the bay systems by sampling 30 locations that were selected based on the hydrodynamic characteristics of the water body itself, the historical locations of water quality monitoring, and the general location of potential release from identified sources. Overall the data collected by EPA and MDEQ showed that few water quality criteria were exceeded during the study period.

Dr. France noted that Region 4 relied on standard science, avoided experimental science, avoided excessive sampling, and sought to focus on the larger questions (e.g., what are large groups of people being exposed to, what are the emissions from major industrial sources and what were their effects on nearby communities. He summarized a number of lessons that the participants learned from their involvement in the Katrina response activity. These included:

- 1) There is a need to improve on the length of time it takes to get data to the public. EPA is working on this need. Coordinating, communicating, and sharing data with stakeholders was challenging
- 2) Policy and political obstacles were significant. Agencies are working streamline processes and remove obstacles.
- 3) Data interpretation, uncertainty, and comparison data was challenging. Often there were no available comparison data.
- 4) RCRA and TRI facilities usually did not have previously collected background data that would allow a comparison to determine contamination.
- 5) There is a need for statistical methods to facilitate risk assessment for large areas without having to extensively sample the area.
- 6) GIS tools would be helpful for comparing data over time at specific locations.
- 7) The best time to plan for a disaster is before the disaster, not after it has occurred.

Future needs identified by Dr. France included:

- 1) There is a need to inventory existing data sets in hurricane-prone areas in advance of hurricane season.
- 2) We need methods to assure the public that sediments deposited and air emissions are not hazardous to health and the environment.
- 3) Continuation of ORD and OSWER initiatives to develop methods and tools (e.g., power is generally not available so we need battery powered samplers)

- 4) Have and maintain reliable equipment in a “ready to go state.” Access to additional mobile lab capability would be useful.
- 5) Need to assess field analytical capabilities available in the market that can meet our data collection/analysis needs more readily – also those that can use telemetry to report data quickly.
- 6) Better characterization of airborne pollutant sources (e.g., debris burning).
- 7) Air quality analysis in disaster areas would benefit from an assessment that combines both monitoring and modeling. The models should be modified to be specific to the unique concerns of disaster recovery.
- 8) There is a need for having contractual arrangements in place for analytical needs prior to a disaster and these contracts need to provide for quick turnaround of results.

Members were interested in what was found in the water monitoring. EPA representatives noted that there was little found of concern and no big oil problems. Members noted that a 35 foot surge has a large flushing capability and that it might be useful to consider some “post-flush” monitoring of sewage systems. EPA can also make better use of GIS tools to link data to its websites.

The meeting was adjourned for the day.

### **Friday, June 23, 2006**

The DFO reconvened the meeting. Dr. Morgan welcomed members back for a second day.

#### **1. Reflections on Day One**

Dr. Roland Hemmett, Region 2 Science Advisor, summed up the first day’s presentations by noting the importance of understanding the legal mandates that EPA works within. Often these mandates assign the lead of specific events and issues to an organization other than EPA. Responses are conducted as Team efforts among EPA, state, local, other federal agency and non-governmental organizations. EPA is often drawn into the response in greater breadth and depth than its mandates would seem to indicate. For the anthrax response, EPA learned and networked as the event proceeded and interacted with the academic community to get an outside view of the situation. In that incident, DOD had significant initial response assets available for deployment.

Dr. Hemmett also noted that in responses to events such a terrorist attack, emotions are high because responders invariably have family, friends, acquaintances, etc. that are victims and they must separate themselves from that as they respond. The safety of first responders is a major issue, especially when they often focus on helping others and do not worry so much about themselves.

Dr. Hemmett noted that the fit between a Region and ORD in response actions is an open issue. Many think of ORD as an institution that is only focused on research and not operations. There is a need to correct that because ORD has assets that can be used in responses. They were not big players in some early events but they did become very involved in the post-Katrina response. There is a need for ORD to be more visibly and tangibly involved in applied research and in engaging in technology transfer of research results.

Dr. Morgan thanked the Regional Office staff and leadership for its briefings and interactions during the day. The Board learned much of value from the sessions and interactions with EPA representatives.

## **2. Additional Information Needs for the “Response to Disasters Project”**

Dr. Morgan then asked members to suggest additional topics that they want to learn about as the Board continues with the “Response to Disasters” project. Topics noted included:

- a) Information on best practices
- b) Information on Acute risk Screening Levels (SRSLs) and AEGLs.
- c) Information on how other agencies prepare for and respond to disasters (including the private sector)
- d) Radnet
- e) More information on the whole community context of assessment, communications and response --  
(In this regard, Members noted that good risk assessment based on first principles provides a disciplined way of analyzing a situation. This is often not possible in the quick and dirty/on the fly processes that tend to be used in response situations. If we do response assessments too narrowly, in an overly contrived manner, and without real-world linkages then we are in jeopardy of producing assessments that are not useful reflections of reality. The further we depart from assessments based on first principles, the less detail and comprehensiveness we have and the greater the vested views of participants increase.
- f) There is a need to do more up front planning and evaluation of possible risk scenarios so we can advise those persons involved of how to protect themselves (the example was given of “Pentagon” workers on the other side of the building who first evacuated and then returned to the building while the first responses were underway. Better planning would lead to better guidance during an event. There is a sense that this is beginning in some places. Information from such activities might be useful to the Board in this project.

Dr. Vu noted that as the Board continues to plan its “disaster response” project it might want to use subgroups to conduct fact-finding on specific issues. The results could then be brought to the full SAB for its use in the project.

## **3. Administrative Updates – Dr. Vanessa Vu, Director, Science Advisory Board Staff Office**

Dr. Vu, SAB Staff Office Director, provided updates on the SAB Operating Plan for FY 06-07, a proposal for merging to standing committees, FY 07 membership, and the status of the SAB Website redesign (see Attachment N).

**Committee Merger:** Dr. Rebecca Parkin introduced the proposal to merge the Environmental Health Committee and the Integrated Human Exposure Committee of the Science Advisory Board. The two committees which she Chairs have been considering such a proposal for two years and both groups see good reasons to merge the two into one Committee – in essence when thinking of human health risk from environmental agents, it is necessary to discuss both effects and exposure. Members of the two Committees agreed to seek approval to merge. Board Members agreed that the two would merge. The

new committee will likely be referred to as the Human Exposure and Environmental Health Committee (HEEHC) though Board members were not completely comfortable with that name.

**SAB FY 2007 Operating Plan:** Dr. Vu summarized the projects that have been requested of the SAB, CASAC, and Council. Projects in the plan are a combination of those now in the plan and those requested for FY 2007. There are 40 projects for the SAB, 9 for CASAC and 1 for the Council. We normally see some of those on the active request list drop from consideration and others be added over the course of a year. Members thought the expert elicitation project would be very a high priority and that it should have a panel selected from among the SAB, CASAC, and the Council. Members also asked that staff set up a meeting with EPA to learn how it reacted to the HSAC advice from its first meeting. Members noted also that the ROE project would have special importance because of its tone-setting role for all ORD activities.

#### **4. Review of EEAC Letter on Research Data Continuity from the TRI**

Dr. Cropper stated that EEAC members discussed proposed changes to the Toxics Release Inventory (TRI) at a recent EEAC telephone conference meeting. Several Committee members have used this data in their economics research and have noted concern with the impact of proposed changes to TRI reporting to the spatial analytical capability in future research. The EEAC concern registered in the draft letter to the Administrator (see Attachment O) is only with the impacts on research data. Dr. Cropper pointed out that at least 120 scholarly articles using this data have been published. The EEAC concern does not involve any cost-benefit analysis of the proposed change in TRI reporting, nor does it focus on the utility of the TRI for its mandated purpose.

Some members questioned whether other aspects of TRI should be noted in the letter. Dr. Cropper stated that this was discussed by the EEAC and that other concerns were considered to be outside the scope of the concern for research continuity. One member provided a written note stating that the Board might be premature in approving the draft letter because the impact of the rule change had not been thoroughly analyzed by the Board. Members present recognized the point made but agreed that the focus of the letter was on value of TRI data to research and not on the rule or rule change itself and chose to go forward. Some members suggested that 120 scholarly articles might not be a large number; however, Dr. Cropper noted that the scope of the environmental economics journal articles is typically broad and their magnitude significant as opposed to some articles in other areas that might only report on very small incremental gains in knowledge. The Board suggested enhancing the last sentence in paragraph 2 to clarify this point. Members also discussed the possibility that the proposed TRI changes might be modified to protect value of the data to research. The last paragraph of the letter will be revised to incorporate the need to explore ways in which data might be improved in a cost-effective way in the future. It was moved and seconded that the letter be approved with the noted changes. Members present approved the motion unanimously.

#### **5. Review of the Draft SAB Panel Report on the Geographic Information System Screening Tool (GISST)**

The SAB established a panel to review a draft tool developed by EPA Region 6 staff that was proposed for use in screening various areas for vulnerability to damage from certain projects that might be constructed at specific locations (see Attachment P and on the SAB Website at [http://www.epa.gov/sab/pdf/gisst\\_draft\\_report\\_06\\_5\\_06.pdf](http://www.epa.gov/sab/pdf/gisst_draft_report_06_5_06.pdf)). Dr. Virginia Dale, Chair of the Panel,

introduced the topic. She noted that GISST was another example of tools being developed by Regional Office staff for use in screening and or prioritizing damage potential from certain human activities proposed for specific locations (e.g., CrEAM is a similar model developed by Regional staff). She noted that the Panel, and in past statements the SAB itself, have strongly supported the need for such tools to handle the large amounts of data that are available for consideration in evaluations of environmental damage associated with human actions. Dr. Dale recommended that the Board advise EPA of the need for some consolidated development of such tools, and that additional expertise (e.g., decision analysis) will be needed in EPA to help in that regard. Dr. Dale noted that she had considered the written comments provided by Board members on the draft report and that most can be accommodated. Some need to be discussed.

Comments and questions highlighted by Members for discussion included:

- a) The measures seem to only focus on spatial characteristics and time seems to be missing. Dr. Dale agreed with the comment and noted that the information used is static. The comment suggests a need for future study.
- b) The report is thorough, but as with many such tools the Board has considered, there is a need to clarify report language that notes the types of situations in which the tool can not be used to base decisions upon. The language should note the Board's enthusiasm for these tools but that we have reviewed several of these and the same comments about their current limitations continue to be raised by the Board. The Administrator needs to know this.
- c) The fact that many regions are doing these tools tells us that the effort is an important "grass roots" issue. This is an area for ORD support and a positive reflection should be given to the Administrator on the topic. The real problem is in the seeming Agency need to aggregate a diverse set of variables for each "location." The Agency seems to rightly identify many variables at a particular place but they err in trying to assign a weight to each without adequate information and tools to do so. There is a need for decision analysis expertise in developing these tools. This appears to be a long term issue and it will need substantial research support.

A motion was presented that the report be handled in two ways. One will be the report itself which will be made final by responding to the Members comments during this session and those provided in writing (see Attachment Q in the FACA file for this meeting). The draft report is approved contingent upon the Chair, Dr. Dale, accommodating the recommended revisions as needed. There is no need for returning the draft for Vettors for final approval. The motion was passed unanimously.

Part two will be to prepare a letter to the EPA Administrator, and to the EPA Science Advisor/ Assistant Administrator for Research and Development, pointing out the difficulty with GISST-like tools that the Board has reviewed. The letter will recommend cross-ORD support in developing such spatial tools. Dr. Ken Dickson will draft the letter with the assistance of Virginia Dale, Trudy Cameron, Cathy Kling, and Bob Twiss.

6. Action Items:

- a) Edit the GISST report and deliver it to the Administrator
- b) Draft a letter on Regional screening tools for the Administrator and Dr. Gray
- c) Schedule telephone conference meetings for reviewing draft SAB panel reports
- d) Prepare for the September meeting to continue the “disaster preparedness” project
- e) Staff will work with the Chair and others to prepare for the FY 2008 research budget review meeting that will be held in February 2007; Regional Office science needs should be clearly integrated into the meeting as will cross-cutting issues and an attempt to learn more about other Federal environmental research (the elusive 93%).

The meeting was adjourned by the Designated Federal Officer.

Respectfully Submitted:

*/Signed/*

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Thomas O. Miller  
Designated Federal Officer  
US EPA Science Advisory Board

Certified as True:

*/Signed/*

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Dr. M. Granger Morgan  
Chair, EPA Science Advisory Board

Attachments:

- A Meeting Agenda
- B FR Notice Announcing the Meeting
- C SAB Roster for the Meeting
- D Sign-in Sheets
- E1 Region 2 Regional Science Program – Dr. Hemmett
- E2 April 8 Note from Dr. Baxter on Near Term Cross-Regional Cross-Science Needs
- F1 Paper on Tribal Issues Related to Tribal Traditional Lifeways, Risk Assessment, and Health & Well Being: Documenting What We've Heard
- F2 National Tribal Science Priorities
- G Region 2 Training in the New Millennium
- H Region 2 NY/NJ Harbor Sediment Decontamination Program
- I Incident Command System and EPA Incident Management
- J Region 2 Ecological Risk at Complex Sediment Sites
- K Region 3 Presentation on Anthrax Response
- L Region 6 Presentation on Katrina Response
- M Region 4 Presentation on Katrina Response
- N Memo from Dr. Vu to Board Members – Administrative Updates, June 20, 2006
- O Draft TRI Letter
- P Draft GISST Panel Report
- Q Compilation of Lead Review Comments on the Draft GISST Report

ATTACHMENT A

**MEETING AGENDA**

June 22-23, 2006

US Environmental Protection Agency (EPA)  
Science Advisory Board (SAB)  
US EPA Region 2 Headquarters  
290 Broadway, Room 27A  
New York, NY 10007  
Phone: 212-637-3000

*Purpose of the Meeting: The Board will meet to: a) learn about EPA regional science activities and b) to consider the approval of one SAB draft report and one SAB draft letter.*

**Thursday, June 22, 2006**

|            |                                                                |                                                                                                                           |
|------------|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| 8:30 a.m.  | <b>Convene the Meeting<br/>Meeting Administration</b>          | Mr. Thomas O. Miller<br><i>Designated Federal Officer,<br/>Science Advisory Board</i>                                     |
|            | <b>Introductory Remarks</b>                                    | Dr. Granger Morgan<br><i>Chair,<br/>Science Advisory Board</i>                                                            |
|            | <b>Welcome</b>                                                 | Dr. Vanessa Vu<br><i>Director,<br/>SAB Staff Office</i>                                                                   |
| 9:00 a.m.  | <b>Use of Science in Regional Decision Making:</b>             |                                                                                                                           |
| 9:00 a.m.  | <b>a) Welcome</b>                                              | Ms. Kathleen Callahan<br><i>Deputy Regional<br/>Administrator<br/>US EPA Region 2</i>                                     |
|            | <b>b) Role of Science in Region 2</b>                          |                                                                                                                           |
| 9:15 a.m.  | <b>c) Regional Science Programs</b>                            | Dr. Roland Hemmett<br><i>Science Officer<br/>Division of Environmental<br/>Science and Assessment<br/>US EPA Region 2</i> |
| 9:45 a.m.  | <b>d) Regional Science Needs for Emerging<br/>Issues</b>       | Dr. Marian Olsen<br><i>US EPA Region 2</i>                                                                                |
| 10:15 a.m. | <b>Break</b>                                                   |                                                                                                                           |
| 10:30 a.m. | <b>e) Regional Science Needs: Sediment<br/>Decontamination</b> | Dr. Eric Stern<br><i>US EPA Region 2</i>                                                                                  |

|            |                                                                         |                                             |
|------------|-------------------------------------------------------------------------|---------------------------------------------|
| 11:00 a.m. | <b>f) Regional Science and Emergency Response Management Structures</b> | Dr. Eric Mosher<br><i>US EPA Region 2</i>   |
| 11:30 a.m. | <b>Lunch</b>                                                            |                                             |
| 1:00 p.m.  | <b>g) Regional Science Needs: Contaminated Sediments</b>                | Dr. Mark Reiss<br><i>US EPA Region 2</i>    |
| 1:30 p.m.  | <b>h) Regional Science Needs: Region 3</b>                              | Dr. Dennis Carney<br><i>US EPA Region 3</i> |
| 2:15 p.m.  | <b>i) Regional Science Needs: Region 6</b>                              | Dr. Don Williams<br><i>US EPA Region 6</i>  |
| 3:00 p.m.  | <b>Break</b>                                                            |                                             |
| 3:15 p.m.  | <b>j) Regional Science Needs: Region 4</b>                              | Dr. Danny France<br><i>US EPA Region 4</i>  |
| 4:00 p.m.  | <b>Board Discussion of Regional Science Needs</b>                       | The Board                                   |
| 5:00 p.m.  | <b>Adjourn for the Day</b>                                              |                                             |

**Friday, June 23, 2006**

|            |                                                                             |                                                                                                                                |
|------------|-----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| 8:30 a.m.  | <b>Re-Convene the Meeting</b>                                               | Dr. Granger Morgan<br><i>Chair ,<br/>EPA SAB</i>                                                                               |
| 8:45 a.m.  | <b>Next Steps; Regional Science Needs</b>                                   | The Board                                                                                                                      |
| 9:15 a.m.  | <b>Discussion of SAB Administrative/Planning Items with the Board</b>       | Dr. Vanessa Vu<br><i>Director, SAB Staff Office</i><br>The Board                                                               |
| 9:45 a.m.  | <b>Planning for September 21-22, 2006 and December 12-13, 2006 Meetings</b> | Dr. Granger Morgan<br><i>Chair,<br/>Science Advisory Board</i>                                                                 |
| 10:15 a.m. | <b>Break</b>                                                                |                                                                                                                                |
| 10:30 a.m. | <b>Review of Draft SAB EEAC Letter: Toxics Release Inventory Data</b>       | Dr. Granger Morgan<br>The Board<br>Dr. Maureen Cropper<br><i>Chair, SAB Environmental<br/>Economics Advisory<br/>Committee</i> |

|            |                                                                                                                                  |                                                                                   |
|------------|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| 11:00 a.m. | <b>Review of the Draft SAB Panel Report, SAB<br/>Review of the EPA Region 6 Geographic<br/>Information System Screening Tool</b> | Dr. Granger Morgan<br>The Board<br>Dr. Virginia Dale,<br><i>GISST Panel Chair</i> |
| 12:00 p.m. | <b>Action Items from the Meeting</b>                                                                                             | Dr. Granger Morgan<br><i>Chair,</i><br><i>Science Advisory Board</i>              |
| 12:30 p.m. | <b>Adjourn the Meeting</b>                                                                                                       | Thomas O. Miller<br><i>DFO</i><br><i>Science Advisory Board</i>                   |

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**ATTACHMENT B**

**Federal Register Announcement for the Meeting**

<http://www.epa.gov/fedrgstr/EPA-SAB/2006/May/Day-24/sab7927.htm>

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## ATTACHMENT C

### Roster U.S. Environmental Protection Agency Science Advisory Board June 22-23, 2006 Meeting

#### CHAIR

**Dr. M. Granger Morgan**, Professor and Head, Department of Engineering and Public Policy, Carnegie Mellon University, Pittsburgh, PA,

#### SAB MEMBERS

**Dr. James Bus**, Director of External Technology, Toxicology and Environmental Research and Consulting, The Dow Chemical Company, Midland, MI

**Dr. Trudy Ann Cameron**, Raymond F. Mikesell Professor of Environmental and Resource Economics, Department of Economics, Eugene, OR

**Dr. Deborah Cory-Slechta**, Director, Environmental and Occupational Health Sciences Institute, Robert Wood Johnson Medical School, University of Medicine and Dentistry of New Jersey and Rutgers State University, Piscataway, NJ,

**Dr. Virginia Dale**, Corporate Fellow, Environmental Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN

**Dr. Kenneth Dickson**, Professor, Institute of Applied Sciences, University of North Texas, PO Denton, TX

**Dr. Baruch Fischhoff**, Howard Heinz University Professor, Department of Social and Decision Sciences, Department of Engineering and Public Policy, Carnegie Mellon University, Pittsburgh, PA

**Dr. Rogene Henderson**, Scientist Emeritus, Lovelace Respiratory Research Institute, Albuquerque, NM. Also Chair: CASAC

**Dr. James H. Johnson**, Dean, College of Engineering, Architecture & Computer Sciences, Howard University, Washington, DC. Also Chair: Board of Scientific Counselors

**Dr. Meryl Karol**, Associate Dean for Academic Affairs, Graduate School of Public Health, University of Pittsburgh, Pittsburgh, PA

**Dr. Catherine Kling**, Professor, Department of Economics, Iowa State University, Ames, IA

**Dr. George Lambert**, Associate Professor and Director, Center for Child and Reproductive Environmental Health and Pediatric Clinical Research, Department of Pediatrics, UMDNJ-Robert Wood Johnson Medical School/University of Medicine and Dentistry of New Jersey, New Brunswick, NJ

**Dr. Jill Lipoti**, Director, Division of Environmental Safety and Health, New Jersey Department of Environmental Protection, Trenton, NJ

**Dr. Genevieve Matanoski**, Professor, Department of Epidemiology, Johns Hopkins University, Baltimore, MD

**Dr. Jana Milford**, Associate Professor, Department of Mechanical Engineering, University of Colorado, Boulder, CO

**Mr. David Rejeski**, Foresight and Governance Project Director, Woodrow Wilson International Center for Scholars, Washington, DC

**Dr. Joan B. Rose**, Professor and Homer Nowlin Chair for Water Research, Department of Fisheries and Wildlife, Michigan State University, E. Lansing, MI

**Dr. Kristin Shrader-Frechette**, O'Neil Professor of Philosophy- Concurrent Professor of Biological Sciences-and Director of the Center for Environmental Justice and Children's Health, Department of Biological Sciences and Philosophy Department., University of Notre Dame, Notre Dame, IN

**Dr. Deborah Swackhamer**, Professor, Division of Environmental Health Sciences, School of Public Health, University of Minnesota, Minneapolis, MN

**Dr. Thomas L. Theis**, Professor, Director, Institute for Environmental Science and Policy, University of Illinois at Chicago, Chicago, IL

**Dr. Valerie Thomas**, Anderson Interface Associate Professor of Natural Systems, School of Industrial and Systems Engineering, Georgia Institute of Technology, Atlanta, GA

**Dr. Robert Twiss**, Professor, University of California-Berkeley, Ross, CA

**Dr. Terry F. Young**, Consultant, Environmental Defense, Oakland, CA

**Dr. Lauren Zeise**, Chief, Reproductive and Cancer Hazard Assessment Section, California Environmental Protection Agency, Oakland, CA

#### **LIAISONS TO THE SAB**

##### a) **FIFRA Scientific Advisory Panel (FIFRA SAP)**

**Dr. Steven Heeringa**, Research Scientist and Director, Statistical Design Group, Institute for Social Research (ISR), University of Michigan, Ann Arbor, MI,

#### **SCIENCE ADVISORY BOARD STAFF**

**Mr. Thomas Miller**, Designated Federal Officer, Washington, DC