

# Meeting Minutes of the Subcommittee on Disaster Reduction

05 December 2013, 10:00 a.m. to 12:00 p.m., White House Conference Center Lincoln Room

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*Italics indicate absent members. "T" indicate members participating via teleconference.*

## Co-chairs

David Applegate (USGS)  
Margaret Davidson (NOAA)  
Dennis Wenger (NSF)

## OSTP Liaison

Tamara Dickinson (OSTP)

## Designated Representatives

**BLM** *Edwin Roberson*  
**CDC** *Mark Keim*  
**DHS** Mary Ellen Hynes  
**DHS/FEMA** *Roy Wright*  
**DHS/USCG** *Robert Thomas*  
**DOD** *Al Johnson*  
**DOE** *Patricia Hoffman*  
**DOT** Sheila Duwadi  
**EOP/OMB** *Grace Hu*  
**EOP/OSTP** *Tamara Dickinson*  
**EPA** Peter Jutro  
*Stephen Clark*

**FERC** *Marsha Palazzi*  
**HUD** *Dana Bres*  
**NASA** *Craig Dobson*  
**NGA** *Paul Lewis*  
**NGB** *TBD*  
**NIH** Aubrey Miller (T)  
**NIST** *Marc Levitan*  
**NOAA** Margaret Davidson (T)  
Christopher Strager  
**NPS** *Marcy Rockman*  
**NSF** Dennis Wenger  
**OPHS** *Estella Jones*

**State** *Fernando Echavarria*  
**USACE** *Steven Cary*  
*Dimitra Syriopoulou*  
**USAID** Sezin Tokar  
**USDA** *TBD*  
**USFS** *Elizabeth Reinhardt*  
*Carlos Rodriguez-Franco*  
**USGS** David Applegate  
**USNRC** *Steven West*

## Other Attendees

**BLM** Ronald McCormick  
**DHS** Mitch Erickson  
Meredith Lee  
**DHS/FEMA** Razi Hashmi  
Rachel Sears  
David Trissell  
**DOI** Jenna Sloan (T)  
**EPA** Brendan Doyle (T)  
Paul Kudarauskas  
Keely Maxwell

**NASA** Frank Lindsay  
**NIST** Steve Cauffman  
**NOAA** Nell Codner (T)  
**NSF** Greg Anderson (T)  
**USGS** Kiza Gates  
Bill Leith  
Liz Lemersal  
Matt Rollins  
**USNRC** Kenneth Armstrong (T)  
Thomas Nicholson (T)

**USPHS** Elvira Hall-Robinson (T)  
**CO Mines** Murray Hitzman (T)  
**NRC** Lauren Alexander Augustine  
Elizabeth Eide  
Sherrie Forrest  
**STPI** Chris Clavin  
Ellory Matzner  
**ISC Secretariat** Paul Domich (T)  
**SDR Secretariat** Bret Schothorst  
Barbara Haines-Parmele

## Agenda

10:00 Welcome and Introductions  
10:05 Report from the Co-chairs and Approval of Minutes  
10:15 Presentation: National Academies Resilience Initiative  
11:00 Briefings: Induced Seismicity from Energy Technologies  
- Briefing: National Research Council  
- Briefing: U.S. Geological Survey  
11:40 Briefing: Super Typhoon Haiyan  
11:55 Close and Next Actions

## Handouts

- December Meeting Agenda
- Draft November Meeting Minutes
- FY 2014 SDR Secretariat Funding Support Letter

## **I. Welcome and Introductions**

National Science and Technology Council (NSTC) Subcommittee on Disaster Reduction (SDR) Co-chair David Applegate (USGS) called the December meeting to order at 10:00 a.m. in the Lincoln Room of the White House Conference Center (WHCC), and participants introduced themselves.

## **II. Report from the Co-chairs and Approval of Minutes**

The November monthly meeting minutes were approved with no changes.

In the report from the Co-chairs, Applegate mentioned that the Subcommittee will spend a portion of the January meeting reviewing a draft charter for an SDR working group devoted to developing an interagency wildland fire science and technology research agenda. The working group will also consider reviewing progress of the wildland fire implementation plan in the SDR's *Grand Challenges for Disaster Reduction* document. If SDR agencies are interested in participating in this activity, please reach out to the SDR Secretariat ([bret.schothorst@mantech.com](mailto:bret.schothorst@mantech.com)), copying SDR Co-chair David Applegate ([applegate@usgs.gov](mailto:applegate@usgs.gov)) and OSTP Liaison Tammy Dickinson ([Tamara.L.Dickinson@ostp.eop.gov](mailto:Tamara.L.Dickinson@ostp.eop.gov)).

In addition to the report from the Co-chairs, Applegate also put out a request from the SDR leadership for financial support of SDR's Secretariat. He noted that they will send out a request letter to agency representatives the following week and would be happy to provide agency-specific letters or additional documentation, if needed.

Co-chair Dennis Wenger (NSF) reminded members that the SDR International Working Group (IWG) meets on the same day as the full Subcommittee from 1:00 p.m. to 2:30 p.m. in the WHCC Lincoln Room. At the working group's December meeting, the IWG will: 1) hear a report-out on the recent United Nations (UN) International Strategy for Disaster Reduction (ISDR) meeting to draft the second iteration of the Hyogo Framework for Action document, known as HFA2; 2) discuss FEMA's proposal to the working group to utilize its National Advisory Council (NAC) as a tool for soliciting multi-sectoral perspectives on HFA2; and 3) brainstorm potential meeting topics and discussion items for upcoming SDR IWG meetings in 2014.

Chris Strager (NOAA/NWS) provided an impromptu heads-up on the severe weather system threatening the South Central and Eastern U.S. in the coming days with potential for significant accumulations of freezing rain and other disruptive precipitation across a wide swath of the country.

## **III. Briefing: National Academies Resilience Initiative**

Applegate introduced Lauren Alexander Augustine (National Academy of Sciences/National Research Council), who is Associate Executive Director of the Office of Special Projects in the Program on Risk and Resilience of Extreme Events at the National Academy of Sciences and the National Research Council. Alexander Augustine briefed the SDR on her organization's new Resilient America initiative.

To open her presentation, Alexander Augustine provided some background information on program's origin. The initiative builds upon the goals laid out in the National Research Council's 2012 *Disaster Resilience: A National Imperative* report to create a culture of resilience by grounding disaster resilience in community decision making. According to the report, the four pillars for building community resilience are to: 1) understand, communicate, and manage risk; 2) measure resilience in communities; 3) build community coalitions and partnerships; and 4) share information and data. Alexander Augustine stated that as part of the Resilient America mission, the project will provide the venue for current research-, science-, and evidence-based foundations to inform whole community strategies for building resilience, with the primary objective of finding answers to the following questions:

- Against what do we want to be resilient?

- How resilient are we now?
- Who is responsible for building and implementing resilience?
- Who are the best partners to help us become resilient?
- How can you tell if you are resilient?

The initiative includes a new Resilient America Roundtable that will hold its first meeting on January 28-29, 2014, with a charge to convene experts and decision makers from the academic, public, and private sectors to address issues associated with investments in building resilience and, in contrast, understanding the consequences of not making such investments. It will also design and catalyze activities that build resilience to extreme events, including community-based pilot projects and education and outreach workshops partnered with the Academy's Koshland Science Museum and Virginia Tech University. Alexander Augustine underlined that the expected "bottom line" outcomes of the program are to:

- 1) Understand baseline community resilience conditions;
- 2) Understand how decision makers set goals and milestones in order to improve the decision making processes;
- 3) Improve sharing and access of data and information;
- 4) Design in flexibility for adaptive management;
- 5) Improve ways that resilience progress is measured; and
- 6) Document and share lessons learned, leading practices, successes, and failures.

In response to Alexander Augustine's briefing, Frank Lindsay (NASA) asked how the Resilient America initiative will select the communities for its pilot projects. Alexander Augustine outlined that while the process is still evolving, selections may be based on community location and size but also could be chosen by the rate of onset of a specific disaster risk or by the affiliation of the community decision makers involved in a given exercise. She added that specific industries may be represented in the pilot projects as well, such as entities involved with improving the resilience of aging infrastructure. Alexander Augustine replied to a question by Peter Jutro (EPA) regarding the composition of the new Roundtable by stating that the membership of the group will be developed over an extended period of time and has not been fully determined at this point. She added that it will include several of the Federal and non-Federal members of the former Disasters Roundtable as well as some new faces.

Strager and Margaret Davidson (NOAA) added that NOAA's Weather-Ready Nation Ambassadors initiative and the DHS Office of Infrastructure Protection would make good partners for this project. Alexander Augustine seconded their line of thinking by stating that the Resilient American initiative plans to partner with many SDR member agencies and their Federal disaster resilience programs. Mitch Erickson (DHS S&T) then recommended that the Resilient American project focus on collecting best practices from previous disasters and applying those to future events – a suggestion to which Alexander Augustine was very receptive. Aubrey Miller (NIH) also added that his organization has been involved in resilience-based community health research in response to previous disasters such as the Deepwater Horizon Oil Spill and Hurricane Sandy and would be willing to contribute to the Resilient America project from that perspective.

To close out the discussion, Applegate wondered if the new Roundtable will emphasize the importance of making sound investment decisions for the future and will work to convey the costs and consequences of not making those investments to stakeholders, as this is often the most compelling side of the investment argument. Alexander Augustine noted that several cities and states throughout the country have asked to play a role in the new initiative and have shown a willingness to demonstrate these investment strategies for building long-term community resilience. David Trissell (FEMA) piggybacked on Applegate's comment to add that it will be critical to convince Federal, state, and local decision makers to spend their money on existing projects more wisely as well, not just for new investments. Please contact Alexander Augustine ([LEAlexander@nas.edu](mailto:LEAlexander@nas.edu)) for more information on the initiative.

#### **IV. Briefings: Induced Seismicity from Energy Technologies**

To kick-off a set of briefings on induced seismicity associated with energy development, a growing issue in several areas of the U.S. not accustomed to earthquakes, Applegate introduced Murray Hitzman (Colorado School of Mines), who is the Charles F. Fogarty Professor of Economic Geology in the Department of Geology and Geological Engineering at the Colorado School of Mines. Hitzman also chaired the recent National Research Council study, *Induced Seismicity Potential in Energy Technologies* ([http://www.nap.edu/catalog.php?record\\_id=13355](http://www.nap.edu/catalog.php?record_id=13355)). Hitzman discussed seismic events associated with a number of technologies, including enhanced geothermal systems and shale gas development.

According to Hitzman's presentation, a number of seismic events related to the injection of fluids during energy development have occurred in the recent past, including: 1) Basel, Switzerland (2006), via an enhanced geothermal system (M 3.4); 2) Dallas-Ft. Worth, Texas (2008-09), from wastewater disposal from shale gas development (M 3.3); and 3) Blackpool, England (2011), through hydraulic fracturing of shale gas (M 2.3). The factor that appears to have the most direct correlation to induced seismicity in these instances is the net fluid balance, or the total balance of fluid introduced into or removed from the subsurface. Energy technologies that maintain a balance between the fluids being injected and extracted – including most geothermal and oil and gas development – may produce fewer induced seismic events than technologies that do not maintain adequate fluid balance, a finding that could have significant implications for future large-scale carbon capture and storage in geologic reservoirs.

Hitzman then discussed the triggered seismic risks associated with different energy technologies, including geothermal energy, conventional and unconventional oil and gas development, wastewater disposal wells, and carbon capture and storage. In geothermal energy production, operators attempt to keep balance between the fluid volumes produced and replaced by injection to maintain reservoir pressure as to limit the risks for induced seismicity; however, despite these safeguard procedures, Hitzman noted that some forms of geothermal resource development have a higher potential for producing felt seismic events. High-pressure hydraulic fracturing in some geothermal projects has caused seismic events that are large enough to be felt (e.g., Basel), and temperature changes associated with geothermal development of hydrothermal resources have also induced felt seismicity.

Conventional oil and gas developers attempt to balance the fluid volumes produced with fluid injection to maintain reservoir pressure as well, Hitzman highlighted. He added that while withdrawal associated with conventional oil and gas recovery generally has not caused significant seismic events, several major earthquakes have been associated with this technology in the past. Hitzman stated that relative to the large number of projects underway across the country, the small number of documented instances of felt seismicity suggests a small risk for events that would be of concern to the public. Regarding unconventional oil and gas development, the process of hydraulic fracturing a well as presently implemented for shale gas recovery does not pose a high risk for inducing felt seismic events. Hitzman stated that roughly 35,000 wells had been hydraulically fractured for shale gas development in the U.S. at the time of the publication of the National Research Council report in 2012, with only one case of induced seismicity documented worldwide (Blackpool, England in 2011).

According to the study and Hitzman's briefing, more than one-third of the fluid waste volume from conventional and unconventional oil and gas production is managed through underground injection for permanent disposal in "Class II" wells. Among the 30,000 Class II wastewater disposal wells currently in operation, very few induced seismic events have been reported, with the rare cases typically having a magnitude of less than 5.0. In a response to a question from Thomas Nicholson (USNRC), Hitzman underscored that in some instances, however, high injection volumes may increase pore pressure and a proximity to existing faults could lead to triggered seismic events, which could continue for months to years after the injection ceases. Small-scale commercial carbon capture and storage projects in operation

(mainly offshore Norway and onshore Algeria) also inject waste back into the earth – about 1 million metric tons of carbon dioxide per year in some cases without significant induced seismicity. Hitzman noted that future energy development projects expect to inject waste volumes much greater than 1 million metric tons for permanent storage and cautioned that such volumes have the potential to increase pore pressure over large areas and cause significant seismic events. In regards to these anticipated risks, Mary Ellen Hynes (DHS S&T) suggested that limits to the amount of fluid that can be injected as a result of energy development should be explored.

In closing his presentation, Hitzman noted that the National Research Council study committee developed research recommendations focused on five key areas: 1) field and laboratory data collection and research; 2) develop instrumentation; 3) hazard and risk assessment; 4) modeling; and 5) carbon capture and sequestration processes. He added that the study also outlined the following series of recommendations with regards to government roles and responsibilities and hazard and risk management for induced seismicity associated with energy development:

- Relevant Federal and state agencies should consider developing coordination mechanisms to address induced seismic events that correlate to established best practices;
- Appropriate authorities and agencies with potential responsibility for induced seismicity should consider resource allocations for responding to future induced seismic events;
- A detailed methodology should be developed for quantitative, probabilistic hazard assessments of induced seismicity risk;
- Data related to fluid injection (i.e., well locations, injection depths, volumes, pressures, time frames) should be collected by Federal and state authorities in a common format and made accessible to the public (through a coordinating body such as the USGS);
- Regulatory agencies should consider requiring data for fault identification for hazard and risk assessments be collected and analyzed before energy operations begin in areas of high-density of structures and population; and
- Best practices protocols should be adapted and tailored to each energy development technology.

Applegate then introduced Bill Leith (USGS), the Senior Science Advisor for Earthquake and Geologic Hazards at the USGS overseeing the Earthquake Hazards, Geomagnetism, and Global Seismographic Network Programs. Leith discussed current efforts by USGS and its partners to monitor potentially induced earthquakes and study the phenomenon since the National Research Council report was released in 2012. He noted that recent research has observed that the increase in U.S. mid-continent seismicity in Oklahoma, Texas, and Arkansas is primarily associated with disposal wells for produced waters associated with hydrofracturing, rather than the hydrofracturing process itself.

According to Leith, researchers are seeking to improve what is currently a very limited predictive capability with regards to these hazards, primarily due to: uncertainty in the stress state and pore pressure; rudimentary knowledge of flow paths; poor knowledge of potentially capable faults; poor detection and location capabilities of seismic networks; difficulty in predicting how large an earthquake will grow; and limited availability of current injection parameter data from disposal wells. He highlighted a series of scientific questions and challenges surrounding the issue of induced seismicity from energy technologies that could be addressed by further research:

- 1) What factors control the seismic response to an injection activity?
- 2) Is it possible to predict in advance whether a given injection well will induce earthquakes large enough to be of concern?
- 3) Can a small-scale injection activity trigger a large earthquake?
- 4) How do induced earthquakes affect the National Seismic Hazard Maps?
- 5) Why do triggered earthquakes occur in some places and not others?
- 6) How large an earthquake can be induced?

- 7) How should injection practices be altered to minimize the risk of inducing damaging earthquakes?
- 8) Once a significant earthquake occurs, what operational changes should be implemented?
- 9) How do the answers to these questions relate to regulation and permitting?

Leith then moved on to discuss some specific instances of recently triggered seismicity related to the injection of fluids during energy development, including: 1) Horn River Basin, Western Canada (2012), resulting from the injection of fluids during hydraulic fracturing (M 3.6); 2) Prague, Oklahoma (2011), from the disposal of wastewater during hydraulic fracturing (M 5.7); 3) Paradox Valley, Colorado (2013), via long-term fluid/brine injections (M 3.9); 4) Cogdell Oil Field, West Texas (2006), through carbon dioxide gas-injection wells (M 4.4); 5) Timpson, East Texas (2012-13), associated with high-volume wastewater injection wells (M 4.8); and 6) Azle, North Texas (2013), from wastewater injections during hydraulic fracturing (M 3.6).

As reported in the National Research Council report and in Hitzman's presentation, Leith underscored that the carbon capture and storage process also can cause earthquakes. He quoted from the study, stating that the proposed injection volumes of liquid carbon dioxide in large-scale sequestration projects are much larger than those associated with other energy technologies. Because there is no experience with fluid injection at these large scales and little data exists on the seismicity associated with carbon dioxide pilot projects, they have potential to increase both the number and magnitude of seismic events in the near-term and into the future. Related to this phenomenon, Leith outlined a project currently underway between USGS and its Federal, state, and local partners to set up an independent, 12-station seismic network in Decatur, Illinois near an Archer Daniels Midland ethanol production plant. The plant commercially injects 1,000 tons of carbon dioxide per day into the Mount Simon Sandstone rock formation at a depth of 2.1 kilometers, a practice that the USGS hopes to watch closely. Leith was hopeful that the network will be able to monitor induced seismicity in the area and pinpoint its source.

In response to both briefings, Peter Jutro (EPA) made a comment on the EPA's regulatory authority over these energy technologies, noting that Congress specifically exempted the oil and gas industry from standard water pollution rules that apply to other industries. Jutro added that these regulation decisions have been delegated from the Federal level to officials at the state level in many cases, providing more flexibility for the individual states to promote local economic growth as a result of these developments.

For more information on this issue, please contact Hitzman ([mhitzman@mines.edu](mailto:mhitzman@mines.edu)), Leith ([wleith@usgs.gov](mailto:wleith@usgs.gov)), or Elizabeth Eide ([EEide@nas.edu](mailto:EEide@nas.edu)) of the National Research Council, who was Study Director for the National Research Council report. To view a video jointly produced by the National Academies and the U.S. Department of Energy on energy technologies and manmade earthquakes, please visit: <http://www.youtube.com/watch?v=Uuh9IHavdvc&feature=youtu.be>.

#### **V. Briefing: Super Typhoon Haiyan**

Applegate introduced Sezin Tokar (USAID), who is a Senior Hydrometeorological Hazards Advisor with the Office of U.S. Foreign Disaster Assistance at the U.S. Agency for International Development (USAID). Tokar graciously provided a brief update on Typhoon Haiyan's recent devastation in the Philippines.

Tokar noted that the storm made landfall in the Philippines in early November and caused widespread destruction in the country due to its impressive hydrometeorological characteristics, including maximum sustained surface winds of 195 mph at peak with 74 mph winds extending across a 60-mile-wide swath. It's high average traveling speed of 23-25 mph limited some damage, but Tokar explained that it was small comfort in the face of an observed storm surge of over 5 meters and a rainfall exceeding 250 mm

per day. In total, the typhoon affected about 11.2 million people, caused 5,680 fatalities, and displaced roughly 4 million Filipino citizens – making it one of the worst disasters in the country’s history.

In the aftermath of the disaster, Tokar highlighted that USAID determined that the priority needs of the country include food assistance, access to safe water, shelter, the recovery of livelihoods, the restoration of basic services, and displacement assistance. Reach out to Tokar ([stokar@usaid.gov](mailto:stokar@usaid.gov)) directly to receive USAID government-only updates on the disaster.

**VI. Adjournment**

Applegate adjourned the SDR December meeting at 12:06 p.m.

**VII. Future Meetings**

SDR meetings in 2013 will be held from 10:00 a.m. to 12:00 p.m. on the dates listed below in the Lincoln Room of the White House Conference Center:

**2014**

- ✓ Thursday, January 9
- ✓ Thursday, February 6
- ✓ Thursday, March 6
- ✓ Thursday, April 3
- ✓ Thursday, May 1
- ✓ Thursday, June 5
- ✓ Thursday, July 10
- ✓ Thursday, August 7
- ✓ Thursday, September 4
- ✓ Thursday, October 2
- ✓ Thursday, November 6
- ✓ Thursday, December 4

**VIII. Agenda Items and Other Communications with the Subcommittee**

Please send proposed agenda items and any other items intended for distribution to the full Subcommittee to the SDR Secretariat Bret Schothorst ([bret.schothorst@mantech.com](mailto:bret.schothorst@mantech.com)).

**IX. Contact Information**

**SDR Leadership**

David Applegate	Co-chair	703-648-6600	<a href="mailto:applegate@usgs.gov">applegate@usgs.gov</a>
Margaret Davidson	Co-chair	843-740-1220	<a href="mailto:margaret.davidson@noaa.gov">margaret.davidson@noaa.gov</a>
Dennis Wenger	Co-chair	703-292-8606	<a href="mailto:dwenger@nsf.gov">dwenger@nsf.gov</a>
Tamara Dickinson	OSTP Liaison	202-456-6105	<a href="mailto:tdickinson@ostp.eop.gov">tdickinson@ostp.eop.gov</a>

**Secretariat**

Bret Schothorst	703-388-0312	<a href="mailto:bret.schothorst@mantech.com">bret.schothorst@mantech.com</a>
Barbara Haines-Parmele	703-388-0309	<a href="mailto:barbara.haines-parmele@mantech.com">barbara.haines-parmele@mantech.com</a>

**X. Summary of December Actions**

Action	Lead	By When
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Contact the SDR Secretariat (bret.schothorst@mantech.com), copying SDR Co-chair David Applegate (applegate@usgs.gov) and OSTP Liaison Tammy Dickinson (Tamara_L_Dickinson@ostp.eop.gov), to participate in an SDR interagency working group to develop a wildland fire science and technology research agenda.	SDR Members	ASAP
Please consider supporting the work of the SDR and its Secretariat through a contribution from your agency. Let Co-chair David Applegate (applegate@usgs.gov) know if you need an Agency- or Department-specific request letter.	SDR Members	ASAP
Email SDR Secretariat (bret.schothorst@mantech.com) and OSTP Liaison Tammy Dickinson (Tamara_L_Dickinson@ostp.eop.gov) if willing to pilot an assessment of the progress of the short-, mid-, and long-term goals outlined in the SDR <i>Grand Challenges for Disaster Reduction</i> hazard implementation plans.	SDR Members	Standing
Reach out to Howard Harary (howard.harary@nist.gov) and Steve Cauffman (stephen.cauffman@nist.gov) to engage your agency in NIST's disaster resilience project to develop and adopt a Disaster Resilience Framework and an associated Panel for Model Resilience Standards and Guidelines.	SDR Members and Federal Colleagues	Standing
Contact Susan Ruffo (Susan_L_Ruffo@ceq.eop.gov) copying the OSTP Liaison Tammy Dickinson (Tamara_L_Dickinson@ostp.eop.gov) and SDR Secretariat (bret.schothorst@mantech.com) with ideas of how the SDR member agencies can get involved with follow-on activities associated with the President's <i>Climate Action Plan</i> .	SDR Members and Federal Colleagues	Standing
Contact the SDR Secretariat (bret.schothorst@mantech.com) and OSTP Liaison Tammy Dickinson (tdickinson@ostp.eop.gov) with ideas or suggestions for a path forward of how the SDR can address the issue of Federal geospatial and remote sensing data interoperability and availability identified in our post-Sandy S&T lessons learned white paper.	SDR Members	Standing
Send brief write-ups outlining the impacts that budget sequestration cuts are having on your agency's disaster reduction S&T activities in FY 2013 as well as an outlook of the President's FY 2014 budget request to the SDR Secretariat (bret.schothorst@mantech.com) copying our OSTP Liaison (tdickinson@ostp.eop.gov).	SDR Members	Standing
Contact Co-chair Dennis Wenger (dwenger@nsf.gov) if your agency is able to provide funding support to the University of Colorado Boulder's Natural Hazards Center.	SDR Members and Federal Colleagues	Standing



<p>Contact OSTP Liaison Tammy Dickinson (tdickinson@ostp.eop.gov) if it would be helpful for OSTP to issue a letter to your agency or department requesting new (or re-affirmed) designation of official representatives. Ideas for other entities that should be represented on the SDR are also welcome.</p>	<p>SDR Members</p>	<p>Standing</p>
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