

**LAND MID-CYCLE REVIEW SUBCOMMITTEE
MEETING SUMMARY****SpringHill Suites Pensacola Beach
Pensacola Beach, Florida
May 8, 2008****Welcome and Outline of Purpose***Dr. Charlie Menzie, Exponent, Inc., Subcommittee Chair*

Dr. Charlie Menzie, Chair of the Land Mid-Cycle Review Subcommittee, welcomed the participants to the face-to-face meeting and asked them to introduce themselves. He explained that the purpose of the meeting was to review the progress that the Land Program has made since the last full Board of Scientific Counselors (BOSC) review. The Subcommittee will need to organize its responses based on the charge questions. The Subcommittee members will examine specific aspects of the Program, which will be outlined later in the meeting. He provided an overview of the agenda and explained that initial thoughts of the members should be captured on paper before the meeting is adjourned.

Mr. Tim Thompson asked whether there would be another discussion following this meeting. Dr. Menzie explained that he will take the thoughts collected today and prepare a draft report, which will be sent to the Subcommittee members for review. There will be a conference call to discuss the draft.

Mr. Thompson thought that the amount of time for Subcommittee discussion was rather abbreviated.

Ms. Heather Drumm, Designated Federal Officer (DFO) of the Subcommittee, stated that Subcommittee members should be prepared for a follow-up conference call within the next 2 months.

DFO Welcome and Charge*Ms. Heather Drumm, U.S. Environmental Protection Agency (EPA)/Office of Research and Development (ORD), Subcommittee DFO*

Ms. Drumm reminded the Subcommittee members that Dr. Jim Clark also is a member but was unable to attend the meeting; he will be involved in the writing of the report. She explained that the Subcommittee members received several new handouts that morning, including the results of the client survey, the bibliometric analysis, and a homework sheet, which must be filled out and given to Ms. Drumm with travel vouchers before members leave the meeting.

Dr. Menzie asked whether Ms. Drumm had Subcommittee travel documents because he had car rental questions. Ms. Drumm instructed him to provide her with the receipts as soon as possible so that she could take care of it.

Ms. Drumm reviewed the Federal Advisory Committee Act (FACA) procedures that are required for all BOSC Subcommittee meetings. As DFO, she is present to ensure that FACA requirements are met. The Subcommittee previously met via two conference calls on April 18, 2008, and April 24, 2008. Per FACA requirements, information about all of the meetings has been published in the *Federal Register*. A follow-up conference call will be scheduled for June or July, and the goal is to have the Subcommittee's report ready for the September 2008 BOSC face-to-face meeting. Although no requests from the public have

been received, the agenda allows time for public comment at 2:00 p.m. Ms. Drumm added that she wanted to coordinate transportation to the airport that afternoon.

Overall Summary of Progress

Dr. Randy Wentsel, EPA/ORD, National Program Director (NPD) for Land

Dr. Randy Wentsel thanked the Subcommittee for its previous evaluation of the Program, which provided 33 suggestions. One-third of the suggestions pertained to the Multi-Year Plan (MYP), which was new at the time of the previous review. As he had described the Program's response to these suggestions during the previous conference calls, Dr. Wentsel explained that he would focus on the charge questions. The first charge question deals with how responsive the Program has been. Based on the comments directed toward the MYP, the Program has begun to add emerging issues and highlight outcomes to impacts. Presentations from the laboratories during the April 24, 2008, conference call highlighted impacts, outputs, and technology transfer. The presentations illustrated how the Program brings laboratory research to its clients and communicates results.

The second charge question focuses on the rationale for the revised MYP. As a result, the readability and communication within the document have improved. Subquestions were added and tested, and the initial sections of the MYP were strengthened. These contributed to the success of moving the MYP forward. The third charge question addressed Long-Term Goal (LTG) 2 and the need to restructure this LTG based on new research. One option is to assign new nanotechnology research to its own LTG and move components from LTG 1 so that the LTGs are more cohesive; the Program would appreciate Subcommittee input on this.

This Program was the first in ORD to perform a client survey in the current format. It is data-rich with respondents categorized as follows: senior executive level personnel, first-line managers at EPA Headquarters and within the regions, and Headquarters and region staff. General trends are available from the results, which have influenced future research planning. The information will continue to be evaluated.

Discussion and Question-and-Answer Period

Land Mid-Cycle Review Subcommittee

Dr. Menzie stated that some discussion among the Subcommittee members would be helpful to ensure that the members understand the information provided to them about the Program. He asked whether any of the Subcommittee members had questions for Dr. Wentsel.

Dr. Charles Haas noted that LTG 2's Annual Performance Goals (APGs) contain only continuing support until 2009. Dr. Wentsel explained that the APGs were written before the nanotechnology research was prioritized, and the list is not complete. He will provide Ms. Drumm with a revised Table 4 that captures additional items.

Dr. Haas asked how much of the nanotechnology research will focus on nanomaterial waste and postconsumer use. Dr. Wentsel explained that the research focuses on postconsumer waste and disposal. Mr. Thomas Holdsworth (EPA/ORD) added that this also has been discussed at the principal investigator (PI) level and with program officers. Project formulation is in progress because the researchers want to ensure that the approach is complete. Landfills likely will be examined. Dr. Haas stated that examining nanomaterials is a good beginning, but fate and transport must be considered. Ms. Michele Conlon (EPA/ORD) added that the National Exposure Research Laboratory is examining exposure issues such as titanium dioxide exposure from cosmetics, wastewater, and soils; silver additions to clothing and ramifications of washing; and oxium dioxide (a diesel additive) inhalation pathways. Dr. Menzie asked whether there is a common EPA model or typical application for this type of research. Ms. Conlon responded that there are many chemical and air fate and transport models, and researchers are determining

how amenable these models are to nanotechnology. First-year research will determine the agglomeration of nanomaterials and how they affect the basic chemistry and applications of the models.

Dr. Menzie noted that nanomaterial safety labels are specific to the historical chemical but do not take into account the issue of size. Dr. Wentsel commented that the Toxic Substance Control Act attempts to address the regulatory aspects of this issue, and ORD has been asked to investigate changes in physical and chemical parameters as a result of size. Additionally, this is a cross-Agency effort, with involvement by the Office of Prevention, Pesticides, and Toxic Substances; the Office of Solid Waste and Emergency Response; program offices; and the regions.

Dr. Lynne Haber commented that there are a number of specific nanotechnology issues in the MYP, which did a good job at identifying key issues. When she tried to match these issues to the APGs, however, not everything was covered. Dr. Wentsel explained that this was because these were written before detailed information was available. The Program has shifted toward fate and transport and away from health. As more details become finalized this will be referenced. Dr. Haber noted that one issue absent from these lists was ecological effects of nanomaterials. Dr. Wentsel responded that other ORD research is addressing this, whereas the Land Program has been focusing on fate and transport since 2006. Ms. Conlon and Mr. Holdsworth have led their laboratories in putting forth goals to better focus the Program. In response to a question from Dr. Haber, Dr. Wentsel clarified that ecological and health effects of nanomaterials are encompassed in other MYPs.

Mr. Thompson asked about collaborative opportunities in the nanotechnology field. Dr. Wentsel explained that one of the handouts that the Subcommittee members had received included a summary of collaborative opportunities across the federal government, including the National Institutes of Health (NIH), the National Institute of Environmental Health Sciences (NIEHS), the National Institute of Standards and Technology, and the National Institute for Occupational Safety and Health. EPA's efforts focus on nanotechnology and the environment in terms of fate and transport, ecological effects, and risk assessment. The federal agencies report does not have a risk assessment section, but this is an ongoing effort. Mr. Jeff Morris (EPA/ORD) is the nanotechnology point person. EPA has relationships with Japan and Canada and works with the U.S. Geological Survey and the U.S. Army Corps of Engineers (USACE) regarding nanotechnology ecological issues.

Mr. Thompson asked whether there is a list of the top 10 issues that must be addressed. Dr. Wentsel responded that there is a nanotechnology research strategy in place, and the products for the next 4–5 years are detailed within the strategy. The focus moved to fate and transport themes in studying human health, ecological effects, prevention, and mitigation approximately 2 years ago. Risk assessment is separate, and human health and ecological effects are under different MYPs.

Dr. Haber commented that the MYP had been substantively changed in response to suggestions from the 2005 review, but no response had been made in terms of collaboration and leveraging. International-level collaboration was recommended but not addressed. Dr. Wentsel explained that international collaboration requires EPA involvement outside of the Program. Ms. Patricia Erickson (EPA/ORD) described a collaboration with Australia regarding alternate covers for landfills, and Dr. Fran Kremer (EPA/ORD) described a collaboration with Russia developing tools to mitigate extensive polychlorinated biphenyl contamination. Global transport issues are a major concern. Research and development converting solid waste into alternate energy sources are ongoing, as is research improving landfill design. EPA is working with major companies within the European Union (EU) regarding methodologies for greenhouse gas and fugitive emissions. Dr. Menzie asked how these international collaborations evolve. Mr. Holdsworth explained that they evolve via the literature and diligence on the part of EPA PIs. Some of the Brownfields work is in collaboration with Germany and the United Kingdom (UK). Mr. Morris initiated the nanotechnology collaboration with Japan, Canada, and the UK.

Dr. Menzie asked whether there is a strategic effort. Dr. Wentzel replied that there is such an effort with nanotechnology because it has become a major issue, but ground water and soil gradient issues do not have a formal strategy. These areas do receive input, however, and EPA products in these areas are accessed by the international community. Dr. Menzie asked whether performance meetings and publications were important to the international community. Dr. Wentzel replied that they were, as was PI interaction, but a fair amount of energy is needed to collaborate at the international level. A certain need must be apparent, and the presence of increased unknowns fosters collaboration.

Dr. Haber asked whether national coordination occurred so as not to duplicate efforts. Dr. Wentzel replied that there was such coordination; for example, EPA reviews NIEHS grant applications and provides input on needed topics. EPA also interacts with the Strategic Environmental Research and Development Program (SERDP) and the U.S. Department of Energy. Dr. Menzie asked how the Program encouraged a recent gathering on bioavailability research to move toward sediments research. Dr. Wentzel explained that they share research plans and directions, and some of EPA's ideas had been adopted.

Dr. Haber noted that one of the recommendations from the previous review was to include more social science research regarding behavior and the economy and commented that this was not addressed in the Program's response. Dr. Wentzel responded that this issue has been discussed, but ORD has not yet built up this expertise; the Program must depend on the Office of Economic Analysis for this type of work. This may be incorporated into Superfund site issues. The full-time equivalents (FTEs) are being adjusted, and this type of expertise has not been included. Ms. Erickson added that the Brownfields projects worked with Germany and other nongovernmental organizations that have this expertise, and this complimented the engineering expertise of ORD.

Dr. Haber asked how emerging issues are incorporated into projects. Dr. Wentzel responded that sometimes regions bring these issues to ORD's attention and request assistance in addressing them, other times ORD identifies an acute need for which it can supply expertise. Dr. Kremer described an example of working with Regions 5 and 7 to address prions and vapor intrusion issues within deer and elk populations and vapor intrusion issues. Dr. Wentzel explained that some efforts begin as an informal project and expand over time (e.g., ethanol in ground water expanding to biofuels) in a top-down approach.

Dr. Wentzel explained that the first three pages of the "Annual Performance Goals and Measures for Nanomaterials Research" table that the Subcommittee members received are part of the Land Program, and the remainder of the table is covered under other MYPs. A more recent version of the table will be supplied to the members during lunch. A PI meeting will be held this summer to determine project assignments. He acknowledged that communicating the research will need more work.

Dr. Menzie asked whether there has been some forecasting at the NPD level. Dr. Wentzel replied that as NPD he examines what is occurring within ORD and how to manage technical support centers and liaisons in the field, placing them strategically within ORD and its needs while allowing enough freedom to work within these emerging areas.

Dr. Menzie stated that Mr. Phillip Juengst had joined via teleconference and asked him to proceed with his presentation; the discussion and question-and-answer period regarding the overall progress will continue after the presentation.

Client Survey Discussion

Mr. Phillip Juengst, EPA/ORD

Mr. Juengst explained that he leads the Accountability Team at ORD and interfaces with the Office of Management and Budget (OMB) on metrics of performance measurement. ORD is trying to develop a more complete set of data to contribute to BOSC program reviews so that the BOSC has a better suite of

information. Bibliometric analyses are key and have been implemented throughout all ORD research programs. Decision document analyses measure the number of citations that are used in decision documents; this is a labor-intensive process.

ORD also is conducting regular partner surveys that have been developed as a valuable performance measure. The challenge was to develop a meaningful, single point that could be tracked over time and was OMB-approved. It was agreed to rely on surveys as a management and information tool to contribute to BOSC assessments. The surveys have been refined to ensure that they are representative of the client and partner population. ORD, including the Office of Science Policy, worked with the Land Program to develop a survey instrument that allowed clients and partners to assess the quality, relevance, timeliness, and impact of ORD land-related science. Questions regarding communication and collaboration also were included to ensure that useful program management feedback was received. Partners who do or should use land research results in their decisions and actions were identified, and they were asked to provide feedback regarding the survey instrument.

The results of the survey provide an indication of the responsiveness of the Program to client needs. Results indicate that some improvement is needed, and ORD and the Program are analyzing the results to determine areas of improvement and identify an action plan to improve the responsiveness of the Program. Dr. Wentzel will present the data and his plan for improvement.

Mr. Thompson commented that this effort illustrated how serious ORD and the Program are about getting in touch with the client base, and commended ORD for undertaking this effort. Although 59 percent of respondents indicated that the quality, timeliness, and responsiveness of the Program was “good” or better, it is possible that 41 percent think that there is room for improvement. Mr. Juengst described the question related to this result and indicated that respondents were asked to rate the Program on a scale of 1 (extremely poor) to 7 (excellent); 59 percent answered “5” or higher. A breakout of each rating is available; the challenge in preparing a summary is that there is a different level of confidence in the data depending on the response rate for each questions. Overall, there is a 95 percent confidence level ($\pm 10\%$) for most of the questions. The confidence interval decreases within subcategories. As the data continue to be analyzed the confidence levels must be examined to identify those that are statistically significant in terms of making sweeping generalizations.

Mr. Thompson asked for clarification on how to read the survey results. Mr. Juengst explained that not all partners perform work in all areas; therefore, many questions were skipped depending on partner projects.

Mr. Juengst stated that the most important factor is to assess whether the Program is making progress in responding to the 2005 review. The survey results summary is in the context of the direction in which the Program is heading in terms of performance assessment. This provides the Subcommittee members with an idea of the future directions of the Program. The initial survey examination indicates that the partners approve of the MYP and view the Program as performing quality, timely, and relevant research that impacts decisions; there is room for improvement in terms of communication, collaboration, and planning. Dr. Menzie added that these results provide a benchmark of the current aspects of the Program. A mid-cycle review focuses on a few specific factors: quality, speed, and success of Program’s actions and progress in addressing previous recommendations. He asked Mr. Juengst and Dr. Wentzel whether any of the questions might provide useful information for the Subcommittee members to determine this type of progress. Dr. Wentzel replied that questions 52 and 54 provide overall feedback on satisfaction with products and speed.

Dr. Haber asked how the Subcommittee can measure progress without an earlier benchmark. Dr. Wentzel answered that this is a valid point; this is a benchmark and an indicator of customer satisfaction. Many of the projects are very specific and so responses are sporadic.

Dr. Robert Siegrist asked how many were surveyed and how many responded. Dr. Wentsel replied that approximately 60 of the 100 partners surveyed responded. The response rate was lowest at the senior executive level and highest at the staff level. All respondents answered questions 46–48.

Dr. Haas asked whether the survey would affect the action strategy. Dr. Wentsel responded that it would, although it still is challenging to receive input from the regions and the program offices. The survey helped to identify the top issues to address, including planning and communication. Mr. Thompson commented that this provides a baseline to measure against in the future. Dr. Wentsel added that the Program received written comments from some respondents, and testimonials from remedial project managers. The survey was a good idea, and the Program will use the results to improve appropriate areas. Dr. Siegrist commented that there must be a balance between efforts put into obtaining numeric survey data to ensure useful results so that efforts are not being taken away from more important projects.

Overall Summary of Progress Discussion and Question-and-Answer Period (continued)
Land Mid-Cycle Review Subcommittee

Mr. Thompson commented that this MYP is the best one that he has seen for the Program. It is important for goals and products to relate to each other. Although the research topics are appropriate, there are relatively few products related to the topics. Dr. Wentsel explained that ground water research is performed within one division, but sediment research is more dispersed, so it may be more difficult to see the relationships. There is a section on sediment research accomplishments in the members' notebooks. Mr. Thompson noted that this section mentioned enhanced fate and transport modeling at three major sediment sites without mention of an associated product. Capturing the impact these products have on decisions is important and would help with OMB's Program Assessment Rating Tool process. Some of the models and other products mentioned during Program presentations are not captured in the accomplishments section. Dr. Wentsel noted that some databases and other accomplishments are on the Web site, and many of the National Health and Environmental Effects Research Laboratory products are published in journals such as *Environmental Toxicology and Chemistry*. Mr. Thompson suggested that Program leadership should cross-match these items so that they can receive credit for their efforts.

Mr. Thompson noted that the MYP did not adequately address quality control in project review and asked what progress had been made toward quality control measures. Dr. Wentsel responded that Quality Assurance Project Plan (QAPP) issues generally are not addressed in MYPs and asked laboratory personnel to comment. Mr. Holdsworth responded that ORD has a stringent quality assurance/quality control (QA/QC) program in place, and all projects receive proper QA/QC as early as the planning stages. QA/QC may not have been highlighted in Subcommittee materials properly, but a program is in place. Dr. Wentsel reiterated that quality control generally is not addressed in the MYP other than to mention that it exists. Dr. Menzie added that the Subcommittee did not specifically address QA/QC within the MYP in its previous review, but it was acknowledged that the Program had difficulties cross-walking to specific products within the sediments research. Dr. Wentsel agreed that there was not a clear enough linkage between the research activities and the products.

Mr. Thompson noted that a Technical Resource Document (TRD) for monitored natural recovery has been discussed since 2003. Mr. Holdsworth explained that the TRD has been finalized and should be released in August 2008. Dr. Wentsel added that the technology already has been applied at sites.

In response to a question from Dr. Menzie, Dr. Wentsel stated that fact sheets regarding sediment research products are available on the Web site. Mr. Thompson stated that he had examined the fact sheets, but that the product is in the publication of results, and not necessarily in fact sheets. Dr. Wentsel replied that the fact sheets link areas in which the Program has had an impact.

Mr. Thompson asked whether EPA's ocean survey vessel, *Bold*, would impact ORD's research budget and whether the Program could use the vessel to perform research. Dr. Wentzel responded that the laboratory has a few vessels, but they are paid from other budgets.

Mr. Thompson asked where sediment and ground water products are published. Dr. Wentzel replied that EPA has a Science Connector that links EPA scientists. Region 5 set up the sediments site within the Science Connector. Mr. Holdsworth added that full briefings occur semi-annually with monthly progress calls. Dr. Wentzel explained that some regional personnel have resigned, and new contacts are needed for this effort. Mr. Thompson suggested that some documents be made available on the Web site. Dr. Wentzel responded that this would necessitate a public Web site and agreed that it is important for states and contractors to gain access to certain information. The Intranet site allows internal distribution of documents not approved for public release. Mr. Thompson suggested that this approach be made more transparent to the reader of the MYP.

Dr. Siegrist thought that the Program was very responsive following the full review but is concerned about the basis of the response. The MYP was somewhat difficult to read, but perhaps it was meant as an internal document. The degree of transparency and structure of emerging issues research is unclear, including whether there is a structured, periodic method for identifying emerging issues. Dr. Wentzel described the example of permeable reactive barriers initially developed for organics and then tested in inorganics; good research programs recognize that some existing tools and methods can be tested and used in emerging areas. Dr. Siegrist commented that these are examples of adaptive situations, not emerging issues, which are concerns that have never been thought of before.

Dr. Siegrist expressed concern with the wording of the LTGs. Dr. Wentzel explained that the Program attempted to address these concerns via the science questions. Dr. Siegrist agreed that the science questions were of good quality, as was the Web site. The shift to nanotechnology, however, required budget cuts in other important areas. Dr. Wentzel stated that the BOSC and ORD suggested a shift from low-priority areas, so the budget would have been cut regardless. In the longer term, this shift will be positive.

Dr. Siegrist commented that the ground water research areas were important and appropriate, whereas particle movement research within nanotechnology was missing. He wondered about the ground water link to nanotechnology and other emerging areas. Dr. Wentzel answered that nanotechnology fate and transport in ground water is one research area. Dr. Siegrist thought that fate and transport were captured under LTG 2 but less so under ground water in LTG 1. Mr. Holdsworth explained that discussions about biofuels, energy, and the larger picture are being discussed at the laboratory level; these issues have been a greater challenge at the manager level. FTEs are being shifted to capture emerging areas, but existing areas of research also are important. Dr. Wentzel added that this is a challenge for all areas of ORD.

Dr. Siegrist was pleased with the \$2 million PI opportunity, especially with regard to younger scientists so that they do not have to compete with SERDP or other sources. If ORD can keep this going, many good ideas will come from it. Dr. Wentzel agreed that this was a one-time arrangement, but it would be desirable to have this every year. The program offices appreciate the chance for PIs to focus on their biggest challenges. Two or three of the 11 projects already have produced products for testing.

Dr. Menzie asked whether Figure 5 of the MYP represented the future. Dr. Wentzel replied that it did; these are areas that the laboratories have indicated will have enough science to produce larger products from an accumulation of smaller products. APGs feed into other APGs to support the LTG.

In response to a question asked by Dr. Menzie about the ground water and multimedia sections of the MYP, Dr. Wentzel explained that some products would be produced in 2007 and 2008, but the ultimate goal would not be accomplished until 2009 or later. In response to another question by Dr. Menzie, Dr. Wentzel explained that any blanks within Appendix A indicate that there are no projects being

conducted in these areas; some areas may be outside the Program and have been directed to other EPA programs or offices (e.g., the Office of Water [OW]).

Dr. Menzie explained that the full review mentioned uncertainty in terms of those uncertainties associated with various technologies being developed versus a full uncertainty analysis. The Web site has a page devoted to uncertainty, and Dr. Menzie wanted to ensure that Program leadership understood the context in which uncertainty had been mentioned. Dr. Wentzel stated that Program leaders assumed a risk assessment context.

Dr. Menzie asked whether there had been further progress regarding duplication of efforts following the feedback that the Program had provided about this area. Dr. Wentzel responded that he hoped that the response clarified the Program's stance about this. ORD pays PIs' salaries so that they can provide expert advice to others who do not have it.

Dr. Menzie asked about the future of decision-support tools. Ms. Erickson responded that the Program is working with the Brownfields office in collaboration with a large team of volunteers, and the result will be posted on the Web site in September or October 2008. Brownfields is not able to support at the same level as in the past starting in fiscal year 2008, so shared opportunities and Cooperative Research and Development Agreements (CRADAs) are being sought. There is a need for landscape ecology and land use decision support integration, and land researchers are collaborating on this effort; positive feedback from both sides is expected. There also may be a way to use or expand the same knowledge base for energy and climate issues. Team members are being shared with Dr. Rick Linthurst, NPD of the Ecological Research Program, toward a decision-support platform.

Dr. Haas asked about the intersection of the Land Program with the prion issue in culled carcasses. Dr. Wentzel replied that it is a landfill issue. Dr. Haas suggested that collaborating with the UK and Canada regarding animal disposal may be helpful. Dr. Wentzel noted that Dr. Kremer is a national leader in this area, and she explained that she communicates with the EU to keep apprised of their advances.

Dr. Siegrist asked whether any ground water research related to pharmaceuticals fate and transport or trace organic movement in the subsurface is being conducted by the Program. Dr. Wentzel replied that an endocrine disrupters program elsewhere in ORD has the lead in this area. Dr. Siegrist asked for clarification about whether this group had the lead regarding fate and transport in the subsurface as well. Ms. Erickson explained that the Program examines pharmaceuticals migration within landfills; if the pharmaceuticals reach the leachate and the leachate reaches a wastewater treatment plant, what is the fate in the liquid stream or the biosolids? Drinking water, ground water, wastewater, and land researchers are tracking the literature and are ready to perform pharmaceutical research as necessary.

Subcommittee Discussion

Land Mid-Cycle Subcommittee

During the working session, the Subcommittee discussed details for completing their evaluation. The Subcommittee members discussed their impressions of the information presented that morning and of the Program as a whole. The members shared their individual summary reports and commented on the summary reports prepared by other Subcommittee members. The Subcommittee decided to discuss the Program's progress in terms of each charge question separately.

Dr. Menzie explained that the first charge question broadly addresses the issue of responsiveness, the second charge question also is a broad question, and the third charge question is specific to LTG 2. The final charge is to assign a rating to the Program based on its progress since the 2005 review; this charge question may be the focus of the majority of the discussion. Dr. Siegrist added that the Subcommittee should comment on areas of the Program that are especially successful as well as those that are lacking.

The Subcommittee members discussed the benefits and disadvantages of providing each LTG with its own rating versus assigning one overall rating.

In terms of the responsiveness of the Program, Dr. Menzie was pleased to observe that the Program took action in a number of different areas. The Subcommittee's previous recommendations and the Program's actions have been captured in a table that will supplement the narrative discussion in the report. Dr. Siegrist concurred that the Program was remarkably responsive to the previous recommendations, including minor details. He is concerned with emerging issues and the shift of resources within the Program, but these are beyond the scope of responsiveness. Dr. Menzie added that the uncertainty question was not conveyed well. He thought that the uncertainty analysis was related to tools and procedures, but the response the Program gave was different. The previous recommendation was to consider methods to characterize and communicate uncertainty to users. Dr. Haas suggested that the term "limitation" be used instead of "uncertainty," and Mr. Thompson concurred. Dr. Siegrist asked whether all recommendations in a mid-cycle review were considered action items.

Ms. Drumm explained that some mid-cycle review subcommittees had determined that no response was necessary from the program it was assessing; the level of response needed from the Program is the decision of the Subcommittee. Dr. Menzie asked how mid-cycle reviews are used. Ms. Drumm stated that Dr. Wentsel would determine how to use the mid-cycle review. Dr. Siegrist commented that they could make suggestions to ORD but tell the office that no response was necessary. Dr. Menzie added that a responsiveness summary included as an attachment to the letter report might be useful.

Dr. Haas stated that the international collaborations in OW occur at the program office level, and needs are conveyed to ORD; he was unsure how OSWER managed international collaborations. Dr. Haber commented that the two-pronged approach that incorporated regional needs and PI suggestions was good. Dr. Menzie asked Dr. Wentsel whether OSWER has the same interaction at the international level as OW. Dr. Wentsel responded that, under OSWER, Superfund is managed via the regions, and Brownfields takes a more international approach. In response to a question from Dr. Siegrist, Dr. Wentsel explained that travel money, especially for international travel, is an issue for EPA PIs, who generally travel to meetings or other workshops at the expense of the host.

Mr. Thompson commented that the Program had responded to the issue of linkages, but the response could be improved. Dr. Siegrist thought that the response was appropriate and that the difficulties related to linkage were reasonably explained. He added that he was concerned about the Program areas that lost funds as a result of the shift to emerging issues. Dr. Haas agreed and commented that the Program relied on regional feedback to identify investments but did not follow the same protocol in determining areas in which to disinvest. Dr. Siegrist thought that the survey was used to determine lower areas of priority.

Dr. Menzie commented that the Program could improve in terms of its QA/QC process. Mr. Thompson agreed and stated that any organization should address quality. The survey indicated that 41 percent of respondents were less satisfied with quality; this needs to be addressed. The Subcommittee should make a recommendation to ensure that QA/QC procedures work satisfactorily.

After the lunch break, Mr. Thompson commented that the contaminated sediments portion of the Web site provides no links to publications, and there are only two Science in Action pages regarding sediments. Mr. Holdsworth will provide information about these publications to the Subcommittee next week. Research is being published in quality journals such as *Environmental Science & Technology* and *Environmental Toxicology and Chemistry*. The contaminated sediments group is providing critical information, although there are limited technology reports. It is difficult to capture advice provided to regions and USACE as a product.

Dr. Haber noted that there was a charge question in the previous review that focused on peer review and mechanisms that ensure quality, but this was not addressed in this MYP. Dr. Wentzel promised to check into this and get back to the Subcommittee members. The MYP details the Program's commitment to check with the program offices semi-annually to ensure that their needs are being met, but this is not quite the same issue.

Dr. Menzie stated that the second charge question was related to the first, and the Subcommittee's response should be similar with one exception: LTG 2 will need to be revised over time. This question focuses on the rationale for the revised MYP. The Subcommittee members did not have any additional comments regarding Charge Question 2.

Dr. Menzie commented that the third charge question may be an area in which the Subcommittee members can revisit the phrasing of the LTGs. Dr. Siegrist added that science is driving LTG 2 via key science questions and activities, although the LTG as stated is customer oriented. This LTG will be dominated by nanotechnology. At what point will this LTG deal exclusively with nanotechnology? Dr. Haber thought that there were many areas under LTG 2 that were not nanotechnology. Dr. Siegrist commented that the shift to nanotechnology was made based in part on the previous BOSC review, and it ties into LTG 1 in areas related to mining, Superfund megasites, and resource conservation. Dr. Menzie asked whether nanotechnology should be the focus of a third LTG. Dr. Haas was not comfortable with a nanotechnology-dedicated LTG.

Dr. Menzie suggested that LTG 2 be phrased, "Clients request and apply ORD research products and services needed to manage and address existing and emerging material streams and associated wastes." Dr. Siegrist commented that conserving resources is missing from this statement and wondered what conservation activities were currently being undertaken under LTG 2. Dr. Menzie suggested that the LTG also could be phrased as, "Provide clients with requested ORD research products and services needed to manage and address existing and emerging material streams and associated wastes." Dr. Haas commented that the proactive evaluation of emerging material stream problems should be added as a third quality. Dr. Menzie stated that this is a mechanism/procedure to identify what research is needed; it is important and necessary.

Dr. Haas suggested to Ms. Drumm that it might be useful to the BOSC and its subcommittees to have a 1-pager devoted to the LTGs of each program so that the various subcommittees could determine whether an issue is being addressed in another program.

Dr. Haber was concerned that there is so much dedicated to nanotechnology within LTG 2 that there may not be the flexibility necessary to deal with other emerging issues. She suggested that the Program not "put all of its eggs in one basket" so that it can maintain the ability to address other emerging issues as they arise. Dr. Siegrist asked how LTG 2 could be more effectively restructured. Dr. Haas commented that nanotechnology was prioritized because of regional requests and federal initiatives, but this should not be the sole issue to which the Program reacts. Dr. Menzie suggested that a theme be created that is designed to identify emerging issues and allocate funds to that type of exercise. Dr. Haas thought that this might need to be an overarching ORD activity versus that of a specific program. Dr. Menzie reminded the Subcommittee members that Dr. Wentzel had mentioned the possibility of a third LTG. Dr. Haber thought that nanotechnology is important but should not rise to the level of its own LTG. Dr. Siegrist agreed that the LTG should focus on all emerging issues and not just nanotechnology.

Program Rating Discussion

Land Mid-Cycle Subcommittee

In a working session, the Subcommittee members discussed each charge question, collaborated on the language and structure of the overall report, reached consensus on areas of disagreement, and exchanged

information to facilitate preparation of the Subcommittee's report. The Subcommittee members reached a consensus on the overall Program Rating.

Dr. Menzie explained that the Subcommittee now would discuss each of the previously discussed issues in terms of rating: Why is a certain area good or excellent? Why is a certain area less than good? What areas need improvement? The review should be based on the quality of work, speed of delivery, and the success of the Program's actions in addressing the previous BOSC recommendations.

Dr. Haber asked whether the Subcommittee was supposed to be rating the progress in moving forward since the 2005 review and what the benchmark was for that review. Dr. Menzie replied that there are various lines of evidence available to show the Program's progress during 2006 and 2007. Dr. Siegrist added that the following questions should be considered: What actions have been taken? Were they timely and effective? Dr. Haas thought that success meant in terms of how the Program succeeded in addressing the previous recommendations. Ms. Drumm stated that the Subcommittee needs to go beyond the MYP and assess the whole program.

Dr. Siegrist explained that he begins with "Meets Expectations" as a grade; "Exceptional" must be remarkably and totally responsive with many changes. He views this Program as "Meets Expectations Plus," because the Program was responsive in most every aspect but not completely in all cases. In examining the LTGS, the Program exceeds expectations; it has met its LTGs and exceeds in some. Dr. Menzie agreed with this assessment and explained that he examined the Program's outputs with respect to its goals; the Program met 100 percent of its proposed outputs during 2006 and 2007. The Program accomplished all that it stated it would, and Dr. Menzie bases his rating on the Program's outputs, such as publication records. The Subcommittee must formulate its rating based on the quality, speed, and success of the Program's actions. The Program's speed is good, and the Program was restructured successfully based on the previous recommendations. Dr. Siegrist added that the ratings were somewhat confusing because they were developed for full BOSC reviews versus mid-cycle reviews.

Dr. Siegrist pointed out that the Program was completely restructured within 2 years, which is very quick turnaround time for a federal agency. Mr. Thompson agreed that the Program did make a timely shift to address emerging issues based on comments from the 2005 review.

Dr. Menzie was impressed that the Program has been able to collaborate with NIEHS and pursue CRADAs; the Program was very proactive in keeping various efforts active. He thought that the Program meets expectations in terms of LTG 1 and was unsure whether it exceeds expectations in terms of LTG 2.

Dr. Siegrist viewed the rating as being derived from Charge Questions 1 and 2. The Subcommittee has evaluated the Program's responsiveness, rationale, and consistency, but now must evaluate whether the Program responded quickly with a positive impact.

Mr. Thompson thought that there had been much activity under LTG 1, but there is a disconnect with products from LTG 1 in that they are not readily available and/or are not being produced in a timely manner. Dr. Siegrist pointed out that the charge indicates that the Subcommittee must rate the Program on its quality, speed, and success in addressing the previous recommendations, and there was no previous recommendation for the Program to create more products more quickly. Mr. Thompson stated that the Program needed to address their products' impact, so the issue of products is relevant. Dr. Siegrist explained that the next full review will deal with the science underlying the Program's products. Dr. Menzie stated that the Subcommittee could report on two levels: progress on the Program's blueprint (e.g., APGs, etc.) and progress in responding to the previous recommendations.

Public Comment

Ms. Drumm called for public comment at 2 p.m. No comments were offered.

Program Rating Discussion (continued)

Dr. Menzie stated that his overall score would be “Meets Expectations” or “Exceeds Expectations.” Some areas were met and others exceeded expectations. Mr. Thompson thought that the Program has fallen behind on some goals, and there are many projects that the Subcommittee cannot evaluate. Perhaps his thoughts can be included in a discussion regarding areas of improvement. Ms. Drumm agreed that suggestions and observations could be included in the Subcommittee’s report.

Dr. Siegrist commented that what is a normal and realistic expectation should be considered. The Program’s responsiveness and timeliness were very good. The review does not speak to the specifics of the science and how the clients received products. Dr. Haas agreed that the Program was very responsive in considering emerging issues as suggested in the previous review. Dr. Haber added that the Program created a nanotechnology program from nothing, identified key issues, and collaborated effectively. She thought that the Program meets or exceeds expectations. It is impressive that the Program is saving hundreds of thousands of dollars; not many programs can claim that.

Dr. Menzie stated that, in terms of the Program’s oil spills work, the efforts are on track; the Program needs to shift resources and respond to recommendations and budget constraints. The rating for the Program appears to be “Meets Expectations” or “Exceeds Expectations.” The responsiveness of the Program must be acknowledged. Is the Program proceeding as planned? Is it performing as expected? Mr. Thompson thought that overall the Program is performing as expected, and that the field of sediments has a good set of projects designed to answer important issues in sediments management. Mr. Thompson thought that some areas are proceeding too slowly, he acknowledged that the 2005 review did not instruct the Program to speed up its deliverables.

Dr. Siegrist observed that the shift in resources to nanotechnology could mean that potentially important aspects of the Program may be neglected. The shift to nanotechnology is positive, but it may have consequences. Lower priority areas are trying to leverage resources. The Program needs to consider how it will address other emerging issues. Mr. Thompson asked how nanotechnology was prioritized. Ms. Conlon explained that the shift to nanotechnology occurred as a result of a presidential directive. EPA would have responded to this directive regardless, but because of the BOSC recommendation to the Program to identify emerging issues, the Land Program strategically planned how it could respond. The Program has received funding and FTEs dedicated to nanotechnology research, which is planned through 2015.

Wrap-Up and Report Out*Land Mid-Cycle Subcommittee*

Dr. Menzie explained that the Subcommittee members will draft a final report following the meeting and then presented an overview of the Subcommittee’s findings. In regard to Charge Question 1, the members found the Program to be responsive with a few minor exceptions: uncertainty and possibly international collaboration and quality control. The Subcommittee will provide a narrative and supporting table regarding these issues. Overall, the members were pleased with the responsiveness of the Program, and the report will clarify issues such as uncertainty and quality control.

The same discussions carried over to Charge Question 2, and the Subcommittee found the Program to be responsive in this area as well. The effort was made to direct Subcommittee members to additional documents and MYPs so that they could understand why changes were made. Dr. Siegrist commented that the Subcommittee was impressed that the Program had addressed so many of the recommendations from the previous review in such a comprehensive manner.

The next question focused on the structure of LTG 2. The Subcommittee made a suggestion regarding the phrasing of how the goal is stated, which currently places an emphasis on materials; this may be divided

into two goals if it is more advantageous for the Program to do so. However, the conservation of resources aspect appears to be diminishing. Dr. Wentsel responded that the FTEs for this were reduced by 50 percent within the last 2 years, and he knew that conservation was going to be lost as a result of reprioritization. Dr. Haber asked whether some of this was incorporated into the Technology for Sustainability MYP. Dr. Wentsel answered that this is a component of that MYP, but that program has its own issues defining what it can and should do.

Dr. Siegrist asked how the Program will handle the next emerging issue. Dr. Wentsel stated that the methamphetamine laboratory issue is mandated, and the laboratories are trying to orchestrate this shift. It will start with those performing related work, as this is an unfunded mandate. Funding may be received to perform this work within the next 1–2 years.

Dr. Menzie noted that the Subcommittee members agreed that the Program meets or exceeds expectations. The Program was considered in two different ways: (1) what the Program did in response to the prior comments, and (2) the progress of the Program relative to the plan. The Subcommittee members were impressed in terms of Program response. With regard to Program performance in meeting planned steps and publications, the Subcommittee thought that the Program meets or exceeds expectations. Other programs reviewed have received a rating of “Meets Expectations,” and none have received an “Exceptional” rating.

It was evident that efforts were made to extend the life of the Program and leverage through collaborative efforts with NIH, the Department of Defense’s Environmental Security Technology Certification Program, and private and nongovernmental organizations. To keep life in important projects while facing a situation of decreased funding is admirable. Dr. Wentsel agreed that circumstances drove the Program in this direction. Dr. Menzie commended the proactiveness of the Program.

Dr. Siegrist commented that the Program did an excellent job of providing information that enabled the Subcommittee members to evaluate the progress made during the last 2 years. The sequencing of materials and conference calls was very well done.

Dr. Menzie thanked the Subcommittee members for their time and effort and explained that the next step would be to draft a report. Ms. Drumm will e-mail Subcommittee members regarding their availability for a conference call in June 2008.

Dr. Menzie thanked everyone for their participation and adjourned the meeting at 3:00 p.m.

Action Items

- ✍ Dr. Menzie will draft a report for review by the Subcommittee members.
- ✍ Ms. Drumm will e-mail the Subcommittee members to determine a date and time for the next teleconference in June 2008.
- ✍ Dr. Wentsel will provide Ms. Drumm with a revised Table 4 that captures additional APGs.
- ✍ Mr. Holdsworth will provide information about contaminated sediments publications to the Subcommittee and a specific list of accomplishments.
- ✍ Dr. Wentsel will investigate the MYP in terms of including peer review and report back to the Subcommittee members.

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**LAND MID-CYCLE SUBCOMMITTEE
FACE-TO-FACE MEETING
AGENDA
May 8, 2008**

**SpringHill Suites Pensacola Beach
Pensacola Beach, Florida**

Thursday, May 8, 2008

8:30–9:00 a.m.	Registration	
9:00–9:10 a.m.	Welcome and Outline of Purpose	Dr. Charlie Menzie Chair, Land Mid-Cycle Subcommittee
9:10–9:15 a.m.	DFO Welcome and Charge - Administrative Procedures/FACA Rules	Heather Drumm (EPA) DFO, Land Mid-Cycle Subcommittee
9:15–10:00 a.m.	Overall Summary of Progress - Discussion and Q&A	Dr. Randy Wentzel and Research Planning Committee, ORD Land Mid-Cycle Subcommittee
10:00–10:15 a.m.	Client Survey Discussion	Phillip Juengst (EPA), Office of Research and Development
10:15 a.m.– 12:00 p.m.	Subcommittee Discussion	Land Mid-Cycle Subcommittee
12:00–1:00 p.m.	Lunch	
1:00–2:00 p.m.	Program Rating Discussion	Land Mid-Cycle Subcommittee
2:00–2:10 p.m.	Public Comment	
2:10–3:00 p.m.	Wrap-Up and Report Out	Land Mid-Cycle Subcommittee
3:00 p.m.	Adjourn	