Sustainable Remediation Forum (SURF) SURF 17: May 19 and 20, 2011 Chicago, Illinois

SURF 17 was held in Chicago, Illinois on May 19 and 20, 2011 at the Region 5 offices of the U.S. Environmental Protection Agency (USEPA). SURF members that participated in the 1½-day meeting are listed in Attachment 1 along with their contact information. The meeting marked the 17th time that various stakeholders in remediation—industry, government agencies, environmental groups, consultants, and academia—came together to develop the ability to use sustainability concepts in remedial decision-making. Previous meeting minutes are available to SURF members at www.sustainableremediation.org.

Meeting Opening

The meeting began with Mike Rominger (meeting facilitator) welcoming participants and thanking the USEPA for providing a venue for the meeting. Mike presented the mission statement of SURF and discussed meeting logistics and ground rules. Mike stated that it was assumed that nothing discussed or presented contained confidential information. He explained that export control laws that pertain to the transfer of technology to non-U.S. citizens and their countries do not appear to apply, but advised participants to act appropriately for their organizations. Mike also mentioned antitrust issues.

Efforts to achieve "sustainable neutral environmental behavior" continued at this meeting. Name tags and tent cards were reused. Many participants brought their own coffee mugs and water bottles and used public transportation to travel to the meeting location. Some participants reduced the carbon footprint caused by their travel by purchasing carbon offsets. Efforts to achieve sustainable neutral behavior are ongoing and will continue at future meetings.

Mike thanked SURF members Ray Lewis (Sunpro Inc.) and Steven Murawski (U.S. Environmental Law Counsel) for their work in planning the meeting agenda and the current SURF sponsors for supporting the organization. Members interested in sponsorship opportunities should contact Brandt Butler, SURF Treasurer (see Attachment 1 for contact information).

SURF member Brandt Butler shared a brief safety moment from personal experience. Through x-rays, Brandt reinforced the importance of taking multiple trips and breaking down loads when walking down the stairs. Presentation slides (and x-rays) are provided in Attachment 2.

Committee and Initiative Breakout Sessions

SURF members continue to work on initiatives that will further the mission of the organization. At this meeting, breakout sessions were held for the following initiatives: Academic Outreach, Metrics, Communications and Outreach, and Framework. The groups worked on the following efforts:

□ Academic Outreach

At the last meeting, the group discussed and listed the potential areas of future sustainable remediation research. At this meeting, the group discussed how to address the multitude of responses and overlap within responses and developed

action items to continue moving forward. The group also discussed the process of Battelle's SURF Student Paper Competition and brainstormed ideas for improvement. Detailed notes from this session are provided in Attachment 3.

□ Metrics

This group worked on reviewing and testing the Metrics Toolbox that complements the metrics article in *Remediation*. The toolbox consists of specific tables of metrics for various phases of remedial action. The tables include columns for the parameter, objective, metrics, data sources, implementation guidance, external benefits, and challenges. The toolbox also shows the user whether the metric is qualitative or quantitative and which aspect of the triple bottom line the metric influences. After the meeting, the group finalized the Metric Toolbox, which is available on the SURF web site under "Library," "Guidance, Tools, and Other Resources."

Communications and Outreach

This committee solicited feedback from SURF members about how to communicate more effectively within SURF, gain new members, and retain members. Specifically, participants in the session shared their thoughts about why people join SURF and the perceived benefits of participating. The group was asked to suggest ways to increase or improve participation, and volunteers for efforts were obtained. The group also discussed how their answers mesh with SURF's 2011 goals and objectives. Attachment 4 contains a compilation of the group's responses during the breakout session and the 2011 goals and objectives against which they will base their next steps.

□ Framework

This group discussed follow-up steps for the Framework initiative and potential future technical initiatives. Specific topics discussed included promoting the Framework article published in *Remediation* and identifying and/or developing case studies testing the Framework.

Panel Discussion: Incorporating Green and Sustainable Remediation

A panel discussion was held and focused on incorporating green and sustainable remediation into projects at state and federal levels within Region 5. Brad Bradley, Superfund Greener Cleanup Coordinator for USEPA Region 5, moderated the discussion. The following panelists participated in the discussion:

- □ Jennifer Borski [Wisconsin Department of Natural Resources (WDNR)]
- □ Rebecca Bourdon [Minnesota Pollution Control Agency (MPCA)] (by phone)
- □ Gary King (Illinois EPA)
- □ Nancy Zikmanis (Ohio EPA)

Brad presented topics to the panelists to spur discussions with the larger group. Panelists briefly gave their perspective on each topic before meeting participants asked questions of the panelists and open discussions began. The panelists' responses and subsequent discussions are

summarized in the subsections below. Additional information about each state's program can be found on their web sites.

Discussion Topic 1: Key Policies or Initiatives

Panelists were asked to comment on the key policies and/or initiatives associated with green and sustainable remediation that are in place or are being developed or implemented in their states.

□ Minnesota

Rebecca said that Minnesota's primary initiative has been active for two years. It was initiated as a concept in 2002 as a toolkit for greener practices. Using stimulus money, the MPCA is creating voluntary guidance and developing master services contract and drilling contract requirements for performing greener cleanups. The MPCA is focusing on creating guidance for the petroleum program this year, followed by guidance for other programs by 2015.

□ Wisconsin

Jennifer said that Wisconsin's efforts initially focused on greener cleanups only, but existing programs have been expanded to include greener approaches to all areas of remediation (e.g., investigation, spill response). The broader approach is called the Wisconsin Initiative for Sustainable Remediation and Redevelopment (WISRR). As part of the program, a guide is being developed to help WDNR staff who conduct baseline sustainability reviews for proposed remediation systems. The guide will provide a framework for comparing outcomes from various sustainable elements on individual remedial projects. She said that the WDNR is also working on optimizing state-led or state-funded remedial systems. Six systems have been selected, and best practices are being implemented to achieve a more sustainable approach.

Ohio

Unlike other states within Region 5, Nancy said that the Ohio EPA has focused its efforts on funding rather than policy or guidance. The Sustainable Reinvestment Pilot Track is a \$7 million fund that targets the revitalization of waterfront properties and parks and the use of solar and wind for energy. Specifically, applicants can receive two points for incorporating sustainability requirements into their designs. Nancy said that the Green Team in the Ohio EPA focuses heavily on prevention, as evidenced by its new location in the Division of Materials and Waste Management. The team is leveraging the existing guidance available and integrating it into the Ohio program.

Illinois

Gary told participants that Illinois is achieving site closure at about 1,000 sites per year. Illinois uses the following five guiding principles for greener cleanups: (1) ensure every cleanup protects human health and the environment, (2) integrate site reuse plans into the cleanup strategy, (3) conserve raw materials, (4) conserve energy, and (5) consider the environmental effects of treatment technologies when choosing a site remedy. Gary said that the program also emphasizes clarity, sense, and assurance. Clarity in that the processes are clear and can be applied consistently. Sense in that the cleanup objectives make sense in their approach to

the protection of human health and the environment, and assurance in that the objectives can be achieved and an endpoint can be reached. Gary said that risk-based approaches and institutional controls are used frequently to help create sites that can be reused easily.

Discussions focused on obtaining the panelists' views about greenwashing. Rebecca (MPCA) said that she is noticing acceptance of a general baseline approach for green projects. As the industry adapts to and integrates green practices into projects, she believes greener and greener practices will result and a paradigm shift will occur. Jennifer (WDNR) added that remediation practitioners should not be discouraged from attempting a green remedy. She said that Wisconsin rewards significant sustainable measures through a grant program and mentioned the City of Neenah as an example. The city and its community development authority were awarded the annual Natural Resources Award based on their proactive efforts to convert a property containing an ash fill with lead ash into a community asset. The current building on the property meets silver LEED [Leadership in Energy and Environmental Design] standards. Nancy said that the Ohio EPA focuses more on educating people about sustainability and its benefits. Gary said that the Illinois EPA has not encountered greenwashing. Brad (USEPA Region 5) added that greenwashing is beginning to emerge and said that he saw two examples of it at a recent conference.

Discussion Topic 2: Current State of Green and Sustainable Cleanups

Panelists were asked to comment on the current state of green and sustainable cleanups in their states and whether the use of green and sustainable practices are common or rare or somewhere in between.

□ Wisconsin

Jennifer said that green and sustainable cleanups are client driven in Wisconsin rather than regulatory driven, citing time and money as the key parameters. Companies are proactively making commitments (e.g., reducing water usage), and the efforts to achieve these goals are trickling down to remedies and cleanups. She said that the WDNR is incorporating greener practices into six of their sites currently in the operations and maintenance phase. The goal is to implement the approaches and recommendations in the WISRR guide being developed on projects where the WDNR has flexibility and control.

Ohio

Nancy indicated that, as in Wisconsin, green remediation is driven by clients and practitioners, but believes that the effectiveness of green and sustainable practices needs to be proven with data.

□ Illinois

Gary said that around the same time that SURF initiated its efforts as an ad-hoc group, the Illinois EPA organized a working session to identify the obstacles hindering greener remediation and to develop solutions to overcome the obstacles. The primary solution that emerged from the workshop was to incentivize green remediation, perhaps through a certification process. Since then, the Illinois EPA has invested significant effort interacting with the USEPA and participating in the ASTM's efforts as a way of incentivizing the use of greener practices.

□ Minnesota

By its very definition, sustainability encompasses many disciplines—attorneys, financiers, and consultants (to name a few). Rebecca said that, although industry is willing to incorporate green and sustainable practices and concepts into cleanups, it is struggling to keep the pace with limited resources. She believes that SURF, ASTM, and the Interstate Technology & Regulatory Council (ITRC) are instrumental in keeping efforts moving forward. Rebecca said that her agency is working on developing tools and metrics to help showcase case studies that have been performed to date.

Participants asked the panelists questions about the definition of green vs. sustainable remediation and the appropriate time to incorporate green and sustainable concepts and practices into a project. Gary said that the Illinois EPA has included the phrase "integrate site reuse plans into the strategy," promoting the incorporation of green and sustainable practices at the earliest stage of the remediation life cycle. Nancy (Ohio EPA) agreed and said that it is important to think about sustainability concepts before the cleanup phase. She believes that cost, regardless of end land use, is the driving force for incorporating green and sustainable concepts and practices into a project. Nancy said that sustainable practices provide the responsible party the ability to save costs through efforts such as material reuse. Jennifer (WDNR) agreed that sustainability aspects should be considered at the beginning of a project and emphasized the importance of other drivers (e.g., stakeholders) in influencing the final implementation. Rebecca (MPCA) said that green and sustainable concepts should be evaluated before and after remedy selection, but noted that the greatest opportunity to integrate sustainability elements, including social and economic parameters, is at the beginning of a project.

Additional discussions focused on the need to consider current and future land use during sustainability assessments and incorporate the flexibility within the process to consider future land use changes.

Discussion Topic 3: Future of Sustainable Remediation

Panelists were asked to comment on the short- and longer term future of sustainable remediation in their state.

Ohio

Nancy told participants that the idea of sustainable remediation and the economic downturn hit Ohio at the same time. As a result, her agency focused on the funding aspects of sustainable remediation. She said that the agency continues to fight to maintain its current funding for sustainable remediation. Nancy believes that future efforts will likely focus on metrics and trying to understand the appropriate elements that must be present to be truly sustainable. She said that the work already performed by SURF, the ITRC, and ASTM will be leveraged during future Ohio EPA efforts.

Illinois

Gary reiterated the intention of the Illinois EPA to administer a program with clarity, sense, and assurance. In his view, the green and sustainable remediation process has progressed to where LEED was 15 years ago. He said that although LEED took 15 years to develop and change the architectural field, he does not

think it will take that long for green and sustainable remediation to take hold. He cited funding as the biggest challenge and said that additional funding would help drive more green and sustainable activities.

□ Minnesota

Rebecca said that her agency is working on developing guidance that will be based on the heavy lifting performed by SURF, the ITRC, and ASTM and the products that they have developed. She believes that there will be a low pendulum swing in the use of sustainable remediation in her state and that the scoring and awarding process will become more important. Rebecca told participants that continued transparency and information sharing between organizations and stakeholders are the keys to improving implementation of sustainable concepts. She cited a Rhode Island environmental justice policy initially written by stakeholders that integrates components such as outreach into the process. She stressed that green and sustainable remediation does not require extra effort and simple terms and said that simple processes will help make efforts succeed.

Wisconsin

Jennifer said that Wisconsin has identified short- and long-term goals through WISRR. In the short term, the WISRR guide must be finalized so that the process can be implemented at the six sites mentioned previously. The ultimate goal is to implement the process at all state-funded sites in Wisconsin. In the meantime, she recommends that people consider green and sustainable remediation practices. Jennifer said that her agency continues to strengthen its existing stakeholder partnerships (e.g., sustainable business council at a university) and is working to initiate new partnerships. In the longer term, her agency will apply the WISRR guide to all cleanups as a requirement. Jennifer told participants that the WNDR is currently writing administrative rules that will require the consideration of greener cleanup methods. She said that companies that implement efforts beyond baseline compliance will be rewarded through a green tiered program. Jennifer ended her remarks by stressing that, throughout all of these efforts, the protection of human health and the environment is paramount.

One participant asked panelists to comment on the future state of the regulatory environment as it relates to more flexible and/or alternative cleanup endpoints. He said that many remedial activities are currently driven by engineering solutions such as cleanup to a maximum contaminant level (MCL). Flexible cleanup endpoints are emerging concepts, and alternative cleanup endpoints represent the next layer of this concept. Nancy said that she sees an evolution to cleaning to the nearest receptor vs. MCLs in Ohio's voluntary action program. Gary added that regulators in Illinois have been given the freedom to act with common sense in mind. Rebecca said that this issue has been received with pushback, similar to green and sustainable remediation concepts. She addresses the pushback by challenging skeptics to show her an argument against a site where green and sustainable remediation has addressed all three aspects of the triple bottom line. She said that many people think implementing green and sustainable remediation involves more work, but when people dig in and learn that it's easy to do they change their minds. Jennifer responded to the question by stressing the importance of balancing technology advancements and aggressive remediation with realistic goals. She said that the

WDNR routinely implements flexible closure and emphasized the need to communicate and continue to share information as a way to achieving sustainable remediation. Brad (USEPA Region 5) ended the discussion by saying that he would mention this idea to Headquarters.

Another participant asked panelists if they could anticipate anything in the future that could disrupt successful implementation of green and sustainable remediation. Gary (Illinois EPA) said that decisions that push the envelope too far result in a rebound effect that will negatively impact many projects. Nancy (Ohio EPA) brought up the backlash that can occur when the public is not involved in remedy selection. She said that genuine solutions that are more sustainable need to be communicated not only to the regulator, but to the public as well. Jennifer (WDNR) said that outreach is the key to avoiding these pitfalls. She suggested that participants not waste their time trying to convince responsible parties that green and sustainable remediation is a good idea, noting that these individuals are quickly becoming a minority. Rebecca added to Jennifer's thoughts by saying that it is critical to craft the message internally as well as externally. She believes that the most important and significant barrier is people who do not believe in sustainable remediation and are not interested in it. She mentioned a proposed waiver in New Jersey that includes the concept of sustainable remediation and goals, but allows for waiver of the rule if the site is not considered high risk. Rebecca believes that this effort could derail the progress of green and sustainable remediation because it is counter to the assumption that human health and the environment is always protected. As a result, she stressed careful implementation and application of green and sustainable remediation practices.

Open Discussion with Panelists

Participants were encouraged to ask additional questions of the panelists. One participant asked Brad (USEPA Region 5) to comment on any of the questions presented from a larger viewpoint. Brad summarized the following current green and sustainable remediation efforts within the USEPA and his agency:

□ Superfund Green Remediation Strategy

This USEPA strategy outlines nine key actions (with 40 specific action items) and describes related activities to promote green remediation. Brad said that some of the specific action items are completed. The current status of action items is provided at http://www.epa.gov/superfund/greenremediation/.

□ Region 5 Greener Cleanup Interim Policy

This regional policy was signed in November 2009 and is similar to other policies but a bit broader. Brad said that it includes green measures as part of the analysis and green measures are weighed against other measures equally.

□ SmartWay

The SmartWay program is a collaboration between the USEPA and the freight transportation industry that helps freight shippers, carriers, and logistics companies improve fuel-efficiency and save money. Brad detailed some of the energy savings that can be achieved through small changes such as trailer skirts and air tabs. Additional information about the program is available at http://www.epa.gov/smartwaylogistics/.

Materials Management

Sustainable Materials Management: The Road Ahead is a white paper developed by Region 5 that emphasizes the need to shift from waste management to materials management. The white paper lists three major recommendations for the USEPA and state environmental agencies, one of which is to promote efforts to manage materials and products on a life-cycle basis. Brad said that the document is a good reference for those individuals new to green and sustainable remediation. The document is available at http://www.epa.gov/wastes/inforesources/pubs/vision2.pdf.

Brad said that his agency continues to use resources wisely and leverage the work of other regions. He cited communication and attitude as the biggest obstacles to achieving success. Brad suggested that participants visit Clu-In's web site for fact sheets of best management practices and links to states' efforts (http://www.clu-in.org/greenremediation/).

At the end of the open discussion, participants were asked to write their suggestions for future SURF activities based on the panel discussion. Responses include short- and long-term suggestions for action and are provided in Attachment 5.

Presentations

Presentations and subsequent discussions are summarized in the paragraphs below. Attachments 6 through 10 contain the presentation slides.

Update: Colorado State University Student Chapter

Natalie Zeman (Student Member, Colorado State University Student Chapter) provided an update of the chapter's activities in the past year. She described the students' field trip to a Laramie, Wyoming site that was a former railroad tie treating plant. A permeable reactive barrier and phytoremediation along with a former pump-and-treat system contain and treat creosote contamination at the site. Students also traveled to Rocky Mountain Arsenal, which has undergone remediation and transformation into a wildlife refuge. Natalie thanked SURF, Terra Systems, and Dr. Tom Sale for their generous financial support of the chapter. The chapter's future activities and goals are to grow and stabilize the organization through new student membership, promote SURF student organizations at other academic institutions, and schedule the upcoming year's speakers and field trips. Natalie encouraged SURF members to contact her if interested in making a presentation to the chapter. (Natalie's contact information is provided in Attachment 1.) Presentation slides are provided in Attachment 6.

Discussions focused on the challenges of forming student chapters. Natalie stressed the importance of having an active faculty advisor to provide encouragement and direction. Tom Sale (Faculty Advisor) cited the turnover of students as a major challenge. Regarding the application process, Natalie said that all of the materials developed by her chapter are available on SURF's web site for use by other student chapters.

Additional discussions focused on the importance of reaching out to other disciplines involved in remediation and ways to generate funds for the chapter. One participant suggested reaching out to the local Engineers without Borders for new members. The same participant recommended that the chapter consider becoming a storefront for SURF-branded materials and believed that the Board of Trustees could develop a reasonable agreement to support the effort.

The PLACES Program: Defining the Sustainable Future

Dick Raymond (Terra Systems) presented an overview of the Planning Land and Communities to be Environmentally Sustainable (PLACES) program developed by the USEPA. The voluntary program is a 50-point planning model based on three key systems: environmental, social, and economic. Dick presented the fundamental sustainability issues that the program addresses. One of the program's basic tenets is that the earth and its resources are finite, but renewable with sustainable stewardship. Communities that elect to participate in the PLACES program must begin with a multi-disciplinary team that identifies local and regional ecosystem structures, functions, and processes. This background establishes a context for making land-use decisions. After meeting some prerequisites (e.g., documenting locations of toxic sites to ensure no contact with human life), PLACES communities must meet four basic requirements (see Attachment 7). Dick described the ecosystem, social system, and economic system requirements that must be tracked as part of the program.

He also presented the evolution of the program, which began when the USEPA developed a master plan incorporating sustainability for Stella, Missouri to address concerns about growth and the demolition of a hospital with a major asbestos issue. The USEPA used SMARTe (Sustainable Management Approaches and Revitalization Tools—electronic) to develop the master plan. Dick summarized the four components of SMARTe and showed how it was used to create the objectives for the town of Stella. Presentation slides are provided in Attachment 7.

Comments after the presentation focused on the possibility of leveraging portions of this approach and applying them to SURF products (i.e., the Framework). Dick mentioned that the impacts of efforts are measured in the planning model and could be of use to SURF.

Sustainable Remediation Database Now Turned "Site of Sites"

Ray Lewis (Sunpro Inc.) provided an update of the sustainable remediation database initiative that has been discussed in prior meetings. Based on feedback from the last meeting, the scope of the initiative was scaled back in the near term so that the project was more attainable in a shorter timeframe with fewer resources. The interim program is dubbed the Site of Sites Initiative because it will be an internet-based resource that will categorize and provide links to existing sustainable remediation resources and tools, describe their unique utility, and objectively rate them to the extent possible. By design, the program will provide the preliminary research necessary for the larger database initiative, result in a usable deliverable within about six months, and provide the validation to pursue subsequent grant funding for the database initiative. Ray listed the key milestones and timeline for the new initiative.

Paul Anderson of the Illinois Institute of Technology (IIT) described the partnership between SURF and IIT. The IIT team includes students from environmental engineering, environmental management, and the law school. Collaborating through a Chicago environmental law clinic, these students will conduct a comprehensive review of existing resources and tools for sustainable site remediation; devise a preliminary definition, criteria, and metrics to evaluate sustainability tools; and create a report that contains recommended goals, design, and structure for the Site of Sites web site and the subsequent database. Presentation slides are provided in Attachment 8.

Participants asked clarification questions of the presenters. Ray told participants that a detailed description of the effort is available for members on SURF's web site under "Member

Resources," "Collaboration Area," "Technical Initiatives," "SR Site of Sites Initiative." SURF members interested in helping with the initiative should contact Ray (see Attachment 1 for contact information).

Sustainable Communities: The Economics of Cleaning Brown to Green

Robert Colangelo (National Brownfield Association) focused his presentation on the opportunities that are available in the tough real estate market today and the role of sustainable communities in achieving a higher level of sustainability. He said that many forces are converging to make the building of a sustainable community on a brownfield site a more realistic goal than in years past. Today, most brownfield re-development is being initiated as a result of motivational cooperation. This change, along with the increased global awareness of climate change since 2000, has allowed re-development approaches to evolve. Robert said that brownfields need to be re-developed sustainably, but (in his opinion) with a sense of place. He presented place-making characteristics and described to participants how prosperous regional economies can result.

Next Robert presented case studies of a livable city and land bank creation. For the first case study, he stressed the importance of learning from the past and presented examples of classic shrinking cities (e.g., Pittsburgh, Pennsylvania) that were able to reverse fate and become livable cities. The key elements of a livable city were presented. In the second case study, the concept of land bank creation was demonstrated. A Land Bank Authority is a public authority designed to acquire, hold, manage, and dispose of foreclosed properties, as well as other vacant, abandoned, and underutilized properties. The value of this approach is that the authority foregoes the short-term revenue for the long-term good of the city.

Finally, Robert reviewed the key elements of the brownfield development process and noted that repositioning, which occurs after remediation and before re-development, has the most opportunity to create value. He suggested that life-cycle analysis be applied to the re-development process so that decisions are based on long-term value.

Robert asked participants about SURF's value proposition and discussed the benefits of having a value proposition (e.g., identifying the driver for sustainable remediation or why people perform sustainable remediation). Participants provided the following responses to Robert's question:

- Initially, individuals and companies were interested in sustainable remediation because of the lower cost that resulted from decreased energy use on annual operations and maintenance.
- □ Sustainable remediation is partially driven by the federal government and its requirements to reduce greenhouse gas emissions.
- □ In order to meet their sustainability goals, larger international companies must integrate sustainability throughout their organizations.

Robert encouraged SURF members to apply sustainable remediation in progressive and visionary fields (e.g., intercity airports, urban agriculture, and renewable energy). He said that sustainable communities are most successful when community members are already sold on the triple bottom line concept. Progressive case studies (e.g., transit-oriented development) could be shown to demonstrate how sustainable remediation can be applied. Robert encouraged SURF members to look into the RACER Trust as a possible partner. The RACER Trust was created in

March 2011 by a U.S. Bankruptcy Court to clean up and position for re-development properties and other facilities owned by the former General Motors Corp. before its 2009 bankruptcy.

Robert ended his presentation by encouraging SURF members to clearly define sustainable remediation and then show the value proposition in a variety of areas (e.g., project economics, impact to environment). He acknowledged that developing a value proposition takes upfront work, but urged SURF members to consider this approach as a way to help SURF move forward. Presentation slides are provided in Attachment 9.

After finishing his presentation, participants asked Robert questions. Robert agreed with one participant who stressed the importance of economic drivers and suggested that SURF members show the value proposition of sustainable remediation to business since businesspeople have the most interest. Another participant asked Robert how to best engage the portion of the population that lives in depressed neighborhoods but becomes left behind during gentrification. Robert said that displacement of residents due to gentrification is one of the unintended consequences of brownfield development. He said the issue is very complicated, noting that, although the goal of brownfield re-development is value creation, people are being displaced.

Structure for a Sustainable World

Henry Henderson (Natural Resources Defense Council) described a structure for a sustainable world that includes robust public participation and input, which in the U.S. includes citizen engagement in legislation, rule making, and enforcement of the law. For instance, both the Clean Air and Clean Water Acts guarantee citizen access to information, participation in regulatory review, and capacity to sue both government and polluters when violations of standards occur. In short, citizen participation in the entire cycle of environmental decision making is essential for sustainability, assuring that people are involved in their fates, not mere spectators. In order to achieve this structure, a series of public policy commitments are necessary. Henry acknowledged the fundamental limitations of mandates and suggested applying sustainable remediation to the Midwest, which remains the highest energy-intensive economy in the U.S. He discussed the challenges of the Midwest and recommended investment in failing systems and creation of new value. Henry also recommended taking a shared approach for the future of the region by applying the sustainable remediation mentality to physical and energy structures as well as critical infrastructure items.

Henry asked participants if sustainable remediation is seen as an opportunity to transform the Midwest and broadly reform how we use water and manage waste. One participant responded that broad reform is generally addressed during community development projects that focus on the end use of the property. Sustainable remediation tends to focus on the functionality of parcels of land and, as such, the remedy implemented must be in sync with future goals and land use. Henry asked participants how sustainable remediation can be incorporated at a larger scale. One participant emphasized the need for a vision. Henry agreed, saying that the brownfield program had a vision to show how brownfield re-development could affect the real estate market in a positive way. He said that the business voice present today needs to be reflected in the public sphere.

Additional discussions focused on the difficulty of the political process and the lack of a long-term vision. One participant stressed the need to overcome the perception that sustainable re-development means more and sustainable remediation means less. Another participant

emphasized the difference between how the public and responsible parties interpret the word "less." One participant believed that SURF's value proposition should encompass all aspects of the triple bottom line and emphasized the importance of doing so. Another participant discussed the issues of voluntary vs. involuntary risk and litigation as barriers to sustainable remediation. Henry ended the discussion by explaining that deadlocks in the decision-making process can be avoided only through a vibrant, ongoing process of defining goals.

Sustainability is Alive and Well in Ohio: A Case Study

Nancy Zikmanis (Ohio EPA) presented case studies and sustainability initiatives in Ohio and explained the partnerships and forces that spur the use of sustainable practices in the state. The first case study presented focused on general sustainability elements rather than sustainable remediation specifically. Nancy used this case study as an opportunity to remind SURF to continue its mission of educating people about sustainable remediation. She told participants that many people think of "sustainable" in terms of items such as green roofs rather than sustainable practices being applied to the remedial process. The second and third case studies presented highlighted deconstruction and recycling activities at two hospitals. Asbestos removal was the remediation driver for one of the projects; Nancy encouraged SURF members to investigate sustainable options to address asbestos disposal. Demonstrating the federal government's support of green remediation, the fourth case study presented involved elements such as green stormwater systems and concrete and asphalt recycling at a NASA facility. The fifth case study presented involved a site where groundwater contaminants, including chromium, were being treated using bioremediation. Nancy explained the obstacles in performing the remedy efficiently that could have been identified before implementation (e.g., lower temperature in shallow groundwater slowing bioremediation, ineffectiveness of bioremediation on chromium). She emphasized the importance of knowing your site and ensuring that all parties involved with the project are "on the same page." These two items are critical during the development and implementation of feasible sustainable remediation activities. Nancy ended her presentation with a review of the funding programs available in Ohio. Presentation slides are provided in Attachment 10.

Discussions following the presentation focused on the barriers in getting everyone "on the same page." Nancy said that disconnects can be present for a variety of reasons and believes that training and effective communication are the solutions.

Action Items

The following action items were identified during the meeting:

- 1. Upcoming meetings are scheduled as noted below. Please note that these dates can change; the most up-to-date information is posted on the web site. If you are a SURF member and would like to help plan or host an upcoming meeting, contact Mike Rominger (meeting facilitator) (see Attachment 1 for contact information).
 - SURF 18: September 21-22, 2011 Boeing Corporation and AECOM (Seattle, Washington)
 - SURF 19: January 31-February 2, 2012 University of California San Diego (San Diego, California)

- 2. The work of the committees and initiatives will continue. Action items for specific committee and initiative members are detailed throughout these notes. All scheduled conference calls for the various committees and initiatives are shown on a calendar on the web site. The calendar is located on the members-only portion of the SURF web site under "Member Resources, Committee Calendar." SURF members interested in joining a particular effort should contact the co-chairperson directly.
- 3. As a reminder, detailed minutes from the bi-weekly SURF Board of Trustees conference calls are available to members at the SURF web site in the members-only portion under "Member Resources," "Documents," "Administrative Documents."

ATTACHMENTS

Attachment 1 SURF 17 Participant Contact Information

SURF 17 Participant Contact Information

Participant	Affiliation		
Adams, Kathy	Writing Unlimited, LLC		
Anderson, Paul	Illinois Institute of Technology		
Bartz, Curtis	Canadian National		
Beil, Kurt	ARCADIS		
Borski, Jennifer	Wisconsin Department of Natural Resources		
Bradley, Brad	U.S. Environmental Protection Agency Region 5		
Brncich, Dee	Waste Management		
Butler, Brandt	URS Corporation		
Colangelo, Robert	National Brownfields Association		
Curnock, David	United Technologies Corporation		
Davenport, Sean	Colorado School of Mines		
Denson, Scott	SUNPRO		
Elwell, William	AECOM		
Favara, Paul	CH2MHILL		
Fetzner, Keith	Environmental Resources Management		
Fisher, Angela	GE Global Research		
Giillespie, Rick	Regenesis		
Hagelin, Nathan	MACTEC Engineering and Consulting		
Heidlauf, David	ENVIRON International Corporation		
Henderson, Henry	National Research Defense Council		
Holland, Karin	Haley & Aldrich		
Karnis, Stella	Canadian National		
Kasner, Dennis	URS Corporation		
Kelley, Justin	AECOM		
King, Gary	Illinois Environmental Protection Agency		
Kluger, Mark	Dajak, LLC		
Koenigsberg, Stephen	Adventus Group		
Krieger, Todd	DuPont		
Lantz, Rik	Sullivan International Group		
Lewis, Jack	SUNPRO		
Lewis, Ray	SUNPRO		
Marotte, Rick	MACTEC Engineering and Consulting		
McGinn, Michael	Cardno ENTRIX		
McMaster, Michaye	Geosyntec Consultants		
Miller, Michael	CDM		
Moxley, Katie	The Boeing Company		
Murawski, Steven	U.S. Environmental Law Counsel		
Newman, Pixie	CH2MHILL		
Raymond, Dick	Terra Systems, Inc.		
Richter, Anngie	Cardno JFNew		
Rominger, Mike	MCR Facilitation Services		
Sale, Tom	Colorado State University		
Semer, Robin	URS Corporation		
Smith, Maile	Northgate Environmental Management		

SURF 17 Participant Contact Information

Participant	Affiliation	
Sprinkle, Devin	Canadian National	
Stanley, Curt	Shell Global Solutions	
Taege, Deborah	The Boeing Company	
Tatnall, Thomas	Haley & Aldrich	
Tipton, Karina	Brown and Caldwell	
Van Donsel, Terese	Naval Facilities Engineering Command	
Van Nortwick, James	General Electric Company	
Voight, Dave	MEC ^x	
Wice, Rick	Shaw Environmental & Infrastructure Group	
Woodward, Dave	AECOM	
Xu, Limeimei	Illinois Institute of Technology	
Zeman, Natalie	Colorado State University Student Chapter	
Zhang, Ying	Illinois Institute of Technology	
Zikmanis, Nancy	Ohio Environmental Protection Agency	
Remote Attendees		
Armstead, Robert	WRScompass	
Bourdon, Rebecca	Minnesota Pollution Control Agency	
Larsen-Hallock, Lorraine	TechLaw Inc.	
Simon, John	WSP Environment & Energy	

Attachment 2 Safety Moment

Attention to the Hazards of the Job

(or, the Consequences of Unsafe Behavior)

Brandt Butler URS Corporation, Newark, DE





Just another day in paradise ...

- Bought a beach house in North Carolina
 - New Carpets and paint
 - Hanging pictures on Labor Day Weekend
- What am I about to do?
 - Hang coat rack on first floor
 - Carry drill, tools, electric cord from 3rd floor



What could go wrong?

- I tripped on the top step
- My body landed prone on the treads
- "... somewhat comminuted fracture of the left proximal humerus and a badly comminuted left distal radius fracture with significant displacement and angulation ..."



What could be done to make it safer?

- Break down load
- Ask for help
- Take multiple trips to keep two points of contact with stairs
- Keep focused on hazards of job



Attachment 3 Academic Outreach Initiative: Detailed Breakout Session Notes

SUSTAINABLE REMEDIATION FORUM ACADEMIC OUTREACH INITIATIVE May 19, 2011

May 19, 201

Participants:

Mike Miller (leader)	Angela Fisher	Devin Sprinkle	Ying Zhang
Curtis Bartz	Mark Kluger	Rick Wice	
Scott Denson	Katie Moxley	Dave Woodward	
Paul Favara	Tom Sale	Natalie Zemen	

Note: Contact information is provided in Attachment 1.

Topics Discussed:

- 1. Battelle SURF Student Paper Competition The group discussed the process that occurred for the student paper competition. Initiative members worked with Battelle organizers and advertised the competition. A cash prize was sponsored by SURF. Battelle received about 20 to 30 abstracts, none of which focused on the topic of sustainable remediation. A small subset of the submittals contained sustainable elements, but only in a minor note or mention. SURF members participated in the paper reviews, but a separate SURF award was not presented. The group seemed to think that the competition was a good idea and should continue. The following ideas were mentioned as ways to improve the process: (1) provide detailed guidelines of the sustainable remediation-related elements required to be addressed in the paper, (2) solicit papers from specific academic institutions and targeted faculty (e.g., Colorado State University), and (3) initiate an e-mail campaign within universities using SURF's university contacts.
- Academic Contact Listing The group discussed its previous unsuccessful efforts to obtain academic contacts from members. A new supplemental list of contacts was started by the session attendees, and plans to separately poll individual SURF members were also discussed.
- Meetings at Universities The group discussed the value of having more meetings at universities. Action items for achieving this goal were discussed and are listed in Item #6. There is also value in programs to bring students to SURF meetings wherever they are held.
- 4. **Presence at Other Meetings and Conferences** The group discussed the importance of SURF's presence at meetings and conferences as a way to reach out to academics.
- 5. Future Sustainable Remediation Research At the last meeting, the group discussed and listed current and potential areas of future sustainable remediation research. During this session, the group discussed how to manage the responses, which comprise four very long lists. The following suggestions were made: (1) conduct a cross-sort of all of the items on the lists, (2) break the lists down further into more reasonable lists that people can absorb, (3) identify common themes within the lists, and (4) convene via conference call to reach a consensus on a short list of pressing research needs. This work may lead to a white paper on sustainable remediation research needs.
- 6. Action Items Based on the discussions, the following action items were identified:
 - Continue to sponsor a student paper competition at Battelle.
 - Include conference fees, etc., and funding to the next SURF meeting as part of the award.
 - Provide an advisor that is not a competition judge to help students with questions during paper development.
 - When soliciting papers, include a letter describing the ranking criteria, more details about sustainable remediation, and paper element requirements.

SUSTAINABLE REMEDIATION FORUM ACADEMIC OUTREACH INITIATIVE May 19, 2011

- Solicit faculty contact information from meeting participants, explaining that this is the first step in the process.
- Identify universities with sustainable remediation programs, and target those schools for future meeting locations.
- Investigate a SURF booth or table at the 2011 Southern Region Meeting of the American Short Line and Regional Railroad Association held October 23-24, and follow-up with Devin about possible CN sponsorship of a poster session.
- For the lists of research ideas, identify small projects to get the momentum going and identify potential lead researchers for each topic.
 - Form small task group to come up with ideas, distribute to organization for review, and implement. Circle back later to other ideas.
 - Empower initiative members to work on topics in which they are interested, for example:
 - Team with a flexible university contact and write a white paper about which impact method to include when conducting a footprint analysis. (Team: Paul, Angela, Todd)
 - Evaluate carbon dioxide impacts of standard technologies. (Longer term)
 - Give students an opportunity to perform footprint analysis. (Longer term)
 - Perform a pilot test of green remediation vs. sustainable remediation by comparing the timing of sustainability concept integration (green = after remedy selection; sustainable = during remedy selection). (Longer term)
 - Develop guidance on making better remediation decisions with the aid of sustainability principles. (Longer term)

Attachment 4 Communications and Outreach Committee: Compilation of Responses & 2011 Goals and Objectives

SUSTAINABLE REMEDIATION FORUM COMMUNICATIONS AND OUTREACH COMMITTEE

May 19, 2011

Focus Group Questions and Responses:

1. Why did you join SURF? (Or, why would you join SURF?)

- a. Networking
- b. Education, professional development
- c. To stay current on the topic of SR
- d. Marketing support/PR/branding for my organization
- e. Fulfills a personal dedication to sustainability
- f. To find out what my competitors are doing
- g. Sustainability is part of my corporation's mission
- h. To be on the cutting edge of the science, trend, new policies
- i. A valued contact recommended SURF

2. Why do you continue to be a member?

- a. Technically stimulating
- b. Leadership and technical training, professional development
- c. Networking, building relationships
- d. Personal interest in the topic
- e. SURF has a broad focus, it is inclusive, with extensive topics and participants
- f. SURF meetings are small enough for personal interactions yet still diverse in perspectives, experience
- g. Influence on regulations or research
- h. Gets me out of the office for a couple of days

3. What do you perceive as barriers to joining or participating in SURF?

- a. Too inclusive, clique-ish
- b. It has a heavy marketing aspect (industry perception)
- c. Veiled excuse for no action (regulatory perception)
- d. Sustainable remediation just generates additional work (problem owners perception)
- e. SURF is new, unknown
- f. I'm afraid of/reluctant to change
- g. I can't discern "what's in it for me"
- h. Lack of clear incentives to joining
- i. SURF doesn't have any funding sources for my research needs (academics)
- j. There are other "competitors" that I'm more familiar with (ITRC, ASTM)
- k. Mission and differentiators are unclear
- I. Not enough social and economic aspects
- m. My organization won't fund it, professional development funding allocated elsewhere
- n. Limited travel allowances
- o. Not technical enough
- p. Technical initiatives are stale
- q. Ongoing A/V issues
- r. Too far to travel, inconvenient
- s. General work fatigue

4. What could SURF do or change to eliminate some of these real/perceived barriers?

- a. Ensure meeting themes and presentation topics appeal to a broad audience
- b. Demonstrate influence on policy, state of the practice
- c. Include well-organized focused discussion panels at every meeting(regulators, industry)
- d. Hold seminars internally within member organizations with diverse attendees
- e. Members invite clients, regulators, vendors
- f. Testimonials (website, presentations)
- g. Networking
- h. Marketing should emphasize similarities to known entities (Brownfields)
- i. Joint conferences, piggy-backing

SUSTAINABLE REMEDIATION FORUM COMMUNICATIONS AND OUTREACH COMMITTEE

May 19, 2011

- j. Focused training/educational modules
- k. Strategic meeting locations, invite locals
- I. Recognizable affiliations, members (advertise specifically who "we" are)
- m. Booths/tables and conferences, trade shows
- n. Attending conferences with broad scope or attendees
- o. Advance agenda/program planning and advertising
- p. Different location(s), remote access, webinars, streaming video, improved A/V
- q. Continuing education credits or other training opportunities that would facilitate company reimbursement for professional development

5. Next Steps

- a. Compile responses (above)
- b. Map to 2011 Goals and Objectives: How do the focus group responses enhance or detract from SURF's goals?
- c. Share responses with Board of Trustees, other committees/initiatives, and members; include recommendations
- d. Develop an outreach/PR plan
 - i. Solicit volunteers
 - ii. Update outreach materials
 - 1. Existing: flyers, presentations
 - 2. New:
 - a. Testimonials (publish on website, flyers, newsletter)
 - b. Opt-in email for news/meeting alerts, email-able slideshow, webinars
 - c. SURF award for sustainable remediation projects
 - d. Other?



SURF 2011 GOALS AND OBJECTIVES

SURF 17 EPA REGION V, CHICAGO



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increase membership

membership diversity		publish	marketing and branding
increase student chapters	meeting planning and organization	research support	communications
	financial planning	SURF "credentials"	



2010 ACCOMPLISHMENTS

- 1. get planning teams together early
- 2. develop theme
- 3. ID potential presentations
- 4. work with hosts and committee leads early
 - effective meetings and collaborations

1. ID effective leaders and a mission for each

2011 !!

effective and timely publications

- 1. develop policy
- 2. publicize it
- 3. reinforce it

effective internal and external communications





- 1. publicize all SURF activities
- 2. target specific conferences for presentations and presence
- 3. encourage overseas affiliates
- 4. build uponmission statement

- 1. reach out to regulators
- 2. foster student participation and increase in student chapters
- 3. identify research opportunities and gaps
 - increase membership diversity

improve branding and marketing

- 1. ID missing or underrepresented membership categories
- 2. eliminate potential barriers

grow our membership

2012 ?



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Attachment 5 Ideas for Future SURF Activities Based on Panel Discussion

IDEAS FOR FUTURE SURF ACTIVITIES BASED ON PANEL DISCUSSION

May 19, 2011

Communications and Outreach Opportunities
Post regulatory links on SURF web site to promote sharing.
Communicate—there's lots of innovative stuff out there!
Post link to materials management white paper when available.
Post link to SmartWay.
Link to state policies to help provide a basis for education.
Update SURF web site "About" page with fresh information (e.g., value proposition, why you should do green/sustainable remediation whether mandated or not).
Show mission statement and value proposition.
Develop a message about green/sustainable remediation that reaches the appropriate stakeholders (e.g., businesses = Board of Directors and shareholders, municipalities = assemblymen and constituents). Be sure that we develop the stakeholder message to complement our concepts, tools, and guidance documents lest we get out of sync.
Develop a response to recent comment heard at RemTEC "Sustainability does not factor into our remediation decision-making."
Market SURF at Ohio Brownfields meeting via a poster session or booth.
Market to the public - "sustainability in remedy."
Facilitate interagency discussions/meetings.
Create and distribute a monthly e-mail regarding what's new, case studies, etc.
Invite state and federal regulatory agencies to all meetings.
Host regional forums with state and federal regulatory agencies and other stakeholders.
Incorporate testimonials from current/past SURF participants in outreach materials.
Develop public stakeholder outreach.
Give presentations to state regulators.
Focus on taking the green/sustainable remediation message to academia.
Post the quotes from the panel session on our website to build credibility within the regulatory community.
Provide a "business exchange" for like-minded firms who embrace green/sustainable remediation for the sharing of ideas, etc.
Continue to provide forum for exchange of ideas between all stakeholders.
Keep SURF community informed about attitudes, pro-active behaviors, and actions in the regulatory community.

Publicize lessons learned and best management practices.

Present sample green/sustainable remediation projects to regulators.

Public education - speakers and facilitators

IDEAS FOR FUTURE SURF ACTIVITIES BASED ON PANEL DISCUSSION

May 19, 2011

Communications and Outreach Opportunities (continued)

Regulatory education - EPA and States working together

Education for regulators

Enhance the public education program.

Interactions with State and Federal Agencies

Work with states to encourage more companies and schools to join SURF.

Have states prepare PowerPoint slides so we can see their great work.

Identify via regulatory agencies and invite leadership of most innovative companies (and corporate and industrial champions) to participate in a panel at a SURF meeting.

Collect sustainable ratings used by state and federal agencies in grant applications.

Identify and encourage state regulatory agency personnel to join SURF and take part in meetings.

Work with state and federal agency contacts to get invitations to agencies to enable us to make the "Who Is SURF" presentation.

Invite more agency panel speakers from other regions, states, and programs.

Compile a list of state green/sustainable programs.

Compile various incentives from state and federal regulators to incorporate sustainable remediation concepts into cleanups.

Follow-up with Brad Bradley regarding a Region 5 pilot-scale project involving optimization of a groundwater pump-and-treat system from a green perspective.

Follow-up on state-led sustainable remediation project pilot studies.

Build on government/industry partnerships such as in Wisconsin.

Follow up with potential SURF members/participants at www.wisconsin.gov - the community environmental assistance program (Green Tier Participants - list of "beyond compliance" orgs - charter, Tier 1, Tier 2).

Work closely with regulators as they develop their guidance.

Continue to involve the experts from the regulatory agencies and share draft guidance documents.

Audit state and regional policies for lessons learned and best practices.

Identify potential sites for case studies with help from panelists.

Better understand the regulatory community's stance on the role of green/sustainable remediation in remedy selection vs. remedy implementation.

Build on the energy of regulators from progressive states.

Follow-up with the USEPA regarding sustainability via phone conference.

Assist/review green and sustainable remediation case studies with Wisconsin or other states.

Compile regulatory guidance matrix.

IDEAS FOR FUTURE SURF ACTIVITIES BASED ON PANEL DISCUSSION

May 19, 2011

Interactions with State and Federal Agencies (continued)

Seek pilot testing and funding opportunities with agencies collaborating with SURF.

Contact Information

Develop a contact database of SURF members, affiliate organizations and individuals, academia, and government; make this list available to committee and initiative leads for recruiting help, communications, advertising, etc.

Show membership list so we can see all stakeholders.

Identify individuals who love green/sustainable remediation.

Provide list and contact information of member firms who could respond to requests for specific green/sustainable remediation assistance.

Student Chapters

Have student chapters propose, lead, and execute their own chapter technical initiatives (e.g., research papers from graduate students, support functions of SURF technical initiatives).

Specific New Tasks

Write a white paper describing the value proposition of sustainable remediation.

Compile case studies for regulators.

Establish a framework for "grading" site remediation for sustainability reward.

Propose pilot testing with the USEPA on green vs. sustainable remediation.

Develop a curriculum outline for undergraduate and masters-level classes and provide it to schools.

Develop LEED-like certification program.

Set up the optimized green/sustainable system.

Address the perception of "green washing."

Research the feasibility of a consistent nationwide sustainable remediation approach and determine feasibility of replicating Wisconsin's success in other states.

Establish a working group on alternate endpoints and flexible decision making.

Develop contract language templates for the incorporation of green/sustainable remediation into site remediation plans.

Develop simple fact sheets.

Provide contract language examples.

Write a white paper on incentive/award/scoring concepts that captures the current state of incentives/awards across the country; propose a generalized scheme for scoring green/sustainable remediation evaluations.
IDEAS FOR FUTURE SURF ACTIVITIES BASED ON PANEL DISCUSSION

May 19, 2011

Tweaks to Current Tasks

Simplify SURF's approach to LCA, metrics, and framework (too complicated now to go through regulatory/public process).

Develop sustainable remediation metrics.

Coordinate sustainable remediation guidance and inventory existing information.

Exploit lessons learned on case studies with regulators and/or SURF members.

General Tasks

Inspire the USEPA to break the CERCLA paradigm; regulators cannot be terrified to reopen records of decisions.

Accelerate guidance on remedy decision making.

Push forward quicker with sustainability projects.

Promote early engagement with stakeholders and regulators for sustainable remedy selection.

Monitor and disclose information regarding green/sustainable remediation to the regulatory community; serve as a clearinghouse to link ideas and strategies within the consulting community; seek input and identify opportunities to involve the academic community in identifying strategies to implement green/sustainable remediation; and seek input and identify opportunities to involve the research arms of companies to identify approaches, technologies, and products that promote green/sustainable remediation.

Understand how to do sustainable remediation on the wastes generated from manufacturing operations.

Look at RI environmental justice comments for resources about environmental justice, community revitalization, etc.

Look deeper into Brownfield re-development and sustainable remediation parallels.

Coordinate with ASTM and ITRC to streamline to GC documents underway.

Develop a workgroup structure to ensure that all disciplines are involved.

Follow through with Ohio University programs.

Logistics

Encourage more preparation work for attendees at SURF meetings (e.g., reminder to review prior meeting minutes, committee work).

Include more private/corporate discussions in meetings.

Generate fewer e-mails about by-laws and leadership (this person doesn't care).

Have more panel discussions!

Include free attendance for regulators via phone (already free?).

Have a nominal recognition for SURF presenters (e.g. paper weight).

Have more presentations about remedy optimization, net environmental benefit, and risk of remedy.

IDEAS FOR FUTURE SURF ACTIVITIES BASED ON PANEL DISCUSSION

May 19, 2011

Expanded Participation	
Continue to solicit regulatory participation - we are not that far apart.	
Increase interaction with other policy development groups (e.g., ASTM, ITRC)	
Reach out to potentially responsible parties.	
Engage subcontractors.	
Engage vendors (primary data on their products).	
Expand SURF's influence to include the greater sustainability community (e.g., LCA, supply chain management, energy management).	

Attachment 6 Update: Colorado State University Student Chapter Sustainable Remediation Forum Alpha Student Chapter Colorado State University

Status Update 2010-2011 Natalie R. Zeman

History

- Idea of student chapter began in Fall of 2009.
- Students worked with SURF and CSU to establish student organization.
- Officially became a student chapter in May 2010.
- Alpha chapter was recognized at SURF conference held at Colorado State University in Fort Collins, CO in June 2010.



Mission/Vision

The SURF student chapter at CSU provides a link between students and remediation professionals, facilitating education and development in the remediation sciences allowing students to make personal and professional contacts with future employers and co-workers.

2010-2011 Activities

- SURF 14 Conference (June 2010)
- Student Involvement Fair (Fall 2010)
- Laramie, WY Field Trip to Railroad Tie Manufacturing Remediation Site (Fall 2010)
- World Water Days (Spring 2011)
- Kevin McCoy attended SURF 16 Conference in Tampa, FL
- CSUnity-Volunteer Spring Waterway Clean-Up (Spring 2011)
- Rocky Mountain Arsenal Field Trip (Spring 2011)
- Monthly Student Chapter Meetings
- · Guest Speakers
 - Dr. Tom Sale Sustainable Remediation & SURF History
 - Andrew Genco-Graduate Student Surface Geophysics in Environmental Investigation at Hanford Site
- End of the semester BBQ (Spring 2011)





Rocky Mountain Arsenal Field Trip (Spring 2011)



•10 miles NE downtown Denver

•Production of chemical weapons and agricultural chemicals 40's-80's

•Remediation and transformation into wildlife refuge







Future Activities/Goals

- Growth and stability of student organization through new student membership.
- Alpha chapter outreach to promote SURF student organizations at other universities/colleges.
- Scheduling of 2011-2012 professional and student speakers, field trips, etc.

Attachment 7 The PLACES Program: Defining the Sustainable Future





Fundamental Sustainability Issues Addressed by PLACES

- Humans are in a non-negotiable relationship with the natural environment
- All human development will inevitably and cumulatively erode natural systems.
- Those who make site-level decisions are restricted by law to a specific site. Developers have no authority to counteract off-site impacts.





- Planning of the built within environmental constraints would eliminate the need to clean and/or restore water, air, and soils and would retain natural productivity and native biodiversity
- This strategy responds directly to EPA's mission



PLACES

Background

- PLACES is a refinement of a planning process used to develop the Sustainable Community Master Plan adopted by Stella, MO in 2007.
- Stella residents worked with the Superfund program and land remediation specialists in EPA Region 7 and the National Risk Mgt. Research Laboratory.







SMARTe

- EPA collaborating with German Federal Ministry for Education & Research and ITRC.
- Beta testing in a German community.

SMARTE 4 Components e-Document that provides info on the revitalization process Screening tool that leads the user through the revitalization process Toolbox to analyze and solve revitalization issues Search engine for information, tools, & best practices

Stella Objectives

- Enhance Social Life
 - Expanded park & riverside activities
 - Clustered housing with common green spaces
 - Streetscapes for foot traffic
- Enhance Economic Viability
 - Renewed local businesses (farmers market, café, grocery)



Basic Requirements for Participating Communities

- 1. Document and cooperate with all regional conservation and environmental protection efforts of fish and wildlife agencies, U.S. Dept. of Interior, and organizations such as the Nature Conservancy to augment those efforts.
- 2. Account for the total embodied energy required to realize each PLACES requirement.

Basic Requirements for Participating Communities

- 3. Document and evaluate all resources that provide services to local citizens.
- 4. Reconsider how all responses to PLACES requirements would be affected by climate change.

Fundamental Systems Tracking

- Ecosystem Requirements
- Social System Requirements
- Economic System Requirements

Ecosystem Requirements

- Document and map pre-development and existing native growth and develop a strategy to restore and maintain them.
- Limit human use of water by quantity and quality necessary to sustain viable populations of native species and their communities.
- Preserve and restore natural drainage patterns and historic patterns of surface runoff, erosion and sedimentation.



- Protect characteristics of a place, such as native biodiversity, hydrology, topography and scenic views.
- Plan activity locations to enhance local social networks and chance person-to-person interactions
- Assess, monitor and report all sites susceptible to stochastic events, such as fire or flooding; attach all such information to property documents.



OUTCOMES

 A master revitalization plan developed for the town of Stella, MO integrates environmental, social, and economic sustainability

OUTCOMES

 The Stella project led to EPA development of the PLACES program (Planning Land And Communities to be Environmentally Sustainable). This program proposes to confer "EPA Certification of Sustainable Community" to communities that voluntarily meet requirements.

OUTCOMES - Physical

- 1.The parkland has been cleared, stream-bank stabilized, grass planted, playground equipment installed, picnic tables/benches installed, and fence installed.
- 2. "Clicks"(the only convenience store and gasoline station) has been reopened.
- 3. LeRu telephone/cableTV/internet provider has been expanded with emergency facilities.
- 4. Murals have been painted and installed and the town has been placed on a twice annual tour of historic murals in the state.
- 5. Gardens at the entrances to the town have been cleared and planted.
- 6. Flowering Dogwood trees have been planted.



AVAILABLE FUNDING

- USEPA has \$50,000 for a beta test
- Looking for a community willing to test the tool AND a university to work with the community

Attachment 8 Sustainable Remediation Database Now Turned "Site of Sites"

SURF 17

Database / Site of Sites Initiative Update

A collaborative effort involving SURF and IIT

Database Initiative Overview • Design and develop a database to formalize information sharing and establish clear standards for what constitutes sustainable remediation

Database Initiative End Goals

End goal is for database to be used to...

1) Establish precedent

- a) Validate current & future remedies
- b) Expedite future remedy reviews & approvals

2) Create a clearinghouse

- a) Reference for improving sustainability of remediation
- b) Track industry progress & prove the business case
- c) Research & education tool
- d) Identify gaps and future needs

Revised Proposal Site of Sites Initiative

Site of Sites Initiative incorporated as interim step towards Database Initiative...

- Preliminary research necessary for Database Initiative
- Provides usable deliverable in ~6 months
- Validation appropriate to pursue subsequent grant funding for Database Initiative

Site of Sites Initiative Key Milestones & Timeline

 May 23-July 15 Environmental Law Clinic July-August Review of Site of Sites Report Produced at end of Clinic Sept/Oct Submit Final Sites of Sites Report for Review by SURF Technical Committee Oct/Nov SURF Technical Committee & Board Approval to Publish Final Site of Sites Report Oct/Nov SURF & IIT re-consider Database Initiative 	 Feb-May 	Site of Sites Initiative Project Scoping, Clarification of Roles and Objectives
 July-August Review of Site of Sites Report Produced at end of Clinic Sept/Oct Submit Final Sites of Sites Report for Review by SURF Technical Committee Oct/Nov SURF Technical Committee & Board Approval to Publish Final Site of Sites Report Oct/Nov SURF & IIT re-consider Database Initiative 	• May 23-July 15	Environmental Law Clinic
 Sept/Oct Submit Final Sites of Sites Report for Review by SURF Technical Committee Oct/Nov SURF Technical Committee & Board Approval to Publish Final Site of Sites Report Oct/Nov SURF & IIT re-consider Database Initiative 	July-August	Review of Site of Sites Report Produced at end of Clinic
 Oct/Nov SURF Technical Committee & Board Approval to Publish Final Site of Sites Report Oct/Nov SURF & IIT re-consider Database Initiative 	Sept/Oct	Submit Final Sites of Sites Report for Review by SURF Technical Committee
Oct/Nov SURF & IIT re-consider Database Initiativ	Oct/Nov	SURF Technical Committee & Board Approval to Publish Final Site of Sites Report
	Oct/Nov	SURF & IIT re-consider Database Initiative





Illinois Institute of Technology

The IIT mission

•To provide distinctive and relevant education in an environment of scientific, technological, and professional knowledge creation and innovation.







Chicago Environmental Law Clinic

- Environmental legal services to those who cannot otherwise afford them
- The Clinic is part of...
 - IIT Environmental and Energy Law Program
 - Environmental Law Program of the Chicago Legal Clinic
- Pathways to skills development
 - In-class activities
 - Student teams work on case studies



Attachment 9 Sustainable Communities: The Economics of Cleaning Brown to Green











Facts • 2008: ½ the global	• Save resources for future
population, 3.3 billion people live in urban areas	generations Choices – Trade Offs
 80% of Americans/ industrialized nations live in cities 300 + million Americans consume \$10 trillion in goods and services 2.5 billion Chip Indian 	 Build strong regional economies. Practical common sense solutions.
• 2.5 billion Chin-Indian consume \$2.5 trillion	
















































LEED v3 New Construction and Major Renovation Project Checklist						
an one	LEED 2009 for New Construction and Major Renovation Project Checklist					
			Sustair	nable Sites Possible Points:	26	
Y	Ν	?				
Υ			Prereq 1	Construction Activity Pollution Prevention		
			Credit 1	Site Selection	1	
			Credit 2	Development Density and Community Connectivity	5	
			Credit 3	Brownfield Redevelopment	1	
			Credit 4.1	Alternative Transportation-Public Transportation Access	6	
			Credit 4.2	Alternative Transportation-Bicycle Storage and Changing Rooms	1	
			Credit 4.3	Alternative Transportation-Low-Emitting and Fuel-Efficient Vehi	ic 3	
			Credit 4.4	Alternative Transportation—Parking Capacity	2	
			Credit 5.1	Site Development—Protect or Restore Habitat	1	
			Credit 5.2	Site Development-Maximize Open Space	1	
			Credit 6.1	Stormwater Design–Quantity Control	1	
			Credit 6.2	Stormwater Design–Quality Control	1	
			Credit 7.1	Heat Island Effect—Non-roof	1	
			Credit 7.2	Heat Island Effect-Roof	1	
			Credit 8	Light Pollution Reduction	1	











Progressive: Transit Oriented Development



San Francisco Bay Area (Richmond) •Establishment of Priority Development Areas & Priority Conservation Areas •Development around existing BART system & expansion of transit system

Amtrak and BART connected

West Garfield Park, Chicago •Effort to improve and revitalize a declining Chicago neighborhood •Affordable housing & economic development around an existing "L" transit system





Visionary: Racer Trust



The Revitalizing Auto Communities Environmental Response Trust ("RACER Trust") was created to address contamination and position for redevelopment 89 industrial plants and other properties ("Properties") used by the former General Motors but left behind in its 2009 bankruptcy.



The Trust was created through a Settlement Agreement between Motors Liquidation Company ("Old GM"), the federal government, the fourteen states that are home to the 89 Properties, and the St. Regis Mohawk Tribe. The Agreement was approved by the Court on March 3, 2011 and the Trust is effective as of March 31, 2011. The Agreement appoints EPLET, LLC to be the Administrative Trustee for the RACER Trust. On the effective date, the Trust will receive all of the Properties and approximately \$600 million in funding, and it will begin the process of remediating and restoring the Properties. The Trust is in its start-up phase and is beginning to coordinate with regulators in the affected states and communities.













Attachment 10 Sustainability is Alive and Well in Ohio: A Case Study









Partnering to Redevelop Urban Brownfields A Public/Private and Multi-jurisdictional Urban Nature Park



City of Columbus Land Acquisition Environmental Relocation of City Facilities Lease property to Metro Parks



Metro Parks Park Planning Park Development Assist with Environmental Park Operations and Maintenance Sublease property to Audubon Ohio

Audubon

Audubon Ohio Plan Nature Center Operate Nature Center Ohio EPA – Voluntary Action Program (VAP) – Remedial Authority

VAP Certified Professional -Remedial Project Manager

Department of Development – Clean Ohio Fund Project – Grant Funding



Phase I Results Northern Tier 30 Identified Areas Potential Chemicals of Concern (COCs) Petroleum compounds Metals Volatiles Organic Compounds (VOCs)

Southern Tier

- 14 Identified Areas
- Potential COCs
 - Petroleum Compounds
 - Metals
 - VOCs
 - SVOCs





Middletown Regional Hospital Site History & Background

- Hospital initially developed in 1917.
- Expanded facilities in 1922, 1938, 1956, 1964, 1978, 1987, and 1993.
- Community and regional needs outgrew hospital.
- Plans for entirely new complex approved in 2004



Partnership of Project Clean Ohio Revitalization Fund Application submitted in 2006 by the Butler County Port Authority • Development Partner: Courtney Duff & Associates, Inc. Certified Professional: Barry Franz, Burgess & Niple, Inc. Property Type modified residential – Medical Center Acreage: 16.6899 acres \$3,000,000 (Clean Ohio Fund) Amount Requested: \$6,323,389 Match: Total Project Costs: \$9,323,389

 Regulatory agencies – Ohio EPA for VAP and Ohio Department of Development under COF

Deconstruction Activities

- Planning Activities
 - Develop recycling plan
 - Crushed aggregate to be used as backfill
 - Hospital equipment donations
 - Miscellaneous materials scrap metal, re-use of materials, etc.
 - Identification of Donor Organizations
 - Planned involvement of regulatory agencies
 - Planned community involvement
 - How to deal with complaints and questions

Benefits of Recycling vs. Landfilling							
Concrete Recycled:	25,000 CY						
Metal Recycled:	3,127 Tons						
Salvage Items Reused:	900 CY						
Construction & Demolition (C&D) Debris Not Recycled	d: 25,975 CY						
Net Benefit of Recycling vs. Landfilling:	\$635,000.00						
Avoidance of Importing 25,000 CY of engineered-fill	\$195,800.00						
Total Benefit of Recycling vs. Landfilling:	\$830,800.00						
Cost Real Poin Ohio Appl	Savings ized and More ts in Clean Fund ication ¹²						



























Partners Involved in Project

Development Team	Government Entities Involved
Wolstein Group	City of Cleveland
GPD	Cuyahoga County
URS	US EPA
Architectural Firms	Ohio EPA
Developer	Ohio Department of Development
Private Funders	Soil & Water Conservation
Signed Lessees	Northeast Regional Sewer
LEED Consultant	Department of Transportation





<u>Steelyard Commons – Green</u> <u>Requirements ?</u>

- Steelyard Commons used all the same sustainable practices as with the previous case studies – Lots to Recycle/Reuse – Steel, Concrete, Bricks, Asphalt, Utilities.
- The site is 20 feet of Slag Storm water regulators first on Green/Sustainable band wagon and requiring sustainable practices
- But are they always practical and appropriate for the property?

Steelyard Commons Retail Center









Drive Sustainability in Ohio

- Funding for Projects?
 - Clean Ohio Fund Gives Points for Sustainability
 - Clean Ohio Sustainability Track \$ 1.5 M for Projects: urban waterfront, sustainable parks/green space, brightfield (solar/wind).
 - Alternative Stormwater Infrastructure Loan Program
 - US EPA focus on sustainability and urban agriculture for their assessment and cleanup grants
 - Public entities want sustainable projects in their community.
 - Other grants include sustainability credit.








- <u>Surface Water -</u> Storm water program leading the way with sustainable education, soil & water conservation requirements for Local Governments. Also requested in Stormwater Plans.
- <u>Solid and Hazardous Waste</u> Has Green Team which provides education and looks for green options for facilities that are inspected
- <u>Remedial Division -</u> Education about green remediation/infrastructure at presentations and conferences; formation of green team proposed. Project Coordinators provide informal recommendations, but not consistent throughout the state yet.

