

SURFs Up Canada: *The Next Wave* *Surfing the Globe*

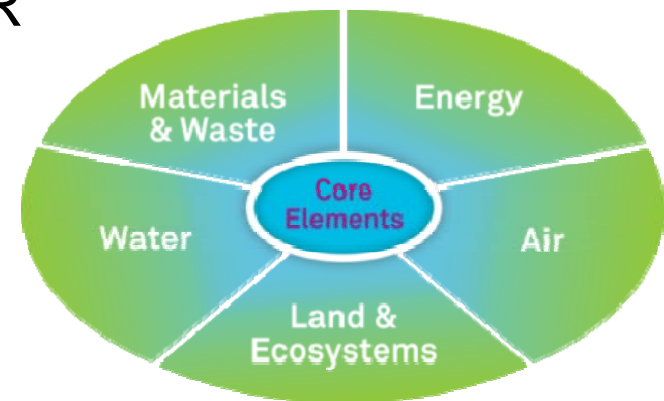
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Presentation Outline

- Introduction and Background
- Emergence of the Sustainable Remediation Forum
- SURF Accomplishments and US Initiatives
- International/Emerging SURFs
- Continued Evolution of SURF and SR
- SURFs Up Canada
- Q and A



The Birth of Remediation Industry

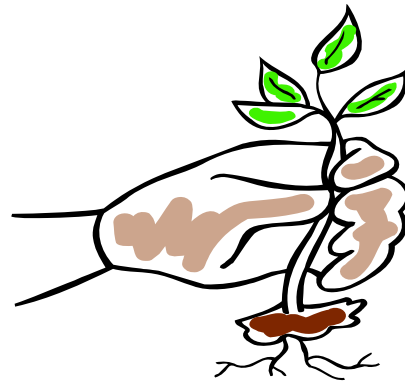
- Remediation industry born in the late 1970s; discovery of contamination and need for a better understanding of its impacts on human health & environment
- Environmental regulatory agencies and laws were created, and an industry rapidly emerged
- Cleanup focused on rapid response and completion, typically involving energy-intensive remedies
- Experience has shown that remedies have not/cannot achieve acceptable cleanup levels due to technical limitations
- Long-term operations are commonly required after aggressive initial remedial measures (e.g., source removal/treatment)

Going Green and Living Sustainably

- Increased awareness of global climate change has fueled a desire to lessen greenhouse gas (GHG) emissions
- Sustainability recognized as important underpinning consideration
- Recognition that we could integrate Sustainability into the full life cycle of Remediation – Assessment to Closure
- Energy-intensive remedies are often a significant source of GHGs
 - Ellis et al. (2008) estimated that the difference between two remedies being considered for a NJ site could be as high as 2 percent of the annual GHG emissions for the state

Green/Sustainable Remediation Drivers

- Increasing focus on Corporate and Agency Sustainability Goals
- Federal Executive Orders
- Climate change and recognition that impacts and decisions may be bigger than just the site and surrounding area
- Increasing energy costs
- Proliferation of Regulatory and Industry Guidance and Frameworks



The Environmental Industry and Regulatory

2006 - Sustainable Remediation Forum (SURF) formed

2007 - EPA Region III Pilot Projects

- SURF UK established under CL:AIRE
- CA DTSC “Green Team” established
- IEPA Greener Cleanups Program developed

2008 - US EPA launched Green Remediation Website

- WDNR began work on WISC

2009 - SURF White Paper Published

- ASTM GSR Subcommittee established
- ITRC Green Remediation Team established

2010 – EPA Revised Green Remediation Strategy



SURF - Primary Objective and Mission Statement

SURF's primary objective is:

...to provide a forum for various stakeholders in remediation — industry, government agencies, environmental groups, consultants, and academia — to collaborate, educate, advance, and develop consensus on the application of sustainability concepts throughout the lifecycle of remediation projects, from site investigation to closure.

Mission - to maximize the overall environmental, societal, and economic benefits from the site cleanup process by:

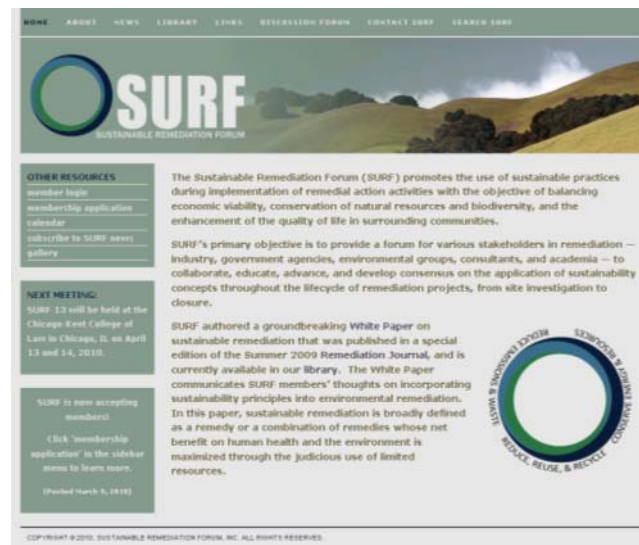
- Advancing the science and application of sustainable remediation
- Developing best practices
- Exchanging professional knowledge
- Providing education and outreach



SURF Accomplishments

- “Sustainable Remediation White Paper—Integrating Sustainable Principles, Practices, and Metrics Into Remediation Projects”
 - Remediation Journal, Summer 2009
- Sustainable Remediation Panel
 - Remediation Journal, Quarterly Q&A

www.sustainableremediation.org

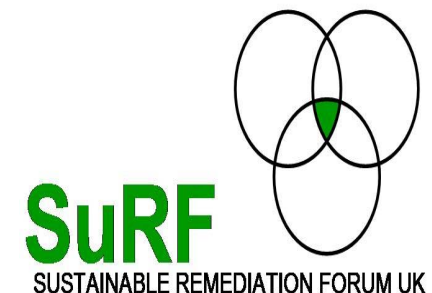


SURF Initiatives

- Ongoing Communications and Outreach
- Encourage Government and Academic Participation
- Consensus-based Framework for SR Practices - *Completed*
- Developing Standardized Criteria and Metrics - *Completed*
- Promoting Consistency, Transparency, and Best Practices for Life Cycle Assessment (LCA) - *Completed*
- Site of Sites – Database of information and Case Studies, supported by Illinois Institute of Technology
- SR Rating System
- SR and Redevelopment

SuRF-UK Initiative

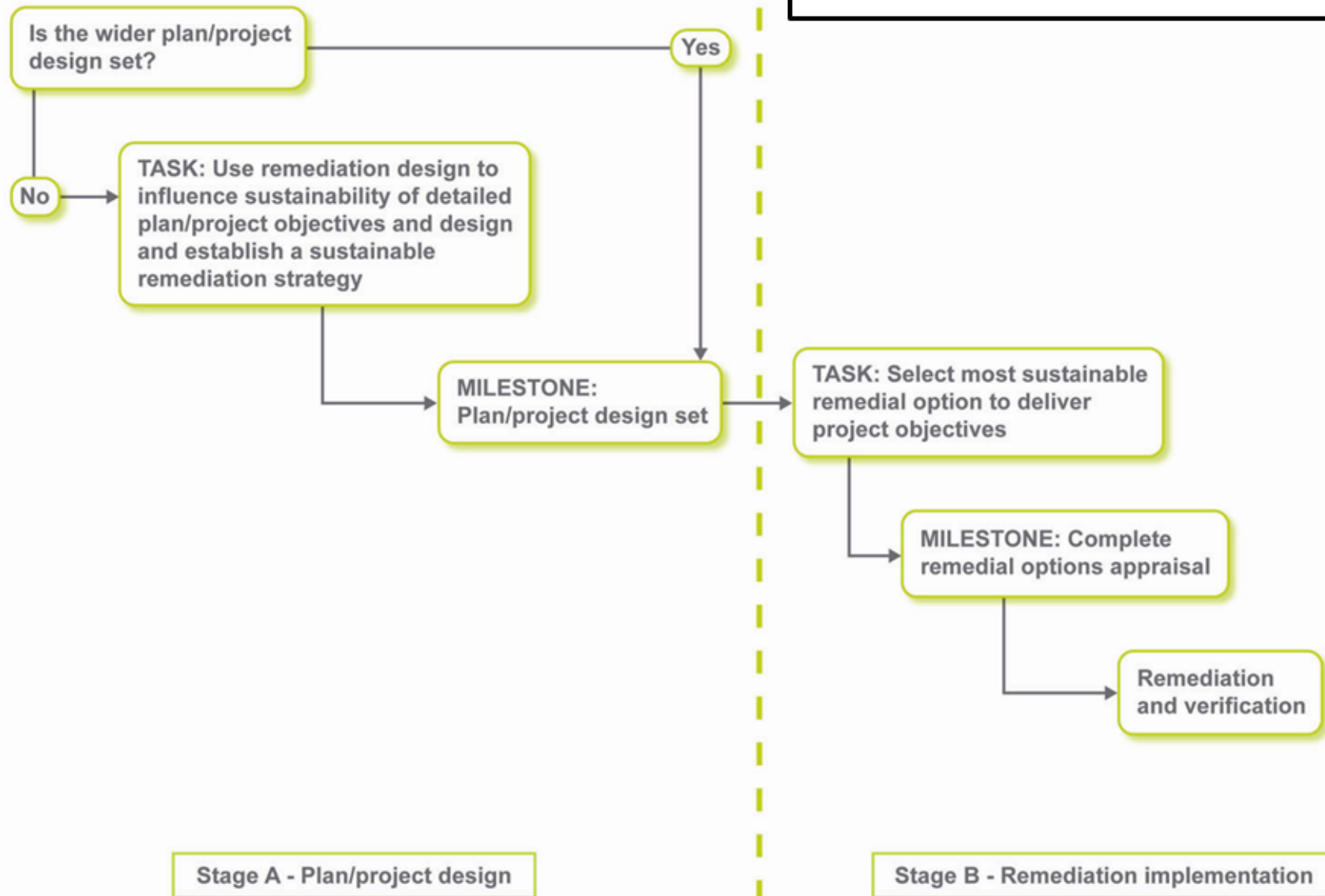
- Established in 2007, following the lead of SURF.
- UK-based collaboration of regulators, industry, academics and consultants. Open forum meetings.
- Independent coordination by CL:AIRE (www.claire.co.uk/surfuk)
- Focus on holistic sustainability assessment of
 - remediation input to high-level land-use planning
 - remediation input to overall site / project design ('Better by design')
 - remedial strategy selection and remediation technology selection
 - remediation implementation and verification
- Goals
 - A framework for assessing sustainable remediation
 - Sustainability indicator review



SuRF-UK Definition

- *‘the practice of demonstrating, in terms of **environmental**, **economic** and **social** indicators, that the benefit of undertaking remediation is greater than its impact and that the optimum remediation solution is selected through the use of a balanced decision-making process’*
- Optimize risk-management based on consideration of social, environmental and economic factors, but always ensure:
 - Developed a series of principles ranging from environmental protection to safe work practices

SuRF-UK framework



Regulatory acceptance: Foreword to report

CEAIRE



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SURF UK - Summary

- SuRF-UK assessment framework published
 - Applies at a range of stages (regional planning, project design / site-specific risk-assessment, remediation options appraisal, implementation)
 - Adopts a tiered structure
 - Is Holistic - Start wide-ranging and narrow down quickly
 - Requires consultation with stakeholders
 - Is flexible and voluntary
- Phase 2 nearly complete
 - Indicator development and refinement
 - Road testing framework
 - Benchmarking assessment tools

SURF Brazil

- First meeting held on October 18, 2010 – 5 meetings
- Selection of forum name: Fórum Brasileiro de Remediação Sustentável (*Brazilian Forum for Sustainable Remediation*)
- Incorporation of sustainability in São Paulo State Environmental Law 13.577, effective early 2011.
- Preparation of White Paper and Website (in Portuguese)
- Sponsorship of ReLASC (Rede America Latina de Sitios Contaminados)-Latin American network for contaminated land management
 - GSR Track and Full Day Workshop



SURF Australia

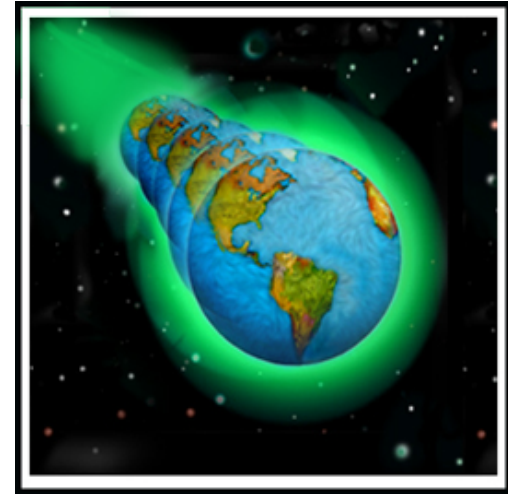
- ALGA has been actively promoting sustainable remediation in Australia –conferences and seminars
- CRC CARE took on the organization of SuRF Australia - Launched at Cleanup09
- ALGA prepared the draft Framework for Sustainable Remediation and Management - drawn from SuRF UK
- Continued activity – Steering Committee, ALGA State seminars on sustainable remediation – latest meeting at EcoForum Conference

SURF Australia – Vision and Approach

- Vision - To promote approaches and practices that achieve better, more balanced outcomes in our remediation and management of contaminated sites
- encourages tiered approach
- Sustainable Remediation - the practice of demonstrating, in terms of environmental, economic and social indicators, that an acceptable balance exists between the effects of undertaking remediation activities and the benefits that those activities deliver.

Emerging SURFs

- Japan
- China
- Netherlands
- France
- Canada



SURF and GSR Evolution and Expansion

- Additional SURF Organizations likely to form throughout the world
- Geographies with risk-based regulatory framework are best suited to embrace Sustainable Remediation
- Increasing International Collaboration and advancement of science of GSR
- Dramatic increase in case studies and lessons learned
- Evolution to the point of Standard Practices
- US EPA adoption of Sustainable Remediation?

SURFs Up Canada

- Opportunity to Drive Paradigm Shift
- Opportunity to take advantage of Lessons Learned
- All of the Elements for Success are already in place
 - A Logo and a Website!
 - Significant Ideas and Interest
 - Motivated Adhocracy
 - Initiated Technical Discussions
- Interest and involvement from Government/Regulators
- Support and Encouragement from SURF USA!



Questions and Discussion

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GSR Web Resources

- **SuRF Canada -**
<http://www.surfcanda.org/>
- **SuRF USA -**
<http://www.sustainableremediation.org/>
- **SuRF UK**
http://www.claire.co.uk/index.php?option=com_content&task=view&id=182&Itemid=78&gclid=CKngy8e_I5YCFQVfFQodXDiU5w
- **Illinois EPA Greener Cleanups**
<http://www.epa.state.il.us/land/greener-cleanups/index.html>
- **US EPA Green Remediation**
<http://www.epa.gov/greenremediation/>
- **WDNR WISC**
<http://dnr.wi.gov/org/aw/rr/cleanup/wisrr.htm>

- **NYSDEC DER-31**
www.dec.ny.gov/docs/remediation_hudson_pdf/der31.pdf
- **AFCEE Sustainable Remediation Tool**
<http://www.afcee.af.mil/resources/technologytransfer/programsandinitiatives/sustainableremediation/index.asp>
- **AFCEE Sustainable Remediation Site**
<http://www.afcee.af.mil/resources/technologytransfer/programsandinitiatives/sustainableremediation/index.asp>
- **US Army Sustainability Site**
<http://www.sustainability.army.mil/>