

**SURVEY RESULTS - SUSTAINABLE REMEDIATION**

Respondent ID	Have you heard of "sustainable remediation?"		My definition of sustainable remediation is:	Sustainable remediation should be (check all that apply):					I would say that:			
	Yes	No		considered	encouraged	studied more	required	ignored	I support sustainable remediation (explain why).	I do not support sustainable remediation (explain why).	My support for sustainable remediation depends on several factors (list below).	Please provide explanation of your response:
645258424	Yes		Providing a long term, cost effective, remedial system which meets or exceeds short and long term goals.		encouraged	studied more	required		I support sustainable remediation (explain why).			Sustainable remediation allows for thorough evaluation of project goals and objectives while evaluating the most cost effective to meet or exceed them.
643477233	Yes		Remediation that is both effective in meeting the stipulated goals, and that has a justifiable cost and environmental impact, when considered from a life cycle standpoint.	considered	encouraged	studied more	required				My support for sustainable remediation depends on several factors (list below).	Energy-intensive approaches such as in-situ thermal remediation (ISTR) should not be dismissed out-of-hand as non-sustainable. We believe that timely and predictable site closure, as afforded by ISTR, is both sustainable and socially responsible. Furthermore, it is apparent that many so-called "green" remediation approaches are neither effective in achieving remedial goals, nor low in cost.
640439191	Yes		Hazardous waste cleanup project that simultaneously achieves excellence in environmental stewardship, economic growth, and social responsibility for the remediation processes themselves as well as the project as a whole during its lifetime.				required		I support sustainable remediation (explain why).			These issues are ever more important with the current environmental stresses and the problems they can and will create for the economy and community.
638284067	Yes		Determining the appropriate remediation method and conducting that method in a way that balances economic, environmental and social costs to have the smallest resource based footprint for a specific level of protection of human health and the environment			studied more	required		I support sustainable remediation (explain why).			
636628977	Yes		Sustainable remediation is an approach to selecting and implementing a remedy to meet clean up goals that takes into account the total environmental impact of the actions (energy and natural resources consumption, releases to air and water, creation of solid waste, etc.) as well as future land use and local socio-economic considerations				required		I support sustainable remediation (explain why).			Sustainable remediation ensures that the net outcome of the effort has an overall benefit to the environment and the community. Sustainable remediation makes the best use of resources to achieve site cleanup in a manner that meets the requirements of the community
635650560	Yes		Incorporation of ways to reduce the impact of a cleanup and maximize the environmental benefits at every step in the remediation process, from design/remedy selection through long term monitoring and project closeout.	considered	encouraged	studied more			I support sustainable remediation (explain why).			Any method of increasing the efficiency and maximizing the benefit of a project should be encouraged.

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635018562	Yes		Remediation approaches which minimize environmental impacts and support long term sustainability. The central issue though is to define these impacts and then to determine how one weighs their respective importance against economic considerations.		encouraged							My support for sustainable remediation depends on several factors (list below).	Currently, sustainable remediation is too ill defined to give a blanket endorsement. Without identifying the specific approach to weigh or consider the multiple environmental impacts from a remediation activity it is hard to give it support.
634540094	Yes		Sustainable remediation is the practice of correcting environmental damage at a site so that human health and the environment are protected while accomplishing the improvement by selecting approaches that minimize negative life cycle environmental impacts and choosing future site land uses that maximize sustainable development opportunities.	considered	encouraged	studied more	required			I support sustainable remediation (explain why).			Sustainable remediation has to be seen as an important part of a global initiative to minimize further environmental and life cycle degradation. It is nonsensical to carry out what are supposed to be environmental improvement activities in ways that have potential to cause environmental damage that might exceed the result of leaving problematic sites untouched.
634378524	Yes		A remedial option or approach that considers the whole costs and benefits of a project (E and environmental e.g. CO2, water, energy, biodiversity, amenity) over the long term.	considered	encouraged	studied more	required			I support sustainable remediation (explain why).		My support for sustainable remediation depends on several factors (list below).	Sustainable remediation aims to bring the best overall outcome not dictated by purely commercial or regulatory drivers. My support depends on there being a strategic buy-in from (inter)national planners/regulators/agencies where coherent guidance on appropriate metrics is given and best practice established and built upon over time.
633945365	Yes		Remediation using sustainability principles in the design and execution	considered	encouraged	studied more				I support sustainable remediation (explain why).			Too much remediation is done without considering the cross media impacts. The time is right to stop approaching remediation, as well as other enviro programs, with a silo mentality.

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633480769	Yes		As stated by the DOE "Remediation that meets performance objectives for the long-term benefit of the public while minimizing maintenance, cost, and collateral environmental damage" (e.g., GHG emissions, natural resource consumption, adaptability to climate change, or energy usage.	considered	encouraged		required		I support sustainable remediation (explain why).			For several reasons. For example, it is required by EO 13423. It is an additional way to further optimize our remediation and monitoring systems. It is an additional discussion point to add to the mix when looking at shutting down systems, changing systems, or modifying systems. It is an additional way to green our environmental restoration program. It encourages the use of green remediation technologies. It helps our environment.
633223409	Yes		remediation that creates or maintains conditions in which humans and the environment can exist in productive harmony while meeting the social, economic, and environmental requirements of present and future generations. (Based on Executive Order 13423.)		encouraged	studied more	required		I support sustainable remediation (explain why).			Remediation efforts should, at a minimum, consider the sustainability of remediation actions. Even if the sustainability information does not affect the outcome, the process of identifying social, economic, and environmental effects will lend insight and holistic thinking to remediation professionals.
633086627	Yes		A remedial approach that promotes premanent destruction, detoxification, or stablization of contaminants while balancing the overall environmental costs of the remedial action. Environmental costs include such things as resource consumption (land, water, minerals), GHGs, energy consumption, and recycling.	considered	encouraged	studied more					My support for sustainable remediation depends on several factors (list below).	Like many business decisions, it is driven by two basic factors: 1) econnomics and 2) ethics and culture. At this juncture, my view is that it should/needs to be incorporated into the business culture. From that standpoint, it becomes (as it currently is) a balancing criteria in the remedial decision process (rather than a threshold criteria).
633081098	Yes		Remediation efforts that achieve, or attempt to achieve, a balance between the utilization of resources with achievement of remedial goals. For this definition I leave "utilization of resources" vague, as I see this concept to be somewhat different depending on project stakeholders (that is, it may include GHG emissions, impacts to open space, etc.).	considered	encouraged	studied more			I support sustainable remediation (explain why).			Although I am hesitant to support a mandate for sustainability, our past remedial efforts have been largely unconcerned with the utilization of resources with the exception of money (be that cash, capital, real estate, etc.). Our awareness in this county, as well as many others, has expanded to an understanding that resource utilization has negative impacts nationally and globally. As stewards of an industry, and the environment in which we live, I feel that we have a responsibility to try to minimize adverse impacts of our activities.

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632731474	Yes		Remediation of contaminated environmental media (soil, sediments, groundwater, surface waters) that takes into account sustainability principles in the design, selection and operation of the remedy.	considered	encouraged	studied more					My support for sustainable remediation depends on several factors (list below).	It is easy for someone to say they are conducting sustainable remediation but the benefits may be hard to quantify; their claim may not be substantiated - hence the need for some third-party certification or common language to describe the type of sustainable considerations that the remediation system is taking into account.
632703922	Yes		A remediation alternative that incorporates sustainability components as defined by USEPA and others: - Maximize environmental benefits - Minimize environmental impacts (GHG, natural resources, etc.) - Consider future land-use, and community benefits - Increase efficiency of remedial effort	considered	encouraged	studied more				I support sustainable remediation (explain why).		Sustainable remediation requires the remediation practitioner to look at the "big picture" in terms of what is the purpose of remediation, and what are the long-term effects of such remedial effort. It is important to put the long-term effects of remediation in a context that is bigger than the site itself.
632703285	Yes		Eliminate or lessen the threat of a pollutant from effecting the environment without simply moving the "problem" from one media to another and there is a net benefit.	considered	encouraged					I support sustainable remediation (explain why).		Per my definition above.
632606480	Yes		test		encouraged					I support sustainable remediation (explain why).		test
632556322	Yes		remediaiton that removes unacceptable risk in an economically efficient, environmentally benign and socially acceptable way.				required			I support sustainable remediation (explain why).		remediation is a necessary evil as a result of bad past practice; as such we are payng for an externality and must do so in a taregetted and efficient way.
632464846	Yes		Incorporating elements of sustainability into remedy selection, design, implementation, and monitoring.			studied more	required			I support sustainable remediation (explain why).		The local and global impact of a remedy should be evaluated.

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632420369	Yes		Site Clean up Technology that has considered Environmental affects during it's process.	considered	encouraged		required		I support sustainable remediation (explain why).			It makes sense to consider as a factor during clean up technology, selection and review.
632409516	Yes		Review, and incorporation of, sustainable practices at impacted properties requiring (soil and/or groundwater) remediation.	considered	encouraged	studied more			I support sustainable remediation (explain why).			The benefits (short and long term) to the environment and neighboring communities are measurable!
632310161	Yes		That which provides a solution that is truly sustainable over the long haul.	considered	encouraged		required		I support sustainable remediation (explain why).			
632294459	Yes		A decision-making framework that takes into account the net environmental impact on the environment, including the risk of the actual remediation system.	considered	encouraged	studied more	required		I support sustainable remediation (explain why).			I think incorporating sustainability into the remedial decision-making process will be useful for site managers because it will force all stakeholders to take a more holistic look at the impacts of remediation. Often, we are forced to install remediation systems because it seems obvious that doing remediation will lessen the overall impact to the environment. However, I think by incorporating sustainability into our decision-making process will open lots of eyes in terms of the net environmental impact.
632288175	Yes		As defined by SuRF			studied more	required		I support sustainable remediation (explain why).			
632286767	Yes		Remediation that minimizes impacts on the environment, makes the most efficient use of energy and minimizes waste generation.				required		I support sustainable remediation (explain why).			Every remediation should take into consideration its impact on the environment. That is good stewardship.

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632232987	Yes		The process of including sustainability in making remedy decisions	considered	encouraged	studied more			I support sustainable remediation (explain why).			
632229030	Yes		Sustainable remediation is a risk management approach undertaken in a manner, and to achieve an objective, that maximises the combined economic, environmental, and social benefit of managing impact to soil and groundwater.	considered	encouraged	studied more	required		I support sustainable remediation (explain why).			I support the concept of incorporating the principles of sustainability into the management of risks to soil and groundwater, because by doing so we can make decisions in a much more holistic way, which should give us the potential to: - highlight the importance of preventing future losses of contaminants to the environment; - focus on remediation where society will receive the greatest net benefit; and - stop active remediation where society will not receive a net benefit.
632213565	Yes		Sustainable remediation is considering the impacts (positive and negative) of remediation and remediation options on the environment, society and the economy in order to make an informed decision on what remediation strategy is optimal for a Site and how negative impacts may be mitigated.		encouraged				I support sustainable remediation (explain why).			Sustainable remediation allows a decision-maker to better understand the impact of his/her decisions. It is a much more holistic perspective to remediation.
632136337	Yes		protecting human health and the environment through remediation while not negatively impacting environmental media and local community and individuals.	considered					I support sustainable remediation (explain why).			Too many remedies have been implemented that waste important resources (e.g., groundwater) and transfer contaminants and other chemicals that negatively impact our ecosystem. Sustainable remediation will help to bring more balance to the remediation decision process and help to make sure that the remediation project had a net positive environmental benefit. In some cases, however, very small projects may not need to consider sustainable remediation due to the small size/scope of the project.

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632125365	Yes		A remedial strategy that balances life-cycle environmental impacts along with other evaluation criteria and performance measures.	considered	encouraged	studied more				I support sustainable remediation (explain why).			Greater consideration of life-cycle impacts of remedial measures will result in more durable remediation decisions, and more net environmental benefit.
632114162	Yes		Cost effective remediation that aims to minimize environmental impacts and maximize community benefits.	considered	encouraged	studied more				I support sustainable remediation (explain why).			We are living in a world shaped by sustainable development issues - depletion of resources, declining ecosystem health, climate change, poverty, rapid population growth. We need to be making smart decisions that analyze, integrate, and balance social, environmental, and economic benefits. Remediation projects need to incorporate this type of thinking.
632102709	Yes		The identification and implementation of remedial strategies that minimize adverse remediation related impacts to human health and the environment, while achieving the overall goal of providing protection to human health and the environment.		encouraged					I support sustainable remediation (explain why).			Sustainable remediation should be considered in all remedial activities. Its positive and negative attributes should be identified and assessed as "balancing criteria" and evaluated against overall project goals/objectives.
632095067	Yes		Minimizing the environmental, climatic, and energy impacts of remediation	considered	encouraged	studied more				I support sustainable remediation (explain why).			Sustainable remediation provides a more holistic approach to remediation. It is in keeping with the adage, "in doing good, do no harm."
631984649	Yes		cleaner "clean-up"	considered	encouraged	studied more				I support sustainable remediation (explain why).			As professional working for the environment, we need to show the way by applying and accomplishing what we preach
631983573	Yes		xx				required			I support sustainable remediation (explain why).			xx

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RespondentID	Sustainability should be an evaluation criterion for remediation assessments (e.g., in a feasibility study).		How do you think sustainability should be measured?	The sustainability aspect of remediation alternatives should be regulated by the oversight agency.		Under what mechanism can sustainable remediation be regulated (e.g., law, guideline)?	What is your primary objection?	Have you participated in or are you aware of any sites where sustainability has been an element of the remediation process?		Please provide the following:		
	Agree	Disagree		Agree	Disagree			Participated and/or aware	No	Name of project(s)	Media treated	Technology used or to be used
645258424	Agree		Sustainability should be measured achievement of short and long term goals in comparison to cost.	Agree		How each alternative is evaluated.	?		No			
643477233	Agree		This requires further study, but I would say that established Life Cycle Cost Assessment methodologies should be employed as one of the tools.	Agree		I would think that adding it to the nine standard criteria considered for evaluation of remedies would be appropriate.	N/A		No			
640439191	Agree		Here is a list of metrics not intended to be exhaustive: -carbon footprint -water usage -costs and job creation -community involvement	Agree		Guidelines. Would need documentation to demonstrate sustainability of project.	Objection to what?		No			
638284067	Agree		Energy, Water, Chemicals, Emissions, Wastes, Preference for Local Economy, Neighbors and Employees as they impact Resources/Materials in + Cost of Operations + Waste/Outputs.	Agree		A guideline that set up a specific criteria would be best.	There is no objection. Using regulations is difficult because they take time to develop and are not flexible.	Participated and/or aware		Sunnyvale Superfund Site	groundwater	changed from pump and treat to in situ bioremediation
636628977	Agree		Sustainability should be measured using a life-cycle cost analysis approach to evaluate consumption of resources and releases to the environment. The intended use of the land should also be considered in determining the degree of sustainability of a proposed remedy.	Agree		Sustainability could be added to the criteria for evaluation in selection of a remedy under RCRA and CERCLA.	My primary objection to sustainable remediation? I don't have objections, but my concern is that regulations do not turn it into a paper exercise that adds cost with little value to the process.	Participated and/or aware		aware of projects implemented by DuPont, no first hand experience.		
635650560	Agree		I believe that GHG emissions should be an aspect of a sustainability metric, but if it is the only one, then the system will be very limited. Other considerations need to include resource consumption (water, land, raw materials) utilization of human capital, and time efficiency.		Disagree		In the long term, sustainability requirements should be regulated, but at this point, the metrics are not clear enough for strict regulation.	Participated and/or aware		Several	water, soil	several

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	Agree	Disagree		Agree	Disagree			Participated and/or aware	No	Name of project(s)	Media treated	Technology used or to be used
635018562	Agree		You forced an answer above without first asking this question. I said yes above but I would caveat that answer by stating it depends on ones answer here. I do not believe there is one answer to this question. Issues ranging from greenhouse gasses, criteria air pollutants to ecological impacts all potentially need to be addressed. I am very concerned about any attempt to put these factors along with more commo NCP factors onto a single scalar metric. This often does more to hide information than elucidate the potential trade space.		Disagree		Until we come to a definition I dont know what I am agreeing to		No			
634540094	Agree		At the moment, definitions of sustainability are very much place-based, because different jurisdictions have defined it differently. Therefore sustainability for a particular site needs to be measured in terms that relate to the sustainability goals of the jurisdiction involved. However, some common themes can serve as leading indicators, including: energy use, materials use, future use of the site, jobs produced, environmental emissions generated as a result of the remediation operations.		Disagree		I am not certain that I understand this question. However, one interpretation is that with regard to a contaminated site the goal is to do what is necessary to minimize the future negative lifecycle impacts of that site that contribute to sustainable development of the area. Logically, in some cases, this might dictate that no action should be taken with the site.	Participated and/or aware		DuPont Projects	Varied	Varied
634378524	Agree		Some or all of the following depending on site specifics on both short and long timescales: CO2 and VOC emissions, water and energy use, loss/gain of habitat or green space, transportation of materials and embedded CO2/energy/water (e.g. use of cement based materials)	Agree		Best practice guidelines and a transparent 'scoring' system incorporating the best of international state-of-the-art. Ongoing review is essential.	None.	Participated and/or aware				
633945365	Agree		Oh this is the million dollar question. Environmental impacts such as water, land, atmosphere, risk (human, occupational, eco where appropriate), economic feasibility, social impacts		Disagree		They've screwed up the rest of it.	Participated and/or aware		confidential	soil and groundwater	MPE

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	Agree	Disagree		Agree	Disagree			Participated and/or aware	No	Name of project(s)	Media treated	Technology used or to be used
633480769	Agree		As this question could be interpreted different ways, I will assume you mean which metrics should be measured, which parameters. Therefore, I answer with GHG emissions, natural resource consumption, adaptability to climate change, and/or energy usage.		Disagree		This would be a DoD position.	Participated and/or aware		None		
633223409	Agree		The method and means of measurement depends on what questions you are asking. If sustainability is a minor influence on a decision-making process, then qualitative information will suffice. However, if sustainability information is being used to argue selection of a particular remediation technology over another, then quantitative values on which sensitivity analyses, etc. have been undertaken are necessary. In other words, the final use of the information and the scale of the decision influences how sustainability should be measured.	Agree		It seems that including sustainability in a modification of an existing regulation would have the most implementability (e.g. add sustainability as a balancing criterion to the CERCLA 9 criteria).	none	Participated and/or aware		DuPont/URS Martinsville Site	Soil and groundwater	ZVI-Clay
633086627	Agree		Contaminant mangement (destruction, immobilization, etc.) GHG energy consumption natural resource use		Disagree		Balancing criteria: Regulators may not have the same "stakeholder" concern from the business aspects as the "owners".	Participated and/or aware		San Jose	perchlorate in groundwater	Permeable barrier wall - Carbon base
633081098	Agree		Although this will be a difficult path, I think that sustainability metrics must be defined within a group of stakeholders (at least in any framework that extends beyond regions). I think a one-size-fits-all approach will not be successful. The sustainability definition and drivers will be different for an economically blighted rural community (for example a closed stip mine in western Pennsylvania) than it would for a highly developed urban community (a retail gasoline station in Manhattan).	Agree		In two ways; one, create an avenue in which a party may include a sustainability analysis into the decision making process that gives it some decision making "weight"; and two, try to set some benchmarks or values so that sustainability evaluations aren't used to force a particular outcome. The first mechanism is necessary because many current regulatory frameworks do not provide for sustainability to be part of the remedial decision making process. The second is necessary so that unethical use of "sustainability" doesn't spoil the overall goal. For example, consultants may pressure, or be pressured, to utilize a unreasonable sustainability analysis to force through an otherwise unsuitable remedial action or goal.	As a consultant, I have no primary objection; just a concern (based on historical perspective) that mandating specific criterion creates loopholes through which lazy or unethical parties try to "work" the system. I guess I have a general distrust of "systems".	Participated and/or aware		Landfill Remediation	Groundwater	in-situ enhanced bioremediation

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632731474	Agree		The benefits need to be identified and quantified separately, perhaps as an index score in each category. Potential categories include carbon emissions, other emissions, energy, cost, water usage, landfill space, community participation, and others. It would take more thought to come up with metrics for each one.		Disagree		Regulatory enforcement of sustainability principles may not be legal, based on the interpretation of existing laws. To change the law or issue new legislation that makes sense would be slow and time-consuming. Sustainability is a complex issue. There are other reasons to adopt sustainability principles and behaviors. Laws specific to one aspect of sustainability (CO2 emissions) may be drivers.		No			
632703922	Agree		- Cost - Environmental impacts - Environmental benefits		Disagree		All stakeholders should have a say on the sustainability aspect of remediation. The result of a joint balanced effort is a higher quality product.	Participated and/or aware		Lawrenceville Site	None	None
632703285		Disagree		Agree		guideline	We are a regulatory agency. A common distraction is following a reg. on all cases that has no real benefit because the case does not merit this level of attention to detail. A quazi voluntary program such as a guideline, is better suited for 90% of my workload and should not be a "requirement".		No			
632606480	Agree		test		Disagree		teset	Participated and/or aware				
632556322	Agree		in terms of the risk reduction achieved vs the overall footprint of the process - economic and environmental dimensions are easier to quantify than social; rekative integrated measures are easier to achieve.	Agree		Law - with one body looking at all dimensions - the current fragmented regulatory regime encourages a bliinkered approach	?????	Participated and/or aware				
632464846	Agree		Using metrics (e.g, carbon footpring, cost), and also by some qualitative measurements (impact on community, labor gain/loss, recycling of land, etc.)	Agree		Under NCP, it can be regulated by either i)incorporating sustainability into the nine NCP criteria, or ii) adding sustainability as a 10th criteria. On a local and state level, it can be incorporated into the policy of the regulatory agency.	That sustainability should not be used as a cover to walk away from the site, or as the main reason for an MNA approach.	Participated and/or aware		Confidential	Groundwater	Pump-and-Treat

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632420369	Agree		Through establishing Varing Metrics from Carbon foot print to water consuption and more.	Agree		By Law and guidance	To reduce my Carbon Footprint every way I can.		No			
632409516	Agree		carbon emissions of a particular unit and/or technology are measurable		Disagree		I believe the regulatory agencies have shown to move very slowly when it comes to assessing (and approving) alternative technologies.		No			
632310161	Agree		Don't know.	Agree		Law	none	Participated and/or aware				
632294459	Agree		This is the most difficult part of the equation because everyone likes to see metrics. For NEBA type problems, I think we should start including sustainability as an evaluation criteria in Feasibility Studies, including calculating the risk of the remedy itself. For operating systems where we are trying to optimize or compare active treatment to MNA or risk management (e.g. LUCs) approaches, I think carbon/energy/water footprint calculators should be used to estimate the impact.	Agree		I would love to see sustainable remediation be regulated by state and federal law, but I think we are a long way off from this. I would like to see the federal government put out more assertive guidance on incorporating sustainability into construction, remediation projects, etc. funded with taxpayer money.	I have no objective to sustainable remediation. My only concern is we are focusing too much on "green remediation" as defined by EPA and trying to reduce carbon and energy footprints from active treatment systems like air sparge/soil vapor extraction and pump & treat. As I've stated before, I think the real emphasis should be placed at a much higher level and focus on managing the risk at environmental cleanup sites and using sustainability concepts as a way to put environmental cleanup into perspective (in terms of the additional incremental risks sometimes realized by active remediation).	Participated and/or aware		UST 1, NAS Meridian, MS	soil, groundwater	multi-phase extraction, air sparge/SVE
632288175	Agree		A number of environmental, economic and social metrics should be devised in order to quantify sustainability	Agree		It should be incorporated into existing regulations, e.g. CERCLA	Sustainability means different things to different people	Participated and/or aware		Confidential	soil and groundwater	TBC
632286767	Agree		I think all impacts on the environment should be identified and quantified (eg, number of gallons of water or acres of land used) as should all energy used. There are common metrics used every day to measure these criteria.	Agree		Sustainability should be a tenth criteria for remedy selection under the NCP. Application of that criterion should be explained in guidance. Statutory changes are too complex and difficult to accomplish	I have no objection to the consideration of sustainability in remedy selection.		No			

**SURVEY RESULTS - SUSTAINABLE REMEDIATION**

Respondent ID	Sustainability should be an evaluation criterion for remediation assessments (e.g., in a feasibility study).		How do you think sustainability should be measured?	The sustainability aspect of remediation alternatives should be regulated by the oversight agency.		Under what mechanism can sustainable remediation be regulated (e.g., law, guideline)?	What is your primary objection?	Have you participated in or are you aware of any sites where sustainability has been an element of the remediation process?		Please provide the following:		
	Agree	Disagree		Agree	Disagree			Participated and/or aware	No	Name of project(s)	Media treated	Technology used or to be used
632232987	Agree		Depends on the needs of each site. Basics would be CO2, water, safety	Agree		guidance	none	Participated and/or aware		Martinsville, Chambers Works, others	soil, landfill waste	biotreatment, ZVI Clay, spray irrigation
632229030	Agree		Need to balance economic, environmental, and social considerations. Do this qualitatively initially, and then if necessary, quantify using a tiered approach (e.g. spreadsheet tool being developed for US Air Force plus cost-benefit analysis).		Disagree		At least in the short-term, self-regulation through some sort of voluntary code of practice is likely to result in more effective dialogue between stakeholders.	Participated and/or aware		UK CBA Trial	Soil and groundwater	Pump and treat, multi-phase extraction, no further action
632213565	Agree		Through various environmental, social and economic indicators. Examples include: 1) Environmental - Efficacy (removal of contaminants/ risk) - Water consumption - GHG Emissions - Energy consumption - Waste management - Ecosystem conservation 2) Social - Health & Safety - Impact on community and employees 3) Economic - Capital and O&M costs - Site re-use and local economic opportunities - Potential to minimize liability - Economic incentives available for the project		Disagree		I believe that they need to be involved and may need to approve the work plans which consider sustainability aspects however I believe they need to encourage rather than regulate sustainable remediation.	Participated and/or aware		CN site	Groundwater	Oxygenation TBD based on pilot test
632136337	Agree		Using an industry standard (to be developed) set of Remediation Sustainability Indicators (RSMs). For example, GHGs, water conservation, energy used, recycleables used, etc....		Disagree		While is should be a component of the FS criteria, and regulatory bodies are certainly stakeholders in the decision, to be regulated by oversight agencies places a disproportionate share of sustainability decisions on regulators and they typically do not balance the economic impacts when making decisions. Also, communities could also be not properly represented in the process. Sustainability should be a "shared" metric that all parties can have oversight of.	Participated and/or aware		Confidential Client	soil and groundwater	in-situ biological treatment and excavation

**SURVEY RESULTS - SUSTAINABLE REMEDIATION**

RespondentID	Sustainability should be an evaluation criterion for remediation assessments (e.g., in a feasibility study).		How do you think sustainability should be measured?	The sustainability aspect of remediation alternatives should be regulated by the oversight agency.		Under what mechanism can sustainable remediation be regulated (e.g., law, guideline)?	What is your primary objection?	Have you participated in or are you aware of any sites where sustainability has been an element of the remediation process?		Please provide the following:		
	Agree	Disagree		Agree	Disagree			Participated and/or aware	No	Name of project(s)	Media treated	Technology used or to be used
632125365	Agree		In addition to energy and GHG usage, sustainability should also consider the overall future environmental impact of the project, such as land-use changes. Many remediation projects are also redevelopment projects which allow for effective reuse of vacant or closing facilities. The type of reuse can be the largest potential long-term environmental impact of a cleanup project. Effective land use planning by maximizing density, returning property to highest best use, and minimizing transportation and infrastructure demands can have a significant net environmental benefit and should be called out specifically in the evaluation criteria.	Agree		Either law or guidance could work. Guidance is probably the place to start, and then once best practices have been developed, law could follow to broaden its application.	No objection, but a concern that sustainability, like "green", is in the "eye of the beholder" and that this tends to result in vastly different interpretations and outcomes.	Participated and/or aware		Former Guadalupe Oil Field	Petroleum-affected soil	In-situ steam flooding, LNAPL recovery, MNA
632114162	Agree		Sustainability should be measured based upon a selection of metrics that are most applicable to the project/site/decision/etc...		Disagree		A sustainable remediation framework can't easily be "one size fits all," as is the case with other regulatory frameworks. Cookie-cutter solutions are not appropriate with respect to sustainability.	Participated and/or aware		Confidential	Ground Water	Not yet selected
632102709		Disagree										
632095067	Agree		I think a number of factors should be considered and weighed such as energy usage, waste generated, impact on local community, cost benefit		Disagree		I think it should be a consideration on part of regulators. But since Sustainability is still evolving, having regulations would impede its development		No			
631984649	Agree		without going through a full blown life cycle assessment, it can be measured, at a minimum, in GHG emissions (fuel and power used) and water used.	Agree		guidelines	proving to the client that it is cost-effective.		No			
631983573		Disagree			Disagree		xx	Participated and/or aware				

**SURVEY RESULTS - SUSTAINABLE REMEDIATION**

RespondentID	Was sustainability analysis important to the final outcome of the project?		The following stakeholders were involved in the process:				What is your assessment of the relative success/failure of the concept of the application of sustainable practices to remediation?	What were some of the challenges/problems encountered?	Is the project confidential?			Can you provide summary materials about the project (e.g., PDF, URL, hard copy via mail)?
	Yes	No	Regulatory	Community	Responsible Parties	Other (please specify)			Yes	No	Other (please specify)	
645258424												
643477233												
640439191												
638284067		No	Regulatory				The project was very successful as it reduced the treatment time from 30 years to 2.5 years and has reduced energy and water costs.	Initially we had a pump and treat system with a large gw network and air stripper to a recirculating in situ bioremediation. We had to change the remedy with known costs. We did an extended pilot study to ensure that the technology was appropriate, with higher capital costs but lower O&M costs.		No		Would need approval from client.
636628977	Yes		Regulatory	Community	Responsible Parties		Appeared to be highly successful	I was not personally involved in the project and do not have this information.		No		No, I have only heard presentations at conferences on the projects.
635650560	Yes		Regulatory	Community	Responsible Parties		See report titled "Green Remediation and the Use of Renewable Energy Sources for Remediation Projects"	See report titled "Green Remediation and the Use of Renewable Energy Sources for Remediation Projects"		No		See report titled "Green Remediation and the Use of Renewable Energy Sources for Remediation Projects"

**SURVEY RESULTS - SUSTAINABLE REMEDIATION**

RespondentID	Was sustainability analysis important to the final outcome of the project?		The following stakeholders were involved in the process:				What is your assessment of the relative success/failure of the concept of the application of sustainable practices to remediation?	What were some of the challenges/problems encountered?	Is the project confidential?			Can you provide summary materials about the project (e.g., PDF, URL, hard copy via mail)?
	Yes	No	Regulatory	Community	Responsible Parties	Other (please specify)			Yes	No	Other (please specify)	
635018562												
634540094	Yes		Regulatory		Responsible Parties		It is too soon to make a blanket assessment. However, there are examples where a better remediation program was developed because of consideration of possible sustainability practices in the planning for the remediation.	There are potential regulatory complications that need to be addressed. In some cases time issues may become important and lead to complications with communities and regulators.		No		No
634378524												
633945365	Yes		Regulatory		Responsible Parties		So far seems successful	doing the work	Yes			

**SURVEY RESULTS - SUSTAINABLE REMEDIATION**

RespondentID	Was sustainability analysis important to the final outcome of the project?		The following stakeholders were involved in the process:				What is your assessment of the relative success/failure of the concept of the application of sustainable practices to remediation?	What were some of the challenges/problems encountered?	Is the project confidential?			Can you provide summary materials about the project (e.g., PDF, URL, hard copy via mail)?
	Yes	No	Regulatory	Community	Responsible Parties	Other (please specify)			Yes	No	Other (please specify)	
633480769		No				None	None	None		No		No
633223409	Yes		Regulatory		Responsible Parties		I think that consideration of sustainable remediation practices has a high success rate. From previous SuRF presentations and discussions, it seems that most stakeholders, regulatory agencies, and communities are not opposed to considering sustainability. However, it does seem that many are opposed to requiring that their decisions be based on sustainability rather than cost, safety, etc.	It seems that problems arise when people are required to let sustainability metrics make their decision without considering other influencing factors.		No		See SuRF 5 presentation materials
633086627	Yes				Responsible Parties		It is a balancing criteria. As such it has a place at the decision table, but is not the "main course".	Timing seems to be a critical issue in many cases. Also, funding availability can be consequential. Valuation of resources are problematic. How much is groundwater worth?	Yes		The project is "public" from the regulatory involvement standpoint. There are significant community issues which provide "perception impacts" that make this a scenario that we do not necessarily want to bring up for additional public scrutiny.	
633081098	Yes		Regulatory	Community	Responsible Parties		Sustainability was not the primary driver, cost was. Sustainability was probably more of a second-tier criterion. The community looked very favorably at the more sustainable remedial option considered (and subsequently implemented).	Education, both of the community (public) and the regulators, was a large part of the project challenges.	Yes			

**SURVEY RESULTS - SUSTAINABLE REMEDIATION**

RespondentID	Was sustainability analysis important to the final outcome of the project?		The following stakeholders were involved in the process:				What is your assessment of the relative success/failure of the concept of the application of sustainable practices to remediation?	What were some of the challenges/problems encountered?	Is the project confidential?			Can you provide summary materials about the project (e.g., PDF, URL, hard copy via mail)?
	Yes	No	Regulatory	Community	Responsible Parties	Other (please specify)			Yes	No	Other (please specify)	
632731474												
632703922	Yes		Regulatory	Community	Responsible Parties		All stakeholders are satisfied with the implementation of MNA as part of the remedial alternative. Other elements of the remedial alternative included: jobs for the community, and added infrastructure for the city.	Regulator resistance at the beginning.	Yes			
632703285												
632606480												
632556322	Yes		Regulatory	Community	Responsible Parties	advisors	too narrow a focus on the process and not enough on comparing outcomes with benefits (in terms of risk reduction)	NIMBYism	Yes			
632464846		No	Regulatory		Responsible Parties		Sustainability met both regulatory and stakeholders resistance.	1. Lack of metrics 2. Education of regulatory agencies, stakeholders, and consultants 3. How to incorporate sustainability in the remedy selection	Yes			

**SURVEY RESULTS - SUSTAINABLE REMEDIATION**

RespondentID	Was sustainability analysis important to the final outcome of the project?		The following stakeholders were involved in the process:				What is your assessment of the relative success/failure of the concept of the application of sustainable practices to remediation?	What were some of the challenges/problems encountered?	Is the project confidential?			Can you provide summary materials about the project (e.g., PDF, URL, hard copy via mail)?
	Yes	No	Regulatory	Community	Responsible Parties	Other (please specify)			Yes	No	Other (please specify)	
632420369												
632409516												
632310161	Yes		Regulatory				adfa	adfa		No		
632294459	Yes				Responsible Parties	Consultant, we have not presented to the regulators yet.	We have not completed the evaluation yet. My experience with actually implementing sustainable remediation is preliminary at this point. Most of the discussions have been conceptual in nature.	Regulators often view sustainable remediation as another excuse for responsible parties not doing anything.		No		Not at this point. When the optimization report is complete, I'd be happy to share with the SURF.
632288175	Yes		Regulatory	Community	Responsible Parties		Successful	Making sure sustainability criteria had as much weighting as traditional criteria	Yes			
632286767												

**SURVEY RESULTS - SUSTAINABLE REMEDIATION**

RespondentID	Was sustainability analysis important to the final outcome of the project?		The following stakeholders were involved in the process:				What is your assessment of the relative success/failure of the concept of the application of sustainable practices to remediation?	What were some of the challenges/problems encountered?	Is the project confidential?			Can you provide summary materials about the project (e.g., PDF, URL, hard copy via mail)?
	Yes	No	Regulatory	Community	Responsible Parties	Other (please specify)			Yes	No	Other (please specify)	
632232987	Yes		Regulatory		Responsible Parties		very helpful	education of all participants is necessary		No		See SURF notes
632229030	Yes		Regulatory		Responsible Parties		A cost benefit analysis has been conducted, and despite the challenges noted below, it shows great promise as a way of incorporating sustainability principles into the remedial decision making process.	- Technical justification of remediation effectiveness of various treatment approaches (i.e. what could be achieved and over what timeframe). - What to measure and where to draw the boundaries of the analysis. - Legal issues relating to property and aquifer valuation.	Yes			
632213565	Yes				Responsible Parties		Overall successful in understanding the potential environmental, social and economic impacts of various remediation systems evaluated.	Technological challenges due to media in which the contaminants are found. This reduced the number of effective remediation options to be evaluated.	Yes			
632136337	Yes		Regulatory	Community	Responsible Parties		The decision for remediation was successfully agreed upon by stakeholders. The success of the project was based on the client's openness to make decisions that were based on factors other than money.	Developing a valuation model (the holy grail) for making decisions.	Yes		Another project is the sustainability analysis completed at Mass. Military Reservation for groundwater treatment. Still finalizing FS. But draft FS, and sustainability analysis, was well received by regulators.	

**SURVEY RESULTS - SUSTAINABLE REMEDIATION**

RespondentID	Was sustainability analysis important to the final outcome of the project?		The following stakeholders were involved in the process:				What is your assessment of the relative success/failure of the concept of the application of sustainable practices to remediation?	What were some of the challenges/problems encountered?	Is the project confidential?			Can you provide summary materials about the project (e.g., PDF, URL, hard copy via mail)?
	Yes	No	Regulatory	Community	Responsible Parties	Other (please specify)			Yes	No	Other (please specify)	
632125365		No	Regulatory		Responsible Parties		In this project, in-situ steam flooding was pilot tested. Energy costs and environmental impacts were a significant factor in rejecting full-scale implementation.	Site setting is a nature preserve with many listed/protected species.		No	Chemical of concern is a middle-distillate refined petroleum product.	Yes, there are several project reports in the public domain; some are available at <a href="http://www.guaddunes.com/">http://www.guaddunes.com/</a>
632114162		No	Regulatory	Community	Responsible Parties		The Regulatory Agency stipulated that sustainability could not be used as a criterion for detailed analysis of alternatives, however it could be included as an item to be considered.	A sustainability evaluation could only be included for information purposes and was to be used at the discretion of the Regulatory Agency.	Yes			
632102709												
632095067												
631984649												
631983573												

**SURVEY RESULTS - SUSTAINABLE REMEDIATION**

Respondent ID	Does your organization have any guidance, policy, or programs that address sustainability practices in remediation?				Please provide a reference for documentation (e.g., PDF, web site link, title, contact person).	Are you a multi-national organization?		Does the guidance, policy, and/or program differ between countries (i.e., between the U.S. and EU, Asia, Australia, South America)?		What do you believe is the most significant barrier to incorporating sustainable remediation within your organization? Check all that apply.							
	Guidance (nonmandatory)	Policy (mandatory)	Program	None		Yes	No	Yes	No	Lack of interest within organization	Lack of market for service	Lack of a regulatory driver	Educational challenges (i.e., lack of training and/or resources)	Incompatibility with client and/or business objectives	Lack of agreement regarding what is or is not sustainable	Organization policy	Other (please specify)
645258424			Program														
643477233				None						Lack of interest within organization							As a small company, we are limited in terms of how many initiatives we can pursue and to what degree. We are interested in building an awareness of this issue within our company and in our external communications with prospects and the public.
640439191			Program		Maria Watt	Yes			No								
638284067				None							Lack of market for service		Lack of a regulatory driver			Lack of agreement regarding what is or is not sustainable	
636628977				None						Lack of interest within organization			Lack of a regulatory driver				
635650560				None									Lack of a regulatory driver	Educational challenges (i.e., lack of training and/or resources)			

**SURVEY RESULTS - SUSTAINABLE REMEDIATION**

Respondent ID	Does your organization have any guidance, policy, or programs that address sustainability practices in remediation?				Please provide a reference for documentation (e.g., PDF, web site link, title, contact person).	Are you a multi-national organization?		Does the guidance, policy, and/or program differ between countries (i.e., between the U.S. and EU, Asia, Australia, South America)?		What do you believe is the most significant barrier to incorporating sustainable remediation within your organization? Check all that apply.							
	Guidance (nonmandatory)	Policy (mandatory)	Program	None		Yes	No	Yes	No	Lack of interest within organization	Lack of market for service	Lack of a regulatory driver	Educational challenges (i.e., lack of training and/or resources)	Incompatibility with client and/or business objectives	Lack of agreement regarding what is or is not sustainable	Organization policy	Other (please specify)
635018562				None													Lack of agreement regarding what is or is not sustainable
634540094				None										Lack of a regulatory driver			Lack of agreement regarding what is or is not sustainable
634378524																	
633945365	Guidance (nonmandatory)				It's under development	Yes		Yes									

**SURVEY RESULTS - SUSTAINABLE REMEDIATION**

Respondent ID	Does your organization have any guidance, policy, or programs that address sustainability practices in remediation?				Please provide a reference for documentation (e.g., PDF, web site link, title, contact person).	Are you a multi-national organization?		Does the guidance, policy, and/or program differ between countries (i.e., between the U.S. and EU, Asia, Australia, South America)?		What do you believe is the most significant barrier to incorporating sustainable remediation within your organization? Check all that apply.							
	Guidance (nonmandatory)	Policy (mandatory)	Program	None		Yes	No	Yes	No	Lack of interest within organization	Lack of market for service	Lack of a regulatory driver	Educational challenges (i.e., lack of training and/or resources)	Incompatibility with client and/or business objectives	Lack of agreement regarding what is or is not sustainable	Organization policy	Other (please specify)
633480769				None						Lack of interest within organization		Lack of a regulatory driver	Educational challenges (i.e., lack of training and/or resources)		Lack of agreement regarding what is or is not sustainable		
633223409				None								Lack of a regulatory driver			Organization policy		
633086627				None								Educational challenges (i.e., lack of training and/or resources)	Incompatibility with client and/or business objectives				We are in the process of developing guidance/policy (tbd) currently with regard to the incorporation of sustainability into our organization.
633081098				None							Lack of market for service	Lack of a regulatory driver		Incompatibility with client and/or business objectives			

**SURVEY RESULTS - SUSTAINABLE REMEDIATION**

Respondent ID	Does your organization have any guidance, policy, or programs that address sustainability practices in remediation?				Please provide a reference for documentation (e.g., PDF, web site link, title, contact person).	Are you a multi-national organization?		Does the guidance, policy, and/or program differ between countries (i.e., between the U.S. and EU, Asia, Australia, South America)?		What do you believe is the most significant barrier to incorporating sustainable remediation within your organization? Check all that apply.								
	Guidance (nonmandatory)	Policy (mandatory)	Program	None		Yes	No	Yes	No	Lack of interest within organization	Lack of market for service	Lack of a regulatory driver	Educational challenges (i.e., lack of training and/or resources)	Incompatibility with client and/or business objectives	Lack of agreement regarding what is or is not sustainable	Organization policy	Other (please specify)	
632731474				None													Lack of agreement regarding what is or is not sustainable	Lack of clear benefits to clients (similar to incompatibility with business objectives but it may not be incompatible, just un-demonstrated)
632703922			Program		I am one of the persons working on the program.	Yes			No									
632703285				None										Incompatibility with client and/or business objectives		Organization policy		
632606480																		
632556322			Program		it is an area of ongoing research	Yes		Yes										
632464846				None							Lack of market for service	Lack of a regulatory driver					Lack of agreement regarding what is or is not sustainable	

**SURVEY RESULTS - SUSTAINABLE REMEDIATION**

RespondentID	Does your organization have any guidance, policy, or programs that address sustainability practices in remediation?				Please provide a reference for documentation (e.g., PDF, web site link, title, contact person).	Are you a multi-national organization?		Does the guidance, policy, and/or program differ between countries (i.e., between the U.S. and EU, Asia, Australia, South America)?		What do you believe is the most significant barrier to incorporating sustainable remediation within your organization? Check all that apply.							
	Guidance (nonmandatory)	Policy (mandatory)	Program	None		Yes	No	Yes	No	Lack of interest within organization	Lack of market for service	Lack of a regulatory driver	Educational challenges (i.e., lack of training and/or resources)	Incompatibility with client and/or business objectives	Lack of agreement regarding what is or is not sustainable	Organization policy	Other (please specify)
632420369				None						Lack of interest within organization		Lack of a regulatory driver	Educational challenges (i.e., lack of training and/or resources)				Cost
632409516				None									Educational challenges (i.e., lack of training and/or resources)				PG&E embraces sustainable practices as it relates to the utility business; however, the remediation program is just now taking on the challenge to assess, and incorporate as can be quantified, sustainable practices into our remediation plans.
632310161				None									Educational challenges (i.e., lack of training and/or resources)	Incompatibility with client and/or business objectives	Lack of agreement regarding what is or is not sustainable		
632294459				None								Lack of a regulatory driver	Educational challenges (i.e., lack of training and/or resources)		Lack of agreement regarding what is or is not sustainable	Organization policy	NAVFAC is starting to develop white papers/policy on sustainable remediation. Sustainable remediation will likely be implemented under the Navy's optimization policy for cleanup at environmental restoration sites.
632288175	Guidance (nonmandatory)				N/A		No				Lack of market for service	Lack of a regulatory driver	Educational challenges (i.e., lack of training and/or resources)				
632286767				None								Lack of a regulatory driver					I think regulatory leadership is required.

SURVEY RESULTS - SUSTAINABLE REMEDIATION

Respondent ID	Does your organization have any guidance, policy, or programs that address sustainability practices in remediation?				Please provide a reference for documentation (e.g., PDF, web site link, title, contact person).	Are you a multi-national organization?		Does the guidance, policy, and/or program differ between countries (i.e., between the U.S. and EU, Asia, Australia, South America)?		What do you believe is the most significant barrier to incorporating sustainable remediation within your organization? Check all that apply.							
	Guidance (nonmandatory)	Policy (mandatory)	Program	None		Yes	No	Yes	No	Lack of interest within organization	Lack of market for service	Lack of a regulatory driver	Educational challenges (i.e., lack of training and/or resources)	Incompatibility with client and/or business objectives	Lack of agreement regarding what is or is not sustainable	Organization policy	Other (please specify)
632232987		Policy (mandatory)			me?	Yes			No								
632229030				None													Lack of agreement regarding what is or is not sustainable
632213565			Program		Stella Karnis CN	Yes			No								
632136337	Guidance (nonmandatory)		Program		Paul Favara pfavara@ch2m.com	Yes			No								

**SURVEY RESULTS - SUSTAINABLE REMEDIATION**

Respondent ID	Does your organization have any guidance, policy, or programs that address sustainability practices in remediation?				Please provide a reference for documentation (e.g., PDF, web site link, title, contact person).	Are you a multi-national organization?		Does the guidance, policy, and/or program differ between countries (i.e., between the U.S. and EU, Asia, Australia, South America)?		What do you believe is the most significant barrier to incorporating sustainable remediation within your organization? Check all that apply.							
	Guidance (nonmandatory)	Policy (mandatory)	Program	None		Yes	No	Yes	No	Lack of interest within organization	Lack of market for service	Lack of a regulatory driver	Educational challenges (i.e., lack of training and/or resources)	Incompatibility with client and/or business objectives	Lack of agreement regarding what is or is not sustainable	Organization policy	Other (please specify)
632125365				None													Lack of agreement regarding what is or is not sustainable
632114162			Program		Program in development. Contact person: Amy Lawrence		No										Lack of a regulatory driver
632102709																	
632095067			Program		Richard.dulcey@erm.com (sustainable remediation); John.curtis@erm.com (energy and climate change)	Yes			No								
631984649				None						Lack of interest within organization	Lack of market for service						Lack of a regulatory driver Incompatibility with client and/or business objectives
631983573																	

**SURVEY RESULTS - SUSTAINABLE REMEDIATION**

Respondent ID	Name one change that you would make to make sustainable remediation an integral part of your organization's approach to remediation.	Have you participated in any projects where sustainability issues were discussed but not incorporated into the final decision-making process?		What was the primary reason for not incorporating sustainability?	Is sustainable remediation marketed as a service within your organization?	
		Yes	No		Yes	No
645258424						
643477233	As a remediation contractor and technology firm specializing in In Situ Thermal Remediation, we already focus on providing our clients with predictable results consistent with their goals. Our typical project results in site closure within a year of project initiation. We are working to improve our ability to do so with minimal environmental impact and cost.		No			No
640439191	Include sustainability principles within project startup forms.		No		Yes	
638284067	Incentives for sustainability in regulatory process and a definition of sustainability under a third party or government guideline.		No		Yes	
636628977	I would convince our corporate ESH group that sustainable remediation has many benefits to the corporation and that policies should be developed and implemented to ensure the practice throughout the corporation.		No			No
635650560	I have not been involved in the design of remediation projects in the 6 months I have been with my company, so I am not sure how best it could be incorporated. I imagine educational resources would be a great help.		No			No

**SURVEY RESULTS - SUSTAINABLE REMEDIATION**

Respondent ID	Name one change that you would make to make sustainable remediation an integral part of your organization's approach to remediation.	Have you participated in any projects where sustainability issues were discussed but not incorporated into the final decision-making process?		What was the primary reason for not incorporating sustainability?	Is sustainable remediation marketed as a service within your organization?	
		Yes	No		Yes	No
635018562	See answer above		No			No
634540094	In terms of carrying out sustainable remediation for our own sites, the most helpful change would be a goal to move beyond doing only the minimum required to remain out of regulatory scrutiny.		No			No
634378524						
633945365	Education		No			No

**SURVEY RESULTS - SUSTAINABLE REMEDIATION**

Respondent ID	Name one change that you would make to make sustainable remediation an integral part of your organization's approach to remediation.	Have you participated in any projects where sustainability issues were discussed but not incorporated into the final decision-making process?		What was the primary reason for not incorporating sustainability?	Is sustainable remediation marketed as a service within your organization?	
		Yes	No		Yes	No
633480769	Integrate as a business practice.		No			No
633223409	I would require safety or a related metric to be included as a sustainability metric. (In part, this change would be to provide a more holistic approach to sustainability rather than simply focusing on environmental metrics and/or CO2.)		No		Yes	
633086627	Make it part of our internal guidance or policy as a criteria (balancing) for remedial application decision making.	Yes		Timing of the outcome and retained liability at that property.		No
633081098	We (an environmental consulting company) probably do not make a strong enough effort to "sell" the idea of sustainability as a decision-making criterion to our clientele. Part of this, in our own defense, is that to many clients the over-arching driver is cost. That said, we could still probably try harder to advise potential clients to look at it.	Yes		Cost and comfort level of the potential client. The client representative did not have faith that regulatory buy-in could be obtained (which would increase his cost exposure) and that the technology could be successful (again, increasing cost exposure).	Yes	

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		Yes	No		Yes	No
632731474	Spreadsheet tools to quantify various sustainability aspects and benefits for different types of remediation projects	Yes		We were not required to incorporate them formally but did discuss them in a general sense, for example, when comparing excavation with in-situ treatment		No
632703922	More awareness training.		No			No
632703285	Prepare a guideline for its use and consideration. Follow up with a staff training to assure awareness of this concept.		No			No
632606480						
632556322	we do not carry out remediation	Yes		no clear desire for it and no clear means of measuring it	Yes	
632464846	Make sustainability a regulatory requirement.	Yes		Uncertainty as to how sustainability would be incorporated into the remedy selection process, and that it is a new concept.		No

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		Yes	No		Yes	No
632420369	Create a Web tool to be started same time Clean up technologies are considered and evaluate the metrics of each Technology.		No			No
632409516	We are presently assessing how to incorporate sustainable technologies at the feasibility study level.		No			No
632310161	afa		No			No
632294459	I would like to see the Navy require the following: 1) Incorporate sustainability into the FS remedy selection process. 2) Require sustainability to be evaluated during all optimization studies of planned and ongoing remediation projects.	Yes		No defined guidance from state and federal regulatory agencies and the feeling that we would get significant pushback from the regulators.		No
632288175	Educate people on the importance of sustainability		No		Yes	
632286767	My own organization is unlikely to engage in remediation, but for clients I advise, I would suggest that every policy include consideration of the environmental impacts of whatever is being done, including remediation.		No			No

**SURVEY RESULTS - SUSTAINABLE REMEDIATION**

Respondent ID	Name one change that you would make to make sustainable remediation an integral part of your organization's approach to remediation.	Have you participated in any projects where sustainability issues were discussed but not incorporated into the final decision-making process?		What was the primary reason for not incorporating sustainability?	Is sustainable remediation marketed as a service within your organization?	
		Yes	No		Yes	No
632232987	more education of project managers		No			No
632229030	Communicate the importance of the concept to the business decision makers.	Yes		- No clear way of communicating the issue to the regulator. - Concern that the regulator is focussed only on one aspect, and may not have the freedom or desire to give consideration to a more holistic approach.		No
632213565	Presently formally completing guidance documents for all project managers.		No			No
632136337	Not necessarily a change (I think we are doing everything we can right now - sustainability is very important at CH2M HILL and we have a lot of resources working on it across all enterprise). Just to continue to work with SURF in developing industry tools and guidance to provide resources to practioners so it is better accepted and understood.	Yes		Economic. The very small incremental benefit in optimizing a (RSM) remediation sustainability metric was dwarfed by the costs required to acheive it.	Yes	

**SURVEY RESULTS - SUSTAINABLE REMEDIATION**

Respondent ID	Name one change that you would make to make sustainable remediation an integral part of your organization's approach to remediation.	Have you participated in any projects where sustainability issues were discussed but not incorporated into the final decision-making process?		What was the primary reason for not incorporating sustainability?	Is sustainable remediation marketed as a service within your organization?	
		Yes	No		Yes	No
632125365	Broad availability of peer-reviewed comparisons of GHG impacts and energy costs of various remedial technologies.	Yes		No regulatory driver to make it an evaluation criterion.	Yes	
632114162	Develop a framework for applying sustainable remediation principles	Yes		Precedent - it wasn't done in the past.	Yes	
632102709						
632095067	Training	Yes		Lack of information, procedures, support	Yes	
631984649	guidance or regulation. Education of organization leaders	Yes		additional cost	Yes	
631983573						