



Measuring What Matters

Key Performance Indicators – Trends in Corporate Remediation

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Outline

2



- **Context**
 - Remediation: The Dynamic Evolution
 - Visualizing the Shift
- **KPI Observations from Corporate Remediation Benchmarking**
- **KPI Summary Information**
 - Aligning Strategy with KPIs
 - Leading Performance Indicators
 - Additional Program KPIs
 - Measuring Program Success
 - Program and Project Management
 - Financial Accounting
 - Safety
 - Contractors and Consultants
 - Additional Value-Add



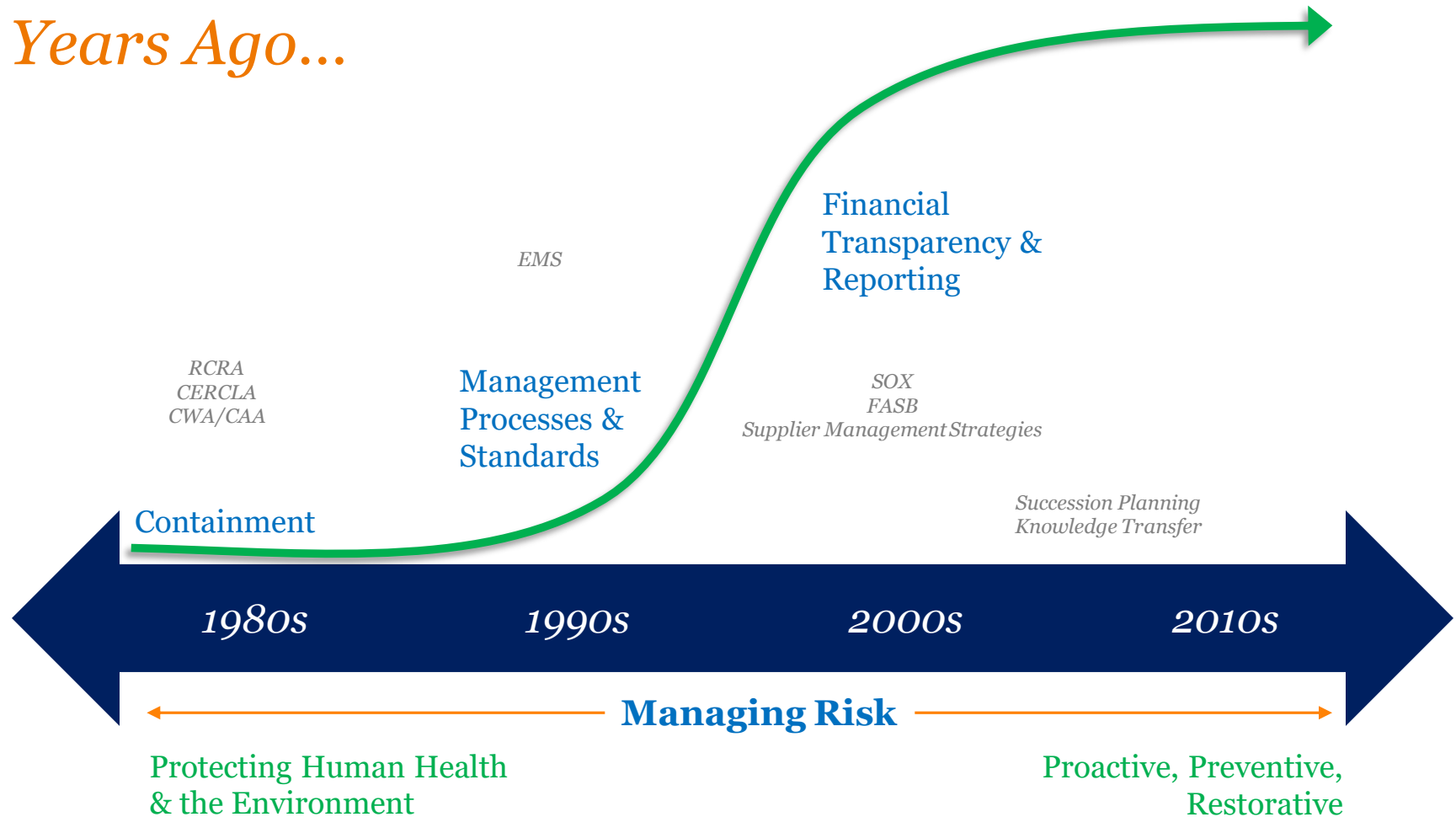
Take Away Points from Private Peer-to-Peer Benchmarking Sessions with Corporate Remediation Leaders:

- Corporate Remediation has evolved from a project-based to a portfolio-based to a risk-based function.
- In this evolution, **KPI's and metrics have not kept up with the organizational mission.**
- Companies are continuing to look for solutions (Safety, Contractors, Technology, Long-Term O&M) that align their origins (project-based) with emerging (risk-based) reporting requirements.

Remediation: The Dynamic Evolution

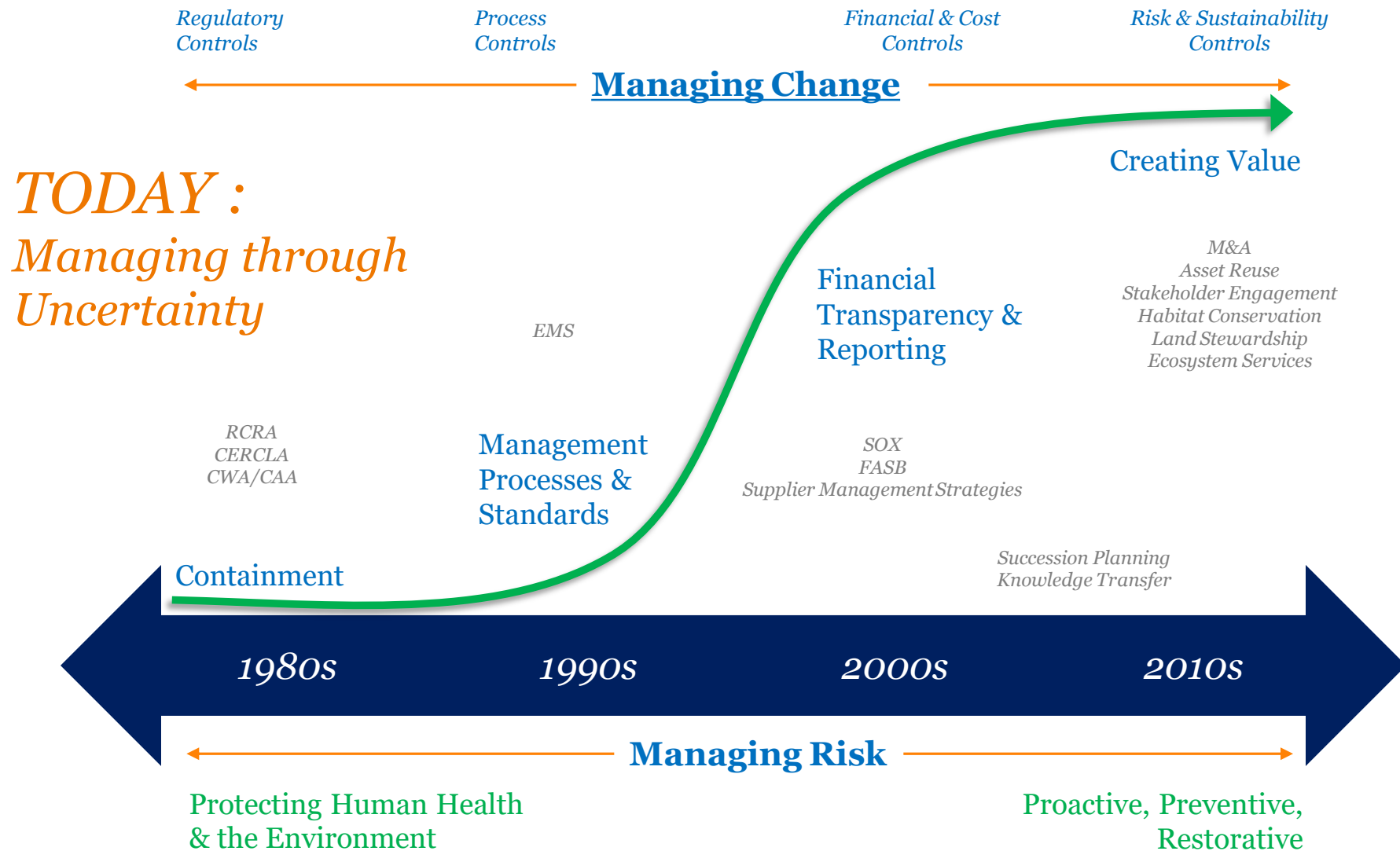
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5 Years Ago...



Remediation: The Dynamic Evolution

5



Visualizing the Shift – It Starts with the Site – It Ends with Business Value

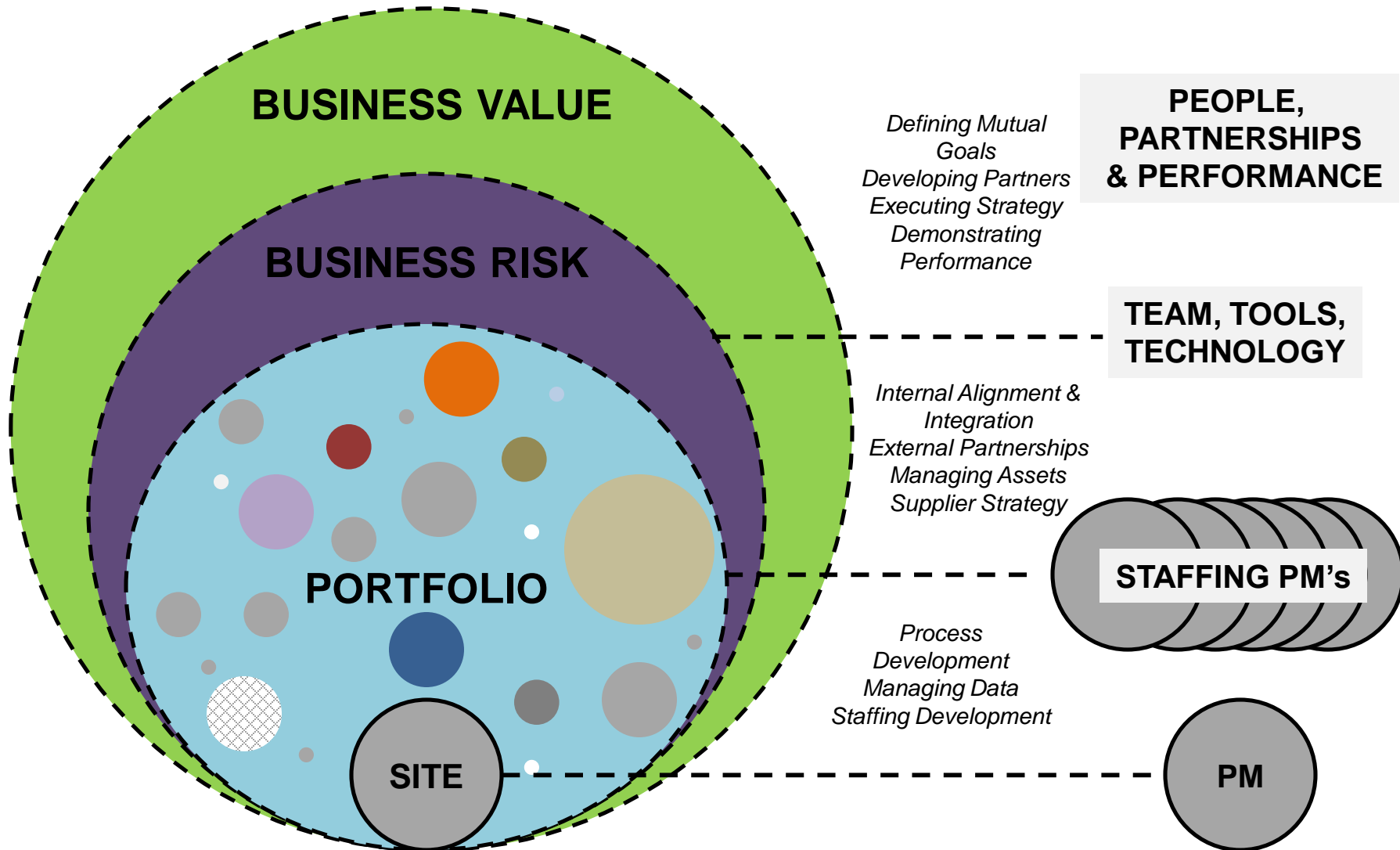
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CREATE

MITIGATE

MANAGE

ADDRESS





Observations

Benchmarking Observations

8

Companies continually ask, “how do we approach the future of corporate remediation?”

- **Identifying, Assessing, Mitigating & Managing Risk**
 - New Technology
 - New Processes/Tools
 - Strong Project Management Discipline
- **Managing Money & Resources**
 - Reserves and Spend
 - Assets
 - Data and Information
 - Adopting Software Tools
- **Managing People & Relationships**
 - Regulator/Agency Relations
 - Staffing/Talent Development
 - Supplier/Consultant Teaming
 - Community Engagement
 - Internal Communications/Dialog with other Corporate Functions
 - Senior Management Engagement & Leadership
 - Technical and non-Technical Communications: Translating value and internal/external language barriers
- **Creating Value**
 - Property Reuse and Sale
 - Land Stewardship
 - Financial Management
 - Life-Cycle Strategies/Prevention of Future Liabilities



Benchmarking Observations – The Challenge

9

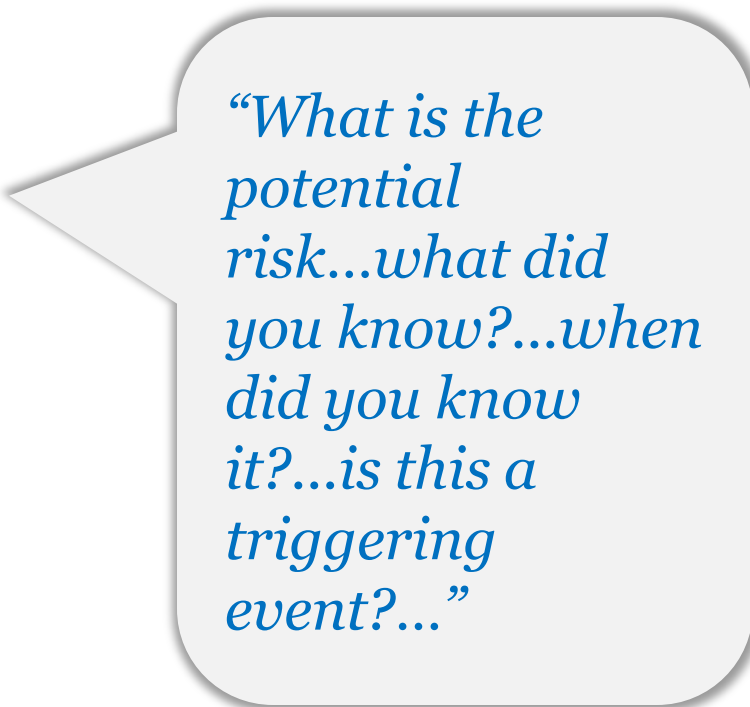
The Corporate Remediation Risk & Value Equation

– Performance Metrics

- KPI's are dependent upon where you sit in the organization, your scope of responsibility and influence, and who you report to (*i.e.*, PM, Director, CFO, CEO, Member of the Board).

– Measuring Value & Success

- How do you demonstrate progress?
- Stage-gating is good, one measure of performance – although some sites can get stuck (*i.e.*, O&M) and the team can get complacent.



“What is the potential risk...what did you know?...when did you know it?...is this a triggering event?”

Benchmarking Observations

10

What were your “most frustrating” issues in remediation in the past year?

Regulatory Environment

- Regulatory issues and uncertainties
- Working with difficult states
- Lack of timeliness in Government Responses - Worldwide
- Conflicting input from State vs. Federal regulators on the same project
- Litigation and regulatory actions
- Coordination of Federal & State oversight - US

External Communications, Challenges and Resources

- Level and Competence of External Resources - EU

Agency Issues

- Lack of Agency Progress on projects - Delay in document approvals
- Lack of EPA resources
- Lack of agency understanding on acceptable risk
- Agencies focused on politics vs. mission to protect HHE
- Inconsistency of EPAs interpretation of sediment issues between regions
- Out-of-control regulator at EPA Region 9 - abuse of authority
- Unpredictability of timing of agency responses
- Public communication approaches/capability of agencies
- Change in agency's idea of risk and how to evaluate it
- Region IX Superfund Program - EPA Indifference to various Circumstances
- Inability of agency to make a decision
- Speed at which agency makes a decision
- Apparent EPA resource shortages have resulted in very slow progress and lack of creativity on remediation projects.

Internal Challenges and Resources

- Lack of internal resources
- Internal scrutiny on financial reporting
- Slow acceptance of innovative strategies
- Lack of internal accountability
- Limited staff (at some time you do less with less)
- Conflict between reserve setting and other PRP pursuit
- The leaders in the accounting function have restricted the remediation / legal teams from pursuing other PRPs due to the concern that it may trigger the need for our company to recognize lifecycle liabilities on our reserve once dollar amounts are discussed during negotiations.

Specific Technical or Topical Issues

- Vapor intrusion issues
- Changing technical standards
- Dinosaur mentality of Superfund program (non risk based)
- Ecological risk

Consultant Challenges / Performance

- Slip in consultant performance
- Consultant issues - quality and performance
- Inconsistency of strategic thinking by consultants
- Consultants appear to be tightening their belts resulting in a lower level of attention to clients and loss of certain resources.

Remedial Process

- Lack of representative sampling method
- Monitoring and reporting/discharge compliance
- Not having a workable holistic project management tool

Benchmarking Observations

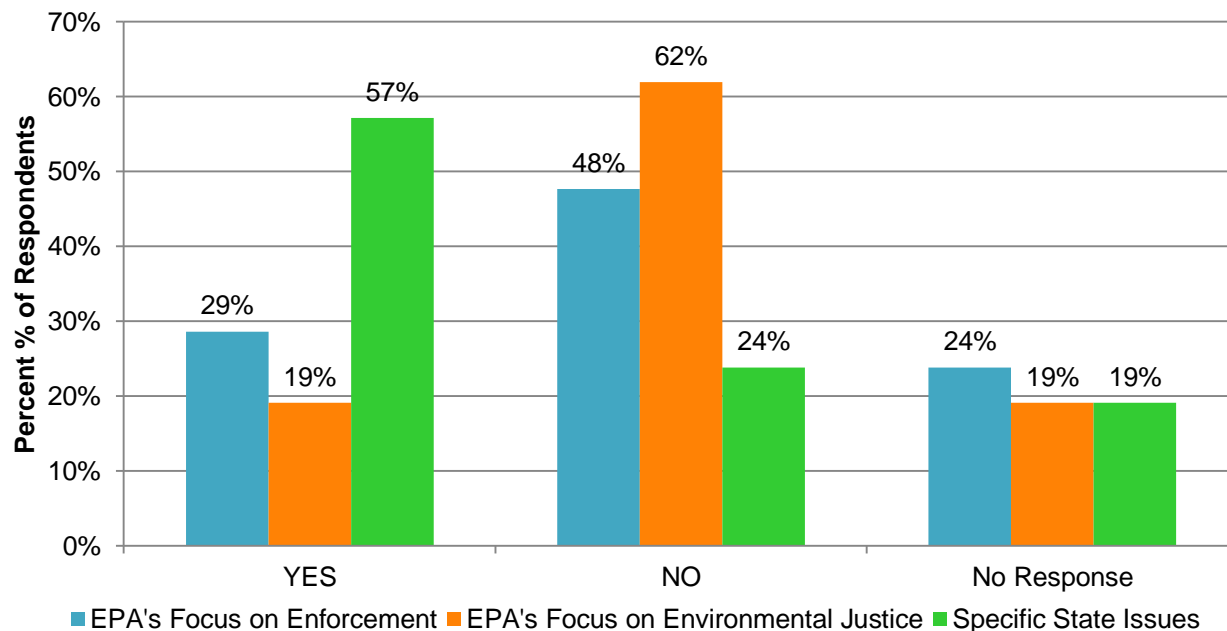
Insights from 2014 Remediation Survey

11

Comments:

- Vapor intrusion at the state level has gained more scrutiny, LNAPL mobility demonstrations being accepted for closure, and fee based regulatory programs that allow for more risk based closures.
- EPA enforcement has focused on the hard rock mining industry, with an emphasis on financial assurance and shifting burden to viable entities. States are moving toward expanded consideration of ecological risks.
- Sediments, NRD, slow response to innovative strategies.
- EU Directives as they are translated to Country Regulations as well as Federal - State Coordination where both levels are involved.
- There has been increased regulatory scrutiny at the federal level.
- Changes with licensed professional programs, ongoing remediation regulation changes, toxicity and standard changes.

Have you seen any impact on your remediation program from the following: (# respondents = 21)



- 29% of respondents indicated they have seen an impact on EPA's focus on enforcement (39% last yr.)
- 19% of respondents indicated EPA's focus on enforcement and environmental justice has had an impact. (39% last yr.)
- 24% have seen an impact from specific state issues.



*Key Performance Indicators (KPIs)
Used by Corporate Remediation
Professionals to Measure Performance*

Aligning Strategy with Leading KPIs

13

Managing Risk & Creating Value in Corporate Remediation

This requires a disciplined approach and ability to sense, assess, and qualify the future against corporate goals, resources, and strategy.

As noted, several “categories” of internal and external indicators encompass and impact the timing, cost, and delivery of the corporate remediation strategy.

Categories of Leading KPIs

1. Corporate Program and Portfolio Trends/Changes
2. Corporate Reputation
3. Financial Accounting Rules, Procedures
4. Financial Assurance
5. The Regulatory Environment & Trends
6. Chemicals of Concern / Contaminant Level Changes
7. Social Context – Community and Stakeholder Engagement
8. Technology/Science/Future Remedies
9. The Market/Economic Context
10. People – Intellectual Capital
11. Other Macro Considerations

Leading Performance Indicators

14

Corporate Program and Portfolio Trends/Changes

- The “advancing phase” of remedial activities in the portfolio is an indicator of future costs, requirements, etc.
- Number of new sites added (just like new building permits issued, it can provide a sense of which direction the corporate remediation program will be going in the future)

Corporate Reputation

- The reputation of the company (reputation carries a great deal of weight and is an element of leading indicator)

Financial Accounting Rules, Procedures

- Changes in accounting procedures (FASB, others)
- Input from auditors (they are a source of leading information/trends)

Financial Assurance

- Assessing and understanding the solvency of the firm as related to financial assurance requirements which continue to be pushed by regulatory agencies, financial institutions, and others is an element of assessing the future

Leading Performance Indicators

15

The Regulatory Environment & Trends

- The background of individuals put in charge of state or federal program(s) will have impact on current and future KPIs
- The current/future budgets of the state/federal agencies is a leading indicator of future KPIs (i.e., more resources or less resources on a Federal or state level to drive the programs))
- Understanding the degree, rate/frequency, and impact of turnover at the state/federal agencies can be a leading KPI to assess changes in regulatory structure and outcomes
- Trend in States moving to a Licensed Professional Program - the approach many states are using to move sites through the cleanup process
- Regulatory “reopeners” which result in additional work/scope, budget, etc.

Chemicals of Concern / Contaminant Level Changes

- Cancer causing chemicals (health concerns, TRI data)
- The degree of analysis in science (detectability levels) will impact cost and timing of program
- Anticipated change in clean up levels of key corporate program contaminants and positive or negative impact on the corporate remediation program

Social Context – Community and Stakeholder Engagement

- Monitoring public demand for more stringent and faster clean-ups
- The level of community engagement is an indicator of risk and opportunity which also ties into enhanced/expanded communications; technical outreach; and other programmatic costs/requirements

Leading Performance Indicators

16

Technology/Science/Future Remedies

- Shifts in remedial technologies, processes, solutions which can have impact on site cleanup schedule, time, budget, etc.
- Elements of leading indicators can include:
 - Investment in R&D (Feds, others)
 - Identifying developing technology needs
 - Evaluation of new technologies
 - Direction of internal and external research programs
 - Technical and advocacy outreach to stakeholders
 - Joint research projects (internal and external)
 - Monitoring the advancement of science (i.e., leading edge advancements in biology and bioremediation solutions can be a way to gauge future trends)

The Market/Economic Context

- Regularly assessing the environmental compliance, remediation, and clean-up landscape both within your specific sector, and external to your sector is a way to stay informed and envelop leading KPIs to your program. (what is happening elsewhere in industry could have a material impact on your portfolio in the near-or-long term)
- Assessing and evaluating scenarios for the ultimate end-use of the site is a form of leading KPIs (if the land is in prime economic space, more stringent clean-ups and quicker clean-ups may be required)
- External interest in non-operating sites can be an indicator of changing economy, future cost requirements.

Leading Performance Indicators

17

Other Macro Considerations

- Macro market indicators can be a source of input to assess where operating costs, schedules (timeliness of cleanups) and best available technology may intersect existing site dynamics and future efforts. Examples include:
 - Water scarcity (groundwater)
 - Natural resource constraints
 - Energy prices
 - Emerging economies that want “right sized” remedial remedies
 - Climate change (realities of changing climate/weather, and projections related to regulatory and public engagement) can be an indicator of change for sites / portfolios

People – Intellectual Capital

- The evolving knowledge base of employees, consultants and contractors, government/agency personnel, community organizations, citizens
- The availability of technical competence and skills within the corporate organization, and among the broader remediation team (consultants and contractors)
- The capabilities of staff, new hires, and interest within the company for maintaining a center of excellence in remediation (what is the level of sophistication required and available in-house and in the market?) Does it say something about the future?

KPI's for Measuring Program Success

18



Key metrics include:

- Reduced corporate liability
- Environmental compliance
- Cost avoidance
- Meeting spend plan
- Spend (evaluating projects by spend chunks)
- Spend efficiency
- How can “fixed costs” such as people, O&M, R&D be driven down?

Participant Insights:

- Identify and use “easily accessible data”
- Less is more on metrics
- Constantly looking for productivity improvements

KPIs for Program and Project Management

19

- **Program KPIs**

- Overall Performance (On-Time Deliverables, Rework)
- Meeting Plans
- Cost Savings Delivered
- Minimum Expectations for Cost Savings Evaluated Annually
- Site Closures (Meeting Plans, Increase in Risk-Based Closures)
- Relationships (inputs from internal and external parties on how we are working together)

- **Site Performance KPIs**

- *A subset of Oil & Gas, Chemical, and larger site operators have ongoing interest in the predictability and estimating of costs going forward...*
 - As an example, some of the select benchmark KPI's they are evaluating include:
 - Cost/ft. of pipe removed from site
 - Cost of soil evacuation
 - Data to be cut by region or contaminant

KPI's for Financial Accounting

20

Financial Accounting/Tracking KPI's

- Remediation liabilities and expenditures are measured and tracked in a variety of ways and for a variety of purposes:
 - Financial Reporting/Accounting
 - Cash Flow/Budgeting
 - Performance Measurement
 - Decision-making

KPI's Include:

- Cash Flow/Budgeting
 - Plan vs. Actual
 - Generally charges against Reserves
- Performance Measurement
 - Earned Value Management
 - Cost Accounting
 - Vendor Measurement
 - Actual vs. budget
 - Alternative fee arrangements

KPIs for Safety

21

Safety

- A great deal of emphasis is placed on safety, it is critical to company operations. More and more companies are elevating safety performance both inside and with their contractors.
- Often, self-imposed barriers impede our ability to advance safety goals.
- Strong safety programs require visible leadership.
- It's essential to get the safety message to the field; engage workers; show compassion if an incident/accident occurs.
- Success is when safety drives behavioral change and actions that is transparent in the business culture.
- Scorecards are useful tools to foster safety accountability/performance internally and among contractors/consultants.

Safety KPIs

- Progress against plan
- Near misses, Reportable Incidents, and Positive Observations
- Lost Time Injuries (LTIs) and LTI Frequency Rates (LTIFR)
- Use of Employee Survey's to Measure "Safety Culture"
- Measures of Continuous Improvement (Keeping the Safety Culture Top of Mind & Eliminating Complacency)

KPIs for Contractors & Consultants

22

Contractors & Consultants

- Service Provider Review is a top of mind item for corporate remediation leaders. Some do reviews twice a year but generally at least once a year.
- Companies are paying close attention to provider performance during the course of the project and measuring factors such as safety performance at the site, quality of lab data and related reports, and even billing on a timely basis to the appropriate phase of the project.
- Teaming arrangements are becoming a preferred approach to achieve the cost, value, quality, and results they expect.

Contractor/Consultant KPIs:

- Value: Best value for low cost
- Spend: Progress against plan & budget
- Safety: Near misses, Reportable Incidents, and Positive Observations
- Team: Measures for teaming relationships with other vendors
- Quality: Measures for data/information management, quality of data/reports, timeliness of information
- Communications: Measures for communications

KPI's for Value-Add

23

Sustainability KPIs

- Waste Reduction
- Energy Reduction
- Water Reduction
- Beneficial reuse and recycling of materials, *(i.e., reduced volume to offsite landfill(s), reused debris for onsite benefits, and recycled ferrous and other metals)*

Ecosystem Services & Wildlife Habitat Performance KPIs

- Measures of improved conservation outcomes
- Measures of improved business performance
- Wetlands/Wildlife/Habitat Restoration (Acres/Species Count)

Lease/Real-Estate Defined KPIs

- Cost Avoidance
- Locations with no adverse environmental findings
- Locations with adverse findings
- Corporate funded Clean-up (# projects/sites, \$ value)
- Properties cleaned-up for lease/sale
- Value of properties leased and/or sold

Contact Us

24



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