

Remediation Process Optimization and Long Term Monitoring Optimization: Identifying Opportunities for Enhanced and More Efficient Site Remediation the New Jersey Experience

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The State of New Jersey's Department of Environmental Protection (NJDEP) has lead responsibility for over eighty publicly funded site remediation projects ranging from underground storage tank sites to multi-area of concern Superfund sites. In addition, the United State Environmental Protection Agency (USEPA) is the lead at several Superfund Long Term Response Action (LTRA) projects that they have already begun to transfer to New Jersey as the ten year LTRA period is completed. In response to this workload, the NJDEP's Site Remediation Program is investigating ways to accelerate site close out and have formed a Remediation Process Optimization (RPO) Team to examine RPO as a tool to aid in this effort. The latest pilot project involves the use of Licensed Site Remediation Professionals to conduct RPO. New Jersey participated on Technology and Regulatory Council's (ITRC) RPO Team and applies the ITRC finding to New Jersey's RPO program. In this presentation NJDEP's RPO effort to date will be discussed, NJDEP's interaction with USEPA at LTRA projects will be reviewed, and the NJDEP's plans for the future of RPO will be presented.

Remediation Process Optimization Defined: RPO is the systematic evaluation and enhancement of site remediation processes to ensure that human health and the environment are being protected, over the long term, at a minimum risk and cost. Optimization of existing remediation systems is one of the best approaches to sustain the environment through application of appropriate technology. An existing remediation system can be made more efficient by a systematic study that manages the uncertainties associated with the site and the remediation technologies themselves. Thereby, selecting the most effective technologies that accelerate remediation goal achievement in a reasonable time frame and within a specified budget. Application of Remediation Process Optimization (RPO) at a contaminated site, which has been in remediation for a long time, makes restoring and preserving the environment at such a site an achievable goal. RPO is the systematic evaluation and enhancement of site remediation processes to ensure that human health and the environment are being protected, over the long term, at a minimum risk and cost.

The ITRC RPO Team was formed to compile and consolidate the remediation process optimization methods that can be applicable at various state, federal and private party lead groundwater and soil contaminated sites. Elements of a well-planned RPO include: Site-Selection, Building an RPO Team, Evaluating the Exit strategy, Evaluating Performance, Evaluating Cost Efficiency, Remedy Optimization, Monitoring Optimization, Cost-benefit Analysis and Implementation and Tracking of RPO review recommendations. The findings were presented in the ITRC Technical Regulatory Guidance Document: *Remediation Process Optimization: Identifying Opportunities for Enhanced and More Efficient Site Remediation*, September 2004. Developed further in a series of fact sheets in 2006 on Advanced Topics in RPO, ITRC Document numbers RPO-2 through 6. RPO-7, *Improving Environmental Site Remediation Through Performance-Based Environmental Management*, introduced a new, to site remediation, project management methodology to state regulators.

Other related work that is influencing how NJDEP approaches RPO: ITRC Remediation Risk Management, *Project Risk Management for Site Remediation*, RRM-1; Green and Sustainable Remediation, *Green and Sustainable Remediation: State of the Science and Practice*, GSR-1, both available at www.itrcweb.org. The influence of these documents will be discussed as well.

Additional References

All ITRC documents available for free download from: www.itrcweb.org

ITRC RPO Team (2007). *Improving Environmental Site Remediation Through Performance-Based Environmental Management*. Interstate Technology Regulatory Council.

ITRC RPO Team (2006). *Technology Overview Series on Advanced Topics in RPO*. Interstate Technology Regulatory Council.

ITRC RPO Team (2004). Remediation Process Optimization: Identifying Opportunities for Enhanced and More efficient Site Remediation. Interstate Technology Regulatory Council.

Construction Industry Institute (1986). Constructability – A Primer. The Construction Industry Institute.

USEPA (2003). Transfer of Long-Term Response Action (LTRA) Projects to States.

<http://www.epa.gov/superfund/action/postconstruction/index.htm>

Internet-based training available through the USEPA and ITRC at:

<http://www.cluin.org/conf/itrc/RRM/> for Remediation Risk management for Site Remediation

<http://www.cluin.org/conf/itrc/pbem/> for Performance-based Environmental Management

<http://www.cluin.org/conf/itrc/rpofs/> for RPO Advanced Training

<http://www.cluin.org/conf/itrc/rpo/> for RPO training

Coming in early 2012, Green and Sustainable Remediation guidance