

US EPA ARCHIVE DOCUMENT

State Innovation Grant Project
Rhode Island Department of Environmental Management (DEM)
Progress Report #9
 January 1, 2009 to March 31, 2009

Project Title: Underground Storage Tanks—Alternative Inspection Programs and the U.S. Energy Policy Act of 2005

Part 1 – Synopsis of Accomplishments. The major activities that took place during the reporting period included meetings/conference calls, continuation of baseline and post-certification analysis, and ongoing interstate indicator comparisons. Relative to the original work plan schedule and the key tasks associated with this reporting period, progress is summarized below.

Task	Original Completion Date	Status	Comments
Statistical analysis of RIDEM UST ERP data	June 1, 2008	Ongoing	Baseline facility- and tank-level data analysis completed. Statistical analysis of pre- and post-certification data underway using various methods.
Begin Interstate Comparative Analysis	July 1, 2008 (start)	Ongoing	Using template provided, Florida has commenced data collection and grouping with some preliminary results; most indicators are not exactly analogous because of differences in regulatory format. NH completed only a macro-level analysis because of similar issues with differences in regulatory formatting.

Part 2 – Narrative Discussion.

- *Statistical Analysis of ERP Data* - Finalization of the baseline data had resulted in the identification of 59 measurable facility and tank-level indicators, 35 performance trend indicators, and 24 non-measurable indicators (118 total). In the previous reporting period, additional statistical work (Wald, adjusted Wald, cluster analysis) was conducted relative to confidence interval calculations. The analysis of the tank-level data went beyond the scope of work presented in DEM’s original proposal and workplan, but was performed to further support the validity of ERP when compared against a traditional inspection program as noted below.

Comparisons between baseline (n=96) and post-certification data (n=93) are underway. Statistical methods being used include the Fisher exact test, Holm’s modified Bonferroni adjustment, negative binomial regression analysis, and the global test statistic. [Note: Application of the global test statistic to ERP was first piloted using RI’s autobody data set. A paper on this statistical approach recently underwent peer-review and was accepted for publication by The American Journal of Public Health – “Performance Measurement: Use of the Global Test Statistic in a Reanalysis of Environmental Health Data”. It is scheduled for publication later this year.] Results from these analyses are expected to be available next reporting period.

- *Partner States* - Work with partner states to compare compliance rates for indicators is continuing. Roberta Dusky of FL DEP has separated 2007 UST inspection data from the combined database that includes AST inspection information. Because of the unexpected complexity of performing this analysis, much more time than originally anticipated is needed. As mentioned in the previous report, one major barrier to developing a one-to-one comparative survey is that there are many differences in regulations and formatting. In addition, the recent federal stimulus package has affected the FL UST program since staff are scrambling to accommodate these new initiatives. Work will continue to complete the table of comparative indicators.

As mentioned in the last report with NH, differences in regulatory requirement tracking made it difficult to create a one-to-one indicator table; instead, a *macro* analysis was performed where NH grouped their regulatory requirements into analogous sections found in RI's checklist. Some regulations can be grouped to match specific RI sections whereas others must be regrouped to match up with certain sub-parts of RI's sections. Once RI finishes the post-certification data analysis, a macro-level comparison of RI's ERP results and NH's inspection data will be performed.

- *Economic Analysis* – A paper that describes a first order economic evaluation of ERP is being finalized where the costs associated with the traditional, Energy Act-mandated UST inspection program in RI was performed and compared with the costs needed to support the alternate ERP approach. Based on 2008 figures, approximately \$172,000 is needed annually to fund the traditional program (250 inspections per year, each facility inspected once every 3 years). Various ERP models were analyzed where both sample size (100 or 250 inspections) and frequency (every 1-3 years) were combined in five different scenarios. Because of the fewer inspections required for ERP, costs associated with inspections would be reduced for each scenario. Additional expenses to support ERP-related activities (workshops, data gathering, statistical analysis, oversight) are incurred, but the overall costs (reduced inspections and ERP activities) are still lower than that for the traditional program. “Payback” or time to recover ERP start-up costs and realize savings varies from 0.58 to 1.26 years. The details of the costs can be found in the attached table.

Part 3 – Projection of Activities, Accomplishments, and Major Expenditures for Next Quarter Report. Analysis of baseline and post-certification inspection data will be completed with statistical calculations (Fisher, Bonferonni, negative binomial regression analysis). URI will continue other statistical analyses to complement the traditional approaches used above. The table of FL compliance rate data will be completed and ready for comparative analysis with RI ERP data. Initial macro-level comparative studies using NH data will commence. The economic analysis paper will also be more complete and possibly ready for publication. There will be no unusual expenditures expected for the next reporting period.

Part 4 – Financial Report. In this reporting period, \$14,508 was spent of which \$9,514 was used to cover DEM personnel costs and \$2,972 was paid to URI. Total grant expenditures as of March 31, 2009 are \$192,507. The rate of spending is close to what was originally anticipated.