Association of State and Territorial

ASTSWMO

Solid Waste Management Officials

State RCRA Subtitle C Core Hazardous Waste Management Program Implementation Costs

Final Report

January 2007

Acknowledgements

This document is a product of the collective work from 2001 to 2007 of the ASTSWMO Hazardous Waste Subcommittee and its comprising Task Forces, and especially that of the Corrective Action and Permitting Task Force, the Enforcement and Compliance Assurance Task Force, and the Program Operations Task Force. Profound appreciation is expressed to all of the Subcommittee and Task Force members who gave their time and expertise to this effort, without which this report would not have been possible.

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I. Executive Summary

At the direction of the ASTSWMO Board of Directors, the ASTSWMO Hazardous Waste Subcommittee has evaluated the RCRA Subtitle C Program (hereafter referred to as "RCRA C" or "RCRA" in this report) administered by States to determine the nature and costs of implementing a complete and adequate Program. As a part of this effort, the Subcommittee and its Task Forces have identified the major components of the RCRA C Core Program, established a consistent methodology for collecting program implementation cost information, and collected detailed cost information from ten States as a pilot study to estimate the national cost of implementing the RCRA C Core Program. The RCRA C Core Program consists of permitting, remediation (closure, corrective action), compliance, enforcement, and program development activities.

Through the pilot study, it was determined that the total program need for implementing the RCRA C Core Program in the ten pilot States is approximately $51,000,000 annually, and the current national program need for the fifty States is estimated to be approximately $255,000,000 annually. However, it is also noted that, due to the increasing emphasis on timely completion of remediation and other activities at the majority of Government Performance and Results Act (GPRA) facilities, it is anticipated that this estimated cost may in fact be lower than the actual cost of the RCRA C Core Program.

For example, the permitting focus has historically been on issuance and reissuance of permits as related to meeting the GPRA goals for permitting and "approved controls in place." Based on this cost estimation project, it is now abundantly clear that State program costs to modify and maintain hazardous waste permits comprise a significant portion of State RCRA C Core budgets. These costs will continue to be significant long after the number of permitted facilities has plateaued. These program elements are significant in that they have not historically been discussed or specifically funded as part of the State/EPA planning and negotiation process in many States.

As a second example, this cost estimation project clearly highlights the need for ongoing consideration of State oversight costs for long-term stewardship at remediation facilities. The current remediation focus is on remedy decisions and construction completion related to meeting the mid-term GPRA goals for corrective action. While there may be some facilities that are able to exit the corrective action universe once remedy construction is complete, there will be a large number of facilities that will continue to operate remedies for years if not decades before corrective action can be considered complete. This must be considered in the context of future long-term funding for State RCRA C Core programs.

As a third example, since the genesis of the original GPRA Environmental Indicator (EI) evaluations, several additional RCRA C performance measures have been developed by EPA in coordination with the States, and others are under development/consideration. Similar to EIs, State resources necessary to address/document these new performance measures are expected to be significant. The costs associated with these new activities were not estimated as part of this evaluation as the performance measures were not developed well enough at the time of

estimation to come up with associated costs. Based on States' experiences with the EI evaluations, it is certainly plausible that the additional costs associated with the new performance measures alone could add another 2-3% to the overall cost of State RCRA C Core programs. These potential costs should be kept in mind as future State resource and funding needs are evaluated.

As a fourth example, the pilot State results show that a significant portion of the inspection and enforcement budgets are expended conducting inspections and enforcement at Small Quantity Generator (SQG) and Conditionally Exempt Small Quantity Generator (CESQG) facilities, which greatly outnumber Large Quantity Generator (LQG) and Treatment, Storage and Disposal (TSD) facilities. However, these facilities have historically been funded at a fraction of the cost of LQG and TSD facilities, which likely accounts for a large portion of the funding gap in these program areas. The actual costs of inspection and enforcement at these smaller facilities should be kept in mind as future State resource and funding needs are evaluated.

Using a required 25% State match for federal grants, it would appear that States should be contributing approximately $64,000,000 toward this estimated annual program cost, and the federal grants should account for approximately $191,000,000 for an adequate and effective program. However, this is not the case. A separate data collection project by the Hazardous Waste Subcommittee shows that, for FY06, States estimated their hazardous waste program costs (including both federal and non-federal sources of funding) to be approximately $189,000,000. Compared against the enacted federal RCRA C State/Tribal Assistance Grant (STAG) funding level of approximately $101,000,000, this indicates that States are currently contributing approximately $87,000,000 toward the core hazardous waste program in their efforts to ensure program effectiveness. Clearly, additional resources are needed to fully fund the RCRA C program. However, the proposed FY07 RCRA C STAG appropriation (approximately $101,000,000) will again fall far short of the needed level.

Overall, EPA currently provides only about 40% of the total funds necessary for States to run complete and adequate RCRA C programs. Many States do not have significant State matching funds for their RCRA C programs. For a number of years, State RCRA C Core Grants have been either stagnant or decreasing. The grants have not kept pace with inflation, increases in worker salaries, increases in health insurance costs or increasing workloads associated with State authorization of additional program elements, regulations, and tasks required by EPA. This has required States to look to other sources for funding. Some States have been fortunate and have been able to supplement their program funding through permitting fees, cost recovery/ reimbursement for permitting and remediation oversight, disposal and generator fees, and through other means. Some States receive State general revenue funds. Other States are not as fortunate and have to rely almost entirely on the RCRA C Core Grant. A few years ago, when the economy had a down turn, those States relying on State general revenue funding had to suffer program cuts. Given the steep learning curve and substantial workload in the RCRA C permitting and remediation programs, these cuts in staffing create long term issues related to overall program efficiency and effectiveness.

These data point to two fundamental conclusions:

- The professionals who are responsible for day-to-day implementation believe that the currently available federal and State resources provide only about 74% of what is needed to run an effective and adequate RCRA C Core Program. This doesn't consider important new initiatives such as Sustainability and the Resource Conservation Challenge.

- The shortfall in federal funding to run effective and adequate RCRA C Core Programs is approximately $90 million. States are already providing 46% of the program's currently available resources; and 34% of what State managers believe is needed. If additional federal resources are not forthcoming, EPA should work with State officials to redefine the expectations for State programs. There needs to be funding necessary to protect public health and the environment and fulfill statutory requirements. All requirements that do not meet those criteria should be eliminated unless adequate funding is provided to pay for them.

If States are to continue to meet the increasingly challenging national goals for the RCRA C Core Program set by EPA and the Office of Management and Budget (OMB), and to satisfactorily meet the reasonable expectations of the public that these programs will be implemented in a manner which ensures continued protection of human health and the environment, these conclusions must be addressed. To do nothing will only exacerbate the current funding gap and further erode the national capacity to prevent harmful releases of hazardous constituents to the environment, as well as the capacity to clean up those releases which have occurred in the past.

II. Project Background

In 2001, the ASTSWMO Board of Directors, as part of the 2001 ASTSWMO Strategic Plan, asked the Hazardous Waste Subcommittee to prepare an issue paper on funding for State and territorial RCRA C programs. The purpose was to document the actual costs of implementing a RCRA C Core Program by the States to enable better understanding and communication of resource and funding requirements necessary to maintain an effective RCRA C Core Program. From the 1990's through 2001, it had been observed that the work needed to implement the RCRA C program was expanding as funding was leveling off or, in more recent years, going down. It was generally understood that the States' level of effort (FTE) needed to implement the RCRA C program exceeded the RCRA C grant funding.

As work began on the issue paper, it became obvious that the Subcommittee would first have to identify the components which comprise the RCRA C Core Program to be able to quantify costs and to draw comparable data from different States. In 2002, the ASTSWMO Board of Directors directed the Hazardous Waste Subcommittee to determine the "core" set of program components associated with the RCRA C Program and to develop a methodology for States to use to calculate the real costs associated with administering State RCRA C programs. To accomplish this goal, the Hazardous Waste Subcommittee tasked the Corrective Action and Permitting (CAP) Task Force to determine the "core" set of program elements and methodology associated with RCRA C permitting and remediation (corrective action and closure); and the Hazardous Waste Enforcement and Compliance Assurance (ECA) Task Force to determine the "core" set of program elements and methodology associated with RCRA C inspections and enforcement.

Four reports and associated cost estimation spreadsheets were developed by the CAP and ECA Task Forces. These reports and spreadsheets were submitted to the ASTSWMO Board of Directors in 2004: *State Cost Analysis Methodology for Permitting, State Cost Analysis Methodology for Remediation (Closure and Corrective Action), State Cost Analysis Methodology for RCRA Inspections,* and *State Cost Analysis Methodology for RCRA Enforcement*.

These reports identified: 1) the core program elements for permitting, closure, corrective action, compliance and enforcement activities; and 2) data collection requirements for unit personnel costs, unit activity time requirements, unit overhead costs and number of activities per year. Upon review of these reports, the Board requested that the Subcommittee add program development activities to the core program model. (See definition below.) This work was assigned to the Program Operations (PO) Task Force, and core program elements and methodology for this program area were developed and presented in the 2004 report: *State Cost Analysis Methodology for Program Development*. Each program area model was tested and validated by the responsible Task Force. Beta testing and model development were completed in late 2004.

Development of Process Methodology

The five initial reports produced by the CAP, ECA, and PO Task Forces outlined the methodology used in the categorical breakdown of elements of State (RCRA C) programs, development of work hour estimates for specific activities and, ultimately, calculation of the RCRA C Core Program costs.

Permitting

In considering the categorical breakdown of the permitting elements, the CAP Task Force agreed on five broad, but common permitting categories as follows: 1) Pre-application; 2) Application Review; 3) Permit Issuance; 4) Permit Maintenance; and 5) Permit Modification. Examples of activities that might fall into the foregoing permitting categories were provided in the above-referenced report, however, each pilot State was left to decide individually which specific activities would be included in each of the five broader categories when estimating their costs. The range of work hours for categories 1 through 4 were estimated for four specific permit types: post-closure, storage/treatment, combustion and operating land disposal facilities. The range of work hours for category 5 was subdivided into Class 1, Class 2, Class 3 and agency-initiated permit modifications. All work hour estimates were based on actual work hours as opposed to elapsed work time.

Remediation

In considering the categorical breakdown of remediation elements, the CAP Task Force agreed on eleven broad, but common categories as follows: 1) Closure; 2) RCRA Facility Assessments; 3) Corrective Action Instruments; 4) RCRA Facility Investigations; 5) Interim Measures; 6) Corrective Measures Study; 7) Corrective Measures Implementation; 8) Long-term Oversight; 9) Corrective Action Completion; 10) Technical Support and 11) Planning, Evaluation and Reporting. Activities were established for each of the eleven broader categories. Examples of activities that might fall into the foregoing categories were provided in the above-referenced report. Each pilot State was left to decide individually which specific activities would be included in each of the eleven broader categories when estimating their costs. These activities were somewhat variable depending upon the broad category, though most broad categories included work plan/report review and approval, corrective action oversight and administrative tasks. The aforementioned report should be consulted for the detailed breakdown of the activities. As with the permitting estimates, the range of work hours for categories 1 through 11 (and associated activities) was based on actual work hours as opposed to elapsed work time.

Once the categorical breakdown and range of work hour estimates had been developed for permitting and remediation, the CAP Task Force began development of a self-contained Microsoft Excel spreadsheet which could be used to calculate the costs to administer the permitting and remediation elements of State RCRA C programs. This spreadsheet underwent minor refinements and was eventually adapted for use by the ASTSWMO Enforcement/ Compliance and Program Operations Task Forces for use in calculating the costs associated with their RCRA C program elements. This resulted in a relatively uniform cost estimating methodology across all RCRA C program components.

Enforcement and Compliance

Using a similar process to those described above for the CAP Task Force, the ECA Task Force analyzed the RCRA C compliance and enforcement processes to determine the core program elements. The reports resulting from this review outlined a standard methodology for the collection of costs for inspection and enforcement using the following categories: Conditionally Exempt Small Quantity Generators (CESQGs), Small Quantity Generators (SQGs), Large Quantity Generators (LQGs), Treatment, Storage, and Disposal Facilities (TSDs), Complaints, EPA Lead Facilities, and Transporters. The activities reviewed to determine the costs associated with the inspection and enforcement elements for each category are given below:

1) RCRA Inspections -- file review; on-site safety/sampling plans; securing field equipment; coordinating with other agencies; travel time to and from inspection site; conducting facility entrance/exit interviews; conducting on-site inspections; reviewing company records; conducting sampling; reviewing applicable regulations; inspection report preparation; finalizing and distributing inspection reports; completing data input; and enforcement referrals.

2) RCRA Enforcement -- case evaluation/determination; case referral; case development; case negotiation; case resolution; case support and follow-up.

Program Development

Similarly, the PO Task Force analyzed the balance of the RCRA C program not specifically included under remediation (closure, corrective action), permitting, inspections, or enforcement, and identified the core program elements related to program development. The report resulting from this review outlined a standard methodology for the collection of costs related to program development, which included: 1) Grant/Workplan Activities; 2) Regulatory Analysis of Federal Hazardous Waste Regulations; 3) State Legislative Activities; 4) Rulemaking; 5) Outreach/ Guidance/Policy Development; 6) Development of Revised Authorization Applications; 7) RCRA Hazardous Waste Data Management; and 8) Innovative Projects.

Ten-State Pilot Study

In late 2004, the ASTSWMO Board of Directors requested that a pilot study take place wherein the methodology developed in 2004 would be used to collect data on actual costs of implementing a complete and adequate State RCRA C Core Program. Beginning in early 2005, ten States volunteered to perform the analysis: Alabama, Colorado, Florida, Georgia, Idaho, Illinois, Maryland, Missouri, New York, and Rhode Island. The pilot States were asked to focus on what funding is needed to run what the State considered to be a complete and adequate RCRA C Core Program, not what is currently provided by the State budget and/or the EPA grant. The overarching objective was to simply determine the total cost to run the State RCRA C Core Program. The estimated costs are State program costs only and do not consider those elements of the RCRA C Core Programs that continue to be administered by EPA.

The compilation of the data by the pilot States was completed in March 2006. The pilot States requested that they not be individually identified; hence, the States are randomly identified as States 1-10 throughout this analysis.

The information collected provides a basis for RCRA C Core Program cost discussions.

III. Data Collection, Presentation, Calculation Methodology and Underlying Assumptions

Permitting and Corrective Action

The ten pilot States took various approaches to data collection and presentation for RCRA C permitting and remediation. Some of these approaches were quite detailed while others were not. For example, some States circulated the categorical activity and subactivity information to project managers and asked those managers to estimate the range of working hours required to do certain activities across the universe of their assigned sites. This typically included consideration of simple versus complex sites across the range of the National Corrective Action Prioritization System (NCAPS) priorities (high, medium and low). The individual project manager results across the various categories/subactivities were then compiled to generate an overall range of working hours (low to high) for each activity in that State. These hours were then plugged into the cost estimating spreadsheet that automatically calculated an arithmetic average working hours figure. The exact process followed in each State to generate the work hour estimates is not described herein and in some cases, was not provided by the State. States providing the estimates have indicated that the estimates are technically defensible, have an adequate basis of support, and greater detail regarding the data collection process can be provided, if necessary.

Approaches to collection of employee salary information and use of State-specific multipliers in the cost calculation also varied from State to State. Some States established a range of hourly rates based on the salaries of the lowest and highest paid individuals performing work in each of the subject categories divided by the number of work hours in a calendar year. Weighted average hourly rates were then calculated by averaging the salaries of all individuals performing work in each of the subject categories. Some States then used a State-specific multiplier to account for overhead, fringe, clerical, administrative, legal/supervisory support, etc. in the estimation of costs. Other States had established hourly rates that already considered direct and indirect costs. In these cases, the established hourly rate was used directly for cost estimation without the benefit of a multiplier. As with the work hour estimates, the exact process followed in each State to generate the salary rates and multipliers is not described herein and is, in some cases, not fully known. States providing the salary and multiplier information have indicated that the information is accurate, has an adequate basis of support, and greater detail regarding the calculation of hourly rates and multipliers can be provided, if necessary.

In terms of the final permitting and remediation costs, some States provided detailed estimates for all categories and subactivities while others chose to present their estimates in the aggregate. Nine of ten States provided detailed (subactivity) estimates for permitting while one State chose to simply provide a gross estimate for permitting as a whole. On the remediation side, four States provided detailed (subactivity) estimates, five provided total (categorical) estimates and one simply provided a gross estimate for remediation as a whole. Eight of ten States provided low, average and high estimates for permitting and remediation. Two States provided only average estimates for permitting and remediation.

Inspections and Enforcement

The overall methodology for inspection and enforcement data collection is the same as described above for permitting and remediation. In evaluating the submitted data, two States were contacted for data clarification. State 1 had two different columns for annual number of activities. The "annual number of activities" for State 1 was combined and averaged. State 2 did not supply the "annual number of activities," rather it provided a dollar amount for inspections, compliance assistance and enforcement. The dollar amount for compliance assistance included inspections, training for generators, other training, and approximately ¾ of a full time employee to provide assistance over the phone. State 2 was contacted and provided the information for "annual number of activities" for both inspections and enforcement actions. For this report, the total amount from inspections and compliance assistance was combined and weighted equally for TSDFs, LQGs, SQGs, CESQGs, and complaints. There were no EPA lead inspections. For enforcement, the total dollar amount was weighted equally for all but transporters and EPA lead inspections for which no enforcement actions were taken.

Some States added activity categories in an effort to more accurately reflect a comprehensive program (e.g., 5-year frequency for each SQG and LQG, complaint investigations on the inspection table, and hazardous waste transporter licensing and manifest review on the enforcement table). These States were contacted to provide additional clarification of those activities in order to appropriately include them within the standard activities identified in the process methodology.

Several States used an adjustment factor when computing the "Gross Annual Cost (avg.)" rather than just an arithmetic average between the "Gross Annual Cost (high)" and "Gross Annual Cost (low)". One reason given was that the average was still high when compared to the State's current budget.

Several States provided one cost rather than a high, low, and average.

Based on the information provided, an arithmetic average was calculated and then compared to the "Gross Annual Cost (avg.)." The difference between the arithmetic average and the "Gross Annual Cost (avg.)" was approximately $600,000 for inspections and $50,000 for enforcement. This equates to an approximate 9% difference between the arithmetic average and the "Gross Annual Cost (avg.)" with the arithmetic average being the higher.

In this report, the "Gross Annual Cost (avg.)" was used. The Task Force believed that the "Gross Annual Cost (avg.)" addressed the States' concern about over-estimating the costs.

For complaints and EPA lead facilities, there are State costs only associated with the inspections. For EPA lead inspections, the enforcement would have been taken by the State and there was not a separate category for "enforcement actions as a result of an EPA lead inspection." For complaints, the States tracked time spent on a complaint inspection but any enforcement action was covered by the generator category of the "complaint" facility.

Program Development

Data were provided by ten States on eight different data sets comprising the Program Development activities. These data sets were: Grant Work Plan Activities, Regulatory Analysis of Federal Hazardous Waste Regulations, State Legislative Activities, Rulemaking, Outreach, Guidance and Policy Development, Development of Revised Authorization Applications, RCRA Hazardous Waste Data Management, and Innovative Projects. In addition, each of these data sets was comprised of individual activities that the States undertake in association with the data sets. Seven of the ten States chose not to calculate costs for these individual activities, but rather determined costs for the data set as a whole. Several States used an adjustment factor when computing the "Gross Annual Cost (avg.)" rather than just an arithmetic average between the "Gross Annual Cost (high)" and "Gross Annual Cost (low)". States were instructed to assemble their analyses using baseline funding from EPA as the "low" range of costs and the level of funding that they have needed to provide "above and beyond" EPA's baseline as the "high" range value. Some of the States did not utilize this strategy, but provided only one average cost for the entire data set rather than a high, low, and average cost.

Based on the information provided, an arithmetic average was calculated and then compared to the "Gross Annual Cost (avg.)." The difference between the arithmetic average and the "Gross Annual Cost (avg.)" was remarkably small, a total of approximately $6,000. This equates to less than a one percent difference between the arithmetic average and the "Gross Annual Cost (avg.)". For the purposes of this report, Gross Annual Cost (average) is used.

Many of the data sets in Program Development are not based on hard numbers and are much less specific than, for example, inspections and enforcement, where there are a definite number of inspections conducted and enforcement actions taken. In Program Development, we are trying to put a cost on items such as the amount of time it takes to develop a work plan or comment on a proposed rule. These activities do not lend themselves to critical fiscal analysis. It is very difficult for States to estimate the amount of time spent on these activities both by their own staff and other staff that may be located outside of the State environmental agency, such as in the Attorney General's Office.

Summary

The specific method a given State used to determine its RCRA C Core Program cost varied to some degree, but this was expected, since the data collection methodology by design allowed this flexibility. Based on the development work by the Task Forces, it was recognized during the development process that time and financial accounting systems, program organization, and program management vary from State to State. Therefore, the objective was to design a data collection process that was flexible enough to embrace this variability, yet obtain the needed data for the various program costs in a manner that could be reasonably analyzed and from which programmatic conclusions could be derived. The Hazardous Waste Subcommittee believes this objective has been accomplished, and that the results of this pilot study report do attest to the state of the overall funding situation related to the RCRA C Hazardous Waste Program.

IV. Representativeness of Pilot State Programs and National Scalability of Pilot Data

A number of the pilot States' RCRA C Core Program components were evaluated on a national level to determine whether the pilot State data could be used to develop a national estimate of the amount of funds needed to implement the RCRA C Core Program. Ten States from eight EPA Regions participated in the pilot study. EPA Regions 6 and 9 were not represented and Region 4 was represented by three States.

The components evaluated to assess the scalability and representative nature of the ten-State pilot data are:

1. GPRA Baseline Universes (i.e., corrective action and permitting),
2. The number of facilities per universe (i.e., TSD, LQG, SQG, CESQG),
3. Compliance/enforcement activities (i.e., inspections, enforcements (all), orders, penalties), and
4. State population and land area.

The GPRA universe information for corrective action and permitting was obtained from the Office of Solid Waste, Headquarters, U.S. EPA. Facility universe and State compliance/ enforcement activity information was collected directly from RCRAInfo or indirectly through RCRA C databases such as Region 1's RCRA Rep and Region 6's penalty reports which are populated from RCRAInfo.

The population and the land area of the pilot States was collected from the U.S. Census Bureau, 2000 census.

TABLE 1 summarizes how the program components contributed by the pilot States, as a group, compare on a national level. State-specific information pertaining to each of the program components is given in TABLES 2 to 4.

TABLE 1 – Pilot State Representativeness

Program Component	Percentage (%) of national program component universe contributed to pilot States
GPRA Baseline Universes	
2005 Corrective Action Baseline	22
2008 Corrective Action Baseline	21
2020 Corrective Action Baseline (draft)	21
2006 Permitting Baseline	22
Facility Type Universes	
TSD	19
LQG	33
SQG	32
CESQG	21
Compliance/Enforcement Activities	
Inspections	25
Enforcement (All)	26
FY05 Orders	30
Penalties - Number	36
Penalties - Amount	17
Miscellaneous	
Population	26
Land area	15
Number of States	20

TABLE 2 - Facility Type Universes/Miscellaneous Metrics

State code	Number of Facilities				% of National Popula-tion	% of U.S. Land Area
	TSD	LQG	SQG	CESQG		
1	72	277	1098	2930	1.5	1.4
2	29	115	857	3521	1.5	2.9
3	80	410	15681	7	5.4	1.5
4	66	372	2067	2071	2.8	1.6
5	11	31	105	1015	0.4	2.3
6	122	4216	15352	8834	4.2	1.6
7	32	518	4903	4570	1.8	0.3
8	63	460	2581	1812	1.9	2.0
9	84	5465	10431	8771	6.5	1.3
10	2	101	2978	196	0.4	0.03
Totals	561	11965	56053	33727	26.4	14.93

TABLE 3 - GPRA Baseline Universes

State Code	Number of Facilities in Universe			
	2005 CA	2006 Permitting	2008 CA	2020 CA (draft)
1	40	79	36	86
2	31	26	33	47
3	46	93	56	108
4	65	75	69	86
5	5	12	6	12
6	56	110	67	215
7	26	28	23	43
8	36	53	40	65
9	65	84	72	181
10	4	4	5	5
Totals	374	564	407	848

TABLE 4 - Compliance/Enforcement Activities

State Code	FY 2005 Activities				
	CEI Inspections	Enforcements (All)	Orders	Number of Penalties	Amount of Penalties
1	314	205	7	5	$301,000
2	277	140	25	0	$0
3	1208	979	160	164	$1,129,592
4	506	248	24	19	$143,447
5	163	61	7	4	$71,884
6	288	291	19	15	$600,645
7	107	22	5	1	$7,500
8	396	171	18	11	$340,168
9	769	403	68	39	$616,107
10	79	81	22	7	$20,470
Totals	4107	2601	355	265	$3,230,813

If one assumes that each of these representativeness measures carries equal weight, this would indicate that the ten pilot States represent approximately 24% of the national program. However, given that the pilot State data indicates that more than one-half of the cost of implementing the core program is in the areas of permitting and corrective action, only about one-third is in the areas of inspections and enforcement, and several of the elements of program development are somewhat independent of the size of the program universe (e.g., authorizations, rulemaking, regulatory analysis, grant/workplan activities), it would appear more reasonable to expect that the pilot States represent 20-22% of the national program costs. For the purposes of this analysis, a representativeness figure of 20% is used.

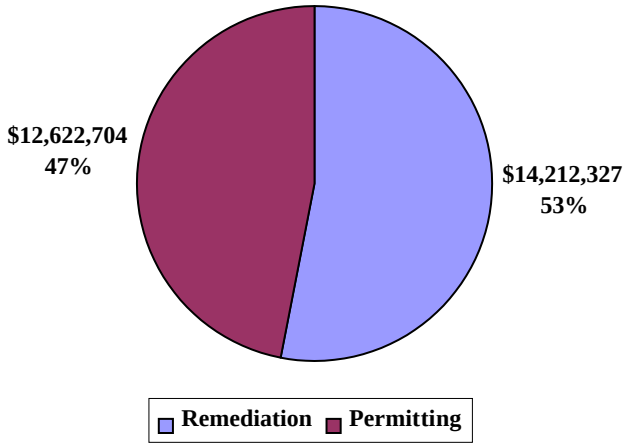
V. Pilot State Results

The overall results of the ten pilot States show that in order to run a complete and adequate RCRA C Core Program, it would cost a total of approximately $51,000,000 in the ten pilot States. Since the pilot States were fairly diverse in terms of their location/demographics and thought to be representative of all 50 States, it could be extrapolated that, based on the current RCRA C Core Program workload, it would cost approximately $255,000,000 annually for all 50 States to have an effective RCRA C Core Program. However, this does not include the U.S. Territories and the percentage of their budget from the core RCRA C grant. Based upon the data collected, the overall program cost could be as much as $285,000,000 annually.

Permitting and Corrective Action

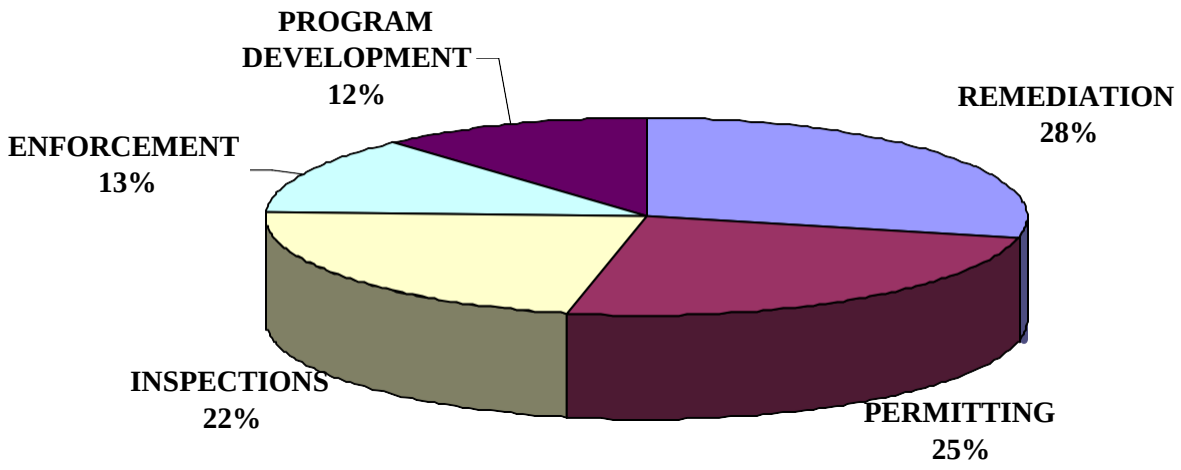
The cumulative cost for the ten pilot State permitting programs was approximately $12,622,704. The cumulative cost for remediation was approximately $ 14,212,327 (Figure 1). The overall results from the ten pilot States indicate that to run a complete and adequate State RCRA C permitting and remediation program, it would cost roughly $26,875,031 annually in those ten States. The ten pilot States appear to be a fair representation of the RCRA C permitting and remediation programs across the country based on their geographical distribution, population, land area, program diversity and the fact that the RCRA C facilities in these States represent just over one-fifth (20%+) of those facilities listed on the national GPRA permitting and corrective action baselines. Extrapolation of costs across the fifty States from the ten State pilot data suggests that the national cost of running complete and adequate State RCRA C permitting and remediation programs would be roughly $134,375,155 annually.

Figure 1 - Ten State Pilot - Permitting and Remediation Program Costs



When compared to the overall RCRA C Core Program estimates for the ten pilot States, the cost for the permitting and remediation programs is estimated at approximately 53% of the total. This represents 25% of the overall RCRA C Core Program estimates for permitting and 28% for remediation (Figure 2).

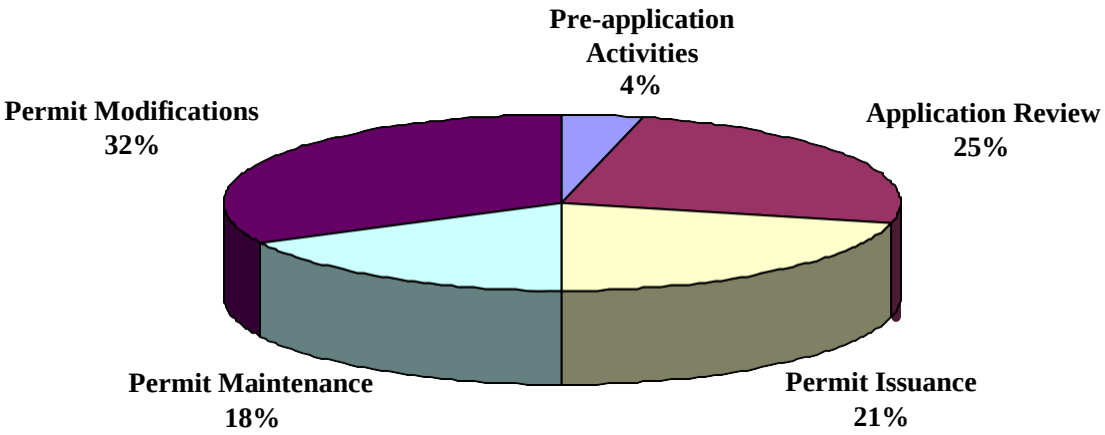
Figure 2 - Overall RCRA Core Program Costs



The permitting data from the ten pilot States shows that permitting-related costs are split equally between those activities related to permit issuance/reissuance and those activities that occur once the permit is issued/reissued (Figure 3). This is significant in that State-EPA planning and budget negotiation activities often only consider the workload and costs associated with permit issuance/reissuance. This can result in significant underestimation of the resource needs for State permitting programs. This situation is further complicated by the issue of permit modifications. Unless the modifications are initiated by the State agency, States have little to no control over the class, timing, frequency and number of permit modifications that are submitted by facilities for State processing and approval. The permit modification percentage relative to both the overall permitting costs (32% of total) and the overall cost of State RCRA C Core Programs (Figure 4) is highly significant. In terms of overall State RCRA C Core Program costs, permit modifications represent the single most costly activity that States perform.

Similar to permit modifications, the cost of permit maintenance relative to both the overall permitting costs (18% of total) and the overall cost of State RCRA C Core Programs (Figure 4) is significant. The relative breakdown of permit maintenance costs for specific facilities is outlined below in Figure 5. As with permit modifications, State-EPA planning and budget

Figure 3 - Permitting Program Costs



negotiation activities often fail to fully consider the workload and costs associated with permit maintenance. This can result in significant underestimation of the resource needs for State permitting programs.

The remediation data from the ten pilot States shows that remediation-related costs are spread over a number of activities as depicted in Figure 6. The subdivision of expenses is essentially self-explanatory on the figure. The percentage breakdowns for the pilot States are expected to be reasonably representative of the nation as a whole. Based on States' experiences to date and the maturity of many State RCRA C corrective action programs, it is likely that the assessment, investigation and final remedy evaluation components of remediation will be on a slow but steady decline, though it may be a few years before this decline begins to show up at the national level. Closure and interim measures activities are expected to ebb and flow in the near to mid term, but will eventually decline as facilities go through closure and put final remedies in place. Corrective measures implementation and long-term oversight of facilities will be on

Figure 4 - Relative Programmatic Costs

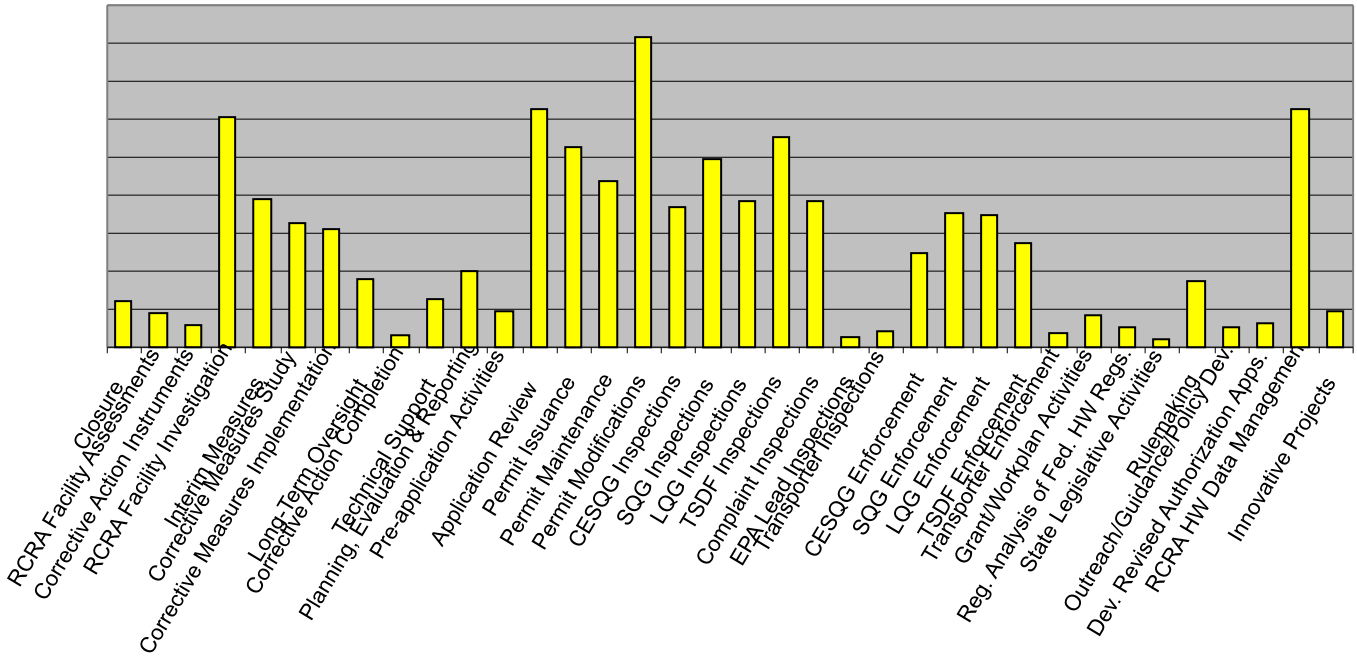
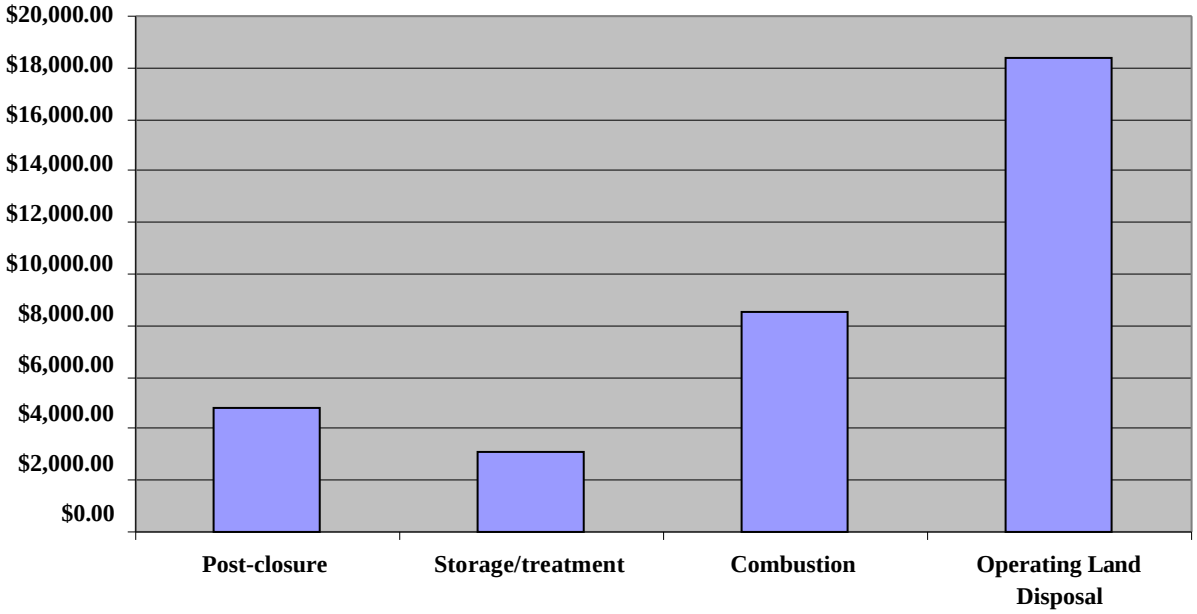


Figure 5 - Annual Permit Maintenance Costs



the increase over the long-term as final remedies are selected and implemented and States put in place long-term stewardship plans for such sites. This programmatic evolution will require continued long-term funding to ensure that remedies are optimized, institutional and engineering controls are maintained, and remedial goals are met.

Of further significance, relative to State RCRA C permitting and corrective action budgets, is the recent proliferation of performance standards development, driven chiefly by the federal Government Performance and Results Act (GPRA) of 1993. The GPRA mandated that EPA establish performance standards to show progress in remediating and protecting human health and the environment at RCRA C facilities. Many States' first experiences with these performance standards were the Environmental Indicator (EI) evaluations. Based on the information collected during the 10 State pilot, the resources necessary to prepare EI evaluations were estimated to comprise roughly 1% of the overall cost of State RCRA C Core Programs. This is only a rough approximation across the range of pilot States. The EI preparation cost as a percentage of the overall RCRA C budget in individual States may have been considerably higher (or lower) depending upon the level of effort expended in those States to complete the EI evaluations. Since the genesis of the EI evaluations, several additional RCRA C performance measures have been developed by EPA in coordination with the States, and others are under development/consideration. These new performance measures relate to issuing remedy decisions (CA400), remedy construction [both completion of physical remedy construction (CA550) and how efficiently that construction is completed (OMB efficiency measure)] and land revitalization. Compounding the State concerns related to these measures is the fact that the universe of sites to which these measures may be applied continues to grow as the number of RCRA C facilities on the corrective action GPRA baseline list continues to grow. Similar to the EIs, State resources necessary to address/document these new performance

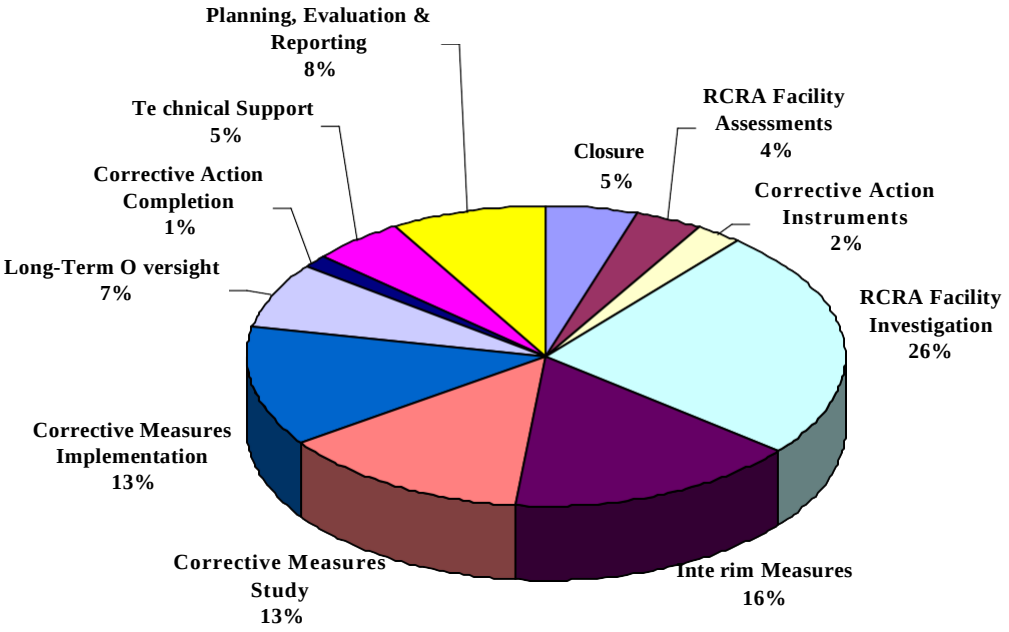


Figure 6 - Remediation Program Costs

measures are expected to be significant. The costs associated with these new activities were not estimated as part of this evaluation as the performance measures were not developed well enough at the time of estimation to come up with associated costs. Based on States' experiences with the EI evaluations, it is certainly plausible that the additional costs associated with the new performance measures could add another 2-3% to the overall cost of State RCRA C Core Programs. These potential costs should be kept in mind as future State resource and funding needs are evaluated.

Inspections and Enforcement

The cumulative cost for inspections was approximately $11,300,000 for the ten pilot States. The cumulative cost for enforcement was approximately $ 6,300,000. (Figure 7) The costs for just an inspection and enforcement program would be approximately $18,000,000. Since the pilot States were fairly diverse, it might be extrapolated that it would cost approximately $90,000,000 for all 50 States to have complete and adequate RCRA C inspection and enforcement programs, but this does not include the U.S. Territories.
When compared to the overall core budget, the cost for the compliance program is estimated at approximately 35%. This represents 22% of the core budget for inspections and 13% for enforcement. (Figure 2)

The inspection data from the ten States shows that the largest portion of the budget is spent on conducting inspections at TSDFs, with CESQGs, SQGs, LQGs, and complaints taking slightly lesser shares. Transporters and EPA lead inspections require considerably less State resources per inspection. (Figure 8)

Figure 7 - Ten State Pilot - Compliance Program Costs

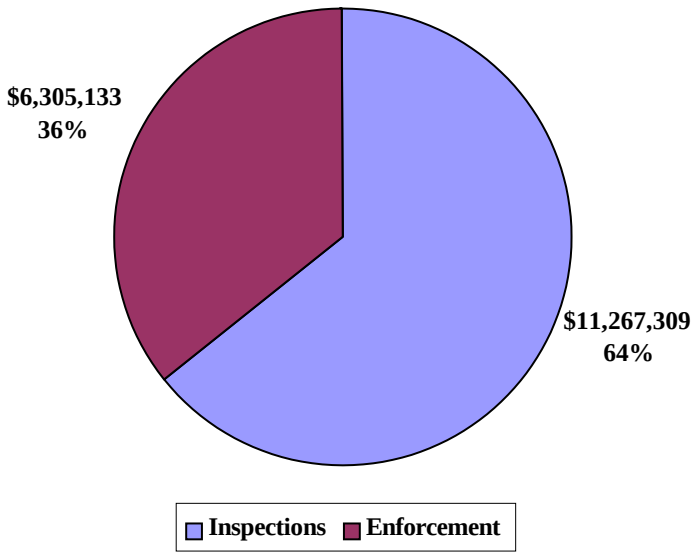
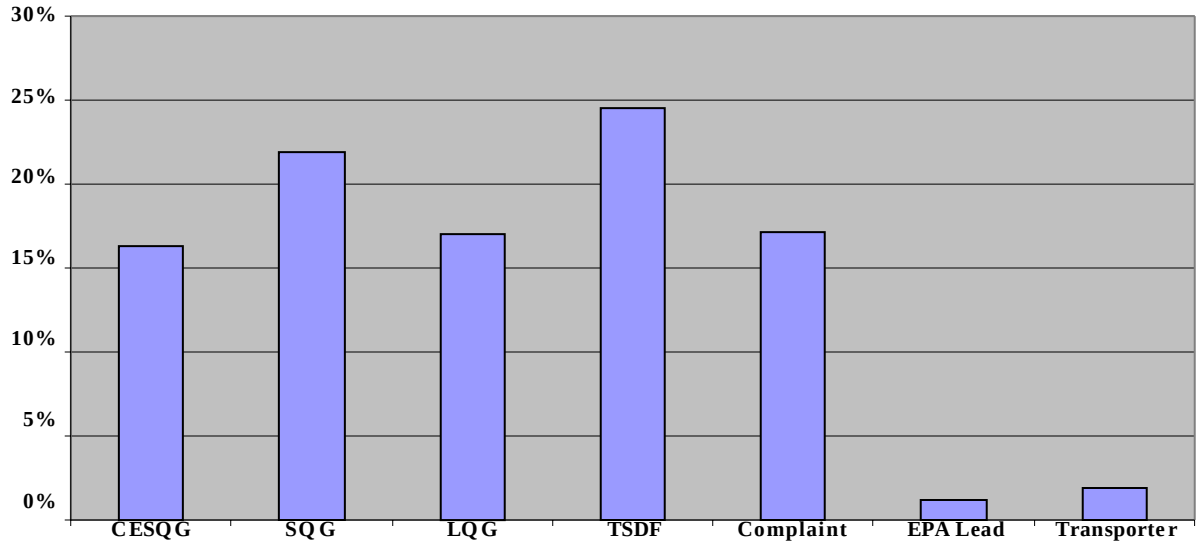


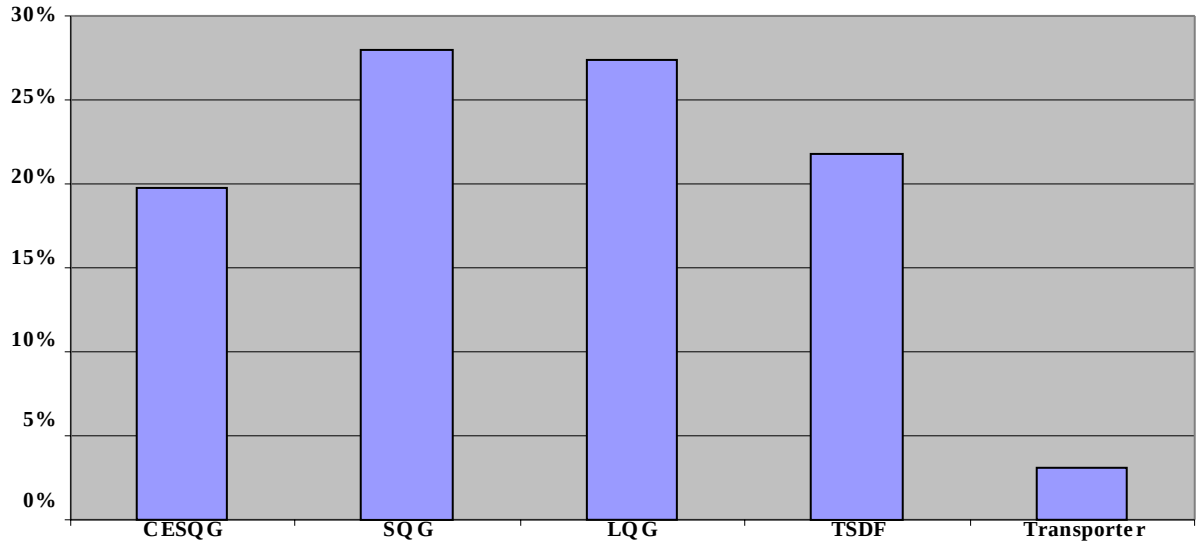
Figure 8 - Inspection Program Costs



The enforcement data from the ten States shows that the largest portion of the budget is spent on conducting enforcement at SQGs, followed closely by LQGs, then TSDFs, CESQGs and transporters. (Figure 9)

When comparing just the inspection and enforcement program, EPA provides, on average, approximately 45% of the ten pilot States' budget. When extrapolating for all 50 States, EPA provides approximately 37% of the estimated $90,000,000 annually needed to run a complete and adequate RCRA C inspection and enforcement program.

Figure 9 - Enforcement Program Costs

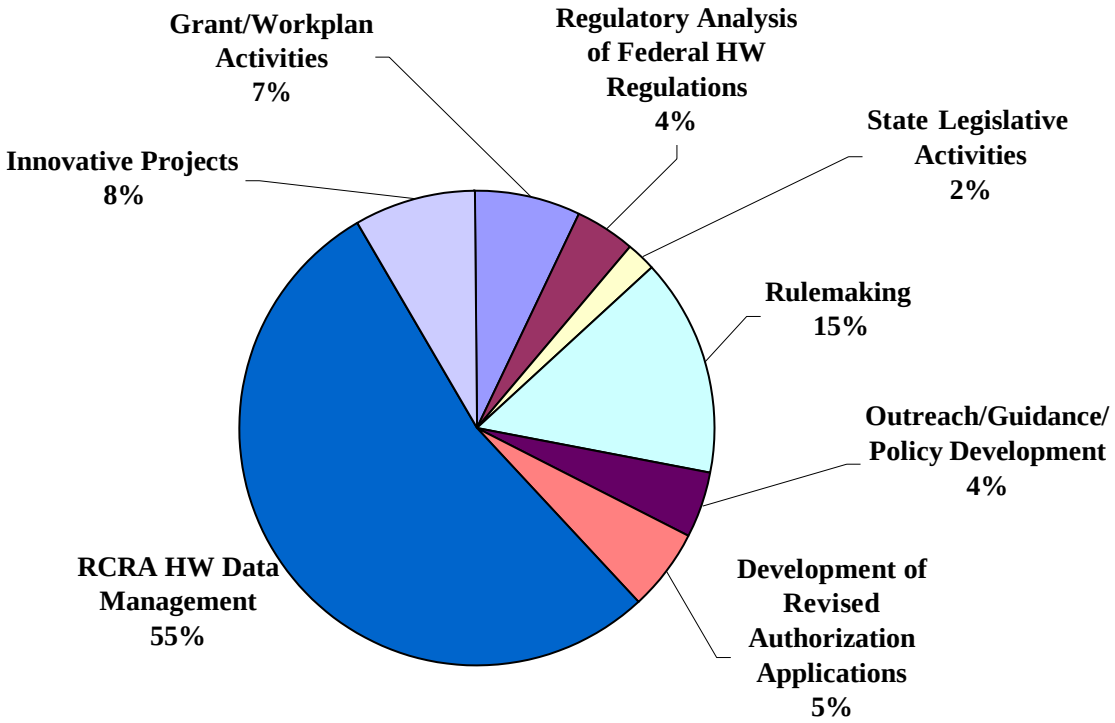


Program Development

The overall results of the ten States surveyed show that it would cost a total of approximately $6,000,000 annually to run a complete and adequate Program Development portion of a RCRA C hazardous waste program . Since the pilot States were fairly diverse, it might be extrapolated that it would cost approximately $30,000,000 annually for all 50 States to adequately fund the Program Development portion of the RCRA C program.

The data from the ten States show that the overwhelming majority (55%) of the Program Development budget is spent on RCRA Hazardous Waste Data Management. (Figure 10) Rulemaking is the second most costly activity in the Program Development arena, at less than a third of the amount spent on RCRA Hazardous Waste Data Management. In fact, RCRA Hazardous Waste Data Management tied with permit application review as the second most costly function of implementing a State RCRA program. (Figure 4)
EPA puts a premium on data management activities, as they are the source of all information in the RCRA C universe. Information on RCRA C programmatic activities being conducted in the States is essential to EPA's accountability efforts. Considering the importance to EPA of these endeavors, it is clear that EPA funding for these critical activities does not match the resources being expended by the States to conduct them. EPA needs to recognize the importance of RCRA Data Management and other Program Development activities and fund them appropriately.

Figure 10 - Program Development Costs



VI. Summary, Conclusions, and Recommendations

Permitting and Corrective Action

The estimates for permitting and corrective action included in this report are for complete and adequate State programs. The low and high estimates are generally indicative of the range of facility types (simple versus complex) and the corresponding level of activity associated with the tasks performed at those types of facilities. In any given year, a State's "average" cost can be expected to go up or down within the range depending upon the types of facilities being worked on and the corresponding nature and number of tasks performed. It is also expected that State permitting and corrective action program costs for more "robust" State programs would tend towards the upper (high) end of the estimation range, and that such programs may necessarily require more direct State funding to remain "robust" absent additional federal funding from EPA.

This cost estimation project clearly highlights the need for ongoing consideration of long-term funding of the State program costs related to permit modifications and maintenance. Historically, the permitting focus has been on issuance and reissuance of permits as related to meeting the GPRA goals for permitting and "approved controls in place." Based on this cost estimation project, it is now abundantly clear that State program costs to modify and maintain hazardous waste permits comprise a significant portion of State RCRA C Core budgets. As long as the universe of permitted RCRA C facilities continues to grow, so will the State costs associated with permit modifications and maintenance. These costs will continue to be significant long after the number of permitted facilities has plateaued. These program elements are significant in that they have not historically been discussed or specifically funded as part of the State/EPA planning and negotiation process in many States. Systematic failure to address these program elements in any comprehensive fashion is likely rooted in the fact that States have little to no control over the nature and timing of most facility-initiated permit modifications. States are only able to deal with the reality that permit modifications will be submitted by facilities and, once received, will have to be prioritized for action.

Similar to funding for permit modifications and maintenance, this cost estimation project clearly highlights the need for ongoing consideration of State oversight costs for long-term stewardship at remediation facilities. The current remediation focus is on remedy decisions and construction completion related to meeting the mid-term GPRA goals for corrective action. The universe of facilities to which these goals apply continues to grow as the GPRA baseline continues its evolutionary growth from 2005 to 2008 to 2020. As long as the universe of RCRA C facilities operating final remedies continues to grow, so will the State costs associated with long-term stewardship at such facilities. Based on the current number of facilities with final remedies in place, it seems clear that we have not yet reached the point beyond which the number of annual remedy decisions will begin to decrease. This point is likely a few years down the road. Of course there will be a natural transition of program resources and overall focus when moving from active investigation, evaluation of remedial alternatives and construction of final remedies to long-term oversight and optimization of remedies. The message here is that future funding of State programs must consider this evolution. Similar to

the GPRA goals for Environmental Indicators, the GPRA remedy decision and construction completion goals are simply mileposts along the way to the ultimate objective of facility-wide corrective action completion. The need for State RCRA C funding for corrective action does not magically disappear once a final remedy is selected and implemented. While there may be some facilities that are able to exit the corrective action universe once remedy construction is complete, there will be a large number of facilities that will continue to operate remedies for years, if not decades, before corrective action can be considered complete. This must be considered in the context of future long-term funding for State RCRA C Core programs.

Since the genesis of the EI evaluations, several additional RCRA C performance measures have been developed by EPA in coordination with the States, and others are under development/ consideration. These new performance measures relate to issuing remedy decisions (CA400), remedy construction [both completion of physical remedy construction (CA550) and how efficiently that construction is completed (OMB efficiency measure)] and land revitalization. The universe of facilities to which these measures may be applied expands as the number of RCRA C facilities on the corrective action GPRA baseline list continues to grow. Similar to the EIs, State resources necessary to address/document these new performance measures are expected to be significant. The costs associated with these new activities was not estimated as part of this evaluation as the performance measures were not developed well enough at the time of estimation to come up with associated costs. Based on States' experiences with the EI evaluations, it is certainly plausible that the additional costs associated with the new performance measures could add another 2-3% to the overall cost of State RCRA C Core programs. These potential costs should be kept in mind as future State resource and funding needs are evaluated.

Based on the pilot results, the cost of running complete and adequate RCRA C permitting and remediation programs in the ten pilot States is approximately $27,000,000 annually. Extrapolated across all fifty States, the cost would be approximately $135,000,000 annually for just the State RCRA C permitting and remediation portion of the RCRA C Core program. Accounting for the 25% State match, EPA's entire FY06 enacted HW STAG for all 50 States is just what is needed to have a complete and adequate 50-State RCRA C permitting and remediation program without even considering funding of the inspection, enforcement and program development portions of the RCRA C Core Program.

Inspections and Enforcement

Based on the results of the pilot States, the cost of running a RCRA C inspection and enforcement program is approximately $18,000,000. If extrapolated for all 50 States, it would cost a total of $90,000,000 for just the RCRA C inspection and enforcement portions of the core program. EPA's entire FY06 enacted HW STAG for all 50 States was just over $100,000,000. This would mean that approximately 90% of the total grant would be needed to have just a complete and adequate RCRA C inspection and enforcement program. That would leave only 10% for the funding of the permitting, remediation and program development portions of the RCRA C Core Program.

The pilot State results show that a significant portion of the inspection and enforcement budgets are expended conducting inspections and enforcement at SQG and CESQG facilities, which

greatly outnumber LQG and TSD facilities. However, these facilities have historically been funded at a fraction of the cost of LQG and TSD facilities, which likely accounts for a large portion of the funding gap in these program areas. The actual costs of inspection and enforcement at these smaller facilities should be kept in mind as future State resource and funding needs are evaluated.

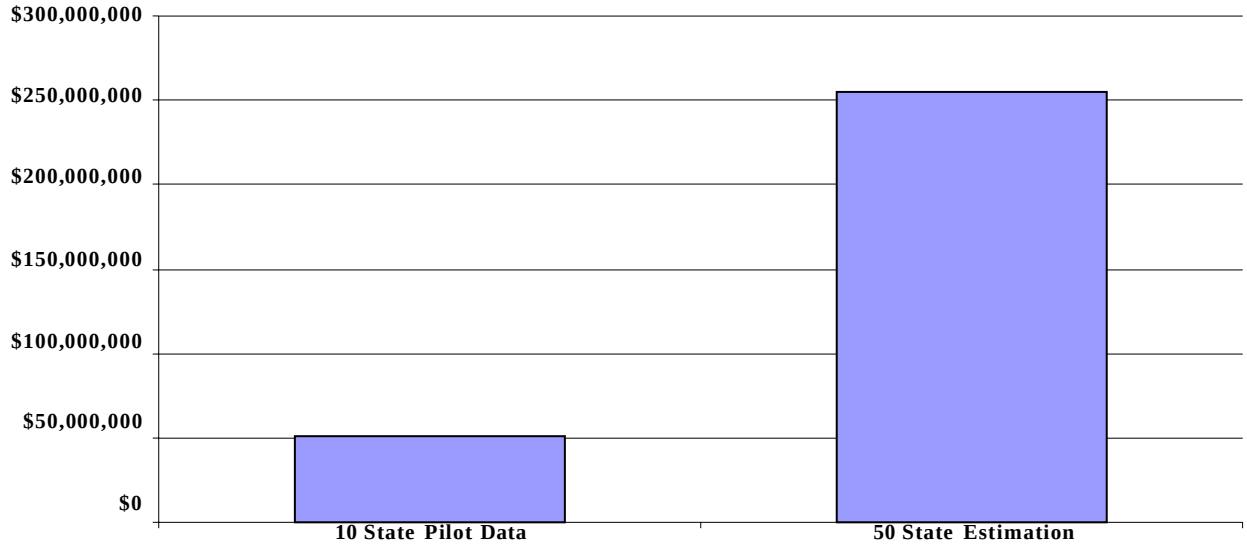
Program Development

It is estimated that Program Development activities account for approximately 12% of the total State RCRA C program costs. However, the Program Development portion of the RCRA C Core Project is much different than the other program areas in the project. Many of the data sets in Program Development are not based on hard numbers and are much less specific than, for example, inspections and enforcement, where there are a definite number of inspections conducted and enforcement actions taken. In Program Development, the RCRA C Core Project seeks to put a cost on items such as the amount of time it takes to develop a work plan or comment on a proposed rule. These activities do not lend themselves to critical fiscal analysis. It is very difficult for States to estimate the amount of time spent on these activities both by their own staff and other staff that may be located outside of the State environmental agency, such as in the Attorney General's Office. Additionally, there is anecdotal evidence to suggest that States tend to cut the Program Development activities first before cutting other services, as fiscal resources from both State and federal sources shrink. Therefore, the Hazardous Waste Subcommittee concludes that the estimates obtained from the ten States in the survey are probably lower than the actual average Gross Annual Cost of these activities to the States.

Overall

Overall, the data from the 10 pilot States reflects an estimated overall program need in those

Figure 11 - Extrapolated Core Program Cost

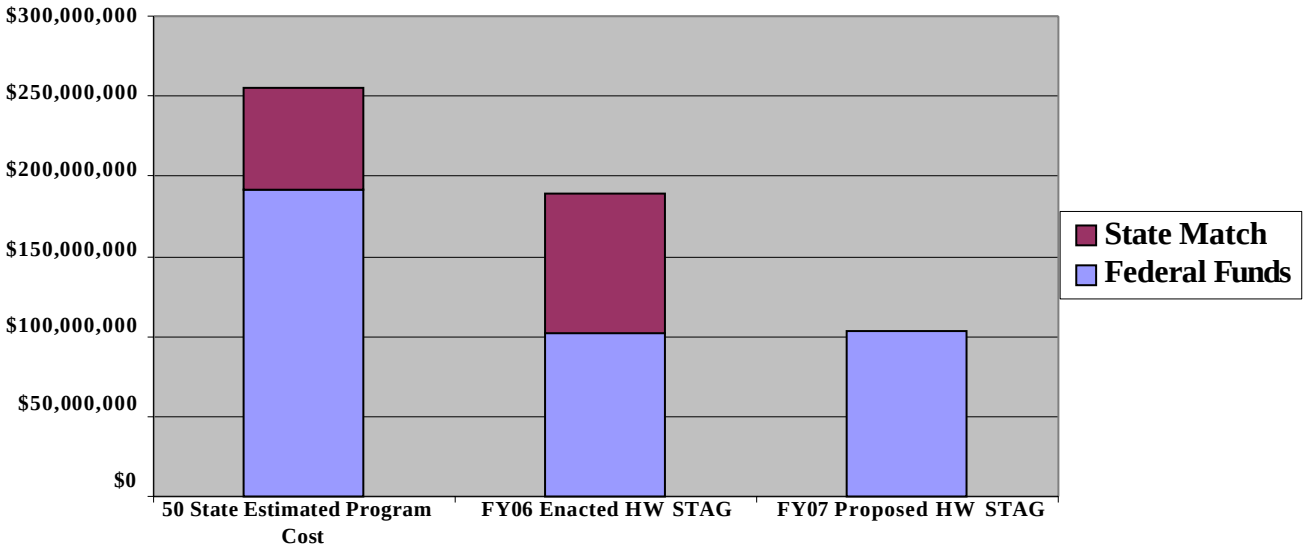


States of approximately $51,000,000. Using our estimate that these States account for 20% of the program costs of the 50 States, this would indicate an overall national program need of approximately $255,000,000. (Figure 11).

Figure 12 shows that, using a required 25% State match for federal grants, States should be contributing approximately $64,000,000 toward this annual program cost, and the federal grants should account for approximately $191,000,000 for an adequate and effective program. However, as can further be seen from Figure 12, this is not the case. Data from a separate data collection project by the Hazardous Waste Subcommittee shows that, for FY06, States estimated their hazardous waste program costs (including both federal and non-federal sources of funding) to be approximately $189,000,000. Compared against the enacted federal RCRA C STAG funding level of approximately $101,000,000, this indicates that States are currently contributing approximately $87,000,000 toward the hazardous waste program in their efforts to ensure program effectiveness. Clearly, additional federal funds are needed to fully fund the RCRA C program. However, as can again be seen from Figure 12, the proposed FY07 RCRA C STAG appropriation (approximately $101,000,000) is expected to fall far short of the needed level.

The total RCRA C grant received by the ten pilot States in FY05 was $24,522,543. Based on

Figure 12 - Core Program Funding Status



this, EPA is providing, on average, 48% of the necessary budget to run a complete and adequate RCRA C Core Program, when compared to $51,000,000 annually estimated by the ten pilot States. These ten States received approximately 25% of the total $100,000,000 annual HW STAG grant from EPA, so for all 50 States, EPA is providing approximately 39% of the

estimated $255,000,000 annually needed to run a complete and adequate RCRA C Core Program.

For a number of years, State RCRA C Core Grants have been either stagnant or decreasing. The grants have not kept pace with inflation, increases in worker salaries, increases in health insurance costs or increasing workloads associated with State authorization of additional program elements, regulations, and tasks required by EPA. This has required States to look to other sources for funding. Some States have been fortunate and have been able to supplement their program funding through permitting fees, cost recovery/reimbursement for permitting and remediation oversight, disposal and generator fees, and through other means. Some States receive State general revenue funds. Other States are not as fortunate and have to rely almost entirely on the RCRA C Core Grant. A few years ago, when the economy had a down turn, those States relying on State general revenue funding had to suffer program cuts. Given the steep learning curve and substantial workload in the RCRA C permitting and remediation programs, these cuts in staffing create long term issues related to overall program efficiency and effectiveness.

It is also worth noting that some States have found, through the recent exercise directed at determining State costs for purposes of calculating the RCRA C "efficiency measure," that the overall average costs developed for the RCRA C Core Project may be on the low side. During this data collection, additional costs were identified in some instances that may not have been completely captured by the original core program estimates due, in part, to the way the costs for the RCRA C Core project were categorized. Another element bearing on this situation is the difficulty experienced by some States in accurately culling RCRA C Core Program costs out of the larger, overarching funds associated with Performance Partnership Grants in States that have Performance Partnership Agreements with EPA.

Utilization of State vs. Federal Resources

It should be noted that (in general) an environmental program run by a State government agency (such as the RCRA C permitting, remediation, inspection and enforcement programs) is more economical than if the same program were run by EPA itself. Most of the nation's primary environmental statutes provide for the federal programs to be delegated or authorized to the States, and most of them have been, placing environmental expertise and protection close at hand. In fact, the States currently administer about 90% of the workload for programs EPA has delegated to them. Two other factors that make State programs a bargain are:

1. The States are required to match most federal grants with a 5%-50% amount. In 2005, States provided a 36% match to federal funds. (President's 2007 EPA Budget Proposal). In the case of the RCRA C program, States are required to provide a 25% match. Based on our analysis, States are currently actually providing 46% of the overall program funding.

2. State employees on average cost about a third less than federal employees. (The Environmental Council of the States (ECOS), 2005 "State Pay Comparison to EPA Headquarters, 2005").

For example, averaged out, an EPA inspector earns approximately $70,000 per year. Not only

is this average salary higher than what most State inspectors are paid, the number of hours per inspection are typically higher for EPA than the State. EPA staff must do more pre-inspection preparation, travel to and from their regional offices to the facility location and incur additional travel costs, hotel costs, meals, etc. which would result in a more expensive inspection program. Because of staff limitations, EPA has also begun using contractors to perform inspections. This would also increase the cost of the inspection program because the contractor, as well as EPA oversight staff, would have to be paid. In addition, statutory authorities for most inspection/ enforcement activities remain with the States and the quality and quantity of contractor inspections cannot be assured. Similar cost savings are likewise attributable to State implementation of the other component areas of the RCRA C Core Program.

As ECOS has noted in its proposal to Congress for EPA's 2007 State and Tribal Assistance Grants Budget (February 2006), "...a federal dollar spent in Washington, D.C., buys $1 worth of environmental protection, but when spent in a State, it buys $1.80 worth of environmental protection."

Major Conclusions and Recommendations

This study represents the first comprehensive analysis, by the people who run the programs, of what it takes thus far in the 21st Century to run an effective and adequate RCRA C Core Program. The results are not surprising, since we have long suspected that the distribution of costs to run the program (see Figure 2) do not match directly with the apportionment of funding provided to the five program areas. This evaluation has provided affirmation that several areas not typically considered in grant workplans and funding negotiations consume a significant amount of resources (e.g., permit modifications, permit maintenance activities, data management), and that remediation is, and will be, the most costly program area to implement. We have also suspected that we have more to do than the resources provided allow us to do. Now we know how big the gap is and where the greatest needs exist. Unfortunately, the gap is even larger than this analysis identifies. Many of the areas that both EPA and State senior managers have identified as important future directions, like the Resource Conservation Challenge and Sustainability, are not currently considered part of the Core Program. These Conclusions and Recommendations identify the challenge before us.

- Permit maintenance and permit modification costs constitute approximately 13% of the overall RCRA C Core Program costs incurred by States, yet these program elements have historically been considered negligible in State-EPA planning and budget negotiations. Given the nature and importance of these elements of the permitting program, they must be appropriately considered in future workload planning and budget discussions.

- The remediation program area constitutes the largest overall cost (28%) of the RCRA C Core Program. Although it is expected that the distribution of costs among the various elements comprising this program area will shift over the coming years from primarily investigation oversight to corrective measures and long-term oversight, the overall costs of this important program area are not expected to decline at the national level for the foreseeable future due to the costs associated with long-term stewardship of these sites.

- The emphasis on and proliferation of performance standards and efficiency measures in the RCRA C Core Program, driven chiefly by the GPRA, will continue to consume significant State resources. Documentation of EIs related to the 2005 CA GPRA goals alone comprised roughly 1% of the overall cost of State RCRA C Core Programs. As new measures are developed and implemented, it is anticipated that these costs could rise to comprise as much as 3% to 4% of the overall cost of the State programs.

- Historically, grant workload and budget negotiations have focused predominantly on TSDF and LQG inspections, due primarily to the statutory requirement to inspect TSDFs every two years and the EPA Enforcement Response Policy (ERP) requirement to inspect 20% of LQGs each year. However, as shown through this study, these program elements account for only about 41% of the cost of the inspection program, and 49% of the cost of the enforcement program. Clearly, future workload and budget negotiations must consider the substantial costs and environmental benefits associated with inspections and enforcement related to other facilities (CESQG, SQG, Transporters, Complaints, etc.).

- Data management was identified as the second most costly function of implementing a State RCRA C Core Program. Clearly, timely and accurate information on RCRA C programmatic activities is essential to EPA and States' program reporting and accountability efforts. The overall importance of RCRA C data management must be recognized and funded appropriately.

- The results of this study indicate that the annual national funding requirement for States to implement a complete and adequate RCRA C Core Program, based on existing law and national program policy and guidance, is approximately $255,000,000. Of this amount, approximately $64,000,000 should be contributed by States and $191,000,000 by federal grants (based on a 25% State match for federal grants). States are currently contributing approximately $87,000,000 (136% of their minimum share), while federal grants account for approximately $101,000,000 (53% of their share) of the funding needed to implement a complete and adequate program.

Clearly, as documented throughout this report, additional federal funds are needed to fully fund the State RCRA C programs if these programs are to be implemented in the manner as required by existing law and national program policy and guidance. To this end, EPA and the States should work closely with OMB and the Congress in upcoming budget cycles to find additional funding for the program. Alternatively, if adequate funding cannot be secured, States and EPA must work together to identify and implement significant areas of disinvestments from the federally required programs (which will likely result in correspondingly lesser environmental protection).

Appendix I – Identification of Core Program Elements

This appendix provides the reports that developed background for the process methodology used to determine and break down the elements of State RCRA programs. The elements were determined to be: 1) **Permitting**, 2) **Remediation**, 3) **Inspections**, 4) **Enforcement**, and 5) **Program Development**. Each of the elements is described in annexes to this appendix.

Annex 1

Permitting

RCRA Core Project
State Cost Analysis Methodology for Permitting

Prepared by the ASTSWMO Corrective Action and Permitting Task Force
for the
ASTSWMO Board of Directors
April 27, 2004

The ASTSWMO Corrective Action and Permitting Task Force was assigned the task of determining the "core" set of program elements associated with RCRA permitting and developing a methodology which can be used by States to calculate the real costs associated with administering State RCRA permitting programs. The resulting evaluation and cost calculation methodology can be used to determine the shortfall between the amounts of funding needed to support State RCRA permitting programs versus the amount of funding currently available to run those programs. Ultimately, States could use the amounts generated by the cost calculation methodology to seek additional funding from State legislatures and/or EPA in situations where the cost of administering current programs outweighs currently available funds. This permitting cost information may also be useful for other program estimating or planning purposes. This report outlines the specific tasks evaluated along with a discussion of how the members arrived at the approach developed and advocated by the group.

Permitting Activity Categories

The Task Force began the project by identifying the activities associated with permitting of hazardous waste facilities. In order to minimize the number of categories and to allow each State the opportunity to incorporate specific State needs into a category, the Task Force agreed on five broad, but common permitting functions, as follows: 1) pre-application activities; 2) application review activities; 3) permit issuance activities; 4) permit maintenance activities; and 5) permit modification activities. Each State decided individually which activities would be included in each of these broader categories. A representative sampling of the activities in each category includes, but was not necessarily limited to the following:

1) Pre-application Activities: Sending out permit renewal letters, phone calls/meetings to discuss permit applications, information research and providing information/forms to applicant, public notices of intent to permit, internal coordination, and development of permit timelines and schedules.

2) Application Review Activities: Application completeness check, technical review and preparation of comments including trial burn plans and risk assessments, public participation, internal coordination and coordination of review with other agencies, habitual violator review, meetings, site visits and phone calls.

3) Permit Issuance Activities: Preparing draft permits and related correspondence, public participation activities (public notices, availability sessions, hearings, establishing information repositories) for the draft permit, responding to comments on the draft permit, preparing the final permit and related correspondence, permit appeal activities, meetings, phone calls, and site visits.

4) Permit Maintenance Activities: Addressing questions posed by agency management, responding to citizen/media calls, compliance inquiries, facility management planning, data management, responding to internal inquiries, file review requests, permit billing (cost-recovery) activities, review of routine facility reports (e.g., non-corrective action progress/ monitoring reports), meetings, phone calls and site visits.

5) Permit Modification Activities: Technical reviews, drafting of modifications, public participation, response to public comments, finalization of modifications, dealing with permit modification appeals, modification tracking and other procedural items.

Estimation of Work Hours

The Task Force then estimated a range of work hours for four of the five categories above for post-closure, storage/treatment, combustion and operating land disposal facilities. The Task Force agreed that the estimated range of work hours required to issue and maintain a simple storage permit would be quite different than the estimated range of work hours required to issue and maintain a more complex permit for post-closure, land disposal or combustion. Similar logic was applied to the permit modification category, which was subdivided into Class 1, Class 2, Class 3 and agency-initiated modifications.

No activities broadly classified as corrective action were included in any of the activities or estimates. Further, any closure activities that might occur during the term of a permit were not included. Finally, these categories allowed each Task Force member to incorporate into the work hours estimate any unique requirements a State may have that fit well into that category, but may not be a step in the process that other States require. It is extremely important to note that the Task Force's work hour estimates are actual work hours as opposed to elapsed work time. Administrative waiting time such as that associated with internal agency concurrence/ review and public participation were not included in the estimates, as no actual work was going on during those periods, so theoretically no funds were being expended on permitting. Based

on review of some previous time estimation work done by EPA and the States, this approach may differ in that this previous work appeared to include the total time, including administrative "wait" time, that was necessary to perform certain permitting tasks.

The Task Force discussed whether the activity categorization could be used by other States not represented on the Task Force. The Task Force is convinced that with little, if any, additional instruction, a State could decide to include activities that were not contemplated by the Task Force. For example, if travel from city to city within a State was required to try to determine if a city or town was interested in hosting an operating hazardous waste facility, that type of activity would clearly fall into the pre-application category. But it would be one that not many, if any, other States would include in an estimate. The number of hours spent on that activity would simply need to be included in the estimate of hours for that State's pre-application activities. What if a State required that all hazardous waste permit applications be reviewed by members of the State university's engineering school graduates before it could be considered complete? The number of hours for such a review would simply need to be included in the application review estimate. If a State requires every registered voter to get a copy of the proposed permit before it is issued, those hours could be included in the permit issuance estimate. The point of these examples is that the types of activities that broadly fit into each category are not as important as the fact that they are incorporated into the estimate. With this degree of flexibility, the State-specific estimates should account for all possible activities that are required to process permit applications, and issue, maintain and modify permits.

The table below presents estimated State ranges of actual work hours (rather than average hours) to complete the elements in each broad activity category identified above. States that provided the estimates reflected in the following summary include Alabama, Florida, Georgia, Idaho, Missouri, North Carolina, Texas, Utah, and Wisconsin. Due to the different numbers of facilities in each State, the Task Force believes that presentation of a range of hours provides a more useful representation of work efforts than a simple arithmetic average for the number of hours. For example, the State of Idaho has a smaller universe of facilities than Florida; however, dozens of mixed waste treatment and storage units at the INEEL, a 640 square mile Idaho DOE facility, represent a single facility. If such a facility is given equal weight as another more common type of facility in the permitting universe, a simple arithmetic average might be greatly skewed. The estimated range of actual work hours for the activity categories is as follows:

Pre-application	Post-closure	2 to 140 hours
	Storage/treatment	2 to 140 hours
	Combustion	10 to 325 hours
	Operating land disposal	24 to 140 hours
Application review	Post-closure	80 to 420 hours
	Storage/treatment	80 to 664 hours
	Combustion	200 to 1702 hours
	Operating land disposal	600 to 3200 hours

Permit Issuance	Post-closure	40 to 450 hours
	Storage/treatment	60 to 775 hours
	Combustion	80 to 1800 hours
	Operating land disposal	296 to 560 hours
Permit Maintenance	Post-closure	10 to 360 hours
	Storage/treatment	10 to 200 hours
	Combustion	10 to 2000 hours
	Operating land disposal	50 to 2000 hours
Permit Modification	Class 1 (all facilities)	2 to 100 hours
	Class 2 (all facilities)	40 to 340 hours
	Class 3 (all facilities)	21 to 1850 hours
	Agency initiated (all facilities)	60 to 725 hours

Cost Analysis Methodology

Following permitting activity categorization and estimation of actual work hours to perform permitting activities, the Task Force began work towards the ultimate objective of the project, which was development of the cost-estimating methodology for permitting. This methodology is incorporated into a self-contained, Microsoft Excel spreadsheet that has been dubbed "SCAMP" (State Cost Analysis Methodology for Permitting). Once the spreadsheet is opened, the SCAMP instructions are largely self-explanatory in the column legend. Example spreadsheets for Missouri and Idaho are included as attachments to this project report. The elements and use of the SCAMP spreadsheet are summarized below.

Column A is the place to list the State name. Column B lists the activity categories developed by the Task Force. Column C lists the facility types as categorized by the Task Force. Columns D and F are for user input and represent the low and high number of actual work hours, respectively, for each activity category and facility type. During methodology development, there was considerable discussion concerning use of average hours for cost estimation. Currently, the SCAMP spreadsheet automatically calculates an arithmetic average of the high and low hours in Column E. However, the Task Force recognized that use of a "weighted" average would be more representative and should be used whenever possible (i.e., one or two facilities representing the low or high end of the range should not be allowed to grossly skew the arithmetic average used for cost calculation purposes). The adjustment factor presented in Column J was incorporated for use in adjusting (upward or downward) the arithmetic average hours calculated in Column E. Alternatively, weighted average hours could simply be input into the spreadsheet and the adjustment factor left at unity (1.00).

Columns G, H, and I are for user input and represent the low, weighted-average and high hourly pay rates, respectively, for staff performing actual permitting work. For salaried employees, the low and high numbers are simply the employee's annual salary divided by the number of work hours in a calendar year. The weighted average is user-inputted (not calculated by the SCAMP spreadsheet) and represents an average of the salary for all staff performing actual permitting

work. Columns K, L and M are calculated by the spreadsheet and represent the low, average and high cost of each activity, respectively, based on the information contained in Columns D through J.

Column N is a user-inputted State multiplier. This multiplier is designed to be State-specific and to capture overarching costs not included in the hourly salary rates. The multiplier may include, but not be limited to: overhead, fringe, clerical, administrative, legal and supervisory support. For States that operate on a flat hourly rate for permitting which already incorporates the items covered by the multiplier, the flat rate could be used as the weighted average salary in Column H and the multiplier simply held to unity (1.00).

Column O is the user-inputted number of activities performed annually in each category. This number can be estimated based on past performance, future plans, best professional judgment or a combination thereof. Columns P, Q and R are calculated by the spreadsheet and represent the low, average and high gross annual costs of each activity, respectively, based on the information contained in Columns K through O. At the bottom of columns P, Q and R, the spreadsheet automatically calculates the low, average and high gross annual cost of the State's RCRA permitting program as a whole. These figures represent gross annual permitting cost estimates only. Any permitting-related cost recovery or fees that might be available to offset the overall cost of State permitting programs is not addressed in this analysis.

In closing, the Task Force would like to express its appreciation to the ASTSWMO Board for its patience during development of the concepts and recommendations contained herein. Provided that States carefully consider and develop State-specific inputs to the SCAMP spreadsheet, the cost estimating methodology can provide reasonable and technically defensible permitting cost estimates which can be used for a variety of purposes. The cost estimating methodology is flexible enough to be adapted to virtually any State permitting program and, if embraced by the Board, could also serve as a model for cost estimating in other RCRA program areas that are being considered. The Task Force would welcome any additional peer review of its findings and recommendations by States not represented on the Task Force. If you have any questions concerning the Task Force's work or want to discuss this project further, please feel free to contact Task Force chair Richard Nussbaum at 573-751-3553.

ANNEX 2

REMEDIATION

RCRA Core Project
State Cost Analysis Methodology for Remediation
(Closure & Corrective Action)

Prepared by the ASTSWMO Corrective Action
and Permitting Task Force
for the
ASTSWMO Board of Directors
April 27, 2004

The ASTSWMO Corrective Action and Permitting Task Force (Task Force) was assigned the task of determining the "core" set of program elements associated with RCRA remediation (closure and corrective action) and developing a methodology which can be used by States to calculate the real costs associated with administering these areas of State RCRA programs. The resulting evaluation and cost calculation methodology can be used to determine the cost of State RCRA remediation programs including identification of any shortfalls between the amount of funding needed to support State programs versus the amount of funding currently available to run those programs. Ultimately, States could use the amounts generated by the cost calculation methodology to seek additional funding from State legislatures and/or EPA in situations where the cost of administering current programs outweighs currently available funds. This cost information may also be useful for other program estimating or planning purposes. This report outlines the remediation-related elements evaluated by the Task Force along with a discussion of how the members arrived at the approach recommended by the group.

Remediation Activity Categories

The Task Force began this project by identifying the activities associated with closure and corrective action at hazardous waste facilities. In order to minimize the number of categories and to allow each State the opportunity to incorporate State-specific needs into a category, the Task Force agreed on ten broad, but common activity categories as follows: 1) Closure; 2) RCRA Facility Assessments; 3) Corrective Action Instruments; 4) RCRA Facility Investigations; 5) Interim Measures; 6) Corrective Measures Study; 7) Corrective Measures Implementation; 8) Long-term Oversight; 9) Corrective Action Completion; and 10) Technical Support. Inclusion of an eleventh category (Planning, Evaluation and Reporting) was also

discussed. There were differing opinions as to whether this category was necessary. Some Task Force members thought that this category was not necessary or that the tasks in this category were already adequately covered by the other categories. Others believed that it would be beneficial to retain this category as the tasks there under were not adequately covered by the ten agreed-upon categories. The Task Force did not reach final consensus on this issue, however, in the interest of moving this project forward, the Task Force decided to retain the eleventh category so that States could use it if desired.

The foregoing categories were used to be generally consistent with EPA's nomenclature. All States do not necessarily use the exact same terminology or corrective action process as EPA; thus, when estimating costs, each State should determine the applicable category via the subactivities and tasks included in each of the broader categories. A representative sampling of the subactivities/tasks in each category includes, but is not limited to, the following:

Closure: Work plan and report review and approval, oversight inspections, and administrative tasks such as phone calls/meetings to discuss closure issues, internal coordination, development of closure timelines/schedules, and release of closure financial assurance.

RCRA Facility Assessment: Review of facility files/records, visual site inspection, sampling/ analysis including development/coordination of sampling plans; report preparation; internal and external coordination, meetings and phone calls.

Corrective Action Instruments: The time required to put in place a governing instrument for the corrective action process. The cost when permits are used as the regulatory instrument for corrective action is already covered by the Task Force's previously prepared permitting cost estimates. The costs associated with Orders or other agreements as the corrective action instrument would include tasks such as file review, preparing and negotiating draft and final orders/agreements, establishing information repositories, internal and external coordination, meetings, phone calls and site visits.

RCRA Facility Investigations: Work plan and report review and approval, corrective action oversight and sampling inspections, internal and external coordination and response to inquiries, file review, review of routine facility reports (e.g., CA progress and monitoring reports), meetings, phone calls and site visits.

Interim Measures: Work plan and report review and approval, corrective action oversight and sampling inspections, internal and external coordination and response to inquiries, file review, public participation activities (for significant interim measures), meetings, phone calls and site visits.

Corrective Measures Study: Work plan and report review and approval, corrective action oversight and sampling inspections, internal and external coordination and response to inquiries, file review, review of routine facility reports (e.g., CA progress and monitoring reports), Statement of Basis (SB) preparation, public participation activities including response to comments (RTC) on the SB, meetings, phone calls and site visits.

Corrective Measures Implementation: Work plan and report review and approval, corrective action oversight and sampling inspections, internal and external coordination and response to inquiries, file review, review of routine facility reports (e.g., CA progress and monitoring reports), meetings, phone calls and site visits.

Long-Term Oversight: Review/approval of facility reports (e.g., CA progress, groundwater monitoring and remedy "effectiveness" reports), corrective action oversight and sampling inspections including monitoring of institutional and engineering controls, CA financial assurance reviews, internal and external coordination and response to inquiries, file review, meetings, phone calls and site visits.

Corrective Action Completion: Administrative record review, internal and external coordination and response to inquiries, public participation activities including RTC on NFA/ CA complete determination, meetings, phone calls and site visits.

Technical Support: Technical/regulatory review and coordination of activities to ensure that substantive corrective action requirements are met at facilities that are subject to corrective action but that have been "deferred" to another program.

Planning, Evaluation and Reporting. This group of activities might include environmental indicator evaluations, stabilization evaluations, NCAPS site priority ranking or re-ranking, PPA/PPG/Facility Management Plan development and negotiation, project progress reporting to EPA and department management, internal and external coordination and response to inquiries, RCRAInfo data entry, rulemaking and program authorization activities, and cost-recovery accounting and billing. Some States included the cost associated with these activities in the above ten categories, but other States preferred to leave this as a separate category. The cost estimation spreadsheet developed as part of this project accommodates either preference.

Estimation of Work Hours

The Task Force estimated a range of work hours for the above activity categories and associated activity subdivisions. The Task Force agreed that the estimated range of work hours required to complete the noted activities would vary substantially based on the size and complexity of each facility, as well as the number of units to be remediated at each facility. In general, the higher the NCAPS ranking of a facility, the more resource-intensive the activities associated with remediation.

No activities broadly classified as permitting (e.g., permit issuance as the corrective action instrument, permit modifications to implement final remedies) are included in any of the activities or estimates as these permit-related activities/estimates were addressed by the Task Force as part of the previous core project to estimate costs associated with RCRA permitting. The remediation activity categories are broad enough to allow each State to incorporate into the work hours estimate any unique State requirements that fit into that category. It is extremely important to note that the Task Force's work hour estimates are actual work hours as opposed to elapsed work time. Administrative waiting time such as that associated with internal agency

concurrence/review and public participation were not included in the estimates, as no actual work was going on during those periods, so theoretically no funds were being expended on remediation. Based on review of some previous time estimation work done by EPA and the States, this approach may differ in that some of the previous work estimates appeared to include the total time, including administrative "wait" time that was necessary to perform certain tasks.

The Task Force thinks that the activity categorizations recommended in this report can easily be used by other States not represented on the Task Force. The Task Force believes that with little, if any, additional instruction, a State could include activities in a category that were not specifically identified by the Task Force. For example, the activity of travel from city to city within a State to try to determine if a city or town was interested in a proposed final remedy at a hazardous waste facility could fall into the Corrective Measures Study activity category, but perhaps only a few States would want to count that time. The number of hours spent on that activity would simply need to be included in the estimate of hours for that State's activity. As another example, what if a State required that all proposed final remedies were reviewed by members of the State's hazardous waste commission before they were public noticed? Or, what if a State requires that every landowner adjacent to a facility receive a copy of the proposed final remedy (Statement of Basis) before or when it is issued? Again, those hours could be included in the appropriate activity category for that State. The point of these examples is that the types of activities that broadly fit into each category are not as important as the fact that they are incorporated into the estimate. With the degree of flexibility advocated in this report (as reflected in the associated cost estimation spreadsheet), the framework for State-specific remediation cost estimates developed by the Task Force should be sufficient to account for all possible activities that are required to operate and maintain State remediation programs.

The table below presents estimated ranges of actual work hours (rather than average hours) to complete the elements in each broad activity category identified above. States that provided the estimates reflected in the following summary include Alabama, California, Florida, Georgia, Idaho, Missouri, North Carolina and Utah. Due to the different numbers of facilities in each State, the Task Force thinks that presentation of a range of hours provides a more useful representation of work efforts than a simple arithmetic average for the number of hours. Some States have a relatively small universe of remediation facilities when compared with others; however, the scope and complexity of remediation at some of the larger facilities may represent a workload equal to that of several smaller, less-complex facilities. If all facilities are given equal weight, use of a simple arithmetic average to represent workloads would be greatly skewed. The estimated range of actual work hours for the ten agreed-upon activity categories is as follows:

Closure	20 to 2160 hours
RCRA Facility Assessments	80 to 5520 hours
Corrective Action Instruments	50 to 3840 hours
RCRA Facility Investigations	50 to 4680 hours

Interim Measures	32 to 4800 hours
Corrective Measures Study	40 to 4296 hours
Corrective Measures Implementation	32 to 2232 hours
Long-Term Oversight	40 to 2400 hours
Corrective Action Completion	40 to 842 hours
Technical Support	20 to 2088 hours

The foregoing estimates represent a large range of hours for the noted activity categories and are a reflection of the variable nature, size and complexity of sites in the RCRA closure/ corrective action universe. Some States chose to focus on providing estimates of the total range of hours associated with each activity category while others decided to break the estimates down in accordance with the activity subdivisions listed in the cost estimating spreadsheet accompanying this report. The spreadsheet should be consulted for further information on these subdivisions. The narrative category descriptions above capture the essence of most of these subdivisions. These subdivisions have been retained for use in the spreadsheet in addition to allowing for calculation of costs based on "total" estimates for a category. A summary of the estimated range of work hours for the activity subdivisions is not included here as each State that provided subdivided estimates did so in a slightly different manner. As such, preparation of a meaningful tabulated summary of the subdivided category estimates was not possible. However, the example spreadsheet for Missouri provided as part of this report breaks down the costs by subcategory, illustrating how such an approach might be used. It is important to note that if a subcategory approach is used, it will be especially important to define the estimation basis for each subcategory (e.g., per plan, report, closure or instrument; per facility action, each; or annually-additive).

Cost Analysis Methodology

Following activity categorization and estimation of actual work hours to perform remediation activities, the Task Force used a cost-estimating methodology similar to that developed as part of the previous permit cost estimating core project. This methodology is incorporated into a self-contained, Microsoft Excel spreadsheet. Once opened, the spreadsheet instructions are largely self-explanatory in the column legend. Example spreadsheets for Missouri and State 2 are included as attachments to this report. The elements and use of the spreadsheet are summarized below.

Column A is the place to list the State name. Column B lists the activity categories developed by the Task Force. Column C1 lists any activity subdivisions as categorized by individual States. Column C2 lists the user-defined estimation basis for the subdivisions listed in Column C1. Columns D and F are for user input and represent the low and high number of actual work hours, respectively, for each activity category and subdivision. A "total" option is available for

each activity category in the event that subdivision of the category is not desired. During previous development of the cost estimating methodology for permitting, there was considerable discussion concerning use of average hours for cost estimation. Currently, the remediation cost-estimating spreadsheet automatically calculates an arithmetic average of the high and low hours in Column E. This could be somewhat problematic if only total costs are estimated for each category (as opposed to using the category subdivisions) and the range of estimated hours is large. The Task Force recognizes that use of a "weighted" average may be more representative and the ability to use such an approach should be retained (i.e., one or two facilities representing the low or high end of the range should not be allowed to grossly skew the arithmetic average used for cost estimation purposes). Hence, the adjustment factor presented in Column J was incorporated for use in adjusting (upward or downward) the arithmetic average hours calculated in Column E, as appropriate. Alternatively, weighted average hours could simply be input into the spreadsheet and the adjustment factor left at unity (1.00).

Columns G, H, and I are for user input and represent the low, weighted-average and high hourly pay rates, respectively, for staff performing actual remediation work. For salaried employees, the low and high numbers are simply the employee's annual salary divided by the number of work hours in a calendar year. The weighted average is user-inputted (not calculated by the spreadsheet) and represents an average of the salary for all staff performing closure and corrective action (remediation) work. Columns K, L and M are calculated by the spreadsheet and represent the low, average and high cost of each activity, respectively, based on the information contained in Columns D through J.

Column N is a user-inputted State multiplier. This multiplier is designed to be State-specific and to capture overarching costs not included in the hourly salary rates. The multiplier may include, but not be limited to: overhead, fringe, clerical, administrative, legal and supervisory support. For States that operate on a flat hourly rate, which already incorporates the items covered by the multiplier, the flat rate could be used as the weighted average salary in Column H and the multiplier simply held to unity (1.00).

Column O is the user-inputted number of activities performed annually in each category. This number can be estimated based on past performance, future plans, best professional judgment or a combination thereof. If a range of aggregate annual hours (across all facilities) is used to estimate costs, the corresponding number of annual activities represented in Column O should be held to unity (1.00). Columns P, Q and R are calculated by the spreadsheet and represent the low, average and high gross annual costs of each activity, respectively, based on the information contained in Columns K through O. At the bottom of columns P, Q and R, the spreadsheet automatically calculates the low, average and high gross annual cost of the State's closure and corrective action (remediation) programs as a whole. These figures represent gross annual cost estimates only. Any remediation-related cost recovery or fees that might be available to offset the overall cost of State program operation are not addressed in this analysis.

The Task Force would like to express its appreciation to the ASTSWMO Board for its interest in development of the concepts and recommendations contained herein. Provided that States carefully consider and develop State-specific inputs to the spreadsheet, the cost estimating

methodology can provide reasonable and technically defensible cost estimates, which can be used for a variety of purposes. The cost estimating methodology is flexible enough to be adapted to virtually any State program and, as evidenced by the Board's endorsement of the cost-estimating methodology for permitting previously developed by the Task Force, can serve as a model for cost estimating in other RCRA program areas that are being considered. The Task Force would welcome any additional peer review of its work by States not represented on the Task Force. If you have any questions concerning the Task Force's work or want to discuss this project further, please feel free to contact Task Force chair Richard Nussbaum at 573-751-3553.

ANNEX 3

INSPECTIONS

RCRA Core Project
State Cost Analysis Methodology for RCRA Inspections

Prepared by the ASTSWMO
Hazardous Waste Enforcement and
Compliance Assurance Task Force
for the
ASTSWMO Board of Directors
April 27, 2004

The ASTSWMO Board of Directors assigned the Hazardous Waste Enforcement and Compliance Assurance Task Force (Task Force) with the task of determining the "core" set of program elements associated with RCRA inspections and to develop a methodology for States to use to calculate the real costs associated with administering State RCRA inspection programs. The workload analysis document and the cost calculation methodology would be available for States to determine the difference between the amount of funding needed and the current amount of funding available to support a State RCRA inspection program. The calculated costs could be used by States to support efforts for increased funding with State legislatures and/or EPA in those situations where the current funding is inadequate. The information could also be useful for planning purposes. This document is a report to the Board of the approach and efforts by the Task Force to complete the assigned task.

Inspection Activity Categories

The Task Force began the project by identifying the broad categories of hazardous waste inspections that are performed by RCRA programs, in part based on the types of facilities that are subject to RCRA inspections and in part based on the genesis of the inspections. In order to minimize the number of categories and to allow each State the opportunity to incorporate specific State needs into a category, the Task Force agreed on seven common activity categories as follows: 1) Conditionally Exempt Small Quantity Generators (CESQGs); 2) Small Quantity Generators (SQGs); 3) Large Quantity Generators (LQGs); 4) Treatment, Storage, and Disposal Facilities (TSDFs); 5) Complaints; 6) EPA Lead; and 7) Transporters.

The foregoing categories were used to be generally consistent with EPA's nomenclature. All States do not necessarily use the exact same terminology or inspection process as EPA; thus, when estimating costs, each State should determine the applicable categories for its program, especially in cases where a State may have additional classifications for hazardous waste generators.

Inspection Activity Subdivisions

The Task Force next identified the various types of inspections/investigations that would generally be performed at the above facilities. The inspection activity subdivisions include: Compliance Evaluation Inspection (CEI), Compliance Monitoring Inspection (CME), Operation and Maintenance (O&M), Compliance Scheduled Inspection (CSE), Partial Evaluation Inspection (PEI), Combustion facility, Closure/Post Closure facility, Multiple units, Compliance Assistance Visits (CAVs), and Technical Assistance Visits (TAVs). All States do not necessarily use the exact same terminology or inspection process; thus, when estimating costs, each State should determine the applicable subdivisions for its RCRA program and adjust the subdivisions within each category accordingly. Please note that these subdivisions are also subject to change based on the RCRAInfo Handler Monitoring and Assistance Program Area Analysis (HMA/PAA) recommendations.

Inspection Process

The Task Force also identified the various steps needed to complete a typical investigation/ inspection, including off- and on-site activities and file/records reviews and report preparations. The steps identified include, but are not limited to, the following:

1. Conduct file review (including financial assurance review and permit review)
2. Develop on-site safety plan/sampling plan
3. Secure field equipment
4. Coordinate with other agencies, if applicable
5. Travel time to and from inspection site
6. Conduct facility entrance/exit interviews
7. Conduct on-site inspection (including photographic documentation)
8. Review company records
9. Conduct sampling
10. Review applicable regulations
11. Write up inspection report
12. Finalize and distribute inspection report
13. Complete data input
14. Refer for enforcement, if applicable

One or multiple steps may fit into the identified activity subdivisions and are listed here to assist State programs in determining which steps may be applicable for inclusion in their program-specific subdivision. For example, an EPA Lead inspection will typically include steps 4, 5, 6, 7, 8, and 9 but may or may not include step 12. By identifying the steps in each

category and/or subdivision, States can determine which costs to include in the spreadsheet. These steps can also be enumerated for each category subdivision within the spreadsheet if a State has the applicable data.

Estimation of Work Hours

The Task Force estimated the work hours for the above activity categories conducted in the member's State. An appeal to State members with an interest in this project to provide information also resulted in those States' input into the process. The Task Force agreed that the estimated work hours required to complete the noted activities would vary substantially based on the size and complexity of each facility. In general, TSDFs and LQGs are the more resource-intensive inspections.

The activity categories allow each Task Force member to incorporate into the work hours estimate any unique requirements a State may have that fit well into that category, but may not be a step in the process that other States require. It is extremely important to note that the Task Force's work hour estimates are actual work hours as opposed to elapsed work time. Administrative waiting time such as that associated with internal agency concurrence/review and public participation were not included in the estimates, as no actual work was going on during those periods, so theoretically no funds were being expended. Based on review of some previous time estimation work done by EPA and the States, this approach may differ in that this previous work appeared to include the total time, including administrative "wait" time that was necessary to perform certain tasks. It is also important to note that on-site inspectors for commercial facilities were not included consistently by the representative States. Also, the numbers used from the previous study were based on the current funding and may not represent how States would conduct an adequately funded program.

Many States have streamlined programs and inspection schedules affecting the ability to conduct follow-up inspections and/or have resulted in resource-driven reduced inspection schedules. For example, in many instances, the larger industries have the resources needed to hire adequate staff to ensure environmental compliance. These entities have, for the most part, recognized that it is more economically feasible to be in compliance. Many States would like to increase the number of inspections at SQGs and CESQGs. However, many States have been adding a significant amount of resources to support grant funding and accomplish EPA set goals and initiatives, resulting in an inability to focus on the regulated entities creating more significant environmental problems.

The table below presents estimated average actual work hours to complete the elements in each broad activity category identified above.

CESQG	8.25 hours/year/inspection
SQG	13.2 hours/year/inspection
LQG	18 hours/year/inspection

TSDF	48.75 hours/year/inspection
Complaint	8.7 hours/year/inspection
EPA Lead	26.25 hours/year/inspection
Transporter	8 hours/year/inspection

The Task Force discussed if the activity categorization could be used by other States not represented on the Task Force. The Task Force is convinced that with little, if any, additional instruction, a State could decide to include activities that were not contemplated by the Task Force. Again, those hours could be included in the appropriate activity category for that State. The types of activities that broadly fit into each category are not as important as the fact that they are incorporated into the estimate. With this degree of flexibility, State-specific estimates should account for all possible activities that are required to operate and maintain their inspection programs.

Cost Analysis Methodology

Following activity categorization and estimation of actual work hours to perform inspection activities, the Task Force used the same cost-estimating methodology developed for the permitting cost project. This methodology is incorporated into a self-contained, Microsoft Excel spreadsheet. Once opened, the spreadsheet instructions are largely self-explanatory in the column legend. Example spreadsheets for Missouri and Utah are included as attachments to this project report. The elements and use of the spreadsheet are summarized below.

Column A is the place to list the State name. Column B lists the activity categories developed by the Task Force. Column C lists any activity subdivisions as categorized by individual States.

Columns D and F are for user input and represent the low and high number of actual work hours, respectively, for each activity category and subdivision. A "total" option is available for each activity category in the event that subdivision of the category is not desired or available. During methodology development, there was considerable discussion concerning use of average hours for cost estimation. Currently, the spreadsheet automatically calculates an arithmetic average of the high and low hours in Column E. However, the Task Force recognized that use of a "weighted" average would be more representative and should be used whenever possible (i.e., one or two facilities representing the low or high end of the range should not be allowed to grossly skew the arithmetic average used for cost calculation purposes). The adjustment factor presented in Column J was incorporated for use in adjusting (upward or downward) the arithmetic average hours calculated in Column E. Alternatively, some States may wish to directly input weighted average hours into the spreadsheet in Column E and leave the adjustment factor at unity (1.00).
Columns G, H, and I are for user input and represent the low, weighted-average and high hourly

pay rates, respectively, for staff performing actual inspections work. For salaried employees, the low and high numbers are simply the employee's annual salary divided by the number of work hours in a calendar year. The weighted average is user-inputted (not calculated by the spreadsheet) and represents an average of the salary for all staff performing inspection activities. This calculation can be accomplished by adding the salaries of all inspection staff and dividing by the number of inspectors performing the tasks. This will eliminate the salary skew that would occur from a primarily senior or primarily novice inspection staff where the majority of salaries are clumped to one end of the spectrum or the other.

Columns K, L and M are calculated by the spreadsheet and represent the low, average and high cost of each activity, respectively, based on the information contained in Columns D through J. Note that Column J does not impact the low or high cost, only the average cost.

Column N is a user-inputted State multiplier. This multiplier is designed to be State-specific and to capture overarching costs not included in the hourly salary rates. The multiplier may include, but not be limited to, any support costs such as: overhead, fringe, clerical, administrative, legal and supervisory support. As an example, if a State inspection program had in its grant that 20% of the grant monies funded indirect costs, a State may choose to input a 1.2 in Column H to capture these indirect costs of the inspection program. For States that operate on a flat hourly rate that already incorporates the items covered by the multiplier, the flat rate could be used as the weighted average salary in Column H and the multiplier simply held to unity (1.00).

Column O is the user-inputted number of activities performed annually in each category. This number can be estimated based on past performance, future plans, best professional judgment or a combination thereof. If a range of aggregate annual hours (across all facilities) is used to estimate costs, the corresponding number of annual activities represented in Column O should be held to unity (1.00). However, if the hours reported on the spreadsheet are per inspection, the total number of inspections would be entered in Column O. This will hopefully allow each State to input data in the format they currently have available. It should also be noted that inspection activities may not occur or be completed on a neat annual basis. Partial inspections can be recorded on the spreadsheet in any fraction the State chooses to use.

Columns P, Q and R are calculated by the spreadsheet and represent the low, average and high gross annual costs of each activity, respectively, based on the information contained in Columns K through O. At the bottom of Columns P, Q and R, the spreadsheet automatically calculates the low, average and high gross annual cost of the State's inspection program as a whole. These figures represent gross annual cost estimates only. Any inspection or other fees that might be available to offset the overall cost of State program operation are not addressed in this analysis.

The Task Force would like to express its appreciation to the ASTSWMO Board for its interest in development of the concepts and recommendations contained herein. The Task Force would also like to thank the ASTSWMO Corrective Action and Permitting Task Force for allowing us to build on their ideas to create a cost estimate for inspections that can easily be combined with the cost estimates they have generated for permitting and corrective action. If you have any

questions concerning the Task Force's work or want to discuss this project further, please feel free to contact Task Force chair Cheryl Coleman at 803-896-4000.

ANNEX 4

ENFORCEMENT

RCRA Core Project
State Cost Analysis Methodology for RCRA Enforcement

Prepared by the ASTSWMO
Hazardous Waste Enforcement and
Compliance Assurance Task Force
for the
ASTSWMO Board of Directors
April 27, 2004

The ASTSWMO Board of Directors assigned the Hazardous Waste Enforcement and Compliance Assurance Task Force (Task Force) with the task of determining the "core" set of program elements associated with RCRA enforcement and to develop a methodology for States to use to calculate the real costs associated with administering State RCRA enforcement programs. The workload analysis document and the cost calculation methodology would be available for States to determine the difference between the amount of funding needed and the current amount of funding available to support a State RCRA enforcement program. The calculated costs could be used by States to support efforts for increased funding with State legislatures and/or EPA in those situations where the current funding is inadequate. The information could also be useful for planning purposes. This document is a report to the Board of the approach and efforts by the Task Force to complete the assigned task.

Enforcement Activity Categories

The Task Force began the project by identifying the broad categories of hazardous waste enforcement activities that are performed by RCRA programs, based on the types of facilities that are subject to RCRA enforcement. The Task Force also wanted to utilize the same categories that were developed for the State Cost Analysis Methodology for RCRA Inspections to keep data collection consistent. In order to minimize the number of categories and to allow each State the opportunity to incorporate specific State needs into a category, the Task Force agreed on five common activity categories as follows: 1) Conditionally Exempt Small Quantity Generators (CESQGs); 2) Small Quantity Generators (SQGs); 3) Large Quantity Generators (LQGs); 4) Treatment, Storage, and Disposal Facilities (TSDFs); and 5) Transporters. Please note that there were two additional categories in the State Cost Analysis Methodology for

RCRA Inspections: EPA Lead and Complaint. The Task Force expects that both EPA Lead and Complaint inspections would be rolled into one of the above-listed categories once enforcement actions are pursued.

The foregoing categories were used to be generally consistent with EPA's nomenclature. All States do not necessarily use the exact same terminology or enforcement process; thus, when estimating costs, each State should determine the applicable categories for its program especially in the case where a State may have additional classifications for hazardous waste generators.

Enforcement Activity Subdivisions

The Task Force next identified the various types of enforcement activities that would generally be performed at the above facilities. A representative sampling of the enforcement subdivisions in each category includes, but is not limited to, the following:

1) Case Evaluation/Determination: Review of information collected during inspection and determination of violations. This step would generally include a determination of whether an enforcement action will proceed or whether the facility is in substantial compliance. If an enforcement action is selected, this subdivision may also include the determination of whether formal or informal enforcement is warranted.
2) Case Referral: Transmittal of the violations to the State enforcement program, Attorney General's Office, or other State-specific entity. This subdivision could occur at a different point in time depending on the enforcement program.
3) Case Development: Review of referral and supporting evidence, gathering of additional evidence to support violations if necessary, selection and implementation of enforcement tool (Consent Order, Unilateral Order, etc.), management review of enforcement documentation, and written transmittal of enforcement documentation to the facility.
4) Case Negotiation: Meetings with facilities, consideration of settlement offers, counterproposals, and possibly presentation before a trier of fact.
5) Case Resolution: Finalization of enforcement document, review of facility's compliance with enforcement document, and collection of penalties.
6) Case Support: This subdivision will primarily be used to document any time and/or resource assistance given by the State enforcement program to outside parties such as the Attorney General's office, EPA Criminal Investigation Division, etc.

These activity subdivisions are based on the general flow of enforcement activities. Again, all States do not necessarily use the exact same terminology or enforcement process; thus, when estimating costs, each State should determine the applicable subdivisions for its RCRA program and adjust the subdivisions within each category accordingly. It is not necessarily as important to include the specific tasks in the subdivisions outlined above but rather to make sure that all enforcement tasks are captured in one of the subdivisions. States should tailor these subdivisions to match their individual enforcement programs/processes to aid them in collecting representative data.

Estimation of Work Hours

The Task Force estimated a range of work hours for the above activity categories conducted in the member's State. The Task Force agreed that the estimated work hours required to complete the noted activities would vary substantially based on the size and complexity of each enforcement activity. The complexity of the enforcement activity will not necessarily correlate to the size of the facility. Since many TSDFs and LQGs have found it to be more economical to maintain compliance by hiring a dedicated environmental staff, smaller facilities that are ignorant of the regulations often absorb a great deal of enforcement time and resources. The activity categories allow each Task Force member to incorporate into the work hours estimate any unique requirements a State may have that fit well into that category, but may not be a step in the process that other States require. It is extremely important to note that the Task Force's work hour estimates are actual work hours as opposed to elapsed work time. Administrative waiting time such as that associated with internal agency concurrence/review and public participation were not included in the estimates, as no actual work was going on during those periods, so theoretically no funds were being expended.

The table below presents estimated ranges of actual work hours (however, the spreadsheet calculates average hours in Column E) to complete the elements in each broad activity category identified above. States that provided the estimates reflected in the following summary include Missouri and Utah. Due to the different numbers of facilities in each State, the Task Force believes that presentation of a range of hours provides a more useful representation of work efforts than a simple arithmetic average for the number of hours. If all enforcement actions were given equal weight, use of a simple arithmetic average to represent workload would be greatly skewed. The estimated range of actual work hours for the activity categories is as follows:

CESQG	100-300 hours/year/enforcement
SQG	200-300 hours/year/enforcement
LQG	200-300 hours/year/enforcement
TSDF	210-1500 hours/year/enforcement
Transporter	200-300hours/year/enforcement

The Task Force discussed if other States not represented on the Task Force could use the activity categorization. The Task Force is convinced that with little, if any, additional instruction, a State could decide to include activities that were not contemplated by the Task Force. Again, those hours could be included in the appropriate activity category for that State. The types of activities that broadly fit into each category are not as important as the fact that they are incorporated into the estimate. With this degree of flexibility, State-specific estimates should account for all possible activities that are required to operate and maintain their inspection programs.

Cost Analysis Methodology

Following activity categorization and estimation of actual work hours to perform enforcement activities, the Task Force used the same cost-estimating methodology developed for the permitting cost project and utilized for the inspections cost project. This methodology is incorporated into a self-contained, Microsoft Excel spreadsheet. Once opened, the spreadsheet instructions are largely self-explanatory in the column legend. Example spreadsheets for Utah and Missouri are included as attachments to this project report. The elements and use of the spreadsheet are summarized below.

Column A is the place to list the State name. Column B lists the activity categories developed by the Task Force. Column C lists any activity subdivisions as categorized by individual States.

Columns D and F are for user input and represent the low and high number of actual work hours, respectively, for each activity category and subdivision. A "total" option is available for each activity category in the event that subdivision of the category is not desired or available. During methodology development, there was considerable discussion concerning use of average hours for cost estimation. Currently, the spreadsheet automatically calculates an arithmetic average of the high and low hours in Column E. However, the Task Force recognized that use of a "weighted" average would be more representative and should be used whenever possible (i.e., one or two facilities representing the low or high end of the range should not be allowed to grossly skew the arithmetic average used for cost calculation purposes). The adjustment factor presented in Column J was incorporated for use in adjusting (upward or downward) the arithmetic average hours calculated in Column E. Alternatively, some States may wish to directly input weighted average hours into the spreadsheet in Column E and leave the adjustment factor at unity (1.00).

Columns G, H, and I are for user input and represent the low, weighted-average and high hourly pay rates, respectively, for staff performing actual enforcement work. For salaried employees, the low and high numbers are simply the employee's annual salary divided by the number of work hours in a calendar year. The weighted average is user-inputted (not calculated by the spreadsheet) and represents an average of the salary for all staff performing enforcement activities. This calculation can be accomplished by adding the salaries of all enforcement staff and dividing by the number of employees performing the tasks. This will eliminate the salary skew that would occur from a primarily senior or primarily novice enforcement staff where the majority of salaries are clumped to one end of the spectrum or the other.

Columns K, L and M are calculated by the spreadsheet and represent the low, average and high cost of each activity, respectively, based on the information contained in Columns D through J. Note that Column J does not impact the low or high cost, only the average cost.

Column N is a user-inputted State multiplier. This multiplier is designed to be State-specific and to capture overarching costs not included in the hourly salary rates. The multiplier may include, but not be limited to, any support costs such as: overhead, fringe, clerical, administrative, legal and supervisory support. As an example, if a State enforcement program had in its grant that 20% of the grant monies funded indirect costs, a State may choose to input

a 1.2 in Column H to capture these indirect costs. For States that operate on a flat hourly rate that already incorporates the items covered by the multiplier, the flat rate could be used as the weighted average salary in Column H and the multiplier simply held to unity (1.00). It should be noted that due to the varying nature of State enforcement programs, legal costs might be a direct cost rather than an indirect cost.

Column O is the user-inputted number of activities performed annually in each category. This number can be estimated based on past performance, future plans, best professional judgment or a combination thereof. If a range of aggregate annual hours (across all facilities) is used to estimate costs, the corresponding number of annual activities represented in Column O should be held to unity (1.00). However, if the hours reported on the spreadsheet were per enforcement activity, the total number of activities would be entered in Column O. This will hopefully allow each State to input data in the format they currently have available. It should also be noted that enforcement activities might not be completed during a single year. Partial enforcement activities can be recorded on the spreadsheet in any fraction the State chooses to use.

Columns P, Q and R are calculated by the spreadsheet and represent the low, average and high gross annual costs of each activity, respectively, based on the information contained in Columns K through O. At the bottom of columns P, Q and R, the spreadsheet automatically calculates the low, average and high gross annual cost of the State's enforcement program as a whole. These figures represent gross annual cost estimates only. Any enforcement penalties or other fees that might be available to offset the overall cost of State program operation are not addressed in this analysis.

The Task Force would like to express its appreciation to the ASTSWMO Board for its interest in development of the concepts and recommendations contained herein. The Task Force would also like to thank the ASTSWMO Corrective Action and Permitting Task Force for allowing us to build on their ideas to create a cost estimate for enforcement that can easily be combined with the cost estimates they have generated for permitting and corrective action and the cost estimates this Task Force has generated for inspections. If you have any questions concerning the Task Force's work or want to discuss this project further, please feel free to contact Task Force chair Cheryl Coleman at 803-896-4000.

ANNEX 5

PROGRAM DEVELOPMENT

RCRA Core Project Pilot
State Cost Analysis Methodology for Program Development

Prepared by the ASTSWMO
Program Operations Task Force
for the
ASTSWMO Board of Directors
July 6, 2005

The ASTSWMO Program Operations Task Force was assigned the task of determining the "core" set of program elements associated with RCRA Program development for potential use by States to calculate the real costs associated with developing and maintaining State RCRA programs. This report outlines the specific tasks evaluated along with a discussion of how the members arrived at the approach developed and advocated by the group.

Activity Categories

The Task Force began the project by identifying the activities associated with program development. It was quickly apparent that unlike permitting, enforcement and other more mainstream programmatic activities, program management functions vary widely from State to State. The program management activities conducted by a State are directly related to the resources available from State and federal funds and they are dependent upon whether or not the State creates its own rules or incorporates by reference. It seems that as funds diminish, program management activities tend to be among the first activities cut and/or consolidated. This does not indicate a lack of value of these activities but rather that these activities do not produce hard outputs and do not easily lend themselves to "bean counting" goals. In States that incorporate by reference, there is no need for a number of these activities to be undertaken or the workload is minimal.

Acknowledging this disparity, the Task Force agreed on a number of functions common to program management, although not all States conduct all of the following activities:
1) Grant/Annual Work Plan Activities; 2) Regulatory Analysis of Federal HW Rules; 3) State Legislative Activities; 4) State Rulemaking; 5) State Outreach/Guidance/Policy Development/ Implementation Activities; 6) State Authorization Application Activities; 7) RCRA HW Data Management Activities; 8) Innovative Projects, and 9) Health and Safety Training. A representative sampling of the activities in each category includes, but is not necessarily limited

to the following:

Grant/Annual Work Plan Activities: Includes Grant/Work Plan development, negotiations with EPA, quarterly meetings with EPA, quarterly, semi-annual and annual report development, and program reviews.

Regulatory Analysis of Federal HW Rules: Analysis of proposed federal rules, development of State comments on proposals and consideration of proposals for State rules.

State Legislative Activities: Presentation of statutory initiatives, analysis of impacts to State hazardous waste program, and identification of needed State rule changes

State Rulemaking: Includes development of State rules (incorporation by reference), development of State rules (as stand alone), and Attorney General's (AG's) review or other legal certification (where applicable.)

State Outreach/Guidance/Policy Development/Implementation Activities: Includes public notices, public meetings/hearings, presentations to State environmental boards, development of guidance, development of policies, development of outreach and training materials, compliance assistance activities, training sessions, and ongoing rule interpretation.

State Authorization Application Activities: Includes development of the modified program description, negotiations with EPA, development of revised memorandum of understanding (where applicable), development of AG's Statement, and review/approval by the AG.

RCRA HW Data Management Activities: Includes RCRAInfo, review of Biennial report changes and updates, printing of revised biennial report forms for public use, outreach to public, processing of biennial report data for EPA and State annual hazardous waste reports.

Innovative Projects: Includes development and implementation of new State hazardous waste initiatives (electronic waste, mercury switches, pollution prevention, etc.)

Health and Safety Training: Includes training and recertification, personal protection and medical monitoring. (It is important that the States capture this workload; however, many States show this in Compliance or Permitting).

Estimation of Work Hours

The Task Force estimated the range of work hours for the above activity categories and associated activity subdivisions. The Task Force agreed that the estimated range of work hours required to complete the activities would vary substantially based on the number of staff available for the activity and the degree to which each activity was pursued. In States with limited resources, many activities may be handled by one or two staff and only the bare minimum of each activity would be accomplished, while in other States with more resources, a more thorough undertaking of each activity might be pursued.

Additionally, States that incorporate by reference may not need to undertake some of the activity categories or subdivisions, while most States that have to promulgate equivalent State rules and maintain authorization might need to address all of the activity categories and subdivisions. There will always be a level of effort required of these State (irrespective of the size of the hazardous waste handler universe) to update rules and authorization packages to maintain authorization.

The table below presents estimated ranges of actual work hours to complete the elements in each broad activity category identified above. States that provided the estimates reflected in the summary are Idaho, Colorado and New York. While this is an admittedly limited sample, the Task Force believes that these States are representative of the relative range of resources which are available to States to execute the Program Development portion of the RCRA program.

Grant/Annual Work Plan Activities	0 to 4740 hours
Regulatory Analysis of Federal HW Rules	0 to 820 hours
State Legislative Activities	0 to 820 hours
State Rulemaking	0 to 7400 hours
State Outreach/Guidance/Policy Development/ Implementation/Activities	0 to 7475 hours
State Authorization Application Activities	0 to 2480 hours
RCRA HW Data Management Activities	0 to 24,640 hours
Innovative Projects	0 to 2580 hours
Health and Safety Training	0 to 2680 hours

Cost Analysis Methodology

Following activity categorization and estimation of actual work hours to perform program development activities, the Task Force used a different cost estimation methodology than that used by the Permitting and Corrective Action project.

Due to the limited funding from EPA and the States' need to supplement this funding as discussed above, for this preliminary look at the categories, States put together their analyses using baseline funding from EPA as the "low" range of costs and used the level of funding that they have needed to provide "above and beyond" EPA's baseline as the "high" range value. This methodology is incorporated into the attached self-contained Microsoft Excel spreadsheet. Once opened, the spreadsheet instructions are largely self-explanatory in the column legend. Example spreadsheets for Idaho, Colorado and New York are included as attachments to this report. The elements and use of the spreadsheet are summarized below.

Column A is the place to list the State name. Column B lists the activity categories developed by the Task Force. Column C1 lists any activity subdivisions as categorized by individual States. Column C2 lists the user-defined estimation basis for the subdivisions listed in Column C1.

Columns D, E and F are for user input and represent the low and high number of actual or estimated work hours, respectively, for each activity category and subdivision. A "total" option is available for each activity category in the event that subdivision of the category is not desired.

Columns G, H, and I are for user input and represent the low, weighted-average and high hourly pay rates, respectively, for staff performing actual program development work. For salaried employees, the low and high numbers are simply the employee's annual salary divided by the number of work hours in a calendar year. Neither Colorado, Idaho, nor New York used weighted averages.

Columns K, L and M are calculated by the spreadsheet and represent the low, average and high cost of each activity, respectively, based on the information contained in Columns D through J.

Column N is a user-inputted State multiplier. In this column, New York used a multiplier of 1.00 due to the use of fully loaded labor costs in columns G, H, and I. Colorado and Idaho did not used weighted average hours or weighted pay rates in columns D, E, F, G, H, or I. Instead, they used a State multiplier greater than 1.00 in this column.

Column O is the user-inputted number of activities performed annually in each category. This number can be estimated based on past performance, future plans, best professional judgment or a combination thereof. If a range of aggregate annual hours (across all facilities) is used to estimate costs, the corresponding number of annual activities represented in Column O should be held to unity (1.00).

Columns P, Q and R are calculated by the spreadsheet and represent the low, average and high gross annual costs of each activity, respectively, based on the information contained in Columns K through O. At the bottom of columns P, Q and R, the spreadsheet automatically calculates the low, average and high gross annual cost of the State's program development activities. These figures represent gross annual cost estimates only.

The Task Force would like to express its appreciation to the ASTSWMO Board for its interest in development of the concepts and recommendations contained herein. Provided that States carefully consider and develop State-specific inputs to the spreadsheet, the cost estimating methodology can provide reasonable and technically defensible cost estimates which can be used for a variety of purposes. The cost estimating methodology is flexible enough to be adapted to virtually any State program, and can serve as a model for cost estimating in other RCRA program areas that are being considered. The Task Force would welcome any additional peer review of its work by States not represented on the Task Force.

If you have any questions concerning the Task Force's work or want to discuss this project further, please feel free to contact Task Force chair Bob Haggerty, New York State DEC at 518-402-8712 or Task Force member John Brueck, Idaho DEQ at 208-373-0458.

Appendix II – Process Methodology

This appendix provides the process methodology used by means of the spreadsheets and other information related to the collection of program cost information by the ASTSWMO Hazardous Waste Subcommittee as a part of the RCRA Core Project data collection. By using the information and column legends on the spreadsheets, you should be able to do similar studies for your State's program. You will need to contact the ASTSWMO Hazardous Waste Subcommittee through the ASTSWMO staff to obtain the working Excel spreadsheets. The intent of this appendix is to provide interested parties sufficient information to determine the scope of effort that might be needed to do this study in your own State.

Worksheet 1 - Remediation

(A) State	(B) Activity Category	(C1) Activity Subdivision	(C2) Estimation Basis	(D) Hours (low)	(E) Hours (avg.)	(F) Hours (high)	(G) Hourly Rate (low)	(H) Hourly Rate (natl avg.)	(I) Hourly Rate (high)	(J) Adjustment Factor	(K) Activity Cost (low)	(L) Activity Cost (avg.)	(M) Activity Cost (high)	(N) State Multiplier	(O) Annual # of Activity	(P) Gross Annual Cost (low)	(Q) Gross Annual Cost (avg.)	(R) Gross Annual Cost (high)
	Cleanup	Work Plan Review & Approval Report Review & Approval Oversight Inspection Admin Burden Travel Total (1st only) w/ breakdown detail	per plan per report per cleanup per cleanup															
	RCRA Facility Assessment	File/Records Review Validate Site Inspection Sampling and Analysis Report Preparation Admin Burden Travel Total (1st only) w/ breakdown detail	per RFA per RFA per RFA per RFA per RFA															
	Corrective Action Implementation	Permit (closure/post-closure/ corrective action) Verify/Approve Total (1st only) w/ breakdown detail	NA per instrument per instrument															
	RCRA Facility Investigations	Work Plan Review & Approval Report Review & Approval Oversight Inspection Admin Burden Travel Total (1st only) w/ breakdown detail	per plan per report any tally/addtl any tally/addtl															
	Interim Measures	Work Plan Review & Approval Report Review & Approval Oversight Inspection Admin Burden Travel Total (1st only) w/ breakdown detail	per plan per report any tally/addtl any tally/addtl															
	Corrective Measures Study	Work Plan Review & Approval Report Review & Approval Oversight Inspection Assistance at Early Prep. to Commence Admin Burden Travel Total (1st only) w/ breakdown detail	per plan per report any tally/addtl per SB/RTC any tally/addtl															
	Corrective Measures Implementation	Work Plan Review & Approval Report Review & Approval Oversight Inspection Admin Burden Travel Total (1st only) w/ breakdown detail	per plan per report any tally/addtl any tally/addtl															
	Long-Term Oversight	Report Review & Approval Inspections Admin Burden Travel Total (1st only) w/ breakdown detail	any tally/addtl any tally/addtl any tally/addtl															
	Corrective Action Completion	Admin Burden Record Review Public Notice/RTC Total (1st only) w/ breakdown detail	per facility/action per facility/action															
	Technical Support	Federal Facilities Grants Total (1st only) w/ breakdown detail	any tally/addtl any tally/addtl any tally/addtl															
	Planning, Evaluation & Reporting	Baseline EEI Indicator Evaluation Annual Commitments Submittal Annual Work Plan Mgmt Planning Reporting to EPA RCRAInfo Data Flow Training and Conferences Other Total (1st only) w/ breakdown detail	each each any tally/addtl any tally/addtl any tally/addtl any tally/addtl															

Gross Annual Cost =

Column Legend

(A) - Your State

(B) -Corrective Action & Permitting Task Force - established activity categories

(C1) - Permitting and Corrective Action Task Force - established category subdivisions

(C2) - Estimation basis - to be defined by user.

(D) - Lowest estimate of actual working hours necessary to perform activity

(E) - Average estimate of actual working hours necessary to perform activity. Note: Spreadsheet calculates arithmetic average which may or may not be appropriate in state-specific circumstances as the low and high estimates may represent estimate "extremes."

It is anticipated that development of a "weighted" average (e.g., the average of individual staff time estimates for a particular state) for use in cost-estimating will likely produce a better estimate.

If this is done the arithmetic estimate can simply be adjusted upward or downward by applying the appropriate adjustment factor in Column J of the spreadsheet.

(F) - Highest estimate of actual working hours necessary to perform activity

(G) - Lowest state-specific hourly rate (salary converted to hourly rate by dividing annual salary by standard number of annual working hours) for staff performing activities.

(H) - Weighted average state-specific hourly rate (salary converted to hourly rate by dividing each person's annual salary by standard number of annual working hours for each staff person performing activities) then summing the

hourly rates and dividing by the number of employees. Note: the work sheet does not perform this calculation, it must be done externally then entered into the work sheet.

(I) - Highest state-specific hourly rate (salary converted to hourly rate by dividing annual salary by standard number of annual working hours) for staff performing activities.

(J) - Adjustment factor (if necessary, used as state-specific adjustment to arithmetic average hours calculated in Column E to account for weighting (I.e., arithmetic average hour figure is determined to be too high or too low).

As an alternative, spreadsheet could be modified to show weighted average hours (as opposed to arithmetic average) and eliminate the need for an adjustment factor column or the adjustment default could simply be left at 1.00 if weighted hours are used.

(K) - Activity cost low = low estimated hours times low rate

(L) - Activity cost average = average estimated hours times weighted average rate

(M)- Activity cost high = high estimated hours times high rate

(N) - State-specific cost multiplier including, but not limited to: overhead; fringe; clerical, administrative, legal and supervisory support, etc. Note: If states operate on a flat hourly rate

which already incorporates the items covered by this multiplier, that rate would probably be used as an average and the multiplier would simply be held to 1.00.

(O) - Number of activities performed annually in each category. Set to unity (1.00) if estimated range of hours is annual aggregate for that activity.

(P) - Low gross annual cost = Activity cost low (Column K) times # of annual activities (Column O)

(Q) - Average gross annual cost = Activity cost average (Column L) times # of annual activities (Column O) (includes any adjustment factor applied in Column J)

(R) - High gross annual cost = Activity cost high (Column M) times # of annual activities (Column O)

Worksheet 2 - Permitting

State	Activity Category	Facility Type	Hours (low)	Hours (avg.)	Hours (high)	Hourly Rate (low)	Hourly Rate (wtd avg.)	Hourly Rate (high)	Adjustment Factor	Activity Cost (low)	Activity Cost (avg.)	Activity Cost (high)	State Multiplier	Annual # of Activity	Gross Annual Cost (low)	Gross Annual Cost (avg.)	Gross Annual Cost (high)
State	Pre-application Activities	Post-closure Storage/ treatment															
		Combustion Operating Land Disposal															
	Application Review	Post-closure Storage/ treatment															
		Combustion Operating Land Disposal															
	Permit Issuance	Post-closure Storage/ treatment															
		Combustion Operating Land Disposal															
	Permit Maintenance	Post-closure Storage/ treatment															
		Combustion Operating Land Disposal															
	Permit Modifications	Class I Class I with prior															
		Class II															
		Class III															
		Agency-initiated															

Gross Annual Cost =

Column Legend

(A) - Your State

(B) - Permitting and Corrective Action Task Force - established activity categories

(C) - Permitting and Corrective Action Task Force - established facility types

(D) - Lowest estimate of actual working hours necessary to perform activity

(E) - Average estimate of actual working hours necessary to perform activity. Note: Spreadsheet calculates arithmetic average which may or may not be appropriate in state-specific circumstances as the low and high estimates may represent estimate "extremes."

It is anticipated that development of a "weighted" average (e.g., the average of individual staff time estimates for a particular state) for use in cost-estimating will likely produce a better estimate.

If this is done the arithmetic estimate can simply be adjusted upward or downward by applying the appropriate adjustment factor in Column J of the spreadsheet.

(F) - Highest estimate of actual working hours necessary to perform activity

(G) - Lowest state-specific hourly rate (salary converted to hourly rate by dividing annual salary by standard number of annual working hours) for staff performing activities.

(H) - Weighted average state-specific hourly rate (salary converted to hourly rate by dividing each person's annual salary by standard number of annual working hours for each staff person performing activities) then summing the

hourly rates and dividing by the number of employees. Note: the work sheet does not perform this calculation, it must be done externally then entered into the work sheet.

(I) - Highest state-specific hourly rate (salary converted to hourly rate by dividing annual salary by standard number of annual working hours) for staff performing activities.

(J) - Adjustment factor (if necessary, used as state-specific adjustment to arithmetic average hours calculated in Column E to account for weighting (I.e., arithmetic average hour figure is determined to be too high or too low).

As an alternative, spreadsheet could be modified to show weighted average hours (as opposed to arithmetic average) and eliminate the need for an adjustment factor column or the adjustment default could simply be left at 1.00 if weighted hours are used.

(K) - Activity cost low = low estimated hours times low rate

(L) - Activity cost average = average estimated hours times weighted average rate

(M)- Activity cost high = high estimated hours times high rate

(N) - State-specific cost multiplier including, but not limited to: overhead; fringe; clerical, administrative, legal and supervisory support, etc. Note: If states operate on a flat hourly rate

which already incorporates the items covered by this multiplier, that rate would probably be used as an average and the multiplier would simply be held to 1.00.

(O) - Number of activities performed annually in each category

(P) - Low gross annual cost = Activity cost low (Column K) times # of annual activities (Column O)

(Q) - Average gross annual cost = Activity cost average (Column L) times # of annual activities (Column O) (includes any adjustment factor applied in Column J)

(R) - High gross annual cost = Activity cost high (Column M) times # of annual activities (Column O)

Worksheet 3 - Inspections

State	Activity Category	Activity Subdivision	Hours (low)	Hours (avg.)	Hours (high)	Hourly Rate (low)	Hourly Rate (wtd avg.)	Hourly Rate (high)	Adjustment Factor	Activity Cost (low)	Activity Cost (avg.)	Activity Cost (high)	State Multiplier	Annual # of Activity	Gross Annual Cost (low)	Gross Annual Cost (avg.)	Gross Annual Cost (high)
	CESQG	CEI															
		CSE															
		CAV															
		TAV															
		Total (use only if no breakdown desired)															
	SQG	CEI															
		CSE															
		PEI															
		CAV															
		TAV															
		Total (use only if no breakdown desired)															
	LQG	CEI															
		CSE															
		PEI															
		Multiple Units															
		CAV															
		TAV															
		Total (use only if no breakdown desired)															
	TSDF	CEI															
		CME															
		O&M															
		CSE															
		Combustion Facility															
		Closure/Post Closure Facility															
		Multiple Units															
		Total (use only if no breakdown desired)															
	Complaint	CEI															
		CAV															
		Total (use only if no breakdown desired)															
	EPA Lead	CEI															
		CSE															
		Total (use only if no breakdown desired)															
	Transporter	CEI															
		CSE															
		Total (use only if no breakdown desired)															
														Gross Annual Cost =			

Column Legend

(A) - Your State

(B) -HW Enforcement & Compliance Assurance Task Force - established activity categories

(C) - HW Enforcement & Compliance Assurance Task Force - established category subdivisions

(D) - Lowest estimate of actual working hours necessary to perform activity

(E) - Average estimate of actual working hours necessary to perform activity. Note: Spreadsheet calculates arithmetic average which may or may not be appropriate in state-specific circumstances as the low and high estimates may represent estimate "extremes."

It is anticipated that development of a "weighted" average (e.g., the average of individual staff time estimates for a particular state) for use in cost-estimating will likely produce a better estimate.

If this is done the arithmetic estimate can simply be adjusted upward or downward by applying the appropriate adjustment factor in Column J of the spreadsheet.

(F) - Highest estimate of actual working hours necessary to perform activity

(G) - Lowest state-specific hourly rate (salary converted to hourly rate by dividing annual salary by standard number of annual working hours) for staff performing activities.

(H) - Weighted average state-specific hourly rate (salary converted to hourly rate by dividing each person's annual salary by standard number of annual working hours for each staff person performing activities) then summing the

hourly rates and dividing by the number of employees. Note: the work sheet does not perform this calculation, it must be done externally then entered into the work sheet.

(I) - Highest state-specific hourly rate (salary converted to hourly rate by dividing annual salary by standard number of annual working hours) for staff performing activities.

(J) - Adjustment factor, if necessary, used as state-specific adjustment to arithmetic average hours calculated in Column E to account for weighting (i.e., arithmetic average hour figure is determined to be too high or too low).

As an alternative, spreadsheet could be modified to show weighted average hours (as opposed to arithmetic average) and eliminate the need for an adjustment factor column or the adjustment default could simply be left at 1.00 if weighted hours are used.

(K) - Activity cost low = low estimated hours times low rate

(L) - Activity cost average = average estimated hours times weighted average rate

(M)- Activity cost high = high estimated hours times high rate

(N) - State-specific cost multiplier including, but not limited to, support functions such as: overhead; fringe; clerical, administrative, legal and supervisory support, etc. Note: If states operate on a flat hourly rate

which already incorporates the items covered by this multiplier, that rate would probably be used as an average and the multiplier would simply be held to 1.00.

(O) - Number of activities performed annually in each category. Set to unity (1.00) if estimated range of hours is annual aggregate for that activity.

(P) - Low gross annual cost = Activity cost low (Column K) times # of annual activities (Column O)

(Q) - Average gross annual cost = Activity cost average (Column L) times # of annual activities (Column O) (includes any adjustment factor applied in Column J)

(R) - High gross annual cost = Activity cost high (Column M) times # of annual activities (Column O)

Worksheet 4 - Enforcement

State	Activity Category	Activity Subdivision	Hours (low)	Hours (avg.)	Hours (high)	Hourly Rate (low)	Hourly Rate (wtd avg.)	Hourly Rate (high)	Adjustment Factor	Activity Cost (low)	Activity Cost (avg.)	Activity Cost (high)	State Multiplier	Annual # of Activity	Gross Annual Cost (low)	Gross Annual Cost (avg.)	Gross Annual Cost (high)
	CESQG	Case Evaluation/Determination															
		Case Referral															
		Case Development															
		Case Negotiation															
		Case Resolution															
		Case Monitoring															
		Case Support															
		Total (use only if no breakdown desired)															
	SQG	Case Evaluation/Determination															
		Case Referral															
		Case Development															
		Case Negotiation															
		Case Resolution															
		Case Monitoring															
		Case Support															
		Total (use only if no breakdown desired)															
	LQG	Case Evaluation/Determination															
		Case Referral															
		Case Development															
		Case Negotiation															
		Case Resolution															
		Case Monitoring															
		Case Support															
		Total (use only if no breakdown desired)															
	TSDF	Case Evaluation/Determination															
		Case Referral															
		Case Development															
		Case Negotiation															
		Case Resolution															
		Case Monitoring															
		Case Support															
		Total (use only if no breakdown desired)															
	Transporter	Case Evaluation/Determination															
		Case Referral															
		Case Development															
		Case Negotiation															
		Case Resolution															
		Case Monitoring															
		Case Support															
		Total (use only if no breakdown desired)															
															Gross Annual Cost =		

Column Legend

(A) - Your State

(B) -HW Enforcement & Compliance Assurance Task Force - established activity categories

(C) - HW Enforcement & Compliance Assurance Task Force - established category subdivisions

(D) - Lowest estimate of actual working hours necessary to perform activity
(E) - Average estimate of actual working hours necessary to perform activity. Note: Spreadsheet calculates arithmetic average which may or may not be appropriate in state-specific circumstances as the low and high estimates may represent estimate "extremes."
It is anticipated that development of a "weighted" average (e.g., the average of individual staff time estimates for a particular state) for use in cost-estimating will likely produce a better estimate.
If this is done the arithmetic estimate can simply be adjusted upward or downward by applying the appropriate adjustment factor in Column J of the spreadsheet.

(F) - Highest estimate of actual working hours necessary to perform activity
(G) - Lowest state-specific hourly rate (salary converted to hourly rate by dividing annual salary by standard number of annual working hours) for staff performing activities.
(H) - Weighted average state-specific hourly rate (salary converted to hourly rate by dividing each person's annual salary by standard number of annual working hours for each staff person performing activities) then summing the
hourly rates and dividing by the number of employees. Note: the work sheet does not perform this calculation, it must be done externally then entered into the work sheet.
(I) - Highest state-specific hourly rate (salary converted to hourly rate by dividing annual salary by standard number of annual working hours) for staff performing activities.
(J) - Adjustment factor, if necessary, used as state-specific adjustment to arithmetic average hours calculated in Column E to account for weighting (i.e., arithmetic average hour figure is determined to be too high or too low).
As an alternative, spreadsheet could be modified to show weighted average hours (as opposed to arithmetic average) and eliminate the need for an adjustment factor column or the adjustment default could simply be left at 1.00 if weighted hours are used.

(K) - Activity cost low = low estimated hours times low rate

(L) - Activity cost average = average estimated hours times weighted average rate

(M)- Activity cost high = high estimated hours times high rate
(N) - State-specific cost multiplier including, but not limited to, support functions such as: overhead; fringe; clerical, administrative, legal and supervisory support, etc. Note: If states operate on a flat hourly rate
which already incorporates the items covered by this multiplier, that rate would probably be used as an average and the multiplier would simply be held to 1.00.

(O) - Number of activities performed annually in each category. Set to unity (1.00) if estimated range of hours is annual aggregate for that activity.

(P) - Low gross annual cost = Activity cost low (Column K) times # of annual activities (Column O)
(Q) - Average gross annual cost = Activity cost average (Column L) times # of annual activities (Column O) (includes any adjustment factor applied in Column J)

(R) - High gross annual cost = Activity cost high (Column M) times # of annual activities (Column O)

Worksheet 5 - Program Development

State	Activity Category	Activity Subdivision	Estimation Basis	Hours (low)	Hours (avg.)	Hours (high)	Hourly Rate (low)	Hourly Rate (wtd avg.)	Hourly Rate (high)	Adjustment Factor	Activity Cost (low)	Activity Cost (avg.)	Activity Cost (high)	State Multiplier	Annual # of Activity	Gross Annual Cost (low)	Gross Annual Cost (avg.)	Gross Annual Cost (high)
	Grant/Workplan Activities	Grant/Workplan Development	per plan															
		Quarterly Meetings with EPA	per meeting															
		Quarterly Report Development	per report															
		Program Reviews	per Grant/Workplan															
		Total (use only if no breakdown desired)	For all activities															
	Reg. Analysis of Fed. HW Regs.	Development of Comments-Proposed Rule	per rule															
		Development of Comments-Final Rule	per rule															
		Total (use only if no breakdown desired)	per rule package															
	State Legislative Activities	Presentation of Statutory Initiatives	per initiative															
		Presentation of new rule proposals	per rule package															
		Presentation of HW Rule Updates	per rule package															
		Total (use only if no breakdown desired)	For all activities															
	Rulemaking	Dev. Of State Rules-Incorp. By Ref. States	per rule package															
		Dev. Of Individual State Rules	per rule package															
		Review by Deputy Attorney General	per rule package															
		Total (use only if no breakdown desired)	For all activities															
	Outreach/Guidance/Policy Dev.	Public Notices	per rule package															
		Public Meetings/Public Hearings	per rule package															
		Presentation to State Env. Boards	per rule package															
		Dev. Guidance documents and Permitting	per rule package															
		Total (use only if no breakdown desired)	For all activities															
	Dev. Revised Authorization Apps. (40 CFR 271.21)	Dev. Modified Program Description	per application															
		Dev. Memorandum of Agreement	per application															
		Dev. Of AGO Statement	per application															
		Review by Deputy Attorney General	per application															
		Total (use only if no breakdown desired)	per application															
	RCRA HW Data Management	RCRAInfo	per year															
		Biennial Reports	per reporting year															
		State Annual HW Reports	per year															
		Total (use only if no breakdown desired)	For all activities															
	Innovative Projects	Dev. Of New State HW Initiatives	per initiative															
		Implementation of new state HW initiatives	per initiative															
		Total (use only if no breakdown desired)	per initiative															
															Gross Annual Cost =			

Column Legend

(A) - Your State

(B) - Program Operations Task Force - established categories

(C1) - Program Operations Task Force - established subcategories

(C2) - Estimation basis - to be defined by user.

(D) - Lowest estimate of actual working hours necessary to perform activity
(E) - Average estimate of actual working hours necessary to perform activity. Note: Spreadsheet calculates arithmetic average which may or may not be appropriate in state-specific circumstances as the low and high estimates my represent estimate "extremes."
It is anticipated that development of a "weighted" average (e.g., the average of individual staff time estimates for a particular state) for use in cost-estimating will likely produce a better estimate.
If this is done the arithmetic estimate can simply be adjusted upward or downward by applying the appropriate adjustment factor in Column J of the spreadsheet.

(F) - Highest estimate of actual working hours necessary to perform activity
(G) - Lowest state-specific hourly rate (salary converted to hourly rate by dividing annual salary by standard number of annual working hours) for staff performing activities.
(H) - Weighted average state-specific hourly rate (salary converted to hourly rate by dividing each person's annual salary by standard number of annual working hours for each staff person performing activities) then summing the
hourly rates and dividing by the number of employees. Note: the work sheet does not perform this calculation, it must be done externally then entered into the work sheet.
(I) - Highest state-specific hourly rate (salary converted to hourly rate by dividing annual salary by standard number of annual working hours) for staff performing activities.
(J) - Adjustment factor (if necessary, used as state-specific adjustment to arithmetic average hours calculated in Column E to account for weighting (I.e., arithmetic average hour figure is determined to be too high or too low).
As an alternative, spreadsheet could be modified to show weighted average hours (as opposed to arithmetic average) and eliminate the need for an adjustment factor column or the adjustment default could simply be left at 1.00 if weighted hours are used.

(K) - Activity cost low = low estimated hours times low rate

(L) - Activity cost average = average estimated hours times weighted average rate

(M)- Activity cost high = high estimated hours times high rate
(N) - State-specific cost multiplier including, but not limited to: overhead; fringe; clerical, administrative, legal and supervisory support, etc. Note: If states operate on a flat hourly rate
which already incorporates the items covered by this multiplier, that rate would probably be used as an average and the multiplier would simply be held to 1.00.

(O) - Number of activities performed annually in each category. Set to unity (1.00) if estimated range of hours is annual aggregate for that activity.

(P) - Low gross annual cost = Activity cost low (Column K) times # of annual activities (Column O)
(Q) - Average gross annual cost = Activity cost average (Column L) times # of annual activities (Column O) (includes any adjustment factor applied in Column J)

(R) - High gross annual cost = Activity cost high (Column M) times # of annual activities (Column O)

Appendix III – Pilot State Results

This appendix provides the summary results of all ten pilot States participating in the study. (Note: The identity of individual State data is protected and cannot be provided without the expressed permission of the affected States.)

Remediation Cost Data for 10 Pilot States

Activity Category	Activity Subdivision[6]	Annual # Of Activity	Gross Annual Cost (avg.)
Closure			
	Work Plan Review & Approval	25	$225,493
	Report Review & Approval	32	$160,660
	Oversight Inspections	28	$44,456
	Administrative Tasks	22	$32,562
	Total (use only if no breakdown desired)	14	$138,187
RCRA Facility Assessments			
	File/Records Review	9	$23,033
	Visual Site Inspection	9	$14,185
	Sampling and Analysis	6	$44,475
	Report Preparation	9	$75,485
	Administrative Tasks	7	$2,310
	Total (use only if no breakdown desired)	14	$286,965
Corrective Action Instruments			
	Permits (covered in previous work)	4	$3,073
	Consent/Unilateral Orders	9	$51,710
	Voluntary Agreements	13	$52,076
	Total (use only if no breakdown desired)	13	$188,151
RCRA Facility Investigation			
	Work Plan Review & Approval	27	$331,244
	Report Review & Approval	29	$354,830
	Oversight Inspections	33	$77,215
	Administrative Tasks	20	$58,104
	Total (use only if no breakdown desired)	29	$2,200,600
Interim Measures			
	Work Plan Review & Approval	30	$130,398
	Report Review & Approval	12	$61,900
	Oversight Inspections	17	$39,104
	Administrative Tasks	13	$34,200
	Total (use only if no breakdown desired)	30	$1,674,031

[6]The "Total (use only if no breakdown desired)" value used in this column is not a summation of the individual subdivisions reported for an activity category. It is instead an alternative method of reporting category costs in lieu of providing costs by subdivision. Therefore, "Annual # of Activity" and "Gross Annual Cost (avg)" amounts for subdivisions within a category do not sum to the category "Total" amounts.

Activity Category	Activity Subdivision[6]	Annual # Of Activity	Gross Annual Cost (avg.)
Corrective Measures Study			
	Work Plan Review & Approval	10	$95,881
	Report Review & Approval	15	$186,296
	Oversight Inspections	12	$30,148
	Statement of Basis/Resp. to Comments	13	$32,442
	Administrative Tasks	12	$26,865
	Total (use only if no breakdown desired)	18	$1,266,748
Corrective Measures Implementation			
	Work Plan Review & Approval	17	$139,500
	Report Review & Approval	19	$158,555
	Oversight Inspections	27	$44,083
	Administrative Tasks	21	$33,936
	Total (use only if no breakdown desired)	35	$1,174,387
Long-Term Oversight			
	Report Review & Approval	141	$261,004
	Inspections	33	$43,878
	Administrative Tasks	101	$30,455
	Total (use only if no breakdown desired)	93	$559,963
Corrective Action Completion			
	Administrative Record Review	9	$8,003
	Public Notice/RTC	7	$1,440
	Total (use only if no breakdown desired)	20	$146,489
Technical Support			
	Federal Facilities	5	$196,226
	Superfund	5	$95,437
	Other	7	$62,208
	Total (use only if no breakdown desired)	26	$275,323
Planning, Evaluation & Reporting			
	Environmental Indicator Evaluations	58	$398,154
	Stabilization Evaluations	9	$52,924
	PPA/PPG/Fac. Mgmt Planning	0	$0
	Reporting to EPA	8	$30,393
	RCRAInfo Data Entry	110	$52,099
	Rulemaking and Authorization	1	$111,600
	Cost-Recovery Activities	1	$3,073
	Total (use only if no breakdown desired)	16	$351,595
Remediation (not otherwise specified) Total (no activity breakdown provided by one state)			$2,038,774
Total Remediation Cost for Ten Pilot States			$14,212,327

Permitting Cost Data for 10 Pilot States

Activity Category	Activity Subdivision	Annual # of Activity	Gross Annual Cost (avg.)
Pre-application Activities	Post-Closure	101	$198,763
	Storage/Treatment	140	$170,106
	Combustion	31	$82,854
	Operating Land Disposal	9	$31,209
Application Review	Post-Closure	41	$906,550
	Storage/Treatment	46	$1,244,880
	Combustion	9	$328,764
	Operating Land Disposal	7	$643,699
Permit Issuance	Post-Closure	38	$858,053
	Storage/Treatment	50	$1,342,324
	Combustion	8	$115,843
	Operating Land Disposal	8	$318,798
Permit Maintenance	Post-Closure	220	$1,056,433
	Storage/Treatment	260	$808,701
	Combustion	19	$162,459
	Operating Land Disposal	9	$165,346
Permit Modifications	Class I	142	$1,759,298
	Class I with prior	51	$133,639
	Class II	29	$233,791
	Class III	37	$1,907,505
	Agency-initiated	2	$49,096
Permitting (not otherwise specified)	Total (no activity breakdown provided by one state)		$144,594
Total Permitting Cost for Ten Pilot States			$12,662,704

Inspections Cost Data for 10 Pilot States

Activity Category	Activity Subdivision[7]	Annual # of Activity	Gross Annual Cost (avg.)
CESQG	CEI	874	$1,085,482
	CSE	5	$5,220
	CAV	136	$116,552
	TAV	0	$0
	Total (use only if no breakdown desired)	338	$627,061
SQG	CEI	804	$1,092,679
	CSE	5	$4,568
	PEI	2533	$73,207
	CAV	100	$35,786
	TAV	0	$0
	Total (use only if no breakdown desired)	577	$1,266,989
LQG	CEI	403	$819,185
	CSE	0	$0
	PEI	467	$13,497
	Multiple Units	0	$0
	CAV	15	$10,234
	TAV	0	$0
	Total (use only if no breakdown desired)	568	$1,076,523
TSDF	CEI	187	$598,335
	CME	9	$87,598
	O&M	19	$144,080
	CSE	1	$1,906
	Combustion Facility	4	$22,380
	Closure/Post Closure Facility	22	$90,603
	Multiple Units	2	$15,986
	Total (use only if no breakdown desired)	230	$1,801,007
Complaint	CEI	215	$379,848
	CAV	0	$0

[7]The "Total (use only if no breakdown desired)" value used in this column is not a summation of the individual subdivisions reported for an activity category. It is instead an alternative method of reporting category costs in lieu of providing costs by subdivision. Therefore, "Annual # of Activity" and "Gross Annual Cost (avg)" amounts for subdivisions within a category do not sum to the category "Total" amounts.

Activity Category	Activity Subdivision[7]	Annual # of Activity	Gross Annual Cost (avg.)
	Total (use only if no breakdown desired)	1051	$1,553,213
EPA Lead	CEI	39	$73,175
	CSE	0	$0
	Total (use only if no breakdown desired)	17	$55,428
Transporter	CEI	43	$78,604
	CSE	241	$57,789
	Total (use only if no breakdown desired)	60	$80,375
Total Inspections Cost for Ten Pilot States			$11,267,309

Enforcement Cost Data for 10 Pilot States

Activity Category	Activity Subdivision[8]	Annual # of Activity	Gross Annual Cost (avg.)
CESQG	Case Evaluation/Determination	345	$132,825
	Case Referral	30	$19,800
	Case Development	345	$294,113
	Case Negotiation	345	$170,775
	Case Resolution	58	$51,333
	Case Monitoring	61	$83,875
	Case Support	25	$61,875
	Total (use only if no breakdown desired)	76	$434,131
SQG	Case Evaluation/Determination	142	$54,670
	Case Referral	11	$7,040
	Case Development	142	$121,055
	Case Negotiation	142	$70,290
	Case Resolution	42	$37,253
	Case Monitoring	44	$60,500
	Case Support	13	$31,350
	Total (use only if no breakdown desired)	220	$1,381,352
LQG	Case Evaluation/Determination	58	$27,115
	Case Referral	5	$3,300
	Case Development	58	$68,585
	Case Negotiation	58	$38,280
	Case Resolution	24	$25,428
	Case Monitoring	26	$35,292
	Case Support	3	$9,167
	Total (use only if no breakdown desired)	192	$1,517,357
TSDF	Case Evaluation/Determination	44	$20,726
	Case Referral	2	$1,320
	Case Development	44	$52,030
	Case Negotiation	44	$29,040
	Case Resolution	14	$14,978

[8]The "Total (use only if no breakdown desired)" value used in this column is not a summation of the individual subdivisions reported for an activity category. It is instead an alternative method of reporting category costs in lieu of providing costs by subdivision. Therefore, "Annual # of Activity" and "Gross Annual Cost (avg)" amounts for subdivisions within a category do not sum to the category "Total" amounts.

Activity Category	Activity Subdivision[8]	Annual # of Activity	Gross Annual Cost (avg.)
	Case Monitoring	16	$22,000
	Case Support	2	$5,500
	Total (use only if no breakdown desired)	101	$1,229,825
Transporter	Case Evaluation/Determination	22	$8,598
	Case Referral	4	$2,640
	Case Development	22	$23,595
	Case Negotiation	22	$10,890
	Case Resolution	10	$8,507
	Case Monitoring	12	$16,500
	Case Support	3	$7,333
	Total (use only if no breakdown desired)	17	$114,889
Total Enforcement Cost for Ten Pilot States			$6,305,132

Program Development Cost Data for 10 Pilot States

Activity Category	Activity Subdivision[9]	Annual # of Activity	Gross Annual Cost (avg.)
Grant/Workplan Activities	Grant/Workplan Development	3	$24,933
	Quarterly Meetings with EPA	14	$25,807
	Quarterly Report Development	8	$10,140
	Program Reviews	4	$33,080
	Total (use only if no breakdown desired)	5	$320,856
Reg. Analysis of Fed. HW Regs.	Development of Comments-Proposed Rule	15	$92,993
	Proposals for State Rules to be Drafted	2	$25,831
	Total (use only if no breakdown desired)	12	$137,000
State Legislative Activities	Presentation of Statutory Initiatives	1	$328
	Presentation of New Rule Proposals	1	$152
	Presentation of HW Rule Updates	1	$126
	Total (use only if no breakdown desired)	9	$108,279
Rulemaking	Dev. of State Rules-Incorp. By Ref. States	2	$18,599
	Dev. of Individual State Rules	0	$0
	Review by Deputy Attorney General	0	$0
	Total (use only if no breakdown desired)	8	$839,251
Outreach/Guidance/Policy Dev.	Public Notices	4	$17,266
	Public Meetings/Public Hearings	6	$28,582
	Presentation to State Env. Boards	3	$13,508
	Dev. Guidance/Policies/Fact Sheets/Trng	4	$21,170
	Total (use only if no breakdown desired)	7	$173,577
Dev. Revised Authorization Apps. (40 CFR 271.21)	Dev. Modified Program Description	2	$4,465
	Dev. Memorandum of Agreement	2	$10,389
	Dev. of AG's Statement	2	$3,605
	Review by Deputy Attorney General	2	$2,861
	Total (use only if no breakdown desired)	7	$297,911

[9]The "Total (use only if no breakdown desired)" value used in this column is not a summation of the individual subdivisions reported for an activity category. It is instead an alternative method of reporting category costs in lieu of providing costs by subdivision. Therefore, "Annual # of Activity" and "Gross Annual Cost (avg)" amounts for subdivisions within a category do not sum to the category "Total" amounts.

Activity Category	Activity Subdivision[9]	Annual # of Activity	Gross Annual Cost (avg.)
RCRA HW Data Management	RCRAInfo	5	$485,598
	Biennial Reports	5	$450,511
	State Annual HW Reports	4	$121,819
	Total (use only if no breakdown desired)	4	$2,077,230
Innovative Projects	Dev. of New State HW Initiatives	2	$19,642
	Implementation of New State HW Initiatives	2	$35,581
	Total (use only if no breakdown desired)	4	$424,231
Total Program Development Costs for Ten Pilot States			$5,825,320