AN EVALUATION

Petroleum Environmental Cleanup Fund

Department of Commerce
Department of Natural Resources

98-14

October 1998

1997-98 Joint Legislative Audit Committee Members

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State Auditor - Janice Mueller

Editor of Publications - Jeanne Thieme

Audit Prepared by

Don Bezruki, Director and Contact Person
Matt Massman
Robin Lecoanet
Rachel Holbert
Sandra Hiebert
John Swissler

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State of Wisconsin \ LEGISLATIVE AUDIT BUREAU

JANICE MUELLER
STATE AUDITOR

SUITE 402
131 WEST WILSON STREET
MADISON, WISCONSIN 53703
(608) 266-2818
FAX (608) 267-0410

October 8, 1998

Senator Mary A. Lazich and
Representative Carol Kelso, Co-chairpersons
Joint Legislative Audit Committee
State Capitol
Madison, Wisconsin 53702

Dear Senator Lazich and Representative Kelso:

We have completed an evaluation of the Petroleum Environmental Cleanup Fund Award (PECFA) program, which is jointly administered by the Department of Commerce and the Department of Natural Resources (DNR). PECFA was established in 1988 to reimburse property owners for costs associated with required cleanup of discharges from eligible petroleum product storage systems. As of June 30, 1998, PECFA had reimbursed owners $541.3 million and had a backlog of $95.4 million in claims approved for payment; an additional $185.4 million in claims had been submitted to Commerce but not yet reviewed. The program is funded by a $0.03 per gallon fee on petroleum products at the wholesale level.

Wisconsin's cleanup costs are among the highest in the nation. The State ranks third nationally in total cleanup expenditures; it has stringent cleanup standards, applies them to all sites, and expects all contamination to be cleaned as soon as practicable following discovery. In contrast, some other states, including states with similarly stringent numeric enforcement standards, have adopted a risk-based approach to assessing petroleum-contaminated sites and prioritizing cleanup, so that sites posing the greatest risk to human health, sensitive environments, development, or other policy priorities are addressed first.

The Legislature, Commerce, and DNR have all taken steps to expedite the closure of sites and to control costs at new and existing sites. However, both continued cooperation between the agencies and a more coordinated approach to cleanup efforts are needed. We have made a number of recommendations to improve the efficiency and cost-effectiveness of the site cleanup process, including that DNR move aggressively to monitor sites for which it is responsible. We also recommend Commerce issue a schedule of usual and customary costs, as required by administrative rule, to eliminate unwarranted variations in costs for similar services.

However, it is unlikely that recently adopted cost-control efforts and better program management alone will be sufficient to bring the demand for reimbursements into balance with existing program revenues. We identify a series of questions that warrant consideration by the Legislature as it deliberates the future of the PECFA program.

We appreciate the courtesy and cooperation extended to us by Commerce and DNR staff. Responses from the two agencies are included as Appendices IX and X.

Respectfully submitted,

Janice Mueller
State Auditor

JM/DB/mg

SUMMARY

The Petroleum Environmental Cleanup Fund Award (PECFA) program reimburses owners who clean up soil and groundwater contaminated by discharges from petroleum storage tanks, including those at commercial operations such as gasoline stations, as well as farm tanks and home and school heating oil tanks. PECFA is funded by a $0.03 per gallon inspection fee assessed on petroleum products imported into the state by wholesalers, which generated $94.1 million for PECFA awards in fiscal year (FY) 1997-98. The program is administered by the Department of Commerce, but the Department of Natural Resources (DNR) establishes cleanup standards for all sites and manages cleanup sites that are classified as high-priority because of groundwater contamination, which constitute the majority of sites.

As of June 30, 1998, PECFA had reimbursed a total of $541.3 million in cleanup costs associated with partial or complete cleanup at 5,655 sites. In addition, Commerce has approved $95.4 million in claimed costs that will be paid when sufficient petroleum fee revenues become available; an additional $185.4 million in claims had been submitted as of June 30, 1998, but not yet reviewed for eligibility. Because some submitted claims will be found ineligible, we estimate the actual total backlog for claims submitted through the end of FY 1997-98 is approximately $271 million. This backlog is nearly three times the annual revenue from the petroleum inspection fee; consequently owners currently submitting claims will wait approximately three years for reimbursement. It should also be noted that the estimated backlog does not include eligible costs that have been incurred by owners but have not yet been submitted for reimbursement. To date, it is estimated that fewer than one-half of the sites determined to be eligible for reimbursement have submitted claims, indicating future program costs will be substantial.

In response to concerns over increasing PECFA costs and the inability of annual revenues from the petroleum inspection fee to keep pace with reimbursement claims, we reviewed the operation and management of the PECFA program. In addition, we compared Wisconsin's program to those of other states to determine whether costs are similar andwhether any cost differences are influenced by differences in program design or management.

We found that Wisconsin's petroleum cleanup costs are among the highest in the nation. With $541.3 million in total expenditures, Wisconsin ranks third in total expenditures for petroleum cleanup, as well

as third in petroleum cleanup expenditures plus unpaid claims. Michigan is the only midwestern state with higher expenditures than Wisconsin, but it has not paid new claims since 1995, when it declared its fund insolvent.

While it is difficult to compare average costs per cleanup because of differences in state program requirements, we found that the average amount spent to clean up a site is higher in Wisconsin than in many other states, including other midwestern states and states with comparable environmental standards. The average amount paid in Wisconsin for sites that have received at least one payment is $95,716. While only nine states reported higher average costs than Wisconsin's for sites receiving payments, all of those states have made payments on far fewer sites.

Four features of Wisconsin's program design contribute to relatively high costs:

- Wisconsin's numeric enforcement standards for petroleum contaminants are similar to many other states' cleanup standards, but Wisconsin uses more stringent standards, called preventive action limits, as the cleanup goal for most sites, except when specific exemptions are granted;

- Wisconsin applies its standards to all groundwater, regardless of its potential uses, while other states typically adjust their standards based on whether the groundwater is or will likely be used for drinking;

- Wisconsin has not developed a system for prioritizing when sites must be cleaned up based on their relative threat to human health or the environment; and

- site owners have significantly less financial liability for cleanup in Wisconsin than in other states, limiting their incentive to control costs.

Wisconsin's numeric enforcement standards for two commonly known contaminants found in petroleum products—benzene and ethylbenzene—are similar to those of other states, while Wisconsin's standards for two others—toluene and xylene—are generally more strict. However, Wisconsin has established a second set of numeric standards, called preventive action limits, for each petroleum contaminant, and these limits are set at either one-fifth or one-tenth of the enforcement standard. When contamination exceeds preventive action limits, DNR may take action to prohibit continued pollution that threatens to raise the concentration of a contaminant beyond the enforcement standard. DNR staff, administrative rules, and guidance documents establish the stricter preventive action limit as the goal of cleanup efforts.

Wisconsin also differs from other states in how broadly petroleum cleanup standards are applied. Most states, including other midwestern states, typically classify groundwater based on its suitability as a drinking water resource, and they apply either less-stringent standards or less-costly cleanup methods to water that cannot be used for drinking water. In contrast, Wisconsin requires cleanup of all groundwater to the same numeric standards unless specific exemptions are granted.

In addition, most states have adopted a risk-based approach to their cleanup programs, as encouraged by the federal Environmental Protection Agency (EPA), as a method of meeting environmental standards while controlling costs. The goal of a risk-based approach is to prioritize the use of available resources by placing the highest emphasis on preventing harmful human exposure to contaminated soils, air, or water. In contrast, Wisconsin requires environmental restoration of all sites, regardless of their use.

DNR staff have suggested that existing flexibility in the administrative code that governs cleanup activity in Wisconsin allows owners to obtain the same results as could be achieved under a risk-based approach. However, others have argued there are noteworthy differences between a risk-based approach and Wisconsin's rules. For example, while Wisconsin requires uniform application of standards to all groundwater sites, a risk-based approach allows the development of site-specific standards based on groundwater risk factors or the potential of future environmental risks. Further, because of the discretion available to DNR staff in interpreting and applying cleanup requirements, it is questionable whether the flexibility allowed in administrative code is actually available to owners and their consultants in practice.

Currently, the State pays approximately 95 percent of all cleanup costs, and owners pay 5 percent. Since cleanup significantly improves a site's property value, owners have a significant interest in cleanup, but limited incentive to control its costs. Our review found that Wisconsin owners have a lower level of financial responsibility than owners in any other midwestern state except North Dakota. Some have argued that because the State pays such a large percentage of costs, owners have a financial incentive to conduct cleanup beyond the level needed to ensure protection of human health. In addition, Wisconsin imposes the same level of owner financial responsibility regardless of the owner's ability to pay.

While program design factors such as cleanup standards and owner financial incentives affect overall program costs, costs are also influenced by the professional judgment and discretion exercised by DNR staff, who review cleanup efforts after they are completed to determine whether a site has met standards, and by consultants, who recommend and implement cleanup efforts and determine when to submit a request to DNR for site closure.

DNR's site management efforts are influenced by two factors. First, DNR does not believe it has the authority or a primary responsibility to ensure the cost-effectiveness of cleanup efforts. Consequently, its guidance documents to field staff do not require efforts to assess and ensure cost-effectiveness. In addition, in managing sites, DNR has adopted a policy it describes as "self-regulation," whereby cleanup efforts at most sites are reviewed by DNR staff only when owners believe cleanup is completed and seek DNR certification that environmental standards have been met. Because DNR staff typically do not review cleanup efforts until the time of the closure request, owners and consultants may make choices that do not promote cost-effective or efficient cleanup. Our review of 218 case files confirmed that various deficiencies could have been detected sooner if the reports had been reviewed earlier in the process. In DNR files, we identified sites with serious levels of contamination that were not addressed for years, as well as some examples in which, when sites were reviewed before cleanup began, staff noted that consultants had attempted to perform more costly cleanup than necessary to meet environmental standards. For example:

- A site in the Village of Slinger was reported to DNR in 1990 and classified as medium-priority, but the site investigation report was not received until 1995. It revealed free-floating petroleum that had the potential to move into a utility trench connected to a shopping mall and a day care center, classifying the site as high-priority with the potential to pose a threat to human health. However, DNR did not take action after this report and did not receive a proposal for cleanup for more than two years.

- At a site in Chippewa Falls, a consultant recommended installation of an engineered system at an estimated cost of $186,000; however, the DNR staff person assigned to the case instead recommended monitoring the site for one year at a cost of $26,000, to assess the effectiveness of natural attenuation.

In addition, a DNR internal study of all sites with engineered systems, which are typically the most expensive cleanup methods, found that more than one-half should be closed, modified, or reassessed. While this study concluded that many sites for which DNR staff had management responsibility were operating unnecessarily or ineffectively, DNR did not ensure that regular or systematic monitoring of cleanup activity was conducted at these sites or that its recommended changes were implemented.

We identified a number of areas that could improve the efficiency and cost-effectiveness of the site cleanup process, and we include recommendations for DNR to consider cost-effectiveness as well as environmental appropriateness as part of its management efforts. In addition, we include recommendations that DNR review cleanup proposals before they are implemented, to better assess cost-effectiveness; that it regularly monitor ongoing cleanup efforts, to ensure prompt closure of sites; that it improve consistency among field staff's interpretations of cleanup requirements and their expectations of owners and their consultants; and that it prescribe consultant reporting formats to improve the efficiency of review processes.

While the Department of Commerce has in recent years been authorized responsibility by the Legislature to oversee cleanup for low- and medium-priority sites, its primary management responsibility remains reviewing and paying all PECFA claims. Traditionally, Commerce's review has consisted primarily of determining whether claimed costs meet the program eligibility criteria established in statutes. Administrative rules adopted in April 1998 expanded Commerce's authority to require bidding for certain cleanup activities as a way to better control costs. In addition to these efforts, we have identified a number of other steps Commerce can take to improve its management of program costs, including establishing more effective cost guidelines regarding the level of work expected for certain tasks, and adopting a schedule of usual and customary costs. Commerce has set limits on costs for a limited number of cleanup activities since 1993, when it was first required to establish such cost guidelines under administrative rules, but it has only recently begun efforts to develop comprehensive guidelines, which it now anticipates implementing by January 1, 1999.

In addition to issuing guidelines for cleanup charges, Commerce can improve its oversight of the PEFCA program through improved financial management and more effective deployment of staff resources, including auditing efforts. For example, Commerce staff are not able to use the agency's information system to ensure that payments do not exceed a statutorily established maximum of $1 million per site. Further, the inability to reconcile Commerce's information system with the state accounting system has led to a variance of approximately $500,000 between the systems in the amounts paid to owners. Our report includes recommendations for Commerce to make its information system more effective in monitoring compliance with statutory award limits and analyzing claims for potential cost savings, and to better target staff resources and more actively investigate potential program abuses by consultants and others.

While numerous changes have been made to the PECFA program in recent months as a result of 1997 Wisconsin Act 237, administrative rule changes, and the signing of a revised memorandum of understanding between Commerce and DNR, it does not appear likely that these changes

can reduce future costs to the level of revenues available from the $0.03 per gallon petroleum inspection fee. Therefore, in addition to changes to PECFA program management, our report identifies a series of questions that warrant consideration by the Legislature as it deliberates the future of the PECFA program. These questions include:

- How can cooperation between the two agencies responsible for PECFA administration be improved?

- To what degree can program costs be controlled through administrative changes?, and

- Should funding and structural changes be made to PECFA?

While DNR and Commerce have pledged increased cooperation, differences in the agencies' goals are a continuing barrier to full cooperation and to achieving a cost-effective petroleum cleanup program. Commerce has assumed responsibility for cost-control efforts, but DNR believes it lacks similar statutory authority to assume responsibility for cost-effectiveness, even though it manages cleanup at most sites and its authority in interpreting environmental standards and enforcing cleanup goals for all sites strongly influences program costs. Unless both agencies that influence costs have the same goals and are held statutorily accountable for the cost-effectiveness of cleanup efforts, it is questionable whether cooperation can be complete or the goal of controlling program costs can be fully met.

It is also questionable whether program costs can be brought into balance with available revenues, even if recently enacted administrative changes are fully implemented. Commerce estimates that recently adopted bidding requirements and other changes may reduce program costs by 15 percent, and many recently introduced cost-savings measures will have a limited effect on total program costs because they will primarily affect low-cost sites. Therefore, it appears that the question of structural changes to PECFA—which poses the most complex policy issues for the Legislature—also holds the greatest potential to affect program costs.

A number of options have been raised concerning program funding and PECFA's financial structure, largely in response to the growing backlog of unpaid claims and the resulting increase in interest costs, which we estimate will account for at least 32 percent of program payments by June 30, 2000. In addition to short-term options for addressing the backlog, such as bonding, some have suggested that owners' financial incentives to control costs should be increased by increasing current deductibles. As noted, our analysis indicates that Wisconsin owners pay a lower share of cleanup costs than owners in any other midwestern state except North Dakota. However, because claims are likely to exceed

annual revenue, and the current backlog is equal to three years' revenue, it would appear that any change in PECFA funding would need to be significant and ongoing to bring costs in line with revenues. Consequently, as an alternative to or in conjunction with financial changes, the Legislature may also be asked to consider changes in how environmental standards are applied in cases of petroleum contamination.

Proposed changes to Wisconsin's environmental standards have been opposed in the past because of concerns about diminishing environmental quality and potentially increasing risks to public health and safety. However, given the current controversy about state cleanup standards for petroleum-contaminated sites, legislative intervention may be necessary. Legislative options include clarifying whether the more stringent preventive action limits or the enforcement standards included in the Groundwater Law should serve as cleanup goals for petroleum contaminants; transferring greater authority over the selection of cleanup methods to the State; or adopting a risk-based assessment method that has been encouraged by EPA and adopted by most other states.

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INTRODUCTION

PECFA pays for cleanup of petroleum contamination.

The Petroleum Environmental Cleanup Fund Award (PECFA) program reimburses property owners who clean up soil and groundwater contaminated by petroleum product discharges from under- and above-ground storage tanks. Generally, the program reimburses costs directly associated with cleanup, such as engineering costs; laboratory costs; and costs for soil excavation, hauling, treatment, and disposal. Costs not directly associated with cleanup, such as costs to remove and replace old tanks, are not allowable. Reimbursements are funded from revenues generated by a $0.03 per gallon inspection fee assessed on petroleum imported into the state by wholesalers, which generated $94.1 million for PECFA awards in FY 1997-98. PECFA is administered by the Department of Commerce, but the Department of Natural Resources (DNR) oversees state and federal cleanup requirements at most PECFA sites.

PECFA had a backlog of approximately $271 million in unpaid claims as of June 30, 1998.

PECFA reimburses owners up to $1 million in cleanup costs per site and requires them to pay a maximum deductible of $7,500 per site for cleanup of discharges from underground tanks. As of June 30, 1998, PECFA had reimbursed a total of $541.3 million in costs associated with partial or complete cleanup at 5,655 sites. However, as shown in Table 1, approved claims have exceeded the amount available to pay reimbursements in 6 of the program's 10 years. As a result, approximately $95.4 million in approved claims had not been paid as of June 30, 1998. In addition, Table 1 does not reflect that Commerce had received another $185.4 million in claimed costs it had not yet reviewed, of which an estimated $175.4 million will be eligible for reimbursement following review. Consequently, the total estimated backlog for claims submitted by the end of fiscal year (FY) 1997-98 is approximately $271 million.

Table 1

Annual PECFA Amounts Approved and Paid

Fiscal Year	Approved Claims	Amount Paid	Balance of Unpaid Claims**
1988-89	$ 618,125	$ 312,018	$ (306,107)
1989-90	7,346,237	7,249,135	(403,209)
1990-91	22,665,341	22,802,915	(265,635)
1991-92	29,187,801	24,621,539	(4,831,897)
1992-93	39,992,337	43,531,688	(1,292,546)
1993-94	67,555,990	64,871,868	(3,976,668)
1994-95*	68,505,419	80,891,532	8,409,445
1995-96*	102,639,866	106,960,747	12,730,326
1996-97*	152,902,117	95,902,652	(44,269,139)
1997-98	145,311,419	94,131,700	(95,448,858)
Total	$636,724,652	$541,275,794	

* Paid amounts exceed approved amounts because between February 1, 1995 and March 31, 1996, 65 percent of claimed costs were paid once a claim was submitted, and remaining eligible costs were paid following claims review. The full approval amount was recorded in the fiscal year that review was completed.

** Cumulative

Final payments have been made on only 2,802 of the 11,073 sites identified as eligible.

The $271 million backlog does not include eligible costs incurred by owners but not yet claimed for reimbursement. As of June 30, 1998, only 51.1 percent, or 5,655 of 11,073 sites identified as eligible, had been reimbursed for at least one claim; because reimbursement can be requested periodically during cleanup, additional claims will be submitted for many sites. Final payment had been made for only 25.3 percent, or 2,802, of the 11,073 sites. Consequently, although any estimate of the program's ultimate cost would be speculative, it appears that costs from fewer than one-half of the sites identified as eligible have been reimbursed to date.

The prospect of a large number of new claims adding to the existing backlog has increased legislative concern over program costs. In response to this concern and the inability of annual revenues from the petroleum inspection fee to keep pace with approved claims, we compared Wisconsin's program to those of other states to determine whether costs were similar and whether cost differences were influenced by program design or management. To complete our review, we evaluated program information collected by both DNR and Commerce; surveyed the 140 environmental consulting firms that manage currently open sites; reviewed case files for 218 petroleum-contaminated sites; and interviewed federal officials and industry representatives, consultants, commercial tank owners, contract service providers, and public interest groups. In addition, we collected information from other states on their cleanup standards, regulatory approaches to cleanup, and cleanup costs.

Program History and Structure

The December 22, 1998 federal compliance deadline may contribute to increased cleanup efforts.

PECFA was created in May 1988 in response to federal requirements that owners obtain $1 million in insurance coverage for each underground petroleum storage tank owned, so that resources would be available to address contamination caused by leaks from those tanks. To prevent future contamination, federal regulations also established minimum design standards for tanks, such as resistance to corrosion and a leak detection capability, and required that existing tanks be upgraded to the new tank standards by December 22, 1998, or taken out of service. Because contamination is most commonly identified when removing old tanks, the approaching federal deadline will likely continue to motivate owners to take steps that could result in additional PECFA claims.

Due to widespread contamination from older tanks at the time federal requirements were initiated, many owners found private insurance difficult or impossible to obtain, and most states established cleanup assistance funds. In lieu of obtaining private insurance, owners may rely on such funds as proof of financial responsibility if the funds are approved by the U.S. Environmental Protection Agency (EPA). Once sites are certified clean and tanks meeting the new federal standards are installed, owners are expected to obtain private insurance against any future contamination, for which cleanup costs would not be eligible under PECFA. In Wisconsin, such insurance for sites that have already been cleaned up is generally available to owners.

As noted, both DNR and the Department of Commerce have major responsibilities associated with the PECFA program. State law requires that any contamination be reported to DNR upon discovery and that tank owners provide DNR with a tank assessment report whenever underground storage tanks are removed from the ground. If the tank assessment report identifies petroleum contamination, DNR informs the owner of his or her legal responsibility to hire a qualified environmental consultant to investigate the extent of contamination and to conduct remedial action sufficient to achieve state cleanup standards. Owners are also notified that cleanup costs could potentially be reimbursed by PECFA. Owners who plan to seek reimbursement from PECFA must contact Commerce for an initial determination of their eligibility for program funding before cleanup begins.

After investigating the extent to which soil and groundwater are contaminated, environmental consultants devise remedial action plans to bring sites into compliance with statutory limits on pollutants. The consultants' investigation reports, which describe the extent of contamination, are then submitted to DNR, which ranks sites as either low-, medium-, or high-priority. Rankings are based on a system developed by DNR and Commerce, which does not necessarily reflect the severity of contamination or the order of cleanup. Low- and medium-

priority sites, which typically involve either soil contamination alone or groundwater contamination below numeric standards set by DNR, are transferred to Commerce for case management and final determination of compliance with state standards.

DNR establishes cleanup standards for all PECFA sites and provides case management for 80.5 percent of sites.

DNR establishes, through administrative code, the cleanup standards and procedures for all low-, medium-, and high-priority sites. Further, DNR retains responsibility for case management and final determination of compliance for high-priority sites, which consist of all sites with groundwater petroleum contamination above preventive action limits, as well as all sites that involve a mix of petroleum and non-petroleum–related contaminants. Currently, 19.5 percent of sites are managed by Commerce; DNR has retained control over 80.5 percent of sites.

Commerce reimburses cleanup costs for all PECFA sites and provides case management for 19.5 percent of sites.

Owners may request reimbursement of costs from Commerce at various points during the cleanup process, including after a site investigation is completed, every two years during cleanup, and once cleanup is completed. Commerce's other financial management responsibilities include ensuring compliance with statutory caps on the amount an owner may be reimbursed, evaluating program effectiveness, and preventing fraud. Since 1996, Commerce's review of claims has also included ensuring that owners formally consider three alternative cleanup methods in their remedial action plans and that the least-expensive alternative is implemented. Further, since April 1998, Commerce has been authorized to establish a maximum reimbursable amount for all sites, including high-priority sites administered by DNR, based on a review of proposed remedial actions.

Cleanup Methods

The time and costs involved in completing cleanup can vary widely across sites, depending on the level of petroleum contamination and the condition of the site, as well as the effectiveness of the cleanup method or combination of methods used. One common cleanup method is to remove petroleum-contaminated soil and to treat it by burning to remove contaminants, by aeration, or by disposal in a landfill. When soil has been heavily contaminated by petroleum, removal may be accompanied by long-term monitoring of the remaining soil and groundwater to ensure that residual contaminants decompose.

Engineered systems are the most costly cleanup remedy.

Cleanup methods that use any of a variety of mechanical systems designed specifically for a site, which are referred to as engineered systems, typically are the most costly cleanup options. For example, engineered systems may be used to draw petroleum-contaminated water from the ground and treat it, to extract petroleum vapors from the soil and groundwater in a controlled manner, or to aerate the soil or groundwater to encourage natural biodegradation of the petroleum contaminants. Since 1996, DNR has also formally recognized, by administrative rule, natural

attenuation to be an effective cleanup method in certain circumstances, based on scientific evidence that petroleum contaminants degrade naturally in the soil and naturally attenuate in groundwater. While natural attenuation is often the lowest-cost cleanup alternative, it typically requires more time to achieve cleanup at sites that are severely contaminated.

Owners and their contracted environmental consultants select the cleanup methods to be used. The cost of completing cleanup using the method or methods selected is also affected by the cleanup standards that must be met; the incentives for owners and their consultants to complete cleanup as quickly as possible; and the efforts of state agency staff to ensure that cleanup is completed in a timely, cost-effective manner.

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PROGRAM COSTS

Cleanup at underground storage tank sites accounts for 92.2 percent of PECFA expenditures.

Federal and state efforts related to petroleum contamination primarily concern the cleanup of discharges from underground storage tanks at commercial operations, most of which are current or former service stations. Owners of eligible underground storage tanks also include local governments and businesses such as trucking firms, bus lines, oil companies, and resorts. In addition to underground tanks, the PECFA program also covers cleanup of contamination from farm tanks, above-ground commercial storage tanks, and home and school heating oil tanks. However, as shown in Table 2, underground commercial tanks represent 78.9 percent of all tanks for which claims have been paid, and 92.2 percent of all expenditures to date.

Table 2

Distribution of PECFA Payments by Type of Tank
(as of June 30, 1998)

Tank Type	Number of Sites	Percentage of Sites	Total Payments	Percentage of Payments
Underground	4,463	78.9%	$499,260,819	92.2%
Above-ground	203	3.6	29,223,525	5.4
Home Heating Oil	784	13.9	4,411,011	0.8
School Heating Oil	127	2.2	3,081,439	0.6
Farm	48	0.9	1,376,459	0.3
Other*	30	0.5	3,922,541	0.7
All Tank Types	5,655	100.0%	$541,275,794	100.0%

* Includes tanks owned by nonprofit residential groups, technical colleges, and tribes.

The distribution of PECFA payments across tank types reflects differences in the number of eligible tanks, typical cleanup costs, maximum award levels, and owner deductibles associated with each type of tank. For example, although average cleanup costs for underground and above-ground tanks have been similar, there are far fewer above-ground tanks in the state. Further, home heating oil tanks tend to have lower cleanup costs than do underground tanks; in addition, the maximum

award for such tanks is $7,500, and owners pay 25 percent of cleanup costs, which creates greater incentive for owners to control costs. Eligible tank types, maximum award levels, and owner deductibles are listed in Appendix I.

As shown in Table 3, most sites at which cleanup is complete and final payment has been made are low-cost sites. In contrast, 13.0% of all sites are high-cost sites accounting for 49.5% of total program expenditures.

Table 3

Average Costs for Sites Receiving at Least One Payment
(as of June 30, 1998)

Amount per Site	Number of Sites	Percentage of Sites	Amount Paid	Percentage Paid	Average Paid per Site
Sites with Final Payments					
$1-$100,000	2,477	43.8%	$ 53,643,066	9.9%	$ 21,656
$100,001-$200,000	202	3.6	27,934,431	5.2	138,289
$200,001 or more	123	2.2	51,188,353	9.5	416,165
All Closed Sites	2,802	49.6%	$132,765,850	24.6%	47,383
Sites without Final Payments					
$1-$100,000	1,618	28.6%	$ 68,141,685	12.6%	42,115
$100,001-$200,000	500	8.8	72,255,129	13.3	144,510
$200,001 or more	735	13.0	268,113,130	49.5	364,780
All Open Sites	2,853	50.4%	$408,509,944	75.4%	143,186
Total for All Sites	5,655	100.0%	$541,275,794	100.0%	$ 95,716

Further, as shown in Table 4, eligible farm, home, and school heating oil tank sites, which tend to cost less to clean up, are much more likely than underground and above-ground tank sites to have cleanup finished and to have received their final PECFA payments. In contrast, most of the underground petroleum product storage tanks, which are more costly than farm, home, and school heating oil tank sites to clean, are not finished with cleanup and continue to incur costs.

Table 4

Status of Sites Receiving at Least One Payment, by Tank Type
(as of June 30, 1998)

Type of Site	All Sites	Sites with Final Payments	Percentage with Final Payments	Sites without Final Payments	Percentage Sites without Final Payments
Underground	4,463	1,838	41.2%	2,625	58.8%
Above-ground	203	46	22.7	157	77.3
Home Heating Oil	784	773	98.6	11	1.4
School Heating Oil	127	106	83.5	21	16.5
Farm	48	27	56.3	21	43.7
Other*	30	12	40.0	18	60.0
All Tank Types	5,655	2,802		2,853	

* Includes tanks owned by nonprofit residential groups, technical colleges, and tribes.

35.7 percent of PECFA payments are for consultants.

Payments to the environmental consultants owners must hire to investigate contamination and manage cleanup efforts account for the largest proportion of cleanup costs. Since 1994, which was the first year in which Commerce collected such data, consultant services have accounted for 35.7 percent of PECFA costs, as shown in Table 5. Significant proportions of cleanup costs are also attributable to soil treatment and disposal, which includes the costs of treating soil and of landfilling charges, and to the design and installation of remedial equipment, such as equipment that reduces contaminant levels by extracting vapors from the soil or by extracting, cleaning, and re-injecting groundwater. Most owners obtain commercial financing to pay for their cleanup costs until they receive reimbursement from PECFA, and while loan fees and interest costs have averaged 10.0 percent of PECFA expenditures since 1994, these costs have increased from 7.0 percent of expenditures in 1994 to 13.5 percent of expenditures in FY 1997-98. Conservative estimates suggest that, based on the current backlog and existing interest rates, interest expenses could account for at least 32 percent of total payments by the end of FY 1999-2000.

Table 5

PECFA Cost Categories
(January 1, 1994 through June 30, 1998)

Cost Category	Costs	Percentage of Costs
Consultants	$141,915,114	35.7%
Soil Treatment and Disposal	67,299,053	16.9
Remedial Equipment	46,506,967	11.7
Loan Fees and Interest	39,887,920	10.0
Lab Analysis	29,474,828	7.4
Soil Borings/Well Drilling	25,128,216	6.3
Excavation	17,009,357	4.3
Shipping/Trucking	14,972,425	3.7
Backfill	11,795,066	3.0
Other Costs	3,847,413	1.0
All Cost Types	$397,836,359	100.0%

Although interest is an allowable cost, some have expressed concern that some owners are unable to obtain the financing necessary to conduct cleanup. Bank officials we talked with emphasize that PECFA loans are not risk-free and that while most lenders are willing to make such loans to their existing customers, lenders less familiar with the program may be reluctant to do so. Several lenders specialize in making PECFA loans statewide, and DNR and Commerce staff indicate that while some owners have had difficulties in obtaining financing necessary to conduct cleanup, those difficulties usually were due to an inability to meet collateral requirements rather than an inability to find a willing lender. PECFA does include provisions that allow Commerce to waive the deductible and place a lien on the owner's property to prevent cleanup from being delayed due to financial hardship. Commerce officials state that they assist approximately five owners annually under these provisions.

Cost Comparison with Other States

Wisconsin's PECFA costs are among the highest in the nation.

Although some states that operate reimbursement programs similar to PECFA have also experienced backlogs of unpaid claims, cleanup costs are higher in Wisconsin than in most other states. As shown in Table 6, Wisconsin ranks third in total expenditures for petroleum cleanup, as well as third in expenditures plus unpaid claims. Michigan, which is the only midwestern state with higher costs than Wisconsin, has not paid new claims since 1995, when it declared its reimbursement fund insolvent

because projected revenues were insufficient to pay known and anticipated claims. A complete list of petroleum cleanup costs by state is presented in Appendix II.

Table 6

States with Highest Reported Petroleum Cleanup Costs
(as of June 1998)

State	Total Expenditures (in millions)	Unpaid Claims (in millions)	Expenditures Plus Unpaid Claims (in millions)
California	$475	$732	$1,207
Florida	900	150	1,050
Wisconsin	541	271	812
Michigan	647	18	665
Texas	450	101	551
Illinois	276	32	308
Minnesota	256	11	267
North Carolina	232	9	241
Arizona	94	70	164
Georgia	59	84	143

Source: 1998 State Fund Survey results compiled by the State of Vermont

Some of the variation in total cleanup expenditures from state to state is attributable to differences in the types of tanks covered and in owners' financial responsibility for cleanup costs, as well as in the number of sites for which cleanup has been conducted. For example, a few states with low expenditures, such as New York and Oregon, fund cleanup with public resources only when the owner either cannot be identified or cannot pay for cleanup. Further, although both California and Florida have higher total expenditures and unpaid claims than Wisconsin, both are larger states with many more sites: California has 24,000 and Florida has 18,000, compared to 11,073 in Wisconsin. Appendix III lists the types of tanks covered in each state.

Although differences in state program requirements make if difficult to compare average costs per site, Wisconsin also has higher average payments than most other states for sites having recieved at least one payment, including midwestern states and states with similar cleanup

standards. For example, the average payment per site has been $95,716 in Wisconsin, compared to $41,000 in Minnesota, $53,000 in Illinois, $60,000 in California, and $70,000 in Florida. Such differences may be attributed to a variety of factors, including variations in the severity of sites for which cleanup has been conducted and in cleanup standards and methods.

Cost differences may also reflect variations in the relative progress each state has made in completing cleanup at all sites: as final payments are made for the sites that are more costly to clean, the average cleanup costs for all sites with final payments will tend to rise. The lower average cleanup cost for completed sites in Wisconsin—$47,333, compared to $88,000 in Illinois, $80,000 in California, and $150,000 in Florida—may reflect that Wisconsin has completed cleanup at a smaller proportion of its identified underground tank sites than have other states. Appendix IV is a list of average cleanup costs per site and the number of sites cleaned up in other states.

To determine why Wisconsin's cleanup costs are higher than those of most other states, we reviewed the various factors affecting program costs, including differences in the design of cleanup programs, cleanup standards, and the management practices of DNR and Commerce that may influence program costs.

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PECFA costs are influenced by the program's design, which establishes cleanup standards and the financial responsibility of owners. Even though Wisconsin's numeric enforcement standards are similar to those of many other states, in practice Wisconsin may require more cleanup to be conducted because it uses other, stricter requirements as the goal for petroleum cleanup. Further, Wisconsin's definition of groundwater results in those standards being applied to more groundwater than in other states, and DNR has not developed a system for prioritizing when sites must be cleaned up based on their relative threat to human health or the environment. In addition, site owners have significantly less financial liability for cleanup in Wisconsin than in other states, which reduces the incentive for owners to attempt to control costs.

Cleanup Standards

Chapter 160, Wis. Stats., commonly referred to as the Groundwater Law, applies to all types of groundwater contamination and requires DNR to establish two numeric standards—an enforcement standard and a preventive action limit—for each contaminant regulated by the State, including petroleum contaminants.

DNR enforcement standards for groundwater meet or exceed state drinking water standards.

The enforcement standard identifies the level at which action is required to clean up contamination. The enforcement standard for each contaminant must be at least as stringent as the corresponding drinking water standard adopted by the federal government and the Wisconsin Department of Health and Family Services, and it may be more stringent to meet public welfare concerns, such as eliminating undesirable colors or odors from groundwater. As shown in Table 7, the enforcement standards DNR has adopted through administrative code match state drinking water standards for two of the four contaminants most commonly associated with petroleum contamination, and they are more stringent than drinking water standards for two other contaminants—toluene and xylene. DNR has also established standards for methyl-tert-butyl-ethane (MTBE), a fifth contaminant commonly associated with petroleum contamination, for which there is no drinking water standard.

Table 7

Wisconsin Drinking Water and Groundwater Cleanup Standards for Selected Petroleum Contaminants
(in parts per billion)

Compound	Drinking Water Standard	Enforcement Standard	Preventive Action Limit
Benzene	5	5	0.5
Ethylbenzene	700	700	140.0
Toluene	1,000	343	68.6
Xylene	10,000	620	124.0

According to DNR officials, the groundwater cleanup standards for toluene and xylene were in place before state and federal drinking water standards were revised in 1991. In 1994, following concerns raised by legislators and the State's Public Intervenor, the Natural Resources Board postponed consideration of modifying cleanup standards for toluene and xylene until DNR could contract for a study to identify human detection thresholds for the taste and odor of these contaminants in water. The study, which was completed in June 1998 by faculty at the University of Wisconsin-River Falls, determined that the average human detection level for toluene was consistent with the state drinking water standard but nearly three times the enforcement standard set by DNR. The study also concluded that the average human detection level for xylene was about one-half of the state drinking water standard but more than eight times the enforcement standard set by DNR. DNR staff indicate they are reviewing the study to determine its validity.

Table 7 also shows Wisconsin's preventive action limits for selected petroleum contaminants. These limits, which identify the level at which action may be required to prevent continued pollution that would otherwise lead to contamination in excess of the enforcement standard, reflect lower contaminant levels than the corresponding enforcement standards. Consistent with criteria specified in the Groundwater Law, DNR has set the preventive action limit for benzene, which is potentially a cancer-causing compound if consumed or inhaled, at one-tenth of the corresponding enforcement standard. Preventive action limits for other petroleum contaminants that at levels below the enforcement standards primarily affect aesthetics—such as color, odor, and taste—are set at one-fifth of their corresponding enforcement standards. Consequently, any changes to the enforcement standards for toluene and xylene may be expected to lead to corresponding changes to their preventive action limits.

The more restrictive preventive action limit is the goal of cleanup in Wisconsin.

The Groundwater Law indicates that preventive action limits were originally intended to identify potential or emerging contamination problems so that action could be taken, if necessary, to prevent enforcement standards from being exceeded. Section 160.001(8), Wis. Stats., states that "a preventive action limit is not intended to be an absolute standard at which remedial action is always required." However, both the rules adopted to implement the Groundwater Law, which are set forth in NR 700-728, Wis. Adm. Code, and DNR guidance documents establish the preventive action limits as the goal of cleanup efforts when remedial actions are being selected and implemented, as well as when a site is being evaluated for closure.

DNR staff and consultants interpret the more stringent preventive action limits—rather than the enforcement standards—as the goal of petroleum cleanup efforts in Wisconsin. Therefore, as shown in Table 8, the State's effective cleanup standards are more stringent than both Wisconsin's drinking water standards and the cleanup standards of all midwestern states, as well the most stringent cleanup standard in the nation for benzene. Only three other states have more stringent standards for other petroleum contaminants. However, it should be noted that Washington allows its numeric standards to vary on a site-specific basis, Florida ranks sites by severity and completes cleanup only as funding is available, and New York does not require cleanup to continue until its numeric standards are met; rather, New York allows active cleanup to cease at higher levels while continuing to consider such sites open because they do not meet the state standards. These sites' inactive status means they are no longer incurring costs. Appendix V summarizes groundwater cleanup standards for all states.

Table 8

Selected States' Groundwater Cleanup Standards for Petroleum Contaminants
(in parts per billion)

State	Benzene	Ethylbenzene	Toluene	Xylene
Midwestern States				
Illinois–Drinking Water	5	700	1,000	10,000
Illinois–Other Water	25	1,000	2,500	10,000
Iowa–Drinking Water	5	700	1,000	10,000
Iowa–Potential Drinking Water	290	3,700	7,300	73,000
Michigan	5	74	790	280
Minnesota*	5	700	1,000	10,000
Wisconsin Enforcement Standards	5	700	343	620
Wisconsin Preventive Action Limits	0.5	140	68.6	124
States with More Stringent Cleanup Standards				
Florida	1	40	30	20
New York	0.7	5	5	5
Washington	5	40	30	20

* Standards apply only to sites for which current drinking water resources are affected; site-specific standards are calculated for other classifications of groundwater.

Source: *Soil and Groundwater Cleanup Magazine* and telephone interviews

Applicability of Standards

Wisconsin requires cleanup of all groundwater; many other states restrict cleanup to potential drinking water.

How Wisconsin applies its numeric standards also influences cleanup costs. In particular, cleanup standards adopted under the Groundwater Law apply to all forms of groundwater in Wisconsin, regardless of their accessibility or suitability as drinking water resources. In contrast, many states classify groundwater based on its suitability as a drinking water resource and either apply less stringent standards or apply less costly cleanup methods to water that cannot be used for drinking.

During the site investigation process in Wisconsin, the discovery of any subsurface water—ranging from saturated soils to aquifers capable of serving as a drinking water resource—triggers application of the Groundwater Law. At all such sites, DNR requires that owners prove cleanup to the applicable numeric standards has been or will be achieved, unless specific exemptions are granted. In contrast, Iowa and Minnesota, for example, classify groundwater based on its potential for consumption. As was shown in Table 8, these States' standards fluctuate depending on the classification of groundwater, which is based on its current or potential use as drinking water. In these states, either minimal or no cleanup may be conducted for groundwater types that would not otherwise meet minimum state standards for public and private wells.

It is important to note that, unlike many of the contaminants regulated by the Groundwater Law, petroleum products that are discharged into the environment immediately begin to attenuate naturally, either by being consumed by microbes in soil and groundwater or by oxidizing and dispersing. However, because the time needed for complete natural attenuation of a petroleum discharge can be substantial and will vary from site to site, depending on the amount of contaminant discharged and the hydrogeologic conditions at a site, it is possible for contaminants at some sites to migrate toward health-threatening or environmentally sensitive areas more rapidly than they biodegrade. For example, contaminant migration may be accelerated by groundwater flow, cracks in bedrock, or utility trenches. Conversely, sites with tightly compacted soils, such as clay, may involve very slow or no groundwater movement. Therefore, the potential for immediate and long-term harm resulting from discharges of petroleum products varies widely across sites.

Risk-Based Cleanup

EPA encourages a risk-based approach that is only partially practiced in Wisconsin.

Wisconsin's approach to cleanup of petroleum contamination also differs from other states' approaches because the selection of cleanup remedies and the assessment of site closure requests are based on the goal of environmental restoration as reflected by numeric standards. In contrast, a growing number of states have implemented a risk-based model for prioritizing petroleum cleanup efforts that directs available resources first to those sites that pose the greatest threat to human health and the environment. While Wisconsin's requirements ensure sites that pose a risk are addressed and often cleaned to standards that exceed those in other states, the flexibility administrative rules allow is more limited than would be allowed under the risk-based approach encouraged by EPA.

Under a risk-based approach to cleanup used in other states, the extent and order of cleanup is determined on a site-by-site basis after assessing the relative threat the contamination poses to human health, sensitive environments, land reuse, or other priorities identified by policymakers. Under such an approach, sites that pose a risk require full restoration as

quickly as possible to ensure risk objectives are met, but sites posing low risk may be only partially cleaned to meet site-specific groundwater standards, and other sites that pose no risk may require no active cleanup, and instead be allowed to attenuate naturally.

Under DNR's administrative rules, owners are required to begin taking steps to meet cleanup standards as soon as contamination is identified and to demonstrate that compliance with numeric standards has been achieved, or will be achieved, throughout the contamination site within a reasonable period of time as determined by DNR. In contrast, a risk-based approach allows a broader range of responses to petroleum contamination as needed to prevent people or sensitive environments from being exposed to the harmful effects of contamination in the most expeditious and lowest-cost manner possible. For example, under a risk-based model, responses may include:

- controlling contaminants through aggressive steps to reduce their mass in soil and groundwater, such as removing contaminated soils, installing an engineered system to encourage biodegradation and extract harmful vapors, or allowing natural attenuation over time;

- interrupting contaminant migration by identifying migration pathways, such as groundwater flow, utility trenches, or cracks in bedrock, and taking action to interrupt the migration when there is a risk of human exposure; or

- preventing exposure at the point of consumption by closing and relocating wells or placing legal controls on drilling wells.

Wisconsin's cleanup requirements are more stringent than those in other states.

The fundamental difference between Wisconsin's approach to petroleum cleanup, which is to reduce contaminant mass below numeric standards, and a risk-based approach, which is to eliminate the potential for exposure, leads to differences in the tasks to be done by owners, consultants, and state agencies when conducting cleanup. For example, in Wisconsin, rather than tailor the site investigation and remedy to the relative risks at a site, owners are required to immediately collect all information necessary to design and undertake remedial action to bring the site into compliance with the numeric standards, even if no risk factors are present. In contrast, under a risk-based approach, site investigation work may be tiered so that additional information is collected only as needed to assess or respond to identified threats to human health or other risk factors. Such an assessment may be as simple as developing a model to estimate the maximum distance the contaminants may have traveled and comparing that estimate to available

information about the site's proximity to potable water sources or other high-risk conditions. If there are no high risks, such as contamination near the surface, pathways for vapors to escape, or nearby potable water sources, a risk-based approach may require no further investigation or active cleanup at the site. Instead, the site may be closed conditionally, with legal controls that could require further investigation and cleanup if there were any changes to property use in the future, such as excavation for housing development. To prevent contaminated sites from being abandoned, states with risk-based approaches also allow sites for which initial responses are limited to reenter their reimbursement programs if future cleanup becomes necessary.

Wisconsin's approach also differs from a risk-based approach in its assessment of compliance with numeric standards. In Wisconsin, compliance must be demonstrated throughout the contaminated area. In contrast, a risk-based approach typically emphasizes ensuring that numeric standards are met where exposure is possible, such as the point at which humans may come into contact with soils or existing potable wells, surface waters, or groundwater resources being used for drinking water.

In November 1996, DNR adopted changes to its administrative rules that allow some sites to be closed prior to numeric standards being achieved if specific scientific evidence demonstrates that the area of contamination is not expanding and the contaminants are naturally attenuating and will decline to levels at or below numeric standards in a reasonable period of time, which DNR staff have typically defined as 20 years. In addition, owners of properties affected by contamination must agree to a groundwater or other use restriction before natural attenuation may be used as the remedy. DNR officials contend that these changes, along with other regulatory provisions, provide the same flexibility as would be achieved by a risk-based approach. However, even with these changes in administrative code, Wisconsin's approach differs from a risk-based approach in several significant ways, including that:

- all groundwater is expected to be cleaned up regardless of the current or potential risk that the contamination will affect human health or sensitive environments;

- the numeric standards used to evaluate groundwater cleanup efforts are not calculated on a site-specific basis to reflect the relative risks and do not allow standards to fluctuate on a site-by-site basis depending on risk factors, as is done in other states;

- while the system used by DNR to classify sites includes some criteria that may indicate the potential threat to human health, that system is not used to prioritize the order in which sites are cleaned up; and

- required site investigation work is not structured in an incremental manner to first collect information to confirm whether risk factors exist, and if so, to collect information needed to determine a response, but rather requires owners and consultants to conduct a full investigation into each contaminated site.

While Wisconsin allows site-specific standards to be calculated at sites for which only soil is contaminated, those provisions do not apply to sites where groundwater is affected, including all sites managed by DNR.

Financial Responsibility

On average, PECFA pays 95 percent and owners pay 5 percent of cleanup costs.

For underground tank sites, which constitute most of the PECFA-eligible sites in Wisconsin, property owners are responsible for a maximum deductible of $7,500 per site, including the initial $2,500, plus 5 percent of remaining cleanup costs. Consequently, all owner financial responsibility ends for costs incurred beyond $102,500. The State pays all additional cleanup costs up to a maximum of $1 million. Given the current average cost per site of approximately $143,000, the State will pay approximately 95 percent of all cleanup costs. Since cleanup improves a site's property value, owners have a significant interest in the amount of cleanup, but limited interest in controlling its costs. Some have argued that because the State pays such a large percentage of costs for activity that enhances property value, owners actually have a financial incentive to conduct cleanup beyond the level needed to ensure protection of human health.

As shown in Table 9, our review found that in Wisconsin, owners have a lower level of financial responsibility than owners in any other midwestern state except North Dakota. Further, some states create financial incentives for owners to control costs by applying the percentage deductible to the full cost of cleanup and increasing the proportion of costs for which owners are responsible as costs grow. For example, Minnesota owners pay 10 percent of the first $250,000 in costs, plus 25 percent of remaining costs; Iowa owners pay 18 percent of the first $80,000 in costs, plus 35 percent of remaining costs. In contrast, as noted, Wisconsin's $7,500 cap for underground tank sites means that owners will pay no portion of costs once total costs exceed $102,000. Appendix VI shows the typical deductible for other states.

Table 9

Estimated Maximum Deductible for a $150,000 Cleanup at Underground Tank Sites in Midwestern States

State	Type of Deductible	Estimated Maximum Deductible
Illinois	Fixed	$10,000 to $100,000*
Indiana	Fixed	$25,000, $30,000, or $35,000*
Iowa	Percentage	$38,900
Michigan**	Program Terminated	NA
Minnesota	Percentage	$15,000
North Dakota	Fixed	$5,000
Ohio	Fixed	$11,000 or $55,000***
South Dakota	Fixed	$10,000
Wisconsin	Fixed plus percentage	$7,500

* Depends on when tanks were registered or put into service, tank construction qualities, or when contamination is discovered

** Michigan's program no longer operates because of financial concerns.

*** Depends on the number of tanks owned and the tank fee paid.

Source: 1998 State Fund Survey results compiled by the State of Vermont, and telephone interviews

While program design factors, such as cleanup standards and property owner responsibilities, affect overall program costs, Wisconsin's PECFA costs are also affected by the professional judgment and discretion exercised by DNR staff and consultants, which significantly influence how state standards are interpreted and met.

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The responsibilities of DNR and the Department of Commerce in managing the PECFA program have evolved since the program's inception. In general, DNR has been responsible for ensuring that environmental standards are met and has had primary responsibility for establishing cleanup standards and methods and for reviewing sites upon completion of cleanup. Commerce, on the other hand, has had primary responsibility for the management of PECFA funding and has been responsible for reviewing owners' claims for reimbursement, preventing fraud, and making payments.

In an attempt to better control costs, the Legislature transferred management responsibility for the cleanup of lower-priority sites, which DNR and Commerce have agreed include sites with soil contamination but no groundwater contamination above preventive action limits, to Commerce in 1996. In April 1998, emergency administrative rule changes adopted by Commerce authorized that agency to review proposed cleanup plans and establish cleanup cost maximums if appropriate for all sites, including those sites that have groundwater contamination and are managed by DNR.

As a result of the evolution of the agencies' roles, many owners and consultants are confused by what in some cases appear to be overlapping agency responsibilities. For example, while DNR has responsibility for managing the cleanup of sites with groundwater contamination, Commerce now has the authority to establish limits on cleanup reimbursement. Disagreements between the two agencies can leave owners with conflicting direction, and the potential of significant financial liability if DNR requires a more costly cleanup method than Commerce believes is necessary.

Current Management Responsibilities

Most sites are reviewed by DNR only when cleanup is completed.

DNR's management of the cleanup activities at high-priority sites, which constitute the majority of sites, is influenced by two factors. First, DNR has followed a practice it describes as "self-regulation." As a result, DNR staff typically do not review site investigation reports, remedial action plans, or other reports that administrative rules require owners to submit until cleanup is complete and the owners request sites to be closed, which is often several years after the contamination is discovered. Second, DNR officials have indicated they believe the agency has neither the responsibility to ensure that cleanup is conducted in the most cost-effective manner, nor the statutory authority to direct owners to use

alternative cleanup methods even if environmentally effective but less-expensive alternatives are available. As a result: 1) there is insufficient oversight to ensure that during cleanup, consultants have used proper procedures or acted promptly to address potentially serious situations; and 2) unnecessary costs may be incurred because some sites are not closed promptly once standards are met, or the most cost-effective, environmentally appropriate methods are not used.

DNR's administrative rules provide consultants with extensive direction concerning cleanup and include requirements for reporting on proposed cleanup plans and on progress toward meeting standards at various stages during cleanup. While many consultants conduct appropriate cleanup, our discussions with DNR field staff and our review of site files identified examples of required procedures not being followed, including:

- site investigation reports that were submitted before either the parameters of the contamination or the direction and flow of groundwater had been defined, although both definitions are basic expectations for all site investigations;

- cleanup actions that do not consistently take into account all possible travel pathways for contaminants, or that fail to remove severely contaminated soils that may continue to leach contaminants into the groundwater over time; and

- closure requests using natural attenuation as the remedy, where adequate steps have not been taken to demonstrate that the site meets the qualifications specified in administrative rules for this remedial option, such as that contaminant mass is not expanding.

Without monitoring of cleanup activity, there is limited assurance that environmental objectives are being met.

Further, our review of 168 case records for which a site investigation report was submitted in 1997 identified 3 sites with potentially serious health or environmental concerns at which DNR's policy of self-regulation did not ensure prompt progress was being made toward meeting environmental objectives:

- A site in the Village of Slinger was reported to DNR in 1990 and classified as medium-priority, but the site investigation report was not received until 1995. It revealed free-floating petroleum that had the potential to move into a utility trench connected to a shopping mall and a day care center, placing the site as high-priority with the potential to pose a threat to human health. However, DNR did not take action after this report and did not receive a proposal for cleanup for more than two years.

- A site in the City of Superior was reported to DNR in 1991; in 1993, DNR requested that the owner complete the required site investigation report, but no action had yet been taken when the site was transferred to Commerce in 1996.

- A site in the Town of Dalton in Green Lake County was reported to DNR in 1995, but its contamination of a private well was not reported until 1997, and no other correspondence occurred between the owner and DNR for another year.

Because, DNR officials believe responsibility for fiscal aspects of PECFA resides with Commerce and DNR does not have the responsibility or authority to ensure that cleanup is cost-effective as well as environmentally appropriate, DNR guidance documents to field staff do not include direction or requirements to work with owners and consultants to develop cost-effective cleanup methods. DNR officials and field staff have indicated it is the Department's policy that field staff may require additional or more expensive cleanup than has been proposed if they believe the proposed cleanup does not meet environmental goals, but staff do not have the authority to direct alternative cleanup methods even if environmentally effective but less-expensive alternatives are available.

As a result, DNR may choose not to take direct action with owners and consultants, even when it has identified unnecessary costs. For example, subsequent to an internal study that concluded more than one-half of all engineered cleanup systems in place in FY 1996-97 should either be closed or modified, DNR did not follow up with owners to determine whether recommendations were implemented. Instead, DNR forwarded the results of the study to Commerce for use in reviewing reimbursement claims. Specifically, the DNR study found that of 1,243 sites with engineered systems:

- 505 sites should continue operating as they were;

- 89 engineered systems should be modified to improve their efficiency;

- 120 sites could be closed immediately, and site-specific soil standards that may lead to closure could be calculated for 11 others;

- 224 sites should pursue a more cost-effective remedial strategy, including 134 sites that could use natural attenuation instead of engineered systems;

- 54 engineered systems should shut down to assess the need for more cleanup;

- 54 sites required other types of recommendations; and

- cleanup was not progressing at 10 sites where enforcement action should be taken.

The remaining sites in the study had been closed before the study began.

Some sites remain open and incur costs after environmental standards have been met.

We reviewed a random sample of 50 files from DNR's study and found some sites for which files contained no record that the owner had been notified of DNR's recommendations. In addition, we found that 59 of the 120 sites that DNR believed could be closed immediately were still open a year later, in June 1998. Based on DNR's original savings estimates, allowing those sites to remain open cost the PECFA program an additional $3.2 million in FY 1997-98.

1998 Wisconsin Act 237 authorized Commerce to deny payments for costs incurred after July 1, 1998, at sites that did not follow the study's recommendations. Prior to administrative rule changes in April 1998, neither DNR nor Commerce had express authority to review proposed cleanup plans for cost-effectiveness. While Commerce now has the authority to do so if it chooses, the PECFA program is designed to repay owners for cleanup necessary to meet environmental standards, and DNR retains authority to manage the majority of active sites. Therefore, accountability for the sites is shared, but responsibilities are interpreted differently by each agency. While the agencies have made numerous agreements, both formal and informal, to cooperate and to coordinate their efforts since the creation of PECFA, their differing goals have resulted in many challenges to that cooperation. Consequently, it would appear that the State's efforts to improve the cost-effectiveness of PECFA could be improved if DNR were responsible for ensuring that cleanup efforts are cost-effective as well as environmentally appropriate.

DNR's Bureau of Remediation and Redevelopment combines its positions from all funding sources, including federal grants and general

purpose revenue, and generally assigns staff to cleanup responsibilities, such as managing cleanups at PECFA sites, Superfund sites, and other cleanup programs. Federal funds for managing PECFA sites have fluctuated and have supported 33 full time equivalent (FTE) positions in FY 1992-93; 50 in FY 1993-94; 38 in FY 1994-95; and 34.5 in FY 1995-96; 25 in FY 1996-97; and 21 in FY 1997-98. In FY 1997-98, the equivalent of 35 of the 111.5 generally assigned FTE positions in the Bureau of Remediation and Redevelopment were used on PECFA sites. Because DNR has used three times more staff to manage PECFA sites than the number of hydrogeologist positions at Commerce, the number of state staff considering cost-effectiveness when managing cleanup would triple if DNR accepted this responsibility. Therefore, *we recommend the Department of Natural Resources consider cost-effectiveness of proposed cleanup methods, as well as environmental appropriateness, in managing PECFA sites*.

More active oversight of cleanup would improve PECFA's cost-effectiveness.

In order to be better accountable for the cost-effectiveness of the sites it manages, DNR would need to adopt a more active management approach and change the timing of its review procedures. As indicated, DNR currently conducts its review of consultants' decisions and actions after cleanup is completed. DNR management oversight could have a significant effect on program costs if DNR reviewed planned cleanup activity before it was implemented and monitored actions during cleanup to ensure sites are closed promptly.

While DNR has not followed a practice of requiring proposed cleanup plans to be reviewed for cost-effectiveness, we noted that when such reviews were conducted at some sites, there were potential cost savings. For example:

- At a site in the town of Connersville, in Dunn County, a consultant recommended excavating 5,000 cubic yards of soil, but the DNR staff person assigned to the site concluded cleanup standards would be met with the removal of 1,500 cubic yards of soil.

- At a site in town of Zachow, in Shawano County, a consultant recommended excavating 2,100 tons of soil, but the Commerce staff person assigned to the site concluded that standards could be met with removal of 650 tons.

- At a site in Chippewa Falls, a consultant recommended an engineered system be installed at an estimated cost of $186,000, but the DNR staff person assigned to the case instead recommended monitoring the site for one year, at an estimated cost of $26,000, to assess the effectiveness of natural attenuation; if necessary, monitoring would be followed by limited excavation and the resulting cost would still be below the cost of the original recommendation.

Such examples suggest reviews of proposed cleanup plans can result in significant savings. Therefore, in order to consider cost-effectiveness in cleanup methods, *we recommend the Department of Natural Resources and the Department of Commerce work cooperatively to review all proposed remedial action plans for high-priority cases to determine whether the options proposed include the most cost-effective methods of reaching the cleanup goals*.

Review of Site Closure Requests

The need to close sites promptly is underscored by the large number of sites that remain open. As shown in Table 10, as of June 30, 1998, more than 7,000 contaminated underground tank sites reported to and managed by DNR remained open. While 43.2 percent of all sites have been closed, DNR and Commerce staff agree that many of the closed sites were less-complex sites with little pollution, and that a larger number of the open sites generally have more significant levels of pollution and will be more difficult to close. It should be noted that the number of sites identified by DNR and Commerce differs for several reasons, including that DNR records a site as soon as contamination is identified, but only those sites that may be eligible for reimbursement are likely to contact Commerce.

Table 10

Status of Underground Tank Sites
(as of June 30, 1998)

Fiscal Year	Sites Opened	Sites Closed by DNR	Sites Transferred to Commerce	Sites Still Open at DNR*
1980-81 to 1986-87	156	0		156
1987-88	152	23		285
1988-89	488	72		701
1989-90	1,622	165		2,158
1990-91	2,005	309		3,854
1991-92	1,907	496		5,265
1992-93	1,944	742		6,467
1993-94	2,018	1,028		7,457
1994-95	1,636	1,378		7,715
1995-96	1,362	1,324	552	7,201
1996-97	1,406	847	1,017	6,743
1997-98	1,287	517	491	7,022
Total	15,983	6,901	2,060**	

* Sites closed by DNR include sites opened in prior fiscal years.

** Of the 2,060 sites transferred to Commerce, that agency closed 573 in FY 1996-97 and 712 in FY 1997-98.

Based on the experience of the PECFA program and DNR's internal study of engineered systems, it appears that DNR's policy of self-regulation has not been effective in ensuring that underground tank sites are closed promptly once adequate cleanup has occurred. Consequently, *we recommend the Department of Natural Resources develop active monitoring procedures of cleanup activity to ensure that sites are closed promptly*. Steps DNR could take to more effectively monitor progress toward meeting standards and closing sites include conducting an annual review of cleanup status and requiring consultants to include in their current reports an estimate of time and future costs to bring the site into compliance with numeric enforcement standards, as well as a separate estimate of the time and future costs of bringing the site into compliance with the more stringent preventive action limits.

Increasing Consistency

In addition to adopting a more active management approach to become more accountable for the cost-effectiveness of cleanup efforts, DNR could improve the overall effectiveness of its management efforts both by improving consistency among field staff and by standardizing reporting formats and content requirements in order to lower consultant costs and improve the efficiency of DNR staff reviews.

While DNR administrative rules contain significant detail concerning cleanup requirements and numeric standards, they also enable DNR staff to exercise considerable judgment and individual discretion over whether a site will be allowed to close once it has met the numeric enforcement standards, or whether it will be required to meet the more stringent preventive action limits. Similarly, DNR staff exercise discretion in decisions over whether to allow sites to achieve numeric standards using natural attenuation or more costly engineered systems or other methods of cleanup.

DNR staff have varying expectations of owners and their consultants.

Our survey of consultants, discussions with DNR field staff, and review of a sample of 218 site files all indicate variation among DNR regions and among individual field staff in their expectations of consultants and the materials expected from consultants, and in their interpretation of the numeric enforcement standards and more stringent preventive action limits. For example, DNR guidance for remediation through natural attenuation instructs that four quarterly rounds of laboratory results should show declining contamination and that the rate of attenuation will allow for numeric standards to be achieved in a reasonable period of time. However, some staff we talked to stated that they may require up to six rounds of results, and staff had different expectations concerning the number of quarterly monitoring rounds needing to show contaminant levels below numeric standards before a site could be closed when other remedies are being used.

Further, while some DNR staff reported to us that they allow the use of natural attenuation whenever possible, others reported that they, or other staff, require sites to reduce contamination to or below the preventive action limits using more active remedies whenever possible, even if the owner of the site is willing to accept a deed restriction in order to close the site earlier. For example, we noted an instance in which a consultant had requested closure using natural attenuation for a site in Outagamie County showing contamination below the enforcement standards but above the preventive action limits, stating that it would not be affected by a legal control such as a deed restriction; however, DNR staff denied closure and required more monitoring. The monitoring continued to show pollution below the numeric standards, and the site was eventually closed after additional monitoring costs were incurred.

Greater consistency in staff decisions is needed.

Agency officials indicate that while DNR has established "consistency teams" to promote a consistent approach to cleanup and closure decisions, regional staff currently retain considerable discretion in the application of enforcement standards. Further, DNR has not developed management procedures to collect and review staff decisions in order to determine whether recommended approaches are followed. Because considerable variation in staff judgment contributes to program costs and makes it more difficult for owners and consultants to understand cleanup and reporting expectations, *we recommend the Department of Natural Resources develop detailed guidelines stating the conditions for which staff should apply each closure option, as well as procedures and training to ensure that staff are complying with the guidelines*.

Some consultants' actions may increase PECFA costs unnecessarily.

Currently, DNR's sole method of overseeing sites and determining whether closure is appropriate is the review of reports submitted by consultants. However, our discussions with DNR field staff and our review of a sample of site files indicate significant inconsistencies in the types of information submitted by consultants, the amount of information submitted, and the composition of the files themselves. These variations and inconsistencies make file review and oversight by DNR staff unnecessarily time-consuming and expensive. Further, the lack of explicit directives to consultants may allow some consultants to increase their fees by preparing and submitting unnecessary materials to DNR. For example, a site investigation submitted for a site in Waupaca did not include property boundary maps or laboratory test data, which then required DNR to request more information from the consultant before it could review the site.

DNR and the consulting industry have now had more than ten years of experience in addressing petroleum cleanup. DNR could use that experience to standardize its reporting and file review procedures. Standardized reporting procedures would allow more effective and cost-efficient oversight by its staff. Therefore, *we recommend the Department of Natural Resources develop standard reporting formats, file content requirements, and file review procedures to be used by all consultants and the Department's field staff*.

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COMMERCE PROGRAM MANAGEMENT

The Department of Commerce is responsible for reviewing and paying all PECFA claims. Through its review of reimbursement requests and other management efforts to oversee PECFA expenditures, Commerce can influence overall program costs. Since the program's inception, Commerce has taken steps intended to strengthen its control over the cleanup methods used and to monitor claims for reimbursement, both of which significantly affect the costs reimbursed by PECFA. However, we have identified additional steps Commerce can take to improve its management of program costs, including establishing more effective cost guidelines, improving its computer systems to facilitate analysis of claims for potential program savings, and more actively investigating potential program abuses by consultants.

Commerce reviews and pays claims for all sites.

Commerce has four primary functions in administering the PECFA program:

- determining eligibility for participation for all sites;
- reviewing proposed remedial actions to establish a maximum reimbursable amount for all sites;
- overseeing cleanup for low- and medium-priority sites, making final determinations of compliance with state standards, and approving closure requests for those sites; and
- reviewing all claims for reimbursement and making payments.

To complete these functions, Commerce uses 33 FTE positions, including 12.5 FTE claims reviewers and 11.5 FTE hydrogeologists, to determine program eligibility, review claims and determine reimbursement amounts, review proposed remedial action plans, and oversee cleanup at low- and medium-priority sites. The remaining positions include 5 FTE administrative staff, 2 FTE attorneys to handle appeals of denial of program eligibility and ineligible cost determinations, a financial manager, and an auditor.

Current Management Responsibilities

As noted, once tank owners notify DNR of potential contamination, the agency informs them they may be eligible for cleanup reimbursement

under the PECFA program. Owners must then apply for and obtain an initial determination of program eligibility from Commerce before beginning cleanup, except for emergency actions. Commerce typically completes initial determinations of eligibility within one month.

Commerce's plan-review authority was recently expanded.

Since March 1994, owners have also been required to submit to both DNR and Commerce their proposed remedial action plans, including analyses of natural attenuation and at least two other alternative cleanup methods. Commerce reviews those plans at the time of claims review to ensure that the least-costly of the three alternatives considered was implemented. Commerce's plan-review authority was expanded in April 1998 with the promulgation of ch. Comm. 47, Wis. Adm. Code, which specifically authorizes Commerce staff to seek reductions in the scope of proposed cleanup plans or proposed costs.

DNR and Commerce have disagreed over the level of cleanup needed at some sites.

Under the new code provisions, Commerce cannot require an owner to follow a particular cleanup method, but it can limit the costs reimbursed by PECFA to the amount associated with the lowest-cost cleanup option that it believes sufficient to meet cleanup standards. Although this authority has been in effect for less than six months, Commerce and DNR staff indicate there have been disagreements between the agencies over the level of cleanup needed. As a result, owners now face the potential of having DNR require different or more costly cleanup methods than those for which Commerce will authorize reimbursement. A May 1998 interagency memorandum of understanding provides a mechanism for resolving interagency differences, but it is too soon to tell whether this dispute-resolving mechanism will prove effective.

Most sites managed by Commerce involve only soil contamination.

The Department of Commerce also oversees cleanup at low- and medium-priority sites, which consist largely of sites for which soil but not groundwater is contaminated. Commerce's case management has typically involved reviewing proposed remedial actions using methods developed by DNR, and negotiating with owners and consultants to restrict cleanup to those actions necessary to achieve cleanup standards, such as by minimizing the amount of soil excavated. Because cleanup at most low- and medium-priority sites consists largely of soil excavation and treatment and monitoring to ensure contaminants are naturally attenuating, cleanup is typically completed and these sites are closed more quickly than are high-priority sites with significant groundwater contamination. Commerce determines when no further remedial action is necessary for low- and medium-priority sites.

All claims for reimbursement of cleanup costs are also reviewed by Commerce staff to determine their eligibility under program guidelines. Owners may submit reimbursement claims following the completion of emergency actions, when site investigations are completed, at two-year intervals during long-term monitoring or long-term operation of an engineered system, or when cleanup is complete. As shown in Table 11, the number of claims submitted has outpaced the ability of Commerce to

review them, particularly during early 1998 when many owners advanced the submission of claims to avoid the cost-control measures contained in revisions to ch. Comm. 47, Wis. Adm. Code.

Table 11

Number of Claims Submitted and Reviewed by the Department of Commerce

Fiscal Year	Claims Submitted	Claims Reviewed
1994-95	1,478	1,496
1995-96	2,041	1,557
1996-97	2,356	1,956
1997-98	2,346	2,091

A significant claims processing backlog exists.

Based on the existing payment backlog as of June 30, 1998, a claim submitted at the end of FY 1997-98 is not likely to be reviewed until June 1999, and once reviewed, it will likely need to wait an additional two years before funds are available for payment. Because the number of claims reviewed in recent months has been exceeding the number submitted—including 343 more claims reviewed than submitted during May, June, and July of 1998—Commerce staff expect the claims-processing backlog to decline during the next year. However, since existing revenues are unchanged, funds are not available to pay claims as rapidly as they are reviewed and approved for payment. Therefore, reductions in the processing backlog will be met with corresponding extensions to the payment backlog, and the total wait for owners between the submission of their claims and receipt of payment will remain relatively unchanged.

Claims review has traditionally involved comparing claimed costs to a list of eligible and ineligible costs specified in administrative code, ensuring that owners obtained three bids for cleanup services and selected the lowest bid, and reconciling invoices to prove payment for those invoices. The proportion of claimed costs found to be ineligible has never exceeded 5 percent, as shown in Table 12. Claimed costs most commonly found to be ineligible include ineligible tank systems, tank extraction costs, travel costs that exceed the state mileage rate, costs for personal protective

equipment, and costs incurred when bid requirements were not followed or the lowest bidder was not selected. Appendix VII lists more specific examples of eligible and ineligible costs.

Table 12

Ineligible Costs

Fiscal Year	Amount Claimed	Amount Ineligible	Percentage Ineligible
1994-95	$ 69,975,809	$3,102,470	4.4%
1995-96	115,472,035	4,881,717	4.2
1996-97	170,252,984	8,555,284	5.0
1997-98	158,568,212	7,988,927	5.0

Because owners may appeal ineligible cost determinations, some of the amounts Commerce has determined to be ineligible will eventually be paid to owners. As shown in Table 13, the amounts appealed have increased and the percentage paid has fluctuated, although it has typically amounted to less than one-third of the amount originally appealed. 1997 Wisconsin Act 27 authorizes Commerce to impose a penalty on ineligible claims equal to 50 percent of the denied amount. However, because of the delay in claims processing, no claims submitted since these provisions took effect have yet been processed. The processing of appeals may be expedited in the future by provisions contained in 1997 Wisconsin Act 237, which allow owners to seek arbitration rather than submit a formal appeal and participate in a hearing before an administrative law judge.

Table 13

Comparison of Appealed Amounts and Amounts Paid
(by fiscal year)

Fiscal Year	Number of Appeals	Amount Appealed	Number Resolved	Amount Paid	Percentage Paid
1992-93	8	$ 81,328	8	$ 15,000	18.4%
1993-94	15	412,208	15	291,874	70.8
1994-95	150	4,706,113	146	1,507,734	32.0
1995-96	238	5,326,728	226	883,341	16.6
1996-97	168	2,150,617	137	610,563	28.4
1997-98	152	4,549,201	57	457,551	10.1
Total	731	$17,226,195	589*	$3,766,063	21.9

* As of June 30, 1998, 142 appeals were still pending.

Increasing Management Oversight

Commerce traditionally has relied on owners to ensure cleanup costs are reasonable, and it has relied on requirements that consultants be selected from among three proposals and that commodity providers be competitively selected to control costs. However, as indicated earlier, owners have limited financial incentive and typically lack the technical expertise to oversee consultants and contain costs. Although the bidding process for selecting commodity providers may promote efficiency, it has not ensured that costs being reimbursed by PECFA are minimized or reasonable, or that they will be comparable for similar services at different sites.

Current cost-control methods do not prevent variations in charges for similar services.

Commerce officials and industry representatives note that requirements for bidding have reduced the cost of services such as excavation, laboratory testing, hauling, and landfill and soil treatment. Nevertheless, reimbursement amounts for similar services continue to vary because reimbursements are based on actual costs rather than on usual and customary charges for commonly provided services. Further, numerous services are not required to be bid, and Commerce staff and others have identified a variety of apparently unreasonable service charges. For example, Commerce staff identified:

- a consulting firm that charged $200 per hour, which was the hourly rate for a partner in the firm, to collect water samples from a site—a task that reflects a low skill level and could be done by a technician;

- consultants that submitted claims of between $50,000 and $100,000 for computer modeling that Commerce hydrogeologists believe should have cost less than $10,000; and

- a firm that charges $45 per hour for clerical work, although claims involving similar charges by other consultants are much lower.

Given the potential for variations in charges for similar services across sites, we believe Commerce could further control PECFA program costs by the development of cost guidelines; improved financial management; and more effective deployment of staff resources, including auditing efforts.

Cost Guidelines

Cost guidelines, first authorized in 1991, have not yet been implemented.

Provisions contained in 1991 Wisconsin Act 39 enhanced Commerce's ability to control costs by authorizing it to adopt a schedule of usual and customary costs but to continue paying actual costs if warranted by circumstances of particular sites. Further, Commerce has been required to establish such cost guidelines under administrative rules adopted in 1993, but it has not yet done so.

Other states use cost guidelines to ensure that reimbursed costs reflect reasonable charges and to ensure consistency across sites. For example, in Texas, guidelines establish detailed descriptions of the level of work expected for certain tasks, such as the time needed to complete computer modeling for a site, as well as unit cost limitations for all routine activities, such as a maximum daily charge for truck usage. Further, the Texas guidelines establish limits for:

- site assessment work, such as identification of nearby wells and facilities, determination of well elevations, testing costs, and total site and risk assessment report preparation;

- excavation work, asphalt removal, hauling, and landfill disposal; and

- analysis and report preparation by senior engineers, which is limited to 3 hours at $95 per hour; for field work and report preparation by field engineers, which is limited to 10 hours at $65 per hour; and for field work and reporting by field technicians, which is limited to 10 hours at $45 per hour.

Other states with cost guidelines include:

- Colorado, which has established maximum allowable rates for well-drilling activities, soil excavation, hauling and disposal, laboratory testing, and labor and equipment costs;

- Indiana, which has established maximum allowable costs for soil sample and groundwater monitoring; well installation; laboratory testing; staff and labor costs; site set-up preparation costs; construction/ demolition costs; and soil excavation, transportation, and disposal;

- Minnesota, which has established a mix of level-of-effort and total cost guidelines, such as a maximum allowable consultant charge of $3,500 for the design of a groundwater pump-and-treat system and maximum hourly rates for each type of staff member involved in cleanup activities, as well as rules prescribing when a senior-level professional may be used and when a consulting firm must use an entry-level professional or a field technician; and

- Virginia, which requires prior approval from the state oversight agency for all cleanup tasks performed and for all items purchased to conduct the cleanup effort.

Cost guidelines could expedite claims review and prevent unwarranted variations in charges.

Because Commerce's claims-review practices currently allow costs paid for similar services to vary across sites, the development and implementation of cost guidelines by Commerce could be expected to improve the efficiency of the PECFA program and to help reduce costs in several ways, including by:

- providing staff with a consistent benchmark for evaluating whether the amount of costs being proposed in remedial action plans or submitted in claims is appropriate, rather than requiring staff to review each remedial action plan or reimbursement claim in isolation;

- providing both responsible parties and service providers with more specific information on the level of charges Commerce believes to be acceptable, thereby enhancing Commerce's ability to influence the rates charged by consultants and commodities providers for similar services;

- focusing the attention of reviewers on the claims, owners, consultants, and service providers that consistently exceed reasonable charges, in order to offer the greatest potential for reducing program costs; and

- creating a benchmark from which Commerce can defend itself against appeals when claims-review staff declare certain costs ineligible.

Commerce plans to implement cost guidelines by January 1, 1999.

Commerce has implemented several cost-containment measures, such as adopting administrative rules setting a $40,000 cap on site investigation costs, and limiting allowable travel costs to those allowed by state travel guidelines. However, it has been reluctant to develop cost guidelines such as usual and customary rates for consultant, laboratory, and soil excavation services, believing that such guidelines may encourage some providers to charge higher rates if the maximum allowable charge for a service is above what they would normally charge, as well as that bidding requirements are adequate to ensure costs are minimized. Nevertheless, analysis of typical charges for individual services should allow Commerce to set cost guidelines at levels that prevent unreasonably high charges by some providers while allowing little opportunity for other providers to increase rates. Further, bidding requirements will continue to motivate providers to minimize charges. During the course of this audit, Commerce agreed to develop cost guidelines, and it plans to have them in place by January 1, 1999. We support Commerce's decisions to use the cost oversight authority it has been granted by the Legislature, and *we recommend the Department of Commerce's plan include guidelines for all costs commonly associated with PECFA cleanup and that it establish data collection and analysis methods that allow guidelines to be revised as appropriate to accommodate market changes*. The guidelines should include level-of-service guidelines for common tasks and maximum hourly rates for various skill levels, as well as time limitations and maximum unit costs for specific tasks. In addition, they should allow Commerce flexibility to deviate under special circumstances in order to meet cleanup objectives.

Financial Management

The PECFA financial management system has deficiencies.

Central to Commerce's ability to meet its responsibilities for financial management of the PECFA program is the program's database system, which includes financial and program information used to make payments to owners and to ensure compliance with statutory maximums. We identified several shortcomings in the database that prevent Commerce from meeting all of its statutory financial management responsibilities.

Payments to owners of underground tanks must comply with two statutory caps. First, no underground tank site may be reimbursed more than $1 million. Second, for owners of 100 or fewer tanks, the maximum amount an owner may be reimbursed for costs incurred in one program year is $1 million. The corresponding cap for owners with more than 100 tanks is $2 million per year. Because a single reimbursement claim may include costs incurred during several prior years and owners submit multiple claims for each of their sites over many years, ensuring compliance with these provisions requires claims reviewers to have access to information about all claims paid for an owner, as well as the years during which the reimbursed costs were incurred.

Before 1996, Commerce program managers monitored program activity by relying on spreadsheets that listed site location, recipient names, their consultants, and basic financial information concerning how much owners had been reimbursed. In September 1996, the Legislature appropriated $160,000 from revenues generated by the petroleum inspection fee for use by Commerce to initiate a new database system, called Tracker. 1997 Wisconsin Act 27 authorized $285,000 in FY 1997-98 and $200,300 in FY 1998-99 to continue improvements in the system. As of June 30, 1998, Commerce had spent $267,700 on management information improvements and lapsed $177,300. Expenditures consist primarily of contract programmer costs for tailoring available software programs to PECFA needs.

Additional improvements to Commerce's financial management system are needed.

While Commerce has made improvements in its data tracking and its ability to ensure compliance with statutory requirements, including changes to address concerns that we identified in previous financial audits, Commerce staff are still not able to use the Tracker system to ensure the statutorily established $1 million cap per site is not exceeded or that annual deductible levels for owners are met. For example, the database has not been updated to include financial information on past claims, such as how much was paid and the year in which cleanup costs were incurred. Further, Commerce staff acknowledge and our review verifies an ongoing and fluctuating variance of approximately $500,000 between the amounts paid to owners according to Tracker and the amounts paid to owners according to the State's accounting system. While some minor variations may occur from month to month, this difference appears too large to be attributable to monthly processing time

lines. To ensure sound financial management, *we recommend the Department of Commerce:*

- *update its database to ensure complete cost information related to an individual site and each owner's annual spending cap is readily available to staff;*

- *investigate the variance between total payments in the financial management database and expenditures recorded in the State's accounting system to identify when the variance first occurred and the reasons for the variance; and*

- *ensure that for future transactions, the financial management database reconciles with the State's accounting system.*

Program Management

In addition to financial management, the Tracker database is essential to Commerce's ability to evaluate program effectiveness, as required by statutes. However, Commerce's use of information from Tracker to analyze program activity has been limited. For example, the system neither collects nor analyzes:

- variations in charges by consultants for investigations, and whether variations from site to site are justified based on the complexity of the work;

- variations in charges for remedial work by different consulting firms, to identify any variations and determine whether those variations are justified by differences in the complexity of sites being managed or by other reasons;

- variations in charges by contract service providers, such as laboratories, excavators, well-drillers, haulers, or landfill providers; and

- project costs and duration by cleanup technique, soil type, region, and consultant.

Variations in consultant charges are not analyzed.

We analyzed data collected by Commerce on consultant charges and found that several consulting firms consistently appear to charge higher costs per PECFA site. For example, the average charge per site for 4 of the 25 firms cited in Commerce's database as having received reimbursement for work on at least 5 sites exceeded the average charge of $44,345 by more than $20,000. Further, we found that the largest provider of consulting services to petroleum-contaminated cleanup sites

charged an average of $89,689 per site, compared to the average of $44,345 for all sites and firms. While we did not review the sites managed by these firms to assess variations in complexity, the firms with above-average costs all provide services to a relatively large number of sites, suggesting that these firms likely manage a broad cross-section of sites. Commerce has not conducted a similar analysis to determine whether such wide variations in costs are justified.

Analyzing consultant charges and other cost areas would allow Commerce to identify high-cost providers, determine whether higher-than-average charges by those firms are justified, and make such information available to owners to assist them in making cost-effective cleanup decisions. Consequently, *we recommend the Department of Commerce include in its database additional program management information, such as:*

- *the number of sites for which firms have provided services;*
- *average charges for consultant services for active and closed sites; and*
- *average charges by commodity providers for the most significant commodity services, such as excavating, hauling, laboratory testing, and landfill disposal.*

Audit Resources

Commerce is authorized to investigate allegations of fraud and abuse.

Commerce is also responsible for investigating program abuses. Improved management information would allow Commerce to more effectively examine the appropriateness of claims for reimbursement and to deploy audit staff to investigate potential fraud.

In 1993, in response to concerns that consultants and service providers were abusing the program, the Legislature authorized two FTE auditor positions to conduct financial audits of consultants, as well as $51,500 annually for Commerce to contract with consulting firms for field audits of cleanup sites. Commerce currently dedicates one of the two FTE audit positions authorized to financial auditing and generally assigns the other to administrative work, claims review, and legal work. In addition, its last contract with a private firm ended in June 1997. Although Commerce officials state that the agency plans to contract with another consulting firm to conduct this function, no steps have been taken to initiate selection of a new provider.

Commerce officials state that allegations of program abuses are routinely received from owners, consultants, and others through letters, telephone calls, and in-person contacts, and that Commerce staff also identify potentially inappropriate activities while reviewing reimbursement claims or cleanup activities. During discussions with us, staff expressed concerns regarding both specific companies and practices that may be inappropriate, such as:

- some consulting firms that routinely submit reimbursement claims substantially in excess of approved project cost estimates; for example, a project in Abrams had been approved to excavate 5,000 tons of soil and to treat 25,000 gallons of groundwater, but a claim was submitted for excavation of 14,000 tons of soil and treatment of 103,028 gallons of groundwater, and the consultant wanted to treat an additional 100,000 gallons of groundwater;

- accusations that consulting firms and certain service providers, such as excavators or soil haulers, work together to ensure these providers are awarded bids;

- consulting firms that illegally rebate the deductible amount or the cost of a tank extraction to the site owner in an effort to attract business; and

- consulting firms that seek reimbursement for activities clearly not covered by the program, such as costs for removing old tanks from the ground and for businesses cleaning up contamination caused by heating oil tanks.

In response to concerns about fraud and abuse, Commerce is authorized to obtain records from consultants, owners, and service providers and to investigate claims of wrongdoing, as well as to refer cases to the Department of Justice for prosecution when necessary. Records indicate that 38 investigations of suspected fraud have been conducted since 1988, of which the audit staff authorized in 1993 conducted 6. Of the 38 investigations, 17 resulted in Commerce taking action against 22 consultants or consulting firms. The actions included issuing 5 warning citations that will result in a six-month suspension if additional violations occur, 11 three-month suspensions from program participation, and 6 permanent suspensions. In addition, two owners of an excavation firm received jail terms and were permanently banned from serving PECFA clients, and one site owner received a prison term for defrauding the program.

Commerce should use its audit resources more systematically.

Currently, decisions to conduct investigations are made on an ad hoc basis. Commerce has no systematic approach for identifying and tracking allegations of fraud, and it is not possible to determine how many such complaints have been received, what types of allegations have been made, or how frequently allegations are made about individual firms. Rather, program managers told us that complaints and observations of questionable practices are kept informally, in writing or in memory, by individual reviewers and managers, and that they are communicated informally among program staff and managers.

Because a more systematic analysis of complaints and other information could improve efforts to detect fraud and abuse, *we recommend the Department of Commerce develop strategies for tracking and monitoring complaints of fraud filed by consultants, owners, and other interested parties, as well as develop a plan on how to best use its audit staff to help identify questionable claims and investigate complaints*.

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FUTURE CONSIDERATIONS

Legislative and public concern about PECFA program costs are expected to continue as reimbursement requests significantly outpace available revenue, existing sites submit additional claims, and new sites are identified. As noted, only 2,802 of the 11,073 sites currently identified as eligible to receive payment have been closed, no claims have yet been submitted for over 5,400 more eligible sites, and there are currently no reliable estimates of when demand will begin to plateau or decline. However, even if no additional claims were submitted, the backlog as of June 30, 1998, which is approximately $271 million, would take almost three years to eliminate given current funding sources. Not only does a backlog increase reimbursable interest costs, and thereby reduce funds available for actual cleanup, there is concern that when reimbursement is delayed, some owners may attempt to avoid cleanup requirements.

The Legislature and the agencies have taken some action to address continuing concerns.

The Legislature has increased PECFA funding and encouraged DNR and Commerce to better control PECFA costs on several occasions since the program was created, and recently both the Legislature and the agencies have made a number of additional changes intended to reduce program costs. These include legislative action in 1997 Wisconsin Act 27 that limited reimbursable PECFA interest charges to 1 percent above the prime lending rate, action in 1997 Wisconsin Act 237 that required implementation reports by DNR and Commerce, and the development of a revised memorandum of understanding formalizing joint DNR and Commerce management responsibilities. In addition, Commerce recently made major changes to its administrative rules, which include:

- encouraging owners and consultants to limit cleanup costs by reducing reporting requirements and state oversight for sites with costs below $80,000;

- increasing its authority to review proposed remedial actions and existing remedial activities and to set cost limits for individual sites; and

- increasing its authority to require bidding for cleanup work, as well as "bundling" cleanup activities from several sites into a single bid to increase cost efficiencies.

However, even if these changes are fully implemented, it appears they will not be sufficient to lower reimbursement claims to the level of available revenues within the foreseeable future. Therefore, the Legislature is likely to be asked to address several questions in the future.

How can cooperation between the two agencies responsible for PECFA administration be improved?

In a revised memorandum of understanding signed in May 1998, Commerce and DNR established procedures to improve communication and the exchange of information between the two agencies. DNR agreed to take steps to transfer all low- and medium-priority sites to Commerce, and the agencies agreed to jointly develop a pilot program to improve the efficiency of site classification, to develop a streamlined mini-investigation process for sites with little contamination, and to modify their respective databases to allow better transfer of information. To monitor the progress of the agencies in implementing the agreement, 1997 Wisconsin Act 237 included requirements for DNR and Commerce, along with the Department of Administration, to make semi-annual reports to the Legislature's Joint Committee on Finance concerning their progress in implementing the terms of the memorandum of understanding.

Differing agency goals remain a barrier to cooperation.

Despite these efforts, it would appear that a difference in the goals of Commerce and DNR is a continuing barrier to full cooperation and achieving a cost-effective petroleum cleanup program. While Commerce has assumed responsibility for cost-control efforts, DNR believes it lacks similar statutory authority to assume responsibility for cost-effectiveness, even though it manages the majority of sites and its authority in interpreting environmental standards and enforcing cleanup goals for all sites strongly influences program costs. Unless both agencies that influence costs have the same goals and are held statutorily accountable for the cost-effectiveness of cleanup efforts, it is questionable whether cooperation can be complete or the goal of controlling program costs can be fully met.

To what degree can program costs be controlled through administrative actions?

Administrative actions primarily affect low-cost sites.

It is difficult to state precisely the effect that increased coordination and improved program management will have on future program costs. Recently, Commerce estimated that administrative rule changes could result in program cost reductions of up to 15 percent annually. In addition, both Commerce and DNR have cited anecdotal examples of cost savings on individual sites as a result of recent cost-containment measures such as mini-investigations. However, it should be noted that these efforts, as well as attempts to move lower-priority sites to Commerce more quickly, are directed primarily at sites with limited contamination. Because these tend to be low-cost sites, associated cost savings will have considerably less effect on overall program costs than activity at the high-priority, potentially high-cost sites managed by DNR, which include the most polluted sites and those where cleanup is most difficult, such as sites

with contaminated groundwater trapped by clay soils. As indicated in Appendix VIII, 4,501 high-priority sites currently remain open, and more than 300 of these sites have been open for over eight years.

Should funding and structural changes be made to PECFA?

Either financial changes or changes in how standards are applied may be needed.

Because it is questionable whether agency actions alone will sufficiently control costs, the Legislature may find it necessary to consider the difficult options of:

- financial changes, including developing different financial incentives or funding alternatives; or

- changes to the application of environmental standards, such as targeting available funds to sites that pose a greater threat to people or the environment based on Wisconsin's existing numeric standards, and addressing lower-risk sites by means of existing lower-cost alternatives or postponing work on these sites until funding is available.

Financial Changes - Because current cleanup costs exceed available revenue from the petroleum inspection fee, interest costs on the backlog are increasing rapidly. Interest costs were 7.0 percent of payments in 1994 and 13.5 percent of payments in 1998, and we estimate they will account for at least 32 percent of program payments by June 30, 2000. One financial change some have suggested is that the State use its bonding authority to raise sufficient funds to complete cleanup at existing open sites and eliminate the backlog. Proponents of this approach argue that because the State can borrow funds at lower rates than banks charge site owners, bonding would reduce reimbursable interest costs and spread the costs of completing a long-term policy goal over a longer term. Opponents argue that cleanup costs in Wisconsin are already too high and that eliminating the backlog by substantially increasing available funding may diminish the incentives to make costs more reasonable. They argue that bonding without other changes to the program could allow additional payment backlogs to develop in the future.

As an alternative way to reduce the backlog and lower interest costs, the Department of Administration is currently analyzing the concept of lowering interest charges by contracting with a single company to finance cleanup costs. Such an approach would provide cost savings to the extent that a consolidated interest rate would be lower than the rate that banks currently charge site owners for loans to fund cleanup costs. It is expected that standard state procurement procedures would be used if such a concept were pursued.

Another option available to the Legislature would be to increase site owners' incentives to control costs by changing current deductible requirements, which are more generous than those of at least 35 of the 49 states for which we were able to obtain information. Proponents of raising owner deductibles argue that the existing deductible structure provides little incentive for owners—who pay an average of 5 percent of cleanup costs in Wisconsin—to control costs, and that deductibles have actually declined in real terms because they have not changed since PECFA's inception in 1988. Further, they note that because current deductibles are not based on owners' ability to pay cleanup costs, large corporations receive the same benefits as small business owners. Opponents argue that increasing deductibles now may be a hardship on small owners, particularly those that have already delayed compliance with tank requirements for financial reasons.

Independent of, or in addition to, increasing program deductibles, changes could be made in how deductibles are applied. Other states have structured their owner deductibles in a variety of fashions, from flat deductibles that place a higher burden on low-cost cleanups to deductibles based on a percentage of overall costs, which treat all sites the same regardless of costs, to a combination of flat and percentage deductibles, such as is currently used in Wisconsin. Further, some states, such as Iowa, structure their percentage deductibles so that the proportion of costs for which owners are responsible increases as costs increase. This approach provides a strong incentive to keep costs low.

Another alternative that has been discussed in the past is the establishment of a lower cost cap for cleanup reimbursement. While the current cap for most sites is $1 million, in 1990 the Legislature established a cap of $190,000; that cap was to take effect in 1995, but implementation has been postponed to 2001. Some have suggested that an interim cap somewhere between the current $1 million and the proposed $190,000 could be phased in. It should also be noted that while most states have a reimbursement program, a few states do not and instead expect owners to be responsible for cleanup costs. In some cases, states without reimbursement programs provide assistance to those owners who are financially unable to pay for cleanup, or the states pay cleanup costs themselves if owners cannot be located.

Finally, the Legislature could consider providing additional revenue to fund PECFA program costs. In the past, this has been done by increasing the petroleum inspection fee. Since the creation of PECFA, this fee has been increased three times, from $0.005 per gallon to the current $0.03 per gallon.

Changes to the Application of Environmental Standards - Because the program's backlog currently equals approximately three times annual revenues, and annual claims exceed revenues, any changes to PECFA funding or financial incentives would need to be significant and ongoing. Consequently, as an alternative to or in conjunction with financial changes, the Legislature may also be asked to consider changes in how environmental standards are applied in cases of petroleum contamination.

Proposed changes to Wisconsin's environmental standards have been opposed in the past because of concerns about diminishing environmental quality and potentially increasing risks to public health and safety. However, given the current controversy about state environmental standards and how they should be applied to petroleum-contaminated sites, legislative clarification may be necessary. Legislative options include:

- clarifying whether the more stringent preventive action limits or the enforcement standards included in the Groundwater Law should serve as cleanup goals;

- transferring greater authority over the selection of cleanup methods to the State; or

- adopting the risk-based methods encouraged by EPA and adopted by most other states.

First, as noted, there is currently considerable debate among state staff and consultants over the guidance DNR has issued to its staff on using the more stringent preventive action limits, instead of numeric enforcement standards, as goals for cleanup. Some DNR staff indicate that s. NR 140.01(3), Wis. Adm. Code, and the NR 700 administrative rule series authorize the use of preventive action limits as cleanup standards. However others, including some agency staff and consultants, argue that preventive action limits were established with the intention that they would serve as an early warning mechanism, which would indicate that continued polluting activity would likely result in enforcement standards being exceeded and allow DNR to require the polluting activity to cease.

In the case of petroleum cleanup, additional polluting activity ceases with the removal of the old tank or heavily contaminated soils. Further, it has been argued that when the preventive action limit is used as a cleanup standard, the statutory enforcement standard is rendered moot. To address continuing controversy over the State's standard and the Legislature's intent, and because the internal policy decisions of DNR field staff have a significant effect on PECFA program costs, the Legislature may wish to consider requiring DNR to submit its current staff guidance documents as an administrative rule for legislative review and approval.

Second, even though PECFA bears virtually all of the financial burden for completing cleanup at eligible sites in Wisconsin, owners exercise a disproportionate share of the influence over how cleanups are conducted. While the recently enacted cost-control limits increase state influence, there are options to provide even more state authority to control costs. For example, some other states structure their reimbursement programs so that an owner seeking program benefits must agree to conduct cleanup efforts as directed by that state as a condition of receiving program benefits. Further, some states may negotiate broad contracts for cleanup services with consulting firms and commodities providers, and then require owners to purchase services from those vendors to take advantage of economies of scale.

Finally, implementation of a risk-based system for cleanup efforts could help to prioritize program expenditures by, in effect, establishing a priority system for authorizing cleanup activities. While DNR believes that existing administrative rules are flexible enough to achieve the results of a risk-based approach, others have argued—and our analysis of DNR files indicates—that there are noteworthy differences between a risk-based approach and Wisconsin's rules. While Wisconsin's approach is designed to ensure that sites posing a risk are addressed, it is not as flexible as other states' approaches in allowing low- or no-cost alternatives to be adopted for sites that pose little or no risk. Further, the significant degree of discretion exercised by DNR staff makes it questionable whether the flexibility noted in current rules is consistently available to owners and consultants in practice.

Opponents of a risk-based approach have argued that it would undermine the intent of Wisconsin's groundwater and cleanup laws, which is restoration of the environment in all cases. On the other hand, proponents argue that existing enforcement standards could be maintained while allowing greater flexibility in the time frame and methods used to actively pursue compliance with those standards. They believe such an approach would allow the State to ensure immediate protection of public health and environmentally sensitive areas, while progressing more gradually toward meeting environmental restoration goals over the long term.

Because there has been extensive experience with risk-based approaches nationally, it would appear the State could contract with an outside organization to develop proposals for the Legislature to review regarding application of such an approach to cleanup of petroleum contamination in Wisconsin. The American Society for Materials Testing originally developed the risk-based approach most states have adopted. In addition, EPA has provided funding to create an organization called Partners in Risk-Based Correction Action Implementation (PIRI). This group consists of EPA officials, industry representatives, and members of the scientific community who provide advice and training on the use of risk-based strategies. While PIRI has in the past analyzed Wisconsin's administrative rules governing cleanup and concluded they address sites

that pose risk to human health or the environment, the study was not designed to provide analysis or recommendations about how a comprehensive risk-based approach similar to ones adopted in other states could be adapted in Wisconsin.

If the Legislature chooses to have recommendations for a risk-based approach developed for Wisconsin, it could specify that the contractor develop at least two risk-based alternatives for petroleum contamination cleanup: one that would assume some changes to the current Groundwater Law for petroleum cleanup, and another that would rely on the flexibility currently available under statutes to prioritize available funds and schedule how promptly sites are required to be cleaned up. In light of the considerable experience nationally with risk-based approaches, it may be reasonable for the Legislature to expect a contractor to develop such a proposal within a matter of months.

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APPENDIX I

Maximum Awards and Deductibles per Site
By Eligible Tank Type

Eligible Tank Type	Use of Tank	Maximum Award*	Total Annual Awards**	Deductible
Underground	Does not store products for resale and handles 10,000 or fewer gallons per month	$500,000	$1,000,000***	$2,500 plus 5% of eligible costs up to a maximum of $7,500
Underground	Stores products for resale or handles more than 10,000 gallons per month	$1,000,000	$1,000,000***	$2,500 plus 5% of eligible costs up to a maximum of $7,500
Above-ground	Does not store products for resale and handles 10,000 or fewer gallons per month	$500,000	$1,000,000***	$15,000 plus 2% of eligible costs
Above-ground	Stores products for resale or handles more than 10,000 gallons per month	$500,000	$1,000,000***	$15,000 plus 2% of eligible costs
Underground or Above-ground Farm	Stores 1,100 or fewer gallons of vehicle fuel not for resale	$100,000	$100,000***	$2,500 plus 5% of eligible costs up to a maximum of $7,500
Home Heating Oil	All	$7,500	None	25% of eligible costs
Underground or Above-ground on Public School or Technical College District Property	Heating oil for consumption on premises	$190,000	$1,000,000	25% of eligible costs

* Lifetime maximum per site.

** Total awards an owner may receive for all sites in a program year.

*** The maximum total award is $2,000,000 if the claimant owns or operates 100 sites or more.

APPENDIX II

State Petroleum Reimbursement Funds'
Program Size and Costs
Reported in June 1998

State*	Number of Sites Reported	Total Expenditures (in millions)	Unpaid Claims (in millions)	Expenditures Plus Unpaid Claims (in millions)
Alabama	8,900	$ 44	$ 1	$ 45
Alaska	754	19	1	20
Arizona	3,450	94	70	164
Arkansas	115	16	9	25
California	24,000	475	732	1,207
Colorado	5,617	78	11	89
Connecticut	not available	60	28	88
Delaware	242	8	3	11
Florida	18,000	900	150	1,050
Georgia	19,251	59	84	143
Idaho	1,153	8	0	8
Illinois	14,807	276	32	308
Indiana	5,000	34	0	34
Iowa	7,969	104	0	104
Kansas	1,730	45	0	45
Kentucky	7,800	91	47	138
Louisiana	7,423	66	0	66
Maine	19,920	26	7	33
Maryland	123	5	1	6
Massachusetts	3,500	84	2	86
Michigan	11,814	647	18**	665
Minnesota	11,000	256	11	267
Mississippi	549	37	0	37
Missouri	2,405	7	21	28
Montana	3,250	31	1	32
Nebraska	5,000	41	1	42
Nevada	865	65	1	66
New Hampshire	886	47	2	49
New Mexico	2,160	69	1	70
North Carolina	12,014	232	9	241

State*	Number of Sites Reported	Total Expenditures (in millions)	Unpaid Claims (in millions)	Expenditures Plus Unpaid Claims (in millions)
North Dakota	1,941	$ 3	$ 1	$ 4
Ohio	not available	72	9	81
Oklahoma	1,450	113	1	114
Pennsylvania	14,000	32	59	91
Rhode Island	164	3	0	3
South Carolina	6,432	80	1	81
South Dakota	1,533	56	1	57
Tennessee	2,400	121	9	130
Texas	20,969	450	101	551
Utah	3,352	11	0	11
Vermont	1,825	34	0	34
Virginia	not available	61	0	61
Washington	1,917	1	3	4
West Virginia	147	6	3	9
Wisconsin	***11,073***	***541***	***271***	***812***
Wyoming	1,435	37	11	48

* Hawaii, New Jersey, New York, and Oregon have no reimbursement program.

** Amount in appeal

Source: 1998 State Fund Survey results compiled by the State of Vermont, and telephone interviews

APPENDIX III

State Petroleum Reimbursement Funds
Eligible Tank Types
Reported in 1998

State*	Underground	Used Oil	Heating Oil	Above-ground	Chemical	Farm	Mixed	Abandoned
Alabama	•			•**				
Alaska	•	•						
Arizona	•	•			•		•	•
Arkansas	•	•		•				•
California	•	•	•					•
Colorado	•			•				•
Connecticut	•	•	• ***					•
Delaware	•	•	•			•		•
Florida	•			•				•
Georgia	•	•						
Idaho	•	•		•			•	
Illinois	•	•	•					
Indiana	•	•	•					
Iowa	•	•	•					•
Kansas	•	•	•		•			•
Kentucky	•	•				•		
Louisiana	•	•						
Maine	•	•	•	•		•		•
Maryland	•	•					•	•
Massachusetts	•							
Michigan	•	•						•
Minnesota	•	•	•	•				•
Mississippi	•	•		•				•
Missouri	•							•
Montana	•	•	•	•		•		•

State*	Underground	Used Oil	Heating Oil	Above-ground	Chemical	Farm	Mixed	Abandoned
New Hampshire	•	•	•	•				
New Mexico	•				•			•
North Carolina	•	•	•			•		•
North Dakota	•	•	•	•				•
Nebraska	•	•	•	•				•
Nevada	•	•	•	•		•		•
Ohio	•	•						
Oklahoma	•	•		•				
Pennsylvania	•	•	•		•	•	•	
Rhode Island	•		•		•			
South Carolina	•							•
South Dakota	•		•	•				•
Tennessee	•	•						
Texas	•	•		•				•
Utah	•	•						
Vermont	•	•	•	•		•		•
Virginia	•	•	•	•		•		•
Washington	•	•	•					
West Virginia	•	•						
Wisconsin	•	•	•	•		•		•
Wyoming	•	•		•	•			•

* Hawaii, New Jersey, New York, and Oregon have no reimbursement program.

** Motor fuel only

*** Only marketers

Source: 1998 State Fund Survey results compiled by the State of Vermont, and telephone interviews

APPENDIX IV

State Petroleum Reimbursement Funds'
Average Cleanup Costs for Open and Closed Sites
Reported in June 1998

State*	Number of Sites Reported	Average Cost per Site (in millions)	Average Cost per Closed Site (in millions)
Alabama	8,900	$ 40,638	$ 28,459
Alaska	754	194,200	276,525
Arizona	3,450	34,658	not available
Arkansas	115	127,036	150,000
California	24,000	60,000	80,000
Colorado	5,617	84,400	not available
Connecticut	not available	151,132	not available
Delaware	242	70,445	42,822
Florida	18,000	73,000	150,000
Georgia	19,251	97,200	not available
Idaho	1,153	37,677	103,452
Illinois	14,807	53,000	88,000
Indiana	5,000	174,619	not available
Iowa	7,969	26,000	18,955
Kansas	1,730	30,717	not available
Kentucky	7,800	38,112	50,965
Louisiana	7,423	81,433	180,870
Maine	19,920	41,517	44,950
Maryland	123	63,550	not available
Massachusetts	3,500	13,000	100,000
Michigan	11,814	not available	135,000
Minnesota	11,000	41,000	30,000
Mississippi	549	66,666	42,302
Missouri	2,405	30,687	24,956
Montana	3,250	39,558	not available
Nebraska	5,000	69,800	not available
Nevada	865	89,446	43,359
New Hampshire	886	73,385	56,555
New Mexico	2,160	10,000	5,000
North Carolina	12,014	101,547	not available
North Dakota	1,941	14,500	not available
Ohio	not available	53,337	$55,316
Oklahoma	1,450	85,000	50,000
Pennsylvania	14,000	82,516	82,516
Rhode Island	164	73,386	not available

State*	Number of Sites Reported	Average Cost per Site (in millions)	Average Cost per Closed Site (in millions)
South Carolina	6,432	$ 28,897	$11,633
South Dakota	1,533	48,765	54,775
Tennessee	2,400	110,000	86,600
Texas	20,969	50,485	34,515
Utah	3,352	66,300	60,000
Vermont	1,825	63,811	20,984
Virginia	not available	27,206	not available
Washington	1,917	238,215	58,704
West Virginia	147	not available	not available
Wisconsin	***11,073***	***95,716***	***47,383***
Wyoming	1,435	429,989	not available

* Hawaii, New Jersey, New York, and Oregon have no reimbursement program.

Source: 1998 State Fund Survey results compiled by the State of Vermont, and telephone interviews

APPENDIX V

State Groundwater Cleanup Standards for Petroleum Contaminants

Most states have adopted some form of numeric cleanup standards for both soil and groundwater. Those standards are summarized here for each state for a selected group of chemical compounds commonly associated with petroleum products, including gasoline, diesel fuels, and waste oils. Some states have a range of numeric standards, such as a standard that may trigger regulatory enforcement and a standard that serves as the goal for cleanup, or different cleanup standards for different soil or groundwater classifications; other states may calculate a specific standard for each site of contamination.

The groundwater standards summarized here reflect the most stringent cleanup standard for states that adopt more than one numeric standard for each contaminant. For example, the standard for Wisconsin reflects the preventive action limit, which is the goal of cleanup, rather then the less-stringent enforcement standard. However, even beyond the differences in the numeric standards, it is important to recognize that numeric standards are often only one component in a state's overall approach to environmental regulation and cleanup. For example, a state that follows a risk-based approach may calculate a separate numeric standard for each site based on the risk factors present at the site. The reference "SS" indicates states that calculate site-specific groundwater cleanup standards.

State Groundwater Cleanup Standards for Petroleum Contaminants*
(in parts per billion)

State**	Benzene	Toluene	Ethylbenzene	Xylene
Alabama	5	1,000	700	10,000
Alaska	5	1,000	700	10,000
Arizona	5	1,000	700	10,000
Arkansas	SS	SS	SS	SS
California	SS	SS	SS	SS
Delaware	SS	SS	SS	SS
Florida	1	30	40	20
Georgia	5	1,000	700	10,000
Hawaii	SS	SS	SS	SS
Idaho	SS	SS	SS	SS
Illinois	5	1,000	700	10,000
Indiana	5	1,000	700	10,000
Iowa	5	1,000	700	10,000
Kansas	5	1,000	680	440
Kentucky	5	1,000	700	10,000

State**	Benzene	Toluene	Ethylbenzene	Xylene
Louisiana	SS	SS	SS	SS
Maine	5	none	none	none
Maryland	SS	SS	SS	SS
Massachusetts	5	1,000	700	10,000
Michigan	5	790	74	280
Minnesota	5	1,000	700	10,000
Mississippi	SS	SS	SS	SS
Missouri	5	150	320	320
Montana	SS	SS	SS	SS
Nebraska	5	1,000	700	10,000
Nevada	5	1,000	700	10,000
New Hampshire	5	1,000	700	10,000
New Jersey	1	1,000	700	1,000
New Mexico	10	750	750	620
New York	0.7	5	5	5
North Carolina	1	1,000	29	530
North Dakota	SS	SS	SS	SS
Ohio	SS	SS	SS	SS
Oklahoma	SS	SS	SS	SS
Oregon	5	1,000	700	10,000
Rhode Island	5	1,000	700	10,000
South Carolina	SS	SS	SS	SS
South Dakota	5	1,000	700	10,000
Tennessee	5	None	none	none
Texas	SS	SS	SS	SS
Vermont	SS	SS	SS	SS
Virginia	SS	SS	SS	SS
Washington	5	40	30	20
West Virginia	5	1,000	700	10,000
Wisconsin	***0.5***	***68.6***	***140***	***124***
Wyoming	5	1,000	700	10,000

SS Site specific standards are calculated for each contaminant at each site.

* Reflects the most stringent of the reported cleanup standards for those states that have more than one cleanup standard for a compound or have a different standard for different sources of contamination, such as gasoline, diesel, or waste oil.

** Standards were either not reported or not available for Colorado, Connecticut, Pennsylvania, and Utah.

APPENDIX VI

Estimated Maximum Deductible for a $150,000 Cleanup at an Underground Storage Tank Site

State	Type of Deductible	Estimated Maximum Deductible
Alabama	Fixed	$5,000
Alaska	Percentage	$15,000
Arizona	Percentage	$15,000
Arkansas	Fixed	$15,000
California	Fixed	$20,000
Colorado	Fixed	$10,000
Connecticut	Fixed	$10,000
Delaware	Fixed	$2,500
Florida	Percentage	$37,500
Georgia	Fixed	$10,000
Hawaii[8]	No reimbursement fund	Not applicable
Idaho[7]	Fixed	$10,000
Illinois	Fixed	$10,000 to $100,000[1]
Indiana	Fixed	$25,000, $30,000 or $35,000[1]
Iowa	Percentage	$38,900
Kansas	Fixed	$3,000 plus $500 per tank on site
Kentucky	Fixed	$500 to $12,500[2]
Louisiana	Fixed	$5,000 to $15,000[1,2]
Maine	Fixed	$2,500 to $62,500[2]
Maryland	Fixed	$15,000 to $40,000[2]
Massachusetts	Fixed	$5,000 to $10,000[2]
Michigan[8]	Program terminated	Not applicable
Minnesota	Percentage	$15,000
Mississippi	None	0
Missouri	Fixed	$10,000
Montana	Percentage	$17,500
Nebraska	Percentage	$7,500 or $13,750[3]
Nevada	Percentage	$15,000
New Hampshire	Fixed	$5,000 to $30,000[2]
New Jersey[8]	No reimbursement fund	Not applicable
New Mexico	Fixed	$0 to $10,000[2,3]
New York[8]	No reimbursement fund	Not applicable
North Carolina	Fixed plus percentage	$20,000 to $75,000[1]
North Dakota	Fixed	$5,000
Ohio	Fixed	$11,000 or $55,000[4]

State	Type of Deductible	Estimated Maximum Deductible
Oklahoma	Unknown	Unknown
Oregon[8]	No reimbursement fund	Not applicable
Pennsylvania	Fixed	$5,000
Rhode Island	Fixed	$20,000
South Carolina	Fixed	$25,000[5]
South Dakota	Fixed	$10,000
Tennessee	Fixed plus percentage	$10,000 to $50,000[1,2]
Texas	Fixed	$1,000 to $10,000[2]
Utah	Fixed	$10,000 or $25,000[1]
Vermont	Fixed	$10,000
Virginia	Fixed	$5,000 to 50,000[3]
Washington[7]	Fixed	$10,000, $15,000, or $25,000[6]
West Virginia[7]	Fixed	$5,000 or $50,000[6]
Wisconsin	***Fixed plus percentage***	***$7,500***
Wyoming	None	0

[1] Depends on when tanks were registered or put into service, tank construction qualities, or when contamination is discovered.
[2] Depends on the number of tanks owned or the number of facilities owned, which may involve more than one tank.
[3] Depends on the average product volume sold.
[4] Depends on the number of tanks owned and the tank fee paid.
[5] No deductible for leaks discovered prior to July 1, 1993.
[6] Depends on the level of insurance paid into the fund.
[7] Idaho, Washington, and West Virginia require all tank owners to purchase private insurance.
[8] Hawaii, New York, and Oregon do not have a reimbursement fund program. New Jersey operates a grant program. Michigan's program no longer operates because of financial concerns.

Source: 1998 State Fund Survey results compiled by the State of Vermont, and telephone interviews

APPENDIX VII

Examples of Eligible and Ineligible Costs

Eligible Costs	Ineligible Costs
Emergency actions	Costs incurred before notifying DNR of the discharge
Drilling for soil and groundwater monitoring	Activities conducted out of state
Laboratory services	Cleanup of spills from petroleum transportation equipment and oils not from an internal combustion engine
Soil excavation and hauling costs	Environmental studies required for real estate transactions or construction projects
Soil treatment and disposal costs, such as landfill fees and fees for burning soil or applying chemicals to soil	Capital improvements, such as for re-installation of pumps, razing buildings, and removing or upgrading old tanks
Designing, installing, sheltering, and maintaining engineered cleanup systems, such as soil vapor extraction systems, groundwater pump and treat systems, and air sparging equipment	The cost of lost business during cleanup
Application fees for state or municipal permits to install remedial equipment	Laboratory testing for non-petroleum constituents
Restoration or replacement of a private or public water supply	Overtime labor charges, laboratory rush charges, or priority mail and shipping fees, except on emergency actions
Labor and fringe benefits of consultants and commodity providers	Air travel
Consultant travel and lodging to conduct cleanup activities	Legal costs related to third-party actions
Fees for preparing a reimbursement claim	Consultant mark-ups on subcontracted services
Interest costs	Costs for telephone charges, photocopying, faxing, paper, postage, hand tools, personal protective equipment, and computer equipment
Third-party compensation for bodily injury or property damage, but not including changes to fair market value of property	Costs for ineffective methods and rework if shown to be based on unsound scientific judgement
	Costs incurred after DNR determines no further remedial action is required, except costs to cap wells

APPENDIX VIII

STATUS OF UNDERGROUND TANK SITES MANAGED BY DNR

Underground Tank Sites Closed, by Priority Rank*

Fiscal Year	High-priority	Medium-priority	Low-priority	Unranked	Total
1987-88	0	1	8	14	23
1988-89	2	11	23	36	72
1989-90	7	28	101	29	165
1990-91	18	68	198	25	309
1991-92	45	159	265	27	496
1992-93	96	198	396	52	742
1993-94	109	267	585	67	1,028
1994-95	201	328	789	60	1,378
1995-96	252	394	637	41	1,324
1996-97	440	132	170	105	847
1997-98	305	53	74	85	517
Total	1,475	1,639	3,246	541	6,901

Underground Tank Sites Remaining Open*

Fiscal Year Opened	High-Priority	Medium-Priority	Low-Priority	Unranked	Total
1980-81–1986-87	98	0	3	4	105
1987-88	64	1	1	5	71
1988-89	172	5	8	14	199
1989-90	546	20	19	38	623
1990-91	642	21	19	44	726
1991-92	579	20	21	40	660
1992-93	511	26	29	61	627
1993-94	604	34	42	92	772
1994-95	453	17	50	130	650
1995-96	359	14	48	243	664
1996-97	347	5	23	496	871
1997-98	126	7	14	907	1,054
Total	4,501	170	277	2,074	7,022

* Does not include sites transferred to the Department of Commerce or sites that have been reported to DNR but for which Commerce has not been contacted regarding program eligibility.

APPENDIX IX

Response from the Department of Commerce

October 2, 1998

Ms. Janice Mueller
State Auditor
Suite 402
131 West Wilson Street
Madison, WI 53703

Dear Ms. Mueller:

We want to take this opportunity to provide a series of comments regarding the audit report that has been prepared on the PECFA program. We appreciate the manner in which the audit was conducted and believe that it can provide significant guidance for the re-engineering of the PECFA program.

In terms of the specific recommendations in the report, concerning the Department of Commerce, we would like to provide the following comments:

Usual and Customary Costs

The Department agrees that it has the authority and responsibility to establish schedules of usual and customary costs. In fact, the program has used this authority to limit or totally disallow items that were reimbursable and then determined to be excessive in nature based upon claim review experience

Regardless, the Department agrees that a more extensive schedule can be effective. In the past, the Department has contended that cost controls would not have the impact necessary to control remediation costs because caps do not impact the scope of remedial actions taken. Usual and customary costs only control unit costs; they do not effectively control the number of units. This can only be done through measures that address the scope of remediations.

The Department will work aggressively to create new schedules of usual and customary costs that will reduce variations in charges for similar services, eliminate unreasonably high charges and control excessive levels of services being provided. In addition, the Department will continue to work to enhance its information systems to better track and identify cost areas that need to be addressed or adjusted over time.

Examples of some items where the program has already established a cap or modified a reimbursement level, include:

Overtime charges (except for emergency action) - Not reimbursed
Rush charges (except for emergency action) - Not reimbursed
Priority mail - Not reimbursed
Priority shipping - Not reimbursed
Interest charges - prime + 1
Loan origination fees - 2 points
Annual loan review fees - 1% on unreimbursed balance
Late service charges - Not reimbursed
Claim preparation at $500
Postage - Not reimbursed
Telephone - Not reimbursed
Photocopying, faxes, paper and printing - Not reimbursed
Hand tools and personal protective equipment - Not reimbursed
Computer equipment, CAD and software charges - Not reimbursed
Travel costs above state rates - current state meal and room rates
Air travel - Not reimbursed
Separate vehicle and mileage charges - Not reimbursed
Subcontractor markups - Not reimbursed
Investigation cap at $40,000
Annual operation and maintenance report at $500
Interim action costs at $5,000
HNU/OVM/PID instruments at $75 per day

Analysis of PECFA Data

The continued development of the tracking system for PECFA claims provides new opportunities for the analysis of captured data. Although the program has developed a significant number of management information and critical indicator reports, there are still a large number of opportunities for analysis of cost and program information. The current claim backlog and the implementation of the newest provisions of the PECFA administrative rule have limited the program's ability to develop new analytical functions. The Department recognizes the information resource that can be mined from the upgraded claim tracking system and will be working to create a plan for improving the continuing data analysis capability of the PECFA program.

In addition to recommending fundamental efforts at data analysis, the audit report also makes recommendations regarding data elements to be collected in the claim tracking system. We

agree that these additional items can be of help. The program is currently working on a set of changes to the PECFA tracking system so that it responds to the latest code changes and the legislatively mandated data interchange and reconciliation with the Department of Natural Resources. The recommended additions will either be incorporated into the current information technology effort or will be added as a follow up project depending on their complexity and compatibility with the current efforts.

Audit and Complaint Tracking Efforts

The Department agrees that there is a need to provide a better focus in its field audits and the investigation of complaints against consultants. In the past, the Department has come under significant criticism, from the consulting community, for keeping records on complaints and for attempting to address what it considers to be questionable practices. The Department has, however, continued to investigate consultant and contractor activities and has also worked to channel appropriate complaints to the Department of Regulation and Licensing for review and action.

We agree that a coordinated program utilizing field financial audits, a new contractor for technical fieldwork and better tracking of complaints should be established. It is certain, however, that these actions will result in significant challenges from the regulated community and that specific legislative support for these actions may be necessary to sustain the effort.

Tracking of Claimant Maximums and Reconciliation of Data Systems

The Department agrees that it is necessary to have a sound system for tracking owner payments and annual aggregates. There was no effective way to do this utilizing early financial record systems and, consequently, the program built its own. Because of the growth in the size of the fund, complexity increased and the program sought legislative funding to build and maintain a comprehensive system for tracking claims and other key program information.

Significant progress has been made in building a true tracking system but additional work is still needed. Achievement of this will be dependent on the program having continued access to qualified IT staff to program and maintain the tracking system. As current system and data sharing mechanisms are completed, the program will work to load early program information into the tracking system to provide full control information on owner payments and aggregate maximums.

The program also recognizes that its management information system is taking on the expanded role of a financial system and that this necessitates certain responsibilities and duties. The program will work to analyze the source of current reconciliation problems and establish a process for maintaining regular reconciliation of the PECFA tracking system with the state accounting systems.

Again, we appreciate the suggestions made during the audit process and the cooperation that we experienced with the audit staff. We believe that we can accomplish the improvements suggested in the audit and look forwarded to a more effective program generated by these changes.

Sincerely,

Philip Edw. Albert
Acting Secretary

APPENDIX X

Response from the Department of Natural Resources

October 7, 1998

Ms. Janice Mueller, State Auditor
Legislative Audit Bureau
131 West Wilson Street
Suite 402
Madison, WI 53703

Dear Ms. Mueller,

The Department appreciates the opportunity to provide comments on the Audit Bureau's recent report on the Petroleum Environmental Cleanup Fund Act (PECFA). **I have reviewed the report and concluded the Department fully supports all 5 recommendations on how we can improve the way groundwater standards are applied to PECFA sites. We are proceeding to assure uniform implementation of these recommendations as soon as practicable.**

During my review of the report I was disappointed to see that it did not present a balanced portrayal of all the factors that are contributing to PECFA's financial problems, and it does not accurately describe the Department's environmental cleanup program. The following comments provide more detail on these two concerns and explain the basis for them.

Risk Based Corrective Action versus Wisconsin's Application of Existing Groundwater Standards

The report draws a comparison between our application of existing groundwater standards and a risk based corrective action (RBCA) model, concluding that there are noteworthy differences between RBCA and our approach. **We do not agree with that conclusion for a variety of reasons.** For example, what the report does not consider is whether RBCA should apply only to PECFA sites, to all petroleum spills, or to all groundwater impacting activities; the extent to which RBCA principles already exist in the Department's administrative rules; whether statutory and/or rule changes are needed or better understanding and implementation of existing rules, and the fiscal impact to PECFA of a "new" RBCA program.

The audit report also includes a suggestion that consideration be given to conducting a study to develop a RBCA approach for Wisconsin. I would like to point out that in 1996 the Partners in RBCA Implementation (PIRI), which is the same group mentioned in the report as capable of this type of study, conducted an analysis of Wisconsin's program. They compared our environmental regulations to the ASTM RBCA model. Their report, "Implementability of Risk Based Corrective Action (RBCA) in Wisconsin" states:

* "The Wisconsin program addresses all key risk management goals."

* "The principal elements of the RBCA planning process are admissible under the Wisconsin program."
* "The Wisconsin Remediation and Natural Attenuation option is found to be cheaper."

Unfortunately the audit report does not specify *which* RBCA concepts are missing in our cleanup rules. Our current RBCA based approach includes:

* site prioritization (although a priority system for filing PECFA claims does not exist)
* limited investigation for small sites (NR 708)
* site specific soil standards
* natural attenuation closures with contaminant levels above groundwater standards
* performance standards for cleanups
* institutional controls, e.g. deed restrictions, a mechanism for allowing contamination to remain
* flexible cleanup schedules when contamination is not spreading
* variances to reaching the groundwater preventive action limit
* real site data rather than computer modeling that is typically more expensive to obtain

It's also important to note that our cleanup rules have application far beyond sites covered by the PECFA program. These rules also apply to landfills, mines, hazardous waste cleanups and well-head protection areas. Development and application of a new rule for one particular industry would not result in consistent nor fair implementation of Wisconsin's groundwater law. Our rules already allow for a flexible site-specific approach to deal with contaminants. Petroleum contamination, which slowly breaks down in the environment, can be allowed to attenuate naturally as long as the contaminants are not spreading. We adopted changes to the NR 700 rule series in November of 1996 to reduce PECFA outlays by allowing closure of sites with contamination above groundwater enforcement standards. The length of time that the natural processes take, coupled with the backlog in PECFA payments, means that the beneficial fiscal impacts of this rule change cannot yet be quantified.

While the report accurately identifies the consistent application of our closure criteria as an area of concern, it doesn't acknowledge the measures the Department has already taken to achieve consistency. For example, we have renewed our efforts to increase staff understanding of the flexibility in the regulations and the cost saving resulting from that flexibility. In addition, people working in the cleanup program have been directed to ensure these measures are consistently implemented for all sites. Externally, the Department established a forum for stakeholders to meet with program representatives to discuss NR 700 rule implementation issues; consistency between the regional offices; and future considerations/needs for guidance, rules and statutory changes. The group is known as the "NR 700 Focus Group" and meets on a quarterly basis. In addition to these larger group meetings, we initiated separate forums with two smaller subgroups, consisting of consultants and the Petroleum Marketers Association of Wisconsin, to specifically discuss PECFA consistency issues.

The Department agrees with the conclusion in the 1996 PIRI report that adequate RBCA concepts already exist in Wisconsin's environmental regulations. The pragmatic approach is to work under existing regulations and to focus on staff and consultant training, and continue to measure the recent changes we have enacted as PECFA claims are reviewed. Legislation and related rule amendments needed to create "more RBCA", especially in regard to aquifer classification, would likely take longer to implement than the time available to address PECFA's cost containment needs because of:

* The significant controversy inherent in any changes to Wisconsin's groundwater law, and

* The technical complexity of modeling natural aquifer systems and their interconnections.

Lastly, we recommend that the Legislature not use this audit report to weaken Wisconsin's important groundwater law. We have never had a landowner tell us, "It's OK to lower the protection of my groundwater."

DNR's Authority for Decisions on the Cost Effectiveness of Proposed Remedies

Regarding the Department's authority for requiring that the lowest cost, environmentally acceptable remedies are implemented at PECFA sites, we do not agree that our current authorities allow us to disapprove a remedy with is not cost effective. However, we would very willingly support a statutory change giving us that authority. Under current law, costs can and are taken into consideration only when one or more remedies are submitted for our review and approval. Absent a submittal where remedial approaches can be compared for both cost effectiveness and environmental compatibility, the Department **is obligated** to approve a remedial approach selected by the responsible party (RP) and their consultant if we believe it will satisfy environmental standards. That is the entire foundation for the NR 700 Rule series. The regulated community was intimately involved in the development of this rule series and did so with the intent of it being self-implementing by the regulated community. This premise now appears to be the basis for some of the criticism being directed towards our agency regarding PECFA cleanup costs.

We believe there are other more suitable avenues available for assuring that the most cost effective, environmentally acceptable remedy is implemented at each PECFA site. These approaches are founded on Commerce's authority for determining the cost effectiveness of remedial actions. By administrative rule, Commerce requires RPs and their consultants to identify the most cost effective remedy which is approvable by the Department of Natural Resources. Commerce's emergency PECFA rule (IHLR 47), adopted in April 1998, greatly improved Wisconsin's ability to contain costs. We have recently made significant strides in jointly working out the process for approving remedial action proposals as a result of IHLR 47 and the May 1998 Memorandum of Understanding (MOU) between both agencies. However, we have not used this new system long enough to accurately evaluate its fiscal impacts. I believe the new MOU strengthens our working relationship and offers great opportunities for both agencies to work together for the common goal of ensuring the remedies used are truly the most cost effective.

Financial Aspects of the PECFA Program

I strongly believe that PECFA's financial management structure needs to be greatly modified in order to address the present funding deficit. While the report identifies some of the problems inherent to the way the PECFA program has historically been structured, I believe it does not go far enough in making specific recommendations as to how that structure can be improved. Nor does the report go far enough in recommending specific measures to be investigated or implemented to increase cost containment incentives for site owners and their consultants. Specifically, I believe there is merit in further research and dialogue on options for changing the current co-pay levels and for allowing the co-pay to be reduced in the event of financial hardship for the site owner.

The current PECFA program is a "Cadillac" in it's financial benefits to applicants compared to any other program in the country. Where else can a company, regardless of it's net worth, get $992,500 of taxpayer dollars for a payout of $7,500. Even if every other change suggested

in this audit report were made, the PECFA program will be bankrupt unless landowners are forced to provide greater oversight during their cleanup as a result of requiring a percentage co-pay of the project cost.

Conclusions

I would again like to emphasize my commitment to implementing all 5 recommendations made for this agency. Our detailed responses to each of these recommendations are attached to this letter as Attachment 1. While we have made significant progress during the past two years in fully utilizing the flexibility available in our rules, we still have a ways to go to achieve consistent, uniform application of those changes. I also agree that some of our reporting and monitoring requirements should be evaluated and potentially streamlined to require only the information necessary for us to monitor progress. In addition, I believe the communication and cooperation between Commerce and our agency is greatly improved and will get better as both agencies move forward with implementing the 1998 MOU provisions.

While the report contains some valid criticisms of our operations, I believe many of the comparisons and observations made are based upon systems and/or approaches utilized in the past, most of which are either no longer applicable or are in the process of being improved. Many changes have been made over the past two years in the way environmental cleanups are conducted and the objectives that must be met before site closure occurs. I believe we have made tremendous strides in increasing the level of flexibility in our rules and are well on our way to addressing all of the changes being requested.

Thank you for the opportunity to offer our views on this report. I am committed to helping make the PECFA program work better by implementing more effective cost containment measures in any way I can. With open and honest communication, and a willingness to address the difficult legislative issues, a proper balance can be restored between PECFA outlays and expenditures while sites with petroleum contamination continue to be cleaned up.

Sincerely,

George E. Meyer
Secretary

ATTACHMENT 1

Legislative Audit Bureau Recommendations to the Department of Natural Resources

DNR *[should]* consider cost effectiveness of proposed cleanup methods, as well as environmental appropriateness, in managing PECFA sites.

The Department agrees that cost effectiveness should be considered when we approve remedial approaches for site cleanups. We are committed to continue working with Commerce to address implementation of this recommendation. However, there are several factors which prevent full implementation of this recommendation at this time. For example, the cover letter for the report states that Department and Commerce jointly administer the PECFA program. In fact, Commerce has sole authority to manage the PECFA program. Our agency is responsible for ensuring that rules and policies are in place for adequately addressing environmental contamination. ILHR 47.33 requires that the responsible party (RP) submit the low cost remedial action which is approvable by DNR. We used to review all remedial action plans (RAP) prior to our **loss of 30 FTEs** through major reductions in the LUST grant from U.S.EPA. At current staffing levels, we have been unable to put the same level of emphasis into this activity.

The report states several times that DNR staff "believe" they don't have the authority to ensure the cost effectiveness of cleanups and deny a remedy or choose an alternative remedy based solely on cost. In fact, our attorneys have confirmed this interpretation. It would be more accurate for the report to state that we do not have cost containment authority to restrict the scope of an environmental response. Although the report states on page 47, "As a result, the Department may choose not to take direct action with owners and consultants, even when it has identified unnecessary costs.", we do not believe that statement to be true. We alert RPs and Commerce when we see excessive costs. the paragraph goes on to describe the engineered systems reviews we conducted and the subsequent report prepared for the Legislature. The LAB is critical of our apparent failure to follow through on those recommended changes and on page 48 cites 59 of 120 sites that we believed could be closed immediately but remained open one year later. We do not dispute the fact that not all sites were followed up on. However, we do not agree that follow up was absent. One of our problems after identifying those sites with improper or inefficient systems was some consultants did not submit the closure data we requested**. Additionally, the staffing we were provided to identify those problems was eliminated immediately after identification, making follow up extremely difficult.** We should emphasize that the clearly stated scope of that project was to identify sites where Commerce could restrict PECFA payments.

The Department is very supportive of our need to review RAPs prior to their implementation, for both efficiencies in getting a site to case closure and for cost effectiveness of the selected remedy. In fact, we believe that many staff are currently taking into consideration the cost for a particular remedy when they compare remedies and issue an approval. More importantly, as discussed below, our agency and Commerce recently put procedures in place, as a result of the recent memorandum of understanding (MOU) between the agencies concerning PECFA, to coordinate remedy selection and approvals between our two agencies. An increased effort in this area will require refocusing of resources, as well as additional staff, in order to understand and monitor "typical costs" for remedial measures, such as excavation, transportation of wastes, disposal, drilling, lab costs, etc. A renewed effort in this area will result in the need for additional staff to properly evaluate the RAPs for effectiveness and efficiencies.

DNR and Commerce *[should]* work cooperatively to review all proposed remedial action plans for high-priority cases to determine whether the options proposed include the most cost effective methods of reaching the cleanup goals.

We support this recommendation. Under the current MOU, which became effective in May of 1998, we have developed a better working relationship with Commerce staff and have attempted to address some of these very issues. Specifically, we recently discussed the capping of costs for sites and/or bidding out the RAP, based upon the results of the site investigation report (SIR). At the time Commerce decides to cap the costs for a site remedial action plan (RAP), that information is transmitted to the appropriate DNR Regional Office and communication is opened between Commerce and our staff on that proposed remedial action and cost cap. In this way we have been able to reach agreement on remedies which are approvable by both agencies. Likewise, we have recently reached a tentative agreement on how that bidding process will proceed and how we will play a role in selecting the approved bid. We believe the MOU has greatly increased our level of communication and cooperation, will solve several of the issues raised in this report.

Unfortunately, for the reasons discussed below, the report accurately states that not all staff have been reviewing consultants' decisions prior to their implementation. Late in 1996 the Remediation and Redevelopment (RR) Management Team attempted to balance severe workload problems across the state by evaluating all of our current tasks and prioritizing them. We also looked at the commitments of our various funding sources. Since PECFA allowed payment only for the lowest cost remedial alternative which had to be approvable by DNR, this was one area where we had to trust consultants and/or RPs to take more control and accountability for their sites. Therefore, one of the measures we adopted shifted much more focus to the consultant, and directed staff to focus their reviews on closures. Many staff embraced that concept and only looked at documents at the time a closure decision was put forward, although some staff continued to review more documents as their workload allowed.

It became obvious to the RR Management Team by early 1997 that this was not an effective way for us to do business. We have since revisited our workload analysis and have begun to shift back to conducting reviews at the time of submittal. However, as mentioned in the previous response, in order to be done productively this effort will require additional staff resources.

DNR *[should]* develop active monitoring procedures of cleanup activities to ensure that sites are closed promptly.

The Department supports this recommendation. We believe we have made progress in this area, but also recognize we can probably make additional strides. Our annual operation and maintenance (O&M) form already asks questions about the effectiveness of the remedy and whether the remedy could be turned off to reduce costs for the site. The form also asks whether the case could be closed. This question could be expanded to include the various scenarios for closure, ie: groundwater use restriction, preventive action limit (PAL) exemption, etc., to make it clear to the consultant that an evaluation of these options must submitted.. In addition, as suggested in the LAB report, the form will be revised to include a projected estimate of the costs necessary to get the site to close out.

DNR *[should]* develop detailed guidelines stating the conditions for which staff should apply each closure option, as well as procedures and training to ensure that staff are complying with the guidelines.

We agree with this recommendation and are very committed to improve in this area. Training of staff on the consistent application of our rules and guidelines is an area we have identified as in need of a more focused effort. Over the years, we have attempted to develop complete and descriptive guidance documents to assist staff in evaluating data obtained at sites and applying that data to our closure criteria for the site. Given the vast differences which can exist from site to site, coupled with the tremendous pressures placed on staff by property owners and developers for closure decisions, applying our guidance in a consistent manner across the state has been difficult. However, we believe our use of regional close-out committees, coupled with RR management team oversight to assure statewide consistency, has helped to make our closure and other site specific decisions more consistent across the state.

The RR Management Team recently directed all RR staff to fully take advantage of the existing closure flexibility in the NR 700 rules for closure of sites with groundwater contamination above standards. We are committed to consistently implementing this closure flexibility and have directed RR staff to notify Commerce and the site owner when closure decisions can be made, rather than allowing remedies to continue operating with their PECFA eligibility intact until an unrestricted closure decision can be applied.

In addition, we have been working over the past year to finalize a technical guidance document on the application of natural attenuation as a final remedy at sites. We hope to finalize this document by the end of 1998. We believe it is of critical importance because it will go a long way toward fostering a better understanding by people in both agencies, as well as consultants, of the proper demonstration and application of natural attenuation as a final remedy. Lastly, we have recently completed a guidance document on the use of institutional controls (e.g. deed restrictions) as a condition of closure. This too has helped our staff to better understand the tools that are available to them for closing out sites where residual soil contamination has been left in-place. The proper implementation of all of these guidance documents, taken together, should give agency personnel and consultants the proper tools to make closure decisions which will eliminate further PECFA expenses.

DNR *[should]* develop standard reporting formats, file content requirements, and file review procedures to be used by all consultants and Department's field staff.

We agree with the recommendation that consistent and concise reporting formats should be developed and used. In 1996, the RR program amended NR 724.13 **to require** that an operation and maintenance (O&M) form be submitted, rather than a more formal O&M report, on an annual basis for passive remedial systems and semi-annually for engineered or active systems. The form is a concise "fill in the blank" reporting format with some essential map and data attachments specified. The intent of the rule amendment was to decrease the costs for O&M reporting by making it easier for the consultant to clarify information our agency needs. We are prepared to reevaluate this form to determine if it can be streamlined even further.

We are also committed to evaluating the reporting requirements in NR 724 to determine whether we should amend that rule to decrease the number and/or frequency of required reporting, in order to realize greater cost savings in this area. However, any decrease in information coming to our agency may make it more difficult for us to evaluate whether a site is ready for closure, absent a request from the consultant and/or RP.