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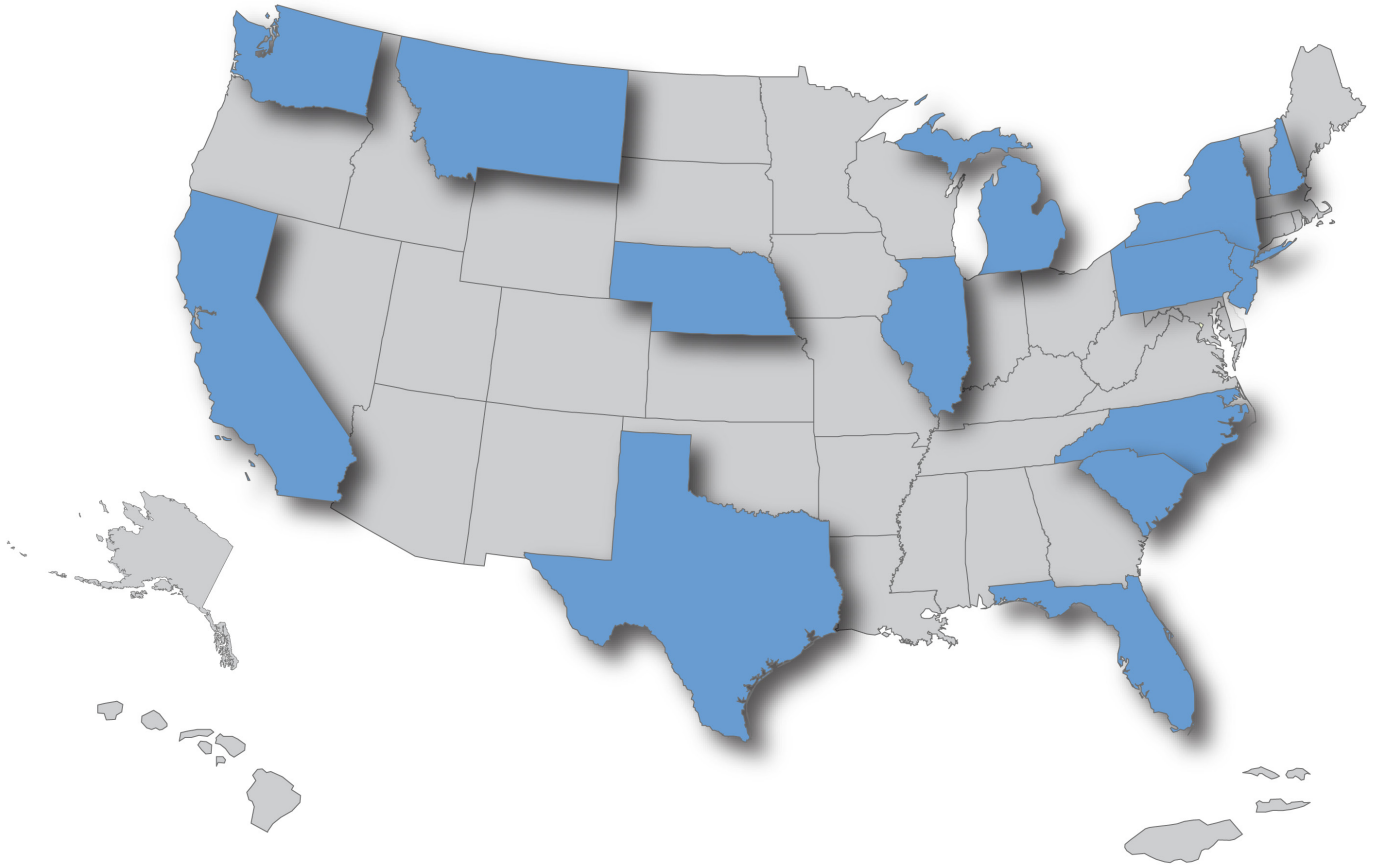
The National LUST Cleanup Backlog:
A Study of Opportunities



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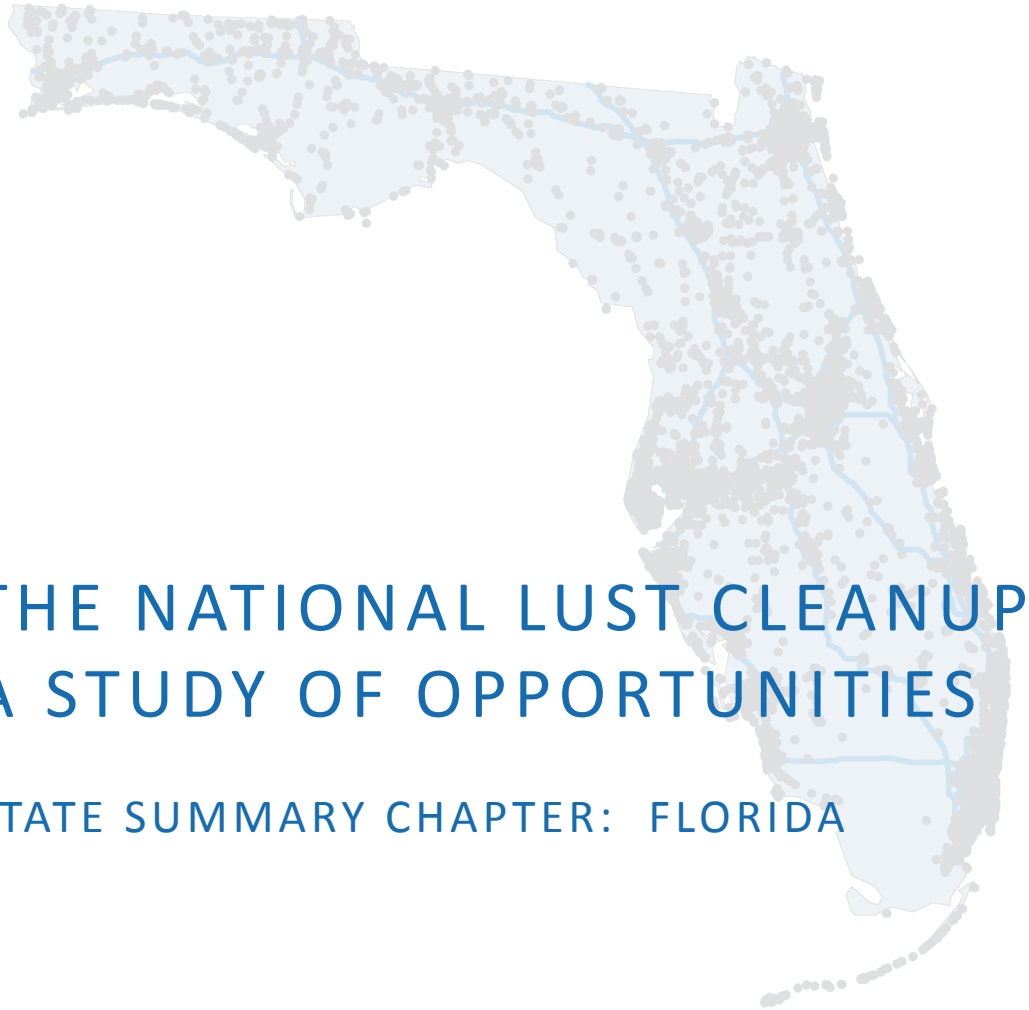

THE NATIONAL LUST CLEANUP BACKLOG: A STUDY OF OPPORTUNITIES

STATE SUMMARY CHAPTER: FLORIDA

Office of Solid Waste and Emergency Response
Office of Underground Storage Tanks
September 2011

LIST OF ACRONYMS

AST	Aboveground Storage Tank
CTL	Cleanup Target Level
EPA	United States Environmental Protection Agency
ESA	Expedited Site Assessment
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FY	Fiscal Year
IPTF	Inland Protection Trust Fund
LUST	Leaking Underground Storage Tank
MNA	Monitored Natural Attenuation
MSA	Multi-Site Agreement
RP	Responsible Party
STCM	Storage Tank Contamination Monitoring (Database)
UST	Underground Storage Tank

EXECUTIVE SUMMARY

Leaks from underground storage tanks (USTs) threaten America's groundwater and land resources. Even a small amount of petroleum released from a leaking underground storage tank (LUST) can contaminate groundwater, the drinking water source for nearly half of all Americans. In surveys of state water programs, 39 states and territories identified USTs as a major source of groundwater contamination.[2] As the reliance on our resources increases due to the rise in population and use, there is a correspondingly greater need to protect our finite natural resources.

From the beginning of the UST program to September 2009, more than 488,000 releases were confirmed from federally-regulated USTs nationwide. Of these confirmed releases needing cleanup, over 100,000 remained in the national LUST backlog. These releases are in every state, and many are old and affect groundwater. To help address this backlog of releases, the United States Environmental Protection Agency (EPA) invited 14 states to participate in a national backlog characterization study.

ANALYSIS OF FLORIDA DATA

Florida's Department of Environmental Protection (FDEP) has made significant progress toward reducing its LUST cleanup backlog. As of March 2009, Florida had completed 15,509 LUST cleanups, which is 49 percent of all known releases in the state. At the time of data collection, there were 16,121 releases remaining in its backlog, by far the highest number in any state in the nation.[3] To most effectively reduce the national cleanup backlog, EPA believes that states and EPA must develop backlog reduction strategies that can be effective in states with the largest backlogs. EPA invited Florida to participate in its national backlog study because Florida has the largest backlog in the United States.

In this chapter, EPA characterized Florida's releases that have not been cleaned up, analyzed the releases based on categories of interest, and developed potential opportunities for FDEP and EPA to explore that might improve the state's cleanup progress and reduce its backlog. Florida faces several statutory constraints that affect its ability to address all the releases in its backlog. These constraints are tied to the amount of funding FDEP receives each year. FDEP ranks releases in priority order and, by statute, can only work on the highest priority releases that are above the funding threshold based on the annual appropriation. The recent economic downturn had an impact on Florida's ability to make progress on cleanups. On May 27, 2009, the Governor of Florida signed and approved an action by the state legislature (SB 2600) to virtually eliminate the LUST cleanup program, cutting its state fiscal year (FY) 2009 funding from $156 million to $22 million, which was only to be used for program operations and not for cleanup. To fill the cleanup funding void, the state legislature did authorize the

Florida LUST Data By the Numbers[1]

National Backlog Contribution	13.5%
Cumulative Historical Releases	31,630
Closed Releases	15,509/49%
Open Releases	16,121/51%
Stage of Cleanup	
Confirmed Release	5,874/36%
Site Assessment	2,981/19%
Remediation	7,266/45%
Media Contaminated	
Groundwater	7,589/47%
Soil	3,868/24%
Other	155/1%
Unknown[4]	4,509/28%
Median Age of Open Releases	17.7 years

1 Numbers presented in this report reflect data on individual releases provided in March 2009 by FDEP staff, while the numbers reported by FDEP for EPA's UST performance measures are counts of facilities with open releases. Therefore, the numbers presented in this report are not identical to the UST performance measures found on EPA's website, available at: www.epa.gov/oust/cat/camarchv.htm.

2 EPA, *National Water Quality Inventory: 2000 Report*, pp. 50-52. www.epa.gov/305b/2000report/chp6.pdf.

3 EPA tracks individual releases rather than sites in its performance measures. Therefore, the analyses in this report account for numbers of releases, not sites.

4 Unknown media releases include those releases where, based on available data, it was not possible to identify the media contaminated. According to state staff, unknown releases are most likely releases with groundwater contamination.

use of $90 million for cleanup via bonds. Subsequently, the 2010-2011 budget for LUST cleanups has been increased to $120 million. These funding actions strongly impacted Florida's ability to achieve cleanups.

Even though statutory constraints in Florida might make pursuing certain opportunities challenging or unlikely, EPA included potential cleanup opportunities in this report to explore the options that might be available for releases above the threshold as well as opportunities FDEP might pursue if the statutory restrictions were not in place or if there were enough resources to fund most of the cleanups. FDEP is already using some of the opportunities as part of its ongoing LUST cleanup program. Building on the potential cleanup opportunities identified in the study, while keeping FDEP's statutory requirements in mind, EPA will continue to work with FDEP to develop backlog reduction strategies, as appropriate.

The findings from the analysis of FDEP's data and the potential cleanup opportunities are summarized below in seven study areas: stage of cleanup, media contaminated, release priority, cleanup financing, number of releases per affiliated party, geographic clusters, and data management.

Stage of Cleanup *(see page FL-12 for more details)*

Florida Finding	Potential Opportunity	Releases
47 percent of releases are either: • 5 years old or older and site assessment has not started; or • 10 years old or older and still in site assessment.	• Expedite site assessments at old releases to identify releases that can be closed with minimal effort or moved toward remediation. • Implement enforcement actions at stalled releases.	7,568
39 percent of releases are: • 10 years old or older; and • in remediation.	Use a systematic process to explore opportunities to accelerate cleanups and reach closure, such as: • periodic review of release-specific treatment technologies; • review of site-specific cleanup standards; • encourage use of institutional or engineering controls; and • implement enforcement actions if cleanup has stalled.	6,314

Florida's releases are taking a long time to move through the cleanup process, and while FDEP has restrictions on where it can spend state fund money, some of the older releases were classified by the program as above the threshold, high priority. There are several reasons why many releases in the backlog are old including: many releases are complex and therefore take a long time to address; many releases impact groundwater, and almost all drinking water comes from groundwater; the majority of releases are state fund eligible and state funding is currently limited; and many releases are ranked as low priority. EPA recognizes FDEP's requirement to address high priority releases first. Nevertheless, EPA believes it is important for FDEP to explore opportunities to accelerate cleanups at older releases in case more resources become available and to consider potential opportunities, while maintaining compliance with FDEP's statutory requirements. EPA encourages FDEP to continue to work toward bringing these old, high priority releases to closure.

Media Contaminated *(see page FL-14 for more details)*

Florida Finding	Potential Opportunity	Releases
23 percent of releases: • contaminate groundwater; • are in remediation; and • are 10 years old or older.	Systematically evaluate cleanup progress at old releases with groundwater impacts and consider alternative cleanup technologies or other strategies to reduce time to closure.	3,661
24 percent of releases contaminate soil only.	Use expedited site assessments to identify additional releases with soil contamination that can be: • targeted for closure with minimal effort; or • moved more quickly into remediation.	3,868
28 percent of releases are not electronically tracked according to the type of media contaminated.	Target releases with unknown media contamination for expedited site assessments and use this information to update the release priority as needed and to customize the remedial activity.	4,509

Releases contaminating groundwater have always been the largest part of the national backlog and 47 percent of releases in Florida are documented as contaminating groundwater. According to FDEP staff, this is likely an underestimate. In general, groundwater contamination is more technically complex to remediate and takes longer to clean up than soil contamination. For old, complex cleanups where long-term remediation is underway, EPA believes it is important for FDEP to periodically reevaluate cleanup progress and reconsider whether the cleanup technology being used is still optimal.

Even though soil contamination is typically easier to remediate than groundwater contamination, many of Florida's old releases that impact only soil are still unaddressed or are in the early stages of cleanup. It is likely that many of these releases remain unaddressed because they are lower priority according to FDEP's priority ranking system. Nevertheless, as resources become available, EPA believes FDEP should continue to make progress toward closure for all of its LUST releases. Better information about the type of media contaminated at each release could also help FDEP choose optimal cleanup technologies and evaluate cleanup progress.

Release Priority *(see page FL-16 for more details)*

Florida Finding	Potential Opportunity	Releases
86 percent of releases are not being actively addressed due to their priority score.	Explore options for moving releases toward closure such as: • expediting site assessments of all releases to ensure that all releases are appropriately ranked; and • ensuring releases with immediate risk are being actively worked on.	13,901

Florida has a statutory requirement to address the highest priority releases first. To assist the prioritization of oversight and enforcement, all releases are scored regardless of whether they are state funded or privately financed. FDEP cannot spend resources at lower priority releases.[5] Consequently, Florida's low priority releases tend to be old and remain in the backlog. With these statutory requirements in mind, EPA will work with FDEP to explore options and develop strategies to move releases toward closure, such as supporting local governments and other stakeholders in using the petroleum brownfields grants to move lower priority releases forward. EPA also believes it is important to ensure that there are no immediate risks to human health and the environment from the higher priority releases that have not been addressed.

5 At the time of data collection, the action threshold priority score was set at 45, resulting in 73 percent of open releases scoring too low to qualify for funding. As a result of budget cuts since these data were collected, the action threshold has subsequently been raised to a priority score of 60 or higher, and an additional 13 percent of open releases will be put on hold until more funds become available.

Cleanup Financing *(see page FL-17 for more details)*

Florida Finding	Potential Opportunity	Releases
50 percent of state fund eligible releases in remediation are 20 years old or older.	Reevaluate the current remedial plan at all state fund eligible releases in the Remediation stage to identify releases where a more cost-effective plan could be implemented, such as: • using monitored natural attenuation (MNA); • using site-specific, risk-based decision making; and • using closure with institutional or engineering controls.	5,971
49 percent of state fund eligible releases either: • have not begun site assessment; or • have not finished site assessment.	Explore ways to move more state-funded cleanups toward closure, such as: • redirecting funds saved at cleanups with improved cost effectiveness to state fund eligible releases where assessment has not been completed; and • encouraging the use of other sources of public and private funding such as petroleum brownfields grants to move low priority releases toward closure.	5,772

EPA and state programs are interested in exploring successful financing strategies for completing cleanups quickly. Differences in cleanup rates between those releases covered by state funds and those releases covered by other forms of financial responsibility could provide useful insights into what works in existing programs. EPA believes the availability of funding for cleanup is essential to reducing the backlog. Accordingly, in addition to this study, EPA is increasing its focus on oversight of state funds as well as conducting a study of private insurance. Florida provides an interesting opportunity for this insight since it has both state-funded and privately-funded cleanups in its backlog.

The way that state funds are structured can potentially create incentives or disincentives for prompt cleanup. In Florida, early amnesty programs provided strong incentives to report releases, but FDEP's current budget situation does not allow FDEP to fund all releases expeditiously. EPA will continue to work with FDEP to explore how these incentives affect the pace of cleanup and how to effectively use incentives to support program implementation.

All state programs are experiencing resource limitations, and progress toward backlog reduction is dependent on their ability to apply existing resources to their backlogs. If more cost-effective remedial plans could be implemented at state-funded cleanups or other funding sources found for those not in remediation, this would free up funding to address more releases.

Number of Releases per Affiliated Party

(see page FL-19 for more details)

Florida Finding	Potential Opportunity	Releases
22 percent of releases are affiliated with 101 parties that each has 10 or more releases.	Explore possibilities for multi-site agreements (MSAs) or enforcement actions with parties associated with multiple open releases.	3,546

EPA analyzed the number of releases per affiliated party to identify the largest potential contributors to the state's cleanup backlog. EPA was able to identify groups of 10 or more releases that have common ownership or name affiliation from data provided by FDEP on the names of facility owners, responsible parties (RPs), and other parties associated with releases. FDEP and EPA can use these data to identify possible participants for multi-site strategies to clean up groups of releases.

Geographic Clusters *(see page FL-20 for more details)*

Florida Finding	Potential Opportunity	Releases
75 percent of releases are clustered within a one-mile radius of five or more releases.	Target releases within close proximity for other resource consolidation opportunities.	Targeted number of releases[6]

Another multi-site approach FDEP could support is targeting cleanup actions at geographically-clustered releases. This approach could offer opportunities for new community-based reuse efforts, using economies of scale, and addressing commingled contamination. EPA believes that highlighting geographic clusters of releases and working with state and local governments in area-wide initiatives may increase the number of releases cleaned up in Florida. Local governments along the Tamiami Scenic Highway are already pursuing petroleum brownfields grants that include up to 100 sites. EPA intends to work with the states to conduct further geospatial analyses on clusters of open releases in relation to RPs, highway corridors, local geologic and hydrogeologic settings, groundwater resources, and/or communities with environmental justice concerns. These analyses might reveal additional opportunities for backlog reduction.

6 Opportunities marked as "targeted number of releases" relate to geographic opportunities that will address a limited number of releases within select designated geographic areas.

Data Management *(see page FL-21 for more details)*

Florida Finding	Potential Opportunity	Releases
Several key data fields are not included, consistently maintained, or routinely tracked in the Storage Tank Contamination Monitoring (STCM) database.	Improve SCTM database to enhance program management and backlog reduction efforts.	Variable number of releases[7]

Multiple data management limitations prevent a full assessment of Florida's backlog and associated strategies for backlog reduction. Because of data limitations, EPA could not analyze release-specific financial responsibility mechanisms or identify the media contaminated for 28 percent of open releases. Additional data management improvements could allow for easier overall program management within FDEP as well as provide an improved tool for developing strategies to reduce the cleanup backlog.

CONCLUSION

This chapter contains EPA's data analysis of Florida's LUST cleanup backlog and identifies potential opportunities to reduce the backlog in Florida. EPA discusses the findings and opportunities for Florida, along with those of 13 additional states, in the national chapter of this report. With Florida's statutory constraints in mind, EPA will work with Florida to develop potential approaches and detailed strategies for reducing the backlog especially for high priority releases above the threshold and looking for other resources to help address lower priority releases. Development of national strategies could involve targeted data collection, reviewing particular case files, analyzing problem areas, and sharing best practices. Final strategies could involve EPA actions such as using additional program metrics to show cleanup progress, targeting resources for specific cleanup actions, clarifying and developing guidance, and revising policies. EPA, in partnership with states, is committed to reducing the backlog of confirmed UST releases and to protecting the nation's groundwater, land, and communities affected by these releases.

7 Opportunities marked as "variable number of releases" relate to programmatic opportunities and affect an unknown number of releases potentially including all open releases.

PROGRAM SUMMARY

Florida LUST Program At a Glance

Cleanup Rate
In fiscal year (FY) 2009, FDEP confirmed 169 releases and completed 709 cleanups.[8]

Cleanup Financing
Of open releases, 73 percent (11,743 releases) are eligible for state funding.

Cleanup Standards
Default cleanup target levels (CTLs) are generally used, but RPs may develop site-specific cleanup goals.

Priority System
All releases are prioritized based on threats to human health and human receptors.

Average Public Spending on Cleanup
$400,000[9]

Releases Per Project Manager
There are, on average, 159 open releases per project manager. On average, 47 of these releases are above the action threshold and are active cases. Private contractors, county staff, and Department of Health staff provide additional support.

State LUST Program Organization and Administration

The Florida Department of Environmental Protection's (FDEP's) Petroleum Cleanup Program provides oversight, management, and administration of cleanups through a combination of state staff, contracted county staff, and private contractors. A total of 14 counties and local Department of Health offices are under contract to help oversee cleanups in 20 of the 67 counties in Florida. Private contractors also provide administrative support to FDEP. Work at state fund eligible releases is performed by pre-approved contractors selected by the property owner, responsible party (RP), or state-lead contractors under direct contract with FDEP.

FDEP is required by Florida statute to direct its resources only to the highest priority cleanups including the oversight and enforcement of privately financed cleanups. Each year, a priority threshold is determined based on the state budget and only those releases FDEP can afford to address are considered "active." Releases below the priority threshold are considered "inactive" and cleanup activities cannot be initiated for these releases.

Cleanup Financing

Florida's Inland Protection Trust Fund (IPTF) is financed by revenues generated from an excise tax on petroleum products. Florida has four primary state fund programs, each with its own eligibility requirements. Funding from these programs is allocated on a release basis, resulting in the eligibility of each release being evaluated separately. Therefore, a facility with multiple releases could receive funding from multiple programs or receive funding for only one release. Each funding program has its own funding cap, co-pay, and deductible requirements. Seventy-three percent of releases (11,743 releases) are known to be eligible for at least partial funding from one of these programs. Eligibility does not imply immediate funding. Releases are ranked based on priority and only releases above the funding threshold score are funded. Lower priority releases are not funded unless all the higher priority releases have completed cleanup and funds are available to lower the threshold priority score. Post-1998 releases are not eligible for state funding and must be addressed using private financing.

In 1996, the Preapproval Advanced Cleanup Program was created to provide an opportunity for some cleanups to be initiated in advance of the releases' priority rankings. Under this program, applicants bid a significant cost share for cleanup work and, if selected, are allowed to move forward in advance of higher priority releases. Between 2002 and 2008, 11 of 12 funding rounds were cancelled due to the need to fund high priority releases. In addition, on May 27, 2009, the Governor of Florida signed and approved an action by the state legislature (SB 2600) to virtually eliminate the leaking underground storage tank (LUST) cleanup program. State FY 2009 funding was cut from $156 million to $22 million, which was to only be used for program operations and not for cleanup. To fill the cleanup funding void, the state legislature did authorize the use of $90 million for cleanup via bonds. Subsequently, the 2010-2011 budget has been increased to $120 million. These actions strongly impacted Florida's ability to achieve cleanups.

8 Based on FY 2009 *UST Performance Measures End of Year Activity* report.
9 See FDEP's *Petroleum Contamination Cleanup and Discharge Prevention Programs Briefing*, available online at: www.dep.state.fl.us/waste/quick_topics/publications/pss/pcp/geninfo/2008ProgramFINAL060908.pdf.

Cleanup Standards

FDEP sets default CTLs for groundwater, surface water, and soil contamination at petroleum sites, based on a toxicity evaluation of carcinogenic and non-carcinogenic effects as well as considerations of taste and odor.[10] RPs may conduct risk assessments to calculate site-specific cleanup goals that must also be protective against both carcinogenic and non-carcinogenic effects. Site-specific cleanup goals are reviewed and approved by FDEP staff. Risk-based corrective action is allowed at state fund eligible releases, but RPs are legally allowed to select the more stringent CTLs as the cleanup goals. FDEP is pursuing the use of monitored natural attenuation (MNA) at releases where the RP will not allow risk-based cleanups.

Release Prioritization

All releases are prioritized based on health risk and threats to human receptors. Releases are scored between one and 100, with releases scored above a certain threshold slated for active cleanup (i.e., cleanups are funded). The threshold score to trigger active cleanup can be adjusted depending on how much money the state has available in any given year. FDEP is required by statute to actively fund cleanups only at eligible releases that have a priority score above the action threshold. As of May 14, 2009, the priority score action threshold was raised from 45 to 60. Release priority scores at all open releases are reevaluated and updated annually. Releases not eligible for state funding are also scored in order to prioritize oversight of privately-financed releases and enforcement efforts by FDEP District Offices at releases where no cleanup activities have occurred.

State Backlog Reduction Efforts

FDEP has explored opportunities for backlog reduction efforts but has not yet been able to implement backlog reduction initiatives. Due to state statutory requirements, FDEP is not able to fund cleanups at state fund eligible releases where risk scores are below the priority threshold score set annually by the state based on the annual cleanup budget.[11] This requirement prohibits any efforts that could target easy-to-close releases, which might constitute up to 15 percent of the Florida backlog. When additional funds are available, FDEP lowers the priority score threshold to address as many releases as possible. However, these efforts do not address the lowest priority releases, which might be the easiest to close.

10 CTLs are found in Florida Administrative Code (FAC) Chapters 62-770 and 62-777 available online at: www.dep.state.fl.us/waste/quick_topics/rules/default.htm.

11 FDEP's Petroleum Contamination Site Priority Ranking Rule is available online at: www.dep.state.fl.us/waste/quick_topics/rules/documents/62-771.pdf.

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ANALYSIS AND OPPORTUNITIES

In this study, EPA analyzed Florida's federally-regulated releases that have not been cleaned up (open releases). EPA conducted a multivariate analysis on all of Florida's data. However, this technique did not identify strong underlying patterns in the data.[12] Next, EPA divided the open releases into groups that might warrant further attention. EPA used descriptive statistics to examine the distribution of releases by age of release and stage of cleanup and highlighted findings based on FDEP's data.[14] EPA then identified potential opportunities for addressing particular groups of releases in the backlog. Many releases are included in more than one opportunity. These opportunities describe actions that EPA and FDEP might use as a starting point for their discussion on backlog reduction. Although EPA's analysis covered all releases in Florida, there are 226 releases that are not included in any of the subsets identified in the findings or opportunities due to the way EPA structured the analysis. These releases might also benefit from some of the suggested opportunities and strategies.

EPA's analyses revealed seven areas of Florida's backlog with potential opportunities for its further reduction:

- Stage of cleanup
- Media contaminated
- Release priority
- Cleanup financing
- Number of releases per affiliated party
- Geographic clusters
- Data management

LUST Data Source

Electronic data for LUST releases occurring between January 1956 and March 2009 were compiled with FDEP staff in 2008 and 2009.[13] Data were obtained from the Florida Storage Tank Contamination Monitoring (STCM) database and selected based on quality and the ability to address areas of interest in this analysis.

12 The analytic tree method, a multivariate technique used to identify underlying patterns among large data sets, did not reveal strong patterns within the data. For more information on analytic trees, see Appendix A.

13 For a detailed description of the Florida data used in this analysis, see the Chapter Notes section.

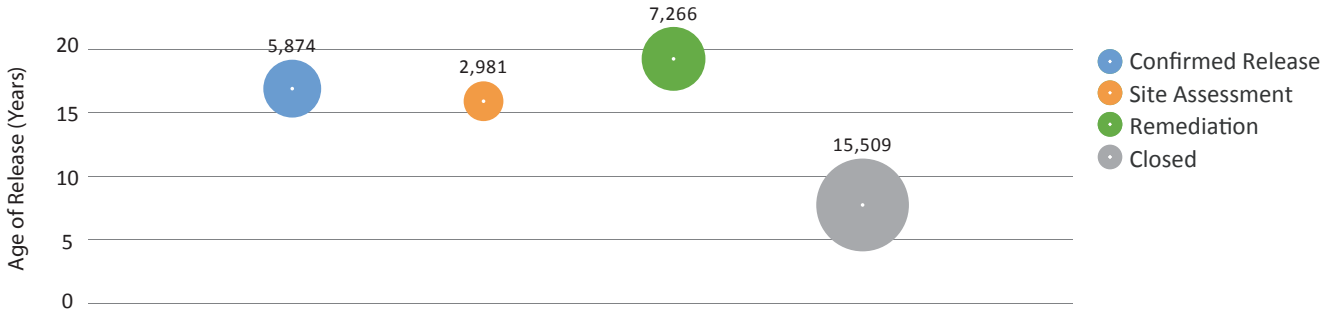
14 For a detailed description of release stages, see the Chapter Notes section (Stage of Cleanup Reference Table).

STAGE OF CLEANUP

As of March 31, 2009, the Florida backlog consisted of 16,121 open releases, by far the highest number in any state in the nation. EPA analyzed the age of these LUST releases and their distribution among the stages of cleanup. To facilitate analysis, EPA classified Florida's open releases into three stages of cleanup: the Confirmed Release stage (releases where assessments have not begun), the Site Assessment stage (releases where site assessments have begun), and the Remediation stage (releases where remedial activities have started).[15] While EPA grouped the releases into linear stages for this analysis, EPA recognizes that cleanups might not proceed in a linear fashion. Cleanup can be an iterative process where releases go through successive rounds of site assessment and remediation. However, in the long run, this approach might be both longer and more costly. Acquiring good site characterization up front can accelerate the pace of cleanup and avoid the extra cost of repeated site assessment.

Since Florida's underground storage tank (UST) program began, FDEP has closed 15,509 releases, half of which were closed in fewer than 7.8 years (Figure 1 below). The younger median age of closed LUST releases might be attributable to the rapid closure of relatively easy to remediate releases. Also, national program policy allows states to report confirmed releases that require no further action at the time of confirmation as "cleanup completed." Therefore, some releases are reported as confirmed and cleaned up simultaneously.

Figure 1. Age of Releases among Stages of Cleanup



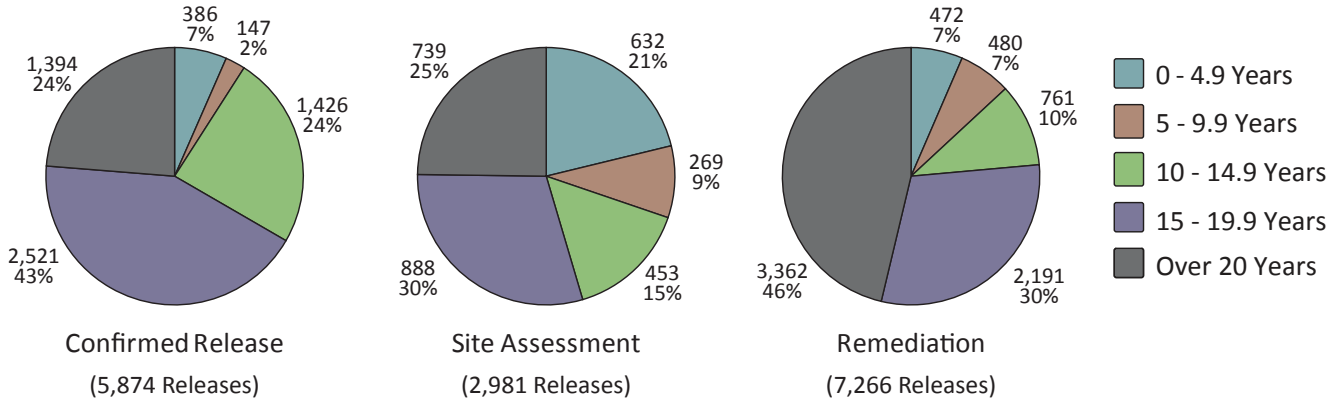
The white dot at the center of each circle represents the median age of releases. Each circle is labeled with, and scaled to, the number of releases within each stage. Included in the release counts and size of circles are 690 closed releases for which release age is unknown. These releases are not part of the median age calculation.

FDEP has explored opportunities for reducing the backlog by lowering the priority score threshold whenever funding is available in order to address as many releases as possible. This opportunity includes closing any release within the funding threshold where little or no remedial work is required to reach closure standards or at releases that have met closure standards but had not finished closure review. This type of focused effort is prohibited in Florida if the targeted releases scored below the priority funding threshold. However, EPA and FDEP could explore opportunities to work within Florida's program structure to address additional releases. Similar efforts in other states have been funded by grants from EPA or as designated state initiatives.

15 Releases were classified into stages based on available data and discussion with FDEP staff. For more information, see the Chapter Notes section.

Florida has many old LUST releases not in remediation. Figure 2 below shows the backlog of open releases by age and stage of cleanup. Figure 2 includes 5,874 releases in the Confirmed Release stage (34 percent of the backlog), 5,488 of which have not started assessment, five years or more after the releases were confirmed. The figure also shows 2,981 releases in the Site Assessment stage (13 percent of the backlog), 2,080 of which have not entered the Remediation stage, 10 years or more after the releases were confirmed. The subset of older releases that have not started or are still in site assessment accounts for 47 percent of Florida's total backlog. FDEP's data indicate that releases have not moved into remediation quickly. Some of these releases may be privately financed, in which case enforcement may be appropriate to move sites toward cleanup that appear stalled. However, the state-funded cleanups might have been determined to be low priority during the initial release characterization, which prohibits FDEP from moving forward with cleanup.

Figure 2. Release Age Distribution among Stages of Cleanup



EPA encourages states to streamline the corrective action process, improve data collection, reduce the overall cost of remediation, and move releases more rapidly toward remediation and closure. To assist states and regulators in implementing these objectives, EPA developed its *Expedited Site Assessment* (ESA) guide.[16] The guide explains the overall ESA process as well as specific site assessment tools and methods. The ESA process rapidly characterizes site conditions to help support cost-effective corrective action decisions. ESAs will help identify releases that can be closed with minimal effort or provide all the information needed to move a release into remediation. Conducting site assessments efficiently and quickly might help reduce the backlog by accelerating the pace of cleanup and ultimately decrease overall project costs.

Florida also has many old releases in the Remediation stage. Forty-five percent of the releases in the Florida backlog (7,266 releases) are in the Remediation stage, and their median age is 19.2 years (Figure 1 above). Of the Remediation stage releases, 87 percent (6,314 releases) are 10 years old or older and 46 percent (3,362) are over 20 years old (Figure 2 above). This group of old releases in the Remediation stage makes up 39 percent of Florida's total backlog.

Because EPA only has the date that a release was confirmed but not when it moved from one stage to the next (e.g., from assessment to remediation), EPA can calculate the overall age of the release but not the actual time spent in the Remediation stage. It is possible that some of these releases might have only recently begun remediation. FDEP should consider establishing

16 EPA's 1997 guidance document, *Expedited Site Assessment Tools for Underground Storage Tank Sites: A Guide for Regulators* (EPA 510 B-97-001) is available online at: www.epa.gov/OUST/pubs/sam.htm.

Florida Finding

47 percent of releases are either:

- 5 years old or older and site assessment has not started; or
- 10 years old or older and still in site assessment.

Potential Opportunity	Releases
• Expedite site assessments at old releases to identify releases that can be closed with minimal effort or moved toward remediation. • Implement enforcement actions at stalled releases.	7,568
Old releases in the Confirmed Release stage	*5,488*
Above current threshold	*159*
Below current threshold	*5,323*
Unknown priority	*6*
Old releases in the Site Assessment stage	*2,080*
Above current threshold	*101*
Below current threshold	*1,979*

Only 20 percent of releases 10 years old and older in the Remediation stage (1,268 releases) are above the state's current priority threshold.

Florida Finding
39 percent of releases are: • 10 years old or older; and • in remediation.

Potential Opportunity	Releases
Use a systematic process to explore opportunities to accelerate cleanups and reach closure, such as: • periodic review of release-specific treatment technologies; • review of site-specific cleanup standards; • encourage use of institutional or engineering controls; and • implement enforcement actions if cleanup has stalled.	6,314
Above current threshold	*1,268*
Below current threshold	*5,045*
Unknown priority	*1*

Florida Finding
23 percent of releases: • contaminate groundwater; • are in remediation; and • are 10 years old or older.

Potential Opportunity	Releases
Systematically evaluate cleanup progress at old releases with groundwater impacts and consider alternative cleanup technologies or other strategies to reduce time to closure.	3,661
Above current threshold	*624*
Below current threshold	*3,037*

a systematic process to evaluate existing releases in remediation and optimize cleanup approaches including choice of technology and site-specific risk-based decision making. This process might save Florida resources and bring releases to closure more quickly. This would allow Florida to move on to other releases that need attention and remove releases from the backlog within existing budget limitations.

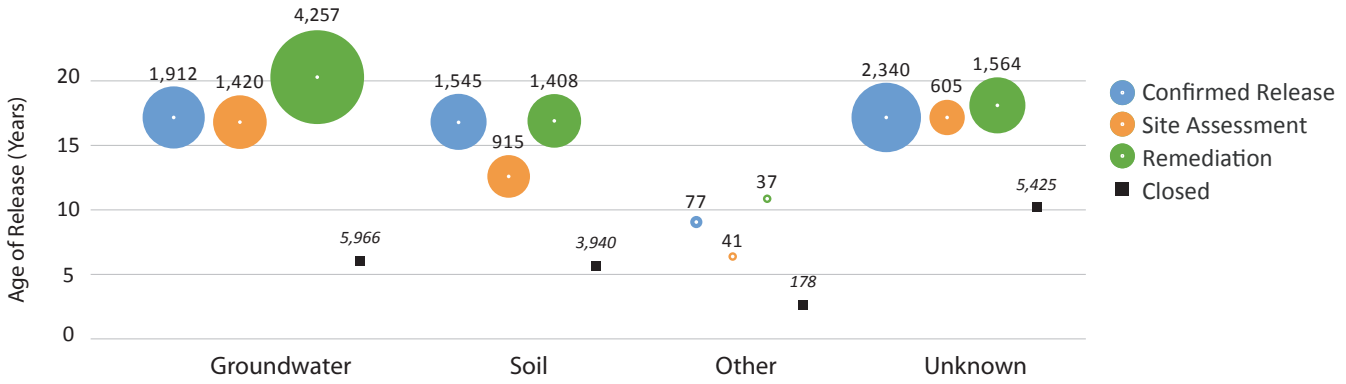
If releases are not moving forward because of their relatively low priority, FDEP can continue to support local government and stakeholder's pursuit of alternative public and private funding sources such as petroleum brownfields grants to close and reuse sites. There may be additional sources of funding targeted at low priority releases that would help reduce Florida's backlog while allowing FDEP to continue to address the highest priority releases with state resources.

MEDIA CONTAMINATED

Groundwater is an important natural resource at risk from petroleum contamination. Old releases impacting groundwater make up a significant percentage of Florida's backlog. Groundwater contamination generally takes longer and is typically more expensive to clean up than soil contamination. In this study, EPA examined media as a factor contributing to the backlog. The following analysis classified media contamination into four categories: groundwater (7,589 open releases); soil (3,868 open releases); other media, which includes surface water (155 open releases); and unknown media, which includes releases with no media specified (4,509 open releases).[17]

In Florida, 47 percent of open releases (7,589 releases) are documented as involving groundwater contamination and these have a median age of 18.9 years (Figure 3 below). Although there are 4,509 releases for which the media contaminated are either unknown or not tracked in the STCM database, most of these releases impact groundwater as well, according to FDEP staff (Figure 3). The age of open releases contaminating groundwater is significantly older than the 6.1-year median age at closure for groundwater cleanups. Of the 4,257 Remediation stage releases that have documented impacts on groundwater, 86 percent (3,661 releases) are 10 years old or older (23 percent of the total backlog) (Figure 4, page 15).

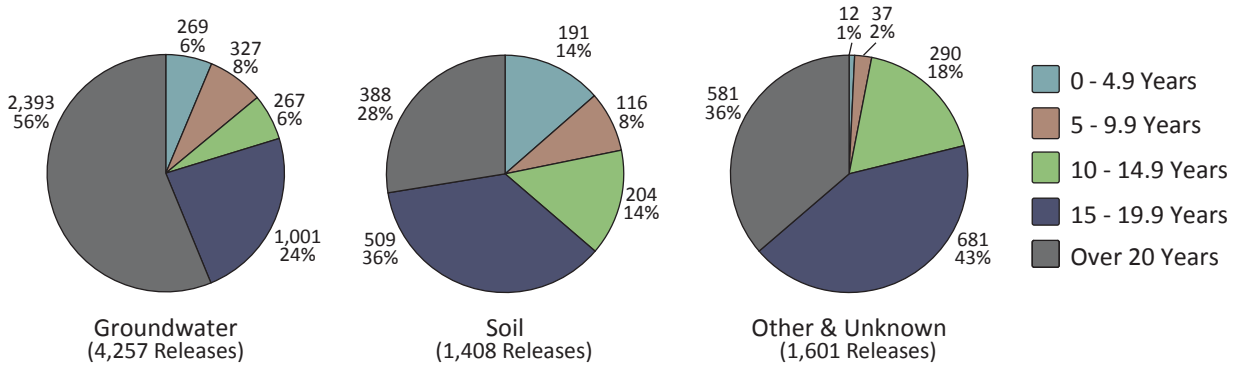
Figure 3. Age of Releases, by Media Contaminated and Stage of Cleanup



Squares indicating closed releases are not scaled to the number of releases in that stage.

17 For a detailed description of media contamination classifications, see the Chapter Notes section.

Figure 4. Age Distribution of Remediation Stage Releases, by Media Contaminated



Like most state programs, FDEP does not have the resources to address all backlogged releases at once and Florida state law requires FDEP to focus on the highest priority releases first. Of the 3,661 releases 10 years and older in the Remediation stage, and impacting groundwater, 83 percent (3,037 releases) are low priority releases that FDEP cannot currently address due to funding limitations. However, 17 percent of these releases (624 releases) are high priority releases that are above the funding threshold. High priority releases that affect groundwater might be complex and difficult to remediate, but if FDEP could identify opportunities to improve cleanup efficiencies, it might be able to accelerate the pace of cleanups. For example, using a systematic process to evaluate cleanup progress, current contaminant levels, and treatment technologies might move releases through cleanup and to closure faster.

The use of institutional or engineering controls can also reduce the time to closure by eliminating exposure pathways and allow for less stringent cleanup standards where protective and appropriate. Although site owners often refuse the use of institutional controls, continued efforts by FDEP to recommend their use might lead to more rapid closures. In addition, evaluation of the cleanup progress of releases with groundwater impacts might identify releases where MNA can be applied. In these cases, treatment times need to remain reasonable compared to other methods. FDEP's cleanup costs might be reduced by applying MNA.

Releases that contaminate soil only represent a potential threat to groundwater resources and contaminate properties in neighborhoods and communities. Although contaminated soil can typically be cleaned up faster than contaminated groundwater, soil cleanups in Florida are often as old as groundwater cleanups (Figure 4). In many cases, FDEP defers the cleanup of soil contamination for higher priority groundwater contamination. However, the 24 percent of open releases (3,868 releases) that contaminate only soil in Florida offer potential opportunities for reducing the backlog. Among soil cleanups, 20 percent (772 releases) are in the Confirmed Release stage and are 16.8 years old or older and another 12 percent (457 releases) are in the Site Assessment stage and are 12.6 years old or older (Figure 3). Unfortunately, data are missing on the media contaminated for 28 percent of the backlog (4,509 open releases) and, according to FDEP staff, all releases may not have updated information on whether the releases contaminate groundwater. In general, expediting site assessments and moving forward with remediation could help Florida gather more information about difficult sites and move releases toward closure.

Florida Finding

24 percent of releases contaminate soil only.

Potential Opportunity	Releases
Use expedited site assessments to identify additional releases with soil contamination that can be: • targeted for closure with minimal effort; or • moved more quickly into remediation.	3,868
Above current threshold	*446*
Below current threshold	*3,256*
Unknown priority	*166*

Florida Finding

28 percent of releases are not electronically tracked according to the type of media contaminated.

Potential Opportunity	Releases
Target releases with unknown media contamination for expedited site assessments and use this information to update the release priority as needed and to customize the remedial activity.	4,509
Above current threshold	*538*
Below current threshold	*3,967*
Unknown priority	*4*

RELEASE PRIORITY

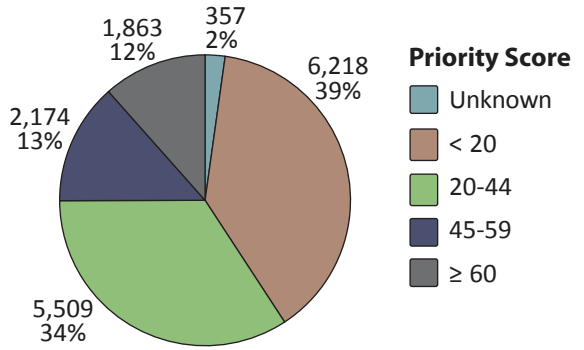
Florida Finding
86 percent of releases are not being actively addressed due to their priority score.

Potential Opportunity	Releases
Explore options for moving releases toward closure such as: • expediting site assessments of all releases to ensure that all releases are appropriately ranked; and • ensuring releases with immediate risk are being actively worked on.	13,901

Florida, like many state programs, employs a prioritization system to decide how to best allocate state resources for assessments and cleanups. There might be opportunities to work within FDEP's prioritization system to increase the number of closures. FDEP is required by statute to focus resources on unconfirmed and the highest risk releases. To assist the prioritization of oversight and enforcement, all releases are also scored regardless of whether they are state funded or privately financed. FDEP is prohibited from dedicating resources to low priority releases unless resources have already been made available to address all higher priority releases.

Under state statute, FDEP cannot address a large number of low priority releases that could potentially be closed quickly. In Florida, releases qualify for cleanup action based on their priority score. At the time of data collection, only 27 percent of open releases in the Florida backlog (4,394 releases) were actively addressed, either due to receiving a priority score above the action threshold of 45 (25 percent) or having not yet received a priority score (2 percent; Figure 5 to the right). The remaining 73 percent of releases (11,727 releases) had been on hold because their priority scores are below the action threshold.

Figure 5. Distribution of Releases, by Priority Score



As a result of budget cuts since these data were collected, the action threshold has been raised from a priority score of 45 to a priority score of 60 or higher, meaning that an additional 13 percent of the backlog (2,174 releases) will be put on hold until more funds become available. Only 14 percent of releases in Florida can now be actively addressed, either due to receiving a priority score above the action threshold (12 percent) or having not yet received a priority score (2 percent; Figure 5). A large portion of the backlog (39 percent; 6,218 releases) has a priority score below 20 suggesting that even if the threshold were lowered, a large number of releases would remain unaddressed. In the past, when significant budget resources have been available and the action threshold has been low, FDEP staff responded by pushing for rapid site assessments and remedial activities at lower priority releases to ensure that work progressed. Using this strategy, FDEP staff maximized activities at temporarily active releases before the action threshold was raised again. The continued application of the strategy to expedite site assessments of lower-scored active releases could help maximize the number of releases progressing toward remediation.

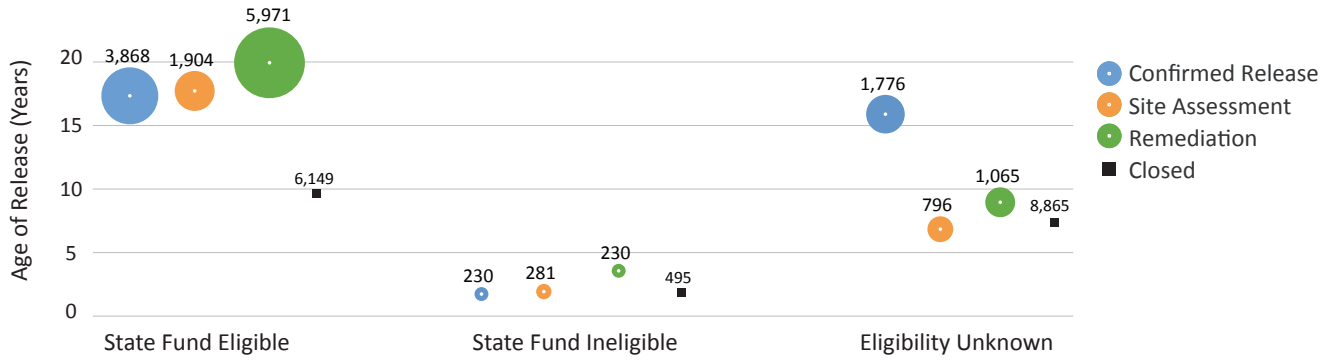
CLEANUP FINANCING

EPA and state programs are interested in exploring successful financing strategies for completing cleanups quickly. Differences in cleanup rates between those releases covered by state funds and those releases covered by other forms of financial responsibility could provide useful insights into what works well in existing programs. EPA believes the availability of funding for cleanup is essential to reducing the backlog. Accordingly, in addition to this study, EPA is increasing its focus on oversight of state funds as well as conducting a study of private insurance. Florida's data provide an interesting opportunity to explore these areas of interest, since Florida has both state-funded and privately-funded cleanups in its backlog. To analyze the effect of various types of financial responsibility mechanisms on closure rates, EPA evaluated state fund eligibility and cleanup progress for each release.

The way that state funds are structured can potentially create incentives or disincentives for prompt cleanup. For example, a high deductible would provide a different incentive for owners than a low deductible. In Florida, early amnesty programs provided strong incentives to report releases, but the current budget situation does not allow FDEP to fund all releases. EPA will continue to work with FDEP to explore how incentives affect the pace of cleanup and how to use effective incentives to support program implementation.

As shown in Figure 6 below, half of the state fund eligible releases in the Remediation stage (2,986 releases) are 20 years old or older. These releases may be complex and difficult to remediate. However, releases may be lingering for other reasons, such as very slow reduction in contamination from the existing remedial systems. If a thorough evaluation determines that active remediation is ineffective in reducing contamination, a less costly cleanup technology such as MNA could be considered as an appropriate remedy.[18] If used appropriately, this approach would free up state funds for use at other cleanups and could increase the number of releases that FDEP is able to address and move toward remediation.

Figure 6. Age of Releases, by State Fund Eligibility and Stage of Cleanup



Florida Finding
50 percent of state fund eligible releases in remediation are 20 years old or older.

Potential Opportunity	Releases
Reevaluate the current remedial plan at all state fund eligible releases in the Remediation stage to identify releases where a more cost-effective plan could be implemented, such as: • using MNA; • using site-specific, risk-based decision making; and • using closure with institutional or engineering controls.	5,971
Above current threshold	*1,258*
Below current threshold	*4,713*

18 For more information regarding the appropriate use of MNA, see www.epa.gov/swerust1/pubs/tums.htm and EPA Directive Number 9200.4-17P, *Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites*, available online at: www.epa.gov/oust/directiv/d9200417.htm.

Reevaluation of the remedial plans and assessment of cleanup progress at old state fund eligible releases might identify releases where more cost-effective plans could be implemented. If more cost-effective remedial plans could be implemented at state-funded cleanups in remediation, or other funding sources found for those not in remediation, this would free up funding to address more releases in the early stages of cleanup.

Florida Finding
49 percent of state fund eligible releases either: • have not begun site assessment; or • have not finished site assessment.

Potential Opportunity	Releases
Explore ways to move more state-funded cleanups toward closure, such as: • redirecting funds saved at cleanups with improved cost effectiveness to state fund eligible releases where assessment has not been completed; and • encouraging the use of other sources of public and private funding such as petroleum brownfields grants to move low priority releases toward closure.	5,772
Above current threshold	*166*
Below current threshold	*5,605*
Unknown priority	*1*

In contrast, the state fund ineligible releases in Florida appear to be moving through the cleanup process relatively quickly. These releases have likely occurred since 1998 when the Florida State Fund programs stopped providing financial responsibility coverage, which means they probably have private financial responsibility mechanisms. The median ages for state fund ineligible releases in all stages of cleanup are all under five years old (Figure 6). Most of the privately-financed cleanups in the Remediation stage are under 10 years old, but may still be taking longer than necessary. FDEP can consider enforcement actions against RPs where releases are stalled. Consistent enforcement efforts could help keep privately-financed cleanups moving steadily toward closure and out of the backlog.

In Florida, 73 percent of open releases (11,743 releases) are eligible for state funding, and within every stage of cleanup, the median age of state fund eligible releases is greater than 15 years old (Figure 6).[19] In addition, 49 percent of state fund eligible releases (5,772 releases) remain in the Confirmed Release or Site Assessment stages. Although the high median age can be attributed to release date eligibility requirements (e.g., FDEP's Early Detection Incentive Program, one of several state fund programs in Florida, only covers releases reported prior to 1989), the fact that so many old releases remain in early stages of cleanup indicates the cleanups are not being addressed (Figure 6). Since many state fund eligible releases have been around for so long without the completion of an assessment, conditions may have changed dramatically from when these releases were confirmed. Some old releases may be complex and difficult to assess or remediate. Others may have remained in the backlog because of relatively low priority scores or limited state budgets. If more cost-effective remedial designs could be implemented at state-funded cleanups in remediation, or if other funding sources could be found for those releases not yet in remediation, such as petroleum brownfields grants for low priority releases without viable RPs, Florida would be able to finish assessments on more releases and move them toward closure.

19 Releases with partial eligibility were considered state fund eligible.

NUMBER OF RELEASES PER AFFILIATED PARTY

EPA analyzed the number of releases per affiliated party to identify entities that are the largest potential contributors to the state's cleanup backlog.[20] Even when an affiliated party is not legally liable to clean up a release, they may be interested in helping to clean up releases associated with their name or brand.

A total of 101 affiliated parties are each associated with 10 or more releases and account for 22 percent of the Florida backlog (3,546 releases).[21] Of these parties, 61 gasoline retail, distribution, and refining businesses are affiliated with 2,189 releases (14 percent of the backlog), and another 20 entities are affiliated with 976 releases (6 percent of the backlog) at convenience stores. FDEP and EPA can use these data to identify possible participants for multi-site strategies to clean up these groups of releases. Focused efforts engaging these 101 parties in collaboration or enforcement might expedite closure of many of these releases.

Table 1. Entities Associated with 10 or More Open Releases

Type of Entity	Number of Releases	Number of Entities
Gasoline - Retail/Distribution/Refining	2,189	61
Convenience Store Chain	976	20
Other	203	11
Unknown Type	95	2
Government - State	55	2
Government - Local	28	5
Total	**3,546**	**101**

Florida Finding
22 percent of releases are affiliated with 101 parties that each has 10 or more releases.

Potential Opportunity	Releases
Explore possibilities for multi-site agreements (MSAs) or enforcement actions with parties associated with multiple open releases.	3,546
Above current threshold	*451*
Below current threshold	*2,988*
Unknown priority	*107*

20 Data provided by FDEP include the names of facility owners, RPs, and other parties, and these entities might or might not be the legally responsible parties.

21 No federal government entities were identified among the list of affiliated parties with ten or more releases.

GEOGRAPHIC CLUSTERS

Florida Finding
75 percent of releases are clustered within a one-mile radius of five or more releases.

Potential Opportunity	Releases
Target releases within close proximity for other resource consolidation opportunities.	Targeted number of releases[22]

EPA performed a geospatial analysis to look for alternative ways to address the backlog. While releases in geographic clusters might not have the same RP, they tend to be located in densely populated areas and might present opportunities to consolidate resources and coordinate efforts. Geographic proximity may call attention to releases in areas of interest such as redevelopment, environmental justice, and ecological sensitivity.

EPA's analysis identified 12,025 releases (75 percent of open releases) located within a one-mile radius of five or more releases (Figure 7 to the right). Of these releases, 8,834 (55 percent of open releases) are located within a one-mile radius of 10 or more releases. Approaching the assessment and cleanup needs of an area impacted by LUSTs can be more effective than focusing on individual sites in isolation from the adjacent or surrounding area. Considering geographically-clustered releases might pave the way for new community-based revitalization efforts, utilize economies of scale to yield benefits such as reduced equipment costs, and present opportunities to develop multi-site cleanup strategies, especially at locations with commingled contamination.

Figure 7. Map of All Open Releases

State and local governments can also utilize geographic clusters for area-wide planning efforts. In fact, local government has a public-private revitalization effort along the 70-mile Tamiami Trail Scenic Highway route in Florida. Approximately 100 lower priority sites could potentially be addressed along this corridor by focusing resources and benefiting from economies of scale.[23] FDEP's support of such efforts can help move lower priority sites toward closure and reuse. EPA encourages states to look for opportunities for resource consolidation and area-wide planning like Florida's Tamiami revitalization effort, but also recognizes that this approach is best geared to address targeted groups of releases as opposed to a state-wide opportunity for every cluster of releases. EPA intends to conduct further geospatial analyses on clusters of open releases in relation to RPs, highway corridors, local geologic and hydrogeologic settings, groundwater resources, and/or communities with environmental justice concerns. These analyses might reveal additional opportunities for backlog reduction.

22 Opportunities marked as "targeted number of releases" relate to geographic opportunities that will address a limited number of releases within select designated geographic areas.

23 Petroleum brownfields considers sites not releases. See www.eli.org/pdf/tamiamitrailfactsheet102709.pdf for more information.

DATA MANAGEMENT

Multiple database limitations prevent a full assessment of Florida's backlog and associated strategies for backlog reduction. Comprehensive, up-to-date data can significantly improve a state's ability to manage its program and reduce its backlog. Notably, the STCM database does not consistently track several important pieces of release-related information. For example, 4,509 open releases (28 percent of the backlog) are missing data on the media contaminated. In addition, there is no release-specific tracking of financial responsibility mechanisms. Additional improvements to database management could allow for easier overall program management as well as provide an improved tool for developing strategies to reduce the cleanup backlog.

Florida Finding
Several key data fields are not included, consistently maintained, or routinely tracked in the STCM database.

Potential Opportunity	Releases
Improve SCTM database to enhance program management and backlog reduction efforts.	Variable number of releases[24]

24 Opportunities marked as "variable number of releases" relate to programmatic opportunities and affect an unknown number of releases potentially including all open releases.

Florida LUST Program Contact Information

Florida Department of Environmental Protection
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Tallahassee, FL 32399-2400

Phone: 850-245-8839
Fax: 850-245-8831

www.dep.state.fl.us/waste/categories/pss/default.htm

CONCLUSION

In this state chapter, EPA presented the analysis of LUST data submitted by FDEP and highlighted information on Florida's UST program. Based on the analytic results, EPA identified potential opportunities that could be used to address specific backlog issues within Florida. Over the course of the entire study, EPA analyzed data from 13 other states. Findings and opportunities that apply to all 14 states are discussed in the national chapter of the report. Each opportunity represents one potential approach among many to address the backlog. Discussion of the opportunities as a whole is intended as a starting point for further conversations among EPA, Florida, and the other states on strategies to reduce the backlog. EPA will work with states to develop detailed strategies for reducing the backlog. In Florida's case, strategies can focus primarily on above threshold releases and potential opportunities for alternate sources of funding. Development of the strategies might include targeted data collection, reviewing particular case files, analyzing problem areas, and sharing best practices. The strategies could involve actions from EPA, such as using additional program metrics, targeting resources for specific cleanup actions, clarifying and developing guidance, and revising policies. EPA, in partnership with states, is committed to reducing the backlog of confirmed UST releases and to protecting the nation's groundwater and land and the communities affected by these contaminated releases.

CHAPTER NOTES

FLORIDA DATA BY ATTRIBUTE

The following table provides details on the data elements of interest in this analysis. Data were provided by FDEP staff in 2008 and 2009 for use in this analysis. Several elements of interest could not be addressed with the information available. All available data elements were analyzed and only those data elements that revealed informative patterns of interest are included in the report.

Data Element	Florida Data	Use in Analysis
Administrative Cost	Data were obtained from the "FY" and "Amount" data fields in "LP TA4-TA8 05072009.xls."	Included in the "Program Summary" section and in the national chapter.
Affiliated Party	Data were obtained from six FDEP District Office reports (downloaded from FDEP's website on 6/14/2009). First, Districts' historical owner data were merged into one; second, rules were applied to extract current owner (e.g., an owner begin date must be earlier than confirmed release date, and an owner end date must be blank), and, when current owner was not identified, latest owner was used instead; and third, rules were applied to rank owners based on owner role (e.g., when the owner role/type was "RP," it was selected over another owner whose role/type was "facility owner").	Used to calculate the number of releases associated with each unique RP.
Age	Age was calculated for closed releases by subtracting the confirmed release date from the closure date and dividing by 365. Age was calculated for open releases by subtracting the confirmed release date from the data date and dividing by 365. Any values less than -.1 were left blank. Values between -.1 and 0 were counted as 0. All dates were rounded to one decimal point. Ages of releases with insufficient or invalid data were left blank.	Variable in all analyses.
Aboveground/ Underground Storage Tank Facility	Data were obtained from the "ABOVEGROUND_TANK_COUNT" field in the "EPA Backlog Data 03312009.xls" file. Because FDEP counts facilities with both aboveground storage tanks (ASTs) and USTs toward its backlog, this data field was used to mark releases at AST/UST facilities versus releases at UST-only facilities.	No informative patterns were identified.
Cleanup Standards	No site-specific data available.	State-wide standards examined in the national chapter.
Closure Date	Data were obtained from the "Discharge Cleanup Status Date" field in the "cleanup.xls" file (downloaded from FDEP's website, Discharge Cleanup Summary report, on 4/13/2009) and the "DISCHARGE_CLEANUP_STATUS_DESC" data field in the "EPA Backlog Data 03312009.xls" file. For releases that had one of the several discharge statuses that indicated they were closed, the "Discharge Cleanup Status Date" was used as closure date (see Stage of Cleanup Reference Table).	Included in the calculation of release age.
Confirmed Release Date	Data were obtained from the "DISCHARGE_DATE" field in the "EPA Backlog Data 03312009.xls" file.	Included in the calculation of release age.
Data date	March 31, 2009, is used for all records. This is the date the "EPA Backlog Data 03312009.xls" file was received.	Included in the calculation of release age.
Facility Type	Data were obtained from the "FACILITY_TYPE_DESC" field in the "EPA Backlog Data 03312009.xls" file. The types of facilities that FDEP tracks include: local, county, state and federal government, retail station, fuel storage, and industrial plant.	No informative patterns were identified.
FDEP District	Data were obtained from the "DISTRICT" field in the "EPA Backlog Data 03312009.xls" file.	No informative patterns were identified.
Federally-Regulated LUST Releases	FDEP staff sent a customized data set, "EPA Backlog Data 03312009.xls," containing only federally-regulated LUST releases.	Identifies the appropriate universe of releases for analysis.

Data Element	Florida Data	Use in Analysis
Finance Type	Data pulled from the "Financial Responsibility Mechanism," "Effective Date," and "Expiration Date" data fields in "FIRST_ Financial_Responsibility.xls." Financial Responsibility Mechanism data were considered only for releases with a confirmed release date later than the effective date and earlier than the expiration date. Because these data were tracked at facility level, releases at facilities with multiple releases were marked as "Unknown" unless they were state fund eligible, which was tracked in a different data field and at release level.	No informative patterns were identified.
Free Product	No data available.	Not Applicable
Institutional and Engineering Controls	Data were obtained from the "INSTITUTIONAL CONTROL MECHANISM," "INSTITUTIONAL CONTROL TYPE," and "ENGINEERING CONTROL TYPE" data fields in "ICR_PetroleumSites_5-5-09.xls."	Data not suitable for analysis.
Latitude and Longitude	Data were obtained from the "LAT_DD," "LAT_MM," "LAT_SS," "LONG_DD," "LONG_MM," and "LONG_SS" fields in the "EPA Backlog Data 03312009.xls" file. Where possible, coordinates for releases without existing latitude and longitude values were obtained by EPA staff by geocoding address and street locations.	Used in geospatial analysis calculating the number of open releases within a one-mile radius of other open releases.
Media	Data were obtained from the "GRND_WATER_CONTAMINATION," "SURF_WATER_CONTAMINATION," and "SOIL_ CONTAMINATION" data fields in the "EPA Backlog Data 03312009.xls" file. Releases with groundwater contamination marked (in addition to any other media) were counted as "groundwater." Releases with only soil contamination marked were counted as "soil." Releases with any other combination of media were counted as other. Unknown releases might include those releases for which there were no data available in the database, but for which information was available in other files and releases for which the type of media contaminated is truly unknown.	Examined in the "Media Contaminated" section.
Methyl Tertiary Butyl Ether (MBTE)	Data were obtained from the "CONTAMINATION" data field in the "ICR_PetroleumSites_5-5-09.xls" file. When a release had an entry of "PETROLEUM (INCLUDES BTEX AND MTBE)," it was marked as having MTBE contamination.	No informative patterns were identified.
Monitored Natural Attenuation (MNA)	No data available.	Not Applicable
Number of Releases per Affiliated Party	Calculated as the total number of open releases associated with a unique affiliated party name.	Examined in the "Number of Releases per Affiliated Party" section.
Orphan	Data were obtained from the "Draft Candidate Site List 03312009.xls" file. This list was at facility level; releases at these facilities were marked as orphan releases.	No informative patterns were identified.
Program	Data were obtained from the "PROGRAM_DESC" field in the "EPA Backlog Data 03312009.xls" file.	Informative patterns were not identified.
Proximity	Geospatial analysis performed by EPA revealed the number of other open releases located within a one-mile radius of each open release.	Examined in the "Geographic Clusters" section.
Public Spending	No release-level data were available. The cumulative amount of the "Total Amount Encumbered to Date" data field in the "Cap_To_Date.xls" report was used to calculate public spending on releases. Because data were tracked at facility level, only releases at facilities with one release were considered.	Data not suitable for analysis.
Release Priority - Highest Current Score and Previous Score	Data were obtained from the "HIGHEST_CURRENT_SCORE" and "SCORE" data fields in the "EPA Backlog Data 03312009. xls" file. Highest current score represents the current priority of the release and previous score represents the previous priority of the release.	Examined in the "Release Priority" section.
RP Recalcitrance	No data available.	Not Applicable

Data Element	Florida Data	Use in Analysis
Staff Workload	Calculated as the total number of active releases (both pre-approval releases and non-program releases) divided by the total number of staff across all divisions. Data were obtained from the "Number of FTE Site Managers," "Active Preapproval Sites Per STCM," and "Active Non-Program Sites Per STCM" data fields in the "STCM Workload 05142009.xls" file. In addition, a separate estimate was calculated using the total number of open releases divided by the total number of staff across all divisions.	Examined in the "Program Summary" section and in the national chapter.
Stage of Cleanup	Data were obtained from the "DISCHARGE_CLEANUP_STATUS_DESC" data field in the "EPA Backlog Data 03312009.xls" file (see Stage of Cleanup Reference Table).	Variable in all analyses.
State Fund Eligibility	Data were obtained from the "ELIGIBILITY_INDICATOR" field in the "EPA Backlog Data 03312009.xls" file. If a release was categorized as "Approved," "Eligible," or "Partial," it was marked as State Fund Eligible.	Examined in the "Cleanup Financing" section.
Status	Data were obtained from the "DISCHARGE_CLEANUP_STATUS_DESC" field in the "EPA Backlog Data 03312009.xls" file (see Stage of Cleanup Reference Table).	Identifies the appropriate universe of releases for tree analysis.
Voluntary Cleanup Program	No data available.	Not Applicable

Stage of Cleanup Reference Table

Each release was assigned to a specific stage of cleanup for this analysis, based on the FDEP Discharge Cleanup Status.

Discharge Cleanup Status	Number of Releases	Stage
APPROVED - NO TASK LEVEL DATA	51	Confirmed Release
DENIED CLEANUP ASSISTANCE	2	Confirmed Release
DISCHARGE NOTIFICATION RECEIVED	1,012	Confirmed Release
ELIGIBLE - NO TASK LEVEL DATA	3,424	Confirmed Release
INELIGIBLE FOR CLEANUP ASSISTANCE	255	Confirmed Release
PARTIAL ELIGIBILITY - NO TASK LEVEL DATA	405	Confirmed Release
REPORT OF DISCHARGE RECEIVED	224	Confirmed Release
VERIFIED CONTAMINATION, CLEANUP REQUIRED	487	Confirmed Release
WITHDRAWN FROM CLEANUP PROGRAM	14	Confirmed Release
SITE ASSESSMENT ONGOING	2,981	Site Assessment
REMEDIAL ACTION ONGOING	6,231	Remediation
REMEDIAL ACTION PLAN ONGOING	1,014	Remediation
SITE REMEDIATION ONGOING	21	Remediation
NFA COMPLETE	6,983	Closed
NO FURTHER ACTION WITH CONDITIONS	59	Closed
CLEANUP NOT REQUIRED	4,081	Closed
SITE REHABILITATION COMPLETION REPORT COMPLETE	4,386	Closed