

The Future of Pre-Sub Title D Municipal Landfill Cleanups

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Abstract: In many states the small landfills owned and operated by county and city governments were grandfathered into the federal Resource Conservation and Recovery Act enacted in 1976. When the regulations to Subtitle D of the RCRA were adopted in 1991, county and city landfills were allowed-and continue to be allowed to collect municipal solid waste while not in full conformance with Subtitle D. These municipalities operate on a lower compliance scale than privately owned landfills and are more likely to be overfilled and have minimal leachate controls in place. After closure of these municipal owned landfills many have required and will continue to need state money to address soil erosion and contamination, leachate leakage, and reclamation/land reuse programs.

States are unprepared for these eventual cleanup disasters and the current “set-asides” or post-closure funds that states have in place are not substantial enough to address the issues that are coming. Governmental authorities need to address the concern in two ways; first by addressing the phasing out and closing of those landfills that do not meet current industry and regulatory standards and secondly to begin realistic funding of post closure coffers adequately.

Keywords: Subtitle D; RCRA; landfills; erosion; leachate; contamination; reclamation; cleanup

The Looming Crisis

When the federal government began to address landfill issues back in the 70's it appeared that every city and county had their own landfill. Back then most of what was discarded in these local landfills was organics or metals in composition. Over the years the material characteristics began to change; plastics and electronics and household chemicals found their way into these landfills, landfills without barriers to protect the ground waters that are vital to our economies and to our well-being.

Many of those landfills are still operating today, gathering materials unknown to mankind forty years ago, being buried, and collecting moisture, draining downwards into the dark confines of the rubbish piled on top, breaking down and leaching harmful materials unchecked into our water supplies.

Forty years ago a small 40 acre privately owned landfill closed down after operating for four years, taking in waste from the nearby town and its university system. The landfill was built before post-closure financial requirements were in place and all was forgotten after the last dump truck emptied its load of cover dirt and made its way out the gate and down the dirt road.

Grass grew, shrubs proliferated, and trees arose from the rich cover soil deposited so many years ago. The place was almost idyllic in its serenity and supposed beauty, a perfect place for a park or campground. Off the mountain a stream ran beside the area providing habitat for the animals and fowl that visited or lived at the site. Meanwhile our small town of long ago had grown into a city with a thriving population and an insatiable appetite for new land. Thirty years later our landfill and city once again interconnect.

Not all was idyllic as the first glance would suggest; there was debris bubbling up in certain areas, the water was not as pure as it once had been. Along with fallen leaves floating down the stream were bits and pieces of trash long ago deposited and thought to be forever buried. A greater concern is the lead, arsenic, and other menacing chemicals that do harm to all living things slowly releasing their poison into the environment.

In the last ten years the state of Arkansas has spent over \$5 million dollars repairing the damage, which comes out to \$125,000 an acre, far more than the land is commercially worth. The only pockets deep enough to properly address the concerns are the States'. However, those pockets are not deep enough to address the future needs of closed landfills or those currently active that will be closed sometime in the future.

Arkansas currently has 15 remaining Class 1 municipal landfills that continue to operate and 55 landfills that have ceased operations at sometime within the last fifty years. Taking the best case scenario and saying that each closed landfill will require just \$1 million dollars to address issues the state would need a minimum of \$55 million. If each landfill were to be similar to the example above the state will need \$275 million.

By state statute, Arkansas currently has a post-closure fund limit of \$25 million dollars that until recently appeared adequate. However the last few years have placed a strain on the funding as our agency has had to address landfill issues similar to the one described above and during this legislative session an attempt to remove the funding cap is in progress to allow for adequate funding.

In our time of aged and insufficient infrastructure of roads and bridges, water and sewer systems, and public building decay, it is a travesty that states will be required to spend countless millions on cleaning up old landfill sites. What plans are in place to address this looming crisis? Are states adequately prepared to fund the future needs of remediation? Is there anyone on the federal level contemplating this impending catastrophe?

A sampling of states reveals the average cost of landfill closure and post-closure to range between \$80 thousand and \$500 thousand per acre. The chart following this paragraph was compiled from engineering documents prepared as part of the landfill closure and post-closure requirements in each state.

Sample State	Closure Acreage	Closure Cost	Post Closure Cost	Overall Total	Per Acre Average Cost	Footnote Marker
Texas	88	\$ 4,623,179	\$ 6,025,800	\$ 10,648,979	\$ 121,011.13	1
Missouri	52	\$ 2,566,481	\$ 23,233,050	\$ 25,799,531	\$ 496,144.83	2
New York	44	\$ 8,257,954	\$ 3,534,000	\$ 11,791,954	\$ 267,998.95	3
Virginia	27	\$ 5,107,893	\$ 2,413,485	\$ 7,521,378	\$ 278,569.56	4
New Mexico	87	\$ 4,312,029	\$ 2,711,313	\$ 7,023,342	\$ 80,728.07	5
Texas	36	\$ 4,218,378	\$ 3,743,064	\$ 7,961,442	\$ 221,151	6

Based on the data from the chart it would appear that each landfill has its own set of peculiar circumstances that either drives the cost up or down. If you closed your landfill in 1985 and estimated it would cost \$100 dollars to do so, thirty years later that same cost would now be \$220 due to inflationary cost adjustments or 120% rate of inflation. What will be the final cost of those landfills highlighted above if inflation stays relatively low as it has in the last thirty years? \$10 million today will be \$22 million in thirty years; where will the money come from to make up that difference?

In 2013 Minnesota spent approximately \$16 million dollars for the continuing remedial actions at 11 sites, completing 59 Closed Landfill Use Plans (CLUPs) with local governments, preventing 27.8 million pounds of methane from entering the atmosphere and capturing over 10 million gallons of landfill leachate from reaching the groundwater. (7)

In 2010 the Minnesota Legislature transferred \$48 million dollars from the Closed Landfill Investment Fund (CLIF) to the General Fund to address budget shortfalls with good intentions to pay it back over the next four years. When this report was prepared in December of 2013 the balance of the CLIF was \$4.7 million dollars, a far cry from the amount of money required to address future concerns. (7)

Minnesota is not alone, in New Jersey they have identified over 600 known or suspected landfills, 400 that have been registered. Of the 400 registered landfills approximately 234 closed before 1982, and 146 closed post-1982 with 20 still in operation. The cost provided by New Jersey officials has been estimated to be between \$180,000 an acre up to \$700,000. The example used cites closure cost that could range from \$3.6 million to \$14 million, and if you were to use just the lowest assumption New Jersey will need \$1.3 billion dollars to address the 380 known closed landfills.

New Jersey has responded to this need by identifying the top 16 sites out of the top 100 and assembling a myriad of programs; including the excesses Corporate Business Tax (CBT) funds, federal greenhouse gas grant funds and Maritime Resources Dredging funds, available escrow funds and third party initiatives. (8)

Admitting the Problem

There are many reasons why states find themselves in financial difficulty when it comes to closure and post-closure of landfills; antiquated laws, onerous financial burdens on publicly and private entities, appropriating funds for other uses, lack of financial assurance and enforcement, as well state agencies unwilling or unable to think outside the box to realistically address the problems they are tasked with.

Public or municipal landfills that are currently in operation or have been closed for years improperly are being held financially accountable by many state agencies through escrow accounts that require bonded debt that unnecessarily burdens local municipalities. In many cases where landfills have been closed or inactive a proper closure plan is not feasible due to a lack of funding resources thus extending the problem into the future without any resolution to the issue.

In most states municipal landfills that were closed down previous to the 1976 Resource Conservation and Recovery Act or the Subtitle D RCRA law passed in 1991 have no closure plan and have no post-closure activities due to funding deficiencies. These landfills were caught in the middle of regulations that required a change in their operational procedures financially in mid-stream that drove them to closure, most without any closure plan.

State agencies across the country have municipal landfills in their respective states with no available data to verify the true nature of those landfills and what current conditions they exist under. Many may require remediation but cannot be addressed by state agencies because of existing laws that prevent them from providing preventative or corrective action.

Many states have no idea where some of the old abandoned landfills are, how large they were, how long they operated, nor what was placed in them. How are state agencies expected to address these landfills and then suddenly expect municipalities to pick up the additional financial burden of dealing with closure and post-closure issues after the fact?

Existing laws may prevent state agencies from addressing landfill closure issues through innovative technologies or funding solutions. State agencies are being tasked to examine how their laws affect their ability to manage municipal landfills and quite frequently come up against politics that prevent moving forward toward change a reality.

Future Strategies

State agencies must be prepared to address several issues simultaneously in order to catch up and then stay ahead of the impending crises.

Identifying all of the existing closed, inactive and operating landfills within their state boundaries and assessing their current condition and evaluating their future remediation needs is paramount to understanding the expected financial requirements needed.

Current laws that impede or prevent closure and post-closure activities must be addressed to allow state agencies to work with municipalities in finding financial solutions opposed to just issuing consent orders and levying fines.

Funding post-closure programs adequately and expanding their ability to address not only the remediation but provide assistance to municipalities in the development of closure plans and the execution of those plans to a successful conclusion.

Conclusion

Ball parks and soccer fields cover the area, two streams run through an idyllic park setting for naturalist to enjoy and a planned community is underway to take advantage of the conveniences offered. All of this was made possible by the ability of the state's Arkansas Department of Environmental Quality to rehabilitate an old landfill properly, utilizing available post-closure funds. Unfortunately those funds are not adequate to address other sites in need at this time. However under new leadership with a willingness to modify existing laws to allow for adequate funding we feel confident that we will be better prepared for the future, whatever it may bring.

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