

Texas Trash Rules Matter

*Why Stronger Rules are Needed for Super-Sized Landfills to Stop
the Trashing of Texas*

A Report By
Texas Campaign for the Environment

and

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I. Executive Summary Why Texas Trash Rules Matter

Few Texans realize that their state has some of the weakest trash standards in the nation. A landfill can be built within 50 feet of a home, business, school or place of worship in this state. With the passage of House Bill 1609 in 2005, *there is no longer a requirement that a public meeting be held before a new landfill or other trash permit (or hazardous waste dump) is approved.* Environmental agency staffers admit that they do not have adequate information on whether—and how extensively—Texas' water supplies are being polluted by trash facilities that leak contaminants. Landfill permits do not have time limits to insure periodic review of permits and procedures. This is critical given that so many Texas landfills have enough capacity to take them into the next century. Of the 189 active landfills in Texas, more than half (96) have at least 40 years of capacity left:

- **45 landfills have more than 100 years of capacity left;** and
- **51 additional landfills have at least 40 years** of remaining capacity.

The Texas Commission on Environmental Quality (TCEQ) is in the last stages of rewriting standards for municipal landfills and other municipal solid waste (MSW) facilities. On February 1, 2006, the three TCEQ Commissioners have an opportunity to significantly upgrade the trash rules known as Chapter 330¹. Some of the key issues at stake are:

- Will **vertical expansion on top of old, unlined landfill cells continue to be allowed or will these grandfathered areas finally be closed?**
- Will the **buffers around those trash landfills** that are also allowed to manage industrial, non-hazardous waste (Type I) and construction/ demolition waste landfills (Type IV) be expanded beyond the current 50 feet or proposed 125 feet?
- Will landfills and other trash facilities be allowed in floodplains and **how will floodplains be defined?**
- Will the **public right-to-know about new and expanding landfills be broadened with sign posting and Internet posting requirements?** Will neighbors, groundwater districts and other affected parties be provided with adequate public notice?
- Will **permits and registrations for trash facilities, including landfills, transfer stations and grease processing facilities contain time limits** (e.g.; expiration dates) to guarantee that the TCEQ and the public can regularly review their operational performance, including their respective compliance histories, to ensure that best management practices are being followed?
- Will measures be adopted to address the management of under-regulated wastes such as **electronic waste?**

¹ The latest rules proposal was put on the TCEQ's website on January 13, 2006 and runs for more than 1300 pages. They can be accessed at: <http://www.tceq.state.tx.us/rules/pendadopt.html>. Additional background including earlier drafts and comments can be found at: http://www.tceq.state.tx.us/permitting/waste_permits/advgroups/msw_ch330_advgrp.html

- Will **groundwater monitoring standards require that monitoring wells around these dumps are spaced** closely enough so there is a better chance of detecting pollution problems before groundwater supplies are affected?

Most Texans do not think much about what happens to their household trash once they take their garbage can to the curb. The air and water pollution impacts are not usually widely known. Some of these impacts include:

- **Groundwater Contamination:** EPA studies in the past have found that **75% of operating landfills were leaking contaminants into groundwater.**²
- **Toxic Landfill Gases:** The gaseous form of mercury is present in landfill gases and is a possible source of **mercury in rainfall.**³ Hydrogen sulfide (rotten egg smell) is emitted from landfills and officially is a suspected neurotoxicant, as well as a suspected blood, reproductive, respiratory toxicant.
- **Methane Emissions:** **Landfills are the number one source of human-made methane**, a potent global warming gas that is 21 times more effective at trapping radiant heat than carbon dioxide.⁴

Many neighbors of landfills are well aware that poorly operated facilities can have a terrible impact of their families, communities and quality of life. Problems can include nauseating odors that sicken people and keep them indoors, flooding, hordes of scavenging birds, massive erosion, and the silting in of private fishponds, and windblown trash.

Texas Campaign for the Environment examined how Texas standards match up with standards in other states and how the landfill standards compare with standards for other polluting facilities in the state. The key findings are:

- Under either the current or proposed standards, **Texas allows landfills closer to people's property lines, homes, public water supplies and other sensitive features than many other states.** The buffers for trash facilities are much less stringent than with what Texas requires for other polluting facilities such as confined animal feeding operations and concrete plants .
- **Most states have time limits on permits for landfills, while Texas has none.** However, other major air and water polluting facilities in Texas do have time limits which allow the public and the TCEQ staff to review and improve permits.
- **Some states require landfills to install double liners with leak detection in between the liners to detect leaks before the groundwater is contaminated.**

² "Groundwater Pollution by Municipal Landfills: Leachate Composition Detection and Water Quality Significance" by Anne Jones-Lee, Ph.D. and G. Fred Lee, Ph.D., P.E., D.E.E. prepared for the Sandinia 1993 Fourth International Landfill Symposiums

³ "Methylated Mercury Species in Municipal Waste Landfill Gas Sampled in Florida, USA," by S.E. Lindberg, D. Wallschlager, E.M. Prestbo, N.S. Bloom, J. Price and D. Reinhart in Atmospheric Science 35 (2001) 4011-4015.

⁴ "New Evidence Shows Landfills are Major Contributor to Global Warming" by Brian Ladd in "EcoCycle Times Volume 26 Number 1 Spring/Summer 2002.

Arkansas requires this in sensitive environmental areas. Texas has no plans to require this.

- **A growing number of states are prohibiting electronic waste from homes and small businesses in landfills** because of the volume of toxins such as lead, mercury, cadmium and toxic flame retardants. **Texas has no plans to prohibit the growing amount of electronic waste from heading to the state's landfills.**

These and many other issues are at stake in the rewriting of trash standards in Texas. Thousands of Texans, including many who live near trash facilities and some state legislators, are on record in favor of stronger trash standards. **On February 1, 2006, the three Commissioners of the state environmental agency will decide whether the standards for trash facilities are significantly improved or not.** The three TCEQ Commissioners will decide whether our property, families and communities will be protected by stronger standards, or if the water, air and land of our state will continue to be a dumping ground for trash, including toxic trash.

I. Texas Landfill Basics

According to the most recent state data⁵, there are 290 municipal solid waste (MSW) facilities in the State of Texas. Of these, 189 are Texas landfills actively receiving waste.

A. Landfills are Becoming Super-Sized

Landfills are getting bigger. There are thirty-nine landfills that were more than 100 feet high and six were more than 200 feet high.

	1986	2004
Average Landfill Size	50 acres	190.8 acres
Average Height	13 feet	69.4 feet
Average Depth	6.5 feet	36 feet

There is no shortage of landfill capacity statewide. The reserve capacity has increased to more than 1.1 billion tons. **In 2004, there was an 86% increase from the 2003 capacity**, due to the opening of two very large facilities and 19 permits for existing landfills to expand. **This was the largest increase in capacity in a single year** in the nineteen years of data available from the TCEQ. With the exception of one year, there have been steady increases in capacity since 1989. In short, there is no economic rationale for minimizing the standards set for these types of facilities, as there is adequate landfill capacity for the foreseeable future.

The standards set by the TCEQ to govern the operation of municipal and municipal/industrial landfills should, at a minimum, protect Texans from noxious odors, excessive emissions, surface water pollution and groundwater pollution and should further be designed to factor in site-specific concerns during a permitting or registration process that is open to the public and that invites public participation.

B. Background on the Chapter 330 Rules

The last comprehensive re-write of the Texas trash rules was completed in 1993 by a predecessor agency to the TCEQ, the Texas Natural Resource Conservation Commission (TNRCC). This re-write was intended to bring Texas standards into conformance with the federal rules adopted by the U. S. Environmental Protection Agency under Subtitle D of the Resource Conservation and Recovery Act (RCRA). More than 700 landfills in Texas have closed since 1986, mostly because of the more stringent requirements for liners and monitoring contained in the EPA's federal standards. However, the state has grandfathered many old landfills by allowing operators to expand vertically over old cells that do not meet these minimum federal requirements.

⁵ "Municipal Solid Waste in Texas: A Year in Review 2004 Data Summary and Analysis", January 2006, AS-187/05 and "Municipal Solid Waste in Texas: A Year in Review 2003 Data Summary and Analysis" December 2004, AS-187/04 Texas Commission on Environmental Quality.

Texas Campaign for the Environment (TCE) and others argue that the practice of grandfathering older landfills (so that they are not required to comply or update to newer standards and better technology) must stop. This practice effectively ignores these improved federal standards, undermining Congress' and the EPA's clear intention to improve the standards that apply to these trash dumps by discouraging companies from updating their landfill practices to utilize better technology as it is developed. Grandfathering unfairly penalizes those companies that have invested the funds to install the liners and other features to meet the Subtitle D requirements.

Texas Campaign for the Environment (TCE) is working with thousands of Texas residents including property owners near trash facilities regarding the need for stronger rules that will better protect public health and the environment. Over the last two years, the TCEQ has received more than 5,000 letters from Texans urging the agency to adopt stronger rules. (See Appendix A for a timeline of the Chapter 330 Rule-making process.)

II. Problem Landfills are Plaguing Texans

Unfortunately, many of our citizens are plagued by problem landfills in the Lone Star State⁶. The controversy over the expansion of BFI's old McCarty Road landfill in Houston is a case study in problem landfills. Recent press reports found that inspectors and neighbors became nauseous from noxious odors, and that local residents suffered from respiratory problems and foul water.⁷ The levels of highly explosive methane gas recorded at the landfill were up to 91% pure gas even though the limit is 40 percent. (An entire apartment complex built on an old landfill in Travis County was evacuated in the early 1990s because of the presence of high methane levels inside the building.)

Noxious odor, surface water and groundwater contamination have also been reported at BFI's Type I landfill located in Sinton, Texas and at other Type I landfills in Texas. Type I landfills pose a high risk of noxious odor and emissions problems because they are permitted to accept non-hazardous, industrial wastes generated by petroleum refineries, chemical plants, smelters and other large-scale, industrial facilities. These wastes often contain significant concentrations of volatile and semi-volatile organic contaminants, toxic heavy metals and other hazardous substances that may be emitted during and after placement into the landfill. Moreover, the hazardous chemicals contained in these industrial wastes can be discharged into and adjacent to creeks, streams, lakes and other surface water bodies in storm water if adequate containment and cover requirements are not required or maintained. These same chemicals can leak into groundwater supplies when these landfills are not properly lined and monitored.

⁶ Texas Campaign for the Environment works with landfill neighbors across the state and has documentation and contact information for more details on problem landfills in Texas.

⁷ "A Mighty Wind: A mountain of garbage in northeast Houston is looking to get bigger. Neighbors cry foul" and "Breakfast of Champions: Joshua Chapa lives by a drainage ditch and throws up every morning before school" by Greg Harman Houston Press October 6, 2005.

Inadequate groundwater monitoring is also an issue at many landfills including BFI's McCarty landfill. Increasing amounts of toxins such as vinyl chloride, benzene, dichloromethane and carbon tetrachloride have been detected in groundwater monitoring wells installed around these landfills even though BFI has repeatedly stated that these toxic chemical constituents are being contained. As TCEQ environmental investigator, Bruce Arnett, wrote to another TCEQ staffer:

"There is considerable amounts of contamination in these wells...I have concerns as to whether there is impact into Greens Bayou. They [BFI] say there isn't but I don't think there is enough data to make that statement."

Many communities have fought long, hard battles against new and expanding landfills at the local level—some successful; others not. Oftentimes, these local problems stem from inadequate landfill standards as well as from inadequate environmental enforcement at the local and state level. The weak enforcement efforts of the Texas Commission on Environmental Quality (TCEQ) have been documented repeatedly over the last ten years, including a highly critical State Auditor report that was issued in 2003⁸.

Another impact of Texas' weak trash rules and inadequate enforcement is that recycling efforts are undercut. Nationally, the waste hauling industry is dominated by a few firms, which handle the trash collection, transfer and disposal markets. These waste giants make ten times as much profit when disposing of waste as they do when they recycle materials.⁹ Inadequate standards, which result in weaker permits and registrations, may result in even higher profits for the private companies that run most of the larger landfills, at the expense of taxpayers and the environment.

Inadequate landfill siting restrictions also unfairly benefit landfill operators and endanger Texans and their property. For instance, if landfills are not required to have more than a 50 or 125-foot buffer zone separating them from their neighbors, the cost of purchasing property on which to locate new landfills is minimized. Similarly, inadequate restrictions on locating landfills in residential areas, in sensitive environmental areas such as over aquifer recharge zones, and in other areas that present a risk to human health, safety or the environment in conjunction with weak public participation (public meeting and hearing requirements) will act to minimize the cost of permitting and operating these landfills. The true costs will be borne by the citizens of Texas in the future when these landfills emit air contaminants that create nuisance conditions, discharge polluted storm water into our creeks and streams and leak chemicals into our precious groundwater supplies.

⁸ "The Commission on Environmental Quality's Enforcement and Permitting Functions for Selected Programs" State Auditor's Office December 2003 (Report Number 04-016),.

⁹ "The Rap Against Recycling" by Neil Seldman, Institute for Local Self-Reliance, September 17, 2003.

III. How do Trash Rules in Texas Stack Up?

TCE researched a number of key standards to examine how Texas trash rules compared to other states' trash standards and compared to Texas' own standards for other polluting facilities. Below are some key findings of TCE's research:

A. Buffers for Trash Facilities

Texas now only requires a 50-foot buffer between the waste disposal area and the property line. The proposed rules only increase this buffer to 125 feet.

Buffers compared with other states:

The vast majority of other states have buffer requirements more stringent than both the current and proposed standard in Texas. Most states (and their local jurisdictions) structure buffer zone requirements to recognize the particular sensitivity of receptors such as residences, schools, hospitals, public drinking water supplies and wildlife refuges. The effective use of these larger buffers by 27 other states demonstrates that such buffers are workable and are not overly burdensome. For instance, eighteen states require a buffer zone of 300 or more feet between a landfill and a dwelling. Ten states require at least 200 ft or more from a water supply.

Although TCE takes the position that a minimum buffer zone of 250 feet between the footprint of the waste disposal area at its outer boundaries and the property line should be mandated for all new landfills. TCE also believes that the TCEQ should retain the discretion to enlarge this buffer zone for Type I landfills that manage significant quantities of industrial waste, for landfills located in residential areas, near public water supply sources, over groundwater recharge zones and in other environmentally sensitive areas.

List of Minimum Distances from Landfills				
States	Property Lines	Dwellings	Public Water Supplies	Other (Parks, Hwys, Water)
Texas	50 ft	50ft	50ft	50ft
Arkansas	100 ft	300 ft*	500 ft*	
Delaware	200 ft*			
Florida	100 ft		500 ft*	
Georgia	200 ft	500 ft*		
Hawaii		300-1500ft*		
Illinois		500 ft*		
Idaho		100 ft		1000 ft
Iowa	50ft*	500 ft*		
Kansas	200 ft	500 ft*		
Louisiana	200 ft*			
Maine	300 ft	1000 ft*	1000 ft	
Michigan	100-200 ft	300 ft		
Mississippi	250-500 ft*	1000 ft*	2640 ft to 10miles*	2640 ft
Nebraska		1320 ft.	1000 ft.	1000 ft
Nevada		1320 ft.	1000 ft.	1000 ft
New Mexico	50ft	500 ft*	350 ft	
New York		300 ft		
North Carolina	50ft	500 ft*		50 ft
Ohio	300 ft	1000 ft*	1000 ft	1000 ft
Oklahoma	50 ft	.5 mile*		.5 mile
Pennsylvania	100 ft	900 ft		
Rhode Island	600 ft			
South Carolina	100 ft*	200 ft*	200 ft*	200 ft
Tennessee	100 ft	500 ft*	500 ft	200 ft
Washington	150-250 ft			1000 ft
West Virginia	100 ft	500 ft*	300 ft	1000 ft
Wisconsin			1,200 ft	1000 ft*

*unless property owner grants permission in writing for lesser distance

Buffers compared with other polluting facilities in Texas:

The buffer requirements for trash facilities are entirely inconsistent with odor-related buffer distances applicable to other facilities in other TCEQ programs:

Type of Facility	Buffer Requirement in Texas
Industrial Hazardous Waste	One-half mile of an established residence, church, school, day care center, surface water body used for a public drinking water supply, or dedicated public park ¹⁰
Confined Animal Feed Operation (CAFO)	One-half mile from any occupied residence or business structure, school (including associated recreational areas), permanent structure containing a place of worship, or a public park. ¹¹
Concrete operations	1325 feet (1/4 mile)
Lead Smelting Plants	3,000 feet ¹²
Class B sludge application fields	750 feet ¹³
Wastewater treatment plants - anaerobic lagoons	500 feet ¹⁴
Wastewater treatment plants - all other treatment facilities	150 feet ¹⁵

The TCEQ has not provided any justification for such lenient buffer zone requirements for trash landfills when it requires larger buffer zones for other types of facilities.

Many of the organic wastes handled at transfer stations and liquid waste processing facilities are similar to those handled at composting facilities, and the scientific literature indicates that 95% of persons within 150 meters (500 feet) of a composting site experience odor annoyance.¹⁶ Yet, TCEQ is proposing rules that require only a fifty-foot buffer for facilities handling such wastes.

B. Time Limits on Trash Permits

Permits for landfills do not have an expiration date. They are valid until the capacity of the permitted height and design is reached. Thorough periodic review of permits is essential in order to consider the safety of the operations and the implementation of better

¹⁰ Tex. Health and Safety Code 361.103.

¹¹ 30 TAC 341.23(j)(2).

¹² THSC 382.053

¹³ 30 TAC § 312.44(d)(2).

¹⁴ 30 TAC § 309.13(e)(1).

¹⁵ Ibid

¹⁶ Effects of Bioaerosol Polluted Outdoor Air on Airways of Residents: A Cross Sectional Study, C.E..W Herr, A. zur Nieden, M. Jankofsky, N.I. Stilianakis, R-H Boedeker and T.F. Eikman, *Occup. Env. Med.* 2003, v. 60, pp. 336-342.

pollution controls as technology advances. As stated before, 45 of the 189 landfills in Texas have more than 100 years of life left in them and another 51 have at least 40 years left.¹⁷ If landfill operators do not propose major changes that would require the review of the permit amendment process, these permits might not ever be thoroughly reviewed.

Not placing an expiration date on these permits and registrations constrains the TCEQ and the public from re-evaluating not only the environmental impacts that a particular landfill site may be causing and from re-evaluating on a periodic basis the compliance history of the landfill operator. Because landfill operators are typically allowed to continue operating a facility during the processing of a permit renewal application, requiring operators to periodically renew their permits and registrations does not place an unreasonable burden on the operator while providing the TCEQ with a tool to address site-specific factors, including any contamination that may have resulted from the facility's operations, as well as any compliance-related problems with the landfill operator.

Permits for other types of MSW facilities, including transfer stations and grease processing facilities do not have time limits either, even though there is specific geographic contour that is being filled, as with landfills. In the case of transfer stations and other processing facilities, a permit for "life of the facility" is equivalent to an eternal authorization with no regular opportunity for subsequent review by the agency or the public. Transfer facilities have grown increasingly large in size and have a major potential to cause odor problems. Exempting such facilities from any renewal requirement creates an unacceptable risk that problems may develop at these facilities and could go uncorrected by the agency until after damage has already been done to the community and the environment. A schedule should be established by which existing authorizations will be subject to expiration and thereafter require periodic renewal for all municipal waste storage, treatment and disposal facilities.

The newest proposal for the rules will require the TCEQ to conduct a limited review of trash facilities. The agency will review the compliance history (i.e. any violations, enforcement actions etc.) and the amount of trash accepted (the waste acceptance rate). The agency will be able to suggest changes as needed. However, there is no provision for public input into the process, as there would be with a term limit.

Permit Term Limits compared with other states:

Only 11 other states issue permits for the life of a facility. At least 34 states either issue MSW permits for limited terms or require formal administrative review of the permit at five- or ten-year intervals.

¹⁷ Texas Commission on Environmental Quality report "Municipal Solid Waste in Texas: A Year in Review 2004 Data Summary and Analysis" published January 2005.

State Permit Renewal or Review Requirements								
Timeframe	1-3 years	5 years	4-8 years	10 years	20 years	Lifetime	Other	No Data
States	KS, MT, SD, RI, IA	AL, AK, CA*, FL, HI, IL, ID, KY*, MD*, NE, MI, NJ, NC*, SC*, UT, VT, MN, WV	WY	DE, MS, ND, OH*, OR, PA*, VA*, WA, NY	NM	AR, CT, ME, MO, NV, OK, TN, TX, LA, NH, AZ, MA	WI**	CO, GA, ID
Totals	5	18	1	9	1	12	1	3
*Permit Review Required **Terms of one year or more								

Permit Term Limits compared with other polluting facilities in Texas:

Permits for other large-scale air and water polluting facilities in Texas contain expiration dates and are subject to permit renewal requirements. Those permits are reviewed every five or ten years before being reissued. For landfill and other trash facilities, the Texas Solid Waste Disposal Act states that permits are to include terms and provisions, “including the duration of the permit.”¹⁸ Nowhere does the Act indicate that “duration” is to be treated simply as the life of the facility. According to Texas law, the TCEQ is mandated to establish terms and conditions in its solid waste facility permits that include some form of expiration date or other operational time limitation. Failing to adopt municipal landfill rules that contain such a requirement violates both the letter and intention of this law.

C. Double liners with Leak Detection Equipment

The EPA has admitted that landfills, even with liners, will leak:

“A liner is a barrier technology that prevents or greatly restricts migration of liquids into the ground. No liner, however, can keep all liquids out of the ground for all time. Eventually liners will either degrade, tear, or crack and will allow liquids to migrate out of the unit...Some have argued that liners are devices that provide a perpetual seal against any migration from a waste management unit. EPA has concluded that the more reasonable assumption, based on what is known about the pressures placed on liners over time, is that any liner will begin to leak eventually.”¹⁹

Double liners with leak detection equipment can detect leaks between the liners before pollution has seeped out of the landfill through soils and into surface and groundwater

¹⁸ Tex. Health & Safety Code § 361.087(3).

¹⁹ Federal Register, July 26, 1982, pages 32284-32285.

supplies. Particularly in the case of those Type I landfills that will manage significant quantities of Class I and II non-hazardous industrial waste (e.g. more than 25% of their capacity), a double liner and leachate collection system should be required so that any release of a hazardous constituent can be detected before it pollutes subsurface soils and groundwater supplies. Moreover, the TCEQ's rules should provide that a double liner and leachate collection system may be required for any landfill that will be located in an area with shallow groundwater supplies, in areas located in aquifer recharge zones and in areas with soil conditions that may allow for the rapid transport of chemical constituents into underlying groundwater supplies.

Double Liners compared with other states:

New York and Pennsylvania began requiring double liners as early as 1988. New York, Pennsylvania, New Jersey and Michigan require double liners for municipal solid waste landfills. Additional states, including Kentucky, Florida and Oregon require double liners on a site-specific basis.²⁰ Arkansas requires double liners in the northwest portion of the state to protect sensitive areas and water sources.

Double Liners compared with other polluting facilities in Texas:

As early as 1976, the Texas Department of Water Resources (a predecessor agency to the TCEQ) recognized in technical guidelines that landfill sites to be used for the disposal of Class I and Class II industrial wastes had to be evaluated considering site-specific factors such as the potential for surface water and groundwater pollution. As is stated in Technical Guideline #2, "[E]ngineering features such as constructed liners, leachate collection systems and perimeter dikes can overcome certain site deficiencies."

Because Type I landfills may be used to dispose of large quantities of Class I and Class II industrial wastes, additional requirements and restrictions are appropriate including the installation of double liners and a leachate collection system. The TCEQ has the discretion to impose these requirements on industrial waste landfills. Type I landfills are operated to manage the same types of industrial waste along with municipal trash. There is no technical justification for relaxing the standards needed to properly contain and manage Class I and II industrial wastes when these same wastes are being disposed of in municipal trash dumps, particularly if they are located in residential or other sensitive areas.

Similarly, TCE takes the position that any municipal landfill that will be used to manage oilfield wastes or other similar industrial wastes (i.e. utility wastes such as fly ash, bottom ash or contaminated soil)²¹ should be equipped with a double liner and leachate collection system since these industrial wastes may and often do contain elevated levels of volatile and semi-volatile, organic compounds, toxic, heavy metals and naturally occurring

²⁰ Joyce Munie, P.E. Manager, Permit Section, Bureau of Land Illinois Environmental Protection Agency, "A Study of the Merits and Effectiveness of Alternate Liner Systems at Illinois Landfills" 2003.

²¹ Wastes are exempt from the federal Resource Conservation and Recovery Act (RCRA).

radioactive material (NORM). (See Appendix C for Details on Double Liners for Landfills.)

D. Floodplain Definition

Despite the comments of TCE and others, the proposed rules would continue to allow landfills and other trash facilities in floodplains. If a landfill or other trash facility is proposed for the floodplain, operators are required to show that the facility can safely handle the flooding. There has also been much controversy over how to define the floodplain and how much to rely on Federal Emergency Management Agency (FEMA) maps.

In the past, the TCEQ has argued that FEMA maps are the final word, even though FEMA's Technical Mapping Advisory Council itself has indicated that FEMA maps do not always correctly delineate areas prone to flooding.²² The latest version of the proposed rules finally acknowledges that FEMA maps are "not conclusive" on the locations of floodplains.

However, the proposed rules propose limiting the area defined as the "floodplain" in a way that could allow many more trash facilities to build in what is normally considered the floodplain. The current definition of "floodplain" in the trash rules, is as follows:

"The lowland and relatively flat areas adjoining inland and coastal waters, including flood-prone areas of offshore islands, *that are inundated by the 100-year flood.*"

But, the latest version of the proposed rules redefines "floodplain" so that the **flooding must rise to one foot**²³ (the typical definition of a "floodway"). This would greatly narrow the area considered the floodplain.

²² FEMA Technical Mapping Advisory Council, Final Report, 2000, p. 1.

²³ See the latest version of the proposed rules <http://www.tceq.state.tx.us/rules/pendadopt.html>, Section 330.3 (56) on p. 376.

Floodplain Definition compared with other polluting facilities in Texas:

Floodplain defined as “any land area which is subject to a 1% or greater chance of flooding in any given year from any source.”	Hazardous Waste Facility ²⁴ Composting Facility ²⁵ Domestic Wastewater Treatment Plants ²⁶ Confined Animal Feeding Operation ²⁷ Underground Storage Tank ²⁸
Floodplain proposed to be defined as “the lowland and relatively flat areas adjoining inland and coastal waters, including flood-prone area of offshore islands, that are inundated by the 100-year flood from a contributing drainage area of at least one square mile and with a depth of inundation of at least one foot. ”	Proposed Chapter 330 Rule Revision ²⁹

E. Electronic Waste (e-waste)

Computers, TVs and many electronics contain toxic materials such as lead, mercury, cadmium and hexavalent chromium. More than 5 billion pounds of toxins from e-waste could reach Texas landfills and incinerators if no action is taken³⁰.

Currently, federal law prohibits large generators of hazardous waste from using MSW landfills and incinerators for disposal of e-waste. There is little evidence of enforcement of this provision in Texas. There is no rule yet that prohibits households or small quantity generators from disposing of hazardous electronic waste in MSW facilities. The 2009 planned conversion from analog to digital television signals will create an additional surge of electronic waste.

In addition, electronic waste is showing up in illegal U.S. dumpsites. In December 2003, electronics formerly belonging to the Texas Water Commission (a predecessor agency of the TCEQ) and Del Valle Independent School District, among others, were found in a Northeast Travis County illegal dumpsite near the Waste Management landfill.³¹

²⁴ TAC 335.202 (11)

²⁵ TAC 332.2 (37)

²⁶ TAC 309.11 (7)

²⁷ TAC 321.32 (36)

²⁸ TAC 334.481 (39)

²⁹ See the latest version of the proposed rules <http://www.tceq.state.tx.us/rules/pendadopt.html>, Section 330.3 (56) on p. 376.

³⁰ “Poison PCs and Toxic TVs” with Texas supplement. Texas Campaign for the Environment. June 2004. http://www.texasenvironment.org/ewaste_background.cfm

³¹ http://www.austinchronicle.com/issues/dispatch/2003-12-12/pols_naked4.html

E-waste compared with other states:

Massachusetts, Maine, California, Iowa and Minnesota do not allow various household electronic waste to be landfilled or incinerated. The first two state disposal bans for electronic waste (Massachusetts and California) were done by regulatory action of state environmental agencies. On April 1, 2000, the Massachusetts Department of Environmental Protection (DEP) prohibited the disposal of cathode ray tubes (CRTs) from television and computer monitors at all Massachusetts's solid waste disposal facilities (310- CMR 19.017).

According to the Massachusetts state website, the reasons the Massachusetts DEP took this regulatory action were:³²

- To promote the recycling and reuse of lead, and leaded glass contained in the CRT, as well as the precious metals found in printed circuit boards, power supplies and the like.
- Recycling precious metals from electronics reduces the need for strip mining and acid mining.
- Continued disposal in landfills of bulky electronic components will unnecessarily accelerate the pace at which the state's few remaining landfills reach their capacity.
- Combustion of these items carries a potential public health risk. CRTs contain lead, which can contaminate incinerator ash and prevent its beneficial reuse in asphalt and other products.

In a letter to the Materials Future Foundation on March 21, 2001, California Department of Toxic Substances Control (DTSC) also declared that:

“...when discarded, CRTs are identified as hazardous waste under both federal and State law and are required to be managed in accordance with all applicable requirements, including generator, transporter and facility requirements.”

In response to state legislation (the Electronic Waste Recycling Act) DTSC tested certain types of electronic devices to determine which would be hazardous when discarded. Currently, these devices include:³³

- Cathode ray tube (CRT) devices (including televisions and computer monitors)
- LCD desktop monitors
- Laptop computers with LCD displays
- LCD televisions

³² <http://www.mass.gov/dep/recycle/crt/crtqanda.doc>

³³ These devices are "covered" only if their viewable screen size is greater than four inches, measured diagonally. (Note: the electronic waste recycling fee will not be charged on LCD televisions or plasma televisions until July 1, 2005.) These devices may not be "covered" if they are originally sold as part of a motor vehicle, or as part of a piece of industrial, commercial or medical equipment, or if they are contained within certain appliances at the time of purchase.

- Plasma televisions.

Significant improvements are being proposed in the rules that were published in the *Texas Register* in September. However, additional improvements are needed to provide Texas with protections from the potential harmful impacts of trash facilities.

IV. Additional Advances and Needed Improvements in the Trash Rules Re-write

Texas Campaign for the Environment and many others concerned about trash issues submitted comments on various drafts of the rules over the last year. TCE submitted comments on the rules proposal published in the *Texas Register* that were supported by fifteen groups representing landfill neighbors and environmental advocates.³⁴ What follows is based on those comments.

A. Improvements Already in the Proposed Rules

Some of the additional issues raised in those comments include **important improvements** that TCEQ staff and Commissioners have made and are as follows:

1. **A requirement that the facilities post signs and applicants make their applications available on the Internet.** These are important ways to increase public input to the permitting and registration process. However, these requirements must be **expanded to include all types of MSW facilities** and not be limited to registrations as proposed. (The plan is to include these requirements for permits in another rule-making process to update Chapter 305 of the Health and Safety Code.) Additionally, the rules should provide for signs in **more than one language when appropriate.**

2. A requirement that **groundwater monitoring wells be no further than 600 feet apart** is a positive step forward. However, staff should be encouraged to use their power to require that monitoring wells be closer together.

3. **The Quality Assurance/Quality Control (QA/QC) requirements** and the requirement in Section 330.57(d)(2) that data submitted by applicants be of “sufficient completeness and accuracy” to protect the public and environment are also important aspects of the proposed rules.

4. **TCE supports the added requirement for notice to mineral interest owners.** In addition, applicants should also be required to own any relevant surface mineral rights in order to ensure land use compatibility. Furthermore, it is important to require **mailed notice to local groundwater districts and holders of easements** that cross or exist near a proposed facility.

³⁴ “Official Comments on Chapter 330 Rules” available on http://www.texasenvironment.org/landfill_reports.cfm

B. Additional Improvements Still Needed

There are many additional areas in the Chapter 330 rules that **still need improvements** in addition to the items raised in Part III, some of the key changes that TCE has supported include:

1. Additional Considerations on Buffers

High standards must be established for exemptions from buffer requirements.

The proposed rules create too much leeway for exemptions. Buffers serve important functions in protecting landfill activities from incursion by harmful vectors, protection against unauthorized access, and protection against impacts to other areas by windblown particulates escaping the site. Any alternative designs should be equally as effective in performing these functions. (See Appendix B for alternative language on buffers.)

2. Better Notice to Landfill Neighbors and other Interested Parties

Expansion of 500-Foot Minimum for Mailed Notice

TCEQ must also require mailed notice to all property owners within one mile of a facility in order to fulfill its own duty under the statute, including in cases where the ownership of the facility changes.

3. More Considerations on Term Limits for MSW Facilities

Linking Permit Duration and Permit Strength Protectiveness: TCE proposes that the TCEQ may be able to resolve some of the asserted problems with limited permit duration by connecting permit duration to the strength of the permit provisions. Permits for processing facilities and transfer stations should be uniformly issued for periods of five years. It would also be appropriate to apply a default initial term of ten years for landfill permits, subject to renewal for periods of ten years.

For the sake of flexibility, however, initial landfill permit terms up to a length of 25 years could be allowed if a landfill will: (1) utilize a double liner and leachate collection system; (2) install groundwater monitoring wells with spacings of no more than 300 feet; (3) abide by all of the buffer zone requirements, including 250-foot property line buffer, a 1,000 feet buffer from any residence, and a 1-mile buffer from any wildlife preservation area, without seeking any exemptions; (4) have no part of the site located within the 100-year floodplain; and (5) limit the waste acceptance rate during the permit term to those quantities represented in the application, subject to change only by means of a major amendment. If a permit includes such safeguards, an expanded initial permit term may be justified on a case-by-case basis. This ability to obtain a longer permit term should resolve any difficulties that a ten year permit term would present from a financing viewpoint.

4. Applicability

As proposed, landfill operators who have filed for a permit may avoid the requirements of the new rules simply by submitting the materials necessary for the designation of “administrative completeness.” TCE believes the rules should instead be applicable to all applications not yet declared “*technically complete*.” This is more protective of the environment. The Commission has devoted significant energy to determining the appropriate requirements considering the available technologies and its current understanding of MSW facility impacts. This work should apply to as many currently proposed facilities as possible and to existing facilities to the greatest extent possible.

5. Proposed Operating Hours for Heavy Equipment Impose Heavy Burden on Neighbors

TCE believes that the definition of “operating hours” as proposed should be made more stringent. The limits on the operation of heavy equipment between the hours of 9:00 p.m. to 5:00 a.m. are not adequate. The operation of heavy equipment at these facilities at 5:00 a.m. is unnecessarily disruptive to the community. Instead, the operation of heavy equipment should be prohibited between the hours of 9:00 p.m. and 7:00 a.m. on weekdays; and prohibited between the hours of 2:00 p.m. and 7:00 a.m. on weekends.

6. Excavation of pre-Subtitle D waste

The majority of active modern (Subtitle D) landfills have at least portions of the landfill that predate Subtitle D standards. Many of these pre-Subtitle D sections accepted a wide variety of wastes because for many years there were no restrictions on the types of waste that these dumps could receive.

As active landfills reach capacity, operators are looking for ways to expand while at the same time minimizing their costs. IESI is proposing to excavate a pre-Subtitle D section that dates back to the 1950s at the Weatherford Landfill. It is imperative that the TCEQ develop clear and strict guidelines to protect surrounding residents and property owners from any contaminants that might be released during excavation. Operators must protect surrounding residents and their own workers from the release of odors, chemicals, particulate matter *and especially asbestos*. Additionally, if waste that is excavated turns out to be hazardous, this waste must be treated as hazardous waste and shipped to a hazardous waste landfill in accordance with the hazardous waste generator requirements set forth in federal and state rules. The TCEQ should require operators to test the waste periodically as it is excavated to determine how it should be regulated. Experts should be on site to monitor excavation operations. A qualified firm experienced and certified in monitoring air samples and asbestos should be consulted and on site to test air quality during the entire phase of excavation.

7. Local Participation

TCEQ should respect the authority of local governments over land use issues. In testimony before the Texas Senate Natural Resources Committee, then-TNRCC Chairman Barry McBee stated that if a local government speaks, either through a hearing or a county ordinance, that the agency will cede to that authority, and not move the permit application forward.³⁵ Unfortunately, the TCEQ has not always implemented this policy. The TCEQ should permit landfills only in areas that have been designated as suitable for such facilities. Counties already have the power to make such designations, and such a policy by the TCEQ would encourage them to use this power, placing land use decisions in the hands of local governments. At the least, the TCEQ should require proof that an applicant has consulted with local and regional governments and authorities before choosing a site or proposing a major expansion.

If the TCEQ decides that it will not defer to local governments on questions of land use, then the TCEQ should ensure that it considers all relevant factors in making its own land use determination, and the Commission should provide greater detail regarding the criteria for land use determinations. Texas statutes at Health & Safety Code § 361.089(a) clearly provide that the Commission may deny an application for reasons pertaining to land use and considerations such as traffic impacts would clearly be relevant to this determination.

³⁵ Testimony of TNRCC Chairman Barry R. McBee before the Texas Senate Natural Resources Committee, June 16, 1998.

Appendix A

Timeline and Key Milestones in Chapter 330 Rules Rewrite

7/13/04	TCE and 13 other landfill neighbors and public interest groups press for public meetings around the state before the rule rewrite effort begins
7/24/04 – 6/10/04	Six public meetings are held throughout Texas to solicit input on changes needed in the landfill rules. Hundreds of people, mostly landfill neighbors attend the public meetings.
12/6/04 – 2/15/05	Comment Period on First Draft (TCE submits comments)
1/20/05-2/1/05	TCEQ's Municipal Solid Waste and Resource Recovery Advisory Council review first draft
3/15/05 – 4/18/05	Comment Period on Second Draft (TCE submits comments)
3/31/05 – 4/1/05	TCEQ's Municipal Solid Waste and Resource Recovery Advisory Council reviews second draft
5/23/05	House Bill 1609 is amended in the Senate to drop the requirement that public hearings be held for new hazardous waste, landfill and other trash facilities and before structures are erected on old landfills.
5/27/05	House concurs with Senate amendments to House Bill 1609.
6/18/05	Governor Perry signs House Bill 1609 despite more than 1000 letters urging him to veto the bill.
5/28/05 – 6/10/05	Comment Period on Third Draft (TCE submits comments)
6/17/05	TCEQ's Municipal Solid Waste and Resource Recovery Advisory Council reviews third draft
8/12/05	TCEQ's Municipal Solid Waste and Resource Recovery Advisory Council further reviews third draft
8/23/05	TCEQ Commissioners meet to consider the Chapter 330 Rules Proposal and vote to publish them in the <i>Texas Register</i>
9/9/05 - 10/31/05	Comments Period on the Proposed Rules (TCE submits comments)

- 8/12/05 TCEQ's Municipal Solid Waste and Resource Recovery Advisory Council further reviews Rules Proposal
- 12/14/05 TCE exposes conflict of interest in James McQuaid selection as a general public representative on the Advisory Council. (His spouse works for Trinity Waste.)
- 12/19/05 James McQuaid resigns from the Advisory Council.
- 1/13/06 TCEQ Responses to Comments and Rules Package are made public
- 1/25/06 TCEQ Commissioners will appoint a new General Public representative to the Municipal Solid Waste and Resource Recovery Advisory Council
- 1/27/06 TCEQ's Municipal Solid Waste and Resource Recovery Advisory Council further reviews Rules Proposal
- 2/1/06 TCEQ Commissioners meet to adopt Proposed Rules

Appendix B
TCE's Proposed Language on Buffers

TCE proposes the following alternative language on buffers to replace proposed § 330.543(2) with the following language in order to address concerns at landfill facilities:

(2) For landfill permits that existed before the comprehensive rule revisions of this chapter as adopted in 2006 became effective, the owner or operator is subject to the former rules and shall establish and maintain a buffer zone in compliance with the permit.

(3) For new Type I and Type IV landfills, vertical or lateral expansions of existing Type I and Type IV landfills, and existing Type I AE and Type IVAE landfills that subsequently no longer satisfy the conditions specified in § 330.5(b)(1) of this title (relating to Classification of Municipal Solid Waste Facilities), waste placement may not be located within:

- (a) two hundred and fifty (250) feet of the nearest adjacent property line;
- (b) one thousand feet (1000) of the nearest occupied residence, school, or hospital;
- (c) one mile of surface water used for a public drinking supply; or
- (d) one mile of the nearest state or federal park or wildlife refuge.

(4) For each three feet of permitted vertical fill height exceeding twenty five (25) feet above ground level, the prescribed buffer required by paragraphs (3)(a) and (3)(b) of this subsection shall be increased by one (1) foot.

(5) The executive director may consider alternatives to buffer zone requirements in paragraph (3) of this subsection. Alternatives may be approved where the owner or operator demonstrates that:

(A) the prescribed buffer zone standard is not feasible for the waste volume requested, and a reduction in the permitted waste volume is not feasible.

(B) there is a specific engineered design alternative that:

(i) is consistent with the performance goal of providing a visual screening of solid waste processing and disposal activities;

(ii) affords ready access for emergency response, maintenance, and monitoring;

(iii) affords equivalent control of odors and windblown waste as the prescribed buffer zone;

(iv) affords equivalent control of windblown particulates;

(v) affords equivalent protection against unauthorized access;

(vi) affords equivalent protection incursion by disease vectors; and

(vii) provides sufficient distance to meet the drainage and sediment control requirements applicable to the facility.

Appendix C Details on Double Lining of Landfills

Studies have shown that leachate plumes from Subtitle D landfills that occur from small holes in the liner systems migrate in a more narrow or “finger-like” fashion, rather than a wide plume.³⁶ This means that conventional wells used for monitoring of the pollution of groundwater caused by lined landfills must be placed close enough together at the point of compliance to detect narrow fingers of leachate, if the monitoring program is to comply with Subtitle D requirements for the detection of incipient groundwater pollution from waste management units at the point of compliance.³⁷

G. Fred Lee, PhD, GEE, (certified in Texas) in over 20 years of research has demonstrated that double liners are the only means of capturing and containing landfill leachate before it can leak out and contaminate groundwater. When leachate eventually breaches the first liner, leachate detection systems can then pump out this leachate before it is able to breach the second liner.

New York and Pennsylvania as early as 1988 realized the insufficiency of regulatory liner requirements, and began requiring double liners. New York, Pennsylvania, New Jersey and Michigan require double liners for Municipal Solid Waste Landfills, and additional states including Kentucky, Florida and Oregon require double liners on a site-specific basis.³⁸ Arkansas requires double liners in the NW portion of the state to protect sensitive areas and water sources.

Double liners are necessary to protect valuable groundwater resources, and their use is especially important in wetter climates where the quantity of leachate is expected to be greater. TCE proposed that the TCEQ should require double liners within the area of a groundwater district if that district passes a resolution asking that the TCEQ impose this requirement. This would place the decision on the need to protect groundwater in the hands of those with expertise in a particular aquifer system. Additionally, the TCEQ should require double liners in all areas of the state receiving over an average of 25 inches of annual rainfall, in recognition of the special need for leachate control in these areas.

There can be increased initial costs associated with double liner systems, although the decreased quantity of clay needed offsets much of the additional startup costs. Over the long-term, double liners will often save money by reducing the need for the expenditure of funds in groundwater cleanup costs. The expenditure of significant sums of money

³⁶ Bumb, A.; McKee, C.; Evans, R. and Eccles, L., “Design of Lysimeter Leak Detector Networks for Surface Impoundments and Landfills,” *Groundwater Monitoring Review* 8(2):102-114 (1988).

Cherry, J. A., “Groundwater Monitoring: Some Deficiencies and Opportunities,” In: Proc. of the 10th ORNL Life Sciences Symposium, Gatlinburg, TN, Hazardous Waste Site Investigations; Towards Better Decisions, Lewis Publishers, B.A. (1990). Available from gfredlee@aol.com as LF019.

³⁷ G. Fred Lee, PhD, PE, GEE; Anne Jones-Lee PhD, “Flawed Technology of Subtitle D Landfilling and Municipal Solid Waste” 2005

³⁸ Joyce Munie, P.E. Manager, Permit Section, Bureau of Land Illinois Environmental Protection Agency, “A Study of the Merits and Effectiveness of Alternate Liner Systems at Illinois Landfills” 2003

will be saved in groundwater cleanup costs. Pennsylvania has also discovered long-term operational cost-savings in association with double liners.