

Progress Report on Using Scrap Tires and Crumb Rubber in Highway Construction Projects

**Submitted jointly by the
Texas Natural Resource Conservation Commission and the
Texas Department of Transportation**

**As required by House Bill 1, 76th Legislative Session
TNRCC-Rider 24 and TxDOT-Rider 47**

**January 1, 2001
Austin, Texas**



Progress Report on Using Scrap Tires and Crumb Rubber in Highway Construction Projects

Submitted to the following Committees:

**Senate Natural Resources, House Natural Resources,
House Environmental Regulation,
Senate State Affairs, House Transportation,
Senate Finance, House Appropriations**

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PREFACE

This report is being submitted as required by House Bill 1, (General Appropriations Act), 76th Legislature, Texas Natural Resource Conservation Commission Rider 24 and Texas Department of Transportation Rider 47, shown below.

Texas Natural Resource Conservation Commission Rider 24 and Texas Department of Transportation Rider 47:

Agency Coordination. The Texas Department of Transportation and the Texas Natural Resource Conservation Commission shall coordinate their efforts on the acquisition and potential uses of crumb rubber and shredded tire pieces in the various phases of highway construction. The Texas Department of Transportation and the Texas Natural Resource Conservation Commission shall provide to the appropriate Legislative Committees a report on their progress by January 1, of each fiscal year.

Table of Contents

Preface	i
Table of Contents	ii
List of Tables and Figures	ii
List of Attachments	ii
Executive Summary	1
Scrap Tire Management in Texas	2
Introduction	2
Stockpiles	3
End Uses.....	4
Scrap Tire Use in Highway Construction.....	5
Insufficient Infrastructure.....	6
Funding Sources.....	6
Addressing Scrap Tires In Texas	8
TNRCC and TxDOT Information Sharing Activities.....	8
Summary of Other States’ Scrap Tire Programs.....	9
Other States’ Incentive Programs.....	10
Conclusion	11
Attachments	12

List of Tables and Figures

Table 1. Scrap Tire Availability.....	3
Figure 1. 1999 Scrap Tire End Uses.....	4
Figure 2. TxDOT Historical Usage of Scrap Tire Rubber	6
Table 2. States with Scrap Tire Management Fees	9
Figure 3. States with Scrap Tire Management Fees.....	10

List of Attachments

1. Stockpiles at TNRCC Registered Sites.....	12
2. 1999 Reported Scrap Tire End Uses	13
3. Tire Derived Fuel Users and Amounts Consumed in 1998 and 1999.....	14
4. Scrap Tire Processing Equipment in Texas.....	15

EXECUTIVE SUMMARY

This report is the second annual *Progress Report on Using Scrap Tires and Crumb Rubber in Highway Construction Projects*, submitted on January 1 each year to Legislative Committees. This report represents the cooperative effort between the Texas Natural Resource Conservation Commission (TNRCC) and the Texas Department of Transportation (TxDOT) to identify uses of tires in highway construction, as well as other beneficial end uses.

Texas generates an estimated 24 million scrap tires annually.¹ In 1999, a total of 86.9 million scrap tires were available for use. This includes tires generated in 1999 (24 million), whole scrap tire stockpiles on the TNRCC Priority Enforcement List (PEL) (1.9 million), and shredded scrap tire stockpiles (61 million). There were end uses for approximately 16 million scrap tires.

TNRCC and TxDOT have made significant efforts to use scrap tires in road construction projects and to find other innovative end uses. The effort has created a slow, steady progress towards reducing the scrap tire stockpiles. However, until there is an infrastructure of companies developed in Texas that can deliver processed scrap tires at a competitive price, end users will be forced to import crumb rubber from out of state and use traditional, non-rubber, construction materials. In addition, a major obstacle to the clean up of existing scrap tire stockpiles is their condition or location. Under current conditions, it is probably not economically feasible to clean up some of the problem stockpile sites.

TNRCC and TxDOT will continue to coordinate efforts to develop and maintain accurate data on scrap tire usage and provide information to further promote beneficial recycling of tires. In addition, the agencies will continue to broadly communicate regarding scrap tire uses, TxDOT specifications for the usage of crumb rubber, and other recycling options in an effort to recycle or reuse every scrap tire discarded in the State of Texas.

¹ It is anticipated that the number of tires reported will increase in the 2002 report due to the Firestone/Bridgestone tire recall which occurred in 2000.

SCRAP TIRE MANAGEMENT IN TEXAS

Introduction

Between 1992 and 1997, the State of Texas managed all scrap tires under the Waste Tire Recycling Fund (WTRF). A \$2 recycling fee charged for every tire sold financed this program. Tire generators were guaranteed free collection of scrap tires at local businesses in exchange for collecting the recycling fee. The WTRF reimbursed processors for the collection, shredding, and recycling of tires.

One particular component of the WTRF program encouraged the development of sustainable markets, particularly Tire Derived Fuel (TDF) and landfill applications, where benefits of using the tires created a demand for the supply. This component of the WTRF reimbursed energy recovery facilities for burning tires and provided funds toward the purchase of equipment or to retrofit existing facilities. When the WTRF program ended on December 31, 1997, tire generators and local governments resumed scrap tire management responsibilities in a market-driven system.

Since the end of the WTRF program, stockpiles of whole scrap tires are being created in some areas where recycling uses have not developed or where transportation to available uses is too costly. This stockpile problem has been prevalent in areas where landfill operators have collected tires to prevent illegal dumping, but may not have had adequate resources to manage the tires collected. In general, tires are still considered a waste, although there are many options for recycling and product development available.

Waste tires, when improperly managed, not only create a public nuisance, they may also pose a number of environmental, health and safety hazards to the public. Tire piles can create environmental and health hazards for residents in neighboring communities. Rodents and mosquitoes find tire piles to be an ideal breeding ground. The greatest risk inherent to the tire piles is probably fire. Not only are tire fires extremely difficult to extinguish, the rubber decomposes into oil which can pollute ground and surface water, and soil.

Texas generates an estimated 24 million scrap tires annually, essentially 1 tire per person.² In addition to the 24 million “new” scrap tires generated in 1999, there were 1.9 million whole tires in stockpiles on the Priority Enforcement List (PEL), and an additional 61 million shredded scrap tire equivalents³ in stockpiles. This means that in 1999, a total of 86.9 million scrap tires were available for use. (See Table 1.) The 1999 scrap tire total represents a decrease of 2 percent from 1998 total. Attachment 1 provides details regarding the shredded tire stockpiles.

²The weight of tires varies significantly. The estimated number and tonnage of scrap tires in this report is based on a generation rate of one 20 pound tire per person per year. An adjustment was made to account for the additional weight for truck and agricultural tires that can weigh more than 100 pounds.

³For this report, a scrap tire equivalent is equal to 20 pounds or 1 whole scrap tire.

Table 1
Scrap Tire Availability

Source	1998 Number of Tires	1999 Number of Tires
Annual Generation	24 million	24 million
Whole Tire Stockpiles (PEL)	2.3 million	1.9 million
Shredded Tire Stockpiles	62 million	61 million
TOTAL Availability	88.3 million	86.9 million

Sixteen million tires were utilized in 1999. Approximately 45% were used in civil engineering projects, 30% were burned as TDF, 9% were used in miscellaneous projects or products, 9% were disposed in landfills, and 7% were used as crumb rubber. Attachment 2 shows additional detail regarding 1999 scrap tire end uses.

Stockpiles

There are approximately 61 million scrap tire equivalents in stockpiles at TNRCC registered storage sites. (Three facilities did not submit an annual report, so the number could be slightly higher.) These tires have been shredded, but not delivered to an end use. In addition, there are 1.9 million whole scrap tires stockpiled on private property. The combined total of whole and shredded tires in 1999 is approximately 63 million scrap tire equivalents. This estimate was calculated by adding the pounds of tires stored, as reported on the *Scrap Tire Facility and Storage Site Combined Annual Activity Reports for 1999* and the number of tires on the Priority Enforcement List (PEL) sites. The total was divided by 20 (one passenger tire weighs an estimated 20 pounds) to determine the scrap tire equivalents stored.

In 1997, the TNRCC developed the PEL to include locations where whole tires were dumped on private property. The 75th Legislature granted 9 million dollars, through the WTRF that existed at the time, to remove the tires from these sites and prepare the tires for an end use. Initially, there were 960 PEL sites. TNRCC was successful in cleaning up 795 of the sites, or approximately 83%. Tires removed from the PEL sites were used in the construction of new landfills and for daily cover, installation of septic tanks, construction of a golf course, and for Land Reclamation Projects Using Tires (LRPUTs). Some PEL tires were burned in cement kilns for energy.

An estimated 1.9 million scrap tire equivalents remain on the 165 sites that have not been cleaned up. It is estimated that it could cost \$6.5 million or more to clean up the remaining PEL sites. The cost is difficult to estimate without visiting each site with a tire cleanup/removal contractor. In some cases, there are not any roads to the tires, the tires are scattered in trees due to flooding, or located deep in ravines. One factor to consider is the environmental damage that could be created by removing the tires. Roads will have to be created, landscapes destroyed and in some instances, wildlife would have to be relocated since some species have made the tires their habitat.

Sites that remain on the PEL list were not selected for clean up due to higher costs and inaccessibility to the property or tires. Sites that presented the greatest environmental threat and were easily accessible were cleaned up first. The condition of tires at the remaining PEL sites is unknown, and the condition of the tires may make it difficult to find an end use for the remaining tires.

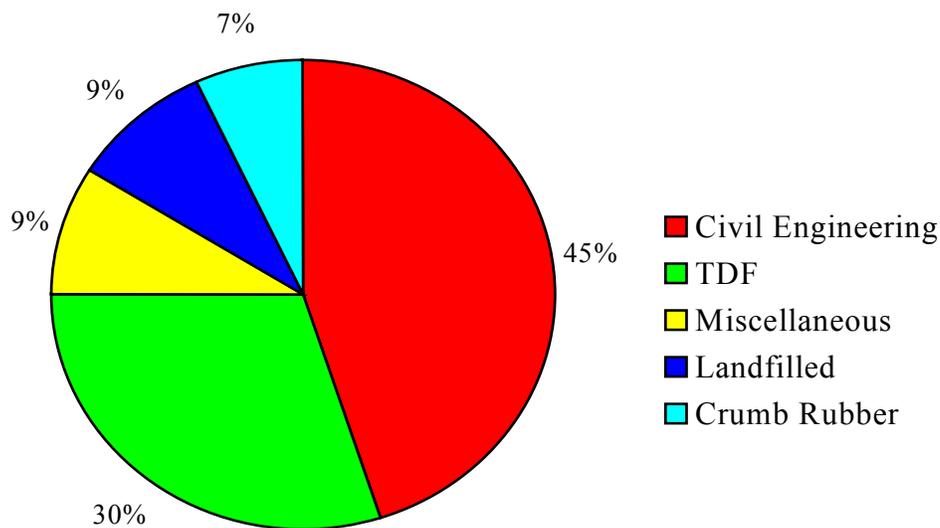
It is important to note that no new sites are being added to the PEL. New scrap tire stockpiles are being addressed by local officials under provisions of the Litter Abatement Act, with the cooperation of TNRCC.

Not all tire stockpiles, shredded or whole, are in a condition for which there is an end use. For example, some tire stockpiles cannot be used because the shreds are the wrong size or have exposed steel. If the shreds are too large, they may need further processing before use. Some tires have been exposed to the elements for such long periods of time, the rubber is no longer usable even after additional processing.

End Uses

According to scrap tire processor and transporter annual reports, there were end uses for approximately 16 million scrap tires, the same amount as in 1998. Figure 1 shows the end uses for Texas scrap tires in 1999.

Figure 1
1999 Scrap Tire End Uses



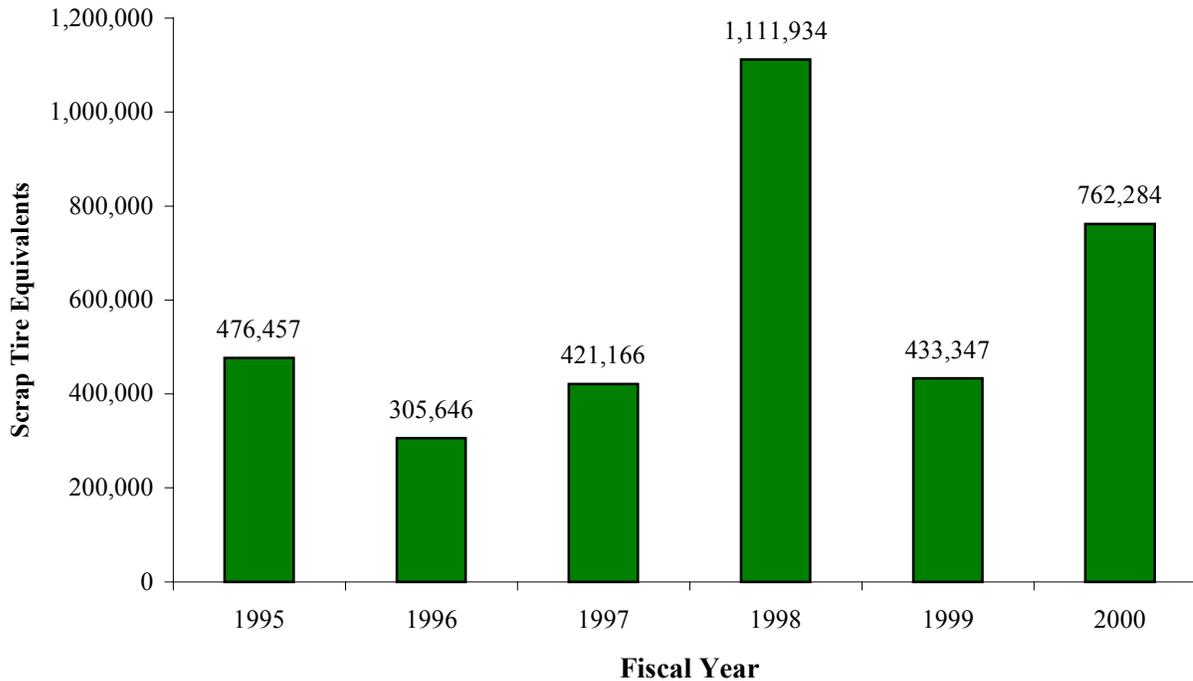
Although the same number of tires were used in 1998 and 1999, the mix of end uses changed. In 1999, scrap tire end uses included:

- **Civil Engineering** - Examples of civil engineering projects include culverts, landfill and land reclamation applications, alternative porous media in the drain fields of on-site sewage facilities, and erosion control projects. It is important to note that in 1999, civil engineering projects used the largest number of tires of all end uses. This increase over 1998 data is attributed to landfill applications and land reclamation projects.
- **TDF (Tire Derived Fuel)** - Some cement kilns and paper pulp facilities can burn TDF. There was a decrease in TDF usage in 1999. Based on information provided by cement kiln representatives, the decrease in TDF can be attributed to the increased demand for cement. Burning tires requires more time and manpower, which can be costly when demand for cement is high. Therefore, cement kilns burn more coal. If the demand for cement were to decrease, it is expected that the demand for TDF would subsequently increase. The amount of TDF is expected to increase in 2000 due to the addition of a newly permitted cement kiln in Odessa that recently began to burn TDF. Attachment 3 provides data regarding TDF users.
- **Miscellaneous** - Miscellaneous projects include such items as baling, pet toys, and mats. This category has increased as additional innovative products have been introduced to markets.
- **Landfilled** - These are tires that have been split or quartered and disposed of as waste.
- **Crumb Rubber** - Crumb rubber can be used in asphalt rubber products, and in the production of other products, including traffic control devices. Crumb rubber use increased in 1999 from the previous year.

Scrap Tire Use in Highway Construction

TxDOT has been an active proponent of scrap tire use in road construction applications, and has made significant efforts to increase its annual scrap tire use. TxDOT uses scrap tires mainly as crumb rubber in hot mix, chip seal, and crack seal applications. TxDOT also uses traffic safety devices that are manufactured with crumb rubber and has worked with companies to develop additional highway application end uses. In Fiscal Year 2000, TxDOT consumed approximately 762,000 scrap tire equivalents, a 43% increase over Fiscal Year 1999. (See Figure 2.)

Figure 2
TxDOT Historical Usage of Scrap Tire Rubber



Insufficient Infrastructure

Despite TxDOT's increased use of crumb rubber, an increasing percentage of crumb rubber used will come from out of state because there is not a sufficient scrap tire processing industry in Texas. Currently, there are no companies with the ability to crumb scrap tires in Texas. Furthermore, because there has been a decrease in scrap tire processing equipment, transportation costs associated with moving scrap tires to the facilities and to end uses has increased. Attachment 4 shows additional information regarding scrap tire processing equipment in Texas.

An example of the insufficient infrastructure hindering an attempt to use scrap tires occurred in Cameron and Hidalgo Counties. TxDOT planned to use tire shreds as fill material in a railroad overpass project located at US 83 in Cameron County. Sources of scrap tires were identified as PEL sites and landfill stockpiles. However, when the lone scrap tire processor in the Rio Grande Valley went out of business, the project ran into difficulties. TxDOT searched for another local processor to no avail and it was economically infeasible to import processed tires to the region. Therefore, the project was constructed without tire shreds.

Funding Sources

Funding to decrease the number of scrap tire stockpiles is limited. There are no specific sources of funds designated for the clean up of tire stockpiles. It is possible that a very limited number of sites could be cleaned up through the innovative enforcement strategy of TNRCC known as the Supplemental Environmental Project (SEP) Program. This option is only considered for enforcement cases. A respondent in an enforcement action may negotiate an agreement to perform a SEP in return for a reduction in the administrative penalty. The SEP must be a project that benefits

the community and the environment, and must first be approved by the Commissioners of the TNRCC as part of the enforcement action. This method was used to reduce the number of tires at PEL sites by approximately 400,000 in 1999.

An option for funding is for local governments to work with their Council of Governments to use municipal solid waste grants to fund local enforcement of tires as litter under the Litter Abatement Act.

ADDRESSING SCRAP TIRES IN TEXAS

TNRCC and TxDOT Information Sharing Activities

In addition to statewide crumb rubber workshops, regional workshops, and promotion of TDF, TNRCC and TxDOT continue to develop tools to communicate scrap tire usage. In January 2000, TxDOT distributed a packet of information about scrap tires to TxDOT road construction and maintenance personnel, contractors, and local road construction personnel. The packet included information about scrap tires and their uses in road construction such as: research summaries, case studies, TxDOT specifications currently allowing tire shreds or crumb use, and a summary of TxDOT experiences.

During 2000, TxDOT sponsored activities to encourage scrap tire rubber use, not only in its own agency, but also at the local government level. Activities included a statewide crumb rubber workshop in Odessa co-sponsored with the Rubber Pavement Association (RPA), TNRCC, and the Federal Highway Administration. Four smaller regional crumb rubber workshops, sponsored by the RPA and TxDOT, were later held in El Paso, Lufkin, Abilene, and Pharr.

Additionally, in early 2001, TxDOT will co-sponsor a scrap tire workshop with TNRCC. This workshop will focus on innovative uses of crumb, shreds, and whole tires in the road construction industry, and is open to both state and local road construction personnel and TxDOT contractors.

Management for both TxDOT and TNRCC are well informed about the benefits for using tires in road construction projects and as TDF. This sharing of information has been valuable since both TxDOT and TNRCC management have proven to be strong vocal supporters of using scrap tires in beneficial ways.

As part of TNRCC's effort to promote end uses for scrap tires, a one-page flyer was developed that outlined the benefits of TDF. TNRCC also visited cement kilns to encourage the increased usage of TDF and to learn what TNRCC could do to assist industry in increasing TDF usage. Telephone interviews were conducted with managers of both current and past users of TDF. The purpose of the interviews was to stress the benefits of using TDF and to provide information.

The TNRCC's upper management is knowledgeable about the benefits of TDF and is supportive of the promotion of increased use of TDF. TNRCC and TxDOT staff will continue to communicate the following benefits of TDF:

- tires have a higher British Thermal Unit (BTU) value than coal, coke or wood
- uses 100% of the tire, including the metal, and does not produce waste in cement kilns
- reduced demand for fossil fuels
- lower emissions of Carbon Monoxide, Sulfur Dioxide, and Nitrous Oxide
- produces less pollution than coal

Summary of Other States' Scrap Tire Programs⁴

All states are faced with the problem of illegally dumped tires. Most states that are cleaning up stockpiles are doing so with funds collected from a fee program or through a one-time budget allocation.

Scrap tire management is a challenge faced by almost every state. As a result, there are a variety of approaches initiated by states regarding scrap tires. Twenty-seven states charge a fee on the sale of new tires, and three states impose a fee at the time the title for a motor vehicle is transferred or at the time a motor vehicle is registered. The fees are deposited into a fund to finance tire education, loans, or grants, recycling projects, and/or clean up of abandoned tire dumps. The fees range in price from 25 cents to \$2.00 per passenger tire. The states that charge a fee on the sale of tires are listed in Table 2 and shown on Figure 3.

Table 2
States with Scrap Tire Management Fees

Arizona	Louisiana	North Carolina
Arkansas	Maine	Ohio
California	Maryland	Oklahoma
Florida	Michigan	Pennsylvania
Georgia	Minnesota	Rhode Island
Illinois	Mississippi	South Carolina
Indiana	Missouri	South Dakota
Iowa	Nebraska	Tennessee
Kansas	Nevada	Utah
Kentucky	New Mexico	Virginia

One state, New Hampshire, authorizes local governments to collect fees for the collection and disposal of tires, used oil, and batteries.

⁴ All information on other state programs compiled from the Environmental Protection Agency's publication *State Scrap Tire Programs – A Quick Reference Guide: 1999 Update*. Available at: <http://www.epa.gov/epaoswer/non-hw/tires/scrapti.pdf>

CONCLUSION

The challenge for Texas is to develop viable markets for the available waste tires and to continue to provide information to increase the number of tires used in highway construction, used for energy recovery, or recycled in some other way. TNRCC and TxDOT consider tires to be a valuable resource. Both agencies are committed to working cooperatively with local governments, industry, and the public to encourage the recycling or innovative use of tires.

TNRCC and TxDOT have made significant efforts to use scrap tires in road construction projects and to find other innovative end uses. The effort has created a slow, steady progress towards reducing the scrap tire stockpiles. However, until there is an infrastructure of companies developed in Texas that can deliver processed scrap tires at a competitive price, end users will be forced to import crumb rubber from out of state and use traditional, non-rubber, construction materials.

Another major obstacle is the clean up of existing scrap tire stockpiles. Some of the scrap tires are in too poor a condition to use, or are located in areas that are inaccessible for clean up. Under current conditions, it is probably not economically feasible to clean up some of the problem stockpile sites.

TNRCC and TxDOT will continue to coordinate efforts to develop and maintain accurate data on scrap tire use and provide information to further promote beneficial recycling of tires. In addition, the agencies will continue to broadly communicate regarding scrap tires uses, TxDOT specifications for the use of crumb rubber, and other recycling options, in an effort to recycle or reuse every scrap tire discarded in the state of Texas.

Attachment 1 Shredded Tire Stockpiles at TNRCC Registered Sites

Facility Name	Reg. #	City	1998 Scrap Tire Equivalents	1999 Scrap Tire Equivalents	% Change
Acme Tyre Company	79539	Atlanta	37,227	42,139	13%
American Tire	79019	San Antonio	1,250,000	0	-100%
Anthony J. Johnston	79549	Dodd City	21,509	NLB	-100%
Cameron Land & Cattle	79547	San Antonio	0	0	0%
CenTex Rubber Products	44140	Fort Worth	NA	500,000	
DWI Hobby Shop	79548	Marble Falls	NR	NLB	
Environmental Recovery & Recycling	79502	Stamford	2,261,789	2,313,395	2%
Gibson Recycling, Inc.	79500	Atlanta	27,116,847	29,823,360	10%
Gibson Recycling, Inc.	79508	Beaumont	2,048,100	2,048,100	0%
Granular Products & Services	76204	Fort Worth	500,000	NLB	-100%
Island Industries	79545	Corpus Christi	0	0	0%
J&M Truck Tire Shop	79543	San Antonio	NR	221,506	
Metroplex Tire Disposal, Inc.	79025	Fort Worth	0	NLB	
RAD-TEC, Inc.	79028	Corpus Christi	NR	NR	
Real Deal Recycling	79546	Mineral Wells	NR	NR	
Safe Tire Disposal	79507	Cleveland	6,060,909	5,585,892	-8%
Safe Tire Disposal	79504	Midlothian	4,436,634	1,969,017	-56%
Safe Tire Disposal	79505	Penwell	5,422,546	5,008,890	-8%
Safe Tire Disposal	79506	San Antonio	6,884,890	7,446,237	8%
Scrap Tire Recycling	79501	Pasadena	NR	NR	
Texas Crumb Industires	76203	Stamford	5,441,499	5,543,470	2%
THOSHANOWASTI	79544	Amarillo	22,682	38,282	69%
Touche International	79557	Whitesboro	NA	211.25	
Tres Pesetas (formerly Lubbock Waste Tire Recycling)	79540	Lubbock	104,200	48,253	-54%
Tres Pesetas	79030	El Paso	0	87,191	
Waste Recovery, Inc.	79503	Baytown	558,866	475,650	-15%
World Tire Recycling, Inc.	79016	Brownsville	NR	NLB	
TOTAL (Scrap Tire Equivalents)			62,167,698	61,151,592	-2%

NLB - No longer in business and all scrap tires have been removed from site

NR - No report

NA - Not available (new business started in 1999)

Source: 1999 Scrap Tire Facility and Storage Site Combined Annual Activity Report and 1998 Scrap Tire Report

Attachment 2
1999 Reported Scrap Tire End Uses
(in Scrap Tire Equivalents)

Name	County	TDF	Landfill (Beneficial)	On-Site Sewage Facilities	Other	LRPUT	Total Civil Eng.	Crumb	Landfill (Discarded)	Other	Total
Acme Tire	Cass	95,527		5,517			5,517	4,326		138,470	243,841
Cameron Land & Cattle	Starr									95,688	95,688
ERRI	Haskell							197,682	191,381		389,063
Gibson – Atlanta	Cass	276,370		11,878			11,878	632,149	0	832,242	1,752,639
Island Industries	Nueces								127,240		127,240
J & M Trucking	Bexar								252,228		252,228
Nathaniel Energy	Hutchins										
Recycled Rubber	Travis								222	153	375
Safe Tire – Cleveland	Liberty			475,017			475,017				475,017
Safe Tire – Midlothian	Ellis	112,025	4,969,924	218,664			5,188,588				5,300,613
Safe Tire – Odessa	Midland					413,656	413,656				413,656
Safe Tire – San Antonio	Bexar	899,762			114,056	8,450	122,506			2,313	1,024,580
Silver Creek	Tarrant					249,805	249,805				249,805
Texas Crumb	Haskell							210,604			210,604
THOSHANOWASTI	Randall					33,635	33,635		191,669	62,660	287,963
Touché International	Grayson							2,857	287,847	10,799	301,504
Tres Pesetas – El Paso	El Paso			466,878	7,803	132,240	606,920		70,383	90,894	768,197
Tres Pesetas - Lubbock	Lubbock	3,943									3,943
Uni-Wide	Harris										
Waste Recovery	Harris	3,397,929							325,000	262,840	3,985,769
Total		4,785,555	4,969,924	1,177,954	121,858	837,786	7,107,522	1,047,618	1,445,970	1,496,059	15,882,724
Percent (%)		30%	31%	7%	1%	5%	45%	7%	9%	9%	

Attachment 3
Tire Derived Fuel (TDF) Users and Amounts Consumed in 1998 & 1999
(in Scrap Tire Equivalents)

Facility Name	Type	City	Authorized TDF Quantity	1998 Consumption	1999 Consumption	Percent Change	TNRCC Grant	Permit #
Capitol Cement	Cement	San Antonio	2,150,000	1,280,000	1,006,520	-21%	Yes - \$1,589,769	2274
Donahue	Paper/Pulp	Houston	2,055,000	1,455,000	1,354,797	-7%	Yes - granted \$850,00 claimed \$315,000	190
Cen-Mex	Cement	New Braunfels	2,055,000	0	0		No	6048
Holnam	Cement	Midlothian	10,565,000	105,000	112,025	7%	No	8996
Lufkin Industries	Foundry	Lufkin	170,000	0	0		No	8316
North Texas	Cement	Midlothian	8,415,000	3,465,000	3,741,149	8%	Yes - \$1,496,935	4791A,B,C
Southdown*	Cement	Odessa	2,055,000	0	0		No	5296
Sun Belt	Cement	New Braunfels	4,300,000	0	0			6048
Texas Industries - Hunter	Cement	New Braunfels	3,365,000	725,000	657,100	-9%	Yes - \$169,810	3611D
Texas Lehigh	Cement	Buda	3,180,000	45,000	7,388	-84%	Yes - \$913,296	3611D
Texas - New Mexico	Power Plant	Bremond	2,620,000	0	0		No	17294/5
Total			40,930,000	7,075,000	6,878,979	-3%		

*Southdown began burning tires as TDF in March 2000.

Attachment 4 Scrap Tire Processing Equipment in Texas

Facility	City	Contact	Shred	Bale	Cut	Crumb	Innovative Equipment	Reg. #
Acme Tyre	Atlanta	Daniel Swanson	Yes				Yes	79539
Cameron Land & Cattle	San Antonio	Donald Cameron		Yes				79547
CenTex Rubber	Fort Worth	Dennis York				Yes*		79543
Dearth Brothers	Houston	Robert Dearth		Yes				79555
Island Industries	Corpus Christi	Gary Mitchell			Yes		Yes	79025
J&M Trucking	San Antonio	Margarito Martinez	Yes		Yes		Yes	79550
Nathaniel Energy	Hutchins	Kyle Vincint	Yes					
RAD-TEC	Corpus Christi	Mike Radovanov					Yes	
Real Deal Recycling	Mineral Wells	Bill England			Yes		Yes	79546
Recycled Rubber	Austin	Nancy Gallimore					Yes	79546
Safe Tire	Cleveland	Gary Crabtree	Yes					79507
Safe Tire	Midlothian	Gerald Rich	Yes					79504
Safe Tire	Penwell	Gerald Rich	Yes					79505
Safe Tire	San Antonio	Danniel Ibarra	Yes					79506
Silver Creek	Fort Worth	Bart McKay	Yes					
THOSHANOWASTI	Amarillo	John Waters	Yes	Yes				79544
Touche International	Burleson	James Glendening		Yes				79557
Tres Pesatas	El Paso	Delma Perry	Yes	Yes				79030
Waste Recovery	Baytown	Kevin Martinolich	Yes					79503

*Permitted but inactive crumbing facility