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# RESEARCH ORGANIZATION

session focus

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## Waste Tire Recycling Problems Fuel Smoldering Debate

Texans generate approximately 50,000 waste tires every day, creating a significant disposal problem for the state. In the past many of these tires were illegally abandoned. Illegal tire dumps present a serious health and safety hazard by attracting rodents and mosquitoes and other disease-carrying organisms. They also pose fire hazards; tire fires can be difficult to extinguish, especially in rural areas lacking readily available water supplies, and can result in the release of hazardous chemicals into the environment.

In 1991, in an attempt to rid the state of hundreds of illegal tire dumps scattered across Texas, the Legislature created the waste tire recycling fund, funded primarily by a \$2 fee on each new tire sold in the state since 1992. The fee was used to pay qualifying waste tire processors 85 cents per tire — changed to 80 cents per tire for most processors in 1995 — and was intended to stimulate the market for tire-derived products.

Since the waste tire recycling fund was created, about 127 million tires have been shredded, but the market for shredded rubber has grown neither as quickly as was expected nor as fast as the piles of tire shreds being produced.

Although the program has successfully cleaned up 600 of the 900 illegal tire dumps estimated to exist in Texas in 1992, around 90 million tires in shredded form are now stored at 26 locations across the state. These tire shreds have become a disposal problem in their own right. Tire processors, paid about \$105 million since 1992 to shred the tires, have been unable or unmotivated to find ways to recycle all the shreds.

The state continues to encourage the reuse and recycling of tires and tire products. The Texas Natural

Resource Conservation Commission (TNRCC) estimates that 70 percent of the tires now shredded annually are being reused or recycled, in the form of either new products or tire-derived fuel. Nonetheless, the leftover tire shreds and other problems with the program have caused concern among state officials. Some observers are suggesting eliminating or at least substantially changing the waste tire recycling program, which will end December 31, 1997, unless the 75th Legislature decides to continue the program. A Senate Natural Resources Subcommittee studying the issue concluded in its 1996 interim report that:

The present program has a basic flaw: the emphasis is in the wrong place. The program as it currently exists promotes the shredding of tires . . . The desired result is to properly recycle or reuse these tires in some form or fashion. Therefore, the program needs to place all emphasis and incentives on end uses.

The Senate subcommittee report noted that although many would like to see the program disappear, "Texas will always need some kind of waste tire management; a well thought-out and properly managed program will enable the state to move in the direction of a free market-driven approach."

### The Texas Waste Tire Recycling Program

The waste tire recycling program established by the 71st Legislature was substantially revised in 1995 by SB 776 by Brown. SB 776 promotes "end uses" of tires and tire shreds. It prohibits tires and

tire shreds from being placed in landfills, eliminates reimbursement for out-of-state shredding, and continues statutory provisions prohibiting transporters from charging generators to pick up their tires. Under the bill, TNRCC can no longer reimburse processors for shredding as of January 1, 1996, unless the processors have a contract for delivering the shreds to an end user within 180 days of shredding. End uses include recycling the tires and tire scraps as landfill liner and in road construction and burning tires for fuel. Burning tires in industrial kilns and boilers, sometimes termed "energy recovery," is considered an end use in SB 776.

The bill also reduced the 85 cent reimbursement to 80 cents per tire in most cases, imposed a new \$1 fee on each used tire purchase and made technical changes regarding shred sizes.

TNRCC rules give processors credits for tire shreds sent to end users between January 1995 and January 1996. The accrued credits can be used to satisfy the SB 776 requirement that all shreds go, or be contracted to go, to end users after January 1, 1996. For example, if only 70 percent of a processor's tires are sent to end users after January 1, 1996, the processor can use its 1995 credit to make up the difference and still qualify for reimbursement from the waste tire recycling fund. Because of accrued credits and the 180-day window for contracting with end users, TNRCC has yet to suspend shredding reimbursements to any processor, although some processors are close to exhausting their credits.

SB 776 also established a waste tire recycling fund grant program administered by TNRCC and paid out of the waste tire recycling fund. The bill provided that for each fiscal year, up to \$2 million can be granted for building waste tire recycling facilities and up to \$6 million for retrofitting facilities to burn whole or shredded tires. Under the bill, TNRCC pays 40 cents per tire to facilities that burn shredded tires, as long as the total amount does not exceed \$600,000 for each fiscal year and the facility has not received TNRCC grant money.

SB 776 required that in fiscal 1996 the \$6 million be divvied up in the following way: up to \$4 million could be spent for grants either to retrofit facilities to burn whole tires or to pay 80 cents per tire to whole tire-burning facilities and up to \$2 million to retrofit facilities for the burning of shredded tires. In fiscal 1997 the entire \$6 million can be

used to reimburse facilities that burn whole tires, at a rate of 80 cents per tire.

In 1996, TNRCC granted \$4 million to three cement kiln facility operators to retrofit their facilities for whole-tire burning. A cement kiln and two power plant boiler operators will receive \$2 million to retrofit their three facilities to burn shredded tires, and \$2 million will go to reimburse six entities for building recycling facilities. Another \$2 million is to be granted to recycling facilities in 1997. Certain crumb rubber plants also are eligible for grant money.

## Problems with the Program

The major problem facing the waste tire recycling program is that the market for used tires and tire shreds has not kept up with the growing backlog of discarded tires. Three of the 26 sites where tire shreds are stored have been abandoned. Once again, Texas is faced with serious health and safety concerns due to waste tires. For example In December 1995, a fire broke out in shred piles being stored by Safe Tire Disposal Corporation of Texas, a tire processing facility located near Midlothian, southwest of Dallas. The fire burned for almost three days; the resulting pollution took several months to clean up, and TNRCC enforcement action is continuing. Meanwhile, the program as a whole suffers financing shortfalls, collection difficulties, and phony claims for reimbursement by various tire processors.

## Financing

Since the fund was established in 1991, appropriations have never been adequate to fund the program. The waste tire recycling fund, a dedicated fund within the general revenue fund, consists of waste tire recycling fees, processor registration fees, and any penalties collected from processors. Tire sellers collect \$2.00 for new car tires, \$3.50 for truck tires and \$1 for used tires from customers. Registered waste tire storage facilities and mobile processors pay a \$500 registration fee every five years. All fees and penalties go into the fund and are dedicated to the waste tire recycling program.

Since 1993, the state has collected an average of \$29 million in tire fees, but only a portion of that revenue has been appropriated for use in the program. TNRCC received a general appropriation from

## Waste Tire Recycling Financing

(\$ in millions)

<b>Fiscal Year</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>
Fund Balance from Previous Year	N/A	\$9.4	\$8.3	\$16.1	\$15.9	\$15.3	\$19.2
Fee Revenues	14.5	25.2	27.4	28.8	29.4	29.0	9.8**
<b>Total</b>	<b>14.5</b>	<b>34.6</b>	<b>35.7</b>	<b>44.9</b>	<b>45.3</b>	<b>44.3</b>	<b>29.0</b>
General Appropriations	(5.1)	(26.3)	(19.6)	(19.7)	(20.4)*	(20.1)*	(10.3)**
Emergency Appropriations				(9.3)	(4.2)		
Rider 29 Appropriations					(5.4)	(5.0)	
<b>Total Appropriations</b>	<b>(5.1)</b>	<b>(26.3)</b>	<b>(19.6)</b>	<b>(29.0)</b>	<b>(30.0)</b>	<b>(25.1)</b>	<b>(10.3)</b>
<b>Fund Balance</b>	<b>9.4</b>	<b>8.3</b>	<b>16.1</b>	<b>15.9</b>	<b>15.3</b>	<b>19.2</b>	<b>18.7</b>

Source: TNRCC budget documents. Numbers rounded.

\* 1996 and 1997 general appropriations reflect employee benefit transfers and appropriations reductions required by law of all state agencies.

\*\* 1998 revenue and appropriation declines due to program sunset.

the fund of approximately \$19.8 million a year for fiscal 1996 and 1997. The agency is also allocated additional monies from the fund as authorized by Rider 29 of the General Appropriations Act. Rider 29 allows TNRCC to use collected revenue that exceeds \$24 million each year, provided that annual appropriations for the program do not exceed \$31 million. The additional appropriation allowed by Rider 29, however, was only \$5.4 million in fiscal 1996 and is estimated to be \$5 million in 1997. Annual appropriations, then, total approximately \$25 million for fiscal 1996 and 1997. These sums fall short of the approximately \$31 million needed to fund the waste tire recycling activities set out in SB 776.

Under SB 776, the 1995 Legislature allocated a special additional appropriation of \$9.34 million to TNRCC from the waste tire recycling fund to pay tire processor reimbursement claims. In April 1996 the program was shored up with a \$4.2 million emergency deficiency grant from the Governor's Office. TNRCC will have to seek additional funds in 1997 in order to fund all provisions of SB 776. Lack of funds has caused the agency to suspend cleanup of illegal dump sites, except sites that are a direct threat to human health.

Meanwhile, because the Legislature has not appropriated all revenue collected since the program's inception, the fund had a balance at the end of fiscal 1996 of \$16 million. That balance will be a projected \$19 million by the end of fiscal 1997.

TNRCC has asked the 75th Legislature for authorization to use all waste tire recycling fund fees to support the program until December 1997, the program's sunset date. If the program is continued by the Legislature, the agency may ask the Legislature for permanent authorization to use all waste tire recycling fund fees.

## Collection

Tire collection problems surfaced in West Texas after reimbursements were trimmed from 85 to 80 cents per tire. Reduced fees, rising fuel costs and the long distances between communities in West Texas made it economically unfeasible for many transporters to continue collecting waste tires from dealers. As a result, tire dealers in West Texas had trouble getting their tires picked up. Piles of discarded tires began to accumulate around their businesses.

To alleviate the situation, in June 1996 TNRCC awarded contracts for collecting used tires in six West Texas regions — Abilene, Amarillo, El Paso, Lubbock, Midland and San Angelo — containing nearly 2,500 generators. The contracts require designated transporters to pick up all the scrap tires within their region from dealers and take them to processors for recycling or to temporary state-designated collection sites. Transporters are reimbursed approximately 40 cents per tire from the waste tire recycling fund. Future handling of the temporary collection sites may be tackled in the current session.

## Fraud

TNRCC has also encountered problems with some tire processors filing phony reimbursement claims. A total of 31 tire processors — both tire shredders and burners — are registered in Texas, and about half of them currently are receiving reimbursements. In 1994 TNRCC began auditing six waste tire processing facilities. The facilities were selected for fiscal audit in part because of the amount of reimbursements the processors had received. Four of the six audits found overpayments totalling \$21,109.10; the processors involved have since repaid the amounts owed. The other two audits, TNRCC says, show overpayments of at least \$95,000 and the processors in these cases are contesting TNRCC findings. Under the SB 776 mandate, TNRCC has begun auditing all tire processors who have received reimbursements since 1995.

## Recommendations for Action

### Financing proposals

The Senate Natural Resources Subcommittee report recommends that the waste tire recycling program be continued but with substantial changes. The subcommittee recommends immediately eliminating all reimbursements to processors who merely shred tires and instead use the waste tire funds only as incentives for certain end uses. These would include using chips in landfill liners, various rubber products, and road construction and burning tires in industrial kilns and boilers. Since only end users of the rubber would be reimbursed, processors would not be paid for shredding tires unless a verified use for those shreds was guaranteed. Although current law already emphasizes end uses, allowing processors

to apply credits from previous years may circumvent these objectives.

The subcommittee also suggests (1) that end users who transport tires out of state be reimbursed in order to bolster regional and national recycling markets and (2) that grants be continued to be awarded to recycling facilities located in Texas.

A number of other recommendations were made by the subcommittee regarding tire fees. These include lowering the collection fee from \$2.00 to \$1.50 immediately and then to \$1 by the year 2000 and levying the fee on wholesale rather than retail sales to reduce collection and administration costs. The subcommittee also recommends eliminating the \$1 fee on used tires, appropriating all tire fees and unappropriated funds to TNRCC for use in the program, and allowing transporters who collect scrap tires to charge generators for their service.

The subcommittee further recommends strengthening audit and enforcement measures to ensure no new illegal dumps are created and allowing TNRCC to approve disposing of scrap tires in landfills as a last resort.

## Market development for used tires

Environmentalists are urging the state to encourage development of markets for used tires. Tires can be reused or recycled in a number of ways. In Texas, most scrap rubber is burned in industrial facilities or used as a landfill liner or in the construction of septic tank drainage fields. The metal from tires is recycled by scrap metal companies. Scrap and crumb rubber can be used to replace such construction materials as dirt, road backfill, gravel, and asphalt paving. Crumb rubber can be used in making sealant for road cracks, and research is being conducted in other states on using tire scraps as a practically indestructible mulch around plantings and trees to retain moisture and inhibit weeds.

The Texas Department of Transportation (TxDOT) is experimenting with scrap rubber in roadway construction. To date, it has been unable to identify applications that would both consume large volumes of tires and be economically viable. Asphalt modified with crumb rubber, for example, is almost twice as expensive as other types of asphalt. In fiscal 1995 and 1996, however, TxDOT used more than 14,000 tons of crumb rubber in construction projects, prima-

rily in crack seal and seal coat applications, because increased durability and other factors offset the higher cost of the materials.

## Tire-derived fuel

One of the quickest and easiest ways to dispose of large amounts of tire scraps is to burn them as fuel in cement kilns, utility boilers, pulp and paper mills, and co-generation facilities. This is the most common method for disposing of tire scraps in Texas. Waste tire burning, however, is a highly controversial issue.

**Opponents** of waste tire burning include environmentalists, many people who live near tire-burning facilities, chemically sensitive people, Public Citizen, the Texas Parents and Teachers Association (PTA), and the American Lung Association. These groups say that burning tires cannot be considered reuse or recycling. They maintain that burning tires creates toxic pollution that is especially harmful to residents of the communities where the tires are burned.

The Texas PTA has pointed out that children's respiratory and immune systems are especially vulnerable to pollution from facilities located near schools and residential areas and little is known about the permanent effects these emissions can have on developing children.

A number of organizations who oppose tire burning want tire-burning facilities to meet the same environmental and safety standards required of commercial hazardous waste incinerators. They maintain that burning tires in cement kilns, many of which are old and operating at less than peak efficiency, creates toxic chemicals for which there are no safe levels of exposure. Most cement plants, they add, lack proper equipment for controlling air pollution from burning tires and are disproportionately located in low-income communities. Opponents also call for a full public hearing process for facilities requesting permission to burn tires rather than the current system that authorizes TNRCC to allow such burning through permit amendments.

**Supporters** of tire burning cite Environmental Protection Agency and TNRCC studies indicating that the practice is environmentally safe and cost-efficient, creates little or no solid waste, and generally

burns hotter and cleaner than coal. Burning tires is like burning any other fuel, they say, and may even be better for the environment. In most cases, air contaminants are reduced when kiln operators switch from coal or lignite to using a mixture of coal and tire-derived fuel. Supporters maintain that industrial facilities that burn tires correctly at very high heat produce virtually no air emissions or waste.

The major components of tires are derived from crude oil; therefore, burning waste tires merely returns this oil to the energy stream, which qualifies as recycling. Tire burning, supporters say, is basically a form of energy recovery. They also point out that

facilities that use tire-derived fuel are frequently tested and monitored by TNRCC.

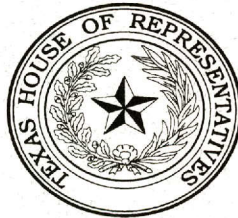
Industrial facilities in Texas must be permitted by TNRCC in order to burn tires. Ten facilities now have permits to burn tires for energy recovery, and one additional facility is seeking authorization to use tire-derived fuel. Currently, waste tires are being used as fuel at seven of the 10 permitted facilities: five cement plants, a paper mill, and an aluminum smelter.

— by *Ann Walther*



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