

E. Scrap Tire Management in New Jersey

Early automobiles were not very enjoyable to ride in because they featured rigid metal wheels that made every bump in the road a painful experience. The invention of the rubber tire changed the fate of the automobile by allowing for a smoother, more comfortable ride. Clearly, this development was instrumental in helping to usher in the automobile era. The growing popularity of the automobile led to the production of more and more tires and ultimately to an ever-increasing number of scrap tires to manage. While retreading old passenger car tires was well established for many years, the decline of this industry marks the start of the scrap tire management problem in the United States. This problem is two-pronged in that it regards those scrap tires that are newly generated each year and those scrap tires that have been illegally dumped in the environment over the course of many years.

Management of Newly Generated Scrap Tires

It is estimated that 8.4 million scrap tires are generated each year in New Jersey. This estimate is based upon the nationally accepted formula for scrap tire generation of one scrap tire per person per year. Based upon recent research conducted by the Department for the Northeast Waste Management Officials' Association (NEWMOA), scrap tires generated in New Jersey are managed at several facilities in New Jersey, as well as numerous out-of-state facilities. Major in-state scrap tire management facilities include both processors and storage and transfer operations. Scrap tires processed in New Jersey are marketed as playground cover material, equestrian track surfacing, alternative fuel and for civil engineering applications, among other things. While scrap tire processing in New Jersey has grown over the years, there is still a need for additional scrap tire processing facilities, particularly in the northern part of the state.

In general, scrap tires handled by in-state storage and transfer operations are directed toward out-of-state fuel markets. A closer look at New Jersey's scrap tire trail for the year 2000 (see Table E-1) is quite illuminating in that it shows the long distances scrap tires are transported for final management. More specifically, scrap tires from New Jersey are shipped to distant facilities in Connecticut, Delaware, Maryland, Massachusetts, New York and Pennsylvania. In addition, scrap tires that still have usable tread are often shipped to Mexico and other Central American countries for reuse.

The prices charged for the receipt of scrap passenger tires at both in-state and out-of-state facilities have increased in the last two years after a period of declining tipping fees. The Department's most recent price survey, conducted in February 2004, (see Table E-2) found tipping fees ranging from \$60.00 per ton to \$200.00 per ton. The average price charged at the major facilities in the area is approximately \$100.00 per ton. Using the nationally accepted standard of 20 pounds per passenger tire, a \$100.00 per ton tipping fee is equivalent to a price of \$1.00 per scrap tire.

In general, scrap tire management facilities that charge a competitive tipping fee will have no difficulty in attracting scrap tires. The challenge that such facilities face pertains

to securing end markets for the tire chips produced or whole tires received. Fortunately, scrap tire market conditions have improved greatly over the past decade. According to the Recycling Research Institute, end markets were secured for 70% of the scrap tires generated in the United States in 2002. The largest end use of scrap tires continues to be as alternative fuel, also known as tire derived-fuel (TDF). Slightly less than half the scrap tires diverted to end markets were consumed as TDF in 2002. The use of scrap tires in civil engineering applications continues to grow as this end market accounts for 26% of the scrap tires diverted for recycling or reuse. Furthermore, ground rubber applications represent 17% of the market, while miscellaneous markets, such as the export and agricultural market, account for 9% of the scrap tires diverted for recycling or reuse. While these end markets are stable, existing end markets need to be further expanded while new end markets need to be established in order to create market demand that can keep pace with scrap tire supply. The NJDEP has several market development initiatives underway that will hopefully lead to new and expanded end markets for scrap tires. For example, the Department is working to promote the use of scrap tire chips in various county landfill construction applications. Thus far, Salem County has used scrap tire chips as a protective layer over the leachate collection system and as bedding for the leachate recirculation/gas collection system. While other counties are considering such civil engineering applications, no other projects are pending.

The Department has also provided technical and financial support for an innovative project involving the use of scrap tires as a flow control device to mitigate scouring around bridge piers. The technology was developed by Continuum Dynamics, Inc. (CDI), a local engineering research and development firm, and has been embraced by the New Jersey Department of Transportation (NJDOT). A demonstration project is planned for the Route 46 bridges over the Passaic River. According to CDI, there are 400 bridges in New Jersey and over 18,000 bridges in the United States that are “scour critical” which means that they may fail during severe run-off conditions, i.e., high flow conditions as may occur during and immediately after storms, if they are not remediated. Based upon this information, it is clear that a significant number of scrap tires could potentially be utilized if a percentage of these bridges were remediated using CDI’s scrap tire scour mitigation system. While the number of scrap tires used per bridge would vary for a number of reasons, it is clear that this technology and demonstration project could lead to the development of a new and important end market for scrap tires. In addition, it could yield bridge engineering benefits that would greatly benefit the NJDOT’s bridge maintenance efforts.

Another civil engineering application that the NJDEP has embraced is the use of scrap tire chips as a substitute for gravel in the trenches of septic systems. This practice was approved by the Department on May 1, 2003. While this innovative use of scrap tire chips has not yet taken hold in New Jersey as it has in many other states, the Department believes that this application will have a very positive impact upon the local scrap tire recycling market since each septic system would utilize a significant amount of scrap tire chips. For example, a field trial conducted in Vermont wherein two-inch tire shreds were installed in two 4-foot wide by 70-foot long by 1-foot deep trenches utilized 25 – 30 cubic yards of tire shreds, which translates to about 1,350 tires. In light of the fact that

over 10,000 new septic systems are installed annually in New Jersey, this end use shows much promise.

Illegal Dumping and Scrap Tire Stockpiles

The Department's research for NEWMOA also revealed that despite the increasing number of legal options available to generators of scrap tires, illegal dumping remains a significant problem. It should be noted that unless mandated for recycling in a county recycling plan, scrap tires may still be legally disposed as solid waste. Notwithstanding this fact, illegal dumping continues to occur in New Jersey. Often, illegal dumping on a well-concealed site continues unabated for years until a large stockpile is created and ultimately discovered by local officials. Unfortunately, this scenario has been played out in New Jersey many times, especially in the southern part of the state. Typically, scrap tire dump sites are situated on private property and contain anywhere from 20,000 to 1,000,000 scrap tires. At this time, the Department's Solid Waste Enforcement Office estimates that the fourteen remaining major scrap tire stockpiles in New Jersey contain approximately 1.3 to 2.1 million scrap tires. All but one of these sites is located in the southern half of the state. The owners of scrap tire stockpile sites are often unable to pay cleanup costs and fines, are deceased or have disappeared. Compounding this problem is the fact that New Jersey had no dedicated source of funding for scrap tire management and stockpile remediation until the signing of P.L. 2004, c.46 on June 29, 2004 and therefore was unable to fund cleanups of these sites. As a result, most of these stockpiles remain intact and in need of attention. It is estimated that the tire fee established by P.L. 2004, c.46 will generate an estimated \$12.3 million in annual revenue, of which \$2.3 million would be allocated for scrap tire pile cleanup. The fee became effective on August 1, 2004.

Scrap tire stockpiles are not only an eyesore, but also pose a serious environmental and public health threat. In particular, scrap tire stockpiles represent a significant fire safety threat. Once ignited, either through natural causes or more typically by arsonists, scrap tire fires are difficult to extinguish. The black clouds of acrid smoke from a scrap tire fire can be seen for miles around and the fires often burn for days or weeks. Oftentimes, nearby residents must be evacuated from their homes when such fires are ignited. In addition to the air pollution and respiratory concerns raised by scrap tire fires, the oily runoff from the burning tires also contaminates the soil and sometimes even the groundwater located beneath the site. In addition to the environmental hazards associated with scrap tire stockpile fires, they also cost hundreds of thousands of dollars to fight and extinguish. Furthermore, the additional cost of cleaning a tire fire site to mitigate any hazardous waste liability can escalate to millions of dollars.

Mosquitoes are also a problem associated with scrap tire stockpiles. Abandoned scrap tires are perfect breeding grounds for mosquitoes because rainwater can easily get into the tires creating the small stagnant pools needed for mosquito propagation. For many years, the primary concern associated with such mosquitoes was their ability to spread encephalitis. Notwithstanding the severity of this disease, recent attention has focused on the role that mosquitoes play in transmitting the potentially deadly West Nile Virus.

Clearly, the threat of the West Nile Virus has heightened interest in scrap tire stockpile remediation. Scrap tire stockpiles are also prime locations for disease carrying rodents.

As mentioned above, scrap tire stockpiles, as well as scrap tires abandoned in parks, along roadways and in vacant lots, also spoil the aesthetic beauty of the environment. A landscape littered with scrap tires is diminished in value and has a negative impact on the quality of life for New Jersey residents. While only a small percentage of the total solid waste stream in regard to tonnage, scrap tires are obviously a big problem in terms of their impact on the environment. There has been some progress in the area of scrap tire stockpile cleanup. According to the Department's Solid Waste Enforcement Office, ten stockpile cleanup projects accounting for approximately 1,500,000 – 2,000,000 scrap tires have already been completed in New Jersey. There are also four major stockpile cleanup projects underway that have resulted in the removal or processing of approximately 1,200,000 – 1,500,000 scrap tires. Almost 700,000 additional scrap tires will be removed through continued work at these sites. These projects were funded through various special legislative appropriations, including funds allocated to the Department for county tire cleanup grants, and not through a dedicated source of funding such as the one recently signed into law.

The NJDEP provided grant funds to counties in the fall of 2000 for scrap tire cleanup programs that focused on removing scrap tires from roadsides, vacant lots and parklands. Counties could also use these funds for scrap tire amnesty days, i.e., programs wherein residents can deposit scrap tires at county collection centers at no cost, among other things. The Department distributed \$2.4 million among its 21 counties for these efforts. In the fall of 2001, the Department made available an additional \$2.4 million to counties for large-scale scrap tire pile cleanup projects. As part of this program, grantees were required to provide a funding match equal to 25% of the Department's grant. The maximum grant allowed under this program was \$200,000. While three counties – Burlington (\$200,000), Cumberland (\$7,000) and Salem (\$200,000) - received funding under this program, the vast majority of this fund remained untouched due to the lack of applications received by the Department. As a result of this situation, the focus and application requirements of the program were changed in April 2002 to allow for both large-scale and small-scale scrap tire cleanup efforts. In addition, the matching funding requirement and \$200,000 cap associated with this program were dropped. These changes to the program led to a second round of grant applications and the disbursement of the remaining funds in June 2002. Nine counties received grants ranging from \$30,000 to \$750,000 for various scrap tire cleanup projects through this program. It should be noted that Burlington County and Salem County received funds in both rounds of this grant program.

As noted above, P.L. 2004,c.46 (C.13:1E-224) established the Tire Management and Cleanup Fund as a nonlapsing fund in the Department of Environmental Protection in which shall be annually deposited the sum of \$2,300,000. Funds will be awarded to counties and municipalities on a competitive basis for the proper cleanup of abandoned tire piles within their respective jurisdictions. On October 15, 2004, the FY'05 Local Tire Management Fund Program Procedural Guide and Application Form was mailed to

county solid waste coordinators and municipal officials with known tire pile sites within their jurisdictions. Counties and municipalities were to submit their applications by December 15, 2004. The Department received twenty applications totaling more than \$2.9 million. The Department awarded grants ranging from \$25,000 to \$300,000 to twelve counties and four municipalities.

Recommendations

The Department recommends that the newly created scrap tire management fund be used to clean up the scrap tire stockpiles identified by the DEP's Solid Waste Enforcement Office, as well as any others that are identified henceforth. In addition, the Department recommends that every effort be made to recover cleanup costs from those landowners whose properties contained scrap tire stockpiles and have benefited from the scrap tire management fund and the resulting cleanup program. Furthermore, the Department recommends that an educational and promotional campaign on behalf of the program be created so that the general public is made aware of the cleanups that have taken place and the resulting environmental and economic benefits associated with the tire fee.

The Department also recommends that funding for scrap tire recycling market development and research be made a consideration in future legislative appropriations as expanded and new end markets are needed for scrap tire recycling to continue to grow and flourish in New Jersey.

Table E-1 New Jersey Scrap Tire Trail for the Year 2000

Casings, Inc. (NJ)	-	1,400,000
Lakin (CT)	-	985,000
Magnus Environmental. (DE)	-	750,000
F & B (MA)	-	600,000
Emmanuel Tire (PA)	-	562,000
Systech Environmental (PA)	-	511,191
Emmanuel Tire (MD)	-	450,000
Rubbercycle, Inc. (NJ)	-	343,785
Tony Canale, Inc. (NJ)	-	234,270
Known Illegal Facilities (NJ/PA)*	-	226,250
Integrated Tire (NJ)	-	197,000
JBH/Waste Tire (NY)	-	174,000
Mahantango (PA)	-	160,000
Recycling Tech. Center (NJ)	-	106,724
American Ref-fuel (PA)	-	105,717
Meridian (CT)	-	76,148
Legal Disposal as SW in NJ	-	40,100
Don Stevens (CT)	-	34,000
Seneca Meadows (NY)	-	22,500
BRI (NJ)	-	19,473
Absolute Auto (NJ)	-	18,000
R.U.T.S (NY)	-	6,856
Total	-	7,023,014

*Estimate based upon NJDEP and PADEP Enforcement information on 3 facilities.

Note: Tonnage information was converted to scrap tires using the 20 pounds per tire conversion factor.

Note: In regard to those scrap tires not accounted for in the above, it is believed to be a function of several factors, including:

1. Incomplete and inaccurate reporting. Scrap tires handled at temporary storage sites operating pursuant to an exemption from the recycling center approval process are required to report tonnage information to the NJDEP. Compliance with this requirement is not uniform;
2. Non-applicability of the underlying assumption regarding scrap tire generation; and
3. Illegal disposal.

Table E-2

For your information, please find below the results of the NJDEP, SHWP, Bureau of Recycling and Planning's semi-annual informal telephone survey of the fees charged for the receipt of whole scrap passenger car tires at existing facilities in New Jersey and the surrounding area. (As of 2/5/04)

<u>Facility</u>	<u>Location</u>	<u>Price</u>
- Absolute Auto 732-469-2202	Middlesex, NJ	\$175.00/ton
- American Ref-Fuel Company of Delaware Valley 610-497-8101	Chester, PA	\$125.00/ton
- Atlantic County Utilities Authority 609-646-5500	Egg Harbor Twp., NJ	\$ 160.00/ton
- Cape May County Municipal Utilities Authority (Scrap tires must originate in Cape May County) 609-465-9026	Woodbine, NJ	\$165.00/ton
- Carbon Services Corp. (Primary business - Large off-road tires) 610-377-3120	Central City, PA	Price upon request
- Casings, Inc. of New Jersey 908-851-7766	Hillside, NJ	\$125.00/ton
- Common Ground Recycling 609-685-3689	Pennsauken, NJ	\$150.00/ton
- Don Stevens Tire Co. Inc. 860-621-3256	Southington, CT	\$1,500.00-\$2,000.00/100 cubic yard container
- Emanuel Tire 610-277-6670	Conshohocken, PA	\$ 72.50/ton
- Emanuel Tire 410-947-0725	Baltimore, MD	\$100.00/ton
- Exeter Energy 860-564-7000	Sterling, CT	By contract only
- F & B Rubberized 508-999-4124	New Bedford, MA	\$1,500.00/100 c.y. container or 48 ft. trailer
- Lakin Tire 800-368-8473	West Haven, CT	\$125.00/ton
- Magnus Environmental 302-655-4443	Wilmington, DE	\$100.00/ton
- Mahantango Enterprises, Inc. 717-444-3788	Liverpool, PA	\$80.00/ton
- Meridian, Inc. 860-564-8811	Plainfield, CT	\$ 10.00/c.y. (approx. \$120.00/ton)
- Ocean County Recycling Center, Inc. 732-244-8844	Toms River, NJ	\$100.00/ton
- Penn Turf, Inc. 814-696-7669	Hollidaysburg, PA	\$86.00/ton
- Recycling Technology Center 732-922-9292	Tinton Falls, NJ	\$170.00/ton
- Re-Tire, LLC. 973-242-3225	Newark, NJ	\$ 125.00/ton

-	Rubbercycle, Inc. 732-363-0600	Lakewood, NJ	\$100.00/ton
-	Seneca Meadows 800-724-7537	Waterloo, NY	\$55.00 – \$60.00/ton
-	Solid Waste Transfer & Recycling, Inc. 973-565-0181	Newark, NJ	\$200.00/ton
-	Systech Environmental Corp. 610-261-3450	Whitehall, PA	\$95.00/ton
-	Wade Salvage, Inc. 856-767-2760	Atco, NJ	\$175.00/ton

The NJDEP, SHWP, Bureau of Recycling and Planning recommends that the above listed facilities be contacted for detailed cost and service information as prices may vary due to a number of factors, e.g., amount of tires, type of tires, cleanliness of tires, inclusion of rims on tires, etc.

**Table E-3
Major Tire Piles in New Jersey**

Tire Pile Site Name	Owner Name	Owner's Residence Address	Site Street Address	Township and County	Block and Lot # of Site	Estimate of Volume
+ Blewett Auto Salvage Yard Inc.	John Blewett	County Route #549 Adjacent to salvage yard	County Route #549	Howell Twp., Monmouth County	Blk. 46, Lots 9 & 10	750,000 to 1,000,000 Estimated
Clayton Auto Recycling, Inc.	Robert G. Kirk	3477 Delsea Drive or Post Office Box 570	3477 Delsea Drive or Post Office Box 570	Franklin Township Gloucester County	Block 2301 Lot 6	75,000 to 100,000 estimated
Clarence Brown Site	Estate of Clarence Brown	File indicates 373 Magnolia St., Salem, NJ	.5 mile south of Cohansey Road on Stretch Road	Quinton Twp., Salem County	Blk. 61, Lot 5	In excess of 100,000
+ Coach Used Auto Parts	Conrad Stipp	RR #1 170 E Mullica Hill 08062	2278 Black Horse Pike	Williamstown Gloucester County	Blk. 5501 Lot 11	20,000-50,000
Conquest Tire Dump	Lawrence Conquest	3253 Jackson Road, Monroe Twp.	2360 Tuckahoe Road, County Rte. 522	Franklin Twp. Gloucester County	Blk. 6002, Lot unknown	100,000 plus estimate
Estate of Joseph Perona	Estate of Joseph Perona	1801 Columbia Road	1801 Columbia Road	Mullica Twp. Atlantic County	Blk. 2401 Lot 10	100,000 or more used auto and truck tires both rimmed and unrimmed
+ Forest Grove Motors	Pete Crescitelli & Sons	4 Main Rd. Vineland, NJ	4 Main Rd. Franklin Twp.	Gloucester County		25,000-50,000 used car & truck tires rimmed and unrimmed
Foster Farm Tire Site	Grace Foster and FFF, Inc.	P.O. Box 2343 Vincetown, NJ	205 Chatsworth Road	Tabernacle Twp., Burlington	Blk. 1501, Lots 2, 3, 3A	1,000,000 plus
Gary V. Gates Tire Recycling, Inc.	This is an abandoned site that was once owned by Gary V. Gates	Unknown	RD 1, Box 23 Kings Highway/ Salem County Route 620	Mannington Township Salem County	Block 9, Lot 22	In excess of 30,000
+ Green Acres Auto Recycling Center Inc.	Green Acres Auto Recycling Center, Inc.	Unknown	Double Trouble Road	Bayville Berkeley Twp. Ocean County	Block 23 Lot 1	50-100,000 mostly on rims. This is an operating salvage yard.
Griner Tire Site	George & Linda Griner	Elmer Road	Rear of Elmer Road Residence	Fairton, Fairfield Twp., Cumberland County	Blk. 34, Lot 26 and Blk. 11, Lot 3	In excess of 50,000
Likanchuks, Inc.	James & Nadeshda Krasnov	Unknown as this time. Owner of lots where tires on is in Poland.	Bridgeton Millville Pike Route 49 R.D.1	Millville Cumberland County	Block 5 Lots 40, 43, 44, 45 in Fairfield Twp. And Block 1 Lot 54 in Millville	100,000-200,000 estimated.
Meszaros	Frank Meszaros	Unknown at the present time	Corner of Lindbergh & South Hill Roads	East Amwell Twp. Hunterdon County	Blks. 35.01 Lot 38, 39 Blk 38 Lot 21	Estimated at 50,000-100,000 on the ground.
One Stop Auto Salvage	George Federow	1205 Route #9 North	1205 Route 9 North	Howell Township Monmouth County	Block 144, Lots 109 & 113.01	75,000 to 125,000
Osborn Auto Wreckers Inc.	John Blewett, Inc.	260 Herbertsville Road	260 Herbertsville Road	Howell Township Monmouth County	Blk. 46 Lots 7 & 8	500,000 1,000,000
+ Porch Town Recycler, Inc.	Harvey C. Shover & Roy C. Baldwin Jr.	4408 Rt. 40, Newfield, NJ 08344	Rt. 40	Franklin Twp., Gloucester County		100,000 plus used car & truck tires
Tinton Falls Tire Pile	Boro of Tinton Falls but Mazza is accepting ownership of site	Boro Hall, Tinton Falls, NJ	Rear of 3230 Shafto Road	Tinton Falls, Monmouth County	Immediately adjacent to Blk. 145, Lots 11, 12, 26 & 26A	50,000 to 100,000 estimated
+ Walt & Al's Auto Salvage	Mark Lemoine	317 No. Tuckahoe Rd. Monroe Twp.	317 No. Tuckahoe Rd. Williamstown	Gloucester County		50,000-75,000 used car & truck tires rimmed and unrimmed

+ Indicates site is currently an operational auto salvage yard and accepting tires.
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