

TO: SOUTHEAST WEST PALM

MAR-02-93 TUE 11:12 ID: DER WASTE MGMT_TAL

FAX NO: (904) 922-4939

#948 P01

Post-It™ brand fax transmittal memo 7671		# of pages ▶ 11
To	JOE LURIE	
From	Tom LeDew	
Co.	SOLID WASTE	
Co.	SOLID WASTE	
Dept.		
Phone #	SC 292 6104	
Fax #		

FLORIDA TIRE RECYCLING, INC
ST. LUCIE COUNTY, FLORIDA

PRELIMINARY COST ESTIMATE
SITE ABATEMENT (CLOSURE)

Prepared for
The Florida Department of Environmental Regulation
by
T.A.G. Resource Recovery

FEBRUARY, 1993

THIS IS AN ENFORCEMENT DOCUMENT SPECIFICALLY REQUESTED BY
JANET BOWMAN, ESQ. AND IS CONSIDERED A CONFIDENTIAL DOCUMENT
IN ENFORCEMENT PROCEEDINGS UNLESS RELEASED BY THE FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION.

FLORIDA TIRE RECYCLING, INC

PRELIMINARY SITE ABATEMENT (CLOSURE) COST ESTIMATE

Objective

The Florida Department of Environmental Regulation requested a preliminary assessment of abatement (closure) costs associated with the Florida Tire Recycling, Inc. Waste Tire Site. The objective of this analysis is to define estimated costs associated with required site security and abatement measures reflecting conditions and waste tire quantities observed as of a June 30, 1992 site inspection. Since waste tire quantities have reportedly increased significantly and site conditions have deteriorated in the interim period, it is likely that current closure costs will significantly exceed this estimate.

Methodology

Five available options were examined for removal of waste tires and shreds present at the site. All options are intended to minimize utilization of limited available landfill space through use of the material or energy value of waste tires. The component costs associated with recommended security measures and abatement alternatives were estimated based on historical costs and/or quotations associated with FDER implementation of other waste tire site abatement actions.

Closure Cost Estimate Summary

The following is a brief discussion of the preliminary site abatement cost estimate summary table included on the following page and supported by subsequent tables. The summary and analysis have been delineated by tire type since it significantly impact economic projections.

Off-Road Tires - Options for disposal of off-road tires are limited by their size and weight. The only identified option capable of handling the estimated 2,070 tons of these tires at the site is cutting them into pieces for volume reduction prior to landfill disposal at the St. Lucie County Landfill. It is estimated that the total cost of retrieval, cutting, transport and disposal is \$322,298, requiring an estimated elapsed time of 23 weeks.

Whole Passenger/Truck Tires - Based on evaluation of five alternatives for abatement of these tires, Alternative #1 (Produce 4 Square Inch Shreds On-site and Transport to South Florida Landfills for Use as Alternative Leachate Layer) is least expensive

and most expedient. The cost of using this method of disposal for the estimated 3,890 tons of whole passenger and truck tires is \$358,075, requiring an elapsed time of 14 weeks.

Coarse Shreds - All five alternatives were evaluated for disposal of shredded tires at the site. Based on current markets, no single alternative can absorb the estimated 33,300 tons in less than 2 years without total disruption of existing market channels that would have a negative impact on DER's overall waste tire management program. As a result, it may be necessary to concurrently utilize multiple alternatives unless market conditions change significantly prior to implementation. Therefore, the economic projection is based on estimated use of each of the 4 most economically attractive alternatives to achieve complete abatement within 2 years. The resulting cost associated with disposal of shreds is estimated to be \$2,880,045, requiring an elapsed time of 60 weeks assuming that concurrent operations prove to be feasible. This time allocation allows 7 weeks for site preparation within the 2 year total abatement timetable.

Security Costs - Security costs include: (1) construction of stabilized work areas and access and perimeter roadways to facilitate movement of heavy trucks, processing machinery, and fire-fighting equipment; (2) fencing to control access; and (3) maintenance of an on-site security guard for a 2 year period. Total security costs are estimated to be \$308,978.

Total Cost - The resulting total preliminary cost associated with abatement or closure of the site is estimated to be \$3,869,801 based on condition of the site as of June 30, 1993. Actual cost may differ from this projection due to changing site conditions, inavailability of specific alternatives at the time of implementation, specific contractor quotations, and other changing factors.

FLORIDA TIRE RECYCLING INC

PRELIMINARY SITE ABATEMENT COST ESTIMATE

DISPOSAL METHOD	PERCENT	TIME	COST/TON	TONS	COST
-----------------	---------	------	----------	------	------

OFF-ROAD TIRES

Cut/Landfill	100	23	156	2070	322298
--------------	-----	----	-----	------	--------

WHOLE PASSENGER/TRUCK TIRES

Alternative #1	100	14	92	3890	358075
----------------	-----	----	----	------	--------

COARSE SHREDS

Alternative #5	40	60	80	13320	1065600
Alternative #1	40	47	87	13320	1158840
Alternative #2	6	45	88	1998	175824
Alternative #4	14	32	103	4662	480186
Alternative #3	0	0	0	0	0
Subtotal	100	80	87	33300	2880450

SECURITY COSTS

Guard (2 years)	N/A	104	6	39260	178048
Site Preparation	N/A	Included	3	39260	130930
Subtotal	N/A	104	8	39260	308978

TOTAL	100	104	99	39260	3469801
-------	-----	-----	----	-------	---------

FLORIDA TIRE RECYCLING INC

SITE ABATEMENT COST COMPARISON SUMMARY

COMPONENT	Alternative				
	#1	#2	#3	#4	#5

OFF-ROAD TIRES

Elapsed Time (weeks)	23	23	23	23	23
Cost/Ton	156	156	156	156	156
Total Cost	322299	322299	322299	322299	322299

WHOLE PASSENGER/TRUCK TIRES

Elapsed Time	14	87	44	26	17
Cost/Ton	92	112	106	108	103
Total Cost	358075	435991	413313	421384	401643

COARSE SHREDS

Elapsed Time	117	746	373	224	149
Cost/Ton	87	88	147	103	80
Total Cost	2898765	2943720	4896765	3440723	2665665

SECURITY COSTS

Elapsed Time (weeks)	154	856	440	273	189
Guard Cost @\$1712/wk	263648	1465472	753280	467376	323568
Site Preparation	130930	130930	130930	130930	130930
Total Security	394578	1596402	884210	598306	454498

TOTAL COST

Cost	3973717	5298412	6516587	4361328	3844105
Tons	39260	39260	39260	39260	39260
Cost/Ton	101	135	166	111	98

APPENDIX D-1: SITE SECURITY COSTS

COMPONENT	BASIS	COST
ON-SITE SECURITY GUARD WEEKLY COST		
Guard Cost/Week	24 hr/day, \$9.00/hr	1512
Office Expense/wk	\$200/week	200
SUBTOTAL		1712
FENCE CONSTRUCTION		
Perimeter Fence	3000 lin ft @ \$12.00/ft	36000
Gates	2 @ \$300 each	600
SUBTOTAL		36600
STABILIZED ROADWAYS		
Central Access		
Length	500 yards	
Width	8 yards	
Surface Area	4,000 sq yards	
Preparation	at \$3.00/sq yd	12000
Depth	1 foot	
Volume	1333 cu yd	
Limestone	at \$10.00/cu yd	13330
Subtotal		25330
Unit Cost	\$/lineal yard	51
	\$/sq yd	6
Perimeter		
Dimensions	1000yds X 8 yds	
Subtotal	at \$51/lin yd	51000
Work Areas		
Dimensions	2 @ 1500 sq yds each	
Subtotal	3000 sq yds @ \$6	18000
SUBTOTAL		94330
TOTAL SITE PREP	Fence + Roadway=	130930
ADD'L SECURITY	Guard Cost/Week	1712

APPENDIX E-1: ALTERNATIVE #1

Produce 4 Square Inch Shreds On-Site
and Transport to South Florida Landfills
for Use as Alternative Leachate Layer

COMPONENTS	BASIS	STABILIZE	ABATE	TOTAL
------------	-------	-----------	-------	-------

OFF-ROAD TIRES (Landfill Disposal of Cut Pieces Only)

Quantity	tons	1670	400	2070
Rate	tons/day	30	30	30
Working Time	days	56	13	69
Elapsed Time	weeks(daysX.336)	19	4	23
Est Cost				
Processing	\$150/hr, 40hr/wk	112224	26880	139104
Transport	10 tons/hr@\$75/hr	12525	3000	15525
Disposal	\$81/ton	136270	32400	167670
SUBTOTAL	\$	260019	62280	322299
	\$/ton	156	156	156

WHOLE PASSENGER AND TRUCK TIRES

Quantity	tons	25	3865	3890
Rate	tons/day	96	96	96
Working Time	days	0	40	41
Elapsed Time	weeks(daysX.336)	0	14	14
Est Cost				
Processing	\$75/ton	1875	289875	291750
Transport	\$17.05/ton*	426	65898	66325
Disposal	\$0/ton (waived)	0	0	0
SUBTOTAL	\$	2301	355773	358075
	\$/ton	92	92	92

COARSE TIRE SHREDS

Quantity	tons	25000	8300	33300
Rate	tons/day	96	96	96
Working Time	days	260	86	347
Elapsed Time	weeks(daysX.336)	88	29	117
Est Cost				
Processing	\$70/ton	1750000	581000	2331000
Transport	\$17.05/ton*	426250	141515	567765
Disposal	\$0/ton (waived)	0	0	0
SUBTOTAL	\$	2176250	722515	2898765
	\$/ton	87	87	87

TOTAL

Elapsed Time	Weeks-Sequential	106	47	153
Cost	\$	2438570	1140568	3579139
Cost/Ton	\$/Ton	91	91	91

* 300 miles at \$1.25/mile and 22 tons/truckload

APPENDIX E-2: ALTERNATIVE #2

Use as a Raw Material for Production of Crumb Rubber
Used in Asphalt Rubber Highway Construction

COMPONENTS	BASIS	STABILIZE	ABATE	TOTAL
------------	-------	-----------	-------	-------

OFF-ROAD TIRES (Landfill Disposal of Cut Pieces Only)

Quantity	tons	1670	400	2070
Rate	tons/day	30	30	30
Working Time	days	56	13	69
Elapsed Time	weeks(daysX.336)	19	4	23
Est Cost				
Processing	\$150/hr,40hr/wk	112224	26880	139104
Transport	10 tons/hr@\$75/hr	12525	3000	15525
Disposal	\$81/ton	136270	32400	167670
SUBTOTAL	\$	260019	62280	322299
	\$/ton	156	156	156

WHOLE PASSENGER AND TRUCK TIRES

Quantity	tons	25	3865	3890
Rate	tons/day	15	15	15
Working Time	days	2	258	259
Elapsed Time	weeks(daysX.336)	1	87	87
Est Cost				
Retrieval	\$10/ton	250	38650	38900
Transport	Whole,\$52.08/ton*	1302	201289	202591
Tipping Fee	\$50/ton	1250	193250	194500
SUBTOTAL	\$	2802	433189	435991
	\$/ton	112	112	112

COARSE TIRE SHREDS

Quantity	tons	25000	8300	33300
Rate	tons/day	15	15	15
Working Time	days	1667	553	2220
Elapsed Time	weeks(daysX.336)	560	186	746
Est Cost				
Retrieval	\$10/ton	250000	83000	333000
Transport	Shreds,\$28.40/ton**	710000	235720	945720
Tipping Fee	\$50.00/ton	1250000	415000	1665000
SUBTOTAL	\$	2210000	733720	2943720
	\$/ton	88	88	88

TOTAL

Elapsed Time	Weeks-Sequential	579	277	856
Cost	\$	2472821	1229189	3702010
Cost/Ton	\$/Ton	93	98	94

* 500 miles at \$1.25/mile and 12 tons/truckload

** 500 miles at \$1.25/mile and 22 tons/truckload

APPENDIX E-3: ALTERNATIVE #3

Transport to a Cement Kiln for
Use as a Supplementary Kiln Fuel

COMPONENTS	BASIS	STABILIZE	ABATE	TOTAL
------------	-------	-----------	-------	-------

OFF-ROAD TIRES (Landfill Disposal of Cut Pieces Only)

Quantity	tons	1670	400	2070
Rate	tons/day	30	30	30
Working Time	days	58	13	69
Elapsed Time	weeks(daysX.336)	19	4	23
Est Cost				
Processing	\$150/hr, 40hr/wk	112224	26880	139104
Transport	10 tons/hr@\$75/hr	12525	3000	15525
Disposal	\$81/ton	135270	32400	167670
SUBTOTAL	\$	260019	62280	322299
	\$/ton	156	156	156

WHOLE PASSENGER AND TRUCK TIRES

Quantity	tons	25	3865	3890
Rate	tons/day	30	30	30
Working Time	days	1	129	130
Elapsed Time	weeks(daysX.336)	0	43	44
Est Cost				
Retrieval	\$5/ton	125	19325	19450
Transport	Whole, \$31.25/ton*	781	120781	121563
Tipping Fee	\$70/ton	1750	270550	272300
SUBTOTAL	\$	2656	410656	413313
	\$/ton	106	106	106

COARSE TIRE SHREDS

Quantity	tons	25000	8300	33300
Rate	tons/day	30	30	30
Working Time	days	833	277	1110
Elapsed Time	weeks(daysX.336)	280	93	373
Est Cost				
Reprocessing	\$60/ton	1500000	498000	1998000
Transport	Shreds, \$17.05/ton**	426250	141515	567765
Tipping Fee	\$70.00/ton	1750000	581000	2331000
SUBTOTAL	\$	3676250	1220515	4896765
	\$/ton	147	147	147

TOTAL

Elapsed Time	Weeks-Sequential	296	141	440
Cost	\$	3938925	1683451	5632377
Cost/Ton	\$/Ton	148	135	143

* 300 miles (average round trip) at \$1.25/mile and 12 tons/truckload

** 600 miles (average round trip) at \$1.25/mile and 22 tons/truckload

APPENDIX E-4: ALTERNATIVE #4
On-Site Production of Tire-Derived Fuel
and Shipment to a Fuel Customer

COMPONENTS	BASIS	STABILIZE	ABATE	TOTAL
OFF-ROAD TIRES (Landfill Disposal of Cut Pieces Only)				
Quantity	tons	1670	400	2070
Rate	tons/day	30	30	30
Working Time	days	56	13	69
Elapsed Time	weeks(daysX.336)	19	4	23
Est Cost				
Processing	\$150/hr, 40hr/wk	112224	28880	139104
Transport	10 tons/hr@\$75/hr	12525	3000	15525
Disposal	\$81/ton	135270	32400	167670
SUBTOTAL	\$	260019	62280	322299
	\$/ton	156	156	156

WHOLE PASSENGER AND TRUCK TIRES

Quantity	tons	25	3865	3890
Rate	tons/day	50	50	50
Working Time	days	1	77	78
Elapsed Time	weeks(daysX.336)	0	26	26
Est Cost				
Processing	\$80/ton	2000	309200	311200
Transport	75% @\$34.10/ton*	839	98847	99487
Wire Disposal	25% @\$81/ton	506	78266	78773
Wire Trans	25%, 15t/hr, \$75/hr	31	4831	4863
Sales Rev	75% @\$25/ton	469	72469	72938
SUBTOTAL	\$	2708	418676	421384
	\$/ton	108	108	108

COARSE TIRE SHREDS

Quantity	tons	25000	8300	33300
Rate	tons/day	50	50	50
Working Time	days	500	166	666
Elapsed Time	weeks(daysX.336)	168	56	224
Est Cost				
Reprocessing	\$75/ton	1875000	622500	2497500
Transport	75% @\$34.10/ton*	639375	212273	851648
Wire Disposal	25% @\$81.00/ton	506250	168075	674325
Wire Trans	25%, 15t/hr, \$75/hr	31250	10375	41625
Sales Rev	75% @\$25.00/ton	468750	155625	624375
SUBTOTAL	\$	2583125	857598	3440723
	\$/ton	103	103	103

TOTAL

Elapsed Time	Weeks-Sequential	187	86	273
Cost	\$	2845852	1338554	4184406
Cost/Ton	\$/Ton	107	107	107

* 500 miles (average round trip) at \$1.25/mile and 22 tons/truckload

APPENDIX E 3. ALTERNATIVE #5

Shipment to Decker Energy's Planned Lakeland Facility
for Reprocessing and Use as Tire-Derived Fuel

COMPONENTS	BASIS	STABILIZE	ABATE	TOTAL
------------	-------	-----------	-------	-------

OFF-ROAD TIRES (Landfill Disposal of Cut Pieces Only)

Quantity	tons	1670	400	2070
Rate	tons/day	30	30	30
Working Time	days	56	13	69
Elapsed Time	weeks(daysX.336)	19	4	23
Est Cost				
Processing	\$150/hr, 40hr/wk	112224	26880	139104
Transport	10 tons/hr@\$76/hr	12525	3000	15525
Disposal	\$81/ton	135270	82400	187670
SUBTOTAL	\$	260019	62280	322299
	\$/ton	156	156	156

WHOLE PASSENGER AND TRUCK TIRES

Quantity	tons	25	3885	3890
Rate	tons/day	75	75	75
Working Time	days	0	52	52
Elapsed Time	weeks(daysX.336)	0	17	17
Est Cost				
Retrieval	\$7/ton	175	27055	27230
Transport	Whole, \$31.25/ton*	781	120781	121563
Tipping Fee	\$65/ton	1625	251225	252850
SUBTOTAL	\$	2581	399081	401643
	\$/ton	103	103	103

COARSE TIRE SHREDS

Quantity	tons	25000	8300	33300
Rate	tons/day	75	75	75
Working Time	days	333	111	444
Elapsed Time	weeks(daysX.336)	112	37	149
Est Cost				
Retrieval	\$3/ton	75000	24900	99900
Transport	Shreds, \$17.05/ton**	426250	141515	567765
Tipping Fee	\$60/ton	1500000	498000	1998000
SUBTOTAL	\$	2001250	664415	2665665
	\$/ton	80	80	80

TOTAL

Elapsed Time	Weeks-Sequential	131	59	190
Cost	\$	2263850	1125756	3389607
Cost/Ton	\$/Ton	86	90	86

* 300 miles at \$1.25/mile and 12 tons/truckload