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DRAFT

2/26/94

FLORIDA TIRE RECYCLING, INC WASTE TIRE SITE:

SITE CONDITIONS AS OF JANUARY 25, 1994

Prepared for

The Florida Department of Environmental Protection

by

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Florida Tire Recycling Site
Site Condition - 1/25/94
DRAFT 2/26/94

FLORIDA TIRE RECYCLING INC SITE CONDITIONS

OBJECTIVE

The Florida Tire Recycling Inc Site (called Florida Tire) is the largest identified accumulation of whole and shredded waste tires within the State of Florida. Florida Tire and the Florida Department of Environmental Protection (DEP) have entered into a legal agreement governing stabilization and abatement of the site.

Historical site conditions and quantity estimates have been documented in previous reports prepared by T.A.G. Resource Recovery for DEP. However, the site has remained active, resulting in significant change since it was last examined on March 23, 1993. Therefore, the objective of this visit on January 25, 1994 was to document current site conditions in order to provide a baseline for monitoring implementation of the court agreement.

SITE CONDITIONS

A schematic representation of site conditions as of January 25, 1994 is provided in Appendix A. The schematic illustrates the following changes in site conditions between March 23, 1993 and January 25, 1994:

Removal/Relocation of Piles Containing Whole Tires

Florida Tire has been removing, processing and/or relocating piles containing whole tires. Their stated objective is to clear areas for future redeployment of their large shred piles into smaller isolated piles that conform to size restrictions contained in DEP's waste tire rules.

The following whole tire piles have been removed: T-1, T-2, T-4, T-5, T-6, T-8, part of T-10, part of T-11, T-13, part of T-14, T-17, part of T-18 and T-19. Approximately 60,000 passenger tires were reportedly shipped to Rinker's cement kiln for use as a supplemental fuel during environmental trials. The remainder of the passenger and truck tires have been shredded. Resulting shreds have apparently been transported to landfills for disposal, added to existing shred piles or spread across western portions of the property, including areas previously containing whole tire piles.

Off-road tires have apparently been relocated on-site. Florida Tire indicated during our visit that their equipment cannot process large off-road tires and that they had not yet hired a contractor with specialized machinery capable of handling these tires. It appears that off-road tires have been added to pile T-15, consolidated in pile T-11, or placed in new piles T-20, T-21 and T-22.

Initiation of Fire Lanes in Shred Piles

During the second half of 1993 (prior to completion of the court agreement), Florida Tire created narrow fire lanes within the main shred pile as depicted in the site schematic. These fire lanes are only 8 to 10 feet wide with sharp vertical walls, representing a path generated by one pass of their large loader through the pile.

The fire lanes had not been broadened since their initial creation in 1993. Shreds were not removed down to ground level within these fire lanes. As a result of their narrow width and remaining ground-level shreds, these fire lanes represent virtually no impediment to transmission of fire between adjacent pile segments.

Shred Pile Additions

Based on comparison of on-site observations on March 23, 1993 and January 25, 1994 and aerial photographs taken at various times during 1993, shreds appear to have been added to the upper elevations of remaining pile segments. Presence of newly-created ramps indicate access by heavy equipment such as trucks used to carry shreds. In earlier photographs, the pile surfaces were a uniform dark color. However, after creation of the fire lanes, shred mounds resembling dump truck loads appeared on portions of the pile surfaces. These shred mounds had a brownish color, indicating recent deposition of dirt-contaminated shreds from the fire lanes. Some shred pile dimensions and contours also changed. For instance, a space between the foot of shred piles S-6/S-7 and S-10 had been completely filled with shreds. There are indications that newly processed shreds were also added to existing shred piles.

Shred Dispersion

Based on comparative photographs and on-site observations, shreds were also dispersed across most of the western part of the site between March 23, 1993 and January 25, 1994. Shred depth ranged from 1 to 4 feet depending on the location. Photo

documentation at the northern edge of piles T-3 and T-5 (where ground level was still exposed) indicated adjacent shred depth approaching 4 feet as of January 25th.

Areas previously containing whole tire piles were also covered with a mixture of whole tires and shreds, with the exception of T-1, T-5 and parts of T-10 and T-11. Based on extensive observation, the average effective shred depth across the western portion of the site was estimated to be 2 feet. Shreds in areas traveled by heavy equipment had been compacted, becoming mixed with underlying soil. Shreds spread over this large area represent a significant cumulative volume as discussed in subsequent estimates of on-site quantities. It appears that shreds removed from fire lanes and from processing of whole tires (from piles and on-going generation) had been dumped across the property.

Florida Tire's dispersion of a thick layer of shreds over most of the property has significantly increased the potential environmental and public health hazard associated with the site due to two primary factors. First, the dispersed shreds provide a mechanism for fire propagation, allowing a fire to spread rapidly over the entire area with virtually no hope of controlling the environmental consequences. When shreds are stored in isolated small piles separated by adequate fire lanes, environmental damage can be controlled through isolation of smaller involved areas. However, shreds spread over a large area allow rapid involvement that jeopardizes manpower and equipment and virtually precludes any opportunity for control through isolation. The quantity of dense black smoke (containing hazardous chemicals) generated from a fire over this large area could potentially have a significant detrimental impact on air quality within a broad area for an extended period of time.

In addition, the inability to isolate and control a fire would also result in dispersion of pyrolytic oils (historically containing potentially carcinogenic chemical compounds) over a large area. Penetration of pyrolytic oils into the underlying water table could impact water quality. Ultimate site remediation cost could be significantly increased, potentially involving millions of dollars based on historical experience.

Since tires can pyrolyze in the absence of oxygen, covering shreds with soil does not necessarily prevent fire propagation. Tires and shreds covered with soil to extinguish fires have continued to generate large quantities of pyrolytic oils for extended periods. As a result, roadways constructed over a thick base of shreds do not necessarily provide a fire break and can become unstable if the shreds pyrolytically decompose.

The second major factor associated with dispersion of shreds over a large area at Florida Tire is potential leaching of hazardous chemicals from the shreds. Since standing water is apparent in clear areas, it appears that portions of these shreds are submerged in water and subject to leaching. Standing water surrounding surface shreds had a dark orange color indicative of iron leached from exposed wire contained in tire shreds. If toxic organic or inorganic compounds are leached from shreds at the site, these materials are likely to penetrate through underlying porous soil into the water table.

Leachate studies have been conducted to access the environmental impact of waste tire shred use in civil engineering applications. Copies of reports covering leaching characteristics were provided to Florida Tire through Joe Kahn of DEP in the spirit of cooperation. The general conclusion is that potentially toxic inorganic and organic compounds can be leached from shreds depending on pH exposure conditions. Since pH conditions are site specific and can be seasonally dependent, some states (such as Minnesota) currently allow use of shreds in road bed construction, but only at levels above the mean or maximum water level so shreds are not exposed to possible leaching conditions. In addition, such roadbeds are capped with a low-permeability surface like asphalt.

Unless Florida Tire can demonstrate that materials are not leached from shreds under their specific site conditions using established testing/analytical protocols, the area of shreds submerged in surface water should be minimized to control possible ground water contamination.

Drainage Ditch Construction

Florida Tire constructed drainage ditches along the southern and western perimeter. The southern ditch extended the full length of the property and was located just inside the perimeter roadway. The ditch was 6-8 feet wide and reportedly 4-6 feet deep. This ditch impedes vehicle or pedestrian access to the site from the roadway, including blocking access to the western perimeter. As a result, fire control vehicles entering the southern access roadway have no forward exit, a dangerous condition under adverse fire conditions. A narrow sand plug had been installed at the eastern property boundary.

The western ditch was located near the property line, outside of the intended perimeter roadway. It extended beyond the power

lines and connected with drainage channels from adjacent property at two points. A drainage channel that previously existed along the property boundary with Miami Tank had been filled with shreds, effectively blocking water movement. These shreds would also allow a fire to move even closer to the rail siding, increasing the probability chemical railcar involvement if a fire occurs.

Perimeter Road Construction

Florida Tire initiated construction of a perimeter roadway along the southern property boundary. As of January 25, 1994, the roadway consisted of a raised sand base 25-30 feet wide. Although the roadway had been leveled and compacted, the ability of the surface to support fully-loaded fire fighting equipment appeared to be questionable. As previously noted, the southern drainage ditch blocked vehicle access to site, including the western perimeter.

An unstable layer of shreds had been placed along remaining perimeter areas, apparently intended to serve as a base for future construction of the perimeter roadway. However, it was clearly unpassable for heavy fire trucks. Since the effective range of fire-fighting equipment is limited, prompt completion of continuous perimeter and central access roadways represents a critical factor in implementation of an effective fire control plan.

APPENDIX A – FLORIDA TIRE RECYCLING, INC. – SITE SCHEMATIC