

DOCUMENT RECEIVED IN ELECTRONIC FORMAT FOLLOWS:

Permit Data Form

History sheet

Copy of check

Page 1 with date stamp

Site Plan sheet 1 with signature and seal

THE FACE OF THIS DOCUMENT HAS A COLORED BACKGROUND ON WHITE PAPER - THE BACK CONTAINS AN ARTIFICIAL WATERMARK - HOLD AT AN ANGLE TO VIEW

IESI Corporation
2301 Eagle Parkway, Suite 200
Fort Worth, TX 76177
(817) 632-4000

Fleet Maine, N.A.
South Portland, ME
52-153/112

Check # 101888770

Check Date
2/2/2011

Check Amount
*****\$1,250.00

** Void after 120 days **
** Not valid over \$50,000 without two manual signatures **

One Thousand Two Hundred Fifty and 00/100----- USD

PAY TO THE ORDER OF
FLORIDA DEPT OF ENVIRONMENTAL PROTEC

Stephen Moody

Authorized Signature

BORDER CONTAINS MICROPRINTING

1017228710

100 East Pine Street
Suite 605
Orlando, FL 32801
Phone: 407.649.5475
Fax: 407.649.6582
hsagolden.com

February 17, 2011

VIA UPS/EMAIL

Mr. F. Thomas Lubozynski, P.E.
Waste Program Administrator
Florida Department of Environmental Protection
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

RECEIVED
FEB 18 2011
DEP Central Dist.

Re: **Permit Renewal Application, Taft Recycling, Inc. WACS #87104**
Taft Transfer Station and Material Recovery Facility, TS/MRF-WPF
First Request for Additional Information
Permit Application No. SO48-0173968-009
HSA Golden Project Number 06-404.016

On behalf of Taft Recycling, Inc. (TRI), HSA Golden is submitting for your review the following response to your January 5, 2011 request for additional information. The following comments are offered for your review and approval. Hereafter, we restate the Department's comments in *italics*, followed by our responses. Three (3) copies of all requested information are submitted with revisions noted with strikethrough (~~strikethrough~~) and shading (~~shading~~). All revisions to drawings are summarized in the revision box on each sheet, and clouded if a detail or note has been revised or added.

Note that all references to "Report" in the following text refer to the document entitled, "Permit Renewal Application, Taft Recycling, Inc., Orlando, Florida, Prepared by: HSA Golden, Orlando, Florida, dated December 15, 2010.

Comment 1. Item A-1 on page 1 of DEP Form 62-701.900(4), F.A.C., in Tab 1 of the Report has a check mark indicating that the application includes a Waste Tire Storage and Processing Facility in addition to a Transfer Station/Material Recovery Facility. Rule 62-701.710, F.A.C., Waste Processing Facilities, applies to material recovery facilities and transfer stations but excludes waste tire processing facilities which are regulated under a separate rule. Rule 62-701.710(1)(a), F.A.C., does state that in accordance with Rule 62-701.320(5)(c), F.A.C., owners or operators of facilities which manage several different types of wastes, including waste tires, may apply for a single permit which addresses all applicable requirements. Rule 62-701.320(5)(c), F.A.C., requires that the application shall be accompanied by a fee, as would be required for each facility component. Accordingly, submit a Waste Tire Processing Permit Application, effective January 6, 2010, Form 62-701.900(23) with a fee of \$1,250.00. This permit application should reflect the same limits on the maximum number and



PERMIT DATA FORM

CHECK IF NEW: _____

MOD NEW RENEWAL ✓

SITE WAFR # AIR # 48-0173968

SITE/WAFER/FACILITY NAME: TAFT RECYCLING, INC.
South Orlando Materials

PROJECT NAME: _____

DESC: _____

TYPE CODE: WT SUBCODE: 02

CHECK IF GP EXEMPT NPDES

CORRECT FEE: \$ 1250 -

PROCESSOR: He.

AMOUNT RCV'D: 1250 -

WACS # 87104

AMOUNT REFUND: _____

MONIES DUE: _____

RED ___ YELLOW ___ GREEN ___ NO PERMIT REQ ___

HISTORY SHEET

SITE/WAFR/AIR#: 48-0173968-110 TYPE: INT SUBTYPE: 02

SITE/WAFR/AID:
NAME: Left Recycling

PROJECT

NAME: _____

[illegible]

OWNER:
MOBILE FIELD OFFICE CO

OWNER:
JAMES E STRATES

OWNER:
PAUL STRAUBINGER

10' CHAIN LINK FENCE
W/ 2' BARBED WIRE

STORMWATER
OUTFALL
STRUCTURE
TO BOGGY CREEK

STORMWATER
POND

LESS THE WEST 40'

"H"

40 PLATTED R/W PER PB "D", PG. 100
BOGGY CREEK CANAL

OWNER:
ORANGE COUNTY

WEST LINE OF LOT 41

EAST TOP OF BANK OF CANAL

10' CHAIN LINK FENCE
W/ 2' BARBED WIRE

WOOD RECYCLING
AREA

MOBILE WASTE
TIRE SHREDDER

MAIN 5 SEPARATION
CONTAINERS

WASTE TIRE
STORAGE AND
PROCESSING AREA

WASTE TIRE
STORAGE

WASTE TIRE
STORAGE

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WASTE TIRE
STORAGE

STORMWATER OUTFALL
STRUCTURE TO BOGGY CREEK

STORMWATER
INLET

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W/ 2' BARBED WIRE

0
20
40
DISTANCE IN FEET

LEGEND

PROPERTY BOUNDARY

BELOW GRADE
STORMWATER PIPING

BELOW GRADE FIRE
WATER MAIN

8 FT. TALL PERIMETER FENCE
WITH 2 FT. BARBED WIRE

6 FT. TALL CHAIN LINK
FENCE AROUND
STORMWATER POND

TRAFFIC FLOW DIRECTION

STORMWATER FLOW DIRECTION

ASPHALT PAVED AREA

NOTES: 1. PAVED AREA KEPT CLEAR FOR TRANSFER
TRUCKS AND EMERGENCY VEHICLE TRAFFIC.

2. PROPERTY BOUNDARY SHOWN ON SOUTH SIDE OF
7TH STREET PER VACATE AGREEMENT.

FIRE FLOW CALCULATIONS

NFF = $18 \times \sqrt{A} \times (0.8 \times 1.15)$

= $18 \times \sqrt{1800} \times (0.8 \times 1.15)$

= 2268.5 G.P.M.

CREDIT ALLOWED = 1 EXISTING FIRE HYDRANT WITHIN 300'

= 1000 G.P.M. + 670 G.P.M.

= 1670 G.P.M.

ADDITIONAL
FIRE FLOW REQUIRED = 2268.5 G.P.M. - 1670 G.P.M.

= 598.5 G.P.M.

PROPOSED FIRE HYDRANT CREDIT = 1000 G.P.M.

THEREFORE FIRE FLOW REQUIREMENT MET.

SITE PLAN

TAFT RECYCLING, INC. CLASS I & CLASS III
WASTE PROCESSING FACILITY
AND TRANSFER STATION
ORANGE COUNTY, FLORIDA

PROJECT NO.
06-404.010

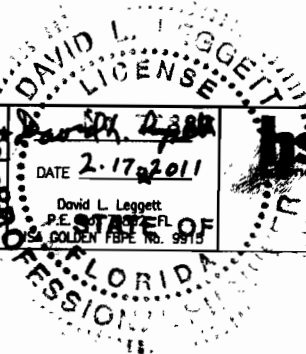
SHEET
1

57
CK "H"

56
BLOCK "H"

55
BLOCK "H"

54
BLOCK "H"



DATE	BY	DESIGNED	CHECKED
10/2/09	JG	JG	DL
10/2/09	TS	TS	DL
10/2/09	DL	DL	DL

FILE: 06-404.016-SITE-2.dwg

DATE	REVISIONS	REVISED	CHECKED
02/11	3. UPDATED BALED & PAPER AREA	JG	JW
02/10	2. UPDATED RECYCLED BALED PLASTIC AREA	JG	JW
02/10	PER OCFRD COMMENTS, DATED 1/19/10	JG	DL
12/09	UPDATED FOR OCFRD FIRE SURVEY AS PER	JG	JW
	FDEP RAI, DATED 11/17/2009		

February 16, 2011

VIA UPS/EMAIL

Mr. F. Thomas Lubozynski, P.E.
Waste Program Administrator
Florida Department of Environmental Protection
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

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weight of tires that will be stored (that is, 67.5 tons) stated in this permit application. If it does not, then the closure cost estimate must be revised.

Response 1. The waste tire permit application, Form 62-701.900(23) has been completed and is attached in Response to Comment 1. All supporting documentation was included in the solid waste permit renewal application and is cross-referenced on the waste tire permit application form. A check for the application fee of \$1,250.00 is enclosed.

Comment 2. *Based on the summary page in the front of the Report, the facility will be open for business 24 hours per day, 7 days a week. How will noise from trucks, facility operation, etc. be controlled and prevented from being a nuisance to the surrounding community?*

Response 2. TRI is now open from Monday through Friday 24 hours per day; Saturday from 12 a.m. to 7 p.m.; and Sunday from 7:00 a.m. until 7:00 p.m. then 9:00 p.m. until 12:00 a.m.. TRI on average receives no more than 30 inbound trucks during weekdays in the late evening and early morning hours. TRI anticipates a similar number of inbound trucks or less for the proposed weekend hours. TRI typically begins loading transfer trucks in the early morning hours (4:00 a.m.) to start round trips to the landfill. Transfer trucks are not coming and going from the facility in the late evening and early morning hours.

The change in hours will add late evening and early morning hours only on Saturday and Sunday, typical of weekday operations. TRI expects limited operational activity during the proposed additional hours, generally consisting of acceptance of low volumes of incoming residential and commercial waste trucks and transfer truck loading operations. Because the area landfills are closed during those hours, outbound transfer truck traffic will not occur. This reduced operation activity is not expected to generate significant truck traffic that would generate a significant increase in noise. Additionally, TRI is not aware of any complaints from the community about truck noise. The surrounding area is industrial with the nearest residence 2,400 feet to the northeast (See Section 3, Sheet 2).

Comment 3. *Provide information to indicate that the operation of the facility is not in violation of the prohibitions referenced in Rule 62-701.300, F.A.C.*

Response 3. Please see prohibition compliance list in Response to Comment 3 attached.

Comment 4. *Will the Transfer Station handling Class I waste, manage waste on a first-in, first-out basis? Rule 62-701.710(10)(a), F.A.C.*

Response 4. Yes, please see revised Section 2.2, Process Overview of the Operation Plan attached in Response to Comment 4.

Comment 5. Operation Plan: A review of the Operation Plan in Tab 4 of the Report indicates the following:

a) Page 2, Section 2.2 states that if the material is unauthorized, the driver will be directed to a solid waste management facility which is permitted to handle the type of material rejected. Also, customers with wood waste or waste tires will be directed to the appropriate off-loading area and monitored during off-loading by a facility spotter. Include a statement whether spotting for unauthorized waste in Class III wastes is or is not conducted from vehicles, Rule 62-701.320(15)(d), F.A.C.

Response 5a. Please see revised Section 2.2, Process Overview of the Operation Plan attached in Response to Comment 4.

b) Page 4, Section 2.4 states that copies of current training certificates, schedules, and list of approved classes are provided in Appendix C. Provide a schedule for training of individual employees, including the employee's name and title, the date when training is due, and what class the employee will attend to meet the requirements of Rule 62-701.320(15)(a), F.A.C., as referenced in Rule 62-701.710(4)(c), F.A.C. Incorporate this schedule in the Operation Plan.

Response 5b. A copy of each individual employee's training history is provided in Response to Comment 5b. Training will be provided by University of Florida TREEO or Kohl Consulting, Inc..

Comment 6. A financial mechanism must be funded in the amount of the sum of the total closure and long-term care costs specified in the approved cost estimate and accepted by the Department's Financial Coordinator before this application can be deemed complete.

a) The closure cost estimate submitted as Table 1 in Section 5 of the renewal permit application is approved. The cost estimate was signed and sealed on 12/15/2010. It shows the maximum storage amounts for various materials. Based on these limits the total closure cost estimate is approved at \$146,391.55.

Response 6a. Acknowledged. However, based on recent comments received from the Orange County Environmental Protection Division, the closure cost estimate (Table 1) and the Material Disposition Sheet have been revised to increase the amount of loose and baled cardboard. Please see Response to Comment 6a (attached). Backup documentation is also attached. Sheet 1, Site Plan has also been revised to depict these storage areas.

b) Financial responsibility arrangements for the facility for the approved amounts are to be made with the Financial Coordinator, Solid Waste Section, MS-4565, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, and a copy of the approval letter submitted to: Department of Environmental Protection, Central District, Solid Waste Section, 3319 Maguire Boulevard, Suite 232, Orlando, Florida 32803-3767.

Response 6b. Acknowledged.

* * * * *

We trust that these responses will allow approval of the subject permit renewal. If you have any questions, please do not hesitate to call.

Sincerely,

HSA GOLDEN

David L. Leggett
2-17-2011

David L. Leggett, P.E.
Principal Engineer

James E. Golden 2/17/11

James E. Golden, P.G.
Vice President, Professional Hydrogeologist

cc: Mike Kaiser, WSI
David Bromfield, OCEPD
Wilson Esteves, TRI
Dennis Pantano, WSI

Attachments



Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

DEP Form #: 62-701.900(23)
Form Title: Waste Tire Processing Facility Permit Application
Effective Date: January 6, 2010
DEP Application No. _____ (Completed by DEP)

WASTE TIRE PROCESSING FACILITY PERMIT APPLICATION

Permit No. WT48-0173968-008

Renewal ☒ Modification ☐ Existing unpermitted facility ☐ Proposed new facility ☐

Part I-General Information:

A. Applicant Information:

1. Applicant Name: Taft Recycling, Inc.
2. Applicant Street Address: 375 West 7th Street
3. City: Orlando County: Orange Zip: 32824
4. Applicant Mailing Address: 2893 Executive Park Drive, Suite 305
5. City: Weston County: Broward Zip: 33331
6. Contact person: Mike Kaiser Phone: (904) 673-0446 FEID No: _____
7. Have any enforcement actions been taken by the Department against the applicant relating to the operation of any solid waste management facility in this state? This includes any Complaint, Notice of Violation, or revocation of a permit or registration, as well as any Consent Order in which a violation of Department rules is admitted. It does not include a Warning Letter, Warning Notice, Notice of Noncompliance, or other similar document which does not constitute agency action.
Yes ☒ No ☐ If yes, attach a history and description of the enforcement actions. Refer to Tab 7 of the 12/2010 submittal.

B. Facility Information:

1. Facility Name: Taft Transfer Station and Material Recovery Facility
2. Facility Street Address (Main Entrance): 375 West 7th Street
3. City: Orlando County: Orange Zip: 32824
4. Facility Mailing Address: 2893 Executive Park
5. City: Weston State: Florida Zip: 33331
6. Contact Person: Mike Kaiser Phone: (904) 673-0446
7. Facility Location Coordinates:
Section: 2 Township: 24S Range: 29E
Latitude: 28°25'33" Longitude: 81°22'59"
8. Anticipated date for starting construction NA and for completion of construction NA
9. Anticipated date for receipt of tires NA and for start of processing NA

Mail completed form to
the appropriate District office
listed below

Northwest District
160 Government Center
Pensacola, FL 32501-5794
850-595-8360

Northeast District
7825 Baymeadows Way, Ste. 200 B
Jacksonville, FL 32256-7590
904-807-3300

Central District
3319 Maguire Blvd., Ste. 232
Orlando, FL 32803-3767
407-894-7555

Southwest District
13051 N. Telecom Pky
Temple Terrace, FL
813-632-7600

South District
2295 Victoria Ave., Ste. 364
Fort Myers, FL 33902-2549
239-332-6975

Southeast District
400 North Congress Ave.
West Palm Beach, FL 33401
561-681-6600

C. Land Owner Information (if different from applicant):

1. Owner's name: same
2. Land owner's mailing address: _____
3. City: _____ State: _____ Zip: _____
4. Authorized Agent: _____ Agent's phone (____)
5. Current lease expires: _____

D. Facility Operator Information (if different from applicant):

1. Operator's name: same
2. Operator's mailing address: _____
3. City: _____ State: _____ Zip: _____
4. Contact person: _____ Phone: (____)

E. Preparer of Application:

1. Name of person preparing application: James E. Golden, P.G. HSA Golden
2. Mailing address: 100 East Pine Street, Suite 605
3. City: Orlando State: FL Zip: 32801
4. Phone: (407) 649-5475
5. Affiliation with facility: Consulting Engineer

Part II-Operations:

A. Facility type (check appropriate box):

- ☒ Waste tire processing facility.
- ☐ Waste tire processing facility with on-site disposal of processed tires or processing residuals.
See Attachment _____
- ☐ Waste tire processing facility with on-site consumption of waste tires or processing residuals.
See Attachment F
- ☐ Permitted solid waste management facility modification to allow waste tire site and processing.

B. Type of processing facility (check as many as apply):

- ☒ Shredder ☐ Cutter ☐ Chopper ☐ Incinerator only ☐ Incinerator with energy recovery
☐ Pyrolysis ☐ Supplemental fuel user ☐ Other, explain _____

C. Storage: Indicate the maximum quantities of whole waste tires, processed waste tires, and processing residuals, expressed in tons, to be stored at the facility, in accordance with Rule 62-711.530(2), F.A.C.

	Outdoor Storage(tons)	Outdoor Storage (sq.ft)	Indoor Storage (tons)	Indoor Storage (sq.ft)	Total Storage (tons)
Whole waste tires:	<u>67.5</u>	<u>3200</u>	<u>NA</u>	<u>NA</u>	<u>67.5</u>
Processed tires:	<u>67.5</u>	<u>2000</u>	<u>NA</u>	<u>NA</u>	<u>67.5</u>
Processing residuals:	<u>10</u>	<u>300</u>	<u>NA</u>	<u>NA</u>	<u>10</u>
TOTALS:	<u>145</u>	<u>5500</u>	<u>NA</u>	<u>NA</u>	<u>145</u>

D. For reporting quantity of tires in tons, tires will be: weighed on site ☒ weighed off site ☐ weights will be calculated ☐

E. Facilities that will not be disposing of processed tires or processing residual on the facility site must indicate the permitted solid waste management facility where processed tires or residuals will be disposed.

1. Name of facility JED Solid Waste Management Facility

2. Street address: 1501 Omni Way

3. City: St. Cloud County: Osceola Zip: 34773

F. Facilities that will be delivering processed tires to consuming facilities must describe the existing or proposed markets for those processed tires.

Processed tires will be transported to a Class I solid waste facility where they will be used as initial/daily cover.

Part III-Attachments:

A. Facility design

NOTE: All maps, plan sheets, drawings, isometrics, cross sections, or aerial photographs shall be legible; be signed and sealed by a registered professional engineer responsible for their preparation; be of appropriate scale to show clearly all required details; be numbered, referenced to narrative, titled, have a legend of symbols used, contain horizontal and vertical scales (where applicable), and specify drafting or origination dates; and use uniform scales as much as possible, contain a north arrow and use NGVD for all elevations.

1. A topographic or section map of the facility, including the surrounding area for one mile, no more than one year old, showing land use and zoning within one mile of the facility **Refer to Tab 3, Sheet 2**
2. A plot plan of the facility on a scale of not less than one inch equals 200 feet. At a minimum, the plot plan shall include
 - a. The facility design, including the location and size of all storage and processing areas for used tires, unprocessed waste tires, processed waste tires, and waste tire processing residuals; **Refer to Tab 3, Sheet 1**
 - b. All wetlands and water bodies within the facility or within 200 feet of any storage area; **Refer to Tab 3, Sheet 1**
 - c. Stormwater control measures, including ditches, dikes, and other structures; **Refer to Tab 3, Sheet 1**
 - d. Boundaries of the facility, legal boundaries of the land containing the facility, and any easements or rights of way that are within the facility or within 200 feet of any storage area; **Refer to Tab 3, Sheet 1**
 - e. Location, size, and depth of all wells within the facility or within 200 feet of any storage area; **Refer to Tab 3, Sheet 2**
 - f. All structures and buildings that are, or will be, constructed at the facility; include those used in storage and processing operations; **Refer to Tab 3, Sheet 1**
 - g. All areas used for loading and unloading; **Refer to Tab 3, Sheet 1**
 - h. All access roads and internal roads, including fire lanes; **Refer to Tab 3, Sheet 1**
 - i. Location of all fences, gates, and other access control measures; and **Refer to Tab 3, Sheet 1**
 - j. Location of all disposal areas within the facility. **Not Applicable**

B. Facility operation.

1. A description of the facility's operation, process and products including how waste tires will be received and stored. **Tab 4, Section 4.0**
2. A description of the equipment used for processing tires. This description shall include the make, model, and hourly capacity of each piece of equipment. **Tab 4, Section 4.0**
3. Description of the waste from the process, the amount of waste expected and how and where this waste will be disposed of. **Tab 4, Section 4.0**
4. Statement of the maximum daily throughput and the planned daily and annual throughput. **Tab 4, Section 4.0**
5. A description of how the operator will maintain compliance with each of the storage requirements of Rule 62-711.540, F.A.C. **Tab 4, Section 4.0**
6. A copy of the emergency preparedness manual for the facility with a statement of the on site and off site locations where that manual will be maintained. **Tab 4, Section 4.0**
7. A copy of the fire safety survey **Tab 4, Appendix K**
8. A description of how 75% of the annual accumulation of waste tires will be removed for disposal or recycling. **Tab 4, Section 4.0**

C. Completed closing plan for the facility as required by Rule 62-711.700(2) and (3), F.A.C. **Tab 4, Section 5.0**

- D. Attach proof of financial responsibility as requirement by Rule 62-711.500(3) OR a calculation showing that financial assurance documents, currently on file with the Department, are sufficient to assure closing of the waste tire site as well as any other solid waste management facility at that location. **Located in Tab 5**
- E. A letter from the land owner (if different from applicant) authorizing use of the land as a waste tire processing facility. **NA**
- F. If waste tires will be consumed at the facility, attach a description of the other environmental permits that the applicant has for this use, including, permit number, date of issue, and name of issuing agency **NA**
- G. The permit fee as required in Rule 62-4, F.A.C. **Enclosed**

Part IV-Certification:

A. Applicant:

The undersigned applicant or authorized representative of Taft Recycling, Inc.

Is aware that statements made in this form and attached information are an application for a

Renewal Waste Tire Operation Permit from the Florida Department of Environmental Protection and certifies that

The information in this application is true, correct and complete to the best of his knowledge and belief.

Further, the undersigned agrees to comply with the provisions of Chapter 403, Florida Statutes, and all rules and regulations of the Department. It is understood that the Department will be notified prior to the sale or legal transfer of the facility.



Signature of Applicant or Authorized Agent

Mike Kaiser, Regional Engineer

Name and Title

2/15/11

Date

B. Professional Engineer registered in Florida.

This is to certify that the engineering features of this waste tire processing facility have been Designed/examined by me and found to conform to engineering principals applicable to such facilities. In my professional judgment, this facility, when properly maintained and operated will comply with all applicable statues of the State of Florida and rules of the Department. It is agreed that the undersigned will provide the applicant with a set of instructions for proper maintenance and operation of the facility.



2-16-2011 Signature

David L. Leggett, P.E., Principal Engineer

Name and Title

HSA Golden, 100 East Pine Street, Suite 605

Mailing Address

Orlando, Florida 32801

City, State, Zip

70882

Florida Registration Number

(407) 649-5475

Telephone number

(please affix seal)

2-16-2011

Date

**TAFT TRANSFER STATION AND
MATERIAL RECOVERY FACILITY**
WACS No. 87104
Rule 62-701.300 Prohibitions - Compliance

62-701.300 Prohibitions.

(1) General prohibition.

(a) No person shall store, process, or dispose of solid waste except as authorized at a permitted solid waste management facility or a facility exempt from permitting under this chapter.

Taft Recycling, Inc. (TRI) has not stored, processed, or disposed of solid waste prior to obtaining appropriate permits.

(b) No person shall store, process, or dispose of solid waste in a manner or location that causes air quality standards to be violated or water quality standards or criteria of receiving waters to be violated.

No solid waste will be stored, processed, or disposed of in a manner or location that will cause air quality, water quality, or receiving water standards to be violated, as described in the application.

(2) Siting. Unless authorized by a Department permit or site certification in effect on May 27, 2001, or unless specifically authorized by another Department rule or a Department license or site certification based upon site-specific geological, design, or operational features, no person shall store or dispose of solid waste:

(a) In an area where geological formations or other subsurface features will not provide support for the solid waste;

The subject facility is not located in an area where geological formations or other subsurface features would prevent the waste processing facility from operating.

(b) Within 500 feet of an existing or approved potable water well unless storage or disposal takes place at a facility for which a complete permit application was filed or which was originally permitted before the potable water well was in existence. This prohibition shall not apply to any renewal of an existing permit that does not involve lateral expansion, nor to any vertical expansion at a permitted facility;

This prohibition does not apply to TRI, since the application is for renewal of an existing facility permit where no lateral or vertical expansion is proposed.

(c) In a dewatered pit unless the pit is lined and permanent leachate containment and special design techniques are used to ensure the integrity of the liner;

The subject facility is not located in a dewatered pit.

(d) In any natural or artificial body of water including ground water and wetlands within the jurisdiction of the Department. This prohibition does not apply to areas of standing water that exist only after storm events, provided that the storage or disposal does not result in objectionable odors or sanitary nuisances;

The subject facility is not located in any natural or artificial body of water including groundwater and wetlands within the jurisdiction of the Department.

(e) Within 200 feet of any natural or artificial body of water unless storage or disposal takes place at a facility for which a complete permit application was filed or which was originally permitted before the water body was in existence. This prohibition shall not apply to any renewal of an existing permit that does not involve lateral expansion, nor to any vertical expansion at a permitted facility. For purposes of this paragraph, a "body of water" includes wetlands within the jurisdiction of the Department, but does not include impoundments or conveyances which are part of an on-site, permitted stormwater management system, or bodies of water contained completely within the property boundaries of the disposal site which do not discharge from the site to surface waters. A person may store or dispose of solid waste within the 200 foot setback area upon demonstration to the Department that permanent leachate methods will result in compliance with water quality standards and criteria. However, nothing contained herein shall prohibit the Department from imposing conditions necessary to assure that solid waste stored or disposed of within the 200 foot setback area will not cause pollution from the site in contravention of Department rules; and

No solid waste will be stored within 200 feet of the closest water body (Boggy Creek).

(f) On the right of way of any public highway, road, or alley.

The subject facility will not store wastes in any road, highway, or alley right of way.

(3) Burning. Open burning of solid waste is prohibited except in accordance with Chapter 62-256, F.A.C. Controlled burning of solid waste is prohibited except in a permitted incinerator, or in a facility in which the burning of solid waste is authorized by a site certification order issued under Chapter 403, Part II, F.S.

No burning is conducted at the subject facility.

(4) Hazardous waste. No hazardous waste shall be disposed of in a solid waste management facility unless such facility is permitted pursuant to Chapter 62-730, F.A.C.

Hazardous wastes are not accepted at the subject facility.

(5) PCBs. Disposal of liquids containing a polychlorinated biphenyl (PCB), or non-liquid PCBs in the form of contaminated soil, rags, or other debris, may be restricted or prohibited by 40 CFR Part 761. Persons managing PCBs are advised to consult that federal regulation before attempting to dispose of PCBs in any solid waste disposal unit in this state.

PCBs containing materials are not accepted at the subject facility.

(6) Biomedical waste.

(a) No biomedical waste shall be knowingly deposited in any solid waste management facility unless:

Biomedical wastes are not accepted at the subject facility.

1. The solid waste facility is specifically permitted to receive untreated biomedical waste;

Not Applicable.

2. The biomedical waste has been properly incinerated so that little or no organic material remains in the ash residue, or treated by a process approved by the Department of Health, and the provisions in paragraph 62-701.520(5)(d), F.A.C., are complied with; or

Not Applicable.

3. The biomedical waste is generated by an individual as a result of self care, or care by a family member or other non health care provider. However, in order to reduce the chance of exposure to the public, home generators are advised to segregate and package such waste before disposal according to the guidelines for disposal of home-generated biomedical waste available from each county health department.

Not Applicable.

(b) No solid waste, including treated biomedical waste, shall be commingled with untreated biomedical waste unless the solid waste is being managed in the same manner as the untreated biomedical waste.

Not Applicable.

(c) Treated or untreated biomedical waste shall not be allowed to leak into the environment during transport.

Not Applicable.

(7) Class I surface waters. The Department shall not issue a construction permit for a landfill within 3,000 feet of Class I surface waters.

Class I surface waters are not within 3,000 feet of TRI.

(8) Special wastes for landfills. No person who knows or who should know of the nature of such solid waste shall dispose of the following wastes:

Not Applicable.

(a) Lead-acid batteries in any landfill;

Not Applicable.

(b) Used oil in any landfill, except as provided in Chapter 62-710, F.A.C.

Not Applicable.

(c) Yard trash in a Class I landfill;

Not Applicable.

(d) White goods in any landfill; and

Not Applicable.

(e) Whole waste tires in any landfill, except as provided in Chapter 62-711, F.A.C.

Not Applicable.

(9) Special wastes for waste-to-energy facilities. No person who knows or who should know of the nature of such solid waste shall dispose of lead-acid batteries, mercury-containing devices, or spent mercury-containing lamps in any waste-to-energy facility.

Not Applicable.

(10) Liquids restrictions.

(a) Non-containerized liquid waste shall not be placed in solid waste disposal units which accept household waste or construction and demolition debris for disposal unless:

1. The liquid waste is household waste other than septic waste; or

Not Applicable.

2. The liquid waste is leachate or gas condensate derived from the solid waste disposal unit, or byproducts of the treatment of such leachate or gas condensate, and the solid waste disposal unit is lined and has a leachate collection system.

(b) Containers holding liquid waste shall not be placed in a solid waste disposal unit unless:

Not Applicable.

1. The container is a small container similar in size to that normally found in household waste;

Not Applicable.

2. The container is designed to hold liquids for use other than storage; or

Not Applicable.

3. The waste is household waste.

Not Applicable.

(c) Containers or tanks twenty gallons or larger in capacity shall either have one end removed or cut open, or have a series of punctures around the bottom to ensure the container is empty and free of residue. The empty container or tank shall be compacted to its smallest practical volume for disposal.

Not Applicable.

(11) (a) Used oil and oily wastes. Except as provided in paragraph (b) of this subsection, no person may mix or commingle used oil with solid waste that is to be disposed of in landfills or directly dispose of used oil in landfills.

Not Applicable.

(b) Oily wastes, sorbents or other materials used for maintenance or to clean up or contain leaks, spills or accidental releases of used oil, and soils contaminated with used oil as a result of spills or accidental releases are not subject to the prohibition in paragraph (a) of this subsection.

(12) Yard trash. The prohibitions of this section apply to the storage, processing, or disposal of yard trash, except that paragraphs (2)(b) and (e) of this section are modified so that the following setback distances shall apply:

(a) 100 feet from off-site potable water wells, no setback required from on-site water wells; and

The subject facility is not within 100-feet from off-site potable water wells.

(b) 50 feet from water bodies.

A 50-foot setback yard waste area will be maintained.

(13) Tanks. The prohibitions in subsection (2) of this section do not apply to the storage or treatment of solid waste in tanks which meet the criteria of Chapter 62-761 or subsection 62-701.400(6), F.A.C. Instead, no such storage tank shall be installed within 500 feet of any existing community water supply system or any existing non-transient non-community water supply system, nor shall any tank be installed within 100 feet of any other existing potable water supply well.

No storage tanks are installed within 500-feet of any existing community water supply system or any existing non-transient non-community water supply system, nor are any storage tanks installed within 100 feet of any other existing potable water supply well.

(14) CCA treated wood. CCA treated wood shall not be incorporated into compost or made into mulch, decorative landscape chips or any other wood product that is applied as a ground cover, soil or soil amendment. CCA treated wood may be ground and used as initial cover on interior slopes of lined solid waste disposal facilities provided it meets the criteria of subsection 62-701.200(53), F.A.C. CCA treated wood shall not be disposed of through open burning or through combustion in an air curtain incinerator.

TRI will not process CCA-treated wood into compost or made into mulch, decorative landscape chips, or any other wood product that is applies as ground cover, soil, or soil amendment (see Section 2.7.1 and Appendix F of the Operation Plan).

(15) Dust. The owner or operator of a solid waste management facility shall not allow the unconfined emissions of particulate matter in violation of paragraph 62-296.320(4)(c), F.A.C.

TRI will not allow the unconfined emissions of particulate matter in violation of paragraph 62-296.320(4)(c), F.A.C. (see Section 2.11 of the Operation Plan).

(16) Indoor storage. The prohibitions in subsection (2) of this section do not apply to the storage or processing of solid waste indoors, provided that the indoor storage area has an impervious surface and a leachate collection system. For the purposes of this subsection, an impervious surface means either a poured concrete pad having a minimum thickness of four inches, or an asphalt concrete paving with both a minimum thickness of one and one-half inches and with an additional component to restrict leaching to ground water such as a soil cement sub-base, an epoxy seal or a geomembrane.

TRI's waste processing facility building has a leachate collection system and the floor exceeds these criteria.

(17) Storage in vehicles or containers. The prohibitions in subsection (2) of this section do not apply to the storage of solid waste in an enclosed or covered vehicle or container, provided that such vehicle or container has either been unloaded or moved over public highways within the previous seven days, and provided also that reasonable efforts have been made to minimize leakage from the vehicle or container.

TRI does not store solid waste in vehicles.

(18) Existing facilities. Those portions of facilities which were constructed prior to May 27, 2001, remain subject to the prohibitions that were in effect at the time the permit authorizing construction was issued. Lateral expansions of such facilities remain subject to the prohibitions that were in effect at the time the permit authorizing the lateral expansion was issued. For example, portions of facilities constructed prior to May 19, 1994 were subject to the prohibition against storing or disposing of solid waste within 500 feet of an existing or approved shallow water supply well, but are not subject to the prohibitions of paragraph (2)(b) of this section. However, lateral expansions of such facilities which occurred after May 19, 1994 are subject to the prohibitions of paragraph (2)(b) of this section.

Acknowledged.

2.2 Process Overview

All waste entering the facility will follow a process at the scalehouse of identification and sorting immediately upon arrival at the site. If the material is unauthorized, the driver will be directed to a solid waste management facility which is permitted to handle the type of material rejected. Appendix A contains a list of typical authorized and unauthorized materials for the facility.

Upon acceptance, the truck will be weighed and directed to the appropriate area where the waste will be placed on an indoor tipping floor. If the spotter or operator is located on heavy equipment when unauthorized waste is discovered, the equipment operator shall move the unauthorized waste away from the active area for placement in the appropriate container or shall stop the operation and notify another person on the ground, or another equipment operator to remove the unauthorized waste for placement in the appropriate container before operations are resumed. Customers with wood waste or waste tires will be directed to the appropriate offloading area and monitored during offloading by a facility spotter. Class I waste will be managed on a first-in, first-out basis and will be placed by collection trucks in the Class I area located in the building, and loaded onto transfer trailers for Class I landfill disposal. The Class III waste and C&D materials will also be placed in the building to undergo sorting operations in the form of placing the waste into a sorter with a conveyor belt where the material will be downsized and hand sorted. Unsuitable materials (i.e. paint containers, oil containers, etc.) will be temporarily stored inside the building and transported off-site for proper disposal. Recoverable (paper, plastic, cardboard, metal, etc.) and recyclable (wood and concrete) materials will be removed for recycling. The cardboard will be placed into a baler, and the wood will be placed into a chipper. Recovered screen materials (RSM) are stored in a covered concrete bin for transport to a Class I landfill for use as daily cover material or disposal.

The Class I waste tipping floor will be enclosed within bays 3, 4 and 5 of the facility building. Class III / C&D tipping floors (bays 1 and 2) will be separated by an eight foot concrete bin block wall. Ventilation, lighting and leachate control upgrades have been added to the existing and expansion building to allow Class I waste acceptance, see following details in Sections 2.10 and 3.4.1.

Once the waste has been sorted, unacceptable waste or rejected wastes will be transported to the appropriate disposal facilities.

Facility Operations Flow Chart are included in Appendix B.

2.2.1 Waste Quantity Projections

The future demand for recycled and properly disposed Class I and Class III waste material is expected to increase. This is based on the four to five percent population growth rates for Orange, Osceola, and Seminole Counties per the Florida Statistical Abstract. Material types will be limited to the processing capabilities of this site. Solid waste quantities are projected to also grow at a rate of four to five percent per year. The three primary operations will be sorting, compacting, and chipping. Estimated demands may require managing approximately 1,500 tons

Will Jacobs

From: Wilson Esteves [westeves@wasteservicesinc.com]

Sent: Tuesday, February 15, 2011 7:30 AM

To: Will Jacobs

Cc: Michael Kaiser

Subject: RE: Taft Recycling - Training Schedule

Good Morning Gentlemen;

Summary of the Operator Certification for Taft;

**Taft Recycling
Operator Training**

Wilson Esteves

04/08/2003	04/08/2006	19 Hour Initial Training Course for Transfer Station Operators And MRF Operators
03/21/2003	03/21/2006	Health & Safety Issues for Solid Waste Management Facilities
02/26/2007	02/15/2010	16 Hour Initial Training Course for Transfer Station Operators And MRF Operators
02/26/2007	02/15/2010	8 Hr Training Course for Spotters at Landfills, C&D Sites and Transfer Stations
		Need to complete 8 Hrs between 02/16/2010 & 02/15/2013 to maintain Certification

**Anthony
Santaniello**

11/19/2003	11/18/2006	19 Hour Initial Training Course for Transfer Station Operators And MRF Operators
11/19/2003	11/18/2006	Spotter Training for Solid Waste Facilities
11/19/2006	11/18/2009	The Sense of Smell, Odor, Theory and Oder Control
11/19/2006	11/18/2009	Fires at landfills and Other Solid Waste Management Facilities
		Need to complete 8 Hrs between 11/19/2009 & 11/18/2012 to maintain Certification

Benjamin Morris

07/26/2009	07/25/2012	19 Hour Initial Training Course for Transfer Station Operators And MRF Operators
		Need to complete 8 Hrs between 07/26/2009 &

2/15/2011

07/25/2012 to maintain Certification

Brian Wiggand

07/01/2001	07/01/2003	24 Hour Initial Training Course for Landfill Operators (Class I,II, III and C&D Sites)	16
05/06/2004	05/05/2007	24 Hour Initial Training Course for Landfill Operators (Class I,II, III and C&D Sites)	Initial
05/06/2004	05/05/2007	16 Hour Initial Training Course for Transfer Station	10
04/23/2007	05/05/1010	Hazardous Materials Chemistry for the Non-Chemist	8

Need to complete 16 Hrs to Reinstate Certification

Employees scheduled for training in the month of March 2011

Bruce Burke	19 Hour Initial Training Course for Transfer Station Operators And MRF Operators
Danny Ward	19 Hour Initial Training Course for Transfer Station Operators And MRF Operators
Valentin Cardona	19 Hour Initial Training Course for Transfer Station Operators And MRF Operators
Brian Wiggand	19 Hour Initial Training Course for Transfer Station Operators And MRF Operators

Regards,

Wilson Esteves

General Manager
Taft Recycling, Inc.
375 W. 7th St.
Orlando, FL 32824
407-851-0074

*You may never know the life you save by your safety practices,
but you will never forget the one you take by carelessness....*

From: Will Jacobs [mailto:wjacobs@hsagolden.com]
Sent: Tuesday, January 25, 2011 11:39 AM
To: Wilson Esteves
Subject: RE: Taft Recycling - Training Schedule

2/15/2011

Thanks Wilson. Have a good day!

William Jacobs
Project Manager
407.649.6777 (direct)

hsagolden

engineering | environmental solutions

100 East Pine Street
Suite 605
Orlando, FL 32801
407.649.5475 (p)
407.649.6582 (f)
www.hsagolden.com



Be kind to our trees, print this e-mail only if it's necessary

From: Wilson Esteves [mailto:westeves@wasteservicesinc.com]
Sent: Monday, January 24, 2011 2:01 PM
To: Will Jacobs
Subject: RE: Taft Recycling - Training Schedule

Good Afternoon Will;

Attached are the copies of the operator certifications. I will be certifying other employees by the end of February and will send the copies of their certification as well.

Regards,

Wilson Esteves

General Manager
Taft Recycling, Inc.
375 W. 7th St.
Orlando, FL 32824
407-851-0074

From: Will Jacobs [mailto:wjacobs@hsagolden.com]
Sent: Monday, January 24, 2011 1:16 PM
To: Wilson Esteves
Subject: Taft Recycling - Training Schedule

Wilson,

I'm just following up with you on my e-mail from a week ago, see below. Let me know if you have any questions. Thanks

2/15/2011

Will Jacobs

From: Wilson Esteves [westeves@wasteservicesinc.com]
Sent: Monday, January 24, 2011 2:01 PM
To: Will Jacobs
Subject: RE: Taft Recycling - Training Schedule
Attachments: Operator Certifications 2010.pdf

Good Afternoon Will;

Attached are the copies of the operator certifications. I will be certifying other employees by the end of February and will send the copies of their certification as well.

Regards,

Wilson Esteves

General Manager
Taft Recycling, Inc.
375 W. 7th St.
Orlando, FL 32824
407-851-0074

Florida DEP Solid Waste Management Facility Operator Courses

Santaniello, Tony
Operator
Waste Services, Inc
1501 Omni Way
Saint Cloud, FL 34773

Material Recovery Facility Operator

Status: Current

- Initial Date: 11/19/2003
- Current Period: 11/19/2009 - 11/18/2012 Hours Required: 8 Hours Needed: 8

Period: Prior Courses

No courses taken.

Period: 11/19/2003 - 11/18/2006 - (Initial Period)

Course	Course Name	Provider	Completion Date	Hours
225	19-Hour Initial Training Course for Transfer Station Operators and MRF Operators	Kohl Consulting, Inc.	11/19/2003	Initial
248	Spotter Training for Solid Waste Facilities	University of Florida - TREEO	10/25/2006	8
Total:				8
Hours Needed:				0

Period: 11/19/2006 - 11/18/2009

Course	Course Name	Provider	Completion Date	Hours
406	The Sense of Smell, Odor, Theory and Odor Control	Kohl Consulting, Inc.	06/30/2009	4
484	Fires at Landfills and Other Solid Waste Management Facilities	Kohl Consulting, Inc.	06/30/2009	4
Total:				8
Hours Needed:				0

Period: 11/19/2009 - 11/18/2012

No courses taken. Hours Needed: 8

Status: Current

- Continuing Education (CE) Minimum 3 Year Requirements:
 - 16 hours Class I II III Landfill / Construction and Demolition Debris
 - 8 hours Transfer Station / Material Recovery Facility
 - 4 hours Spotter
- Expired:** If you have exceeded the 3 year training period without achieving the minimum continuing education, you must start over by taking an approved initial course and pass exam. There is not a grace period.
- Initial hours are not counted toward continuing education.
- An Initial course can be taken as a continuing education course only if it was not taken as the operator's or spotter's initial training. No CE credit will be given for the same course taken within the same 3-year period.
- If you have any questions, please contact djenkins@treeo.ufl.edu or mkeilhauer@treeo.ufl.edu or call (352) 392-9570 extensions 227 or 230.

Florida DEP Solid Waste Management Facility Operator Courses

Santaniello, Tony
Operator
Waste Services, Inc
1501 Omni Way
Saint Cloud, FL 34773

Spotter / Waste Screener

Status: **Current**

- Initial Date: 10/25/2006
- Current Period: 10/25/2009 - 10/24/2012 Hours Required: 4 Hours Needed: 4

Period: **Prior Courses**

Course	Course Name	Provider	Completion Date	Hours
225	19-Hour Initial Training Course for Transfer Station Operators and MRF Operators	Kohl Consulting, Inc.	11/19/2003	4

Total: Prior

Hours Needed:

Period: **10/25/2006 - 10/24/2009 - (Initial Period)**

Course	Course Name	Provider	Completion Date	Hours
248	Spotter Training for Solid Waste Facilities	University of Florida - TREEO	10/25/2006	Initial
406	The Sense of Smell, Odor, Theory and Odor Control	Kohl Consulting, Inc.	06/30/2009	2
484	Fires at Landfills and Other Solid Waste Management Facilities	Kohl Consulting, Inc.	06/30/2009	4

Total: 6

Hours Needed: 0

Period: **10/25/2009 - 10/24/2012**

No courses taken. Hours Needed: 4

Status: **Current**

- Continuing Education (CE) Minimum 3 Year Requirements:
 - 16 hours Class I II III Landfill / Construction and Demolition Debris
 - 8 hours Transfer Station / Material Recovery Facility
 - 4 hours Spotter
- Expired:** If you have exceeded the 3 year training period without achieving the minimum continuing education, you must start over by taking an approved initial course and pass exam. There is not a grace period.
- Initial hours are not counted toward continuing education.
- An Initial course can be taken as a continuing education course only if it was not taken as the operator's or spotter's initial training. No CE credit will be given for the same course taken within the same 3-year period.
- If you have any questions, please contact djenkins@treeo.ufl.edu or mkeilhauer@treeo.ufl.edu or call (352) 392-9570 extensions 227 or 230.

Florida DEP Solid Waste Management Facility Operator Courses

Santaniello, Tony
Operator
Waste Services, Inc
1501 Omni Way
Saint Cloud, FL 34773

Transfer Station Operator

Status: **Current**

- Initial Date: 11/19/2003
- Current Period: 11/19/2009 - 11/18/2012 Hours Required: 8 Hours Needed: 8

Period: **Prior Courses**

No courses taken.

Period: **11/19/2003 - 11/18/2006 - (Initial Period)**

Course	Course Name	Provider	Completion Date	Hours
225	19-Hour Initial Training Course for Transfer Station Operators and MRF Operators	Kohl Consulting, Inc.	11/19/2003	Initial
248	Spotter Training for Solid Waste Facilities	University of Florida - TREEO	10/25/2006	8
Total:				8
Hours Needed:				0

Period: **11/19/2006 - 11/18/2009**

Course	Course Name	Provider	Completion Date	Hours
406	The Sense of Smell, Odor, Theory and Odor Control	Kohl Consulting, Inc.	06/30/2009	4
484	Fires at Landfills and Other Solid Waste Management Facilities	Kohl Consulting, Inc.	06/30/2009	4
Total:				8
Hours Needed:				0

Period: **11/19/2009 - 11/18/2012**

No courses taken. Hours Needed: 8

Status: **Current**

- Continuing Education (CE) Minimum 3 Year Requirements:
 - 16 hours Class I II III Landfill / Construction and Demolition Debris
 - 8 hours Transfer Station / Material Recovery Facility
 - 4 hours Spotter
- Expired:** If you have exceeded the 3 year training period without achieving the minimum continuing education, you must start over by taking an approved initial course and pass exam. There is not a grace period.
- Initial hours are not counted toward continuing education.
- An Initial course can be taken as a continuing education course only if it was not taken as the operator's or spotter's initial training. No CE credit will be given for the same course taken within the same 3-year period.
- If you have any questions, please contact djenkins@treeo.ufl.edu or mkeilhauer@treeo.ufl.edu or call (352) 392-9570 extensions 227 or 230.

Florida DEP Solid Waste Management Facility Operator Courses

Esteves, Wilson
 Facility Manager
 Waste Services, Inc.
 1099 Miller Dr
 Altamonte Springs, FL 32701

Phone: (407) 448-9363

Material Recovery Facility Operator

Status: Current

- Initial Date: 02/16/2007
- Current Period: 02/16/2010 - 02/15/2013 Hours Required: 8 Hours Needed: 8

Period: Prior Courses

Course	Course Name	Provider	Completion Date	Hours
170	Health & Safety Issues for Solid Waste Management Facilities	Kohl Consulting, Inc.	03/21/2003	8
225	19-Hour Initial Training Course for Transfer Station Operators and MRF Operators	Kohl Consulting, Inc.	04/08/2003	8
Total:				Prior
Hours Needed:				

Period: 02/16/2007 - 02/15/2010 - (Initial Period)

Course	Course Name	Provider	Completion Date	Hours
443	Initial Training Course for Transfer Station Operators and Material Recovery Facilities - 16 Hour	University of Florida - TREEO	02/16/2007	Initial
462	8-Hour Training Course for Spotters at Landfills, C&D Sites and Transfer Stations	University of Florida - TREEO	02/08/2010	8
Total:				8
Hours Needed:				0

Period: 02/16/2010 - 02/15/2013

No courses taken. Hours Needed: 8

Status: Current

- Continuing Education (CE) Minimum 3 Year Requirements:
 - 16 hours Class I II III Landfill / Construction and Demolition Debris
 - 8 hours Transfer Station / Material Recovery Facility
 - 4 hours Spotter
- Expired:** If you have exceeded the 3 year training period without achieving the minimum continuing education, you must start over by taking an approved initial course and pass exam. There is not a grace period.
- Initial hours are not counted toward continuing education.
- An Initial course can be taken as a continuing education course only if it was not taken as the operator's or spotter's initial training. No CE credit will be given for the same course taken within the same 3-year period.
- If you have any questions, please contact djenkins@treeo.ufl.edu or mkeilhauer@treeo.ufl.edu or call (352) 392-9570 extensions 227 or 230.

Florida DEP Solid Waste Management Facility Operator Courses

Esteves, Wilson
Facility Manager
Waste Services, Inc.
1099 Miller Dr
Altamonte Springs, FL 32701

Phone: (407) 448-9363

Spotter / Waste Screener

Status: **Current**

- Initial Date: 02/08/2010
- Current Period: 02/08/2010 - 02/07/2013 - (Initial Period) Hours Required: 4 Hours Needed: 4

Period: **Prior Courses**

Course	Course Name	Provider	Completion Date	Hours
170	Health & Safety Issues for Solid Waste Management Facilities	Kohl Consulting, Inc.	03/21/2003	4
225	19-Hour Initial Training Course for Transfer Station Operators and MRF Operators	Kohl Consulting, Inc.	04/08/2003	4
443	Initial Training Course for Transfer Station Operators and Material Recovery Facilities - 16 Hour	University of Florida - TREEO	02/16/2007	4
Total:				Prior Hours Needed:

Period: **02/08/2010 - 02/07/2013 - (Initial Period)**

Course	Course Name	Provider	Completion Date	Hours
462	8-Hour Training Course for Spotters at Landfills, C&D Sites and Transfer Stations	University of Florida - TREEO	02/08/2010	Initial
Total:				0
Hours Needed:				4

Status: **Current**

- Continuing Education (CE) Minimum 3 Year Requirements:
 - 16 hours Class I II III Landfill / Construction and Demolition Debris
 - 8 hours Transfer Station / Material Recovery Facility
 - 4 hours Spotter
- Expired:** If you have exceeded the 3 year training period without achieving the minimum continuing education, you must start over by taking an approved initial course and pass exam. There is not a grace period.
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- If you have any questions, please contact djenkins@treeo.ufl.edu or mkeilhauer@treeo.ufl.edu or call (352) 392-9570 extensions 227 or 230.

Florida DEP Solid Waste Management Facility Operator Courses

Esteves, Wilson
Facility Manager
Waste Services, Inc.
1099 Miller Dr
Altamonte Springs, FL 32701

Phone: (407) 448-9363

Transfer Station Operator

Status: Current

- Initial Date: 02/16/2007
- Current Period: 02/16/2010 - 02/15/2013 Hours Required: 8 Hours Needed: 8

Period: Prior Courses

Course	Course Name	Provider	Completion Date	Hours
170	Health & Safety Issues for Solid Waste Management Facilities	Kohl Consulting, Inc.	03/21/2003	8
225	19-Hour Initial Training Course for Transfer Station Operators and MRF Operators	Kohl Consulting, Inc.	04/08/2003	8
Total:				Prior
Hours Needed:				

Period: 02/16/2007 - 02/15/2010 - (Initial Period)

Course	Course Name	Provider	Completion Date	Hours
443	Initial Training Course for Transfer Station Operators and Material Recovery Facilities - 16 Hour	University of Florida - TREEO	02/16/2007	Initial
462	8-Hour Training Course for Spotters at Landfills, C&D Sites and Transfer Stations	University of Florida - TREEO	02/08/2010	8
Total:				8
Hours Needed:				0

Period: 02/16/2010 - 02/15/2013

No courses taken. Hours Needed: 8

Status: Current

- Continuing Education (CE) Minimum 3 Year Requirements:
 - 16 hours Class I II III Landfill / Construction and Demolition Debris
 - 8 hours Transfer Station / Material Recovery Facility
 - 4 hours Spotter
- Expired:** If you have exceeded the 3 year training period without achieving the minimum continuing education, you must start over by taking an approved initial course and pass exam. There is not a grace period.
- Initial hours are not counted toward continuing education.
- An Initial course can be taken as a continuing education course only if it was not taken as the operator's or spotter's initial training. No CE credit will be given for the same course taken within the same 3-year period.
- If you have any questions, please contact djenkins@treeo.ufl.edu or mkeilhauer@treeo.ufl.edu or call (352) 392-9570 extensions 227 or 230.

Florida DEP Solid Waste Management Facility Operator Courses

Morris, Benjamin
Waste Services, Inc
1099 Miller ave
ALTAMONTE SPRINGS, FL 32701

Material Recovery Facility OperatorStatus: **Current**

- Initial Date: 07/26/2009
- Current Period: 07/26/2009 - 07/25/2012 - (Initial Period) Hours Required: 8 Hours Needed: 8

Period: **Prior Courses***No courses taken.*Period: **07/26/2009 - 07/25/2012 - (Initial Period)**

Course	Course Name	Provider	Completion Date	Hours
225	19-Hour Initial Training Course for Transfer Station Operators and MRF Operators	Kohl Consulting, Inc.	07/26/2009	Initial
Total:				0
Hours Needed:				8

Status: **Current**

- Continuing Education (CE) Minimum 3 Year Requirements:
 - 16 hours Class I II III Landfill / Construction and Demolition Debris
 - 8 hours Transfer Station / Material Recovery Facility
 - 4 hours Spotter
- **Expired:** If you have exceeded the 3 year training period without achieving the minimum continuing education, you must start over by taking an approved initial course and pass exam. There is not a grace period.
- Initial hours are not counted toward continuing education.
- An Initial course can be taken as a continuing education course only if it was not taken as the operator's or spotter's initial training. No CE credit will be given for the same course taken within the same 3-year period.
- If you have any questions, please contact djenkins@treeo.ufl.edu or mkeilhauer@treeo.ufl.edu or call (352) 392-9570 extensions 227 or 230.

Florida DEP Solid Waste Management Facility Operator Courses

Morris, Benjamin
Waste Services, Inc
1099 Miller ave
ALTAMONTE SPRINGS, FL 32701

Transfer Station OperatorStatus: **Current**

- Initial Date: 07/26/2009
- Current Period: 07/26/2009 - 07/25/2012 - (Initial Period) Hours Required: 8 Hours Needed: 8

Period: **Prior Courses***No courses taken.*Period: **07/26/2009 - 07/25/2012 - (Initial Period)**

Course	Course Name	Provider	Completion Date	Hours
225	19-Hour Initial Training Course for Transfer Station Operators and MRF Operators	Kohl Consulting, Inc.	07/26/2009	Initial
Total:				0
Hours Needed:				8

Status: **Current**

- Continuing Education (CE) Minimum 3 Year Requirements:
 - 16 hours Class I II III Landfill / Construction and Demolition Debris
 - 8 hours Transfer Station / Material Recovery Facility
 - 4 hours Spotter
- Expired:** If you have exceeded the 3 year training period without achieving the minimum continuing education, you must start over by taking an approved initial course and pass exam. There is not a grace period.
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- If you have any questions, please contact djenkins@treeo.ufl.edu or mkeilhauer@treeo.ufl.edu or call (352) 392-9570 extensions 227 or 230.

Florida DEP Solid Waste Management Facility Operator Courses

Wiggand, Brian
 Senior Operator
 Waste Management - Apopka
 4986 LB McLeod Rd
 Orlando, FL 32811

Phone: (407) 481-2530

Transfer Station Operator

Status: Expired

- Initial Date: 05/06/2004
- Current Period: 05/06/2010 - 05/05/2013 Hours Required: 8 Hours Needed: 8

Period: Prior Courses

No courses taken.

Period: 05/06/2004 - 05/05/2007 - (Initial Period)

Course	Course Name	Provider	Completion Date	Hours
196	16-Hour Initial Training Course for Transfer Station Operators	Kohl Consulting, Inc.	05/06/2004	Initial
286	Hazardous Materials Chemistry for the Non-Chemist	University of Florida - TREEO	04/23/2007	8
Total:				8
Hours Needed:				0

Period: 05/06/2007 - 05/05/2010

No courses taken. Hours Needed: 8

Period: 05/06/2010 - 05/05/2013

No courses taken. Hours Needed: 8

Status: Expired

- Continuing Education (CE) Minimum 3 Year Requirements:
 - 16 hours Class I II III Landfill / Construction and Demolition Debris
 - 8 hours Transfer Station / Material Recovery Facility
 - 4 hours Spotter
- Expired:** If you have exceeded the 3 year training period without achieving the minimum continuing education, you must start over by taking an approved initial course and pass exam. There is not a grace period.
- Initial hours are not counted toward continuing education.
- An Initial course can be taken as a continuing education course only if it was not taken as the operator's or spotter's initial training. No CE credit will be given for the same course taken within the same 3-year period.
- If you have any questions, please contact djenkins@treeo.ufl.edu or mkeilhauer@treeo.ufl.edu or call (352) 392-9570 extensions 227 or 230.

Florida DEP Solid Waste Management Facility Operator Courses

Wiggand, Brian
 Senior Operator
 Waste Management - Apopka
 4986 LB McLeod Rd
 Orlando, FL 32811

Phone: (407) 481-2530

Construction and Demolition Debris Landfill Operator

Status: Expired

- Initial Date: 05/06/2004
- Current Period: 05/06/2010 - 05/05/2013 Hours Required: 16 Hours Needed: 16

Period: Prior Courses

Course	Course Name	Provider	Completion Date	Hours
195	24-Hour Initial Training Course for Landfill Operators (Class I, II, III and C&D Sites)	Kohl Consulting, Inc.	07/01/2001	16
Total:				Prior
Hours Needed:				

Period: 05/06/2004 - 05/05/2007 - (Initial Period)

Course	Course Name	Provider	Completion Date	Hours
195	24-Hour Initial Training Course for Landfill Operators (Class I, II, III and C&D Sites)	Kohl Consulting, Inc.	05/06/2004	Initial
196	16-Hour Initial Training Course for Transfer Station Operators	Kohl Consulting, Inc.	05/06/2004	10
286	Hazardous Materials Chemistry for the Non-Chemist	University of Florida - TREEO	04/23/2007	8
Total:				18
Hours Needed:				0

Period: 05/06/2007 - 05/05/2010

No courses taken. Hours Needed: 16

Period: 05/06/2010 - 05/05/2013

No courses taken. Hours Needed: 16

Status: Expired

- Continuing Education (CE) Minimum 3 Year Requirements:
 - 16 hours Class I II III Landfill / Construction and Demolition Debris
 - 8 hours Transfer Station / Material Recovery Facility
 - 4 hours Spotter
- Expired:** If you have exceeded the 3 year training period without achieving the minimum continuing education, you must start over by taking an approved initial course and pass exam. There is not a grace period.
- Initial hours are not counted toward continuing education.
- An Initial course can be taken as a continuing education course only if it was not taken as the operator's or spotter's initial training. No CE credit will be given for the same course taken within the same 3-year period.
- If you have any questions, please contact djenkins@treeo.ufl.edu or mkeilhauer@treeo.ufl.edu or call (352) 392-9570 extensions 227 or 230.

Florida DEP Solid Waste Management Facility Operator Courses

Wiggand, Brian
Senior Operator
Waste Management - Apopka
4986 LB McLeod Rd
Orlando, FL 32811

Phone: (407) 481-2530

Class I, III Landfill Operator

Status: Expired

- Initial Date: 05/06/2004
- Current Period: 05/06/2010 - 05/05/2013 Hours Required: 16 Hours Needed: 16

Period: Prior Courses

Course	Course Name	Provider	Completion Date	Hours
195	24-Hour Initial Training Course for Landfill Operators (Class I, II, III and C&D Sites)	Kohl Consulting, Inc.	07/01/2001	16
Total:				Prior
Hours Needed:				

Period: 05/06/2004 - 05/05/2007 - (Initial Period)

Course	Course Name	Provider	Completion Date	Hours
195	24-Hour Initial Training Course for Landfill Operators (Class I, II, III and C&D Sites)	Kohl Consulting, Inc.	05/06/2004	Initial
196	16-Hour Initial Training Course for Transfer Station Operators	Kohl Consulting, Inc.	05/06/2004	10
286	Hazardous Materials Chemistry for the Non-Chemist	University of Florida - TREEO	04/23/2007	8
Total:				18
Hours Needed:				0

Period: 05/06/2007 - 05/05/2010

No courses taken. Hours Needed: 16

Period: 05/06/2010 - 05/05/2013

No courses taken. Hours Needed: 16

Status: Expired

- Continuing Education (CE) Minimum 3 Year Requirements:
 - 16 hours Class I II III Landfill / Construction and Demolition Debris
 - 8 hours Transfer Station / Material Recovery Facility
 - 4 hours Spotter
- Expired:** If you have exceeded the 3 year training period without achieving the minimum continuing education, you must start over by taking an approved initial course and pass exam. There is not a grace period.
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- If you have any questions, please contact djenkins@treeo.ufl.edu or mkeilhauer@treeo.ufl.edu or call (352) 392-9570 extensions 227 or 230.

**Materials Disposition
Taft Recycling, Inc.
Class I and Class III Waste Processing Facility and Transfer Station**

Recovered Material or Unprocessed Waste Type	Maximum Storage Volume	Density (lbs/cy)	Covered or Uncovered	Method of Storage	Disposal / Recycling Location	Maximum Hold Time
Unprocessed Class III	2,000cy	500	Covered	Tipping Floor	Class III Landfill	1 Week
Unprocessed Class I Putrescible	6,421 cy	450	Covered	Tipping Floor	Class I Landfill	48 Hours
Recovered Asphalt/Concrete	40 cy	4,000	Uncovered	Outside Roll-off Container	Re-Sale Public	6 Months
Recovered Roofing Tiles	20 cy	2,000	Uncovered	Outside Roll-off Container	Re-Sale Public	6 Months
Recovered Cardboard (Baled)	1,500 4,559cy	650	Uncovered	Outside Storage Yard	Re-Sale Public	6 Months
Recovered Cardboard (Loose)	1,333 cy	300	Uncovered	Near Loading Hopper at Baler	Re-Sale Public	48 Hours
Recovered Paper (Baled)	100 cy	750	Uncovered	Outside Storage Yard	Re-Sale Public	6 Months
Recovered Metal (Ferrous, Steel, Pipe & Misc.)	80 cy	1,000	Uncovered	Outside Roll-off Container	Re-Sale Public	6 Months
Recovered Metal (Aluminum Cans)	40 cy	75	Uncovered	Outside Roll-off/Sorting Bay	Re-Sale Public	6 Months
Glass (Whole Bottles)	60 cy	600	Uncovered	Outside Roll-off/Sorting Bay	Re-Sale Public	6 Months
Plastic (Mixed Loose)	80 cy	35	Uncovered	Outside Roll-off/Sorting Bay	Re-Sale Public	6 Months
Wood	1,500 cy	365	Uncovered	Outside Storage Yard	Re-Sale Public	6 Months
Whole Tires	400 cy	337	Uncovered	Outside Roll-off Container	Processing Facility	1 Year
Processed/Shredded Tires	225 cy	600	Uncovered	Outside Roll-off Container	Class I Landfill	48 Hours
Processed Tire Residuals	20 cy	500	Uncovered	Outside Roll-off Container	Class I Landfill	48 Hours
Recycling Residuals (RSM)	100 cy	1,000	Covered	Outside Roll-off Container	Class I Landfill	6 Months
Waste Oil/House Hold Haz. Waste - Rejected	55 gallons	8 lbs/gal	Covered	Inside Building	Safety Kleen or Other Haz. Waste Recycler	30 Days

Notes: Maximum storage volumes for Unprocessed Class I, III / C&D are based on estimated peak daily projection as noted in Section 2.2.1 of Operation Plan. Total of all equal approximately 8,421 cy (converted 2,000 tons). Unprocessed cardboard and paper included in Class III volumes. Volume-to-weight factors for recyclables are provided as an attachment.

TABLE 1
OPINION OF PROBABLE CLOSURE COSTS
TAFT TRANSFER STATION AND MATERIAL RECOVERY FACILITY
TAFT RECYCLING, INC.
ORLANDO, FLORIDA

	Recovered Material and Unprocessed Material Stored	Maximum Storage (tons)	Handling and Loading Costs (\$/ton)	Transportation Costs (\$/ton)	Disposal Costs (\$/ton)	Total Loading, Transportation and Disposal (\$/ton)	Total All Costs (\$)
1	Unprocessed Class III	500	\$2.50 (5)	\$6.00	\$24.00	\$32.50	\$16,250.00
2	Unprocessed Class I Putrescible	1500	\$2.50 (5)	\$6.00	\$35.10	\$43.60	\$65,400.00
3	Recovered Asphalt/Concrete	80	\$0.00 (2)	\$6.00	\$24.00 (3)	\$30.00	\$2,400.00
4	Recovered Roofing Tiles	20	\$0.00 (2)	\$6.00	\$24.00 (3)	\$30.00	\$600.00
5	Recovered Cardboard (Baled)	1482	\$2.50 (5)	\$6.00	\$24.00 (3)	\$32.50	\$48,165.00
5a	Recovered Cardboard (Loose)	200	\$2.50 (5)	\$6.00	\$24.00 (3)	\$32.50	\$6,500.00
6	Recovered Paper (Baled)	37.5	\$2.50 (5)	\$6.00	\$24.00 (3)	\$32.50	\$1,218.75
7	Recovered Metal (Ferrous, Steel, Pipe)	40	\$0.00 (2)	\$6.00	\$24.00 (3)	\$30.00	\$1,200.00
8	Metal (Aluminum Cans)	1.5	\$2.50 (5)	\$6.00	\$24.00 (3)	\$32.50	\$48.75
9	Glass (Whole Bottles)	18	\$2.50 (5)	\$6.00	\$24.00 (3)	\$32.50	\$585.00
10	Plastic (Mixed Loose)	1.4	\$2.50 (5)	\$6.00	\$24.00 (3)	\$32.50	\$45.50
11	Wood	274	\$2.50 (5)	\$6.00	\$24.00	\$32.50	\$8,905.00
12	Whole Tires	67.5	\$2.50 (4)	\$0.00(4)	\$50.00 (4)	\$52.50	\$3,543.75
13	Processed Shredded Tires	67.5	\$0.00 (2)	\$6.00	\$35.10	\$41.10	\$2,774.25
14	Processed Tire Residuals	10	\$0.00 (2)	\$6.00	\$35.10	\$41.10	\$411.00
15	Recycling Residuals	50	\$0.00 (2)	\$6.00	\$35.10	\$41.10	\$2,055.00
16	Washdown/Cleanup/6 month maintenance					LS	\$4,500.00
17	Waste Oil/House Hold Haz. Waste	55 Gallon Drum	\$100.00	\$100.00	\$300.00	\$500.00	\$500.00
18	Misc. Sampling and Analysis					LS	\$1,000.00
19	Sub Total						\$166,102.00
20	Contingency (15%)						\$24,915.30
21	Total						\$191,017.30

Notes:

1. Maximum storage volumes taken from table of Material Disposition, Appendix B, Operation Plan.
2. There are no loading costs for these materials. Materials are stored in roll-off containers and would not require loading.
3. Although processed/baled cardboard, paper, steel, aluminum cans, glass, plastic and concrete have commodity value, assumed worst case condition and disposal at Class III rates.
4. Whole waste tire disposal rate includes transportation by RMD Americas of Florida, LLC. Loading costs to transfer/load onto their trailers.
5. Unprocessed Class I, III, and C&D materials, and loose glass, plastic and wood loaded onto transfer trailers using rubber tire loader equipment.
6. Class III wastes include C&D debris.
7. Item 16 - 6 months closure period maintenance at \$500/month

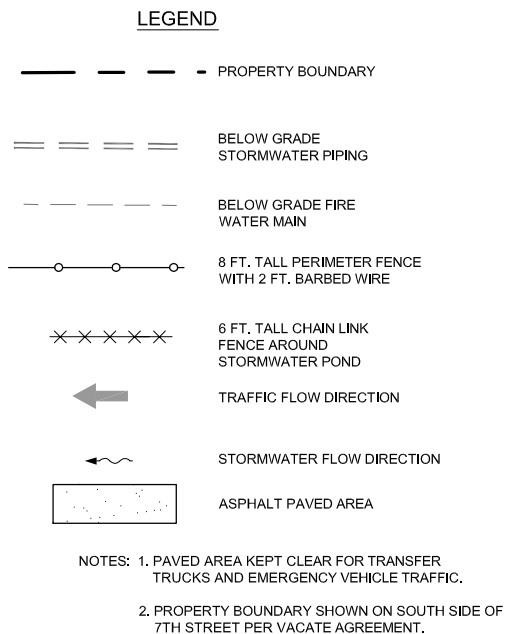
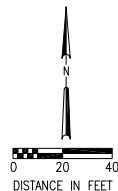
David L. Leggett 2-16-2011

David L. Leggett, P.E., FL PE #70882
HSA Golden, Inc.; FBPE #9915

Revised February 2011 December 2010

22
BLOCK "H"

OWNER:
PAUL STRAUBINGER



FIRE FLOW CALCULATIONS

NFF = $18 \times \sqrt{A} \times (0.8) \times (1.15)$
 $= 18 \times \sqrt{18600} \times (0.8) \times (1.15)$
 $= 2258.5 \text{ G.P.M.}$

CREDIT ALLOWED = 1 EXISTING FIRE HYDRANT WITHIN 300'
 + 1 EXISTING FIRE HYDRANT WITHIN 600'
 $= 1000 \text{ G.P.M.} + 670 \text{ G.P.M.}$
 $= 1670 \text{ G.P.M.}$

ADDITIONAL
 FIRE FLOW REQUIRED = $2258.5 \text{ G.P.M.} - 1670 \text{ G.P.M.}$
 $= 588.5 \text{ G.P.M.}$

PROPOSED FIRE HYDRANT CREDIT = 1000 G.P.M.
 THEREFORE FIRE FLOW REQUIREMENT = 588.5 G.P.M.

hsa golden
engineering environmental solutions
100 EAST PINE STREET, SUITE 605
ORLANDO, FL 32801
P: 407.649.5475 F: 407.649.6582
HSA.GOLDEN.COM

DATE _____
David L. Leggett
P.E. No. 70882, FL
HSA GOLDEN FBPE No. 9915

		BY	DATE
DESIGNED	JG	10/09	
DRAWN	TS	10/09	
CHECKED	DL	10/09	
FILE: 06-404.016-SITE-2.dwg			

	JG	JW
	JG	JW
	JG	DL
	JG	JW
	REVISED	CHECKED

AREA
ROAD PLASTIC AREA
DATE 1/19/10
PERVEY AS PER

ED & PAPER A	RECYCLED BALE	MENTS, DATE	CFRD FIRE SU	11/17/2009	REVISIONS
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3/3 UPDATED BAL
3/3 UPDATED REC
PER OCFRD COM
UPDATED FOR OC
FDEP RAI, DATED

02/11	
02/10	
12/09	
DATE	

III

CLASS
TY

SITE PLAN

PROJECT NO.
06-404.010

SHEET
1

Loose Containerboard at Taft Recycling, Inc.

	<u>Height</u>	<u>Base 1</u>	<u>Base 2</u>	<u>Slope 1:X</u>	<u>Area</u>
Base	15'	40'	90'	1	3,600 ft ²
Top		10'	60'		600 ft ²

$$V = \frac{(H * (B1 + B2))}{2}$$

Volume (ft)³ = 31,500

cy Conversion (ft³ / 27) = 1167 cy

Average weight loose stacked cardboard = 350 lbs/cy

therefore, pounds = 408,333 = 1167 cy x 350 lbs/cy = 204 tons;

approximately 200 tons maximum volume staged at baler in-feed

Density - loose cardboard representative of density of compacted,
packer truck since that is how it arrives at the facility = 300 lbs/cy

David L. Leggett
2-17-2011

hsagolden
engineering environmental solutions

100 East Pine St.
Suite 605
Orlando, FL 32801

Tel: 407 649-5475
Fax: 407 649-6582

PROJECT NO.: 06-404.016

DATE: 02/17/2011

BY: William Jacobs

CALCULATION SHEET

SHEET 1 OF 1

Baled Cardboard Areas at Taft Recycling, Inc.

Area 1: 4 bales high ($4 \times 2.5 = 10'$), 10 bales wide ($10 \times 5 = 50'$)
and 42 bales deep ($3.75 \times 42 = 158'$) allows for 1,680 bales,
less 10 bales step-up at ends = 1,670 bales

Area 2: 4 bales high ($4 \times 2.5 = 10'$), 10 bales wide ($10 \times 5 = 50'$)
and 24 bales deep ($3.75 \times 24 = 90'$) allows for 960 bales,
less 10 bales step-up at ends = 950 bales

Total bales = 2,620 or 4,559 cy



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Tel: 407 649-5475
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PROJECT NO.: 06-404.016

DATE: 02/17/2011

BY: William Jacobs

CALCULATION SHEET

SHEET 1 OF 1

Volume-to-weight factors: recycling's manifest density

by Steve Apotheker
Resource Recycling

Proper use of material density factors allows for a more complete understanding of collection and processing operations.

How close is a state to meeting its recycling goal? How much space is needed to stage collected curbside recyclables for processing? How much space is required to store the baled, compacted and crushed materials before shipment to markets? How much material is collected each month from residences, businesses and institutions? These questions (and many others) are asked by recycling collectors, processors and coordinators in the private and public sectors.

Many of these questions can be answered more thoroughly by understanding the densities of recyclable materials that are realized under different operating conditions (see Table 1). In some cases, individual units are converted to weights (see Table 2).

An attempt has been made to select the more accurate conversion factors published in the current literature and to evaluate them. While these tables provide a sample of the approximations used by other sources, it is always better to attempt to derive conversion factors that reflect the geometry of specific storage containers and individual operating conditions, such as a dry climate versus a wet one (see Table 3).

Determining material density factors

An experiment done by Browning-Ferris Industries in 1987 at the Newby Island landfill in San Jose, California looked at the effect on material densities of a compaction process similar to that achieved during landfilling. Corrugated containers, white goods, wood and yard waste were delivered loose in separate bins. A weight was obtained and the material was dumped into separate 40-cubic-yard pits. Residential solid waste followed the same pattern except it was delivered in a 37-cubic-yard side-loader compactor truck.

A landfill compactor went over the materials in the five pits until each pit space was completely full. In general, the compacted material densities increased by a

factor of three to five over the original delivered densities. Corrugated containers and white goods showed the greatest proportional increase in density, and wood the least.

A study by Franklin Associates, Ltd. for the U.S. Environmental Protection Agency developed densities for a wide range of materials as compacted in landfills (see Table 4).

Aiding state planning

To aid local governments in preparing annual reports on collected volumes, both New Jersey and Minnesota have developed their own sets of material conversion numbers. The conversion figures are usually obtained from trade associations and processors that handle the specific material, as opposed to actual measurements made by state staff. A designated set of conversion numbers promotes consistency in reporting. To minimize confusion by the participating agencies, a specific conversion number for each scrap material is given rather than providing a range of densities.

The information accumulated from these reports assists the states in assessing progress toward legislated recycling goals. The recovered tonnage reports provide valuable information on available supply for companies trying to make market development decisions. In the case of New Jersey, the recovered tonnages derived from the conversion factors are used to calculate state rebates to local governments.

One drawback of using conversion numbers to measure material recovery is the risk of misrepresenting the actual amount of material diversion that is achieved if the density factors are simply increased from one year to the next.

Helping the local collector

In Champaign, Illinois, the Community Recycling Center uses volume conversion numbers to keep track of 10 materials that

■ Table 1 — Material density factors

Material	Density (pounds per cubic yard)	Source	METAL			Food		
			Aluminum cans			Kitchen waste	800-900	2
			Whole	74	1, 4	Solid fats & liquid		
			Whole	50	6, 7, 14	fats drum	1,485	1, 4
			Flattened	250	1, 4, 5	Grass clippings		
PAPER			Flattened	175	6	Loose	400	1
Newspaper			Flattened	135-215	14	Loose	665-740	4, 9
Drum	415	8	Baled	350-540	14, 16	Compacted	1,050-1,110	4, 9
Loose, bin	360-500	4	Densified	1,080	14	Leaves		
Loose, bin	475	6	Shreds	400	16	Loose	250	1
Loose, stacked	600	1	Ferrous cans			Loose	400	4, 9
Baled, downstroke	650	8	Whole	150	1, 4, 6	Vacuumed	350	1
Baled, downstroke	775	15	Drum, one-third are flattened	235	8	Vacuumed	500	9
Baled, horizontal, single ram	700	15	Flattened	350-400	8	Vacuumed	700	4
Baled, horizontal, double ram	800	5, 15	Baled	850	1, 4, 5, 6	Compacted	450	1
			Densified	1,600	14	Compacted	665	9
Corrugated containers			Household batteries			Yard waste		
Loose	100	3, 11	Drum	2,150	13	Loose (2)	296	3
Compacted, pucker truck	200-300	11	White goods			Loose	600	2
Compacted, landfill (1)	508	3, 4	Uncompacted	199	3	Compacted	1,037	3
Baled, downstroke	450-520	5, 8, 15	Compacted, landfill	994	3	CONSTRUCTION & DEMOLITION		
Baled, horizontal, single ram	650	15	PLASTICS			Asphalt, milled, ripped, crushed	1,380	4
Baled, horizontal, double ram	750	5, 15	PET soda bottles			Concrete, brick & block	4,000	4
High grade			Whole	34	6, 7	Wood waste		
Ledger, loose, bin	300-400	6	Whole, some flattened	30-45	10	Pallets	286	4
Mixed ledger and computer			Flattened	75	6	Other than pallets	364	4
printout, drum	290	8	Baled	400	10	Loose dimensional lumber	244	3
Ledger, baled	700-750	5, 8, 15	Baled and perforated	600-700	14	Compacted dimensional lumber	695	3
Mixed paper, loose	150	12	Granulated	500-600	8	OTHER MATERIALS		
GLASS CONTAINERS			HDPE			TEXTILES		
Whole			Natural, whole	25-30	6, 10	Loose	240	13
Bin	500-600	1, 4, 6, 8	Natural, flattened	65	6	Baled	480	13
Drum	500-550	8	Colored, whole	45	6, 10	COMMINGLED RESIDENTIAL		
Flint bottles	500-515	6, 8	Colored, flattened	90	6	RECYCLABLE CONTAINERS		
Green bottles	550-650	6, 8	Baled	400	10	Glass, plastic and metal containers	140-220	6
Amber bottles	540-550	6, 8	Granulated	500-600	8	RESIDENTIAL SOLID WASTE		
Semi-crushed (manually broken)			ORGANICS			Compacted, sideloader	456	3
Bin	1,000	6	Brush			Compacted, landfill density	1,264	3
Drum	1,080	1, 4	Loose	250	4			
Crushed, maximum size 1 1/2"			Loose	350	9	(1) A standard landfill compactor was used to compress the material to a density repre- sentative of a landfill.		
(mechanically broken)			Chipped, 3" screen	550-650	9	(2) Primarily non-woody material with pre- ponderance of weeds and dried vegeta- ble matter. Grass clippings were not a major contributor. This density could be considered light for a normal composition of yard waste.		
Bin	1,800	6	Chips	500	1			
Drum	1,980	1, 4	Compost					
Furnace ready, maximum size 1/4"	2,700	6	Raw	350	13			
			20 percent moisture	1,000	9			
			70 percent moisture	1,900	9			
			Finished	1,400	13			

Sources:

1. Indiana Institute on Recycling, Indiana State University, Terre Haute, Indiana, 1990.
2. Compost Management Associates, *A Field Examination of the Cost-Effectiveness, Waste Diversion Potential, and Homeowner Acceptance of Three Different Backyard Composting Units*, Regional Municipality of Durham, Ontario, Canada, April 1990.
3. Browning-Ferris Industries, *Waste Compaction Study for the Recyclery at Newby Island*, San Jose, California, October 1989.
4. Office of Recycling, Department of Environmental Protection, Trenton, New Jersey, 1990.
5. Garten Foundation, Salem, Oregon, 1991.
6. "Post-consumer material densities," Resource Recycling Technologies, Inc., Vestal, New York, March 1991.
7. Esther R. Bowring, "A comparison of commingled collection containers," *Resource Recycling*, April 1990.
8. Community Recycling Center, Champaign, Illinois, 1991.
9. Organic Recycling, Valley Cottage, New York, 1991.
10. Council for Solid Waste Solutions, *How to Implement a Plastics Recycling Program*, 1991.
11. Steve Apotheker, "Small generators boost old corrugated recycling rate," *Resource Recycling*, April 1990.
12. Jeffrey Morris, "Mixed paper recycling practices in North America," *Resource Recycling*, January 1991.
13. Minnesota Office of Waste Management, St. Paul, Minnesota, 1991.
14. CP Manufacturing, National City, California, 1991.
15. Colton Equipment, West Linn, Oregon, 1991.

■ **Table 2 — Weight conversion numbers**

Material	Unit	Weight (pounds)	Source
Battery, motor vehicle	One	33	1
		36	3
Used motor oil	Gallon	7	1
		7.5	2
Pallet	One	40 (range is 30 to 100)	1
Tires			
Passenger	One	20	1, 3
Truck	One	60	3
	One	90	1

Sources:

1. Office of Recycling, Department of Environmental Protection, Trenton, New Jersey, 1990.
2. Community Recycling Center, Champaign, Illinois, 1991.
3. Minnesota Office of Waste Management, St. Paul, Minnesota, 1991.

are collected from over 100 buildings at the University of Illinois and over 200 businesses. This minimizes the labor and capital expense of keeping the loads separate and weighing them back at the site.

Instead, average weights are determined for a given location by applying the density factors to the volume of the drum,

bin or other designated containers holding the materials. Drivers keep records on how much volume (e.g., half a drum of glass bottles) of a material is collected at a given location. A computer program converts the volumes to weights.

Every six or 12 months, the calculated weights derived from collected volumes are matched up to the actual marketed

weights (less net inventory). Any discrepancy between the collected and marketed weights allows CRC to fine-tune a volume conversion number. Uniform, bulk materials, such as glass bottles and old newspapers, are rarely off more than 1 or 2 percent. Office paper collection figures require more detail, since a preponderance of denser computer printout paper can skew the results at a given location.

Using a volume-based collection approach and conversion numbers, CRC has been able to provide each business and University building with an estimate of how much material has been collected from its location. Since CRC is a charitable organization, each business is able to take a tax deduction for the amount of recyclable materials "donated."

In some areas of the country, trucks are being developed with built-in scales that allow the weight from each location along a given route to be recorded. Industrial Waste Service, a subsidiary of Attwoods, Inc., uses such a truck to pick up recyclables from over 300 schools in the fourth largest school system in the U.S., in Dade County, Florida.

Continues



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Volume-to-Weight Conversions for Recyclable Materials

for use with the Municipal Recycling Data Sheet

Material	Density	Sources
Paper		
<i>Newspaper</i>		
Loose, unbaled	445 pounds / cubic yard	1,2,3
Compacted	800 pounds / cubic yard	2,3
Hand stacked	35 pounds / 12 inch stack	2,3
<i>Corrugated Cardboard</i>		
Loose, unbaled	200 pounds / cubic yard	1,2,3
Compacted	460 pounds / cubic yard	2,3
<i>Other Paper</i>		
Telephone Books	250 pounds / cubic yard	4
Mixed Paper	490 pounds / cubic yard	1,3
Containers		
<i>Commingled</i>		
Cans, Glass & Plastic	180 pounds / cubic yard	1,2,3
Cans & Glass	270 pounds / cubic yard	1,2,3
<i>Glass</i>		
Whole Bottles	620 pounds / cubic yard	1,2,3
Crushed-semi (manually)	1,175 pounds / cubic yard	2,3
Mechanically Crushed	1,840 pounds / cubic yard	2,3
<i>Steel/ Tin Cans</i>		
Whole	150 pounds / cubic yard	2,3
Flattened	850 pounds / cubic yard	2,3
<i>Aluminum Cans</i>		
Whole	60 pounds / cubic yard	1,2,3
Flattened	225 pounds / cubic yard	2,3
<i>Plastics</i>		
PET #1 - whole	35 pounds / cubic yard	1,2,3
HDPE #2 - whole	25 pounds / cubic yard	3
Plastics #3 - #7 - whole	50 pounds / cubic yard	3
All Plastics: #1 - #7 - whole	38 pounds / cubic yard	2
Miscellaneous materials		
White goods (appliances)	300 lb / cy or 170 each on average	4
Textiles	175 pounds / cubic yard	4
CRTs/Computers	50 lbs each (whole on average)	4
Organics - Weight Conversions		
Grass Clippings	667 pounds / cubic yard	4
Leaves	400 pounds / cubic yard	4
Brush	500 pounds / cubic yard	4
Unfinished compost	1,500 pounds / cubic yard	4
Finished compost	1,350 pounds / cubic yard	4
Organics - Volumetric Conversions		
Grass Clippings	3 cubic yards/ton	4
Leaves	5 cubic yards/ton	4
Brush	4 cubic yards/ton	4
Hazardous Household Products (HHP)		
Auto batteries	39 lbs each	5
Batteries (household)	40 pounds / 5 gallon pail	4
Oil filters	250 pounds / 55 gallon drum	4
Paint (boxed)	690 pounds / cy box	4
Paint (bulk packed)	450 pounds / 55 gallon drum	4
Mercury Containing Products (MCP)		
Fluorescent lamps	0.5 pounds / four foot lamp	4
U-Tube	report as 4 linear feet each	
Circular Bulb	report as 4 linear feet each	
Compact Fluorescent Light Bulb	report as 4 linear feet each	
HID Bulbs	report as 8 linear feet each	

Sources

1. California Integrated Waste Management Board, data from CalRecovery report (w/Telex) of 1991
2. National Recycling Coalition, data from 1996
3. Information from other government sources includes OR & VA Departments of Environmental Quality, NJ Department of Environmental Protection, HI documentation as well as US Navy facility guidance documents and the United States Environmental Protection Agency
4. DEP conversion rate from previous research
5. From EPA and Waste Age