Solid Waste Permit Renewal Application

Taft Transfer Station/Waste Processing
& Material Recovery Facility
375 West 7th Street
Orlando, Florida 32824
WACS ID No. 87104

***Prepared for*:**

Florida Department of Environmental Protection
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803

February 2016

hsagolden engineering environmental solutions

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February 18, 2016

VIA UPS

F. Thomas Lubozynski, P.E.
Waste & Air Resource Programs Administrator
Florida Department of Environmental Protection
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

Subject: Solid Waste and Waste Tire Processing Facility Permit Renewal Applications
Taft Transfer Station/Waste Processing & Material Recovery Facility
375 West 7th Street, Orlando, Florida 32824
WACS ID No. 87104
HSA Golden Project Number 06-404.022

Dear Mr. Lubozynski:

On behalf of On behalf of Taft Recycling, Inc. (TRI), HSA Golden is submitting for your review a permit renewal application for the above-referenced facility.

The attachments to this submittal are organized as follows:

Section 1	Application Forms
Section 2	Property Appraiser/Ownership Information
Section 3	Current Aerial Photograph, Site Plan, and Well Survey
Section 4	Operation Plan
Section 5	Financial Assurance Cost Estimate
Section 6	Compliance History Information

Previously submitted data and reports including the Engineering Report, Hydrogeological Investigation, Topographic and Boundary Survey, and Engineering Plans remain valid and are not included in this submittal.

Two checks, one for $1,000 for the Solid Waste permit renewal and one for $1,250 for the Waste Tire permit renewal, are attached. Each check covers the first five years of a 10-year permit renewal. We trust this submittal will satisfy the requirements of the permit renewal. Please call us if you have any questions.

Sincerely,

HSA GOLDEN

William Jacobs
Senior Project Manager

John P. Smith, P.E.
Vice President, Principal Engineer

Attachments
cc: Mr. Michael Kaiser, Taft Recycling, Inc.

Progressive Waste Solutions
2301 Eagle Parkway, Suite 200
Fort Worth, TX 76177

June 1, 2015

To Whom it May Concern:

I, Kevin C. Walbridge, hereby certify that I am a responsible corporate officer of Taft Recycling, Inc. I hereby duly authorize Michael Kaiser, whose signature appears below, to be my representative and authorize him to sign all permit applications, modifications, and financial assurance and reporting documents for Taft Recycling, Inc.

Sincerely,

Kevin C. Walbridge
President
Taft Recycling, Inc.

Michael Kaiser
Authorized Agent

Notary:

JENNIFER MARSHALL
Notary Public - State of Florida
Commission # FF 204307
My Comm. Expires Mar 6, 2019
Bonded through National Notary Assn.

hsagolden
engineering environmental solutions

Section 1.
Application Form

Florida Department of Environmental Protection
Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

DEP Form #: 62-701.900(4), F.A.C.
Form Title: Application to Construct, Operate, or Modify a Waste Processing Facility
Effective Date: August 12, 2012
Incorporated in Rule: 62-701.710(2), F.A.C.

APPLICATION TO CONSTRUCT, OPERATE, OR MODIFY A WASTE PROCESSING FACILITY

GENERAL REQUIREMENT: Solid Waste Management Facilities shall be permitted pursuant to Section 403.707, Florida Statutes (F.S.) and in accordance with Florida Administrative Code (F.A.C.) Chapter 62-701. A minimum of four copies of the application shall be submitted to the Department District Office having jurisdiction over the facility. The appropriate fee in accordance with subsection 62-701.315(4), F.A.C., shall be submitted with the application by check made payable to the Department of Environmental Protection (DEP). Complete appropriate sections for the type of facility for which application is made and include all additional information, drawings, and reports necessary to evaluate the facility.

Please Type or Print in Ink

A. GENERAL INFORMATION

1. Type of facility (check all that apply):

☑ Transfer Station:

☐ C&D ☑ Class III ☑ Class I

☑ Other Describe: Waste Tire Storage and Processing Facility

☑ Materials Recovery Facility:

☐ C&D Recycling ☑ Class III MRF ☑ Class I MRF

☑ Other Describe: Waste Tire Storage and Processing Facility

☐ Other Facility That Processes But Does Not Dispose Of Solid Waste On-Site:

☐ Storage, Processing or Disposal for Combustion Facilities (not addressed in another permit)

☐ Other Describe: _____

NOTE: C&D Disposal facilities that also recycle C&D shall apply on DEP Form 62-701.900(6), F.A.C.

2. Type of application:

☐ Construction/Operation

☑ Operation without Additional Construction

3. Classification of application:

☐ New ☐ Substantial Modification

☑ Renewal ☐ Intermediate Modification

☐ Minor Modification

4. Facility name: Taft Transfer Station/Waste Processing & Material Recovery Facility

5. DEP ID number: 87104 County: Orange

6. Facility location (main entrance): 375 West 7th Street, Orlando, Florida 32824

7. Location coordinates:

Section: 2 Township: 24 S Range: 29 E

Latitude: 28 ° 25 ' 30.61 " Longitude: 81 ° 22 ' 52.99 "

Datum: NAD83 Coordinate Method: Digital Aerial Photography

Collected by: _____ Company/Affiliation: _____

8. Applicant name (operating authority): Taft Recycling, Inc.

Mailing address: 2301 Eagle Parkway, Ste. 200, Fort Worth, TX 76177
Street or P.O. Box City State Zip

Contact person: Michael Kaiser Telephone: (904) 673-0446

Title: Southeast Region Engineer michael.kaiser@progressivewaste.com
E-Mail address (if available)

9. Authorized agent/Consultant: HSA Golden

Mailing address: 11 Lake Gatlin Road, Orlando, FL 32806
Street or P.O. Box City State Zip

Contact person: John P. Smith, P.E. Telephone: (407) 649-5475

Title: V.P., Principal Engineer jsmith@hsagolden.com
E-Mail address (if available)

10. Landowner (if different than applicant): _____

Mailing address: _____
Street or P.O. Box City State Zip

Contact person: _____ Telephone: (____) _____

_____
E-Mail address (if available)

11. Cities, towns and areas to be served: Orange, Osceola, and Seminole Counties, City of Orlando

_____

12. Date site will be ready to be inspected for completion: N/A

13. Estimated costs:

Total Construction: $ N/A Closing Costs: $ 647,770.67

14. Anticipated construction starting and completion dates:

From: N/A To: N/A

15. Expected volume of waste to be received: _____ yds^3/day 2,000 tons/day

16. Provide a brief description of the operations planned for this facility: The facility will accept Class I and Class III waste from private collection vehicles. The Class I waste will be processed and then placed into transport vehicles and hauled to a FDEP permitted Class I landfill. Recyclable materials will also be separated from Class II and C&D waste streams. The remaining waste will be hauled to a FDEP- approved Class III landfill.

B. ADDITIONAL INFORMATION

Please attach the following reports or documentation as required.

1. Provide a description of the operation of the facility that shall include (62-701.710(2)(a), F.A.C.):
   a. The types of materials, i.e., wastes, recyclable materials or recovered materials, to be managed or processed;
   b. The expected daily average and maximum weights or volumes of materials to be managed or processed;
   c. How the materials will be managed or processed;
   d. How the materials will flow through the facility including locations of the loading, unloading, sorting, processing and storage areas;
   e. The types of equipment that will be used;
   f. The maximum time materials will be stored at the facility;
   g. The maximum amounts of wastes, recyclable materials, and recovered materials that will be stored at the facility at any one time; and
   h. The expected disposition of materials after leaving the facility.

2. Attach a site plan, signed and sealed by a professional engineer registered under Chapter 471, F.S., with a scale not greater than 200 feet to the inch, which shows the facility location, total acreage of the site, and any other relevant features such as water bodies or wetlands on or within 200 feet of the site, potable water wells on or within 500 feet of the site (62-701.710(2)(b), F.A.C.).

3. Provide a boundary survey and legal description of the property (62-701.710(2)(c), F.A.C.).

4. Provide a construction plan, including engineering calculations, that describes how the applicant will comply with the design requirements of subsection 62-701.710(3), F.A.C. (62-701.710(2)(d), F.A.C.).

5. Provide an operation plan that describes how the applicant will comply with subsection 62-701.710(4), F.A.C. and the recordkeeping requirements of subsection 62-701.710(8), F.A.C. (62-701.710(2)(e), F.A.C.).

6. Provide a closure plan that describes how the applicant will comply with subsection 62-701.710(6), F.A.C. (62-701.710(2)(f), F.A.C.).

7. Provide a contingency plan that describes how the applicant will comply with subsection 62-701.320(16), F.A.C. (62-701.710(2)(g), F.A.C.).

8. Unless exempted by subparagraph 62-701.710(1)(d)1., F.A.C., provide the financial assurance documentation required by subsection 62-701.710(7), F.A.C. (62-701.710(2)(h), F.A.C.).

9. Provide a history and description of any enforcement actions by the applicant described in subsection 62-701.320(3), F.A.C. relating to solid waste management facilities in Florida. (62-701.710(2), F.A.C. and 62-701.320(7)(i), F.A.C.)

10. Provide documentation that the applicant either owns the property or has legal authorization from the property owner to use the site for a waste processing facility (62-701.710(2), F.A.C. and 62-701.320(7)(g), F.A.C.)

C. **CERTIFICATION BY APPLICANT AND ENGINEER OR PUBLIC OFFICER**

1. 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 MRF/TS Renewal Operating 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/her 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 Permit is not transferable, and the Department will be notified prior to the sale or legal transfer of the permitted facility.

Michael A. Kaiser
Signature of Applicant or Agent

Michael Kaiser, Southeast Region Engineer
Name and Title (please type)

michael.kaiser@progressivewaste.com
E-Mail address (if available)

2301 Eagle Parkway, Ste. 200
Mailing Address

Fort Worth, TX 76177
City, State, Zip Code

(904) 673-0446
Telephone Number

1/26/16
Date

Attach letter of authorization if agent is not a governmental official, owner, or corporate officer.

2. Professional Engineer registered in Florida (or Public Officer if authorized under Sections 403.707 and 403.7075, Florida Statutes):

This is to certify that the engineering features of this waste processing facility have been designed/examined by me and found to conform to engineering principles applicable to such facilities. In my professional judgment, this facility, when properly maintained and operated, will comply with all applicable statutes 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 of proper maintenance and operation of the facility.

Signature

John P. Smith, P.E., V.P., Principal Engineer
Name and Title (please type)

63423
Florida Registration Number
(please affix seal)

JOHN P. SMITH LICENSE No. 63423 STATE OF FLORIDA PROFESSIONAL ENGINEER

11 Lake Gatlin Road
Mailing Address

Orlando, FL 32806
City, State, Zip Code

jsmith@hsagolden.com
E-Mail address (if available)

(407) 649-6777
Telephone Number

2/18/16
Date

Reset Form | Print Form

Florida 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
Incorporated in Rule 62-711.530(6)

Waste Tire Processing Facility Permit Application

Permit No. WT48-0173968-010

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: 2301 Eagle Parkway, Suite 200
5. City: Fort Worth, Texas County: Zip: 76177
6. Contact person: Michael 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.

B. Facility Information:

1. Facility Name: Taft Transfer Station/Waste Processing & Material Recovery Facility
2. Facility Street Address (Main Entrance): 375 West 7th Street
3. City: Orlando County: Orange Zip: 32824
4. Facility Mailing Address: 2301 Eagle Parkway, Suite 200
5. City: Fort Worth State: Texas Zip: 76177
6. Contact Person: Michael Kaiser Phone: (904)673-0446
7. Facility Location Coordinates:

   Section: 2 Township: 24S Range: 29E

   Latitude: 28 25' 30.61" Longitude: 81 22' 52.99"
8. Anticipated date for starting construction N/A and for completion of construction N/A
9. Anticipated date for receipt of tires N/A and for start of processing N/A

Mail completed form to appropriate district office listed below

Northwest District	Northeast District	Central District	Southwest District	South District	Southeast District
160 Government Center	7825 Baymeadows Way, Ste. 200 B	3319 Maguire Blvd., Ste. 232	13051 N. Telecom Pky	2295 Victoria Ave., Ste. 364	400 North Congress Ave.
Pensacola, FL 32501-5794	Jacksonville, FL 32256-7590	Orlando, FL 32803-3767	Temple Terrace, FL	Fort Myers, FL 33902-2549	West Palm Beach, FL 33401
850-595-8360	904-807-3300	407-894-7555	813-632-7600	239-332-6975	561-681-6600

DEP Form # 62-701.900(23)

Form Title: Waste Tire Processing Facility Permit Application

Effective Date: January 6, 2010

Incorporated in Rule 62-711.530(6)

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: John P. Smith, P.E.
2. Mailing address: HSA Golden, 11 Lake Gatlin Road
3. City: Orlando State: Florida Zip: 32806
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.

☐ Waste tire processing facility with on-site consumption of waste tires or processing residuals.

☐ 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:	67.5	3,200			67.5
Processed tires:	67.5	2,000			67.5
Processing residuals:	10	300			10
TOTALS:	145	5,500			145

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 Section 3, Sheet 1
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 Section 3, Sheet 2
   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;
   b. All wetlands and water bodies within the facility or within 200 feet of any storage area;
   c. Stormwater control measures, including ditches, dikes, and other structures;
   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;
   e. Location, size, and depth of all wells within the facility or within 200 feet of any storage area;
   f. All structures and buildings that are, or will be, constructed at the facility; include those used in storage and processing operations;
   g. All areas used for loading and unloading;
   h. All access roads and internal roads, including fire lanes;
   i. Location of all fences, gates, and other access control measures; and
   j. Location of all disposal areas within the facility. Not Applicable

B. Facility operation. Section 4

1. A description of the facility's operation, process and products including how waste tires will be received and stored.
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.
3. Description of the waste from the process, the amount of waste expected and how and where this waste will be disposed of.
4. Statement of the maximum daily throughput and the planned daily and annual throughput.
5. A description of how the operator will maintain compliance with each of the storage requirements of Rule 62-711.540, F.A.C.
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.
7. A copy of the fire safety survey
8. A description of how 75% of the annual accumulation of waste tires will be removed for disposal or recycling.

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

DEP Form # 62-701.900(23)
Form Title: Waste Tire Processing Facility Permit Application
Effective Date: January 6, 2010
Incorporated in Rule 62-711.530(6)

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. Section 5

E. A letter from the land owner (if different from applicant) authorizing use of the land as a waste tire pr ocessing facility. Not Applicable

F. If waste tires will be consumed or diposed of 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 Not Applicable

G. The permit fee as required in Rule 62-4, F.A.C.

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 Rnwl 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 Chap ter 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

Michael Kaiser, Southeast Region
Name and Title

2/2/16
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 facilit ies. 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.

JOHN P. SMITH LICENSE No. 63423 STATE OF FLORIDA PROFESSIONAL ENGINEER

Signature

John P. Smith, P.E., Vice President
Name and Title

63423
Florida Registration Number

11 Lake Gatlin Road
Mailing Address

Orlando, FL 32806
City, State, Zip

407-649-5475
Telephone number

2/18/16
Date

(please affix seal)

INSTRUCTIONS TO APPLY FOR A SOLID WASTE MANGEMENT FACILITY (OTHER THAN LANDFILLS) PERMIT

I. General

Private Solid Waste Management Facilities in the areas of Orange County that are not within the boundaries of any municipality shall be permitted pursuant to the Orange County "Solid Waste Management Ordinance" Chapter 32, Article V of the Orange County Code. Four (4) copies of the application shall be submitted to the Orange County Environmental Protection Division (EPD).

Complete all sections for the type of facility for which application is made. Entries shall be typed. All blanks shall be filled in or marked "not applicable" or "no substantial change". Information provided in support of the application shall be marked "submitted" and the location of this information in the application package indicated. The application shall include all information, drawings, and reports necessary to evaluate the facility.

II. Application Codes

S	-	Submitted
Location	-	Physical location of information in application
N/A	-	Not Applicable
NSC	-	No Substantial Change

ORANGE COUNTY
ENVIRONMENTAL PROTECTION DIVISION

CHECKLIST FOR PERMIT TO CONSTRUCT / OPERATE, MODIFY OR CLOSE A SOLID WASTE MANAGEMENT FACILITY OTHER THAN LANDFILLS

A. General Information

1. Type of facility:

- ☐ Composting
- ☐ Used oil recycling
- ☑ Solid waste transfer station
- ☑ Materials recovery
- ☑ Waste tire processing
- ☐ Incinerator
- ☑ Yard waste and land clearing debris recycling
- ☐ Other _____

2. Type of application:

- ☑ Construction / Operation
- ☐ Closure

3. Classification of application:

- ☐ New
- ☑ Renewal
- ☐ Substantial Modification
- ☐ Minor Modification

4. Facility name: Taft Transfer Station/Waste Processing & Material Recovery Facility

5. EPD permit number: SW-022429-MRF/TS-06-11 District number: _____

6. Facility location (main entrance):

375 West 7th Street, Orlando, Florida 32824

7. Location coordinates:

Section: 2 Township: 24 S Range: 29 E

UTMs: Zone _____ _____ km E _____ km N

Latitude: 28 ° 25 ‘ 33 “ Longitude: 81 ° 22 ‘ 59 “

8. Applicant name (Operating Authority): Taft Recycling, Inc.

Mailing address: 2301 Eagle Parkway, Ste., 200, Fort Worth, TX 76177

Contact person: Michael Kaiser Telephone: 904-673-0446

Title: Southeast Region Engineer

9. Authorized agent / Consultant: HSA Golden

Mailing address: 11 Lake Gatlin Road, Orlando, FL 32806

Contact person: John P. Smith Telephone: 407-649-5475

Title: Vice President, Principal Engineer

10. Landowner (if different from applicant):

Mailing address:

Contact person: Telephone:

11. Volume of solid waste to be received: 2,000 yds^3/day ○ tons/day ◉ (circle one)

12. Date site will be ready to be inspected for completion: N/A

13. Estimated life of the facility: N/A years

14. Estimated closure costs: $ 647,770.67

15. Anticipated construction starting and completion dates: From: N/A To: N/A

B. Solid Waste Management Facility General Information

1. Provide a brief description of the facility design and operation planned by this application:
The facility will accept Class I and Class III waste from private collection vehicles. The Class I waste will be processed and then placed into transport vehicles and hauled to a FDEP permitted Class I landfill. Recyclable materials will also be separated from Class III and C&D waste streams. The remaining waste will be hauled to a FDEP approved Class I, III, and C&D facility depending on waste type.

2. Facility site supervisor: Roberto Gonzalez
Title: Division Manager Telephone: 407-921-2641

3. Operational area (indicate square feet for housed operations or acres for field operations):
Total: 12 acres Used: 12 acres Available: 0 acres

4. Source of waste: Orange, Osceola, and Seminole Counties, City of Orlando

5. Haul route: Orange Blossom Trail (US 17-92) or Orange Avenue to West Taft-Vineland Road or West Landstreet Road to Sidney Hayes Road to Harrington Road (7th Street)

6. Paved access: ☑ Yes ☐ No

7. Weighing scales used: ☑ Yes ☐ No

8. Security chain link fence (minimum 6 ft. tall), with locking gates, around the site to prevent unauthorized use:
☑ Yes ☐ No Number of gates 1

9. Surrounding land use, zoning:
☐ Residential
☐ Agricultural
☑ Commercial
☑ Industrial
☐ None
☐ Other

10. List the type of waste received:

Class I and Class III waste, municipal solid waste, yard trash, concrete, asphaltic concrete, wood wastes, building debris, cardboard, carpet, cloth, paper, metal, plastic, waste tires, and furniture described in Rule 62-701, F.A.C.

11. Salvaging permitted: ☐ Yes ☑ No

12. Facility personnel: (indicate number)

Attendant: 4 Trained operator: 2

Spotters: 2 Security: 0

13. Site located in:

☐ Floodplain ☐ Conservation Area

☐ Wetlands ☑ Other Not in environmentally sensitive area

14. *Prior Use as a Solid Waste Management Facility Form* on file with deed to property: ☑ Yes ☐ No

15. Days of operation: 7 days/week

16. Hours of operation: 24 hours/day

17. Stormwater:

Collected: ☑ Yes ☐ No Type of treatment: Retention

Diverted: ☐ Yes ☑ No

18. Applicable Stormwater Management Permit number or status:

ERP48-0179138-003-SI

C. Permit Required Submittals

S	Location	N/A	NSC	Section 32-215	Required submittals
X	Attached			(a)(1)	Original and three copies of the completed application with all supporting data and reports.
			X	(a)(2)	Certified current topographic survey.
			X	(a)(3)	Certified boundary survey.
X	Section 2			(a)(4)	Proof of ownership of property.
			X	(a)(5)	Engineering plans:
			X	(a)(5)e.	Design of ancillary facilities.
			X	(a)(5)f.	Stormwater management plan.
X	Section 3			(a)(5)g.	Zoning of property and adjacent properties.
			X	(a)(5)h.	Landscape buffer plan
X	Section 4			(a)(5)j.	Setbacks and access control
X	Section 4			(a)(6).	Processing fee.
X	Section 4			(a)(9)	Proposed fee schedule.
X	Section 4			(a)(10)	Proposed hours of operation.
X	Section 4			(a)(11)	Proposed method of quantifying waste.
X	Section 3			(a)(13)	Aerial photograph.
X	Section 5			(a)(14)	Evidence of financial assurance.
X	Section 4			(a)(15)	Litter control.
X	Section 4			(a)(16)	Waste stream quality control.
X	Section 4			(a)(19)	Operations plan
X	Section 4			(a)(20)	Description of how the facility will comply with mandatory recycling.
X	Section 4			(a)(21)	Fire fighting agreement.

D. Certification by Applicant and Engineer

I. 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 MRF/TS Operation Perr Permit from the Orange County Environmental Protection Division and certified that the information is 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 the Orange County Code, Florida Statutes, and all applicable rules and regulations of the Environmental Protection Division. It is understood that the Permit is not transferable, and the Division will be notified prior to the sale or legal transfer of the permitted facility.

Signature of Applicant or
Authorized Representative

Michael Kaiser, Southeast Region Engineer

Name and Title

2/2/16

Date

II. Professional Engineer Registered in Florida:

This is to certify that the engineering features of this solid waste management 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 parts of the Orange County Code, State of Florida Statutes, and rules and regulations of the Environmental Protection Division. It is agreed that the undersigned will provide the applicant with a set of instructions of proper maintenance and operation of the facility.

Signature

John P. Smith, P.E., V.P., Princir

Name and Title

63423

Florida Registration Number
(please affix seal)

JOHN P. SMITH LICENSE No. 63423 STATE OF FLORIDA PROFESSIONAL ENGINEER

2/8/16

Date

11 Lake Gatlin Road

Mailing Address

Orlando, FL 32806

City, State, Zip Code

(407) 649-5475

Telephone Number

hsagolden
engineering environmental solutions

Section 2.
Property Appraiser/ Ownership Information

473 W 7Th St

< 02-24-29-7268-00-410 >

Name(s)
Taft Recycling Inc

Property Name
Taft Recycling

Mailing Address On File
2301 Eagle Pkwy Ste 200
Fort Worth, TX 76177-2326
Incorrect Mailing Address?

Physical Street Address
473 W 7Th St

Postal City and Zipcode
Orlando, Fl 32824

Property Use
4800 - Warehousing

Municipality
Un-Incorporated

Values, Exemptions and Taxes | Property Features | Sales Analysis | Location Info | Market Stats

Update Information

Property Description

View Plat

PLAN OF BLK H PROSPER COLONY D/102 LOT 41 (LESS W 40 FT FOR CANAL R/W) & LOTS 42 & 43 (LESS E 100 FT OF LOT 43) & N 20 FT OF VACATED R/W LYING S OF DESC PER 9452/3143

Total Land Area 553,584 sqft (+/-) | 12.71 acres (+/-) GIS Calculated Notice

Land (includes working values)

Land Use Code	Zoning	Land Units	Unit Price	Land Value	Class Unit Price	Class Value
4800 - Warehousing	IND-2/IND-3	134600.4 SQUARE FEET	$2.55	$343,231	$0.00	$343,231
4100 - Light Manufacturing	IND-4	329749.2 SQUARE FEET	$2.55	$840,860	$0.00	$840,860
9950 - Storm/Ret/Drain	IND-4	2.05 ACRE(S)	$10.00	$21	$0.00	$21

Page 1 of 1 (3 total records)

Buildings (includes working values)

View Orange County Permits

	Important Information		Structure			
More Details	**Model Code:**	06 - Warehouse	**Actual Year Built:**	1997	**Gross Area:**	8430 sqft
	Type Code:	4800 - Warehousing	**Beds:**	0	**Living Area:**	6350 sqft
	Building Value:	$111,523	**Baths:**	0.0	**Exterior Wall:**	Modular Metal
	Estimated New Cost:	$203,509	**Floors:**	1	**Interior Wall:**	Inexpensive, Minimal Materials
More Details	**Model Code:**	06 - Warehouse	**Actual Year Built:**	2001	**Gross Area:**	21260 sqft
	Type Code:	4800 - Warehousing	**Beds:**	0	**Living Area:**	21260 sqft
	Building Value:	$528,149	**Baths:**	0.0	**Exterior Wall:**	Modular Metal
	Estimated New Cost:	$800,226	**Floors:**	1	**Interior Wall:**	None
More Details	**Model Code:**	04 - Commercial	**Actual Year Built:**	2007	**Gross Area:**	560 sqft
	Type Code:	1702 - Modular Office	**Beds:**	0	**Living Area:**	560 sqft
	Building Value:	$14,335	**Baths:**	0.0	**Exterior Wall:**	Modular Metal
	Estimated New Cost:	$25,598	**Floors:**	1	**Interior Wall:**	Drywall
More Details	**Model Code:**	06 - Warehouse	**Actual Year Built:**	2004	**Gross Area:**	3000 sqft
	Type Code:	2710 - Vehicle Service Bldg	**Beds:**	0	**Living Area:**	3000 sqft
	Building Value:	$52,152	**Baths:**	0.0	**Exterior Wall:**	Modular Metal
	Estimated New Cost:	$80,730	**Floors:**	1	**Interior Wall:**	None
More Details	**Model Code:**	06 - Warehouse	**Actual Year Built:**	1990	**Gross Area:**	4500 sqft
	Type Code:	4900 - Open Storage	**Beds:**		**Living Area:**	4500 sqft
	Building Value:	$10,106	**Baths:**		**Exterior Wall:**	No Exterior Wall
	Estimated New Cost:	$33,685	**Floors:**	1	**Interior Wall:**	Inexpensive, Minimal Materials

Page 1 of 1 (5 total records)

Extra Features (includes working values)

Description	Date Built	Units	XFOB Value
PVCN - Pav Con	01/01/2000	55000 Square Feet	$165,000
SHED - Shed	01/01/2000	1 Unit(s)	$500
PVAS - Pav Asph	01/01/2012	20014 Square Feet	$40,028

Page 1 of 1 (3 total records)

This Data Printed on 02/08/2016 and System Data Last Refreshed on 02/07/2016

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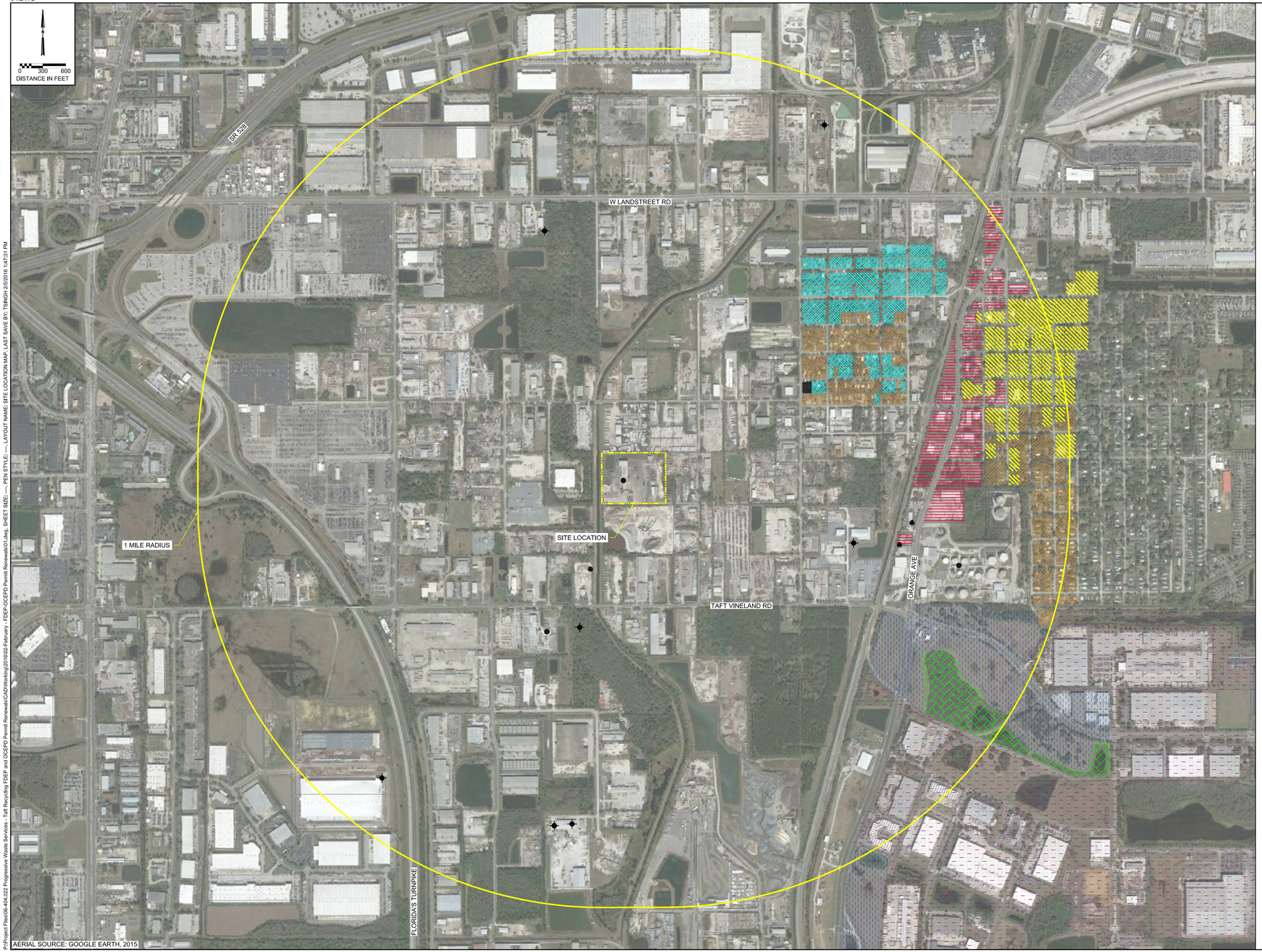
Section 3.
Current Aerial Photograph, Site Plan, and Well Survey

01.DWG

JANUARY 2016



LEGEND

ORANGE COUNTY ZONING

- RESIDENTIAL DISTRICT
- MOBILE HOME RESIDENTIAL
- RESIDENTIAL
- COMMERCIAL
- FARMLAND RURAL

NOTE: NO HATCHING WITHIN ONE-MILE RADIUS INDICATES INDUSTRIAL

CITY OF ORLANDO ZONING

- PLANNED DEVELOPMENT
- CONSERVATION
- GENERAL INDUSTRIAL
- FDOH EHWATER (2016)
- FDEP WATER SUPPLY RESOURCES PROGRAM WELL (2016)
- SOUTH FLORIDA WATER MANAGEMENT DISTRICT CUP WELL (2016)

hsa golden engineering environmental solutions
11 LAKE GATLIN ROAD
ORLANDO, FL 32806
P: 407.649.5475 F: 407.649.6582
HSAGOLDEN.COM

	DATE	BY
DESIGNED	01/2016	WJ
DRAWN	01/2016	TS
CHECKED	01/2016	JS

REVISED	CHECKED

#	DATE	REVISIONS
1		
2		
3		
4		
5		

AERIAL PHOTOGRAPH / ZONING / WELL SURVEY
TAFT TRANSFER STATION / WASTE PROCESSING & MATERIAL RECOVERY FACILITY
ORANGE COUNTY, FLORIDA

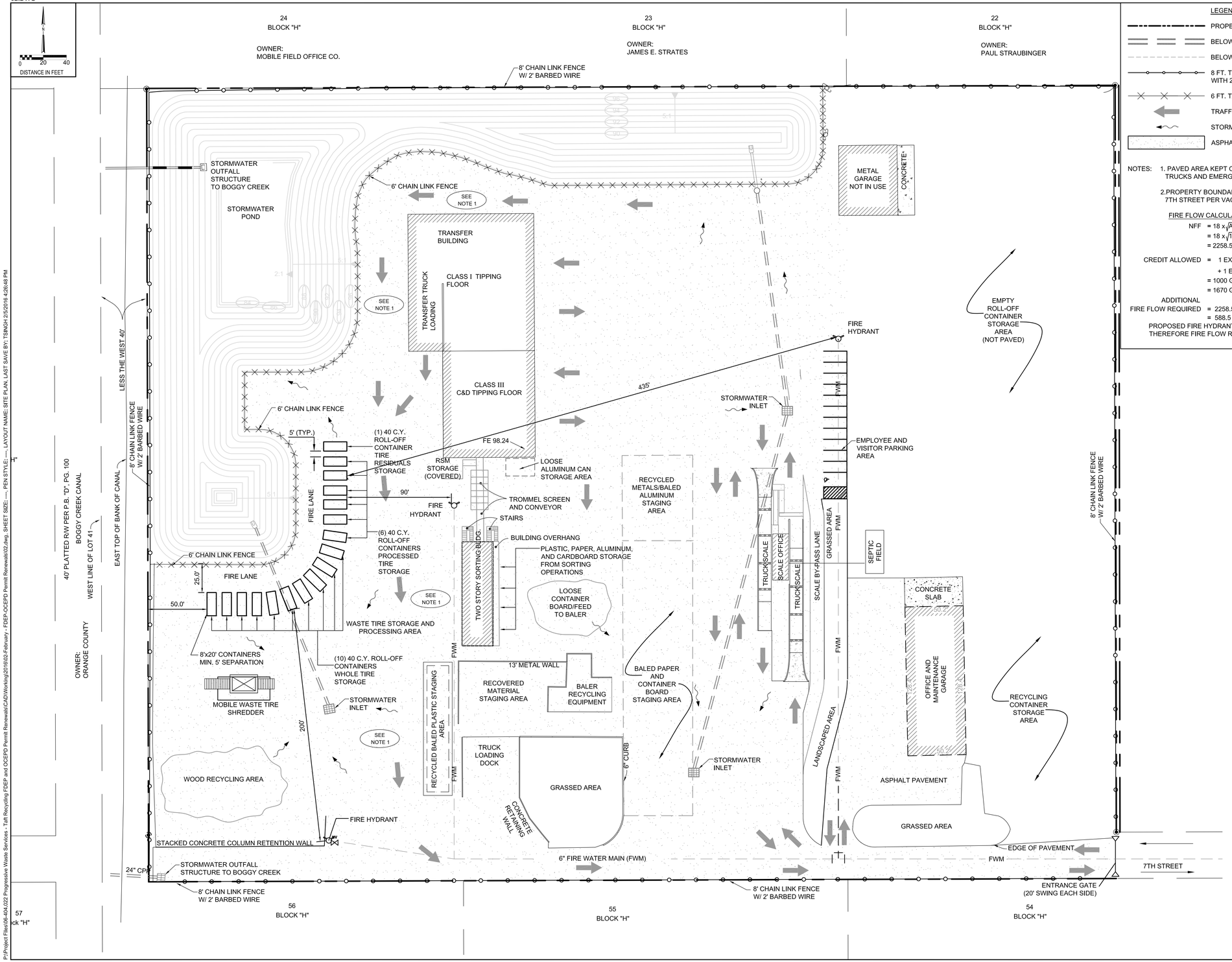
PROJECT #
06-404.022

SHEET
1

P:\Project Files\06-404.022 Progressive Waste Services - Taft Recycling FDEP and OCEPD Permit Renewals\CAD\Working\20160202-February - FDEP-OCEPD Permit Renewals\01.dwg, SHEET SIZE:---, PEN STYLE:---, LAYOUT NAME: SITE LOCATION MAP, LAST SAVE BY: TSINGH 2/5/2016 1:47:31 PM

02.DWG

JANUARY 2016



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

CREDIT ALLOWED = 1 EXISTING FIRE HYDRANT WITHIN 300'
+ 1 EXISTING FIRE HYDRANT WITHIN 600'
= 1000 G.P.M. + 670 G.P.M.
= 1670 G.P.M.

ADDITIONAL FIRE FLOW REQUIRED = 2258.5 G.P.M. - 1670 G.P.M.
= 588.5 G.P.M.
PROPOSED FIRE HYDRANT CREDIT = 1000 G.P.M.
THEREFORE FIRE FLOW REQUIREMENT MET.

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HSAGOLDEN.COM

DATE:

JOHN P. SMITH, P.E.
P.E. NO.: 63423, FL
HSA GOLDEN FBPE NO.: 9915

	BY	DATE
DESIGNED	WJ	01/2016
DRAWN	TS	01/2016
CHECKED	JS	01/2016

REVISED CHECKED

#	DATE	REVISIONS
1		
2		
3		
4		
5		

SITE PLAN
TAFT TRANSFER STATION / WASTE PROCESSING & MATERIAL RECOVERY FACILITY
ORANGE COUNTY, FLORIDA

PROJECT # 06-404.022

SHEET 2

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Section 4.
Operation Plan

OPERATION PLAN

Taft Recycling, Inc.
Taft Transfer Station/Waste Processing & Material Recovery Facility
375 W. 7th Street, Orlando, Florida 32824

Prepared for:

Taft Recycling, Inc.
375 W. 7th Street
Orlando, Florida 32824

Prepared by:

HSA Golden
11 Lake Gatlin Road
Orlando, Florida 32806

Prepared January 2016

HSA Golden Project No. 06-404.022

OPERATION PLAN
Taft Transfer Station/Waste Processing & Material Recovery Facility

Table of Contents

LIST OF FIGURES

LIST OF APPENDICES

OPERATION PLAN
Taft Transfer Station/Waste Processing & Material Recovery Facility

1.0 INTRODUCTION

1.1 Site Description and Background

The Taft Transfer Station/Waste Processing & Material Recovery Facility (facility) is owned and operated by Taft Recycling, Inc. (TRI). The property currently consists of approximately 12 acres in a roughly rectangular shape with an existing office building, equipment maintenance building, 18,600 square foot waste & material recovery processing building, and sorting areas. Topography at the southern limits of the site generally slopes toward a drainage ditch along the southern property boundary that flows west to the Boggy Creek Canal. Topography of the northern limits slopes towards a sediment pond that discharges to Boggy Creek Canal. The property is relatively flat with an elevation of approximately 95 feet National Geodetic Vertical Datum (NGVD). Access is off of 7th Street along the southern portion of the property. A site location map is provided as Figure 1.

The western ±4 acres of the site is zoned I-2/I-3 and the eastern ±8 acres of the site is zoned I-4 based on Orange County records. All adjacent properties within 1000 feet of the site are also zoned industrial. An aerial photograph/zoning map showing a one mile radius surrounding the facility is provided as Figure 2.

The TRI facility was initially permitted as a material recovery facility (MRF) by the Florida Department of Environmental Protection (FDEP) in January 2001, under Rule 62-701.700 Florida Administrative Code (F.A.C.). This permit authorized the processing of Class III and Construction and Demolition (C&D) debris solid wastes in a 12,000 square foot building with sorting, ancillary screening and recycling facilities. In January 2005, TRI received a modified permit from the FDEP to accept Class I wastes within a proposed 6,600 square foot building expansion. In March 2005, TRI received an additional permit modification from the FDEP to accept Class I wastes within areas of the 12,000 square foot existing MRF building. An Orange County Solid Waste facility permit was issued in May 2006. Construction of the 6,600 square foot building expansion was completed in August 2007 along with several other facility improvements. A waste tire storage processing facility permit was approved as an ancillary process in June 2010.

2.0 OPERATION PLAN

2.1 Purpose

The purpose of this Operation Plan is to describe the operation and maintenance procedures for the TRI facility located at 375 7th Street in Taft, Florida. The facility currently includes processing and storage areas for Class I and III materials. Materials accepted at the site include municipal solid waste, yard trash, concrete, asphaltic concrete, wood wastes, building debris,

cardboard, carpet, cloth, paper, glass, metal, plastic, waste tires, and furniture as described in Chapter 62-701, F.A.C.

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 processing 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 offsite for proper disposal. Recoverable (paper, plastic, cardboard, metal, etc.) and recyclable (wood and concrete) materials will be removed for recycling as market conditions allow. Cardboard is processed through a baler and wood wastes 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 is enclosed within bays 3, 4, and 5 of the facility building. Class III/C&D tipping floors (bays 1 and 2) is separated by an eight foot concrete bin block wall. Ventilation, lighting and leachate control upgrades were 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. A facility operations flow chart is provided in Appendix B.

2.2.1 Waste Quantity Projections

Future demand for recycled materials and disposed Class I and Class III waste material is expected to increase based on US Census data projections. Solid waste quantities are also projected to grow. Material types and quantities will be limited to the processing capabilities of this site. The primary operations at the facility will be transfer of Class 1 and III wastes and processing of Class III and C&D wastes for recycling. Transferred Class I and III wastes will disposed at a permitted disposal facility. Processing of Class III and C&D wastes may include sorting, compacting and bailing, crushing and chipping. Estimated demands may require managing approximately 1,500 tons (estimated 6,445 cubic yards [cy]) per average operating day

of Class I and Class III waste, with a maximum of 2,000 tons (estimated 8,421 cy) per day. This production rate of 77 to 108 tons per hour is well within the stated equipment capacities. All equipment specified for this site exceeds this initial anticipated average production rate. The equipment production capacities are 50 tons per hour for the sorter, 20 tons per hour for the cardboard compactor, and a minimum of 32 to 45 tons per hour for the wood chipper, depending on the type of material.

2.3 Management and Operations Personnel

Personnel trained for handling and processing of Class I, Class III, and C&D material will be designated to operate the facility. TRI will have certified operators on staff at all times during operation of the facility. The certifications for the current facility employees are provided in Appendix C. The Area and Post Collections Managers are responsible for overseeing operation of the Taft facility and other facilities within the Area. Overall management of the facility and general direction of the facility operations will be the responsibility of the Facility Manager, whose office will be located onsite. The Facility Manager's responsibilities include:

- Managing environmental compliance for the facility;
- Managing personnel requirements for the facility, including hiring of supervisory and operating personnel, and providing for their training and orientation;
- Ascertaining the operation and maintenance needs for the facility;
- Implementation of the Operation Plan for the facility; and
- Implementation of Equipment Maintenance Plans.

In the absence of the Facility Manager, duties and responsibilities of the facility will be performed by the Lead Operator/Site Supervisor. The Lead Operator/Site Supervisor's additional responsibilities include:

- Supervising the tipping floor;
- Supervising the placement of materials;
- Supervising heavy equipment operations; and
- Spotting loads.

Spotters will be employed on the tipping floor as loader equipment operators to pre-check each incoming load for unauthorized wastes and to manage sorting operations. Support staff, such as sorters, scale operators, and other equipment operators will be employed to facilitate operations at the facility.

2.4 Hiring and Training Program

In-house and publicly available training will be obtained to ensure that operators and spotters are properly trained to operate the facility and to identify and manage unacceptable materials entering the facility. This plan is designed to fulfill the requirements of Rule 62-701.320(15) F.A.C.

In-house training will be provided on an as-needed basis, generally when new operators and spotters are hired until the required publicly available training is feasible. Any in-house operator training, which includes an examination required by Section 403.716 F.S., will be administered by an independent third party. Publicly available training will be provided on a schedule which complies with Rule 62-701.320(15) F.A.C. This will include 16 hours of initial operator training and eight hours of spotter training in the proper operation of the facility and to provide instruction in identifying unacceptable materials, especially materials that qualify as a hazardous waste.

Once every three years, each operator will complete eight hours of additional course work as a refresher to the initial training and to learn new operation procedures and information related to waste identification. Spotters will receive four hours of course work every three years as a refresher. The course work will be selected from courses available through the University of Florida TREEO Center that meet the needs of the facility. Records documenting the above training will be made available for inspection by the FDEP Staff at the facility and the office of the Facility Manager. Copies of current trainings certificates, schedules, and a list of approved classes are provided in Appendix C.

2.5 Emergency Telephone Numbers

Emergency telephone numbers are included in the Hurricane Preparedness Plan presented in Appendix D.

2.6 Emergency and Contingency Plan

In the event of inclement weather, accidents, fires, and equipment breakdowns, the appropriate provision of the contingency plan will be implemented immediately. Amendments will be made to this plan if the facility design, operations, or maintenance procedures change.

Incidents, which might require the assistance of outside emergency response agencies, will be handled by conventional means. In the event of a natural disaster, all waste will be transferred offsite, operations at the facility shall cease, and the facility shall be evacuated until the Facility Manager has deemed the area safe for contingency operations. The evacuation plan includes gathering all personnel on the site at the main office to account for everyone's whereabouts before dismissing the employees and directing them to leave the property. If time allows, operations will be maintained on a limited basis (no incoming waste), dependent upon the Facility Manager's determination, to allow continued removal of waste and materials off the property. Appendix D presents the Hurricane Preparedness Plan prepared by TRI and Appendix K presents the Emergency and Fire Preparedness Guidelines.

2.6.1 Inclement Weather Operations

Litter control at the facility will occur on a continuous basis during operating hours as a component of the site maintenance program. Loose stock piled materials will be secured to prevent litter during windy events. Litter fences will be installed around material storage areas and processing points, see Section 2.12 Litter for further details.

2.6.2 Personal Injury Accidents

In the event of a personal injury at the facility, the nature and extent of the injury will be assessed to the extent possible by the onsite personnel and emergency first aid techniques administered by appropriately trained personnel as necessary. If the injury appears to require professional medical attention, emergency assistance will be obtained. If the injury requires non-emergency medical attention, the injured party will be transported by conventional means to a place of professional medical care, i.e., hospital, emergency room, doctor's office, or clinic. In all cases, the Facility Manager will be notified.

2.6.3 Vehicular Accidents

In the event of a vehicular accident at the site, a determination will be made regarding the feasibility of safely moving the vehicle(s) under their own power. If possible, the vehicles will be moved out of the way of normal traffic flow. If the vehicles cannot move under their own power and the vehicles are interrupting traffic flow, the vehicles will be pushed out of the way using onsite equipment. The Facility Manager will be notified and arrangements to have the disabled vehicles removed will be made in accordance with the directions of the Facility Manager.

2.6.4 Fire

In case of a fire, fire hydrants are located near the processing area (as shown on the Site Plan, Figure 1). Hose reels with 500 feet of fire hose, wrenches, and nozzles are located adjacent to each hydrant. Water service on the site is municipally-supplied. Fire extinguishers will also be located within the processing area, on all equipment, near the waste tire storage area, and within all buildings. A stand alone document titled Emergency and Fire Preparedness Guidelines has been prepared for the facility and approved by the Orange County Fire and Rescue Division (see Appendix K). This document describes in detail the measures taken to prepare for possible fires at the facility and the appropriate response.

Larger fires located anywhere on the site will be sprayed with water. The primary emergency phone number (911) and the Fire Department will be called immediately to respond to all fires.

During a fire, placement of combustible waste in the immediate area of the fire will be suspended. Placement of combustible waste in the area of the fire can only resume after a thorough inspection by the Facility Manager.

In the event of a fire in or on facility equipment, the following procedures will be followed by the equipment operator or other nearby facility personnel:

- Activate the on-board fire suppression equipment;
- If possible, safely move the equipment away from the fire immediately, shut off the engine, and drop blade;
- Signal other operators in the immediate area of the fire via radio, mobile phone, or by hand signals;

- Evacuate the vehicle; and,
- Extinguish any reoccurring fires with the fire suppression equipment on the facility vehicles.

Charged and tested fire extinguishers will be located throughout the facility, including the tipping floor, equipment maintenance building, scale office, and other site equipment (i.e., sorter, loaders and trucks).

There will be no open burning at the facility. Any accidental fires that take more than one hour to extinguish shall be promptly reported to Orange County and FDEP.

2.6.5 Hot Loads

Any hot load (of authorized material) identified will be dumped in an area away from the active processing area (east side of the building on the concrete pad, see Site Plan). The load will immediately be covered with soil or sprayed with water if a fire is imminent. All run off from hot loads will be directed to the leachate collection trenches. The waste will not be processed until it has cooled completely, and the fire hazard has been mitigated.

2.6.6 Hazardous Waste and Spills

Hazardous wastes are not accepted at the facility. The Lead Operator/Site Supervisor, spotters, and equipment operators will be responsible for spotting unauthorized wastes. In the event waste materials of questionable nature are unloaded before they are spotted by facility personnel, the source of the waste will be recorded, and the Facility Manager shall be immediately notified to determine the appropriate action. Typical actions will include: 1) isolation of the waste in the transfer building; 2) transfer and temporary storage of small containers/quantities in 55-gallon FDOT drums; 3) transfer of larger quantities of wastes into lined roll-offs or other disposal bins; and/or 4) mobilizing a 3rd party contractor to assist in managing and properly disposing of the waste (SWS Environmental Services, Clean Harbors Environmental Services etc.). Assistance from the FDEP may be requested or will otherwise be notified of the incident. All suspect hazardous wastes will be removed from the facility within five days.

Despite these precautions, if hazardous liquid waste, fuel, or oil is spilled at the site, absorbent material will be placed to contain the spill. The Facility Manager will be notified immediately in the event a spill occurs. During the operational hours of the facility, at least one person who is trained in the spill plan procedures will be onsite. In case of a spill, the following spill contingency plan will be implemented.

- In case of, or as soon as any spill is observed, the source of the spill will be located and actions taken to prevent further spillage, if possible.
- Valves, pumps, and electrical equipment will be shut off as appropriate.
- Potential ignition sources will be removed from and restricted from entering the area of the spill.
- Existing floor drains, sumps, and storm drains will be covered or a temporary dike constructed.

- Absorbent socks/booms will be used where appropriate. A spill response firm will be contacted, if necessary, to assist in these activities. The spill response firm will provide sampling and analysis for spill cleanup materials.
- All absorbed material or contained liquid will be removed and packaged in Florida Department of Transportation (FDOT) approved containers (55-gallon drums). Used absorbent materials should be packaged separately from liquids.
- All containers used for the disposal of petroleum spill response debris will be labeled with type of waste determined by visual inspection and laboratory testing, and the start date of accumulation, and disposed in accordance with Federal and State environmental regulations. Debris from large spills will be removed immediately by the spill response firm. Debris from small spills will be kept in one 55-gallon drum located in the processing area, for no longer than 30 days.

The following spill clean up equipment will be maintained at the facility:

- Spill response kit capable of containing a spill of at least 25 gallons will be located in the processing area. This kit includes absorbent spill pads, socks, and/or booms.
- An adequate amount of nitrile gloves, nitrile or rubber boots, and other personal protective equipment.
- First aid kit and eye wash.
- Fire extinguishers.

2.6.7 Equipment Failure

Sufficient backup equipment will be available for equipment breakdowns and downtime for normal routine equipment maintenance. In case of major equipment failure (both primary and backup equipment failure) the following procedures will be followed:

- Arrangements with contractors and rental equipment dealers will be made to furnish equipment on a short-term basis. Equipment will be available within one to two hours.
- Applicable facility operations will cease until equipment capacity is retained by renting the necessary equipment.
- Electrical power loss will require the use of onsite 8000 kilowatt (kW) generators to operate lighting and leachate pump systems.

2.7 Waste-type Control Plan

Emphasis will be placed on controlling the types of waste unloaded within the facility. Each load will be visually screened, to the maximum extent practical, by the equipment operator/spotter for unauthorized wastes (batteries, drums, gas cans, oil cans, paint cans, etc.) before unloading.

A 4-foot by 8-foot painted sign is located at the entrance to the facility, which indicates the types of waste allowed. The sign includes a notice that attempting to unload unauthorized waste will result in the delivery personnel having to reload the waste and remove the waste from the site.

TRI will have two full-time spotters/equipment operators, one on each tipping floor when waste is received and processed. These individuals will be trained in identifying hazardous and unauthorized wastes unsuitable for acceptance at the facility.

In the event unauthorized waste is observed by any spotter, sorter, or equipment operator, the spotter, sorter, or equipment operator will be responsible for isolating the suspect waste. The rejected waste will be loaded into the proper transport vehicle for disposal offsite and recorded in a log (see the Unauthorized Waste Log Form in Appendix E).

Reasonable effort will be made to prevent the delivery of unauthorized waste to the facility. In the event unauthorized waste is delivered to the facility, it will be handled as described in Section 2.6.6 and in accordance with applicable laws. Unauthorized waste will not be processed at the facility.

Pressure-treated lumber (i.e. treated with chromated copper arsenate (CCA) will be recovered from the waste stream and transported to a lined Class I facility. The CCA treated wood will be either identified by waste type (fencing or decking) or by the distinctive greenish color.

2.7.1 CCA-Treated Wood Management Plan

TRI will follow best management practices recommended in the document Guidance for the Management and Disposal of CCA-Treated Wood, authored by the Florida Center for Solid and Hazardous Waste Management and FDEP. Excerpts from the FDEP guidance can be found in Appendix F.

In accordance with Rule 62-701 F.A.C., 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 ground cover, soil, or soil amendment.

2.8 Weighing and Measuring Incoming Waste

All incoming and outgoing waste will be weighed on a calibrated scale prior to processing at the facility. TRI will retain all records at the regional facility's administrative office for a minimum of three years.

The records will be available to Orange County and FDEP personnel upon request. Report outputs can include daily, month-to-date, and year-to-date totals of waste received and County of origin.

2.9 Signs and Vehicles Traffic Control

Ingress and egress to the facility will be limited to the main entrance gate at 7th Street. A sign will be located at the entrance gate stating facility name, hours of operation, acceptable/unacceptable wastes, and emergency phone numbers. Additional interior signs will be used to direct traffic to the appropriate tipping areas. Roadway access exists from the facility entrance gate located near the southeast property corner and extends through the scale area to the

transfer buildings and exiting at the entrance gate area. Transfer trailers will enter near the southeast corner at the main entrance gate, load at the transfer building, and exit at the same southeast corner of the site. The entrance and exit roads will be accessible in all weather conditions. Lockable gates will control access to the site. Vehicle traffic flow is depicted on Figure 3.

TRI personnel will direct incoming truck traffic to expedite safe movement of vehicles within the facility. Traffic will be directed as necessary to prevent dangerous traffic conditions and to assure that any back up of in-bound vehicles is kept off of the public right-of-way.

2.10 Odor and Ventilation

Action shall be taken to prevent fugitive odors and particulates from creating offsite nuisance conditions in compliance with Orange County Code 38-1452. These steps include the following:

- Rejection of unacceptable waste that would create odors;
- Removal from the site of putrescible or other rejected waste that could cause odor problems within 48 hours;
- Cleaning of the MSW tipping floor daily;
- Active management of recycled materials;
- Use of odor masking agents applied by misters at all facility building openings and roof; and
- Wall mounted (three horsepower) ventilation fans installed in the existing facility building to insure interior ventilation.

2.11 Dust

The following steps will be taken to minimize fugitive dust emissions at the facility:

- The Taft facility will comply with Orange County Code Section 38-1452 that prohibits dust levels in excess of code limits. Fugitive dust emission will not be allowed offsite from transport, loading, unloading, or processing operations. All primary roadways and loading areas are paved.
- Sprinkling unpaved roadways, stockpile areas, and processing areas with water as necessary.

2.12 Litter

The site will be inspected daily for litter. Litter will not be allowed to accumulate and will be picked up daily (or as often as necessary) and put into appropriate containers for proper disposal. Litter fencing will be constructed to control blowing litter around the material storage areas and building (wherever feasible). TRI will collect litter weekly along West 7th Street access road (east from the facility to Sidney Hayes Road); Sidney Hayes Road (between West 7th Street and Palmetto Street); Fourth Street (between Sidney Hayes Road and Boyce Avenue); Boggy Creek Canal Access Road (adjacent to property); and Recycle Center Road, if authorized by owners. Screen cages are proposed to be added to conveyor transfer points. The wood mulch storage

area will be inspected daily to ensure that mulch product is maintained within designated areas of the property.

2.13 Vector Control

The following steps will be taken to minimize vectors at the site:

- Unacceptable wastes will not be accepted at the recycling facility.
- Rejected wastes will be promptly removed and disposed of at an appropriate disposal facility. Rejected waste will be removed within one week.
- Class I waste will be disposed offsite within 48 hours.
- Non-active portions of the site will be kept mowed and free from debris accumulation.
- If needed, pesticides will be used in accordance with Florida Department of Agriculture rules and standards.
- Waste tire storage and processing area will be monitored for the presence of vectors including mosquito control and eradication as necessary.

2.14 Hours of Operation

The facility is permitted to be open for operation 24 hours per day, seven days per week. Presently the facility is open during the hours listed below:

Monday through Friday 4:00 a.m. to 7:00 p.m.
Saturday 4:00 a.m. to 2:00 p.m.
Closed Sunday

Receipt or shipment of waste, and waste processing are limited to within the hours of operation. Activities such as maintenance and cleaning are not considered operational and may be scheduled at the facility's discretion. During non-daylight hours, lighting will be provided by 400-watt building and yard lights in the processing area.

2.15 Access Control and Site Security

Access to the facility will be controlled by an eight-foot tall chain link fence with two feet of barbed wire strands on the top. Security will be maintained by locking the entrance and exit gates during any times the facility is not operating. Semiannual inspections of the wall and fence will be conducted to identify locations in need of repair.

2.16 Equipment and Operation Procedures

The facility tipping floor operation is expected to operate with the following equipment:

- Front-End Loader (2)
- Excavator with Grapple (2)

The recycling operation is expected to operate with the following equipment:

- Fork Lift - Primary (2);
- Front-End Loader - Primary (1);
- Excavator - Primary (1);
- Sorting Line - Primary (1);
- Compactor - Primary (1);
- Horizontal Portable Wood Grinder - Primary (1); and
- Miscellaneous Roll-Off Containers/Bins (As Needed).

All of the equipment on the site will be owned by TRI. Details on the loaders, excavator, compactor, tub grinder (chipper), and tire shredder are provided in Appendix G.

Where appropriate, equipment will be fitted with safety cabs, fire extinguishers, and radio communication equipment. The radio equipment will also be stationed in the administrative offices located onsite, along with telephone service.

The onsite administrative offices will include potable water, sanitary facilities, emergency first aid supplies, telephone, fax, and electricity. The building also will provide shelter for employees during inclement weather conditions.

Maintenance to the equipment will be performed by TRI Mechanics or an offsite mobile contractor. General maintenance for heavy equipment will be performed in the maintenance area. Major overhauls of equipment will be performed offsite.

2.17 Notice of Violation

The Facility Manager will provide immediate notice to the Area and Post Collections Manager in the event TRI is notified by federal, state or local governmental agencies or officials regarding violations of any permits or approvals held by TRI relating to the operation and use of this facility. The Area and Post Collections Manager will respond appropriately to the various agencies, and immediately correct the noncompliance item.

3.0 CLASS I AND III OPERATIONS

3.1 Purpose

The facility processes the incoming material to remove that portion of the waste that has an end-use market. Residuals from the recycling facility are disposed of at appropriate disposal facilities.

3.2 Start Up and Shut Down Procedures

Start-up procedures will consist of the Facility Manager inspecting the processing and storage areas for safety purposes. Equipment will be turned on and allowed to warm up if necessary.

Storage bins will be inspected to verify ample storage capacity for the day's activities. In the event that the storage capacity is inadequate, additional sorting will cease until the existing stored materials have been removed for resale.

The facility plans to clear the tipping floor of Class I wastes each day, to the extent possible. However, the facility anticipates receipt of Class I waste from evening pick-up routes and therefore may have Class I waste on the tipping floor at any given time. Under no circumstances will any Class I wastes remain on the tipping floor for more than 48 hours. Odor control, such as odor masking agents will be used if deemed necessary. Any unprocessed Class III material will be left on the tipping floor for next day's processing. The processed material will be contained within the confines of the designated storage bins.

3.3 Sorting Operations

Class I waste will only be accepted in the tipping area designated for Class I wastes. Class III and C&D wastes will be accepted only in the designated bays in the facility building (see Figure 3). Care will be taken not to commingle wastes. If wastes are mixed, the waste must be disposed of as the highest category of wastes, i.e., Class III mixed with Class I, will be disposed of at a Class I landfill.

Within the Class III processing area, an excavator and front-end loaders equipped with buckets or clamps will place the material into a sorting machine. Personnel will be available to hand sort the materials once the machine has removed the fines and reduced the material size. Sorted material will be placed in appropriate bins for recycling or transport vehicles for disposal off-site. Bins will be used in the sorting process (glass, paper, plastic, metal, wood, concrete, cardboard, and RSM (fines). RSM will be sampled in accordance with the FDEP's guidelines for reuse, or disposed of at a Class I landfill. It will be kept in a covered bin, as shown on the Site Plan.

Personnel will operate on an eight to 10 hour shift with a lunch break in between and will be on the tipping floor at all times when waste is received or processed.

3.4 Leachate Collection and Disposal

The Class I tipping floor of the building has a minimum six-inch impervious concrete floor and leachate collection system and will be cleaned daily and washed on a minimum weekly basis. The leachate collection clean-out covers will be opened during washing. Water shall be directed into the building from the open wall area (east side) to ensure that none of the water leaves the building. Leachate will be collected from this area and the transfer truck scale tunnel through drains and will be discharged to a lift station and storage tank. The trench drains or catch basins will be cleaned daily to prevent clogging. The Class III concrete tipping floor is enclosed within a 150-foot by 75-foot portion of the building. No water is expected to be involved in the processing of this material. Leachate collection in this area is typically stormwater that may enter due to the open door on the east side and liquids that may leak from the vehicles. To keep this area clean and free of excess debris, all open floor areas in this portion of the building will be swept weekly. The leachate storage tank will have a high level alarm and will be pumped out by a permitted industrial waste hauler, as needed. Leachate is presently transported to the JED

Solid Waste Management Facility located in St. Cloud, Florida, and managed in their permitted liquid waste solidification operations. Leachate disposal may occur at other state permitted wastewater disposal and treatment facilities located in the central Florida area. Manifests of all waste leachate removals will be maintained by TRI.

3.5 Processed/Unprocessed Material Disposal Plan

The processed (recycled/recovered) material is sold to a variety of different companies for many different uses. The most common uses are described below. After processing, wood waste will be chipped and sold for fill or mulch. Concrete will be crushed onsite or offsite and sold. Cardboard and paper will generally be sold to a paper mill. Metal will be sold to scrap metal dealers, and glass will be crushed offsite and sold for fill material. Plastic will be sold to companies capable of recycling mixed plastic and the recovered screened material will be sold for daily cover material. The quantity and maximum storage time for each material is listed in the table in Appendix H.

Rejected Class I waste will be placed into larger transport trailers for disposal at a Class I landfill. Unprocessed Class III materials will be placed in a waiting transport vehicle for later disposal at a Class I or III landfill. Each type of reject waste will be stored in separated bin areas at the north end of the facility building/loading area (see Figure 3).

3.6 Equipment Operations and Maintenance Manual

Operations and maintenance for each piece of equipment will be in accordance with manufacturer's recommendations and manuals.

3.7 Safety Procedures for Vehicles

TRI personnel will direct incoming truck traffic to expedite safe movement of vehicles within the facility. Traffic will be directed as necessary to prevent dangerous traffic conditions and to assure that any back up of in-bound vehicles is kept off of the public right-of-way.

3.8 Stormwater Management

The site has a stormwater management system that controls the 25-year, 24-hour storm event prior to any discharge to Boggy Creek Canal.

The Facility Manager will perform weekly inspections of the stormwater management system. Any required maintenance or repairs will be made within seven days. The current FDEP stormwater permit number is ERP48-0179138-003.

3.8.1 Stormwater Monitoring

The TRI facility also has a Multi-Sector Generic Permit under the FDEP National Pollutant Discharge Elimination System (NPDES) stormwater program under permit number FLR05F457-003. This permit requires the implementation of a stormwater pollution prevention plan, stormwater pond inspections and records, annual submittal of discharge monitoring reports

(DMR) by March 31st to the FDEP for the previous year, and routine stormwater monitoring at two year intervals.

3.9 Record Keeping/Submittals

Record submittal requirements for the recycling facility will be in compliance with Orange County and the FDEP requirements for these facilities.

Operational records shall include a daily log of: 1) quantities and types of solid waste received; 2) quantity of solid waste processed; 3) quantity of solid waste stored; and 4) quantity of solid waste removed from site for recycling or disposal. These records/logs will be compiled monthly and made available for Orange County and FDEP inspection at the facility.

The reporting requirements include submitting a report annually (by February 1) which summarizes the amounts and types of waste received and the amounts and types of wastes disposed of or recycled. The annual report will be submitted on the FDEP Form 62-701.900(7), per 62-701.710(8)(b) F.A.C. (see Appendix I). A quarterly report will be submitted to Orange County to record the solid waste type and quantity managed at the facility, including recycled, recovered and disposed materials.

4.0 WASTE TIRE PROCESSING FACILITY OPERATIONS

4.1 Waste Tire Site and Processing Facility Operations

In October 2009, TRI submitted an application to accept, store, and process waste tires at the facility, as authorized by under Chapter 62-711, Waste Tire Rule, F.A.C. Waste tires accepted, stored, and processed at the facility will be transported to Progressive Waste's JED Solid Waste Management Facility, St. Cloud, Florida, for disposal and/or use as initial cover. Rule 62-711.400(3), F.A.C allows waste tires that have been cut into sufficiently small parts, to be disposed of or used as initial cover in a permitted Class I landfill. For use as initial cover, a sufficiently small part means 70 percent of the waste tire material is cut into pieces of four square inches or less and 100 percent of the waste tire material is 32 square inches or less. For purposes of disposal, a sufficiently small part means that the tire has been cut into at least eight substantially equal pieces. Based on market conditions, TRI may transport the processed tires to other authorized end users for alternative recycling uses or disposal at other permitted solid waste management facilities.

4.2 Maximum Storage limits

Based on the data presented in Appendix J, the maximum storage limits of whole waste tires, processed tires, and residuals are established for the facility in the following summary:

Summary of Maximum Storage Volumes and Weights

<u>10 - 40 cy Roll-off Containers for Whole Waste Tire Storage</u>

Whole Waste Passenger	6,000 Tires	400 cy	67.5 tons
Heavy Truck Tires	6,000/1,225 Tires	400 cy	67.5 tons

The maximum storage weight is 67.5 tons regardless of tire type.

6 - 40 cy Roll-off Containers for Processed Tire Storage			
Processed Tires	N/A	225 cy	67.5 tons

1 - 40 cy Roll-off Container for Tire Residual Storage			
Residuals	N/A	40 cy	10 tons

TRI stores whole waste tires in 40-cy roll-off containers stationed north of the wood recycling area as shown on the attached Site Plan (Figure 3). The number of whole waste tires stored at the facility at any one time will depend on the type of tire (passenger or heavy truck) and the number of 40 cy roll-off containers that are stationed in the designated storage locations. The dimensions of a 40 cy roll-off container are approximately 20'L x 8'W x 6'H. As shown on Figure 3, approximately 17 containers can be neatly stationed in the area shown, while maintaining a minimum 25-foot fire lane. This allows for 10 containers to store whole tires, six containers for processed tires and one container for residuals. Waste Tire Processing Calculations and background information is provided in Appendix J.

The waste tire processing equipment used by TRI is a portable Saturn Model 72-44BGHT-300HP Shredder or similar equipment. Information for this shredder is provided in Attachment I. The shredder's reported single pass through-put capacity is 20 tons per hour. TRI processes the waste tires in the general location shown on Figure 3. The shredder equipment is equipped with conveyors that will allow the processed materials to be loaded directly into the designated containers or a transfer truck trailer. Processed tires and any residuals produced during processing will be directly loaded into 110 cy transfer truck trailers or 40 cy roll-off containers. Processed tires shall meet the minimum size requirements of Rule Section 62-711.400(3)(b), F.A.C. Once a container is fully loaded it will be immediately transported to the designated end use location or will be removed from the facility within 48 hours. Shredder mobilization, processing, cleanup, and demobilization can be completed in one day for the maximum storage volume of whole tires. Site equipment will be used to load any processed or residual materials that may fall onto the asphalt during processing operations.

At least 75 percent of the whole tires, used tires, and processed tires that are delivered to, or are contained on, the TRI waste tire processing facility at the beginning of each calendar year shall be processed and removed for disposal or recycling from the facility during the year.

4.2 Storage Requirements

As shown on Figure 3, TRI will store whole waste tires and processed tires in roll-off containers on the asphalt area located north of the wood recycling area. TRI will mobilize the portable shredding equipment when a sufficient supply of whole tires is collected and perform shredding operations in that location. To satisfy the outdoor storage requirements of Rule 62-711.540(3), TRI stores whole waste tires in 40 cy roll-off containers. Storage in roll-off containers will ensure water quality standards are maintained at the facility. The roll-off containers will be staged as shown on Figure 3 to allow unobstructed access for emergency vehicles. Fire prevention and preparedness measures have been established in accordance with the Emergency

and Fire Preparedness Guidelines provided in Appendix K of this Operations Plan. The guidelines have been reviewed and approved by the Orange County Fire Rescue Division. Additionally, the facility will implement Best Management Practices (BMPs) at the waste tire storage and process area in accordance with the facility's Stormwater Pollution Prevention Plan and described in the following section.

4.3 Best Management Practices

Typical BMPs will include the following:

- Cleanup and sweeping of the asphalt pavement after processing is completed;
- Installing silt infiltration devices and oil absorbent socks around nearby stormwater inlets;
- Monitoring the surrounding asphalt surface area and the stormwater retention pond for the presence of oil sheens that could be attributable to the tire storage and processing operations; and
- Monitoring stormwater discharge at the retention pond outfall for evidence of non-authorized discharges.

In addition to the above-referenced storage and BMPs, additional monitoring and inspections required by the facility's NPDES permit will ensure water quality standards are maintained at the facility.

4.4 Mosquito Control Plan

The waste tire storage and processing area will be monitored for the presence of vectors including mosquito control and eradication as necessary. TRI will monitor the tire storage area on a daily basis for mosquito development. Insecticide applications will be performed by a local pest control company as necessary. In accordance with Orange County Code, any storage of waste tires for longer than 15 days will require implementation of a mosquito control program if there is the possibility that standing water will accumulate inside the tires.

4.5 Transportation of Waste and Processed Tires

Rule 62-711.520 requires any waste tire collector engaged in collecting or transporting waste tires for the purpose of storage, sale, recycling, reuse, disposal, or processing to be properly registered with FDEP. Additionally, Rule 62-711.400(5) requires anyone that contracts the services of a waste tire collector for the transportation, disposal, or processing of waste tires to ensure that the collector is registered with the FDEP or exempt from registration requirements. TRI plans to contract the services of a registered waste tire collector to transport processed tires to the designated recycling or disposal entity. TRI will maintain records of waste tire collectors and volumes as described below.

4.6 Recordkeeping and Reporting

In accordance with Rule 62-711.530(4) F.A.C., TRI will record and maintain for three years the following information regarding waste tire acceptance, storage, and processing. Records will be made available at the facility for inspection by the FDEP during normal business hours.

- For all waste tires shipped from the facility:
  - The name and waste tire collection registration number of the waste tire collector who accepted the waste tires for transport.
  - The quantity of waste tires shipped with that collector.
  - If the waste tires were shipped with a person who is not a waste tire collector:
    - the number of tires shipped;
    - the person's name, address, and telephone number; and
    - the place where the waste tires were deposited.

- For all waste tires received at the facility:
  - The name and waste tire collector registration number of the collector who delivered the waste tires to the facility.
  - The quantity of waste tires received from that collector.
  - If more than five waste tires were delivered by a person who is not a waste tire collector:
    - the number of tires delivered; and
    - the person's name, address, and telephone number.

- For all waste tires removed from recapping:
  - The quantity and type removed; and
  - The name and location of the recapping facility receiving the tires.

In accordance with Rule 62-711.530(5) TRI will submit quarterly reports to the FDEP and Orange County that summarize the information above. The reports will be submitted by the 20th of the month following the close of each calendar quarter. The reports will be submitted on Form 62-701.900(21) and will also include the information listed below:

- The facility name, address, and permit number;
- The quarter covered by the report;
- The total quantity, by category, of waste tires received at the facility during the quarter covered by the report;
- The total quantity, by category, of waste tires shipped from the facility during the quarter covered by the report;
- The total quantity of waste tires processed during the quarter;
- The total quantity, by category, of waste tires located at the facility on the last day of the quarter; and

- A list of all dates on which one or more category of waste tires exceeded the storage limit, which category was in excess, and how this condition was relieved or will be relieved.

5.0 CLOSURE PLAN AND FINANCIAL ASSURANCE

The closure of the facility will include removal of the operational equipment, which is completely mobile by design. Any remaining waste or recovered materials will be removed and hauled to an appropriate processing site or landfill. To protect Orange County and the State of Florida from bearing the cost of potential cleanup activities, a surety bond, or similar financial assurance mechanism, will be posted at the time of permitting, and updated annually, by March 1st. The purpose of the bond is to provide for closure of the site, if the permitee does not perform.

The owner or operator of the facility will notify the FDEP and OCEPD in writing prior to ceasing operations, and shall specify a closing date. No waste shall be received by the facility after the closing date. Within 30 days after receiving the final solid waste shipment, the owner or operator will remove or otherwise dispose of all solid waste or residue in accordance with the approved closure plan. Stored putrescible wastes shall continue to be managed in accordance with Rule 62-701.710(4)(b), F.A.C. Closure will be completed within 180 days after receiving the final waste shipment. Closure will include removal of all recovered materials from the site, as well as performing any contamination evaluation required by Rule 62-701.710(6)(c), F.A.C. When closure is completed, the owner or operator will certify in writing to the FDEP and OCEPD that closure is complete. The FDEP will make an inspection within 30 days to verify the closure and advise the owner or operator of the closure status.

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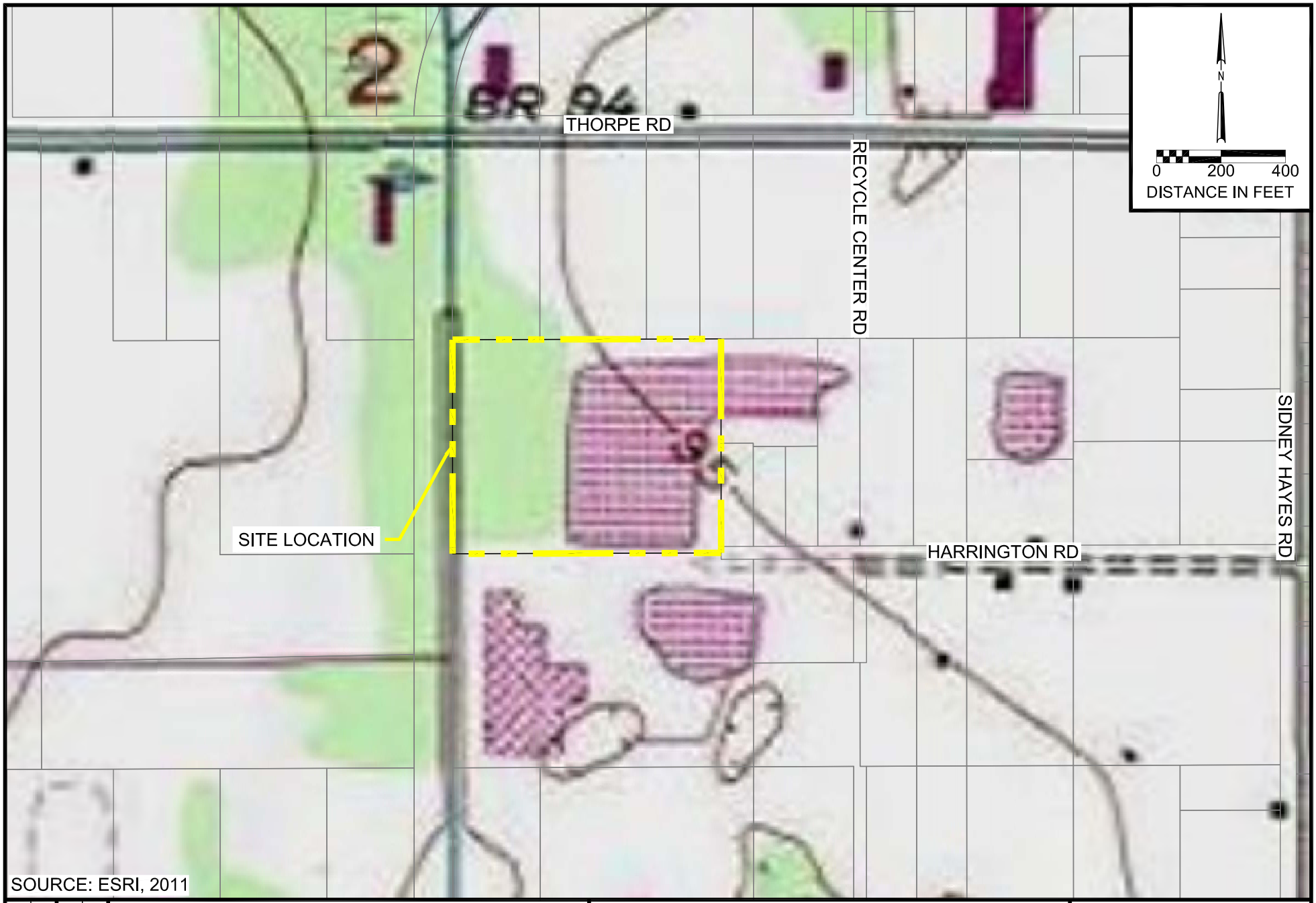
Figures



SOURCE: ESRI, 2011

FIGURE	PROJECT #	SITE LOCATION MAP	TAFT TRANSFER STATION / WASTE PROCESSING & MATERIAL RECOVERY FACILITY ORANGE COUNTY, FLORIDA
1	06.404.022		

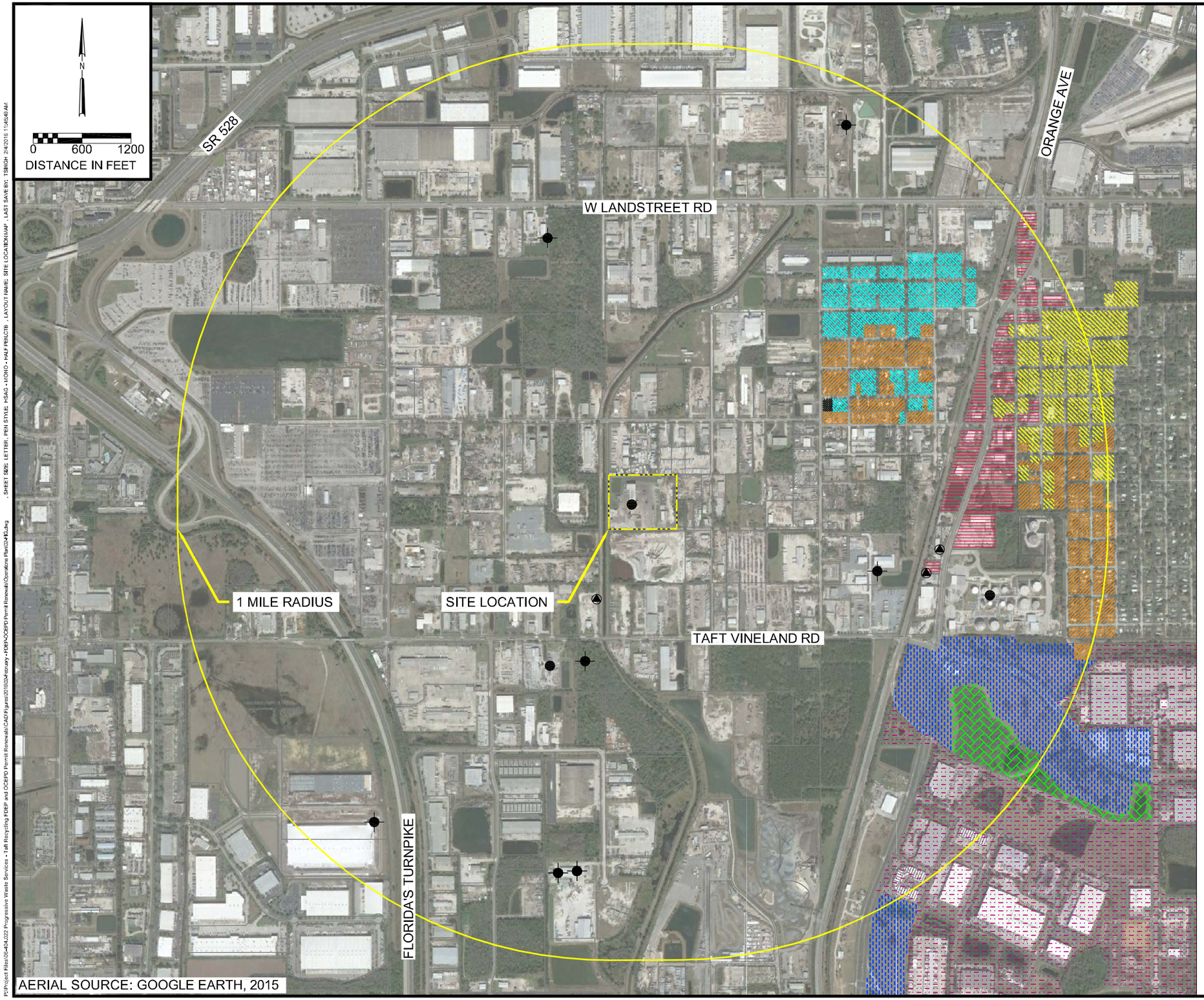
hsagolden engineering environmental solutions
11 LAKE GATLIN ROAD
ORLANDO, FL 32806
P: 407.649.5475 F: 407.649.6582
HSAGOLDEN.COM

01-FIG.dwg

JANUARY 2016

02-FIG.dwg

JANUARY 2016



LEGEND

ORANGE COUNTY ZONING

- RESIDENTIAL DISTRICT
- MOBILE HOME RESIDENTIAL
- RESIDENTIAL
- COMMERCIAL
- FARMLAND RURAL

NOTE: NO HATCHING WITHIN ONE-MILE RADIUS INDICATES INDUSTRIAL

CITY OF ORLANDO ZONING

- PLANNED DEVELOPMENT
- CONSERVATION
- GENERAL INDUSTRIAL
- FDOH EHWATER (2016)
- FDEP WATER SUPPLY RESOURCES PROGRAM WELL (2016)
- SOUTH FLORIDA WATER MANAGEMENT DISTRICT CUP WELL (2016)

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TAFT TRANSFER STATION / WASTE PROCESSING & MATERIAL RECOVERY FACILITY
ORANGE COUNTY, FLORIDA

AERIAL PHOTOGRAPH / ZONING / WELL SURVEY

PROJECT # 06-404.022

FIGURE 2

P:\Project Files\06-404.022 Progressive Waste Services - Taft Recycling FDEP and OCEPD Permit Renewals\CAD\Figures\2016\02\February - FDEP+OCEPD Permit Renewals\Operations Permit\02-FIG.dwg , SHEET SIZE: LETTER, PEN STYLE: HSAG - MONO - HALF PEN.CTB , LAYOUT NAME: SITE LOCATION MAP , LAST SAVE BY: TSMITH 2/4/2016 11:45:48 AM

N

0 40 80

DISTANCE IN FEET

24
BLOCK "H"

OWNER:
MOBILE FIELD OFFICE CO.

23
BLOCK "H"

OWNER:
JAMES E. STRATES

22
BLOCK "H"

OWNER:
PAUL STRAUBINGER

8' CHAIN LINK FENCE
W/ 2' BARBED WIRE

STORMWATER
OUTFALL
STRUCTURE
TO BOGGY CREEK

STORMWATER
POND

6' CHAIN LINK FENCE

SEE
NOTE 1

TRANSFER
BUILDING

TRANSFER TRUCK
LOADING

CLASS I TIPPING
FLOOR

CLASS III
C&D TIPPING FLOOR

METAL
GARAGE
NOT IN USE

CONCRETE

EMPTY
ROLL-OFF
CONTAINER
STORAGE
AREA
(NOT PAVED)

FIRE
HYDRANT

435'

STORMWATER
INLET

EMPLOYEE AND
VISITOR PARKING
AREA

LESS THE WEST 40'

8' CHAIN LINK FENCE
W/ 2' BARBED WIRE

5' (TYP.)

(1) 40 C.Y.
ROLL-OFF
CONTAINER
TIRE
RESIDUALS
STORAGE

FE 98.24

RSM
STORAGE
(COVERED)

LOOSE
ALUMINUM CAN
STORAGE AREA

RECYCLED
METALS/BALED
ALUMINUM
STAGING
AREA

90'

FIRE
HYDRANT

TROMMEL SCREEN
AND CONVEYOR

STAIRS

BUILDING OVERHANG

PLASTIC, PAPER, ALUMINUM,
AND CARDBOARD STORAGE
FROM SORTING
OPERATIONS

(6) 40 C.Y.
ROLL-OFF
CONTAINERS
PROCESSED
TIRE
STORAGE

FIRE LANE

25.00'

50.0'

WASTE TIRE STORAGE AND
PROCESSING AREA

TWO STORY
SORTING BLDG.

LOOSE
CONTAINER
BOARD/FEED
TO BALER

8'x20' CONTAINERS
MIN. 5' SEPARATION

(10) 40 C.Y. ROLL-OFF
CONTAINERS
WHOLE TIRE
STORAGE

MOBILE WASTE TIRE
SHREDDER

STORMWATER
INLET

13' METAL WALL

RECOVERED
MATERIAL
STAGING AREA

BALER
RECYCLING
EQUIPMENT

BALED PAPER
AND
CONTAINER
BOARD
STAGING AREA

RECYCLED BALED
PLASTIC STAGING AREA

FWM

200'

WOOD RECYCLING AREA

TRUCK
LOADING
DOCK

GRASSED AREA

6" CURB

CONCRETE
RETAINING
WALL

STORMWATER
INLET

LANDSCAPED AREA

TRUCK SCALE

SCALE OFFICE

TRUCK SCALE

SCALE BY-PASS LANE

GRASSED AREA

SEPTIC
FIELD

CONCRETE
SLAB

OFFICE AND
MAINTENANCE
GARAGE

RECYCLING
CONTAINER
STORAGE
AREA

ASPHALT PAVEMENT

GRASSED AREA

FIRE HYDRANT

STACKED CONCRETE COLUMN RETENTION WALL

6" FIRE WATER MAIN (FWM)

EDGE OF PAVEMENT

FWM

7TH STREET

ENTRANCE GATE
(20' SWING EACH SIDE)

24" CPP

STORMWATER OUTFALL
STRUCTURE TO BOGGY CREEK

8' CHAIN LINK FENCE
W/ 2' BARBED WIRE

8' CHAIN LINK FENCE
W/ 2' BARBED WIRE

8' CHAIN LINK FENCE
W/ 2' BARBED WIRE

40' PLATTED R/W PER P.B. "D", PG. 100

BOGGY CREEK CANAL

WEST LINE OF LOT 41

EAST TOP OF BANK OF CANAL

OWNER:
ORANGE COUNTY

56
BLOCK "H"

55
BLOCK "H"

54
BLOCK "H"

53
BLOCK "H"

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

CREDIT ALLOWED = 1 EXISTING FIRE HYDRANT WITHIN 300'
+ 1 EXISTING FIRE HYDRANT WITHIN 600'
= 1000 G.P.M. + 670 G.P.M.
= 1670 G.P.M.

ADDITIONAL
FIRE FLOW REQUIRED = 2258.5 G.P.M. - 1670 G.P.M.
= 588.5 G.P.M.

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

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TAFT TRANSFER STATION / WASTE PROCESSING & MATERIAL RECOVERY FACILITY
ORANGE COUNTY, FLORIDA

SITE PLAN

PROJECT #
06-404.022

FIGURE
3

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Appendix A

Authorized/Unauthorized Solid Wastes
Taft Recycling, Inc.
Taft Transfer Station/Waste Processing & Material Recovery Facility

The following wastes are accepted for processing:

- Class I Wastes
- Class III Wastes
- Commercial Solid Waste
- Household Waste
- Clean Wood
- Construction and Demolition (C&D) Debris
- Land Clearing Debris
- Waste Tires

Class I wastes are solid wastes that are not hazardous, and that is not prohibited from disposal in a lined landfill under Rule 62-701.300 F.A.C.

Class III wastes are yard trash, C&D debris, processed tires, asbestos, carpet, cardboard, paper, glass, plastic, furniture other than appliances, or other materials approved by the Florida Department of Environmental Protection, that are not expected to produce leachate that poses a threat to public health or the environment.

Commercial solid waste is all types of solid waste generated by stores, offices, restaurants, warehouses, and other non-manufacturing activities, excluding household and industrial wastes.

Household waste is any type of solid waste, including garbage, trash, and sanitary waste in septic tanks, derived from households, including single and multiple residences, hotels, and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas.

Clean wood is wood, including lumber, tree and shrub trunks, branches, and limbs, which is free of paint, glue, filler, pentachlorophenol, creosote, tar, asphalt, chromated copper arsenate (CCA), and other wood preservatives or treatments.

C&D Debris is defined in Rule 62-701.200(24) as discarded materials generally considered to be not water soluble and non-hazardous in nature, including but not limited to steel, glass, brick, concrete, asphalt material, pipe, gypsum wallboard, and lumber from the construction or destruction of a structure as part of a construction or demolition project or from the renovation of a structure, including such debris from construction of structures at a site remote from the construction or demolition project site. The term includes rocks, soils, tree remains, trees, and other vegetative matter which normally results from land clearing or land development operations for a construction project; clean cardboard, paper, plastic, wood, and metal scraps from a construction project; except as provided in Section 403.707(9)(j), F.S, yard trash and

unpainted, non-treated wood scraps from sources other than construction or demolition projects; scrap from manufacturing facilities that is the type of material generally used in construction projects and that would meet the definition of construction and demolition debris if it were generated as part of a construction or demolition project, including debris from the construction of manufactured homes and scrap shingles, wallboard, siding concrete, and similar materials from industrial or commercial facilities; and de minimus amounts of other non-hazardous wastes that are generated at construction or demolition projects, provided such amounts are consistent with best management practices of the construction and demolition industries. Mixing construction and demolition debris with other types of solid waste will cause it to be classified as other than construction and demolition debris.

Land clearing debris is rocks, soils, tree remains, trees, and other vegetative matter that normally results from land clearing or land development operations for a construction project. Land clearing debris does not include vegetative matter from lawn maintenance, commercial or residential landscape maintenance, right of way or easement maintenance, farming operations, nursery operations, or any other sources not related directly to a construction project.

Waste tires are tires that have been removed from a motor vehicle and have not been retreaded to re-grooved. The term includes used tires and processed tires, but does not include solid rubber tires and tires that are inseparable from the rim.

The following wastes are ***not accepted*** for processing:

- Hazardous Wastes
- Chemicals/Solvents
- Paint Containers or Paint
- Biomedical Wastes
- Lead-acid Batteries
- Fluorescent Light Bulbs
- Used Oil
- White Goods
- Non-containerized Liquids
- Containers or Tanks with Liquids
- Wastewater Treatment Plant Sludges

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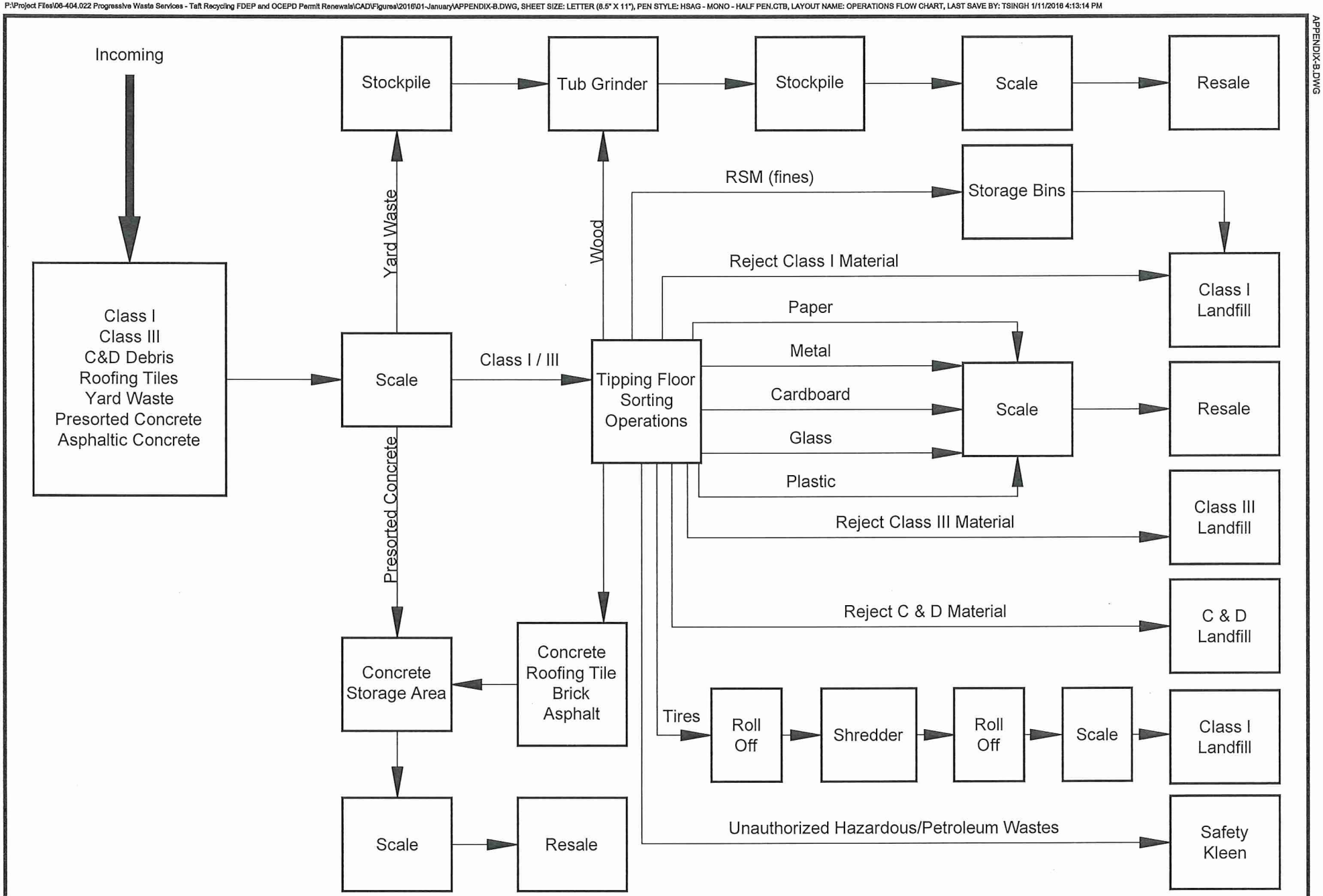
Appendix B



B	APPENDIX	06.404.022	PROJECT #

OPERATION FLOW CHART
TAFT RECYCLING INC.

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

hsagolden
engineering environmental solutions
11 LAKE GATLIN ROAD
ORLANDO, FL 32806
P: 407.649.5475 F: 407.649.6582
HSAGOLDEN.COM

JANUARY 2016

APPENDIX-B.DWG

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Appendix C

2016 SOLID WASTE MANAGEMENT FACILITIES COURSES

Initial and Refresher Combined

Initial		
Landfill	$650	Day 1, 2 + Exam
Transfer Station (TS)	$550	Day 1, 2 + Exam
Materials Recovery Facility (MRF)	$550	Day 1, 2 + Exam
Landfill + TS/MRF	$750 (best value)	Day 1, 2, 3 + 2 Exams
Spotter	$295	Day 1, 8hr

Refresher		
Landfill	$495/$295	Day 1, 2-16hr/Day 1-8hr
Transfer Station	$295	Day 1, 8hr
Materials Recovery Facility	$295	Day 1, 8hr
Spotter	$195	Day 1, 4hr

Registration Deadline: 5 working days prior to the date of the course

2016 Locations/Dates

Jacksonville ▪ 1/26-28
Crestview ▪ 3/1-3
Gainesville ▪ 3/22-24
St. Petersburg ▪ 5/3-5
St. Augustine* ▪ 6/15-17
Lake Buena Vista ▪ 7/12-14
Ft. Lauderdale ▪ 8/16-18
Plant City ▪ 9/20-22
Tallahassee ▪ 10/18-20
Gainesville ▪ 11/8-10
TBA ▪ 12/6-8

**Held with RFT*

Onsite Training

Available Weekdays or Weekends

If you would like to have any of the courses listed above at your facility, contact: djenkins@treeo.ufl.edu

Other Courses of Interest

- **U.S. DOT Hazardous Materials/Waste Transportation**
  .75 CEU/Solid Waste Landfill/TS/MRF, Course #69; 6 hours
- **8-hr OSHA HAZWOPER Refresher**
  0.8 CEU/Solid Waste Landfill/TS/MRF/Spotter: 4 hours, Course #733
- **24-hour OSHA HAZWOPER Training Course**
  2.4 CEU/Solid Waste Landfill/TS/MRF: 6.0 hours; Spotter 4.0 hours, Course #699
- **40-hour OSHA HAZWOPER Training Course**
  8.0 CEU/Solid Waste Landfill/TS/MRF, 8 hours; Spotter 4 hours, Course #734

Registration

Taylor Greene
352-392-9570 ext. 212
tgreene@treeo.ufl.edu
Online: www.treeo.ufl.edu

Check website for locations/dates

www.treeo.ufl.edu

Review your Florida Solid Waste Operator and Spotter Training Transcript and check your:

- Expiration Date
- Training Status (Current or Expired)

http://landfill.treeo.ufl.edu

Required Hours

Classification	Initial Course	Continuing Ed
Landfill	24 hours	16 hours
Transfer Station/MRF	16 hours	8 hours
Spotter (of all type facilities)	4 hours	4 hours

Information:
Dawn Jenkins | 352-392-9570 ext. 227 | djenkins@treeo.ufl.edu

Solid Waste 2016

City/Date	Location	Lodging
January **Jacksonville 1/26-28/2016**	**Duval County Extension Office** 1010 N McDuff Avenue Jacksonville, FL 32254-2083 (904) 255-7450	*Nearby* Fairfield Inn –Chaffee Point & I-10 Country Inn – Commonwealth Ave
March **Crestview 3/1-3/2016** **Gainesville 3/22-24/2016**	**Okaloosa County Public Works Building** 1759 South Ferdon Blvd (I-10 & SR85, exit 56) Crestview FL 32536 **University of Florida TREEO Center** 3900 SW 63 Blvd Gainesville FL 32608 (352) 392-9570 GPS maybe incorrect - Enter via SW 75th St	*Crestview: (at same exit)* Holiday Inn Express, LaQuinta, Comfort Inn Hampton Inn Gainesville 4225 SW 40th Blvd. Gainesville, FL 32608 (352) 371-4171
May **St. Petersburg 5/3-5/2016**	**Pinellas County Division of Solid Waste** 2940 110th Avenue North St. Petersburg FL 33716 (727) 464-7500	*Nearby on Ulmerton Rd* Hampton Inn, Holiday Inn, Sleep Inn, Comfort Inn
June **St. Augustine 6/15-17/2016** Held with: RECYCLE FLORIDATODAY	**World Golf Village Renaissance St. Augustine Resort** 500 South Legacy Trail St. Augustine, FL 33092 (904) 940-8000	*More information coming soon*
July **Lake Buena Vista 7/12-14/2016**	**Reedy Creek Energy Services** 2151 South Service Lane Lake Buena Vista FL 32830	*Nearby in Kissimmee area* Holiday Inn – Celebration Comfort Inn
August **Davie/Ft. Lauderdale 8/16-18/2016**	**Fort Lauderdale Research & Ed Center** Admin Building – Room T104 3205 College Ave, Davie FL 33314 (954) 577-6300	*Nearby* Holiday Inn Express 2540 Davie Road, Davie FL 33317
September **Plant City 9/20-22/2016**	**UF/IFAS GCREC - Plant City** 1200 North Park Rd. (I-4) Exit 22 Plant City, FL 33563 (813) 707-7330 Look for HCC sign	Holiday Inn Express (*in area*) 2102 N. Park Rd. (I-4 Exit 22) Plant City, FL 33563 (813) 719-3800
October **Tallahassee 10/18-20/2016**	**Leon County Extension Office** 615 Paul Russell Rd. Tallahassee FL 32301 (850) 606-5200	*Nearby* Hilton Garden Inn Tallahassee Central–Blairstone Rd. Hampton Inn – Apalachee Pky
November **Gainesville 11/8-10/2016**	**University of Florida TREEO Center** 3900 SW 63 Blvd Gainesville FL 32608 (352) 392-9570 GPS maybe incorrect - Enter via SW 75th St	Hampton Inn Gainesville 4225 SW 40th Blvd. Gainesville, FL 32608 (352) 371-4171
December **TBA 12/6-8/2016**		

Updated 12/15/2015

Florida DEP Landfill Operators

Company Name: Taft
All Districts District Only
Printed: 01/27/2016

1. **Hours Required:** The hours needed before the expiration date in order to keep the certification valid.

Allen, Sharon - Taft Recycling, Inc. - Orlando

Title	Initial Date	Hours Required [1]	Expiration Date
Material Recovery Facility Operator	07/27/2014	8	07/26/2017
Transfer Station Operator	07/27/2014	8	07/26/2017

Burke, Bruce - Taft Recycling, Inc. - Orlando

Title	Initial Date	Hours Required [1]	Expiration Date
Material Recovery Facility Operator	07/27/2014	8	07/26/2017
Transfer Station Operator	07/27/2014	8	07/26/2017

Eosso, Steven - WSI/Taft Recycling, Inc. - Orlando

Title	Initial Date	Hours Required [1]	Expiration Date
Class I, III Landfill Operator	01/11/2013	16	01/10/2019
Construction and Demolition Debris Landfill Operator	01/11/2013	16	01/10/2019
Material Recovery Facility Operator	02/07/2013	0	02/06/2016
Spotter / Waste Screener	08/22/2015	4	08/21/2018
Transfer Station Operator	02/07/2013	0	02/06/2016

Esteves, Wilson - WSI/Taft Recycling, Inc. - Orlando - Seminole County

Title	Initial Date	Hours Required [1]	Expiration Date
Material Recovery Facility Operator	02/16/2007	0	02/15/2016
Spotter / Waste Screener	02/08/2010	0	02/07/2016
Transfer Station Operator	02/16/2007	0	02/15/2016

Gassant, Chamser - Taft Recycling, Inc. - Orlando

Title	Initial Date	Hours Required [1]	Expiration Date
Material Recovery Facility Operator	07/27/2014	8	07/26/2017
Transfer Station Operator	07/27/2014	8	07/26/2017

Gutierrez, Danny - Taft Recycling, Inc. - Orlando

Title	Initial Date	Hours Required [1]	Expiration Date
Material Recovery Facility Operator	07/27/2014	8	07/26/2017
Transfer Station Operator	07/27/2014	8	07/26/2017

Joachim, Ronex - Taft Recycling, Inc. - Orlando

Title	Initial Date	Hours Required [1]	Expiration Date
Material Recovery Facility Operator	07/27/2014	8	07/26/2017
Transfer Station Operator	07/27/2014	8	07/26/2017

Vallejo, Luis - WSI/Taft Recycling, Inc. - Orlando

Title	Initial Date	Hours Required [1]	Expiration Date
Class I, III Landfill Operator	01/11/2013	16	**01/10/2016**
Construction and Demolition Debris Landfill Operator	01/11/2013	16	**01/10/2016**
Material Recovery Facility Operator	02/07/2013	8	02/06/2016
Transfer Station Operator	02/07/2013	8	02/06/2016

UF TREEO Center
UNIVERSITY of FLORIDA

Center for Training, Research and Education for Environmental Occupations

Certifies

Roberto Gonzalez

attended

Initial Training Course for Transfer Station Operators and Material Recovery Facilities – 16 Hour

November 18-19, 2014

and is awarded this

Certificate of Completion

Passed with 70% Proficiency

Date Issued: 11/19/2014
CEUs: 1.6
Solid Waste Landfill/C&D: 12.0; TS/MRF: 8.0; Spotter: 4.0
Solid Waste Initial: 16.0, Course #443

Carol Hinton

Carol Hinton, Associate Director

University of Florida TREEO Center • 3900 SW 63 Boulevard • Gainesville, FL 32608-3800 • 352-392-9570 • www.treeo.ufl.edu

Kohl Consulting Inc.

Is Proud to Certify That

Tony Santaniello

Has Successfully Completed Initial Training Course for Spotters at Class I and III Landfills, Waste Processing Facilities, and C&D Sites Entitled :

8-Hour Initial Training Course for Spotters at Solid Waste Management Facilities in Florida (#812)

August 22, 2015

And has completed the Initial Training Requirement for Spotters at Solid Waste Management Facilities in Florida or 8 hours Continuing Training for Landfill and MRF/Transfer Station Operators

Signed this 24th day of August, 2015

Melody Kohl

Melody Kohl

President

UF TREEO Center
UNIVERSITY *of* FLORIDA

Center for Training, Research and Education for Environmental Occupations

Certifies

Sharon Allen

attended

Initial Training Course for Transfer Station Operators and Material Recovery Facilities – 16 Hour

July 26 – 27, 2014

and is awarded this

Certificate of Completion

Passed with 70% Proficiency

Date Issued: 07/27/2014
CEUs: 1.6
Solid Waste Landfill/C&D: 12.0; TS/MRF: 8.0; Spotter: 4.0
Solid Waste Initial: 16.0, Course #443

Carol Hinton

Carol Hinton, Associate Director

University of Florida TREEO Center • 3900 SW 63 Boulevard • Gainesville, FL 32608-3800 • 352-392-9570 • www.treeo.ufl.edu

Kohl Consulting Inc.

Is Proud to Certify That

Steven Eosso

Has Successfully Completed Initial Training Course for Spotters at Class I and III Landfills, Waste Processing Facilities, and C&D Sites Entitled :

8-Hour Initial Training Course for Spotters at Solid Waste Management Facilities in Florida (#812)

August 22, 2015

And has completed the Initial Training Requirement for Spotters at Solid Waste Management Facilities in Florida or 8 hours Continuing Training for Landfill and MRF/Transfer Station Operators

MSW

Signed this 24th day of August, 2015

Melody Kohl

Melody Kohl

President

UF TREEO Center
UNIVERSITY *of* FLORIDA

Center for Training, Research and Education for Environmental Occupations

Certifies

Danny Gutierrez

attended

Initial Training Course for Transfer Station Operators and Material Recovery Facilities – 16 Hour

July 26 – 27, 2014

and is awarded this

Certificate of Completion

Passed with 70% Proficiency

Date Issued: 07/27/2014
CEUs: 1.6
Solid Waste Landfill/C&D: 12.0; TS/MRF: 8.0; Spotter: 4.0
Solid Waste Initial: 16.0, Course #443

Carol Hinton

Carol Hinton, Associate Director

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UF TREEO Center
UNIVERSITY *of* FLORIDA

Center for Training, Research and Education for Environmental Occupations

Certifies

Ronex Joachim

attended

Initial Training Course for Transfer Station Operators and Material Recovery Facilities – 16 Hour

July 26 – 27, 2014

and is awarded this

Certificate of Completion

Passed with 70% Proficiency

Date Issued: 07/27/2014
CEUs: 1.6
Solid Waste Landfill/C&D: 12.0; TS/MRF: 8.0; Spotter: 4.0
Solid Waste Initial: 16.0, Course #443

Carol Hinton

Carol Hinton, Associate Director

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UF TREEO Center
UNIVERSITY *of* FLORIDA

Center for Training, Research and Education for Environmental Occupations

Certifies

Chamser Gassant

attended

Initial Training Course for Transfer Station Operators and Material Recovery Facilities – 16 Hour

July 26 – 27, 2014

and is awarded this

Certificate of Completion

Passed with 70% Proficiency

Date Issued: 07/27/2014
CEUs: 1.6
Solid Waste Landfill/C&D: 12.0; TS/MRF: 8.0; Spotter: 4.0
Solid Waste Initial: 16.0, Course #443

Carol Hinton

Carol Hinton, Associate Director

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UF TREEO Center
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Center for Training, Research and Education for Environmental Occupations

Certifies

Bruce Burke

attended

Initial Training Course for Transfer Station Operators and Material Recovery Facilities – 16 Hour

July 26 – 27, 2014

and is awarded this

Certificate of Completion

Passed with 70% Proficiency

Date Issued: 07/27/2014
CEUs: 1.6
Solid Waste Landfill/C&D: 12.0; TS/MRF: 8.0; Spotter: 4.0
Solid Waste Initial: 16.0, Course #443

Carol Hinton

Carol Hinton, Associate Director

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TRAINING LOG
TAFT RECYCLING, INC.
ORLANDO, FLORIDA

COURSE	TRAINED OPERATOR INSTRUCTOR	HOURS ATTENDED	SIGNATURE/ DATE

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Appendix D

Hurricane Preparedness Plan

Progressive Waste Solutions

Taft Transfer Station/Waste Processing & Material Recovery Facility

375 West 7th Street
Orlando, FL 32824

Updated February 9, 2016

Table of Contents

Appendices

Introduction

Purpose

The purpose of this document is to minimize hazards to human health and protect company assets during a hurricane event. The components of this document will be carried out in accordance with specified time lines / conditions.

This plan does not provide all inclusive guidance on how to manage every aspect of a hurricane event. Rather, it recognizes common elements derived from past hurricanes and provides guidance to manage similar emergencies and conditions before and after an event occurs.

Scope

This Hurricane Preparedness Plan applies to PWS's Taft Transfer Station/Waste Processing & Material Recovery Facility located at 375 West 7th Street, Orlando, Florida 32824.

Responsibilities

The Emergency Response Team Leader (ERTL), Roberto Gonzalez, responsibilities:

- Develop, implement, and maintain a Hurricane Preparedness Plan
- Respond to all emergencies as on scene commander delegating tasks in accordance with training and procedures
- Monitor all personnel at the scene to ensure conformance with guidelines and statutory requirements
- Act as a liaison with Local, State, and Federal Emergency Responders
- Act as a liaison with PWS Health & Safety/Environmental Compliance Departments with respect to emergency response and regulatory matters
- Designate an alternate to act as ERTL in the event of absence
- Activate components of the Hurricane Preparedness Plan when appropriate
- Assign roles and responsibilities related to pre hurricane preparations and post hurricane assessment, inspection, and return to operations

The Emergency Response Sectional Team Leader(s), Tony Santaniello, responsibilities:

- Assume role of ERTL if designated to do so
- Monitor all personnel in their assigned section(s) to ensure conformance with guidelines and statutory requirements
- Ensure all personnel are evacuated and accounted for
- Designate person(s) to assist in response
- Liaison with ERTL with respect to matters related to emergency responders and or regulatory representatives

PWS Personnel responsibilities:

- Adhere to all company safety rules and guidelines

General Information

Definitions

AST – above ground storage tank

Atlantic Hurricane Season – June 1st to November 30th

Asses – to judge the worth or importance of

FEMA - Federal Emergency Management Agency

Flash Flood Watch – flash flood is possible

Flash Flood Warning – flash flood is imminent

Hurricane Watch – conditions are right for hurricane within 36-hours

Hurricane Warning – hurricane with sustained winds of 74-mph. or greater is expected within 24-hours

Inspect – to look at carefully

IDLH – immediately dangerous to life or health

Personal Protective Equipment – equipment used by personnel to provide protection from recognized hazards, i.e. safety glasses, hard hats, gloves, etc.

Storm Surge – abnormal rise of sea along a shoreline

Tropical Storm Watch – conditions are right for a tropical storm within 36-hours

Tropical Storm Warning – tropical storm with sustained winds between 39 – 73 mph. is expected within 24-hours

The Saffir-Simpson Hurricane Scale

The Saffir-Simpson Scale measures a hurricane's intensity on a scale of 1-5. Note that all winds are using the US 1-minute average.

Category 1-Hurricane:
Sustained winds between 74-95 mph. (64-82 knots or 119-153 km/hr)

Category 2-Hurricane:
Sustained winds between 96-110 mph. (83-95 knots or 154-177 km/hr)

Category 3-Hurricane:
Sustained winds between 111-130 mph. (96-113 knots or 178-209 km/hr)

Category 4-Hurricane:
Sustained winds between 131-155 mph. (114-135 knots or 210-249 km/hr)

Category 5-Hurricane:
Sustained winds greater than 155 mph. (135 knots or 249 km/hr)

Pre-Hurricane

Prior to Hurricane Season

Roberto Gonzalez (ERTL), to complete the following actions:

- Review, update, and verify the following Hurricane Preparedness Plan elements:
  - Hurricane preparation plan
  - Hurricane post event plan
  - Emergency contact list
  - Site map depicting location of:
    - Hazardous material locations
    - Equipment parking locations(s)
    - Emergency kit location(s)
    - Utilities shut-offs
  - Alternate location to conduct operations (Sanford Transfer Station)
  - PWS emergencies responders, identified, assigned responsibilities, and trained
  - SAT phones procured and operational

Roberto Gonzalez (ERTL), to complete the following actions:

- Inspect structures / buildings to verify condition, i.e. roof(s), siding, doors, and windows are in good repair
- Inspect grounds to verify condition, i.e. trees trimmed, fences in good repair, drainage unobstructed
- Verify purchase of window and door protection system(s): Tape
- Verify generator(s) operational and in good repair: Onsite or Rental
- Identify hazardous waste disposal company and set-up customer account: FECC/AquaTech Industrial Services
- Identify secondary fuel supplier and set-up customer account:
- Identify emergency equipment supplier, i.e. debris removal equipment, heavy equipment, etc. and set-up customer account: Ring Power / Flager Equipment
- Identify portable lavatory company and set-up customer account: United Site Services
- Verify emergency kit(s) are stocked with the following items:
  - Rain gear
  - Water (1-gallon per person per day)
  - Non-perishable food
  - First aid kit
  - Flash lights / batteries
  - Personal hygiene items, i.e. wet towels, toilet paper, etc.
  - Personal Protective equipment, i.e. gloves, safety glasses, hard hats
  - Weather radio
  - Fire extinguisher
  - Blankets / towels
  - Flood lights

Roberto Gonzalez (ERTL), to complete the following actions:

- Verify company data is secure, i.e. stored on network drive versus local c-drive
- Complete local inventory of IT assets

Pre-Hurricane

Hurricane Watch Issued / Hurricane on Track for Central Florida Region

Roberto Gonzalez (ERTL), to complete the following actions:

- Activate components of Hurricane Preparedness Plan
- Provide status report(s) to PWS Leadership as appropriate, i.e. Regional and Area Management/Health & Safety/ Environmental Compliance Departments
- Monitor weather information, track storm, and provide periodic updates
- Designate person to monitor PWS employee and customer hotline
- Prepare and disseminate personnel briefing (s) to communicate weather conditions, hurricane preparation protocol, and emergency contact information
- Recycle / Waste operations actions:
  - Prepare and deliver communication, notifying customers of possible service disruption(s)
  - Accommodate critical service customers
  - Coordinate removal of waste from facility containers
  - Print list of severe weather shelter locations and distribute to employees
  - Suspend recyclable items / waste collection operations

Roberto Gonzalez (ERTL), to complete the following actions:

- Contact fuel vendor(s), order / obtain fuel for company equipment, i.e. AST, trucks, generators
- Verify emergency kits stocked and located in designated area
- Install protection systems on buildings windows / doors
- Secure waste collection equipment, i.e. cans and bins
- Secure hazardous materials, i.e. hazardous chemicals, compressed gasses, new or used petroleum products
- Obtain portable lavatory

Roberto Gonzalez (ERTL), to complete the following actions:

- Coordinate the removal of recyclable items from the facility
- Protect IT assets, i.e. wrap in plastic and or place in elevated location(s)

Hurricane Warning Issued / Hurricane on Track for Central Florida Region

Roberto Gonzalez (ERTL), to complete the following actions:

- Evacuate personnel and verify headcount – 13 PWS/Taft Employees
- Verify completion of activated components of Hurricane Preparedness Plan
- Establish alternate communications, i.e. SAT phone
- Notify PWS Leadership evacuation underway / completed
- Secure facility before departure

Roberto Gonzalez (ERTL), to complete the following actions:

- Position company vehicles in designated locations (vehicles aft end facing in to wind)
- Shut-off utilities, i.e. water and power

Post-Hurricane

Safety Precautions / Guidelines

Adhere to the following safety precautions / guidelines when returning to a PWS facility immediately after a hurricane event:

- Adhere to all directives / safety precautions communicated by Federal, State, and or Local agencies
- Use the following level of Personal Protective Equipment (PPE):
  - Hard Hat
  - Safety Glasses
  - Work boots
  - Gloves
- Keep away from downed power lines; always assume power line is “Hot”
- Avoid standing water
- Do not enter area with detectable gas odor
- Do not smoke or introduce other types of ignition sources
- Do not turn on utilities until integrity of system(s) is verified by a knowledgeable person (use generators if needed for temporary power)
- Do not enter building(s) until an exterior inspection is conducted by a knowledgeable person
- Use “buddy system” when entering structures / buildings to conduct interior inspection(s)
- Do not operate combustion engines in enclosed areas, i.e. eliminate potential carbon monoxide exposure
- Position generators in “upwind” location, i.e. eliminate potential carbon monoxide exposure
- Do not drink water from the public or private waster system(s) until quality is verified
- Do not operate company equipment until inspected and deemed serviceable

Post-Hurricane / Site Assessment / Inspection

Roberto Gonzalez (ERTL), to complete the following actions:

- Conduct the following post-hurricane assessment:
  - Hazardous materials, i.e. compressed gas cylinders, diesel, etc.
  - Structures / building, i.e. roofs, siding, windows, and doors
  - PWS Assets, i.e. trucks, AST, generators, waste collection equipment, i.e. cans and bins
  - Grounds, i.e. fences and trees
  - Utilities, i.e. water and power
- Document damage (photographs and notation); documentation to include discrepancies noted during inspections
- Determine if alternate location is required to conduct operations
- Report site status to PWS Leadership, i.e. Regional and Area Management/Health & Safety/ Environmental Compliance Departments

Post-Hurricane

Roberto Gonzalez (ERTL), to complete the following actions:

- Inspect structures / buildings to identify the following:
  - Exterior of building for roof, siding, door, and window condition
  - Interior of building for floor, wall, stairway condition, and plumbing condition
  - Integrity of electrical system; connection to building, interior outlets, circuit breaker boxes, etc.
  - Document discrepancies and provide to PWS Leadership
- Inspect trucks to determine serviceable status
  - Identify unserviceable equipment and apply do not operate tag(s)
  - Document discrepancies and provide to PWS Leadership
- Inspect condition of company equipment, i.e. generators, forklifts, other vehicles, etc to determine serviceable status
  - Identify unserviceable equipment and apply do not operate tag(s)
  - Document discrepancies and provide list to PWS Leadership
- Inspect condition of hazardous materials
  - Coordinate removal of damaged containers or leaked material
  - Document discrepancies and provide list to PWS Leadership

Post-Hurricane / Return to Operations

Roberto Gonzalez (ERTL), to complete the following actions:

- Ensure the following conditions are met and services available:
  - Travel permitted on public roadways by Federal, State, and or Local authorities
  - IDLH conditions removed from facility, i.e. downed power lines, hazardous material spill, compressed gas cylinder leak, overhead hazards, etc.
  - Emergency medical services available Central Florida Regional Hospital (407) 321-4500
  - Two-way communications available
  - Drinking water available (1-gallon per person per day)
  - First aid supplies available
  - Employee parking available
  - Sufficient lighting available for night time operations
  - Lavatories operational
- Prepare PWS personnel briefing listing all known hazardous conditions, i.e. public or private water not drinkable, wet floors, sunk in pavement, etc.
- Report site status to Local Regulatory Authorities and PWS Leadership, i.e. Regional and Area Management/Health & Safety/ Environmental Compliance Departments
- Communicate return to operations schedule to PWS personnel

Post-Hurricane

Roberto Gonzalez (ERTL), to complete the following actions:

- Coordinate removal of IDLH condition(s), i.e. downed power lines, hazardous material spill, compressed gas cylinder leaks, over head hazards, etc. Note: Petroleum product releases must be reported to Orange County and Florida DEP within 24-hours
- Position and operate generator to accommodate emergency power needs, i.e. communications, lighting, dispense fuel, etc.
- Remove debris from site to ensure ease of access
- Coordinate removal of hazardous conditions, i.e. electrical system issues, wet floors, sunk in pavement, etc.
- Ensure working lavatory on site
- Ensure emergency kit(s) available for use

Roberto Gonzalez (ERTL), to complete the following actions:

- Return IT equipment to operations

Emergency Contact List

Area/District Contact Information:

Name: Mark Talbott
Title: Division Manager/Orlando Hauling
Work: (407) 261-5000
Cell: (407) 335-2891
SAT: (254) 543-3715

Name: John Reynolds
Title: Division Manager/Lake County Hauling
Work: (352) 323-0824
Cell: (321) 436-8774

Name: Jack Simpson
Title: Area Maintenance Manager/Orlando Hauling
Work: (407) 261-5048
Cell: (407) 376-2000

Name: Roberto Gonzalez
Title: Division Manager / Taft Transfer Station
Office: (407) 323-4480
Cell: (407) 851-0074
SAT: (254) 543-2286

Name: Judy Kennedy / Altamonte Springs Hauling
Title: HR Manager
Work: (407) 261-5000
Cell: (407) 274-8943

Name: John Hartings, JED Landfill
Title: Facility Manager
Work: (407) 891-3720
Cell: (407) 818-6358

Name: Bob Walls, Post Collections Orlando Area
Title: Post Collections Manager
Work: (407) 261-5031
Cell: (321) 316-7920

Regional Contact Information:

Name: Dean Divalerio
Title: East Region Vice President
Work: (727) 258-0946
Cell: (610) 299-7699

Name: Mike Kaiser
Title: Region Engineer
Cell: (904) 673-0446

Name: Rashida Church
Title: Region HR Director
Work: (727) 258-0949
Cell: (727) 403-0583

Corporate Contact Information:

Name: Jeff Palutis
Title: Director of Landfill Operations
Work: (817) 632-4208
Cell: (214) 293-4120

Name: Shawn McCash
Title: VP Engineering Technology
Work: (817) 632-4080
Cell: (561) 613-1405

Emergency Contact List

Critical Services Contact Information:

Service Provided: Fire / Police
Company Name: Fire / Police
Contact Information: 911

Service Provided: Emergency Medical Services
Company Name: Orlando Regional Medical Center
Contact Information: (407) 852-2698

Service Provided: Fuel Vendor
Company Name: Port Consolidated
Contact Information: (800) 683-5823

Service Provided: Power Company
Company Name: Progress Energy
Contact Information: (800) 228-8485

Service Provided: Water / Sewer
Company Name: Taft Water Management District
Contact Information: (407) 855-8712

Service Provided: Equipment Rental
Company Name: Ring Power
Contact Information: (407) 855-6195

Service Provided: Equipment Rental
Company Name: Flagler
Contact Information: (407) 850-9614

Service Provided: Hazardous Waste Removal
Company Name: American Technologies
Contact Information: (863) 533-2000

Service Provided: Hurricane Shelter Information
Company Name: Orange County Emergency Management
Contact Information: (407) 836-9140

Service Provided: Fuel System Maintenance
Company Name: Petroleum Equipment
Contact Information: (407) 290-3010

Service Provided: Insurance Provider
Company Name: AIG
Contact Information: (877) 399-6442

Service Provided: Telephone
Company Name: ATT
Contact Information: (800) 247-2020

Service Provided: Telephone
Company Name: Nextel
Contact Information: (800) 390-9545

Regulatory Agencies

Agency: Orange County
Regulatory Scope: Environmental Protection
Contact Information: (407) 836-1400

Agency: Florida DEP
Regulatory Scope: Environmental Protection
Contact Information: (407) 894-7555

Agency: OSHA
Regulatory Scope: Occupational Safety & Health
Contact Information: (813) 626-1177

Appendix A

Orange County Hurricane Shelters

Pine Castle

First Baptist Church of Pine Castle
1001 Hoffner Ave. Orlando

John Calvin Presbyterian Church
800 W. Oak Ridge Road Orlando

Oak Ridge High
6000 Winegard Road Orlando

South Orlando Baptist Church
11513 S. Orange Blossom Trail Orlando

St. John Vianney Catholic Church
6200 S. Orange Blossom Trail Orlando

Walker Middle
150 Amidon Lane Orlando

Pine Hills

Evans High
4949 Silver Star Road Orlando

Faith Lutheran Church
5000 Silver Star Road Orlando

First United Church of Pine Hills
1400 N. Nowell St. Orlando

Grace United Methodist Church
4835 Silver Star Road Orlando

Pine Hills First United Church
1400 N. Nowell St. Orlando

Powers Drive Baptist Church
3311 Powers Drive Orlando

Robinswood Middle
6305 Balboa Drive Orlando

Lockhart

First United Methodist Church
201 S. Park Ave. Orlando

Lockhart Baptist Church
7601 Edgewater Drive Orlando

Lockhart Middle
3411 Doctor Love Road Orlando

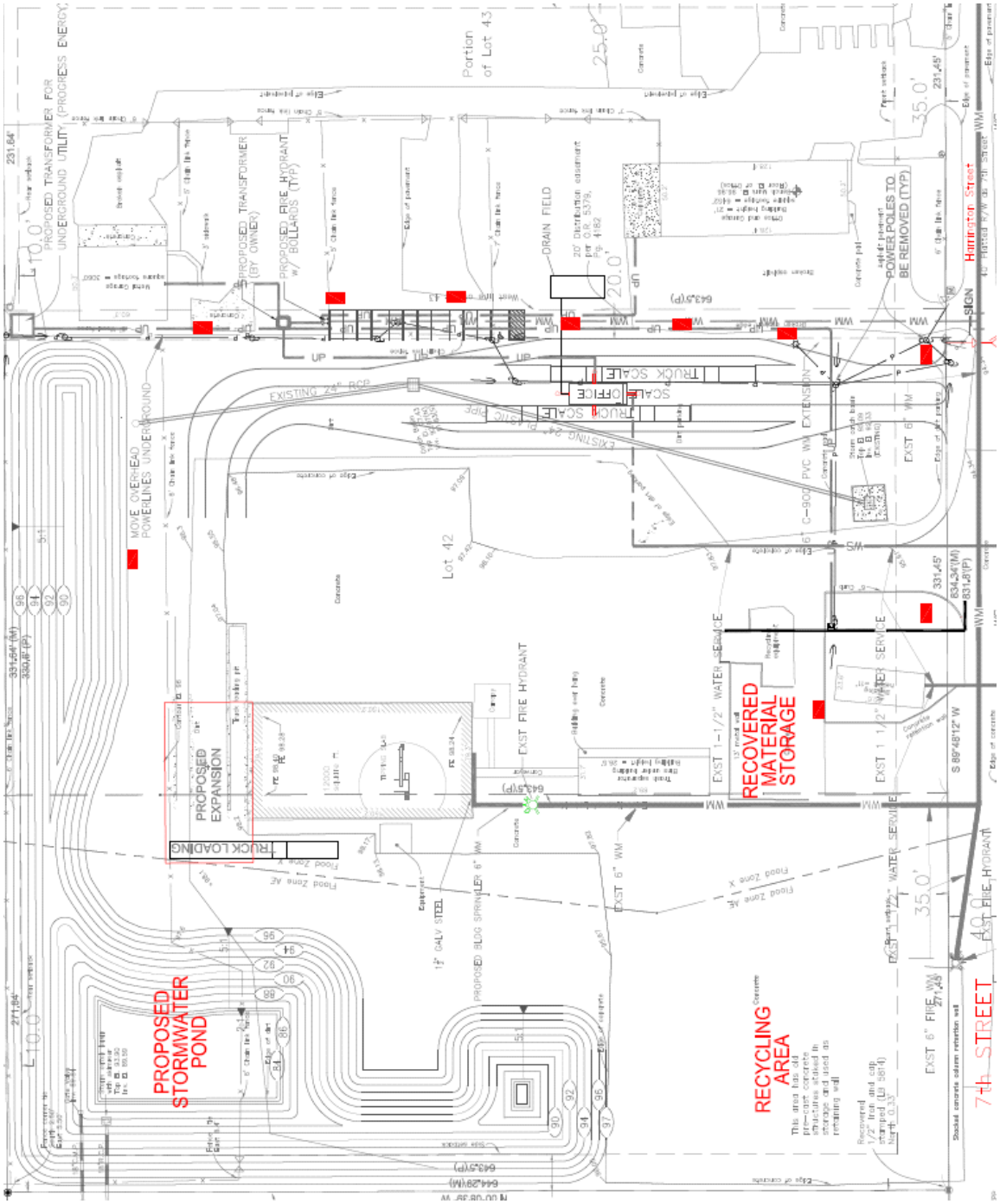
Loyal Order of Moose Lodge 766
5001 N. Orange Blossom Trail Orlando

Lee Vista

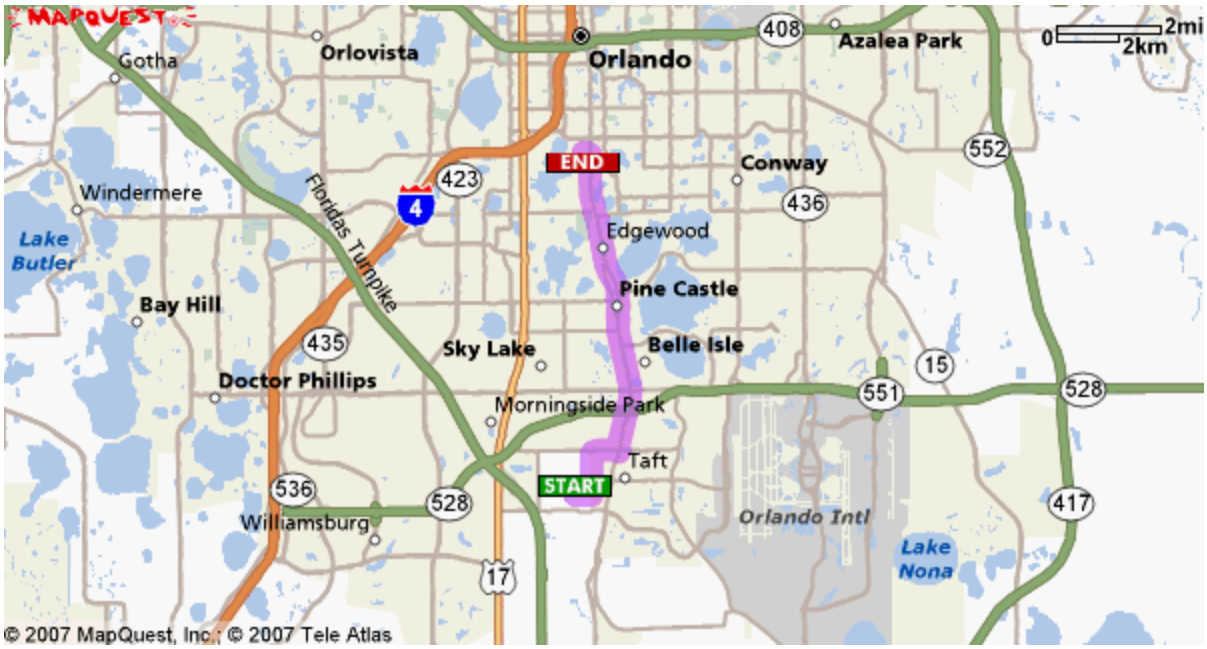
Odyssey Middle
9290 Lee Vista Blvd. Orlando
UCF area
University of Central Florida
4000 Central Florida Blvd. Orlando

Vietnam Veterans' Center
3400 N. Tanner Road Orlando

Appendix B


PROPOSED STORMWATER POND
PROPOSED EXPANSION
RECOVERED MATERIAL STORAGE
RECYCLING AREA
TRUCK LOADING
TRUCK SCALE
SCALE OFFICE
DRAIN FIELD
EXIST FIRE HYDRANT
PROPOSED FIRE HYDRANT w/ BOLLARDS (TYP)
PROPOSED TRANSFORMER (BY OWNER)
PROPOSED TRANSFORMER FOR UNDERGROUND UTILITY (PROGRESS ENERGY)
MOVE OVERHEAD POWERLINES UNDERGROUND
POWER POLES TO BE REMOVED (TYP)
EXISTING 24" RCP
EXIST 6" WM
EXIST 1-1/2" WATER SERVICE
EXIST 1 1/2" WATER SERVICE
EXIST 6" FIRE HYDRANT
PROPOSED BLDG SPRINKLER 6" WM
1/2" GALV STEEL
Flood Zone AE
Flood Zone X
Portion of Lot 43
Lot 42
Huntington Street
7th STREET
SIGN

Appendix C – Map/Directions to Orlando Regional Medical Hospital



Directions to Orlando Regional Medical Hospital from WSI Taft

1. Start out going East on West 7th toward Recycle Center Road (.3-miles)
2. Turn left onto Sidney Hayes Road (.7-miles)
3. Turn right onto East Landstreet Road / CR 527A (.5-miles)
4. Turn left onto South Orange Avenue / CR 527 (2.2-miles)
5. Stay straight to go onto Hansel Avenue / FL-527 (2.9-miles)
6. Turn left onto Pineloch Avenue (.1-miles)
7. End at 102 West Pineloch Avenue

hsa golden
engineering environmental solutions

Appendix E

UNAUTHORIZED WASTE RECEIPT LOG
TAFT RECYCLING, INC.
ORLANDO, FLORIDA

1. DATE: _____

2. TIME: _____

3. COMPANY: _____

4. VEHICLE INFORMATION: A) TRUCK # _____

   B) LICENSE PLATE # _____

5. NAME OF DRIVER: _____

6. SOURCE OF UNAUTHORIZED WASTE MATERIAL: _____

7. DESCRIPTION OF UNAUTHORIZED WASTE MATERIAL: _____

   _____

   _____

   _____

8. WHAT PROCEDURES WERE FOLLOWED FOR PROPER DISPOSAL/REMOVAL FROM THE SITE? _____

   _____

   _____

   _____

   _____

9. OTHER OBSERVATIONS: _____

   _____

10. SPOTTER SIGNATURE: _____
    SIGNED

Note: Forms must be maintained in Unauthorized Waste Receipt Log Book.

hsagolden
engineering environmental solutions

Appendix F

GUIDANCE FOR THE MANAGEMENT AND DISPOSAL OF CCA-TREATED WOOD

Top: This load is almost solely CCA-treated wood. It came from a marine construction contractor.

Bottom: This load is from a construction company that builds trusses and floor joists. It contains treated wood. Green colored sawn boards are treated. Other sawn boards may be untreated. Additional testing may be needed to confirm treatment.

Prepared by:

Florida Center for Solid and Hazardous Waste Management and Florida Department of Environmental Protection

with assistance from:

University of Florida College of Engineering and University of Miami College of Engineering

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BACKGROUND

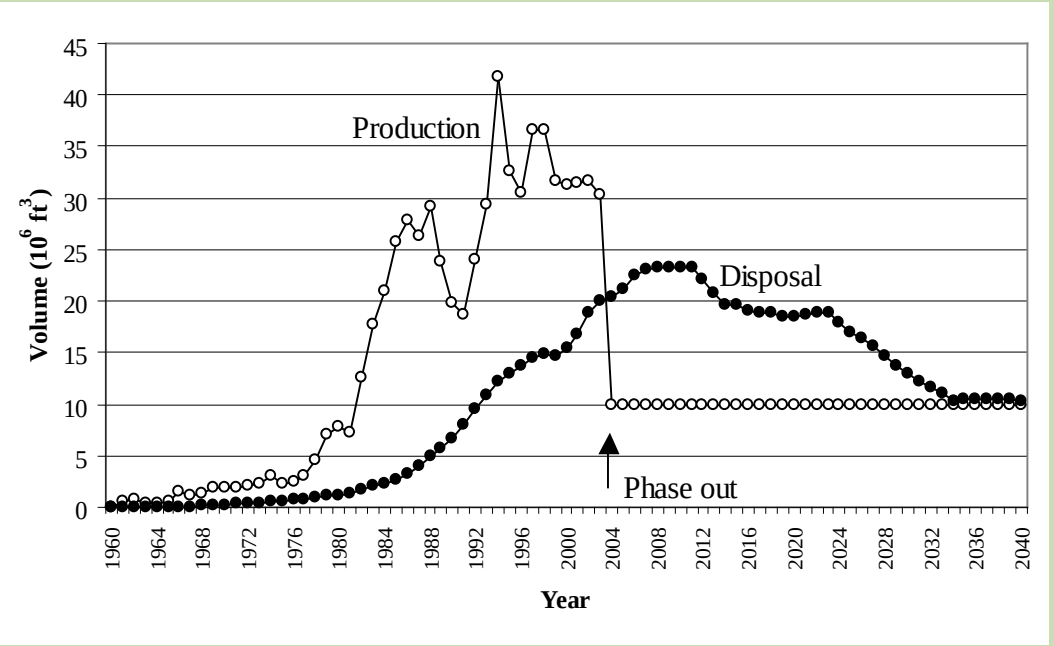
Chromated Copper Arsenate (CCA) is a chemical wood preservative containing chromium, copper and arsenic. These chemicals protect the wood from rotting due to insects and microbial agents. As a result, the use of CCA to pressure treat wood can prolong the service life of the wood 20 to 40 years beyond that without the preservative.

CCA has been used to treat wood since the 1940s, and since the 1970s CCA-treated wood has been used extensively in residential applications. Wood treated with CCA produces no odors or vapors, and you can paint or seal its surface easily. Wood products treated with CCA include lumber, timber, utility poles, posts and plywood. Because of its ease of use and the effectiveness of its treatment, CCA-treated wood was the most widely used type of treated wood in the country and represented about 80 percent of the wood preservation market through 2002.

In the late 1990s the Department became concerned about the large quantity of arsenic that was being imported into the state in the CCA chemicals and the CCA-treated wood. Due to population growth, this wood was needed to supply the high demand for residential housing in Florida. The Department was also concerned about how this CCA-treated wood might be managed when it is removed from service. Research conducted by Dr. Helena Solo-Gabriele, University of Miami, showed that the amount of this wood being disposed of after it reached the end of its service life was expected to increase significantly in the near future (Solo-Gabriele, et al, 2003a, Solo-Gabriele, 2003b). In addition, while not clearly confirmed by ground water data from Florida's unlined disposal facilities, research by Dr. Tim Townsend from the University of Florida indicated that CCA-treated wood and ash from burning this wood could pose a significant leaching threat to ground water if disposed of in unlined disposal facilities in Florida (Townsend, et al., 2001 and 2004). The research also showed that the ash from burning wood waste containing as little as five percent CCA-treated wood could be considered a characteristic hazardous waste due to the high arsenic concentrations in the ash.

These concerns led to communications by the Department with regulatory agencies in other states, with members of the wood treating industry in Florida and with the US Environmental Protection Agency (EPA). On March 17, 2003, the EPA signed an order in response to a voluntary request by wood preservative pesticide producers for cancellation of registration and termination of uses of certain CCA-treated wood products. This agreement required that use of CCA-treated wood for most identified residential uses cease by December 31, 2003. EPA published this notice of cancellation order on April 9, 2003 (EPA, 2003).

The Department is still faced with the problem that the amount of CCA-treated wood being disposed of will continue to increase in the years to come, and may pose an increasing environmental risk if disposed of in unlined facilities. If treated wood is made into mulch and then used in a residential setting, it may also pose unacceptable human health or environmental risks. Consequently, in 2003 the Department convened two Technical Advisory Groups (TAGs) to help study these issues. One TAG focused on potential ground water impacts and the other focused on operational issues. The TAGs consisted of voluntary members from the scientific, engineering and regulated communities who were familiar with the management problems associated with CCA-treated wood in Florida. One of the recommendations of the Operation TAG was for the



The projected amount of CCA-treated wood that will be disposed of in year 2010 is much greater than what it was in the year 2000.

Department to develop a guidance document on the management and disposal of CCA-treated wood.

PURPOSE

The purpose of this document is to develop guidance for the regulated community and the Department on the management and disposal of CCA-treated wood in Florida. It contains recommendations, which are of an advisory nature, for the collecting and recycling of treated wood. It also contains specific Best Management Practices (BMPs) that are designed to reduce the amount of treated wood disposed of at unlined facilities and to minimize the processing of treated wood into mulch at processing facilities. If the owner/operator of a facility employs and properly implements the BMPs contained in this document, the Department will presume that the owner/operator is making a reasonable effort to prevent significant quantities of CCA-treated wood from being disposed of or processed at the facility and will not take enforcement action should disposal or processing of some CCA-treated wood at the facility actually occur.

OVERVIEW AND APPLICABILITY

Solid waste disposal facilities in Florida are regulated by the Solid Waste Management Facilities rule, Chapter 62-701, Florida Administrative Code (F.A.C.). This rule currently allows CCA-treated wood to be disposed of in permitted Class I, II or III landfills and in permitted construction and demolition (C&D) debris disposal facilities. However, the studies cited above, as well as advice from EPA (EPA 2004b), have prompted the Department to initiate rulemaking to amend Chapter 62-701, F.A.C., in coordination with the development of this guidance document, to require that operators of unlined facilities implement a program to remove CCA-treated wood from the waste stream

prior to final disposal or use. Currently Florida's unlined disposal facilities would include most of the Class III landfills and C&D debris disposal sites in the state. Use of this guidance as part of such a program will help owners and operators comply with Department rules as well as minimize future liability for pollution or injury.

In addition, both the Department (DEP, 2002) and the EPA (EPA, 2004a) have determined that CCA-treated wood should not be recycled as mulch or used as fuel in a wood-fired boiler unless that wood-fired facility is specifically authorized by the Department to accept CCA-treated wood. The Department is also modifying Chapter 62-701, F.A.C. to specifically prohibit the use of CCA-treated wood as mulch, compost, or a soil amendment. Owner/operators of facilities that process wood wastes for disposal or use should follow this guidance to reduce any future liability for injury to people or the environment, as well as to comply with Department rules regarding CCA.

Finally, as is explained in the following section of this guidance, the Department recognizes the difficulty of identifying CCA-treated wood separately from other forms of wood treated with copper-containing preservatives. At this time there is no cost effective and efficient method to specifically identify arsenic in treated wood. The only practical solution to this dilemma at this time is to require the separation of wood waste which can be reasonably assumed to be treated with preservatives which might contain arsenic. Consequently, the advisory recommendations and the BMPs in this document will focus on managing all those forms of treated wood. [1]

HOW TO IDENTIFY TREATED WOOD

There are several types of wood preservative chemicals. The most common ones that have been or are used today in residential applications are CCA, alkaline copper quaternary (ACQ), and copper boron azole (CBA). Some wood in residential applications is also treated with borate alone. Other chemicals have also been used to treat wood for industrial applications. For example, pentachlorophenol (PCP) has been used in the past for telephone poles, but is becoming less popular today. Creosote is used to treat railroad ties and some construction pilings.

Treated industrial wood products can typically be identified based upon their large dimensions (e.g., railroad ties and utility poles). Thus, they are easier to visually identify and then remove from the waste stream. Treated wood used in residential applications, however, is largely composed of lumber, timbers and plywood in varying sizes and can be found in both treated and untreated forms. So how does one determine if these materials are treated?

The most common method for identifying treated wood among lumber, timber and plywood is to look at the color of the wood. Untreated wood and borate-treated wood typically have a light yellow color. The yellow color is the natural color of Southern Yellow Pine, the most common wood species used for building construction in Florida. Wood treated with copper, which includes CCA-, ACQ- and CBA-treated wood, varies in color from a very light green to an intense green color depending upon the amount of chemical impregnated into the wood. The figure to the left shows the color variations in wood resulting from different chemical treatment levels using CCA.

For CCA-, ACQ- and CBA-treated wood, a lower amount of chemical is added to wood intended for above ground and ground contact applications. A higher amount of chemical is added for wood intended for marine applications or serving as a load-bearing support for structures. The majority of the wood produced is treated using the lower amounts of chemical which imparts a light green color to the wood.

Once wood treated with copper has been in-service and has weathered, the green color is generally converted to a silver color. Unfortunately, untreated wood generally weathers to nearly the same silver color. This change in color

[1] *Wood treated with other chemicals such as pentachlorophenol and creosote, while perhaps posing different environmental concerns, is not addressed by this guidance document.*

for treated wood occurs for wood containing the lower concentrations of chemical after only a year or two of weathering. As a result, sorting out CCA-treated wood from the waste stream based on the green color alone cannot ensure that all the treated wood is identified and removed.

Because of the difficulty in identifying treated wood based on its color alone, researchers are developing or have developed other methods to assist with this identification. Some of these methods may be useful to owner/operators who seek to improve their separation processes for treated wood. The rest of this Section will describe four of these methods and discuss the advantages and disadvantages associated with using them. A description of waste loads that typically contain treated wood is shown in the photos at the end of this guide.

◂ *Chemical Stains*

Chemical stains refer to specially designed chemicals that can be applied directly to treated wood and show the appearance of a particular chemical in the wood by changing color, i.e., "staining" the wood. These stains can be easily used in the field to sort treated wood but are labor intensive since stain has to be applied to each piece of wood to be identified. The color change will usually occur within a few seconds and the costs of individual tests are low, on the order of a few cents per sample.

There are several stains that can be used to identify copper-treated wood. They were developed by the wood treatment industry to check the depth of penetration of the CCA preservative into wood. These stains include chrome azurol, PAN indicator[2] and rubeanic acid. They result in a distinctive color change where the stain is applied if copper is present in wood. PAN indicator is the preferred stain for sorting wood within the waste stream due to its short reaction time of about 12 seconds. When it reacts, it produces a color ranging from magenta to red. Untreated wood turns orange in color.

It is important to note, however, that these stains will also test positive if the wood is treated with the new copper-based alternatives, such as ACQ and CBA. Thus a positive result using PAN indicator will indicate that the wood is copper-treated but not necessarily arsenic-treated. Research is currently on-going to develop a stain specifically for arsenic.

While the PAN indicator is copper specific rather than arsenic specific,

Stain effects on untreated wood (left) and treated wood (right).

because of its low cost and ease of use it is currently the method of choice for assisting owner/operators to sort out treated wood. More information about the PAN stain indicator can be found on page 12.

◂ *Arsenic Test Kits*

These tests refer to test kits developed for the analysis of arsenic in drinking water that have been modified for the analysis of arsenic in wood. The method requires the collection of a sawdust sample of the wood which is immersed in water. A series of chemicals are added to the wood/water mixture which convert arsenic dissolved in the water to arsine gas. This gas then reacts with a test strip to produce a distinctive color change on the strip. The method requires 45 minutes per sample for processing. Because the use of strong reagents and the formation of arsine gas (a highly poisonous form of arsenic that is dangerous to inhale), this test is not recommended for use by those who are inexperienced with the handling of chemicals.

◂ *X-Ray Technologies*

The use of X-ray technologies for sorting wood waste has been evaluated at the pilot scale showing very promising results. These technologies, such as the hand-held XFR units by Innov-X and NITON, were found to identify the presence of arsenic in treated wood within a fraction of a second. Moisture and coatings on the wood did not interfere with the ability of the X-ray systems to identify arsenic in the wood, and they are safe when properly used.

X-ray technologies come in both hand-held and on-line configurations. The widespread use of these technologies, however, is limited because of the high capital costs of the equipment. For example, Innov-X currently sells a hand-held unit for $21,000, but they can also be rented from NITON (www.niton.com) or Innov-X (www.innov-xsys.com).

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2 PAN stands for the chemical name of 1-(2-pyridylazo)-2-naphthol, an orange-red solid with molecular formula $C_{15}H_{11}N_3O$.

◂ *Laser Technologies*

Like X-ray technologies, laser systems, such as the laser induced breakdown spectroscopy (LIBS), have been evaluated at the pilot scale with very promising results. An experimental LIBS system has been tested for sorting wood waste by determining how well it can detect chromium in CCA-treated wood. However, the effectiveness of the system to identify treated wood was hampered by high moisture content in the wood and the presence of coatings on the wood. It is believed that such interferences can be overcome with the use of more powerful lasers which are available.

Since the LIBS system measures chemicals at the surface of the wood, it was able to identify the presence of coatings during testing. Thus, this system may be helpful if separation of painted wood from a waste stream is required. Since this technology is still under development, it is not yet ready for widespread use as a tool for sorting treated wood.

RECOMMENDATIONS FOR GENERATING, COLLECTING AND RECYCLING TREATED WOOD WASTE

As described previously, the Department recognizes that it may be very difficult to selectively remove CCA-treated wood from other forms of treated wood. Consequently, the following recommendations are designed to address all treated wood, as much as is practical. These recommendations are also advisory in nature and are separate from the BMPs described in the section, "Best Management Practices for Treated Wood."

◂ *Generation and Collection*

The best location to separate treated wood waste for proper management is at the generating source. Generators will be more knowledgeable of the type of wood that is being handled, and separation at the source is much more effective than trying to separate treated wood later at a disposal or processing facility.

The Department recommends the following guidelines be followed for the generation and collection of treated wood waste.

- **Dedicated roll-offs:** Dedicated, separate roll-offs should be used at job sites involving the construction or demolition of wooden decks, stairs, fences, play ground equipment, landscaping materials, docks and for any other large-scale uses of treated wood. Generators should place all treated wood scraps in these roll-offs for later disposal at permitted lined landfills or other facilities permitted to receive treated wood. As much as is practical, sawdust generated from cutting the treated wood should also be bagged and disposed of at a lined landfill. Bags of sawdust can be placed in the dedicated roll-offs for treated wood.

- **No on-site burning of treated wood:** Treated wood should not be burned at demolition or construction sites as part of the site cleanup efforts. The burning of CCA-treated wood releases toxic fumes and produces a residual ash which is toxic.

- **No on-site mulching of treated wood:** Treated wood, especially CCA-treated wood, should not be ground up on-site and used as landscaping mulch or soil amendment.

- **Curbside collection:** When feasible, local governments should ensure that treated wood from renovations of fences and decks by homeowners that is collected through a curbside pickup program is not mixed with vegetative wastes, but is instead taken to a lined landfill for disposal.

◂ *Recycling*

At this time, there are no acceptable recycling alternatives for CCA-treated wood, other than reuse of discarded lumber, timbers and poles through reuse and salvage centers.

BEST MANAGEMENT PRACTICE (BMP) FOR TREATED WOOD

As is described in the section, "How to Identify Treated Wood," the Department recognizes that it may be very difficult to selectively separate CCA-treated wood from other forms of treated wood. Consequently, this BMP is designed to maximize the removal of all treated wood from the waste stream. By following this guidance document, the Department will assume that all reasonable measures are being taken by the owner/operator to prevent the disposal or processing of CCA-treated wood at the facility.

◂ *Materials Recovery Facilities (MRFs)*

This Section applies to MRFs regulated under Rule 62-701.710, F.A.C. and C&D MRFs regulated under Rule 62-701.730(13), F.A.C. Typically, wood is separated from the waste stream at these facilities, size reduced, and used as landscaping mulch, boiler fuel or, when mixed with soil, initial cover at Class I landfills. In other cases the wood is disposed of in either Class III landfills or C&D debris disposal facilities. To ensure that significant quantities of treated wood are not managed in these ways at MRFs, the Department recommends that the following procedures be implemented by the owner/operator of the facility.

Initial scale house inspection/driver interview: Incoming trucks should be inspected visually to look for dedicated loads[3] of treated wood, especially from contractors specializing in the demolition and construction of fences, decks and docks. The name of the company may help identify contractors who would be likely to have a dedicated load. For additional information, the scale house operator may also ask the drivers what they are hauling. All dedicated loads should be diverted at the scale house for disposal at a lined disposal facility or properly managed at the MRF before disposal at a lined disposal facility.

Floor spotters and picking line workers: By rule, the MRF must have at least one trained spotter on duty whenever waste is being received. It is recommended that the MRF employ at least one floor spotter per sorting train at the facility. The floor spotter should observe loads as they are tipped onto the tipping floor and pull out larger pieces of treated wood that are listed in the table below. The picking line workers should pull out the smaller pieces of treated wood listed in the table not removed by the floor spotters. Separated treated wood should be placed in a roll-off container for disposal at a lined disposal facility.

Training requirements: The owner/operator should implement a training plan designed to help floor spotters and picking line workers identify treated wood. This training plan is in addition to the trained spotter requirements contained in Rule 62-701.710(4)(c), F.A.C. Teaching aids like those shown in the photos of typical waste loads (page 14) may be used. A teaching tool "example board" like that shown on page 13 should be posted near the picking line.

Spot-checking program: If wood is mulched at the MRF, the owner/operator must implement a monthly spot-checking program to evaluate how effectively treated wood is being removed from the recovered wood waste stream. This program can include the PAN indicator test (page 12) to identify the presence of copper-treated wood. The program can also include more sophisticated testing procedures to look for arsenic-treated wood. The details of any spot-checking program will have to be developed case-by-case, with the purpose of helping the owner/operator improve operations. The results of the spot-checking program need not be reviewed by Department staff for compliance purposes, and detections of treated wood in the mulch will not in themselves be indicative of a violation of Department standards.

Types of Wood That Are Typically Treated With CCA

Lumber, timber and plywood with a green color
Wood and wood posts from fences
Wood and wood posts from docks
Wood and wood posts from decks and outdoor stairs
Wood 4 inches by 4 inches or larger in diameter
Dimensional lumber labeled (with end tags) as treated wood
Wood from playground equipment
Lumber used in landscaping flower beds, gardens, etc.

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3 *"Dedicated loads" are defined as loads of predominantly or exclusively treated wood that would typically be generated by deck, dock and fence contractors.*

Recordkeeping: The owner/operator should maintain records of the following: (1) volumes or weights of treated wood removed and disposed of in a lined disposal facility; (2) the name of the facility used for disposal; (3) treated wood training records for the floor spotter and picking line workers; and (4) results of the monthly spot-checking program, if required. These records must be kept with the other operational records of the facility and maintained as required by Rule 62-701.710(9), F.A.C.

◂ *Yard Trash Processors and Other Authorized Mulching Operations*

Yard trash processing facilities that receive and process only yard trash as defined in Rule 62-701.200(143), F.A.C. need not follow this Guide for their operations. The Department recommends that facilities that mulch or compost any clean wood[4] as defined in Rule 62-701.200(16), F.A.C., including yard trash processing facilities and mulching facilities at landfills, implement the following procedures.

No mulching of treated wood: The owner/operator (or spotter in the case of a landfill mulching operation) must make reasonable efforts to remove any treated wood listed in the table on page 7 from the wood waste stream prior to processing. Because of the difficulty of identifying it after-the-fact, extra care should be taken to assure that decorative wood mulches are free of treated wood. Any removed treated wood should be placed directly into a separate container and taken for disposal to a lined disposal facility.

4 Clean wood means wood, including lumber, tree and shrub trunks, branches, and limbs, which is free of paint, glue, filler, pentachlorophenol, creosote, tar asphalt, other wood preservatives or treatments. While this definition specifically excludes treated wood, the Department expects that a facility that accepts clean wood will inadvertently accept some treated wood that will need to be properly managed.

No burning: Treated wood must not be burned in open piles, air curtain incinerators or other uncontrolled conditions.

Recordkeeping: The owner/operator must maintain records of the volumes or weights of treated wood removed and disposed of and the name of the landfill used for disposal. These records must be kept with the other operational records of the facility and maintained as required by the facility's permit or applicable rules.

◂ *Class I Landfills, Lined Class III Landfills, and Lined C&D Facilities*

The Department recommends that owners and operators of Class I landfills, lined Class III landfills, and lined C&D facilities implement the following:

No mulching of treated wood: If mulching occurs at the facility, the operator should take adequate steps to ensure that treated wood is not being processed into mulch for off-site uses or for on-site uses outside of the lined disposal area. Because of the potential to increase leaching rates, the Department does not recommend size reduction of treated wood. However, treated wood may be processed and used as initial cover at the disposal area provided it is only used on interior slopes and meets the other requirements for initial cover contained in Chapter 62-701, F.A.C.

No burning: Treated wood must not be burned in open piles, air curtain incinerators or other uncontrolled conditions.

Management of treated wood: Treated wood which is separated from yard trash or other clean wood should be stored in a separate container or directly disposed of in a lined area. If the lined disposal facility is co-located with other unlined facilities, the owner/operator should include specific conditions in its operation plan to assure that the treated wood is disposed of only in lined areas.

◂ *Unlined Class III Landfills and C&D Debris Disposal Facilities*

To ensure that significant quantities of treated wood are not improperly managed at unlined Class III landfills and C&D debris disposal facilities, the Department recommends that the following procedures be implemented. However, if a Class III landfill or a C&D debris disposal facility is lined, then it may manage treated wood in accordance with the section on "Class I Landfills, Lined Class III Landfills, and Lined C&D Facilities" of this document.

Initial scale house inspection/driver interview: Incoming trucks should be visually inspected to look for dedicated loads[5] of treated wood, especially from contractors specializing in the demolition and construction of fences, decks and docks. The name of the company may help identify contractors who would be likely to have a dedicated load. For additional information, the scale house operator may also ask the drivers what they are hauling. All dedicated loads should be diverted at the scale house for disposal at a lined facility or properly managed at the unlined facility before disposal at a lined facility.

No burning: Treated wood must not be burned in open piles, air curtain incinerators or other uncontrolled conditions.

Signage: Facilities must install signs in the area of incoming traffic flow notifying customers that treated wood will not be accepted for disposal at the facilities, and that the only approved method of disposal is at a lined disposal facility.

Spotters: A trained operator or spotter must inspect the load and pull out larger pieces of treated wood that are listed in the table on page 7. In some cases the load may need to be spread out with compaction equipment or bulldozers in order for adequate spotting to occur. Separated treated wood should be placed in a roll-off container for disposal at a lined disposal facility.

Training requirements: The owner/operator should implement a training plan designed to help operators and spotters identify treated wood. This training plan is in addition to the trained operator and spotter requirements contained in Chapter 62-701, F.A.C. Teaching aids such as that shown on page 13 may be used.

Spot-checking program: If wood is mulched at the facility, the owner/operator must implement a monthly spot-checking program to evaluate how effectively treated wood is being removed from the wood waste stream. This program can include the PAN indicator test described on page 12 to identify the presence of copper-treated wood. The program can also include more sophisticated testing procedures to look for arsenic-treated wood. The details of any spot-checking program will have to be developed case-by-case, with the purpose of helping the owner/operator improve operations. The results of the spot-checking program need not be reviewed by the Department staff for compliance purposes, and detections of treated wood in the mulch will not in themsleves be indicative of a violation of Department standards.

Record Keeping: The owner/operator should maintain records of the following: (1) volumes or weights of treated wood removed and disposed of at a lined disposal facility; (2) the name of the facility used for disposal; (3) treated wood training records for the operator and spotter; and (4) results of the monthly spot-checking program, if required. These records must be kept with the other operational records of the facility and maintained as required by the facility's permit or applicable rules.

◂ *Waste-to-Energy (WTE) Facilities*

Generally, little treated wood goes to WTE facilities. The emissions from the de minimis amounts in the waste stream are believed to be adequately handled by each facility's air pollution control equipment. However, the impacts from large-scale burning of treated wood in WTE facilities have not been tested, and it is not known how much treated wood can be safely burned. Therefore, the use of WTE facilities for large-scale bulk disposal of treated wood is not recommended.

5 *"Dedicated loads" are defined as loads of predominantly treated wood that would typically be generated by deck, dock and fence contractors.*

FREQUENTLY ASKED QUESTIONS

Q1. What do those labels/end tags mean? Can I use them when I sort?

A1. Yes. There is a lot of useful information on the labels attached to the end of dimensional wood. Labels identify the type of chemical that was used to treat the wood (CCA, ACQ, CBA, etc.), the level of treatment (pounds of chemical per cubic foot of wood, for example 0.25, 0.40, 0.80, 2.5, etc.) and the location of the treating plant. If the wood has a label then it is probably treated and according to this guidance should be separated out for disposal at a lined disposal facility.

Q2. Are pallets ever made from treated wood?

A2. Pallets are very rarely made from treated wood. For the most part, pallets can be safely ground up into wood chips for use as mulch or as fuel in a wood-fired boiler. As with other types of wood, inspection of pallets should follow the recommended guidelines.

Q3. Do I need to remove the arsenic-free treated wood products? Is there any harm from them?

A3. Compared with CCA, these other products pose little or no significant risk to the environment or to human health[6]. However, because of the difficulty in differentiating CCA-treated wood from other types of treated wood, this guidance recommends you remove all treated wood from the waste stream.

Q4. What precautions do I need to take when handling treated wood? Should my pickers who handle this type of material take more precautions than others?

A4. All pickers should wear eye protection, dust masks and gloves. Workers handling wood preserved with CCA should be sure to wash their hands before eating or smoking. CCA-treated wood splinters in the hands and fingers of workers are reported to be very problematic and should be removed as soon as possible. It is important to make sure that the entire splinter is removed. Removal may require medical attention.

Q5. How do I store this material?

A5. Treated wood, including CCA-treated wood, should be placed directly into a separate container for storage prior to disposal in a lined disposal facility. Simply storing the treated wood in a pile outdoors could continue to pose an environmental threat.

Q6. How do I find out where the lined disposal facilities are?

A6. The waste program staff at your District office of the Florida Department of Environmental Protection will know where the lined disposal facilities are located in your part of the state. See the contact information on page 16.

Q7. Can I refuse to accept loads of CCA-treated wood or any other treated wood?

A7. There is nothing in Florida state laws or rules that would require you to accept any particular kind of waste. Unless you are contractually obligated to accept this waste stream by your haulers or local government, you can refuse to accept loads of treated wood.

6 *The new copper-based arsenic-free wood products (ACQ and Copper Azole) do leach about twice as much copper as CCA-treated wood. However, the higher levels of copper that leach out of ACQ and Copper Azole are not nearly as toxic as the arsenic that leaches out of CCA-treated wood. There is some concern about how much copper the new preservatives like ACQ and Copper Azole may leach into aquatic systems.*

REFERENCES

DEP (Department of Environmental Protection), 2002, Tedder, R. B. and McGuire, C., "Management of Components of Yard Trash: Dirt, Ash and Mulch," Florida Department of Environmental Protection Memorandum SWM-05.6, Solid Waste Section, Tallahassee, Florida, April 4.

EPA (U.S. Environmental Protection Agency), 2004a, Springer, R. and Jones, J., "Wood Mulch Derived from Waste Lumber Preserved with Chromated Copper Arsenate (CCA)," EPA Memorandum, Office of Solid Waste, Washington, D.C., January 6.

EPA (U.S. Environmental Protection Agency), 2004b, Springer, R., "Recommendation on the Disposal of Waste Lumber Preserved with Chromated Copper Arsenate (CCA)," EPA Memorandum, Office of Solid Waste, Washington, D.C., April 12.

EPA (U.S. Environmental Protection Agency), 2003, "Response to Requests to Cancel Certain Chromated Copper Arsenate (CCA) Wood Preservative Products and Amendments to Terminate Certain Uses of other CCA Products," Notice of a Cancellation Order, 68 FR 17366, April 9.

Solo-Gabriele, H., Sakura-Lemessy, D., Townsend, T., Dubey, B., and Jambeck, J., 2003a, "Quantities of Arsenic Within the State of Florida," Florida Center for Solid and Hazardous Waste Management Report #03-06, Gainesville, Florida.

Solo-Gabriele, H., 2003b, "Revised CCA Treated Wood Disposal Forecast," August 6.

Townsend, T., Stook, K., Tolaymat, T., Song, J. K., Solo-Gabriele, H., Hosein, N. and Khan, B., 2001, "New Lines of CCA-Treated Wood Research: In-Service and Disposal Issues," Florida Center for Solid and Hazardous Waste Management Report #00-12, Gainesville, Florida.

Townsend, T. G., Dubey, B., and Solo-Gabriele, H., 2004, "Assessing Potential Waste Disposal Impact From Preservative Treated Wood Products," Environmental Impacts of Preservative Treated Wood, Florida Center For Environmental Solutions, Orlando, Florida, February 8-9, pp. 169-188.

PAN STAIN INDICATOR

Principle: PAN stands for the chemical name of 1-(2-pyridylazo)-2-naphthol, an orange-red solid with a molecular formula $C_{15}H_{11}N_3O$. It is used to determine the presence of almost all metals excluding alkali metals. The reaction with the metals in CCA-treated wood produces a magenta to red color. Untreated wood turns orange in color. It is important to note that the stain is not specific to arsenic within CCA. It reacts with the copper, so that wood treated with any copper-based preservative (such as ACQ and Copper Azole) will also test positive using this stain.

Safety: Gloves and safety goggles should be used during the application of the stain. The stain should be applied in a fashion that would prevent inhalation. The stain should not be ingested and should be kept in a safe place that would prevent children or animals from ingesting the solution. A material safety data sheet (MSDS) is also available on this product that supplies additional safety information. You may also want to contact the chemical supplier of the stain for additional safety instructions. Receipt of the stain kit normally requires that the recipient sign a liability waiver.

Reagents: The PAN Indicator solution (a.k.a."stain") can be purchased as a pre-mixed solution or the basic chemical ingredients can be purchased and mixed at a laboratory. The pre-mixed solution is more convenient but usually more expensive, in particular if large quantities of the stain are needed. If large quantities of stain are needed, a more economical option would involve purchasing the basic chemical ingredients and mixing these ingredients in a laboratory. The pre-mixed solution can be purchased from Spectrum Chemicals. More information on obtaining these ingredients is shown in the following table.

Company	Phone Number	Cat. # for PAN	Cat. # for Methanol	Solution
Spectrum	*800-813-1514*	*P1000-04 (25g)*	*M1240 (20L)*	P-358-51
Sigma	800-325-3010	*01036-25G (25 g)*	*179337-20L*	
Fisher Acros	800-766-7000	*AC14631-0100 (10g)*	*A411-20 P-358-51*	

Procedure for Use

1. Using a dropper bottle, apply the stain to the wood. If the wood is relatively clean, the stain can be added directly to the wood. If the wood is soiled we recommend that a small area of the wood be carefully cut away to expose a clean area (approx 1 square centimeter). The stain works best if the wood is dry.

2. If testing mulch, it may be easiest to use a spray bottle. When using a spray bottle, be careful to spray the solution downwind to avoid inhalation.

3. Wait for color development (about 15 seconds). Color development is faster if applied to the transverse direction of the wood instead of the radial direction.

4. Note the color. If the sample turns a magenta color, then the wood is positive for copper. If the wood turns orange in color, then the wood is negative for most metals and is considered untreated.

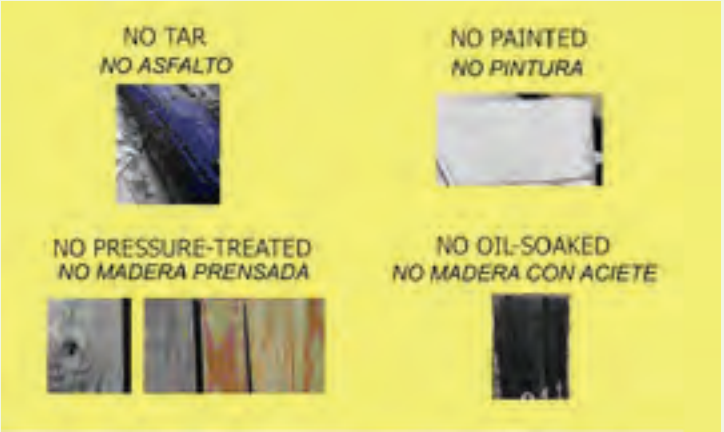
Interferences

1. Stain will not work properly on colored mulches or mulches that are very soiled.

2. Stain will sometimes react as positive with paint and nails on wood, even though the wood may be untreated.

TEACHING TOOLS FOR SORTING WITHOUT CHEMICAL TESTING

Materials Recycling Facilities (MRFs) and other facilities that will sort their waste wood can use signs like these to help sorters distinguish between wood that can be recycled and wood that should be sent to a lined disposal facility. Signs include Spanish and English text.



The top example can be used to explain how to sort wood based on its treatment.

This example can be used to explain how to sort wood based on the structure in which it was used.

PICTURES OF TYPICAL WASTE LOADS THAT CONTAIN TREATED WOOD

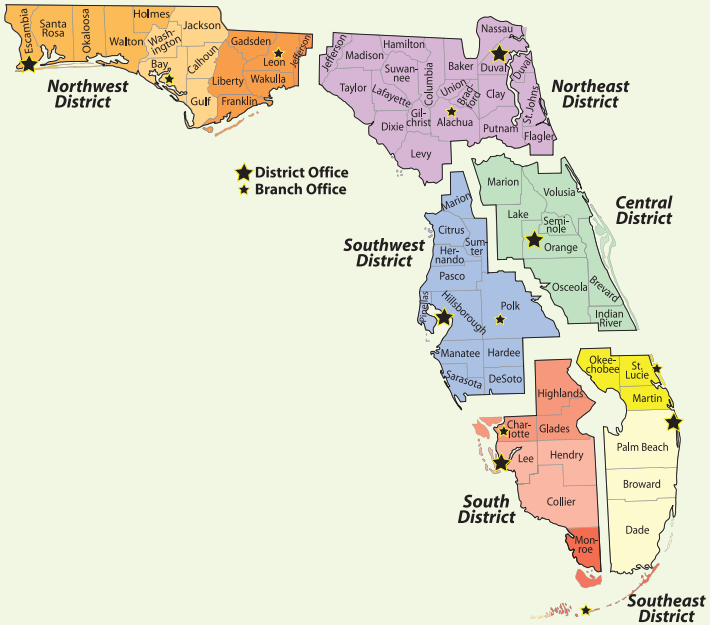
Top: Loads of yard waste may contain CCA-treated wood from fencing, fence posts or landscaping timbers. This piece of wood is likely treated due to its green hue and large dimensions.

Bottom: This load is a mix of yard waste, CCA-treated fencing and CCA-treated landscaping timbers. Treated wood can be identified based on the fact that it is sawn and is characterized by a green hue. The dimensional lumber in the bottom is obviously treated. It is difficult to tell for the highly weathered sawn boards.

Top: Loads from the demolition of outdoor structures will typically contain CCA-treated wood. Pole at the upper left is treated. Complete recovery of untreated wood from this pile will likely require testing in addition to visual separation.

Bottom: The green colored pole in the front of this pile is treated. Complete recovery of untreated wood from this pile will likely require testing in addition to visual separation.

Florida Department of Environmental Protection District Offices



This book is dedicated to the memory of William W. (Bill) Hinkley 1945-2005

WHERE CAN I GET MORE INFORMATION?

The waste program staff at your District office of the Florida Department of Environmental Protection can provide additional information including a list of lined disposal facilities that are located in your area of the state. The appropriate contacts and District boundaries are shown below.

FDEP Information Line,
Phone: (800) 741-4DEP
Fax: (850) 245-8810

FDEP Headquaters
2600 Blair Stone Road
Tallahassee, Fl 32399-2400
http://www.dep.state.fl.us/waste/

FDEP District Offices:

Northwest District Office
160 Governmental Center, Room 308
Pensacola, Fl 32502
(850) 595-8300

Southwest District Office
13051 N. Telecom Parkway
Temple Terrace, Fl 33637
(813) 632-7600

South District Office
P.O. Box 2549
2295 Victoria Avenue,
Suite 364
Fort Myers, Fl 33901
(239) 332-6975

Northeast District Office
7825 Baymeadows Way Suite 200B
Jacksonville, Fl 32256
(904) 807-3300

Central District Office
3319 Maguire Boulevard, Suite 232
Orlando, Fl 32803
(407) 894-7555

Southeast District Office
400 North Congress Avenue
Suite 200
West Palm Beach, Fl 33401
(561) 681-6600

Additional information on CCA-treated wood can be found at the Florida Center for Solid and Hazardous Waste Management's website for CCA research: www.ccaresearch.org.

hsagolden
engineering environmental solutions

Appendix G

TAFT Transfer/Processing and Material Recovery Facility

Equipment List - February 2016

TAFT

					CHASSIS INFORMATION		
LOB	ASSET #	NEW VEH. #	YEAR	AGE	MAKE	MODEL	SERIAL#
EXCAVATOR	830066	830066	2004	12	CATERPILLAR	320CL	PAB01984
EXCAVATOR	830114	830114	2007	9	CATERPILLAR	320CL	EAG00934
		2		11	AVERAGE AGE		
PICKUP	700820	700820	2003	13	FORD	RANGER	1FTYR10UX3PA82719
TRASH GRAPPLE	830069	830069	2007	9	CATERPILLAR		7CW00628
WHEEL LOADER	840067	840067	2015	1	VOLVO	L50G	VCEL50GSC02420462
WHEEL LOADER	840077	840077	2002	14	CATERPILLAR	IT14G	1WN01974
WHEEL LOADER	840079	840079	2007	9	CATERPILLAR	966H	A6D00851
WHEEL LOADER	840162	840162	2014	2	VOLVO	L150G	G23422
		4		7	AVERAGE AGE		
FORKLIFT			2014	2	YALE	GDP050VXNXAE084	C875V03084M

VOLVO WHEEL LOADERS

L45G, L50G

8.6-9.9 t (19,026-21,804 lbs) 98-114 hp

A PASSION FOR PERFORMANCE.

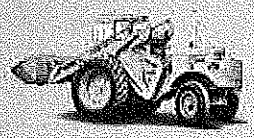
At Volvo Construction Equipment, we're not just coming along for the ride. Developing products and services that raise productivity – we are confident we can lower costs and increase profits for industry experts. Part of the Volvo Group, we are passionate about innovative solutions to help you work smarter – not harder.

Helping you to do more

Doing more with less is a trademark of Volvo Construction Equipment. High productivity has long been married to low energy consumption, ease of use and durability. When it comes to lowering life-cycle costs, Volvo is in a class of its own.

Designed to fit your needs

There is a lot riding on creating solutions that are suited to the particular needs of different industry applications. Innovation often involves high technology – but it doesn't always have to. Some of our best ideas have been simple, based on a clear and deep understanding of our customers' working lives.



You learn a lot in 175 years

Over the years, Volvo has advanced solutions that have revolutionized the use of construction equipment. No other name speaks Safety louder than Volvo. Protecting operators, those around them and minimizing our environmental impact are traditional values that continue to shape our product design philosophy.

We're on your side

We back the Volvo brand with the best people. Volvo is truly a global enterprise, one that is on standby to support customers quickly and efficiently – wherever they are.

We have a passion for performance.

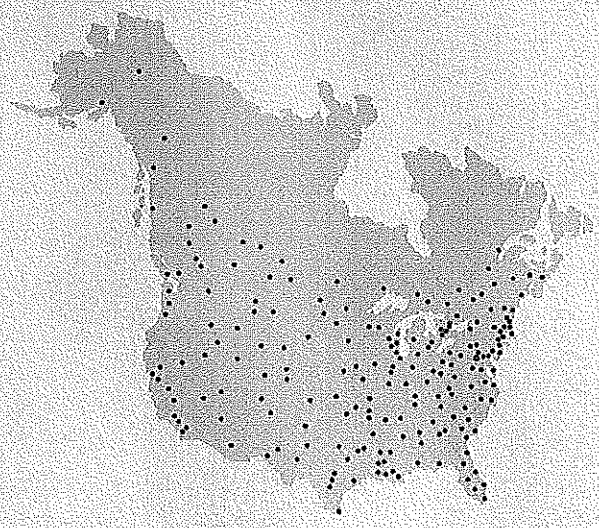
A strong, dedicated, capable dealer network.

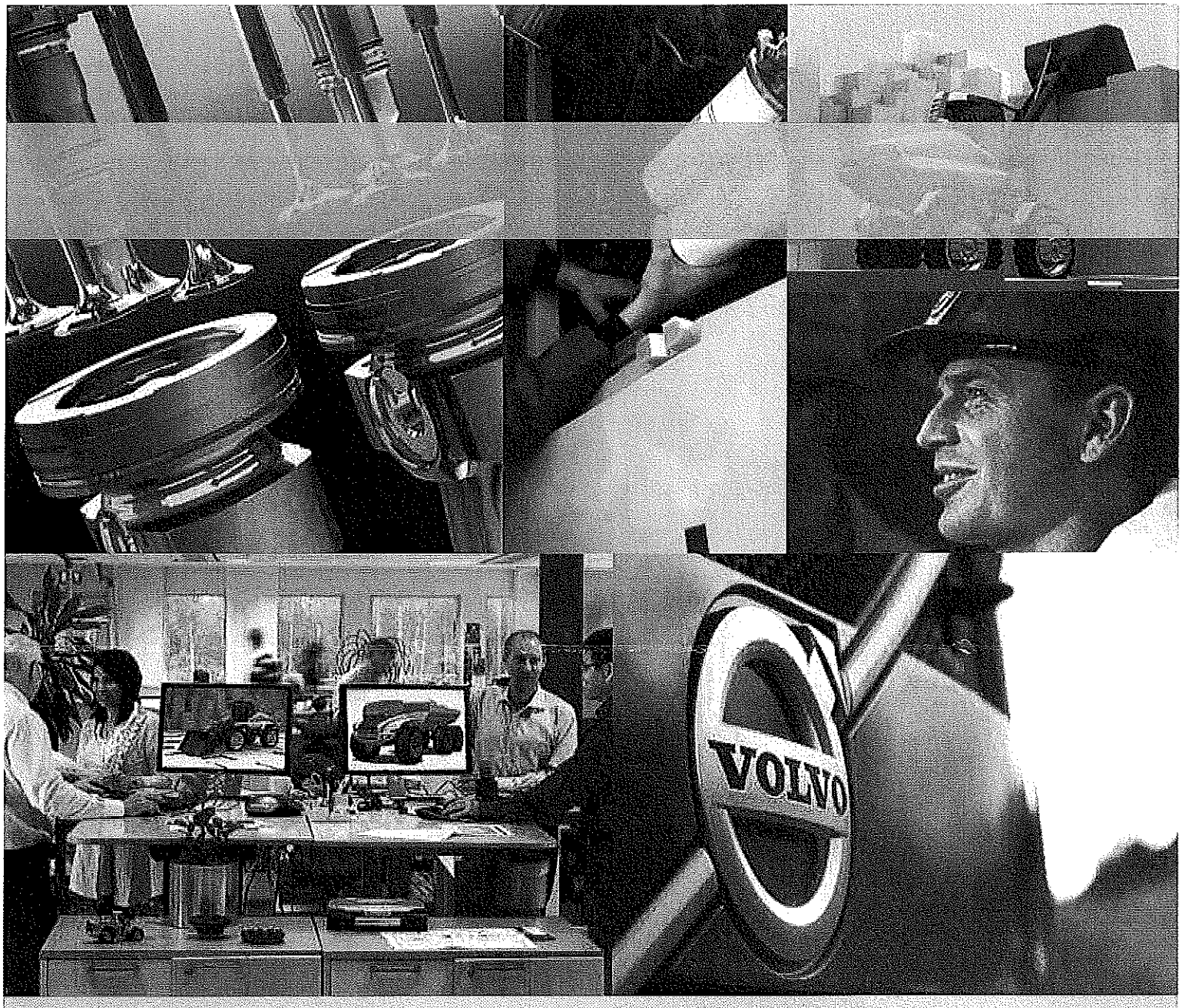
Our dealers are strategically located throughout North America to provide the equipment you need and the parts and service support you demand for a productive and profitable operation.

The strength of our dealer network is enhanced with extensive individualized product and product support training at our state-of-the-art Technical Training Center in Asheville and through hands-on training. At our nearby 80-acre Product Demonstration Center, visitors operate equipment from our entire product line under a variety of simulated working conditions. Both facilities are in year-round use by our dealers and customers – more than 2,000 visit each year. **Building the best starts right here.**

The products designed and manufactured by Volvo Construction Equipment have their beginnings at the most advanced Research & Design centers in the industry. Volvo CE machines are designed in 11 R&D centers and produced in 15 manufacturing facilities across the world.

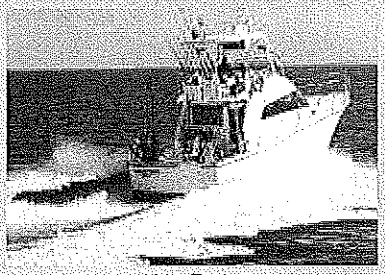
The major R&D center and manufacturing plant in the Americas is located in Shippensburg, Pennsylvania. This facility has been in operation for over 30 years and – with its recently added 200,000 sq. ft. expansion – now covers 570,000 sq. ft. on an 80 acre campus. Dedicated work teams and highly advanced technologies and techniques using the Volvo Production System ensure continuous quality improvements, labor savings and cost control to reach the high quality that our customers have come to expect from Volvo.






Mack Trucks


Volvo Construction Equipment


Volvo Penta


Volvo Trucks


Renault Trucks


UD Trucks


Volvo Buses


Volvo Aero


Volvo Financial Services

INTRODUCING THE BEST ALL-ROUNDER.

Volvo proudly introduces the L45G and L50G wheel loaders, built to perform on every site. The compact design enables easy maneuverability into small spaces, while Volvo's innovative TP linkage gives you the benefits of two machines in one. Experience the versatility for yourself.

Load-sensing hydraulics

Load-sensing hydraulics deliver power to hydraulic functions only when it's needed, without unnecessary oil pumping, for lower fuel consumption and more sensitivity in load handling.

High lifting force

A careful balance between lifting and tractive forces provides highly effective bucket penetration for all types of digging conditions.

Pilot-controlled valves

Smooth and precise pilot-operated hydraulics enable the operator to easily control attachments with minimum effort and high precision in all applications.

LATEST ENGINE TECHNOLOGY.

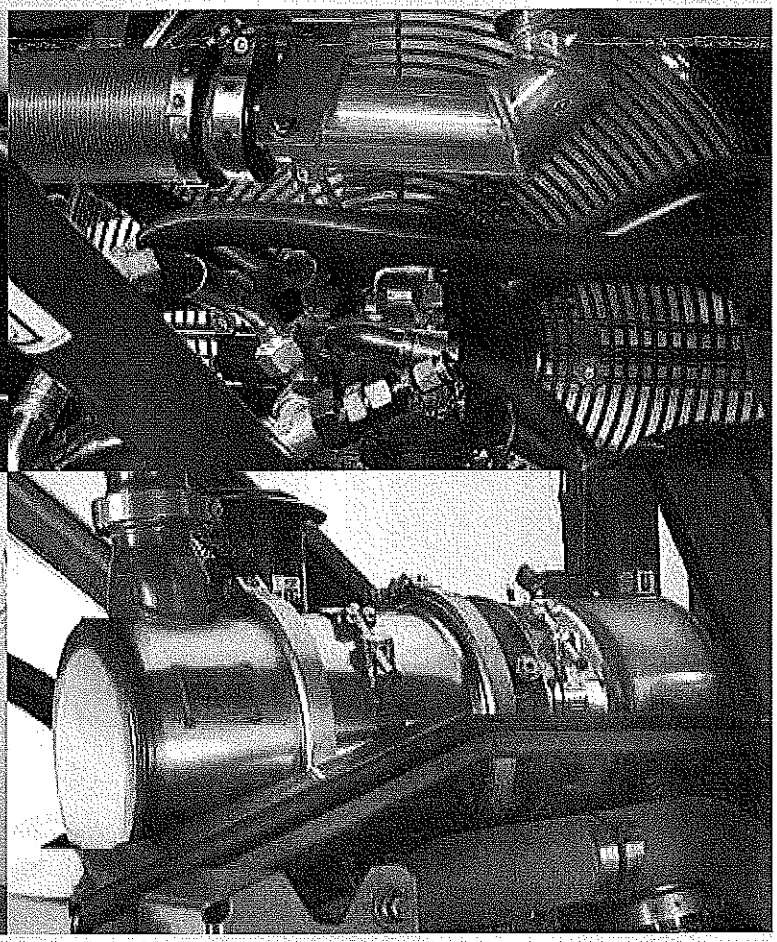
Volvo machines work hard on your job site, not on the environment. Power and efficiency are at the heart of Volvo's engine, which uses the latest technology to meet Tier 4 Interim/Stage IIIB regulations and reduce emissions as you operate. Environmentally responsible and powerful; that's Volvo.

Reduce emissions on the move

Volvo's regeneration system works to reduce emissions without interrupting operation. Particles collected during filter cleaning are oxidized and transformed into non-toxic CO2 every 6-10 hours.

Engine cooling fan

Reduce maintenance with the reversible engine cooling fan. The automatic fan blows air back through the cooling pack to remove debris drawn into the radiator and only operates when needed to save fuel.



Efficient eco pedal

Avoid excessive fuel use with Volvo's new eco pedal, which encourages operators to apply the appropriate amount of pressure (push-back) on the throttle pedal, reducing fuel consumption.

Diesel Particulate Filter (DPF)

New to Tier 4, the Diesel Particulate Filter (DPF) traps and temporarily holds exhaust particulates (soot) as the machine operates, which are later incinerated inside the DPF during the regeneration process.

SMALL SIZE: BIG TALENT.

Efficient eco pedal

The eco pedal encourages operators to apply the appropriate amount of pressure (push-back) on the throttle pedal, reducing fuel consumption.

Patented TP linkage

Volvo's unique Torque Parallel linkage combines Z-Bar and Parallel linkage in one for high breakout torque and parallel movement through the entire lifting range.

Steering

Load-sensing hydrostatic steering system served from variable displacement pump. Excellent steering performance is maintained even at low engine speed. At the same time fuel consumption is reduced.

Hydraulic attachment bracket

The Volvo hydraulic attachment bracket enables quick attachment changes for more flexibility on site.

Load-sensing hydraulics

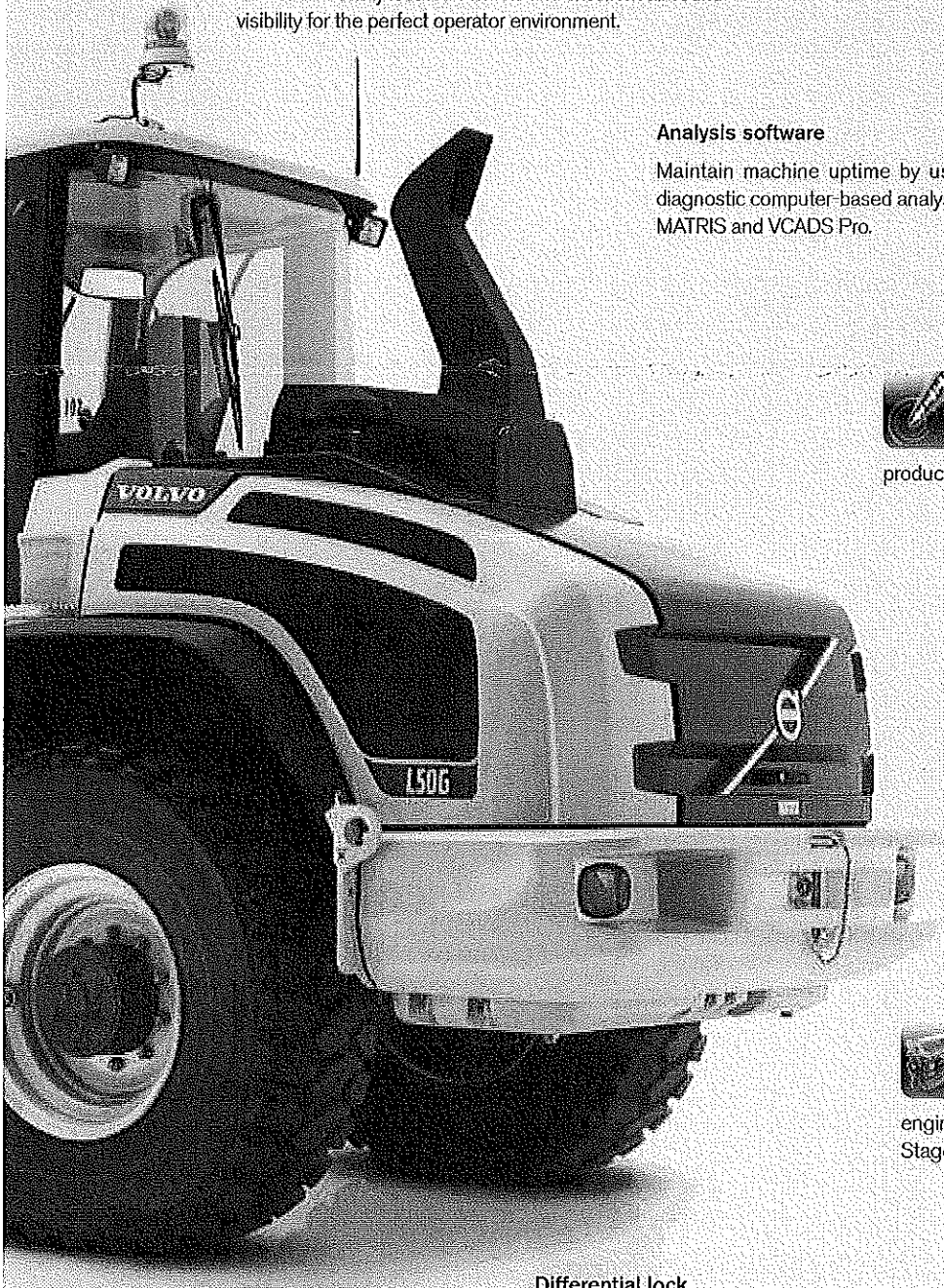
Load-sensing hydraulics deliver power to hydraulic functions only when it's needed, lowering fuel consumption.

Volvo attachments

Volvo's range of high quality attachments are perfectly matched to the machine's linkage, hydraulics and driveline to work as one unit and increase productivity.

Optimized driveline

Engine, transmission and axles work in perfect harmony with the hydraulics and steering for superb quality, performance and reliability.



Industry-leading cab

Adjustable steering wheel, seat and armrest, easily located controls and excellent all-round visibility for the perfect operator environment.

Analysis software

Maintain machine uptime by using Volvo's diagnostic computer-based analysis software: MATRIS and VCADS Pro.

CareTrack

Volvo's telematics system guides machine owners towards optimized productivity and their next service – remotely.

Maintain your uptime

The transverse mounted engine design provides easy access to all service points under the engine hood, for quick completion of maintenance checks.

Tier 4 Interim/Stage IIIB engine

Powerful, fuel efficient Volvo engine with V-ACT technology for high torque at low engine speeds. Engineered to meet Tier 4 Interim/ Stage IIIB emissions requirements.

Differential lock

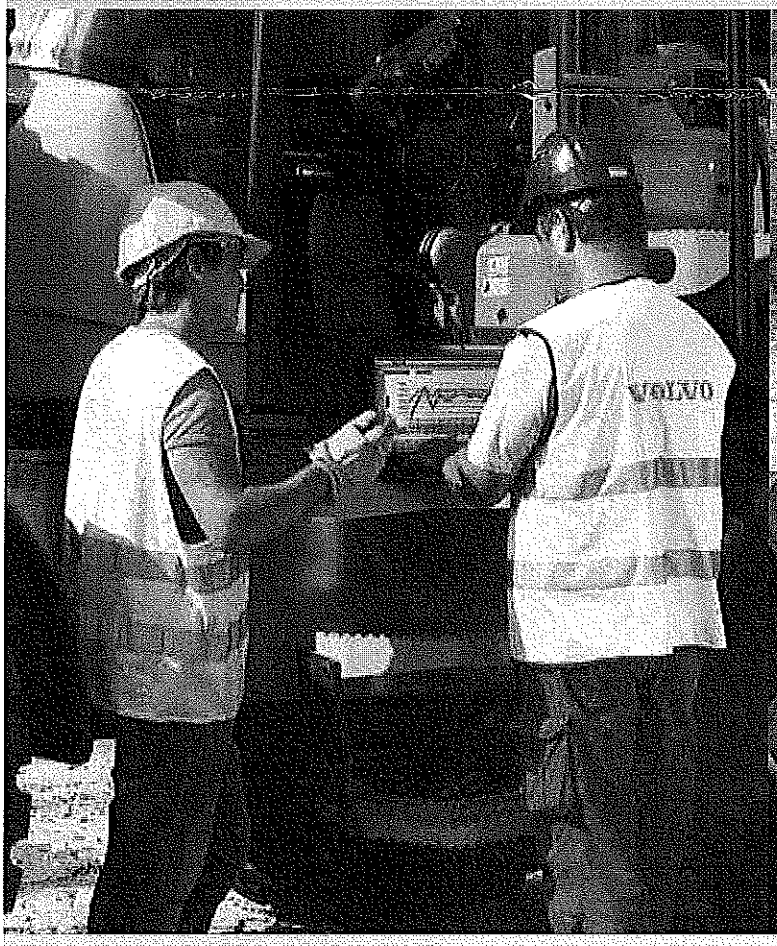
Select the differential lock to transfer 100% power to all wheels and reduce tire slippage for maximum traction on soft and slippery ground.

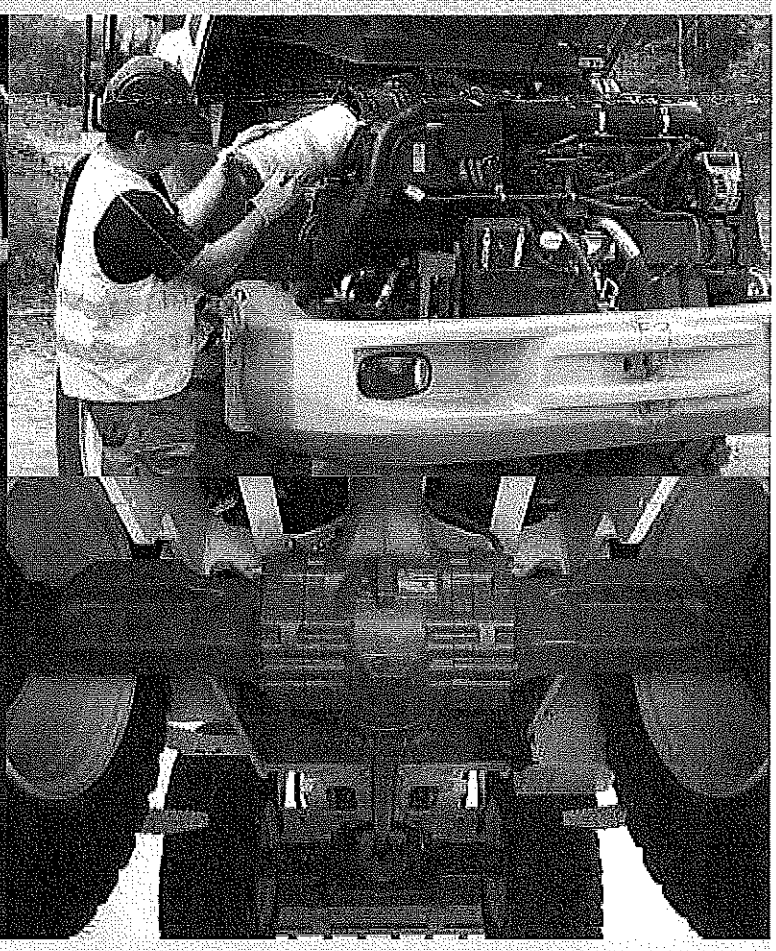
COMPACT YOUR SERVICE TIME.

Daily service and maintenance checks have never been easier thanks to the new compact design. Lift the engine hood to quickly access key components from the radiator to the hydraulic filters and use Volvo diagnostic tools to alert when service is required. Volvo keeps you working for longer.

Engine air filter

The dual element air filter is located in the engine compartment for full protection of the engine.





Analysis software

Maintain machine uptime by using Volvo's diagnostic computer-based analysis software. MATRIS assesses operational data from the machine's electronic control unit (ECU), while VCADS Pro can adjust machine function according to results.

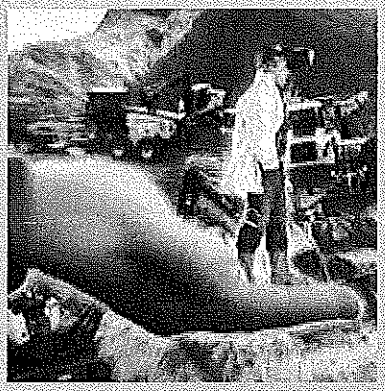
Maintenance-free axle cradle

The rear axle cradle with integrated oscillating bearings are lubricated with the axle oil and protected by proven seals, saving you hours of maintenance time.

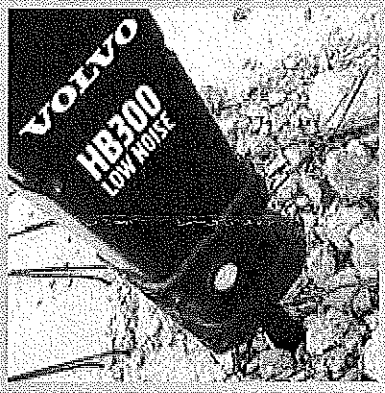
STRENGTH TO SUPPORT YOU AND YOUR BUSINESS.

The day you receive your new Volvo Wheel Loader is just the start of your working relationship with Volvo. From service and maintenance products to a wide range of options and attachments – Volvo has a comprehensive aftermarket portfolio to continuously add value to your business.

Customer Support Agreements - Gives you peace of mind by reducing total ownership costs, maximizing uptime, and distributing maintenance and major repair costs.



Attachments - Providing customers with a wide variety of attachments keep your machine working and open up new job opportunities.



Volvo designed and built your machines, so no-one knows how to keep them working in top condition more than us. When it comes to your machine, our Volvo trained technicians are the experts.

Our technicians work with industry leading diagnostic tools and techniques, using only Genuine Volvo Parts to deliver the highest levels of quality and service. Talk to your Volvo dealer about how genuine Volvo services can best provide the service and maintenance plan that is the right fit for you and your business.

State-of-the-art machines require state-of-the-art support and your Volvo dealer can provide a catalogue of services designed to get the most out of your machine, helping you maximise uptime, productivity and residual value. Your Volvo dealer can provide a number of sophisticated support offers, including:

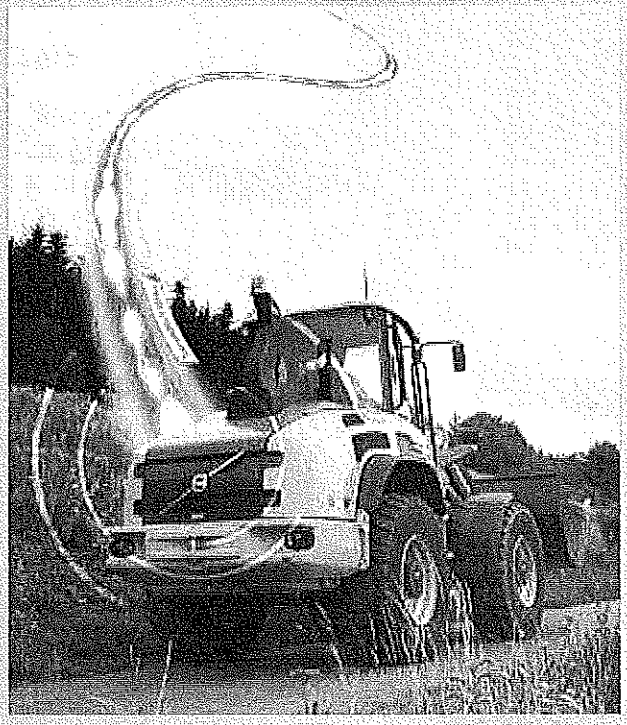
Service plans ranging from routine wear inspections, through to comprehensive maintenance and repair agreements.

Analysis and diagnostics to help you understand how your machine is running, highlight potential maintenance issues and identify where performance can be improved.

Eco Operator training courses can help your operators work towards a safer, more productive and fuel efficient performance.

CareTrack

Volvo's state-of-the-art telematics system works with our exclusive machine tracking info system, MATRIS. CareTrack can give you the machine information needed for better planning and smarter working; such as daily usage reports, location reports and service maintenance reminders using guided diagnostics to track and analyze machines remotely. You can save fuel. You can reduce costs. You can maximize profitability. You can with CareTrack.

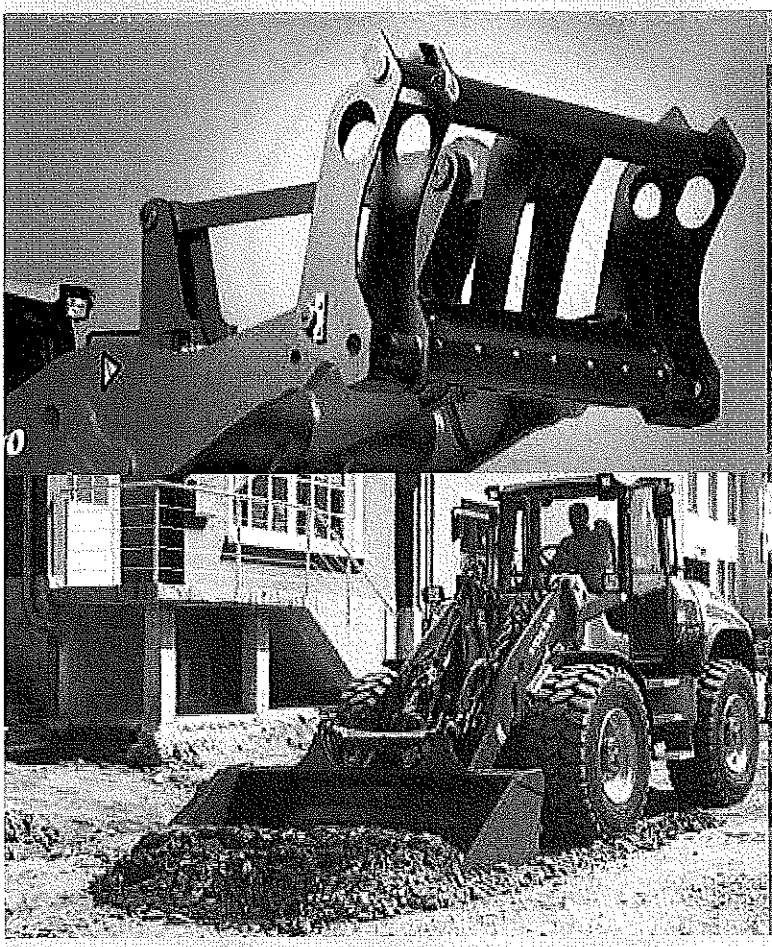


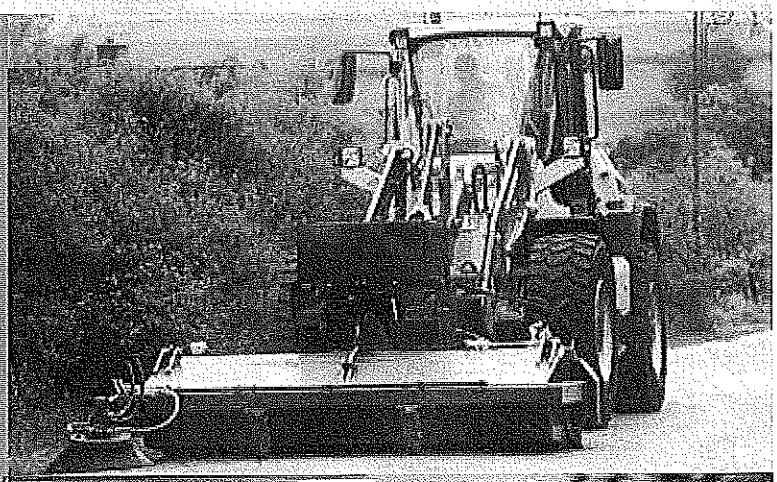
GET ATTACHED.

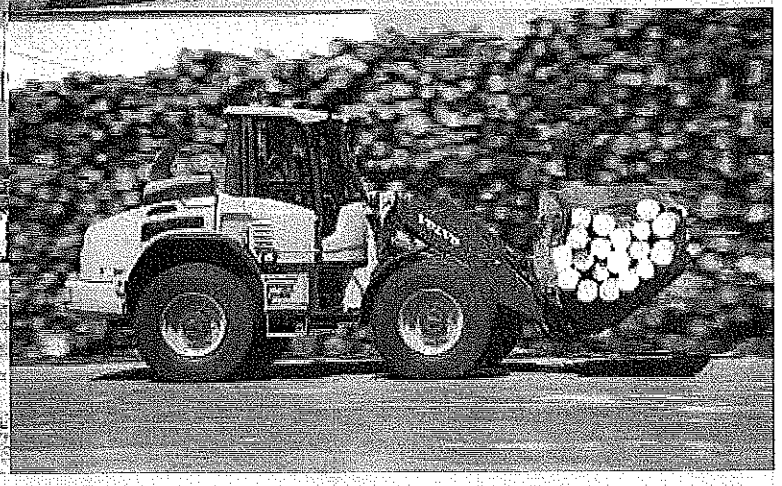
Get flexible on site with Volvo attachments. Choose from an extensive range of buckets, pallet forks and grapples, perfectly-matched to the machine's link-arm geometry and breakout force. Volvo's attachment brackets let you quickly interchange between options so you can 'attach and go'.

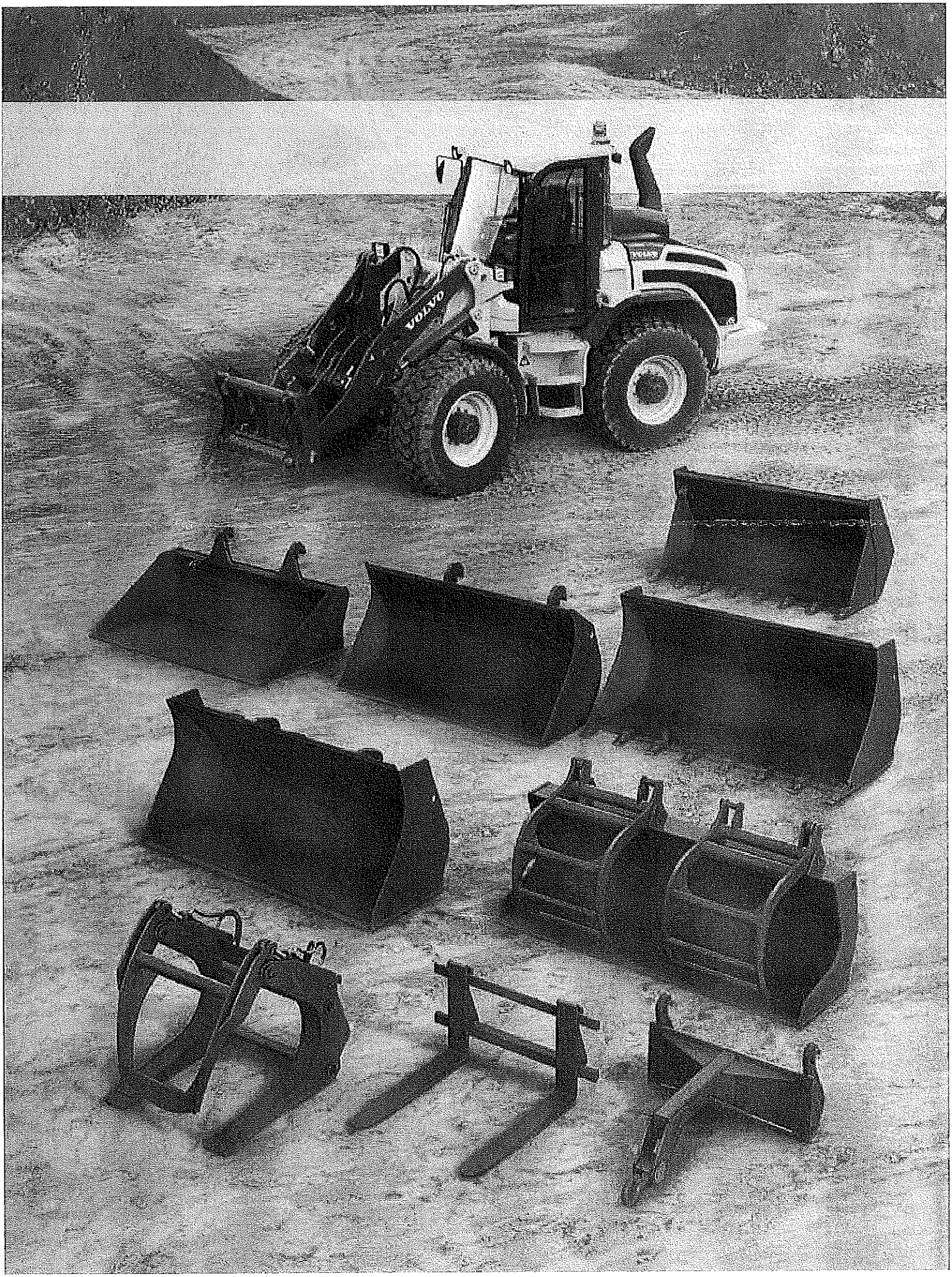
Standard Volvo Attachment Bracket

Volvo's standard hydraulic attachment bracket, is internationally ISO standardized and allows a quick and safe interchange of attachments for more flexibility on site. The strong, open bracket design enables the operator to clearly see attachment points from the cab.








VOLVO

VOLVO L45G, L50G IN DETAIL.

Engine

Engine: Volvo's V-ACT Tier 4i / Stage IIIB approved, 4 liter, 4-cylinder in-line four stroke diesel engine, turbocharger with waste gate, Common Rail fuel injection, cooled external Exhaust Gas Recirculation (EGR), diesel particulate filter (DPF). The throttle application is transmitted electrically from the throttle pedal or the optional hand throttle.

Air cleaning: Three-stage Cyclone precleaner - primary filter - secondary filter.

Cooling system: Air-to-air cooling pack. Powerful hydraulic fan electronically controlled.

		L45G
Engine		Volvo D4H
Max power at	r/s (r/min)	30 (1,800)
SAE J1995 gross	kW (hp)	75 (101)
ISO 9249, SAE J1349 net	kW (hp)	73 (98)
Max torque at	r/s (r/min)	24.2 (1,450)
SAE J1995 gross	Nm (lbf)	425 (313)
ISO 9249, SAE J1349 net	Nm (lbf)	406 (299)
Economic working range	r/min	1,200 - 1,800
Displacement	l (in³)	4 (244)
		L50G
Engine		Volvo D4H
Max power at	r/s (r/min)	31.7 (1,900)
SAE J1995 gross	kW (hp)	87 (117)
ISO 9249, SAE J1349 net	kW (hp)	85 (114)
Max torque at	r/s (r/min)	24.2 (1,450)
SAE J1995 gross	Nm (lbf)	490 (361)
ISO 9249, SAE J1349 net	Nm (lbf)	468 (345)
Economic working range	r/min	1,200 - 1,800
Displacement	l (in³)	4 (244)

Hydraulic system

System supply: One load-sensing axial piston pump with variable displacement. The steering function always has priority.

Valves: Double-acting 3-spool valve (4-spool valve optional). The main valve is controlled by an appropriate pilot valve.

Lift function: The valve has four positions: Lift, hold (neutral), lower and float position. Optional inductive/magnetic automatic boom kick-out can be switched on and off and is adjustable to any position between maximum reach and full lifting height.

Tilt function: The valve has three positions: Rollback, hold (neutral) and dump. Inductive/magnetic automatic tilt can be adjusted to the desired bucket angle (bucket positioner).

Cylinders: Double-acting cylinders for all functions.

Filter: Full-flow filtration through 10 micron (absolute) filter cartridge in a combined suction-return-filter. Integrated valve for thermostatically controlled oil circuit through the oil-cooler.

		L45G, L50G
Working pressure max	Mpa (bar)	26 (260)
Flow	l (US gal)/min	132 (34.9)
at Engine speed	r/s (r/min)	36.7 (2,200)
Pilot working pressure	Mpa (bar)	2,5 (25)

Cycle times		L45G	L50G
Raise	s	5,3	6,4
Tilt	s	1,1	1,6
Lower, empty	s	3,2	3,9
Total cycle time	s	9,6	11,9

Instrumentation: All important information is centrally located in the operator's field of vision. Display for Contronic monitoring system.

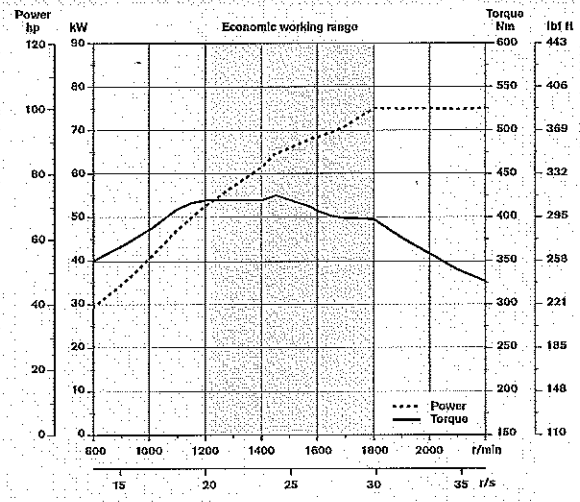
Heater and defroster: Heater coil with filtered fresh air and fan with auto and 11 speeds. Defroster vents for all window areas.

Operator's seat: Operator's seat with adjustable suspension and retractable seat belt. The seat is mounted on a bracket on the rear cab wall and floor. The forces from the retractable seat belt are absorbed by the seat rails.

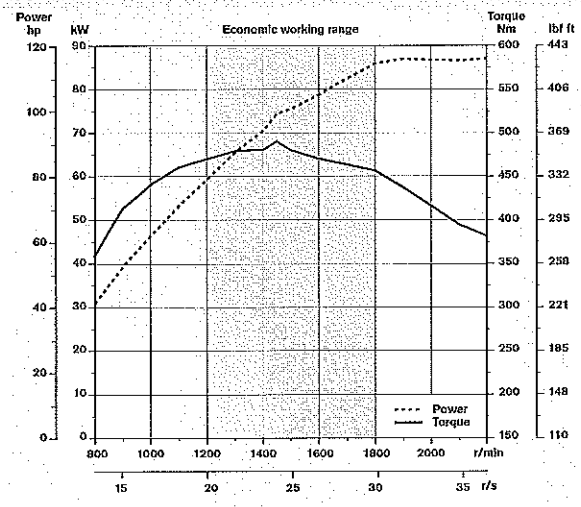
Standard: The cab is tested and approved according to ROPS (ISO 3471, SAE J1040), FOPS (ISO 3449). The cab meets with requirements according to ISO 6055 (Operator overhead protection - Industrial trucks) and SAE J386 ("Operator Restraint System").

		L45G, L50G
Emergency exit:		Use emergency hammer to break window
Sound level in cab according to ISO 6396:	LpA dB(A)	68
External sound level according to ISO 6395:	LwA dB(A)	102

L45G



L50G



Service

Filling capacities:

Fuel tank	l (US gal)	150 (39.6)
Engine oil	l (US gal)	14 (3.7)
Engine coolant	l (US gal)	20 (5.3)
Hydraulic tank	l (US gal)	95 (25)
Transmission oil	l (US gal)	2,2 (0.58)
Front axle oil	l (US gal)	17,0 (4.5)
Rear axle oil	l (US gal)	18,3 (4.8)

Drivetrain

Transmission
The hydrostatic transmission is an infinitely variable transmission. The speed gears limit the max. travel speed within the range - without any tractive power interruption. Maximum rimpull is available in all gears, regardless of the driving direction.

Automatic regulation ensures easy operation. Load limiting control protects the engine when additional power is requested by working hydraulics and auxiliary power take-off. No overheating in overload conditions.

Axles: Volvo fully floating axle shafts with hub planetary reductions and cast steel axle housing. Fixed front axle and oscillating rear axle, self-lubricated. 100% differential lock on both axles.

Drivetrain L45G, L50G

Travel speeds (Forward / Reverse)

1st gear	km/h (mph)	0 - 5 (0 - 3.1)
2nd gear	km/h (mph)	0 - 17 (0 - 10.5)
3rd gear	km/h (mph)	0 - 40 (0 - 25)
Angle of rear axle oscillation	°	±12
Oscillation at wheel	mm (in)	360 (14.2)
at Track width	mm (in)	1 730 (68.1)

Steering

Steering system: Load sensing hydrostatic articulated steering.

System supply: The steering system has priority feed from the load-sensing axial piston pump with variable displacement.

Steering cylinders: Two double-acting cylinders. Elastical end-stops.

L45G, L50G

Steering cylinders		2
Working pressure	Mpa (bar)	17,5 (175)
Maximum flow	l min (US gal) min	70 (18.5)
Max articulation	°	±40

Linkage		L45G	L50G
Linkage system		TP	
Lift cylinders		2	
Tilt cylinders		1	
Lift time (loaded)	s	5,3	6,4
Lowering time (empty)	s	3,2	3,9
Dump time	s	1,1	1,6

Electrical system

Contronic electrical system with central warning light and buzzer, providing clear and easy to read information to the operator. LCD display with main and sub information field, adjustable to various languages.

Display information in three categories: Information on continuous operating data, Check requests (based on vehicle and error messages) and Warning (with alarm texts).

Additional audible warning by a buzzer. Indicator and activation lights for various control and monitoring functions.

Gauges for Fuel tank level, hydraulic oil temperature and engine temperature.

Keypad also provides display navigation on the central instrument. Direct access buttons for Engine, Transmission, Hydraulics, Axles & Brakes, Electric, Machine, Vehicle messages, Service and Setup. Antitheft equipment optional.

L45G, L50G

Voltage	V	24
Batteries	V	2x12
Battery capacity	Ah	2x100
Cold cranking capacity, approximate	A	830
Alternator rating	W/A	3 080/110
Starter motor output	kW (hp)	5,5 (7.4)

Brake system

Service brake: Reliable wet disc brakes with nitrogen-charged accumulators. Dual circuit on front and rear axle

Secondary brake: Dual circuit and hydrostatic retardation

Inching-brake pedal:
Hydraulic inching brake pedal provides hydrostatic braking for precise control of travel speed and service brake application.

1st stage: Wearless hydrostatic braking (inching)
2nd stage: Service brake application

Parking brake:
Dry disc brake on input shaft of front axle.
Standard: The brake system complies with the requirements of ISO 3450

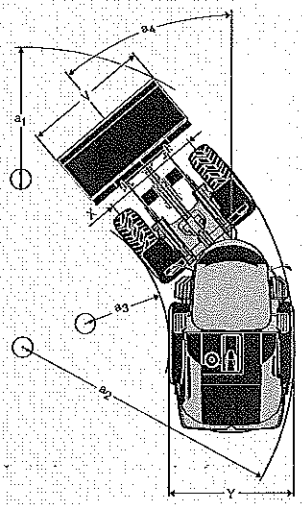
L45G

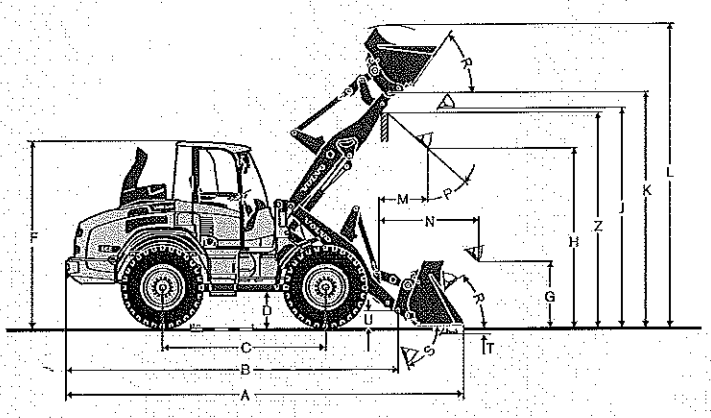
Number of brake discs per wheel front/rear		1/1
Accumulators	l (US gal)	3x0,5 (3x0.13)
Accumulators for parking brake	l (US gal)	1x0,5 (1x0.13)

L50G

Number of brake discs per wheel front/rear		front 1
Accumulators	l (US gal)	2x0,5, 1x1,0 (2x0.13, 1x0.26)
Accumulators for parking brake	l (US gal)	1x1,0 (1x0.26)

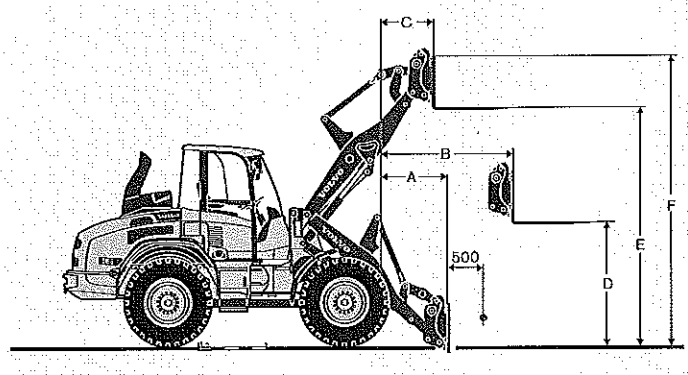
SPECIFICATIONS L45G.





L45G

		With TP-linkage, TPV attachment bracket and 17.5 R25 tires
B	mm (in)	5 280 (17' 4")
C	mm (in)	2 650 (8' 8")
D	mm (in)	435 (1' 5")
F	mm (in)	2 990 (9' 9")
G	mm (in)	1 040 (3' 4")
J	mm (in)	3 470 (11' 4")
K	mm (in)	3 725 (12' 2")
O	°	55
P	°	45
R	°	45
S	°	75
U	mm (in)	255 (10")
X	mm (in)	1 730 (5' 8")
Y	mm (in)	2 190 (7' 2")
Z	mm (in)	3 485 (11' 5")
a_2	mm (in)	4 760 (15' 7")
a_3	mm (in)	2 540 (8' 4")
a_4	°	40

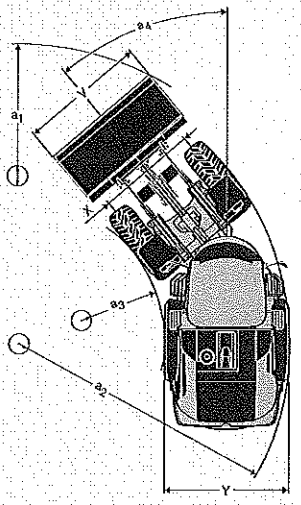


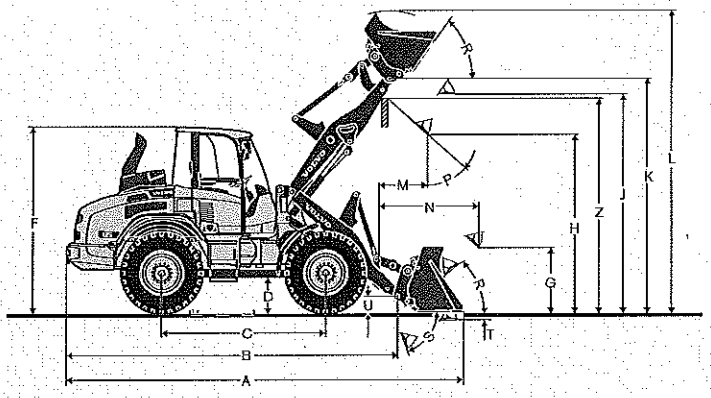
With Loading Fork Center of gravity 500 mm (1' 8")		TPV attachment bracket	TPV Attachment bracket Long Boom
A	mm (in)	785 (2' 7")	1 135 (3' 9")
B	mm (in)	1 475 (4' 10")	1 745 (5' 9")
C	mm (in)	650 (2' 2")	825 (2' 9")
D	mm (in)	1 705 (5' 7")	1 705 (5' 7")
E	mm (in)	3 490 (11' 5")	3 695 (12' 2")
F	mm (in)	4 225 (13' 10")	4 430 (14' 6")
Tipping load full turn (ISO 1 4397)	kg (lb)	4 420 (9,744)	-560 (-1,234)
Working load according to EN 474-3, 60/80 %	kg (lb)	2 650 / 3 530 (5,842 / 7,782)	-340 / - 460 (-749 / -992)
Working load 80%, transport position, 40° and full turn	kg (lb)	4 000 (8,818)	-

L45G

With TP-Linkage, TPV attachment bracket (welded version) and 17.5 R25 tires		GENERAL PURPOSE		LIGHT MATERIAL		4-in-1	High-Tip	LONG BOOM
								
Capacity heaped	m^3 (yd^3)	1,4 (1.8)	1,5 (2.0)	1,8 (2.4)	2 (2.6)	1,2 (1.6)	2 (2.6)	-
Material density	kg/m^3 (lb/yd^3)	1 800 (3,030)	1 700 (2,697)	1 400 (2,360)	1 200 (2,191)	1 900 (3,203)	1 000 (1,854)	-
Static tipping load, straight (ISO 14397)	kg (lb)	5 970 (13,160)	5 930 (13,073)	5 780 (12,742)	5 670 (12,500)	5 650 (12,456)	4 950 (10,912)	-
Static tipping load, full turn 40° (ISO 14397)	kg (lb)	5 290 (11,622)	5 250 (11,547)	5 120 (11,287)	5 020 (11,067)	5 000 (11,023)	4 370 (9,634)	-640 (-1,410)
Hydraulic lifting capacity, max.	kN (lbf)	70 (15,736)	69,4 (15,511)	67,5 (15,174)	66 (14,837)	66,5 (14,949)	57,5 (12,926)	-
Breakout force	kN (lbf)	62 (13,938)	59,7 (13,421)	53 (11,914)	48 (10,790)	66 (14,837)	-	-
A Total length	mm (ft/in)	6 350 (20' 10")	6 385 (20' 11")	6 505 (21' 4")	6 615 (21' 8")	6 295 (20' 8")	6 955 (22' 10")	200 (8")
L Lift height, max.	mm (ft/in)	4 740 (15' 7")	4 790 (15' 9")	4 810 (15' 9")	4 940 (16' 2")	4 815 (15' 10")	5 695 (18' 8")	-
V Bucket width	mm (ft/in)	2 250 (7' 5")	2 250 (7' 5")	2 250 (7' 5")	2 250 (7' 5")	2 250 (7' 5")	2 250 (7' 5")	-
a_1 Clearance circle	mm (ft/in)	10 300 (33' 10")	10 320 (33' 10")	10 390 (34' 1")	10 460 (34' 4")	10 305 (33' 10")	10 675 (35')	-
T Digging depth	mm (ft/in)	85 (3")	85 (3")	85 (3")	85 (3")	120 (5")	95 (4")	-
H Dump height, 45°	mm (ft/in)	2 800 (9' 2")	2 780 (9' 1")	2 690 (8' 10")	2 610 (8' 7")	2 790 (9' 2")	4 230 (13' 11")	-
M Reach at max. height	mm (ft/in)	930 (3' 1")	945 (3' 1")	1 025 (3' 4")	1 100 (3' 7")	815 (2' 8")	1 490 (4' 11)	170 (7")
N Reach, max.	mm (ft/in)	1 750 (5' 9")	1 770 (5' 10")	1 850 (6' 1")	1 925 (6' 4")	1 640 (5' 5")	2 670 (8' 9")	270 (10")
Operating weight	kg (lb)	8 630 (19,026)	8 650 (19,070)	8 660 (19,092)	8 690 (19,158)	8 850 (19,511)	9 090 (20,040)	-

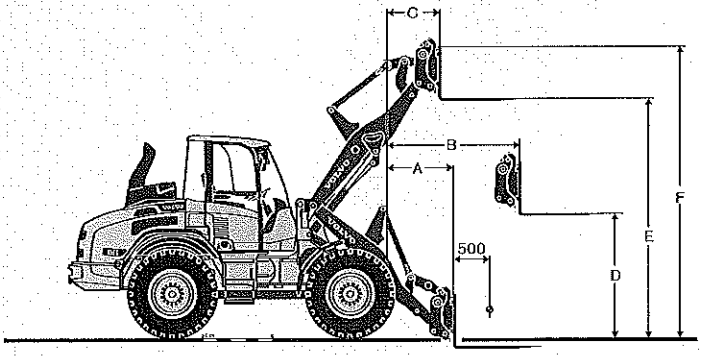
SPECIFICATIONS L50G.





L50G

		With TP-linkage, TPV attachment bracket and 17.5 R25 tires
B	mm (in)	5 380 (17' 8")
C	mm (in)	2 650 (8' 8")
D	mm (in)	435 (1' 5")
F	mm (in)	2 980 (9' 9")
G	mm (in)	1 000 (3' 3")
J	mm (in)	3 525 (11' 7")
K	mm (in)	3 780 (12' 5")
O	°	54
P	°	45
R	°	44
S	°	76
U	mm (in)	255 (10")
X	mm (in)	1 730 (5' 8")
Y	mm (in)	2 190 (7' 2")
Z	mm (in)	3 535 (18' 2")
a_2	mm (in)	4 760 (15' 7")
a_3	mm (in)	2 540 (8' 4")
a_4	°	40



With Loading Fork Center of gravity 500 mm (1' 8")		TPV attachment bracket	TPV Attachment bracket Long Boom
A	mm (in)	800 (2' 8")	1 060 (3' 6")
B	mm (in)	1 505 (4' 11")	1 705 (5' 7")
C	mm (in)	655 (2' 2")	785 (2' 7")
D	mm (in)	1 745 (5' 9")	1 745 (5' 9")
E	mm (in)	3 585 (11' 9")	3 735 (12' 3")
F	mm (in)	4 320 (14' 2")	4 470 (14' 8")
Tipping load full turn (ISO 14397)	kg (lb)	4 810 (10,604)	-420 (-926)
Working load according to EN 474-3, 60/80 %	kg (lb)	2 880 / 3 840 (6,349 / 8,466)	-240 / 120 (- 530 / - 265)
Working load 80%, transport position, 40° and full turn	kg (lb)	4 000 (8,818)	-

L50G

With TP-linkage, TPV attachment bracket (cast version) and 17.5 R25 tires		GENERAL PURPOSE		LIGHT MATERIAL		4-in-1	High-Tip	LONG BOOM
								
Capacity heaped	m^3 (yd^3)	1,5 (2.0)	1,6 (2.1)	1,8 (2.4)	2 (2.6)	1,4 (1.8)	2,3 (3.0)	-
Material density	kg/m^3 (lb/yd^3)	1 900 (3,203)	1 700 (2,865)	1 500 (2,528)	1 300 (2,191)	1 900 (3,203)	1 000 (1,686)	-
Static tipping load, straight (ISO 14397)	kg (lb)	6 560 (14,462)	6 510 (14,352)	6 400 (14,110)	6 290 (13,867)	6 080 (13,404)	5 550 (12,236)	-
Static tipping load, full turn 40° (ISO 14397)	kg (lb)	5 810 (12,809)	5 750 (12,677)	5 670 (12,500)	5 570 (12,280)	5 390 (11,883)	4 910 (10,825)	-510 (-1,124)
Hydraulic lifting capacity, max.	kN (lbf)	86,5 (19,446)	86 (19,334)	84,5 (18,996)	83 (18,659)	81,5 (18,322)	73 (16,411)	-
Breakout force	kN (lbf)	72 (16,186)	69 (15,512)	64 (14,388)	58 (13,039)	65 (14,613)	-	-
A Total length	mm (ft/in)	6 460 (21' 2")	6 495 (21' 4")	6 580 (21' 7")	6 690 (21' 11")	6 560 (21' 6")	7 030 (23' 1")	150 (6")
L Lift height, max.	mm (ft/in)	4 880 (16' 0")	4 900 (16' 1")	4 980 (16' 4")	5 235 (17' 2")	4 905 (16' 1")	5 915 (19' 5")	-
V Bucket width	mm (ft/in)	2 250 (7' 5")	2 250 (7' 5")	2 250 (7' 5")	2 250 (7' 5")	2 250 (7' 5")	2 250 (7' 5")	-
a_1 Clearance circle	mm (ft/in)	10 360 (34')	10 385 (34' 1")	10 435 (34' 3")	10 505 (34' 6")	10 475 (34' 4")	10 740 (35' 3")	-
T Digging depth	mm (ft/in)	95 (4")	95 (4")	95 (4")	95 (4")	130 (5")	105 (4")	-
H Dump height, 45°	mm (ft/in)	2 865 (9' 5")	2 845 (9' 4")	2 775 (9' 1")	2 695 (8' 10")	2 745 (9')	4 330 (14' 2")	-
M Reach at max. height	mm (ft/in)	965 (3' 2")	1 000 (3' 3")	1 040 (3' 5")	1 115 (3' 8")	965 (3' 2")	1 505 (4' 11")	130 (5")
N Reach, max.	mm (ft/in)	1 810 (5' 11")	1 830 (6')	1 890 (6' 2")	1 970 (6' 6")	1 810 (5' 11")	2 710 (8' 11")	200 (8")
Operating weight	kg (lb)	9 410 (20,745)	9 430 (20,790)	9 420 (20,767)	9 450 (20,834)	9 670 (21,319)	9 890 (21,804)	-

EQUIPMENT.

STANDARD EQUIPMENT

	L45G	L50G
Engine		
Diesel engine, direct fuel injection	•	•
Extra fuel filter	•	•
Cold start aid	•	•
Dry-type air filter	•	•
Preparation for pre-cleaner	•	•
Filtration screens on air inlets	•	•
Reversible cooling fan	•	•
Electrical system		
Alternator 55 A	•	•
Lighting		
Main head lights (halogen) upper/dipped/asymmetrical	•	•
Working lights (2 front/2 rear)	•	•
Parking lights	•	•
Rear lights	•	•
Brake lights	•	•
Direction indicators	•	•
Hazard warning lights	•	•
Reversing lights	•	•
Cab lighting	•	•
Instrumentation & controls		
Multi-function joystick	•	•
24 Volt accessories socket	•	•
Forward horn	•	•
Hazard warning switch	•	•
Safety start	•	•
Electronic Information System		
Analog information for:		
Fuel level	•	•
Engine temperature	•	•
Drive system oil temperature	•	•
LED-illuminated symbols (color-coded) for:		
Direction (forward/reverse)	•	•
Indicators (left/right)	•	•
Pre-heater (option)	•	•
Main beam head lamp	•	•
Differential locks	•	•
Boom suspension system (option)	•	•
Loading fork operation (option)	•	•
LED-illuminated symbols (red) with acoustic signal for:		
Parking brake	•	•
Air filter restriction	•	•
Drive system oil temperature	•	•
Engine temperature	•	•
Engine oil pressure	•	•
Battery charging	•	•
Return filter	•	•
Touch pad with symbols and integrated LEDs for:		
Parking lights	•	•
Working lights (front/rear)	•	•
Windscreen wiper (rear)	•	•
Rotating beacon (option)	•	•
Boom suspension system on/off (option)	•	•
Locking and activation of Volvo-attachment bracket	•	•
Activation of multi-function joystick for directional change	•	•
Digital LED display activated by dual function keys for:		
Entry and retrieval of operating information	•	•
Optional anti-theft function control	•	•
Drivetrain		
Hydrostatic drive	•	•
Operator-selected 100% differential locks in both axles	•	•
Tires 17.5 R25	•	•
Hydraulic system		
Load-Sensing Hydraulics	•	•
Axial piston pump	•	•
Control valve three-spool system	•	•
3rd hydraulic circuit and couplings	•	•
Cab, Exterior		
ROPS/FOPS-cab with flexible mountings	•	•
Lockable door	•	•
All-round tinted safety glass	•	•
Windscreen wiper (front/rear)	•	•
Windscreen washer (front/rear)	•	•
Door stops	•	•
External rear view mirrors (right/left)	•	•
Cab filtration system	•	•
Cab, Interior		
4-way adjustable operator's seat	•	•
Left armrest	•	•

	L45G	L50G
Cab, Interior		
Air conditioner	•	•
Heater with air-filter and defroster (front/rear)	•	•
Adjustable steering column Left armrest	•	•
Cab, Interior		
Seat belt	•	•
Sun visor	•	•
Cab filtration	•	•
Hook for coat	•	•
Cup holder	•	•
Emergency hammer	•	•
Storage box in the cab	•	•
Rear view mirrors (left/right)	•	•
Working Equipment		
Automatic bucket leveller	•	•
Hydraulic quick-change attachment bracket	•	•
Carriage Body		
Fenders (front/rear)	•	•
Fender extensions (optional)	•	•
Lockable engine hood	•	•
Lockable fuel-tank cap	•	•
Vertical exhaust	•	•
Towing device	•	•
Lifting eyes	•	•
International Standards for Machines and Production		
Quality: DIN/ISO 9001	•	•
Safety: CE - Criteron	•	•
Machine guide-lines 2006/42/EC	•	•
ROPS ISO 3471	•	•
FOPS ISO 3449	•	•
Operating weight ISO 7131	•	•
Tipping load / Payload: ISO 14397-1	•	•
EMC (Electromagnetic Compatibility)	•	•
89/336/EEC plus supplement	•	•
Environment: DIN/ISO 14001	•	•
Sound regulation: 2000/14/EC	•	•

OPTIONAL EQUIPMENT (Standard on certain markets)

	L45G	L50G
Service		
Wheel chock	•	•
Tool Kit	•	•
Central Lub. unit (Volvo)	•	•
Engine		
Hand inch valve	•	•
Hand throttle		
Turbo II Prefilter	•	•
Air pre-cleaner, oil-bath type	•	•
Tropical cooling	•	•
Fuel pre-heater	•	•
Electrical		
Rotating beacon foldable	•	•
Prep. rotating beacon magnetic	•	•
Rev. alarm audible switchable	•	•
Reverse alarm audible	•	•
Rev. alarm audio vis. switchable	•	•
Anti theft device	•	•
Rear lights protection	•	•
Headlights protection	•	•
Working lights guards, front/rear	•	•
Xenon work lights, front/rear	•	•
Care Track GSM	•	•
Care Track Satellite	•	•
Transport lights	•	•
El. headlights 350 mm (1' 2")	•	•
Road light equipment width 2.5 m (8' 2")	•	•
Power outlet 12 V	•	•
Rotating beacon magnet	•	•
Cab		
Door all glass	•	•
Foldable r.h. window		
Split door		
Seat fab. air/susp. heat	•	•
Seat mec./susp.	•	•
Radio preparation 12 V	•	•
Radio	•	•
Heated rearview mirrors	•	•
Rearview mirrors inside cab	•	•

OPTIONAL EQUIPMENT (Standard on certain markets)

	L45G	L50G
Cab		
1 lever ctrl. incl. 3rd hyd. function	•	•
3 lever ctrl.	•	•
4 lever ctrl. incl. 4th hyd. function	•	•
Seat belt 3"	•	•
Comfort drive control (CDC)	•	•
Hydraulics		
Hyd. oil mineral VG46 HV	•	•
Hydr. Couplings	•	•
Boom suspension system	•	•
Tilt speed limiter mechanical	•	•
Boom kickout	•	•
4th function	•	•
Tilt control		•
Hyd. oil BIOsynth VG46 HLP PA	•	•
Hyd. oil mineral VG68 HV	•	•
Safety valve for tilt cylind.	•	
Hyd. oil mineral VG32 HV		•
Extra oil ret. line via filter	•	•
Other		
Color Level 1 (yellow parts)	•	•
Preparation for licence plate	•	•
Side marking reflectors	•	•
SMV warning triangle	•	•
Trailer socket	•	•
Belly guards, front/rear	•	•
Windshield guard, rear	•	•
Windshield guard, front	•	•
Protect. wax coating incl. cyl.	•	•
Engine hood protection	•	•
Color Level 1+2	•	•
Auto Engine Shutdown L45/50G	•	•
GY TL-3A+ 17.5 R25	•	•
Removable rear left fender	•	•
Tires		
Front Mud flaps	•	•
MI 17.5R25 XHA	•	•
MI 15.5R25 XHA		
GY 15,5-25 SGL		
Mudguard extension 75 mm	•	•
Extended mud flaps	•	•
GY 17.5-25 SGL	•	•
GY 17.5R25 RT-3B	•	•
NO 540/65R24 TRI2	•	•
BR 17.5R25 VSW B2,25	•	•
MI 15.5R25 XMINE-D2		•
Wheels for transport only	•	•
MI 500/70 R24 XMCL	•	•
NO 440/80R24 TRI 2	•	•
MI 17.5R25 XMINE-D2		•
TR 600/55-26.5 T421	•	•
MI 17.5R25 XHA B2,4	•	•
BR 15.5R25 VUT		•
MI 15.5R25 XHA B2,4		•
GY 17.5R25 RT-3B B2,4	•	•
GY 550/65R25 GP-3D	•	•
MI 17.5R25 XHA SPW	•	•
High flow 125 l/min	•	•
Long boom	•	•

ATTACHMENTS

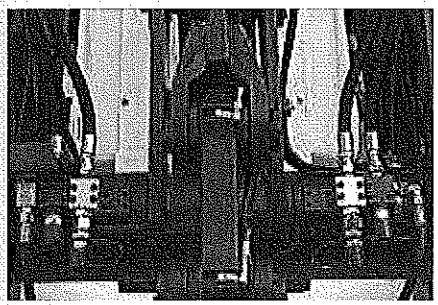
	L45G	L50G
Buckets		
Straight with teeth and bolt on edges	•	•
High tipping	•	•
Light material	•	•
Multi purpose Grading	•	•
Clamp	•	•
Other attachments		
Log grapples	•	•
Forks	•	•
Material handling arm	•	•

SELECTION OF VOLVO OPTIONAL EQUIPMENT

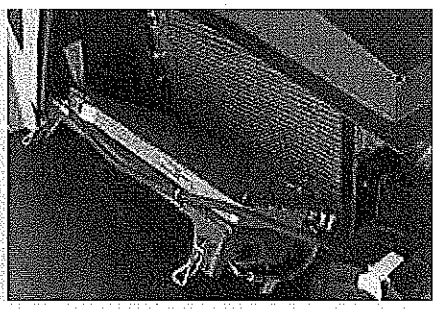
Boom Suspension System

Comfort Drive Control (CDC)

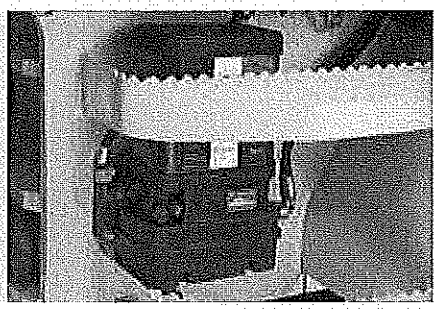
Hydraulic 3rd and 4th function



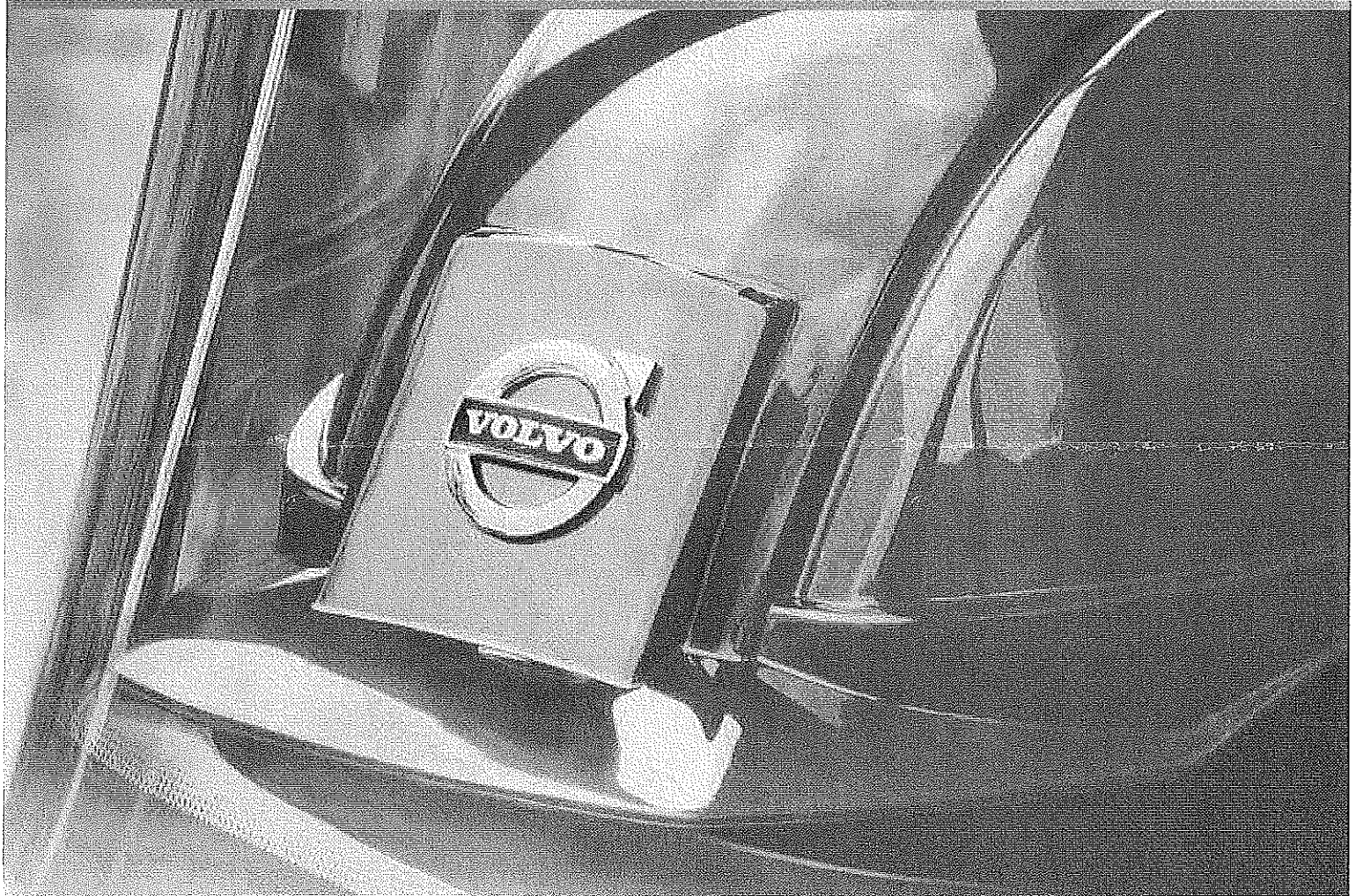
Tilting condenser



Automatic Lubrication System



VOLVO CONSTRUCTION EQUIPMENT



Volvo Construction Equipment is different. Our machines are designed, built and supported in a different way. That difference comes from an engineering heritage of over 175 years. A heritage of thinking first about the people who actually use the machines. About how to help them be safer, more comfortable, more productive. About the environment we all share. The result of that thinking is a growing range of machines and a global support network dedicated to helping you do more. People around the world are proud to use Volvo. And we're proud of what makes Volvo different.

VOLVO

Volvo Construction Equipment
www.volvoce.com/na

Ref. No. VOE2210009251 English
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Volvo, Asheville

320D L
Hydraulic Excavator

Engine		
Engine Model	Cat® C6.4 ACERT™	
Net Flywheel Power	110 kW	148 hp
Weights		
Operating Weight – Std. Undercarriage	20 330 kg	44,820 lb

- Reach boom, R2.9B1 (9 ft 6 in) Stick, 0.9 m^3 (1.18 yd^3) Bucket, 600 mm (24 in) Shoes

Operating Weight – Long Undercarriage	21 570 kg	47,554 lb

- Reach boom, R2.9B1 (9 ft 6 in) Stick, 0.9 m^3 (1.18 yd^3) Bucket, 800 mm (32 in) Shoes

Engine

Engine Model	Cat® C6.4 ACERT™	
Net Flywheel Power	110 kW	148 hp
Net Power – ISO 9249	110 kW	148 hp
Net Power – SAE J1349	110 kW	148 hp
Net Power – EEC 80/1269	110 kW	148 hp
Bore	102 mm	4.02 in
Stroke	130 mm	5.12 in
Displacement	6.4 L	389 in³

- The 320D meets U.S. EPA Tier 3 emissions requirements.
- Net flywheel power advertised is the power available at the flywheel when the engine is equipped with fan, air cleaner, muffler and alternator.
- No engine power derated below 2300 m (7,500 ft).

Weights

Operating Weight – Std. Undercarriage	20 330 kg	44,820 lb

- Reach boom, R2.9B1 (9 ft 6 in) Stick, 0.9 m³ (1.18 yd³) Bucket, 600 mm (24 in) Shoes

Operating Weight – Long Undercarriage	21 570 kg	47,554 lb

- Reach boom, R2.9B1 (9 ft 6 in) Stick, 0.9 m³ (1.18 yd³) Bucket, 800 mm (32 in) Shoes

Service Refill Capacities

Fuel Tank Capacity	410 L	108 gal
Cooling System	25 L	6.6 gal
Engine Oil	30 L	8 gal
Swing Drive	8 L	2.1 gal
Final Drive (each)	8 L	2.1 gal
Hydraulic System (including tank)	260 L	69 gal
Hydraulic Tank	120 L	32 gal
Hydraulic Tank (including suction pipe)	138 L	36 gal

Swing Mechanism

Swing Speed	11.5 rpm	
Swing Torque	61.8 kN·m	45,612 lb ft

Drive

Maximum Drawbar Pull	205 kN	46,311 lb
Maximum Travel Speed	5.5 kph	3.4 mph

Hydraulic System

Main Implement System – Maximum Flow (2x)	205 L/min	54 gal/min
Max. pressure – Equipment	35 000 kPa	5,076 psi
Max. pressure – Equipment – Heavy	35 000 kPa	5,076 psi
Max. pressure – Travel	35 000 kPa	5,076 psi
Max. pressure – Swing	24 500 kPa	3,553 psi
Pilot System – Maximum flow	32.4 L/min	9 gal/min
Pilot System – Maximum pressure	3900 kPa	566 psi
Boom Cylinder – Bore	120 mm	4.7 in
Boom Cylinder – Stroke	1260 mm	49.6 in
Reach Stick Cylinder – Bore	140 mm	5.5 in
Mass Stick Cylinder – Bore	140 mm	5.5 in
Reach Stick Cylinder – Stroke	1518 mm	59.8 in
Mass Stick Cylinder – Stroke	1504 mm	59.2 in
B1 Family Bucket Cylinder – Bore	120 mm	4.7 in
B1 Family Bucket Cylinder – Stroke	1104 mm	43.5 in
CB2 Family Bucket Cylinder – Bore	135 mm	5.3 in
CB2 Family Bucket Cylinder – Stroke	1156 mm	45.5 in

Sound Performance

Performance	ANSI/SAE J1166 APR 90

- When properly installed and maintained, the cab offered by Caterpillar, when tested with doors and windows closed according to ANSI/SAE J1166 OCT 98, meets OSHA and MSHA requirements for operator sound exposure limits in effect at time of manufacture.
- Hearing protection may be needed when operating with an open operator station and cab (when not properly maintained or doors/windows open) for extended periods or in noisy environment.

Standards

Brakes	SAE J1026 APR90
Cab/FOGS	SAE J1356 FEB88

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TG-TB

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Model

PHOTO

SPECIFICATIONS RELATED PRODUCTS

OVERVIEW

Pin on trash grapple, four tines over five, for 345B hydraulic excavator with F linkage. 7CW.

UNITS: US METRIC

Rated Capacity	6.58 yd3
Weight	6174.0 lb
Upper Jaw Width	62.0 in
Lower Jaw Width	80.0 in
Maximum Jaw Opening	124.0 in
Outside Jaw Dimension (closed)	13.0 in
Outside Jaw Dimension (open)	130.0 in
Tip Radius	66.0 in
Jaw Depth	17.0 in
Tip Thickness	0.98 in
Wear Plate Thickness	0.47 in
Wrapper Thickness	0.63 in

914G/IT14G

Compact Wheel Loaders/ Integrated Toolcarriers

CATERPILLAR®

Engine		
Model	Cat® 3054C DIT	
Net Power	71 kW	95 hp

Weights		
Operating Weight – 914G	7950 kg	17,530 lb
Operating Weight – IT14G	8450 kg	18,632 lb
Buckets		
Bucket Capacities	1.2 - 1.4 m^3	1.6 - 1.8 yd^3

914G/IT14G Compact Wheel Loader/Integrated Toolcarrier Specifications

Engine

Model	Cat® 3054C DIT	
Gross Power	75 kW	101 hp
Net Power	71 kW	95 hp
SAE J1349 Rating	71 kW	95 hp
ISO 9249 Rating	72 kW	96 hp
EEC 80/1269 Rating	72 kW	96 hp

- The Cat 3054C DIT engine meets U.S. EPA Tier 2 emissions regulations.
- Ratings at 2,300 RPM.

Engine Dimensions

Bore	105 mm	4.13 in
Stroke	127 mm	5 in
Displacement	4.4 L	268 in³

Weights

Operating Weight 914G	7950 kg	17,530 lb
Operating Weight IT14G	8450 kg	18,632 lb
Optional Counterweight*	150 kg	330 lb

* Optional on 914G, Standard on IT14G.

- 914G with 1.4 m³ (1.8 yd³) bucket with bolt-on cutting edge and optional counterweight.
- IT14G with 1.4 m³ (1.8 yd³) bucket with bolt-on cutting edge, quick coupler and counterweight.

Operating Specifications

Tire Size	17.5-25	
Rated Bucket Capacity	1.3 m³	1.7 yd³
Breakout force 914G	62 kN	14,007 lb
Breakout force IT14G	77 kN	17,342 lb
Full turn static tipping load, bucket 914G	5323 kg	11,737 lb
Full turn static tipping load, bucket IT14G	4792 kg	10,566 lb
Dump height @ Full Lift 914G	2659 mm	8 ft 9 in
Dump height @ Full Lift - IT14G	2921 mm	9 ft 7 in
Articulation	40 Degrees	
Oscillation +/-	11 Degrees	

Transmission

Travel Speed 1	9 km/h	5.6 mph
Travel Speed 2 914G	35 km/h	22 mph
Travel Speed 2 IT14G	32 km/h	20 mph

Cab

ROPS	SAE J394, SAE J1040, ISO 3471
FOPS	SAE J231, ISO 3449
Sound	74 dB(A)

Hydraulic System

Main relief	245.5 bar	3,560 psi
Flow	90 L/min	23.8 gal/min
Hydraulic cycle time - lift	5.6	
Hydraulic cycle time – dump	2.1	
Hydraulic cycle time – lower, float	3.2	
Lift Cylinders, double acting 914G	89 × 672 mm	3.5 × 26.5 in
Lift Cylinders, double acting - IT14G	89 × 795 mm	3.5 × 31.3 in
Tilt Cylinder, double acting 914G	102 × 400 mm	4.0 × 15.8 in
Tilt Cylinder, double acting - IT14G	76 × 805 mm	3.0 × 31.7 in

Service Refill Capacities

Cooling System	23 L	6.1 gal
Fuel tank	150 L	39.6 gal
Hydraulic system	100 L	26.4 gal
Hydraulic tank	70 L	18.5 gal

Buckets

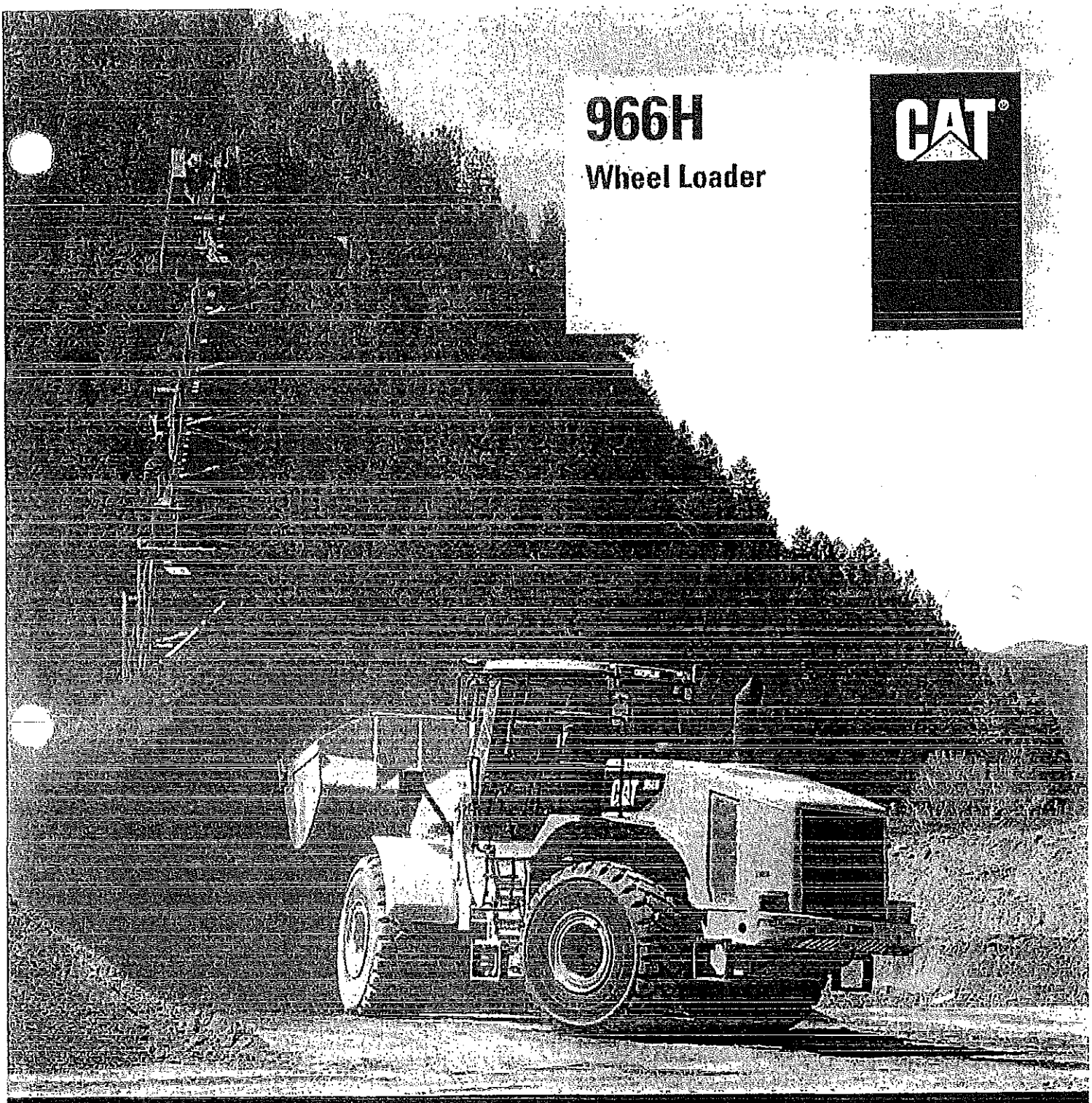
Bucket Capacities	1.2 - 1.4 m³	1.6 - 1.8 yd³

Brakes

- Meets SAE J1473 and ISO 3450 requirements.

966H

Wheel Loader



Engine		
Engine Model	Cat® C11 ACERT™	
Gross Power – SAE J1995	213 kW	286 hp
Net Power – ISO 9249	195 kW	262 hp
• Caterpillar engine with ACERT™ Technology – EPA Tier III, EU Stage III Compliant		

Buckets		
Bucket Capacities	3.4-4.2 m³	4.5-5.5 yd³

Weights		
Operating Weight	23 698 kg	52,254 lb
• For 4.25 m³ (5.5 yd³) general purpose bucket with BOCE		

Operating Specifications		
Static Tipping Load, Full Turn	15 474 kg	34,120 lb
• For 4.25 m³ (5.5 yd³) general purpose bucket with BOCE		

Operating Specifications

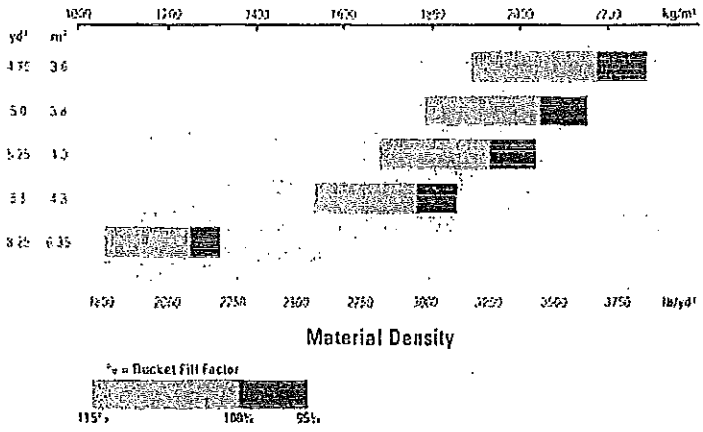
Bucket		General Purpose Buckets					
		Teeth	Teeth and Segments	Bolt-On Edges	Teeth	Teeth and Segments	Bolt-On Edges
Rated Bucket Capacity (§)	m³	3.50	3.65	3.65	3.65	3.80	3.80
	yd³	4.50	4.75	4.75	4.75	5.00	5.00
Struck Capacity (§)	m³	2.96	3.10	3.10	3.12	3.27	3.27
	yd³	3.88	4.06	4.06	4.08	4.27	4.27
Width (§)	mm	3145	3145	3059	3145	3145	3059
	ft/in	10'4"	10'4"	10'0"	10'4"	10'4"	10'0"
Dump Clearance at Full Lift and 45° Discharge (§)	mm	3005	3005	3154	2968	2968	3119
	ft/in	9'10"	9'10"	10'4"	9'9"	9'9"	10'3"
Reach at Full Lift and 45° Discharge (§)	mm	1389	1389	1247	1411	1411	1270
	ft/in	4'7"	4'7"	4'1"	4'8"	4'8"	4'2"
Reach with Lift Arm Horizontal and Bucket Level (§)	mm	2857	2857	2652	2900	2900	2695
	ft/in	9'4"	9'4"	8'8"	9'6"	9'6"	8'10"
Digging Depth (§)	mm	78	108	108	78	108	108
	in	3.07	4.25	4.25	3.07	4.25	4.25
Overall Length	mm	8995	8995	8770	9038	9038	8813
	ft/in	29'6"	29'6"	28'9"	29'8"	29'8"	28'11"
Overall Height with Bucket at Full Raise	mm	5775	5775	5775	5814	5814	5814
	ft/in	18'11"	18'11"	18'11"	19'1"	19'1"	19'1"
Loader Clearance Circle with Bucket in Carry Position (§)	mm	14 733	14 733	14 528	14 756	14 756	14 550
	ft/in	48'4"	48'4"	47'8"	48'5"	48'5"	47'9"
Static Tipping Load Straight *	kg	17 763	17 401	17 585	17 649	17 290	17 475
	lb	39,167	38,369	38,775	38,916	38,124	38,532
Static Tipping Load Full 37° Turn	kg	15 824	15 480	15 665	15 717	15 375	15 560
	lb	34,892	34,133	34,541	34,656	33,902	34,310
Breakout Force ** (§)	kN	216	200	202	208	193	195
	lb	48,600	45,000	45,450	46,800	43,425	43,875
Operating Weight * (§)	kg	23 520	23 672	23 532	23 576	23 728	23 588
	lb	51,862	52,197	51,888	51,985	52,320	52,012

(§) Specifications and ratings conform to all applicable standards recommended by the Society of Automotive Engineers, including SAE Standard J732C governing loader ratings.

* Static tipping loads and operating weights shown are based on standard machine configuration with 26.5R25 L-4 Firestone tires, reading fenders, powertrain guard, full fuel tank, coolants, lubricants, air conditioner and operator.

** Measured 102 mm (4.0") behind tip of cutting edge with bucket hinge pin as pivot point in accordance with SAE J732C.

Bucket Selection Guide

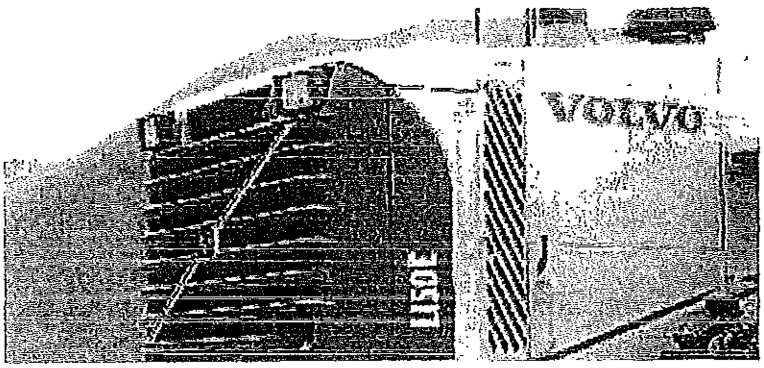


VOLVO WHEEL LOADER

L150E

VOLVO

25 tons of pure pleasure



When it comes to construction equipment, it's the bottom line that counts. Your loader has to move material as cheaply and quickly as possible – with minimum impact on machine, operator and environment. That's precisely what the new Volvo L150E is built for. In fact, you'd be hard pressed to find another machine in the 25-ton class that's as much fun to operate – and to own – as this brand new Volvo wheel loader.

The Volvo L150E is a lively machine. The high performance, low emission engine delivers close to maximum power even at low revs. Furthermore, our powerful patented TP-Linkage, with matching buckets and grapples, backed by a wide array of smart solutions, provides the flexibility needed to handle a variety of tasks. Jobs at which the L150E excels include loading trucks, feeding a crusher, earthmoving, and timber handling. Advanced technology helps to make this a singularly swift, versatile and fuel-efficient production machine. In fact, we're convinced you're looking at a champion in the 25-ton class.

More work, less haste

You'll find the new L150E a pleasure to operate. In this respect competing loaders simply can't compete. It's powerful, agile and easy to maneuver. Sitting comfortably in an ergonomically designed seat, you have total control over the machine. Engine and hydraulics respond immediately to your commands. Visibility is panoramic, and the air in the cab is always fresh. Which is why even the longest shifts will feel like a breeze. Both operator and machine get more done with a lot less haste, seven days a week if need be.

A great deal for your investment

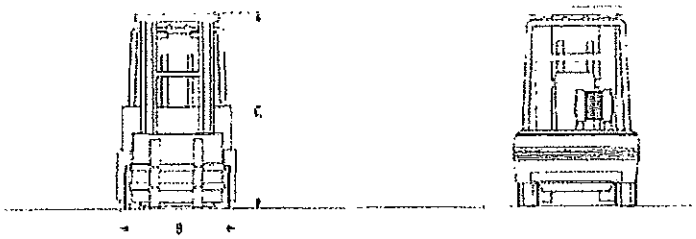
Proven reliability, excellent financing, extremely low fuel-consumption and a high trade-in value provide the cornerstones of a sound investment. Add to that outstanding handling and productivity, a market-leading operator environment, quick and simple daily maintenance and modest service requirements. And what have you got? The most cost-efficient loader in its class, delivering unparalleled profitability – both now and in the years to come. The L150E is quite simply a great deal for your money.

Specifications L150E

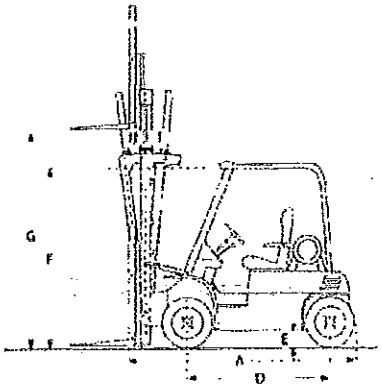
Engine. *Max power at* SAE J1995 gross ISO 9249, SAE J1349 net	Volvo D10B LA F2 28,3 r/s (1700 r/min) 200 kW (272 hp) 198 kW (269 hp)	Buckets: Timber grapples Operating weight	3,1 m³ - 12,0 m 1,6 - 3,5 m³ 23,2 - 25,2 t
Breakout force*	186,9 kN*	Tires:	800/65 R29 or 26.5 R25
Static tipping load, at full turn	15 680 kg*	[illegible]	

RITCHIESpecs Everything about Equipment

TOYOTA 7FDU25 FORKLIFT



Dimensions		
A. LENGTH TO FORK FACE	8.6 ft in	2606 mm
B. OVERALL WIDTH	3.8 ft in	1150.6 mm
C. OVERALL HEIGHT - MAST LOWERED	6.9 ft in	2110.7 mm



RITCHIE Specs Everything about Equipment

TOYOTA 7FDU25 FORKLIFT

Specification

Engine		
POWER	59 hp	44 kw
POWER MEASURED @	2600 rpm	
Operational		
TIRE TYPE	pneumatic	
NUMBER OF FRONT WHEELS	2	
NUMBER OF REAR WHEELS	2	
MAX SPEED	11.8 mph	19 km/h
MAST		
LOAD CAPACITY	5000 lb	2268 kg
LOAD CENTER	24 in	609.6 mm
LIFT SPEED	120 ft/min	36.6 m/min
Dimensions		
LENGTH TO FORK FACE	8.6 ft in	2606 mm
OVERALL WIDTH	3.8 ft in	1150.6 mm
OVERALL HEIGHT - MAST LOWERED	6.9 ft in	2110.7 mm
TURNING RADIUS	7.3 ft in	2222.5 mm
RIGHT ANGLE STACK	8.8 ft in	2692.3 mm

Yale

GP050LX

Pneumatic Tire Lift Truck

Affordable and Durable Pneumatic Lift Trucks

The GP050LX Pneumatic 4-Wheel Lift Truck works as an extended member of your team to meet the bottom line and keep productivity high. Its maneuverability and innovative design with the controlled powershift transmission allow smooth direction changes that won't decrease tire life.

The GP050LX truck is also safe and operator-friendly. The operator restraint system includes non-cinch seat belts to ensure safety on the job. The adjustable steering column and non-suspension vinyl seat are also designed to combat fatigue, increasing uptime. Stick with Yale for their dedication to quality lift trucks that won't bust your budget.

- The GP050LX is the lift truck that works smarter and harder. This truck is designed to be a great value, getting the job done without breaking the bank.
- The GP050LX is engineered for agility. Every truck is built with an electronically controlled powershift transmission for smooth direction changes, and we've designed the truck to be compact and easier to

maneuver, so it's as agile in tight spaces as it is in open ones.

- The optional integral side shifter allows the load to be optimally positioned, and the responsive, operator-selectable electronically controlled inching adjustments give the driver better control over load positioning.

Models

Model	Model Designation	Load Capacity (lbs.)	Engine	Transmission	Maximum Travel Speed (mph)	Maximum Lift Speed (ft/min)
GP050LX	Internal Combustion Trucks	5000	PSI 2.4L	Electronic Powershift 1 Speed	11.8	128

Gallery



Yale®

People. Products. Productivity.™

4-Wheel
IC Cushion and
IC Pneumatic

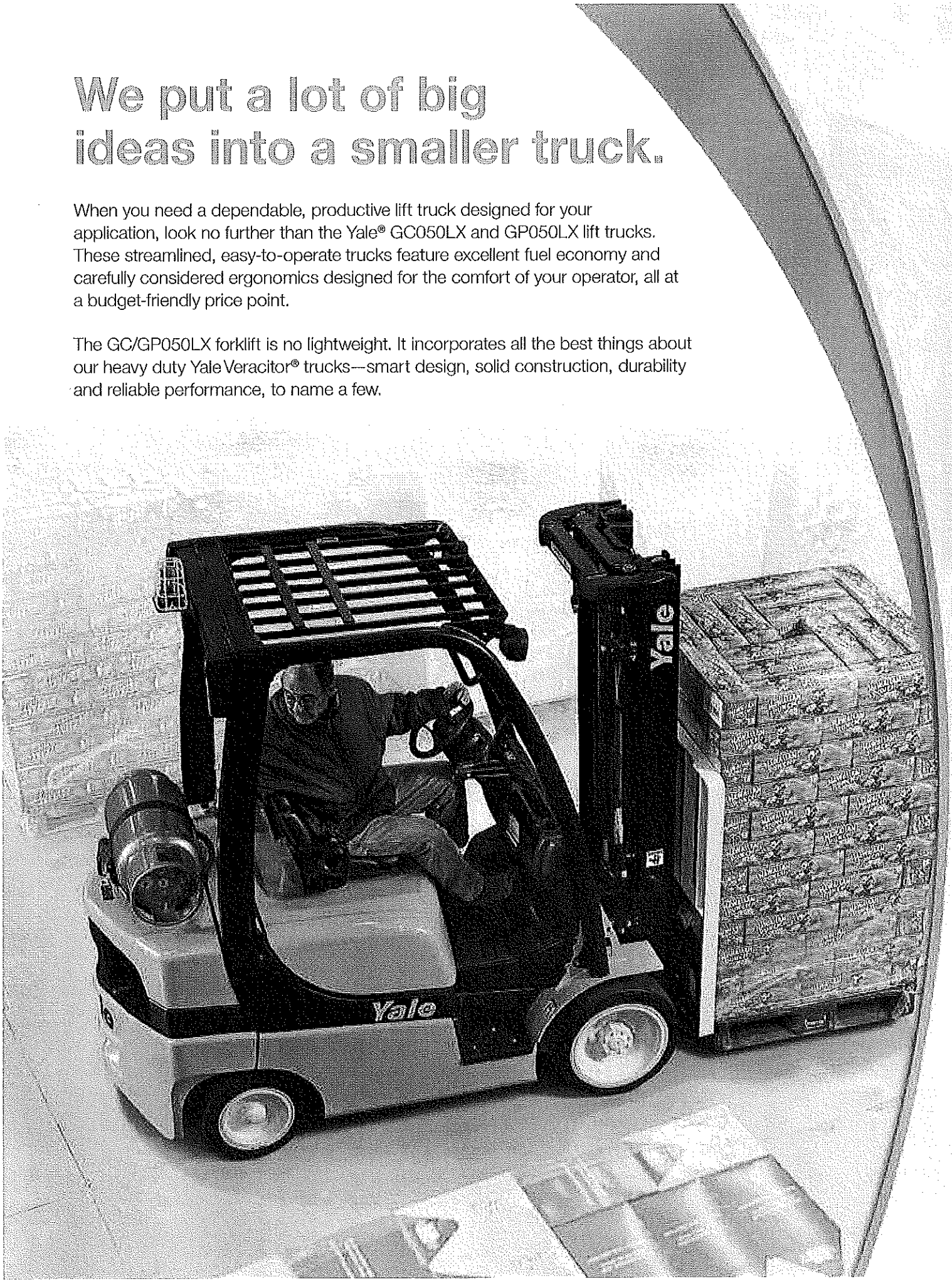
GC050LX
GP050LX

5,000 lbs.

We put a lot of big ideas into a smaller truck.

When you need a dependable, productive lift truck designed for your application, look no further than the Yale® GC050LX and GP050LX lift trucks. These streamlined, easy-to-operate trucks feature excellent fuel economy and carefully considered ergonomics designed for the comfort of your operator, all at a budget-friendly price point.

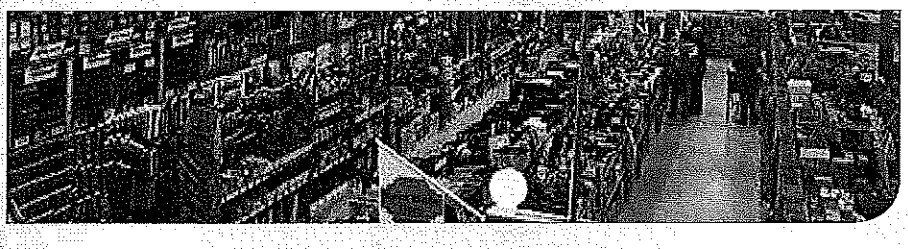
The GC/GP050LX forklift is no lightweight. It incorporates all the best things about our heavy duty Yale Veracitor® trucks—smart design, solid construction, durability and reliable performance, to name a few.



This is all the truck you need.

General Warehousing & Distribution

Lawn & Garden Supply, Appliance, Home Furnishing, Electronics, HVAC, Sporting Goods, Auto Parts, Office Equipment, Movers & Storage



Retail

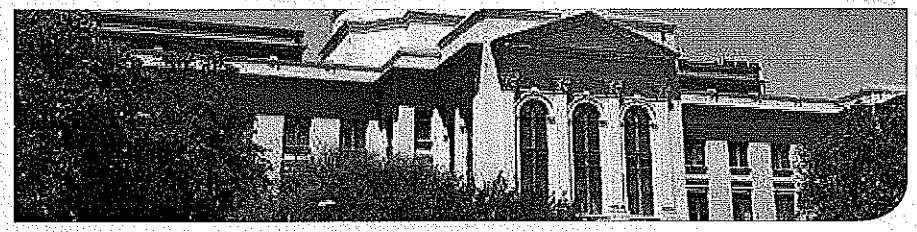
Floor Covering, Glass, Auto Supply, Paint & Wallpaper, Hardware, Ag Supply, Finished Wood Products

Light Manufacturing

Electronics, Furniture & Home, Medical, Pottery, Printing, Rubber & Plastics

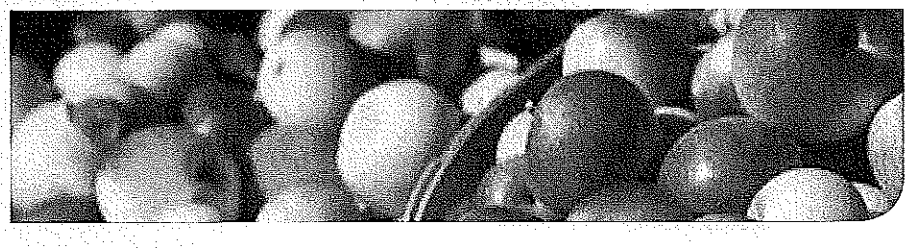
Bottling & Beverage Distribution

Soft Drinks, Juices, Bottled Water, Brewers, Distillers, Wineries, Beverage Wholesalers



Government & Services

Universities & Colleges, Maintenance, Groundskeeping, Hotels & Motels, Amusement Parks, Convention Centers



Agriculture

Fruit & Vegetable Farming, Nurseries, Farmer's Markets

Other Mobile Heavy Equipment Used at Taft Transfer and Recycling Facility

Mobile Tire Shredder

GRANUTECH-SATURN SYSTEMS CORPORATION
201 East Shady Grove Road
Grand Prairie, Texas 75050
PHONE: 972/790-7800
FAX: 972/790-8733
e-mail: sales@granutech.com

SATURN Model 72-44BGHT-300HP SHREDDER

Data Sheet

The Saturn shredder features twin counter-rotating shafts operating at slow speed and very high torque to reduce material by means of shearing and tearing. Slight shaft speed differential contributes to the cutting action while reducing particle sizing. The Saturn shredder is driven by a high displacement hydraulic motor, which in turn is powered by Saturn's proprietary open loop hydraulic drive system. Automatic overload detection initiates cutter shaft reversal to eliminate damage to the shredder components.

SPECIFICATIONS:

• Shredder Inlet Opening	72" x 44"
• Shredder Outside Dimensions	152" x 73" x 43"
• Power Unit Dimensions	144" x 90" x 69"
• Shrerider Weight	28,000 pounds
• Power Unit Weight	11,000 lbs. (dry)

DETAILS:

Shredder

• Cutter Shaft	Torque: Fast – 48,915 ft./lb. Torque: Slow – 48,915 ft./lb.
• Cutter Speed	Fast Shaft – 24 RPM Slow Shaft – 21.4 RPM
• Cutter Force	Fast: 52,176 lbs. Slow: 52,176 lbs.
• Shaft Diameter	8" hexagon (across flats)
• Cutter Diameter	22.50" @ hooks

Power Unit – Open Loop, Skid Mounted

• Electrical Power	300 HP (3 x 100)
• Hydraulic Flow	238.5 GPM
• Rated Pressure	3000 PSI

GRANUTECH-SATURN SYSTEMS CORPORATION
201 East Shady Grove Road
Grand Prairie, Texas 75050
PHONE: 972/790-7800
FAX: 972/790-8733
e-mail: sales@granutech.com

ELECTRICAL:

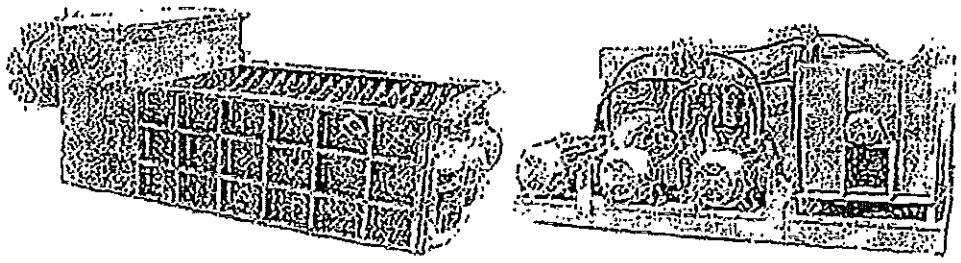
Operator initiated pushbutton controls, featuring Allen Bradley PLC. Motor controls include primary disconnect with short circuit protection, full load contactors, and electronic overload detection. Control power derived from a single-phase transformer. All components assembled and wired in a NEMA enclosure.

OPTIONAL:

- Mounting and wiring of control and motor starter panels on hydraulic power unit
- Shredder infeed hopper
- Shredder support stand
- Infeed and discharge conveyors

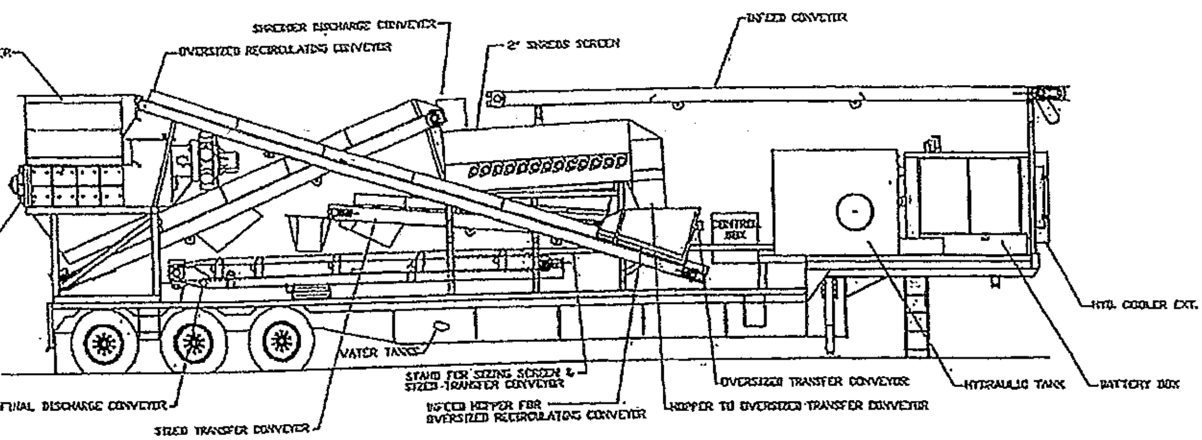
APPLICATIONS:

- Tires – up to 20 T/HR
- MSW - up to 30 T/HR
- Non-Ferrous Metals – up to 12 T/HR
- Plastic – up to 12 T/HR



REVISIONS

REV	DESCRIPTION	DATE	BY	APPROVED



ITEM NO.	QTY.	REF. ITEM	PART NO.	DESCRIPTION

BILL OF MATERIAL

FRACTIONS: ±1/16

ANGLES ±1/2°

DECIMALS: .X ±0.1 .XX ±0.01 .XXX ±0.005 .XXXX ±0.0005

	APPROVALS	DATE
DRAWN	J. FRANK	7/20/02
CHECKED		
ENGINEER		

GRANUTECH SATURN SYSTEMS CORP.

GRAND PRAIRIE, TEXAS

MOBILE TIRE SIZING UNIT–
RH DISCHARGE
62–40HT SHREDDER

SIZE: A | DWG NO.: D–1753 | REV: A

SURFACE ROUGHNESS: 125

SIMILAR TO:

WEIGHT: LBS

THIRD ANGLE PROJECTION

PRODUCT: 62-40HT SHREDDER

ENG. PROJECT NO.

SCALE: | DO NOT SCALE DRAWING | SHEET 1 OF 1

NEXT ASSY

FORM NO: EF-A-1000-H

SATURN MOBILE TIRE SHREDDERS

Saturn has designed and built mobile shredders in the past. We are now manufacturing a new completely self-contained portable tire shredding system.

Saturn's new design features:

- Self-stowing discharge conveyor
- Infeed conveyor that will attach and feed from either side of mobile unit
- Infeed conveyor that rests atop shredder when in travel mode
- Easy dismantling and reassembly as stationary system

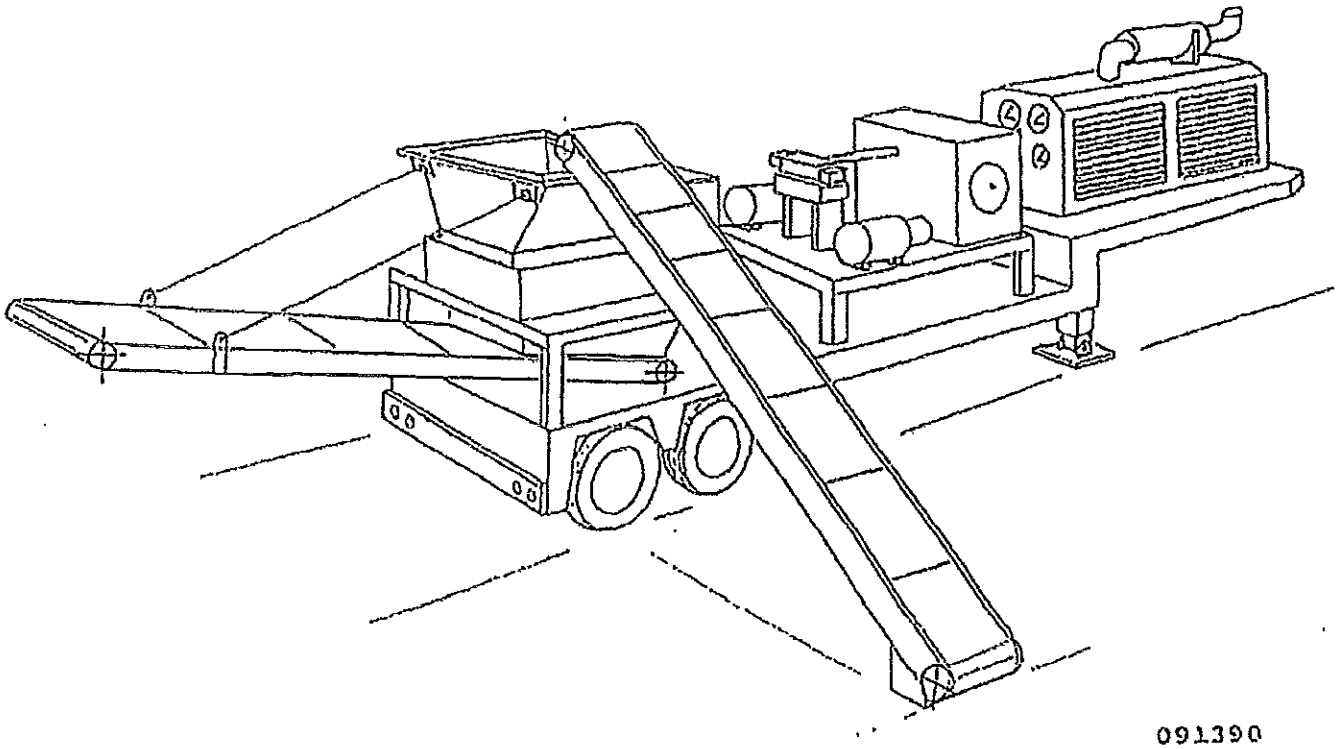
This state-of-the-art system can be the answer to your needs if legislation has closed your landfill to the burial of whole tires. Several states have set their policies, others are sure to follow. Take the time to look at the new Saturn Mobile System.

SATURN SHREDDERS, Division of MAC CORPORATION

201 East Shady Grove Road

Grand Prairie, Texas 75050

(972) 790-7800



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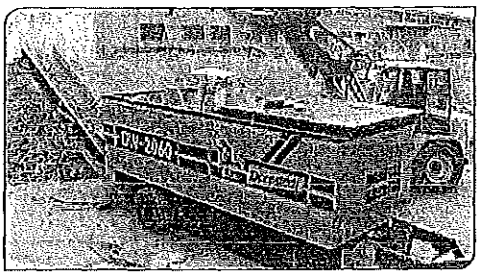
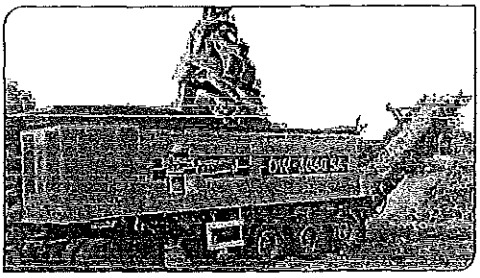
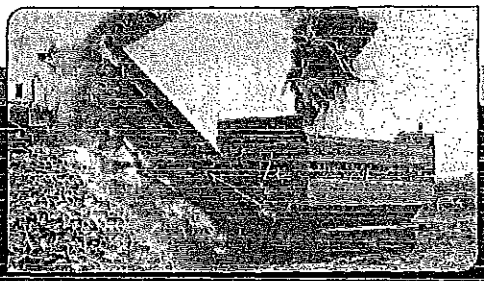


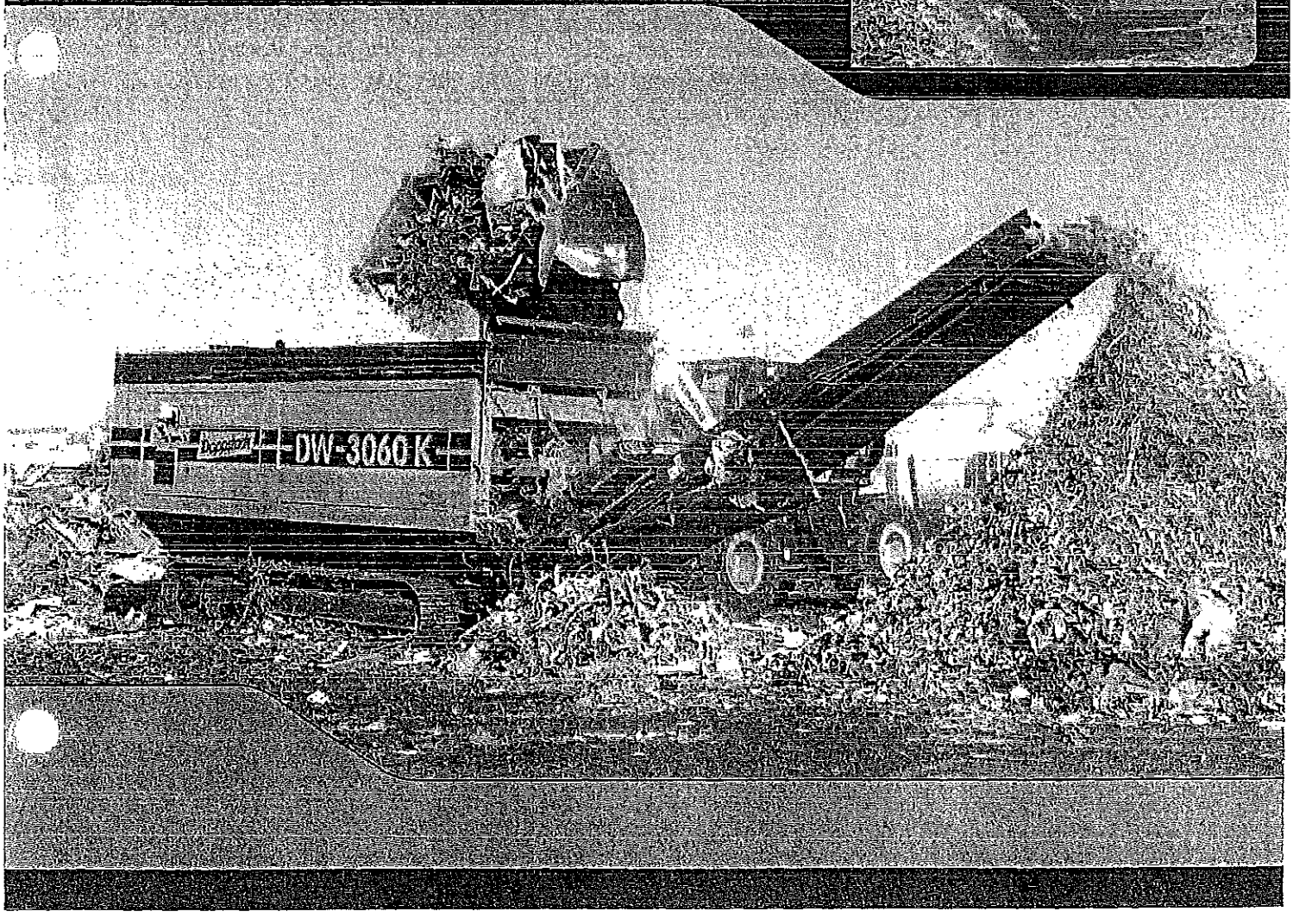
Doppstadt US

SHRED. SCREEN. GRIND.

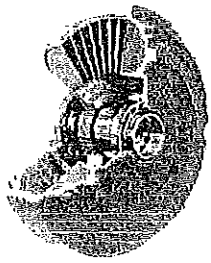




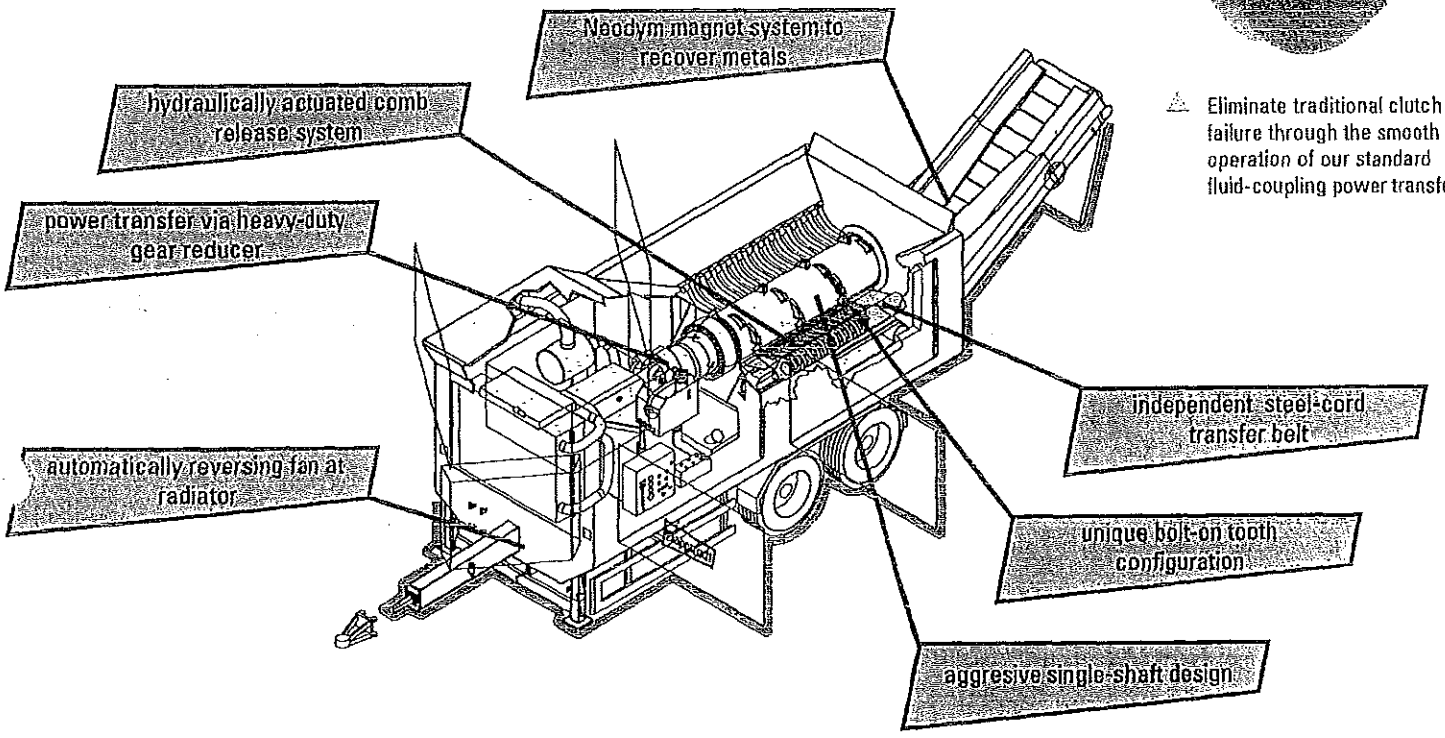
DW Series Shredders



The DOPPSTADT difference



Eliminate traditional clutch failure through the smooth operation of our standard fluid-coupling power transfe

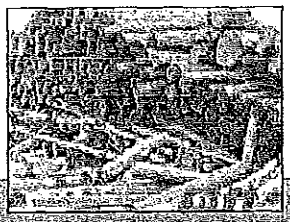


Virtually unlimited application potential

The exclusive combination of performance-enhancing features included on Doppstadt shredders adds up to one clear advantage: versatility. With precise control over the machine's various functions, and the built-in protection against unshreddable contaminants, the DW series delivers efficient processing power across numerous challenging applications. From highly contaminated C&D debris, to the primary reduction of bulky land-clearing waste, to quick processing of MSW waste, Doppstadt DW-series shredders can deliver the reliability and dependability you need to stay profitable.

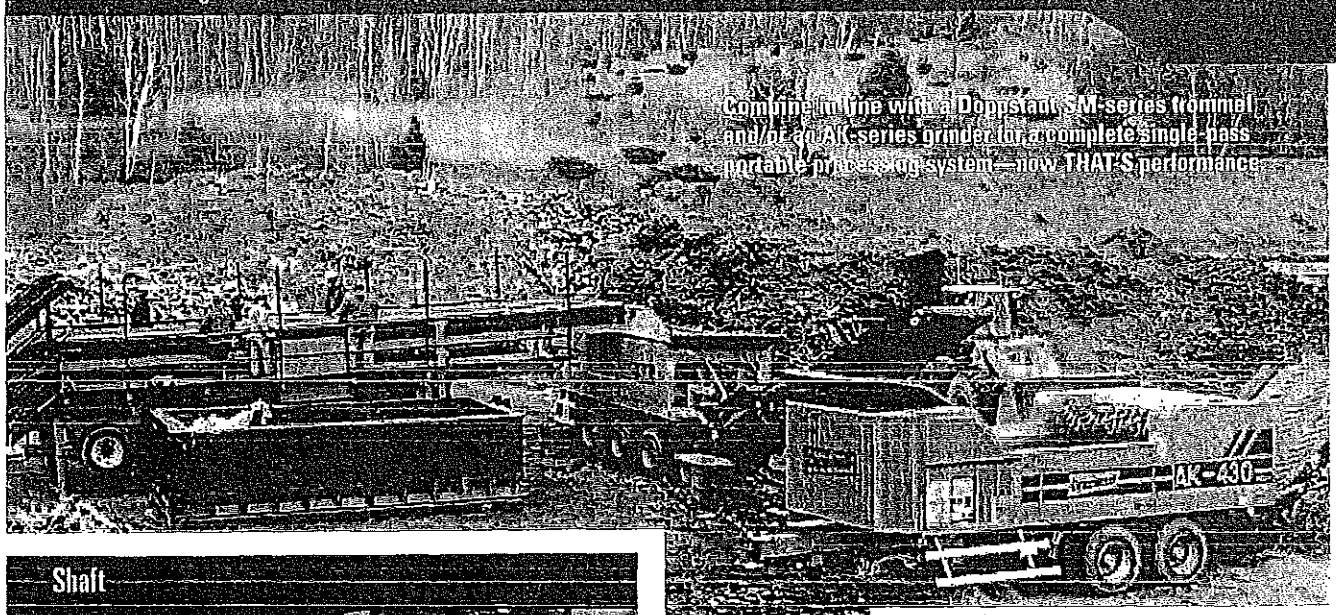

Rail Ties


C&D Debris


Land Clearing

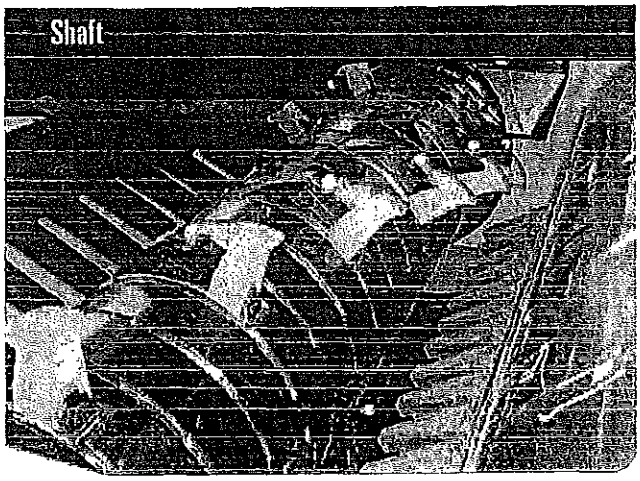

MSW

Seamless integration with other Doppstadt products

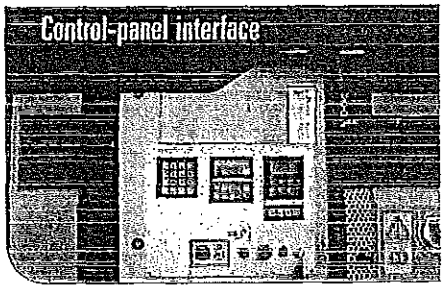


Combine in line with a Doppstadt SM-series trommel and/or an AK-series grinder for a complete single-pass portable processing system—now THAT'S performance.

Shaft



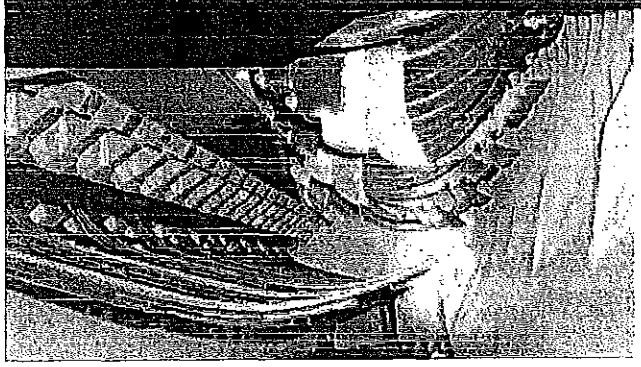
Control-panel interface



Control-panel interface provides easy and accurate operation of system functions and user-adjustable features for efficient and precise machine performance.

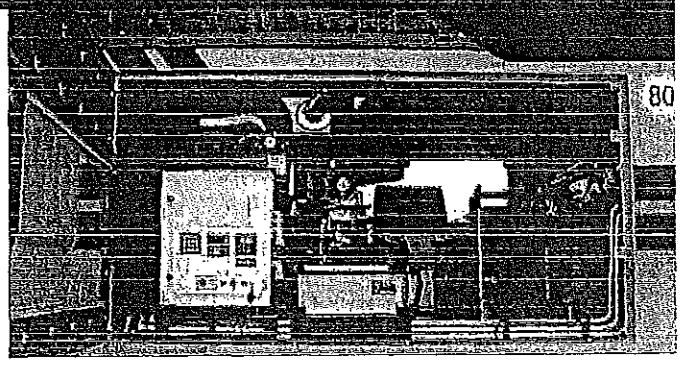
The heavy-duty comb-and-shaft design, and easily replaceable bolt-on teeth, deliver unparelled reduction performance in the presence of even the most challenging source material streams.

Breakaway shredding comb (shown with extensions)



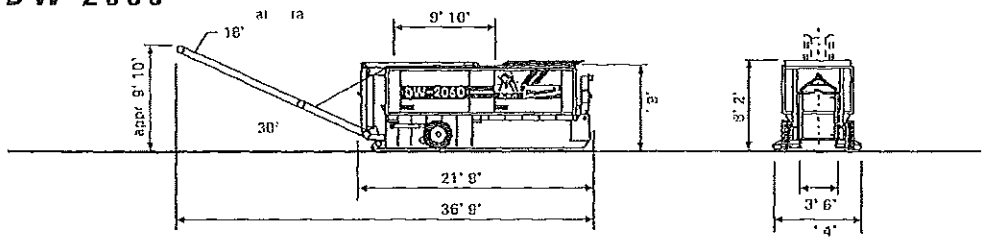
Don't waste time pulling unshreddable materials from the reduction mechanism—or conducting expensive repairs. Our breakaway comb automatically passes contaminants according to the user-adjusted threshold of tolerance.

Fully enclosed engine



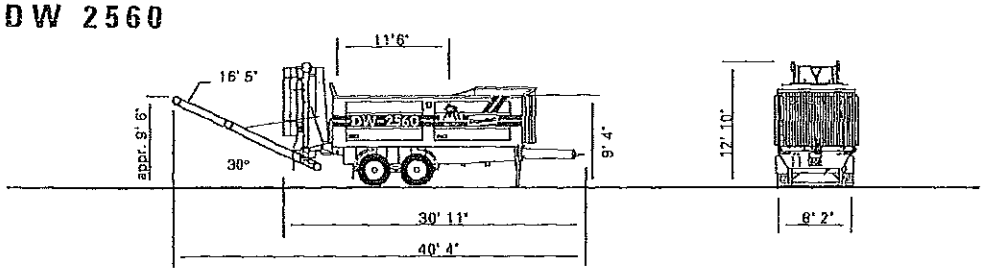
Eliminate the risk of fire, and shield crucial machine components from unnecessary wear and tear, through the protection of fully enclosed engine and systems compartments. Provides easy access for engine maintenance from both sides.

DW 2060



Model weight	33,070 lb.
Engine	MB OM 906 LA
HP	265
Exhaust Level	TIER 3
Fuel Tank	80 gal.
Speed	35 rpm
Conveyor Width	32"

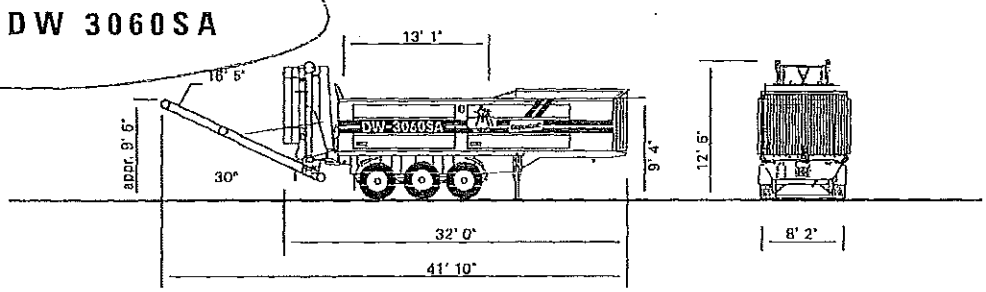
DW 2560



Model weight	41,890 lb.
Engine	MB OM 460 LA
HP	390
Exhaust Level	TIER 3
Fuel Tank	80 gal.
Speed	31 rpm
Conveyor Width	48"

Also available on tracked chassis

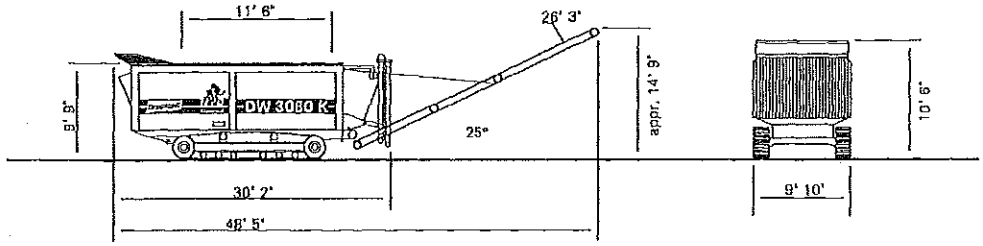
DW 3060SA



Model weight	52,910 lb.
Engine	MB OM 460 LA
HP	430
Exhaust Level	TIER 3
Fuel Tank	2 x 80 gal.
Speed	32 rpm
Conveyor Width	48"

Also available on tracked chassis

DW 3080K



Model weight	100,300 lb.
Engine	MB OM 502 LA
HP	610
Exhaust Level	TIER 3
Fuel Tank	2 x 80 gal.
Speed	30 rpm
Conveyor Width	48"

Doppstadt US

SHRED. SCREEN. GRIND.

DoppstadtUS
1057 Jaycox Rd.
Avon, OH 44011
440.937.3225 phone
440.937.3411 fax
sales@doppstadtus.com
www.doppstadtus.com

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engineering environmental solutions

Appendix H

MATERIALS DISPOSITION
Taft Recycling, Inc.
Taft Transfer Station/Waste Processing & Material Recovery Facility

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	2,000 cy	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	2,500 cy	4,000	Uncovered	Outside Storage Yard	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)	4,559 cy	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 Hazardous 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.

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Appendix I

Reset Form | Print Form

Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road, MS 4555
Tallahassee, Florida 32399-2400

DEP Form #: 62-701.900(7), F.A.C.
Form Title: Annual Report for a Construction and Demolition Debris Facility
Effective Date: January 6, 2010
Incorporated in Rule: 62-701.710(8)(b), F.A.C.

Annual Report for a Construction and Demolition Debris Facility

NOTE: Use one of these forms for each county from which the facility received materials

1. **Company Name:** _____ **Year of data:** _____
2. **Name of Facility:** _____ ☐ **Landfill** ☐ **MRF** ☐ **TS**
3. **Physical Address:** _____
4. **Mailing Address:** _____
5. **County Location:** _____
6. **Debris County of Origin:** _____
7. **Company Contact:** _____
   (the individual responsible for this information)
8. **Phone Number:** _____ **E-Mail:** _____

MATERIAL TYPES	MATERIALS RECOVERED	TOTAL TONS RECYCLED (SHIPPED)
ASPHALT	Used for _____	Subtotal Asphalt _____
CONCRETE	**Source: Roads, Bridges, Sidewalks, Curbs**	..... _____
	Source: Building Construction/Demolition:	
	Used for fill (lake or land)	..... _____
	Used for Road base	..... _____
	Other Use _____	..... _____
		Subtotal Concrete _____
FINES / RECOVERED SCREEN MATERIALS	Used for _____	Subtotal Fines / RSM _____
WOOD	Daily/Intermediate Cover	..... _____
	Waste-to-Energy fuel (see pg.2 for facility list)	..... _____
	Other processed fuel	..... _____
	Mulch, compost	..... _____
	Final cover	..... _____
	Other Use _____	..... _____
		Subtotal Wood _____
LAND CLEARING DEBRIS	Daily/Intermediate Cover	..... _____
	Waste-to-Energy fuel (see pg.2 for facility list)	..... _____
	Other processed fuel	..... _____
	Mulch, compost	..... _____
	Final cover	..... _____
	Other Use _____	..... _____
		Subtotal Land Clearing Debris _____
DRYWALL	All	Subtotal Drywall _____
SHINGLES/ROOFING	How used? _____	Subtotal Shingles/Roofing _____
		Subtotal Page 1 _____
		Subtotal Page 2 _____

9. **TOTAL TONS OF C&D DEBRIS RECYCLED** *(add subtotals page 1 & 2 above):* ..... _____
10. **TOTAL TONS OF C&D DEBRIS DISPOSED** *(all debris landfilled):* ☐ **on-site** ☐ **off-site** _____

_____ Signature (authorized Representative)

_____ Print Name

_____ Title

_____ Date

OVER PLEASE!!

MATERIAL TYPES	MATERIALS RECOVERED	TOTAL TONS RECYCLED
PAPER	Old Corrugated Containers (OCC) Other Paper	.... Subtotal Paper
PLASTIC	Plastic containers/buckets All other plastic	.... Subtotal Plastic
METALS	Aluminum Other Non-Ferrous (brass, copper, etc.) Steel Other Ferrous	.... Subtotal Metals
TEXTILES	Miscellaneous/carpet	Subtotal Textiles
		Subtotal Page 2

Waste to Energy Facilities

- **Bay County Resource Recovery**
- **Broward County N. Resource Recovery**
- **Broward County S. Resource Recovery**
- **Dade County Resource Recovery**
- **Hillsborough County SWE Recovery**
- **Lake County Resource Recovery**
- **Lee County SW Resource Recovery**
- **McKay Bay Refuse to Energy Project**
- **Southernmost WTE Facility**
- **North County Regional Resource Recovery**
- **Pasco County SW Resource Recovery**
- **Pinellas County Resource Recovery**

Processed wood/land clearing debris that goes to any facility for fuel other than above is considered "Other Processed Fuel".

Mail completed form to:

Florida Department of Environmental Protection
Bureau of Solid & Hazardous Waste
2600 Blair Stone Road, MS 4555
Tallahassee, Florida 32399-2400

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engineering environmental solutions

Appendix J

Waste Tire Processing Calculations and Background Information
Taft Recycling, Inc.
Taft Transfer Station/Waste Processing & Material Recovery Facility

Assuming TRI operates the waste tire shredding equipment 12 hours a day, approximately 240 tons of tires could be shredded in one day based on the reported throughput capacity of the equipment. TRI does not intend to collect and store used tires separately from waste tires; therefore, the additional storage limit of 10,000 used tired noted in Rule 62-711.530(2), F.A.C. would not apply.

Density information for stored waste and processed tires was obtained from the Rubber Manufacturers Association (RMA) and the United States Environmental Protection Agency's (USEPA's) Scrap Tire Cleanup Guidebook (see attached). As provided on pages 14 through 26 of said Guidebook, approximately 100 passenger car tires can be loosely stacked, 150 tires if densely packed, in a 10 cubic yard area. The RMA also reported approximately 100 passenger car tires can be loosely stored in a 10 cubic yard area. However, RMA reported a densely packed number of 500 tires per 10 cubic yards. This likely represents like sized tires neatly stacked and tightly laced together. Based on TRI's experience in handling incidental waste tires at other solid waste facilities operated throughout Florida, the USEPA's estimate for densely stacked tires is generally consistent their handling experience. Therefore, the USEPA's density estimate was used. Based on the density information provided above, the number of whole waste passenger tires that could be stored in a 40 cubic yard roll-off container ranges from 400 tires if loosely stacked and 600 tires is densely stacked. This represents a weight of 4.5 to 6.75 tons per container. Assuming 10 roll-off containers (for whole tires) and using data for densely stacked passenger tires, the maximum number and weight of whole passenger waste tires that would be stored at the Facility is 6,000 tires and 67.5 tons, respectively. A lesser number of tires, yet equivalent weight, would be stored if the stored waste tires consist of a mixture of passenger and heavy truck tires.

<u>Weight of 6,000 Passenger Tires:</u>

(22.5 pounds/passenger tire x 6,000 tires)/2,000 pounds/ton = 67.5 tons

<u>Weight of 1,000 Heavy Truck Tires (4,900 PTE) and 1,100 Passenger Tires:</u>

(110 pounds/heavy truck tire x 1,000 tires)/2,000 pounds/ton + (22.5 pounds/passenger tire x 1,100 tires)/2,000 pounds/ton = 55 tons +12.4 tons = 67.4 tons

Based on data reported by the USEPA and RMA, the density of loosely packed single pass shredded tires is approximately 600 pounds/cubic yard. The corresponding ratio of maximum storage volume of shredded tires versus stored whole waste tires is 225 cubic yards (67.5 tons at 600 pounds/cubic yard). This will require six 40 cubic yard roll-off containers. This maximum volume of processed tires will require six 40 cubic yard roll-off containers. TRI estimated that one 40 cubic yard roll-off container will be sufficient to handle any residuals produced during processing.

SCRAP TIRES

Facts & Figures · Scrap Tire Characteristics

1. Typical Materials Composition of a Tire
2. Typical Composition by Weight
3. Densities of Shredded and Whole Tires
4. Rubber weight by tire component.
5. Steel Tire Cord Analysis

1. Typical Materials Composition of a Tire

This table lists the typical types of materials used to manufacture tires.
Typical Composition of a Tire
Synthetic Rubber
Natural Rubber
Sulfur and sulfur compounds
Silica
Phenolic resin
Oil: aromatic, naphthenic, paraffinic
Fabric: Polyester, Nylon, Etc.
Petroleum waxes
Pigments: zinc oxide, titanium dioxide, etc.
Carbon black
Fatty acids
Inert materials
Steel Wire

2. Typical Composition by Weight

This lists the major classes of materials used to manufacture tires by the percentage of the total weight of the finished tire that each material class represents.

Passenger Tire

Natural rubber	14 %
Synthetic rubber	27%
Carbon black	28%
Steel	14 - 15%
Fabric, fillers, accelerators, antiozonants, etc.	16 - 17%
Average weight:	New 25 lbs, Scrap 22.5 lbs

Truck Tire

Natural rubber	27 %
Synthetic rubber	14%
Carbon black	28%
Steel	14 - 15%
Fabric, fillers, accelerators, antiozonants, etc.	16 - 17%
Average weight:	New 120 lbs., Scrap 110 lbs.

3. Densities of Shredded and Whole Tires

APPROXIMATE DENSITIES		
LOOSELY PACKED		DENSELY PACKED
550-600 lbs/yd^3	single pass	1220-1,300 lbs/yd^3
850-950 lbs/yd^3	2" shred	1,350-1,450 lbs/yd^3
1,000-1,100 lbs/yd^3	1 1/2" shred	1,500-1,600 lbs/yd^3
100/10Yd^3	WHOLE TIRES (PASSENGER/LIGHT TRUCK)	500/10Yd^3
	10 MESH- 29 lbs/ft^3	
	20 MESH- 28 lbs/ft^3	
	30 MESH- 28 lbs/ft^3	
	40 MESH- 27 lbs/ft^3	
	80 MESH- 25-26 lbs/ft^3	

4. Rubber weight by tire component.

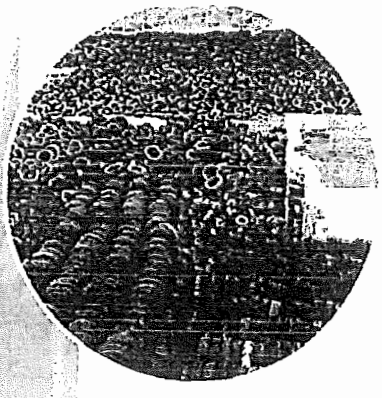
A tire is manufactured from several separate components, such as tread, innerliner, beads, belts, etc. This table shows which components account for the rubber used to make the tire.

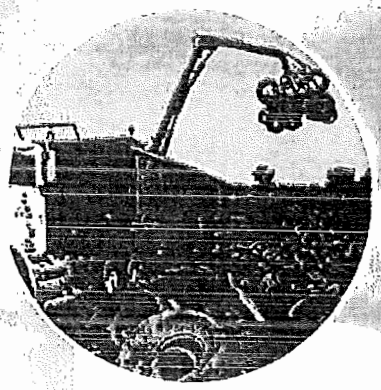
RUBBER PERCENT BY WEIGHT IN A NEW RADIAL PASSENGER TIRE

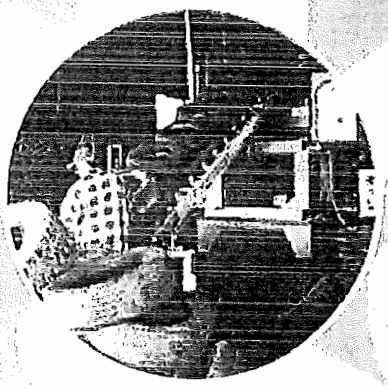
TREAD	32.6%
BASE	1.7%
SIDEWALL	21.9%
BEAD APEX	5.0%
BEAD INSULATION	1.2%
FABRIC INSULATION	11.8%
INSULATION OF STEEL CORD	9.5%
INNERLINER	12.4%
UNDERCUSHION	3.9%
	100.0%

5. Steel Tire Cord Analysis

The tire industry uses ASTM 1070 and above tire cord quality wire rod in the manufacture of new tires. There are approximately 2.5 pounds of steel belts and bead wire in a passenger car tire.







Scrap Tire Cleanup Guidebook

A Resource for Solid Waste Managers Across the United States

EPA-905-B-06-001

Scrap Tire Cleanup Guidebook

A Resource for Solid Waste Managers Across the United States

January 2006

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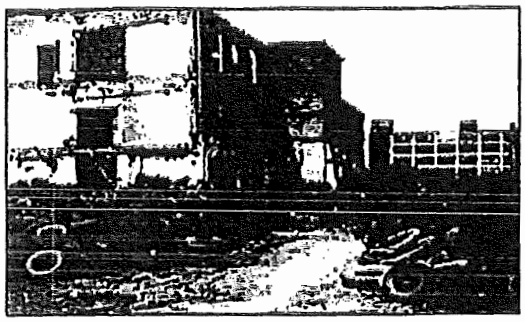
EPA-905-B-06-001

SECTION 3 Planning

Scrap tire stockpile abatement is a technical, economic, and political challenge. Cleanups involve elusive factors such as weather, stockpile contents, and underlying topography. Proper planning can limit adjustments that consume resources, thereby minimizing impacts on overall program performance and cost. This section presents critical planning considerations for both an overall cleanup program and individual abatement projects.



STOCKPILE IDENTIFICATION AND MAPPING

Stockpile identification is the first step in defining the magnitude of the scrap tire stockpile problem in any jurisdiction. The most effective identification methods have involved all levels of government and enforcement as well as industry groups and citizen reports.

State Government. State solid waste and public health agencies play a focal role in scrap tire stockpile identification efforts. These agencies have a broad range of organizational structures. Centralized agencies deploy personnel to each region of the state to work with county, city, and local officials in identifying and characterizing sites. Other agencies either designate one person in each regional office to identify stockpiles or distribute the responsibility to all staff based on their geographic or industry area of expertise. Smaller identification groups are easier to train and gain greater knowledge through in-depth experience. However, these advantages can be offset by greater travel time, cost, and difficulty in making regular visits to examine changing site conditions.

One effective compromise is to use a broad base of individuals to identify stockpiles in their service areas and then task a smaller group to characterize and prioritize stockpiles. Contractors or consultants may be useful for supplementing agency resources in the early stages of program implementation. Finally, other state or local authorities can be leveraged, such as forestry, park, wildlife, natural resource, and police agencies. Such authorities have field personnel with extensive knowledge of rural areas that often harbor stockpiles.

County and Local Governments. Most effective programs have drawn heavily upon county, city, and local governments to identify stockpiles. Police, code enforcement, mosquito control, solid waste management, public health, park, firefighting, forestry, and game and fish personnel have all helped to identify stockpiles encountered during their normal activities.

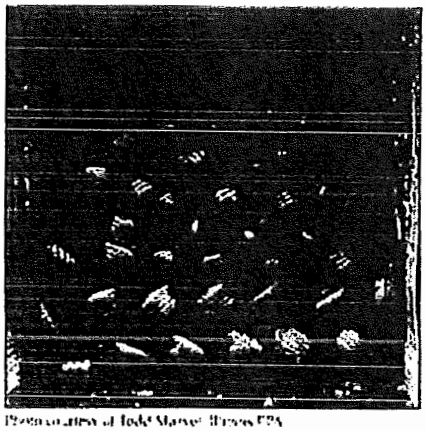
One state sent surveys to all county and local governments (including those for municipalities with over 1,000 people) during initial scoping activities. The survey asked for stockpile sites to be identified by location, street address, and owner. Cooperation in such efforts can be enhanced by the survey objectives and methodology and by explaining the ability of the program to help local governments abate identified sites without consuming local resources.

Additional Identification Methods. Other creative methods can be used to support identification efforts, including the following approaches:

- A toll-free telephone number can be established to encourage residents to report stockpiles and illegal dumping activities. Local governments and industry organizations can be leveraged to disseminate information about the program. Many large stockpiles are found based on information provided in citizen complaints.

- Both public service announcements and promotion of initial abatement activities encourage reporting of additional stockpiles.
- Committees consisting of representatives of tire dealers, salvage yards, and haulers can reach out within their respective industries to encourage stockpile identification.

Required Information. Once a stockpile is identified, characterization is conducted to gather information required for prioritization, stabilization, and abatement activities. The following information should be considered, especially for larger sites:



- Location, including street address, city, county, and global positioning system (GPS) coordinates
- Owner or operator, including name, address, telephone number, and involvement
- Stockpile characteristics such as dimensions, tire sizes, age, the presence of rims, possible compaction, existence of lacing (see photo at right) or stacking, the percentage of whole tires and shreds, and the presence of other wastes
- Site characteristics such as stockpile spacing, soil characteristics, topography, access, and drainage channels as well as nearby surface water, residences, businesses, and population densities. (Nearby schools, airports, and other large public facilities should also be identified to help define environmental impacts.)
- Site conditions impacting fire control, such as access roadways, water resources, perimeter and internal fire lanes, trees, and brush

The information on site characteristics and conditions is useful for site stabilization and fire control planning for larger sites. An example site characterization form is provided in the Appendix of this guidebook. For smaller sites, only the location, owner or operator, and stockpile characteristic information is needed.

Mapping. Stockpile mapping offers political, technical, and economic benefits. It allows public officials and citizens to understand the extent of the problem, as it graphically illustrates the broad distribution of scrap tire sites in the state. From a technical and economic standpoint, mapping enhances efficiency by supporting coordination of site-related activities such as inspections. In addition, contractor efficiency can be maximized by addressing several nearby sites under a single abatement contract if site access can be achieved concurrently. The combined volume encourages contractor interest, and the approach decreases mobilization and demobilization costs. Example stockpile maps prepared using GIS are shown on the following page.

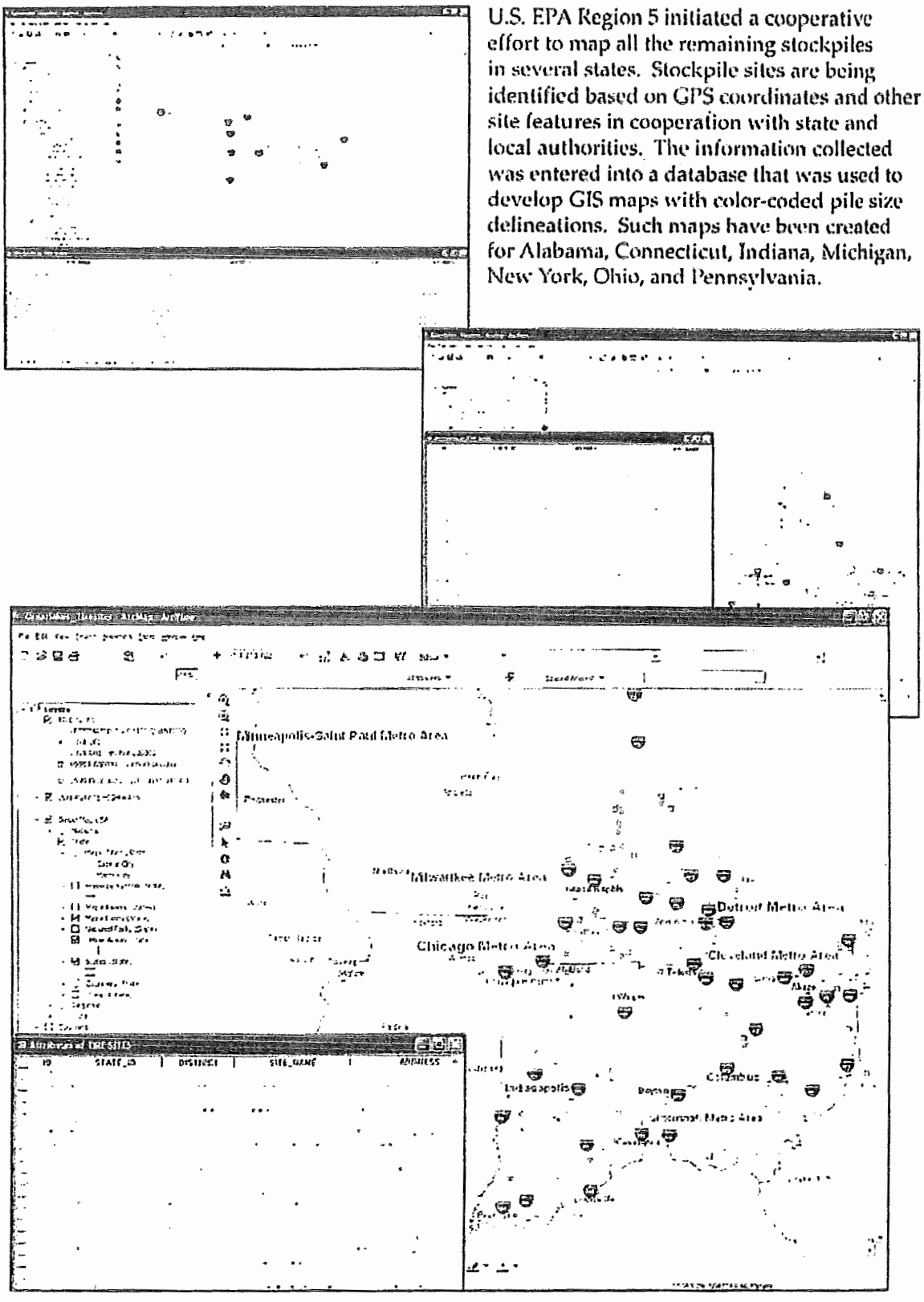
Mapping Tip

Review of site background information, such as aerial photographs, topographic maps, or tax maps, before the scrap tire quantity is estimated can reduce the effort needed for field mapping. This information is often available in government or other Internet-accessible databases.

QUANTITY ESTIMATION TECHNIQUES

Following stockpile identification, the scrap tire quantity is estimated for prioritization, program planning, budgeting, and contract management purposes. Stockpile estimating is relatively simple in principle, but can be impacted by many variables. Many early estimates were performed using the "gazer" technique. For example, a person would stare at a stockpile and state that it "looked like

Using GIS to Map Stockpile Sites



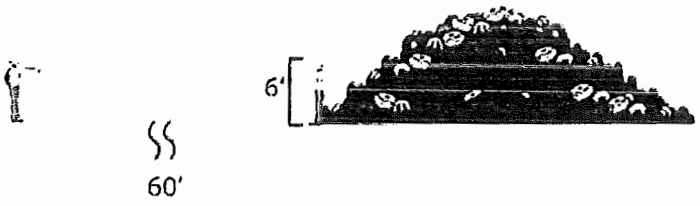
U.S. EPA Region 5 initiated a cooperative effort to map all the remaining stockpiles in several states. Stockpile sites are being identified based on GPS coordinates and other site features in cooperation with state and local authorities. The information collected was entered into a database that was used to develop GIS maps with color-coded pile size delineations. Such maps have been created for Alabama, Connecticut, Indiana, Michigan, New York, Ohio, and Pennsylvania.

about a million tires" when in reality it could have contained between 20,000 and 20 million tires. Some people still use this technique, resulting in estimates with extremely large margins of error.

Some basic science has been added to the "gazer" technique, resulting in significant improvements in estimate accuracy. During initial site identification and examination, the dimensions of each stockpile segment should be measured using one of several techniques, including a long tape, a measuring wheel, or a calibrated pace. A 100-foot, fiberglass tape requires two people for efficient use and is preferable for uneven terrain or in cases likely to require court testimony. A large-diameter measuring wheel can be used on firm, level terrain but is unusable on rough or muddy ground. A calibrated pace can be used efficiently on most terrain, but its accuracy depends on the ability of the measurer to maintain a uniform pace. Taking measurements from the midpoint of the pile slope simplifies subsequent calculations. In addition, photographs should be taken during field inspections to document site conditions, to monitor changes in site conditions between inspections, and to serve as legal evidence. An example stockpile characterization form that can be used to collect data is provided in the Appendix of this guidebook.

Estimating stockpile depth is often a challenge because the sides are sloped and not easily measured. One technique (see figure at right) is to have a person of known height stand as close to the pile as possible while an observer stands back and measures the pile depth in multiples of the first person's height. The observer should be at least 10 times the estimated pile depth away to minimize angle distortion. A spotter's scope or compact measuring device can also be used. A large pile should be climbed, and the top of major pile segments should be walked to observe top contours, pile characteristics, dimensions, and firmness (which reflects density variations associated with compaction, aging, and lacing). Tires in stockpiles are irregularly shaped, flexible, and unstable, so extreme care should be taken when climbing a tire pile.

Estimating Stockpile Depth



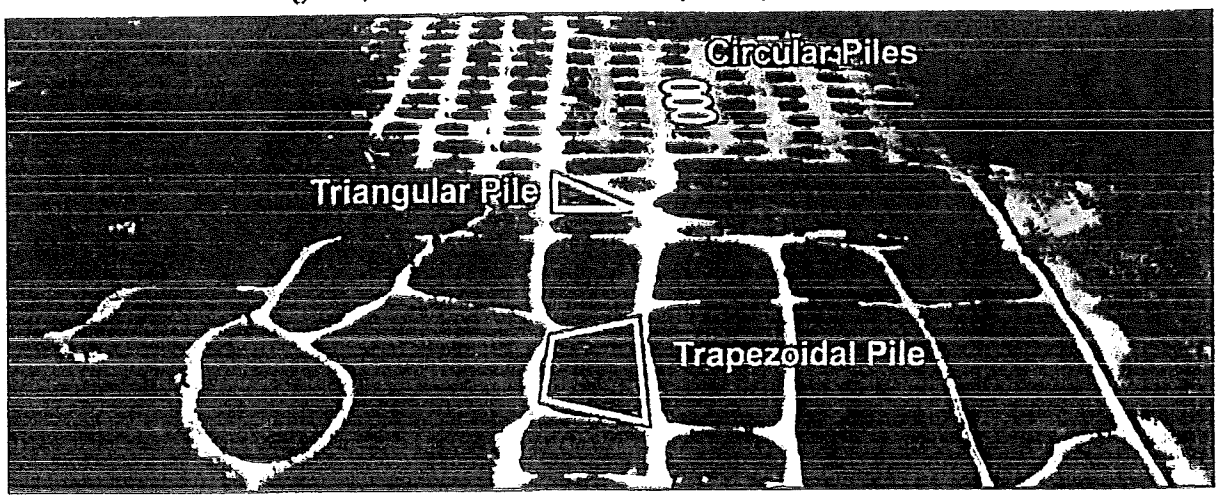
Stockpiles pose other health risks that should be considered while estimators are on site. Scrap tires can support breeding of mosquito species that are capable of serving as vectors for potentially fatal diseases such as eastern equine encephalitis, West Nile virus, and dengue fever. While estimators are on site, protective clothing and mosquito spray should be used to minimize exposure. In addition, stockpiles typically harbor rodents and snakes, so estimators should be observant and move cautiously.

For a large stockpile, aerial photographs can be used to define its horizontal dimensions, but a scale must be established based on nearby objects. To be effective, aerial photographs must be taken vertically to avoid dimensional distortion. Depth and density estimation requires ground observation. Detailed aerial surveys can be conducted, but the ground topography under the pile must be known or assumed. Aerial surveys are expensive, and their accuracy is questionable unless a pile is deep enough to reduce the margin of error associated with surface depth irregularities. Ground surveys have also been performed with volume-integrating software, but they can be expensive and may not offer greater accuracy than manual measurements.

As a first step, the stockpile volume is estimated using calculations based on the dimensions. In some cases, irregular shapes can be converted into rectangles, circles, or other simple geometric shapes to simplify calculations without impairing accuracy. In other cases, a single irregularly shaped pile can be measured as two or more connected rectangular segments with different dimensions. If dimensions have been measured from the midpoint of the slope, the volume of a rectangular pile is simply the product of the length, width, and depth. Although this method is not geometrically perfect, the simplification does not significantly impact the total volume estimate.

The volume of other common stockpile shapes can be calculated using the following formulas:

- Circle: $\pi r^2 d$ or
  3.14 x circle radius x circle radius x depth
- Triangle: ½ lwd or
  ½ x length x width at base x depth (from base to peak of pile)
- Trapezoid: ½ l $(w_1 + w_2)$ d or
  ½ length x (width at base + width at top) x depth



The second step in estimating the tire quantity in a stockpile is determining the pile density, or the quantity of scrap tires contained in each cubic yard of the pile. Volume is translated into quantity or weight through assignment of a density. Because most tire stockpiles contain mixtures of various tire sizes, density is normally expressed in terms of the passenger tire equivalent (PTE), which is equal to 20 pounds by definition. Most scrap tires have roughly equivalent densities when expressed in terms of PTE/cubic yard. For instance, a medium truck tire weighs approximately 100 pounds (5 PTE) and occupies a volume equivalent to four to five passenger tires in a given stockpile. Because most abatement activities and other considerations are based on weight, the equivalency more accurately reflects future tire use, processing, and disposal.

The density of loose, shallow, whole-tire stockpiles is normally about 10 PTE /cubic yard but can range from 8 to 27 PTE/cubic yard. Densities below 10 PTE/cubic yard reflect rimmed tires that do not collapse but account for only the rubber weight under the assumption that rims will be removed before tire transport. Stacking or lacing increases the effective density to 12 to 15 PTE/cubic yard for passenger tires, and 13 to 18 PTE/cubic yard for medium truck tires. The highest density range rarely occurs but was encountered in a 40-year-old stockpile in a canyon that was over 100 feet deep near Modesto, California; the very hot climate caused the tires to be more flexible and easily compacted. Other factors that impact the density of whole-tire stockpiles are shown in the table on page 15.

The density of shredded-tire stockpiles can range from 30 to 90 PTE/cubic yard (600 to 1,800 pounds/ cubic yard). The lower density range represents shallow, uncompacted piles of uniformly large particles such as single-pass shreds. The higher range represents deep stockpiles of finer tire-derived fuel (TDF) that has been heavily compacted by repeated movement of heavy equipment during stacking. The highest range represents compacted shreds with extensive dirt contamination. Major factors that impact shredded-tire stockpile density are shown in the table on page 15.

Once the stockpile volume and density have been estimated, the tire quantity (or weight) is calculated by multiplying the volume (cubic yards) by the density (PTE/cubic yard). The result is a tire quantity expressed as PTE. The tire quantity can also be expressed as a weight (tons) by dividing by

Factors Affecting Tire Density

Whole Tire Stockpile	Shredded Tire Stockpile
• **Depth:** Increases the compaction of tires in a pile and therefore increases density • **Age:** Allows additional compaction over time and therefore increases density • **Heat:** Increases the flexibility of tire rubber, thereby increasing compaction and density	• **Shred size:** Smaller shred size generally increases density. • **Wire content:** Wire removal decreases density. • **Depth:** Depth increases overburden compaction and density. • **Equipment movement:** Equipment movement on ramps or top surfaces during stacking significantly increases density as well as the probability of auto-ignition within a pile.

100 PTE/ton. A schematic of a simple stockpile site is shown in Exhibit 1 and the quantity calculation logic is summarized in Exhibit 2.

Although the estimating methodology described above has been successfully applied to hundreds of scrap tire stockpiles, the following factors may affect its accuracy:

- **Topography:** The underlying topography can significantly affect pile volume and tire quantity but may not be apparent from surface observations. Larger tire piles are more difficult to estimate because they may conceal ravines or pits filled with tires. Piles located on hillsides are also difficult to estimate because the hillsides may curve or become steeper beneath the piles.
- **Nonuniformity:** A pile may appear to consist of loose tires on the surface, but laced tires or shreds may be present in the pile, significantly increasing pile density and tire quantity.

Photo courtesy of Alan Zower, Virginia DEQ

- **Contamination:** Piles can be contaminated with water, soil, automobile parts, or other waste that may not be visible from the surface. Water and dirt can significantly increase pile density and abatement costs. Also, the presence of whole vehicles or chemical-filled drums can complicate tire retrieval, especially if the vehicles are loaded with tires or the drums contain hazardous wastes.

STOCKPILE PRIORITIZATION

With the understanding that resources are limited, stockpile stabilization, abatement, or both should be initiated following a prioritized sequence based on the comparative hazards posed by various sites (see Section 1). A prioritization system should reflect current and potential impacts on citizens and the environment, particularly impacts on sensitive receptors such as schools, hospitals, daycare centers, and nursing homes.

One prioritization method uses stockpile size as a multiplier because it typically magnifies the impacts of a tire fire. The multiplier ranges should reflect the quantities of tires in the piles being prioritized. For example, the following size factors could be used for stockpiles with the numbers of tires indicated:

- Less than 100,000 tires = 1
- 100,000 to 250,000 tires = 2
- 250,000 to 1,000,000 tires = 3
- More than 1,000,000 tires = 4

Exhibit 1. Example Stockpile Site

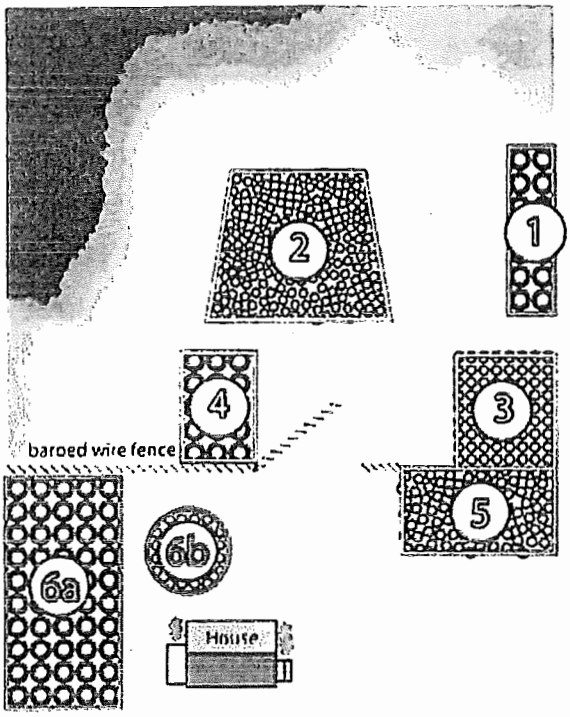


Exhibit 2. Example Tire Quantity Calculation

Pile No.	Description		Dimensions (yard)			Volume (CY) or No. of Tires	Density[3] (PTE/CY)	Quantity	
	Tire[1]	Pile[2]	Length	Width	Height			PTE or No. of Tires	Tons[4]
1	T	Horiz. Stacked	31	6	1	186	15.0	2,790	28
2	P	Loose	30	30/20	3	3,700	10.0	27,000	270
3	P	Stacked	20	15	1	300	13.0	3,900	39
4	T	Horiz. Stacked	10	15	1	150	15.0	2,250	23
5	P	Loose	25	15	1	375	10.0	3,750	38
6a	T	Horiz. Stacked	35	15	1	2,100	15.0	31,500	31.5
[illegible]	P	[illegible]	10	[illegible]	2	[illegible]	10.0	[illegible]	20
							TOTAL	73,190	449.5

CY = Cubic yards
PTE = Passenger tire unit value

[illegible]
[illegible]
[illegible]
[illegible]

Factors to Consider When Evaluating Impacts of Scrap Tire Stockpiles

IMPACT	Air	Water	Population
ISSUE	Impact of fire plume on residents, businesses, and regional air quality	Impact of contaminants in oil and residual ash on surface water or groundwater	Impact of existing stockpile on area residents
FACTORS TO CONSIDER	• Prevailing wind direction • Stockpile characteristics such as height, trees and brush, and fire lanes • Surrounding land use • Sensitive receptors such as schools, airports, and large public facilities (within 0.5- and 5-mile perimeter)	• Soil characteristics such as permeability • Aquifer characteristics such as water table depth and drinking water use • Site drainage • Surface water proximity • Sensitive receptors suc as wetlands, fisheries, or endangered species • Stockpile characteristics	• Population proximity • Mosquito species • Identified local/regional mosquito-borne diseases • Rodent/snake infestation • Stockpile characteristics

The potential impact on the general categories of air, water, and population are evaluated independently (based on data from the initial site evaluation) using a scale of 1 to 10 with 10 indicating the greatest potential impact. These three ratings are added and multiplied by the size factor. Factors to consider when evaluating the impact of a stockpile to air, water, and population density are shown in the figure above. Stockpile size is an important consideration, but impact is the controlling issue.

Stockpile sites are then prioritized based on the resulting rating totals, with the highest rating representing the highest priority. Sites generally fall into rating groups with numerical separations between the groups. Within groups, rating differences are generally small, and the abatement sequence can be based on site access, contractor availability, markets, or location. The figure below shows an example of the prioritization method.

Consistency is an extremely important component of any stockpile prioritization system, so the smallest possible number of evaluators should be used. Nevertheless, it can be beneficial to have two or three evaluators compare their ratings so that subjective inconsistencies can be identified and corrected. Ratings generated by a variety of people can be reviewed by a small, central staff to increase the consistency of the ratings.

Example Stockpile Prioritization

Site	Air Impact	Water Impact	Population Impact	Size	Site Score	Prioritization
A	9	10	9	4	112	High Priority
B	10	9	10	3	87	
C	5	9	5	2	38	Medium Priority
D	8	2	9	2	38	
E	4	4	4	3	36	
F	4	8	4	2	32	
G	8	2	7	1	17	Low Priority
H	1	2	1	4	16	
I	2	2	10	1	14	
J	1	2	2	2	10	

Stockpile Score = (Air Impact + Water Impact + Population Impact) * Stockpile Size

Coordinating Scrap Tire Abatement with Landfill Remediation in Illinois

Illinois EPA recently directed an abatement of its largest scrap tire site that was coordinated with a nearby state-funded landfill remediation project. The Coultas Recycling site in Danville, Illinois, contained about 1 million scrap tires. The inactive H&L landfill about 3 miles away posed environmental problems for the City of Danville and was being properly closed and capped by the Illinois EPA. A gas transmission system was required below the impermeable cap to maintain its integrity. The stockpiled tires were shredded on the Coultas Recycling site, transported to the landfill site, and spread over the top of the landfill (within geotextile encapsulation) to serve as a gas transmission medium under the impermeable cap. The shred layer was tapped to allow gas removal. One million tires were processed and removed from the stockpile site in 9 months with no impact on existing markets and at a lower cost than that of alternatives.

Some states use independent contractors or consultants to manage or perform stockpile prioritization in order to limit political influences. Using a technically sound prioritization process performed by unbiased evaluators also improves program effectiveness and efficiency.

MARKETS

Something has to be done with the scrap tires that are removed from stockpiles. Many states have constructively used scrap tires removed during remediation projects in civil engineering or other applications. Done properly, stockpile abatement can help to develop new markets or add supply volumes to existing markets. Done improperly, it can negatively impact existing markets and processors, even driving current-generation tires into stockpiles or landfills. Markets require various levels of processing ranging from shredding to metal and fiber removal, thus adding expense. Although it is not the preferred option, scrap tires may also be landfilled if their condition is not suitable for available markets.

Stockpiled tires are often contaminated with water, dirt, or other foreign materials that limit potential markets and increase processing costs. Some cement kilns that use whole tires and that can accept limited water and dirt contamination represent a market, but kiln capacity and fuel weighing can be negatively impacted by substantial contamination.

Because contamination can damage processing equipment and increase maintenance expenses, contractors try to minimize damage by producing large tire shreds (for example, 4 inches or larger without steel belts removed) for civil engineering applications. Examples include large highway embankment or lightweight fill projects that can consume 500,000 to 1,500,000 tires per project. In use of tire shreds for aggregate replacement during landfill construction, a range of tire shred sizes may be used, depending on the construction details of the liner and drainage system. Examples of landfill applications include use of tire shreds for daily cover, leachate collection layers, surface water drainage layers, and gas collection channels. Large chips with minimal processing requirements minimize abatement costs if they are technically acceptable.

Proper retrieval of tires from uncontaminated stockpiles can yield clean tires that can be processed into TDF or drain field products. In some cases, contractors choose to accept higher equipment maintenance costs and downtime to process dirty tires under abatement contracts. However, most crumb rubber producers generally do not accept abatement tires because of their impact on equipment and product quality.

Some legislative or regulatory measures require that all abatement tires be constructively used. Such a requirement can have the following impacts:

- **Damage of processing equipment:** Processing heavily contaminated or partially burned tires can cause equipment problems that delay stockpile abatement.
- **Market distortion:** Driving abatement tires to existing markets can displace products made from current-generation tires. This displacement can create market instability, cause processor attrition, and force current-generation tires into landfills or stockpiles.

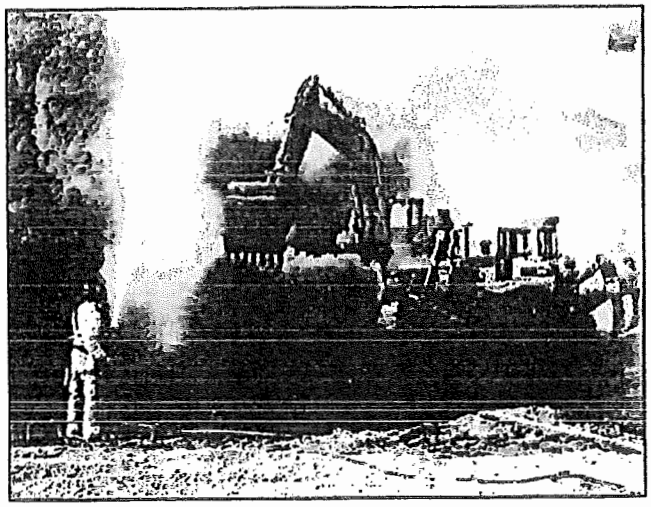


Photo courtesy of Todd Thompson, California IWMB

Creating new markets for abatement tires or rewarding contractors for creation of such markets is a critical component of an effective scrap tire program. Examples might include working with the state Department of Transportation (DOT), landfill owners and operators, and state agencies conducting landfill closures to identify scrap tire projects. Creating and specifying a new market can decrease abatement costs. At a minimum, the maximum percentage of existing markets displaced by abatement activities should be controlled even if it means extending cleanup schedules or allowing product storage under monitored conditions.

PROPERTY ISSUES

Scrap tire stockpiles are generally located on property that is owned and controlled by one or more individuals. Before a scrap tire remediation project begins, it is essential to obtain either a written property access agreement from the landowner or a court order granting property access for the purpose of tire removal. At many sites, a property boundary survey is also necessary to ensure that remediation work does not inadvertently extend over onto adjacent properties. If additional properties are involved, additional property access agreements or court orders will be needed.

Photo courtesy of Guy D. Adams, Alabama DEM

The following issues should be considered in dealing with properties :

- **Utilization:** A property can contain buildings, other structures, and utilities that would be useful to a contractor during on-site activities. If any of these items are to be used, a written agreement establishing the usage conditions, obligations, and compensation can prevent subsequent misunderstandings.
- **Damage:** States have been sued for damage done by contractors acting as their agents. In some cases, the damage has been done by others prior to initiation of cleanup activities. As a preventive measure, complete and dated sets of photographs before, during, and after site abatement is useful for documenting site conditions.

- **Restoration:** Water in tires and rain create muddy conditions in unstable soil under a stockpile. Heavy equipment can create deep ruts, and water runoff can erode surface soil. After tire retrieval, contractors are generally required to level heavily rutted land. In most cases, re-establishing vegetation will control erosion.

Recognizing a property's value while obtaining and maintaining the landowner's cooperation facilitates abatement operations. If the property owner will not cooperate, a court order must be obtained to enter the property and remove the scrap tires. State legislation can aid this process if laws are passed to create an administrative process for ordering scrap tire cleanups. One example is Ohio Revised Code 3734.85, which can be found at http://www.ohio.gov/government.htm.

COMMUNICATIONS

Stockpile abatement involves many groups, including contractors, local governments, politicians, and the press. Informing and coordinating these groups are critical components of successful scrap tire programs and abatement projects.

Contractors. Any special abatement project requirements should be clearly defined in detailed plans and specifications provided to prospective contractors prior to the bidding process. Examples of items that should be addressed in such plans include the following:

- Site description
- Tire quantity estimate
- Tire pile length, width, and height
- Operating procedures
- Fencing
- Lighting
- Security
- Fire lanes
- Pile removal sequence
- Stabilized access and perimeter roadways
- Control of vegetation, mosquitoes, and run-off
- Water source and distribution
- Fire plan
- Utilities
- Progress reporting

Many contractors have developed their own abatement methods to optimize the efficiency of cleanup operations based on years of experience. Experienced contractors should be invited to suggest alternative approaches. An initial description of the project should be developed to provide a sound foundation for project communications and to minimize the need for discussion of pre-planned activities. Example pre-bid documents prepared by the States of Iowa and Illinois are available at http://www.epa.gov/reg5rcra/wptdiv/solidwaste/tires/guidance/index.htm.

Elected Officials. Local and state elected officials are instrumental in creating and maintaining abatement programs. Providing updates on program implementation and abatement projects is important. Digital photographs, videotapes, or aerial photographs of sites before, during, and after abatement can be sent to state legislators in the district to maintain communications

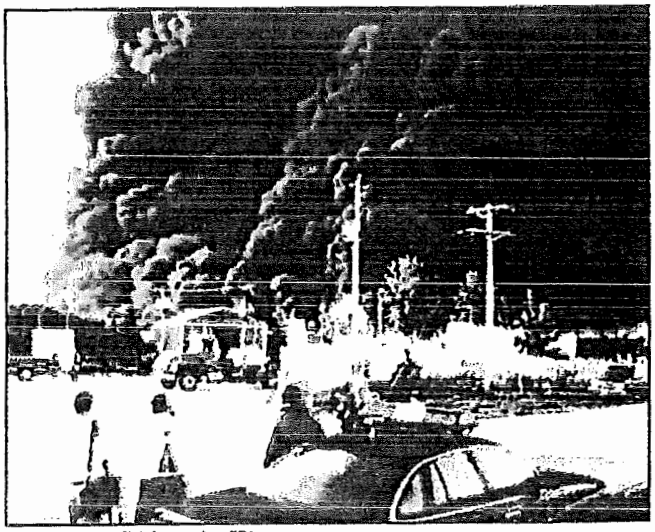


Photo courtesy of Bob Engel, USEPA

and build support. Inviting elected officials to see stockpile sites before and after cleanup also creates a good public relations opportunity.

Local Governments. Local administrators and police and fire departments can provide critical support services at little or no cost if they are included in project communications. Informing these groups about project plans and associated benefits to the community enhances cooperation. Discussing security and fire control measures with local departments before the project starts increases the probability of a successful response if needed. A contact list that includes emergency response contacts and procedures should be provided to all project participants.

Press. Publicity allows citizens to understand an abatement program and the value received for public fees. In addition, publicity allows politicians and program participants to be recognized for accomplishing removal objectives. However, drawing attention to stockpile abatement projects can have undesired effects. Many fires are actually started by site operators or local residents in the wake of publicity over cleanup activities. One of the largest tire fires in Canada, which involved an estimated 10 million tires, was started by teenagers attracted to the site by local publicity. One approach is to issue a press release highlighting the last scrap tire being thrown onto a truck by a local community leader; the release can include site photographs taken before and during abatement.

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Appendix K

EMERGENCY AND FIRE PREPAREDNESS GUIDELINES

Taft Recycling, Inc.
Taft Transfer Station/Waste Processing & Material Recovery Facility
375 W. 7th Street, Orlando, Florida 32824

Prepared for:

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Revised January 2016

HSA Golden Project No. 06-404.022

EMERGENCY AND FIRE PREPAREDNESS GUIDELINES
Taft Transfer Station/Waste Processing & Material Recovery Facility

Table of Contents

Figures

Note: The majority of the procedures and text herein are supplied by the Orange County Fire Rescue Department

EMERGENCY AND FIRE PREPAREDNESS GUIDELINES
Taft Transfer Station/Waste Processing & Material Recovery Facility

1.0 PURPOSE

This document is to be used as a guideline for procedures and preparedness in the event that a major fire and/or emergency were to take place within the Taft Recycling, Inc. (TRI) Taft Transfer Station/Waste Processing & Material Recovery Facility (Facility). Copies of this report will be kept in the Administrative and Scalehouse Offices. The procedures outlined in the Emergency and Contingency Plan provided in Section 2 of the facility's Operation Plan will be followed in conjunction with the guidelines presented herein. Additionally, site personnel will participate in developing a pre-incident plan with the Orange County Fire Rescue Division as requested.

1.1 Site Location and Access

The TRI waste processing facility and transfer station is authorized to accept construction and demolition (C&D) debris, Class III waste, and Class I waste (municipal solid waste). TRI currently processes Class III and C&D wastes for recoverable materials such as clean wood, concrete, paper, cardboard, metals, glass, and waste tires. Non-recyclable wastes are transferred to a Class I disposal facility. TRI is located at 375 West 7th Street, which is one-half mile west of Sidney Hayes Road, Orlando, Florida (see Figure 1). Primary access to the site is from U.S. 441; or Orange Avenue, to East Landstreet Road, to Sidney Hayes Road, then south to 7th Street. The site may also be accessed from Taft-Vineland Road, to Recycle Center Road, then north to 7th Street. The permitted site operating hours are: Sunday through Saturday, 24 hours/day.

The site is manned by TRI employees during all operating hours and the site's access gate is locked at all other times. Although not required by facility permits, a guard is presently stationed at the locked entrance gate during non operating hours for further security. If needed, TRI may evaluate the future need for this service. A Fire Department lockbox will be located at the gate for those hours when an attendant is not on site. The location of the lockbox will be determined by the OCFRD. The names and 24-hour contact numbers of facility personnel who can respond and operate equipment within 30 minutes are posted on the facility entrance gate.

1.2 Notification in Case of an Emergency or Fire

Orange County Fire and Rescue Department (OCFRD) Communications Center must be contacted immediately upon all fires on the property. The Florida Fire Prevention Code requires the following: In the event that a fire occurs on any property, the owner or occupant shall immediately report such fire to the Fire Department (911).

Emergency contact numbers are provided below:

Orange County Fire Rescue Department	911
Michael Kaiser, Region Engineer - Mobile	(904) 673-0446
TRI Scalehouse	(407) 851-0074
Bob Walls, Post Collections District Manager - Mobile	(321) 316-7920
Roberto Gonzalez, Division Manager - Mobile	(407) 921-2641
FDEP Main Receptionist	(407) 897-4100

The Operator of the site will first and immediately notify OCFRD (911). The Operator shall then notify Florida Department of Environmental Protection (FDEP) (407-897-4100) and Orange County Environmental Protection Division (OCEPD) (407-836-1400) in case of a fire or other emergency that poses an unanticipated threat to the public health or the environment. Within two weeks of any emergency, the Operator of the site will submit to the FDEP and OCEPD a written report on the emergency. This report will describe the origins of the emergency, the actions taken to control the emergency, the results of the action taken, and an evaluation of the success or failure of the actions.

1.3 Fire Protection and Fire Fighting Facilities

The TRI WPF/TS has sufficient fire protection and fire fighting facilities. Three fire hydrants exist to serve the 19,000 square foot waste transfer building; 2,400 square foot material sorting building; 560 square foot administration and scalehouse building, and outside material storage areas (see Figure 2, Site Plan). Fire flow calculations are also noted on Figure 2.

Supplemental fire protection is to be furnished by the OCFRD. Further details of fire fighting procedures containment and extinguishment follow. Methods of fire suppression will ultimately be determined by OCFRD command for the different types of fires that may be encountered (structure, vehicle, solid waste). The various methods of suppression are as follows:

- Separation
- Soil suppression
- Foam
- Copious amounts of water

Specialized fire fighting equipment and materials, required by OCFRD Command, will be provided solely at the owner's expense to protect the public health and environmental issues.

1.4 Equipment Inventory

Figure 2 depicts the location of existing fire hydrants and hose reels on the TRI facility. One hydrant is located at the southeast area of the site (adjacent to the wood mulching operations), a second hydrant is located at the mid area of the site (west of the sorting building trommel screen), and a third hydrant is located northeast of the scalehouse (at the north end of the visitor parking area). Hose reels with 500 feet of fire hose, wrenches and nozzles are located adjacent to each hydrant. Each hydrant is inspected and flow tested on an annual basis by a licensed contractor.

Heavy equipment used at the facility includes the following, or its' equivalent:

- Front-End Loader (2)
- Excavator with Grapple (2)
- Fork Lift - Primary (2)
- Front-End Loader - Primary (1)
- Excavator - Primary (1)
- Compactor - Primary (1)
- Horizontal Portable Wood Grinder - Primary (1)

Fire extinguishers in accordance with Chapter 10 of the NFPA are provided on each piece of heavy equipment operating at the facility and within all facility buildings. Each piece of fuel-powered equipment used to handle scrap tires will have one dry chemical fire extinguisher with a minimum rating of 4A:40BC.

In accordance with Chapter 33, Section 33.4.1, of the NFPA Uniform Fire Code, the following manual firefighting equipment is located at the facility in support of the waste tire storage and processing operations:

1. One 2A:10BC fire extinguisher
2. One 2.5 gallon (10L) water extinguisher
3. One 10 foot long pike pole
4. One rigid rake
5. One round point shovel
6. One square point shovel

All fire fighting equipment stored at the facility is inspected on a weekly basis. All fire extinguishers are serviced as needed, or on a minimum annual basis.

1.5 Safety Devices

All heavy operating equipment at the facility will be fitted with protective structures and fire extinguishers as noted in the previous section. Personnel safety gear, such as hard hats, safety glasses, and steel toed shoes, are required for operational personnel. The above safety devices will be provided solely at the owner's expense.

1.6 Emergency Access

In the event of a fire, waste materials originally destined for the facility will be rerouted to another permitted site. The site access roads are currently constructed to allow passage of vehicles under all expected weather conditions. Pavement exists at 7th Street to the facility entrance, and the entire

facility is paved outside of all building footprints and the stormwater pond. These paved areas provide suitable access for all emergency vehicles. The access roadways shall be maintained with an all-weather surface, minimum 20'-0" wide with a 13'-6" vertical clearance, and shall accommodate fire apparatus with a minimum weight of 42 tons.

1.7 Communication Facilities

Telephone service is present at the scale. In addition, site supervisors and equipment operators will be equipped with two-way radios or mobile phones. All emergency numbers (i.e., 911, fire department, police department, etc.) will be posted at the scale house. One additional two way radio or mobile phone will be available on site for emergency fire department command officer.

1.8 Waste Tire Processing Area

TRI plans to store whole waste tires in 40-cubic yard (cy) steel roll-off containers stationed north of the wood recycling area as shown on the attached Site Plan (Figure 2). The number of whole waste tires stored at the facility at any one time will depend on the type of tire (passenger or heavy truck) and the number of 40 cy roll-off containers that are stationed in the designated storage locations. The dimensions of a 40 cy roll-off container are approximately 20'L x 8'W x 6'H. As shown on Figure 2, approximately 17 containers can be neatly stationed in the area shown, while maintaining a minimum 25-foot fire lane from interior site fencing and structures and five feet separation between the roll-off containers. Additionally, roll-off containers will be kept a minimum of 50 feet away from all property boundary fencing, as shown on Figure 2. This will allow for 10 containers to store whole tires, six containers for processed tires, and one container for residuals. A photograph representing a typical roll-off container is provided as Attachment 1. No smoking signs will be posted near the tire containers and processing area. Additional operation details of the waste tire storage and processing operations are provided in Section 4 of the facility's Operation Plan.

1.8.1 NFPA Uniform Fire Code, Chapter 33 Compliance

TRI does not plan to store tires in piles at the facility, but rather inside steel roll-off containers; therefore, the requirements that reference "tire piles" in Chapter 33 of the NFPA should not strictly apply. However, the following describes TRI's plan to comply with applicable NFPA 33 Sections.

33.1.1 Facilities storing more than 500 tires outside shall be in accordance with Chapter 33.

More than 500 tires will be stored in roll-off containers at the facility.

33.1.2 Permits. Permits, where required, shall comply with Section 1.12

TRI has a Waste Tire Storage and Processing Facility Permit from the FDEP, Orange County EPD, and an operating license from the Orange County Solid Waste Division.

33.1.3 Fire department access roads to separate tire piles and for effective fire-fighting operations shall be in accordance with Table 33.1.3.

TRI will store tires in steel roll-off containers and five feet separation will be maintained between the containers. Containers will be kept a minimum of 50 feet from the property boundary fencing. A minimum 25-foot fire lane will also be maintained around the perimeter of the containers. Table 33.1.3 references exposed face dimensions and pile heights for storage of tires on the ground. This doesn't apply to the storage of waste tires in containers at the facility.

33.1.4 Separation of yard storage from buildings, vehicles, flammable materials, and other exposures shall be in accordance with Table 33.1.3.

The tire storage and processing area will be located at least 100 feet away from buildings, vehicles, and flammable materials as shown on the Site Plan (Figure 2). As previously noted, Table 33.1.3 references separation distances based on storage of tires on the ground.

33.1.5 Trees, plants, and vegetation within the separation areas shall be managed in accordance with Section 10.14

There will be no trees, plants, and vegetation in the tire storage and processing area.

33.1.6.1 Smoking shall be prohibited within the tire storage area.

TRI will prohibit smoking and post "Non-Smoking" signs in the tire storage and processing area.

33.1.6.2 Sources of ignition such as cutting and welding, heating devices, and open fires shall be prohibited within the tire storage area.

TRI will prohibit the use of cutting and welding, heating devices, and open fires within the tire storage area.

33.1.6.3 Safeguards shall be provided to minimize the hazard of sparks from equipment such as refuse burners, boiler stacks, and vehicle exhaust, when such hazards are located near tire storage areas.

If necessary, safeguards will be provided to minimize the above referenced hazards.

33.1.7 Piles of tires or altered tire material shall not be located beneath power lines or structures.

Whole tires and altered tire material stored in roll-off containers will not be located beneath power lines or structures as shown on the Site Plan (Figure 2).

33.1.8 Piles of tires or altered tire material shall be at least 50 feet from the perimeter fence.

Piles of tires or altered (processed) tire material will not be stored on the ground. Tires and altered tire material will be stored in steel roll-off containers. A 25-foot fire lane will be

maintained around the perimeter of the containers with five feet of separation between the containers. Containers will be kept a minimum of 50 feet away from all property boundary fencing. The steel roll-off containers provide an additional fire barrier and protection from further propagation.

33.1.9 Provisions for surface water drainage and measures to provide protection of pyrolitic oil runoff shall be directed around and away from the outdoor tire storage site to an approved location.

TRI has a FDEP approved stormwater management system in place at the facility. Stormwater runoff from the waste tire storage and processing area is directed towards inlets leading to the stormwater retention pond as shown on the Site Plan (Figure 2). TRI will store a sufficient supply of absorbent sock materials at the facility for use in controlling possible pyrolitic oil runoff from reaching the stormwater management system in the event of a fire. Additionally, the stormwater retention pond allows for significant storage of stormwater runoff prior to discharge offsite. This will allow additional time to absorb any possible pyrolitic oil that may reach the stormwater pond in the event of a fire.

33.1.10 Tires shall be removed from rims immediately upon arrival at the storage site.

TRI will not accept rimmed tires at the facility. In the event a rimmed tire is inadvertently received, the rim will be removed from the waste tires prior to storage at the designated location.

33.1.11 Tires shall not be stored on wetlands, flood plains, ravines, canyons, or steeply graded surfaces.

The proposed tire storage and processing area will not be located on wetlands, flood plains, ravines, canyons, or steeply graded surfaces as shown on the Site Plan (Figure 2).

33.2.1.1 New individual outside storage piles containing more than 500 tires shall be limited in volume to 125,000 ft^3.

A total of (17) 40-cubic yard roll off containers will be associated with the proposed waste tire storage and processing operation, or a total storage volume of 680 cubic yards or 18,360 cubic feet.

33.2.1.2 The dimensions of new tire storage piles shall not exceed 10 feet (3m) in height, 50 feet (15m) in width, and 250 feet (75m) in length.

TRI will not store tires in piles on the ground. Tires will be stored in steel roll-off containers which are 20 feet long by 8 feet wide by 6 feet high.

33.2.1.3 Individual piles shall be separated in accordance with Table 33.1.3.

As previously noted in 33.1.3 & 33.1.4, tires will be stored in steel roll-off containers and not in individual piles on the ground. Five feet of separation will be maintained between the roll-off containers.

33.3.1 The operator of the outside tire storage facility shall develop an emergency response plan and submit it for approval by the AHJ.

This Emergency and Fire Preparedness Plan has been developed for the TRI tire facility and will be submitted for approval by the OCFRD. An Emergency and Contingency Plan is included in Section 2 of the facility's Operation Plan required by the FDEP. A copy of the Plan has been provided to the OCFRD for review and approval.

33.3.2 The AHJ shall retain a copy of the approved emergency response plan.

A copy of this plan will be on file with OCFRD, OCEPD, and FDEP.

33.3.3 The operator of the outside tire storage facility shall keep a copy of the approved emergency response plan at the facility.

A copy of this approved Emergency and Fire Preparedness Plan will be kept onsite at all times at the administration and scalehouse offices.

33.3.4 The AHJ shall be immediately notified of and approve any proposed changes to the emergency response plan.

This Emergency and Fire Preparedness Plan will be updated as operations and facility personnel change. Updated copies of the plan will be forwarded to the appropriate agencies including OCFRD, OCEPD and FDEP.

33.4 Fire Control Measures. Measures to aid in the control of fire shall be in accordance with Section 33.4

Please refer to Section 1.4 of this plan and the below items.

33.4.1.2 One dry chemical fire extinguisher with a minimum rating of 4A:40BC shall be carried on each piece of fuel-powered equipment used to handle scrap tires.

One dry chemical fire extinguisher with a minimum rating of 4A:40BC will be carried on each piece of fuel-powered equipment used in conducting operation of the waste tire storage and processing operations.

33.4.1.3 On-site personnel shall be trained in the use and function of this equipment to mitigate tire pile ignition.

TRI personnel will be trained on a minimum annual basis in the operation and use of fire mitigating equipment.

33.4.2 An approved water supply capable of supplying the required fire flow to protect exposures and perform fire suppression and overhaul operations shall be provided.

The facility is serviced by a six-inch diameter fire water main. Three fire hydrants are located on the facility at the locations described in Section 1.3 of this plan. Figure 2 shows the locations of the hydrants and their locations relative to the proposed waste tire processing area.

33.5.1 Access to the site and each tire storage yard and pile shall be in accordance with Section 18.2 of this section.

Access to the tire storage area is controlled by gated access and an eight-foot chain-link perimeter fence with screening slats and two feet of barbed wire on top.

33.5.2 Access shall be maintained clear of combustible waste or vegetation and shall remain accessible to the fire department at all times.

The waste tire storage and processing area is located in an asphalt paved location. TRI will maintain clear access to the tire storage area at all times and will maintain the area clear of combustible waste or vegetation.

33.6 Signs and Security. Access by unauthorized persons and security of the site shall be in accordance with Section 33.6.

Access to the tire storage area by unauthorized persons will be prevented by a secured perimeter and facility personnel during operating hours. Supervisors and equipment operators maintain constant oversight of customers using the facility, and will direct customers to the waste tire storage area and monitor offloading into the proper roll-off container to prevent unauthorized activities.

33.6.1 Signs bearing the name of the operator, the operating hours, emergency telephone numbers, and site rules shall be posted at site entrances.

A sign is posted at the gated entrance at 7th Street listing the information required in 33.6.1.

33.6.2 The facility shall have noncombustible fencing at least 10 feet (3m) high with intruder controls on top, in accordance with local laws, around the entire perimeter of the property.

As noted in previous sections, an eight-foot high chain-link security fence with screening slats and two feet of barbed wire on top surrounds the entire facility perimeter as shown on the Site Plan (Figure 2).

33.6.3.2 An attendant shall be on site at all times when the site is open.

An attendant, including supervisors and equipment operators, will be on site at all times the facility is open.

33.7.1 A 10 feet (3m) fence shall be maintained around the altered tire material storage area.

As noted in previous sections, an eight foot high chain-link security fence with screening slats and two feet of barbed wire on top is located around the entire facility perimeter.

33.7.2 Altered tire material piles shall be kept 50 feet (15m) from perimeter fencing.

Altered (processed) tire material will be stored in steel roll-off containers, and kept 50 feet. from all site boundary fencing.

33.7.3 Potential ignition sources such as welding, smoking, or other open flame uses shall not be allowed within 20 feet (6m) of the altered tire pile.

TRI will prohibit the use of potential ignition sources such as welding, smoking, or other open flame uses within 20 feet of the altered (processed) tire storage area.

33.7.4 Individual altered tire piles shall not be located on site in excess of 90 days.

Altered (processed) tires will be removed from the site within 48 hours.

33.7.5 Individual altered tire material piles shall be kept sheltered from precipitation.

Altered (processed) tire material will be stored in steel roll-off containers and not in piles. While staged onsite, roll-off containers containing altered (processed) tires will be completely tarped (with no openings) to prevent precipitation from entering the containers.

2.0 FIRE SUPPRESSION METHODS AND PROCEDURES

The following sections describe various fire prevention and suppression methods, but do not supersede the methods used by the responding fire department. TRI personnel must work together with the OCFRD personnel by providing heavy equipment, soil, water and logistical support during a fire or emergency. OCFRD command officers will be in charge of the scene upon arrival and work closely with the TRI personnel to mitigate any emergency situation. Emergency operations will adhere to OCFRD Standard Operating Procedures. Structural and vehicle fires will be suppressed in accordance with Emergency Operation Guidelines.

Operational Fire Prevention NFPA 23011.2.2

11.2.2.1 Combustible waste materials such as bark, sawdust, chips, and other debris shall not be permitted to accumulate in a quantity or location that constitutes an undue fire hazard.

11.2.2.2 Smoking shall be prohibited except in specified safe locations approved by the authority having jurisdiction. Signs that read "No Smoking" shall be posted in those areas

where smoking is prohibited (including the waste tire processing area), and signs indicating areas designated as safe for smoking shall be posted in those locations.

(A) Smoking areas shall be provided with approved, noncombustible ash receptacles.

11.2.2.3 Access into yard areas by unauthorized persons shall be prohibited.

11.2.2.4 Storage areas shall be enclosed with a suitable fence equipped with proper gates located as necessary to allow the entry of fire department apparatus.

11.2.2.5 Miscellaneous occupancy hazards such as vehicle storage and repair shops, cutting and welding operations, flammable liquid storage, liquefied petroleum gas storage, and similar operations shall be safeguarded in accordance with recognized good practice.

11.2.2.6 Reference shall be made to NFPA standards that apply to specific occupancy hazards.

11.2.2.7 Vehicles and other power devices shall be of an approved type and shall be safely maintained and operated.

(A) Vehicle fueling operations shall be conducted in specified safe locations, isolated from storage areas and principal operating buildings.

(B) Diesel- or gasoline-fueled vehicles that operate on hogged material or chip piles, in log storage areas, or in lumber storage areas shall be equipped with fixed fire-extinguishing systems of a type approved for off-road vehicles.

11.2.2.8 All electrical equipment and installations shall conform to the provisions of NFPA 70, *National Electrical Code®*.

11.2.2.9 Salamanders, braziers, open fires, and similar dangerous heating arrangements shall be prohibited.

11.2.2.10 Heating devices shall be limited to approved-type equipment installed in an approved manner.

11.2.2.11 Suitable safeguards shall be provided to minimize the hazard of sparks caused by equipment such as refuse burners, boiler stacks, vehicle exhausts, and locomotives.

11.2.2.13 Cutting, welding, or other use of open flames or spark-producing equipment shall not be permitted in the storage area unless by an approved permit system.

11.2.3 Exposure Protection. Exposure to the yard shall be protected in accordance with the requirements of 11.2.3.1 through 11.2.3.2.

11.2.3.1 Yard areas shall be separated from plant operations and other structures so that fire exposure into the yard is minimized.

(A) Minimum separation shall be by means of a clear space permanently available for fire-fighting operations.

(B) The width of the clear space shall be based on the severity of exposure, which varies with the area, height, occupancy, construction, and protection of the exposing structure and the type of stacking and height of adjacent stacks.

11.2.3.2 Forest, brush, and grass fire exposure shall be minimized by providing adequate clear space that is carefully kept free of combustible vegetation.

(A) Clear space of a width at least equivalent to the driveway shall be provided for grass exposures, and clear space of a width not less than 30 m (100 ft) shall be provided for light brush exposures.

(B) In forested areas, a wider clear space shall be provided.

11.4.1.1 The intent of the provisions of Section 11.4 shall be to provide minimum fire protection requirements to minimize the fire hazard in large yard storage areas containing lumber, wood panels, and other similar wood products not intended for retail or wholesale distribution at the site.

11.4.1.2 In addition to the provisions contained in Section 11.4, the provisions outlined in Section 11.2 shall apply to all large yard storage areas for lumber and wood panel products at other than retail or wholesale yards.

11.4.2 General. The fire hazard potential inherent in forest product storage operations with large quantities of combustible material shall be controlled by a positive fire prevention program under the direct supervision of upper level management that shall include the following:

(1) Selection, design, and arrangement of storage yard areas and materials-handling equipment based on sound fire prevention and protection principles;

(2) Means for early fire detection, transmission of alarm, and fire extinguishment;

(3) Driveways to separate large stacks and provide access for effective fire-fighting operations;

(4) Separation of yard storage from mill or other plant operations and other exposing properties; and

(5) Effective fire prevention maintenance program, including regular yard inspections by trained personnel.

2.1 Fire and Emergency Response

TRI personnel are expected to immediately respond to a fire or emergency if the area or situation can be safely accessed. TRI's ability to provide initial response to a fire or emergency could be the difference between a controlled or an out-of -control situation. Upon notification by TRI of a fire at the facility, OCFRD will respond to ensure adequate fire control. OCFRD is to be notified immediately of any fire at the TRI property.

2.1.1 Practice Emergency Plan

An effective fire prevention maintenance program, including suppression operations and regular yard inspections, shall be practiced periodically by trained personnel. OCFRD review is limited solely to ensuring compliance with the minimum criteria as set forth in the applicable section of Florida Administrative Code, and is not intended to guarantee the effectiveness of the plan. To enhance the plan's effectiveness, the Florida Fire Prevention Code requires that it be exercised periodically and that the facility staff be briefed and trained on procedures so that the plan can be implemented at a moment's notice.

2.1.2 Extinguisher Training

Designated employees shall be instructed in the use of portable fire extinguishers on a minimum annual basis.

2.2 Construction of a Fire Lane

The function of a fire line is to provide a barrier to contain the fire boundaries. The following procedures should be followed during line construction to contain a fire:

- Remove all ground cover and debris along the fire line;
- Use natural barriers such as working faces, trenches, etc.;
- Separate burned and unburned materials; and
- Construct a fire line to bare soil, free of leaves, twigs, roots, disposed debris, etc.

A site perimeter road is available within the buffer areas to allow truck access (see attached Figure 2, Site Plan).

As shown on Figure 2, a 25-foot fire lane will be maintained around the perimeter of the waste tire storage and processing area.

2.3 Use of Heavy Earth Moving Equipment

The use of heavy earthmoving equipment to suppress fires is effective because fire line construction can be completed at a faster rate. Orange County Fire Rescue will support and protect heavy equipment operators by way of exposure lines and oversight. Caution must be taken to prevent earthmoving equipment from working alone out in front of a fire. Because they have no fire extinguishing capability other than removal of fire fuel, they can easily be overrun by a fast−moving fire. TRI personnel will be expected to operate the on-site heavy equipment to assist in fire suppression and separate materials immediately and suppress burning materials with soil. OCFRD will maintain control and have oversight of all emergency operations.

2.4 Water Supply and Use

Three fire hydrants are located on the facility property. One hydrant is located at the southeast area of the site (adjacent to the wood mulching operations), a second hydrant is located at the mid area of the site (west of the sorting building trommel screen), and a third hydrant is located northeast of the scalehouse (at the north end of the visitor parking area). Hose reels with 500 feet of fire hose, wrenches and nozzles are located adjacent to each hydrant

2.5 Personnel Safety and Fire Control

Fighting fires is a dangerous activity and could cause serious injury or fatality if hurried or incorrect decisions are rendered. Remember: the safety of personnel and equipment always comes first. The following standards are adopted from the U.S. Forest Service and are a good rule to follow when encountering a fire:

- **Keep informed of fire weather conditions and forecasts**. Be aware of the weather conditions, particularly to direction and velocity of the wind.
- **Know what your fire is doing at all times**. Many small fires become large if not kept under constant observation.
- **Base all actions on the current and expected behavior of the fire**. The action taken should be determined by everything that is happening and everything that might happen. Every fire has to be approached differently because of the changing conditions encountered.
- **Have escape routes for everyone and make them known**. Identify escape routes and notify personnel where they are and what to do when they get to the safety zone. Use natural barriers as much as possible.
- **Post a lookout when there is a possible danger**. A lookout observer, with communications capability, can view the "large picture" of the fire containment process and can see if any potential danger may exist for those fighting the fire directly.
- **Be alert, keep calm, think clearly, act decisively**. When faced with a situation, think, know, understand what is happening and keep calm. Panic can injure personnel.
- **Maintain prompt communication with personnel, supervisor and adjoining forces**. Adequate communication is essential to good fire control safety.
- **Give clear instructions and be sure they are understood**. Issue concise instructions and make sure the personnel understand the directions precisely.
- **Maintain control of personnel at all times**. When issuing assignments, one consideration should be the reliability of the personnel. Other considerations will include inspection of tools and coordination of available equipment.
- **Fight fire aggressively, but provide for safety first**. Aggressive action is the key to fire suppression, but it must neither shortcut nor violate any safety rule covering a particular situation.

2.6 Protective Clothing

One of the best ways to prevent injury during a fire is to wear gloves, goggles, and protective clothing including proper footwear. Gloves should be comfortable and the right size to prevent abrasions and blisters. Goggles should have vents in the side and should be designed for the greatest possible field of vision. Lace-up boots are preferred, especially for uneven terrain. Heavy socks should be worn with boots.

3.0 FIRE INVESTIGATION

When determined by the OCFRD, fire investigation will be referred to the State Fire Marshall's Office and/or the Division of Forestry for further investigation. Safety of the fire department and TRI personnel will be the primary concern.

4.0 DISPOSAL OF BURNED DEBRIS

The burned debris will be isolated as much as practicable from the rest of TRI facility using various means such as earthern berms, pits, transport bins, etc. Once all hot spots have cooled and the fire fully suppressed, the remains of burned debris will be transported off-site to an appropriate disposal facility. Oily residuals from burned tires will be stored in sealed roll-off containers or drums until transported to a proper disposal facility.

The aforementioned TRI operation is in compliance with Orange County Ordinance #92-22 and the permit fee of $70.00 has been paid to the OCFRD.

The undersigned, as of this date, approve this agreement.

Mr. Otto Drozd, Fire Chief
Orange County Fire Rescue Department

Date: _____

Mr. Michael Kaiser, P.E.
Region Engineer
Taft Recycling, Inc.

Date: 2/2/16

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Appendix K. Figures

01-FIG.dwg

FIGURE	PROJECT #	SITE LOCATION MAP	TAFT TRANSFER STATION / WASTE PROCESSING & MATERIAL RECOVERY FACILITY ORANGE COUNTY, FLORIDA
1	06.404.022		

hsagolden engineering environmental solutions
11 LAKE GATLIN ROAD
ORLANDO, FL 32806
P: 407.649.5475 F: 407.649.6582
HSAGOLDEN.COM

JANUARY 2016

N

0 40 80

DISTANCE IN FEET

24 BLOCK "H"
OWNER: MOBILE FIELD OFFICE CO.

23 BLOCK "H"
OWNER: JAMES E. STRATES

22 BLOCK "H"
OWNER: PAUL STRAUBINGER

8' CHAIN LINK FENCE W/ 2' BARBED WIRE

STORMWATER OUTFALL STRUCTURE TO BOGGY CREEK

STORMWATER POND

6' CHAIN LINK FENCE

SEE NOTE 1

TRANSFER BUILDING

TRANSFER TRUCK LOADING

CLASS I TIPPING FLOOR

CLASS III C&D TIPPING FLOOR

METAL GARAGE NOT IN USE

CONCRETE

EMPTY ROLL-OFF CONTAINER STORAGE AREA (NOT PAVED)

FIRE HYDRANT

435'

STORMWATER INLET

EMPLOYEE AND VISITOR PARKING AREA

FE 98.24

RSM STORAGE (COVERED)

LOOSE ALUMINUM CAN STORAGE AREA

RECYCLED METALS/BALED ALUMINUM STAGING AREA

(1) 40 C.Y. ROLL-OFF CONTAINER TIRE RESIDUALS STORAGE

5' (TYP.)

90'

FIRE HYDRANT

TROMMEL SCREEN AND CONVEYOR

STAIRS

BUILDING OVERHANG

PLASTIC, PAPER, ALUMINUM, AND GAROBOARD STORAGE FROM SORTING OPERATIONS

LOOSE CONTAINER BOARD/FEED TO BALER

TWO STORY SORTING BLDG.

(6) 40 C.Y. ROLL-OFF CONTAINERS PROCESSED TIRE STORAGE

6' CHAIN LINK FENCE

FIRE LANE

25.00'

50.0'

WASTE TIRE STORAGE AND PROCESSING AREA

8'x20' CONTAINERS MIN. 5' SEPARATION

MOBILE WASTE TIRE SHREDDER

(10) 40 C.Y. ROLL-OFF CONTAINERS WHOLE TIRE STORAGE

STORMWATER INLET

200'

13' METAL WALL

RECOVERED MATERIAL STAGING AREA

BALER RECYCLING EQUIPMENT

BALED PAPER AND CONTAINER BOARD STAGING AREA

RECYCLED BALED PLASTIC STAGING AREA

FWM

TRUCK LOADING DOCK

6" CURB

GRASSED AREA

CONCRETE RETAINING WALL

WOOD RECYCLING AREA

FIRE HYDRANT

STACKED CONCRETE COLUMN RETENTION WALL

STORMWATER OUTFALL STRUCTURE TO BOGGY CREEK

24" CPP

8' CHAIN LINK FENCE W/ 2' BARBED WIRE

6" FIRE WATER MAIN (FWM)

8' CHAIN LINK FENCE W/ 2' BARBED WIRE

56 BLOCK "H"

55 BLOCK "H"

54 BLOCK "H"

53 BLOCK "H"

"H"

LESS THE WEST 40'

8' CHAIN LINK FENCE W/ 2' BARBED WIRE

40' PLATTED R/W PER P.B. "D", PG. 100

BOGGY CREEK CANAL

WEST LINE OF LOT 41

EAST TOP OF BANK OF CANAL

OWNER: ORANGE COUNTY

FIRE LANE

TRUCK SCALE

SCALE OFFICE

SCALE BY-PASS LANE

GRASSED AREA

SEPTIC FIELD

CONCRETE SLAB

OFFICE AND MAINTENANCE GARAGE

LANDSCAPED AREA

ASPHALT PAVEMENT

GRASSED AREA

RECYCLING CONTAINER STORAGE AREA

EDGE OF PAVEMENT

7TH STREET

ENTRANCE GATE (20' SWING EACH SIDE)

8' CHAIN LINK FENCE W/ 2' BARBED WIRE

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

CREDIT ALLOWED = 1 EXISTING FIRE HYDRANT WITHIN 300'
+ 1 EXISTING FIRE HYDRANT WITHIN 600'
= 1000 G.P.M. + 670 G.P.M.
= 1670 G.P.M.

ADDITIONAL FIRE FLOW REQUIRED = 2258.5 G.P.M. - 1670 G.P.M.
= 588.5 G.P.M.
PROPOSED FIRE HYDRANT CREDIT = 1000 G.P.M.
THEREFORE FIRE FLOW REQUIREMENT MET.

hsg golden engineering environmental solutions
11 LAKE GATIN ROAD
ORLANDO, FL 32806
P: 407 649-5475 F: 407 649-6582
HSAGOLDEN.COM

TAFT TRANSFER STATION / WASTE PROCESSING & MATERIAL RECOVERY FACILITY
ORANGE COUNTY, FLORIDA

SITE PLAN

PROJECT # 06-404.022

FIGURE 2

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Section 5.
Financial Assurance Cost Estimate

TAFT TRANSFER STATION/WASTE PROCESSING & MATERIAL RECOVERY FACILITY
CALCULATIONS, ASSUMPTIONS AND SUPPORTING INFORMATION
CLOSURE COST ESTIMATE FOR FINANCIAL ASSURANCE

February 8, 2016

The closure cost estimate shown on Table 1 (attached) is based on the table of Material Disposition, Appendix H, Operation Plan. The closure cost estimate includes the cost of loading, transporting, and disposal of the maximum on-site storage of recyclable materials which may be at the Facility at any time. The estimate considers a third party performing the work and is signed and sealed by a registered professional engineer. The assumptions and supporting documentation used to prepare the closure cost estimate in Table 1 are summarized below.

- Loading of Class I, III, C&D and non-processed/non-baled recyclable materials provided by RCS Excavation, Inc.

- Transport of Class I, III, C&D and non-processed/non-baled recyclable materials provided by Stafford Trucking.

- Loading, transport and end disposal of processed/baled cardboard, aluminum, glass, plastic, metal and paper was assumed at the Orange County Landfill. Although these materials would likely have commodity value, a worst case assumption was made in the closure cost estimate to allow for disposal.

- Disposal rates for Class I, III, C&D and non-processed/non-baled recyclable materials provided by Orange County Landfill. The Orange County Landfill is the closest facility that could accept these types of wastes.

- Handling and loading of recovered concrete/asphalt will be provided by RCS Excavation, Inc. Transportation will be provided by Stafford Trucking. It is assumed that these materials will be accepted at the facility adjacent to TRI for no disposal cost.

- Transport and recycling of whole tires quoted by RMD Americas of Florida, LLC, RMD will transport and recycling whole tires at the rate provided. Loading of whole tires from roll-off containers to RMD's trucks will be completed by RCS Excavating, Inc. at the rate provided.

- Processed tires and residuals will be directly transported to Orange County Landfill for use as daily cover or direct disposal in the Class I landfill. Assumed disposal rate for Class I refuse would apply.

- Costs for final cleaning/washdown, removal of household hazardous waste, and any final sampling and analysis are based on general estimating experience.

Upon approval of this closure cost estimate, Taft Recycling, Inc. will renew the financial assurance instrument for the Facility.

Prepared by: _____ Date: 2/18/16

John P. Smith P.E.
Florida P.E. No. 63423
HSA Golden, Inc., FBPE #9915

JOHN P. SMITH LICENSE No. 63423 STATE OF FLORIDA PROFESSIONAL ENGINEER

TABLE 1. OPINION OF PROBABLE CLOSURE COSTS
TAFT RECYCLING, INC.
TAFT TRANSFER STATION/WASTE PROCESSING MATERIAL RECOVERY FACILITY
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)	$5.50		$25.60		$33.60	$16,800.00
2	Unprocessed Class I Putrescible	1500	$2.50	(5)	$5.50		$33.60		$41.60	$62,400.00
3	Recovered Asphalt/Concrete	50,000	$2.50	(2)	$5.50		$0.00		$8.00	$400,000.00
4	Recovered Roofing Tiles	20	$0.00	(2)	$5.50		$25.60	(3)	$31.10	$622.00
5	Recovered Cardboard (Baled)	1482	$2.50	(5)	$5.50		$25.60	(3)	$33.60	$49,795.20
5a	Recovered Cardboard (Loose)	200	$2.50	(5)	$5.50		$25.60	(3)	$33.60	$6,720.00
6	Recovered Paper (Baled)	37.5	$2.50	(5)	$5.50		$25.60	(3)	$33.60	$1,260.00
7	Recovered Metal (Ferrous, Steel, Pipe)	40	$0.00	(2)	$5.50		$25.60	(3)	$31.10	$1,244.00
8	Metal (Aluminum Cans)	1.5	$2.50	(5)	$5.50		$25.60	(3)	$33.60	$50.40
9	Glass (Whole Bottles)	18	$2.50	(5)	$5.50		$25.60	(3)	$33.60	$604.80
10	Plastic (Mixed Loose)	1.4	$2.50	(5)	$5.50		$25.60	(3)	$33.60	$47.04
11	Wood	274	$2.50	(5)	$5.50		$25.60		$33.60	$9,206.40
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)	$5.50		$33.60		$39.10	$2,639.25
14	Processed Tire Residuals	10	$0.00	(2)	$5.50		$33.60		$39.10	$391.00
15	Recycling Residuals	50	$0.00	(2)	$5.50		$33.60		$39.10	$1,955.00
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									**$563,278.84**
20	Contingency (15%)									$84,491.83
21	Total									**$647,770.67**

Notes:

1. Maximum storage volumes taken from table of Material Disposition, Appendix B, Operation Plan.
2. Other than wood and concrete, 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

John P. Smith, P.E., FL PE #63423
HSA Golden, Inc., FBPE #9915

2/5/2016

2/18/16

RCS EXCAVATION, INC.

PO Box 1787 ● Lake Placid, FL 33862
(P) 863-699-1727 ● (F) 863-582-9292

2/5/2016

Mr. William Jacobs
HSA Golden.
100 East Pine Street, Suite 605
Orlando, FL 32801

Re: Taft Transfer Station and Material Recovery Facility
375 W. 7th Street
Orlando, FL 32824

Dear Mr. Jacobs:

The below rate is an estimated cost to mobilize a rubber tire loader to the Tail Transfer Station located at the above address and load Class I, III, C&D and discarded recyclables onto a transfer trailer for transport to a permitted disposal facility. The rate only includes loading of the wastes, no transportation or disposal costs have been include.

Cost: $2.50/ton

If there is anything else that you need, please give me a call.

Sincerely,

AJ Smith
RCS Excavation, Inc

STAFFORD TRUCKING COMPANY

January 15, 2016

Mr. Bob Walls
Progressive Waste Services/Taft Transfer Inc.
375 W. 7th Street
Orlando, Florida 32824

Re: Taft Transfer Station/Waste Processing and Material Recovery Facility
375 W. 7th Street. Orlando, Florida 32824
Transportation Costs – Class I and Class III Solid Wastes, and Discarded Recyclable Materials

Dear Mr. Walls:

This letter is to confirm our telephone conversation regarding your Taft Transfer facility located at the above address. Stafford Trucking estimates a cost of $5.50/ton to haul remaining Class I and III wastes and discarded recyclable materials from the facility for disposal at the Orange County Landfill located at 5901 Young Pine Road, Orlando, Florida. The estimate does not include loading and disposal fees.

If there is anything else that you need, please give me a call.

Respectfully,

Roberto Gonzalez
General Manager

ORANGE COUNTY SOLID WASTE DISPOSAL RATES

Approved by the Board of County Commissioners
Effective January 1, 2016

The minimum charge is $6.00

Fee Category	Description	Landfill	Porter Transfer Station	McLeod Road Transfer Station
Class I	Garbage, putrescible waste (Class I)	$33.60/ton	$33.60/ton	$33.60/ton
Construction & Demolition Debris (C&D)	Clean fill, asphalt, broken concrete, wood, nonputrescible or water soluble waste, furniture, etc. (Class III)	$25.60/ton	Only accepted at the Landfill	Only accepted at the Landfill
Yard Waste	Vegetative landscape materials including tree and shrub clippings, etc.	$29.00/ton	$33.60/ton *accepted only on Saturdays*	$33.60/ton *accepted only on Saturdays and Sundays*
Asbestos (by appointment only)	Must be packed according to FDEP and Orange County specifications	$110.00/ton	Only accepted at the Landfill	Only accepted at the Landfill
Tires	Loads of over 25 tires require a one-time variance or waste tire transporter license issued by Orange County	$148.00/ton	$148.00/ton	$148.00/ton

- Yard waste materials delivered to a transfer station will be charged the Class I Solid Waste rate.
- If you fail to weigh out, your fee will be calculated to the amount of the deposit collected.
- Due to space constraints, the transfer stations are unable to accept trucks longer than 30 ft. (bumper to bumper) or trailers with more than 12 ft. in cargo space.
- Uncovered loads will be charged a double fee.
- Any mixed loads will be charged the higher tonnage rate.
- Bulk loads of tires accepted only at the Landfill, Monday through Friday, 8:00 a.m. to 4:00 p.m.
- Forms of payment accepted include check, cash, and all major credit cards.

For information about the Orange County Utilities Solid Waste Division,
please call the **Solid Waste Hotline at 407-836-6601.**

Para más información, por favor llame al Departamento de Servicios Públicos del Condado de Orange y pida hablar con un representante en español. El número de teléfono es 407-836-6601.

Website: www.ocfl.net/utilities/ **Email Address: Solid.Waste@ocfl.net**

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Section 6.
Compliance History Information

Progressive Waste Solutions of FL, Inc. Compliance History (formerly Waste Services of FL, Inc.)

Date	Facility	Location	Permit Number	Issuing Agency	Type of Action	Nature of Violation	Disposition	Fine or Penalty
09/06/13	Opa Locka Recycling and Transfer Station	Opa Locka, FL	0075972-013-SO/SW-1087	FDEP/ DERM	NOV	Acceptance of unacceptable material	Closed. $500 fee paid.	$500
12/22/14	Opa Locka Recycling and Transfer Station	Opa Locka, FL	0075972-013-SO/SW-1087	City of Opa Locka	NOV	Nuisance Dust Conditions	Closed. $500 fee paid	$500

Note:
As of 2/6/2016 and subsequent to all facility permit transfers to Progressive Waste Solutions of FL, Inc. (fka Waste Services of Florida, Inc.)
List includes only those violations which have been issued fines or consent orders for facilities in Florida within the last five (5) years.