



1601 Belvedere Road, Suite 211 South  
West Palm Beach, Florida 33406  
tel: 561 689-3336  
fax: 561 689-9713

RECEIVED

SEP 11 2006

DEPT OF ENV PROTECTION  
WEST PALM BEACH

September 11, 2006

Mr. William Forrest  
Florida Department of Environmental Protection  
Southeast District  
400 North Congress Avenue, Suite 200  
West Palm Beach, Florida 33401

Subject: Martin County Palm City II Landfill (Permit No. 123520-009-SC)  
Long Term Care Cost Estimates  
Form 62-701.900(28)

Dear Mr. Forrest:

On behalf of The Martin County Utilities and Solid Waste Department, Camp Dresser & McKee Inc. is transmitting the form 62-701.900(28) Closure and Long Term Care (LTC) cost estimates for the Palm City II Landfill, Transfer Station, and C&D Transfer areas.

The LTC cost estimates for the landfill were inflated using the Department's official 1.030 inflation factor. The closure cost estimates for the Transfer Station and C&D Transfer Area were not changed from what was calculated and submitted in May 2006.

If you have any questions, please contact our office.

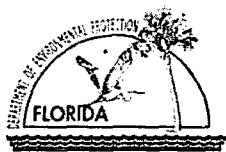
Very truly yours,

Scott D. Trainor, P.E.  
Project Manager  
Camp Dresser & McKee Inc.

SDT/de

cc: Solid Waste Financial Coordinator, FDEP Tallahassee w/attachments  
John Polley, Martin County w/attachments  
Patrick Yancey, Martin County w/attachments (signed and sealed)  
Patrick Graham, Martin County w/attachments  
Nancy Shutts, Martin County w/attachments

File: 6358-51338-057[1] (signed and sealed)



# Florida Department of Environmental Protection

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, FL 32399-2400

DEP Form # 62-701.900(28)  
Form Title Financial Assurance Cost Estimate Form  
Effective Date 05-27-01

DEP Application No. \_\_\_\_\_  
(Filed by DEP)

## FINANCIAL ASSURANCE COST ESTIMATE FORM

Date: September 6, 2006

Date of DEP Approval: \_\_\_\_\_

### I. GENERAL INFORMATION:

Facility Name: Martin County Palm City II Landfill WACS or GMSID #: 5143C00041

Permit / Application No.: 0123520-009-SC (0123520-010-SC Pending) Expiration Date: 4-23-09

Facility Address: 9101 SW Busch Street; Palm City FL 34990

Permittee: Martin County Utilities & Solid Waste Department

Mailing Address: P.O. Box 9000, Stuart FL 34995-9000

Latitude: 27deg 10'45" Longitude: 80deg 22'15" or UTM: Zone: 17  
N: 3006.27 km  
E: 562.33 km

### Solid Waste Disposal Units Included in Estimate:

Phase / Cell	Acres	Date Unit Began Accepting Waste	Design Life of Unit From Date of Initial Receipt of Waste
Phase I	34	1985	5 Years
Ph II Cell 1	17	1989	7 Years
Ph II Cell 2	12.6	2000	6 Years
Ph II Cell 3	12	1997	3 Years
Ph II Cell 4	9.8	1991	9 Years

Total Landfill Acreage included in this estimate. 0 Closure 85.4 Long-Term Care

Type of landfill: ☒ Class I ☒ Class III ☒ C&D Debris

### II. TYPE OF FINANCIAL ASSURANCE DOCUMENT (Check Type)

☐ Letter of Credit\* ☐ Insurance Certificate

☐ Surety Bond\* ☒ Escrow Account

☐ Trust Fund Agreement ☐ Financial Test

\*Indicates mechanisms that require use of a Standby Trust Fund Agreement

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

Northeast District  
7825 Baymeadows Way, Ste. B200  
Jacksonville, FL 32256-7590  
904-448-4300

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

Southwest District  
3804 Coconut Palm Dr.  
Tampa, FL 33619  
813-744-6100

South District  
2295 Victoria Ave., Ste. 364  
Fort Myers, FL 33901-3881  
941-332-6975

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

### III. ESTIMATE ADJUSTMENT

40 CFR Part 264 Subpart H as adopted by reference in Rule 62-701.630, Florida Administrative Code sets forth the method of annual cost estimate adjustment. Cost estimates may be adjusted by using an inflation factor or by recalculating the maximum costs of closure in current dollars. Select one of the methods of cost estimate adjustment below.

#### ☒ (a) Inflation Factor Adjustment

Inflation adjustment using an inflation factor may only be made when a Department approved closure cost estimate exists and no changes have occurred in the facility operation which would necessitate modification to the closure plan. The inflation factor is derived from the most recent Implicit Price Deflator for Gross National Product published by the U.S. Department of Commerce in its survey of Current Business. The inflation factor is the result of dividing the latest published annual Deflator by the Deflator for the previous year. The inflation factor may also be obtained from the Solid Waste Financial Coordinator at (850)-245-8732.

This adjustment is based on the Department approved closure cost estimate dated: 9-6-2006

Latest Department Approved Closure Cost Estimate:		Current Year Inflation Factor		Inflation Adjusted Closure Cost Estimate:
<u>\$0.00</u>	<b>X</b>	<u>1.030</u>	<b>=</b>	<u>\$0.00</u>

This adjustment is based on the Department approved long-term care cost estimate dated: \_\_\_\_\_

Latest Department Approved Annual Long-Term Care Cost Estimate:		Current Year Inflation Factor		Inflation Adjusted Annual Long-Term Care Cost Estimate:
<u>\$596,694.19</u>	<b>X</b>	<u>1.030</u>	<b>=</b>	<u>\$614,595.02</u>

Number of Years of Long Term Care Remaining: **X** 30

**Inflation Adjusted Long-Term Care Cost Estimate:** **=** **18,437,850.47**

#### ☐ (b) Recalculate Estimates (see section V)

### IV. CERTIFICATION BY ENGINEER

This is to certify that the Financial Assurance Cost Estimates pertaining to the engineering features of the this solid waste management facility have been examined by me and found to conform to engineering principals applicable to such facilities. In my professional judgement, the Cost Estimates are a true, correct and complete representation of the financial liabilities for closing and long-term care of the facility and comply with the requirements of Florida Administrative Code (F.A.C.), Rule 62-701.630 and all other Department of Environmental Protection rules, and statutes of the State of Florida. It is understood that the Financial Assurance Cost Estimates shall be submitted to the Department annually, revised or adjusted as required by Rule 62-701.630(4), F.A.C.

Signature of Engineer

Scott D. Trainor, P.E.

Name & Title (please type)

No. 56828

Florida Registration Number (affix seal) & Date

1601 Belvedere Rd.

Mailing Address

(561) 689-3336

Telephone Number

Signature of Owner/Operator

John Polley

Name & Title (please type)

(561) 221-1442

Telephone Number

**V. RECALCULATE ESTIMATED CLOSING COST**

For the time period in the landfill operation when the extent and manner of its operation makes closing **most expensive**.

**\*\* Third Party Estimate / Quote must be provided for each item**

**\*\* Costs must be for a third party providing all material and labor**

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
1. Proposed Monitoring Wells	(Do not include wells already in existence.)			
	EA	0		\$0.00
2. Slope and Fill (bedding layer between waste and barrier layer):				
Excavation	CY			\$0.00
Placement and Spreading	CY			\$0.00
Compaction	CY			\$0.00
Off-Site Material	CY			\$0.00
Delivery	CY			\$0.00
Subtotal Slope and Fill:				\$0.00
3. Cover Material (Barrier Layer):				
Off-Site Clay	CY			\$0.00
Synthetics - 40 mil	SY			\$0.00
Synthetics - GCL	SY			\$0.00
Synthetics - Geonet	SY			\$0.00
Synthetics - Other	SY			\$0.00
Subtotal Barrier Layer Cover:				\$0.00
4. Top Soil Cover:				
Off-Site Material	CY			\$0.00
Delivery	CY			\$0.00
Spread	CY			\$0.00
Subtotal Top Soil Cover:				\$0.00

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
5. Vegetative Layer				
Sodding	SY			\$0.00
Hydroseeding	AC			\$0.00
Fertilizer	AC			\$0.00
Mulch	AC			\$0.00
Other	SY			\$0.00
Subtotal Vegetative Layer:				<b>\$0.00</b>
6. Stormwater Control System:				
Earthwork				\$0.00
Grading	SY			\$0.00
Piping	LF			\$0.00
Ditches	LF			\$0.00
Berms	LF			\$0.00
Control Structures	EA			\$0.00
Other	Ton			\$0.00
Subtotal Stormwater Controls:				<b>\$0.00</b>
7. Gas Controls: Passive				
Wells	EA			\$0.00
Pipe and Fittings	LF			\$0.00
Monitoring Probes (wellheads)	EA			\$0.00
NSPS/Title V requirements	LS			\$0.00
Subtotal Passive Gas Control:				<b>\$0.00</b>

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
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8. Gas Control: Active Extraction

Traps	EA			\$0.00
Sump	EA			\$0.00
Flare Assembly	EA			\$0.00
Flame Arrestor	EA			\$0.00
Mist Eliminator	EA			\$0.00
Flow Meter	EA			\$0.00
Blowers	EA			\$0.00
Collection System	LF			\$0.00
Other (describe)				\$0.00

Subtotal Active Gas Extraction: **\$0.00**

9. Security System:

Fencing	LF			\$0.00
Gate(s)	EA			\$0.00
Sign(s)	EA			\$0.00

Subtotal Security System: **\$0.00**

10. Engineering:

Closure Plan report	LS			
Certified Engineer	LS			
NSPS/Title V Air Permit	LS			
Final Survey	LS			
Certification of Closure	LS			
Other (detail)				

Subtotal Engineering: **\$0.00**

# 11. Professional Services

	Contract Management		Quality Assurance		Total
	Hours	LS	Hours	LS	
P.E. Supervisor					\$0.00
On-Site Engineer					\$0.00
Office Engineer					\$0.00
On-Site Technician					\$0.00
Other (explain)					\$0.00
DESCRIPTION	UNIT		QUANTITY	UNIT COST	TOTAL
Quality Assurance Testing	LS				\$0.00
Subtotal Professional Services:					\$0.00

Subtotal of 1-11 Above: \$0.00

12. Contingency % of Total (example. enter .1 for 10%) 0%

Closing Cost Subtotal: 0.00

# 13. Site Specific Costs (explain)

Mobilization	
Waste Tire Facility	
Materials Recovery Facility	
Special Wastes	
Leachate Management System Modification	
Other	

Subtotal Site Specific Costs: \$0.00

TOTAL CLOSING COSTS \$0.00

# VI. ANNUAL COST FOR LONG-TERM CARE

(Check Term Length)

\_\_\_\_\_ 5 Years      \_\_\_\_\_ 20 Years      ☒ 30 Years      \_\_\_\_\_ Other

See 62-701.600(1)a.1., 62-701.620(1), 62-701.630(3)a. and 62-701.730(11)b. F.A.C. for required term length. For landfills certified closed and Department accepted, enter the remaining long-term care length as "Other" and provide years remaining.

**\*\* Third Party Estimate / Quote must be provided for each item**

**\*\* Costs must be for a third party providing all material and labor**

**All items must be addressed.** Attach a detailed explanation for all items marked not applicable (N/A)

Description	Sampling Frequency (events/yr.)	Number of Wells	\$ / Well / Event	\$ / Year
<b>1. Groundwater Monitoring (62-701.510(6), and (8)(a))</b>				
Monthly	12	_____	_____	\$0.00
Quarterly	4	_____	_____	\$0.00
Semi-Annual	2	_____	_____	\$0.00
Annual	1	_____	_____	\$0.00
Subtotal Groundwater Monitoring:				\$0.00
<b>2. Surface Water Monitoring (62-701.510(4), and (8)(b))</b>				
Monthly	12	_____	_____	\$0.00
Quarterly	4	_____	_____	\$0.00
Semi-Annual	2	_____	_____	\$0.00
Annual	1	_____	_____	\$0.00
Subtotal Surface Water Monitoring:				\$0.00
<b>3. Gas Monitoring</b>				
Monthly	12	_____	_____	\$0.00
Quarterly	4	_____	_____	\$0.00
Semi-Annual	2	_____	_____	\$0.00
Annual	1	_____	_____	\$0.00
(Title V Monitoring & Reporting)				
Subtotal Gas Monitoring:				\$0.00



Description	Sampling Frequency (events/yr.)	Number of Locations	\$/Location/Event	\$ / Year
4. Leachate Monitoring (62-701.510(5), (6)(b) and 62-701.510(8)(c))				
Monthly	12			\$0.00
Quarterly	4			\$0.00
Semi-Annual	2			\$0.00
Annual	1			\$0.00
Other				\$0.00
Subtotal Leachate Monitoring:				\$0.00

DESCRIPTION	UNIT	QUANTITY	UNIT COST	ANNUAL COST
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5. Leachate Collection/Treatment Systems Maintenance

Maintenance

Collection Pipes	LF			\$0.00
Sumps, Traps	EA			\$0.00
Lift Stations	EA			\$0.00
Cleaning	LS			\$0.00
Tanks	EA			\$0.00

Impoundments

Liner Repair	SY			\$0.00
Sludge Removal	CY			\$0.00

Aeration Systems	CY			\$0.00
Floating Aerators	EA			\$0.00
Spray Aerators	EA			\$0.00

Disposal

Off-site	1000 gallon			\$0.00
(Include Transportation and Disposal)				\$0.00

#### 6. Leachate Collection/Treatment Systems Operation

Operation		Hours	\$/Hour	Total
P.E. Supervisor	HR			\$0.00
On-Site Engineer	HR			\$0.00
Office Engineer	HR			\$0.00
OnSite Technician	HR			\$0.00
Materials	LS			
Subtotal Leachate Collection/Treatment System Maintenance & Operation:				\$0.00

#### 7. Maintenance of Groundwater Monitoring Wells

Monitoring Wells	LF			\$0.00
Replacement	EA			\$0.00
Abandonment	EA			\$0.00
Subtotal Groundwater Monitoring Well Maintenance:				\$0.00

DESCRIPTION	UNIT	QUANTITY	UNIT COST	ANNUAL COST
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#### 8. Gas System Maintenance

Piping, Vents	LF			\$0.00
Blowers	EA			\$0.00
Flaring Units	EA			\$0.00
Meters, Valves	EA			\$0.00
Compressors	EA			\$0.00
Flame Arrestors	EA			\$0.00
Operation	LS			
SubTotal Gas System:				\$0.00

#### 9. Landscape

Mowing	AC			\$0.00
Fertilizer	AC			\$0.00
Subtotal Landscape Maintenance:				\$0.00

DESCRIPTION	UNIT	QUANTITY	UNIT COST	ANNUAL COST
10. Erosion Control & Cover Maintenance				
Sodding	SY			\$0.00
Regrading	AC			\$0.00
Liner Repair	SY			\$0.00
Clay	CY			\$0.00
Subtotal Erosion Control and Cover Maintenance:				\$0.00
11. Storm Water Management System Maintenance				
Conveyance Maintenance	LS			
Subtotal Storm Water System Maintenance:				
12. Security System Maintenance				
Fences	LF			\$0.00
Gate(s)	EA			\$0.00
Sign(s)	EA			\$0.00
Subtotal Security System:				\$0.00
13. Utilities	LS			
14. Administrative				
		Hours	\$/Hour	Total
P.E. Supervisor	HR			\$0.00
On-Site Engineer	HR			\$0.00
Office Engineer	HR			\$0.00
OnSite Technician	HR			\$0.00
Other (explain)				\$0.00
Subtotal Administrative:				\$0.00
15. Contingency	% of Total			2.50%
	\$0.00	Subtotal Contingency:		\$0.00

16. Site Specific Costs (explain)

UNIT COST

LS

LS

LS

**ANNUAL LONG-TERM CARE COST (\$/Year):**

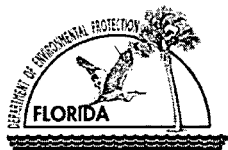
\$0.00

**NUMBER OF YEARS OF LONG-TERM CARE**

30.00

**TOTAL LONG-TERM CARE COST (\$)**

\$0.00



Florida Department of Environmental Protection  
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, FL 32399-2400

DEP Form # 62-701.900(28)  
Form Title Financial Assurance Cost Estimate Form  
Effective Date 05-27-01  
DEP Application No. \_\_\_\_\_  
(Filled by DEP)

## FINANCIAL ASSURANCE COST ESTIMATE FORM

Date: September 6, 2006 Date of DEP Approval: \_\_\_\_\_

### I. GENERAL INFORMATION:

Facility Name: Martin County Palm City II Landfill WACS or GMSID #: 5143C00041

Permit / Application No.: 0123520-009-SC (0123520-010-SC Pending) Expiration Date: 4-23-09

Facility Address: 9101 SW Busch Street; Palm City FL 34990

Permittee: Martin County Utilities & Solid Waste Department

Mailing Address: P.O. Box 9000, Stuart FL 34995-9000

Latitude: 27deg 10'45" Longitude: 80deg 22'15" or UTM: Zone: 17  
N: 3006.27 km  
E: 562.33 km

### Solid Waste Disposal Units Included in Estimate:

Phase / Cell	Acres	Date Unit Began Accepting Waste	Design Life of Unit From Date of Initial Receipt of Waste
Transfer Station	6	Nov 16, 2004	20 years
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Total Landfill Acreage included in this estimate. 0 Closure 0 Long-Term Care

Type of landfill: \_\_\_\_\_ Class I \_\_\_\_\_ Class III \_\_\_\_\_ C&D Debris

### II. TYPE OF FINANCIAL ASSURANCE DOCUMENT (Check Type)

_____ Letter of Credit*	_____ Insurance Certificate	*Indicates mechanisms that require use of a Standby Trust Fund Agreement
_____ Surety Bond*	<input checked="" type="checkbox"/> Escrow Account	
_____ Trust Fund Agreement	_____ Financial Test	

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

Northeast District  
7825 Baymeadows Way, Ste. B200  
Jacksonville, FL 32256-7590  
904-448-4300

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

Southwest District  
3804 Coconut Palm Dr.  
Tampa, FL 33619  
813-744-6100

South District  
2295 Victoria Ave., Ste. 364  
Fort Myers, FL 33901-3881  
941-332-6975

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

### III. ESTIMATE ADJUSTMENT

40 C.F.R. Part 264 Subpart H as adopted by reference in Rule 62-701.630, Florida Administrative Code sets forth the method of annual cost estimate adjustment. Cost estimates may be adjusted by using an inflation factor or by recalculating the maximum costs of closure in current dollars. Select one of the methods of cost estimate adjustment below.

#### ☐ (a) Inflation Factor Adjustment

Inflation adjustment using an inflation factor may only be made when a Department approved closure cost estimate exists and no changes have occurred in the facility operation which would necessitate modification to the closure plan. The inflation factor is derived from the most recent Implicit Price Deflator for Gross National Product published by the U.S. Department of Commerce in its survey of Current Business. The inflation factor is the result of dividing the latest published annual Deflator by the Deflator for the previous year. The inflation factor may also be obtained from the Solid Waste Financial Coordinator at (850)-245-8732.

This adjustment is based on the Department approved closure cost estimate dated: \_\_\_\_\_

Latest Department Approved Closure Cost Estimate:	Current Year Inflation Factor	Inflation Adjusted Closure Cost Estimate:
_____	_____	_____
X	=	\$0.00

This adjustment is based on the Department approved long-term care cost estimate dated: \_\_\_\_\_

Latest Department Approved Annual Long-Term Care Cost Estimate:	Current Year Inflation Factor	Inflation Adjusted Annual Long-Term Care Cost Estimate:
_____	_____	_____
X	=	\$0.00

Number of Years of Long Term Care Remaining: X \_\_\_\_\_

Inflation Adjusted Long-Term Care Cost Estimate: = 0.00

#### ☒ (b) Recalculate Estimates (see section V)

### IV. CERTIFICATION BY ENGINEER

This is to certify that the Financial Assurance Cost Estimates pertaining to the engineering features of the this solid waste management facility have been examined by me and found to conform to engineering principals applicable to such facilities. In my professional judgement, the Cost Estimates are a true, correct and complete representation of the financial liabilities for closing and long-term care of the facility and comply with the requirements of Florida Administrative Code (F.A.C.), Rule 62-701.630 and all other Department of Environmental Protection rules, and statutes of the State of Florida. It is understood that the Financial Assurance Cost Estimates shall be submitted to the Department annually revised or adjusted as required by Rule 62-701.630(4), F.A.C.

Signature of Engineer: Scott D. Trainor 9/8/06

Name & Title (please type): Scott D. Trainor, P.E.

No. 56828

Florida Registration Number (affix seal) & Date

1601 Belvedere Rd., Ste. 211 South; West Palm Beach, FL 33406

Mailing Address

(561) 689-3336

Telephone Number

Signature of Owner/Operator: [Signature]

Name & Title (please type): John Polley

(561) 221-1442

Telephone Number

**V. RECALCULATE ESTIMATED CLOSING COST**

For the time period in the landfill operation when the extent and manner of its operation makes closing **most expensive**.

**\*\* Third Party Estimate / Quote must be provided for each item**

**\*\* Costs must be for a third party providing all material and labor**

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
1. Proposed Monitoring Wells	(Do not include wells already in existence.)			
	EA	0		\$0.00
2. Slope and Fill (bedding layer between waste and barrier layer):				
Excavation	CY			\$0.00
Placement and Spreading	CY			\$0.00
Compaction	CY			\$0.00
Off-Site Material	CY			\$0.00
Delivery	CY			\$0.00
Subtotal Slope and Fill:				\$0.00
3. Cover Material (Barrier Layer):				
Off-Site Clay	CY			\$0.00
Synthetics - 40 mil	SY			\$0.00
Synthetics - GCL	SY			\$0.00
Synthetics - Geonet	SY			\$0.00
Synthetics - Other	SY			\$0.00
Subtotal Barrier Layer Cover:				\$0.00
4. Top Soil Cover:				
Off-Site Material	CY			\$0.00
Delivery	CY			\$0.00
Spread	CY			\$0.00
Subtotal Top Soil Cover:				\$0.00

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
5. Vegetative Layer				
Sodding	SY			\$0.00
Hydroseeding	AC			\$0.00
Fertilizer	AC			\$0.00
Mulch	AC			\$0.00
Other	SY			\$0.00
Subtotal Vegetative Layer:				<b>\$0.00</b>
6. Stormwater Control System:				
Earthwork				\$0.00
Grading	SY			\$0.00
Piping	LF			\$0.00
Ditches	LF			\$0.00
Berms	LF			\$0.00
Control Structures	EA			\$0.00
Other	<b>Ton</b>			\$0.00
Subtotal Stormwater Controls:				<b>\$0.00</b>
7. Gas Controls: Passive				
Wells	EA			\$0.00
Pipe and Fittings	LF			\$0.00
Monitoring Probes (wellheads)	EA			\$0.00
NSPS/Title V requirements	LS			\$0.00
Subtotal Passive Gas Control:				<b>\$0.00</b>



DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
8. Gas Control: Active Extraction				
Traps	EA			\$0.00
Sump	EA			\$0.00
Flare Assembly	EA			\$0.00
Flame Arrestor	EA			\$0.00
Mist Eliminator	EA			\$0.00
Flow Meter	EA			\$0.00
Blowers	EA			\$0.00
Collection System	LF			\$0.00
Other (describe)				\$0.00
Subtotal Active Gas Extraction:				\$0.00
9. Security System:				
Fencing	LF			\$0.00
Gate(s)	EA			\$0.00
Sign(s)	EA			\$0.00
Subtotal Security System:				\$0.00
10. Engineering:				
Closure Plan report	LS			
Certified Engineer	LS			
NSPS/Title V Air Permit	LS			
Final Survey	LS			
Certification of Closure	LS			
Other (detail)				
Subtotal Engineering:				\$0.00

## 11. Professional Services

	Contract Management		Quality Assurance		
	Hours	LS	Hours	LS	Total
P.E. Supervisor					\$0.00
On-Site Engineer					\$0.00
Office Engineer					\$0.00
On-Site Technician					\$0.00
Other (explain)					\$0.00
DESCRIPTION	UNIT		QUANTITY	UNIT COST	TOTAL
Quality Assurance Testing	LS				\$0.00
Subtotal Professional Services:					\$0.00

**Subtotal of 1-11 Above:** \$0.00

12. Contingency	% of Total (example. enter .1 for 10%)	<u>0%</u>
<b>Closing Cost Subtotal:</b>		<u>0.00</u>

## 13. Site Specific Costs (explain)

<u>Mobilization</u>	
<u>Waste Tire Facility</u>	
<u>Materials Recovery Facility</u>	
<u>Special Wastes</u>	
<u>Leachate Management System Modification</u>	
<u>Other</u> Haul and Dispose of leftover Municipal Waste	\$22,991.00
<hr/>	
Subtotal Site Specific Costs:	<u>\$22,991.00</u>
<b>TOTAL CLOSING COSTS</b>	<b><u>\$22,991.00</u></b>

# VI. ANNUAL COST FOR LONG-TERM CARE

(Check Term Length)

\_\_\_\_\_ 5 Years \_\_\_\_\_ 20 Years \_\_\_\_\_ 30 Years \_\_\_\_\_ Other

See 62-701.600(1)a.1., 62-701.620(1), 62-701.630(3)a. and 62-701.730(11)b. F.A.C. for required term length. For landfills certified closed and Department accepted, enter the remaining long-term care length as "Other" and provide years remaining.

**\*\* Third Party Estimate / Quote must be provided for each item**  
**\*\* Costs must be for a third party providing all material and labor**

**All items must be addressed.** Attach a detailed explanation for all items marked not applicable (N/A)

Description	Sampling Frequency (events/yr.)	Number of Wells	\$ / Well / Event	\$ / Year
<b>1. Groundwater Monitoring (62-701.510(6), and (8)(a))</b>				
Monthly	12	_____	_____	\$0.00
Quarterly	4	_____	_____	\$0.00
Semi-Annual	2	_____	_____	\$0.00
Annual	1	_____	_____	\$0.00
Subtotal Groundwater Monitoring:				\$0.00
<b>2. Surface Water Monitoring (62-701.510(4), and (8)(b))</b>				
Monthly	12	_____	_____	\$0.00
Quarterly	4	_____	_____	\$0.00
Semi-Annual	2	_____	_____	\$0.00
Annual	1	_____	_____	\$0.00
Subtotal Surface Water Monitoring:				\$0.00
<b>3. Gas Monitoring</b>				
Monthly	12	_____	_____	\$0.00
Quarterly	4	_____	_____	\$0.00
Semi-Annual	2	_____	_____	\$0.00
Annual	1	_____	_____	\$0.00
(Title V Monitoring & Reporting)				
Subtotal Gas Monitoring:				\$0.00

Description	Sampling Frequency (events/yr.)	Number of Locations	\$/Location/Event	\$ / Year
4. Leachate Monitoring (62-701.510(5), (6)(b) and 62-701.510(8)(c))				
Monthly	12			\$0.00
Quarterly	4			\$0.00
Semi-Annual	2			\$0.00
Annual	1			\$0.00
Other				\$0.00
Subtotal Leachate Monitoring:				\$0.00

DESCRIPTION	UNIT	QUANTITY	UNIT COST	ANNUAL COST
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5. Leachate Collection/Treatment Systems Maintenance

Maintenance

Collection Pipes	LF			\$0.00
Sumps, Traps	EA			\$0.00
Lift Stations	EA			\$0.00
Cleaning	LS			\$0.00
Tanks	EA			\$0.00

Impoundments

Liner Repair	SY			\$0.00
Sludge Removal	CY			\$0.00

Aeration Systems

	CY			\$0.00
Floating Aerators	EA			\$0.00
Spray Aerators	EA			\$0.00

Disposal

Off-site	1000 gallon			\$0.00
(Include Transportation and Disposal)				\$0.00

#### 6. Leachate Collection/Treatment Systems Operation

Operation		Hours	\$/Hour	Total
P.E. Supervisor	HR			\$0.00
On-Site Engineer	HR			\$0.00
Office Engineer	HR			\$0.00
OnSite Technician	HR			\$0.00
Materials	LS			
Subtotal Leachate Collection/Treatment System Maintenance & Operation:				\$0.00

#### 7. Maintenance of Groundwater Monitoring Wells

Monitoring Wells	LF			\$0.00
Replacement	EA			\$0.00
Abandonment	EA			\$0.00
Subtotal Groundwater Monitoring Well Maintenance:				\$0.00

DESCRIPTION	UNIT	QUANTITY	UNIT COST	ANNUAL COST
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#### 8. Gas System Maintenance

Piping, Vents	LF			\$0.00
Blowers	EA			\$0.00
Flaring Units	EA			\$0.00
Meters, Valves	EA			\$0.00
Compressors	EA			\$0.00
Flame Arrestors	EA			\$0.00
Operation	LS			
SubTotal Gas System:				\$0.00

#### 9. Landscape

Mowing	AC			\$0.00
Fertilizer	AC			\$0.00
Subtotal Landscape Maintenance:				\$0.00

DESCRIPTION	UNIT	QUANTITY	UNIT COST	ANNUAL COST
10. Erosion Control & Cover Maintenance				
Sodding	SY			\$0.00
Regrading	AC			\$0.00
Liner Repair	SY			\$0.00
Clay	CY			\$0.00
Subtotal Erosion Control and Cover Maintenance:				\$0.00
11. Storm Water Management System Maintenance				
Conveyance Maintenance	LS			
Subtotal Storm Water System Maintenance:				
12. Security System Maintenance				
Fences	LF			\$0.00
Gate(s)	EA			\$0.00
Sign(s)	EA			\$0.00
Subtotal Security System:				\$0.00
13. Utilities	LS			
14. Administrative				
		Hours	\$/Hour	Total
P.E. Supervisor	HR			\$0.00
On-Site Engineer	HR			\$0.00
Office Engineer	HR			\$0.00
OnSite Technician	HR			\$0.00
Other (explain)				\$0.00
Subtotal Administrative:				\$0.00
15. Contingency	% of Total			0.00%
	\$0.00	Subtotal Contingency:		\$0.00

16. Site Specific Costs (explain)

UNIT COST

_____	LS	_____
_____	LS	_____
_____	LS	_____

<b>ANNUAL LONG-TERM CARE COST (\$/Year):</b>	<u>\$0.00</u>
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NUMBER OF YEARS OF LONG-TERM CARE	_____
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<b>TOTAL LONG-TERM CARE COST (\$)</b>	<u>\$0.00</u>
---------------------------------------	---------------

Purpose: To Determine the Cost of Removing a Tipping Area full of waste.

Tipping Area of Transfer Station = 156 ft X 98 ft  
Area (ft<sup>2</sup>) 15,288

- Assume Waste is 10 ft deep
- Assume a 20 ft wide corridor in the center
- Assume Waste is at a 2:1 slope on 3 sides
- Assume Waste is vertical against pushwalls
- Calculate volume of waste in one side tipping area.

$$\text{Top Surface Area} = (A - S_x z) * (B - 2S_y z)$$

where: z = vertical distance from slab

A = top length between push walls

B = top width parallel to push walls

S<sub>x</sub> = slope of faces parallel to push walls

S<sub>y</sub> = slope of faces perpendicular to push walls

$$\begin{aligned} \text{T.S.A.} &= AB - 2AS_y z - BS_x z + 2S_x S_y z^2 \\ &= AB - (2AS_y + BS_x)z + 2S_x S_y z^2 \end{aligned}$$

To get volume integrate surface area over the depth (z=0 to 10).

$$\text{Vol. One Side} = ABz - (1/2)(2AS_y + BS_x)z^2 + ((2/3)S_x S_y)z^3$$

$$A = 68 \quad \text{ft}$$

$$B = 98 \quad \text{ft}$$

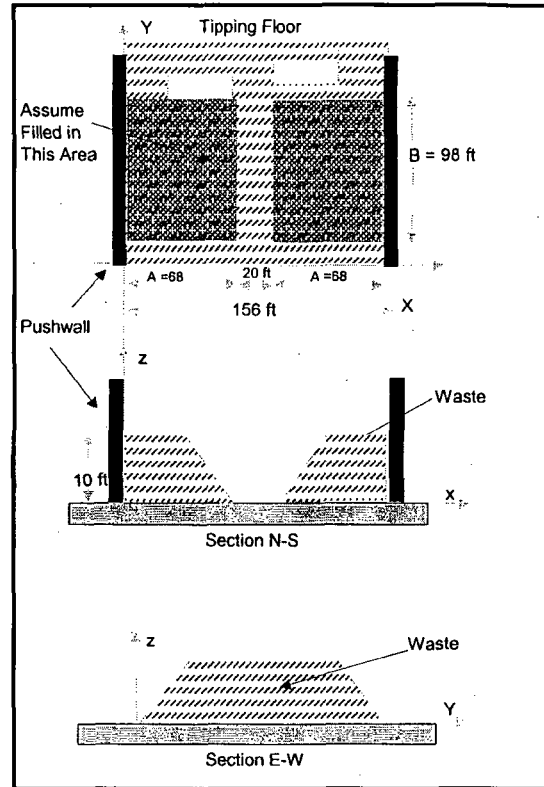
$$S_x = 2 \quad (2:1 \text{ Slope})$$

$$S_y = 2 \quad (2:1 \text{ Slope})$$

$$\text{Depth} = 10 \quad \text{ft}$$

$$\text{Vol. One Side} = 1,700 \text{ cy}$$

$$\text{Vol. Total} = 3,400 \text{ cy}$$



-If tipping area was full of waste and operations stopped. The above amount of waste would require disposal.

#### Cost of Disposal Estimate

-Assume density of mixed solid waste is 400 lb/cy - (Hickman, Complete Handbook Solid Waste Collection & Transfer p. 369, ©2000).

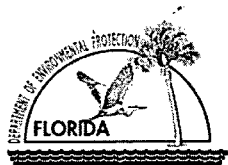
$$\text{Mass of Waste} = \text{Density} * \text{Vol.} = 680 \text{ tons}$$

Assumed Cost to Haul and Dispose of Waste at the Okeechobee Landfill:

33.81 per ton (May 2006)

$$\text{Cost of Disposal} = \$22,991$$





Florida Department of Environmental Protection  
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, FL 32399-2400

DEP Form # 62-701.900(28)  
Form Title Financial Assurance Cost Estimate Form  
Effective Date 05.27.01  
DEP Application No. \_\_\_\_\_  
(Filled by DEP)

## FINANCIAL ASSURANCE COST ESTIMATE FORM

Date: September 6, 2006 Date of DEP Approval: \_\_\_\_\_

### I. GENERAL INFORMATION:

Facility Name: Martin County Palm City II Landfill WACS or GMSID #: 5143C00041

Permit / Application No.: 0123520-009-SC (0123520-010-SC Pending) Expiration Date: 4-23-09

Facility Address: 9101 SW Busch Street; Palm City FL 34990

Permittee: Martin County Utilities & Solid Waste Department

Mailing Address: P.O. Box 9000, Stuart FL 34995-9000

Latitude: 27deg 10'45" Longitude: 80deg 22'15" or UTM: Zone: 17  
N: 3006.27 km  
E: 562.33 km

### Solid Waste Disposal Units Included in Estimate:

Phase / Cell	Acres	Date Unit Began Accepting Waste	Design Life of Unit From Date of Initial Receipt of Waste
C&D Transfer Area	2.17	Pending Approval	20 years
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Total Landfill Acreage included in this estimate. 0 Closure 0 Long-Term Care

Type of landfill: \_\_\_\_\_ Class I \_\_\_\_\_ Class III ☒ C&D Debris

### II. TYPE OF FINANCIAL ASSURANCE DOCUMENT (Check Type)

_____ Letter of Credit*	_____ Insurance Certificate	*Indicates mechanisms that require use of a Standby Trust Fund Agreement
_____ Surety Bond*	<input checked="" type="checkbox"/> Escrow Account	
_____ Trust Fund Agreement	_____ Financial Test	

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

Northeast District  
7825 Baymeadows Way, Ste. B200  
Jacksonville, FL 32256-7590  
904-448-4300

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

Southwest District  
3804 Coconut Palm Dr.  
Tampa, FL 33619  
813-744-6100

South District  
2295 Victoria Ave., Ste. 364  
Fort Myers, FL 33901-3881  
941-332-6975

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

### III. ESTIMATE ADJUSTMENT

40 CFR Part 264 Subpart H as adopted by reference in Rule 62-701.630, Florida Administrative Code sets forth the method of annual cost estimate adjustment. Cost estimates may be adjusted by using an inflation factor or by recalculating the maximum costs of closure in current dollars. Select one of the methods of cost estimate adjustment below.

#### ☐ (a) Inflation Factor Adjustment

Inflation adjustment using an inflation factor may only be made when a Department approved closure cost estimate exists and no changes have occurred in the facility operation which would necessitate modification to the closure plan. The inflation factor is derived from the most recent Implicit Price Deflator for Gross National Product published by the U.S. Department of Commerce in its survey of Current Business. The inflation factor is the result of dividing the latest published annual Deflator by the Deflator for the previous year. The inflation factor may also be obtained from the Solid Waste Financial Coordinator at (850)-245-8732.

This adjustment is based on the Department approved closure cost estimate dated: \_\_\_\_\_

Latest Department Approved Closure Cost Estimate:		Current Year Inflation Factor			Inflation Adjusted Closure Cost Estimate:
	X		=		\$0.00

This adjustment is based on the Department approved long-term care cost estimate dated: \_\_\_\_\_

Latest Department Approved Annual Long-Term Care Cost Estimate:		Current Year Inflation Factor			Inflation Adjusted Annual Long-Term Care Cost Estimate:
	X		=		\$0.00
Number of Years of Long Term Care Remaining:				X	
Inflation Adjusted Long-Term Care Cost Estimate:				=	0.00

#### ☒ (b) Recalculate Estimates (see section V)

### IV. CERTIFICATION BY ENGINEER

This is to certify that the Financial Assurance Cost Estimates pertaining to the engineering features of the this solid waste management facility have been examined by me and found to conform to engineering principals applicable to such facilities. In my professional judgement, the Cost Estimates are a true, correct and complete representation of the financial liabilities for closing and long-term care of the facility and comply with the requirements of Florida Administrative Code (F.A.C.), Rule 62-701.630 and all other Department of Environmental Protection rules, and statutes of the State of Florida. It is understood that the Financial Assurance Cost Estimates shall be submitted to the Department annually revised or adjusted as required by Rule 62-701.630(4), F.A.C.

Signature of Engineer \_\_\_\_\_

Scott D. Trainor, P.E. 7/18/06

Name & Title (please type)

No. 56828

Florida Registration Number (affix seal) & Date

1601 Belvedere Rd., Ste. 211 South; West Palm Beach, FL 33406

Mailing Address

(561) 689-3336

Telephone Number

Signature of Owner/Operator \_\_\_\_\_

John Polley

Name & Title (please type)

(561) 221-1442

Telephone Number

## V. RECALCULATE ESTIMATED CLOSING COST

For the time period in the landfill operation when the extent and manner of its operation makes closing **most expensive**.

**\*\* Third Party Estimate / Quote must be provided for each item**

**\*\* Costs must be for a third party providing all material and labor**

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
1. Proposed Monitoring Wells		(Do not include wells already in existence.)		
	EA	0		\$0.00
2. Slope and Fill (bedding layer between waste and barrier layer):				
Excavation	CY			\$0.00
Placement and Spreading	CY			\$0.00
Compaction	CY			\$0.00
Off-Site Material	CY			\$0.00
Delivery	CY			\$0.00
			Subtotal Slope and Fill:	\$0.00
3. Cover Material (Barrier Layer):				
Off-Site Clay	CY			\$0.00
Synthetics - 40 mil	SY			\$0.00
Synthetics - GCL	SY			\$0.00
Synthetics - Geonet	SY			\$0.00
Synthetics - Other	SY			\$0.00
			Subtotal Barrier Layer Cover:	\$0.00
4. Top Soil Cover:				
Off-Site Material	CY			\$0.00
Delivery	CY			\$0.00
Spread	CY			\$0.00
			Subtotal Top Soil Cover:	\$0.00

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
5. Vegetative Layer				
Sodding	SY			\$0.00
Hydroseeding	AC			\$0.00
Fertilizer	AC			\$0.00
Mulch	AC			\$0.00
Other	SY			\$0.00
Subtotal Vegetative Layer:				<b>\$0.00</b>
6. Stormwater Control System:				
Earthwork				\$0.00
Grading	SY			\$0.00
Piping	LF			\$0.00
Ditches	LF			\$0.00
Berms	LF			\$0.00
Control Structures	EA			\$0.00
Other	<b>Ton</b>			\$0.00
Subtotal Stormwater Controls:				<b>\$0.00</b>
7. Gas Controls: Passive				
Wells	EA			\$0.00
Pipe and Fittings	LF			\$0.00
Monitoring Probes (wellheads)	EA			\$0.00
NSPS/Title V requirements	LS			\$0.00
Subtotal Passive Gas Control:				<b>\$0.00</b>

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
8. Gas Control: Active Extraction				
Traps	EA			\$0.00
Sump	EA			\$0.00
Flare Assembly	EA			\$0.00
Flame Arrestor	EA			\$0.00
Mist Eliminator	EA			\$0.00
Flow Meter	EA			\$0.00
Blowers	EA			\$0.00
Collection System	LF			\$0.00
Other (describe)				\$0.00
Subtotal Active Gas Extraction:				\$0.00
9. Security System:				
Fencing	LF			\$0.00
Gate(s)	EA			\$0.00
Sign(s)	EA			\$0.00
Subtotal Security System:				\$0.00
10. Engineering:				
Closure Plan report	LS			
Certified Engineer	LS			
NSPS/Title V Air Permit	LS			
Final Survey	LS			
Certification of Closure	LS			
Other (detail)				
Subtotal Engineering:				\$0.00

# 11. Professional Services

	Contract Management		Quality Assurance		Total
	Hours	LS	Hours	LS	
P.E. Supervisor					\$0.00
On-Site Engineer					\$0.00
Office Engineer					\$0.00
On-Site Technician					\$0.00
Other (explain)					\$0.00
DESCRIPTION	UNIT		QUANTITY	UNIT COST	TOTAL
Quality Assurance Testing	LS				\$0.00
Subtotal Professional Services:					\$0.00

**Subtotal of 1-11 Above:** \$0.00

12. Contingency	% of Total (example. enter .1 for 10%)	<u>0%</u>
<b>Closing Cost Subtotal:</b>		<u>0.00</u>

# 13. Site Specific Costs (explain)

<u>Mobilization</u>	
<u>Waste Tire Facility</u>	
<u>Materials Recovery Facility</u>	
<u>Special Wastes</u>	
<u>Leachate Management System Modification</u>	
<u>Other</u> Haul and Dispose of leftover C&D Debris	\$22,526.00
Subtotal Site Specific Costs:	\$22,526.00
<b>TOTAL CLOSING COSTS</b>	<b>\$22,526.00</b>

# VI. ANNUAL COST FOR LONG-TERM CARE

(Check Term Length)

\_\_\_\_\_ 5 Years      \_\_\_\_\_ 20 Years      \_\_\_\_\_ 30 Years      \_\_\_\_\_ Other

See 62-701.600(1)a.1., 62-701.620(1), 62-701.630(3)a. and 62-701.730(11)b. F.A.C. for required term length. For landfills certified closed and Department accepted, enter the remaining long-term care length as "Other" and provide years remaining.

**\*\* Third Party Estimate / Quote must be provided for each item**

**\*\* Costs must be for a third party providing all material and labor**

**All items must be addressed.** Attach a detailed explanation for all items marked not applicable (N/A)

Description	Sampling Frequency (events/yr.)	Number of Wells	\$ / Well / Event	\$ / Year
<b>1. Groundwater Monitoring (62-701.510(6), and (8)(a))</b>				
Monthly	12	_____	_____	\$0.00
Quarterly	4	_____	_____	\$0.00
Semi-Annual	2	_____	_____	\$0.00
Annual	1	_____	_____	\$0.00
Subtotal Groundwater Monitoring:				\$0.00
<b>2. Surface Water Monitoring (62-701.510(4), and (8)(b))</b>				
Monthly	12	_____	_____	\$0.00
Quarterly	4	_____	_____	\$0.00
Semi-Annual	2	_____	_____	\$0.00
Annual	1	_____	_____	\$0.00
Subtotal Surface Water Monitoring:				\$0.00
<b>3. Gas Monitoring</b>				
Monthly	12	_____	_____	\$0.00
Quarterly	4	_____	_____	\$0.00
Semi-Annual	2	_____	_____	\$0.00
Annual	1	_____	_____	\$0.00
(Title V Monitoring & Reporting)				
Subtotal Gas Monitoring:				\$0.00

Description	Sampling Frequency (events/yr.)	Number of Locations	\$/Location/Event	\$ / Year
4. Leachate Monitoring (62-701.510(5), (6)(b) and 62-701.510(8)(c))				
Monthly	12			\$0.00
Quarterly	4			\$0.00
Semi-Annual	2			\$0.00
Annual	1			\$0.00
Other				\$0.00
Subtotal Leachate Monitoring:				\$0.00

DESCRIPTION	UNIT	QUANTITY	UNIT COST	ANNUAL COST
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#### 5. Leachate Collection/Treatment Systems Maintenance

##### Maintenance

Collection Pipes	LF			\$0.00
Sumps, Traps	EA			\$0.00
Lift Stations	EA			\$0.00
Cleaning	LS			\$0.00
Tanks	EA			\$0.00

##### Impoundments

Liner Repair	SY			\$0.00
Sludge Removal	CY			\$0.00

##### Aeration Systems

Floating Aerators	EA			\$0.00
Spray Aerators	EA			\$0.00

##### Disposal

Off-site	1000 gallon			\$0.00
(Include Transportation and Disposal)				\$0.00



#### 6. Leachate Collection/Treatment Systems Operation

Operation		Hours	\$/Hour	Total
P.E. Supervisor	HR			\$0.00
On-Site Engineer	HR			\$0.00
Office Engineer	HR			\$0.00
OnSite Technician	HR			\$0.00
Materials	LS			
Subtotal Leachate Collection/Treatment System Maintenance & Operation:				\$0.00

#### 7. Maintenance of Groundwater Monitoring Wells

Monitoring Wells	LF			\$0.00
Replacement	EA			\$0.00
Abandonment	EA			\$0.00
Subtotal Groundwater Monitoring Well Maintenance:				\$0.00

DESCRIPTION	UNIT	QUANTITY	UNIT COST	ANNUAL COST
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#### 8. Gas System Maintenance

Piping, Vents	LF			\$0.00
Blowers	EA			\$0.00
Flaring Units	EA			\$0.00
Meters, Valves	EA			\$0.00
Compressors	EA			\$0.00
Flame Arrestors	EA			\$0.00
Operation	LS			
SubTotal Gas System:				\$0.00

#### 9. Landscape

Mowing	AC			\$0.00
Fertilizer	AC			\$0.00
Subtotal Landscape Maintenance:				\$0.00

DESCRIPTION	UNIT	QUANTITY	UNIT COST	ANNUAL COST
10. Erosion Control & Cover Maintenance				
Sodding	SY			\$0.00
Regrading	AC			\$0.00
Liner Repair	SY			\$0.00
Clay	CY			\$0.00
Subtotal Erosion Control and Cover Maintenance:				\$0.00
11. Storm Water Management System Maintenance				
Conveyance Maintenance	LS			
Subtotal Storm Water System Maintenance:				
12. Security System Maintenance				
Fences	LF			\$0.00
Gate(s)	EA			\$0.00
Sign(s)	EA			\$0.00
Subtotal Security System:				\$0.00
13. Utilities	LS			
14. Administrative				
		Hours	\$/Hour	Total
P.E. Supervisor	HR			\$0.00
On-Site Engineer	HR			\$0.00
Office Engineer	HR			\$0.00
OnSite Technician	HR			\$0.00
Other (explain)				\$0.00
Subtotal Administrative:				\$0.00
15. Contingency	% of Total			0.00%
	\$0.00	Subtotal Contingency:		\$0.00

16. Site Specific Costs (explain)

UNIT COST

_____	LS	_____
_____	LS	_____
_____	LS	_____

<b>ANNUAL LONG-TERM CARE COST (\$/Year):</b>	<u>\$0.00</u>
--	---------------

NUMBER OF YEARS OF LONG-TERM CARE	_____
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<b>TOTAL LONG-TERM CARE COST (\$)</b>	<u>\$0.00</u>
---------------------------------------	---------------

Purpose: To Determine the Cost of Removing a Tipping Area full of waste.

Tipping Area of C&D Transfer Area = 100 ft X 100 ft  
 Area (ft<sup>2</sup>) 10,000

- Assume C&D debris is 10 ft deep
- Assume C&D debris is at a 2:1 slope on 3 sides
- Assume C&D debris is vertical against pushwall

- Calculate volume of waste in tipping area.

$$\text{Top Surface Area} = (A - S_x z) * (B - 2S_y z)$$

where: z = vertical distance from slab

A = top length from push wall

B = top width parallel to push wall

S<sub>x</sub> = slope of face parallel to push wall

S<sub>y</sub> = slope of face perpendicular to push wall

$$\text{T.S.A.} = AB - 2AS_y z - BS_x z + 2S_x S_y z^2$$

$$= AB - (2AS_y + BS_x)z + 2S_x S_y z^2$$

To get volume integrate surface area over the depth (z=0 to 10).

$$\text{Vol.} = ABz - (1/2)(2AS_y + BS_x)z^2 + ((2/3)S_x S_y)z^3$$

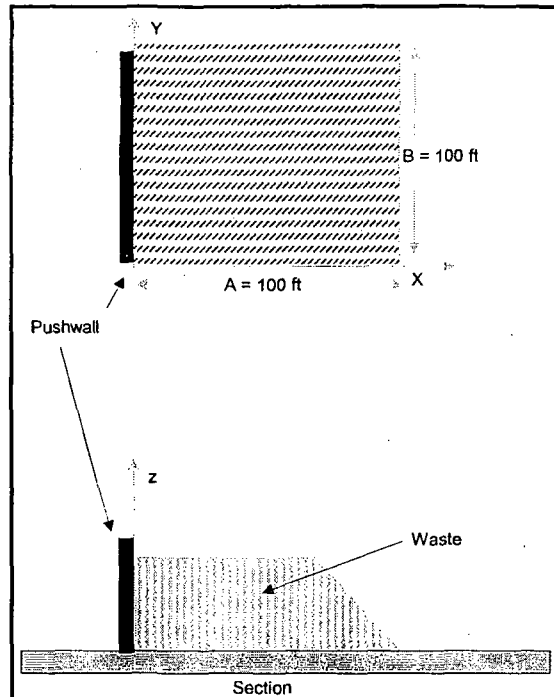
$$A = 100 \quad \text{ft}$$

$$B = 100 \quad \text{ft}$$

$$S_x = 2 \quad (2:1 \text{ Slope})$$

$$S_y = 2 \quad (2:1 \text{ Slope})$$

$$\text{Depth} = 10 \quad \text{ft}$$



**Waste Volume = 2690 cy**

-If tipping area was full of waste and operations stopped. The above amount of C&D debris would require disposal.

#### Cost of Disposal Estimate

-Assume density of C&D debris is 605 lb/cy - (Tchabanoglous, Integrated Solid Waste Management, 1993).

$$\text{Mass of C\&D} = \text{Density} * \text{Vol.} = 810 \text{ tons}$$

Assumed Cost to Haul and Dispose C&D to Okeechobee Landfill: \$ 27.81 per ton (May 2006)

**Cost of Disposal = \$22,526**

RECEIVED  
 SEP 11 2006  
 DEPT OF ENV PROTECTION  
 WEST PALM BEACH