

1601 Belvedere Road, Suite 211 South West Palm Beach, Florida 33406

tel: 561 689-3336 fax: 561 689-9713

September 11, 2006

# RECEIVED

SEP 1 1 2006

DEPT OF ENV PROTECTION WEST PALM BEACH

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.

cott D. Trains

SDT/de

cc: Solid Waste Financial Coordinator, FDEP Tallahassee w/attachments

Tananasee wy attachment

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.	
(Filled by DEP)	

# FINANCIAL ASSURANCE COST ESTIMATE FORM

Date:	September	6, 200	6	Date of DEP	Approval:	<del>.</del>	
I. GENERAL IN	FORMATIO	N:					
Facility Name:	Martin (	County I	Palm City	II Landfil	1	WACS or GMSID #:	5143C00041
Permit / Applicat	tion No.: 01	23520-0	09-SC (01	23520-010-5	SC Pending	Expiration Date:	4-23-09
Facility Address	: 9101 SW	Busch S	treet; Pa	lm City FL	34990_		
Permittee:	Martin C	ounty U	tilities	& Solid Wa	ste Depar	tment	
Mailing Address	P.O. Box	9000,	Stuart FI	34995-90	00		
Latitude	: 27deg 10	) ' 45 "	Longitude	: <u>80deg 22'1</u>		or UTM	Zone: 17 N: 3006.27 km E:562.33 km
Solid Waste Dis	sposal Units	s Include	d in Estima	te: 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	<del>-</del>	1989	_	7 Years	- -
Ph II Cell 2	2	12.6	_	2000	_	6 Years	-
Ph II Cell 3	3	12	_	1997		3 Years	-
Ph II Cell 4	<u>1</u>	9.8	_	1991		9 Years	<u>.</u>
	<b>-</b>		<del>-</del> -		- ·		- -
Total Landfill Ac	reage includ	ed in this (	estimate.	0	_Closure .	85.4	_Long-Term Care
Type of landfill:		✓_	_Class I		_Class III	<b>✓</b>	_C&D Debris
II. TYPE OF FIN	NANCIAL AS	SSURANC	E DOCUM	ENT (Check Type)			
	_Letter of C	redit*			_Insurance (	Certificate	*Indicates mechanisms that
	_Surety Bor	nd*		Escrow Account			require use of a Standby Trust Fund
	_Trust Fund	Agreeme	nt		_ Financial T	est	Agreement

#### III. ESTIMATE ADJUSTMENT

40 CFR Part 264 Subpart H as adopted by reterence 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.

Latest Department Approved Closure Cost Estimate:		Current Year Inflation Factor		Inflation Adjusted Closure Cost Estimate:
\$0.00	x	1.030	=	\$0.00
This adjustment is based on the L	Department ap	oproved long-term care cos	t estimate dated	
Latest Department Approved	Department ap	·	t estimate dated	Inflation Adjusted
·	Department ap	oproved long-term care cos Current Year Inflation Factor	t estimate dated	
Latest Department Approved Annual Long-Term Care Cost	Department ap	Current Year	t estimate dated. =	Inflation Adjusted Annual Long-Term Care
Latest Department Approved Annual Long-Term Care Cost Estimate:	x	Current Year Inflation Factor 1.030	t estimate dated = X	Inflation Adjusted Annual Long-Term Care Cost Estimate:

(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.

That I Trains	
Signature of Engineer 9/8/06	Signature of Owner/Operato
Scott D. Trainor, P.E.	John Rolley
Name & Title (please type)	Name & Title (please type)
No. 56828	(561) 221-1442
Florida Registration Number (affix seal) &Date	Telephone Number
1601 Belvedere Rd.	
Mailing Address	
(561) 689-3336	

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.

<sup>\*\*</sup> Costs must be for a third party providing all material and labor

DESCRIPTION		UNIT	QUANTITY	UNIT COST	TOTAL
1. Proposed Monitor	ring Wells	(Do not	include wells already in		
		EA	0		\$0.00
2. Slope and Fill (be	edding layer betwee	n waste and l	parrier layer):		
Excavation	on	CY			\$0.00
Placemer	nt and Spreading	CY	<del></del>		\$0.00
Compact	ion	CY		· · · · · · · · · · · · · · · · · · ·	\$0.00
Off-Site N	/laterial	CY			\$0.00
Delivery		CY			\$0.00
			Subtotal S	Slope and Fill:	\$0.00
Cover Material (B	sarrier Layer):				
Off-Site C	Clay	CY			\$0.00
Synthetic	s - 40 mil	SY			\$0.00
Synthetic	s - GCL	SY			\$0.00
Synthetic	s - Geonet	SY			\$0.00
Synthetic	s - Other	SY	•		\$0.00
			Subtotal Ba	rrier Layer Cover:	\$0.00
4. Top Soil Cover:					
Off-Site N	Material	CY	-		\$0.00
Delivery		CY			\$0.00
Spread		CY			\$0.00
			Subtotal	Top Soil Cover:	\$0.00

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

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 V	egetative Layer:	\$0.00
5. 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 Sto	rmwater Controls:	\$0.00
7. Gas Controls: Passive				
Wells	EA			\$0.00
Pipe and Fittings	LF			\$0.00
Monitoring Probes	EA			\$0.00
<pre>(wellheads) NSPS/Title V requirements</pre>	LS			\$0.00
-		· <del></del>	······	\$0.00

DESCRIP	TION	UNIT	QUANTITY	UNIT COST	TOTAL
8. Gas C	ontrol: Active Extraction				
	Traps	EA			\$0.00
	Sump	EA	<del></del>		\$0.00
	Flare Assembly	EA	<del></del>	<del></del>	\$0.00
	Flame Arrestor	EA	<del></del>		\$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 Activ	ve Gas Extraction:	\$0.00
9. Securit	y System:				
	Fencing	LF		<del></del> _	\$0.00
	Gate(s)	EA			\$0.00
	Sign(s)	EA			\$0.00
			Subtotal S	ecurity System:	\$0.00
10. Engin	eering:				
	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 A		
-	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 Tes	ting	LS			\$0.00
			Subtotal F	Professional Services:	\$0.00
			Subtotal of 1-11	1 Above:	\$0.00
12. Contingency		% of Total (ex	ample. enter .1 for 1	10%)	0%
			Closing Cost S	subtotal:	0.00
13. Site Specific Costs	(explain)				
Mobilization			- <del></del>		
Waste Tire	Facility	·			
Materials Re	ecovery Facility			***************************************	
Special Was	stes	············			
Leachate M	anagement Sys	tem Modification			
Other			<del></del>		
			Subtotal Site Spec	cific Costs:	\$0.00
			TOTAL CLOSING	G COSTS	\$0.00

VI. ANNUAL COST FOR LO	ONG-TERM CAR	E	(Check Term Length)	
	_5 Years _	20 Years	✓ 30 Years	Other
See 62-701.600(1)a.1., 62-70 landfills certified closed and figures remaining.			The state of the s	_
		mate / Quote must be pr		
		or a third party providing		nlinghia (NI/A)
All items must be a		n a detailed explanation	for all items marked not ap	pilicable (N/A)
Description	Sampling Frequency (events/yr.)	Number of Wells	\$ / Well / Event	\$ / Year
Groundwater Monitoring (	62-701.510(6), an	nd (8)(a))		
Monthly	12			\$0.00
Quarterly	4			\$0.00
Semi-Annual	2			\$0.00
Annual	1		<del></del>	\$0.00
		Subtotal (	Groundwater Monitoring:	\$0.00
2. Surface Water Monitoring	(62-701.510(4), a	and (8)(b)		
Monthly	12			\$0.00
Quarterly	4			\$0.00
Semi-Annual	2			\$0.00
Annual	1			\$0.00
		Subtotal S	urface Water Monitoring:	\$0.00
3. Gas Monitoring				
Monthly	12			\$0.00
Quarterly	4			\$0.00
Semi-Annual	2			\$0.00
Annual	1			\$0.00
(Title V Monitoring & F	Reporting)	Subto	otal Gas Monitoring:	\$0.00
DEP FORM 62-701.900(28) Effective 05-27-01		Palm City II Landfill 9-6-06	out Sub-mornioring.	Page 7 of 11

	Sampling			
Description	Frequency (events/yr.)	Number of Locations	\$/Location/Event	\$ / Year
<ol> <li>Leachate Monitoring (62-7)</li> </ol>		nd 62-701.510(8)(c)		
Monthly	12			\$0.00
Quarterly	4			\$0.00
Semi-Annual	2			\$0.00
Annual	1	<u></u>		\$0.00
Other		·		\$0.00
	,	Subtotal L	eachate Monitoring:	\$0.00
DESCRIPTION	UNIT _	QUANTITY	UNIT COST	ANNUAL COS
Collection Pines	l F			\$0.00
Collection Pipes	LF			\$0.00
Collection Pipes Sumps, Traps	LF EA			\$0.00
Sumps, Traps	EA			\$0.00
Sumps, Traps Lift Stations	EA EA			\$0.00
Sumps, Traps Lift Stations Cleaning Tanks	EA EA LS			\$0.00 \$0.00 \$0.00
Sumps, Traps Lift Stations Cleaning Tanks	EA EA LS			\$0.00 \$0.00 \$0.00
Sumps, Traps  Lift Stations  Cleaning  Tanks  mpoundments	EA EA LS EA			\$0.00 \$0.00 \$0.00
Sumps, Traps  Lift Stations  Cleaning  Tanks  mpoundments  Liner Repair  Sludge Removal	EA EA LS EA			\$0.00 \$0.00 \$0.00 \$0.00
Sumps, Traps  Lift Stations  Cleaning  Tanks  mpoundments  Liner Repair  Sludge Removal	EA EA LS EA SY CY			\$0.00 \$0.00 \$0.00 \$0.00 \$0.00
Sumps, Traps  Lift Stations  Cleaning  Tanks  mpoundments  Liner Repair  Sludge Removal  Aeration Systems	EA EA LS EA CY CY			\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00
Sumps, Traps  Lift Stations  Cleaning  Tanks  Impoundments  Liner Repair  Sludge Removal  Aeration Systems  Floating Aerators  Spray Aerators	EA EA LS EA SY CY CY EA			\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00
Sumps, Traps  Lift Stations  Cleaning  Tanks  mpoundments  Liner Repair  Sludge Removal  Aeration Systems  Floating Aerators	EA EA LS EA SY CY CY EA EA			\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$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		
Subtot	al Leachate C	Collection/Treatment System Maintenance & Operation:	\$0.00
7. Maintenance of Groundwate	er 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
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

DESCRIPTION	UNIT	QUANTITY	UNIT COST	ANNUAL COST
10. Erosion Control & Cove	r Maintenance			
Sodding	SY			\$0.00
Regrading	AC			\$0.00
Liner Repair	SY			\$0.00
Clay	CY		<del></del>	\$0.00
		Subtottal Erosion Control	and Cover Maintenance:	\$0.00
11. Storm Water Manageme	ent System Maint	tenance		
Conveyance Maintenand	ce LS			<del></del>
		Subtotal Storm Water	System Maintenance:	
12. Security System Mainte	enance			
Fences	LF			\$0.00
Gate(s)	EA			\$0.00
Sign(s)	EA			\$0.00
		Subtotal Seci	urity 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 Adr	ninistrative:	\$0.00
15. Contingency	% of Total	-		2.50%
	\$0.00	Subtotal Co	ontingency:	\$0.00

16. Site Specific Costs (explain)	UNIT COST	
	LS	
	LS	<del></del>
	LS	
ANNUAL LONG-TERM	/I CARE COST (\$/Year):	\$0.00
NUMBER OF YEARS	OF LONG-TERM CARE	30.00
TOTAL LONG-TE	RM 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 ———	5	Date of DEP	Approval:			
I. GENERAL INF	ORMATION	l:						
Facility Name:	Martin C	ounty Pa	ılm City	II Landfil	1	WACS or GMS	ID#: 5143C000	41
Permit / Applicati	ion No.: 012	3520-009	-SC (012	23520-010-s	C Pending	() Expiration Da	ate: <u>4-23-09</u>	
Facility Address:	9101 SW 1	Busch St	reet; Pa	lm City FL	34990			
Permittee:	Martin C	ounty Ut	ilities	& Solid Was	ste Depar	tment		
Mailing Address:	P.O. Box	9000, s	tuart FL	34995-900	00			
Latitude:	_27deg 10	' 45"	Longitude	: <u>80deg 22'1</u>	5"	or	Zone: 17 N: 3006.2 UTM: E:562.33	7 km km
Solid Waste Dis	posal Units	Included	in Estimat					
DI ( O . II		<b>A</b>		Date Unit  Began  Accepting		Design Life of From Date of Ir	nitial	
Phase / Cell Transfer Sta	tion	Acres 6		Waste Nov 16, 20	- 04	Receipt of Wa 20 years	<u>ste</u>	
					- - -			
Total Landfill Acr	eage include	ed in this es	stimate.	0	Closure	0	Long-Term	Care
Type of landfill:	-		Class I		_Class III		C&D Debris	S
II. TYPE OF FIN	IANCIAL AS	SURANCE	DOCUM	<b>ENT</b> (Check Type)				
	_Letter of Cr	edit*			Insurance	Certificate	*Indica mechanis	
	_Surety Bon	d*			_Escrow Ac	count	require u Standby Tr	ise of a
	_Trust Fund	Agreemen	t		_Financial T	est	Agreer	

#### 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.

Latest Department Approved Closure Cost Estimate:	Current Year Inflation Factor		Inflation Adjusted Closure Cost Estimate:
	х	=	\$0.00
This advisor which has a decorate Decorate			**
This adjustment is based on the Dep	artment approved long-term care cost	t estimate dated:	
Latest Department Approved	artment approved long-term care cost	t estimate dated:	Inflation Adjusted
•	artment approved long-term care cost  Current Year	t estimate dated:	Inflation Adjusted Annual Long-Term Care
Latest Department Approved	·	t estimate dated:	
Latest Department Approved Annual Long-Term Care Cost	Current Year	t estimate dated:	Annual Long-Term Care
Latest Department Approved Annual Long-Term Care Cost Estimate:	Current Year Inflation Factor	t estimate dated: = X	Annual Long-Term Care Cost Estimate:

(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 Rules 62-704-630(4), F.A.C.

be submitted to the Department annuality, revised or adjuste	d as required by Rule 62-701-630(4), F.A.C.	
Man Draings	of Ally	
Signature of Engineer 9/8/06	Signature of Owner/Operator	
Scott D. Trainor, Plens 07	John Polley	
Name & Title (please type)	Name & Title (please type)	
No. 56828	(561) 221-1442	
Florida Registration Number (affix seal) &Date	Telephone Number	
1601 Belvedere Rd. Ste. 211 South; West	Palm Beach, FL 33406	
Mailing Address		
(561) 689-3336		
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.

<sup>\*\*</sup> Costs must be for a third party providing all material and labor

DESCRI	PTION	UNIT	QUANTITY UNIT COST	TOTAL
1. Propo	sed Monitoring Wells	(Do not	include wells already in existence.)	
		EA	0	\$0.00
2. Slope	and Fill (bedding layer betwee	n waste and	barrier layer):	
	Excavation	CY		\$0.00
	Placement and Spreading	CY		\$0.00
	Compaction	CY	<del></del>	\$0.00
	Off-Site Material	CY		\$0.00
	Delivery	CY		\$0.00
			Subtotal Slope and Fill:	\$0.00
3. Covei	r 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 S	Soil Cover:			
	Off-Site Material	CY		\$0.00
	Delivery	CY		\$0.00
	Spread	CY		\$0.00
			Subtotal Top Soil Cover:	\$0.00

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

	\$0.00
	\$0.00
	\$0.00
	\$0.00
	\$0.00
Subtotal Vegetative L	_ayer: \$0.00
	\$0.00
	\$0.00
	\$0.00
	\$0.00
	\$0.00
	\$0.00
	\$0.00
Subtotal Stormwater C	ontrols: \$0.00
	\$0.00
<u> </u>	\$0.00
	\$0.00
	\$0.00
Subtotal Passive Gas (	Control: \$0.00

DESCRIPTION		UNIT	QUANTITY	UNIT COST	TOTAL
8. Gas Control:	Active Extraction				
Traps	3	EA			\$0.00
Sump	)	EA			\$0.00
Flare	Assembly	EA			\$0.00
Flam	e Arrestor	EA			\$0.00
Mist !	Eliminator	EA			\$0.00
Flow	Meter	EA			\$0.00
Blow	ers	EA			\$0.00
Colle	ction System	LF			\$0.00
Othe	r (describe)				\$0.00
			Subtotal Ac	tive Gas Extraction:	\$0.00
9. Security Syst	em:				
Fenc	ing	LF			\$0.00
Gate	(s)	EA			\$0.00
Sign(	s)	EA			\$0.00
			Subtotal	Security System:	\$0.00
10. Engineering	:				
Closu	ıre Plan report	LS			
Certif Engir		LS			
NSPS	S/Title V Air Permit	LS			
Final	Survey	LS			
Certif	ication of Closure	LS			
Other	r (detail)	····			<del></del>
			Subtota	al Engineering:	\$0.00

# 11. Professional Services

	Contract Management		Quality A	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 Tes	sting	LS			\$0.00		
			Subtotal F	Professional Services:	\$0.00		
			Subtotal of 1-1	1 Above:	\$0.00		
12. Contingency		% of Total (e	xample. enter .1 for	10%)	0%		
			Closing Cost S	Subtotal:	0.00		
13. Site Specific Cost	s (explain)						
<u>Mobilizatio</u>	n						
Waste Tire	Facility						
Materials F	Recovery Facility	/			-		
Special Wa	astes						
Leachate N	Management Sy	stem Modification	<u> </u>	•			
Other Hav	al and Dispose	of leftover M	unicipal Waste		\$22,991.00		
			Subtotal Site Spe	cific Costs:	\$22,991.00		
			TOTAL CLOSIN		322,991.00		

VI. ANNUAL COST FO	OR LONG-TERM CARE	(1	(Check Term Length)		
	5 Years	20 Years	30 Years	Other	
			0(11)b. F.A.C. for required long-term care length as '		
		nate / Quote must be pro			
All items mus	t be addressed. Attach	a detailed explanation f	or all items marked not ap	oplicable (N/A)	
Description	Sampling Frequency (events/yr.)	Number of Wells	\$ / Well / Event	\$ / Year	
	ring (62-701.510(6), and				
Monthly	12			\$0.00	
Quarterly	4			\$0.00	
Semi-Annual	2			\$0.00	
Annual	1			\$0.00	
		Subtotal G	roundwater Monitoring:	\$0.00	
2. Surface Water Monit	toring (62-701.510(4), ar	nd (8)(b)			
Monthly	12			\$0.00	
Quarterly	4			\$0.00	
Semi-Annual	2			\$0.00	
Annual	1			\$0.00	
		Subtotal Su	rface Water Monitoring:	\$0.00	
3. Gas Monitoring					
Monthly	12			\$0.00	
Quarterly	4			\$0.00	
Semi-Annual	2		<del> </del>	\$0.00	
Annual	1			\$0.00	
(Title V Monitor	ing & Reporting)	Subtot	al Gas Monitoring:	\$0.00	

Transfer Station 9-6-06

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DEP FORM 62-701.900(28) Effective 05-27-01

Description	Sampling Frequency (events/yr.)	Number of Locations	\$/Location/Event	\$ / Year
Leachate Monitoring (62-				
Monthly	12			\$0.00
Quarterly	4			\$0.00
Semi-Annual	2			\$0.00
Annual	1		,	\$0.00
Other				\$0.00
		Subtotal I	eachate Monitoring:	\$0.00
DESCRIPTION	UNIT	QUANTITY	UNIT COST	ANNUAL COST
Collection Pipes	LF			\$0.00
Maintenance				
·	EA			\$0.00
Sumps, Traps				\$0.00
Lift Stations	EA	<del>- · · · · · · · · · · · · · · · · · · ·</del>		
Cleaning	LS	<u> </u>		\$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 a	nd Disposal)	<del></del>		\$0.00
DEP FORM 62-701.900(28) Effective 05-27-01		Transfer Station 9-6-06		Page 8 of 11

\$

# 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		
Subtota	al Leachate C	Collection/Treatment System Maintenance & Operation:	\$0.00
7. Maintenance of Groundwate	r 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
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	4.0		\$0.00
	AC		
Fertilizer	AC		\$0.00

DESCRIPTION	UNIT	QUANTITY	UNIT COST	ANNUAL COST
10. Erosion Control & Cover	Maintenance			
Sodding	SY			\$0.00
Regrading	AC	<del></del>	1	\$0.00
Liner Repair	SY			\$0.00
Clay	CY	· 		\$0.00
		Subtottal Erosion Control a	and Cover Maintenance:	\$0.00
11. Storm Water Manageme	ent System Mainte	enance		
Conveyance Maintenance	e LS			·
		Subtotal Storm Water S	system Maintenance:	
12. Security System Mainte	enance			
Fences	LF			\$0.00
Gate(s)	EA			\$0.00
Sign(s)	EA			\$0.00
		Subtotal Secur	rity 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 Adm	inistrative:	\$0.00
15. Contingency	% of Total			0.00%
	\$0.00	Subtotal Con	itingency:	\$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	1 CARE	
	TOTAL LONG-TERM CARE COST	r (\$)	\$0.00

Client Project Detail Martin County
Transfer Station
Financial Assurance/ Closure Cost Estimate

Job No. 6358-51338-057 RT2 Initials
Date Chkd 52466 Date
Chkd by Page

SDT 5/24/2006

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

Tipping Area of Transfer Station = 156 ft X 98 ft Area ( $ft^2$ ) 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.

Top Surface Area =  $(A-S_xz)^*(B-2S_yz)$ 

where: z = vertical distance from slab

A = top length between push walls

B = top width parallel to push walls

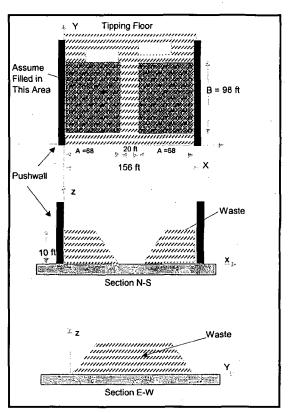
S<sub>x</sub> = slope of faces parallel to push walls

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

To get volume integrate surface area over the depth (z=0 to 10).  $Vol._{One\ Side}$ = ABz-(1/2)(2AS<sub>y</sub>+BS<sub>x</sub>)z<sup>2</sup>+((2/3)S<sub>x</sub>S<sub>y</sub>)z<sup>3</sup>

A= 68	ft
B= 98	ft
Sx= 2	(2:1 Slope)
Sy= 2	(2:1 Slope)
Depth= 10	ft

Vol. <sub>One Side</sub> =	1,700 cy	
Vol. <sub>Total</sub> =	3,400 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 of mixed solid waste is 400 lb/cy - (Hickman, Complete Handbook Solid Waste Collection & Transfer p. 369, @2000).

Mass of Waste = Density \* Vol. = 680 tons

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

33.81 per ton (May 2006)

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	5, 2006	Date of DEP	Approval:		
I. GENERAL INF	ORMATIO	N:				
Facility Name:	Martin (	County Palm City	/ II Landfil	1	WACS or GMSID #:	5143C00041
Permit / Applicat	ion No.: 01	23520-009-SC (01	123520-010-s	C Pending	y) Expiration Date:	4-23-09
Facility Address:	9101 SW	Busch Street; Pa	alm City FL	34990		
Permittee:	Martin C	ounty Utilities	& Solid Was	ste Depar	tment	
Mailing Address:	P.O. Box	9000, Stuart F	L 34995-900	00		
•	27deg 10		e: <u>80deg 22'1</u>		or UTM:	Zone: 17 N: 3006.27 km E:562.33 km
Solid Waste Dis	posal Units	s Included in Estima	ate: Date Unit Began Accepting		Design Life of Unit From Date of Initial	
Phase / Cell		Acres	Waste	_	Receipt of Waste	_
C&D Transfer	Area -	2.17	Pending Ap	proval -	20 years	_
	- · · · · · · · · · · · · · · · · · · ·			- - - -		- - - -
Total Landfill Acr	eage includ	ed in this estimate.	0	_Closure	0	Long-Term Care
Type of landfill:		Class I		_Class III		_C&D Debris
II. TYPE OF FIN	IANCIAL AS	SSURANCE DOCUM	IENT (Check Type)			
	_Letter of Ci	redit*		_Insurance	Certificate	*Indicates mechanisms that
	_Surety Bon	d*		Escrow Account require us		require use of a Standby Trust Fund
Trust Fund Agreement				_Financial T	est	Agreement

#### 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 Dep	artment approved closure cost est	imate dated:	
Latest Department Approved Closure Cost Estimate:	Current Year Inflation Factor		Inflation Adjusted Closure Cost Estimate:
	<u> </u>	=	\$0.00
This adjustment is based on the Department Latest Department Approved Annual Long-Term Care Cost Estimate:	nent approved long-term care cost  Current Year  Inflation Factor	estimate dated:	Inflation Adjusted Annual Long-Term Care Cost Estimate:
	×	=	\$0.00
Number of Years of Long	Term Care Remaining:	X	
Inflation Adjusted Long-Te	erm 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 annuality revised or adjusted as required by Rule 62-70 (433)(4), FAC.

That O Trains	Philly
Signature of Engineer 19/8/06	Signature of Owner/Operator
Scott D. Trainor, P. E. J. S.	John Polley
Name & Title (please type)	Name & Title (please type)
No. 56828	(561) 221-1442
Florida Registration Number (affix seal) &Date	Telephone Number
1601 Belvedere Rd. Ste. 211 South; West	Palm Beach, FL 33406
Mailing Address	
(561) 689-3336	
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.

<sup>\*\*</sup> 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 exist	ence.)	
	EA	0		\$0.00
2. Slope and Fill (bedding layer betwe	een waste and	barrier layer):		
Excavation	CY			\$0.00
Placement and Spreading	CY			\$0.00
Compaction	CY		<u></u>	\$0.00
Off-Site Material	CY		· 	\$0.00
Delivery	CY		<u></u>	\$0.00
		Subtotal Slope	and Fill:	\$0.00
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

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

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 V	egetative Layer:	\$0.00
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 Sto	rmwater Controls:	\$0.00
7. Gas Controls: Passive				
Wells	EA			\$0.00
Pipe and Fittings	LF			\$0.00
Monitoring Probes	EA			\$0.00
(wellheads) NSPS/Title V requiremer	nts LS			\$0.00
·		Subtotal Pag	ssive Gas Control:	\$0.00
		Sublotal Pas	ssive Gas Control.	7,7,7,0

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)			<u></u>	\$0.00
		Subtotal Acti	ve Gas Extraction:	\$0.00
9. Security System:				
Fencing	LF			\$0.00
Gate(s)	EA			\$0.00
Sign(s)	EA			\$0.00
		Subtotal S	ecurity System:	\$0.00
10. Engineering:				
Closure Plan report	LS	(Table 1) - A		
Certified Engineer	LS			
NSPS/Title V Air Permit	LS			<u> </u>
Final Survey	LS			
Certification of Closure	LS			
Other (detail)				
		Subtotal	Engineering:	\$0.00

# 11. Professional Services

	Contract Management		Quality A	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)				<del></del>	\$0.00	
DESCRIPTION		UNIT	QUANTITY	UNIT COST	TOTAL	
Quality Assurance Te	esting	LS			\$0.00	
			Subtotal F	Professional Services:	\$0.00	
			Subtotal of 1-1	1 Above:	\$0.00	
12. Contingency		% of Total (e	example. enter .1 for	10%)	0%	
			Closing Cost S	Subtotal:	0.00	
13. Site Specific Cos	ts (explain)					
Mobilizatio	on					
Waste Tire	e Facility					
Materials F	Recovery Facility	/			1.00	
Special W	astes					
<u>Leachate l</u>	Management Sy	stem Modification	<u>1</u>			
Other Ha	ul and Dispose	e of leftover (	C&D Debris		\$22,526.00	
			Subtotal Site Spe	cific Costs:	\$22,526.00	
			TOTAL CLOSIN	G COSTS\$	22,526.00	

VI. ANNUAL COST FO	OR LONG-TERM CARE	(0	Check Term Length)	
	5 Years	20 Years	30 Years	Other
			0(11)b. F.A.C. for required to long-term care length as "O	
		ate / Quote must be pro		
		a third party providing a		
All items must	t be addressed. Attach a	a detailed explanation fo	or all items marked not appl	icable (N/A)
	Sampling Frequency	Number of		
Description	(events/yr.)	Wells	\$ / Well / Event	\$ / Year
1. Groundwater Monitor	ring (62-701.510(6), and	(8)(a))		
Monthly	12			\$0.00
Quarterly	4	<del></del>		\$0.00
Semi-Annual	2		•	\$0.00
Annual	1			\$0.00
		Subtotal Gr	oundwater Monitoring:	\$0.00
Surface Water Monit	toring (62-701.510(4), and	d (8)(b)		
Monthly	12			\$0.00
Quarterly	4			\$0.00
Semi-Annual	2			\$0.00
Annual	1			\$0.00
		Subtotal Sui	rface Water Monitoring:	\$0.00
3. Gas Monitoring				
Monthly	12			\$0.00
Quarterly	4			\$0.00
Semi-Annual	2			\$0.00
Annual	1			\$0.00
(Title V Monitor	ing & Reporting)	Subtot	al Gas Monitoring:	\$0.00
		Sublota	ai Jas Monitoling.	T

C&D Transfer 9-6-06

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DEP FORM 62-701.900(28)

Effective 05-27-01

Description	Sampling Frequency (events/yr.)	Number of Locations	\$/Location/Event	\$ / Year
4. Leachate Monitoring (62-	701.510(5), (6)(b) ar	nd 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
Collection Pipes	LF			\$0.00
Maintenance				
				\$0.00
Sumps, Traps	EA		<del></del>	\$0.00
Lift Stations	EA			
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 a	nd Disposal)			\$0.00
DEP FORM 62-701.900(28) Effective 05-27-01		C&D Transfer 9-6-06		Page 8 of 11

# 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		
Subtot	al Leachate Co	llection/Treatment System Maintenance & Operation	on: \$0.00
7. Maintenance of Groundwate	er Monitoring W	ells	
Monitoring Wells	LF		\$0.00
Replacement	EA		\$0.00
Abandonment	EA		\$0.00
		Subtotal Groundwater Monitoring Well Maintena	nce: \$0.00
DESCRIPTION	UNIT	QUANTITY UNIT COST	ANNUAL COST
8. Gas System Maintenance			
8. Gas System Maintenance Piping, Vents	LF		\$0.00
	LF EA		\$0.00
Piping, Vents			
Piping, Vents Blowers	EA		\$0.00
Piping, Vents Blowers Flaring Units	EA EA		\$0.00
Piping, Vents  Blowers  Flaring Units  Meters, Valves	EA EA EA		\$0.00 \$0.00 \$0.00
Piping, Vents  Blowers  Flaring Units  Meters, Valves  Compressors	EA EA EA		\$0.00 \$0.00 \$0.00 \$0.00
Piping, Vents  Blowers  Flaring Units  Meters, Valves  Compressors  Flame Arrestors	EA EA EA EA	SubTotal Gas System:	\$0.00 \$0.00 \$0.00 \$0.00
Piping, Vents  Blowers  Flaring Units  Meters, Valves  Compressors  Flame Arrestors	EA EA EA EA	SubTotal Gas System:	\$0.00 \$0.00 \$0.00 \$0.00
Piping, Vents Blowers Flaring Units Meters, Valves Compressors Flame Arrestors Operation	EA EA EA EA	SubTotal Gas System:	\$0.00 \$0.00 \$0.00 \$0.00
Piping, Vents Blowers Flaring Units Meters, Valves Compressors Flame Arrestors Operation	EA EA EA EA LS	SubTotal Gas System:	\$0.00 \$0.00 \$0.00 \$0.00 \$0.00

DESCRIPTION	UNIT	QUANTITY	UNIT COST	ANNUAL COST
10. Erosion Control & Cover I	Maintenance			
Sodding	SY			\$0.00
Regrading	AC			\$0.00
Liner Repair	SY			\$0.00
Clay	CY			\$0.00
		Subtottal Erosion Control ar	nd Cover Maintenance:	\$0.00
11. Storm Water Managemer	it System Maint	enance		
Conveyance Maintenance	LS			
		Subtotal Storm Water Sy	rstem Maintenance:	
12. Security System Mainten	ance			
Fences	LF	<del></del>		\$0.00
Gate(s)	EA			\$0.00
Sign(s)	EA			\$0.00
		Subtotal Securit	ty 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	<del></del>		\$0.00
OnSite Technician	HR			\$0.00
Other (explain)				\$0.00
		Subtotal Admir	nistrative:	\$0.00
15. Contingency	% of Total			0.00%
	\$0.00	Subtotal Conti	ingency:	\$0.00

16. Site Specific Costs (explain)		UNIT COST	
	<u></u>	LS	
		LS	
		LS	
	ANNUAL LONG-TERM CARE COST (\$	/Year):	\$0.00
	NUMBER OF YEARS OF LONG-TERM CARE		
	TOTAL LONG-TERM CARE COST	(\$)	\$0.00

Client Project Detail

Martin County C&D Transfer Area

Financial Assurance/ Closure Cost Estimate

Job No. 6358-51338-057 RT2 Initials Date Chkd Chkd by

Date

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 10,000 Area (ft2)

- 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.

Top Surface Area =  $(A-S_z)^*(B-2S_z)$ 

where: z = vertical distance from slab

A = top length from push wall

B = top width parallel to push wall

Sx = slope of face parallel to push wall

Sy = slope of face perpendicular to push wall

T.S.A.= AB-2AS $_x$ z-BS $_x$ z+2S $_x$ S $_z$ z<sup>2</sup>

$$= AB - (2AS_v + BS_x)z + 2S_xS_vz^2$$

To get volume integrate surface area over the depth (z=0 to 10). Vol.= ABz- $(1/2)(2AS_v+BS_x)z^2+((2/3)S_xS_v)z^3$ 

> A= 100 B = 100

ft

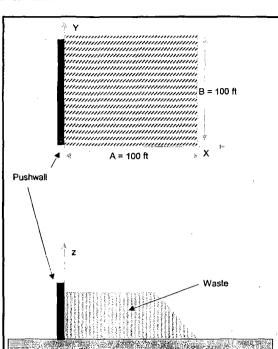
Sx=2

(2:1 Slope)

Sy= 2

(2:1 Slope)

Depth= 10



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

Mass of C&D = Density \* Vol. =

Assumed Cost to Haul and Dispose C&D to Okeechobee Landfill:

\$ 27.81 per ton (May 2006)

Cost of Disposal =

SEP 1 1 2006

DEPT OF ENV PROTECTION WEST PALM BEACH