Florida Department of
Environmental Protection

Southwest District Office
13051 North Telecom Parkway
Temple Terrace, Florida 33637-0926

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

Mr. Frank Coggins, Manager
Sarasota County Solid Waste Operations
4000 Knights Trail Road
Nokomis, Fl. 34275

December 3, 2008

RE: Central County Solid Waste Disposal Complex, Sarasota County
Financial Assurance Cost Estimates
Phase II Construction - Permit No.: 130542-006-SO/01
Phase II Operation - Permit No.: 130542-007-SC/01

Dear Mr. Coggins:

This letter is to acknowledge receipt of the revised cost estimates dated August 29, 2008 (received September 3, 2008), prepared by HDR, for closure and long-term care of Phases I & II of the Sarasota Central County Solid Waste Disposal Complex. The revised cost estimates received September 3, 2008 (total for closing $30,316,598.90 and long-term care $978,214.65/year x 30 years= $29,346,439.50), are **APPROVED for 2008**. This cost estimate is for closure and long-term care of approximately 110 acres. The next annual update (revised or inflation-adjusted estimates) is due no later than September 1, 2009.

A copy of these estimates will be forwarded to Mr. Fred Wick, Solid Waste Section, FDEP, 2600 Blair Stone Road, Tallahassee, Florida 32399-2407. Please work with him directly to assess the facility's compliance with the funding mechanism requirements of Rule 62-701.630, F.A.C. If you have any questions, you may contact me at (813) 632-7600 ext. 385.

Sincerely,

Steven G. Morgan
Solid Waste Section
Southwest District

cc: Thomas M. Yanoschak, P.E., DEE, HDR Engineering, Inc., Thomas.Yanoschak@hdrinc.com
Frank Hornbrook, FDEP, Tallahassee, (e-mail)
Susan Pelz, P.E., FDEP Tampa

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

DEP Application No. _____
(Filled by DEP)

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

FINANCIAL ASSURANCE COST ESTIMATE FORM

Date: August 29, 2008 Date of DEP Approval: _____

I. GENERAL INFORMATION:

Facility Name: Central County Solid Waste Disposal Complex WACS or GMSID #: 4058C02034

Permit / Application No.: 130542-002-SO/01 Expiration Date: 7/20/2010

Facility Address: 4000 Knights Trail Road, Nokomis, FL 34275

Permittee: Sarasota County Solid Waste Operations

Mailing Address: 4000 Knights Trail Road, Nokomis, FL 34275

Latitude: 27° 12' 10.7" Longitude: 82° 23' 16.39" or UTM: _____

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	55	6/15/1998	15
Phase II	55	Late 2009	10

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
SEP - 2 2008
SOUTHWEST DISTRICT
TAMPA

Total Landfill Acreage included in this estimate. 115 Closure 115 Long-Term Care

Type of landfill: ✓ Class I _____ Class III _____ C&D Debris

II. TYPE OF FINANCIAL ASSURANCE DOCUMENT (Check Type)

_____ Letter of Credit*
_____ Surety Bond*
_____ Trust Fund Agreement
_____ Insurance Certificate
_____ Escrow Account
✓ Financial Test

*Indicates mechanisms that require use of a Standby Trust Fund 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 Department approved closure cost estimate dated: NA

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: NA

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.

Thomas M. Yanoschak 08/29/08
Signature of Engineer

Thomas M. Yanoschak, PE, Project Mgr
Name & Title (please type)

P.E. Number 44200
Florida Registration Number (affix seal) &Date

3233 National Drive Suite 207
Raleigh, NC 27612-4845
Mailing Address

(919) 232-6618
Telephone Number

Frank Coggins
Signature of Owner/Operator

Frank Coggins,Mgr,SolidWasteOperations
Name & Title (please type)

(941) 861-1571
Telephone Number

fcoggins@scgov.net
Owner/Operator E-mail address

Thomas.yanoschak@hdrinc.com
Engineer E-mail address

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	NA		$0.00
2. Slope and Fill (bedding layer between waste and barrier layer):				
Excavation	CY	178,000	$1.76	$313,280.00
Placement and Spreading	CY	178,000	$1.51	$268,780.00
Compaction	CY	178,000	$0.29	$51,620.00
Off-Site Material	CY	178,000	$13.15	$2,340,700.0
Delivery	CY	186,900	$5.20	$971,880.00
			Subtotal Slope and Fill:	**$3,946,260.0**
3. Cover Material (Barrier Layer):				
Off-Site Clay	CY	NA		$0.00
Synthetics - 40 mil	SY	532,000	$6.89	$3,665,480.0
Synthetics - GCL	SY	NA		$0.00
Synthetics - Geonet	SY	532,000	$4.31	$2,292,920.0
Synthetics - Other	SY	NA		$0.00
			Subtotal Barrier Layer Cover:	**$5,958,400.0**
4. Top Soil Cover:				
Off-Site Material	CY	355,000	$13.15	$4,668,250.0
Delivery	CY	373,000	$5.20	$1,939,600.0
Spread	CY	355,000	$1.51	$536,050.00
			Subtotal Top Soil Cover:	**$7,143,900.0**

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
5. Vegetative Layer				
Sodding	SY	532,000	$5.81	$3,090,920.0
Hydroseeding	AC	NA		$0.00
Fertilizer	AC	110	$114.60	$12,606.00
Mulch	AC	NA		$0.00
Other	SY	NA		$0.00
			Subtotal Vegetative Layer:	**$3,103,526.0**
6. Stormwater Control System:				
Earthwork	CY	22,500	$21.91	$492,975.00
Grading	SY	NA		$0.00
Piping	LF	4,840	$50.72	$245,484.80
Ditches	LF	NA		$0.00
Berms	LF	22,500	$31.90	$717,750.00
Control Structures	EA	24	$4,000.00	$96,000.00
Other	LS	104	$1,000.00	$104,000.00
			Subtotal Stormwater Controls:	**$1,656,209.8**
7. Gas Controls: Passive				
Wells	EA	110	$6,700.00	$737,000.00
Pipe and Fittings	LF	NA		$0.00
Monitoring Probes	EA	NA		$0.00
NSPS/Title V requirements	LS	1	$4,000.00	$4,000.00
			Subtotal Passive Gas Control:	**$741,000.00**

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
8. Gas Control: Active Extraction				
Traps	EA	2	$8,600.00	$17,200.00
Sump	EA	4	$16,000.00	$64,000.00
Flare Assembly	EA	1	$95,000.00	$95,000.00
Flame Arrestor	EA	1	$10,000.00	$10,000.00
Mist Eliminator	EA	1	$20,000.00	$20,000.00
Flow Meter	EA	1	$55,000.00	$55,000.00
Blowers	EA	2	$20,000.00	$40,000.00
Collection System	LF	1	$1,200,000.0	$1,200,000.0
Other (describe)		110	$700.00	$77,000.00
			Subtotal Active Gas Extraction:	**$1,578,200.0**
9. Security System:				
Fencing	LF	NA		$0.00
Gate(s)	EA	NA		$0.00
Sign(s)	EA	1	$600.00	$600.00
			Subtotal Security System:	**$600.00**
10. Engineering:			SUBTOTAL ITEMS 1 - 9	$24,128,095.80
Closure Plan report	LS		$483,000.00	$483,000.00
Certified Engineer	LS	1	$1,206,000.00	$1,206,000.0
NSPS/Title V Air Permit	LS	1	$15,000	$15,000.00
Final Survey	LS	1	$35,750.00	$35,750.00
Certification of Closure	LS	1	$241,000.00	$241,000.00
Other (detail)		NA		
			Subtotal Engineering:	**$1,980,750.0**

11. Professional Services

	Contract Management		Quality Assurance		
	Hours	LS	Hours	LS	Total
P.E. Supervisor	265	$40,000.	95	$15,000.	$55,000.00
On-Site Engineer	192	$22,000.	96	$11,000.	$33,000.00
Office Engineer	320	$40,000.	240	$30,000.	$70,000.00
On-Site Technician	960	$67,000.	960	$67,000.	$134,000.0(
Other (explain)	256	$17,000.	96	$6,000.0	$23,000.00

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
Quality Assurance Testing	LS	1	$275,000	$275,000.0(

Subtotal Professional Services: **$590,000.0(**

Subtotal of 1-11 Above: **$26,698,845.80**

12. Contingency — % of Total (example. enter .1 for 10%): 5%

Closing Cost Subtotal: 28,033,788.09

13. Site Specific Costs (explain)

Mobilization	NA
Waste Tire Facility	$140,000.00
Materials Recovery Facility	$924,000.00
Special Wastes	$131,000.00
Leachate Management System Modification	NA
Other Yard Trash Facility	$556,000.00
Leachate Disposal	$531,810.00

Subtotal Site Specific Costs: $2,282,810.00

TOTAL CLOSING COSTS **$30,316,598.09**

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
1. Groundwater Monitoring (62-701.510(6), and (8)(a))				
Monthly	12	NA		$0.00
Quarterly	4	NA		$0.00
Semi-Annual	2	10	$700.00	$14,000.00
Annual	1	NA		$0.00
			Subtotal Groundwater Monitoring:	$14,000.00
2. Surface Water Monitoring (62-701.510(4), and (8)(b)				
Monthly	12	NA		$0.00
Quarterly	4	NA		$0.00
Semi-Annual	2	2	$1,100.00	$4,400.00
Annual	1	NA		$0.00
			Subtotal Surface Water Monitoring:	$4,400.00
3. Gas Monitoring				
Monthly	12	NA		$0.00
Quarterly	4	10	$100.00	$4,000.00
Semi-Annual	2	NA		$0.00
Annual	1	NA		$0.00
			Subtotal Gas Monitoring:	$4,000.00

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	NA		$0.00
Quarterly	4	NA		$0.00
Semi-Annual	2	6	$300.00	$3,600.00
Annual	1	6	$900.00	$5,400.00
Other		NA		$0.00
			Subtotal Leachate Monitoring:	$9,000.00

DESCRIPTION	UNIT	QUANTITY	UNIT COST	ANNUAL COST
5. Leachate Collection/Treatment Systems Maintenance				
Maintenance				
Collection Pipes	LF	14,700	$1.00	$14,700.00
Sumps, Traps	EA	5	$80.00	$400.00
Lift Stations	EA	7	$2,400.00	$16,800.00
Cleaning	LS	NA		$0.00
Tanks	EA	1	$2,500.00	$2,500.00
Impoundments				
Liner Repair	SY	NA		$0.00
Sludge Removal	CY	NA		$0.00
Aeration Systems	CY	NA		$0.00
Floating Aerators	EA	NA		$0.00
Spray Aerators	EA	NA		$0.00
Disposal			($25.386)	
Off-site (Include Transportation and Disposal)	1000 gallon	21,000	25	$533,106.00
			Subtotal Leachate Collection/Treatment Systems	$567,506.00

6. Leachfate Collection/Treatment Systems Operation

Operation		Hours	$/Hour	Total
P.E. Supervisor	HR	24	$159.00	$3,816.00
On-Site Engineer	HR	16	$114.00	$1,824.00
Office Engineer	HR	48	$125.00	$6,000.00
OnSite Technician	HR	48	$70.00	$3,360.00
Materials	LS			$1,000.00
		Subtotal Leachate Collection/Treatment System Maintenance & Operation:		$16,000.00

7. Maintenance of Groundwater Monitoring Wells

Monitoring Wells	LF	20	**$70.00**	$1,400.00
Replacement	EA	NA		$0.00
Abandonment	EA	NA		$0.00
		Subtotal Groundwater Monitoring Well Maintenance:		$1,400.00

DESCRIPTION	UNIT	QUANTITY	UNIT COST	ANNUAL COST
8. Gas System Maintenance				
Piping, Vents	~~LF~~ LS	1	$50,000.00	$50,000.00
Blowers	EA	2	$5,000.00	$10,000.00
Flaring Units	EA	1	$10,000.00	$10,000.00
Meters, Valves	EA	1	$2,000.00	$2,000.00
Compressors	EA			$0.00
Flame Arrestors	EA	1	$2,000.00	$2,000.00
Operation	LS			$102,520.00
			SubTotal Gas System:	$176,520.00
9. Landscape				
Mowing	AC	115	$170.00	$19,550.00
Fertilizer	AC	115	$115.00	$13,225.00
			Subtotal Landscape Maintenance:	$32,775.00

DESCRIPTION	UNIT	QUANTITY	UNIT COST	ANNUAL COST
10. Erosion Control & Cover Maintenance				
Sodding	SY	6,000	$5.81	$34,860.00
Regrading	AC	1	$900.00	$900.00
Liner Repair	SY	250	$10.00	$2,500.00
Clay	CY	NA		$0.00
		Subtottal Erosion Control and Cover Maintenance:		$38,260.00
11. Storm Water Management System Maintenance				
Conveyance Maintenance	LS- LF	5,000	$1.12	$5,600.00
		Subtotal Storm Water System Maintenance:		$5,600.00
12. Security System Maintenance				
Fences	LF	100	$42.00	$4,200.00
Gate(s)	EA	1	$2,000.00	$2,000.00
Sign(s)	EA	1	$100.00	$100.00
		Subtotal Security System:		$6,300.00
13. Utilities	LS			$38,000.00
14. Administrative		Hours	$/Hour	Total
P.E. Supervisor	HR	16	$159.00	$2,544.00
On-Site Engineer	HR	72	$114.00	$8,208.00
Office Engineer	HR	48	$125.00	$6,000.00
OnSite Technician	HR	16	$70.00	$1,120.00
Other (explain)		NA		$0.00
		Subtotal Administrative:		$17,872.00
15. Contingency	% of Total			5%
SUBTOTAL ITEMS 1-14	$931,633.00	Subtotal Contingency:		$46,581.65

16. Site Specific Costs (explain)	UNIT COST	
NA	LS	
NA	LS	
NA	LS	

ANNUAL LONG-TERM CARE COST ($/Year):	$978,214.65
NUMBER OF YEARS OF LONG-TERM CARE	30.00
TOTAL LONG-TERM CARE COST ($)	$29,346,439.50

Job No.	91148-001	Calc No.	

Computation

HDR

Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Component		Reviewed	TMY
Task	Closure/Post Closure Costs	Date	8/25/2008

Purpose

Estimate Closure/Post Closure costs for Phase I and II of the CCSWPC Class I Landfill. Assume third party will provide all materials and services. Assume worst-case scenario where all 110 acres of Phases I and II have received waste but no closure has occurred.

References

Cost Data Obtained from:

- 2008 RS Means Heavy Construction Cost Data (prices adjusted for Sarasota, FL location factors)
- Price Quotes from vendors as noted
- Actual costs adjusted for inflation, as noted.

Procedure

(Note: Item numbers correspond to items listed on FDEP Form G2-701.900(28))

Job No.	91148-001	Calc No.	

Computation

HDR

Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Component		Reviewed	TMY
Task	Closure/Post Closure Costs	Date	8/25/2008

Find

Description	Variable	Units
Phase I and II Closure/Post Closure Area		Acres

Solution

Description	Value	Comment
Phase I and II Closure/Post Closure Area	110	Phase I = 55 ac, Phase II = 55ac

Diagram

See Attachment A

Job No.	91148-001	Calc No.	00001

Computation

HDR

Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Component		Reviewed	TMY
Task	Closure Costs (Item 1)	Date	8/25/2008

Find

Description	Variable	Units
Proposed Monitoring Wells		Ea

Given

Description	Value	Source
Proposed Monitoring Wells		Assume all monitoring wells installed prior to Phase II operation (i.e., no new wells required for closure).

Job No.	91148-001	Calc No.	00002

Computation

HDR

Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Component		Reviewed	TMY
Task	Closure Costs (Item 2)	Date	8/25/2008

Purpose

Slope and Fill (bedding layer between waste and barrier layer).
Assume off-site material will be used per FDEP.

Find

Description	Variable	Units
Excavation		$
Placement and Spreading		$
Compaction		$
Off-Site Material		$
Delivery		$

Given

Description	Value	Source
Excavation	$1.76	Attachment B (2008 Means 02315-424-0300, 02315-424-0020)
Placement and Spreading	$1.51	Attachment B (2008 Means 02315-520-0020)
Compaction	$0.29	Attachment B (2008 Means 02315-310-5000)
Off-Site Material	$15.00	Attachment B (2008 Means 02315-210-4070)
Delivery	$5.20	Attachment B (2008 Means 02315-490-1100)

Given

Description	Value	Comment
Excavation	177000	Assume 1' of soil will be required on average over Phases I and II
Placement and Spreading	177000	
Compaction	177000	
Off-Site Material	177000	
Delivery	186000	For wet sand assume 5% Swell (Source: Exacavation Planning Reference Guid, 1988)

Equations

Quantity = 110 AC * 43560 sf/ac * 1' *(1 cy/ 27cf) = 177,467 CY = 177,000 CY
Quantity in loose cy (LCY) = Bank CY (NCY) * % Swell
LCY = 177,000 * 1.05 = 185,850 = 186,000

Solution

Description	Equation	Comment	Value	Verification
Excavation	Total Cost =177000cy * $1.76/cy	Price Adjusted by 15% for truck loading and location	$311,431.50	
Placement and Spreading	Total Cost =177000cy * $1.51/cy	Price Adjusted for location	$267,270.00	
Compaction	Total Cost =177000cy * $0.29/cy	Price Adjusted for location	$51,330.00	
Off-Site Material	Total Cost =177000cy * $15.00/cy	Price Adjusted for location	$2,655,000.00	
Delivery	Total Cost =186000cy * $5.20/cy	Price Adjusted for location	$967,200.00	

Computation

HDR

Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Component		Reviewed	TMY
Task	Closure Costs (Item 3)	Date	8/25/2008

Purpose

Cover Material (Barrier Layer). Assume geosynthetic barrier layer consisting of 40 mil textured LLDPE with overlying geosynthetic drainage layer (GDL).

Find

Description	Variable	Units
Off-Site Clay		N/A
40 mil textured LLDPE		$
Synthetics GCL		N/A
Synthetics Geonet		$
Synthetics Other		N/A

Given

Description	Value	Source
Off-Site Clay	N/A	N/A
40 mil textured LLDPE	$4.31	Attachment C (See price quote from GSE)
Synthetics GCL	N/A	N/A
Synthetics Geonet	$6.89	Attachment C (See price quote from GSE)
Synthetics Other	N/A	N/A

Given

Description	Value	Comment
Off-Site Clay	N/A	N/A
40 mil textured LLDPE	532000	sy
Synthetics GCL	N/A	N/A
Synthetics Geonet	532000	Assume 300 mil Geonet Composite w/ 8 oz/sy non-woven fabric on both sides)
Synthetics Other	N/A	N/A

Equations

Quantity = 110 AC * 43560 sf/ac * 1' *(1 sy/ 9 sf) = 532,400 SY = 532,000 SY

40 mil Textured Installed Cost = $0.50/sf = $4.50/sy

Geonet Installed Cost = $0.77/sf = $6.93/sy

Solution

Description	Equation	Comment	Value	Verification
Off-Site Clay	N/A	N/A	N/A	
40 mil textured LLDPE	Total Cost = 532000sy * $4.50/sy		$2,292,920.00	
Synthetics GCL	N/A	N/A	N/A	
Synthetics Geonet	Total Cost = 532000sy * $6.93/sy		$3,665,480.00	
Synthetics Other	N/A	N/A	N/A	

Job No.	91148-001	Calc No.	00004

Computation

Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Component		Reviewed	TMY
Task	Closure Costs (Item 4)	Date	8/25/2008

Purpose

Top Soil Cover (Assume 24" Cover over Geosynthetics)

Find

Description	Variable	Units
Off-Site Material		$
Delivery		$
Spread		$

Given

Description	Value	Source
Off-Site Material	$15.00	Attachment B (2008 Means 02315-210-4070)
Delivery	$5.20	Attachment B (2008 Means 02315-490-1100)
Spread	$1.51	Attachment B (2008 Means 02315-520-0020)

Given

Description	Value	Comment
Off-Site Material	355000	
Delivery	373000	
Spread	355000	

Equations

Quantity = 110 AC * 43560 sf/ac * 2' *(1 cy/ 27cf) = 354,933 CY = 355,000 CY

Quantity in loose cy (LCY) = Bank CY (NCY) * % Swell

LCY = 355,000 * 1.05 = 372,750 cy = 373,000 cy

Solution

Description	Equation	Comment	Value	Verification
Off-Site Material	Total Cost =355000cy * $15.00/cy	Price Adjusted for location	$5,325,000.00	
Delivery	Total Cost =373000cy * $5.20/cy	Price Adjusted for location	$1,939,600.00	
Spread	Total Cost =355000cy * $1.51/cy	Price Adjusted for location	$536,050.00	

Job No.	91148-001	Calc No.	00005

Computation

HDR

Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Component		Reviewed	TMY
Task	Closure Costs (Item 5)	Date	8/25/2008

Purpose

Vegetative Layer (Assume entire closure area will be sodded and fertilized)

Find

Description	Variable	Units
Sodding		$
Hydroseeding		N/A
Fertilizer		$
Mulch		N/A
Other		N/A

Given

Description	Value	Source
Sodding	$5.81	Attachment B (2008 Means 2920-400-1500)
Hydroseeding	N/A	N/A
Fertilizer	$114.60	Attachment B (2008 Means 2935-100-0140)
Mulch	N/A	N/A
Other	N/A	N/A

Given

Description	Value	Comment
Sodding	557000	
Hydroseeding	N/A	N/A
Fertilizer	110	
Mulch	N/A	N/A
Other	N/A	N/A

Equations

Quantity = 110 AC * 43560 sf/ac * 1' *(1 sy/ 9 sf) = 532,400 SY = 532,000 SY
Installed cost for bent grass on sloped ground = $645.00/msf
$645/msf * (1 msf/1000 sf) * (9 sf/sy) = $5.81/sy
Cost using truck whirlwind spreader = $2.63/msf
$2.63/msf * (1 msf/1000 sf) * (43560 cf/ac) = $114.60/ac

Solution

Description	Equation	Comment	Value	Verification
Sodding	Total Cost =532000sy * $5.81/sy	Price Adjusted for location	$3,236,170.00	
Hydroseeding	N/A	N/A	N/A	
Fertilizer	Total Cost =110 * $114.60/ac	Price Adjusted for location	$12,606.00	
Mulch	N/A	N/A	N/A	
Other	N/A	N/A	N/A	

Job No.	91148-001	Calc No.	00006

Computation

HDR

Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Document		Reviewed	TMY
Task	Closure Costs (Item 6)	Date	8/25/2008

Purpose

Stormwater Control System

Find

Description	Variable	Units
Earthwork		$
Grading		N/A
Piping (24" CPP Downdrains)		$
Ditches		N/A
Berms		$
Control Structures		$
Other		$

Given

Description	Value	Source
Earthwork	$21.91	Cost of Off-site Borrow including placement (see Item 2) per cy
Grading	N/A	N/A - Included in Earthwork
Piping (24" CPP Downdrains)	50.72	Total Unit Cost, Attachment B (2008 Means G1030-805-1420, G1030-815-2820, 02630-520-1070, 02630-520-1135) per lf
Ditches	N/A	N/A - No additional ditches required for closure
Berms	$31.90	Attachment B (2008 Means 02370-700-0060), Include Adjusted Cost per LF of berm
Control Structures	$93,840.00	Total Cost for Fabric Formed Concrete
Other	$1,000.00	Typical Cost of Installation

Solution

Description	Value	Comment
Earthwork	22500	From Attachment A, Phases I and II will require the construction of approximately 22500 lf of drainage terrace
Grading	N/A	N/A
Piping (24" CPP Downdrains)	4840	Approx. Quantity, See Attachment A
Ditches	N/A	N/A
Berms	22500	Earthwork required for berms is already included within item 6A. Need to add erosion control matting that will be placed over berms
Control Structures	24	Number of Structures
Other	104	Inlet Structures Attachment A

Equations

Earthwork

Quantity of Fill Required per LF of berm = 0.5 * 25' * 3' = 37.5 cf/lf = 1.39 cy/lf

Cost to Excavate Offsite Borrow = $1.76/cy

Cost to Compact Offsite Borrow = $0.29/cy

Cost to Obtain Offsite Borrow = $13.15/cy

Cost to Deliver Offsite Borrow = $5.20/cy

Cost to Grade Offsite Borrow = $1.51/cy

Total Cost = $21.91/cy

Piping

Cost for backfill (FE loadwe with 1 cy bucket, minimal haul) = $2.07/lcy

Convert to $/lf: Quantity excavated for 4'x4' tronch=16cf/lf=0.59cy/lf

Cost = $2.07/cy 8 .59cy/lf = $1.22/lf

Berms

Area required to be covered by erosion control matting = 35' * 22500' = 787500 sf

Adjusted Cost per LF of berm 35 sf/lf * (1sy/ 9 sf) = $3.89

Control Structures

Quantity of 4" Filter Point Fabric-Formed Concrete (from Attachment A)

14' * 70' = 980 sf per structure (~1000 sf per structure)

Total Quantity = 24000sf

Cost for 4" Filter Point = $3.91/sf (See Attachment D)

Calculation

Description	Equation	Comment	Value	Verification
Earthwork	Total Cost = Cost to Off-Site Borrow * Total Quantity		$492,975.00	
Grading	N/A	N/A	N/A	
Piping (24" CPP Downdrains)	Total Cost= Total Unit Cost * Approx. Quantity		$245,484.80	
Ditches	N/A	N/A	N/A	
Berms	Toal Cost = 22500* $31.90		$717,705.00	
Control Structures	Total Cost = Total Cost for Fabric Formed Concrete/ No. of Structures		$3,910.00	
Other	Total Cost = 104 Inlet Structures * $1000 Install. Cost		$104,000.00	

Job No.	91148-001	Calc No.	00007

Computation

HDR

Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Component		Reviewed	TMY
Task	Closure Costs (Item 7)	Date	8/25/2008

Purpose

Gas Controls (Passive)

Find

Description	Variable	Units
Wells		$
Pipe and Fittings		N/A
Monitoring Probes		N/A
NSPS/Title V Requirements		$

Given

Description	Value	Source
Wells	$6,700.00	Attachment E (Typical Costs from recent projects, Assume 75' deep)
Pipe and Fittings	N/A	N/A - Included in well cost
Monitoring Probes	N/A	N/A - Assume no new probes required for closure
NSPS/Title V Requirements	$4,000.00	Attachment E

Solution

Description	Value	Comment
Wells	110	Assume 1 per acre
Pipe and Fittings	N/A	N/A
Monitoring Probes	N/A	N/A
NSPS/Title V Requirements	N/A	See Attachment E

Equations

Quantity at 1/ac avg. = 110

Calculation

Description	Equation	Comment	Value	Verification
Wells	Total Cost = 110 * $6700		$737,000.00	
Pipe and Fittings	N/A	N/A	N/A	
Monitoring Probes	N/A	N/A	N/A	
NSPS/Title V Requirements	N/A	See Attachment E	$4,000.00	

Job No.	91148-001	Calc No.	00008

Computation

Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Component		Reviewed	TMY
Task	Closure Costs (Item 8)	Date	8/25/2008

Purpose

Gas Control: Active Extraction (cost based on previous experience with similar systems)

Find

Description	Variable	Units
Traps		$
Sump		$
Flare Assembly		$
Flame Arrestor		$
Mist Eliminator		$
Flow Meter		$
Blowers		$
Collection System Piping		$
Other		$

Given

Description	Value	Source
Traps	$8,600.00	Based On Previous Experience
Sump	$16,000.00	Based On Previous Experience
Flare Assembly	$95,000.00	Based On Previous Experience
Flame Arrestor	$10,000.00	Based On Previous Experience
Mist Eliminator	$20,000.00	Based On Previous Experience
Flow Meter	$55,000.00	Based On Previous Experience
Blowers	$20,000.00	Based On Previous Experience
Collection System Piping	$1,200,000.00	Based On Previous Experience
Other	$700.00	Based On Previous Experience (well heads)

Given

Description	Value	Comment
Traps	2	
Sump	4	
Flare Assembly	1	
Flame Arrestor	1	
Mist Eliminator	1	
Flow Meter	1	
Blowers	2	
Collection System Piping	1	
Other	110	

Equations

Job No.	91148-001	Calc No.	00008

Computation

HDR

Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Component		Reviewed	TMY
Task	Closure Costs (Item 8)	Date	8/25/2008

Solution

Description	Equation	Comment	Value	Verification
Traps	Total Cost = 2 * $8600	EA	$17,200.00	
Sump	Total Cost = 4 * $16000	EA	$64,000.00	
Flare Assembly	Total Cost = 1 * $95000	EA	$95,000.00	
Flame Arrestor	Total Cost = 1 * $10000	EA	$10,000.00	
Mist Eliminator	Total Cost = 1 * $20000	EA	$20,000.00	
Flow Meter	Total Cost = 1 * $55000	EA	$55,000.00	
Blowers	Total Cost = 2 * $20000	EA	$40,000.00	
Collection System Piping	Total Cost = 1 * $1200000	LS	$1,200,000.00	
Other	Total Cost = 110 * $700	EA	$77,000.00	

Job No.	91148-001	Calc No.	00009

Computation

Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Component		Reviewed	TMY
Task	Closure Costs (Item 9)	Date	8/25/2008

Purpose

Security System

Find

Description	Variable	Units
Fencing		N/A
Gates		N/A
Signs		$

Given

Description	Value	Source
Fencing	N/A	N/A - Additional fencing not anticipated for closure
Gates	N/A	N/A - Additional gates not anticipated for closure
Signs	$19.60	Attachment B (2008 Means 01580-700-0020)

Solution

Description	Value	Comment
Fencing	N/A	N/A
Gates	N/A	N/A
Signs	32	Assume 1 4'x8' sign announcing closure and details

Equations

Calculation

Description	Equation	Comment	Value	Verification
Fencing	N/A	N/A	N/A	
Gates	N/A	N/A	N/A	
Signs	Total Cost = 4'*8'*$19.60/sf		$627.20	

Job No.	91148-001	Calc No.	00010

Computation

HDR

Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Component		Reviewed	TMY
Task	Closure Costs (Item 10)	Date	8/25/2008

Purpose

Engineering

Find

Description	Variable	Units
Closure Plan Report		$
Certified Engineer		$
NSPS/Title V Permit		$
Final Survey		$
Certification of Closure		$
Other		N/A

Given

Description	Value	Source
Closure Plan Report	$25,143,959.50	Subtotal Items Pages 1-9
Certified Engineer	$25,143,959.50	Subtotal Items Pages 1-9
NSPS/Title V Permit	$15,000.00	
Final Survey (per acre)	$325.00	Attachment B (2008 Means 01107-700-0020)
Certification of Closure	$25,143,959.50	Subtotal Items Pages 1-9
Other	N/A	N/A

Solution

Description	Value	Comment
Closure Plan Report	0.02	Assume 2% of Subtotal Items Pages 1-9
Certified Engineer	0.05	Assume 5% of Subtotal Items Pages 1-9
NSPS/Title V Permit	1	Based on Previous Work with other sites
Final Survey	110	
Certification of Closure	0.01	Assume 1% of Subtotal Items 1-9
Other	N/A	N/A

Equations

Calculation

Description	Equation	Comment	Value	Verification
Closure Plan Report	Total Cost = $ *2%		$502,879.19	
Certified Engineer	Total Cost = $ *5%		$1,257,197.98	
NSPS/Title V Permit	Total Cost = $15000 *1 Permit		$15,000.00	
Final Survey	Total Cost = 110 * $325		$35,750.00	
Certification of Closure	Total Cost = $ *1%		$251,439.60	
Other	N/A	N/A	N/A	

Job No.	91148-001	Calc No.	00011

Computation

HDR

Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Component		Reviewed	TMY
Task	Closure Costs (Item 11)	Date	8/25/2008

Purpose

Professional Services - Assume 8 month construction project with 6 months full-time field activities

Find

Description	Variable	Units
PE Supervisor		$
On-Site Engineer		$
Office Engineer		$
On-site Technician		$
Other (Administrative)		$
Quality Assurance Testing		$

Given

Description	Value	Comment
PE Supervisor	$40,704.00	CM Assume 8 hrs/week for 32 weeks @ $159/hr
On-Site Engineer	$21,888.00	CM Assume 8 hrs/week for 24 weeks @ $114/hr
Office Engineer	$40,000.00	CM Assume 10 hrs/week for 32 weeks @ $125/hr
On-site Technician	$67,200.00	CM Assume 40 hrs/week for 24 weeks @ $70/hr
Other (Administrative)	$16,896.00	CM Assume 8 hrs/week for 32 weeks @ $66/hr
Quality Assurance Testing	$2,500.00	Assume $2500/ac

Given

Description	Value	Comment
PE Supervisor	$15,264.00	QA Assume 4 hrs/week for 24 weeks @ $159/hr
On-Site Engineer	$10,944.00	QA Assume 4 hrs/week for 24 weeks @ $114/hr
Office Engineer	$30,000.00	QA Assume 10 hrs/week for 24 weeks @ $125/hr
On-site Technician	$67,200.00	QA Assume 40 hrs/week for 24 weeks @ $70/hr
Other (Administrative)	$6,336.00	QA Assume 4 hrs/week for 24 weeks @ $66/hr
Quality Assurance Testing	110	Total Acreage of Phases I and II

Equations

Solution

Description	Equation	Comment	Value	Verification
PE Supervisor	Total Cost = $40704/CM + $15264/QA		$55,968.00	
On-Site Engineer	Total Cost = $21888/CM + $10944/QA		$32,832.00	
Office Engineer	Total Cost = $40000/CM + $30000/QA		$70,000.00	
On-site Technician	Total Cost = $67200/CM + $67200/QA		$134,400.00	
Other (Administrative)	Total Cost = $16896/CM + $6336/QA		$23,232.00	
Quality Assurance Testing	Total Cost = 110 ac *$2500		$275,000.00	

Job No.	91148-001	Calc No.	00012

Computation

HDR

Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Component		Reviewed	TMY
Task	Closure Costs (Item 12)	Date	8/25/2008

Find

Description	Variable	Units
Contingency		Ea

Given

Description	Value	Source
Contingency	$1,286,769.58	Assume 5% of subtotal of Items Pages 1-11

Job No.	91148-001	Calc No.	00013

Computation

HDR

Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Component		Reviewed	TMY
Task	Closure Costs (Item 13)	Date	8/25/2008

Purpose

Site Specific Costs

Find

Description	Variable	Units
Mobilization		$
Waste Tire Facility		$
Materials Recovery Facility		$
Special Wastes - Asbestos		N/A
Special Wastes - Contaminated Soil		N/A
Special Wastes - White Goods		$
Special Wastes - Lead Acid Batteries		$
Special Wastes - Yard Waste		$
Special Wastes - Electronics		$
Special Wastes - Household Hazardous Wastes		$
Special Wastes - Used Oil		$
Special Wastes- Total		$
Leachate Disposal		$

Given

Description	Value	Source
Mobilization	$1,029,415.66	Assume 4% of subtotal of Items Pages 1-12
Waste Tire Facility	$128,520.00	2005 Cost Estimate
Materials Recovery Facility	$849,590.00	2005 Cost Estimate
Special Wastes - Asbestos	N/A	N/A - Assume disposed at working face before closure
Special Wastes - Contaminated Soil	N/A	N/A - Assume disposed at working face before closure
Special Wastes - White Goods	$1,587.50	Attachment B (2008 Means 02315-490-4750)
Special Wastes - Lead Acid Batteries	$63.50	Attachment B (2008 Means 02315-490-4750)
Special Wastes - Yard Waste	$41.37	Current Cost at CCSWDC for accepting yard waste
Special Wastes - Electronics	$825.00	Attachment B (2008 Means 02315-490-4750)
Special Wastes - Household Hazardous Wastes	$774.70	Cost to Haul, Attachment B (2008 Means 02110-300-1270)
Special Wastes - Used Oil	$452.10	Attachment B (2008 Means 02110-300-3400)
Special Wastes- Total	N/A	N/A
Leachate Disposal	$0.0254	Attachment F, Current Leachate Disposal Cost

Given

Description	Value	Comment
Mobilization	N/A	N/A
Waste Tire Facility	1.09	Inflation Factor
Materials Recovery Facility	1.09	Inflation Factor
Special Wastes - Asbestos	N/A	N/A
Special Wastes - Contaminated Soil	N/A	N/A
Special Wastes - White Goods	$1,000.00	Labor costs
Special Wastes - Lead Acid Batteries	$20.00	Labor costs
Special Wastes - Yard Waste	3,000	Max. tonnage of yard waste to be removed by permit
Special Wastes - Electronics	$200.00	Labor costs
Special Wastes - Household Hazardous Wastes	$1,160.00	Pickup Costs, Attachment B (2008 Means 2110-300-1130)
Special Wastes - Used Oil	$127.00	Pickup Costs, Attachment B (2008 Means 2110-300-3110)
Special Wastes- Total	N/A	N/A
Leachate Disposal	20937400	Estimated leachate generation upon Phases I and II Closure

Given

Description	Value	Comment
Special Wastes - Household Hazardous Wastes	$930.00	Disposal Charge, Attachment B (2008 Means 02110-300-6020)

Equations

Waste Tire Facility and Material Recovery Facility

Inflation Factors

2006 = 1.030

2007 = 1.030

2008 = 1.025

White Goods

Assume 50 can be hauled per truck load

No. of loads = 1250/50 = 25

Assume 2 laborers require 2 hrs each to load each truck at $10/hr

Labor Costs = 25 loads * 2 laborers * 2 hrs per laborer * $10/hr = $1000

Assume each load is taken to metal recycler in Sarasota, FL

Distance = 25 miles

Total miles to transport = 25 loads for 25 miles = 625 miles

Lead Acid Batteries

Assume 1 laborer requires 2 hrs @ $10/ hr to load 30 batteries into truck = $20

Total miles to transport = 1 load for 25 miles = 25 miles

Computation

Job No.	91148-001	Calc No.	00013
Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Component		Reviewed	TMY
Task	Closure Costs (Item 13)	Date	8/25/2008

Electronics
Assume 200 can be hauled per truck load
No. of loads = 1000/200 = 5
Assume 2 laborers require 2 hrs each to load each truck at $10/hr
Labor Costs = 5 loads * 2 laborers * 2 hrs per laborer * $10/hr = $200
Assume each load is taken to Creative Recycling in Tampa, FL
Distance = 66 miles
Total miles to transport = 5 loads for 66 miles = 330 miles

Household Hazardous Waste
Assume 2 tons to be disposed in 1 load
Assume HHW is taken to Veolia Environmental Services Facility in West Melbourne, FL
Distance = 122 miles

Used Oil
Assume 520 gallons picked up by vacuum truck and transported to safety-kleen facility in Tampa
Total miles to transport = 66 miles

Leachate Disposal
Assume leachate collected during 1 year if closure activities will be disposed as a closure cost
Use 2005 Leachate Generation Data for CCSWDC for Cells 1-4 to estimate leachate generated at closure
Cell 1 = 1040160
Cell 2 = 591840
Cell 3 = 494190
Cell 4 = 6752070
Rainfall Storage in Tank = 258067
Leachate Generation per acre = 9136372 gal/48 ac = 190340 gal/ac-yr
For worst case scenario assume all Phase I and Phase II Cells will be active upon closure = 110 ac

Solution

Description	Equation	Comment	Value	Verification
Mobilization	N/A	N/A	$1,029,415.66	
Waste Tire Facility	Total Cost = $128520*Inflation Factors		$139,755.54	
Materials Recovery Facility	Total Cost = $849590*Inflation Factors		$923,863.28	
Special Wastes - Permitted Special Wastes	N/A		N/A	
Special Wastes - White Goods	Total Cost = Labor Costs + Transport Costs	Conservatively Disregard Scrap Value	$2,587.50	
Special Wastes - Lead Acid Batteries	Total Cost = Labor Costs + Transport Costs	Conservatively Disregard Scrap Value	$83.50	
Special Wastes - Yard Waste	Total Cost= 3000 tons * $41.37/ton	Assume processed yard waste can be disposed/used on site or given away - no hauling offsite	$124,110.00	
Special Wastes - Electronics	Total Cost = Labor Costs + Transport Costs	Conservatively Disregard Scrap Value	$1,025.00	
Special Wastes - Household Hazardous Wastes	Total Cost = Pickup Costs + Haul Costs + Disposal Charge		$2,864.70	
Special Wastes - Used Oil	Total Cost = Pickup Costs + Transport Costs		$579.10	
Special Wastes- Total	Total Cost= Loading + Transport+Disposal		$131,249.80	
Leachate Disposal	Est. Leachate Disposal Cost = 20937400 gal * $0.0254		$531,516.84	

Notes

Special Wastes
Permitted Special Wastes at CCSWDC:

1. Asbestos - Assume disposed at working face before closure - N/A
2. Contaminated Soil - Assume disposed at working face before closure - N/A
3. White goods and lawn mowers - Assume max. permitted quantity of 1250 left on-site needing to be loaded and transported to a metal recycler in Sarasota
4. Lead Acid Batteries - Assume max. permitted quantity of 30 left on-site needint to be loaded and transported to a broker in Sarasota
5. Yard Waste - Assume max. permitted quantity of 3000 tons of unprocessed yard trash must be removed from facility
6. Tires - Assume waste tires will be transported to waste tire facility on-site and costs of disposal covered under Phase I Financial Assurance - N/A
7. Electronics - Assume Max. permitted quantity of 1000 devices left on-site needing to be loaded and transported to a recycler in Sarasota
8. Household Hazardous Waste - Since HHW must be removed at least monthly, assume 1 truck load of HHW must be removed from site and disposed
9. Used Oil - 520 gallons max.

Job No.	91148-001	Calc No.	00014

Computation

HDR

Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Component		Reviewed	TMY
Task	Post Closure Costs (Item 1)	Date	8/25/2008

Purpose

Groundwater Monitoring - Semi-Annual

Find

Description	Variable	Units
Groundwater Monitoring		$

Given

Description	Value	Comment
Groundwater Monitoring	$1,305.60	Cost per well per 2 events

Given

Description	Value	Comment
Groundwater Monitoring	10	No. of wells sampled

Equations

Sampling Costs (all wells combined):
Assume 12 hrs @ $70/hr = $840

Report Costs:
Assume 8 hr @ $125/hr = $1000
Assume 2 hrs @ $159/hr = $318

Cost per well = ($840+$1000+$318)/10 wells = $215.80

Lab Costs (Attachment G, prices quoted from Elab, Ormond Beach) = $437 per well
Cost per well = $215.80+$437 = $652.80/well/event
2 events per year

Calculation

Description	Equation	Comment	Value	Verification
Groundwater Monitoring	Total Cost = 10 wells * $652.80/well/event* 2 events		$13,056.00	

Job No.	91148-001	Calc No.	00015

Computation

HDR

Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Component		Reviewed	TMY
Task	Post Closure Costs (Item 2)	Date	8/25/2008

Purpose

Surface Water Monitoring
FDEP - 2 Locations Sampled Semi-Annually

Find

Description	Variable	Units
Surface Water Monitoring		$

Given

Description	Value	Source
Surface Water Monitoring	$344.50	Sampling Costs

Given

Description	Value	Source
Surface Water Monitoring	$250.00	Lab Costs (Attachment G, price quotes from Elab, Ormond Beach)

Given

Description	Value	Source
Surface Water Monitoring	$460.00	Additional parameters required by permit

Equations

Sampling Costs
4hrs @ $70/hr
2hrs @ $125/hr
1 hr @ $159/hr
Total Sampling Costs = $689
Sampling Cost per location = $689/2 = $344.50

Additional Parameters required by permit = 23
Total Cost = 23 * $20/parameters = $460

Calculation

Description	Equation	Comment	Value	Verification
Surface Water Monitoring	Total Cost = Sampling Costs + Lab Cost + Addition Param		$1,054.50	per location

Job No.	91148-001	Calc No.	00016

Computation

HDR

Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Component		Reviewed	TMY
Task	Post Closure Costs (Item 3)	Date	8/25/2008

Purpose

Gas Monitoring - Quarterly

Find

Description	Variable	Units
Gas Monitoring		$

Given

Description	Value	Source
Gas Monitoring	10	Number of Monitoring Points

Given

Description	Value	Source
Gas Monitoring	$759.00	Total Costs per event

Equations

Assume 0.5 hrs/point
5hrs @ $70/hr
2hrs @ $125/hr
1 hr @ $159/hr
Total Costs = $759

Calculation

Description	Equation	Comment	Value	Verification
Gas Monitoring	Total Cost = Sampling Costs/No. of Monitoring Points		$75.90	

Job No.	91148-001	Calc No.	00017

Computation

HDR

Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Component		Reviewed	TMY
Task	Post Closure Costs (Item 4)	Date	8/25/2008

Purpose

Leachate Monitoring - 1 new location at Phase II Leachate Pump Station and 5 Existing Locations in Phase I

Find

Description	Variable	Units
Leachate Monitoring		$

Given

Description	Value	Source
Leachate Monitoring	6	Number of Monitoring Points

Given

Description	Value	Source
Leachate Monitoring	$759.00	Sampling Cost per event

Given

Description	Value	Source
Leachate Monitoring	$892.50	Lab Costs (Attachment G, price quotes from Elab, Ormond Beach) (Annual parameters)
Leachate Monitoring	$137.00	Lab Costs (Attachment G, price quotes from Elab, Ormond Beach) (Semi-Annual Parameters)

Equations

Sampling Costs
5hrs @ $70/hr
2hrs @ $125/hr
1 hr @ $159/hr
Total Sampling Costs = $759

Calculation

Description	Equation	Comment	Value	Verification
Leachate Monitoring		Additional Costs	$892.50	
Leachate Monitoring	Total Cost = (Sampling Costs/No. of Monitoring Points) + Semi-Annual Lab Costs	Total Cost per event	$263.50	

Job No.	91148-001	Calc No.	00018

Computation

HDR

Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Component		Reviewed	TMY
Task	Post Closure Costs (Item 5)	Date	8/25/2008

Purpose

Leachate Colelction/Treatment System Maintenance

Find

Description	Variable	Units
Maintenance - Collection Pipes		$
Maintenance - Sumps/Traps		$
Maintenance - Lift Station		$
Maintenance - Cleaning		N/A
Maintenance - Tanks		$
Impoundments		N/A
Aeration Systems		N/A
Leachate Disposal		$

Given

Description	Value	Source
Maintenance - Collection Pipes	$14,535.00	Attachment B (2008 Means 02955-210-6160, 02955-210-6110, 02955-210-9060)
Maintenance - Sumps/Traps	$383.00	Attachment B (2008 Means 02955-210-6200, 02955-210-6110, 02955-210-9060)
Maintenance - Lift Station	$2,340.00	Yearly Cost to maintain pump station per pump
Maintenance - Cleaning	N/A	N/A - Accounted for in other categories
Maintenance - Tanks	$2,500.00	Yearly cost to maintain leachate tank
Impoundments	N/A	N/A
Aeration Systems	N/A	N/A
Leachate Disposal	20938	Leachate generation rate for Phase II

Given

Description	Value	Comment
Maintenance - Collection Pipes	14684	Length of Pipe in Phases I and II
Maintenance - Sumps/Traps	5	Assume Pipe is cleaned out and videotaped every 5 yrs
Maintenance - Lift Station	7	Incl. 1 duplex leachate pump station for Phase II & 5 single pump lift stations for Phase I
Maintenance - Cleaning	N/A	N/A
Maintenance - Tanks	1	One leachate tank
Impoundments	N/A	N/A
Aeration Systems	N/A	N/A
Leachate Disposal	$25.39	Disposal Cost per 1000 gal

Equations

Collection Pipes

Cost to Clean 8" dia. Pipe = $2.12

Mobilization = $425

Camera Inspection = $1400/500ft = $2.80/lf

Total Cost = 14684*$2.12+$425+((14684/500)*$1400) = $72670.28

Yearly Cost = $72670.28/5yrs = $14535

Sumps/Traps

Cost to Clean 16" dia. Pipe = $3.16/lf

Mobilization = $425

Camera Inspection = $1400/500ft = $2.80/lf

Total Cost = 250*$3.16+$425+((250/500)*$1400) = $1915

Yearly Cost = $1915/5yrs = $383

Lift Stations

Assume pumps have to be replaced every 5 yrs: Cost = $2500

Assume transducer at each control panel has to be replaced each year: Cost = $1000

Assume monthly maintenance call, 1 hr @ $70/hr per pump

Yearly Cost to Maintain Pump Station = ($2500/5) + $1000 + ($70*12) = $2340

Leachate Tank

Assume tank cleaned out and inspected every 5 years

Cost to clean out tank = $10000

Cost to inspect tank = $2500

Yearly Cost to clean and inspect tank = ($10000+ $2500) / 5yrs = $2500

Leachate Disposal

Disposal Cost = $25.386/1000

Attachment H, Conservatively assume leachate generation rate for the first year of post-closure is equivalent to estimated leachate generation rate during closure = 10468708 gal/yr (Phase II Only)

Computation

Job No.	91148-001	Calc No.	00018
Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Component		Reviewed	TMY
Task	Post Closure Costs (Item 5)	Date	8/25/2008

Calculation

Double leachate generation rate to account for Phase I and Phase II = 20938000 gal/yr

Description	Equation	Comment	Value	Verification
Maintenance - Collection Pipes/Sumps	Cost/LF per year = $14535/14684' = $0.99/lf per year		$0.99	
Maintenance - Sumps/Traps	Cost per sump per year = $383/5 = $76.60		$76.60	
Maintenance - Lift Station	Total Phase I and II Cost = $2340 * 7 pumps		$16,380.00	
Maintenance - Cleaning	N/A	N/A	N/A	
Maintenance - Tanks	Total Cost		$2,500.00	
Impoundments	N/A	N/A	N/A	
Aeration Systems	N/A	N/A	N/A	
Leachate Disposal	Total Cost = Disposal Cost * Est. Leachate Generation		$531,532.07	

Job No.	91148-001	Calc No.	00019

Computation

HDR

Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Component		Reviewed	TMY
Task	Post Closure Costs (Item 6)	Date	8/25/2008

Purpose

Leachate Collection/Treatment Systems Operation

Find

Description	Variable	Units
PE Supervisor		$
On-Site Engineer		$
Office Engineer		$
On-site Technician		$
Materials		$

Given

Description	Value	Comment
PE Supervisor	$159.00	Assumed hourly rate
On-Site Engineer	$114.00	Assumed hourly rate
Office Engineer	$125.00	Assumed hourly rate
On-site Technician	$70.00	Assumed hourly rate
Materials	$1,000.00	Assumed lump sum for operation and maintenance

Given

Description	Value	Comment
PE Supervisor	24	Assume 2 hrs per month for 12 months
On-Site Engineer	16	Assume 2 8hr inspections for 12 months
Office Engineer	48	Assume 4 hrs per month for 12 months
On-site Technician	48	Assume 4 hrs per month for 12 months
Materials	1	Inlcude $1000 for miscellaneous materials. Most operation and maintenance materials are already included

Solution

Description	Equation	Comment	Value	Verification
PE Supervisor	Total Cost = 24 hrs/yr * $159/hr		$3,816.00	
On-Site Engineer	Total Cost = 16 hrs/yr * $114/hr		$1,824.00	
Office Engineer	Total Cost = 48 hr/yr * $125/hr		$6,000.00	
On-site Technician	Total Cost = 48 hr/yr * $70/hr		$3,360.00	
Materials	Total Cost= $1000 for misc. materials		$1,000.00	

Job No.	91148-001	Calc No.	00020

Computation

HDR

Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Component		Reviewed	TMY
Task	Post Closure Costs (Item 7)	Date	8/25/2008

Find

Description	Variable	Units
Maintenance of GW Wells		$

Given

Description	Value	Comments
Maintenance of GW Wells	$140.00	Assume 2 hrs/well maintenance @ $70/hr

Given

Description	Value	Comments
Maintenance of GW Wells	10	Number of Monitoring Wells installed for Phases I and II

Solution

Description	Equation	Comment	Value	Verification
Maintenance of GW Wells	Toal Cost = 2hrs/well * $70/hr* 10 wells		$1,400.00	

Job No.	91148-001	Calc No.	00021

Computation

HDR

Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Component		Reviewed	TMY
Task	Post Closure Costs (Item 8)	Date	8/25/2008

Purpose

Gas System Maintenance (based on HDR's experience with similar site)

Find

Description	Variable	Units
Piping Vents		$
Blowers		$
Flaring Units		$
Meters, Valves		$
Compressors		N/A
Flame Arrestors		$
Operation		$

Given

Description	Value	Source
Piping Vents	$100,000.00	Based on HDR's experience with similar sites
Blowers	$5,000.00	Based on HDR's experience with similar sites
Flaring Units	$10,000.00	Based on HDR's experience with similar sites
Meters, Valves	$2,000.00	Based on HDR's experience with similar sites
Compressors	N/A	N/A
Flame Arrestors	$2,000.00	Based on HDR's experience with similar sites
Operation	$22,000.00	Semi-Annual Reporting = $10000 per period, Annual Reporting $2000

Solution

Description	Value	Comment
Piping Vents	1	LS Quantity
Blowers	2	Ea
Flaring Units	1	Ea
Meters, Valves	1	Ea
Compressors	N/A	N/A
Flame Arrestors	1	Ea
Operation (No.wells)	110	Monthly Inspections 1 hr per well @ $61/hr

Calculation

Description	Equation	Comment	Value	Verification
Piping Vents	Total Cost = Piping/Vents LS * $100000		$100,000.00	
Blowers	Total Cost = 2 Blowers * $5000		$10,000.00	
Flaring Units	Total Cost = 1 Flaring Unit * $10000		$10,000.00	
Meters, Valves	Total Cost = 1 Meter/Valve * $2000		$2,000.00	
Compressors	N/A	N/A	N/A	
Flame Arrestors	Total Cost = 1 Flame Arrestor * $2000		$2,000.00	
Operation	Total Cost= 110 wells * $61/hr * 12 month/yr +$22000		$102,520.00	

Job No.	91148-001	Calc No.	00022

Computation

HDR

Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Component		Reviewed	TMY
Task	Post Closure Costs (Item 9)	Date	8/25/2008

Purpose

Landscape

Find

Description	Variable	Units
Mowing		$
Fertilizer		$

Given

Description	Value	Source
Mowing	$20.91	Attachment B (2008 Means 02935-300-4190) per acre cost
Fertilizer	$114.56	Attachment B (2008 Means 2935-100-0140) per acre cost

Given

Description	Value	Comment
Mowing	115	Assume acreage to be mowed includes 110 ac footprint for Phases I and II and 5 ac surrounding Phase II
Fertilizer	115	Assumed applied once yearly

Equations

Mowing

115 ac * $20.91/ac

8 mowings/yr = $2404.65 * 8 = $19,237

Annual Cost Per Acre $160.31

Fertilizer

115 ac * $114.56/ac = $13174.72

Solution

Description	Equation	Comment	Value	Verification
Mowing	Annual Cost per acre = $19,237/115Ac		$160.31	
Fertilizer	Total Cost = 115 ac * $114.60/ac		$13,174.72	

Job No.	91148-001	Calc No.	00023

Computation

HDR

Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Component		Reviewed	TMY
Task	Post Closure Costs (Item 10)	Date	8/25/2008

Purpose

Erosion Control and Cover Maintenance

Find

Description	Variable	Units
Sodding		$
Regrading		$
Liner Repair		$
Clay		N/A

Given

Description	Value	Source
Sodding	$5.81	See Item 5A of Closure Costs per sy
Regrading	$0.17	Attachment B (2008 Means 02310-100-3310) per sy
Liner Repair	$10.00	per sy
Clay	N/A	No clay needed for repairs

Solution

Description	Value	Comment
Sodding	6000	Assume 6000 sy of sod has to be replaced each year
Regrading	4840	Assume 1.0 ac to be regraded each year
Liner Repair	$2,500.00	Assume 1 mob. Of a liner crew (2 man) per year to make repairs (1 day)
Clay	N/A	N/A

Equations

1.0 Ac= 4840 Sy

Calculation

Description	Equation	Comment	Value	Verification
Sodding	Total Cost = 6000 sy * $5.81/sy	Cost Adjusted for location	$34,860.00	
Regrading	Total Cost = 4840 sy * $0.17/sy	Cost Adjusted for location	$822.80	
Liner Repair	Liner Repair = $2500/day/$10/sy		250	sy
Clay	N/A	N/A	N/A	

Job No.	91148-001	Calc No.	00024

Computation

HDR

Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Component		Reviewed	TMY
Task	Post Closure Costs (Item 11)	Date	8/25/2008

Find

Description	Variable	Units
Stormwater Management		$

Given

Description	Value	Source
Stormwater Management	$1.12	Attachment B (2008 Means 02240-330-0250), Add $1/lf to remove material

Given

Description	Value	Source
Stormwater Management	5000	Assume 5000 lf of ditch must be cleaned out each year

Equations

Solution

Description	Equation	Comment	Value	Verification
Signs	Total Cost = 5000lf * $1.12/lf	Price Adjusted for location	$5,600.00	

Job No.	91148-001	Calc No.	00025

Computation

Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Component		Reviewed	TMY
Task	Post Closure Costs (Item 12)	Date	8/25/2008

Purpose

Security System

Find

Description	Variable	Units
Fencing		$
Gates		$
Signs		$

Given

Description	Value	Source
Fencing	$42.00	Attachment B (2008 Means 2820-130-0920)
Gates	$2,000.00	Attachment B (2008 Means 2820-130-5080)
Signs	$100.00	Include $100/yr to repair/replace signs

Given

Description	Value	Comment
Fencing	100	Assume 100' of fence needs to be replaced each year
Gates	1	Assume 1 gate replaced every year
Signs	1	

Equations

Solution

Description	Equation	Comment	Value	Verification
Fencing	Total Cost = 100 lf * $42/lf	Price Adjusted for Location	$4,200.00	
Gates	Total Cost = 1 * $2000 each	Price Adjusted f	$2,000.00	
Signs	Total Cost = 1 * $100/yr	Price Adjusted f	$100.00	

Job No.	91148-001	Calc No.	00026

Computation

HDR

Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Component		Reviewed	TMY
Task	Post Closure Costs (Item 13)	Date	8/25/2008

Find

Description	Variable	Units
Utilities		Ea/Yr

Given

Description	Value	Source
Utilities	$38,000.00	Assumed based on County's expereince at the closed Bee Ridge Landfill

Job No.	91148-001	Calc No.	00027

Computation

HDR

Project	CCSWDC I and II	Computed	LEP
Subject	Phases I and II Financial Assurance	Date	8/20/2008
Component		Reviewed	TMY
Task	Post Closure Costs (Item 14)	Date	8/25/2008

Purpose

Administrative - Assume these are costs for a third party consultant to administer the closed Phase I and Phase II area each year.

Find

Description	Variable	Units
PE Supervisor		$
On-Site Engineer		$
Office Engineer		$
On-site Technician		$
Other		N/A

Given

Description	Value	Source
PE Supervisor	$159.00	Unit Rate
On-Site Engineer	$114.00	Unit Rate
Office Engineer	$125.00	Unit Rate
On-site Technician	$70.00	Unit Rate
Other (Administrative)	N/A	N/A

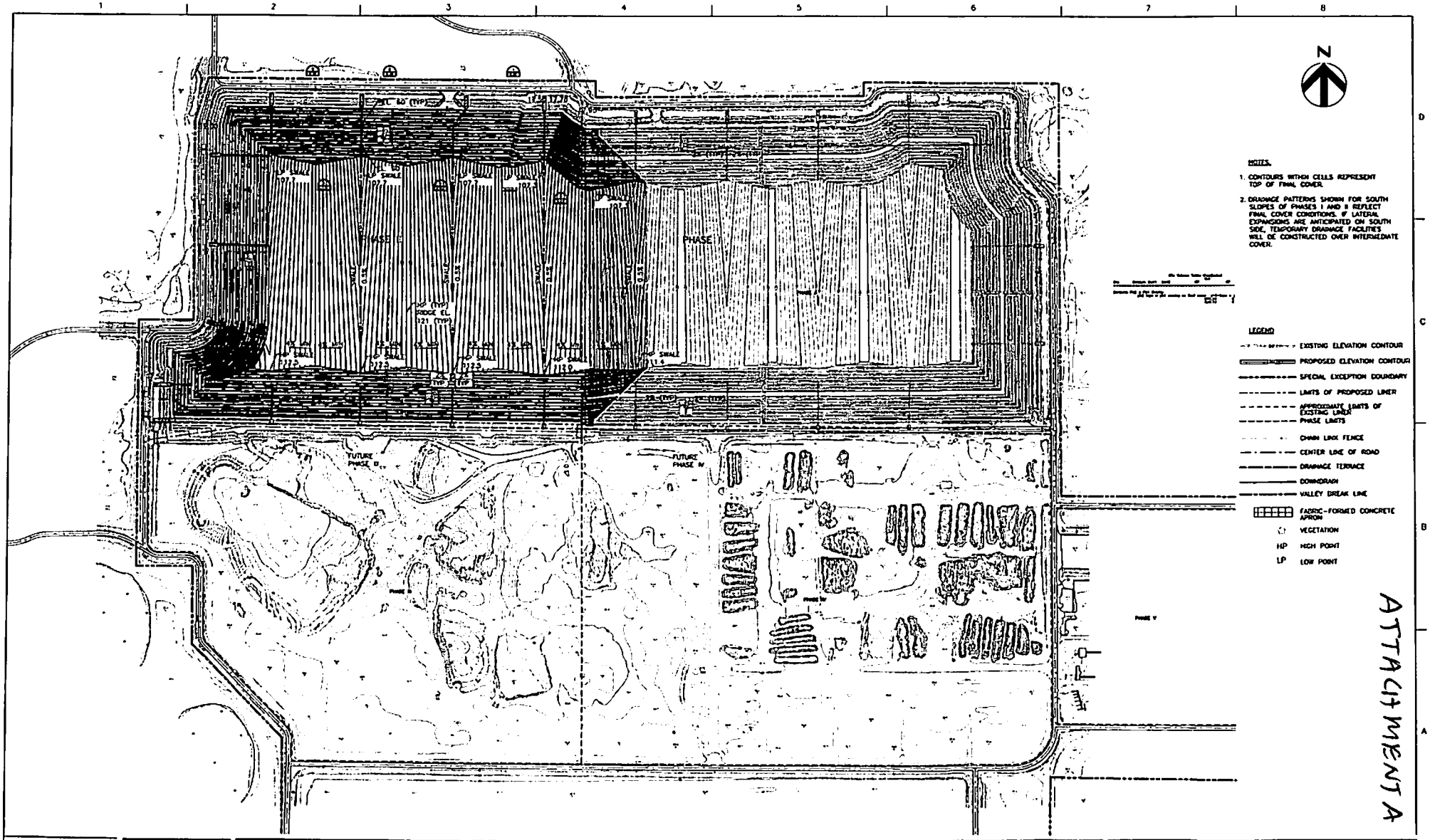
Given

Description	Value	Comment
PE Supervisor	16	
On-Site Engineer	72	
Office Engineer	48	
On-site Technician	16	
Other	N/A	N/A

Equations

Solution

Description	Equation	Comment	Value	Verification
PE Supervisor	Total Cost = 16 hrs * $159/hr		$2,544.00	
On-Site Engineer	Total Cost = 72 hrs * $114/hr		$8,208.00	
Office Engineer	Total Cost = 48 hrs * $125/hr		$6,000.00	
On-site Technician	Total Cost = 16 hrs * $70/hr		$1,120.00	
Other	N/A	N/A	N/A	



ATTACHMENT A

C:\PWworking\TPA\d0138645\FIG1.dwg, Plot: 8/25/2008 4:53:31 PM, tpatters

HDR

ISSUE	DATE	DESCRIPTION
A	08/2008	ISSUED FOR FACT

PROJECT MANAGER	T.M. YANOSCHAK
REVIEWED BY	J.C. READLING
DRAWN BY	L.E. PATTERSON
PROJECT NUMBER	000000000043485

SARASOTA COUNTY

Central County Solid Waste Disposal Complex
PHASE I AND II
FINANCIAL ASSURANCE COST ESTIMATE

SARASOTA COUNTY FLORIDA

PHASE I AND II CONCEPTUAL CLOSURE PLAN

0 1" 2"

FILENAME FIG1.dwg
SCALE 1"=200'

SHEET
FIGURE 1

CostWorks 2003 - Phase I and II FACE

Qty	Cst Number	Description	Crew	Daily Output	Labor Hours	Unit	Bare Mat.	Bare Labor	Bare Equip.	Total	Total Incl. O&P	Zip Code Prefix	Type	Release
1 0	01 107 700 0020	Topographical survey, topographical, minimum	A7	3 3	7 273	Acre	10 80	160 00	20 50	200 40	325 00	342	Open	2000
1 0	01 560 700 0020	Project Signs, sign, high intensity reflectorized, buy, excl. costs				S F.	17 60	0 00	0 00	17 60	19 60	342	Open	2000
1 0	02 110 300 1130	Hazardous waste cleanup/pickup/disposal, solid pickup, bulk material, maximum				Ton	0 00	0 00	0 00	520 00	580 00	342	Open	2000
1 0	02 110 300 1270	Hazardous waste cleanup/pickup/disposal, transportation to disposal site, truckload = 60 drums or 25 C Y. or 18 tons, maximum				Mile	0 00	0 00	0 00	5 70	6 35	342	Open	2000
1 0	02 110 300 3110	Hazardous waste cleanup/pickup/disposal, liquid pickup, vacuum truck, stainless steel tank, 2200 gallons, minimum charge 4 hours 1 compartment				Hr.	0 00	0 00	0 00	114 00	127 00	342	Open	2000
1 0	02 110 300 3400	Hazardous waste cleanup/pickup/disposal, liquid pickup, vacuum truck, stainless steel tank, transportation in 6000 gallon bulk truck				Mile	0 00	0 00	0 00	0 15	0 85	342	Open	2000
1 0	02 110 300 6020	Hazardous waste cleanup/pickup/disposal, dumpsite disposal charge, maximum				Ton	0 00	0 00	0 00	420 00	465 00	342	Open	2000
1 0	02 240 330 0250	Cut drainage ditch, clean wet drainage ditch, 30' wide	B11L	10 000	0 002	L.F.	0 00	0 04	0 05	0 09	0 12	342	Open	2000
1 0	02 310 100 3310	Fine grading, slopes, steep, large quantities, fresh grading	B11L	7 100	0 002	S Y.	0 00	0 05	0 08	0 13	0 17	342	Open	2000
1 0	02 315 210 4070	Borrow, common earth, 3 C Y. bucket, loading and/or spreading, front end loader, wheel-mounted	B10T	1 575	0 005	B C.Y.	13 15	0 14	0 25	13 54	15 00	342	Open	2000
1 0	02 315 310 5000	Compaction, riding, vibrating roller, 2 passes, 6" lifts	B10Y	3 000	0 003	E C.Y.	0 00	0 07	0 10	0 23	0 29	342	Open	2000
0 0	02 315 424 0020	Excavating, bulk bank measure, for loading onto trucks, add								15 0%	15 0%	342	Open	2000
1 0	02 315 424 0300	Excavating, bulk bank measure, 3 C.Y. capacity = 100 C.Y./hour, backhoe, hydraulic, crawler mounted	B12D	2 080	0 008	B C.Y.	0 00	0 18	1 10	1 28	1 53	342	Open	2000
1 0	02 315 490 1100	Hauling, excavated or borrow material, loose cubic yards, 4 mile round trip, 1 6 loads/hour, 16 5 C.Y. dump trailer, highway haulers, excludes loading	B34C	172	0 047	L C.Y.	0 00	0 98	3 22	4 20	5 20	342	Open	2000
1 0	02 315 490 4750	Hauling, highway hauling per loaded mile, beyond 20 miles, 16-20 cubic yards, includes loading				Mile	0 00	0 00	0 00	2 31	2 54	342	Open	2000
1 0	02 315 520 0020	Fill, dumped material, spread, by dozer, excludes compaction	B10B	1 000	0 008	L C.Y.	0 00	0 22	1 05	1 27	1 51	342	Open	2000
1 0	02 315 610 3020	Excavating, trench backfill, 1 C.Y. bucket, minimal haul, front end loader, wheel mounted, excludes dewatering	B10R	400	0 02	L C.Y.	0 00	0 53	0 56	1 09	1 49	342	Open	2000
1 0	02 370 700 0060	Synthetic erosion control, nylon, 3 dimensional geomatrix, 9 mil thick	B80A	700	0 034	S.Y.	6 10	0 70	0 31	7 11	8 20	342	Open	2000
1 0	02 630 520 1070	Public Storm Utility Drainage Piping, drainage and sewage, corrugated HDPE, type S, bell and spigot, with gaskets, 24" diameter, excludes excavation and backfill	B21	250	0 112	L.F.	18 55	2 03	0 51	19 09	22 00	342	Open	2000
1 0	02 630 520 1135	Public Storm Utility Drainage Piping, drainage and sewage, corrugated HDPE, type S, add 15% to material pipe cost for water tight connection bell & spigot					0 00	0 00	0 00	0 00	0 00	342	Open	2000
1 0	02 820 130 0020	Fence, chain link industrial, galvanized steel, add for line post, 0 ga. wire, 2-1/2" posts @ 10' OC, 6' high, includes excavation, in concrete	B80C	180	0 133	L.F.	33 00	2 48	1 01	36 47	42 00	342	Open	2000
1 0	02 820 130 5060	Fence, chain link industrial, double swing gates, 6' high, 12' opening, includes excavation, in concrete	B80	2 13	11 252	Opng.	1,225 00	214 00	289 00	1,728 00	2,000 00	342	Open	2000
1 0	02 920 400 1500	Sodding, bent grass sod, on sloped ground, over 0 M S F.	B63	15	2 667	M S F.	495 00	54 50	9 05	558 55	645 00	342	Open	2000
1 0	02 935 100 0140	Fertilizing, dry granular, 4lb /M S F., truck mounted spreader	B66	1,200	0 007	M S F.	1 90	0 17	0 18	2 31	2 63	342	Open	2000
1 0	02 935 300 4100	Mowing, lawn mowing, 5 cone reel, 12", with tractor & attachments	B68	1,200	0 007	M S F.	0 00	0 17	0 18	0 35	0 43	342	Open	2000
1 0	02 955 210 0110	Pipe, internal cleaning and inspection, cleaning, mobilization charge, minimum				Total	0 00	0 00	0 00	365 00	425 00	342	Open	2000
1 0	02 955 210 6100	Pipe, internal cleaning and inspection, cleaning, mobilization charge, 6" diameter				L.F.	0 00	0 00	0 00	1 82	2 12	342	Open	2000
1 0	02 955 210 6200	Pipe, internal cleaning and inspection, cleaning, mobilization charge, 16" diameter				L.F.	0 00	0 00	0 00	2 73	3 16	342	Open	2000
1 0	02 955 210 9700	Pipe, internal cleaning and inspection, television camera with film, 500 linear feet				Total	0 00	0 00	0 00	1,725 00	1,400 00	342	Open	2000
		Totals					$1,823.46	$448.24	$327.21	$3,260.82	$4,108.24			

ATTACHMENT B(1)

CostWorks 2008 - Phase I and II FACE

Qty	Assembly Number	Description	Unit	Mat.	Inst.	Total	Zip Code Prefix	Type	Release	Note
1.000	G1 030 805 1420	Trenching, common earth excavator, no slope, 4'	L.F.	0.00	6.35	6.35	342	Union	2008	
1.000	G1 030 815 2820	Pipe bedding, side slope 1:1, 4' wide, pipe size 24	L.F.	10.55	6.15	16.70	342	Union	2008	
		Totals		$10.55	$12.50	$23.05				

ATTACHMENT 13(2)

ATTACHMENT C

Yanoschak, Thomas M.

From: Edgar Rodriguez [erodriguez@gseworld.com]
Sent: Monday, August 18, 2008 10:44 AM
To: Yanoschak, Thomas M.
Subject: Budget Pricing for Sarasota

Thomas:

I've put together a rough budget estimate for your 2 materials required, as noted on the previous e-mail.

300mil 8oz. on both sides: $.55 sf + $.055 sf for wastage = $.605 for materials, Estimated install @ $.14 to .16 sf, plus freight to site. Use $ 0.77 /SF Installed

40mil Tex. LLDPE: $.29 sf + $.029 sf for lap/scrap/waste = $.319 for materials, Estimated install @$.16 to .18 sf, plus freight to site. Use $ 0.50 /SF Installed

Hope this gives you a starting point, with so much fluctuation in materials the last couple of weeks, obviously this can change. Let me know if you need anything else, look forward to seeing you at NC SWANA next week.

Sincerely

Ed Rodriguez

GSE
Regional Manager
15217 Kestrelrise Dr.
Lithia, Fl. 33547
Cell # 813-784-6135
Office # 813-571-7252
Fax # 813-571-7270

GEOSTAR

Geostar Corporation

Note: Items in the color blue contain input data and information.

HYDROTEX™ FABRIC FORMED CONCRETE PROJECT COST ESTIMATE

Date: 2/9/2007

Fabric Form Style:	
Average Concrete Thickness, in.:	
Production Rate, Sq. Ft./Day:	
Installed Area	
Fabric Form Waste, %:	
Geotextile Filter Fabric Waste, %	
Fine Aggregate Concrete Waste, Cu. Yds./Day	
Production Delays, %:	
Profit on Material:	
Overhead on Material	
Profit on Labor:	
Overhead on Labor:	
Profit on Equipment:	
Overhead on Equipment:	
Sales Tax:	
Bonding:	
Payroll Tax and Insurance:	
Geotextile Filter Fabric/Sq. Yd.:	
US400 Fabric Form Cost/Sq. Ft.:	
Fine Aggregate Concrete Cost/Cu. Yd.:	
Hours Worked/Day:	
Days Worked/Week	
Fabric Form Contraction, Slope:	
Fabric Form Contraction, Transverse:	
Geotextile Filter Fabric Provision For Overlaps:	
Total Fabric Form Required, Sq. Ft.	17,887
Total Geotextile Filter, Sq. Yd.	1,680
Total Fine Aggregate Concrete, Cu. Yds.	179
Production Days:	2.9
Production Delays, Days:	0.3
Total Production Days:	4.0

Contractor:
Project Name:
Location:

	No.	Cost/Hr.		
Materials Costs:				
Fabric Forms:			$	10,732.26
Geotextile Filter Fabric:			$	840.00
Fine Aggregate Concrete:			$	20,547.38
Total Materials Costs:			$	32,119.64
Supervision and Labor Costs:				
Superintendents:			$	-
Foreman:			$	1,040.00
Pump Operator:			$	832.00
Laborers:			$	2,496.00
Divers:			$	-
Total Supervision and Labor:			$	4,368.00
Equipment:				
	No.	Cost/Day		
Concrete Pump :			$	2,600.00
Sewing Machine:			$	300.00
Generator and Water Pump:			$	20.00
Pick-up Truck:			$	300.00
Diving Equipment			$	-
Total Equipment Costs:			$	3,220.00
Total Materials, Supervision and Labor and Equipment:			$	39,707.64
Profit:			$	5,956.15
Overhead:			$	5,956.15
Freight	$	0.04	$	715.48
Sales Tax:			$	2,473.77
Bonding:			$	-
Total Price:			$	54,809.19
Total Price/Sq. Ft.:			$	3.91

Production Rate Guidelines

Fabric Form Style	Cubic Yarns of Concrete/Day .64 Estimated Production Rate/Day Sq. Ft.	80 Sq. Ft.	96 Sq. Ft.
AB300	6400	8000	9600
AB400	4800	6000	7200
AB600	3200	4000	4800
AB800	2432	3040	3648
AB1000	1920	2400	2880
AB1200	1600	2000	2400
EB300	6400	8000	9600
EB500	3840	4800	5760
EL250	7680	9600	11520
EL400	4800	6000	7200
FB400	4800	6000	7200
FB800	2432	3040	3648
FB1200	1600	2000	2400
FP220	8704	10880	13056
FP400	4800	6000	7200
FP600	3200	4000	4800
FP800	2432	3040	3648
FP1000	1920	2400	2880
FP1200	1600	2000	2400
US300	6400	8000	9600
US400	4800	6000	7200
US600	3200	4000	4800
US800	2432	3040	3648
US1000	1920	2400	2880

Attachment D

Attachment E

HDR | ONE COMPANY Many Solutions

Memo

To: Tom Yanoschak	
From: Joel Miller	Project: Financial Assurance
CC: Carlo Lebron	
Date: 8-14-06	Job No: 096-22404

R:\Users\Gen\Stationery & Forms\Forms\memo.doc

RE: Sarasota County Passive Landfill Gas System Cost Estimate

Cost estimate for passive gas system at the Central County Solid Waste Disposal Complex (CCSWDC) in Sarasota County. Assumes passive system will be needed for Cells 1 – 5 in Phase I area. Cost estimates include mobilization, contingency, materials, and other typical installation items:

From Phase I Partial Closure Basis of Design Report, Phase I is approximately 55 acres.

Common approach is to use 1 passive vent/acre = 55 passive vents.

Assume average depth = 75'

Assume average cost = $87.75/LF (based on current private contract installation pricing with markup)

75' * $87.75 = $6,581.25/passive vent (Assumes vent will have 3' stickup above grade)

Assume $100 for procurement and installation of two 90 degree HDPE ells to finish vent.

$6,581.25 + $100 = $6,681.75/passive vent

55 passive vents * $6,681.75 =

$367,468.75 (total cost estimate for installation of passive vents on Phase I area)

Pipe and Fittings – Assume zero cost. Not necessary – fittings included in well drilling

Monitoring Probes – Assume zero cost. Assume that they are already installed before waste in place in each cell.

NSPS/Title V Requirements – Assume $4,000 based on previous reporting for this site.

CENTRAL COUNTY SOLID WASTE DISPOSAL COMPLEX
SARASOTA COUNTY
2005 ANNUAL SUMMARY

MONTHLY PRECIPITATION DATA AND LEACHATE BALANCE

MONTH	LANDFILL AREA (acres)	LANDFILL RAINFALL[1] (inches)	RAINFALL IN STORAGE TANK[2] (gallons)	LEACHATE PUMPED[3] CELL 1 (gallons)	LEACHATE PUMPED[3] CELL 2 (gallons)	LEACHATE PUMPED[3] CELL 3 (gallons)	LEACHATE PUMPED[4] CELL 4 (gallons)	TOTAL LEACHATE[4] (gallons)	LEACHATE REMOVED[5] (gallons)	LEACHATE BALANCE[6] (gallons)	CUMULATIVE STORAGE[7] (gallons)
January	48.00	2.35	11,499	70,740	32,090	41,490	611,180	755,500	773,400	-17,900	1,088,738
February	48.00	3.82	18,692	50,690	30,950	34,530	149,880	266,050	1,259,200	-993,150	203,228
March	48.00	4.17	20,405	144,960	62,150	35,140	753,730	1,016,385	624,800	391,585	624,210
April	48.00	2.60	12,722	46,510	46,390	33,610	166,600	293,110	426,700	-133,590	493,561
May	48.00	1.89	9,248	34,180	46,230	38,490	113,560	232,460	147,500	84,960	551,627
June	48.00	16.01	78,340	219,030	86,010	42,420	2,788,690	3,230,290	2,404,000	826,290	1,437,134
July	48.00	8.43	41,249	175,560	80,000	43,890	1,098,900	1,439,599	2,693,100	-1,251,101	319,363
August	48.00	1.91	9,346	67,820	47,070	43,950	266,770	438,256	607,600	-172,644	145,165
September	48.00	1.81	8,857	44,310	35,680	40,790	123,250	260,787	223,700	29,187	159,679
October	48.00	6.29	30,778	86,480	42,990	42,850	408,770	611,868	533,400	78,468	261,297
November	48.00	2.70	13,212	58,320	40,640	48,200	177,310	337,682	261,900	75,782	319,363
December	48.00	0.76	3,719	41,560	41,640	48,830	93,430	229,179	262,300	-33,121	275,814
Total		52.74	258,057	1,040,160	591,840	494,190	6,752,070	9,111,166	10,217,600		

Notes:
1. Total monthly precipitation recorded at the CCSWDC.
2. Rainfall falling into the leachate storage tank (13,275 square feet area) which is classified as leachate.
3. Based on flowmeter data, the amount of leachate pumped from the Class I landfill area to the storage tank.
4. Sum of rainfall into the storage tank and the leachate pumped from the Class I landfill.
5. Quantity of leachate hauled away based on the number of tanker trucks and their capacity.
6. Total leachate added to the storage tank minus the quantity hauled during the month (monthly increase or decrease).
7. Cumulative storage read at the tank gauge at the end of each month

Attachment F

Attachment G (1)

ELAB, INC.
ANALYTICAL SERVICE
COST PROPOSAL

Contact Name:	Mr. Thomas Yanoschak	PROPOSAL NO.:	07-1514	Page 1 of 5
Company:	HDR	PROPOSAL DATE:	April 19, 2007	
Address:		Turnaround Time:	10-15 business days	
	Raleigh, NC	Sample Arrival Date:		
Phone No.:	919-232-6618	Schedule: Firm:	Tentative: X	
Fax No.:		Duration:		
Project Name/Description:	Sarasota Central Landfill			

PARAMETERS	Methods	Matrix	No. of Samples			Unit Cost	Subtotal	
			Sample	Field QC	Total			
LEACHATE PARAMETERS								
Ammonia	350.1	GW	1	0	1	$ 20.00	$ 20.00	
Chloride	300.0	GW	1	0	1	$ 15.00	$ 15.00	
Bicarbonate	SM 2320 B	GW	1	0	1	$ 20.00	$ 20.00	
Nitrate, Sulfate	300.0	GW	1	0	1	$ 30.00	$ 30.00	
Total Dissolved Solids	160.1/ SM2540C	GW	1	0	1	$ 12.00	$ 12.00	
Fe, Ca, Mg, K, Na	6010	GW	1	0	1	$ 40.00	$ 40.00	
APPENDIX II(VOLATILES, EDB/DBCP, METALS, BNA, ORGANOCHLORINE PEST/PCB, ORGANOPHOS PEST, CHLORINATED HERB, SULFIDE, CYANIDE)	8260, 8011, 6010/6020/7470, 8270, 8081/82, 8141, 8151, 376.1, 9012	GW	1	0	1	$ 892.50	$ 892.50	
Sub Total of this section							$ 1,029.50	⇐ *
Ground Water Parameters								
Ammonia	350.1	GW	1	0	1	$ 20.00	$ 20.00	
Chloride, Nitrate, Sulfate	300.0	GW	1	0	1	$ 45.00	$ 45.00	
Bicarbonate	SM 2320 B	GW	1	0	1	$ 20.00	$ 20.00	
Total Dissolved Solids	160.1/ SM2540C	GW	1	0	1	$ 12.00	$ 12.00	
Fe, Ca, Mg, K, Na	6010	GW	1	0	1	$ 40.00	$ 40.00	
APPENDIX I (METALS, VOLATILES, EDB/DBCP)	6010/6020/7470, 8260, 8011	GW	1	0	1	$ 300.00	$ 300.00	
Sub Total of this section							$ 437.00	⇐ *

Attachment G(2)

Surface Water Parameters							
Unionized Ammonia	350.1/ FDEP	SW	1	0	1	$ 20.00	$ 20.00
BOD-5	300.0	SW	1	0	1	$ 35.00	$ 35.00
Nitrate, Nitrite, Sulfate	300.0	SW	1	0	1	$ 45.00	$ 45.00
Total Dissolved Solids	160.1/ SM2540C	SW	1	0	1	$ 12.00	$ 12.00
COD	410.4	SW	1	0	1	$ 22.00	$ 22.00
TOC	415.1	SW	1	0	1	$ 30.00	$ 30.00
FECAL COLIFORM	SM9222 D	SW	1	0	1	$ 30.00	$ 30.00
TOTAL PHOS	365.4	SW	1	0	1	$ 30.00	$ 30.00
CHLOR A	SM10200 H	SW	1	0	1	$ 40.00	$ 40.00
T-NITROGEN	CALCULATION	SW	1	0	1	$ 35.00	$ 35.00
Bicarbonate	SM 2320 B	SW	1	0	1	$ 20.00	$ 20.00
TSS	160.2	SW	1	0	1	$ 12.00	$ 12.00
APPENDIX I (METALS, VOLATILES, EDB/DBCP)	6010/6020/7470, 8260, 8011	SW	1	0	1	$ 300.00	$ 300.00
Total Hadness, Ca, Cu, Fe, Mg, K, Na, Zn	6010	SW	1	0	1	$ 64.00	$ 64.00
Sub Total of this section							$ 695.00
FIELD SAMPLING COST			1	0	1	$ 120.00	$ 120.00
Sample Kit Charge							N/C
Kit Shipping Charge							N/C
Rapid Turnaround Charge ( )							
TOTAL							$ 2,281.50

Comments: See attached Proposal Notes and Terms & Conditions

Subcontracted might include 8270. Sampling cost is per sample.

Prepared by: Martha Montero (mmontero@elabusa.com)

ORMOND BEACH:
8 East Tower Circle
Ormond Beach, FL 32174
phone: 386-672-5668
fax: 386-673-4001

TAMPA:
1211 Tech Blvd, Suite 106
Tampa, FL 33619
phone: 813-627-0003
fax: 813-627-0582

Indicator Parameters	Municipal Solid Waste Landfills Leachate Concentration Reported (ppm)	
	Minimum	Maximum
	42	130
	6	4,900
ylate	NA	NA
cyl) phthalate	16	750
methyl butyl ketone)	6	690
	4	16,000
	0.017	0.023
ntanone (methyl isobutyl ketone)	10	710
oride (dichloromethane)	2	220,000
thalene	NA	NA
ol	NA	NA
ol	NA	NA
	NA	NA
	2	202
	4	120
	17	17
ienol	3	470
	NA	NA
	7.3	28,000
	11,000	11,000
	94	26,000
	NA	NA
hloroethane	210	210
ylene	2	620
an	18	1,300
	5.55	18,000
	1	1
phenol	NA	NA
ethane	1	13,000
ethane	30	630
ne	1	1,300
nethane	4	150
propane	230	230
	8	61
	32	310

ccurs during periods of light rainfall over a long lapse of time; shor
eavy rainfall during a storm result in a quick saturation of the cove
he remainder is shed as runoff, so there is little net infiltration
and Cossu, 1989). Precipitation depends on geographical location
)94).

lition. Waste condition can include waste composition, waste moisture
eprocessing of the waste (baling or shredding), thickness of the waste
y of the waste. Leachate quantity will increase if the waste releases

of the waste. Unsaturated waste continues to absorb water until it reaches field capacity as described in Chapter 6. Thus, waste in a state lower than its field capacity will reduce leachate formation. Sludge residues from sanitary treatment facilities, combined sewer systems, industrial filter materials, and other quasi-solids are being permitted by many regulatory groups for disposal in MSW landfills. Depending upon their moisture content and quantity, sludges have a major effect on leachate quality and quantity.

Final Cover Implications. Leachate volume is reduced significantly after a landfill is closed and finally covered because of two reasons—vegetation grown in the topsoil of a final cover reduces infiltration significantly by evapotranspiration, and the low permeability barrier reduces percolation. A significantly lesser amount of water will infiltrate into a landfill if it is covered with a composite cap, such as using geomembrane over compacted clay (GM/CCL) or geomembrane over a geosynthetic clay liner (GM/GCL). A properly designed final cover will eventually halt leachate quantity after landfill closure (Bagchi, 1994).

Leachate quantity is site specific and ranges from zero to 100% of precipitation during active landfill operation. Leachate generation rates in arid climates may be very low, even zero. In moist climates, however, leachate generation rates can be quite high. Leachate production from new landfills occurs at relatively low rates, then increases as more waste is placed and larger areas are exposed to precipitation. Leachate production reaches a peak just before closure and then declines significantly with the provision of surface grading and interim or final cover. The trend in leachate generation rates can be seen in Figure 7.1, which presents data for a double-lined municipal solid waste landfill having a geomembrane in the final cover. Monthly average leachate generation rates during the period of cell filling were up to 360 gallons/acre/day [3,400 liters/hectare/day (lphd)]. Rates for the first three years of the post-closure period

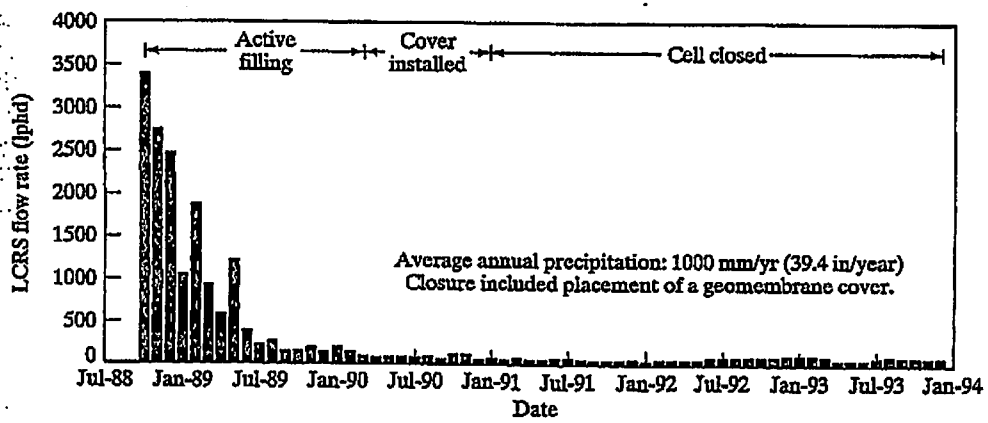


FIGURE 7.1 Leachate Generation Rate at a Municipal Solid Waste Landfill (Bonaparte, 1995). Used with permission of ASCE.

Source: Qian et al., "Geotechnical Aspects of Landfill Design and Construction", 2002.

Attachment H (1)

have averaged only 7.4 gallons/acre/day (70 lphd) (Bonaparte, 1995). Leachate quantities, however, vary over extremely wide limits and no single value can be considered as being "typical". For example, average leachate generation rates of all landfills in New York State are from 2,000 to 3,000 gallons/acre/year (20,000 to 30,000 liters/hectare/year). Conversely, landfills in Arizona and Nevada will rarely result in any leachate after the first few lifts of waste are placed in the facility.

7.3 ESTIMATION OF LEACHATE PRODUCTION RATE IN AN ACTIVE CONDITION

The leachate rates in a landfill for active and postclosure conditions vary significantly and the methods used to calculate them also differ. The leachate generation rate is higher during the active period of a landfill and is reduced significantly after construction of a qualified final cover. Procedures for estimating leachate quantity during the active and postclosure conditions are described in this section and next section, respectively.

Leachate is generated primarily as a result of percolating precipitation and pore liquid squeezed from waste placed in a landfill. The leachate generation rate in the active condition is denoted by

$$L_A = P + S - E - WA \qquad (7.1)$$

where L_A = leachate rate in the active condition;
P = precipitation;
S = pore squeeze liquid from waste;
E = moisture lost through evaporation; and
WA = waste moisture absorption.

Figure 7.2 shows how leachate is generated in an active landfill at a municipal solid waste landfill in active condition. Decomposition of putrescible waste mass can also release liquid. For practical design purposes the volume of leachate generated due to decomposition from waste is negligible. Surface run-on water may also cause an increase in leachate quantity; however, in a properly designed landfill surface, water is not allowed to move into an active cell thereby contacting the waste. Hence, this issue is not addressed here. However, surface run-on water is unavoidable in the case of older landfills. In this case, the volume of run-on water must be estimated using principles of local site hydrology, landfill-specific geometry, and site surface flow pattern.

The variables in the Equation 7.1 are discussed in the subsections that follow.

7.3.1 Precipitation

Precipitation includes all water that falls from the atmosphere to the area under consideration. It may occur in a variety of forms, including rainfall, snow, hail, and sleet. Once precipitation strikes the ground, it will produce surface runoff, evaporation, and percolation (Oasim and Chiang, 1994).

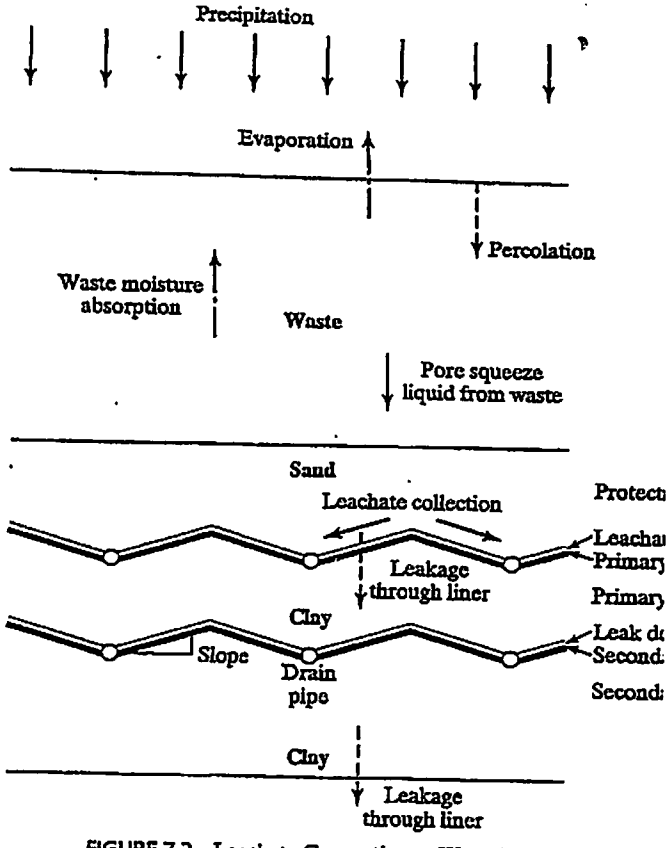


FIGURE 7.2 Leachate Generation or Water Movement in an

the local area under consideration must be developed. The N and various other Federal and state agencies that keep histor important sources of rainfall data. The mean annual precipitat is shown in Figure 7.3.

Squeezed Waste Liquid

The volume of liquid squeezed from the pores of a waste mat by waste composition, waste moisture content, thickness of th the waste, as well as by operational measures such as water waste compaction, lift thickness of waste filling, and landfill bu is disposed in a landfill, the liquid within the pores of the sludge the weight of the sludge and the weight of the layer above released because of both primary and secondary consolidation take place. Although secondary consolidation may be high

ATTACHMENT H (2)

Description	Units	Qty.	Unit Cost	Total
May 1, 2001				
Vacuum Truck	hour	5	$85.00	$425.00
Confined Space Standby Rescue	day	1	$750.00	$750.00
				$1,175.00
May 2, 2001				
Confined Space Standby Rescue	day	1	$750.00	$750.00
				$750.00
Total to Date				$8,005.00

In preparation for cleaning of the south leachate tank the modified scope of work is understood by ACT to be cleaning of the tank interior, removal of sludge with ACT vacuum truck, and perform confined space standby rescue for tank inspection. This modified scope of work will include, in addition to the established rates on the Quote Sheet, $85.00 per hour for use of the vacuum truck and an additional line item to handle the 12" of residual liquid and sludge.

The estimated cost to clean the south leachate tank (with the 12" of liquid and sludge), confined space rescue standby, and vacuum truck service is as follows:

Description	Units	Qty.	Unit Cost	Total
May 10, 2001				
Cleaning of South Leachate Tank	LS	1	$4,000.00	$4,000.00
Vacuum Truck	hour	8	$85.00	$680.00
Equipment Operator	hour	8	$40.00	$320.00
Handle and Transfer 12" of Residual Liquid and Sludge	LS	1	$2,000.00	$2,000.00
				$7,000.00
May 11, 2001				
Confined Space Standby Rescue	day	1	$750.00	$750.00
				$750.00
Estimated Total to Clean South Leachate Tank				$7,750.00 *

If so desired by the landfill authority, ACT can provide proper disposal of the waste to be removed from the south leachate tank. According to the industrial wastewater