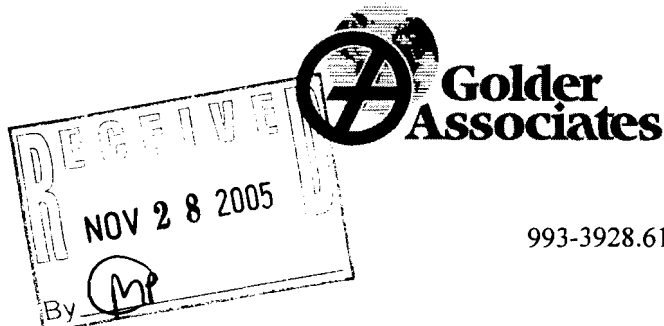


**Golder Associates Inc.**

8933 Western Way, Suite 12  
Jacksonville, FL USA 32256  
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November 28, 2005

993-3928.61

West Nassau Landfill  
46026 Landfill Road  
Callahan, Florida 32011

Attention: Mr. Lee Pickett, Interim Solid Waste Director

**RE: COST PROPOSAL FOR  
LFG EXTRACTION SYSTEM  
MONITORING AND BALANCING SERVICES  
WEST NASSAU LANDFILL  
NASSAU COUNTY, FLORIDA**

Dear Lee:

Golder Associates Inc. (Golder) is pleased to submit this cost proposal to the Nassau County Board of County Commissioners (Board) to provide Landfill Gas (LFG) Extraction System monitoring and balancing services at the West Nassau Landfill. This cost proposal was prepared at the request of you and Mr. Mike Mahaney, Nassau County Administrator and is proposed to be for a period of one year, beginning in January 2006. These services are currently being conducted by site personnel, but with the other required duties at the landfill and the changes to the LFG system that will be made over the next year, Golder understands that site personnel do not have the time or expertise to continue with these duties. It is anticipated that by this submittal on November 28, 2005 this cost proposal will be put on the agenda for the Board's consideration on December 14, 2005.

The following provides a description of the proposed scope of services, schedule, estimated costs, and terms and conditions. Please note that the services proposed herein include monitoring and data collection that will be conducted in general accordance with the NSPS, even though during this upcoming year, the site is not required to meet NSPS regulations. However, the collection of the information as it will be required after completion of the expansion of the system (by March 1, 2007) will allow the data collection process to be refined so that when it is required, major changes to the monitoring program will be minimized.

**SCOPE OF SERVICES**

*Professional Services  
Golder*

Based on our understanding of the project and your needs, Golder proposes the following tasks, which are described in detail in the subsections following this list:

- Task 1000 - Initial Site Visit - \$4,200.00
- Task 2000 - Monthly Wellfield Monitoring and Balancing - Existing System - \$12,005.00
- Task 3000 - Monthly Wellfield Monitoring and Balancing - Expanded System - \$11,640.00
- Task 4000 - Quarterly Monitoring and Balancing - \$7,580.00

\$35,425.00



DESIGN AND OPERATIONS

Regulatory Reference/Requirement		Comment	Facility Status	Schedule for Compliance	Estimated Cost for Corrective Action <sup>1</sup>	
<b>Subpart WWS--Standards of Performance for Municipal Solid Waste Landfills</b>						
<b>Standard for Air Emissions - §60.752</b>						
Landfill design capacity greater than 2.5 million Mg by mass or 2.5 million cubic meters by volume, and the calculated NMOC emission rate is > than 50 Mg per year	Submit design plan for collection and control system within 1 year of estimating NMOC emissions greater than or equal to threshold.	Because the original design plan was submitted as a Contamination Assessment Plan, it does not meet this rule's requirements.	A modified design is required to meet the NSPS Subpart WWS and NESHAP Subpart AAAAA.	A modified design plan was submitted within 1 year of exceedance of threshold based on Tier II estimate. Submitted September 1, 2005.	Prepare Plan:	See Reporting Table.
	Install the collection and control system within 18 months of the submittal of the design plan	The installation of the existing system was completed in August 2000; however, it was designed to address groundwater contamination, not to address the landfill gas per the NSPS and NESHAP rules. Additionally, the design included additional wells that have not been installed yet.	Because the original design was only partially installed, additional components to the existing system are required to meet rule requirements.	Required system installation will be completed within 18 months of the submittal of the modified design plan. Due March 1, 2007.	Installation of additional wells and conveyance:	\$575,000
<b>Collection System Requirements- §60.752</b>						
Active collection system	Be designed to handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control or treatment system equipment	The system is designed in accordance with this requirement based on the areas considered to be impacting groundwater through off-site gas migration. Although, not all areas as applicable to rule requirements are addressed by the existing system.	Additional components to the existing system are required to meet rule requirements.	Required system installation will be completed within 18 months of the submittal of the modified design plan. Due March 1, 2007.	See above for installation of additional wells.	See Above
	Collect gas from each area, cell, or group of cells in the landfill in which the initial solid waste has been placed for a period of: a) 5 years or more if active; or b) 2 years or more if closed or at final grade.	The intent of the initial system installed was to cover the closure area and the perimeter of the landfill that was up to final waste elevations to minimize the operational problems with filling around gas wells at the same time as addressing gas migration/groundwater contamination issues (thus, the perimeter system only). Therefore, when looking at which wells were to be installed, the collection of gas in areas per this rule were not considered.  Golder has prepared a plan for future expansion of the system. This plan would eventually account for extraction of landfill gas from all areas of the landfill, although it may be installed in phases. The partial design in operation presently may influence some additional areas but was not designed to do so.	Installation of additional wells will be required to meet the rule.	Installation of required wells will be completed within 18 months of the submittal of the modified design plan. Due March 1, 2007.	See above for installation of additional wells	See Above.
	Collect gas at a sufficient extraction rate	Reportedly, there are issues with some wells and a positive pressure is recorded if wells are malfunctioning, temporarily shut down, or not open enough.	There currently are some instances where this criteria is not met.	Installation of enhanced system will be completed within 18 months of the submittal of the modified design plan. Due March	Cost to repair wells/replace components: Training:	\$12,000 \$2,500
	Be designed to minimize off-site migration of subsurface gas	The existing system is designed to address groundwater contamination/gas migration issues. Additional wells are proposed to further address groundwater contamination/gas migration.	Installation of additional wells may be required to meet the rule.	Installation of enhanced system will be completed within 18 months of the submittal of the modified design plan. Due March 1, 2007.	See above for installation of additional wells.	See Above.

Notes:

N/A-not applicable

<sup>1</sup>Estimated cost represents an industry ballpark figure in 2005 dollars. Cost is subject to further development.

Gap analysis initiated in December 2003.

**DESIGN AND OPERATIONS**

<u>Regulatory Reference/Requirement</u>		<u>Comment</u>	<u>Facility Status</u>	<u>Schedule for Compliance</u>	<u>Estimated Cost for Corrective Action<sup>1</sup></u>	
<b>Control System Requirements- §60.752</b>						
Flare designed and operated in accordance with § 60.18	Flares shall be designed for and operated with no visible emissions except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.	See monitoring requirements for visible emission requirements.	Visible emissions monitoring is not currently conducted.	Compliance within 18 months of the submittal of the modified design plan. Due March 1, 2007.	See monitoring requirements for visible emission requirements	
	Flares shall be operated with a flame present at all times	The unit is equipped with a UV flame detector and monitored continuously. The system automatically shuts down if no flame is present.	In compliance.	Currently conducting activity.	N/A	N/A
	Calibrate, maintain and operate a device that records flow to or bypass of the flare.	The unit is equipped with a flow monitor.	In compliance.	Currently conducting activity.	N/A	N/A
	Flares shall be used only with the net heating value of the gas being combusted being 11.2 MJ/scm (300 Btu/scf) or greater if the flare is steam-assisted or air-assisted, or with the net heating value of the gas being combusted being 7.45 MJ/scm (200 Btu/scf) or greater if the flare is nonassisted. The net heating value of the gas being combusted shall be determined by the methods specified in paragraph (f)(3) of this section, or approved alternate method.	System information indicates that it operates at 250 to 550 BTU/scf. However, several samples from the system should be submitted to a laboratory to confirm.	The flare generally meets design criteria.	Compliance within 18 months of the submittal of the modified design plan. Due March 1, 2007.	Gas heating value analysis (3 samples):	\$2,000

Notes:

N/A-not applicable

<sup>1</sup>Estimated cost represents an industry ballpark figure in 2005 dollars. Cost is subject to further development. Gap analysis initiated in December 2003.

## DESIGN AND OPERATIONS

Regulatory Reference/Requirement		Comment	Facility Status	Schedule for Compliance	Estimated Cost for Corrective Action <sup>1</sup>	
<b>Operational Standards for Collection and Control Systems - § 60.753</b>						
MSW landfill gas collection and control system used to comply with the provisions of § 60.752(b)(2)(ii). (NMOOC ≥ 50 MG/yr)	Operate the collection system such that gas is collected from each area, cell, or group of cells in the MSW landfill in which solid waste has been in place for: a) 5 years or more if active, or b) 2 years or more if closed or at final grade;		See above			
	Operate the collection system with negative pressure at each wellhead except under the following conditions: a) A fire or increased well temperature b) Use of a geomembrane or synthetic cover c) A decommissioned well		See above.			
	Operate each interior wellhead in the collection system with a landfill gas temperature less than 55 C (131F) and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent.	<u>Temperature</u> : According to facility data, the wellhead temperature is on average 85F. <u>Nitrogen level</u> : Not monitored. <u>Oxygen level</u> : Observed data ranged from less than 1% to 20%.	Oxygen levels exceed 5% in some wells, due to operational problems, which are currently being addressed.	Upon completion of the installation and start-up of the enhanced system.	Cost to repair wells/replace components is presented above	N/A
	Operate the collection system so that the methane concentration is less than 500 parts per million above background at the surface of the landfill	Surface monitoring is not currently conducted	Monitoring is not currently conducted.	Methane monitoring will commence upon completion of the installation and start-up of the enhanced system	See monitoring requirements.	N/A
	Operate the system such that all collected gases are vented to a control system designed and operated in compliance with § 60.752(b)(2)(iii)	Collected gases are currently vented to an open flare device, designed and operated in compliance	In compliance.	In compliance.	N/A	N/A
	Operate the control or treatment system at all times when the collected gas is routed to the system	The system is installed with equipment that prevents the collected gas from venting through the control system when it is not operating.	In compliance.	In compliance.	N/A	N/A
<b>Compliance Provisions §60.755</b>						
General	The provisions of this subpart apply at all times, except during periods of start-up, shutdown, or malfunction, provided that the duration of start-up, shutdown, or malfunction shall not exceed 5 days for collection systems and shall not exceed 1 hour for treatment or control devices	When the control device malfunctions, it automatically restarts in 45 minutes.	In compliance; however, the restart time for the control device should be minimized.	The restart time will be reduced upon completion of the installation and start-up of the enhanced system.	Adjust setting.	\$800
<b>DESIGN AND OPERATIONS-TOTAL ESTIMATED COST TO COMPLY:</b>						<b>\$592,300</b>

## Notes:

N/A-not applicable

<sup>1</sup>Estimated cost represents an industry ballpark figure in 2005 dollars. Cost is subject to further development.  
Gap analysis initiated in December 2003.

NSPS WWW and NESHAP AAAA Gap Analysis  
Nassau County Landfill  
MONITORING

Regulatory Reference/Requirement	Comment	Facility Status	Schedule for Compliance	Estimated Cost for Corrective Action <sup>1</sup>	
<b>Subpart WWW--Standards of Performance for Municipal Solid Waste Landfills</b>					
§ 60.18 General control device requirements.	Method 22 of appendix A shall be used to determine the compliance of flares with the visible emission provisions. The observation period is 2 hours and shall be conducted according to Method 22.  <u>Initial</u> performance test and <u>annual</u> tests thereafter are required.	Costs assumes 3rd party will conduct the testing.	Visible emissions initial performance test was not conducted. Annual testing is not currently conducted.	Upon completion of the installation and start-up of the enhanced system, an initial performance test will be conducted and annually, thereafter.	Testing (cost per test):  \$1,000
Surface methane operational standard (§ 60.753(d))	After installation of the collection system, the owner or operator shall monitor surface concentrations of methane along the entire perimeter of the collection area and along a serpentine pattern spaced 30 meters apart (or a site-specific established spacing) for each collection area on a <u>quarterly</u> basis.	Costs assumes 3rd party will conduct the testing. For a closed landfill, if monitoring shows no exceedances for 3 consecutive quarterly monitoring periods, then monitoring can be 'skipped' to annual monitoring.	Surface monitoring is not currently conducted.	Quarterly methane monitoring will commence upon completion of the installation of the enhanced system.	Grid Design : \$850 Annual testing (4 quarters): \$7,500
	The owner or operator shall implement a program to monitor for cover integrity and implement cover repairs as necessary on a monthly basis.	Reportedly, this program is currently conducted on a daily basis.	In compliance.	In compliance.	N/A N/A
Each owner or operator seeking to comply with § 60.752(b)(2)(ii)(A) for an active gas collection system	Measure the gauge pressure in the gas collection header on a <u>monthly</u> basis as provided in § 60.755(a)(3).	Pressure can be monitored at each well.	Current monitoring of extraction well heads by site personnel is sporadic.	Should conduct monthly monitoring.	N/A - if site personnel continue with monitoring N/A
	Monitor nitrogen or oxygen concentration in the landfill gas on a <u>monthly</u> basis as provided in § 60.755(a)(5).	Monitoring for temperature and oxygen can be conducted at each well head and at the flare.	Current monitoring of extraction well heads by site personnel is sporadic.	Should conduct monthly monitoring.	N/A - if site personnel continue with monitoring N/A
	Monitor temperature of the landfill gas on a <u>monthly</u> basis as provided in § 60.755(a)(5).	Temperature is measured continuously at the flare gas header and at each well head.	In compliance.	In compliance.	N/A N/A
Each owner or operator seeking to comply with § 60.752(b)(2)(iii) control requirements using an open flare	Shall calibrate, maintain, and operate: A heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light or the flame itself to indicate the continuous presence of a flame	The unit is equipped with a UV flame detector.	In compliance.	In compliance.	N/A N/A
	Calibrate, maintain and operate a device that records flow to or bypass of the flare. Monitor at least every 15 minutes. (As an alternative if bypass line valves are secured in a closed position with car-seal or lock-and-key type configuration, conduct <u>monthly</u> inspections of bypass line seals).	The unit is equipped with a flow monitor.	In compliance.	In compliance.	N/A N/A
<b>MONITORING-TOTAL ESTIMATED COST TO COMPLY ANNUALLY:</b>					<b>\$9,350</b>

Notes:

N/A-not applicable

<sup>1</sup>Estimated cost represents an industry ballpark figure in 2005 dollars. Cost is subject to further development.

Gap analysis initiated in December 2003.

**RECORD KEEPING AND REPORTING**

<u>Regulatory Reference/Requirement</u>		<u>Comment</u>	<u>Facility Status</u>	<u>Schedule for Compliance</u>	<u>Estimated Cost for Corrective Action<sup>1</sup></u>	
<b>Subpart WWW—Standards of Performance for Municipal Solid Waste Landfills</b>						
<b>Reporting Requirements - §60.757</b>						
All landfills	Each owner or operator shall submit an initial design capacity report and it shall be submitted no later than the earliest day from the following: (1) 90 days of the issuance of the State, Local, Tribal, or CAR construction or operating permit; or (2) 30 days of the date of construction or reconstruction as defined under § 60.15; or (3) 30 days of the initial acceptance of solid waste	A design capacity report was submitted April 16, 1996 with the amended permit application submitted by Golder in 1999 with vertical expansion.	In compliance.	In compliance.	N/A	N/A
	The initial design capacity report shall contain the following information: (1) A map or plot of the landfill, providing the size and location of the landfill, and identifying all areas where solid waste may be landfilled according to the provisions of the State, local, Tribal, or RCRA construction or operating permit; and (2) The maximum design capacity of the landfill.	A design capacity report was submitted April 16, 1996 with the amended permit application submitted by Golder in 1999 with vertical expansion.	In compliance.	In compliance.	N/A	N/A
	Each owner or operator shall submit an NMOC emission rate report initially and annually thereafter.	An initial NMOC emission rate report was submitted on June 11, 1996, which presented an emission rate of 98 Mg/yr, exceeding the threshold. As a result, the facility conducted Tier II testing and submitted the results with a recalculated NMOC emission rate on June 27, 1997. On January 9, 1998, the facility submitted the 1997 Annual NMOC emission rate report. This report included a statement that the estimated emission rates over the next five years would not exceed 50 Mg/yr at current waste acceptance rates. The 1998 emission rate as well as future estimates, using the Tier II data was provided to the FDEP as part of the air construction permit application, dated April 16, 1999. As part of the compliance plan, Tier II testing was conducted in July 2004. Results were submitted August 31, 2004.	In compliance.	In compliance.	N/A	N/A

N/A-not applicable

<sup>1</sup>Estimated cost represents an industry ballpark figure in 2005 dollars. Cost is subject to further development.  
Gap analysis conducted in December 2003.

**RECORD KEEPING AND REPORTING**

	<u>Regulatory Reference/Requirement</u>	<u>Comment</u>	<u>Facility Status</u>	<u>Schedule for Compliance</u>	<u>Estimated Cost for Corrective Action<sup>1</sup></u>	
	<p>Each owner or operator shall submit an amended design capacity report to the Administrator</p> <p>a) The notification will be provided for any increase in the design capacity of the landfill</p> <p>b) The notification will indicate whether the increase results from an increase in the permitted area or depth of the landfill, a change in the operating procedures, or any other means which results in an increase in the maximum design capacity of the landfill above 2.5 million megagrams or 2.5 million cubic meters</p> <p>c) The amended design capacity report shall be submitted within 90 days of the issuance of an amended construction or operating permit, or the placement of waste in additional land, or the change in operating procedures which will result in an increase in maximum design capacity, whichever occurs first</p>	<p>The information regarding the vertical expansion was provided for the Solid Waste Permit (No. 0002870-002-SC). However, it was not provided to comply with this requirement. As referenced, the facility obtained approval for a vertical expansion with its solid waste permit renewal issued on July 18, 2000. The expansion increased the landfill capacity from 4.57 million cubic yards (3.5 million m3) to 4.87 million cubic yards (3.7 million m3). The design information was provided to the FDEP and is on record with the Solid Waste Department. For use by the Air Program, reference to this information was provided in the Permit Revision Application Response to RAI, dated February 10, 2004, and Final Grading and Gas Monitoring Plan (dated November 17, 1999) from the Solid Waste Permit Application which shows the final grades for the landfill were provided with the Second Response to the RAI, submitted August 18, 2004. Additionally, updated design capacity data was provided in Section III of the Air Permit Renewal Application, dated February 18, 2004.</p>	<p>In compliance.</p>	<p>In compliance.</p>	<p>N/A</p>	<p>N/A</p>
<p>Landfill design capacity greater than 2.5 million MG by mass or 2.5 million cubic meters by volume, and the calculated NMOC emission rate is <math>\geq</math> than 50 MG per year (except as Tier II/III may apply)</p>	<p>Submit a collection and control system design plan to the Administrator within 1 year</p>	<p>Because the original design plan was submitted as a Contamination Assessment Plan, it does not completely meet this rule's requirements.</p>	<p>A modified design is required to meet the NSPS Subpart WWW and NESHAP Subpart AAAA.</p>	<p>A modified design plan was submitted within 1 year of exceedance of threshold based on Tier II estimate. Submitted September 1, 2005.</p>	<p>Development and submittal of a Plan:</p>	<p>N/A (completed)</p>

N/A-not applicable

<sup>1</sup>Estimated cost represents an industry ballpark figure in 2005 dollars. Cost is subject to further development. Gap analysis conducted in December 2003.



**RECORD KEEPING AND REPORTING**

<b>Regulatory Reference/Requirement</b>		<b>Comment</b>	<b>Facility Status</b>	<b>Schedule for Compliance</b>	<b>Estimated Cost for Corrective Action<sup>1</sup></b>	
Landfill is subject to the provisions of § 60.752 (b)(2) (≥50 MG/yr NMOC)	<p>Submit annual reports with the following information:</p> <p><b>a)</b> A diagram of the collection system showing collection system positioning (wells, horizontal collectors, surface collectors, or other gas extraction devices, including the locations of any areas excluded from collection and the proposed sites for the future collection system expansion);</p> <p><b>b)</b> The data upon which the sufficient density of wells, horizontal collectors, surface collectors, or other gas extraction devices and the gas mover equipment sizing are based;</p> <p><b>c)</b> The documentation of the presence of asbestos or nondegradable material for each area from which collection wells have been excluded based on the presence of asbestos or nondegradable material;</p> <p><b>d)</b> The sum of the gas generation flow rates for all areas from which collection wells have been excluded based on nonproductivity and the calculations of gas generation flow rate for each excluded area</p> <p><b>e)</b> The provisions for increasing gas mover equipment capacity with increased gas generation flow rate, if the present gas mover equipment is inadequate to move the maximum flow rate expected over the life of the landfill; and</p> <p><b>f)</b> The provisions for the control of off-site migration.</p>	Costs assumes 3rd party prepare the annual report.	The facility has not submitted an annual report.	Annually, upon completion of system installation and start-up of system.	Development and submittal of annual report.	\$3,000
60.757(f) Landfill complying with § 60.752(b)(2) using an active collection system	<p>Each owner or operator shall submit <u>annual</u> reports containing:</p> <p><b>a)</b> Value and length of time for exceedance of applicable parameters monitored under § 60.756(a), (b), (c), and (d)</p> <p><b>b)</b> Description and duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow as specified under § 60.756 (N/A)</p> <p><b>c)</b> Description and duration of all periods when the control device was not operating for a period exceeding 1 hour and length of time the control device was not operating</p> <p><b>d)</b> All periods when the collection system was not operating in excess of 5 days</p> <p><b>e)</b> The location of each exceedance of the 500 parts per million methane concentration as provided in § 60.753(d) and the concentration recorded at each location for which an exceedance was recorded in the previous month</p> <p><b>f)</b> The date of installation and the location of each well or collection system expansion added pursuant to paragraphs (a)(3), (b), and (c)(4) of § 60.755</p>	<p>The facility is not currently maintaining sufficient records to comply with the reporting requirement.</p> <p>Additional record keeping required to enable development of report:</p> <p><b>a)</b> compilation of exceedances</p> <p><b>c and d)</b> more detailed records of malfunctions and downtime</p> <p><b>e)</b> methane monitoring</p> <p>Cost assumes 3rd party will prepare the annual report and assist with the implementation of additional record keeping.</p>	The facility's current recordkeeping partially satisfies this requirement. Annual reporting under this requirement is not conducted.	Within 180 days of completion of the installation and start-up of the enhanced system, the initial annual report will be submitted.	<p>Assistance with implementing additional record keeping:</p> <p>Development and submittal of annual report:</p>	<p>\$850</p> <p>\$3,000</p>

N/A-not applicable

<sup>1</sup>Estimated cost represents an industry ballpark figure in 2005 dollars. Cost is subject to further development. Gap analysis conducted in December 2003.

**RECORD KEEPING AND REPORTING**

<u>Regulatory Reference/Requirement</u>		<u>Comment</u>	<u>Facility Status</u>	<u>Schedule for Compliance</u>	<u>Estimated Cost for Corrective Action<sup>1</sup></u>	
	The initial annual report shall be submitted within 180 days of installation and start-up of the collection and control system, and shall include the initial performance test report required under § 60.8.	Visible emissions initial performance test was not conducted.	Visible emissions initial performance test was not conducted.	Within 180 days of completion of the installation and start-up of the enhanced system, the initial report will be submitted.	Annual testing:	See Monitoring Table
<b>Recordkeeping Requirements - §60.758</b>						
Landfill subject to the provisions of § 60.752(b) (capacity ≥ 2.5 million MG)	Each owner or operator shall keep for at least 5 years up-to-date, readily accessible, on-site records of the maximum design capacity, the current amount of solid waste in-place, and the year-by-year waste acceptance rate	The facility's current recordkeeping partially satisfies this requirement.	Additional recordkeeping will be conducted in accordance with the Rule.	The applicable record keeping system will be implemented upon completion of the installation and start-up of the enhanced system	Assistance with implementing additional record keeping:	\$500
Landfill subject to the provisions of § 60.752(b)(2)(ii) (install a collection/control system within 30 months of exceedance or demonstrate below through Tier II or III sampling)	Each owner or operator shall keep the following records: (Readily accessible records shall be kept for the life of the control equipment) a) The maximum expected gas generation flow rate as calculated in § 60.755(a)(1). The owner or operator may use another method to determine the maximum gas generation flow rate, if the method has been approved by the Administrator. b) The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in § 60.759(a)(1)	The facility's current recordkeeping partially satisfies this requirement.	The facility currently does not maintain maximum gas generation flow rate calculations.	The applicable record keeping system will be implemented upon completion of the installation and start-up of the enhanced system	Assistance with implementing additional record keeping:	\$500
Where an owner or operator seeks to demonstrate compliance with § 60.752(b)(2)(iii)(A) through use of an open flare (route all collected gas to a control system)	Each owner or operator shall keep the following records: (Readily accessible records shall be kept for the life of the control equipment) a) The flare type (i.e., steam-assisted, air-assisted, or nonassisted), all visible emission readings, heat content determination, flow rate or bypass flow rate measurements(N/A), and exit velocity determinations made during the performance test as specified in § 60.18; continuous records of the flare pilot flame or flare flame monitoring and records of all periods of operations during which the pilot flame of the flare flame is absent. b) Keep up-to-date, readily accessible continuous records of the flame or flare pilot flame monitoring specified under § 60.756(c), and up-to-date, readily accessible records of all periods of operation in which the flame or flare pilot flame is absent	The facility's current recordkeeping partially satisfies this requirement.	Records of visible emissions and heat content determinations are not currently maintained. Other records are maintained.	The applicable record keeping system will be implemented upon completion of the installation and start-up of the enhanced system	Assistance with implementing additional record keeping:	\$500

N/A-not applicable

<sup>1</sup>Estimated cost represents an industry ballpark figure in 2005 dollars. Cost is subject to further development.  
Gap analysis conducted in December 2003.

**RECORD KEEPING AND REPORTING**

<u>Regulatory Reference/Requirement</u>		<u>Comment</u>	<u>Facility Status</u>	<u>Schedule for Compliance</u>	<u>Estimated Cost for Corrective Action<sup>1</sup></u>	
Controlled landfill subject to landfill NSPS (controlled=any landfill at which collection and control systems are required under this subpart, considered controlled at the time a collection and control system design plan is submitted in compliance with 60.752(b)(2)(i))	Keep for 5 years up-to-date, readily accessible continuous records of the equipment operating parameters specified to be monitored in § 60.756 as well as up-to-date, readily accessible records for periods of operation during which the parameter boundaries established during the most recent performance test are exceeded.	Per 60.756, monitoring includes: a) Continuously-presence of a flame (UV beam sensor), rate of gas flow to the flare b) Monthly-wellhead temperature, gauge pressure, nitrogen or oxygen concentration c) Quarterly-surface methane monitoring	Currently, surface methane concentrations are not monitored or recorded. Additionally, data is not evaluated for exceedances and recorded as such.	The applicable record keeping system will be implemented upon completion of the installation and start-up of the enhanced system	Assistance with implementing additional record keeping:	\$500
	Keep for 5 years up-to-date, readily accessible continuous records of collection and control system exceedances of the operational standards in § 60.753, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance.	Per 60.753, standards include: a) gas is collected from each area, cell or group of cells where waste has been in place for 5 years or more (active), 2 years or more (closed or final grade) b) negative pressure at each wellhead except under certain conditions c) interior wellhead temperature less than 55C and either a nitrogen level less than 20% or an oxygen level less than 5 %. d) methane concentration is less than 500 ppm above background at the surface of the landfill e) collected gases are vented to a control system f) operate control system at all times when collected gas is routed to the system	Currently, surface methane concentrations are not monitored or recorded. Additionally, data is not evaluated for exceedances and recorded as such.	The applicable record keeping system will be implemented upon completion of the installation and start-up of the enhanced system	Development, implementation, and maintenance of record keeping system:	See above.
Collection system subject to the landfill NSPS	For the life of the collection system an up-to-date, readily accessible plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector	The facility currently maintain these records.	In compliance.	The facility will need to continue to maintain these records.	N/A	N/A

N/A-not applicable

<sup>1</sup>Estimated cost represents an industry ballpark figure in 2005 dollars. Cost is subject to further development. Gap analysis conducted in December 2003.

**RECORD KEEPING AND REPORTING**

<u>Regulatory Reference/Requirement</u>		<u>Comment</u>	<u>Facility Status</u>	<u>Schedule for Compliance</u>	<u>Estimated Cost for Corrective Action<sup>1</sup></u>	
	Keep up-to-date, readily accessible records of the installation date and location of all newly installed collectors as specified under § 60.755(b).	The facility currently maintain these records.	In compliance.	The facility will need to continue to maintain these records.	N/A	N/A
	Documentation of the nature, date of deposition, amount, and location of asbestos-containing or nondegradable waste excluded from collection as provided in § 60.759(a)(3)(i) as well as any nonproductive areas excluded from collection as provided in § 60.759(a)(3)(ii)	The facility currently documents the disposal location of this asbestos, but not nondegradable waste; therefore, only portions may be excluded from collection.	N/A	N/A	N/A	N/A
<b>40 CFR - CHAPTER I - PART 63</b>						
<b>Subpart AAAAA-NESHAP: Municipal Solid Waste Landfills</b>						
<b>§ 63.1960 How is compliance determined?</b>						
Continuous parameter monitoring data, collected under 40 CFR 60.756(b)(1), (c)(1), and (d) of subpart WWW, are used to demonstrate compliance with the operating conditions for control systems. If a deviation occurs, you have failed to meet the control device operating conditions described in this subpart and have deviated from the requirements of this subpart.	Develop and implement a written SSM plan according to the provisions in 40 CFR 63.6(e)(3). A copy of the SSM plan must be maintained on site. Failure to write, implement, or maintain a copy of the SSM plan is a deviation from the requirements of this subpart.	Cost assumes 3rd party will develop the SSM Plan, but facility will implement the plan.	The facility currently does not have an SSM plan.	The facility will comply with this requirement upon completion of the installation and start-up of the enhanced system.	Development of SSM Plan:	\$5,000

N/A-not applicable

<sup>1</sup>Estimated cost represents an industry ballpark figure in 2005 dollars. Cost is subject to further development. Gap analysis conducted in December 2003.

**RECORD KEEPING AND REPORTING**

Regulatory Reference/Requirement		Comment	Facility Status	Schedule for Compliance	Estimated Cost for Corrective Action <sup>1</sup>	
<b>§ 63.1980 What records and reports must I keep and submit?</b>						
a) Keep records and reports as specified in 40 CFR part 60, subpart WWW, or in the Federal plan, EPA approved State plan or tribal plan that implements 40 CFR part 60, subpart Cc, whichever applies to your landfill, with one exception:	You must submit the annual report described in 40 CFR 60.757(f) every 6 months. § 60.757(f) (submit semi-annual report of): (1) Value and length of time for exceedance of applicable parameters monitored under § 60.756(a), (b), (c), and (d). (2) Description and duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow as specified under § 60.756. (N/A) (3) Description and duration of all periods when the control device was not operating for a period exceeding 1 hour and length of time the control device was not operating. (4) All periods when the collection system was not operating in excess of 5 days. (5) The location of each exceedance of the 500 parts per million methane concentration as provided in § 60.753(d) and the concentration recorded at each location for which an exceedance was recorded in the previous month. (6) The date of installation and the location of each well or collection system expansion added pursuant to paragraphs (a)(3), (b), and (c)(4) of § 60.755.	Some additional record keeping, as discussed above will be required to comply with this provision.  Cost assumes 3rd party will prepare the report.	The facility does not currently submit semi-annual compliance reports.	The facility will comply with this requirement upon completion of the installation and start-up of the enhanced system.	Annual Reporting (1-Semi-annual report, first semi-annual report included above):	\$3,000
<b>§ 63.6 Compliance with standards and maintenance requirements.</b>						
Operation and maintenance requirements.	Malfunctions must be corrected as soon as practicable after their occurrence in accordance with the startup, shutdown, and malfunction plan required in paragraph (e)(3) of this section.	Cost assumes 3rd party will conduct the necessary training to assist the facility in complying with this provision.	The facility currently does not have an SSM plan to adhere to.	The facility will comply with this requirement upon completion of the installation and start-up of the enhanced system.	Training:	\$1,500
	<u>Startup, shutdown, and malfunction plan.</u> The owner or operator of an affected source must develop and implement a written startup, shutdown, and malfunction plan that describes, in detail, procedures for operating and maintaining the source during periods of startup, shutdown, and malfunction, and a program of corrective action for malfunctioning process and air pollution control and monitoring equipment used to comply with the relevant standard. This plan must be developed by the owner or operator by the source's compliance date for that relevant standard.	Cost assumes 3rd party will develop the SSM Plan, but facility will implement the plan.	The facility currently does not have an SSM plan.	The facility will comply with this requirement upon completion of the installation and start-up of the enhanced system.	Develop and implement Plan:	See above.

N/A-not applicable

<sup>1</sup>Estimated cost represents an industry ballpark figure in 2005 dollars. Cost is subject to further development.  
Gap analysis conducted in December 2003.

**RECORD KEEPING AND REPORTING**

<b>Regulatory Reference/Requirement</b>		<b>Comment</b>	<b>Facility Status</b>	<b>Schedule for Compliance</b>	<b>Estimated Cost for Corrective Action<sup>1</sup></b>	
	When actions taken by the owner or operator during a startup, shutdown, or malfunction (including actions taken to correct a malfunction) are consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, the owner or operator must <u>keep records</u> for that event which demonstrate that the procedures specified in the plan were followed. These records may take the form of a "checklist," or other effective form of recordkeeping that confirms conformance with the startup, shutdown, and malfunction plan for that event. In addition, the owner or operator must keep records of these events as specified in § 63.10(b), including records of the occurrence and duration of each startup, shutdown, or malfunction of operation and each malfunction of the air pollution control and monitoring equipment.	The facility's current recordkeeping partially satisfies this requirement.	Records of visible emissions and heat content determinations are not currently maintained. Other records are maintained.	The applicable record keeping system will be implemented upon completion of the installation and start-up of the enhanced system	Assistance with implementing additional record keeping:	\$500
	If an action taken by the owner or operator during a startup, shutdown, or malfunction (including an action taken to correct a malfunction) is <u>not</u> consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, and the source exceeds any applicable emission limitation in the relevant emission standard, then the owner or operator must <u>record</u> the actions taken for that event and must <u>report</u> such actions within 2 working days after commencing actions inconsistent with the plan, followed by a letter within 7 working days after the end of the event, in accordance with § 63.10(d)(5) (unless the owner or operator makes alternative reporting arrangements, in advance, with the Administrator).	Existing record keeping system partially complies with requirement. However, reporting procedures are not in place.	More detailed record keeping system and reporting procedures required.	The applicable record keeping system will be implemented upon completion of the installation and start-up of the enhanced system	Assistance with implementing additional record keeping:	\$500
<b>§ 63.10 Recordkeeping and reporting requirements.</b>						
General recordkeeping requirements	(i) The occurrence and duration of each SSM of operation (i.e., process equipment); (ii) The occurrence and duration of each malfunction of the required air pollution control and monitoring equipment; (iii) All required maintenance performed on the air pollution control and monitoring equipment; (iv) Actions taken during periods of SSM (including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation) when such actions are different from the procedures specified in the affected source's SSM plan (see § 63.6(e)(3));	Existing record keeping system partially complies with requirement. However, reporting procedures are not in place.	More detailed record keeping system and reporting procedures required.	The applicable record keeping system will be implemented upon completion of the installation and start-up of the enhanced system	Assistance with implementing additional record keeping:	\$500
	(v) All information necessary to demonstrate conformance with the affected source's SSM plan (see § 63.6(e)(3)) when all actions taken during periods of SSM (including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation) are consistent with the procedures specified in such plan. (The information needed to demonstrate conformance with the SSM plan may be recorded using a "checklist," or some other effective form of recordkeeping, in order to minimize the recordkeeping burden for conforming events);	Existing record keeping system partially complies with requirement. However, reporting procedures are not in place.	More detailed record keeping system required.	The applicable record keeping system will be implemented upon completion of the installation and start-up of the enhanced system	Assistance with implementing additional record keeping:	\$500

N/A-not applicable

<sup>1</sup>Estimated cost represents an industry ballpark figure in 2005 dollars. Cost is subject to further development.  
Gap analysis conducted in December 2003.

**RECORD KEEPING AND REPORTING**

<u>Regulatory Reference/Requirement</u>		<u>Comment</u>	<u>Facility Status</u>	<u>Schedule for Compliance</u>	<u>Estimated Cost for Corrective Action<sup>1</sup></u>	
General reporting requirements.	<u>Reporting results of performance tests.</u> The owner or operator of an affected source shall report the results of the performance test to the Administrator (or the State with an approved permit program) before the close of business on the 60th day following the completion of the performance test, unless specified otherwise in a relevant standard or as approved otherwise in writing by the Administrator.	Costs assumes 3rd party will conduct the testing and prepare the report.	The facility has not performed performance testing in accordance with the rule.	Upon completion of the installation and start-up of the enhanced system, an initial performance test will be conducted, and annually thereafter.	Testing/Report:	See Monitoring Table
	Reporting results of opacity or visible emission observations.	Costs assumes 3rd party will conduct the testing and prepare the report.	The facility has not performed visible emission observations.	Upon completion of the installation and start-up of the enhanced system, an initial performance test will be conducted, and annually thereafter.	Testing/Report:	See Monitoring Table
	<u>Periodic startup, shutdown, and malfunction reports.</u> The startup, shutdown, and malfunction report shall be delivered or postmarked by the 30th day following the end of each calendar half (or other calendar reporting period, as appropriate).	Cost assumes 3rd party will prepare the report.	The facility is not currently submitting semi-annual SSM reports.	Upon completion of the installation and start-up of the enhanced system, an initial performance test will be conducted, and semi-annually thereafter.	Annual Reporting (2 semi-annual reports):	See above.
<b>RECORD KEEPING AND REPORTING-TOTAL ESTIMATED COST TO COMPLY ANNUALLY:</b>						<b>\$20,350</b>

N/A-not applicable

<sup>1</sup>Estimated cost represents an industry ballpark figure in 2005 dollars. Cost is subject to further development. Gap analysis conducted in December 2003.

**Agenda Request For:** December 14, 2005

**Department:** Solid Waste

**Background:** Landfill gas Extraction (LFG) System monitoring and balancing services for the West Nassau Landfill are currently being conducted by Landfill Employees. Per the request of Mr. Mahaney and lee Pickett Golder has prepared a cost proposal to handle these services for a period of one year, beginning in January 2006. Due to the many changes in the LFG System, Landfill employees don't have the required training to properly continue with these important duties. Please note that the services proposed in Golder's estimate include monitoring and data collection that will be conducted in general accordance with the NSPS, even though during this FY 05-06, the site is not required to meet the NSPS regulations. However, the collection of the information as it will be required after completion of the expansion of the system (by March 1, 2007) will allow the data collection process to be refined so that when it is actually required, major changes to the monitoring program will be minimized.

**Financial/Economic Impact to Future Years Budgeting Process or Effect on Citizens**

Proposal for services rendered through December 2006 and will need to address for subsequent time frame funding. See proposal section "Schedule."

**Action requested and recommendation:** Request the Board authorize and approve Golder Associates' cost proposal 993-3928.61 for \$35,425 for LFG System Monitoring and balancing services for a one-year period beginning January 2006.

**Is this action consistent with the Nassau County Comprehensive Land Use Plan?** Section 4 Public Facility element.

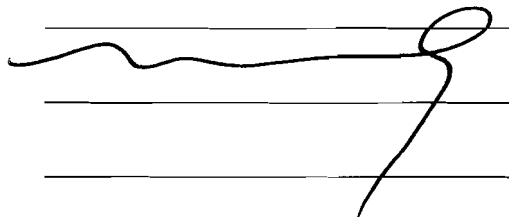
**Funding Source:** Account 70341534-531302 "Professional Services-Golder" with budget transfer to account 70341534-531325 "PS-Golder-O&M LFG".

Reviewed by:

Department Head



Legal



Administrator

Finance

Administrative Services

Grants

05 NOV 30 PM 4:37  
COUNTY COORDINATORS  
OFFICE

Revised 09/05

DATE 12/14/05  
CA



11/30/2005 16:19 9043215917

ADMINISTRATIVE SVCS

**Agenda Request For: December 14, 2005**

**Department: Solid Waste**

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Reviewed by:

Department Head \_\_\_\_\_

Legal \_\_\_\_\_

Administrator \_\_\_\_\_

Finance \_\_\_\_\_

Administrative Services \_\_\_\_\_

Grants \_\_\_\_\_

*[Handwritten Signature]*  
*[Handwritten Signature]* 11/30/05



# Nassau County Department of Solid Waste Management

LEE PICKETT  
Interim Director

46026 LANDFILL ROAD  
CALLAHAN,FLORIDA 32011

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### FACSIMILE TRANSMITTAL SHEET

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TO: *Joyce*  
COMPANY:

FROM: *Diane*  
DATE: *12.1.2005*

FAX NUMBER: *598.4669*

TOTAL NO. OF PAGES INCLUDING COVER: *2*

PHONE NUMBER:

SENDER'S REFERENCE NUMBER:

RE: *Agenda Item*

YOUR REFERENCE NUMBER:

- URGENT     FOR REVIEW     PLEASE COMMENT     PLEASE REPLY     PLEASE RECYCLE

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NOTES/COMMENTS

on January 11, 2006 guidelines for monitoring, updating and renewing or discontinuing the agreements. Commissioner Marshall noted that Nassau Avenue belongs to the Town of Callahan.

10:31 Upon the request of Chairman Acree, it was moved by Commissioner Marshall, seconded by Commissioner Higginbotham and unanimously carried to continue to December 21, 2005 at 11:00 a.m. discussion of a request for Board direction and authorization to negotiate development agreements in exchange for concurrency with (1) Trinity Circle Commercial and Bob's Irrigation Re-development; and (2) Living Waters Outreach Center.

→ 10:32 Following clarification and discussion with Wendy Karably with Golder & Associates, Commissioner Higginbotham moved to approve the cost proposal (993-3928.61) in the amount of \$35,425 submitted by Golder & Associates for the landfill gas extraction system monitoring and balancing services. Commissioner Marshall seconded the motion and the vote carried unanimously. Funding Sources: 70341534-531302 and 70341534-531325. It was moved by commissioner Marshall, seconded by Commissioner Higginbotham and unanimously carried to approve the cost proposal 993-3928.58 tasks 3000 and 4000 in the amount of \$10,915 submitted by Golder & Associates

for additional engineering services required for the preparation of the Title V air construction permit application for the West Nassau landfill gas system expansion. Funding Source: 70365534-563953. Following a brief discussion, it was then moved by Commissioner Vanzant, seconded by Commissioner Higginbotham and unanimously carried to approve the cost proposal 993-3928.62 in the amount of \$9,950 as submitted by Golder & Associates for Title V air permit reporting requirements and authorize the Chairman to sign the necessary documents prepared by Golder for submission to Department of Environmental Protection. Funding Source: 70341534-531302.

10:34 It was moved by Commissioner Higginbotham, seconded by Commissioner Marshall and unanimously carried to obtain two commercial appraisals for the old jail site on SR200/A1A. Funding Source: From 09999599-599002 to 09001519-531017

10:35 Upon the recommendation of the County Administrator, it was moved by Commissioner Marshall and seconded by Commissioner Branhan to purchase mitigation credits up to \$200,000, which had been put aside in this year's budget for this purpose, to address several outstanding issues with the St. Johns River Water Management District. Jose Deliz distributed two new

**Task 1000 – Initial Site Visit, Wellfield Monitoring, Balancing, Troubleshooting and Inspection**

Golder proposes that this task include providing a senior landfill gas professional and a landfill gas technician to perform a thorough review of the condition and status of the LFG extraction system. Golder will meet with the site personnel to better understand the monitoring and maintenance that has been conducted as well as establish any issues or priorities. Golder will review existing data from the gas extraction system and then perform a detailed inspection and monitoring event that will also serve as the first month's monitoring event. Data collection and activity will include:

- Flare system inspection;
- Blower operation;
- Gas quality and available vacuum at the inlet to the flare;
- Actual existing LFG flow as measured via pitot tube;
- Wellhead monitoring using a GEM 2000;
- Applied vacuum at each wellhead;
- Available vacuum at each vacuum riser;
- Inspection of wellheads, sampling ports, flex hoses and exposed vacuum piping;
- Inspection of the landfill cover in and around the active gas extraction system locations;
- Compiling all monitoring results, observations and/or measurements;
- Adjusting the wellfield;
- Balancing the wellfield to optimize extraction efficiency; and
- Initial reporting to include the wellfield monitoring results, balancing efforts, observations and recommendations.

**Task 2000 – Monthly Wellfield Monitoring and Balancing – Existing System**

Golder will provide a LFG technician to provide monthly services for the existing LFG system (as of January 2006, including 18 gas wells) to include: wellfield monitoring and balancing; and collecting all data from the wellfield and the flare as required by NSPS. These visits will include documentation of the visit, collecting data from all required monitoring points, adjustments as necessary, downloading the monitoring data to the site's computer, and documentation of any maintenance needs that may require additional attention related to the wellfield. Based on the current size of the wellfield, Golder anticipates that one working day per month will be required

for this task, including the site visit and data compilation. This task does not include any maintenance items; however, Golder will provide review of the wellfield and flare data and recommend maintenance needs as they are observed. It is assumed herein that the GEM 2000 instrument owned by the County will be available for the Golder technician to utilize during the monthly monitoring. As this is the County's instrument, we have also assumed that the County will be responsible for all maintenance and calibration costs. Golder will use due care with this instrument and will notify site personnel if there are any problems with the instrument that require attention.

#### **Task 3000 – Monthly Wellfield Monitoring and Balancing – Expanded System**

Because of the requirement to expand the existing system under Title V regulations, we anticipate that additional wells will be installed sometime in the third quarter of the year. Even though the regulatory requirements will not be in effect until the system is completely installed and all components are fully operational, we believe that it would be beneficial to start incorporating the new wells into the monitoring program as soon as the wells are installed. As in Task 2000, Golder will provide a LFG technician to provide these additional monitoring services to include: wellfield monitoring and balancing; and collecting all data from the wellfield and the flare as required by NSPS. These visits will include documentation of the visit, collecting data from all required monitoring points, adjustments as necessary, downloading the monitoring data to the site's computer, and documentation of any maintenance needs that may require additional attention related to the wellfield. Based on the anticipated size of the wellfield once installation is complete, Golder anticipates that two working days per month will be required for this task. As in Task 2000, this task does not include any maintenance items; however, Golder will provide review of the wellfield and flare data and recommend maintenance needs as they are observed. We assume the use of the GEM 2000 instrument for this monitoring also.

#### **Task 4000 – Quarterly Monitoring and Balancing**

Currently, the site's solid waste permit requires that the gas probes surrounding the landfill are to be monitored on a quarterly basis. The site personnel are generally performing this monitoring on a monthly basis and reporting the information quarterly, as required. Golder proposes to provide the quarterly monitoring of the gas probes as well as an additional quarterly site visit to check the well field and the flare system for any changes and make adjustments as necessary. These quarterly site visits will be conducted separately from the monthly visits so that an additional system check is made outside the monthly visits. These will be scheduled on an as needed basis by the quarterly deadline for probe monitoring, as required. We assume that Golder will use the GEM 2000 instrument for this monitoring also.

### **SCHEDULE**

As stated above, Golder is prepared to start the monitoring of the LFG system in January 2006, assuming the cost proposal is approved on December 14, 2005. The services will be provided for the period of one year, through December 2006. At that point, the newly installed system should be where the final requirements for meeting the NSPS guidelines will need addressing, so a separate cost proposal for the testing and then continued system O&M will be prepared towards the end of 2006.

### **COST ESTIMATE**

The costs for the services as outlined in this proposal are presented below. These costs include time for project management within each task.

<b>Task</b>	<b>Estimated Cost/Event</b>	<b>No. Events</b>	<b>Estimated Total Cost</b>
<b>1000 – Initial Site Visit</b>	\$4,200.00	1	\$4,200.00
<b>2000 – Monthly Visits – Current</b>	\$1,715.00	7	\$12,005.00
<b>3000 – Monthly Visits - Expanded</b>	\$2,910.00	4	\$11,640.00
<b>4000 – Quarterly Monitoring</b>	\$1,895.00	4	\$7,580.00
<b>ESTIMATED TOTAL</b>			<b>\$35,425.00</b>

### **TERMS AND CONDITIONS**

This work will be performed under the Agreement for Consulting Services between Golder and the County, dated February 22, 1999.

Golder appreciates this opportunity to provide continuing services to Nassau County. If you have any questions regarding this cost proposal, please do not hesitate to call.

Sincerely,

**GOLDER ASSOCIATES INC.**



Wendy D. Karably  
Senior Consultant/Associate

cc: Mike Mahaney – Nassau County Administrator  
Kevin Brown – Golder

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<b>Activity</b>	<b>Unit</b>	<b>Est. Cost</b>
Design and Operations	One-time	\$592,300
Monitoring	Annual	\$9,350
Record Keeping and Reporting	Set-up and Annual	\$20,350