



DIVISION OF INSPECTOR GENERAL

KEN BURKE, CPA

**CLERK OF THE CIRCUIT COURT AND COMPTROLLER
PINELLAS COUNTY, FLORIDA**

FOLLOW-UP AUDIT OF PINELLAS COUNTY MOSQUITO CONTROL

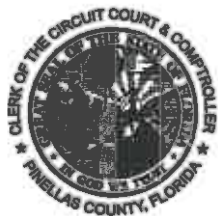


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AUGUST 28, 2014
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PINELLAS COUNTY, FLORIDA

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August 28, 2014

The Honorable Chairman and Members of the Board of County Commissioners

We have conducted a Follow-Up Audit of Pinellas County Mosquito Control (Mosquito Control). The objectives of our review were to determine the implementation status of our previous recommendations.

Of the three recommendations contained in the audit report, we determined that two were partially implemented and one is no longer applicable. The status of each recommendation is presented in this follow-up review.

We appreciate the cooperation shown by the staff of Mosquito Control during the course of this review.

Respectfully Submitted,

Hector Collazo Jr.
Inspector General/Chief Audit Executive

Approved:

Ken Burke, CPA*
Clerk of the Circuit Court and Comptroller
Ex Officio County Auditor

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INTRODUCTION

Scope and Methodology

We conducted a follow-up audit of the Mosquito Control operations. The purpose of our follow-up review is to determine the status of previous recommendations for improvement.

The purpose of the original audit was to:

- 1) Determine the adequacy of compliance with regulatory requirements.
- 2) Determine the efficiency and effectiveness of contract agreements.
- 3) Determine the adequacy of internal controls.

To determine the current status of our previous recommendations, we surveyed and/or interviewed management to determine the actual actions taken to implement recommendations for improvement. We performed limited testing to verify the process of the recommendations for improvement.

Our follow-up audit was conducted in accordance with the *International Standards for the Professional Practice of Internal Auditing* and the *Principles and Standards for Offices of Inspector General*, and, accordingly, included such tests of records and other auditing procedures, as we considered necessary in the circumstances. Our follow-up testing was performed during the month of July. The original audit period was October 1, 2011 through January 24, 2013. However, transactions and processes reviewed were not limited by the audit period.

Overall Conclusion

Of the three recommendations in the report, we determined that two has been partially implemented, and one is no longer applicable. We encourage management to pursue completing their work in developing procedures to accomplish these recommendations.

Status

OFI NO.	PREVIOUS RECOMMENDATION	IMPLEMENTATION STATUS				
		Implemented	Acceptable Alternative	Partially Implemented	Not Implemented	No Longer Applicable
1	<i>Aging Aircraft Warrants Re-evaluation Of Aerial Larviciding Operations.</i>					
	We recommend management utilize internal expertise to develop and evaluate the options available for aerial larviciding operations. Considerations could include: <ul style="list-style-type: none"> • Purchase of a single new(er) helicopter for continued in-house aerial larviciding. • Use of Fleet Management's Vehicle Replacement Program for collection of funds for future replacement. • Revision of pilot position job specifications to include credentials necessary to perform all or most maintenance, thus eliminating the need for a separate vendor contract. • Leasing the use of a private helicopter for continued in-house aerial larviciding. • Contracting the operation of aerial larviciding to an outside vendor. 			✓		
2	<i>Segregation of Duties Is Not Adequate For Internal Control Over Inventory.</i>			✓		
	Management should develop and implement internal controls that would minimize the risks that					

Follow – Up Audit of Pinellas County Mosquito Control

OFI NO.	PREVIOUS RECOMMENDATION	IMPLEMENTATION STATUS				
		Implemented	Acceptable Alternative	Partially Implemented	Not Implemented	No Longer Applicable
	could result from a lack of segregation of duties in the warehouse inventory operations. Possibilities could include the cross-checking of an OPUS report of materials received with an Agile Assets report of materials received.					
3	<i>Re-entering OPUS Data Into Excel Spreadsheets Is Inefficient.</i>					
	We recommend that Management request programming necessary for OPUS to produce State and Local Financial reports directly. Although there would be some programming necessary to match up the account numbers between OPUS and the State reports, once completed, creating the reports directly from OPUS would be more efficient than retyping data into Excel spreadsheets.					✓

Background

Pinellas County established a Mosquito Control district on February 3, 1931 as an independent taxing district with its own governing Board of Commissioners. In October 1967, by Special Acts of the Legislature, the district administratively joined the county government as a dependent taxing district under budgetary and policy control of the Board of County Commissioners.

Pursuant to a request from the Charter Review Commission, the Legislature adopted a Special Act in 2006 that abolished the taxing district. Mosquito Control's dedicated reserve funding was incorporated into the General Fund reserves, and earmarked for use by Mosquito Control where it remains today.

The State's program administration responsibilities for Mosquito Control Districts are found in Chapter 388, Florida Statutes, and Chapter 5E-13, Florida Administrative Code.



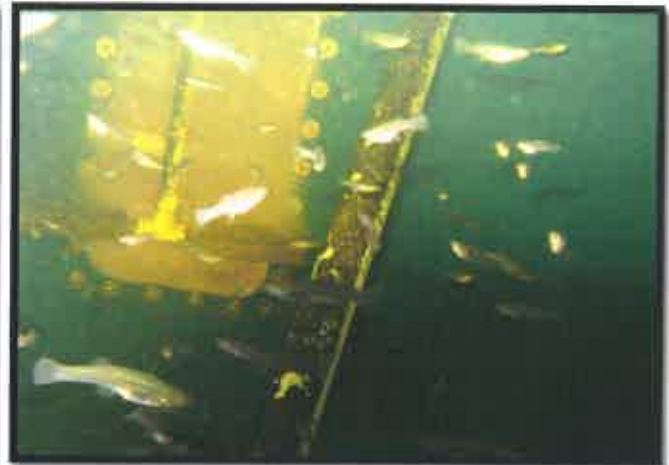
In October 2011, the Department of Environment and Infrastructure resulted from a merging of three existing county departments – Public Works, Utilities, and part of Environmental Management. At this time, the Division of Transportation and Stormwater was established with three sections, Vegetation, Mosquito Control, and Tree Management. The Mosquito Control section provides for an environment as free of mosquitoes as possible for the comfort and well being of the public. It monitors the environment for the presence of any mosquito-transmitted diseases and takes proper abatement actions. Mosquito Control uses an integrated pest management program utilizing techniques, such as biological control, water management projects, cultural control, and focusing on source reduction. Both ground and aerial equipment are utilized to carry out these programs. All pesticides used are EPA (Environmental Protection Agency) approved for Mosquito Control and are only applied when proper documentation for their particular use has been obtained.

Mosquito Control has a responsibility to the citizens of Pinellas County to control the mosquito population in the most effective, safe, and economical way possible. Larviciding, which targets mosquito larvae, as opposed to adulticiding, which targets adult mosquitoes, is a proactive and effective method used to do so. Mosquito Control combats mosquito breeding through:

- Vegetation Management and applying mosquito larvicide to targeted bodies of water and swampy areas.
- Stocking ponds with gambusia (mosquito eating) fish.
- Spraying insecticide by truck or helicopter in infested areas.



Watercraft used to reduce mosquito population through vegetation management and to apply mosquito larvicide to targeted bodies of water and swampy areas.



Gambusia (mosquito-eating) fish used for stocking ponds.



Insecticide is sprayed in infested areas by air or ground.

Mosquito Control carefully monitors viruses through “sentinel” chickens caged in eight target locations. “Sentinel” chickens are used to detect the presence of naturally occurring viruses that cause West Nile and St. Louis encephalitis. Birds bitten by infected mosquitoes quickly develop telltale antibodies to the viruses. Routine blood tests on these chickens detect virus antibodies, an early alert that a virus is present locally.



Sentinel Chickens

Mosquito Control provides services to all of Pinellas County, including municipalities, and provides education presentations to the general public. The Mosquito Control budget for Fiscal Year 2012 is \$3,002,680. The Pinellas County Mosquito Control District is funded primarily by local ad valorem tax assessments. In addition, the County receives State funding, which requires annual and monthly reporting on Mosquito Control activity. State Grant funding for Fiscal Year 2012 consisted of \$18,400.

**Pinellas County Mosquito Control...
Combating Mosquitoes By:**

AIR,



LAND,



and SEA!



STATUS OF RECOMMENDATIONS

This section reports our follow-up on actions taken by management on the Recommendations for Improvement in our original audit of the Mosquito Control operations. The recommendations contained herein are those of the original audit, followed by the current status of the recommendations.

1. Aging Aircraft Warrants Re-evaluation Of Aerial Larviciding Operations.

The County's Mosquito Control aircraft are aging and there is a need to re-evaluate their use due to the higher maintenance costs associated with older equipment. Mosquito Control owns two Bell helicopters, a 1967 Bell TH-13T and a 1972 Bell 47G-5A. These approximately 40-year old aircraft are mission critical to Mosquito Control's main aerial operation, aerial larviciding. Aerial larviciding is the use of aircraft to apply Mosquito Control products to standing water. Mosquito larvae or "wigglers" are controlled in this way. In Pinellas County, this generally requires the use of a helicopter as opposed to a fixed wing plane in order to get in and out of tight pockets of infested areas with minimal overspray.

Costs related to maintenance of aging helicopters include:

- Parts cost more and are harder to find.
 - As reported in both Helicopter Magazine and on Conklin & deDecker Aviation Information's web page, research shows that a 25 to 30-year old aircraft costs almost twice as much to maintain as a five year old one.
- In addition to rising costs, the time required to perform the maintenance increases resulting in less availability for the aircraft.
 - Also reported in both Helicopter Magazine and on Conklin & deDecker Aviation Information's web page, research found that even under the best of circumstances, availability starts to decrease when the aircraft is 20 to 25 years old. On average, at 30 to 35 years old, availability is down 50% (i.e., you need two aircraft to have one available at any one time).
 - In house maintenance performed by the pilot consisted of 1,304.25 hours at a cost of approximately \$31,562 in Fiscal Year 2011.
 - Maintenance service performed by Lance Aviation consisted of an untracked number of hours at a cost of \$62,426.13 in Fiscal Year 2011.
- Lance Aviation was the only vendor to bid.
 - The requirement to be a Federal Aviation Authority Approved Repair Station for the Bell helicopter 47 series has limited the number of bidders for maintenance service to a single vendor.

The age of an aircraft is more than simply the number of years an aircraft has been in existence. The number of flight hours it has accumulated, the type of work performed, and the compliance with the required maintenance inspection schedule all play a large part in the “age” of the aircraft. Both of Mosquito Control’s helicopters are maintained in accordance with the following inspection schedule by either the pilot (Airframe & Powerplant Mechanic Inspections) or Lance Aviation, a Federal Aviation Authority Approved Repair Station for the Bell helicopter 47 series.

Routine Maintenance Inspections	Mechanic Certification Level
a. 50-Hour Interval Inspection	Airframe & Powerplant Mechanic
b. 100-Hour Interval and/or Annual Inspection	Airframe & Powerplant Mechanic Inspection Authorization Mechanic
c. 300-Hour Interval Inspection	Inspection Authorization Mechanic
d. 600-Hour Interval Inspection	Inspection Authorization Mechanic
e. 1200-Hour Interval Inspection & Overhaul	Inspection Authorization Mechanic

This schedule is repeated every 1,200 flight hours throughout the life of an aircraft. Hence, if an aircraft accumulates an average of 200 flight hours per year, in a 40-year life span, it will have been through the maintenance inspection schedule approximately 6.6 times (200 X 40 divided by 1,200 flight hours = 6.666 times). Additionally, the following aircraft components have independently tracked life spans that range from 900 hours to 5,000 hours:

- Main rotor blade (2)
- Tail rotor blade (2)
- Main rotor drag brace (2)
- Main rotor pitch horn (2)
- Main rotor grip (2)
- Scissors Assembly (2)
- Engine
- Main rotor gimbal ring
- Main rotor yoke
- Collective sleeve
- Tail rotor yoke
- Engine mount
- Shear screw
- Fan belts (2)

These parts may be replaced at any time during the life span of the aircraft, as needed, with new or rebuilt parts and may very well be a different “age” than the aircraft itself. Common sense tells us that unless the usage of the aircraft changes drastically in its lifespan, the cost and the time necessary to complete the 1,200-hour inspection and overhaul, as well as to maintain the independent components of the aircraft, will increase as flight hours increase.

This pattern is also depicted in the chart below by following the cost of maintenance done by Lance Aviation over the past six fiscal years. These costs include the 300 and 600-Hour

Interval Inspections and the 1,200-Hour Interval Inspection and Overhaul, as well as maintenance to independent components, as necessary. A 1,200-Hour Interval Inspection was done in Fiscal Year 2012 and an engine was replaced in 2008.

	FY 11/12	FY 10/11	FY 09/10	FY 08/09	FY 07/08	FY 06/07
Outside Maintenance By Lance Aviation*	\$187,667.20	\$62,426.13	\$51,914.99	\$42,732.29	\$108,557.80	\$76,117.41

*Maintenance costs for Fiscal Year 2012 are as of August 14, 2012.

It is important to note that maintenance of all aircraft components is imperative. There are no minor items that do not necessarily need to be in 100% working order. For example, an automobile is completely drivable if a turn signal is not functional. The driver can use hand signals to perform a turn safely. There is nothing of this caliber in an aircraft.

Expenses associated with Mosquito Control's aerial larviciding operation as it is currently performed include:

- Outside maintenance of the helicopters done by Lance Aviation.
- Fuel purchased from the Sheriff's Office.
- Insurance for the helicopters.
- The pilot's full salary including benefits. The full salary is included as every aspect of the position is dedicated to the aerial larviciding mission:
 - Flight preparation.
 - Flight time.
 - Maintenance of flight logs, service, and activity records.
 - Characterization (testing and adjustment of the spray system on the aircraft done so that chemicals are applied in an even and consistent swath without streaks and skipped areas).
 - In-house helicopter maintenance and cleaning.
 - FAA required training.
- The pilot's required yearly medical exam.
- FAA library updates (navigation maps in the form of CDs or electronic downloads that provide information, such as the locations of obstructions and aerial hazards).

Combining these expenses, but excluding the chemicals themselves, the helicopter assist (a support person's time to transport and load the chemicals), and supplies necessary to perform in-house maintenance, the cost per flight hour, and per acre is calculated below:

Status of Recommendations
Follow - Up Audit of Pinellas County Mosquito Control

	FY 2012	FY 2011	FY 2010	FY 2009	FY 2008	FY 2007
EXPENSES						
Outside Maintenance By Lance Aviation ¹	\$187,667.20	\$62,426.13	\$51,914.99	\$42,732.29	\$108,557.80	\$76,117.41
Fuel ²	\$11,900.00	\$9,973.08	\$11,897.99	\$9,206.12	\$13,864.73	\$10,499.18
Insurance ³	\$40,000.00	\$40,143.00	\$40,851.00	\$40,756.00	\$45,913.00	\$31,228.00
Pilot Salary ⁴	\$68,810.00	\$69,960.00	\$67,758.00	\$67,043.00	\$66,441.00	\$64,343.00
Pilot Medical Exam ⁵	\$230.00	\$230.00	\$230.00	\$230.00	\$230.00	\$230.00
FAA Library Updates ⁶	\$600.00	\$600.00	\$600.00	\$600.00	\$600.00	\$600.00
Total	\$309,207.20	\$183,332.21	\$173,251.98	\$160,567.41	\$235,606.53	\$183,017.59
FLIGHT HOURS						
Bell 47G-5A FAA Reg # N14806 ⁷	23.60	36.20	50.50	37.60	39.90	83.90
Bell TH-13T FAA Reg # N47 ⁸	80.50	93.00	105.10	100.80	123.80	106.70
Total	104.10	129.20	155.60	138.40	163.70	190.60
COST PER HOUR						
Aerial Larviciding Cost Per Hour w/o Chemicals and Helicopter Assist	\$2,970.29	\$1,418.98	\$1,113.44	\$1,160.17	\$1,439.26	\$960.22
ACRES TREATED⁹	10,252	13,092	17,362	14,016	17,480	18,092
COST PER ACRE						
Aerial Larviciding Cost Per Acre w/o Chemicals and Helicopter Assist	\$30.16	\$14.00	\$9.98	\$11.46	\$13.48	\$10.12

¹ Fiscal Year 2012 maintenance costs are as of August 14, 2012.

² Fiscal Year 2012 fuel cost is budgeted amount from DACS Detailed Work Program.

³ Fiscal Year 2012 insurance allocation is estimated based on previous years.

⁴ Pilot's salary includes benefits. Benefits for Fiscal Years 2007 and 2008 are estimated.

⁵ Pilot's medical exam costs are estimated.

⁶ FAA library update costs are estimated.

^{7, & 8} Fiscal Year 2012 flight hours are as of September 6, 2012.

⁹ Fiscal Year 2012 acres treated are as of September 11, 2012.

Larviciding is an important and more proactive approach to controlling the mosquito population than adulticiding. Aerial larviciding is an integral part of the process. As operational costs rise, it is necessary to re-evaluate and explore the options available to perform this process.

The last analysis of aerial operations was done in-house in 2009. The study looked at several counties with ideology (the focus on larviciding as opposed to adulticiding) and geography similar to those of Pinellas County. Benchmarks were attempted between counties where

aerial larviciding was done in-house, contracted out, and done in-house using helicopters leased by the County's Sheriff's Department. Apples to apples comparison proved difficult because of the many variations in calculation of cost per acre. Prior to the analysis of 2009, a study was done by L.A. Consulting Inc. in 2004.

Not utilizing DEI's internal expertise to research and develop current options available to perform aerial larviciding operations will result in missed opportunities for Mosquito Control to provide safer and more cost effective service to Pinellas County citizens.

We recommended management:

Develop and evaluate the options available for aerial larviciding operations, such as:

- Purchase of a single new(er) helicopter for continued in-house aerial larviciding.
- Use of Fleet Management's Vehicle Replacement Program for collection of funds for future replacement.
- Revision of pilot position job specifications to include credentials necessary to perform all or most maintenance, thus eliminating the need for a separate vendor contract.
- Leasing the use of a private helicopter for continued in-house aerial larviciding.
- Contracting the operation of aerial larviciding to an outside vendor.

It should be noted that in the course of our evaluation, we met with the Sheriff's Department to determine if leasing time on their helicopters would be a possible recommendation. Due to the incompatibility of the Sheriff's specialized equipment with Mosquito Control's spray equipment and the fact that at this time only one of their helicopters is operational, this is not a viable option.

We also inquired as to the possibility of contracting with the Sheriff's mechanics for repairs and maintenance that Mosquito Control's pilot was unable to perform. We found this not to be feasible either as the Sheriff's mechanics were said to be overwhelmed with their own work and simply would not have time to take on additional repairs or maintenance.

Status:

Partially Implemented. Mosquito Control has been gathering information from various mosquito control districts around the state. A scope of services has been developed and submitted to the Purchasing Department for advertisement to assist staff with the evaluation. They expect to continue this evaluation through the remainder of 2014 and have a completed report in the spring of 2015 in time for the Fiscal Year 2016 budget submittal.

2. Segregation Of Duties Is Not Adequate For Internal Control Over Inventory.

Data entry of inventory quantity received into the Agile Assets application (Agile Assets) by the same person who receives the inventory into stock does not provide the adequate segregation of duties necessary to constitute an internal control over inventory. The procedure for receiving inventory into the warehouse is as follows:

1. The same employee, either the supervisor or the store clerk at Mosquito Control, receives the inventory into the warehouse and enters the amount received into Agile Assets.
2. Receiving paperwork is sent to DEI finance for entry into the Oracle Financial Accounting System (OPUS) for payment.
3. At the end of each month, a physical count of inventory is compared to the logical count, which has been tracked in Agile Assets throughout the month.
4. If a data entry mistake is made in the initial entry of quantity received, or if loss or theft by a technician not responsible for receipt and entry of inventory quantity occurred, it would be recognized when the monthly inventory count took place, because the physical inventory quantity on hand would be different from the inventory quantity calculated by Agile Assets.
5. However, if a smaller amount of inventory was purposefully entered into Agile Assets and only that smaller amount was physically placed in the warehouse, with the remainder going home with the person receiving and doing data entry, the theft would not be detected. In this scenario, the only place where the true amount received is documented is in OPUS, which is used only for payment and not inventory reconciliation.

In order for a person to misuse assets without detection, they need to have custody of assets, the ability to remove assets, and the ability to adjust the records of the inventory. These conditions exist in the Mosquito Control warehouse.

Management has not implemented any internal controls that would minimize the risks that could result from a lack of segregation of duties in the warehouse inventory operations.

We recommended management:

Develop and implement internal controls that would minimize the risks that result from a lack of segregation of duties in the warehouse inventory operations. Possibilities include the cross-checking on a sample basis of an OPUS report of materials received with an Agile Assets report of materials received.

Status:

Partially Implemented. Staff from DEI Accounts Payable will compare the addition of inventory and receipts entered in Agile to the invoice/receipt submitted to Clerk's Finance, which is updated to Oracle. A report will be run from Agile each month listing the additions to inventory and the DEI Accounts Payable staff will compare that report to the invoice/receipt attached in Agile to the invoice/receipt in Oracle Payables. This approach will resolve the deficiency in the inventory process.

3. Re-entering OPUS Data Into Excel Spreadsheets Is Inefficient.

Re-entering OPUS data into Excel spreadsheets is inefficient. Florida Administrative Code 5E-13.027(3) states, "Not later than thirty days after the end of each month, each district or county shall submit a monthly financial report to the department on Department of Agriculture and Consumer Services (DACS) Form 13663, (Rev 6/03) entitled "Mosquito Control Monthly Report" for Local Funds and DACS Form 13650, (Rev 6/03) entitled "Mosquito Control Monthly Report for State Funds, hereby incorporated by reference." Internal Monthly Mosquito Control Reporting procedures call for expense data from the OPUS Encumbrance reports and revenue data from OPUS Revenue reports to be entered into a spreadsheet and totals verified. From this spreadsheet, expenses are posted to the Local Certified Report and expenses and revenues are posted to the State Certified report.

The Oracle Financial System (OPUS) does not directly produce State and Local reports required by the Department of Agriculture and Consumer Services (DACS). Revenue and expenditure information required on monthly State and Local Financial reports to DACS is captured in the Oracle Financial System (OPUS). OPUS provides that information on reports, such as the Budget Expenditure and Encumbrance report, the Revenue report and the Account Analysis report, but at this time, does not provide the data in the format necessary to produce the State and Local Financial reports required by DACS.

Because OPUS does not directly produce the State and Local financial reports required by DACS, additional time is spent re-entering financial information, verifying the correctness of entry, and posting totals from an Excel spreadsheet on a monthly basis.

We recommended management:

Request programming necessary for OPUS to produce State and Local Financial reports directly. Although there would be some programming necessary to match up the account numbers between OPUS and the State reports, once completed, creating the reports directly from OPUS would be more efficient than retyping data into Excel spreadsheets.

Status:

No Longer Applicable. Management determined that programming a report in OPUS would not be effective because the State changes the format at least annually. These changes would require reprogramming at least once a year if not more frequently. The data is readily available through Agile, the Vector Control Management System (VCMS), and OPUS. Further, there should be more streamlining with the Enterprise Asset Management project, which will merge the VCMS and Agile functionality into one.



DIVISION OF INSPECTOR GENERAL

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CLERK OF THE CIRCUIT COURT
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