SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Audit of the Environmental Regulation Compliance Program

Audit #99-09

Prepared by
Office of Inspector General

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SOUTH FLORIDA WATER MANAGEMENT DISTRICT

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Re: Audit of the Environmental Regulation Compliance Program – Audit #99-09

This audit was performed pursuant to the Inspectors General's authority set forth in Chapter 20.055, F.S. The audit focused on the District's process for inspecting and enforcing compliance with environmental and surface water management conditions contained in District issued permits. Our fieldwork was conducted between February 2000 and July 2000. This report was prepared by Gregory Rogers.

Sincerely,

Allen Vann
Inspector General

AV/gr
Enclosure

c: Frank Finch
James Blount
Terrie Bates
Walter Howard Jr.

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Introduction

The mission of the South Florida Water Management District's (the "District") Environmental Resource Regulation Division (the "Division") is to manage and protect the region's water resources through:

- Analysis and issuance of permits
- Inspections to determine compliance with permit conditions, and
- Enforcement actions.

Its Environmental Resource Compliance Department (The "Department") is responsible for compliance monitoring of projects with environmental resource and surface water management permits and for enforcement activities of permitted and non-permitted projects including water use, and everglades works of the district permits.

We selected the Division's compliance and enforcement aspects for the subject of this audit due to their importance in ensuring the effectiveness of the permitting process. The compliance function is a critical step in protecting the water resources of the District. Without proper construction and maintenance, surface water management systems and mitigation areas required through permits may not perform properly or adequately offset adverse impacts to the environment.

Department functions include:

- Inspection activities,
- Enforcement actions,
- Evaluation and acceptance of engineer's certification,
- Conversion and transfer of permits,
- Responding to public complaints,
- Surveillance for non-permitted activities,

- Review of post-permit submittals required by permit criteria, and
- Tracking of fee mitigation payments.

The Department conducts their compliance activities out of seven service centers: West Palm Beach, Broward, Miami-Dade, Martin/St. Lucie, Ft. Myers, Orlando and Okeechobee. Additionally, each service center divides their area of compliance responsibility into territories to which field inspectors are assigned.

The Department's primary source of funding is ad valorum tax revenues. Budgeted and actual expenditures for the compliance function, at each service center, during the past four fiscal years are as follows:

Budget vs. Actual Expenditures for Regulatory Compliance

Service Center		1997	1998	1999	2000[1]
West Palm Beach[2]	Budget	$1,177,361	$1,192,691	$1,446,607	$1,427,063
	Actual	$1,265,589	$1,235,488	$1,484,957	$627,611
Ft. Myers	Budget	420,961	571,351	598,610	628,384
	Actual	425,833	558,028	572,309	283,461
Orlando	Budget	86,468	121,292	184,896	153,378
	Actual	107,527	133,611	170,959	60,873
Okeechobee	Budget	206,049	170,635	299,978	285,407
	Actual	156,433	130,059	218,156	94,815
Total	Budget	$1,890,839	$2,055,969	$2,530,091	$2,494,232
	Actual	$1,955,382	$2,057,186	$2,446,381	$1,066,760

Source: Environmental Resource Regulation Division

Through enforcement actions, the Department collected the following revenues:

Fiscal Year	1997	1998	1999	2000
Civil Penalties	$261,689	$564,341	$397,145	$242,518
Staff Costs	40,296	45,863	55,206	9,601
Total Collected	$301,985	$610,204	$452,351	$252,119

Source: Environmental Resource Regulation Division

[1] Through February 29, 2000.

[2] Includes budget and expenditures for Broward, Miami/Dade and Martin/St. Lucie.

The District retains revenues collected for staff costs. In accordance with Florida Statute 373.129(1)(a), revenues collected for civil penalties are deposited in the Water Management Lands Trust fund.

Objectives, Scope, and Methodology

Our audit scope encompassed the process by which the Department monitors and enforces compliance with conditions in permits issued by the District.

The objectives of the audit were to review the:

- Coordination between the regulation compliance function at the service centers and headquarters,
- Permit compliance selection methodology,
- Internal control structure of the regulation compliance function, and
- Documentation of regulation compliance inspections.

Our audit methodologies included:

- Interviews with regulation compliance personnel,
- Observation of permit compliance selection methodology,
- Field observation of compliance activities at headquarters and service centers,
- Examination of selected compliance files, and,
- Review of output from the Department's compliance database.

Our audit was conducted in accordance with generally accepted governmental auditing standards.

Findings and Recommendations

Summary

Our testing and fieldwork determined that the Environmental Resource Compliance Department's (The "Department") compliance and enforcement activities are consistent throughout the service centers. However, inequities exist in the service centers workload and should be reviewed. The Department should determine the most effective and efficient workload at each service center. If additional personnel are needed, the Department should consider the options of retraining personnel affected by budget reductions, cross-training inspectors and creating a career path with different levels of inspectors.

The Department could improve its documentation and tracking of how field inspection issues are resolved. Relatively minor deviations found with permit criteria by compliance staff are frequently addressed and solved in the field during the construction phase. However, these outcomes are not always captured in the Department's database. The use of Palm Pilot technology has reduced the Departments administrative burden and should allow for the recordation of field solutions and the tracking of these resolutions as a performance measure.

The Department has sufficient internal controls in place to provide reasonable assurance that permit holders are complying with permit conditions. However, we recommend strengthening the level of supervision over field personnel by requiring supervisors to perform some independent field observations to verify the adequacy of staff field inspections.

Permit criteria requires the permittee to monitor on-site preservation/mitigation areas for five years, however, there are no permittee monitoring requirements for the surface water management system. Poorly maintained surface water management systems lose their ability to move water at their design capacity. During rain events, water can back-up with the potential for flooding. A permit condition requiring the operating permittee to perform an annual inspection and maintenance/repair of the surface water management system should be considered.

Compliance Workload Distribution at Service Centers Should Be Reviewed

After permit issuance, compliance and enforcement is the responsibility of the Environmental Resource Compliance Department. In the District's efforts to create local one-stop permitting, the Department strives to handle all aspects of permitting, including compliance, at the Service Centers. Because of the on-going responsibility of monitoring, the volume of permits issued steadily increases the Department's compliance workload. Currently, compliance monitoring is not performed for all permits issued by the District and there are inequities in the workload per inspector at the service centers.

During Fiscal years 1997-1999, the District's service centers issued the following environmental resource, surface water management and mitigation bank permits.

	Service Center				
Permits Issued	**West Palm Beach**	**Fort Myers**	**Orlando**	**Okeechobee**	**Total**
Environmental[3] Resource	1,692	732	567	8	2,999
Surface Water[4] Management	1,634	1,066	721	1	3,422
Mitigation Bank[5]	6	2	2	0	10
Total	3,332	1,800	1,290	9	6,431

Source: Environmental Resource Regulation Division

These permits are generally issued as a combined Environmental Resource Permit (ERP). An ERP permit can have several distinct phases (e.g. – golf course, house pods, and commercial development) that are developed over a

[3] Includes new and modified conceptual/individual permits, new and modified standard general permits, letter modifications and formal wetland determination permits. Excludes exemptions, extensions, transfers, and no notice and noticed general permits.

[4] Includes new and modified surface water conceptual/construct and operate permits, new and modified surface water general permits and letter modifications. Excludes surface water exemptions, extensions, and transfers.

[5] Includes new and modified permits, excludes transfers.

period of time and require periodic compliance inspections. Every ERP permit selected for compliance requires Department engineers to inspect the construction of the storm water facilities. Many of these ERP permits also have on-site preservation/mitigation areas that require environmental scientists to periodically inspect them for viability and condition.

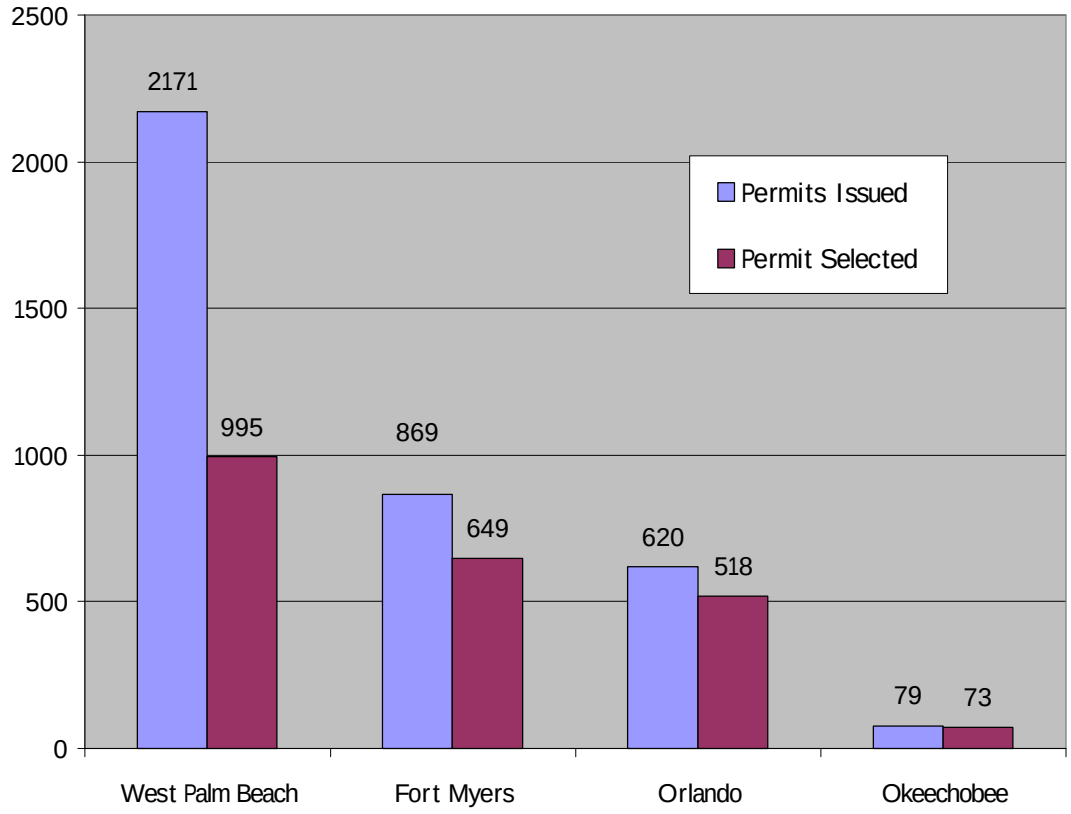
The Department has determined that the volume of permit output exceeds its ability to inspect all permits. Therefore, the Department uses a risk-based approach to selecting permits for compliance inspection. This approach focuses on selecting permits that pose the largest potential impact to the District's regional water resources. Using this approach, the Department has focused their compliance review on projects adjacent to regional wetlands, *Outstanding Florida Waters,* and estuaries. Attention is also directed to projects with higher potential for risk such as golf courses, and *Developments of Regional Impact*. Lower priority has been given to inspections of redevelopment projects in the urbanized areas of South Florida.

The Department has tracked environmental inspection information in a database for several years. The data includes permit number, mitigation area status and compliance status. The Department has recently begun tracking similar information for field engineering inspections. We reviewed information provided by the Department showing all permits selected for inspection and environmental inspection records for fiscal years 1997-1999. We also reviewed information obtained from the Division listing all permits with wetland impacts for a five-year period.

Based upon this information, the total number of permits issued, and selected for inspection[6] were compared for the past three fiscal years as follows:

[6] In order to determine the amount of permits issued, selected, and inspected, we filtered through information from Regulation's databases for permits with a unique permit number. This methodology avoided double counting permits that have several different phases.

Permit Compliance Coverage - 1997-1999

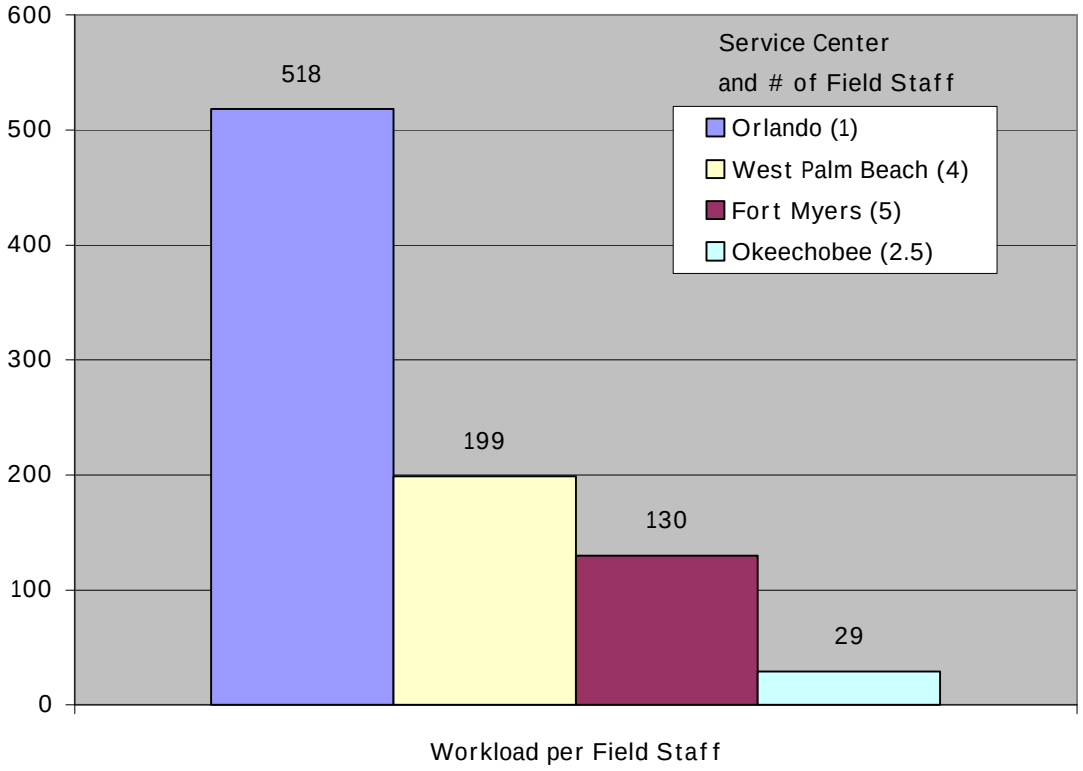


Using this risk-based approach, the Department has chosen approximately 60% of permits issued for inspection (ranging from 92% in Okeechobee to 46% in West Palm Beach). The West Palm Beach service area includes the urbanized areas of the lower east coast from which permits are least likely to be selected.

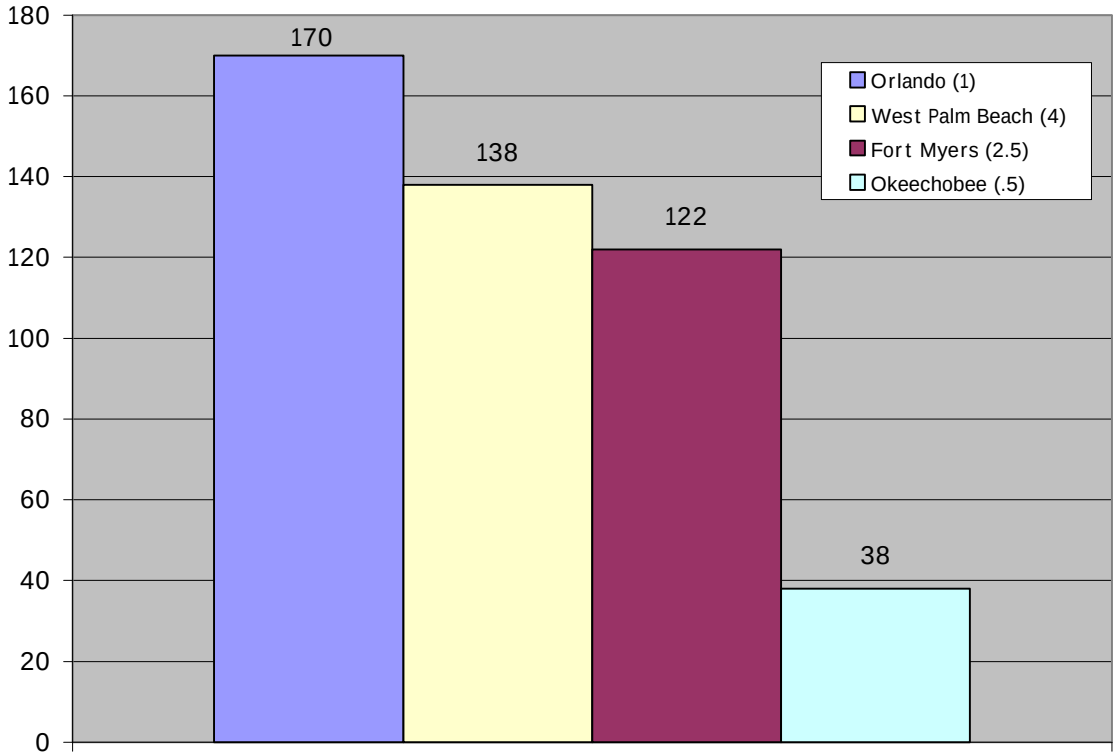
During the three-year period, the Department inspected an average of 88% of permits with environmental inspection requirements at the Service Centers.

Current workloads per compliance inspector were calculated based upon the permits selected in 1997-1999 for field engineering permit compliance and a five year period for environmental compliance activities, and the compliance staff at the Service Centers.

Field Engineering Compliance Workload



Environmental Inspection Compliance Workload



The analysis indicates inequalities in the workload per field engineering and environmental inspectors at the service centers. Permittees are required to maintain mitigation areas in perpetuity; however, the Department's policy is to provide monitoring for five years or until mitigation success has been achieved. The Department's goal is to inspect a mitigation area at least once during the construction phase and annually thereafter for five years. The annual inspection is performed after receipt of the permittee's required monitoring report. The Department's workload goal is for each environmental scientist to inspect 65 projects per quarter, or 260 inspections per year. Based upon the workload of permits assigned and the Department's inspection goals, it is currently possible for each service center to handle the assigned workload. The ratio of possible yearly inspections per permit at the Service Centers ranges from 1.53 at Orlando and 3.42 at Okeechobee. At current workload ratios, West Palm Beach and Orlando have less flexibility for multiple inspections of permits with identified problems and for future workload growth.

The Department does not have similar inspection goals for the inspection of engineering components, as the inspection process is dependent upon the pace of construction. Once the surface water management system is

complete and passes final inspection, the Department's inspection requirements are complete.

Equalizing the workload at the service centers through reallocation of compliance inspectors would result in a workload per field compliance inspector of 166 for field engineering inspectors and 133 for environmental inspectors. Although this would reduce the workload for the Orlando service center (especially for engineering compliance), it would increase the workload for some service centers.

Recommendations:

1. **The Environmental Resource Compliance Department should determine the most effective and efficient workload at each service center. If this analysis indicates a need for additional personnel, the following options could be considered:**

    - **Train personnel affected by budget reductions in other Divisions/Departments to perform inspections.**

    - **Cross-training to allow each inspector to perform both the environmental and field engineering inspections for a project.**

    - **Creation of a career path in the Department through the hiring of staff inspectors who could be trained to perform permit compliance inspections and report to the Department's environmental scientists and field engineers.**

    Management Response:

    The Environmental Resource Compliance Department concurs with all three (3) options considered in this recommendation. However, the use of personnel affected by budget reductions in other departments is dependent on other District-wide priorities. At this point in time, staffing for implementation of the Comprehensive Everglades Restoration Plan is an agency priority and it is highly unlikely that redirections will be available for regulatory compliance functions.

    With the exception of the Orlando Service Center, we have been able to maintain an acceptable level of service. While the Orlando Service Center has experienced a significant rise in permits issued, the number of compliance staff has remained at two. However, the surface water

management permitting section has recently implemented cross-training of permitting staff and they will also be responsible for conducting compliance inspections of the engineering components of projects. In order to ensure quality control, we propose that each reviewer conduct inspections on projects other than those that they were involved with during the permitting process. We will continue to pursue the relocation/redirection of an additional staff position to assist with the compliance of environmental aspects of permitted projects and more equitably distribute the workload.

The District's regulatory compliance program is a somewhat specialized and unique program that consists of two separate disciplines. Specifically, District issued permits are comprised of both an environmental and an engineering element, requiring field staff with expertise in these areas. Since consolidating compliance staff into one department (July 1998), we have implemented a team approach to our compliance program where both an environmental analyst and regulatory professional/engineer are assigned to each project and they discuss their findings with each other. As a result, we have reduced our duplicative effort in the field with this revised concept for projects under construction. However, it is important to note that the engineering components of a project are usually completed and certified by a registered professional engineer well in advance of the wetland mitigation/preservation component (monitoring and maintenance) of that same project which may extend for several years.

With respect to a career plan for our staff inspectors, the regulatory professional series was created approximately two (2) years ago for those compliance staff demonstrating the skills, knowledge and ability to do the job, yet have degrees in non-technical disciplines. The regulatory professional series has an entry level, staff level and senior level position that follows the pay ranges of the environmental analyst and engineering series. At this time, the series has been implemented in most of our Service Centers with the exception of the Ft. Myers Service Center. However, we are currently establishing plans for career advancement with our engineering compliance staff in the Ft. Myers office for consideration to the regulatory professional series.

Responsible Division: **Environmental Resource Regulation**

Estimated Completion Date: On-going (cross-training of existing staff, as well as effort to relocate/redirect staff to Orlando Service Center)

Performance Measure of
Field Solutions Should Be Tracked

The Department could improve its documentation and tracking of how field inspection issues are resolved. Currently, the Department tracks workload indicators of post-permit compliance inspections, percentage of mitigation requirements in compliance, enforcement cases originated and enforcement funds collected. However, an outcome measure of the compliance function should also be documented through tracking the number of compliance issues that are solved through field inspections.

The policy of the Department is to notify permittees in writing of deficiencies found during site inspections. Typically, three letters are written (first, second and final notice) prior to referring a project to enforcement. However, the Department has an informal process of addressing permit deficiencies in the field.

The primary goal of the compliance function is to have surface water management systems and mitigation areas built and maintained in compliance with permit criteria. Many times this function is accomplished through onsite communications with construction personnel.

Under cooperative circumstances, some deviations (e.g. incorrect sloping of ponds, inadequate silt fencing, turbidity in water discharge, exotic plants in buffer, survival rate of native plants in buffer) found by compliance staff can be addressed in the field during the construction phase. If subsequently rectified, the need for a letter explaining the deficiency is eliminated and the administrative workload of the Department is reduced.

In the past, the primary reason that field solutions were not captured in regulation's database was the technical limitations of recording this data in the field, and the administrative time associated with this effort. In order to reduce administrative time, field inspectors have been equipped with Palm Pilots to record field data. This technology can be programmed to record field compliance data with minimal keystrokes. The Palm Pilots do have the following limitations:

- For non-programmed data, the reviewer is required to write with a stylus pen or use a miniature keyboard.

- Currently, the Palm Pilot's data is downloaded into a Microsoft Access database, but connectivity to Regulation's "official" Oracle database does

not exist. Department staff is currently testing software that will allow connectivity between the access and oracle databases.

Actions taken in the field to communicate and resolve permit compliance deficiencies should always be documented. Palm Pilot technology should be used to reduce the administrative burden of this important step in the compliance function.

Because documentation of field compliance solutions is not sufficient, the Department is missing an opportunity to document outcomes of their efforts.

Recommendations:

2. **The Environmental Regulation Compliance Department should begin tracking, as a performance management, the number of permits that were brought into compliance through field solutions. A field solution observation should be programmed into the Palm Pilots for ease of documentation.**

   Management Response:

   The Environmental Resource Compliance Department concurs with this recommendation and has followed through with implementation. Specifically, a tracking mechanism has been added to the Palm Pilot Forms. The Field Solution Form allows the user to select whether a project is or is not in compliance at the time of inspection. If the user chooses "NO" which deems the project in non- compliance, the user proceeds to a multiple selection checklist for various possibilities of non-compliance. Once this is initiated, the user proceeds to a comment text box and documents the actions in the field taken to bring the project into compliance. The results of these "field fixes" can be downloaded and the findings discussed in the Department's quarterly post-permit compliance reports.

   Responsible Division: **Environmental Resource Regulation**

   Estimated Completion Date: **Completed**

3. **Regulation should continue their efforts to make field reporting more efficient through use of the Palm Pilots and through linking the Access and Oracle databases.**

   Management Response:

   The Environmental Resource Compliance Department concurs with this recommendation. Two different efforts are currently underway to create a direct link from the Palm Pilot to the Oracle Database bypassing the Access database altogether. We are currently in the process of testing Avantgo Enterprise Server on a local Windows NT Server running Microsoft IIS. This will allow a direct Palm Pilot link to the Oracle Database. Also, the Environmental Resource Regulation Division's Regulatory Information Management group is proposing to acquire copies of Palm 8i Light for Palm Pilots also providing a direct link to the Oracle database.

   Responsible Division: Environmental Resource Regulation

   Estimated Completion Date: January 1, 2001

Field Supervision Would Improve Internal Control Structure

The Department has sufficient internal controls in place to provide reasonable assurance that permit holders are complying with permit conditions. Nevertheless, we recommend strengthening the level of supervision over field personnel by requiring supervisors to conduct some independent field observations to verify the adequacy of staff field inspections.

All compliance field personnel report to a supervisor who monitors their work product primarily through job assignment, job instructions and review of compliance reports. Additionally, the Department holds biweekly staff meetings in which permits scheduled for issuance by the Governing Board are selected for compliance review. These meetings also allow Department field staff and supervisors to confer on compliance issues. Currently, the Department does not have any procedures requiring supervisory observation of the inspection work process.

An important aspect of supervisory responsibility is observation of the work progress. The amount of observation necessary may vary depending upon the abilities of the individual employee and the complexity of work tasks.

During post-permit compliance, a Department field engineer performs the review of the surface water management system. The proper construction of the storm water management system is critical for providing flood protection and improving the water quality of storm run-off. A Department environmental scientist performs the inspection of the mitigation area construction and any wetland or upland preservation activities. These mitigation areas are important for the protection of wetlands and the compensation of wetland losses.

A procedure of supervisors spending time in the field observing compliance activities on critical projects would improve internal controls and provide opportunities for one on one development of compliance improvement strategies.

Recommendation:

4. **The Environmental Resource Compliance Department should adopt a procedure of supervisors observing field compliance activities on critical projects.**

   Management Response:

   The Environmental Resource Compliance Department concurs with this recommendation. We propose a random selection of projects that have a high potential for resource impacts (i.e. golf course developments, projects located adjacent to Outstanding Florida Waters, large number of on-site wetlands) to be inspected by each supervisor on a quarterly basis. Each supervisor will be required to devote an entire day in the field inspecting projects that fall into one of the above-mentioned categories either in their geographic area or in the geographic area of other supervisors.

   Responsible Division: **Environmental Resource Regulation**
   Estimated Completion Date: **October 1, 2000**

Operating Permittees Should Perform Annual Inspections of Surface Water Management Systems

Once a development's surface water management system passes the final field engineering inspection, it is transferred from a construction permit to an operating permit.

While permit criteria requires on-site mitigation areas to be monitored for five years by the permittee, there are not any permittee monitoring requirements for the Development's surface water management system.

The Engineering Evaluation Unit of the Department is responsible for the evaluation of problems with the surface water management systems of projects in the operating permit phase. When reviewing problems with these systems, the source is commonly a lack of proper maintenance.

These tertiary drainage systems are typically designed to temporarily hold water in roads and retention areas and then drain to on-site lakes via culverts and swales. Water then drains from the tertiary system to the secondary system and eventually to the District's primary canals or other receiving waters.

The Basis of Review for Environmental Resource Permit Applications states the operating entity must:

> Operate and maintain . . . the surface water management system as permitted . . . including all lakes, retention areas, culverts and related appurtenances.

In order to maintain the effectiveness of the surface water management system, proper maintenance and repair is required. These activities, according to the District's *Know the Flow* brochure, include keeping:

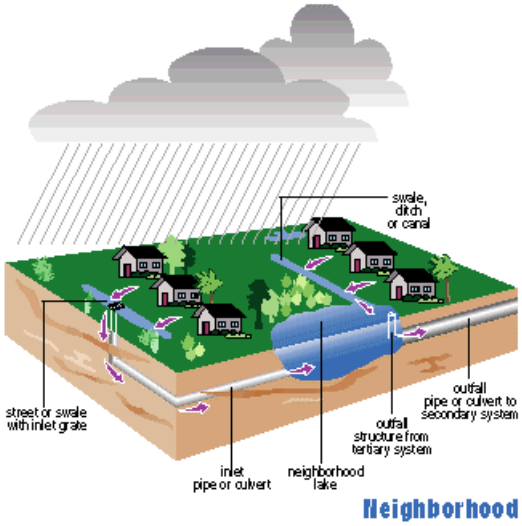
- Stormwater inlets, pipes and culverts unobstructed and the bottom of the inlets clean. Culverts should be free of accumulated debris and crushed or corroded culverts should be replaced.

- Swales and grassed storage areas regularly mowed and free of undesirable exotic vegetation. With age, these areas fill up with sedimentation and should be periodically compared to the dimension and slope of the permitted design plans.

- Ditches and canals clear of trash and other obstructions that can block the drainage flow way. Maintenance cleaning/excavation may be necessary to rectify to the permitted slope/depth.

- Lakes cleaned of dead vegetation, trash and debris near the shoreline. Side slope erosion should be repaired and revegetated. Pipe connections between lakes should be clear.

- Outfall structures free of obstructions. Elevations and dimensions should be annually verified to permit information and any necessary adjustments/repairs to structures should be made.



Poorly maintained surface water management systems lose their ability to move water at their design capacity. During rain events, water can back-up with the potential for flooding.

Recommendation

5. The Environmental Resource Regulation Department should consider a permit condition requiring the operating permittee to perform an annual inspection and maintenance/repair of the surface water management system.

Management Response:

While we concur with this recommendation, the District does not have the ability to ensure compliance with this condition due to the magnitude of permits issued, the perpetual nature of such permits and staffing commitments assigned to other compliance issues (i.e. pre-construction meetings, routine construction inspections, final inspections, public assistance). It may be more appropriate to recommend annual inspections as a condition, thus placing the operating entity on notice of the importance of maintenance yet relieving the District of the staffing needs to ensure compliance with this condition.

Responsible Division: **Environmental Resources Regulation**
Estimated Completion Date: **October 1, 2000**

Appendix - Criteria

The Department‘s responsibility is to insure compliance with criteria contained in the permits issued by the District. These criteria assist in the following aspects of the District’s mission:

Water Quantity – Surface Water Management permits limit the water flow off of developed land to historic discharges or current District criteria. The purpose of the District’s water quantity criteria is to ensure that surface waters do not cause flood damage to property, impact public safety, adversely impact adjacent lands or impact other natural resources of the District. Permits contain criteria setting minimum water control elevations, floor and road elevations, and required on-site water storage.

Water Quality - Surface water management systems must be designed so that discharges meet state water quality standards in accordance with the Florida Department of Environmental Protection rules. If the systems are designed in accordance with the District’s water quality criteria, it is presumed to meet state water quality standards. The District’s water quality standards are based upon the retention/detention and exfiltration capabilities of the surface water management system. Both retention and detention may be dry (grass covered swales and ponds) or wet (lakes and canals). Retention/detention allows the concentration of pollutants in run-off to be reduced prior to discharge through a combination of physical, chemical and biological processes.

Environmental Protection – Environmental criteria relates to the protection of wetlands and other surface waters and their associated fish and wildlife values. Projects are required to maintain the natural functions of wetlands or provide appropriate mitigation or compensation. Appropriate mitigation is determined by the relationship of the size, type and quality of the wetlands to be impacted compared to the quality, size and function of the mitigation proposal. The types of mitigation that are typically accepted include 1) restoration of existing wetlands or wetland/upland systems, and 2) upland compensation. If on-site mitigation is unavailable or factors exist that might prevent successful restoration, regional mitigation areas or mitigation banks may be used for compensation.