
SOUTH FLORIDA WATER MANAGEMENT DISTRICT



Audit of the Water Use Permitting Program

Audit #01- 20

**Prepared by
Office of Inspector General**

**Allen Vann, Inspector General
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RE: Audit of the Water Use
Permitting Program -
Audit # 01-20

This audit was performed pursuant to the Inspector General's authority set forth in Chapter 20.055, F.S. The audit focused on the issuance, compliance and enforcement of the District's Water Use Permit. Fieldwork was conducted July 2001 through November 2001. This report was prepared by Gregory Rogers.

Sincerely,

Allen Vann
Inspector General

AV/gr
Enclosure

c: Henry Dean

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INTRODUCTION

During the 2001 water shortage, the South Florida Water Management District's (the "District") Governing Board expressed concern about the consumptive water use permitting process. Specifically they were concerned about the criteria for water allocation, the issuance of permits, the monitoring and enforcement of permits and whether all water uses have the necessary water use permits.

Pursuant to their discussion, the Governing Board requested the Office of Inspector General to perform an audit of water use permitting and compliance. Accordingly, the purpose of our audit was to determine if the Water Use Regulation Division (the "Division") is following the District's procedures for reviewing water use permit applications and is properly performing compliance and enforcement of water use permits.

BACKGROUND

The Division of the Water Supply Department reviews applications for water use permits for the consumptive use of water. In accordance with Florida Statute section 373.223, the reviews are based upon a three-pronged test:

1. The use must be reasonable-beneficial.
2. The use must not interfere with any existing legal users of water.
3. The use must be consistent with the public interest.

This three-pronged test is implemented through District rule Chapters 40E-2 and 40E-20, F.A.C., including the Basis of Review for Water Use Permit Applications. Water use permits are required for all non-exempt uses of water. The Division consists of 34.5¹ employees and is also responsible for well construction permit application reviews, and post-permit compliance.

Permit fees are intended to cover the cost of reviewing and processing an application. Based upon an average \$2,500 permit fee for an Individual Permit and an estimated \$1,000 for a big General Permit (discussed below), the District will generate an estimated total of \$5,500,000 from permit renewals.

If a water use application is for a General Permit using less than 100,000 gallons per day, staff reviews the request and approves or denies the application. If the water use application is for an Individual Permit using in

¹ Includes three employees assigned to Service Centers.

excess of 100,000 gallons per day, staff reviews the request and makes an approval or denial recommendation to the Governing Board. Once an application is considered complete, it must be approved or denied within 60 days for a General Water Use Permit or 90 days for an Individual Water Use Permit or the application is automatically approved.

Water use permits are issued for a limited duration. The expiration dates are generally tied to the adoption of rules implementing water supply plans for a specific region of the District. There are approximately 2,800 irrigation permits (agriculture, landscape, golf, and nursery) that are scheduled for renewal as follows:

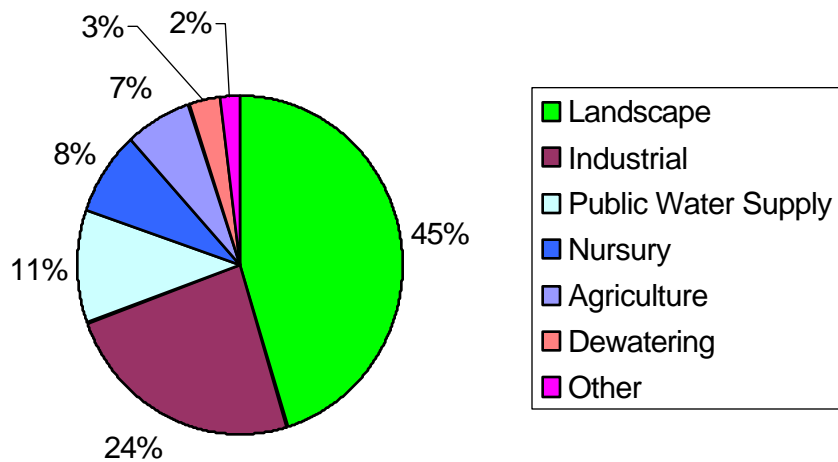
Upper East Coast	June 15, 2003
Lower West Coast	June 15, 2004
Lower East Coast	December 15, 2005
Kissimmee	June 15, 2007

Currently, the Division processes an average of 850 new permit applications per year with a staff of 14.5 reviewers, an average of 59 permits per reviewer. This workload is expected to increase to approximately 1,400 per year when the renewal permits are added. Using the current workload ratio, the Division will require nine additional permit reviewers to handle the increased renewal workload. Additional water use and regulatory support positions will also be required. Water Use Regulation could hire leased or contract workers to handle this projected increase in workload or the District could opt to redirect staff from other areas. Management has stated that “new reviewers” would be assigned to routine permit reviews and experienced staff would work on the more complex permit reviews. Staff is also expecting to have increased efficiency through creating staff reports (permit reviews) through their new permit database system.

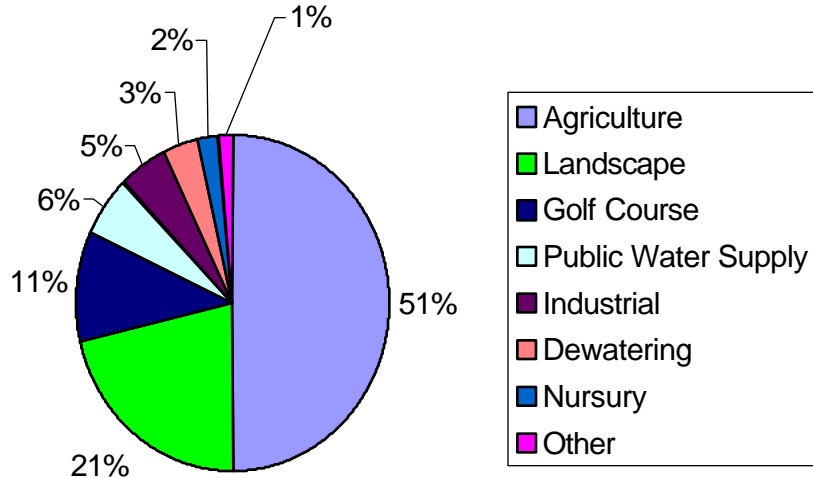
Another efficiency factor currently in rulemaking is the creation of a “big” general water use permit with water withdrawals over 100,000 gallons per day but under 500,000 gallons per day. This level of water usage under current rules would require an Individual Permit subject to Governing Board approval. The Division has requested delegation of approval of the “big” General Permit from the Governing Board.

The distribution of the 3,523 Individual and 8,474 General Permits by type and county is heavily skewed toward agriculture and landscape uses for the larger Individual Permits. Landscape and industrial uses of water make up the majority of the smaller General Permits.

Number of General Permits

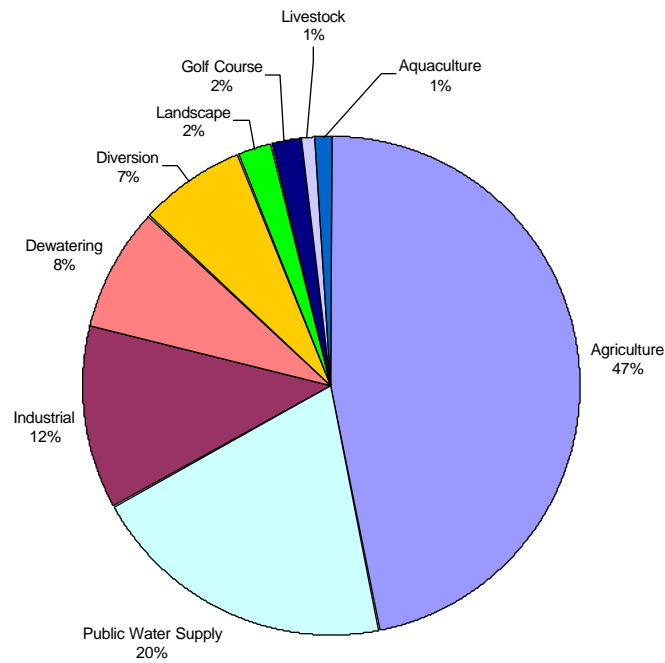


Number of Individual Permits



Over 7 billion gallons per day of water has been allocated through Individual Permits. As noted in this chart, agriculture and public water supply have the largest allocations. The total allocation for General Permits (less than 100,000 gallons per day) is estimated at 270 million gallons per day.

Water Allocation of Individual Permits (7 Billion Gallons Per Day)



OBJECTIVES, SCOPE, AND METHODOLOGY

The objectives of our audit were to determine if the Division is following procedures for reviewing water use permit applications and is properly performing compliance and enforcement of water use permits.

We audited the process by which the Division reviews water use permit applications and enforces compliance with the limiting conditions of issued water use permits.

Our audit methodologies included:

- Interviews with personnel involved in permit review, permit compliance, permit enforcement and water supply planning,
- Field observation of permit compliance activities,
- Examination of permit files, investigative notices, consent agreements and enforcement files,
- A review of the preliminary design of the planned permit compliance database,
- Review of water supply plans, and
- Consultations with representatives of the Southwest Florida Water Management District.

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

FINDINGS AND RECOMMENDATIONS

EXECUTIVE SUMMARY

The criteria for review of water use permits applications is contained in the *Basis of Review for Water Use Permit Applications Within the South Florida Water Management District* (BOR). Based upon our review of the Staff Reports from a sample of approved permits, the Division is properly following procedures for reviewing water use applications. However, an expected increase in application review workload (see Background) will likely require additional resources.

The Water Use Division's compliance program concentrates primarily on public water utilities and coastal permits representing only 30% of water allocated through individual water permits. The water use compliance program should be expanded through review of other categories of water use permit holders. Similarly, we found that the majority of permittees are on the honor system for reporting water use and performing meter calibrations. A program of pump inspections should be created through training well and plumbing contractors in the methods of auditing pump meters and requiring an inspection /certification of pumps at the time of recalibration.

The current compliance database used by the Water Use Division does not provide the tools needed to help compliance reviewers identify and solve problems. The limitations of the current system require an inordinate amount of time devoted to data entry at the expense of substantive compliance activities. The Water Use Division, aware of the shortcomings of the database, is currently designing a new compliance database. However, it should consult with the Environmental Resource Compliance Division and the Southwest Florida Water Management District about their systems

Water use compliance and permitting activities are performed side-by-side. Consolidating water use compliance with the Environmental Resource Compliance Division, who performs the overwhelming majority of such activity at the District, and cross training staff would be more efficient, increase independence of the function and facilitate increased water use compliance and enforcement activity.

Water sweeps have identified numerous violations of water consumption without a water use permit. The concurrency between Environmental Resource and Water Use permits needs to be strengthened.

Rulemaking is in process to increase the level of certainty for water use permits to a 1-in-10 year drought condition. This will affect 2,800 irrigation permit renewals over the next five years. In certain sub-basins with tight water supplies, the effect of these renewals should be modeled by water use staff to ensure no negative impacts on either users or the resource. Solutions identified in the water supply plans such as the use of alternative water supply may need to be accelerated through the water use permitting process.

Finally, historical use of water should be compared to the permit renewal requests to determine if additional scrutiny of demand allocation calculations is needed.

EXPAND WATER USE COMPLIANCE & CONSIDER CONSOLIDATION WITH OTHER REGULATORY PROGRAMS

Compliance activity is almost entirely concentrated on public water utility permits and permits with saltwater intrusion monitoring plans (SALT plans) that represent only 30% of water allocated through individual water permits.

Current compliance priorities have resulted from a lack of staffing to adequately cover all permits and an inadequate compliance database. Both of these factors must be addressed to enable the Division to expand compliance coverage.

Water use compliance is organizationally positioned alongside water use permitting which contrasts with the Districts environmental resource and surface water permitting compliance functions that are organizationally separated from the permit application review function. Similarly, the Southwest Florida Water Management District's, and the St. Johns River Water Management District's permit review and permit compliance functions are organizationally separated. Separating the functions and consolidating water use compliance within Regulation would, in our opinion, raise the level of independence and increase efficiency.

The District has a myriad of responsibilities, including operating a vast canal system and an unprecedented number of environmental restoration programs. Funding these projects precludes further expansion of the District's workforce. Given current budget constraints it is unlikely that the solution to increasing compliance activities for water use permits is to hire additional reviewers. Instead, risk assessment, greater efficiency, and consolidation/redeployment with other Divisions and working with private industry will likely provide compelling solutions. Details follow.

Need to Expand Compliance Coverage

Under the current compliance program, there are no compliance checks on the majority of permits to determine whether the actual water use complies with limiting permit conditions.

The overall goal of the Water Use permitting and compliance process is to protect against damage to the water resources such as salt-water intrusion, damage to wetlands and impacts to neighboring water users.

The Division's current order of compliance priorities is:

1. Investigation of Complaints.
2. Permits using in excess of 10 million gallons per day that are located within three miles of the coastline.
3. Permits drawing in excess of 1 million gallons per day and within five miles of the coastline.
4. All other permits.

These current water use compliance priorities limit oversight to only 30%² of the District water supply allocation. These risk-based priorities were drawn with the primary emphasis on the prevention of saltwater intrusion into freshwater wells. The need to prevent saltwater intrusion is of vital importance, and through these compliance priorities, staff has required public water utilities to move wells further inland, reduce withdrawals from coastal wells, and adopt alternative water sources. However, a significant portion of the water supply is without sufficient regulatory compliance and presents a risk of undetected water usage exceeding permit allocations.

The water use compliance function has a seven member staff consisting of a supervisor, five compliance reviewers, and one contracted administrative associate. The reviewers work out of the West Palm Beach headquarters and are each assigned to cover different geographic areas within the District.

The five compliance reviewers are assigned to cover approximately 3,500 Individual Permits. This equates to 700 permits per compliance reviewer. Compliance of General Permits, which establishes a legal water use for the permit holder, is limited to complaints.

By contrast, The Regulation Department's Environmental Resource Compliance Division (ERC) has the following permit coverage ratios for their compliance duties for Environmental Resource Permits:

Type of Compliance	Average Ratio ³
Field Engineering Compliance	219
Environmental Compliance	117

Source: OIG – Audit of the Environmental Resource Compliance Program

² Staff estimate based on total water allocation for public water supply (20%) and other coastal monitoring (10%).

³ Average ratio was calculated by combining all Service Centers with field engineering and environmental compliance activity. Ratios at each Service Center vary.

ERC determined that the volume of permit output exceeded its ability to inspect all permits. Therefore, a risk-based approach is used to select permits for compliance inspection. This approach focuses on selecting permits that pose the largest potential impact to the District's regional water resources.

Environmental compliance for wetland mitigation is performed for five years or until mitigation success but does not require periodic renewals. Environmental Resource permits without onsite wetland mitigation does not generally require field inspections after completion of the surface water management system. In contrast, water use permits require a continuous compliance program and periodic renewals.

To its credit, the Water Use Division has used a limited risk-based compliance process. However, as water resources are stretched thinner, it is important for the Division to expand the risk-based approach to choose additional permits from all segments of water use to create an expanded compliance process. This would also provide compliance over a larger percentage of the water supply allocation.

Recommendation:

- 1. Using a risk-based approach, expand the compliance process to incorporate all permit types (agriculture, industrial etc.).**

Management Response: Management concurs with the recommendation. Prior to completion of the compliance database, the current risk-based compliance approach that emphasizes large primarily public water supply systems located along the coast will be modified. This re-prioritization will be modified to include other large use classes including agriculture and industrial uses that occur throughout the district. This new risk based prioritization will be implemented until the new compliance database is operational (approx. one year). Once the new system is operating, a higher percentage of the permits are being tracked. The compliance priorities will then be reassessed based on the performance of the expanded tracking system.

Responsible Department: Water Supply/Regulation

Estimated Completion Date: Initial re-prioritization (pre compliance database); May 1, 2002. Post database prioritization; three months after

the compliance database is on line, on-going reporting will be instituted at six-month intervals.

Accelerate The New Database System Development Initiative

After determining that the current water use compliance database system (on-line since 1990) was inadequate, management began the process of developing a new database system. Due in part to the technological deficiencies of the current water use compliance database system, the Division does not track compliance visits and cannot state the percentage of permits currently in compliance with permit conditions.

The water use compliance database contains data tables of user supplied water usage, water levels, and water quality (salinity) data; however, the database system does not allow for automated tracking of incidents of water pumpage or water quality exceeding permit conditions. No interrelation exists between permit data⁴ and compliance data that could produce compliance or tracking reports for reviewers' use.

Comparison of actual water use and quality to permit limiting conditions requires:

- Receipt of accurate data from permit holders,
- timely comparison of the data with permit limiting conditions,
- timely investigation of any water quality and quantity violations,
- satisfactory solution to bring the permit in compliance with limiting conditions or if necessary,
- enforcement activity.

However, the limitations of the current water use compliance database system prevent compliance staff from effectively and efficiently collecting and using the data. The Division cannot provide statistics on the percentage of permit holders who submit timely water data. District rules state that all permits are subject to compliance, and Individual Permit holders (issued since 1993) are required to provide monthly water withdrawals by pump and by source to the Division on a quarterly basis. This equates to 50,000 pieces of monthly data. The Division performed a sweep of the database in 1999 to determine if required permit information was being sent in on a timely basis. The sweep

⁴ Permit facts and permit conditions that place limits on the permit holder's consumption and water quality.

resulted in 656 investigative notices to permit holders requesting past due information. Our follow-up of a sample of these letters found that the effort was successful in receiving much of the information but whether this effort has reduced laggard reporting is unknown.

With the exception of large water use permits close to the coast (primarily public water utilities), the Division does not routinely compare the data received to the limiting conditions of the permit. The compliance database is stand alone from the permit database and as such cannot provide a report of permits where reported water data exceeds limiting conditions. Currently, determining if a permit is in compliance requires the reviewer to extract data from both systems, create a graph of the data and finally examine the data, a time consuming process. Investigation and resolution of out of compliance permits has been limited due to the work required to identify them and only a limited number of permits receive any amount of scrutiny.

The current compliance system requires permit holders to submit permit data via hardcopy to the Division. Once received, this data is manually entered either by the assigned compliance reviewer (public water utilities and SALT data) or by an administrative contract worker (all other data). In effect, due to the huge volume of incoming monthly data, data entry is the primary duty of compliance reviewers before contemplating actual compliance work. One compliance reviewer indicated she spent up to 75% of her time entering data into the compliance system.

One of the important projects that Division has devoted resources to is the creation of a new water use compliance database system, which is being designed and built in-house. The successful completion of this system is essential to freeing up the compliance staff from data entry chores and allowing them to perform substantive work like solving compliance problems. The decision to build a new system was made after Division management examined the current system and determined that it could not be brought up to desired specifications. This project has been in process for approximately two years.

We reviewed the specifications of the new system and determined that its planned features should significantly improve the tools available to compliance reviewers. The new compliance database system planned features include:

- Automatic comparison of recorded water use data to permit limiting conditions

-
- Production of “tickets” which are records of exceptions, warnings, or an action flag. The ticket produces an audit trail of a problem identified by the system. To clear a ticket would require a resolution of the problem, or a correction of the data that caused the exception. If a ticket is not cleared, the ticket will be shown as past due.

Our review of the process for creating the new system indicated the need for greater internal and external consultation:

Internal consultation – the system is being designed by members of the Division and members of the Regulatory Information Division. Missing in this group is the ERC which has developed a successful compliance system for Environmental Resource and Surface Water permits that already has many of the improvements desired of the new database system. Prior to finalizing detailed planning and development of the new compliance database system, the Division should determine if a module for water use compliance could be added to ERC’s current system.

External consultation – The Southwest Florida Water Management District (SWFWMD) has a database compliance system with many of the desired features of the new database system including automatic generation of data delinquency and exception reports. Members of the design team and Water Use should visit with the compliance group of the SWFWMD to learn about their compliance database system and the water use compliance program.

Permit data entry – The new database system is being designed with three methods of data entry:

- Manual Entry – the current method where information is received as hard copy and recorded into the database by District personnel.
- Scannable Forms – method where a bubble sheet is provided to permittee who populates and returns form. A scannable form reader is used to electronically records data into the database.
- Internet – through an Internet connection, a password protected data entry screen is brought up by the permittee and data is recorded into the database.

All efforts should be made to limit the amount of information that must be entered into the system by Division personnel. The Division should consider a permit condition that encourages electronic entry of required data by permit holders. The ongoing development of the new water use compliance database system should be a first priority. Management agreed but stated

complete deployment of the water use compliance database will necessitate expenditure of additional funds, prioritization of Water Use and Regulatory Information staffing and will occur in three phases. Details regarding the database deployment are attached in the appendix. Phase 1 is fully staffed and funded with a completion date of July 2002. Phase 2 will begin this year and will be complete in March 2003. To expedite phase 2 development, staff will redirect \$50,000 for contractual services this year. Phase 3 will require \$200,000 for contractual services in the 2003 budget.

Recommendations:

- 2. Water Use Regulation should consult with the ERC about the feasibility of adding a water use compliance module to their compliance system.**

Management Response: Management concurs with the recommendation. The Environmental Resource Compliance database system was designed and built by the Regulatory Information Management Division, which is the same division that is constructing the Water Use Compliance database. As a result, many of the lessons learned from the ERC system have already been incorporated into the design of the water use systems. Notable exceptions are related to the type, frequency and analysis of data generated by water users. However, based on the recommendation the water use design team will revisit this issue to see if anything can be improved.

Responsible Department: Water Supply / Regulation

Estimated Completion Date: May 1, 2002

- 3. Consult with the Southwest Florida Water Management District regarding their database compliance system and their water use compliance program.**

Management Response: Management concurs with the recommendation. During the design phase of the Water Use compliance database, staff reviewed the compliance program at SJRWMD but not SWFWMD. The design team will consult with the SWFWMD staff and incorporate beneficial design components of their system into our design.

Responsible Department: Water Supply

Estimated Completion Date: May 1, 2002

4. Consider a permit condition that encourages electronic entry of required data by water use permit holders.

Management Response: Management concurs with the recommendation. Data entry via electronic means is a goal of the improved database re-design. The Regulatory Information Management Division is currently working on this issue along with procedures to facilitate on-line permitting. Security issues are a major concern, as hackers could corrupt the entire database. Once the procedures are complete, the requirement for on-line data reporting can be made through rulemaking. On line permitting is currently be developed as part of a statewide regulatory initiative. The Regulatory Information Management Division is working this process and it's application to water use compliance

Responsible Department: Water Supply / Regulation

Estimated Completion Date: December, 2003

**Limited Compliance Program Results
in Few Enforcement Actions**

Prior to July 2001, there were only three enforcement actions⁵ for water use permits since 1993 from a combined population of 10,000 individual and general permits. Other enforcement type activities include:

- Negotiations of consent agreements with several water utilities to reduce water withdrawals in coastal well to abate salt-water intrusion.
- Investigation and, if appropriate, mitigation of domestic use dry well complaints.
- Environmental Resource Compliance investigations of dewatering complaints.

Water use permit holders who are out of compliance with their permits can incur civil penalties up to \$10,000 per day after requisite warnings.

⁵ Two of the enforcement actions were initiated by the Water Use Compliance unit and one was initiated by the Environmental Resource Compliance Division.

The Division Director stated that current water use enforcement concentrates on three resource protection criteria:

- Harmful impacts to the water resources
- Harmful impacts to existing legal users
- Willful non-compliance with limiting conditions

According to the Compliance Supervisor, when a problem is noted with over pumpage of water, a drop in water levels or a rise in salinity levels, a letter of investigation is sent and a meeting is requested to resolve the problem. If a successful solution can not be worked out, then the case is transferred to enforcement.

The limiting conditions in water use permits are the specific compliance terms used by the Division to protect the water resources of the District.

If the permit compliance process is broadened, situations may be discovered where a permittee has been out of compliance with permit conditions for several years. In these situations, it will be necessary to start the compliance notification process prior to beginning enforcement proceedings. An increase in volume of compliance/enforcement cases will require the Division to install a more formal policy of notifying permittees of permit violations. For example, ERC typically writes three letters (first, second and final notice) prior to referring a project to enforcement.

Recommendations:

- 5. Develop and install a more formal process for issuing compliance letters to water use permit holders prior to referring permits to enforcement.**

Management Response: Management concurs with the recommendation. Water Use will utilize the same procedures for issuing compliance letters as is being used in ERC cases.

Responsible Department: Water Supply

Estimated Completion Date: May 1, 2002

6. Create a reporting link between water use compliance and the enforcement manager.

Management Response: Management concurs with the intent of this recommendation. District enforcement actions need to be implemented consistently. Management will evaluate all options for strengthening the link between water use compliance and enforcement.

Responsible Department: Water Supply / Regulation

Estimated Completion Date: March 31, 2003

Broaden Compliance Activity and Consider Consolidating Compliance Programs And Cross Training Staff

Water use compliance is organizationally positioned alongside water use permitting. Staff explains that this side-by side structure was instituted recognizing the benefit of making the permit reviewers, which have substantial technical knowledge of the project, an integral part of the compliance program. Additionally, management stated that past experiments with combining compliance staffs at the Ft. Myers Service Center actually led to a reduction in water use compliance activities.

In contrast, the environmental resource/surface water permitting compliance functions are organizationally separated from the permit application review function. In 1998, the environmental resource compliance function was combined with the field engineering compliance function in the Environmental Resource Compliance Division (ERC). ERC has been successful at cross training their representatives with a resulting increase in the number of field inspections, enforcement actions and civil penalties. ERC has a compliance function at six service centers (West Palm, Ft. Myers, Orlando, Martin-St. Lucie, Miami-Dade and Okeechobee) that could be similarly cross-trained to perform water use compliance. Our discussions with the Southwest Florida Water Management District, and a review of the St. Johns River Water Management District organizational structure found that their water use permit review and permit compliance functions are separated.

Changing the current organizational structure, in our opinion, would increase independence between review of applications and compliance of permits and result in greater efficiency. We recommend that the need for consolidation and cross training be evaluated concurrent with the upgrade of the

compliance database. Substantial changes in staff priorities need to be made in order to achieve a more active and independent compliance program.

At a minimum, Water Use Regulation should establish a minimum number of water use compliance activities to be performed. The water use compliance activities should be captured in the compliance database and an activity report issued on a quarterly basis. Additionally, water use permitting personnel should continue to have open access to compliance statistics and personnel during water use permit renewals.

Recommendations:

7. Consider consolidating the water use compliance function with the Environmental Regulation Compliance Division.

Management Response: Management concurs with the intent of this recommendation. Management intends to conduct a more in-depth evaluation of the pros and cons of merging these compliance functions. This evaluation will include consideration of: the expected efficiencies to be gained when the water use compliance database is completed; staffing issues; the potential for partial merging of the programs for routine compliance functions such as identifying unpermitted users and tracking special condition deliverables (pumpage reports, calibration, etc.); and the impact on existing Environmental Resource Compliance responsibilities. The completion of this evaluation should be tied to the completion of Phase two of the water use compliance database deployment in order to incorporate the efficiencies of that system into the mix.

Responsible Department: Water Supply / Regulation

Estimated Completion Date: March 31, 2003

8. Continue compliance cross-training efforts by 1) training existing personnel to perform water use compliance activities; and 2) training the water use compliance personnel to perform field engineering and environmental compliance activities.

Management Response: Management concurs with the intent of this recommendation. This recommendation will be considered in conjunction with the evaluation to be conducted in response to Recommendation 7. As a first step, Environmental Resource Regulation

will evaluate the workload impacts of performing water use inspections in conjunction with existing compliance inspections. In addition, the pros and cons of redirecting compliance inspectors (two FTEs) in the Ft. Myers Service Center to water use compliance will be considered. However, in the interim (prior to the database deployment) cross training of water use compliance staff to perform field engineering/environmental compliance should be closely scrutinized in order to avoid any reductions in the current workforce dedicated to water use compliance.

Responsible Departments: Water Supply / Regulation

Estimated Completion Date: July 31, 2002 (Phase 1)
March 31, 2003 (Full evaluation)

9. Establish a minimum number of water use compliance activities that will be performed and issue a quarterly report of these activities.

Management Response: Management concurs with the recommendation. Interim goals for the types and number of water use inspection will be developed and quarterly reports will be initiated. Once the water use compliance database is functioning, the inspection goal should be revisited based on the number and resolution of non-compliance issues. (See Response to Recommendation #1 in this regard.)

Responsible Department: Water Supply

Estimated Completion Date: Initial goals established by July 31, 2002

INITIATE A WATER USE METER INSPECTION PROGRAM

Limiting conditions in water use permits require permittees to submit recalibration data for each of their water pumping facility every two years. The periodic water use reports require disclosure of the accounting method and means of calibration stated on each report.

District rules name several different methods of water accounting that are acceptable including:

- Flow meters
- Clocks which totalize pump operations
- Fuel consumption
- Other reliable methods

District rules further state:

Proper accounting for water use is essential to establish that the use is a reasonable-beneficial use of the resource and in the public interest ... also to better estimate water use and to implement water shortage plans.

The Division does not track whether recalibrations are being made and submitted, this combined with a lack of pump inspections leaves the permittee on the honor system for reporting water withdrawals. The two-year recertification of meter recalibration is not sufficient without an inspection program.

Without some confirmation that there is proper metering of water, it is not possible to know whether a permit holder is staying within the limiting criteria of their permitted water withdrawals. The current two-year recertification requirement should be used as a trigger for inspecting the accuracy of the permit holder pump accounting method. Other information that could be verified includes the number of pumps and wells, location of wells and type of pumps.

The Division Director suggested a method for performing these inspections without increasing the District workforce. This would involve the training (by the District) of local licensed well and plumbing contractors in the methods of auditing pump accounting methods. These individuals would be certified to perform recalibrations and provide this information to the District.

The District recalibration rule should be expanded to require this audit of the pump accounting method and inspection of the pumps and wellfield locations at the time of required recalibration. Permit holders should be provided with a listing of certified meter inspectors on the District's website.

Recommendations

- 10. Expand the pump recalibration rule to require an audit of the pump accounting method and an inspection of the pumps and wellfield locations at the time of required recalibration.**
- 11. Establish a program of training well meter inspectors and provide a list of approved inspectors to permit holders for pump inspections.**

Management Response (#10 and #11): Management concurs with these recommendations. Staff proposes to develop a certification and training program for pump re-calibration. Through a rule change, all calibration would have to be done by a district certified licensed water well or plumbing contractor. The concept is that private contractors would take the District certification course in order to gain the business generated through the permit limiting condition. This public/private partnership would provide a significant increase in field inspection at minimal cost (running the training/certification classes) to the District.

Responsible Department: Water Supply

Estimated Completion Date: January 2003

IMPROVE PERMIT CONCURRENCY

During the 2001 water shortage, water use compliance sweeps found 323 violations for water consumption without a water use permit. The number of water use permits applications also increased, partially as the result of scrutiny from the water shortage sweeps. Recently, the Division has experimented with different techniques to identify non-permitted water uses.

- Overlaying satellite maps with permit area grids to identify potential consumptive water use without a permit. This method has been used to identify areas for surveillance with a helicopter, and
- Use of a helicopter for surveillance resulting in seventeen letters of investigation for suspected non-permitted water uses.

Generally, any non-domestic use of water for irrigation or production requires a General or Individual Water Use Permit. The Division and the Regulation Department⁶ have a concurrency procedure to check on the necessity/status of other required permits before issuing a water use permit or the combined environmental resource/surface water management permit.

Section 3.2 of the Environmental Resource Permit basis of review states:

For environmental resource permits, if on-site consumptive water use withdrawals are also proposed for which a District water use permit is required, the environmental resource and water use permits must be processed simultaneously.

We sampled environmental resource/surface water permits and found that in many cases the status of a water use permit is addressed with the statement “a water use permit is not required for this project at this time.” However, the use of irrigation water generally is not needed until a development has been completed.

All environmental resource/surface water permits with irrigation requirements need a water use permit unless city water or reclaimed water is used for irrigation purposes. As such, the environmental resource/surface water permits process could require that a water use application be on file unless the permittee provides a statement that city or reclaimed water will be used for irrigation. This statement would require confirmation from the city water or

⁶ The Natural Resources Management and Surface Water Management Divisions.

reclaimed water provider. The actual method for ensuring concurrency should be developed in the ongoing rulemaking process.

Recommendation:

12. Improve the concurrency process between environmental resource/surface water permits and water use.

Management Response: Management concurs with this recommendation. As a first step, Environmental Resource Regulation will ensure that water use concurrency is considered in all ERP permit applications. In many cases, applicants indicate they do not need a water use permit because irrigation water will be provided by a utility. However, after the project is constructed, a self-supply irrigation system is often installed without a water use permit. Water Supply and Environmental Resource Regulation will evaluate existing rules to determine whether changes are needed in order to strengthen the concurrency review. One option is to require applicants to provide an executed contract with a utility or apply for a water use permit concurrent with the ERP application.

Responsible Department: Water Supply and Environmental Resource Regulation

Estimated Completion Date: July 31, 2002

EVALUATE THE EFFECT OF NEW 1 IN 10 YEAR DROUGHT LEVEL ALLOCATIONS PRIOR TO PERMIT RENEWALS

Rulemaking is currently in process to increase the level of certainty for water supply permits to a 1-in-10 year drought condition. Historically, most of the irrigation permits scheduled for renewal were issued under a level of certainty of a 1-in-5 year drought condition. Water allocation methodologies and impact evaluations will be modified to reflect the 1-in-10 year level of certainty used in the water supply plans. Florida Statute 373.0361(2) states:

A quantification of the water supply needs for all existing and reasonably projected future uses within the planning horizon. The level-of-certainty planning goal associated with identifying the water supply needs of existing and future reasonable-beneficial uses shall be based upon meeting those needs for a 1-in-10-year drought event.

The increase in the level of certainty from a 1-in-5 year drought to a 1-in-10 year drought with the same (or increased) number of users may require the development of alternative water supply sources to avoid placing greater stress on the natural resources during drought cycles.

The Water Supply plans look at overall water availability for a twenty-year horizon including such factors as water availability by source and saltwater intrusion risk for a sub-regional area. Water use permit reviews include the additional step of reviewing the effect of planned water withdrawals on neighboring existing legal users, domestic users and the needs of the natural system.

There is a risk that, although water could be available overall for a sub-regional area (including two separate users), the water allocated to one user could interfere with the reasonable – beneficial use of water by another user. The increase in the level of certainty to a 1-in-10 year level could exasperate these conflicts in areas where water availability/allocation is tight under the current permitted level of certainty.

The Water Supply Plans concluded that to meet the water needs of the District planning regions up to 1-in-10 year drought condition requires construction and implementation of the CERP components, and appropriate management and diversification of water supply sources. Successful implementation of the Water Supply Plans is dependent on the implementation of rule changes for consumptive water use permitting.

Rulemaking is in progress to address many of components of water use permitting discussed in the water supply plans including:

- Level of Certainty
- Minimum flows and levels
- Reuse of reclaimed water
- Permit duration
- Regional water availability
- Improved pasture irrigation
- Aquifer storage and recovery
- Reservations of water
- Supplemental crop requirement and withdrawal calculations
- Saline water intrusion
- Wetland protection rules
- Competing uses
- Water resource caution areas and restricted allocation areas
- Pollution of the water resources

Prior to finalization of revised rules criteria and renewal of irrigation permits, management should have water use permitting staff model the effect of increased allocations for permits holders in selected sub-basins where the water supply plans have indicated that water allocation is tight.⁷ These modeled basins could be used as a test case to determine the effect of increased water allocations on existing legal users and the natural resource. If it appears the availability of water resources will not meet the revised demand then staff should begin devising strategies to accelerate the use of alternative water supplies through rule making and the water use permitting process.

With the increased level of certainty, it becomes more important that water allocations closely match the actual water demands. Over allocation of water can decrease the availability of water for neighboring legal water users. During the permit renewal process, staff should compare requested water use allocations to historical water use to determine the accuracy of demand based allocations. Permits with historical water use well below the requested renewal allocation will require additional scrutiny of the demand allocation calculation.

⁷ Examples of such basins are the Loxahatchee Basin and the Caloosahatchee basin.

Recommendations:

Water Use regulation staff should insure that recommendations contained in the water supply plans are implemented on a timely basis and should:

- 13. Model water use allocation with a 1-in-10 year level of certainty for permit holders in certain sub-basins to determine the impact on existing legal users. Determine if additional rulemaking is needed for water use permitting to accelerate the use of alternative water supplies prior to the start of the irrigation permit renewals.**

Management Response: Management concurs with the intent of this recommendation. Staff feels the concerns addressed in the audit have been met. During the water supply planning process, the 1-in-10 demands were evaluated to determine if the potential for harm to the water resources would occur. This was a planning level evaluation not permit level check. However, with the exception of some localized areas, the change to a 1-in-10 level of certainty would not be a threat to the water resources. In the areas where the model suggest a potential for harm under the base case condition, permit compliance staff will need to focus their evaluation to determine if harm has in fact, occurred. In most cases the model over states the impact of permitted withdrawal so actual field and data investigations are needed to determine if harm actually occurs. If harm does not occur and the project was in place and using water during a 1-in-10 year drought or greater (e.g. the 1989/1990 drought) the increased allocation to a 1-in-10 level of certainty would be considered safe. Otherwise, alternative water supply options, which meet the permit criteria, would be worked out during the permit renewal process. However, during rulemaking, if further evaluations are needed as determined by the public review process, additional modeling would be conducted.

Responsible Department: Water Supply

Estimated Completion Date: December, 2002 (only as necessary through rulemaking)

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14. **Perform a comparison of current water allocations to historical water use. Permits with historical water use well below the requested renewal allocation will require additional scrutiny of the demand allocation calculation.**

Management Response: Management concurs with this recommendation. The recommendation for comparison of actual use vs. permitted use will be conducted in the rule development process described under item 13 above and on a permit by permit scale during permit renewal. However, it is important to note the complexity of issues. Since the permit allocation is based on the reasonable demand under the level of certainty assigned to the use class, it is necessary to compare actual use during a similar hydrologic condition upon which the allocation is based. In addition, local scale variations in soils and topography can significantly affect the amount of supplemental water used. Therefore the evaluation of actual use verses permitted use should be done at the project scale as well as on the regional or use class scale. In order to improve efficiency of project scale evaluations the water use compliance database has been designed to include trigger criteria to flag water use outside of a specified tolerance range (e.g. a percentage above or below the permit allocation).

Responsible Department: Water Supply

Estimated Completion Date: January 2003 for the regional/use class scale evaluation, Ongoing during permit renewal for the local scale evaluation.

MANAGEMENT RESPONSE TO AUDIT OF THE WATER USE PERMITTING PROGRAM

Introduction:

The following is management's response to Audit Report 01-20 "Audit of the Water Use Permitting Program". This audit was undertaken at the direction of the Governing Board in response to concerns over the implementation of the District's consumptive use permitting and compliance program. The Inspector General and his Staff have conducted a thorough evaluation of the compliance and permitting function that has included hours of staff interviews and extensive review of records. Management finds that consideration of the recommendations included in the audit along with the completion of the ongoing compliance database system will lead to significant improvements in the overall program. Continued prioritization of the resources necessary to implement the recommendations in the audit will be sought through the budget process. [See management responses in body of report.]

Background:

The Water Use Division is responsible for implementing the District's statutory responsibilities described in Part II; Consumptive Use, of Chapter 373, F.S., and Part III; Water Well Construction, of Chapter 373, F.S. The authority for implementing the consumptive use provision of Chapter 373, F.S. is uniquely assigned to the Water Management District with FDEP providing oversight. The Consumptive Use program cannot be delegated to any other authority in the State. The SFWMD consumptive use permit rules, promulgated under the authority vested by statute, require all uses of water except domestic uses for single family residence, duplexes or use for fire fighting to obtain a water use permit.

Currently, the District has approximately seven billion gallons of water per day under permit. Based on the most recent assessment of water use conducted by the U.S. Geologic Survey, "Water Withdrawals, Use, Discharge, and Trends in Florida, 1995" (Marella, 1999), the amount of fresh water used in the SFWMD virtually equals the use within the remaining four WMDs combined. The water currently under permit at the SFWMD provides the foundation for the economy and well being of the 6.6 million people who reside in South Florida, who comprise 41% of the state's population. In addition to the magnitude of consumptive use, the SFWMD has major water resources that must be protected. The District is among the largest landholders in the State. More acres of wetlands occur within this District than in any of the other Districts. Clearly, the consumptive use permitting program manages an increasingly complex task of protecting the water

MANAGEMENT RESPONSE TO AUDIT OF THE WATER USE PERMITTING PROGRAM

resources while maximizing the availability of water for consumptive use. Given the vast natural resources, substantial demands for water and the rare occurrence of resource harm related to water use, the District's consumptive use program has performed a remarkable service to both protect the water resource while authorizing water uses. Moreover, the Water Use Division has not been lulled into inactivity as a result of the relative dearth of documented resource problems caused by consumptive uses. Utilizing its knowledge of the limited resource availability, the Division contributes to the District's water supply planning process. In this manner, the Division is proactively working to avert water supply and water resource problems. The attached Appendix A documents the historic Governing Board direction in this area, staffing trends, and issues related to implementing the consumptive use permitting program.

Appendix

Water Use Compliance Program Overview

The Water Use Division is responsible for implementing the District's statutory responsibilities described in Part II; Consumptive Use, of Chapter 373, F.S., and Part III; Water Well Construction, of Chapter 373, F.S. The authority for implementing the consumptive use provision of Chapter 373, F.S. is uniquely assigned to the Water Management District with FDEP providing oversight. The Consumptive Use program cannot be delegated to any other authority in the State. The SFWMD consumptive use permit rules, promulgated under the authority vested by statute, require all uses of water except domestic uses for single family residence, duplexes or use for fire fighting to obtain a water use permit.

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MANAGEMENT RESPONSE TO AUDIT OF THE WATER USE PERMITTING PROGRAM

Based on these facts, the expectation of harm to the water resources and existing legal uses is high. However, as both history and this audit have shown, this is not the case. The reason for this lies in the way this District has issued water use permits for over twenty years. The District's consumptive use rules require the permittees to protect the water resources of the state, as well as all existing legal uses from harm under a permitted level of certainty. In order to achieve these goals it is necessary to allocate a "reasonable" amount of water to beneficial uses. The reasonable demand for water has always been based on real needs as opposed to unworkably restrictive volumes. Secondly, the District's rules are based on scientifically derived resource protection criteria, which have to be met not only during average hydrologic conditions, but even during moderate drought conditions. As a result, permittees have received reasonable allocations of water, produced from facilities that are located so as not to cause harm to the water resources of the state.

To date, no public water supply wellfield has been lost to saltwater intrusion, isolated wetlands have been protected from harm and, as demonstrated by the evaluations in the LECRWSP (SFWMD, May 2001), consumptive uses of water have not caused harm to the Everglades or exceeded the capacity of Lake Okeechobee. However, increased interest in water usage at the state and local levels has caused the District to re-evaluate the current water use compliance program of the SFWMD. The governing board first addressed the scope of the Water Use Compliance Program in 1991. The board considered two staffing options, a seven member or 24 member team. The seven-member option would allow for the review of the larger permits once every four years (based on the 550 permits issued at that time). The 24 member staff would be able to inspect all individual permits once per year. The board selected the seven-member option. In 1993, in response to increasing interest in monitoring actual water usage, the governing board adopted new water use rules that required all individual water users to measure and report their water use by source. From that time on, every individual permit issued included the new monitoring requirements. Also, the number of permits issued in 1991 increased to 3,523 by 2001. These factors resulted in a significant increase in the compliance workload without a corresponding increase in staff. The ratio of permits per each of the water use compliance reviewers increase from 90 in 1991 to over 587 in 2001. In addition, the average annual number of data records for inspection (water level, pumpage, water quality, etc.) per reviewer increased from 4300 to 5833.

In order to deal with the increasing workload, the Division implemented several actions during that time frame. First was the re-prioritizing of existing staff to focus on projects with the greatest risk of harm to the resource. This

MANAGEMENT RESPONSE TO AUDIT OF THE WATER USE PERMITTING PROGRAM

included large users along the coast, selected agricultural areas in the Lower West Coast Planning Area where interference with existing domestic wells had occurred, and consent agreements. Compliance data from lower priority users were filed for use if problems arose.

Next, alternative ways to expand the amount of compliance data that needed to be processed were explored. Beginning in 1998 and every year since, staff has tried unsuccessfully to budget additional manpower for the compliance program. A temporary technician position was first approved in 1998 and that individual, Liz Ellis, has continued to work for the compliance team as a temporary employee for four years. In 2001, it was determined that the direction and effectiveness of the compliance function would be significantly improved if the group had its own supervisor, and a permit reviewer position from within the Division was redirected to this supervisory function.

However, recognizing that increases in staffing was not the preferred approach, the Division proposed to extend the redesign of the Water Use database to include a water use compliance component and secured funding beginning in FY 2001. During the first months of the fiscal year, the water shortage variance database was redesigned and placed into production to meet demands of the water shortage. Currently, staff has completed the water use compliance system design and is beginning the programming of the first phase of the database. When completed, the database will automatically track compliance of virtually all limiting conditions of all permits. In addition, the database system will generate reports of compliance relative to submittal of information and will evaluate the information submitted relative to potential harm to the resource and its users. The system will track water usage reports and all types of monitoring including salinity and water levels. An electronic 'paper trail' of both conformances and exceptions will be generated and follow-up action will be recommended based on considerations of both the potential for harm to the resource and the overall history of compliance.

Most recently, during the water shortage of 2001, two concerns regarding water use compliance arose. The first was that many of the urban irrigation users ticketed for water shortage violations did not have water use permits. Secondly, golf course water usage was not being carefully monitored and in some cases golf courses were exceeding their permitted allocations. While golf course water use accounts for only 2% of all the water permitted in the District, and no harm to the resource was attributed to the use, the long standing priorities and capabilities of the water use compliance program were questioned. In light of the concerns the need to account for all water used, and attain broader compliance was identified.

MANAGEMENT RESPONSE TO AUDIT OF THE WATER USE PERMITTING PROGRAM

At this time, the automated water use compliance system is well under way. With completion of the improved new compliance database, the percentage of permits tracked will go from approximately 30% to over 90% without any increases in staffing. In fact, existing staffing will be shifted away from manual data entry and redirected to problem solving and water use evaluations. This increase in effectiveness can be achieved within the Water Use Division and without the need to redirect the priorities or disrupt the productivity of the Environmental Resource Compliance Division. Not only will the efficiency of the water use compliance program improve, but by continuing to keep the compliance section in daily contact with the water use permit reviewers, the lessons learned in compliance will greatly enhance the permit issuance and renewal process.

Compliance Database Development:

To achieve the goals and recommendations associated with the audit, the completion of the water use compliance database must be a number one priority. In addition to the completion of the compliance database programming providing the regulated public with access to online compliance reporting is essential. The following is an outline of the activities, products and resource needs associated with the compliance database deployment.

The deployment of the database will proceed in three phases. Phase one includes:

- overall system design
- development of data entry systems
- development of the capability to track single-item data submissions (e.g., individual well or pump withdrawals, water levels, water quality samples) and compare to pre-determined specifications.

Upon completion of this phase we will be able to “track compliance” in that everything will be in place to determine that single-item requirements are meeting single-item specifications, which is probably 80 percent of our business. The current estimate is that the first phase can be completed and ready for testing by July 2002. Upon completion of Phase One, funds for the contract for the system programmer expire.

MANAGEMENT RESPONSE TO AUDIT OF THE WATER USE PERMITTING PROGRAM

Phase two includes:

- Development of the capability to combine single item data into data totals (e.g., summing individual facility withdrawals to compare to permitted allocation)
- The ability to track compliance in situations where the requirements and performance specifications are conditional
- Development of the system that generates the paperwork for compliance follow-up; the decisions to take action, the notifications, the follow-ups, and if necessary, enforcement actions.

Upon completion of this phase, we will have a fully automated system capable of tracking, reporting and taking action on deficiencies in all conditions of water use permit issuance, for all permits that are issued from that time on. In order to begin Phase two, we require \$50,000 to extend the contract of the system programmer. If these funds are made available, Phase two can begin during the current fiscal year and completed in March 2003. If funds are not made available, the earliest this phase can begin is FY 2003. However, by that time we will have lost the availability of the current contracted system programmer and will be dealing with a significant learning curve for a new contractor, adding at least three months to the duration of the project.

Phase three includes:

- Updating the new database with existing limiting conditions from previously issued water use permits to attain a full level compliance and resource management. The compliance system can automate aspects of this, but at some point a human being needs to do a reality check and deal with the more complex permits. This will require about 1.0 FTE that will be redirected from the Water Use staff because of their familiarity with permit requirements. No new costs anticipated.
- Migration of existing data so that in addition to tracking performance relative to predetermined specifications, we can track compared to data trends. In order for this to happen, the existing data need to be migrated to the new system. Migration of the data involves more than 300,000 data records from nearly 8000 stations, all of which must be added to the new system; we estimate this requires 1.5 FTE and is best performed under contract (see cost below).
- Electronic data reporting, to incorporate current technology, either via the web or electronic spreadsheets, comprising in-house and contract personnel (see cost below).

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- Development of the field inspection module. This module, which uses a criticality matrix based on risk to the resource due to noncompliance compared to compliance performance, will limit need for inspection to those projects most needing it. Development of the module will require in-house and contract personnel (see cost below).
- Completion of the well construction permit module that links the well permits to facilities in water use permits, using in-house and contract personnel (see cost below).

Implementation of Phase three should begin in FY 2003. It will require \$144,000 for FY 2003 for contract programming services. In addition, \$50,000 is needed in the FY 2003 budget for the migration of all existing data (paper and electronic) into the new database (contractual services). When this phase is complete, we will be able to track compliance on all water use permits and effectively and safely manage the resource. The Water Use Division will institute a reporting mechanism to document activities associated with water use projects in this regard.