

**COMPREHENSIVE WATERSHED MANAGEMENT  
WATER USE TRACKING PROJECT**

**Use Case Model**



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## Use Case Model

### 1 Introduction

The use case model primarily sets the functional requirements on the system, and is used as an essential input to analysis and architectural design. In essence, the use case model and use cases are a contract between the project development team and the stakeholders with regards to the functionality of the system. The initial release of the model in the inception phase is used to outline the scope of the system. The use case model is refined by more detailed flows of events during the elaboration and construction phases. The use case model is continuously kept consistent with the design model.

The use case model consists of use case packages. A use case package is a collection of use cases, actors, relationships, diagrams, and other packages. It is used to structure the model by dividing it into smaller parts. The WUT Use Case Model consists of two packages:

- Maintain Water Use Tracking Information
- View Water Use Permit Information

The functionality of a system is defined by use cases, each of which represents a specific flow of events. The description of a use case defines what happens in the system when the use case is performed. All functional requirements must be able to be linked to at least one use case. This ensures all required functionality is being included in the system to be built. Use cases contain several key items:

- Business Context – A description of the business need of the use case.
- Pre-Conditions – A list of any conditions that must be met before the use case can be executed.
- Flow of Events – The sequence of events that can take place during the execution of the use case. This includes the Primary Flow, or basic path, Alternate Flows, Warning Flows, and Exception Flows.
- Post-Conditions – A list of conditions that can be expected after the use cases ends, dependent on the flow of events executed.
- Special Requirements – A list of any special requirements for a particular use case. This is a “catch-all” section where any information regarding a use case can be captured and stored.

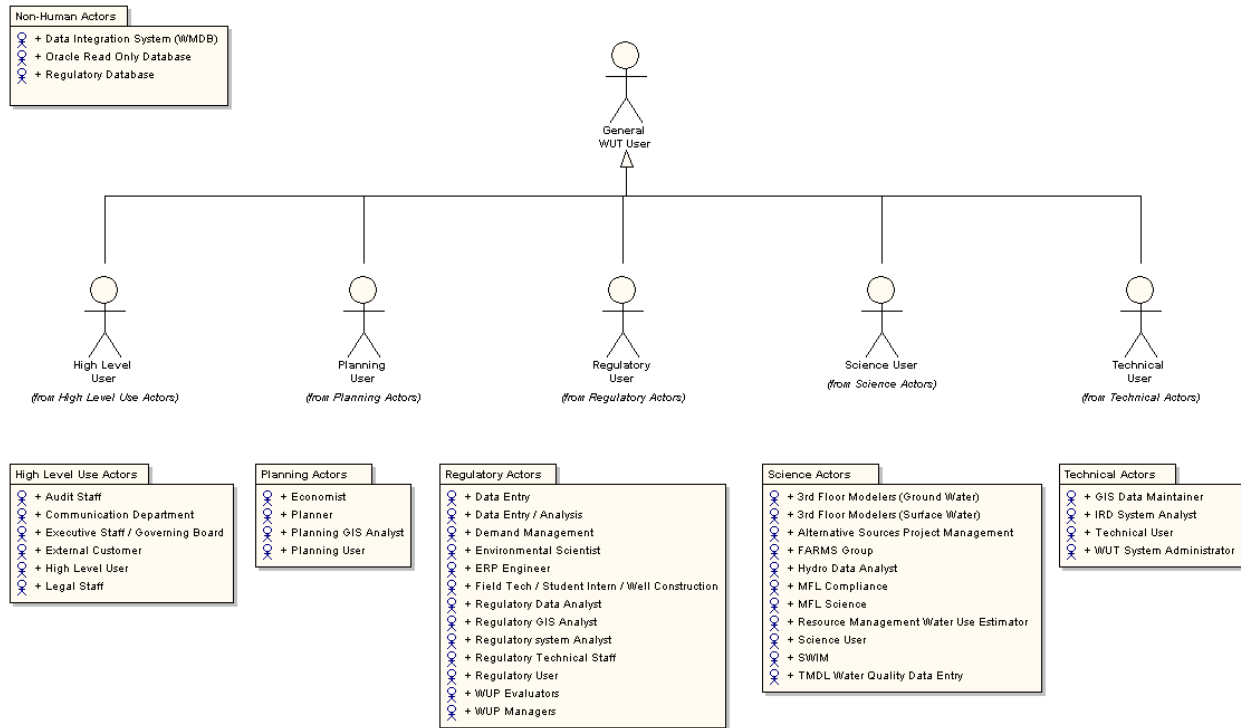
The users and any other system that may interact with the system are the actors. Because they represent system users, actors help delimit the system and give a clearer picture of what it is supposed to do. Use cases are developed on the basis of the actors' needs. This ensures that the system will turn out to be what the users expected.

Also included in the use case model are the use case diagrams. These diagrams illustrate the use cases and the actors and the interaction between the two. Use case diagrams can also be organized by use case packages to show only what is relevant within a particular package.

The WUT Use Case Model was created and is currently stored in the Enterprise Architect modeling tool. The model includes all requirements gathered to-date for the project. The model also has all use cases that will be developed for the WUT System. All requirements are linked within the model to one or more use cases. All the actors identified for the project are also in the model. The use case diagrams show the interaction between the actors and the use cases.

## 2 Actors

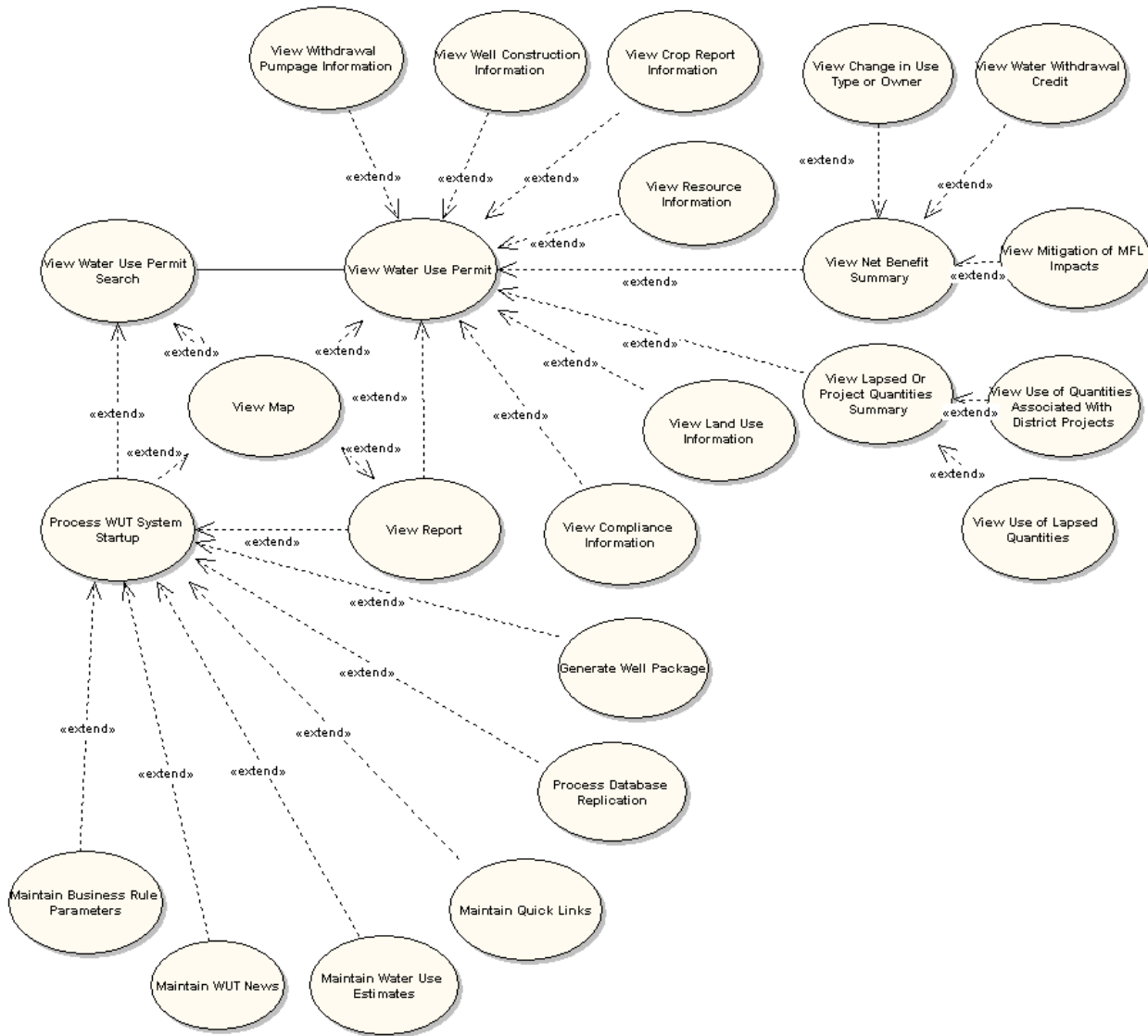
Over forty actors, with very specific job duties, were identified for the WUT System during a use case workshop. All these actors were consolidated into more general categories. Since a majority of the WUT System is reporting in nature, all the actors will have the ability to run reports, view maps, and query water use permits (i.e., General WUT User). Only a few of the features within the system involve the editing of data used by the system. These features will only be available to a select few users (i.e., WUT Administrator, Water Use Estimator). Figure 1 shows all the actors that were identified during the workshops, the general categories of these actors, as well as three non-human actors (i.e., Data Integration System, Oracle Read Only Database, Regulatory Database).



**Figure 1 – WUT Actors**

### 3 Use Cases

Identifying use cases in a use case model is only the critical first step. The business processes identified by each use case in the use case model must be described in detail in a narrative document. This narrative describes the behaviors the resulting software system must be designed to support. However, following the iterative nature of RUP, not all use cases are fully completed during the initial phase of the project. A selection of critical and architecturally significant use cases were identified to be completed during the initial phase of the project. Figure 2 below shows the Use Case diagram illustrating all the use cases identified to-date for the WUT Project.



**Figure 2 – WUT Use Case Diagram**

The following critical and architecturally significant use cases have been identified for the initial release of the software:

- Process Database Replication
- Process WUT System Startup
- View Map
- View Report
- View Water Use Permit
- View Water Use Permit Search

The following sections are the use cases, in detail, as they are stored in the model file in Enterprise Architect. This is a work in progress and each use case is in a different state of completeness.

## 3.1 Process WUT System Startup

### 3.1.1 Business Context

This use case will be used when an actor needs to access the Water Use Tracking (WUT) System, a browser-based, distributed 3-tier client/server application initially deployed on SWFWMD's Intranet. To access the WUT system, the actor will request the browser to display the WUT System Startup Page. This startup page will display information (e.g., WUT System News) as well as provide access to the various features supported by the WUT System (e.g., View Water Use Permit information, performing spatial analysis using Geographic Information Systems (GIS) maps, or running a report).

The information and features available to the actor will be controlled through the WUT System role-based security and WUT System Roles and their associated privileges. When the actor initially requests access, the WUT System will determine the actor's role and this will, in turn, determine the features available to the actor. Any actor not explicitly assigned to a WUT System Access Criteria role (i.e., WUT Admin User, WUT Manager User) will, by default, be assigned to the WUT System General User Role. This general role will be allowed to access all features that are not restricted to a specific WUT user role.

### 3.1.2 Requirements

None identified at this time.

### 3.1.3 Scenarios

#### 3.1.3.1 Primary Flow {Basic Path}.

This use case begins when the actor selects to access the WUT System.

1. The actor requests the browser to display the WUT System Startup Page.
2. After determining the actor's WUT System Group, the system displays the WUT System Startup Page and, based upon the actor's group, provides access to the following:
  - WUT System Startup Page Information
    - WUT System News - general news and information available to all actors
    - Quick Links - Internet links to pertinent websites
  - WUT Features (which executes the use case by the same name)
    - Generate Well Package
    - Maintain Business Rule Parameters
    - Maintain Other Districts' Data Location
    - Maintain Water Use Estimates
    - Process Database Replication
    - View Change in Use Type or Owner
    - View Compliance Information



- View Crop Report Information
- View Land Use Information
- View Lapsed or Project Quantities Summary
- View Map
- View Mitigation of MFL Impacts
- View Net Benefit Summary
- View Report
- View Resource Information
- View Use of Lapsed Quantities
- View Use of Quantities Associated With District Projects
- View Water Use Permit
- View Water Use Permit Search
- View Water Withdrawal Credit
- View Well Construction Information
- View Withdrawal Pumpage Information

3. The use case ends when the actor selects to exit the system.

#### *3.1.3.2 RDBMS Server Unavailable {Exception}.*

1. If in the Primary Flow above the system detects that the RDBMS server is unavailable, the system will inform the actor of the error condition and that the condition must be corrected.
2. The actor can choose to either retry the operation or cancel their request.
3. If the actor chooses to retry the operation:
  - a. The system will attempt the requested operation again.
  - b. If the system still encounters an error while attempting to access the RDBMS server, the system will repeat step 2 above.
4. If the actor chooses to cancel the operation, the use case ends.

## **3.2 Generate Well Package**

### **3.2.1 Business Context**

This use case will be used when an actor needs to generate a well package file for import into Groundwater Vistas to model the impact of well/withdrawal changes. The well package is a comma-delimited file that contains many attributes, including location information, regarding water withdrawal wells within the District. The well package is used as input into in the creation of the District-wide Regulatory Model, as well as in the creation of regional models.

### **3.2.2 Requirements**

- SW18.  
Ability to pull a well package that provides a view of water use at a particular time that is then plugged into models used to generate water use amounts. The data would include wells, land elevation, aquifer, and total and cased depths.

### **3.2.3 Scenarios**

None identified at this time.

### **3.3 Maintain Business Rule Parameters**

#### **3.3.1 Business Context**

This use case will be used when an actor needs to update business rule parameters within the WUT system. Generally, these parameters are used in making specific calculations within the system. For example, information in the SWUCA II rules explicitly defines how a Lapsed Quantity or Water Withdrawal Credits are calculated. Any parameter that could be used in a calculation could be maintained using this use case. It is important to note that these parameters will not be used to change the original information stored in the database, but would be used to create "derived" data to be shown within reports or on the screen.

#### **3.3.2 Requirements**

None identified at this time.

#### **3.3.3 Scenarios**

None identified at this time.

## **3.4 Maintain Quick Links**

### **3.4.1 Business Context**

This use case will be used when an actor needs to manage the quick links located on the WUT Home Page. These are links to other websites that could be helpful to a WUT user. For example, a link to other water district's websites to possibly view water use permit information could be helpful. If a permit is requested near the boundary of the District, the ability to view data from the adjacent District would be helpful in determining the impacts of the new permit.

### **3.4.2 Requirements**

- SR31.  
Should allow comparison to adjacent districts GIS layers to permit GIS layer to access adjacent data.

### **3.4.3 Scenarios**

None identified at this time.

## **3.5 Maintain Water Use Estimates**

### **3.5.1 Business Context**

This use case will be used when an actor needs to maintain water use estimation values for water use permits. The permitted quantity is known for all water use permits. However, the actual pumpage is only known for those permittees that submit their data. For those permits that do not submit pumpage data, their water use is estimated, based on the data that is submitted from other wells. Currently, the water use estimates are stored in Excel spreadsheets and SAS datasets. Currently, this data can only be viewed in summarized form in the Water Use Estimates document published annually. This use case will allow the actor to import water use estimate data for each water use permit into a database table that can be used by the WUT system. This will allow users of the system to view pumpage data, as an estimated value, even for permittees that do not submit their pumpage information.

### **3.5.2 Requirements**

- EW19.  
Ability to add estimated quantities for unmetered permits, which is found in the Water Estimates Database.

### **3.5.3 Scenarios**

None identified at this time.

## **3.6 Maintain WUT News**

### **3.6.1 Business Context**

This use case is used when the actor needs to maintain WUT news items for communication to users when they access the WUT Home Page. For example, the system administrator may need to inform WUT users that the system will be down for maintenance over the weekend. Using this feature, the system administrator can create a system maintenance news item for display starting and ending on specified dates. Displaying news on the WUT Home Page ensures that all users will have access to this important information when they first access the application.

### **3.6.2 Requirements**

None identified at this time.

### **3.6.3 Scenarios**

None identified at this time.

## 3.7 Process Database Replication

### 3.7.1 Business Context

This use case will be used when an actor needs to replicate and normalize (restructure) data that has been copied directly from a DB2 database on the IBM mainframe to a read-only Oracle database. The current data structure was implemented to support a data entry system and not for the use in a decision support reporting system. The data is being restructured to take advantage of the strengths of a relational database management system. After the initial replication of the DB2 tables, nightly updates are made to the Oracle tables with the data that has changed since the previous replication process. By normalizing the data into relational tables, it will allow the data to be more accessible using ad-hoc query tools.

### 3.7.2 Requirements

None identified at this time.

### 3.7.3 Scenarios

#### 3.7.3.1 Primary Flow {Basic Path}.

This use case begins when the MTS process to replicate the DB2 data to the read-only Oracle database has completed and the normalizing of the data needs to be completed.

1. The actor fires a PL/SQL Trigger within the MTS nightly process that executes an Oracle stored procedure to replicate and normalize the data in the read-only Oracle tables to the WUT database.
2. The system checks for appropriate data relationships.
3. If the appropriate data relationships do not exist, the system does not replicate that particular data and an error is written to a Replication Error Log.
4. The use case ends when the WUT database has been refreshed with the current data from the read-only Oracle tables.

## 3.8 View Change in Use Type or Owner

### 3.8.1 Business Context

This use case will be used when an actor needs to view information about the relocation of permitted quantities associated with a specific water use permit. When an application is made to relocate permitted quantities and change the use type or owner of an existing permitted quantity that impacts an MFL waterbody that is below its minimum level, the application is subject to certain criteria. The previously permitted quantity is first reviewed under the reasonable beneficial use test. The quantity available for the new owner or new use type is limited to 90 percent of the permitted historically used portion of the reasonable-beneficial quantity, not including any Drought Credit quantities. This 10 percent reduction in historically used permitted reasonable-beneficial quantity impacting the MFL waterbodies constitutes a Net Benefit.

If any reasonable beneficial, historically unused quantities will remain on the source permit, these quantities are also reduced by the Net Benefit provision (i.e., 10 percent) and are available only for the existing use type at the source permit site. If any reasonable-beneficial, historically used quantities will remain on the source permit, these quantities are not subject to the Net Benefit provisions and may be used for the existing use type. Any future application to modify the use type or owner, or to relocate with a change in use type or owner, these remaining reasonable-beneficial, historically used quantities will be subject to the Net Benefit provisions. Any historically unused quantities remaining at the source permit site may not be relocated in the future and may not have a change in use type.

The following information will be displayed pertaining to the relocation of a WUP:

- Historical used quantity
- Historical unused quantity
- Reasonable beneficial quantity
- The WUP that the relocated amount came from
- The WUP that the relocated amount went to
- The dates that any of these values took affect or changed

### 3.8.2 Requirements

- SR12a.  
Report on the permits that have been relocated by a permit holder.
- SR12b, SR13, SR26a, EW12. (*Status: Proposed; Difficulty: Medium; Priority: Medium*)  
Track the impact that water use has to the set MFL levels. In particular, compare the affects of the new or modified use to the actual flow and level of the water body or aquifer to make sure the actual level will not go below the MFL level. Types of things to check are:
  - New applications, renewals, or modifications.
  - Relocated uses.
  - Change of use type.
  - Lapsed quantities.



- Retired permits (some are lapsed - some are not).
- SR14, SR26b, EW2, SR15. (*Status: Proposed; Difficulty: Medium; Priority: Medium*)  
Track net benefit changes. Some things involved are:
  - Relocated permits
  - Permits with a change of use
  - Old and new locations
  - Lapsed quantities
  - Reclaimed water (not in database yet)
  - Projects
  - Amount of net benefit gained or lost from the change
  - New permits that came from an older permit due to a new benefit gain
- SR16.  
Report the net benefit amount in MGD for:
  - Change of permitted location or use
  - Land use change
  - Use of lapsed quantities
  - Water withdrawal credit (replacement, reclaimed water)
- SR17. (*Status: Proposed; Difficulty: Medium; Priority: Medium*)  
Mark those permits that have a land use change so the quantities can be relocated to the public supply utility.

### **3.8.3 Scenarios**

#### **3.8.3.1 Primary Flow {Basic Path}.**

This use case begins when the actor selects to view the changes in use type or owner information for a water use permit.

1. The actor must first use the View Net Benefit Summary use case in order to identify the water use permit's net benefit.
2. The system displays the selected water use permit's change in use type or owner information.
3. Once the actor has completed viewing the information, the use case ends.

## 3.9 View Compliance Information

### 3.9.1 Business Context

This use case will be used when an actor needs to view Compliance data associated with a specific water use permit. Depending on the data submitted by the permittee, compliance data could include pumpage quantities, meter readings, crop reports, well construction specifications, and any other condition data associated with a water use permit. Providing compliance information will give District staff time-saving devices with which they can better monitor the enforcement activities of the District, with minimal impact to staff time. Better access to those who are not submitting pumpage information will help evaluators better determine the site conditions while evaluating the impacts of new applications in the same area.

### 3.9.2 Requirements

- RW10, RW9b  
Track pumpage oddities. Two examples are:
  - A. Permittees that have consistent pumpage readings even when some of the data is missing. Use this information to predict whether they are in compliance in spite of the missing data.
  - B. Permittees that enter zero on their pumpage reports.
- RW27.  
Automate some of the requests that Jim Whalen receives. The majority of request are related to permitted and pumpage quantities, both at the permit level and well level. They are usually sorted temporally or geographically.
- RW34, RW9a.  
Track permittees not submitting conditional/pumpage reports, and generate a map showing their locations.
- TW13, TW14.  
Obtain report of those out of compliance of permit conditions by over-pumping their allowable quantities. Show how much over pumping is done, and have option to select by time period or by area. Need to break down to a permit-by-permit basis, but also show the whole thing on a map.

### 3.9.3 Scenarios

#### 3.9.3.1 Primary Flow {Basic Path}.

This use case begins when the actor selects to view the compliance information for a water use permit.

1. The actor must first use the View Water Use Permit use case in order to identify the water use permit.
2. The system displays the selected water use permit's compliance information.
3. Once the actor has completed viewing the information, the use case ends.

## 3.10 View Crop Report Information

### 3.10.1 Business Context

This use case will be used when an actor needs to view crop report data associated with a specific permit. Crop report data is collected on an annual or semi-annual basis and is submitted by the permittee. A different form is submitted for recreational use, annual crops, and seasonal crops. It contains the crop or use type, acreage for each use, predominate soil type, and planting dates. The data submitted with crop reports, in many cases, is not audited for accuracy, and is often incomplete or inaccurate. The primary purposes of this form are to verify the actual soil type for the location so that more accurate water allocations can be made, link the actual ground conditions to the use information in the database, and monitor the use of water conserving credits.

### 3.10.2 Requirements

- RW27.  
Automate some of the requests that Jim Whalen receives. The majority of request are related to permitted and pumpage quantities, both at the permit level and well level. They are usually sorted temporally or geographically.
- SW26.  
The ability to access crop report information spatially and temporally.

### 3.10.3 Scenarios

#### 3.10.3.1 Primary Flow {Basic Path}.

This use case begins when the actor selects to view the crop report information for a water use permit.

1. The actor must first use the View Water Use Permit use case in order to identify the water use permit.
2. The system displays the selected water use permit's crop report information.
3. Once the actor has completed viewing the information, the use case ends.

## 3.11 View Land Use Information

### 3.11.1 Business Context

This use case will be used when an actor needs to view land use data associated with a specific water use permit. Possible scenarios include viewing trends for specified areas or determining how water use changed as land use changes.

Land use data can be collected during permit submittal or as conditions set on a permit, as well as from map analysis. Permittees will supply land use information as water use code types or from crop reports submitted for certain WUPs. Map analysis is conducted from the land use layer derived from Florida's land use cover classification system (FLUCCS), color infrared (CIR) digital orthophoto quarter quadrangles (DOQQs), or other aerial photography.

### 3.11.2 Requirements

- EW1.  
Must be able to track trends in land use and water use changes. These include several means by which a proposed new withdrawal that impacts an MFL waterbody can achieve a "Net Benefit," including the provisions for relocated, lapsed, and water withdrawal credits.
- RW27.  
Automate some of the requests that Jim Whalen receives. The majority of request are related to permitted and pumpage quantities, both at the permit level and well level. They are usually sorted temporally or geographically.
- RW46b.  
Need to know how water use changes when land use changes.
- SR12b, SR13, SR26a, EW12. (*Status: Proposed; Difficulty: Medium; Priority: Medium*)  
Track the impact that water use has to the set MFL levels. In particular, compare the affects of the new or modified use to the actual flow and level of the water body or aquifer to make sure the actual level will not go below the MFL level. Types of things to check are:
  - New applications, renewals, or modifications.
  - Relocated uses.
  - Change of use type.
  - Lapsed quantities.
  - Retired permits (some are lapsed - some are not).
- SR14, SR26b, EW2, SR15. (*Status: Proposed; Difficulty: Medium; Priority: Medium*)  
Track net benefit changes. Some things involved are:
  - Relocated permits
  - Permits with a change of use
  - Old and new locations
  - Lapsed quantities
  - Reclaimed water (not in database yet)
  - Projects
  - Amount of net benefit gained or lost from the change

- New permits that came from an older permit due to a new benefit gain
- SR16.  
Report the net benefit amount in MGD for:
  - Change of permitted location or use
  - Land use change
  - Use of lapsed quantities
  - Water withdrawal credit (replacement, reclaimed water)
- TW12.  
Track changes in land use and how it affects water availability.

### **3.11.3 Scenarios**

#### **3.11.3.1 Primary Flow {Basic Path}.**

This use case begins when the actor selects to view the land use information for a water use permit.

1. The actor must first use the View Water Use Permit use case in order to identify the water use permit.
2. The system displays the selected water use permit's land use information.
3. Once the actor has completed viewing the information, the use case ends.

## 3.12 View Lapsed or Project Quantities Summary

### 3.12.1 Business Context

This use case will be used when an actor needs to view lapsed or project quantities data associated with a specific water use permit. With the implementation of the new SWUCA rules, this process will allow the actor to track these quantities.

Most of the land within the SWUCA is associated with an existing water use permit. Over time, permits are reduced, abandoned due to land use changes or abandonment of an activity, retired due to acquisition of land for preservation purposes, or by other means. Historically, this permit activity has resulted in an overall reduction in water use. Now, however, these lapsed quantities will be available for new and expanding water users to meet their needs. Another way for a water use permit applicant to get water that meets their needs is by the use of quantities that are associated with District projects.

### 3.12.2 Requirements

- EW11b, RW16, SR20, SR21, SR22, SR23. (*Status: Approved; Difficulty: Medium; Priority: Medium*)  
Track the movement of lapsed quantities in an area, including:
  - Which permit and well obtained the lapsed quantities.
  - Where the lapsed quantities are located.
  - Why the quantities are lapsed (i.e. expired, cancelled, retired).
  - What MFL zone the lapsed quantities are in.
- SR12b, SR13, SR26a, EW12. (*Status: Proposed; Difficulty: Medium; Priority: Medium*)  
Track the impact that water use has to the set MFL levels. In particular, compare the affects of the new or modified use to the actual flow and level of the water body or aquifer to make sure the actual level will not go below the MFL level. Types of things to check are:
  - New applications, renewals, or modifications.
  - Relocated uses.
  - Change of use type.
  - Lapsed quantities.
  - Retired permits (some are lapsed - some are not).
- SR14, SR26b, EW2, SR15. (*Status: Proposed; Difficulty: Medium; Priority: Medium*)  
Track net benefit changes. Some things involved are:
  - Relocated permits
  - Permits with a change of use
  - Old and new locations
  - Lapsed quantities
  - Reclaimed water (not in database yet)
  - Projects
  - Amount of net benefit gained or lost from the change
  - New permits that came from an older permit due to a new benefit gain

- SR16. (*Status: Approved; Difficulty: Medium; Priority: Medium*)  
Report the net benefit amount in MGD for:
  - Change of permitted location or use
  - Land use change
  - Use of lapsed quantities
  - Water withdrawal credit (replacement, reclaimed water)

### **3.12.3 Scenarios**

#### *3.12.3.1 Primary Flow {Basic Path}.*

This use case begins when the actor selects to view the lapsed or project quantities information for a water use permit.

1. The actor must first use the View Water Use Permit use case in order to identify the water use permit.
2. The system displays the selected water use permit's lapsed or project quantities summary information.
3. Once the actor has completed viewing the information, the use case ends.

#### *3.12.3.2 View Use of Lapsed Quantities {Alternate}.*

1. Once the water use permits net benefit summary is presented by the system to the actor, the actor may choose to view the details of use of lapsed quantities information for the water use permit.
2. After the actor has selected to view the compliance information, the View Use of Lapsed Quantities Use Case will be used.

#### *3.12.3.3 View Use of Quantities Associated With District Projects {Alternate}.*

1. Once the water use permits net benefit summary is presented by the system to the actor, the actor may choose to view the details of use of quantities associated with district projects information for the water use permit.
2. After the actor has selected to view the compliance information, the View Use of Quantities Associated With District Projects Case will be used.

## 3.13 View Map

### 3.13.1 Business Context

This use case will be used when an actor needs to view water use permit (WUP) information spatially using a map created with the functionality provided by a Geographic Information Systems (GIS). Viewing WUP information in a pre-defined report format can be very effective from the point of view of efficiency, organization, and the presentation of large amounts of data. Even so, a report is simply a one-dimensional presentation of information when that information has at its basis a spatial context. When viewing WUP information in a report, the subtlety and complexity of the spatial relationships cannot be presented at all or is, at best, difficult to comprehend. The viewing of information within its spatial context is exactly where GIS excels and is the primary reason for this View Map Use Case. When additional GIS layers are added to a map, the multi-dimensional presentation of information provides for a richness of analysis simply not possible using a report format.

Although not intended exclusively for this actor, one of the primary actors who will use this use case is the WUP Evaluators. They are responsible for the analysis of all new, modified, and renewed WUPs. During the analysis process, the evaluator will frequently require access to a map to view WUP data within its spatial context. Doing so will enable the evaluator to view other important data within the area of interest resulting in a far richer analytical effort. By having the ability to add different GIS layers to the map, the evaluator will have more information at their disposal to assist in their analytical effort. Add to this the capability to pan, zoom, and print at any time, the evaluator will have all the information and functionality required to make better, more informed decisions.

### 3.13.2 Requirements

- EW13.  
Support extraction or reporting of data for ad-hoc geographic areas by using spatial queries such as graphics or polygon buffering. The ability to aggregate the data must be there and any type of polygon should be able to be used.
- RW14, SR8.  
Track and measure alternative source projects (note: some of these may be included in table 8):
  - Surface water or stormwater projects.
  - Reclaimed water (reuse water).
  - Augmented surface water (reservoirs, harvesting of high flows (floodwaters)).
  - ASR (Aquifer storage recovery)
  - Desalination.
  - Conservation (defined as a beneficial reduction of water use resulting in:
    - modification of water use practices,
    - reduction of unaccounted-for losses, or
    - installation and maintenance of low volume water use systems, processes, fixtures, or



- devices.
- RW15.  
Track by withdrawal source - what aquifer or USGS water body are general and Individual permits pumping from.
- RW19.  
Have a heat map that shows permit information for specific time periods. You should be able to input a geographic area (whether by county, department, or entire District area), select the time period(s) you want, and select one of two views: permits issued or active permits in that time period, and produce the map show the locations. On a high-level view, you need to be able to see the locations with the predominate use type reflected on the map itself, and include a graph or chart showing the total number of permits, predominate use shown by %, and the time period involved. If you click on it, bring up the permit details, such as name, permit number, issue date, expire date, use type, wuca, and average quantities.
- RW2, SW16.  
Link between Water Use Permits (WUP), Environmental Resource Permits (ERP), and Well Construction Permits. One use would be as a means of notifying appropriate District staff when pertinent land use changes. (i.e. want to know if an ERP is issued or applied for a subdivision where permit has been issued for a farm.)
- RW25.  
Create layer that shows the Developments of Regional Impacts (DRI) and their status. This layer will be plugged into the new model for population projections and water supply demand projections.
- RW28, RW20, SR4, SR6.  
View the spatial impact of a person's application with other active applications on-line so the applicant or evaluator has a visual of who else is available to compete for quantities with. Also include application and permit data on-line, either with scanned documents or access to database. The historical data should also be available, but viewing restrictions for certain legal documents has to be followed. Be able to query by geographic area or permit number.
- RW29.  
Ability for public utilities and internal staff to find existing permits in or near their service area so they can spatially see what water is available, or may become available, when they plan for their future growth and water resources. They will need to view the use type (interested mainly in agricultural and mining), owned acres, and the current permittee's contact information.
- RW30a.  
Create heat map indicating who was over-pumping, who was not over-pumping, or who was using their water credits.
- RW30b.  
Heat map for water quality. Add the District WUPnet sentinel wells on this map - those are the District wells that have been in existence the longest time and we have the best data with. So if we bring them up in an area we know we have reliable data.
- RW34, RW9a.  
Track permittees not submitting conditional/pumpage reports, and generate a map showing

their locations.

- RW37, TW4.  
Analyze permits using a soils type GIS layer. Have a second soils layer based on the soil types indicated on the permittees compliance to conditions.
- RW4.  
Ability to have printable and customizable maps.
- RW42.  
Provide access to population data in system that are aggregated to appropriate geographic areas (services areas, counties, etc.)
- RW45.  
Identify what lakes are stressed, when they became stressed, and if/when they came off stressed list.
- RW46a.  
Identify when the District or another governmental agency purchases land, a link should be available to show if there is a permit on that area so it can be retired.
- SR19.  
Create layer that includes "cones of depression" for the MFL information, which will indicate the area of influence to an MFL.
- SR29, SR9.  
Report on how much water was made available through the District's water resource development projects. Elements of the report should be:
  - Source of benefit (aquifer or surface water).
  - The locations of the alternative sources.
  - What permits are using the quantities generated by the projects, and what project they are getting the water from.
- SR31.  
Should allow comparison to adjacent districts GIS layers to permit GIS layer to access adjacent data.
- SW15, SW9.  
Select water use data temporally or with geographic overlays, which can be from another layer or graphics on the page. Also be able to place it in an Excel spreadsheet.
- SW26.  
The ability to access crop report information spatially and temporally.
- TW10, TW11.  
Show the intensity of water use in a geographic area on a color-coded map.
- TW13, TW14.  
Obtain report of those out of compliance of permit conditions by over-pumping their allowable quantities. Show how much over pumping is done, and have option to select by time period or by area. Need to break down to a permit-by-permit basis, but also show the whole thing on a map.
- TW16.

Need historical data for Water Use Permits including their spatial representations (polygons).

- TW9.  
Be able to determine the availability of alternative use supplies, such as reclaimed water and desalination.

### **3.13.3 Scenarios**

#### *3.13.3.1 Primary Flow {Basic Path}.*

This use case begins when the actor selects to view a Map.

1. The system displays a Map at the default extent of the District with default layers visible.
2. This use case ends after the actor has spatially viewed the requested spatial data and requests the system to close the map.

#### *3.13.3.2 View WUP Identify Tool {Alternate}.*

1. The actor chooses to use the View WUP Identify Tool to select a WUP feature on the map
2. The actor must click on the map near the WUP feature to be identified.
3. The system determines if a WUP feature is within the search tolerance of the location clicked on the map.
4. If a WUP feature is found, the system uses the Water Use Permit use case to display information about the identified WUP to the actor.

#### *3.13.3.3 Error during Map Service Retrieval {Exception}.*

If the system encounters an error while attempting to retrieve a Map Service:

1. The system will inform the actor of the error condition and that the condition must be corrected.
2. The use case ends.

## 3.14 View Mitigation of MFL Impacts

### 3.14.1 Business Context

This use case will be used when an actor needs to view information of how a specific water use permit has mitigated its impact on a MFL waterbody. When an applicant demonstrates compliance with all conditions for issuance, except that it impacts a minimum flow or level waterbody, the applicant can apply for a permit if they provide a Net Benefit to the impacted MFL waterbody. This mitigation strategy could include the proposition of a water resource development project that more than negates their proposed impact or it could be the purchasing of adjacent land with water use permits for their own use.

The following information will be displayed to show the mitigation of MFL impacts:

- The permits and their quantities that were bought out to mitigate the MFL impact
- The District's projects and their quantities used to mitigate the MFL impact
- The self-funded projects and their quantities used to mitigate the MFL impact

### 3.14.2 Requirements

- SR28.  
For mitigation of MFL impacts, report on the improvement percentage amount, where it was located, the cost, how the decrease was obtained and what impacts it had.
- SR29, SR9.  
Report on how much water was made available through the District's water resource development projects. Elements of the report should be:
  - Source of benefit (aquifer or surface water).
  - The locations of the alternative sources.
  - What permits are using the quantities generated by the projects, and what project they are getting the water from.

### 3.14.3 Scenarios

#### 3.14.3.1 Primary Flow {Basic Path}.

This use case begins when the actor selects to view mitigation of MFL impact information for a water use permit.

1. The actor must first use the View Net Benefit Summary use case in order to identify the water use permit's net benefit.
2. The system displays the selected water use permit's mitigation of MFL impact information.
3. Once the actor has completed viewing the information, the use case ends.

## 3.15 View Net Benefit Summary

### 3.15.1 Business Context

This use case will be used when an actor needs to analyze Net Benefit data associated with a specific water use permit. With the implementation of the new SWUCA rules, this process will allow the actor to track the Net Benefits. A Net Benefit is obtained when the proposed withdrawal, coupled with other activities or measures, will result in an improvement to the MFL waterbody that more than offsets the impact of the withdrawal. In all Net Benefit options, reasonable beneficial use plays a key part. Permits are granted based upon meeting numerous rule criteria including that the quantities requested are fully needed for the proposed use, or existing use in case of a renewal.

The applicant for a new permit or for a modification or renewal of an existing permit is required to file detailed information to demonstrate and justify to the reasonable satisfaction of the District the reasonable beneficial quantities intended to be used during the term of the proposed permit before it will be issued. This requirement is intended to assist the District in seeking to reduce the difference between permitted quantities and used quantities. For those cases in which an applicant is seeking a modification or renewal of an existing permit, the District will consider historical use, metered pumping data, trends and patterns of usage, actual type of usage, and other relevant factors.

A Net Benefit can be obtained in several ways including:

- Relocation with a change in use type or owner
- Water withdrawal credits
- Mitigation of minimum flow and level impacts

There are several ways that the District is going to gain water with the new SWUCA rules, from reclaimed water lines, lapsed quantities, water withdrawal credits, and the relocations rules.

### 3.15.2 Requirements

- EW11a, SR18, RW1.  
Track the relocation of active water use within the SWUCA.
- JY1.  
Identify when a standby permit is reactivated due to the loss of alternative quantities.
- SR12a.  
Report on the permits that have been relocated by a permit holder.
- SR12b, SR13, SR26a, EW12. (*Status: Proposed; Difficulty: Medium; Priority: Medium*)  
Track the impact that water use has to the set MFL levels. In particular, compare the affects of the new or modified use to the actual flow and level of the water body or aquifer to make sure the actual level will not go below the MFL level. Types of things to check are:
  - New applications, renewals, or modifications.
  - Relocated uses.

- Change of use type.
- Lapsed quantities.
- Retired permits (some are lapsed - some are not).
- SR14, SR26b, EW2, SR15. (*Status: Proposed; Difficulty: Medium; Priority: Medium*)  
Track net benefit changes. Some things involved are:
  - Relocated permits
  - Permits with a change of use
  - Old and new locations
  - Lapsed quantities
  - Reclaimed water (not in database yet)
  - Projects
  - Amount of net benefit gained or lost from the change
  - New permits that came from an older permit due to a new benefit gain
- SR16.  
Report the net benefit amount in MGD for:
  - Change of permitted location or use
  - Land use change
  - Use of lapsed quantities
  - Water withdrawal credit (replacement, reclaimed water)
- SR24, SR25.  
Report on any water use amounts sold or given from one permit to another permit, especially reclaimed water (reclaimed water can be taken away, depending on the contract. It is kind-of-like "leasing" the water, but can be taken away).

### **3.15.3 Scenarios**

#### **3.15.3.1 Primary Flow {Basic Path}.**

This use case begins when the actor selects to view the net benefit information for a water use permit.

1. The actor must first use the View Water Use Permit use case in order to identify the water use permit.
2. The system displays the selected water use permit's net benefit summary information.
3. Once the actor has completed viewing the information, the use case ends.

#### **3.15.3.2 View Change in Use Type or Owner {Alternate}.**

1. Once the water use permits net benefit summary is presented by the system to the actor, the actor may choose to view the details of change in use type or owner information for the water use permit.
2. After the actor has selected to view the compliance information, the View Change in Use Type or Owner Use Case will be used.

### *3.15.3.3 View Mitigation of MFL Impacts {Alternate}.*

1. Once the water use permits net benefit summary is presented by the system to the actor, the actor may choose to view the details of the mitigation of MFL impacts information for the water use permit.
2. After the actor has selected to view the compliance information, the View Mitigation of MFL Impacts Use Case will be used.

### *3.15.3.4 View Water Withdrawal Credit {Alternate}.*

1. Once the water use permits net benefit summary is presented by the system to the actor, the actor may choose to view the details of water withdrawal credit information for the water use permit.
2. After the actor has selected to view the compliance information, the View Water Withdrawal Credit Use Case will be used.

## 3.16 View Report

### 3.16.1 Business Context

This use case will be used when an actor needs to produce a report from within the WUT Report Library. It is anticipated that the WUT system will have a large number of reports available in its report library. Every report use case within the WUT Report Library will extend this use case as appropriate for the specific report.

A report in this library provides information in a pre-defined format. While the information content of the report is pre-defined, the system enhances the flexibility of the report by providing the actor with the capability to optionally limit the information in any given report to the actor's specific area of interest (e.g., a specific county). This is accomplished through report specifications. While a given report may be run frequently, the information content will often vary from report to report based upon the run-time report specifications given by the actor.

This use case provides support for the numerous reports within the WUT Report Library. Once the actor specifies the report of interest and optionally supplies any run-time report criteria, the system will retrieve the information for the actor and present it in the pre-defined format. The actor can then choose to simply view the report online or download the report for analysis, printing, or saving as an electronic file in a variety of supported formats.

### 3.16.2 Requirements

- EW1.  
Must be able to track trends in land use and water use changes. These include several means by which a proposed new withdrawal that impacts an MFL waterbody can achieve a "Net Benefit," including the provisions for relocated, lapsed, and water withdrawal credits.
- EW10.  
Track estimated future water supply sources for the following categories defined in Table 8 in Section 5, Regional Water Supply Planning Component, page 61 in the Southern Water Use Caution Area Recovery Strategy:
  - Public Supply Conservation 35 mgd
  - Existing permitted and not fully used surface water 15 mgd
  - Alternative potable supplies under construction or design 27 mgd
  - Surficial and Intermediate Aquifers 35 mgd
  - Non-residential reclaimed water offset 35 mgd
  - Non-public supply conservation (includes FARMS) 45 mgd
  - Groundwater quantities available when land use changes 50 mgd
  - Groundwater quantities available when lands acquired for conservation 10 mgd
- EW11a, SR18, RW1.  
Track the relocation of active water use within the SWUCA.
- EW11b, RW16, SR20, SR21, SR22, SR23.  
Track the movement of lapsed quantities in an area, including:



- Which permit and well obtained the lapsed quantities.
- Where the lapsed quantities are located.
- Why the quantities are lapsed (i.e. expired, cancelled, retired).
- What MFL zone the lapsed quantities are in.
- EW14.

Track ownership of wells or permits over the life of the withdrawal point so the relocated quantities can be traced from owner to owner. Quantities that are relocated will have certain restrictions placed on them, as well as any quantities that remain on the original permit. For permits that have multiple withdrawal points, we need the ability to track ownership of specific withdrawal points over time.
- EW21.

Be able to look at permitted quantities, actual quantities (pumpage), and the resources it uses (Water Management DB).
- EW4, EW5, EW7.

Ability to track water use over time and negotiate reasonable new water use based on water use pumpage trends.
- EW6.

Need a protocol to assess how the actual flow and levels (AFL) compare to the established minimum flows and levels (MFL), including general trending information and whether waterbody-specific criteria are being met. There are 3 major provisions to track:

  - Minimum aquifer level - The saltwater intrusion MFL is met when the moving 10-year AFL is at or above the MFL for five consecutive years. The MFL is not met when the 10-year moving AFL in the reference wells is below the MFL for two consecutive years.
  - Minimum flows on the upper Peace River - The MFL is met when the MFL's are at or above the established MFL for three consecutive years. Once the MFL has been considered met, if it is followed by two years where the MFL is not met within a rolling ten-year period, then the AFL shall be considered below the MFL. A determination of whether AFL's are meeting the established MFL is made at each one of the established minimums (Bartow, Ft. Meade and Zolfo Springs).
  - Minimum lake levels - The proposed MFL is achieved when the long-term P50 is at or above the MFL and the long-term P10 is at or above the High Minimum Lake Level for five consecutive years. Once in compliance, MFL is not met when the long-term P50 is below the MFL for two or more consecutive years or the long-term P10 is below the High Minimum Lake Levels for two or more consecutive years.
- JY4, SR7.

Report on the history of irrigation water conserving credits, including the balance, how much earned, and how much used, and drought quantities. Know who uses them and who has accumulated them, and be able to report on an individual basis, by a geographic area, or aggregate the data.
- RW10, RW9b.

Track pumpage oddities. Two examples are:

  - A. Permittees that have consistent pumpage readings even when some of the data is missing. Use this information to predict whether they are in compliance in spite of the missing data.

B. Permittees that enter zero on their pumpage reports.

- RW14, SR8.  
Track and measure alternative source projects (note: some of these may be included in table 8):
  - Surface water or stormwater projects.
  - Reclaimed water (reuse water).
  - Augmented surface water (reservoirs, harvesting of high flows (floodwaters).
  - ASR (Aquifer storage recovery)
  - Desalination.
  - Conservation (defined as a beneficial reduction of water use resulting in:
    - modification of water use practices,
    - reduction of unaccounted-for losses, or
    - installation and maintenance of low volume water use systems, processes, fixtures, or devices.
- RW19.  
Have a heat map that shows permit information for specific time periods. You should be able to input a geographic area (whether by county, department, or entire District area), select the time period(s) you want, and select one of two views: permits issued or active permits in that time period, and produce the map show the locations. On a high-level view, you need to be able to see the locations with the predominate use type reflected on the map itself, and include a graph or chart showing the total number of permits, predominate use shown by %, and the time period involved. If you click on it, bring up the permit details, such as name, permit number, issue date, expire date, use type, wuca, and average quantities.
- RW2, SW16.  
Link between Water Use Permits (WUP), Environmental Resource Permits (ERP), and Well Construction Permits. One use would be as a means of notifying appropriate District staff when pertinent land use changes. (i.e. want to know if an ERP is issued or applied for a subdivision where permit has been issued for a farm.)
- RW22, RW23, RW24, RW48.  
Track aquifer level changes, lake level changes, rainfall level changes, and stream flow changes by area over time (i.e. monthly).
- RW27.  
Automate some of the requests that Jim Whalen receives. The majority of request are related to permitted and pumpage quantities, both at the permit level and well level. They are usually sorted temporally or geographically.
- RW28, RW20, SR4, SR6.  
View the spatial impact of a person's application with other active applications on-line so the applicant or evaluator has a visual of who else is available to compete for quantities with. Also include application and permit data on-line, either with scanned documents or access to database. The historical data should also be available, but viewing restrictions for certain legal documents has to be followed. Be able to query by geographic area or permit number.
- RW33.

Have map be able to show quantity of pumpage. Hover over or click a point in the map and see the average rolling 12, peak month, and max month compared to the pumpage of the well. Also get the cumulative quantities for an area you enter manually.

- RW45.  
Identify what lakes are stressed, when they became stressed, and if/when they came off stressed list.
- RW46b.  
Need to know how water use changes when land use changes.
- RW49.  
Provide the ability for applicants or District staff to compare the percentage a permit is over-pumping, based on use type, against the regional average for the same use type. The region would be the area that fell within the buffer distance entered, and the time of interest would also be entered.
- SR12a.  
Report on the permits that have been relocated by a permit holder.
- SR17. (*Status: Proposed; Difficulty: Medium; Priority: Medium*)  
Mark those permits that have a land use change so the quantities can be relocated to the public supply utility.
- SR3. (*Status: Proposed; Difficulty: Medium; Priority: Medium*)  
Report on the permit duration (To track expiration dates for those looking for someone to compete with).
- SR33. (*Status: Proposed; Difficulty: Medium; Priority: Medium*)  
Report compliance on a permit (not wells). Crop reports on permits (not wells) (I think this was a requirement to report this data some how at a well level).
- SR5.  
Report on competing applications (including ones that are in modification or expiring).
- SW19, SR34.  
Use system to publish a chart or graph that compares the MFL to a running average of AFL's. This should reflect how the AFL's are moving along the MFL line and indicate how different resources impact the MFL. The resources to include are pumpage, new projects, and rainfall. It will probably be run on a monthly basis.
- SW20.  
Supply the Regulatory requirements of MFL data:
  - What water levels are in relationship to MFL so you know who has to mitigate or how much excess flow there is.
  - Need the historic and current levels so applicant knows how much to mitigate or what is available.
- SW21.  
Select water use based on predominant use, use types, and regions they fall in. The predominant use would be agricultural, industrial, mining & dewatering, public supply, and recreational. Each predominate use is further broken down into more detailed categories, such as melons or citrus for the agricultural predominate use. This needs historical data for

trend analysis.

- SW6.  
Generate monthly reports for Board Packet that shows the difference in quantities permitted every month for specified geographic areas (i.e., counties, MIA, etc.).
- TW1.  
Establish relationships between inputs (i.e. rainfall) and pumpage data.(Note: In response to one of Kurt's comments regarding the amount of pumping in areas in relationship to amount of rainfall and irrigation system efficiency.)
- TW12.  
Track changes in land use and how it affects water availability.
- TW13, TW14.  
Obtain report of those out of compliance of permit conditions by over-pumping their allowable quantities. Show how much over pumping is done, and have option to select by time period or by area. Need to break down to a permit-by-permit basis, but also show the whole thing on a map.
- TW8.  
Know how much water has been permitted and how much has been used based on land use over time.

### **3.16.3 Scenarios**

#### *3.16.3.1 Primary Flow {Basic Path}.*

This use case begins when the actor selects to view a Water Use Tracking Report.

1. The system displays the WUT report categories.
2. The actor requests the system to display the reports within a single category.
3. The system displays a list of available reports for the selected category.
4. From this list of available reports, the actor selects the desired report.
5. The system displays the report criteria options for the selected report and requests the actor to specify any run-time criteria.
6. The actor enters any desired run-time report criteria and requests the system to run the report.
7. The system displays the report to the actor in the pre-defined format for viewing.
8. The use case ends when the actor requests the system to close the selected report.

#### *3.16.3.2 Download a WUT Report {Alternate}.*

If in the Primary Flow the actor decides to print or save the WUT report as an electronic file in one of the supported formats:

1. The actor selects a format from the list of supported formats (e.g., Portable Document Format (PDF), MS Excel, or MS Word) and requests the system to download the report in the selected format.
2. The system downloads the report into the requested format, opens an appropriate viewer within the browser, and displays the downloaded report within the viewer.

3. The actor now has access to the full set of menu options and controls provided by the viewer including the capability to print and save the downloaded report.

#### *3.16.3.3 View All WUT Reports {Alternate}.*

If in the Primary Flow the actor decides to view all available WUT reports:

1. The actor requests the system to display all the reports within each category.
2. The system displays the complete list of available reports organized by category.

#### *3.16.3.4 No Information Returned for the Specified Criteria {Warning}.*

If in the Primary Flow the selection criteria provided by the actor does not identify any information content, the system will not be able to produce the required report in the pre-defined format.

1. In this case, the system will inform the actor of this condition and that the condition must be corrected in order to produce the requested report.
2. The system will display the selection criteria previously supplied by the actor and requests the actor to modify the criteria.
3. The actor can select to supply modified selection criteria or cancel the operation, at which point the use case ends.

#### *3.16.3.5 Error During WUT Report Information Retrieval {Exception}.*

1. If the system encounters an error while attempting to retrieve WUT report information, the system will inform the actor of the error condition and that the condition must be corrected.
2. The actor can choose to either retry the operation or cancel their request.
3. If the actor chooses to retry the operation.
  - a. The system will attempt the requested operation again
  - b. If the system still encounters an error while attempting to retrieve WUT report information, the system will repeat step 2 above.
4. If the actor chooses to cancel the operation, the use case ends.

## 3.17 View Resource Information

### 3.17.1 Business Context

This use case will be used when an actor needs to view water resource data associated with a specific water use permit. The water resource data is collected by the permittee, and varies depending on the requirements of the permit including water quality data, water flows and levels, total dissolved mineral levels (TDML), and rainfall amounts.

### 3.17.2 Requirements

- RW10, RW9b.  
Track pumpage oddities. Two examples are:
  - A. Permittees that have consistent pumpage readings even when some of the data is missing. Use this information to predict whether they are in compliance in spite of the missing data.
  - B. Permittees that enter zero on their pumpage reports.
- RW27.  
Automate some of the requests that Jim Whalen receives. The majority of request are related to permitted and pumpage quantities, both at the permit level and well level. They are usually sorted temporally or geographically.
- RW34, RW9a.  
Track permittees not submitting conditional/pumpage reports, and generate a map showing their locations.

### 3.17.3 Scenarios

#### 3.17.3.1 Primary Flow {Basic Path}.

This use case begins when the actor selects to view the resource information for a water use permit.

1. The actor must first use the View Water Use Permit use case in order to identify the water use permit.
2. The system displays the selected water use permit's resource information.
3. Once the actor has completed viewing the information, the use case ends.

## 3.18 View Use of Lapsed Quantities

### 3.18.1 Business Context

This use case will be used when an actor needs to view the use of lapsed quantities associated with a specific water use permit. Historically, reduced, abandoned, and retired permits have resulted in an overall reduction in water use. But now, these quantities will be a primary means for many new or expanding water users to meet their needs. Where an applicant demonstrates compliance with all conditions for issuance, except that it impacts an MFL waterbody, the applicant can apply for up to 90% of the water it has identified as historically used by a water use permit holder that has permanently discontinued their use and abandoned their permit. The applicant must also demonstrate that other Net Benefit options, including relocation, mitigation, participation in a District Source Augmentation Project, are not feasible. This Net Benefit provision applies only when the previous water use was derived from a source where the permanently discontinued use had a similar or greater effect on the impacted MFL waterbody as the proposed use.

One of the main goals of the WUT system is to track changes in permitted and used quantities so that historically used, reasonable beneficial quantities potentially available from reduced, abandoned, or retired permits and their relation to MFL waterbodies will be known for potential applicants and for District decision making. Quantities of water retired from land acquisition programs are included for use as lapsed quantities unless the acquiring agency specifically requests for them to be excluded from use.

The following information will be displayed pertaining to lapsed quantities associated with reduced, abandoned, and retired permits:

- The quantities a retired WUP has contributed to another WUP
- The quantities a WUP has received from a retired WUP
- The retired WUP that a lapsed quantity came from
- The quantities from the retired WUP available as lapsed quantities
- The WUP that a lapsed quantity went to
- Whether a WUPs quantity has been excluded from the lapsed quantity pool as a result of a land acquisition program
- The dates that any of these values took affect or changed

### 3.18.2 Requirements

- EW11b, RW16, SR20, SR21, SR22, SR23.  
Track the movement of lapsed quantities in an area, including:
  - Which permit and well obtained the lapsed quantities.
  - Where the lapsed quantities are located.
  - Why the quantities are lapsed (i.e. expired, cancelled, retired).
  - What MFL zone the lapsed quantities are in.

- SR12b, SR13, SR26a, EW12. (*Status: Proposed; Difficulty: Medium; Priority: Medium*)  
Track the impact that water use has to the set MFL levels. In particular, compare the affects of the new or modified use to the actual flow and level of the water body or aquifer to make sure the actual level will not go below the MFL level. Types of things to check are:
  - New applications, renewals, or modifications.
  - Relocated uses.
  - Change of use type.
  - Lapsed quantities.
  - Retired permits (some are lapsed - some are not).
- SR14, SR26b, EW2, SR15. (*Status: Proposed; Difficulty: Medium; Priority: Medium*)  
Track net benefit changes. Some things involved are:
  - Relocated permits
  - Permits with a change of use
  - Old and new locations
  - Lapsed quantities
  - Reclaimed water (not in database yet)
  - Projects
  - Amount of net benefit gained or lost from the change
  - New permits that came from an older permit due to a new benefit gain
- SR16.  
Report the net benefit amount in MGD for:
  - Change of permitted location or use
  - Land use change
  - Use of lapsed quantities
  - Water withdrawal credit (replacement, reclaimed water)

### **3.18.3 Scenarios**

#### **3.18.3.1 Primary Flow {Basic Path}.**

This use case begins when the actor selects to view use of lapsed quantities information for a water use permit.

1. The actor must first use the View Net Benefit Summary use case in order to identify the water use permit's net benefit.
2. The system displays the selected water use permit's use of lapsed quantities information.
3. Once the actor has completed viewing the information, the use case ends.



## 3.19 View Use of Quantities Associated With District Projects

### 3.19.1 Business Context

This use case will be used when an actor needs to view the quantities used from District Source Augmentation Projects associated with a specific water use permit. Where applicants demonstrate compliance with all conditions for issuance except that it impacts an MFL waterbody, the applicant can apply for the source augmentation accomplished through a District water resource development project, provided that the source of supply is the same source being augmented.

### 3.19.2 Requirements

- RW14, SR8.  
Track and measure alternative source projects (note: some of these may be included in table 8):
  - Surface water or stormwater projects.
  - Reclaimed water (reuse water).
  - Augmented surface water (reservoirs, harvesting of high flows (floodwaters)).
  - ASR (Aquifer storage recovery)
  - Desalination.
  - Conservation (defined as a beneficial reduction of water use resulting in:
    - modification of water use practices,
    - reduction of unaccounted-for losses, or
    - installation and maintenance of low volume water use systems, processes, fixtures, or devices.
- SR29, SR9.  
Report on how much water was made available through the District's water resource development projects. Elements of the report should be:
  - Source of benefit (aquifer or surface water).
  - The locations of the alternative sources.
  - What permits are using the quantities generated by the projects, and what project they are getting the water from.

### 3.19.3 Scenarios

#### 3.19.3.1 Primary Flow {Basic Path}.

This use case begins when the actor selects to view use of quantities associated with district projects information for a water use permit.

1. The actor must first use the View Net Benefit Summary use case in order to identify the water use permit's net benefit.
2. The system displays the selected water use permit's use of quantities associated with district projects information.
3. Once the actor has completed viewing the information, the use case ends.

## 3.20 View Water Use Permit

### 3.20.1 Business Context

This use case will be used when an actor needs to view information about a specific water use permit. This water use permit information is collected at the time the permit is submitted and approved by the District. A water use permit is required from the District when:

- Total capacity of the permit is greater than or equal to 1 million gallons per day
- Total annual average quantities for the permit is greater than or equal to 100,000 gallons per day
- Well diameter is greater than or equal to 6 inches
- Surface water withdrawal pipe diameters are greater than or equal to 4 inches
- Cumulative well diameters greater than or equal to 6 inches, if in MIA and constructed after April 11, 1994, and is not a replacement well of same or smaller diameter of one being plugged
- If withdrawal is likely to cause significant adverse impacts to existing water or land uses, or the surrounding water resources

The actual area of the permit is digitized as a polygon into a GIS layer based on color infrared (CIR) digital orthophoto quarter quadrangles (DOQQs). The general data that is collected with the permit includes the permittee information, acreage amounts, permitted quantities, water use information, expiration date, and aquifer information. This information will be displayed to the actor, with the option to "drill-down" to get more detailed information, such as well information or actual pumpage quantities.

### 3.20.2 Requirements

- EW14.  
Track ownership of wells or permits over the life of the withdrawal point so the relocated quantities can be traced from owner to owner. Quantities that are relocated will have certain restrictions placed on them, as well as any quantities that remain on the original permit. For permits that have multiple withdrawal points, we need the ability to track ownership of specific withdrawal points over time.
- EW21.  
Be able to look at permitted quantities, actual quantities (pumpage), and the resources it uses (Water Management DB).
- EW9.  
Ability to track requested and permitted quantities.
- JY4, SR7.  
Report on the history of irrigation water conserving credits, including the balance, how much earned, and how much used, and drought quantities. Know who uses them and who has accumulated them, and be able to report on an individual basis, by a geographic area, or aggregate the data.

- RW13, RW18, SR32.  
Track and report on the history of permitted data, such as use type, irrigated acres, and pumpage (one use would be to know whether expired permits have had quantities reallocated).
- RW27.  
Automate some of the requests that Jim Whalen receives. The majority of request are related to permitted and pumpage quantities, both at the permit level and well level. They are usually sorted temporally or geographically.
- SW24, SW25.  
The ability to associate permitted quantities, pumpage quantities, and use code data at the well level.
- TW15.  
Identify different types of water use, such as groundwater, surface water, and re-use.

### **3.20.3 Scenarios**

#### *3.20.3.1 Primary Flow {Basic Path}.*

This use case begins when the actor selects to view a water use permit's detailed information.

1. The actor must first use a Find use case (i.e., View Map, View Water Use Permit Search) in order to identify the water use permit to view.
2. The system displays the selected water use permit's information.
3. Once the actor has completed viewing the water use permit's information, the use case ends.

#### *3.20.3.2 View Compliance Information {Alternate}.*

1. Once the water use permit is presented by the system, the actor may choose to view the compliance information for the water use permit.
2. After the actor has selected to view the compliance information, the View Compliance Information Use Case will be used.

#### *3.20.3.3 View Crop Report Information {Alternate}.*

1. Once the water use permit is presented by the system, the actor may choose to view the crop report information for the water use permit.
2. After the actor has selected to view the crop report information, the View Crop Report Information Use Case will be used.

#### *3.20.3.4 View Land Use Information {Alternate}.*

1. Once the water use permit is presented by the system, the actor may choose to view the land use information for the water use permit.
2. After the actor has selected to view the land use information, the View Land Use Information Use Case will be used.

### *3.20.3.5 View Net Benefit Summary {Alternate}.*

1. Once the water use permit is presented by the system, the actor may choose to view the net benefit summary for the water use permit.
2. After the actor has selected to view the net benefit summary information, the View Net Benefit Summary Use Case will be used.

### *3.20.3.6 View Resource Information {Alternate}.*

1. Once the water use permit is presented by the system, the actor may choose to view the resource information for the water use permit.
2. After the actor has selected to view the resource information, the View Resource Information Use Case will be used.

### *3.20.3.7 View Well Construction Information {Alternate}.*

1. Once the water use permit is presented by the system, the actor may choose to view the well construction information for the water use permit.
2. After the actor has selected to view the well construction information, the View Well Construction Information Use Case will be used.

### *3.20.3.8 View Withdrawal Pumpage Information {Alternate}.*

1. Once the water use permits is presented by the system, the actor may choose to view the withdrawal pumpage information for the water use permit.
2. After the actor has selected to view the withdrawal pumpage information, the View Withdrawal Pumpage Information Use Case will be used.

## 3.21 View Water Use Permit Search

### 3.21.1 Business Context

This use case will be used when an actor needs to search for and identify a water use permit for analysis. This use case, as well as the View Map Use Case, is considered among the class of Find use cases. A Find use case provides the capability to identify, locate, and access information within the WUT system, as it pertains to a water use permit. The View Water Use Permit Search use case enables the actor to efficiently and effectively search for and identify permits that meet a given search criteria. The system returns basic information about the permit with the ability to get more detailed information regarding the permit (i.e., wells, Net Benefits, compliance data). This use case is used in support of the View Water Use Permit Use Case.

### 3.21.2 Requirements

- RW15.  
Track by withdrawal source - what aquifer or USGS water body are general and Individual permits pumping from.
- RW28, RW20, SR4, SR6.  
View the spatial impact of a person's application with other active applications on-line so the applicant or evaluator has a visual of who else is available to compete for quantities with. Also include application and permit data on-line, either with scanned documents or access to database. The historical data should also be available, but viewing restrictions for certain legal documents has to be followed. Be able to query by geographic area or permit number.
- RW29.  
Ability for public utilities and internal staff to find existing permits in or near their service area so they can spatially see what water is available, or may become available, when they plan for their future growth and water resources. They will need to view the use type (interested mainly in agricultural and mining), owned acres, and the current permittee's contact information.
- RW6, SW17, RW26a.  
Have an easy way to query data by various fields:
  - Issue date
  - Expiration date
  - Use type or other commodity
  - Predominate use
  - Pumpage reports
  - Permitted quantities
  - Permit status (active/delete/app/permit)
- RW10, RW9b  
Track pumpage oddities. Two examples are:
  - A. Permittees that have consistent pumpage readings even when some of the data is missing. Use this information to predict whether they are in compliance in spite of the missing data.

B. Permittees that enter zero on their pumpage reports.

- SR2. (*Status: Proposed; Difficulty: Medium; Priority: Medium*)  
Report the Reservation from use amounts allocated to certain participants.
- SR3. (*Status: Proposed; Difficulty: Medium; Priority: Medium*)  
Report on the permit duration (To track expiration dates for those looking for someone to compete with).
- SR5.  
Report on competing applications (including ones that are in modification or expiring).
- SW21.  
Select water use based on predominant use, use types, and regions they fall in. The predominant use would be agricultural, industrial, mining & dewatering, public supply, and recreational. Each predominate use is further broken down into more detailed categories, such as melons or citrus for the agricultural predominate use. This needs historical data for trend analysis.

### **3.21.3 Scenarios**

#### *3.21.3.1 Primary Flow {Basic Path}.*

This use case begins when the actor selects to search for a water use permit.

1. The system displays the search criteria options to the actor that will be used to identify water use permits.
2. The actor enters the search criteria and requests the system to create a new list of water use permits.
3. The system displays a list of water use permit(s) meeting the criteria entered, as well as general information about each permit and the count of the total number of water use permits that match the search criteria.
4. The use case ends when the actor requests the system to close the water use permit search tool.

#### *3.21.3.2 Reset Criteria {Alternate}.*

1. At any time in the Primary Flow, the actor can choose to clear the search criteria that have been entered.
2. The actor requests the system to reset the search criteria to the defaults.
3. The system clears the entered criteria.

#### *3.21.3.3 Add to the List of Selected Water Use Permits {Alternate}.*

If in the Primary Flow the actor needs to add additional water use permits that match different search criteria to the list of water use permits already retrieved by the system, the actor supplies the new search criteria to the system.

1. The actor modifies the search criteria and requests the system to add the new water use permits that meet the criteria to the list of selected water use permits.

2. The system displays the water use permits matching the new search criteria along with the previously retrieved water use permits, as well as general information about each permit and the count of the total number of water use permits that match the search criteria.

#### *3.21.3.4 Refine the List of Water Use Permits by Criteria {Alternate}.*

If in the Primary Flow the actor needs to select water use permits from the list of water use permits already retrieved by the system, the actor supplies the new search criteria.

1. The actor modifies the search criteria and requests the system to select the water use permits from the previously selected set of water use permits that match the new search criteria.
2. The system displays the water use permits matching the new criteria, as well as general information about each permit and the count of the total number of water use permits that match the search criteria.

#### *3.21.3.5 Refine the List of Water Use Permits by Selection {Alternate}.*

If in the Primary Flow the actor needs to refine the list of water use permits already retrieved by the system, the actor selects the water use permits to keep from the list of water use permits being displayed by the system.

1. The actor selects which water use permits to keep and requests the system to refine the list of water use permits by removing those water use permits not selected.
2. The system eliminates from the list all the water use permits that have not been selected by the actor, displays the refined list of water use permit, general information about each permit, and displays a new total number of water use permits now in the refined list.

#### *3.21.3.6 Stop the Search Currently in Progress {Alternate}.*

If in the Primary Flow the actor needs to cancel the search currently in progress, the actor requests the system to stop the search.

1. The actor requests the system to stop the search currently in progress.
2. If the system had previously retrieved a list of water use permits, the list of selected water use permits will still be displayed after the search requested has been stopped.

#### *3.21.3.7 Sort List of Selected Water Use Permits {Alternate}.*

Once a list of selected water use permits is presented by the system, the actor may choose to sort by any field associated with the water use permit being displayed in the search results.

1. The actor selects the field to be used to sort.
2. The system presents the resorted list of the selected water use permits to the actor.

#### *3.21.3.8 View a Water Use Permit {Alternate}.*

Once a list of selected water use permits is presented by the system, the actor may choose to view a water use permit.

1. The actor selects the water use permit to view.
2. The system uses the View Water Use Permit Use Case to display detailed information about the selected permit.

### *3.21.3.9 Map All Selected Water Use Permit(s) {Alternate}.*

Once a list of selected water use permits is presented by the system, the actor may choose to select a subset of water use permits and view them on a Geographic Information Systems (GIS) map.

1. The actor selects the water use permit(s) to view on the GIS map.
2. The system uses the View Map Use Case to display the selected water use permits on a map.

### *3.21.3.10 Map All Water Use Permit(s) {Alternate}.*

Once a list of selected water use permits is presented by the system, the actor may choose to view all the water use permits on a Geographic Information Systems (GIS) map.

1. The actor selects to view all the water use permits on a GIS map.
2. The system uses the View Map Use Case to display the water use permits on a map.

### *3.21.3.11 No Water Use Permits Match the Search Criteria {Warning}.*

1. If the system detects that no water use permits match the search criteria, the system will notify the actor of this condition.
2. The actor can either:
  - Return to the beginning of the Primary Flow to supply refined search criteria
  - Cancel the operation, at which point the use case ends.

### *3.21.3.12 Error During Water Use Permit Information Retrieval {Exception}.*

1. If the system encounters an error while attempting to retrieve water use permit information, the system will inform the actor of the error condition and that the condition must be corrected.
2. The actor can choose to either retry the operation or cancel their request.
3. If the actor chooses to retry the operation.
  - a. The system will attempt the requested operation again
  - b. If the system still encounters an error while attempting to retrieve water use permit information, the system will repeat step 2 above.
4. If the actor chooses to cancel the operation, the use case ends.



## 3.22 View Water Withdrawal Credit

### 3.22.1 Business Context

This use case will be used when an actor needs to view water withdrawal credit information associated with a specific water use permit. A water withdrawal credit is an incentive for an applicant to provide other water use permit holders with alternative supplies. The holder of the credits can use them to provide a Net Benefit in order to obtain water from an MFL waterbody because the overall impact will be an improvement. The applicant (Supplier) provides an alternative supply to offset actual withdrawals from an existing permit holder (Receiver). The credit is 50% of the offset amount. The discontinued quantities are placed in a standby permit and are given back to the Receiver in the event the Supplier ever stops providing the alternative source, essentially giving the Receiver their original quantity back.

The following information will be displayed pertaining to the water withdrawal credits for a WUP:

- The offset quantity coming from an alternative source
- Where the alternative source coming from
- The Supplier of the alternative source
- The Receiver of the alternative source
- The distribution of the credit (50% of the offset) between the Supplier and Receiver
- The discontinued quantities to be stored in a standby permit
- The dates that any of these values took affect or changed

### 3.22.2 Requirements

- JY1.  
Identify when a standby permit is reactivated due to the loss of alternative quantities.
- SR12b, SR13, SR26a, EW12. (*Status: Proposed; Difficulty: Medium; Priority: Medium*)  
Track the impact that water use has to the set MFL levels. In particular, compare the affects of the new or modified use to the actual flow and level of the water body or aquifer to make sure the actual level will not go below the MFL level. Types of things to check are:
  - New applications, renewals, or modifications.
  - Relocated uses.
  - Change of use type.
  - Lapsed quantities.
  - Retired permits (some are lapsed - some are not).
- SR14, SR26b, EW2, SR15. (*Status: Proposed; Difficulty: Medium; Priority: Medium*)  
Track net benefit changes. Some things involved are:
  - Relocated permits
  - Permits with a change of use
  - Old and new locations
  - Lapsed quantities
  - Reclaimed water (not in database yet)

- Projects
- Amount of net benefit gained or lost from the change
- New permits that came from an older permit due to a new benefit gain
- SR16.  
Report the net benefit amount in MGD for:
  - Change of permitted location or use
  - Land use change
  - Use of lapsed quantities
  - Water withdrawal credit (replacement, reclaimed water)
- SR24, SR25.  
Report on any water use amounts sold or given from one permit to another permit, especially reclaimed water (reclaimed water can be taken away, depending on the contract. It is kind-of-like "leasing" the water, but can be taken away).

### **3.22.3 Scenarios**

#### *3.22.3.1 Primary Flow {Basic Path}.*

This use case begins when the actor selects to view water withdrawal credit information for a water use permit.

1. The actor must first use the View Net Benefit Summary use case in order to identify the water use permit's net benefit.
2. The system displays the selected water use permit's water withdrawal credit information.
3. Once the actor has completed viewing the information, the use case ends.

## 3.23 View Well Construction Information

### 3.23.1 Business Context

This use case will be used when an actor needs to view well construction information that is associated with a specific water use permit. Well construction information is gathered during the construction and permitting of the wells. This information includes well depth, casing depth, well diameter, status code, drilling method, and completion date. When a well also requires a Water Use Permit, some of this information is entered in both the Well Construction database and the Water Use Permit Well database. The two tables are loosely linked. When the Water Use Permit and well number are entered into the Well Construction database, a link is created to that permit in the Water Use Permit Well database. The actual information in the table is not updated, but another page of well construction information (well construction number, completion date, diameter, total and case depth, and well status) is available to view, but only on the specified revision. The well completion information in the Well Construction database is considered to supersede the WUP Well information, which can contain estimated data. Depth information is important in determining what aquifer a well is pumping water from so the drawdown impacts for new water use can be calculated accurately.

### 3.23.2 Requirements

- RW27.  
Automate some of the requests that Jim Whalen receives. The majority of request are related to permitted and pumpage quantities, both at the permit level and well level. They are usually sorted temporally or geographically.

### 3.23.3 Scenarios

#### 3.23.3.1 Primary Flow {Basic Path}.

This use case begins when the actor selects to view the well construction information for a specific water use permit.

1. The system displays the selected water use permit's well construction information.
2. Once the actor has completed viewing the water use permit's well construction information, the use case ends.

## 3.24 View Withdrawal Pumpage Information

### 3.24.1 Business Context

This use case will be used when an actor needs to view withdrawal pumpage information associated with a specific water use permit. Pumpage data is collected at certain wells and estimated for others based on several categories of water and land use. Most pumpage data is collected on a monthly basis, either through a permittee submittal or a utility company meter reading. Based on these actual values, other wells that are not metered can be estimated. Permittees submit their readings by mail, e-mail, or the Internet. The older permits are required to submit actual pumpage values, while new permits submit the meter readings that are then used to calculate the actual pumpage amount.

### 3.24.2 Requirements

- EW4, EW5, EW7.  
Ability to track water use over time and negotiate reasonable new water use based on water use pumpage trends.
- RW10, RW9b  
Track pumpage oddities. Two examples are:
  - A. Permittees that have consistent pumpage readings even when some of the data is missing. Use this information to predict whether they are in compliance in spite of the missing data.
  - B. Permittees that enter zero on their pumpage reports
- RW13, RW18, SR32.  
Track and report on the history of permitted data, such as use type, irrigated acres, and pumpage (one use would be to know whether expired permits have had quantities reallocated).
- RW27.  
Automate some of the requests that Jim Whalen receives. The majority of request are related to permitted and pumpage quantities, both at the permit level and well level. They are usually sorted temporally or geographically.
- RW49.  
Provide the ability for applicants or District staff to compare the percentage a permit is over-pumping, based on use type, against the regional average for the same use type. The region would be the area that fell within the buffer distance entered, and the time of interest would also be entered.
- SW11.  
Need to know what aquifer is being pumped from. There are permitting constraints in ETB MIA that no additional water from the Floridan Aquifer can be pumped, but it is allowed from Intermediate aquifer.
- SW24, SW25.  
The ability to associate permitted quantities, pumpage quantities, and use code data at the well level.

### **3.24.3 Scenarios**

#### **3.24.3.1 Primary Flow {Basic Path}.**

This use case begins when the actor selects to view the withdrawal pumpage information for a specific water use permit.

1. The system displays the selected water use permit's withdrawal pumpage information.
2. Once the actor has completed viewing the water use permit's withdrawal pumpage information, the use case ends.