Watermaster Well Database System Improvements - WWDIM

Software Requirements Specification

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Version D0.2

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Table of Contents

1 Introduction 1
1.1 Purpose 1
1.2 Scope 1
1.3 Definition, Acronym and Abbreviations 1
1.4 References and Supporting Documentations 1

2 Overall System Description 3
2.1 Overview 3
2.2 Product Functions 3
2.3 User Characteristics 3
2.4 Assumptions 4
2.5 Constraints and Dependencies 4

3 Functional Requirements 5
3.1 Data and Screen Enhancements 5
3.2 Map Functionality 13
3.3 Reports 14

4 Non functional Requirements 25
4.1 Performance Requirements 25
4.2 Security Requirements 25
4.3 Usability Requirements 25
4.4 Capacity and Volume Requirements 25
4.5 Technology Requirements 25
4.6 Compatibility Requirements 25
4.7 Extendibility Requirements 25
4.8 User Support and Maintenance Requirements 25
4.9 Licensing Requirements 25
4.10 Other Requirements 25

5 External Interface Requirements 26
5.1 Application Interfaces 26
5.2 Software Interfaces 26
5.3 Hardware Interfaces 26
5.4 Communications Interfaces 26

6 Appendices 26

Document Revision History

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Reviewers

Name	Version	Designation	Date
Nuwan Weerasinghe	D0.1	Project Manager	10/11/2010

Document Approvals

Name	Date

1 Introduction

1.1 Purpose

Purpose of this document is to define and capture requirements related to the improvements on the water master database system.

1.2 Scope

Scope of this document is to give details of the functional and non-functional requirements of Water Master Database System and its components. Note that this document does not cover all the existing functionalities of the existing System but only the functionality related to the improvements. The target audience would be all the stakeholders of the project.

1.3 Definition, Acronym and Abbreviations

1.3.1 Definitions

N/A

1.3.2 Acronyms and Abbreviations

Acronym / Abbreviation	Denotation
SRS	Software Requirement Specification
DB	Data Base
WWDIM	Watermaster Well Database System Improvements
MPWMD	Monterey Peninsula Water Management District
ESRI	Environmental Systems Research Institute
API	Application Programming Interface
DLL	Dynamic Link Library

1.4 References and Supporting Documentations

Document	Version	Author	Document Name/Location
1.WWDIM-SOW	V1.0	Zone24x7	Zone24x7 SOW - MPWMD Watermaster Well Database System – Improvements V1.0
2.Initial requirement list		MPWMD	https://svn.zone24x7.lk/svn/WWDIM/trunk/Project%20Phases/Requirements/Client%20Documents/COMPILATION%20OF%20ENHANCEMENTS%20TO%20BE%20MADE%20TO%20THE%20WA

			TERMASTER.DOC
3.WWDIM-BRS	V2.0		Watermaster Well Database System Improvements - WWDIM Business Requirements Specification

2 Overall System Description

2.1 Overview

WWDIM system is mainly associated with well production capturing and reporting for seaside basin area. System was initially built by RBF consulting. Later Zone24x7 incorporated new changes to the user access permissions and web application default page.

The system mainly contains the following;

- Web application to list and view/edit well related information, with action to add new wells to the system.
- It already contains reports developed for administration purposes using SQL server reporting.

System will be introduced with new changes to the web application and existing reports, as well as introducing new reports.

2.2 Product Functions

WWDIM system currently consists of the following functions;

- List and view/edit well related information.
- View well related information in using reports.
    - Water Quality
    - Depth
    - Production
- Role based user permission for various web application functions.
- Allow to add edit well contact information.
- Allow to add/edit WWDIM users.
- Allow to add/edit constituent values.

2.3 User Characteristics

Current system allows adding users with user access level. These users can login to the application and do necessary functions. Currently the system is defined with user accessing levels as 1, 2, 3 and 4 where level 4 is granted with highest privileges of accessing the system.

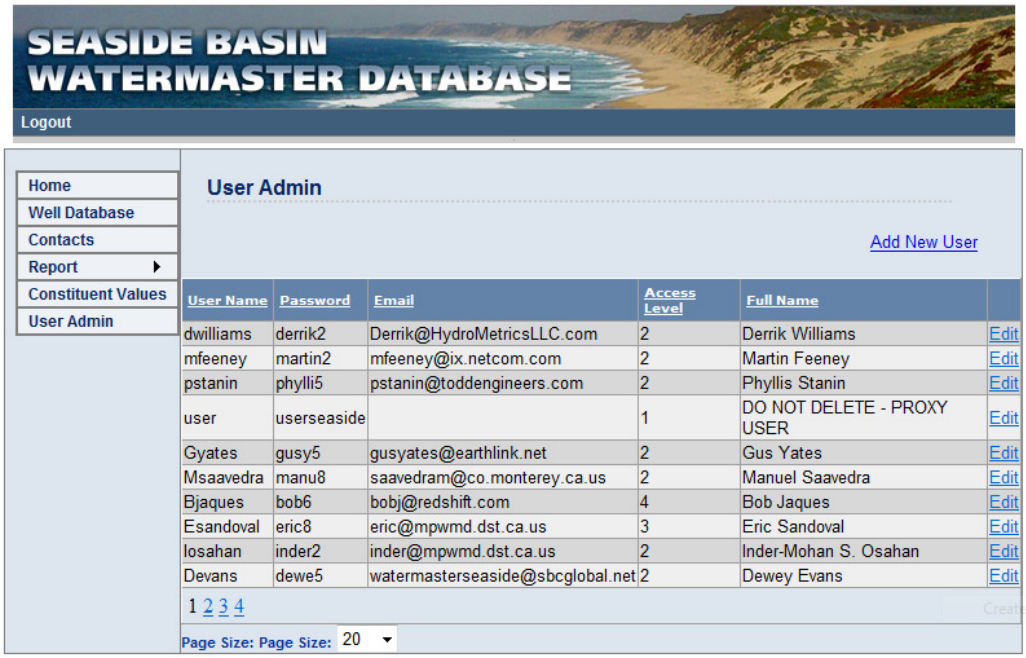


Figure 2.3.1

2.4 Assumptions

- QA Testing will be done only for the enhancements done and not for the unaffected existing functionality.
- Any existing problem (not resulting from code changes done for enhancements) will be considered as out of scope and will be done as maintenance or Project Change Requests (PCRs) decided between Zone24x7 and MPWMD.
- The report date of production data cannot be empty if it assign for a particular water month. This is related to section 3.1.3.

2.5 Constraints and Dependencies

- Marking of 'Well' points on the map according to 'Well' addresses will be subjected to the services provided by ESRI.
- Achieving all the deadlines will depend on client turnaround time as well. It is expected to be less than 2 working days where feedback is required. Otherwise there may be slippages in dates and rescheduling may be necessary.

3 Functional Requirements

3.1 Data and Screen Enhancements

3.1.1 Well Details Screen

Include new attribute to well information as “Well Status”. This will include Active, Inactive, Destroyed and Unknown values in a dropdown list. ”Active” will be selected as default value.

Note: This section is related to item no 2 described in second reference document in section 1.4.

Monthly Groundwater Level Required, Annual Water Quality Required and Quarterly Production Required check boxes added to the well details screen to check the “N/A” of the Water Level, Water Quality, and Water Production data in compliance report. The logic related to these sections is described in compliance report section 3.3.1.

The well details screen need to be facilitated to capture “Well System Name” which use in summary production report related to section 3.3.3. This will have the values “Ryan Ranch Unit”, “Hidden Hills Unit” and “Bishop Unit” to be selected from a dropdown control.

As shown in figure 3.1.1.1. Well status, Type, Monitored by, Well monthly frequency, Monthly Groundwater Level Required, Annual Water Quality Required and Quarterly Production Required will be displayed in insert mode.

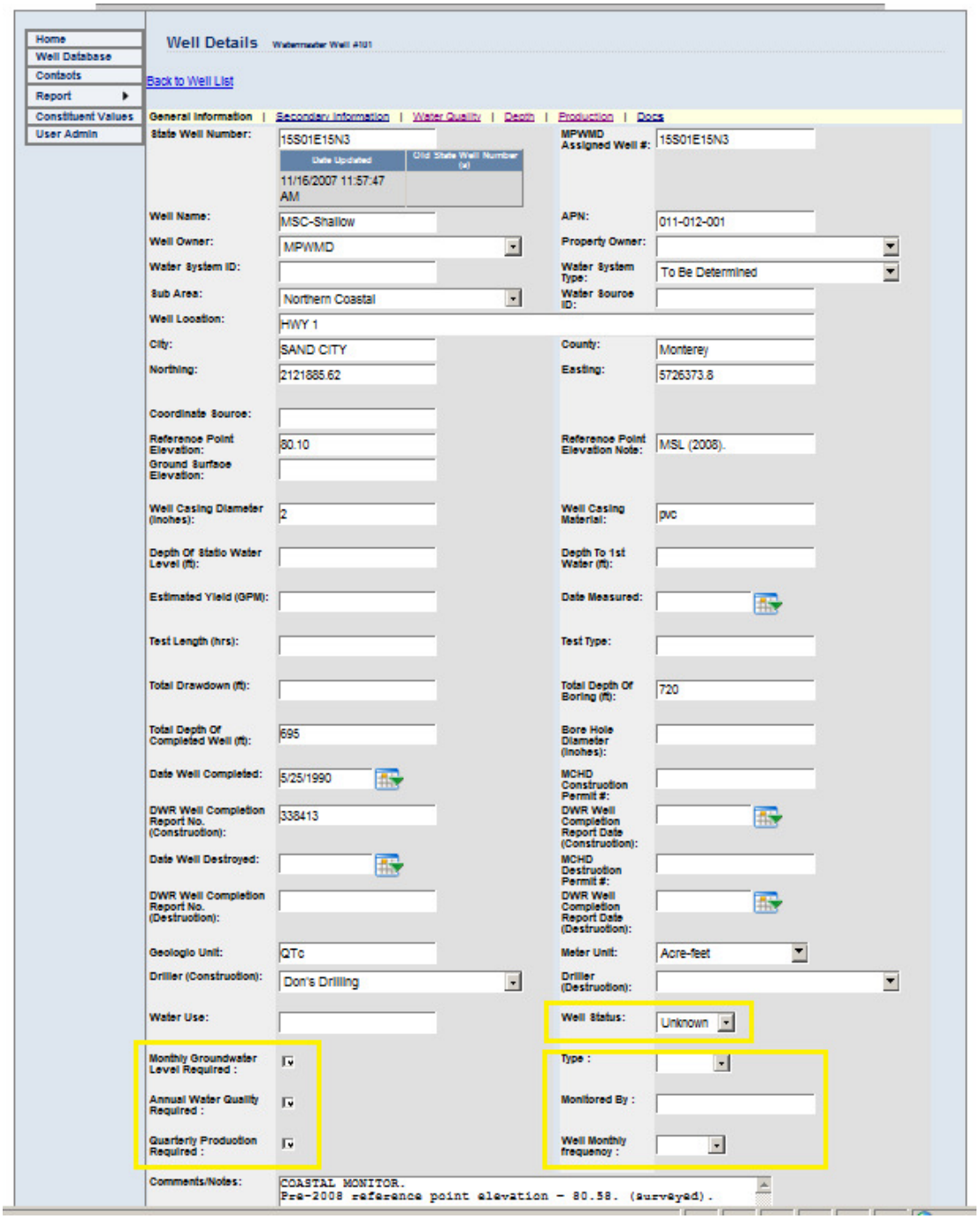


Figure 3.1.1.1

3.1.2 Well List Screen

3.1.2.1 Well status

Allow to filter well list using well status, which is introduced in well details screen. Dropdown list with "All, Active, Inactive, Destroyed and Unknown" can be selected. Default value will be "All".

Note: This section is related to item no 2 and 3 described in second reference document in section 1.4.

As shown in Figure 3.1.2.1.1 Well status dropdown will be displayed in well list screen.

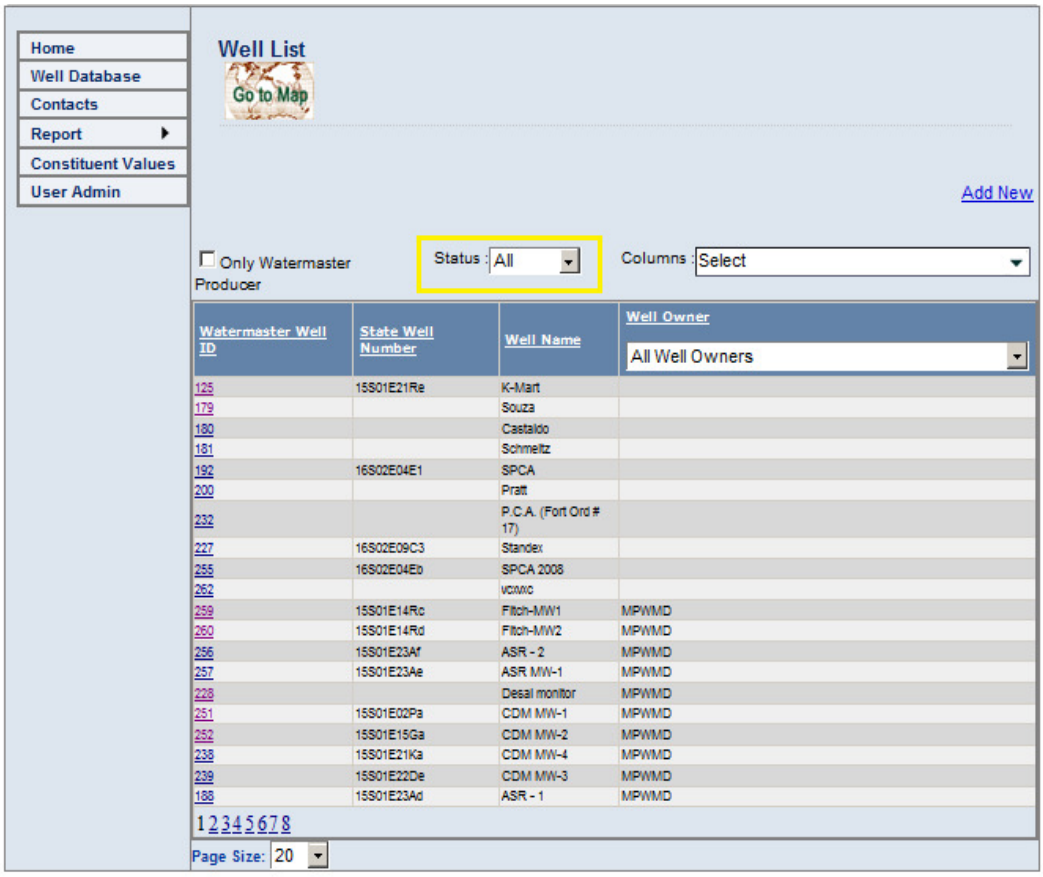


Figure 3.1.2.1.1

3.1.2.2 Custom Views

Allow to select viewable columns using checkbox integrated dropdown list. This will allow user to select which columns should be viewed in well list screen. The column dropdown list item only load for user access level 3 and 4. For user access level 1 and 2 it will be displayed as empty. Following fields will be listed on column dropdown list.

"Company Name, Address, City, State, Zip, Contact Person, Telephone, Email, Owner Type, Assessor's Parcel Number, Subarea, Northing, Easting, Reference Point Elevation, Well Casing Diameter, Total Depth of Completed Well, Date Well Completed, DWR Well Completion Report No. (Construction), Date Well Destroyed, DWR Well Completion Report No. (Destruction), Geologic Unit, Meter

Unit, Common Name (added from item no 8 described in second reference document in section 1.4)”

Note: This section is related to item no 3 described in second reference document in section 1.4.

As shown in Figure 3.1.2.2.1 multi selection dropdown will be displayed in well list screen.

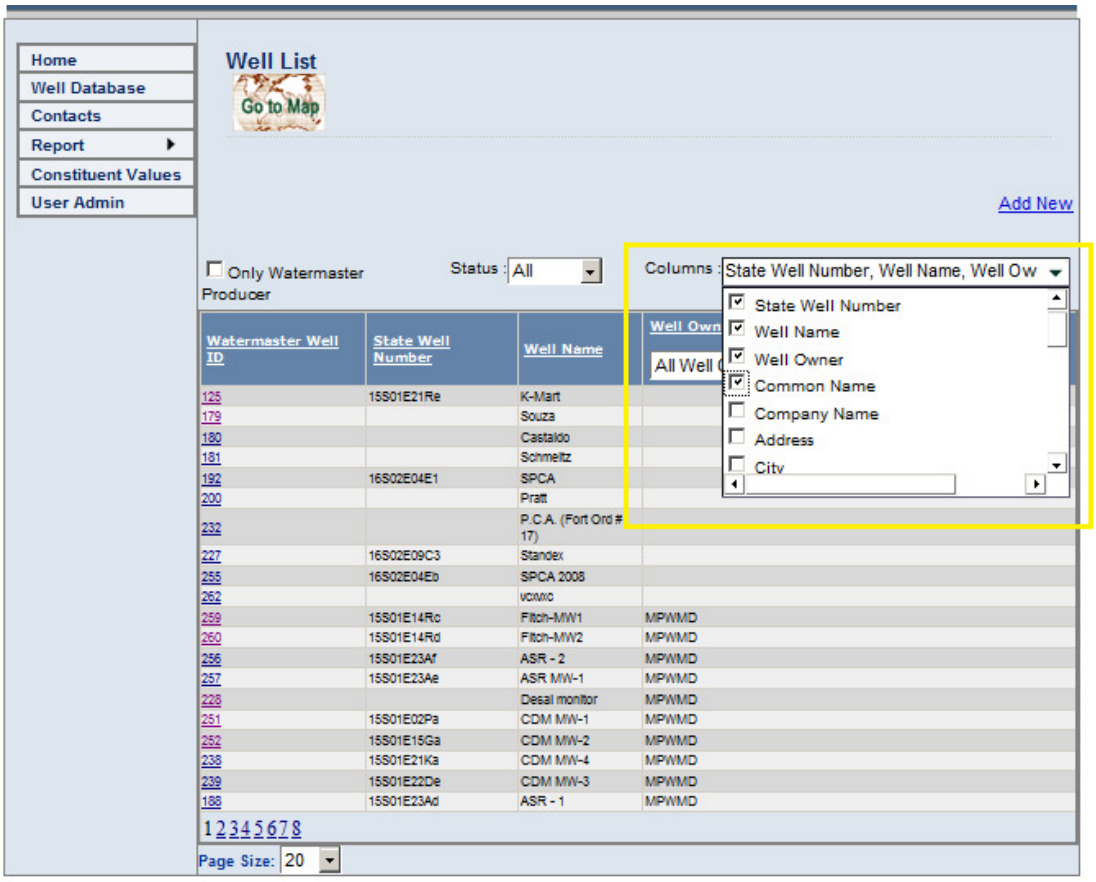


Figure 3.1.2.2.1

3.1.3 Production Screen

This section allows user to view, enter, update or delete production related data. These operations are enabled to the user according to the user access level as mentioned in below:

User Access Level 1 - User can not view/Update/Insert and Delete

User Access Level 2 – User can only view production data

User Access Level 3 – view/Update/Insert and Delete
User Access Level 4 - view/Update/Insert and Delete

- In water year dropdown list user can select the Water Year then the data will be displayed according to the selection of Water Year and the dropdown list items will be populated according to the production data available in the database.

- The Water Year dropdown list will be updated according to the new addition or updating of the production data.

- For each production record the reading date could not be empty, but the report date could be empty.

- For given water month user can add more than one production records but among these user can only assigned only one record as the water month. This record should contain a report date value if it assigned for the water month and the report date column empty for other records.

- In footer row it displays the total of the "Gallons for Month" and "Acre Feet for month".

- The production data grouped as quarter wise in the screen.

- Grid Colour details :
  Blue colour - quarter 1 and 3 records of selected Water Year.
  Light Blue colour - quarter 2 and 3 records of selected Water Year.
  Gray colour (1st record) - The last record of the previous water year.
  It displays the other non assigned water year records as inactive colour (fonts - gray) as shown in the Figure 3.1.3.1.

Note: This section is related to item no 4 described in second reference document in section 1.4.

The view mode of the production screen will be as shown in Figure 3.1.3.1.

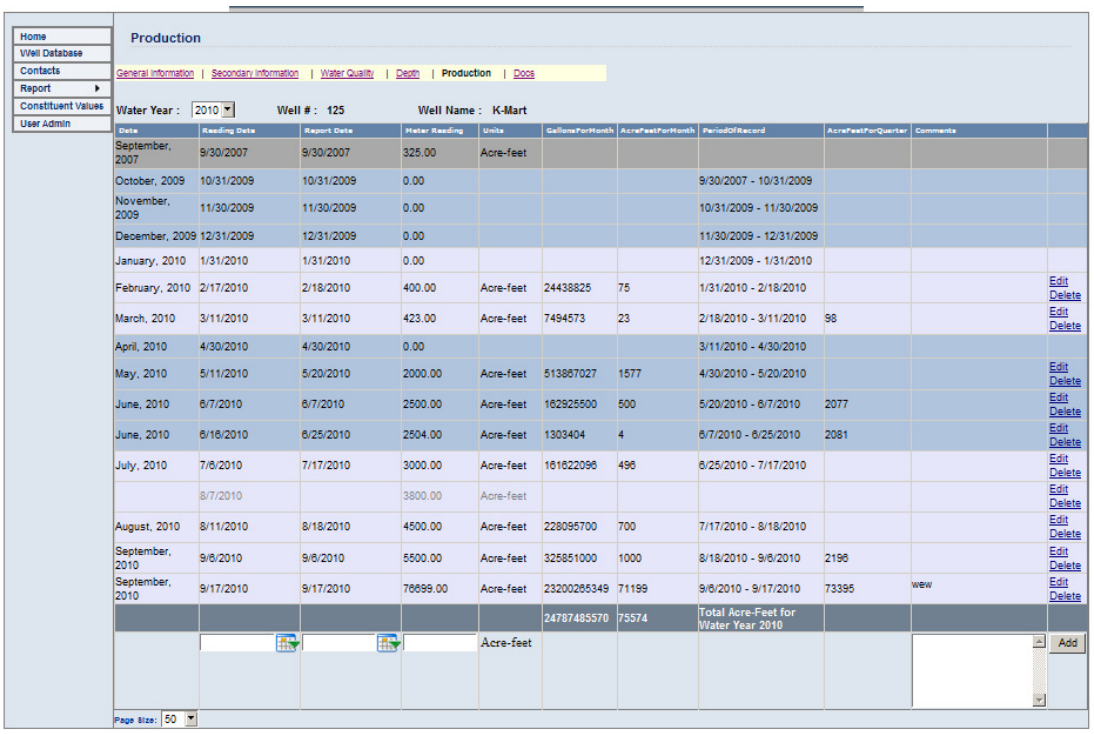


Figure 3.1.3.1

3.1.4 Water Quality Screen

Allow to get new input values for bicarbonate/carbonate attributes. Water quality related table will be changed in order to accommodate these fields. The min and max value user can enter using "Acceptable Constituents values" screen. The "Acceptable Constituents values" are mapping with the "Water System Type" in "Well details" screen. The Constituent value text for bicarbonate and carbonate should be entered as "Bicarbonate" and "Carbonate".

User can enter more than one water quality record for a given water year and user can assign the water quality records to a particular water year using water year dropdown list given in the water quality details screen as shown in the below. The water year populated to the dropdown list according to the date of sampling which user enters. It loads current water year, next and previous water year.

Note: This section is related to item no 7 described in second reference document in section 1.4.

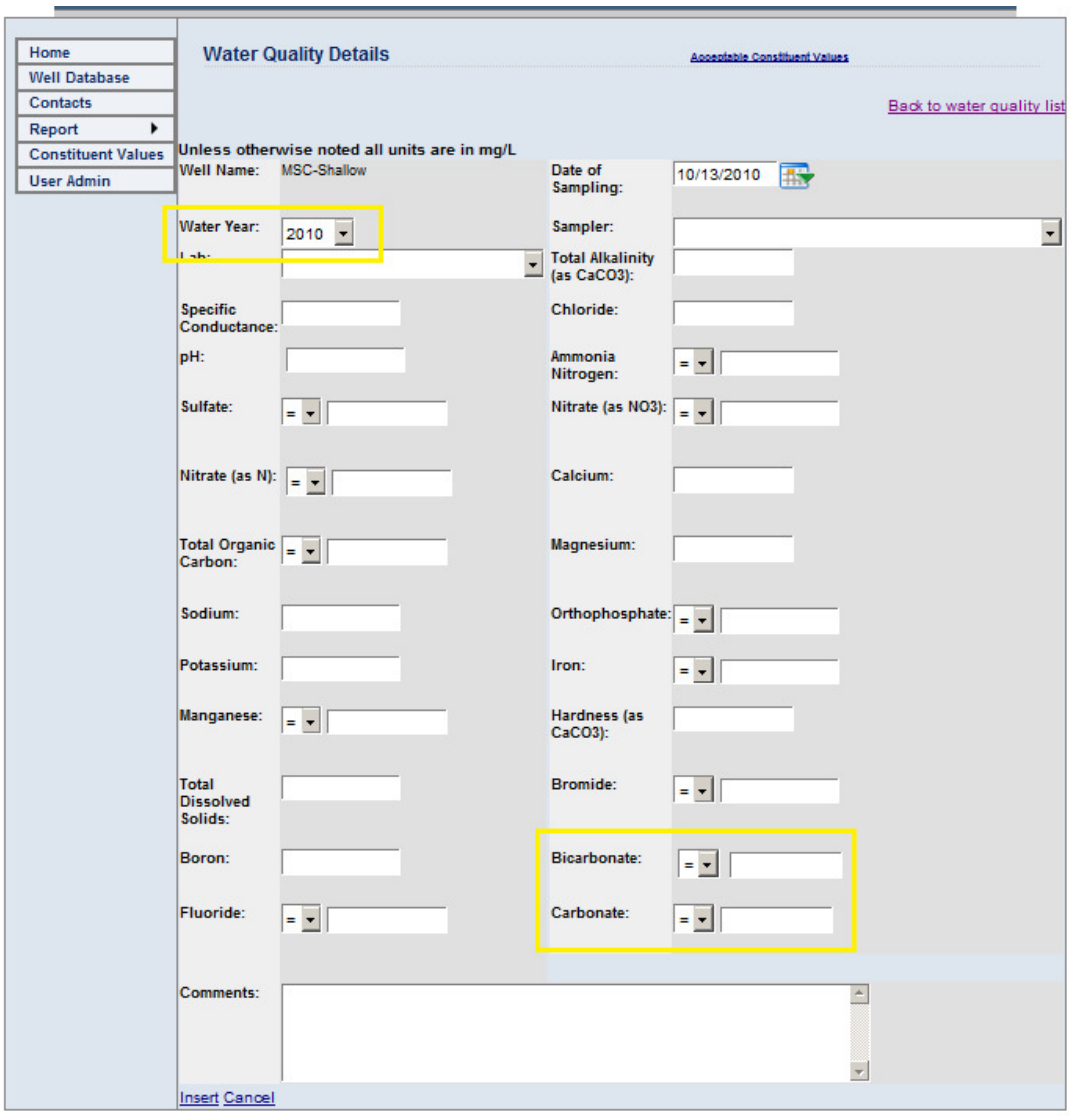


Figure 3.1.4.1

As shown in Figure 3.1.4.1 view mode of the water quality details screen.

3.1.5 Contact Screen

Using this screen user can manage user contact details. Add new field as common name to contact screen list mode and add/edit mode.

Note: This section is related to item no 8 described in second reference document in section 1.4.

As shown in Figure 3.1.5.1 text box will be displayed in edit mode of the contact screen and as shown in Figure 3.1.5.2 the contacts screen as follows.

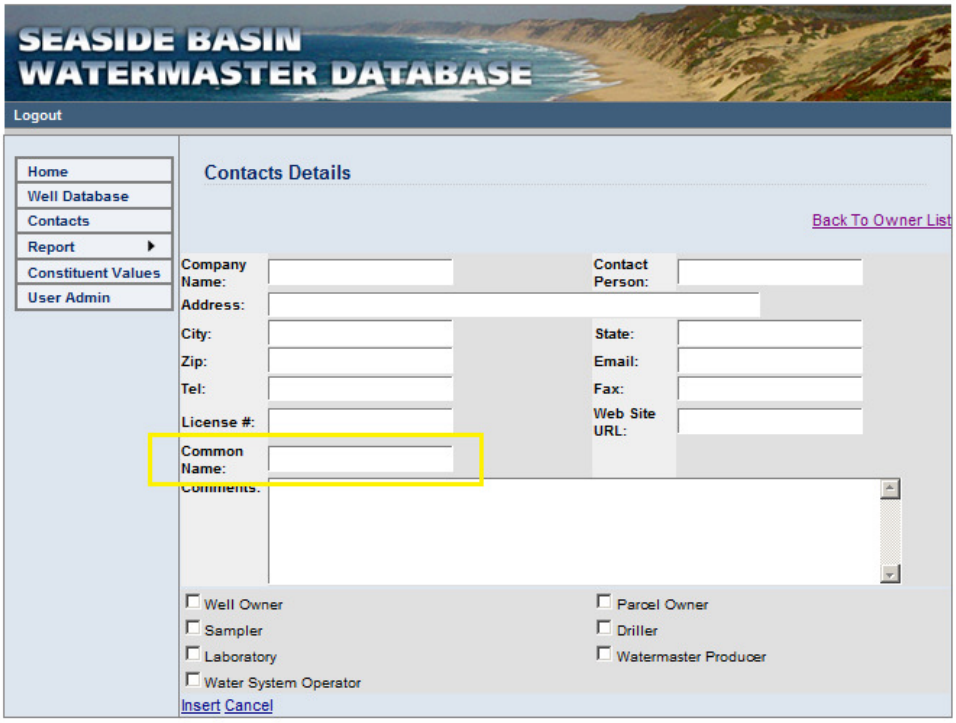


Figure 3.1.5.1

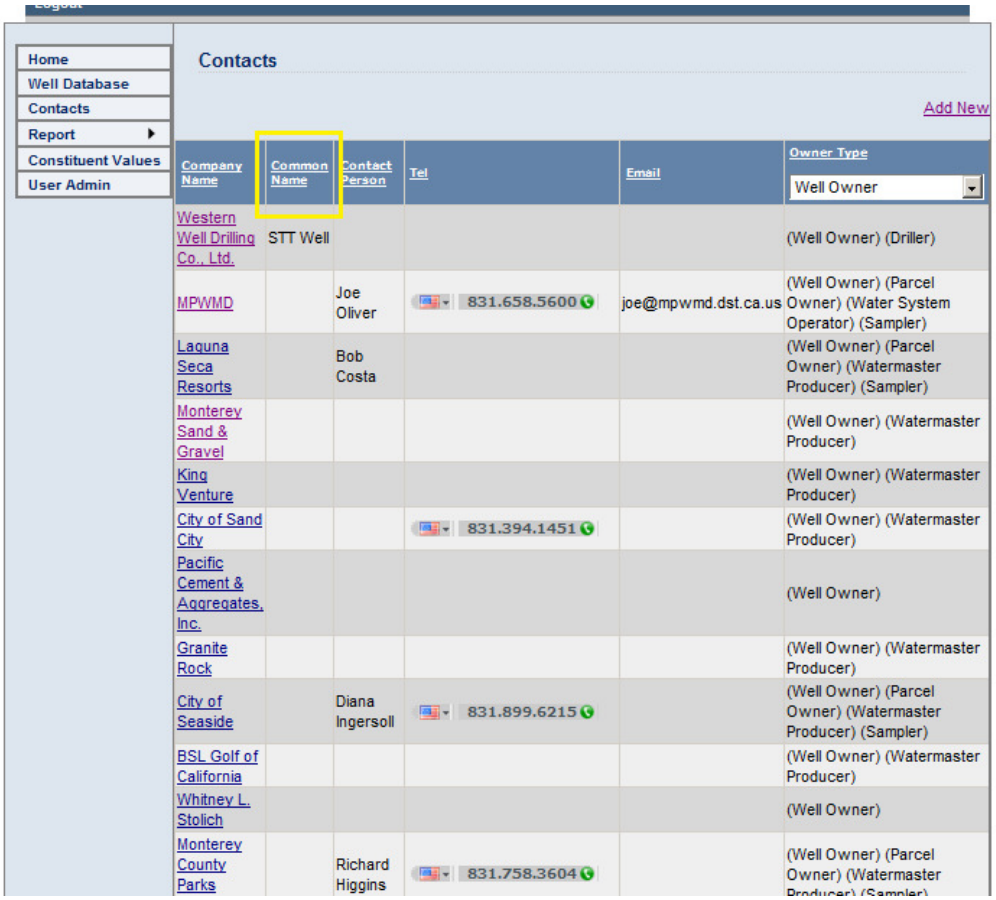


Figure 3.1.5.2

3.1.6 Depth Screen

Using this screen user can manage depth details. Add new field as report month to depth screen view mode and add/edit mode.

As shown in Figure 3.1.6.1 dropdown list will be displayed in edit mode of the depth screen.

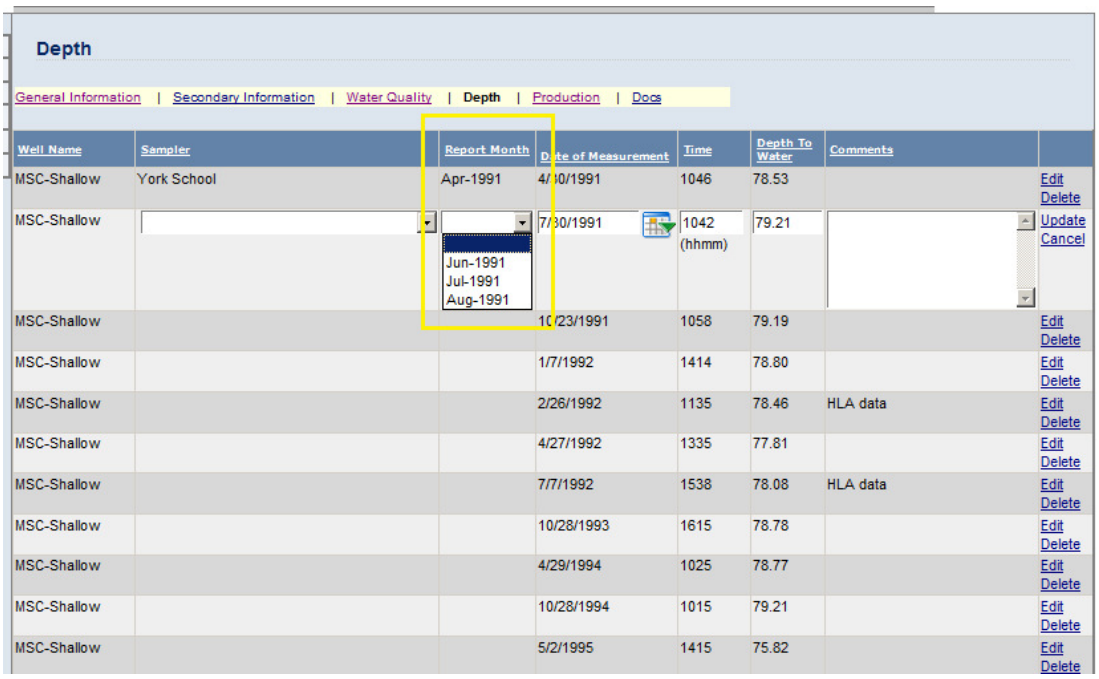


Figure 3.1.6.1

3.2 Map Functionality

New map will be integrated with allowing user to click on a map well marker and view well related general information which is listed below.

The following information will be displayed:

- Address location
- Well Master ID
- Well ID and Well name
- Well status

Map will initially load with all the wells marked using pins, which will be done using ESRI services provided. When user clicks on these pins they can view general information. Wells are marked using address field added in general info for each well. If address is not mentioned or address cannot be located for wells, those will not be marked on the map.

Input fields used to generate the address of the well are listed below. This information is captured through the "Well Details" screen (existing functionality).

- Well Location – This will be considered as the street address (No. and street name)
- City – City the well resides

This section is related to item no 10 described in second reference document in section 1.4.

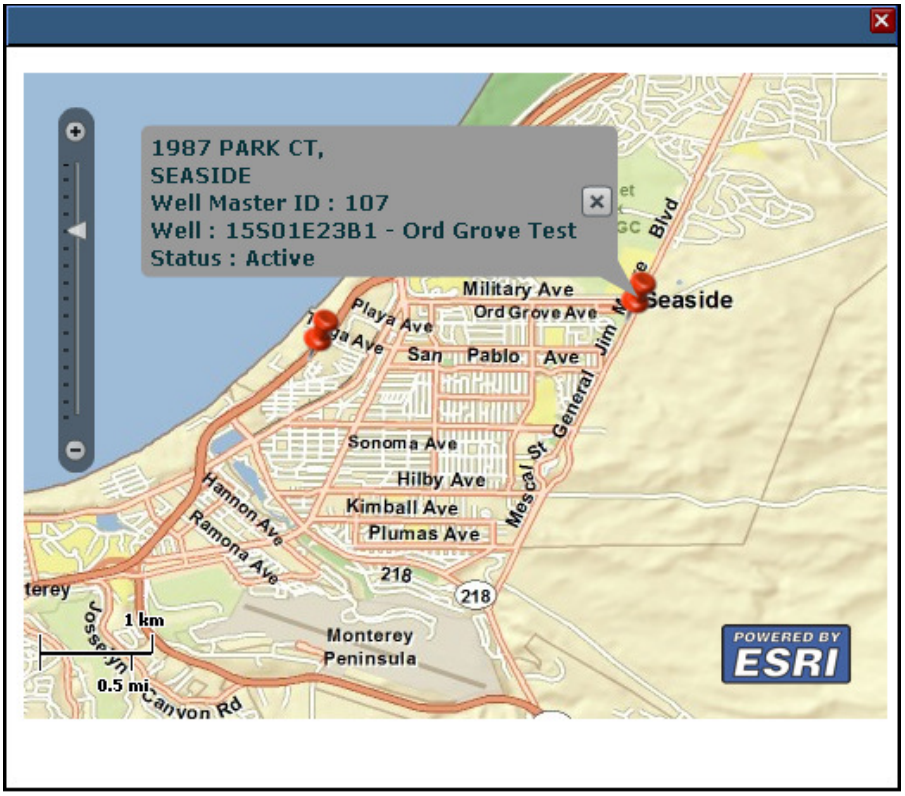


Figure 3.2.1

The map screen will be shown as shown in Figure 3.2.1.

3.3 Reports

3.3.1 Compliance Report (New Report)

Report that lists for each type of reporting data (i.e., Water Level, Water Quality, and Water Production):

(a) what data each well owner is required to submit to the Water Master

(b) whether or not the required data have been submitted

Filter parameters:

- Water Year

- Report Format (PDF/Excel)

Note: User access level 1 – 4
This section is related to item no 1 described in second reference document in section 1.4.

As shown in Table 3.3.1.1 the Compliance report logic describes in this table, as shown in Figure 3.3.1.1 the report selection page , as shown in Table 3.3.1.2 it displays the fields required to the report and the compliance report is as shown in the Figure 3.3.1.2.

Well / Result	Monthly Groundwater Level	Annual WQ	Quarterly Production
Yes	If all 3 months within the quarter contain records for water level measurement then we consider the result as "Yes"	If the water year contains at least a record for water quality then we consider the result as "Yes"	If all 3 months within the quarter contain records for meter reading then we consider the result as "Yes"
No	If there are no records for all 3 months within the quarter for water level measurement then we consider the result as "No"	If there are no records for given water year then we consider the result as "No"	If there are no records for all 3 months within the quarter for meter reading then we consider the result as "No"
Partial	If there are no records for any given month within the quarter for water level measurement then we consider the result as "Partial"		If there are no records for any given month within the quarter for meter reading then we consider the result as "Partial"

N/A	If " Monthly Groundwater Level Required " checkbox checked in well details screen then user need the details else it is N/A.	If "Annual Water Quality Required " checkbox checked in well details screen then user need the details else it is N/A.	If "Quarterly Production Required " checkbox checked in well details screen then user need the details else it is N/A.

Table 3.3.1.1

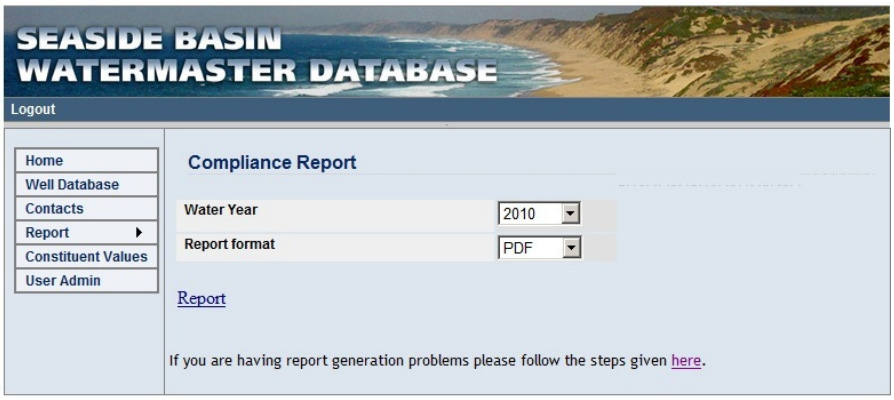


Figure 3.3.1.1

General Information	**Type of reporting data**		
	Water Level	Production	Water quality
Well Status	Well ID	Well Master ID	Well Master ID
Basin Sub Area	Well Name	Well Name	Well Name
Common Name	Date of measurement	Meter Reading(end)	Date of Sampling
Producer Type	Water Level	Date to Report	Date Of Report Year
	Date Of Report Month		

Table 3.3.1.2

Seaside Groundwater Basin Watermaster Producer Data Compliance Report

Date 10/7/2010

(for Watermaster "Producer" Production Wells)

Page 1/24

Well Information							Monthly Groundwater Level				Annual WQ	Quarterly production			
Watermaster Well ID No.	MPWMD Assigned Well ID No.	Well Name	Well Status	Basin Subarea	Owner or Type	Producer Type	WY 2010 Qtr 1	WY 2010 Qtr 2	WY 2010 Qtr 3	WY 2010 Qtr 4	WY 2010	WY 2010 Qtr 1	WY 2010 Qtr 2	WY 2010 Qtr 3	WY 2010 Qtr 4
101	15S01E15N3	MSC-Shallow	Active	Northern Coastal	MPWMD	This column will be added later	No	No	No	No	No	No	No	No	No
102	15S01E15N2	MSC-Deep	Unknown	Northern Coastal	MPWMD	This column will be added later	No	No	No	No	No	No	No	No	No
103	15S01E15F1	PCA-W Shallow	Unknown	Northern Coastal	MPWMD	This column will be added later	No	No	No	No	No	No	No	No	No
104	15S01E15F2	PCA-W Deep	Unknown	Northern Coastal	MPWMD	This column will be added later	No	No	No	No	No	No	No	No	No
105	15S01E15K5	PCA-E (Multiple) Shallow	Unknown	Northern Coastal	MPWMD	This column will be added later	No	No	No	No	No	No	No	No	No
106	15S01E15K4	PCA-E (Multiple) Deep	Unknown	Northern Coastal	MPWMD	This column will be added later	No	No	No	No	No	No	No	No	No
107	15S01E23B1	Ord Grove Test	Unknown	Northern Coastal	California American Water	This column will be added later	No	No	No	No	No	No	No	No	No
108	15S01E14Ra	Paralta Test	Unknown	Northern Coastal	MPWMD	This column will be added later	No	No	No	No	No	No	No	No	No
109	15S01E23Ca	Ord Terrace-Shallow	Unknown	Northern Coastal	MPWMD	This column will be added later	No	No	No	No	No	No	No	No	No
110	15S01E23Cb	Ord Terrace-Deep	Unknown	Northern Coastal	MPWMD	This column will be added later	No	No	No	No	No	No	No	No	No
111	T15SR1E11Pa	MPWMD #FO-09-Shallow	Unknown	Northern Coastal	MPWMD	This column will be added later	No	No	No	No	No	No	No	No	No
112	T15SR1E11Pb	MPWMD #FO-09-Deep	Unknown	Northern Coastal	MPWMD	This column will be added later	No	No	No	No	No	Partial	No	No	No
113	T15SR1E12Fa	MPWMD #FO-10-Shallow	Unknown	Northern Coastal	MPWMD	This column will be added later	No	No	No	No	No	No	No	No	No
114	T15SR1E12Fc	MPWMD #FO-10-Deep	Unknown	Northern Coastal	MPWMD	This column will be added later	No	No	No	No	No	No	No	No	No
115	15S01E26Ba	MPWMD #FO-01-Shallow	Unknown	Northern Inland	MPWMD	This column will be added later	No	No	No	No	No	No	No	No	No
116	15S01E26Bb	MPWMD #FO-01-Deep	Unknown	Northern Inland	MPWMD	This column will be added later	No	No	No	No	No	No	No	No	No

Figure 3.3.1.2

3.3.2 Detailed Production Report (Existing production report change)

Report that lists all the production details. The records in the report are grouped by the Sub area and producer wise.

Filter parameters:

- Well Owner(All, Individual)
- Well (All/Individual)
- Quarterly/Monthly
- Report Format (PDF/Excel)

Note: User access level 1 – 4

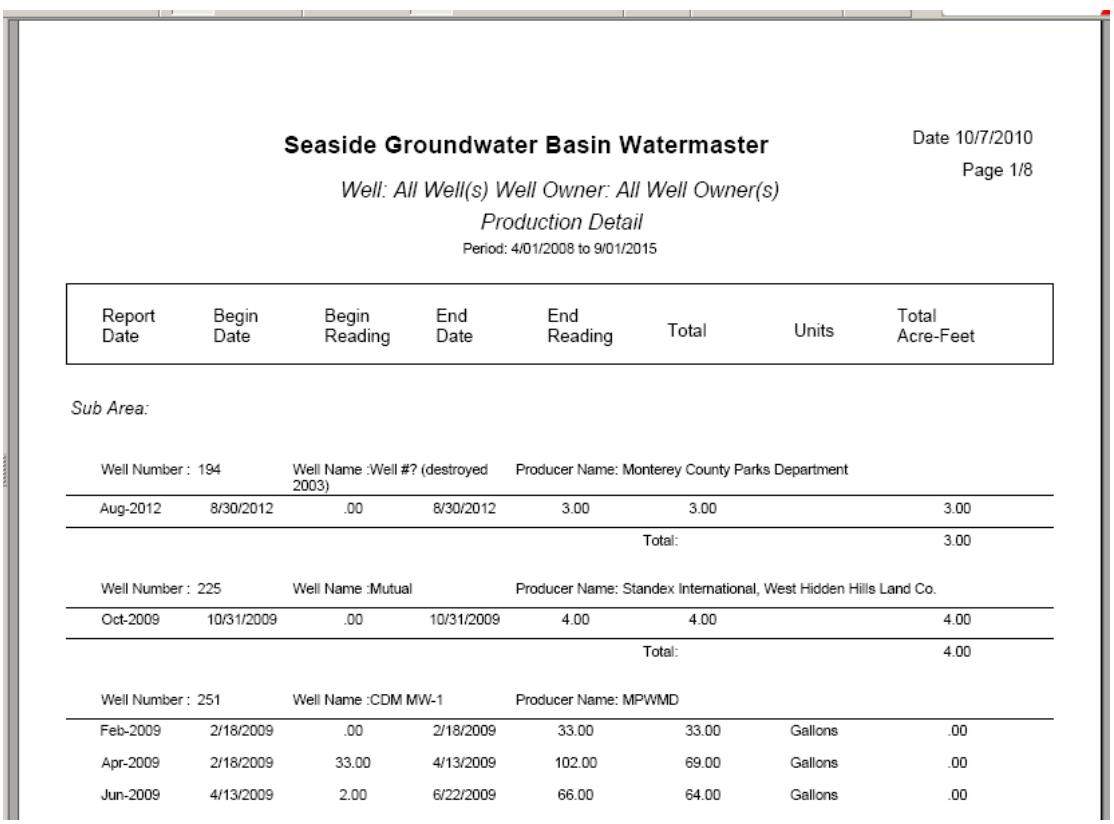
This section is related to item no 5 described in second reference document in section 1.4.

As shown in Table 3.3.2.1 it displays the fields required to the report and as shown in the Figure 3.3.2.1 the detailed production report.

Field	Description

Report date	The year and the month of the particular meter reading
Begin date	Begin date of the particular reading period.
Begin reading	Begin reading of the particular reading period (previous reading of the meter)
End date	End date of the particular reading period.
End reading	End reading of the particular reading period (particular monthly reading of the meter)
Total	Difference of the readings
Units	Measurement unit
Total Acre-Feet	The total in Acre-Feet

Table 3.3.2.1



Seaside Groundwater Basin Watermaster

Date 10/7/2010

Page 1/8

Well: All Well(s) Well Owner: All Well Owner(s)

Production Detail

Period: 4/01/2008 to 9/01/2015

Report Date	Begin Date	Begin Reading	End Date	End Reading	Total	Units	Total Acre-Feet
Sub Area:							
Well Number : 194		Well Name :Well #? (destroyed 2003)		Producer Name: Monterey County Parks Department			
Aug-2012	8/30/2012	.00	8/30/2012	3.00	3.00		3.00
					Total:		3.00
Well Number : 225		Well Name :Mutual		Producer Name: Standex International, West Hidden Hills Land Co.			
Oct-2009	10/31/2009	.00	10/31/2009	4.00	4.00		4.00
					Total:		4.00
Well Number : 251		Well Name :CDM MW-1		Producer Name: MPWMD			
Feb-2009	2/18/2009	.00	2/18/2009	33.00	33.00	Gallons	.00
Apr-2009	2/18/2009	33.00	4/13/2009	102.00	69.00	Gallons	.00
Jun-2009	4/13/2009	2.00	6/22/2009	66.00	64.00	Gallons	.00

Figure 3.3.2.1

The enhancements addresses the issue in the existing production report where the "Report Date" (to be changed to "Report Month"), "Begin Date", and "End Date" columns do not show accurately with respect to the information entered at the data entry screen. This will be corrected as explained in detailed using an

example scenario in the Appendices section of the WWDIM BRS document (3rd reference document in section 1.4).

3.3.3 Summary Production Report (New report)

Water Year report that breaks down production quarterly within the year, by each producer within each subarea. This report is produced to match the format being used by the Watermaster Board. Only wells in the 'Active' status would be considered.

Filter parameters:

- Water Year
- Report Format (PDF/Excel)

Fields required:

Field	Description
Producer	Water master producer
Type	Meta data for the System
four quarters by month	The production AF per month will be displayed for each month. This will be totaled quarterly.
Annual To-Date reported total	Total of four quarters
Base Operating Yield Allocation	Meta data for the System
Carry Over from previous water year	Meta data for the System

Table 3.3.3.1

The Report format would be as shown in Figure 3.3.3.1.

Seaside Groundwater Basin Watermaster

Reported Quarterly and Annual Water Production From the Seaside Groundwater Basin
For All Producers Included in the Seaside Basin Adjudication -- Water Year 2010
(All Values in Acre-Feet [AF])

Producer	Type				1st Qtr				2nd Qtr				3rd Qtr				4th Qtr	Annual To-Date	Base Operating	Carry Over
		Oct	Nov	Dec	Oct-Dec 2009	Jan	Feb	Mar	Jan-Mar 2010	Apr	May	Jun	Apr-Jun 2010	Jul	Aug	Sep	Jul-Sep 2010	Reported Total	Yield Allocation	from WY 2009

Notes:

1. The Water Year (WY) begins October 1 and ends September 30 of the following calendar year. For example, WY 2010 began on October 1, 2009, and will end on September 30, 2010.
2. "Type" refers to water right as described in Seaside Basin Adjudication decision as amended, signed February 9, 2007 (Monterey County Superior Court Case No. M66343).
3. Values shown in the table are based on reports to the Watermaster as received by MPWMD by July 7, 2010.
4. All values are rounded to the nearest tenth of an acre-foot. Where required, reported data were converted to acre-feet utilizing the relationships: 325,851 gallons = 43,560 cubic feet = 1 acre-foot.
5. "Base Operating Yield Allocation" values are based on Seaside Basin Adjudication decision. These values are consistent with the Watermaster Producer Allocations Water Year 2010 (see Item VIII.B. in 12/2/2009 Board packet).
6. Any minor discrepancies in totals are attributable to rounding. CAW = California American Water.
7. APA = Alternative Producer Allocation; SPA = Standard Producer Allocation.

Figure 3.3.3.1

Additionally the Report would show the 'CAW Aquifer Storage and Recovery' details for each month, which will be meta-data for the System.
The Water master Producers would be listed grouped according to the 'sub area'.

Note: For "Laguna Seca Subarea", the data will be grouped according the wells belonging to Well Systems Ryan Ranch Unit, Hidden Hills Unit or Bishop Unit. This data will be captured through the "Well Details" screen for each well.

Note: User access level 3 and 4
This section is related to item no 6 described in second reference document in section 1.4.

3.3.4 Contacts Report (New Report)

Report that lists all the contact information for each well.
Filter parameters:

- Well Status (Active/In-Active/Destroyed/ Unknown)
- Report Format (PDF/Excel)

Note: User access level 3 and 4

As shown in Table 3.3.4.1 it displays the fields required by the report. In the Figure 3.3.4.1 the report selection screen is shown and as shown in the Figure 3.3.4.2 the contacts report.

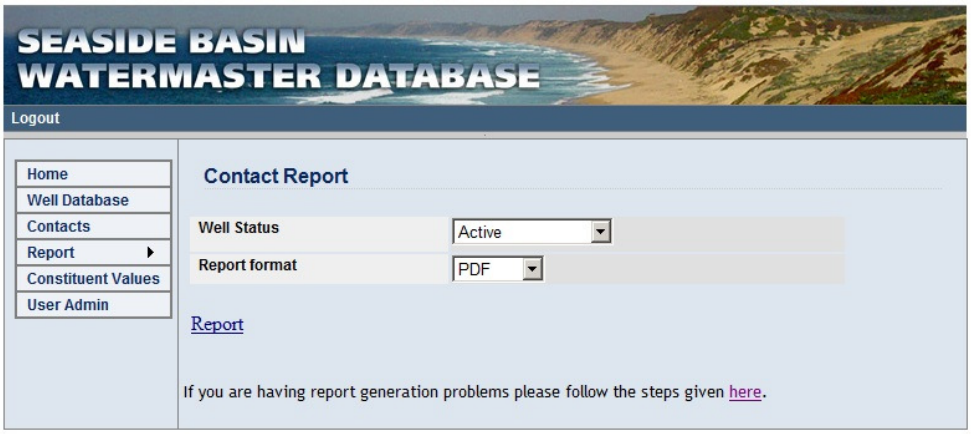


Figure 3.3.4.1

Field	Description

Well Number	Well master ID
Well Name	Well name
Well Status	Active/ In-Active/ Destroyed/ Unknown
Company Name	Company name
Common Name	Common name used
Contact person	Contact person name
Tel	Telephone
Email	Email
Owner Type	Well Owner/ Sampler/ Laboratory/ Water System Operator/ Parcel Owner/ Driller/ Watermaster Producer Ex: (Well Owner) (Driller)

Table 3.3.4.1

Seaside Groundwater Basin Watermaster

Date 10/7/2010

Page 1/19

Contact details

WellID	Well Name	Well Status	Company Name	Common Name	Contact Person	Telephone	Email	Owner Type
102	MSC-Deep	Unknown	MPWMD		Joe Oliver	831.658.5600	joe@mpwmd .dst.ca.us	(Well Owner) (Parcel Owner) (Water System Operator) (Sampler)
103	PCA-W Shallow	Unknown	MPWMD		Joe Oliver	831.658.5600	joe@mpwmd .dst.ca.us	(Well Owner) (Parcel Owner) (Water System Operator) (Sampler)
104	PCA-W Deep	Unknown	MPWMD		Joe Oliver	831.658.5600	joe@mpwmd .dst.ca.us	(Well Owner) (Parcel Owner) (Water System Operator) (Sampler)
105	PCA-E (Multiple) Shallow	Unknown	MPWMD		Joe Oliver	831.658.5600	joe@mpwmd .dst.ca.us	(Well Owner) (Parcel Owner) (Water System Operator) (Sampler)
106	PCA-E	Unknown	MPWMD		Joe Oliver	831.658.5600	joe@mpwmd	(Well Owner)

Figure 3.3.4.2

3.3.5 Groundwater Level Monitoring Data (change to existing Depth Report)

This report lists all the ground water level monitoring data. The records in the report are grouped by the Sub area and producer wise.

Filter parameters:

- Well Owner(All, Individual)
- Well (All/Individual)
- Date Range(Monthly / Quarterly)
- Report Format (PDF/Excel)

Note: User access level 1 – 4

Table 3.3.5.1 displays the fields required by the report. Figure 3.3.5.1 shows the report selection screen and as shown in the Figure 3.3.5.2 the groundwater level monitoring report.

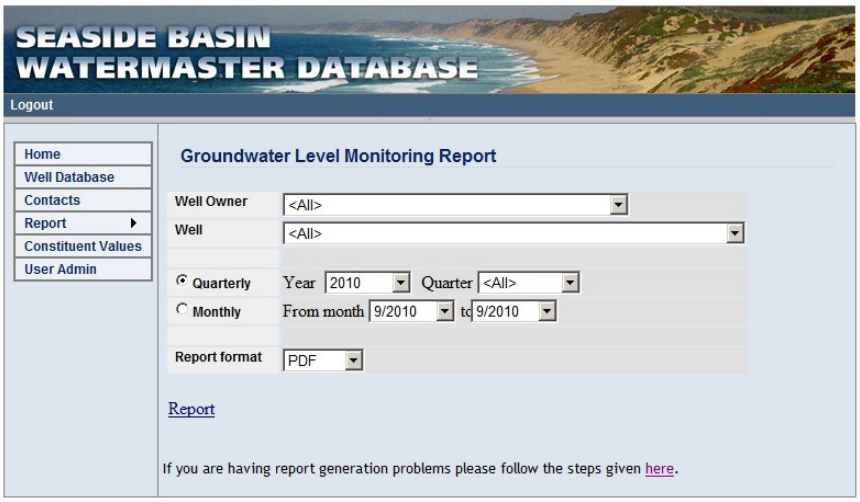


Figure 3.3.5.1

Field	Description
Date Measured	The date of the measurement
Reference Point	The reference evaluation benchmark of the well
Depth to water	Depth of the well for a particular time period
Static Water Level	Difference between Depth of the water level and the reference point
Comments	Comments added by the user

Table 3.3.5.1

Groundwater Level Monitoring Data

Date 10/7/2010
Page 1/156

for the Seaside Groundwater Basin
Period: 10/14/2000 to 10/14/2010
Assembled by MPWMD for the Seaside Watermaster

Well Category : ***Sub Area :*** **Northern Coastal**

Watermaster Well :111 **Monitored : -**
State Well No : T15SR1E11Pa **Owner : -** **Monitored By : -**
Northern Coastal Screen : 610 - 650 **Aquifer : QTc/Tp**

Date Mesured	Reference Point	Depth to Water	Static Water Level	Comments
11/2/2000	118.89	113.20	5.69	
11/28/2000	118.89	113.10	5.79	
1/4/2001	118.89	112.63	6.26	
3/27/2001	118.89	111.68	7.21	
1/29/2001	118.89	112.66	6.23	
2/26/2001	118.89	111.73	7.16	
4/27/2001	118.89	111.55	7.34	
5/31/2001	118.89	112.56	6.33	
7/5/2001	118.89	113.46	5.43	
7/24/2001	118.89	113.64	5.25	
8/28/2001	118.89	113.80	5.09	
10/1/2001	118.89	114.01	4.88	revised 7/2002, read "14.01"

Figure 3.3.5.2

3.3.6 Report format improvement

Production Detail Report – The grouping name would be added with the said information.

- Well Number: 101
- Well Name: MSC-Shallow Producer
- Producer Name: Pasadera Country Club, LLC

This section is related to item no 9 described in second reference document in section 1.4.

As shown in Figure 3.3.6.1 it displays the details need to be displayed in the production details report.

Seaside Groundwater Basin Watermaster

Date 10/7/2010
Page 1/10

Well: All Well(s) Well Owner: All Well Owner(s)
Production Detail
Period: 9/01/2007 to 9/01/2015

Report Month	Begin Date	Begin Reading	End Date	End Reading	Total	Units	Total Acre-Feet
Sub Area:							
Well Number : 194		Well Name :Well #? (destroyed 2003)		Producer Name: Monterey County Parks Department			
Aug-2012	8/30/2012	.00	8/30/2012	3.00	3.00		3.00
					Total:		3.00
Well Number : 225		Well Name :Mutual		Producer Name: Standex International, West Hidden Hills Land Co.			
Oct-2009	10/31/2009	.00	10/31/2009	4.00	4.00		4.00
					Total:		4.00
Well Number : 251		Well Name :CDM MW-1		Producer Name: MPWMD			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.00
Apr-2009	2/18/2009	33.00	4/13/2009	102.00	69.00	Gallons	.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Figure 3.3.6.1

4 Non functional Requirements

4.1 Performance Requirements

The new enhancements will be provided maintaining the current performance of the System.

4.2 Security Requirements

The user access levels mentioned in section 2.3 will be maintained and will be used accordingly for the new improvement functionality as well.

4.3 Usability Requirements

Usability will be consistent with the current System functionality.

4.4 Capacity and Volume Requirements

N/A

4.5 Technology Requirements

- Windows 2003 server with IIS service and .NET framework 2.0.
- SQL 2005 Server Express Edition

4.6 Compatibility Requirements

Internet Explorer 8 will be used as default browser for compatibility.

4.7 Extendibility Requirements

N/A

4.8 User Support and Maintenance Requirements

User support for the new improvements will be provided by way of System Demonstrations as necessary.

4.9 Licensing Requirements

N/A

4.10 Other Requirements

N/A

5 External Interface Requirements

5.1 Application Interfaces

N/A

5.2 Software Interfaces

5.2.1 Purchased Components

N/A

5.2.2 Reusable Components

5.2.2.1 BasicDatePicker Control

Added new date picker control (BasicDatePicker) to Production screen, Depth screen and Water Quality Details screen. The referenced DLL file is already used in the existing system. (BasicFrame.WebControls.BasicDatePicker.dll)

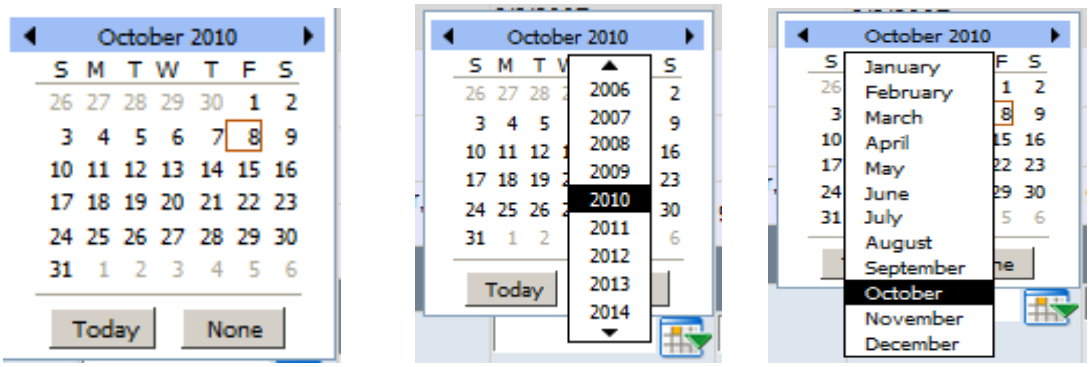


Figure 5.2.2.2.1

5.3 Hardware Interfaces

N/A

5.4 Communications Interfaces

5.4.1 ESRI Services

Services from ESRI will be used in relation to the functional requirement identified in Section 3.2. The Flex API provided by ArcGIS Resource Centers will be used for implementation. (http://resources.esri.com)

6 Appendices

N/A