

Hydrologic Data Resources Application User's Guide

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Army Geospatial Center

The Hydrologic Data Resources Application (HyDRA) is a web-based data survey and analysis tool created to provide the water community with the means of water resources data collection, visualization, and dissemination in an enterprise environment.

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**US Army Corps
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HyDRA Summary

Description

The Army Geospatial Center's (AGC) Water Resources program serves as DoD's primary agent for military water resource analysis and water detection. The Water Resources Data Base (WRDB) is an enterprise geodatabase containing information on the location, quantity, and quality of land-based Surface, Ground, and Existing Water Facility features to support DoD water resource logistics decisions.

Purpose

The [Hydrologic Data Resources Application](#) (HyDRA) is a web-based data survey and analysis tool created to provide the water community with a means of water resources data collection, visualization, and dissemination in an enterprise environment.

HyDRA is divided in two user interfaces:

- [Mobile](#)
- [Web Page](#)

Web Page Login Screen: <http://www.agc.army.mil/WRapp/hydralogin.cfm>

The application is database driven and contains a series of structures for searching, editing and creating features viewable Google Maps™ and Google Earth™.

The database was populated with data from the Meridian World Data corporate water features database and the enterprise database schema currently used by the Hydrologic Analysis Team, Army Geospatial Center.

The intended user is any DoD logistic and geospatial intelligence personnel with a mobile handheld device such as a PDAs or smart phone with an Android™ 2.2+ operating system

Summary of Initial Database Population

Hydrologic Data Resources Application Database Summary					
Water Treatment Plants	Water Storage Facilities	Springs	Dams	Water Wells	Water Miscellaneous Points
3	382,852	76,260	15,581	132,285	1,091,275

Modules Distribution

Hydrologic Data Resources Application Database Modules Distribution					
Water Treatment Plants	Water Storage Facilities	Springs	Dams	Water Wells	Water Miscellaneous Points
Treatment Plant	Lake bed	Geyser	Dam	Well	Arroyo
	Lake	Spring	Weir	Dug well	Channel
	Intermittent lake	Sulphur spring	Lake	Deepening	Lake channel
	Salt lake	Hot spring	Barrage	Tube well	Confluence
	Intermittent salt lake	Waterhole	Reservoir	Stand post	Canal
	Oxbow lake			Abandoned well	Canal bend
	Intermittent oxbow lake				Drainage canal
	Underground lake				Irrigation canal
	Section of lake				Navigation canal
	Pan (natural depression)				Abandoned canal
	Pond				Underground canal - Karez (qanat)
	Intermittent pond				Section of canal
	Salt pond				Ford (shallow part of stream)
	Intermittent salt pond				Lake bed
	Pool				Levee
	Intermittent pool				Swamp
	Reservoir				Marsh
	Intermittent reservoir				Salt marsh
	Water tank				Ravine (steep-sided stream channel)
					Dry stream bed
					Sinkhole
					Stream
					Stream bend
					Canalized stream
					Distributary
					Intermittent stream
					Section of intermittent stream
					Abandoned watercourse
					Lost river
					Section of stream
					Strait (narrow water way)
					Wadi
					Wadi bend
					Wadi junction
					Wadi mouth
					Section of Wadi
					Whirlpool
					Wetland
					Intermittent wetland
					Watercourse

System Requirements

1. Mobile Android 2.2+ platform
2. Google Maps (preferred) or Google Earth
3. An application installer available on AndroidMarket such as AppInstaller by Funtrigger (preferred) Easy Installer by Info Life LLC, Installer by Rhythm Software, or BusyBox Installer.
4. An Active data connection.

Note: Google Maps for *mobile* requires an active data connection at all times. Before you download, it is recommend that the user contact the mobile service provider to find out more about the data plans it offers. An unlimited data plan is strongly recommended as continuous Map usage will use significant amounts of data.

Note: While Google Maps for mobile is unsupported for use with a Wi-Fi (wireless network) connection alone, it may work for certain devices.

Desktop, Laptop, or Tablet

1. Operating System:
 - a. Windows XP, Windows Vista, or Windows 7 (preferred)
 - b. Mac OS X 10.5.0 or later
2. Google Earth 5.0 or later
3. Web browser
 - a. Internet Explorer (preferred)
 - b. Google Chrome
 - c. Firefox
 - d. Safari

Web Page

Disclaimer: This site is provided as a public service by the U.S. Army Geospatial Center, and is intended to be used by the public for viewing and retrieving information only. Unauthorized attempts to upload or change information on this service are strictly prohibited and may be punishable under the Computer Fraud and Abuse Act of 1986. All information on this site is considered public information and may be distributed or copied. Inquiries can be forwarded to the Hydrologic Analysis Team, USACE Army Geospatial Center at DLL-AGC-HYDRO@usace.army.mil or samuel.pacheco-cherena@usace.army.mil, or by calling (703-428-6891).

Web Page Login and Registration Process

To login to the Hydrologic Data Resources Application web system and Mobile you will need an identification username and password. These two pieces of information ensure the security necessary for accessing the data. All users login at the same address and in the same way. Users are identified by the title registered in the application form. Users will use the same assigned username and password to access the Mobile and the Web part of the Hydrologic Data Resources Application.

1. Go to the web site: <http://www.agc.army.mil/WRapp/hydrallogin.cfm>
2. Select the Registration link.

3. Fill in the *Water Resources Mobile Application Registration Form*, then select “*Submit by Email*” button in the upper right corner of the form. There are two options to send the form:
 - a. Desktop Email Application. **Note:** Choose this option if you currently use an email application such as Microsoft Outlook Express, Microsoft Outlook, Eudora, or Mail.

- b. Internet Email. **Note:** Choose this option if you currently use an Internet email service such as Yahoo or Microsoft Hotmail. You will then need to save your form and return it manually to samuel.pacheco-cherena@usace.army.mil using your Internet email service.

Water Resources Mobile Application Registration Form		Submit by Email
TO Corps of Engineers US Army Geospatial Center ATTN: CEAGC-WSH Alexandria, VA 22315-3864 (703) 428-7869		FROM (List Unit and current mailing address to include Street and 9-digit ZIP Code)
1. FIRST NAME:		10. PHONE NUMBER: (Include Area Code)
2. LAST NAME:		11. UNIT INFORMATION CODE (UIC):
3. E-MAIL:	DOMAIN:	12. UNIT TYPE:
(A) ADDITIONAL E-MAIL:	DOMAIN:	13. CITY:
4. TITLE:		14. STATE/PROVINCE:
5. PHONE:		15. ZIP/POSTAL CODE:
(A) HOME:	(B) MOBILE:	16. COUNTRY REGION:
6. FAX NUMBER:		17. NOTES:
7. LOGIN NAME:		
8. PASSWORD:		
9. WEBPAGE/FACEBOOK/TWITTER:		

1 →

← 2

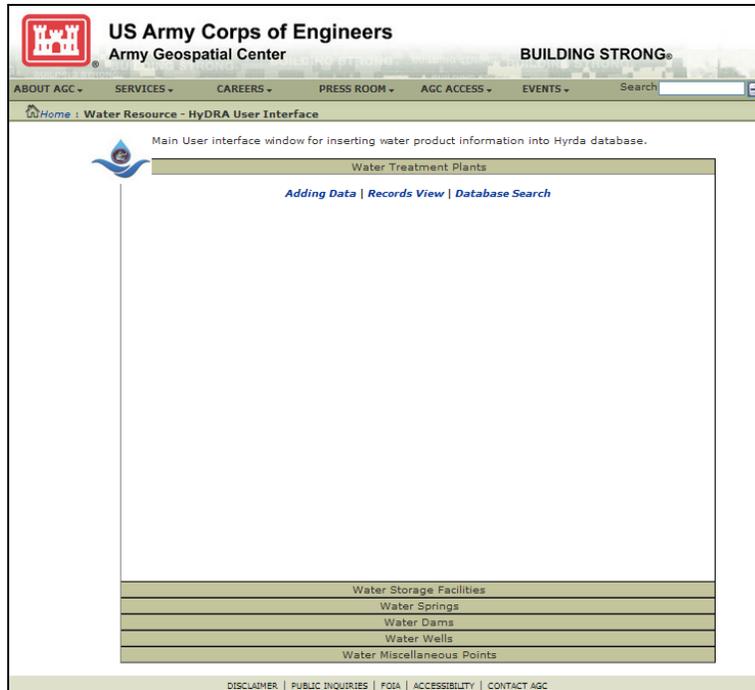
After submission of the registration form an email from the administrator will be sent including the HyDRA User Guide, HyDRA Quick Guide, HyDRA application file (apk) and login information.

- Go to the web site: <http://www.agc.army.mil/WRapp/hydrallogin.cfm>
- Enter your assigned “**Username**” and “**Password**” in the fields.
- Click on the "Log In" button. (Do NOT create a bookmark/favorite after this step.)
 - If the user enters the wrong information, the following messages may be shown:
 - User not found, please register for a new account.
 - Wrong Username, Please try again.
 - Wrong Password, Please try again.

Database Search

The menu option ‘Database Search’ gives the user the ability to query previously collected features outside of the Smart Phone interface.

- Select “*Database Search*” Tab to start a new query of the selected Water Resources Module.



- Select “*Facility Description*” from the drop list.
- Select “*Country and Administrative Division*” from the drop list.
Note: Administrative Division the same as states in the United States.
- Select “*Name and Remarks*” and enter the name of the feature or a remark by selecting the field.

Note: The user does not need to enter the complete name, just part of the name.

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Home : Water Resource - HyDRA User Interface

Main User interface window for inserting water product information into Hyrda database.

Water Treatment Plants

[Adding Data](#) | [Records View](#) | [Database Search](#)

Water Treatment Plants Search

Facility Desc:

Country:

Administrative District:

Facility Name:

Water Supply Remarks:

Min Latitude:

Max Latitude:

Min Longitude:

Max Longitude:

Water Storage Facilities

Water Springs

Water Dams

Water Wells

Water Miscellaneous Points

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- Select “Search”, and then select the link at the end of the table to download a kml in Google Earth to see the selected Water Resources feature.

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Home : Water Resource - HyDRA User Interface

Main User interface window for inserting water product information into Hyrda database.

Water Treatment Plants

Water Storage Facilities

[Adding Data](#) | [Records View](#) | [Database Search](#)

Water Storage Search Results

ID	Name	Facility Desc	Recording Date	Elevation AMSL
124	Sagebrush Reservoir	Reservoir		
268	Bandy Reservoir	Reservoir		
269	Delmoie Lake	Reservoir		
270	Hell Gate Reservoir	Reservoir		
271	Mdntyre Reservoir	Reservoir		
272	Schmidt Reservoir	Reservoir		
273	York Reservoir	Reservoir		
611	Jay Reservoir	Reservoir		
613	Big Rock Detention Reservoir	Reservoir		
614	Double Crossing Reservoir	Reservoir		
615	Horse Reservoir	Reservoir		
616	Mussigbrod Lake	Reservoir		
617	Skull Reservoir	Reservoir		
618	Wildlife Reservoir	Reservoir		
858	Vic Reservoir	Reservoir		

[Click here to View the Data in Google Earth or Google Map](#)

Water Springs

Water Dams

Water Wells

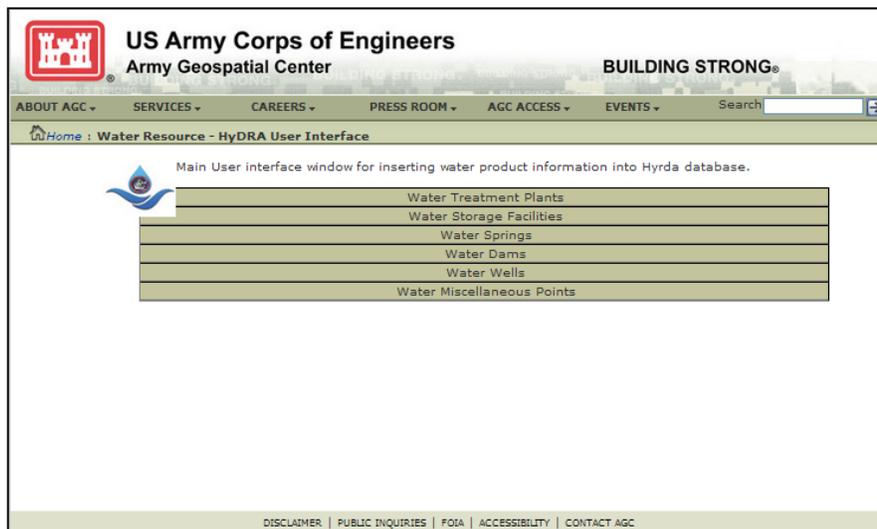
Water Miscellaneous Points

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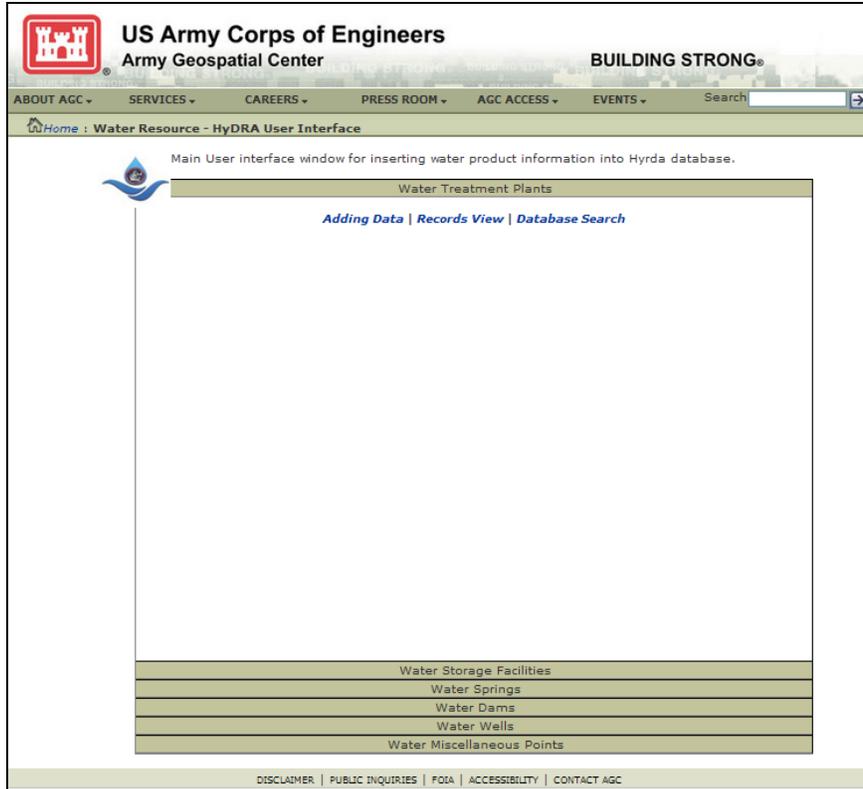
Adding Data on the Website

The option to add data on the website gives the user the control of adding data that could not be saved at the time of collection. This is a method for organizing data outside the direct use of the application via a laptop or desktop.

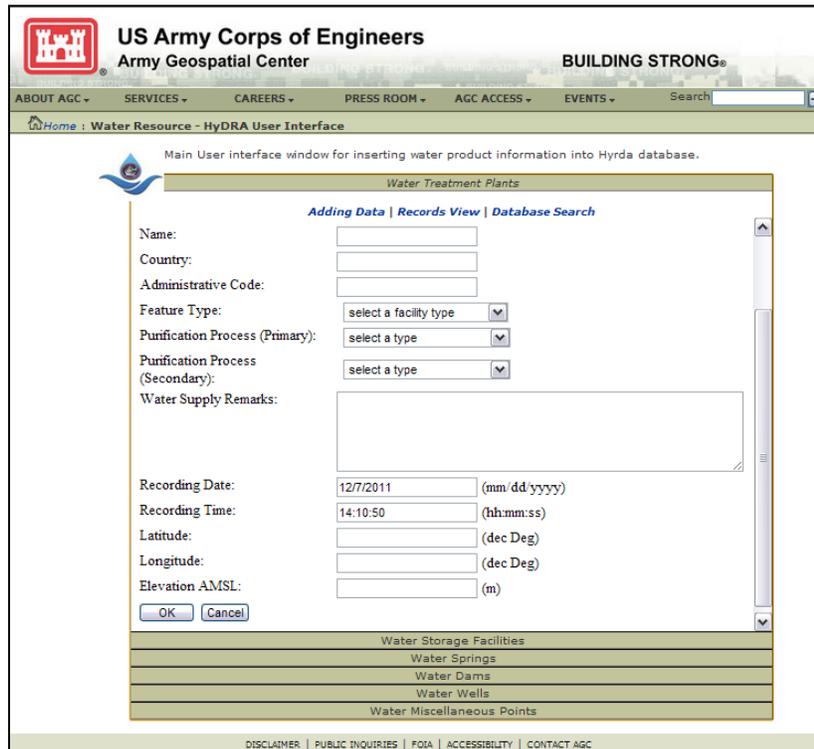
- Select the Water Resources Module from the list.
 - Water Treatment Plants
 - Water Storage Facilities
 - Water Springs
 - Water Dams
 - Water Wells
 - Water Miscellaneous Points



- Select "Adding Data" Tab to add new data to the selected Water Resources Module.



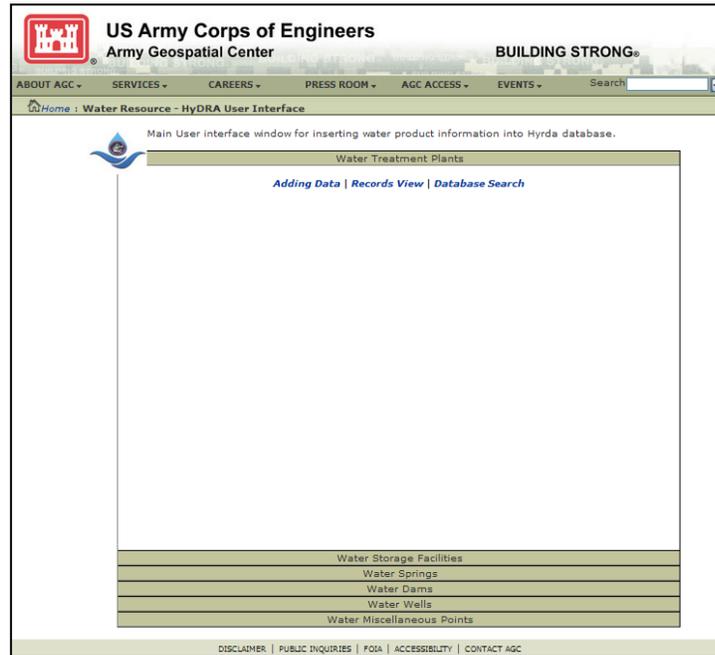
- Fill in all fields, and then select “OK”. **Note:** If coordinates are not entered, the data will not be saved.



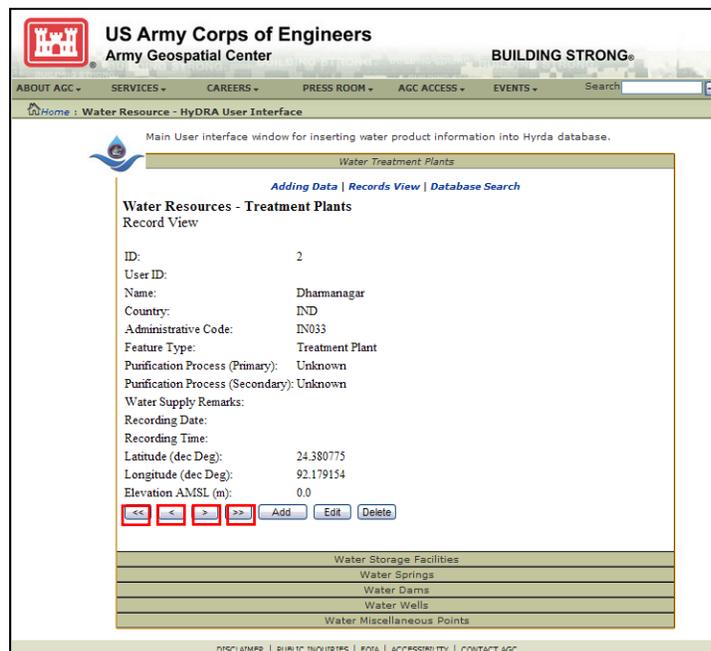
Records View

The menu option 'Records View' gives the user the ability to, modify or delete features that were previously collected. This interface gives the user the ability to change feature attributes outside of the Smart Phone interface.

- Select "Records View" Tab to modify existing data in the selected Water Resources Module.



- Navigate along the files using the *Previous*, *Back*, *Next* and *Forward* buttons.



Installing .apk files

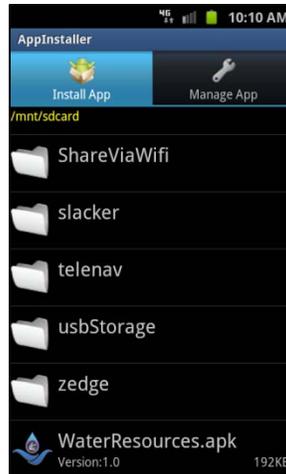
To install a newly released app or an app that is not available in the Android Market you will usually have to manually download and install an .apk file. An .apk file behaves in a similar manner to an executable (.exe) file on Windows; you need to copy it to your device and run it.

Before attempting a manual installation of apps using the .apk files, you must first allow your phone to install from “*Unknown Sources*” (i.e. non-Market apps).

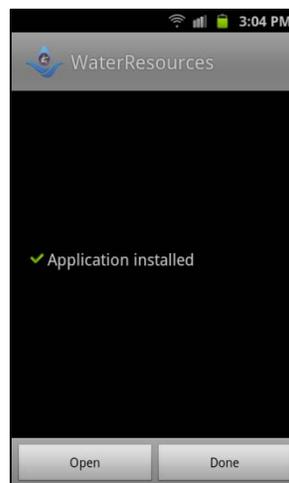
- Navigate to *Menu > Settings -> Applications* and check the box marked “*Unknown Sources*”.



- Install File Manager
 - Android devices do not natively come with any method of browsing the data on your SD card, so you will need to install a file manager from a market. There are a large variety of file managers available on Android, for example: *Easy Installer*, *Installer*, [AppInstaller](#), *BusyBox Installer*, etc. [Appinstaller](#) will be the file manager describe in this guide.
- Copy apk file to SD card
 - Once you have AppInstaller File Manager installed, connect your Android device to your PC using your USB cable. Mount the SD card and copy over the HyDRA.apk file.
 - Another way to copy the HyDRA.apk to your device is direct download via email and copying the file to the specified location in the device.
- Install apk
 - On your Android device, navigate to the HyDRA.apk file using AppInstaller File Manager and select it. This will open a dialog box allowing you to install the app.
 - Select “*Open App Manager*”.
 - Select “*Install*” and “*Install*” again to install the HyDRA.apk.



- Once you have HyDRA.apk installed, Select *“Open”*.

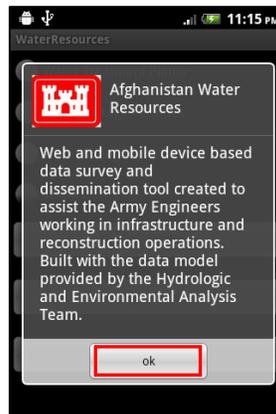


Mobile (HyDRA v.1.0-Android)

- Fill in your username and password; then press the **Login** button to login to the Hydrologic Data Resources Application.
 - An active internet connection is needed to access the database.

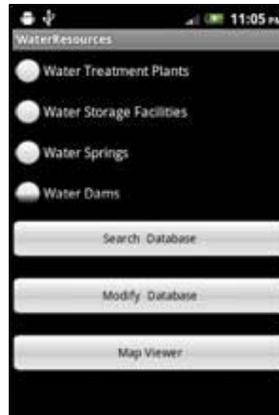


- Press the **OK** button to accept user conditions.



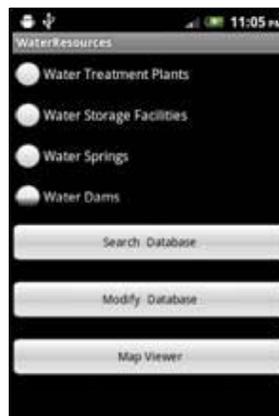
Main View

- This view includes: the Search Database, Modify database and Map Viewer.



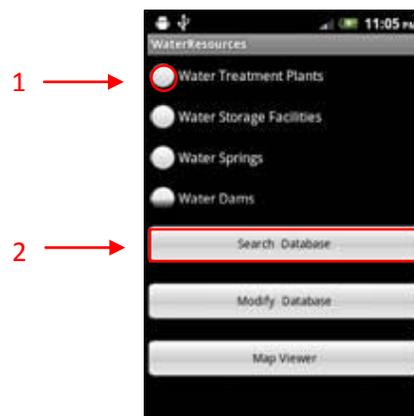
Searching the Database

- There are six water resources search modules on the search database menu: water treatment plants, water storage facilities, water springs, water dams, water wells, water miscellaneous point.



Water Treatment Plants

- Select "*Water Treatment Plants Module*", and then select "*Search Database*".



- Select “*Facility Description*” from the drop list ▼, then press Done.
 - Drop list options:
 - Treatment plant
 - Sewage Purification Plant

The screenshot shows the 'Water Treatment Plants Search' form in the WaterResources app. The 'Facility Desc:' dropdown menu is open, showing 'select a facility type'. The 'Country:' dropdown is set to 'United States'. Other fields include 'Administrative District' (select Admin District), 'Facility Name' (text), 'Water Supply Remarks' (text), 'Min Latitude' (dec Deg), 'Max Latitude' (dec Deg), 'Min Longitude' (dec Deg), and 'Max Longitude' (dec Deg). There are 'Search' and 'Reset' buttons at the bottom.

- Select “*Country and Administrative Division*” from the drop list ▼, then press Done.

Note: Administrative Division is the same as states in the United States.

The screenshot shows the 'Water Treatment Plants Search' form in the WaterResources app. The 'Country:' dropdown is set to 'United States'. The 'Administrative District:' dropdown menu is open, showing 'select Admin District'. Other fields include 'Facility Name' (text), 'Water Supply Remarks' (text), 'Min Latitude' (dec Deg), 'Max Latitude' (dec Deg), 'Min Longitude' (dec Deg), and 'Max Longitude' (dec Deg). There are 'Search' and 'Reset' buttons at the bottom.

- Select “*Name and Remarks*” and enter the name of the feature or a remark by touching over the field.

Note: The user does not need to enter the complete name, just part of the name.

- Select “*Min-Max Longitude and Latitude*” and enter the coordinates in decimal degree format.

- Select the “*Search Button*”.
- After the Water Treatment Plants Module is selected the following list is shown:

ID	Facility Desc	Purification Process (primary)	Purification Process (secondary)	Water Supply Remarks	Recording Date	Elevation (MMSL)
1	Treatment Plant	Unknown	Unknown	Unknown	0.0	0.0

[Click here to View the Data in Google Earth or Google Map](#)

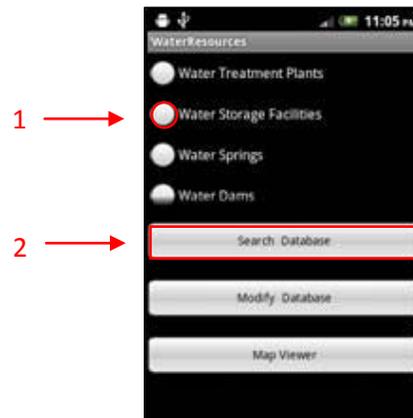
Note: If the selection has more than 300 features the following message will appear asking to make a more detailed search.

“Your query returns # records, too many to process. Please go back and narrow down your search”

- Select the highlighted link to see the Water Treatment Plants locations in Google Earth or Google Maps.
- Select the back button on the device to make a different search query.

Water Storage Facilities

- Select “*Water Storage Facilities Module*”, and then select “*Search Database*”.



- Select “*Facility Description*” from the drop list ▼, then press Done.
 - Drop list options:
 - Cistern
 - Reservoir
 - Water Tank
 - Water Tower

- Select “*Country and Administrative Division*” from the drop list ▼, then press Done.

Note: A first order Administrative Division is equivalent to a state in the United States.

WaterResources

Water Storage Search

Facility Desc:

Country:

Administrative District:

Facility Name:

Min Latitude: (dec Deg)

Max Latitude: (dec Deg)

Min Longitude: (dec Deg)

Max Longitude: (dec Deg)

- Select “Name and Remarks” and enter the name of the feature or a remark by touching over the field.

Note: The user does not need to enter the complete name, just part of the name.

- Select “Min-Max Longitude and Latitude” and enter the coordinates in decimal degree format.

WaterResources

Water Storage Search

Facility Desc:

Country:

Administrative District:

Facility Name: (text)

Min Latitude: (dec Deg)

Max Latitude: (dec Deg)

Min Longitude: (dec Deg)

Max Longitude: (dec Deg)

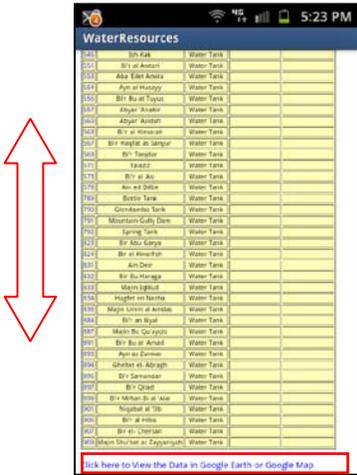
- Select the “Search Button”.
- After the Water Storage Facilities Module is selected the following list is shown:

ID	Name	Facility Desc	Ordering Date	Elevation AMS
417	Bu Arsyaf di Ajah	Water Tank		
418	Musandiq Mahad	Water Tank		
419	Yahya Tank	Water Tank		
422	Muqat lot Tank	Water Tank		
423	Thawit Dam	Water Tank		
424	Karim Leting	Water Tank		
425	Be Madula Cahil	Water Tank		
426	Si e Hiblat Ghafit	Water Tank		
427	Si e Hiblat	Water Tank		
428	Main ad Bonobran	Water Tank		
429	Majid al Loh	Water Tank		
430	Si Anonon	Water Tank		
431	Si An	Water Tank		
432	Si e Anwar	Water Tank		
433	Alin Tank Anon	Water Tank		
434	Ain di Husayy	Water Tank		
435	Si Bu an Fayak	Water Tank		
436	Alqur Anon	Water Tank		
437	Alqur Anon	Water Tank		
438	Si e Monwar	Water Tank		
439	Si Haggat di Lanyat	Water Tank		
440	Si Tangat	Water Tank		
441	Tahat	Water Tank		
442	Si e An	Water Tank		
443	Harat Tank	Water Tank		
444	Bottle Tank	Water Tank		
445	Chendabon Tank	Water Tank		
446	Musandiq Gath Tank	Water Tank		
447	Spring Tank	Water Tank		
448	Si Abu Garga	Water Tank		
449	Si e Anonon	Water Tank		
450	Ain Dera	Water Tank		
451	Si Bu Maraga	Water Tank		
452	Majid Agnat	Water Tank		
453	Haggat an Karim	Water Tank		
454	Majid Anon di Anon	Water Tank		
455	Si An Nyal	Water Tank		
456	Si An Anon	Water Tank		
457	Si An Anon	Water Tank		
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459	Si An Anon	Water Tank		
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472	Si An Anon	Water Tank		
473	Si An Anon	Water Tank		
474	Si An Anon	Water Tank		
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496	Si An Anon	Water Tank		
497	Si An Anon	Water Tank		
498	Si An Anon	Water Tank		
499	Si An Anon	Water Tank		
500	Si An Anon	Water Tank		

Note: If the selection has more than 300 features the following message will appear asking for a more detailed search.

“Your query returns # records, too many to process. Please go back and narrow down your search”

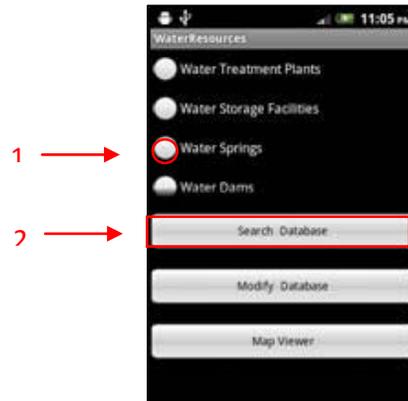
- Scroll down the list and select the highlighted link to see the Water Storage Facilities locations in Google Earth or Google Maps.



- Select the back button on the device to make a different search query.

Springs

- Select “*Water Springs Module*”, and then select “*Search Database*”.



- Select “*Facility Description*” from the drop list ▼, then press Done.
 - Drop list options:
 - Spring/Water Hole

- Select “*Country and Administrative Division*” from the drop list ▼, then press Done.

Note: Administrative Division is the same as states in the United States.

- Select “Name and Remarks” and enter the name of the feature or a remark by touching over the field.

Note: The user does not need to enter the complete name, just part of the name.

- Select “Min-Max Longitude and Latitude” and enter the coordinates in decimal degree format.

- Select the “Search Button”.
- After the Water Spring Module is selected the following list is shown:

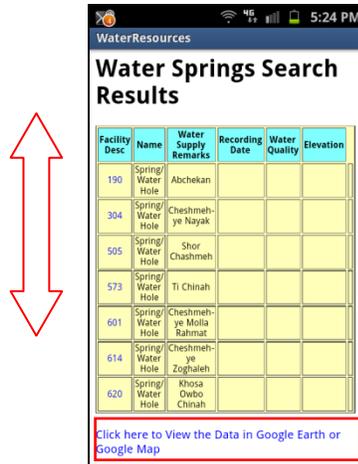
Facility Desc	Name	Water Supply Remarks	Recording Date	Water Quality	Elevation
190	Spring/ Water Hole	Abchekan			
304	Spring/ Water Hole	Cheshmeh- ye Nayak			
505	Spring/ Water Hole	Shor Chashmeh			
573	Spring/ Water Hole	Ti Chinah			
601	Spring/ Water Hole	Cheshmeh- ye Molla Rahmat			
614	Spring/ Water Hole	Cheshmeh- ye Zoghaleh			
620	Spring/ Water Hole	Khosa Owbo Chinah			

[Click here to View the Data in Google Earth or Google Map](#)

Note: If the selection has more than 300 features the following message will appear asking for make a more detailed search.

“Your query returns # records, too many to process. Please go back and narrow down your search”

- Scroll down the list and select the highlighted link to see the Water Springs locations in Google Earth or Google Maps.



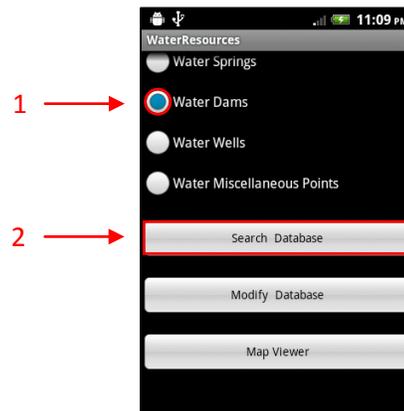
Facility Desc	Name	Water Supply Remarks	Recording Date	Water Quality	Elevation
190	Spring/Water Hole	Abchekan			
304	Spring/Water Hole	Cheshmeh-ye Nayak			
505	Spring/Water Hole	Shor Chashmeh			
573	Spring/Water Hole	Ti Chinah			
601	Spring/Water Hole	Cheshmeh-ye Moila Bahmat			
614	Spring/Water Hole	Cheshmeh-ye Zoghaleh			
620	Spring/Water Hole	Khosa Owbo Chinah			

[Click here to View the Data in Google Earth or Google Map](#)

- Select the back button on the device to make a different search query.

Dams

- Select “*Water Dams Module*”, and then select “*Search Database*”.



- Select “*Facility Description*” from the drop list ▼, then press Done.
 - Drop list option:
 - Dam/Weir

WaterResources

Water Dams Search

Facility Desc:

Country:

Administrative District:

Facility Name:

Purpose:

Min Latitude:

Max Latitude:

Min Longitude:

Max Longitude:

- Select “Country and Administrative Division” from the drop list ▼, then press Done.

Note: A first order Administrative Division is equivalent to a state in the United States.

WaterResources

Water Dams Search

Facility Desc:

Country:

Administrative District:

Facility Name:

Purpose:

Min Latitude:

Max Latitude:

Min Longitude:

Max Longitude:

- Select “Name and Remarks” and enter the name of the feature or a remark by touching over the field.

Note: The user does not need to enter the complete name, just part of the name.

- Select “Min-Max Longitude and Latitude” and enter the coordinates in decimal degree format.

WaterResources

Water Dams Search

Facility Desc:

Country:

Administrative District:

Facility Name:

Purpose:

Min Latitude:

Max Latitude:

Min Longitude:

Max Longitude:

- Select the “Search Button”.
- After the Water Dams Module is selected the following list is shown:

WaterResources

Water Dams Search Results

Facility ID	Facility Name	Water Supply Resource	Recording Date	Elevation (M)
711	Am Makhz AB	Basin Control		
712	Al Buzayn	Basin Control		
713	Al Buzayn	Basin Control		
714	Al Buzayn	Basin Control		
715	Al Buzayn	Basin Control		
716	Al Buzayn	Basin Control		
717	Al Buzayn	Basin Control		
718	Al Buzayn	Basin Control		
719	Al Buzayn	Basin Control		
720	Al Buzayn	Basin Control		
721	Al Buzayn	Basin Control		
722	Al Buzayn	Basin Control		
723	Al Buzayn	Basin Control		
724	Al Buzayn	Basin Control		
725	Al Buzayn	Basin Control		
726	Al Buzayn	Basin Control		
727	Al Buzayn	Basin Control		
728	Al Buzayn	Basin Control		
729	Al Buzayn	Basin Control		
730	Al Buzayn	Basin Control		
731	Al Buzayn	Basin Control		
732	Al Buzayn	Basin Control		
733	Al Buzayn	Basin Control		
734	Al Buzayn	Basin Control		
735	Al Buzayn	Basin Control		
736	Al Buzayn	Basin Control		
737	Al Buzayn	Basin Control		
738	Al Buzayn	Basin Control		
739	Al Buzayn	Basin Control		
740	Al Buzayn	Basin Control		
741	Al Buzayn	Basin Control		
742	Al Buzayn	Basin Control		
743	Al Buzayn	Basin Control		
744	Al Buzayn	Basin Control		
745	Al Buzayn	Basin Control		
746	Al Buzayn	Basin Control		
747	Al Buzayn	Basin Control		
748	Al Buzayn	Basin Control		
749	Al Buzayn	Basin Control		
750	Al Buzayn	Basin Control		

Note: If the selection has more than 300 features the following message will appear asking for a more detailed search.

“Your query returns # records, too many to process. Please go back and narrow down your search”

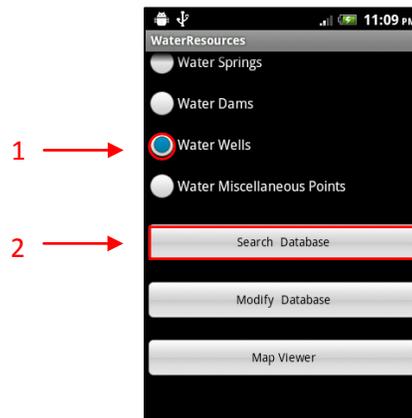
- Scroll down the list and select the highlighted link to see the Water Dams locations in Google Earth or Google Maps.

ID	Facility Name	Facility Description	Facility Type
737	Carrollville	Big Spring	Flow Control
738	Carrollville	Big Spring	Flow Control
739	Carrollville	Big Spring	Flow Control
740	Carrollville	Big Spring	Flow Control
741	Carrollville	Big Spring	Flow Control
742	Carrollville	Big Spring	Flow Control
743	Carrollville	Big Spring	Flow Control
744	Carrollville	Big Spring	Flow Control
745	Carrollville	Big Spring	Flow Control
746	Carrollville	Big Spring	Flow Control
747	Carrollville	Big Spring	Flow Control
748	Carrollville	Big Spring	Flow Control
749	Carrollville	Big Spring	Flow Control
750	Carrollville	Big Spring	Flow Control
751	Carrollville	Big Spring	Flow Control
752	Carrollville	Big Spring	Flow Control
753	Carrollville	Big Spring	Flow Control
754	Carrollville	Big Spring	Flow Control
755	Carrollville	Big Spring	Flow Control
756	Carrollville	Big Spring	Flow Control
757	Carrollville	Big Spring	Flow Control
758	Carrollville	Big Spring	Flow Control
759	Carrollville	Big Spring	Flow Control
760	Carrollville	Big Spring	Flow Control
761	Carrollville	Big Spring	Flow Control
762	Carrollville	Big Spring	Flow Control
763	Carrollville	Big Spring	Flow Control
764	Carrollville	Big Spring	Flow Control
765	Carrollville	Big Spring	Flow Control
766	Carrollville	Big Spring	Flow Control
767	Carrollville	Big Spring	Flow Control
768	Carrollville	Big Spring	Flow Control
769	Carrollville	Big Spring	Flow Control
770	Carrollville	Big Spring	Flow Control
771	Carrollville	Big Spring	Flow Control
772	Carrollville	Big Spring	Flow Control
773	Carrollville	Big Spring	Flow Control
774	Carrollville	Big Spring	Flow Control
775	Carrollville	Big Spring	Flow Control
776	Carrollville	Big Spring	Flow Control
777	Carrollville	Big Spring	Flow Control
778	Carrollville	Big Spring	Flow Control
779	Carrollville	Big Spring	Flow Control
780	Carrollville	Big Spring	Flow Control
781	Carrollville	Big Spring	Flow Control
782	Carrollville	Big Spring	Flow Control
783	Carrollville	Big Spring	Flow Control
784	Carrollville	Big Spring	Flow Control
785	Carrollville	Big Spring	Flow Control
786	Carrollville	Big Spring	Flow Control
787	Carrollville	Big Spring	Flow Control
788	Carrollville	Big Spring	Flow Control
789	Carrollville	Big Spring	Flow Control
790	Carrollville	Big Spring	Flow Control
791	Carrollville	Big Spring	Flow Control
792	Carrollville	Big Spring	Flow Control
793	Carrollville	Big Spring	Flow Control
794	Carrollville	Big Spring	Flow Control
795	Carrollville	Big Spring	Flow Control
796	Carrollville	Big Spring	Flow Control
797	Carrollville	Big Spring	Flow Control
798	Carrollville	Big Spring	Flow Control
799	Carrollville	Big Spring	Flow Control
800	Carrollville	Big Spring	Flow Control

- Select the back button on the device to make a different search query.

Water Wells

- Select “*Water Wells Module*”, and then select “*Search Database*”.



- Select “*Facility Description*” from the drop list ▼, then press Done.
 - Drop list option:
 - Well

- Select “Country and Administrative Division” from the drop list ▼, then press Done.

Note: A first order Administrative Division is equivalent to a state in the United States.

- Select “Name and Remarks” and enter the name of the feature or a remark by touching over the field.

Note: The user does not need to enter the complete name, just part of the name.

- Select “Min-Max Longitude and Latitude” and enter the coordinates in decimal degree format.

WaterResources

Water Wells Search

Facility Desc:

Country:

Administrative District:

Static Water Level:

Well Depth (m):

Water Supply Remarks:

Min Latitude:

Max Latitude:

Min Longitude:

Max Longitude:

- Select the “Search Button”.
- After the Water Wells Module is selected the following list is shown:

WaterResources

Water Wells Search Results

ID	Facility Name	Static Water Level	Depth Below Surface	Water Supply Remarks	Recording Date	Position (WGS)
221201	Well					
221202	Well					
221203	Well					
221204	Well					
221205	Well					
221206	Well					
221207	Well					
221208	Well					
221209	Well					
221210	Well					
221211	Well					
221212	Well					
221213	Well					
221214	Well					
221215	Well					
221216	Well					
221217	Well					
221218	Well					
221219	Well					
221220	Well					
221221	Well					
221222	Well					
221223	Well					
221224	Well					
221225	Well					
221226	Well					
221227	Well					
221228	Well					
221229	Well					
221230	Well					
221231	Well					
221232	Well					
221233	Well					
221234	Well					
221235	Well					
221236	Well					
221237	Well					
221238	Well					
221239	Well					
221240	Well					

[Click here to View the Data in Google Earth or Google Map](#)

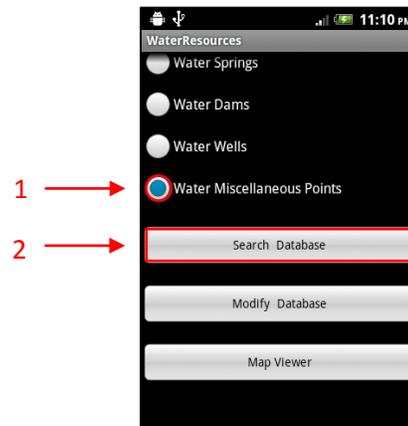
Note: If the selection has more than 300 features the following message will appear asking for a more detailed search.

“Your query returns # records, too many to process. Please go back and narrow down your search”

- Scroll down the list and select the highlighted link to see the Water Wells locations in Google Earth or Google Maps.
- Select the back button on the device to make a different search query.

Water Miscellaneous Points

- Select “*Water Miscellaneous Points Module*”, and then select “*Search Database*”.



- Select “*Facility Description*” from the drop list ▼, then press Done.
 - Drop list options:
 - Pumping Station
 - Gauging Station
 - River/Stream Vanishing Point
 - General Miscellaneous Feature Point (*Modules Distribution*)

- Select “*Country* and *Administrative Division*” from the drop list ▼, then press Done.

Note: Administrative Division is the same as states in the United States.

WaterResources

Water Miscellaneous Search

Facility Desc:

Country:

Administrative District:

Name:

Water Supply Remarks:

Min Latitude: (dec Deg)

Max Latitude: (dec Deg)

Min Longitude: (dec Deg)

Max Longitude: (dec Deg)

- Select “Name and Remarks” and enter the name of the feature or a remark by touching over the field.

Note: The user does not need to enter the complete name, just part of the name.

- Select “Min-Max Longitude and Latitude” and enter the coordinates in decimal degree format.

WaterResources

Water Miscellaneous Search

Facility Desc:

Country:

Administrative District:

Name: (text)

Water Supply Remarks: (text)

Min Latitude: (dec Deg)

Max Latitude: (dec Deg)

Min Longitude: (dec Deg)

Max Longitude: (dec Deg)

- Select the “Search Button”.
- After the Water Miscellaneous Points Module is selected the following list is shown:



Note: If the selection has more than 300 features the following message will appear asking for a more detailed search.

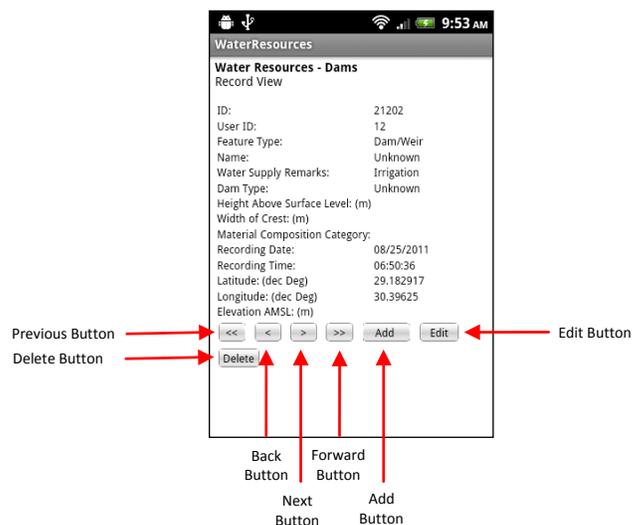
"Your query returns # records, too many to process. Please go back and narrow down your search"

- Scroll down the list and select the highlighted link to see the Water Miscellaneous Points locations in Google Earth or Google Maps.
- Select the back button on the device to make a different search query.

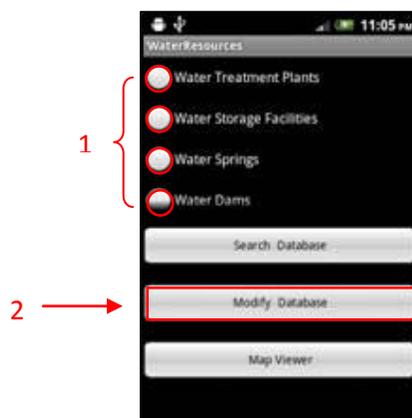
Modifying the Database

- On the modify database view, the user can add, edit or delete any collected water feature. The user can navigate through each water feature record using the backward, previous, next and forward buttons. When the user adds or edits a water feature, the application will display a window with the attributes options for the selected module.

Layout



- Select the intended Water Resources Module from the list, *and then* select “Modify Database”.



- Navigate along the files using the *Previous*, *Back*, *Next* and *Forward* buttons.



- Select the “Add button” to add new data to the selected Water Resources Module.
- Fill in all fields, and then select “OK”.

- *Note: If coordinates are not entered the data will not be saved.*

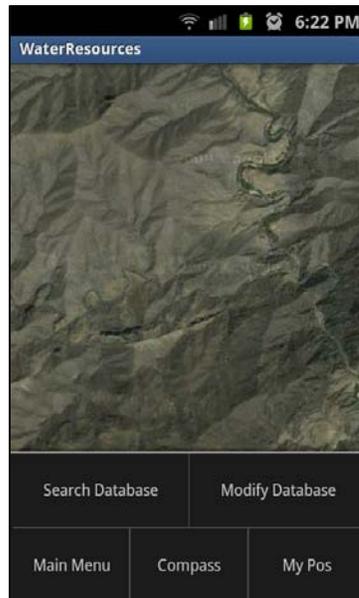
- Select “*Edit button*” to edit existing data in the selected Water Resources Module.
- Fill in all fields, and then select “*OK*”.

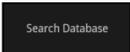
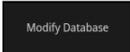
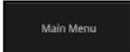
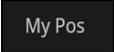
- *Note: If coordinates are not entered the data will not be saved.*

Map Viewer

The map viewer module allows the user to; display the selected water resource feature around the user’s current location. The user can find street addresses, landmarks, and places of business, and locate these points of interest directly on a street map or satellite image.

How to use the map viewer



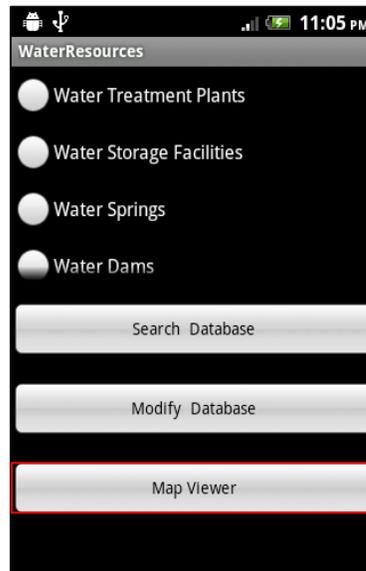
- **Search Database** 
 - Shortcut to search database view.
 - In the Map Viewer module, select **Menu**  to display the shortcut.
- **Modify Database** 
 - Shortcut to modify database view.
 - In the Map Viewer module, select **Menu**  to display the shortcut.
- **Main Menu** 
 - Shortcut to main menu view.
 - In the Map Viewer module, select **Menu**  to display the shortcut.
- **Compass** 
 - Display the field navigation compass.
 - In the Map Viewer module, select **Menu**  to display the Compass option.
- **My Pos** 
 - Display user's actual position.
 - In the Map Viewer module, select **Menu**  to display the Compass option.

Searching the Database Using Your Current Location

- Select the appropriate water resources feature module:
 - Water Treatment Plants
 - Water Storage Facilities
 - Water Springs
 - Water Dams
 - Water Wells
 - Water Miscellaneous Points

- Select Map Viewer

Note: The GPS option needs to be active to run this module, if the GPS is not active the default location will be at location: 33°N, 066°E



- Select **My Pos** option to display the user's current location.
- Select **Search Database** option to start the search of the selected water feature module.

Note: The application will use the user's current location as the center of the device screen and the four corners of the device screen as upper left-right and lower left-right coordinates to display the available features.



- Scroll down the list and select the highlighted link to see the selected module feature locations in Google Earth or Google Maps.

Note: If the selection has more than 300 features the following message will appear asking for make a more detailed search.

"Your query returns # records, too many to process. Please go back and narrow down your search"

- Select the back button on the device to make a different search query.

Adding Features to the Database using the Map Viewer

- Select the appropriate water resources feature module:
 - Water Treatment Plants
 - Water Storage Facilities
 - Water Springs
 - Water Dams
 - Water Wells
 - Water Miscellaneous Points
- Select the Map Viewer

Note: The GPS option needs to be active to run this module, if the GPS is not active the default location will be at location: 33°, 066°

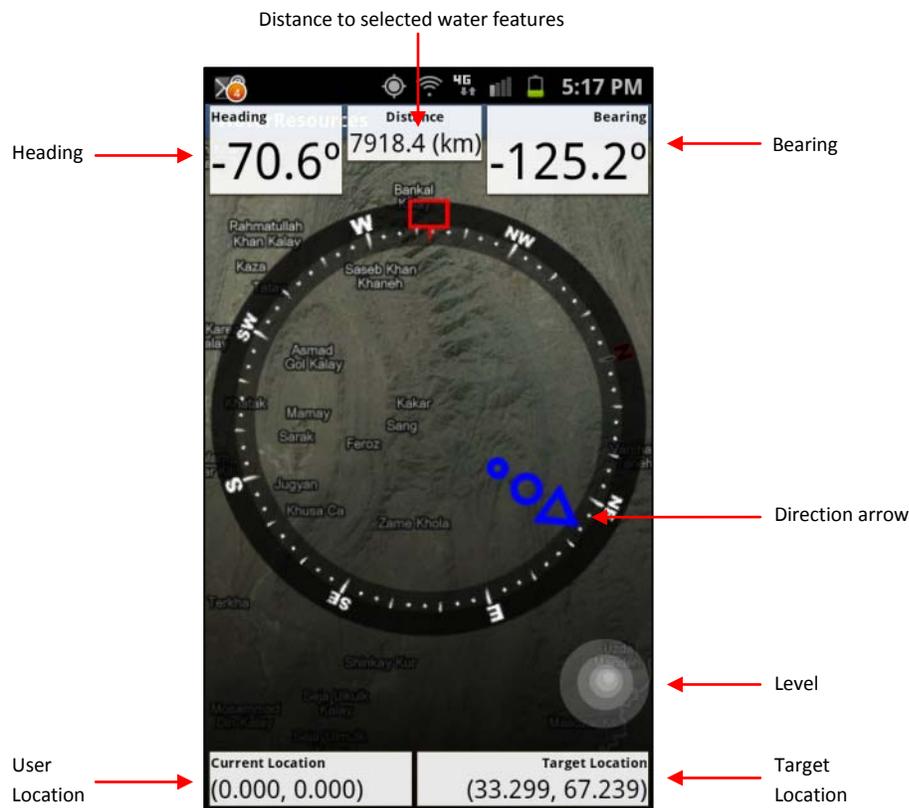
- Move the map to the identified feature.
- Double tap over the identified feature to place the point.
- Select Menu  (device option) and then Edit Database.
- Fill in all fields, and then select “OK”.

Note: The location is automatically saved when the user place the point.

- Select the back button on the device to select a different module.

Compass

The **Compass** is a graphic representation tool which allows the user to see their coordinate location and heading, the coordinates of the selected water resources feature, the distance between the user’s location and the selected water resources feature, and the orientation to the selected water feature using the internal sensors of the device.



- Select the water resources feature module:
 - Water Treatment Plants
 - Water Storage Facilities
 - Water Springs

- Water Dams
- Water Wells
- Water Miscellaneous Points
- Select Map Viewer

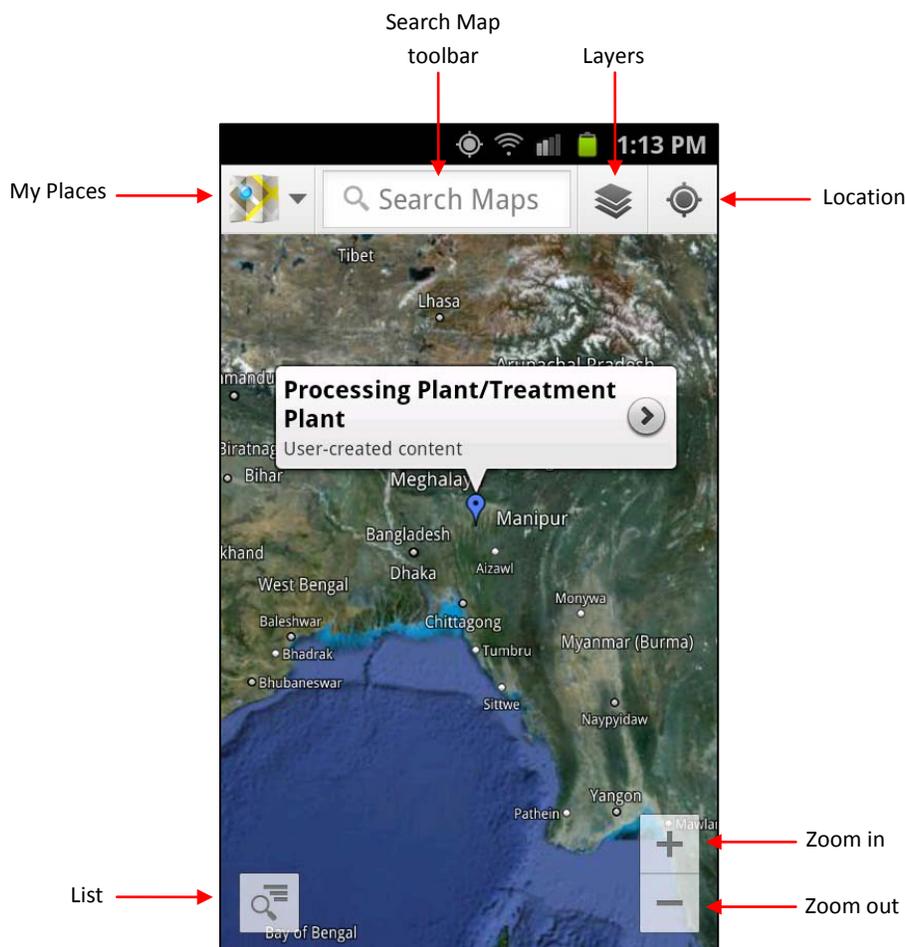
Note: The GPS option needs to be active to run this module, if the GPS is not active the default location will be at location: 33°N, 066°E

- Select **My Pos** option to display the user's current location.
- Move the map to the identified feature.
- Double tap over the identified feature to highlight.
- Select Menu  (device option) and then **Compass**.



- Select the back button on the device to select a different module.

Google Map Viewer



Google Map Viewer Icons

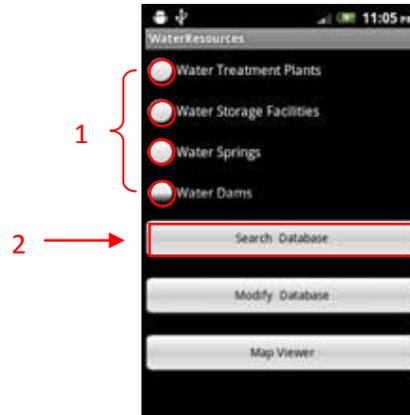
- My Places 
 - Display user saved locations.
- Search Map tool 
 - You can search for locations by touching the Search Maps toolbar button and entering the search term.
- Feature Point 
 - Display the selected water resource feature type.
- Layers 
 - Browse more layers to add to the map such as traffic, satellite view, terrain, transit or bicycling.

- See layers that are currently on the map and turn on/off individual layers.
- Clear all layers from the map.
- Location 
 - Turn on/off GPS location
 - Depending on which location options you have enabled, you will see varying degrees of approximation, with GPS satellites providing the best accuracy, followed by wireless networks, then cell networks.
 - Press > Home  > Menu  , and select *Settings > Location & security*.
- List 
 - Touch the List View icon to see an attribute list of the selected water feature module.
- Zoom in 
 - The zoom toolbar is displayed on the lower right-hand side of the map viewer. Use the zoom toolbar to zoom in for a close-up view.
- Zoom out 
 - The zoom toolbar is displayed on the lower right-hand side of the map viewer. Use the zoom toolbar to zoom out of the map for a large-scale view.
- Back 
 - Navigate to the previous option.
- Next 
 - Navigate to the next option.
- Google Compass Mode 
 - Compass mode allows the user to see an angled view of the area around the user location, oriented in the direction in which the user is facing or moving.
 - Touch the Location icon  in the header. It will turn into a compass rose icon.
 - Touch the compass rose icon.
 - The map will orient itself in the direction you're facing and shift from an overhead view to a more angled view.
 - To exit Compass mode, touch the compass rose icon again.
- Directions 
 - Display on the map the course to the selected water feature.
 - In the Map View, select **Menu**  > Clear Map.
- Clear Map 
 - Clear search results, directions, layers or selected places from the map.

- In the Map View, select **Menu**  > Clear Map.
- More 
 - Additional Google features such a rate it and like it.
 - In the Map View, select **Menu**  > More.
- Setting 
 - Allow the user to see information and settings about the app.
 - Cache settings
 - Google Labs
 - Lab is a testing ground for experimental features that aren't quite ready for primetime. They may change, break or disappear at any time.
 - Terms, Privacy and Notices
 - About
 - In the Map View, select **Menu**  > Setting.
- Help 
 - Opens an online Google support Center in your browser.
 - In the Map View, select **Menu**  > Help.

How to display the selected Water Resources Features in Google Maps

- You must have location services (GPS) turned on to view your location in Maps and to use your location to find local resources.
 - Press > *Home*  > *Menu* , and select *Settings* > *Location & security*.
 - Check the My Location options that you want to use.
 - **Wireless networks** to allow the phone to determine your approximate location by using Wi-Fi and mobile networks.
 - **GPS satellites** to allow your phone to determine your location to street-level accuracy. (GPS works best when you have a clear view of the sky)
 - Press > *Home*  to return the main view.
- Browse to the location of the **HyDRA** icon and select it.
- Fill in your *username* and *password*; then press the *Login* button > *OK*.
- On the main Water Resources View, select the appropriate *Water Resource Module*, and then select *Search Database*.

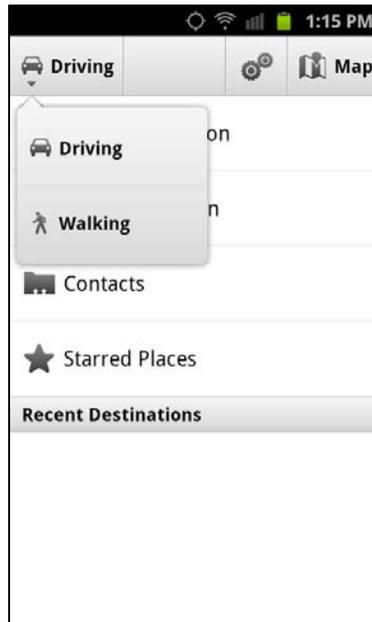


- Select, *Facility Description* > *Country* > *Administrative Division* > and fill in any additional fields to make a narrower search, then select > *Search*.
 - Go to **Mobile (HyDRA v.1.0-Android)** section for graphical instructions.
- Select the highlighted link at the end of the list to see the selected Module locations in Google Earth or Google Maps.
 - *Note: If the selection has more than 300 features the following message will appear asking for a narrower search.*

“Your query returns # records, too many to process. Please go back and narrow down your search”
- On the Google Map View, navigate to the point of interest by using the zoom in, zoom out buttons or the search toolbar.

Google Maps for Android

- Google Maps Navigation is an internet-connected GPS navigation system with turn-by-turn voice guidance. Navigation is a feature of the Google Maps app for Android.



Features in Google Maps for Android

- Location 
 - See your location on a map, even if you don't have GPS.
 - Touch the **Location** icon  in the search bar.
 - The map centers on a blue arrow that indicates your location. A blue circle around the arrow indicates that your current location is within the circle.
 - Touch the **Location** icon  again to enter *compass mode*, where the map will orient itself in the direction you're currently facing.
- Navigation (Beta) 
 - Google Maps Navigation is an Internet-connected GPS navigation system with voice guidance.
- Browse local places
 - Search for any business or category of interest.

- Driving directions
 - Uses the user's current location as a starting point.
- Transit and walking directions
 - Get routes and schedules to travel via subway, bus, or on foot.
- Street View
 - View street-level imagery of businesses and turns in directions.
 - Touch and hold a location on a map to open an info window with the address and a Street View thumbnail.
 - Touch the info window.
 - On the page that opens, touch the **Street View** icon.
- Traffic
 - Real-time traffic information.

Navigate the map

In Google Maps for Android, you can pan, rotate, zoom, and tilt the map with the following gestures on your touch screen device.

- Move the map
 - Drag the map with your finger to move the map.



- Rotate the map
 - Touch an area with two fingers and drag them simultaneously in a circular motion to rotate.



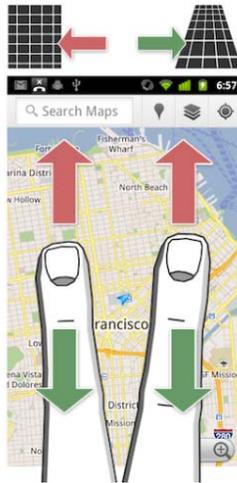
- Zoom in or out
 - Control the map zoom by following one of the steps below:
 - Touch the plus or minus side of the zoom control.
 - Double-tap a location on the map with one finger to zoom in to that location; tap once with two fingers to zoom out.
 - Touch an area with two fingers at once and spread them apart to zoom in; pinch them together to zoom out.

Note: Not all zoom levels are available for all locations.



- Tilt the map
 - Touch an area with two fingers and drag them from top to bottom in parallel to see an angled view of the map. Drag from bottom to top to return to an overhead view.

- In an angled view, touch the compass icon in the top-right corner to return to an overhead, North-up view. At lower zoom levels, 3D buildings will appear on the map for select cities.



Data Connection Loss

If you lose your data connection while using Google Maps Navigation:

- Navigation will continue as long as you do not deviate from your prescribed route, but underlying map tiles may not load.
- The navigation icon  in the notification bar will be gray instead of blue.
- If you deviate from your route, you will not receive a reroute until you re-establish a data connection.