

GROUNDWATER DATA SUBMITTAL GUIDANCE DOCUMENT (Version 3.3)

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PREPARED BY:

**ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY
WASTE PROGRAMS DIVISION
REMEDIAL PROJECTS SECTION**

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Attachment A. GWDB Electronic Data Submittal Transmittal Form

I. SUMMARY OF CHANGES

Version 3.1 to Version 3.3

This section highlights changes between Version 3.1 (December 2003) and Version 3.3 of the Groundwater Data Submittal Guidance Document. Changes in Version 3.2 from Version 3.1 consisted of spelling corrections and change of an e-mail address. Additional minor corrections resulted in Version 3.3 from Version 3.2 such as re-naming of the Superfund Programs Section to the Remedial Projects Section being reflected in the documents. Additionally, the issue of duplication errors precluding loading has been corrected with addition of new sample type codes. Samples results from the same Reporting Agency at the same date and time for the same ADEQ Well Number can now be loaded with different Lab Names (codes) and Lab IDs. Multiple samples with the same Reporting Agency with different sample depths, Sample IDs, or collecting agencies may require modification to the time to allow loading. Please refer to the updated table WQR227-2 (Sample Type) and note and use the appropriate codes for your samples. The changes from Version 3.1 to Version 3.3 do not affect the method of preparing a groundwater data submittal or the format.

II. INTRODUCTION

The Remedial Projects Section (RPS) of the Arizona Department of Environmental Quality (ADEQ) receives a large volume of data in hard copy format which is difficult to manage and time consuming to enter into ADEQ's Groundwater Quality Database. In order to manage the large volume of groundwater data that the RPS receives, it has become imperative that these data are submitted electronically in a format compatible with the ADEQ Water Quality Database.

This guidance document describes the format and procedures for the submittal of groundwater data electronically. This cooperative effort between the RPS and the facilities for which the RPS has oversight responsibility will lead to more efficient and effective data management that will benefit all parties involved. The RPS expects to be able to analyze and synthesize data more readily, providing a higher level of service to our internal and external customers.

The RPS has identified three general types of data that would most readily be managed electronically:

- 1) well inventories,
- 2) water quality data, and
- 3) water elevation data.

To facilitate the loading of electronic data, the RPS has worked with outside laboratories and environmental consultants to identify the minimum critical data necessary that will allow RPS to manage these data efficiently, and has attempted to develop a procedure that will be minimally burdensome on the facilities that submit data.

To ensure consistency, many of the fields of the requested format have a pre-defined list of entries. In the description of these fields, reference is made to the appropriate look-up table that contains the list of entries and codes. Look-up tables are downloadable in .pdf format from the ADEQ website at: <http://www.adeq.state.az.us/environ/waste/sps/index.html>. Please see Section V (Table Definitions) for more information.

Data will be managed in the State of Arizona's Groundwater Quality Database (Database) and will become public records. As public records, these data will be available to all interested parties in both electronic and print media. We welcome your comments and suggestions regarding this effort.

Any questions or comments regarding this document should be directed to RPS Submittal Coordinator, Lowell Carty at carty.lowell@azdeq.gov or (602) 771-4413.

III. PROCEDURE NARRATIVE

A. Well Inventory Submittal

Identify all wells in the facility/organization groundwater monitoring network. ADEQ staff can query the Database by township and range to provide the submitter with a fixed-width ASCII file of wells already in the Database; contact RPS Submittal Coordinator, Lowell Carty at carty.lowell@azdeq.gov or (602) 771-4413. All groundwater data must be related to an **ADEQ well number**, which will be assigned by ADEQ. The ADEQ well number will serve as the unique identifier, or primary key, to which all other data will be related.

Single Screened Interval

Wells with a single screened interval will be assigned a single ADEQ well number.

Multiple Screened Intervals or Sampling Ports

Specialty wells installed to collect depth specific samples from multiple screened intervals or sampling ports (e.g. Westbay or nested wells) will be assigned an ADEQ well number for each sampling port or interval. For those specialty wells, please list each sampling port or interval as a separate record. If you have a unique situation, contact RPS Submittal Coordinator, Lowell Carty at carty.lowell@azdeq.gov or (602) 771-4413.

The RPS anticipates the submitter will make every effort to compile information for each of the data fields requested. However, the RPS recognizes the variability of historical data; therefore, the requirements may be relaxed for historical well inventory data submittals on a case by case basis. A complete description of the table structure, required data fields, and applicable look-up tables can be found in Section V.

Once ADEQ receives the well inventory from the facility/organization, ADEQ well numbers will be assigned. An electronic copy of the inventory that includes the ADEQ numbers will then be returned to the facility/organization. This procedure is required only one time so that ADEQ can establish entries in the database for each of your wells.

B. Water Quality Data Submittal

Once ADEQ well numbers have been established, it is possible to submit groundwater quality sampling results. Due to the variable nature of historical water quality data, the data requirements may be relaxed on a case by case basis for historical submittals. A complete description of the table structure, required data fields, and applicable look-up tables can be found in Section V.

C. Water Elevation Data Submittal

Once ADEQ well numbers have been established, it is possible to submit groundwater elevation measurements. Due to the variable nature of historical data, the data requirements may be relaxed on a case by case basis for historical submittals. A complete description of the table structure, required data fields, and applicable look-up tables can be found in Section V.

IV. PROCEDURE SNAPSHOT

1. Develop and submit well inventory to the RPS Submittal Coordinator.
2. ADEQ will return an electronic copy of the ADEQ well number(s) within approximately 21 days of the date of receipt. The six digit field (ADEQ WELL NUMBER) is a unique identifier that will be attached to all groundwater quality results and water level elevation data submitted for that sampling port/screened interval.
3. Following receipt of the unique identifiers, groundwater quality and water level elevation data may be submitted in accordance with the formats described in the groundwater quality table definitions and the groundwater elevation table definitions, found in Section V of this document.

If you find that there are missing lookup codes in associated lookup tables for data you've collected, please contact Lowell Carty at carty.lowell@azdeq.gov or (602) 771-4413. Arrangements will be made for updating ADEQ's database with new lookup codes reflecting your data submittal. Because lookup tables can change monthly, it is important to download an updated version of the look-up tables each time an electronic data submittal is prepared.

V. TABLE DEFINITIONS

A table for each of the 3 types of submittal is included in this Section. The Field Name column identifies the data elements that will be submitted; descriptive definitions can be found in the Requirements/Comments column. The Field Length column identifies the maximum length for each data element. The Position column identifies the position that the field will begin and end. The "Look-Up Table Name" and "Look-Up Table No." columns identify the associated look-up table, if any.

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A. Well Inventory Submittal

Format: ASCII fixed-width. (All fields are left justified.)

Do not export header row with data.

Submittal may be upper or lower case or combination. ADEQ program will automatically convert all text to caps.

Note: In the case of multi-port wells, please list each sampling port as a separate record entry.

Field Name	Field Length	Position	Look-Up Table Name	Look-Up Table No.	Requirements/Comments
ADEQ Well Number	6	01-06			Unique identifier of the well in the database. Field should be left blank in well inventory submittal unless this is an update to an existing well record.
Well Name	25	07-31			Facility or common name of well.
ADWR Number	9	32-40			55-xxxxxx ADWR registration number for the well.
Longitude	12	41-52			dddmmss.ssss Longitude of well using NAD 27 datum.
Latitude	11	53-63			ddmmss.ssss Latitude of well using NAD 27 datum.
Latitude/Longitude Method	1	64	Latitude/Longitude Measuring Methods	WQR218	Method used to determine lat/long location of well.
Top of Screened Interval	7	65-71			In feet below measuring point elevation.
Bottom of Screened Interval	7	72-78			In feet below measuring point elevation.
Drill Depth	7	79-85			Total drilled depth of the borehole, in feet below ground surface . This may or may not be the same as the total depth of the well.
Measuring Point Elevation	7	86-92			Measurement point elevation of the well (datum NAVD29), in feet above mean sea level .
Measuring Point Elevation Method	1	93	Elevation Measuring Methods	WQR202	Method used to determine the measurement point elevation of the well.

B. Water Quality Data Submittal

Format:ASCII fixed-width. (All fields are left justified.)

Do not export header row with data. Submittal may be upper or lower case or combination. ADEQ program will automatically convert all text to caps.

Starred fields (*) are not required when sample type is code F (field conditions), *P (physical regular)*, *O (physical duplicate)* and *Q (physical split)*.

Do not include data from surrogates, trip blanks, field blanks, or equipment rinsate blanks.

Field Name	Field Length	Position	Look-Up Table Name	Look-Up Table No.	Requirements/Comments
ADEQ Well Number	6	01-06			Unique identifier of the well in the database. Well number must be submitted exactly as it was assigned. If it was assigned as 10, then there would be no leading zeros; if it was assigned as 00010, then the leading zeros are required.
Lab Name*	5	07-11	Laboratories	WQR231	Name of the laboratory conducting the analysis.
Reporting Agency	5	12-16	Agencies	WQR201	Name of agency/consulting firm submitting the data to ADEQ.
Collecting Agency	5	17-21	Agencies	WQR201	Name of agency/consulting firm that collected the data.
Sample ID	60	22-81			Sample identifier given by the sampler.
Sample Type	1	82	Sample Types	WQR227 -2	Type of sample collected. <i>Note the new look up table has F for field conditions and P for physical, O for physical duplicate and Q for physical split. One of the codes F, P, O or Q must be used for field analysis. You will see similar code structure, regular, duplicate and split for the other sample types, e.g., Grab (code G), Grab Duplicate (code 0) and Grab Split (code 1). Multiple codes were needed for the new database structure which allows loading data from the same well on the same date and at the same time with varying labs, lab ids, and reporting agencies.</i>
Lab ID*	15	83-97			Sample identifier assigned by the lab.
Sample Date	10	98-107			mm/dd/yyyy Date the sample was collected.
Sample Time	4	108-111			military format (e.g. 1330) Time the sample was collect-ed. Sample time must be unique for each Sample id.
Sample Depth	7	112-118			The depth of the sample is defined as the depth to the intake of the pump, the depth to the sample collection opening on the bailer, or the depth to the center of a passive diffusion bag sampler or a depth specific sampling device. Measure in feet below measuring point elevation (datum NAVD29).
Extraction Date*	10	119-128			mm/dd/yyyy Date the sample was extracted. Report as listed on lab sheet. Not all cases will have an extraction date.

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continuation of: **B. Water Quality Data Submittal**

Field Name	Field Length	Position	Look-Up Table Name	Look-Up Table No.	Requirements/Comments
Analysis Date	10	129-138			mm/dd/yyyy Date sample was analyzed. There must be an entry for the ANALYSIS Date field. For field samples use the date of measurement.
Method	20	139-158	Accepted Laboratory Methods	WQR206	EPA/ADHS method number.
STORET	5	159-163	STORET Codes	WQR246	Include leading zeros in STORET code. A STORET code is a numeric ID number for analytes based on media & analysis type. If you do not find a STORET code that matches your analysis, contact ADEQ Submittal Coordinator. The value being reported must be associated with a STORET number.
Lab Reporting Limit*	8	164-171			Lab reporting limit of the analyte. Lab Reporting Limit Units must also be filled in.
Lab Reporting Limit Units*	8	172-179	Measuring Units	WQR222	Units in which limits are detected. Must be included with Lab Reporting Limit field.
Results	12	180-191			Sample result. Must be numeric value only . If results cannot be reported numerically (i.e. <0.5), use 'LT' code in Lab Notation field and 0.5' in results field. If result is non-detect, leave result field null and use 'ND' in Lab Notation field and null in Result Units. If the Results field is null, the Lab Notation field MUST have a Lab Notation Code of TR, ND or O (sample not analyzed).
Lab Notation	3	192-194	Laboratory Notation	WQR243	The laboratory notation of a result value. This may include ND, "not detected"; Q "holding time exceeded", M "duplicate analysis outside of control limits", TR "Trace", O "sample not analyzed" or others in Laboratory Notation look-up table. Only the codes TR, O and ND can be used with a null value in the Results field. The codes U and UJ do require values in the Results field.
Continued					

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continuation of: **B. Water Quality Data Submittal**

Field Name	Field Length	Position	Look-Up Table Name	Look-Up Table No.	Requirements/Comments
Result Units	8	195-202	Measuring Units	WQR222	Units in which results are reported. If TR, ND or O is used in Lab Notation, Results Units must be null. If a numeral value is reported in the Results field, then Result Units must be reported and TR, ND or O may not be reported in the Laboratory Notation field.
Dilution*	10	203-212			Dilution factor for the analysis, if any. If no dilution was applied, enter a '1' . The dilution factor field can accept real numbers including numbers less than 1 for concentration of metals or other samples.
Arizona Data Qualifier1*	3	213-215	Arizona Data Qualifier	WQR282	Arizona Data Qualifiers are reported on lab sheets. Arizona Data Qualifiers provide an additional description about the result. Up to 10 Arizona Data Qualifiers can be submitted per result.
Arizona Data Qualifier2*	3	216-218	Arizona Data Qualifier	WQR282	
Arizona Data Qualifier3*	3	219-221	Arizona Data Qualifier	WQR282	
Arizona Data Qualifier4	3	222-224	Arizona Data Qualifier	WQR282	
Arizona Data Qualifier5*	3	225-227	Arizona Data Qualifier	WQR282	
Arizona Data Qualifier6*	3	228-230	Arizona Data Qualifier	WQR282	
Arizona Data Qualifier7*	3	231-233	Arizona Data Qualifier	WQR282	
Arizona Data Qualifier8*	3	234-236	Arizona Data Qualifier	WQR282	
Arizona Data Qualifier9*	3	237-239	Arizona Data Qualifier	WQR282	
Arizona Data Qualifier10*	3	240-242	Arizona Data Qualifier	WQR282	

C. Water Elevation Data Submittal

Format: ASCII fixed-width. (All fields are left justified.)

Do not export header row with data

Submittal may be upper or lower case or combination. ADEQ program will automatically convert all text to caps.

Field Name	Field Length	Position	Look-Up Table Name	Look-Up Table No.	Requirements/Comments
ADEQ Well Number	6	01-06			Unique identifier of the well in the database. Well number must be submitted exactly as it was assigned . If it was assigned as 10, then there would be no leading zeros; if it was assigned as 0010, then the leading zeros would be required.
Measuring Point Elevation	7	07-13			Measurement point elevation of the well (datum NAVD29), in feet above mean sea level .
Measuring Point Elevation Method	1	14	Elevation Measuring Methods	WQR202	Method used to determine the measurement point elevation of the well.
Measurement Date	10	15-24			mm/dd/yyyy Date of the water level measurement.
Measurement Time	4	25-28			military format (i.e.1350) Time of the water level measurement Measurement time must be unique for each measurement .
Depth to Water	7	29-35			Depth to water, in feet below measuring point elevation .
Well Status	1	36	Well Status Types	WQR238	Conditions that may affect the measured water level.
Water Level Measurement Method	1	37	Water Level Measurement Method	WQR233	Method used to measure depth to water. See question and answer section for free product.
Collecting Agency	5	38-42	Agency	WQR201	Name of agency/consulting firm that collected the data.

VI. Questions and Answers

- Q:** Our office uses Microsoft Access. How do I create an ASCII fixed width text file?
- A:**
- 1) In the database window, click the name of the table or query you want to export, and then in the **File** menu, click **Save As/Export**.
 - 2) In the **Save As** dialog box, click **To An External File Or Database**, and then click **OK**.
 - 3) In the **Save As Type** box, click **Text Files**.
 - 4) Click the arrow to the right of the **Save In** box and select the drive or folder to export to.
 - 5) In the **File Name** box, enter the file name, and then click **Export**. Microsoft Access starts the Export Text Wizard. If you saved a specification when exporting this table or query previously and want to load it, click **Advanced**, click **Specs**, and then double-click the specification.

Note: At any point before clicking Finish, you can click the **Advanced** button to specify the text format to save as [Windows (ANSI) or DOS OS/2 (PC-8)] date, time, and number formats; and which columns to export.

- 6) Choose to create a fixed-width file, and then click **Next**.
- 7) Follow the directions in the remaining dialog boxes.

Note: When the wizard is finished, it automatically saves a specification of the choices you made to the default name: *Filename_ExportSpec*. To specify the name yourself, click **Advanced**, click **Specs**, and then click **Save As**. You can load this specification the next time you export data from the same table or query so you don't have to make the same choices again.

- Q:** What if I find incorrect information for a well that exists in the Database?
- A:** Please contact the RPS Submittal Coordinator with the ADEQ Well Number and the correct information. They will convey this to the appropriate person to have the corrections made in the Database.
- Q:** Is there any case sensitivity in the Database?
- A:** There is code in the Database that will set everything to upper case. You can submit it in either upper or lower case.
- Q:** Do I need to include the leading zeros on STORET CODE fields?
- A:** Yes, ADEQ needs the STORET CODE of submittals to match our database exactly. For example, a STORET code 00010 must be submitted as 00010, not "10".
- Q:** Do I need to include the leading zeros on ADEQ WELL NUMBER fields?
- A:** ADEQ needs the ADEQ WELL NUMBER of submittals to match our database exactly. For example, an ADEQ WELL NUMBER of 10 must be submitted as 10 and an ADEQ WELL NUMBER of 002067 must be submitted as 002067, not "2067".
- Q:** Do header rows need to be exported with the dataset?
- A:** No, they do not. By following the fixed width format, ADEQ knows what to expect in each column.

- Q:** Do I include data from trip blanks, field blanks, or equipment rinsate blanks?
A: No. If a sample is not directly associated with a well, we cannot accept it.
- Q:** Do I include data from surrogates as a record?
A: No. If a sample or result is not directly associated with a well and the ambient conditions of the water quality it is not included in the data submittal. This information should be included in the reports and laboratory information submitted to ADEQ for the paper files. The data for the wells should include the Arizona Data Qualifiers for surrogate notation if applicable for the analysis run.
- Q:** Does ADEQ want data that has previously been loaded resubmitted to create a complete up to date submittal of data for the site/project?
A: It is preferred that only the data which has not been previously captured in the database be submitted for loading. Identification and exclusion of duplicate records is time consuming and must be completed to exclude duplicate records resubmitted. Please only submit data that has not been loaded. If records are needed to determine what has been previously loaded, please contact the RPS Data Submittal Coordinator.
- Q:** Do I include field measured water quality parameters (i.e. pH, specific conductance, temperature etc.)?
A: Yes, please include this data. Please use the sample type code “F” and the appropriate STORET codes for the parameter.
- Q:** What Sample Type code(s) must be used for field analysis?
A: The code “F”, “P”, “O” or “Q” must be used for field analysis. If these codes are not used and the starred fields are null, the data will not load in the Oracle database.
- Q:** What should be done if there is concern that there may have been a change in the land surface elevation when water elevation measurements are being taken?
A: The Well Status Types code may be reported as Z, other conditions that would affect the measured water level. It is also suggested that the ADEQ Hydrologist be notified of this as well as a comment on the data submittal form.
- Q:** In taking temperature for free product, is there a special STORET code that should be utilized?
A: Presently, either STORET 00010 Centigrade Temperature (Degrees) or STORET 00011 Fahrenheit Temperature (Degrees) may be used and reported with the appropriate units for the method. If free product is encountered, a default to STORET 00010 Centigrade Temperature (Degrees) is preferred as this is the form for reporting the temperature when measuring the specific gravity using STORET 72012.
- Q:** How should the specific gravity of free product be determined and how should this be considered when providing water level measurements?
A: STORET codes and the associated methods 71821, 72012, 72013, 72041, 80110 and 82205 may be used to determine the specific gravity. There is a preference that method 72012 is used for this measurement and that the measurement is taken at the temperature in the well. Since this is in degrees Centigrade for this STORET, groundwater should be adjusted for the displacement of the groundwater by the free product. The measurement reported should be the adjusted depth to groundwater which would be the depth to liquid minus the height of free product adjusted based upon the specific gravity differences. The

EPA document EPA 510-R-96-001 titled *How to Effectively Recover Free Product at Leaking Underground Storage Tank Site A guide for State Regulators* in Exhibit III-10 *Corrections to Compute Hydraulic Head in Wells Containing Free Product* shows how to obtain correct hydraulic head.

- Q:** What media should I submit data in?
A: CD, floppy disk, or electronic (e-mail) transmittals are all acceptable.
- Q:** How often should I submit data?
A: Sampling data should be provided to the RPS Submittal Coordinator at the same frequency the data is collected.
- Q:** What if I discover an error after the data has been submitted and downloaded into the Database?
A: Contact the RPS Submittal Coordinator and inform him of the error.
- Q:** What if there is not a look-up code for something I need (e.g., my agency)?
A: Send an e-mail to the RPS Submittal Coordinator giving a detailed description of what needs to be added. The ADEQ will work internally to make the addition, and e-mail back to you the appropriate look-up code.
- Q:** If a consultant is working for a client, does this influence the collecting and reporting agency codes reported?
A: In general, the consultant company would be the collecting agency and the client would be the reporting agency. This may require both consultant company and client/regulated entity or interested party to obtain agency codes. If these are needed, please contact the RPS Submittal Coordinator.
- Q:** What if my laboratory method of analysis does not appear in the "ACCEPTABLE LABORATORY METHODS" table?
A: Send an e-mail to the RPS Submittal Coordinator giving the method, the laboratory, and a description of the method. ADEQ will research it, add the laboratory method if appropriate, and inform you of the outcome.
- Q:** If we do our own data validation, should our codes supersede those from the laboratory in the LAB NOTATION field?
A: In general, you should report the data to the RPS exactly as the laboratory reports it to you. However, there are exceptions to this. If you have any questions or concerns, contact the RPS Submittal Coordinator.
- Q:** Must there be an entry for the ANALYSIS DATE field even for field samples?
A: Yes, there must be an entry for the ANALYSIS Date field. For field samples you may use the sample date or the date results are obtained if there is some time lag before the results are available.
- Q:** What LAB NOTATION codes may be used if the results are null?
A: Only the codes TR, O and ND can be used with a null value. The codes U and UJ do require values in the Results field before they may be used.

- Q:** Is the extraction date required?
- A:** Yes. If your results from the laboratory do not include an extraction date, please contact the laboratory and the RPS Submittal Coordinator. In the event there is not an extraction date or concentration/digestion date for the sample, please report this in the cover for the data submittal.
- Q:** If the laboratory reports a Tentatively Identified Compound (TIC), is a STORET number required?
- A:** Yes. The laboratory must associate the value being reported with some compound and the appropriate STORET number for the data to be loaded into the database. The Arizona Data Qualifiers should be used to allow for understanding that the identity of the compound is uncertain.
- Q:** What if the STORETCODE look-up table has an analyte that matches my analyte, but the units that do not match the units of my results?
- A:** If there is a STORET code where the analyte and the units both match, please use that STORET code. Units is one of the fields you will submit in the water quality data submittal. Therefore, if the analyte name matches but the units in the STORET code don't match, it is acceptable to use that STORET code.
- Q:** Is there any justification I should use?
- A:** ASCII fixed-width format automatically left justifies all fields.

Attachment A



**Ground Water DataBase
Electronic Data Submittal
Transmittal Form**

Please submit this transmittal form with each electronic data submittal. Submit only one data type file with each transmittal form. Direct transmittal form and electronic data submittal(s) to Lowell Carty, Remedial Projects Section Submittal Coordinator, carty.lowell@azdeq.gov (602.771.4413)

Submitting Agency			
Contact Name			
Phone number			
Email Address			
Superfund Site(s)			
Sampling Period			
Source Document			
RPS Project Manager			
RPS Hydrologist			
Data Type (select one)	Well	Water Quality	Water Level

Please specify if you are using version 3.1 or 3.3 of the guidance and Sample Type look up table codes.

Comments:

Thank you for your data submittal.