

Section L – Form GW-1 and Form GW-2

Groundwater Application and Groundwater Protection Determination

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Introduction

The following document contains informal guidelines concerning some situations in which Groundwater Determinations are required. **These guidelines should not be construed to supersede any Commission orders or statewide rules.**

If you are an oil or gas operator in Texas, the Railroad Commission of Texas may require you to obtain a Groundwater Protection Determination, which states the base of usable-quality groundwater and additional isolation zones that should be protected for a well or multiple wells within a specified area.

Groundwater Advisory Unit (GAU) provides Groundwater Protection Determinations for surface casing, plugging, underground injection and other underground activities.

The Groundwater Advisory Unit (GAU) provides three types of Groundwater Protection Determinations: Groundwater Protection Determination for typical oil field activities, Groundwater Protection Determination for Saltwater Disposal Wells, and Groundwater Protection Determination for Seismic Surveys.

You can contact the GAU directly for questions specific to filling out the GW-1 Application or with regards to a general discussion about your determination results. However, the GAU is an advisory group and any questions or concerns with regards to the influence that a particular Groundwater Protection Determination may have on a permit or permitting process should be directed to the Manager of the applicable Technical Permitting Unit or the Director of the applicable District Office. Those managers and directors have the authority to determine what impact, if any, a Determination may have on a permit or permitting process.

Items Required for a Groundwater Protection Determination (Form GW-2)

Check Box	Item	Rule	Explanation
	P-5	SWR 1	Use of the online Groundwater Application requires oil and gas operators to have registered with the Railroad Commission of Texas by filing an annual Organization Report (Form P-5). If you are not a registered P-5 operator, you will be required to submit the Form GW-1 using the Interactive PDF format version. For instructions on filing the Form GW-1 by PDF go to the Instructions for Completing Form GW-1 (PDF) page.
	GW-1	SWR 5, 81, 95, 96, 97, 99 & 100	These rules may require one to obtain a Groundwater Protection Determination, which states the Base of Usable-Quality Groundwater (BUQW) and additional isolation zones that should be protected for a well or multiple wells within a specified area. For disposal and cavern storage wells a Determination for the base of the Underground Source of Drinking Water (USDW) and geologic isolation may be required.
	GW-1	SWR 5, 81, 95, 96, 97, 99 & 100	For Seismic Surveys, underground hydrocarbon storage, and solution mining a Groundwater Protection Determination providing a range of depths for the BUQW across the seismic survey, storage or brine mining formation(s) may also be required.
	Scaled Map		A scaled map showing the well location and surrounding survey lines.
	Well Log		A copy of the electric log, if you are plugging, re-entering an existing well, applying for a W-14 Permit or converting to a water well (Form-P13 Application of Landowner to Condition an Abandoned Well for Fresh Water Production); The applicant will be contacted if additional logs are required.
	Fee	SWR 78	Application fee (Expedited fee, optional)

This information can be found on the Railroad Commission of Texas website at:
<http://www.rrc.texas.gov/forms/forms/og/checklist.php>.

Types of Groundwater Protection Determinations (Form GW-2)

The Groundwater Advisory Unit (GAU) provides three types of Groundwater Protection Determinations.

Groundwater Protection Determination

- Shallow depth Groundwater Protection Determination, where possible, provides top and bottom of fresh water, which is generally less than 1,000 mg/L total dissolved solids (TDS), and
- Medium depth Groundwater Determinations provide freshwater identification and Base of Usable-Quality Water (BUQW) determinations, generally 3,000 mg/L TDS or less and other waters known to be used or identified as sources of desalinization water.
- Groundwater Protection Determinations are used for new drills, cathodic protection, re-entry, well integrity test, microseismic boreholes, injection into a producing zone, plug and abandon, and conversion of an oil and gas well to a water well.

Groundwater Protection Determination for Saltwater Disposal Wells

- This type of Deep depth Groundwater Protection Determination provides the base of the Underground Source of Drinking Water (USDW), less than 10,000 mg/L TDS, and any fresh water or BUQW waters identified
- Verifies that sufficient geologic isolation exists to protect the Base of Usable-Quality Water (BUQW) and Underground Source of Drinking Water (USDW).

Groundwater Protection Determination for Seismic Survey

- This type of Groundwater Protection Determination is used to determine if a drilling permit is required should the shot hole(s) or well(s) penetrate more than one protected water zone including fresh water and Base of Usable-Quality Water (BUQW) across the seismic survey.

What You Need To Know About The Forms GW-1 AND GW-2

1. An online user guide in PDF format is available as an instructional device for completing the GW-1 application on-line:
<http://webapps.rrc.state.tx.us/gw1/resources/docs/UserGuide.pdf>.
2. Area Determinations are available in some locations. Options include a specific radial distance from a well, all or part of a Section and/or Lease. The online GW-1 application has a pull down Areal Extent control with a full list of options. Consult with the GAU to determine if your location qualifies for an Aerial Determination
3. Effective February 1, 2016, an application fee of \$100 is required for a Groundwater Protection Determination. The application fee is also subject to a 150 percent (\$150) surcharge required by Statewide Rule 78(n). Therefore, a total of \$250 must be remitted to the Railroad Commission of Texas with each Form GW-1, Groundwater Protection Determination Request Form. For additional information, reference the Notice to Operators: Groundwater Protection Determination Application Fee and Surcharge. Additional fees apply to expedite the application.
4. An expedite fee of \$75 is required for an expedited Groundwater Protection Determination. The application fee is also subject to a 150 percent (\$112.50) surcharge required by Statewide Rule 78(n). Therefore, a total of \$187.50 must be remitted to the Railroad Commission of Texas to expedite each Form GW-1. The application fee plus the expedite fee after a surcharge of 150% is a total of \$437.50.
5. Expedited processing is not available for Saltwater Disposal or Seismic Survey determination letter requests but they are treated as high priority applications.
6. A scaled map showing the well location and surrounding survey lines must be provided with all GW-1 Applications and can be created and printed using the Railroad Commission of Texas' Public GIS Viewer. This viewer will allow you to locate and retrieve details for an existing well and determine the coordinates for a proposed well.
7. The GW-2 Determination Letter is good for 5 years from the date of original issuance.
8. To comply with SWR 13 the Groundwater Advisory Determination Form GW-1 should be filed concurrently with the application to drill.
9. The GAU is an advisory group and as such it is Technical Permitting that has the Authority to determine what impact, if any, the GW-2 Determination Letter may have on a Permit or the Permitting Process and it is Technical Permitting that shall coordinate input from all necessary compliance sections in reaching a decision with regards to any impact the Determination may have and to decide what options may or may not be acceptable.

Groundwater Protection Determination Request (Form GW-1)

To request a Groundwater Protection Determination, submit the following documents:

1. A Form GW-1, which can be completed in two different ways:
 - By online filing ([RRC Online System](#))
 - Google Chrome 37.0+ is recommended. Other browsers cause known technical issues.
 - JavaScript must be enabled.
 - Pop-up blocking software must be disabled.
 - Using the [Interactive PDF](#)
2. A scaled map showing the well location and surrounding survey lines;
3. A copy of the electric log, if you are plugging, re-entering an existing well, or converting to a water well ([Form-P13, Application of Landowner to Condition an Abandoned Well for Fresh Water Production](#)); and
4. Application fee (Expedited fee, optional)

For detailed information regarding the Form GW-1 on the Online System refer to the [Groundwater Application User's Guide](#). The online Groundwater Application will only allow oil and gas operators who have registered with the Railroad Commission of Texas by filing an annual *Organization Report* (Form P-5). If you are not a registered P-5 operator, you will be required to submit the Form GW-1 using the [Interactive PDF format](#) version. For instructions on filing the Form GW-1 by PDF go to the [Instructions for Completing Form GW-1 \(PDF\)](#) page.

Notes:

1. Effective February 1, 2016, an application fee of \$100 is required for a Groundwater Protection Determination. The application fee is also subject to a 150 percent (\$150) surcharge required by Statewide Rule 78(n). Therefore, a total of \$250 must be remitted to the Railroad Commission of Texas with each Form GW-1, *Groundwater Protection Determination Request Form*. For additional information, reference the Notice to Operators: [Groundwater Protection Determination Application Fee and Surcharge](#). Additional fees apply to expedite the application.
2. An expedite fee of \$75 is required for an expedited Groundwater Protection Determination. The application fee is also subject to a 150 percent (\$112.50) surcharge required by Statewide Rule 78(n). Therefore, a total of \$187.50 must be remitted to the Railroad Commission of Texas (Commission) to expedite each Form GW-1. The application fee plus the expedite fee after a surcharge of 150% is a total of \$437.50.
3. Expedited processing is not available for Saltwater Disposal and Seismic Survey determination letter requests.
4. A scaled map showing the well location and surrounding survey lines can be created and printed using Commission's [Public GIS Viewer](#). This viewer will allow you to locate and retrieve details for an existing well and determine the coordinates for a proposed well.

**Railroad Commission of Texas Groundwater Advisory Unit
Groundwater Protection Determination Request Form**

Form GW-1

The information requested is essential in order for this agency to provide an appropriate response. Fill in the required fields(*) as well as the location information that apply to this well. SWR 78 requires that you remit \$250 (application fee plus surcharge) for each application and an additional \$187.50 (fee plus surcharge) for each request to expedite the application. Allow 1 to 4 working days for expedited letters and up to two weeks for non-expedited letters. Contact us at 512-463-2741 or email us at <gau@rrc.texas.gov > if you have any questions.

Name of person preparing this request *Name <input type="text"/> *Phone No. <input type="text"/> Fax No. <input type="text"/> email <input type="text"/> Email address is required if requesting return by email of completed Groundwater Protection Determination in PDF format.	*Operator Name <input type="text"/> *Address 1 <input type="text"/> Address 2 <input type="text"/> *City <input type="text"/> *State <input type="text" value="TX"/> *Operator ID <input type="text"/> *Zip Code <input type="text"/>
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You may submit this form by email, **along with a digital location map** (and well log if available), to < gau@rrc.texas.gov >. The form will be checked for completeness and you will be notified if additional data is needed.

Mailing address: Railroad Commission of Texas Groundwater Advisory Unit PO Box 12967 Austin, Texas 78711-2967

*County Name <input type="text" value="<SELECT ONE>"/>	*Lease Name <input type="text"/>	*Well No. <input type="text"/>
*Survey Name <input type="text"/>	Abstract No. A- <input type="text"/>	Lease No. <input type="text"/>
Block No. <input type="text"/>	Township <input type="text"/>	Section <input type="text"/>
League <input type="text"/>	Labor <input type="text"/>	Tract <input type="text"/>
Share <input type="text"/>	Porcion <input type="text"/>	Lot No. <input type="text"/>
*Distances in feet, and direction, measured at right angles from <input type="text" value="SURVEY"/> Lines (NOT LEASE LINES) <input type="text"/> feet from <input type="text" value="W"/> line and <input type="text"/> feet from <input type="text" value="N"/> Line.		
API No. <input type="text"/>	RRC Dist No. <input type="text"/>	*Map Image Name <input type="text"/>

***GPS or X-Y State Plane Feet Coordinates (One set of coordinates is required for this application)**

Degrees Minutes Seconds Format:	LAT: Lat Deg <input type="text"/>	Lat Min <input type="text"/>	Lat Sec <input type="text"/>	LAT(DD) <input type="text"/>
Datum <input type="text" value="83"/>	LONG: Long Deg <input type="text"/>	Long Min <input type="text"/>	Long Sec <input type="text"/>	LONG(DD) <input type="text"/>

X-Y State Plane	X-Coord <input type="text"/>	Y-Coord <input type="text"/>	SP Zone <input type="text"/>	SP Datum <input type="text" value="27"/>
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Elevation <input type="text"/>	*Total Depth <input type="text"/>	Formation at TD <input type="text"/>	*Expedite Y/N? <input type="text" value="N"/>
*Purpose of Request <input type="text" value="ND"/>	---> Other [Specify] <input type="text"/>	Previous SC or GAU No. for this well <input type="text"/>	
Remarks <input type="text"/>			

Interactive PDF Submission of the Groundwater Protection Determination Request Form (Form GW-1)

This form is an interactive PDF form that can be opened with Adobe® Reader® or Adobe® Acrobat®. The Commission is currently using Adobe® Acrobat®, Version 9. Different versions of these applications allow the user to perform various functions:

- Adobe® Reader®, Version 9 or later, is the preferred version which allows the form to be completed and printed or saved with the input data.
- Versions of Adobe® Reader® earlier than Version 7 are not recommended as they do not allow the form to be saved with the input data.
- Adobe® Acrobat®, Version 6 as well as earlier versions allow the form to be saved with the input data. However, the saved data may not always transmit correctly when opened by the Groundwater Advisory Unit staff (e.g., county name).

Regular U.S. Postal Address:	Address for Overnight Delivery Services or Express Mail:
Groundwater Advisory Unit Railroad Commission of Texas PO Box 12967 Austin TX 78711-2967	Groundwater Advisory Unit Railroad Commission of Texas 1701 N. Congress Austin TX 78701

The recommendation letter will be sent to the e-mail address identified on the [Form GW-1](#). If you do not have an e-mail address, the recommendation letter will be sent to the fax number identified on the application. If you do not have a fax number, the recommendation letter will be sent via regular U.S. mail.

Form GW-1 Field Descriptions

Following are the descriptions for the field entries on [Form GW-1](#):

Preparer Information

- Name – The name of person preparing and submitting the form
- Phone # - Phone number of person preparing and submitting the form. Include area code and phone number. If you are handwriting in the telephone number, use the example format, e.g., 512 123-4567.
- Fax # - Fax number of person preparing and submitting the form. Include area code and phone number. If you are handwriting in the telephone number, use the example format, e.g., 512 123-4567. If you do not have a fax number, leave this field blank.
- E-mail – Please, provide an e-mail address for the recommendation letter to be sent. If you do not have an e-mail address, leave this field blank.

Operator Information

- Operator Name – The name of company/organization (RRC registered operator name) requesting the SC letter.
- Address 1 – Operator’s street address or P.O. Box
- Address 2 – Second line of operator’s address if needed (e.g., Bldg. D; Ste 101; Mail code 999)
- City/State/Zip Code – City, state, and zip code for operator’s address; In the “Zip Code” field, please include the zip + 4 (e.g., 12345-1234).
- Operator ID – The **six** digit number (P-5 number) issued by the RRC, identifying the operator. For cathodic protection wells, operators that are not registered with the RRC must contact the Groundwater Advisory Unit for an ID number.

Well Information and Location Data

- County Name – From the drop-down menu, select the county in which the well is located.
- Lease Name – Assigned name the operator or RRC has given the lease.

- Well No. – Assigned well number

You may apply for advisory letters that apply to a specified area rather than a single well location. However, area wide recommendations are not available in all areas. Requirements for an area wide recommendation are that the surface topography is relatively flat, and the hydrogeologic units to be protected are relatively flat.

There are four types of these recommendations: RADIUS, PAD, ALL, and CP. The RADIUS recommendation is good for any well within the stated radius requested (e.g., 300 ft). The PAD recommendation is good for all wells drilled within the area shown on the site map as being included in the pad. The ALL

recommendation is good for all wells in the same lease, county, survey, block (porcion or league), and section (share or labor).

To apply for an area wide recommendation, write RADUS, PAD, ALL, or CP, in the "Well Number" field. In addition, write the length of the radius in the "Remarks" field at the bottom of the form. To provide coordinates for the site, give the coordinates of one of the wells in the area (please state the well number used to obtain the coordinates).

- Survey Name – Assigned name of the surveyed property in which the well is located; Enter name as it is recorded with the Texas General Land Office (e.g., H & T C RR; Smith, J; Smith and Jones).
- Abstract No. A – Assigned number as it is recorded with the Texas General Land Office for the surveyed property in which the well is located.
- Lease # - Assigned number the RRC has given the lease
- Block No./Township/Range/Section/League/Labor/ Porcion /Share/Tract/Lot No. – Depending upon where the well is located, additional legal descriptions for the surveyed property may apply. Please enter data that is applicable to the specific well location.
- Distances, in feet, and direction, measured at right angles from _____ Lines (NOT LEASE LINES) – From the drop-down menu, select one of the surveyed property lines used for the description of the well's surface location. Directions from lease, unit, county lines, and surveyed property lines in adjoining counties are not acceptable. Please enter the distance in feet and select the direction from the drop-down menu for each of the property lines.
- API # - The American Petroleum Institute (API) number of the wellbore in which the well is located. If the API number has been assigned to the well, include the 3-digit county code (FIPS #) and 5 digit well number with no dashes (e.g., 00199999). If an API number has not been assigned, leave this field blank. The county code (FIPS #) can be found at <http://www.rrc.texas.gov/forms/maps/ogicc.php>
- RRC Dist. No. – From the drop-down menu, select the RRC district in which the well is located. The RRC district code for the county can be found at <http://www.rrc.texas.gov/forms/maps/ogicd.php>
- Map Image Name – The file name for the map document that will be attached to the e-mail submittal for this application. A map file name with 40 characters or less (including the file name extension: .tif or .jpg) is required. Abbreviations may be used to fulfill the file name requirements for both the Form GW-1 and map image.
 - File name conventions include:
 - Example 1: If you create a file name for 0051P Transitional Form by the operator number and API#: <Operator Number> <API#>.pdf (e.g., 123456_00134567.pdf)
The map image name should be: <Operator Number> <API#>_map.tif (e.g., 123456_00134567_map.tif)
 - Example 2: If there is no API# available (e.g., new drill, cathodic protection, etc.), the 0051P Transitional Form may be named as follows:

O&G well: <Operator Number> <FIPS#> <Lease name> <well#>.pdf

Cathodic: <Operator Number> <FIPS#> <Project name> <well#>.pdf

And the map image name should be:

O&G well: <Operator Number> <FIPS#> <Lease name> <well#>_map.tif

Cathodic: <Operator Number> <FIPS#> <Project name> <well#>_map.tif

- This naming convention also applies to other related documents sent via e-mail changing the “map” portion of the name to something describing the document (e.g., “_elog” for electric log, “_dlog” for driller’s log, “_aff” for affidavit, “_vch” for payment receipt, etc.). This makes all of the files related to a 0051P Transitional Form easy to locate when we process your application.

GPS or X-Y State Plane Coordinates

- For GPS coordinates, enter latitude (LAT) and longitude (LON) data in either Degrees/Minutes/Seconds; Degrees with decimal minutes, no seconds; or Decimal degrees, no minutes, no seconds format. Following are examples of each format:
 - For Degrees/Minutes/Seconds, enter: the degrees into the “Deg” field; the minutes into the “Min” field; and the seconds, using at least 2 decimal places, into the “Sec” field (e.g., Lon <100> <30> <25.26>).
 - For Degrees with decimal minutes, no seconds, enter: the degrees in the “Deg” field; the minutes, using at least 4 decimal places, in the “Min” field; and no seconds in the “Sec” field (e.g., Lon <100> <30.0008>).
 - For Decimal degrees, no minutes, no seconds, enter the degrees followed by at least 4 decimal places in the “LAT (DD)” and “LONG (DD)” fields (e.g., <100.4756>).
- Be sure to select the applicable Datum from the drop-down menu.
- For X-Y State Plane coordinates, enter the data to the nearest foot for both measurements. Select the applicable State Plane (SP) Zone and SP Datum from the drop-down menus.

Additional Data

- Elevation – topographic ground elevation at well location
- Total Depth – estimated drilling depth for the well
- Formation at TD – the geologic formation that is expected at total depth (TD) of the well
- Purpose of Request – From the drop-down menu, select one of the following purposes: ND (new drill); P&A (plugged and abandoned); RE (re-entry and/or deepen); H1 (RRC form for injection well); H2 (brine mining facility); CP (cathodic protection); H15 (RRC form for well integrity test); P13 (RRC form for converting well to water well); MS (microseismics); and Other
- Other – If “Other” is selected as “Purpose of Request”, please specify which RRC form or reason a SC letter is being requested.
- Expedite (\$75 fee + \$112.50 surcharge = \$187.50) – Option for expediting the processing of the application. Select an option from drop down menu.

- Reminder - Please attach the copy of the ePay voucher receipt to the e-mail submittal of your application if you pay by credit card or electronic fund transfer. If you request an expedited SC letter by mail or hand delivery, please submit the payment with the Expedited Surface Casing Recommendation/Payment Submission Form (Form 20468 Transitional Form).
- Previous SC-number or GAU number for this well – An SC number is the TCEQ file number a GAU file number is the RRC number given by the Groundwater Advisory Unit. If the current application is for a re-entry or a well with a previous recommendation, enter the file number (located in the top right-hand corner of the letter).
- Remarks – Enter any additional information needed for application (e.g., requesting recommendation for entire lease, section, pad, specified radius, adding a CP well to the well location, etc).

GROUNDWATER PROTECTION DETERMINATION

Form GW-2



Groundwater Advisory Unit

Date Issued: 22 June 2017 **GAU Number:** 174612

Attention:	RED OAK ENERGY CO PO BOX 62393 SAN ANGELO, TX 76906	API Number:	
Operator No.:	696749	County:	CROCKETT
		Lease Name:	TODD A
		Lease Number:	
		Well Number:	1
		Total Vertical Depth:	1600
		Latitude:	30.819513
		Longitude:	-101.437092
		Datum:	NAD27

Purpose: New Drill
Location: Survey-GC&SF RR CO; Abstract-2652; Block-UV; Section-67

To protect usable-quality groundwater at this location, the Groundwater Advisory Unit of the Railroad Commission of Texas recommends:

The interval from the land surface to 20 feet below the base of the Cretaceous-age beds must be protected. The base of the Cretaceous is estimated to occur at a depth of 800 feet.

This recommendation is applicable to all wells within a radius of 600 feet of this location.

Note: Unless stated otherwise, this recommendation is intended to apply only to the subject well and not for area-wide use. This recommendation is for normal drilling, production, and plugging operations only. It does not apply to saltwater disposal operation into a nonproductive zone (RRC Form W-14).

This determination is based on information provided when the application was submitted on 06/21/2017. If the location information has changed, you must contact the Groundwater Advisory Unit, and submit a new application if necessary. If you have questions, please contact us at 512-463-2741 or gau@rrc.texas.gov.

Groundwater Advisory Unit, Oil and Gas Division

Frequently Asked Questions

1. How do I know if I need a Groundwater Protection Letter?

Consult with Technical Permitting or your District Office however most oilfield activities involving drilling, disposal, injection, and seismic surveys require Groundwater Determinations.

2. Can I use an old Letter?

Letters are good for up to 5 years

3. Can I use a letter issued to another Operator?

Letters describe groundwater conditions at a location so you can use a GW-2 letter if your subject well is within the area specified in the letter. One can use the GW-1 Online Application to search for existing letters. Note: letters must be issued for similar purposes to be accepted. A letter issued for the purposes of setting surface casing cannot be used for injection or disposal operations. Consult with the GAU or Field Office before you attempt to use a letter issued for a different purpose. Some letters are restricted to use for a specified Lease or specific Well. Contact the GAU if you have questions or concerns.

4. What if I have a valid letter for a well close by?

Wells must be inside the area specified in the letter to be accepted. Some letters are restricted to use only for a specified Lease or specific well. However, Area Determinations are available in some locations. Options include a specific radial distance from a well, all or part of a Section and/or Lease. The online GW-1 application has a pull down Areal Extent control with a full list of options. Consult with the GAU to determine if your location qualifies for an Aerial Determination

5. How do I get in touch with the Groundwater Advisory Group (GAU) ?

Main Phone Line (512)463-2741, FAX (512)463-7324, email: GAU@rrc.texas.gov

6. How much does it cost and how long does it take?

Non-expedited letter (\$250): On average ten (10) business days

Expedited letter (\$437.50): On average four (4) business days.

Actual times for completion turnaround may vary depending on workload and other factors outside the control of the GAU

7. How do I find the On-Line GW-1 Application?

Select the RRC Online Log In hyperlink at the top center of the Commission web site or go to <http://www.rrc.state.tx.us/>

