Volatile Organic Chemical (VOC) Monitoring Waiver Application

Groundwater Sources Only – One Application per EPDS

If enrolled in the Monitoring Assistance Program – *DO NOT APPLY*
Review Denial Criteria (Appendix A) – *if applicable, DO NOT APPLY*

Part 1: General Public Water System (PWS) Information

LTF# (to be filled out by ADEQ):	**Application Date:**
PWS Name:	**PWS ID#:**
PWS Mailing Address:	
Contact Person:	**Phone#:**
Email Address:	
PWS Type (Select one): ◯ CWS ◯ NTNCWS	**Population Served:**

Part 2: Source Information

40 CFR §141.24(H)/A.A.C. R18-4-105

Entry Point to the Distribution System (EPDS) number: _____

List all water sources connected to the EPDS. *Submit a separate waiver application for each EPDS*.

Well Name	ADWR Number (55-)	Latitude/Longitude

*For each groundwater source/well include the information listed in Appendix F (Required Source Information) as an attachment.

Are there any new or reactivated sources since the last compliance monitoring event? ◯ Yes ◯ No

Are there surface water, GUDI, or suspect GUDI sources? ◯ Yes ◯ No

Are there any septic systems within 100 feet of any of the drinking water source(s)? ◯ Yes ◯ No
If yes, contact ADEQ for guidance.

Is there a current Source Water Protection Plan (SWPP)? ◯ Yes ◯ No

Has the SWPP been updated in the last 3 years? ◯ Yes ◯ No

Have all the Sources contributing to the EPDS been evaluated? ◯ Yes ◯ No

Has the PWS verified that all ALUs are implementing BMPs or operating under an ADEQ approved operating permit? ◯ Yes ◯ No

Part 3: Compliance Data Information

Is there any Treatment associated with this Source? ◯ Yes ◯ No

If yes, what contaminant is the treatment being used for: _____

If yes, what type of treatment is being used: _____

Starting year which waiver is being applied for:

List the Compliance sample data and Laboratory Work Order Number/Specimen ID for the last three compliance periods of VOC samples for this EPDS: (use additional paper if needed)

Monitoring Period (eg. 2015-2017)	**Compliance Sample Date**	**Lab Work Order Number/Specimen ID**	**Were all VOC analytes sampled for?**

***If there are samples listed here that were not submitted to ADEQ, the waiver approval will be put on hold until we acquire the needed Drinking Water Analytical Reporting (DWAR) form from the system.

Were any result from the above compliance samples detected at or above the reporting limit, as specified in CFR 40 §141.24 for the specific analyte? ◯ Yes ◯ No

Have any contaminants met or exceeded the MCL in the last 15 years, as specified in CFR 40 §141.61? ◯ Yes ◯ No

Part 4: VOC Adjacent Land Use (ALU) Analysis

If no ALUs are identified within a ½ mile for any of the sources, *proceed to part 5*.

For **each** ALU identified within a ½ mile of the source plot and label the location on a map. The label(s) must correspond with the source data sheet in Appendix G (Example Map and Source Data Sheet). A form has been provided in Appendix D (Land Use Determination Form) to help determine if identified lands uses are relevant ALUs. A partial list of ALUs that should be identified is included in Appendix C (ALU Types).

Have all ALUs within a ½ mile of each source been evaluated? ◯ Yes ◯ No

If ALUs are identified, calculate the fixed radius for 1, 3 and 10 year time of travel. The standard fixed radius calculation is provided in Appendix E (Fixed Radius Equation). Plot the fixed radius on the map (Appendix G). Provide Best Management Practices (BMPs) implemented at facilities within a 10 year time of travel.

Part 5: Certification

I certify that the above information provided on the waiver application and waiver matrix, to the best of my knowledge, is complete and correct, and has been verified to the fullest extent possible.

I certify the well(s) are currently installed as permitted and that all components function as intended and are in good condition.

Name of Application Preparer (type or print)	Signature	Date
Name of System Owner/Representative (type or print)	Signature	Date
Title		

Appendix A - Denial Criteria

- If one or more new sources have been added (since the last three monitoring period compliance data has been collected), the waiver cannot be approved.
- If last 3 monitoring periods have had a detection above the reporting limit for any of the VOC contaminants.
- If an EPDS has an MCL violation has been received for a VOC contaminant in the past 15 years.
- Any source within one-year time of travel which could impact groundwater.
- Any source within three-year time of travel if best management practices (BMPs) have not been implemented.
- Existing violation of relevant ADEQ permits (APP, AZPDES, HAZWASTE, UST/LUST).
- Any Water Quality Assurance Revolving Fund (WQARF), uncharacterized release or remedial project within 10-year time of travel if any contaminates listed in Appendix B are associated with the release.
- Septic Tanks or leach fields within 100 feet of the drinking water source
- If a water source is suspect GUDI the EPDS is not eligible for a waiver until a final GUDI determination is made
- Waivers are granted based on risk and they may be denied based on risk based criteria and/or a lack of the information provided with the application.

Appendix B – VOC Waiver Analytes

Analyte Code	Analyte Name	MCL (mg/L)	RPLs (mg/L)
2378	1,2,4-Trichlorobenzene	0.07	0.0005
2380	Cis-1,2-Dichloroethylene	0.07	0.0005
2955	Xylenes, Total	10	0.0015
2964	Dichloromethane	0.005	0.0005
2968	O-Dichlorobenzene	0.6	0.0005
2969	P-Dichlorobenzene	0.075	0.0005
2976	Vinyl Chloride	0.002	0.0005
2977	1,1-Dichloroethylene	0.007	0.0005
2979	Trans-1,2-Dichloroethylene	0.1	0.0005
2980	1,2-Dichloroethane	0.005	0.0005
2981	1,1,1-Trichloroethane	0.2	0.0005
2982	Carbon Tetrachloride	0.005	0.0005
2983	1,2-Dichloropropane	0.005	0.0005
2984	Trichloroethylene	0.005	0.0005
2985	1,1,2-Trichloroethane	0.005	0.0005
2987	Tetrachloroethylene	0.005	0.0005
2989	Chlorobenzene	0.1	0.0005
2990	Benzene	0.005	0.0005
2991	Toluene	1	0.0005
2992	Ethylbenzene	0.7	0.0005
2996	Styrene	0.1	0.0005

Appendix C – ALU Types

	Type of Facility or Operation
1	Buried or aboveground gasoline and fuel storage tanks, including sites of known VOC (fuels/solvents) contamination or VOC spills and/or leaks
2	Diesel or other fuel operated pumps or generators for water system operation
3	Heating oil storage and pipelines
4	Vehicle and equipment service and repair shops
5	Fuel pipelines (excluding natural gas lines)
6	Aircraft maintenance and fueling
7	State Highways, Interstates, and railroads
8	Residential or community septic systems or sewage disposal lagoons (only indicate those within 100 feet of well).
9	Hazardous waste storage, transport, and disposal facilities
10	Dumps and landfills containing hazardous materials
11	Military installations
12	Abandoned, uncapped wells, or dry wells
13	Underground injection wells or disposal pits
14	Storm water infiltration ponds
15	Drycleaners
16	Car Washes which do not discharge to sewer systems
17	Asphalt and tar manufacture
18	Mining operations or logging operations
19	Junk and salvage yards; auto wrecking yards
20	Commercial furniture stripping or painting and refinishing
21	Photographic processing utilizing chemicals
22	Printing (excluding photocopying)
23	Appliance and small engine repair
24	Boat repair, service, and refinishing
25	Electronics and chemical manufacturing; Pharmaceutical research or production
26	Oiled dirt roads

Appendix D – Land Use Determination Form

Adjacent Land Use (ALU)
Volatile Organic Chemicals (VOC)

Direction: Use this form to assist you in the determining if a facility may be an ALU for the purposes of an VOC Waiver.

Facility ALU: _____

Name of Contact Person: _____

Telephone: _____

Email: _____

Address: _____

_____

Type of Facility: _____

Lat/Long of Facility: _____

VOCs include many chemicals associated fuels and solvents. They can be found at fuel storage tanks, manufacturing facilities, junk yards and dry cleaners. Also, they are often associated with superfund and WQARF sites. A list of VOCs is provided in **Appendix B** of the VOC waiver application. List any VOCS that are used, stored, transported, manufactured and/or mixed at the facility. However, if you are unfamiliar with the chemicals below, please list fuels and the brand names of any solvents.

Chemical	Amount at the Facility	Amount Stored as Waste

Do not include de minimis amounts of chemicals. De minimis quantities are:

Chemicals stored in amounts typical of residential use and stored in the containers as purchased form a local retail store such as a local hardware store, auto parts store or grocery/commercial store.

- 5 gallons/40 lb or less of residential strength chemicals.
- 50 gallons of gasoline, diesel, or used oil or less.

Has there been a chemical spill at the facility? List the chemical and amount released:
List Best Management Practices used at the facility:

Appendix E – Fixed Radius Equation

Fixed radius calculation for 1, 3 and 10 year time of travel intervals for waiver applications.

Variables:

Fixed Radius = r

Cubic feet per year = Q_a

Time of Travel = T (years)

Pi = π = 3.14

Specific Yield = n = 0.15 (default) (dimensionless)

The length of well below the water table = Kl

Fixed Radius Equation:

$$r_{(T)} = \sqrt{\frac{Qa * T}{\pi * n * Kl}}$$

Example:

The following example calculation is for a fixed radius at a 10 year time of travel. In order to calculate fixed radius you will need to know the maximum pump capacity in gallons per minute (gpm), the depth of the well and the depth to groundwater.

Max pump capacity in the well = 50 gpm

Conversion factor from gpm to cubic feet per year (f^3/year) = 70,267

$Q_{a\ (T)}$ = Max pump capacity * Conversion factor = 50 gpm * 70,267 = 3513350 (f^3/year)

$Q_{a\ (10)} = Q_a * T$ = 3513350 (f^3/year) * 10 (year) = 35133500 f^3

Depth of well = 430 f

Depth to water = 260 f

Kl = 430 $f_{(D\ well)}$ – 260 $f_{(D\ water)}$ = 170 f

n = specific yield = 0.15

(π * n * Kl) = 3.14 * 0.15 * 170 f = 80.07

$$r_{(10)} = \sqrt{\frac{35133500\ (f^3)}{80.07\ (f)}} = \sqrt{438784(f^2)} = 662\ f$$

The fixed radius calculation cannot be used for wells in hard rock geology such as granite and basalt where fracture flow predominates. The capacity of the pump and well construction information must be known to use this calculation. If the fixed radius calculation cannot be used the default is ½ mile.

Appendix F – Required Source Information

The following information must be provided for each well

Maps depicting:

- Groundwater flow direction
- Groundwater velocity
- A half mile radius around each well
- Accurate ALU location within a half mile of the well
- The 1, 3, and 10 year time of travel (If ALUs are identified)

Boring logs from the source well (or information on regional geology if not available)

Pump test data (if available)

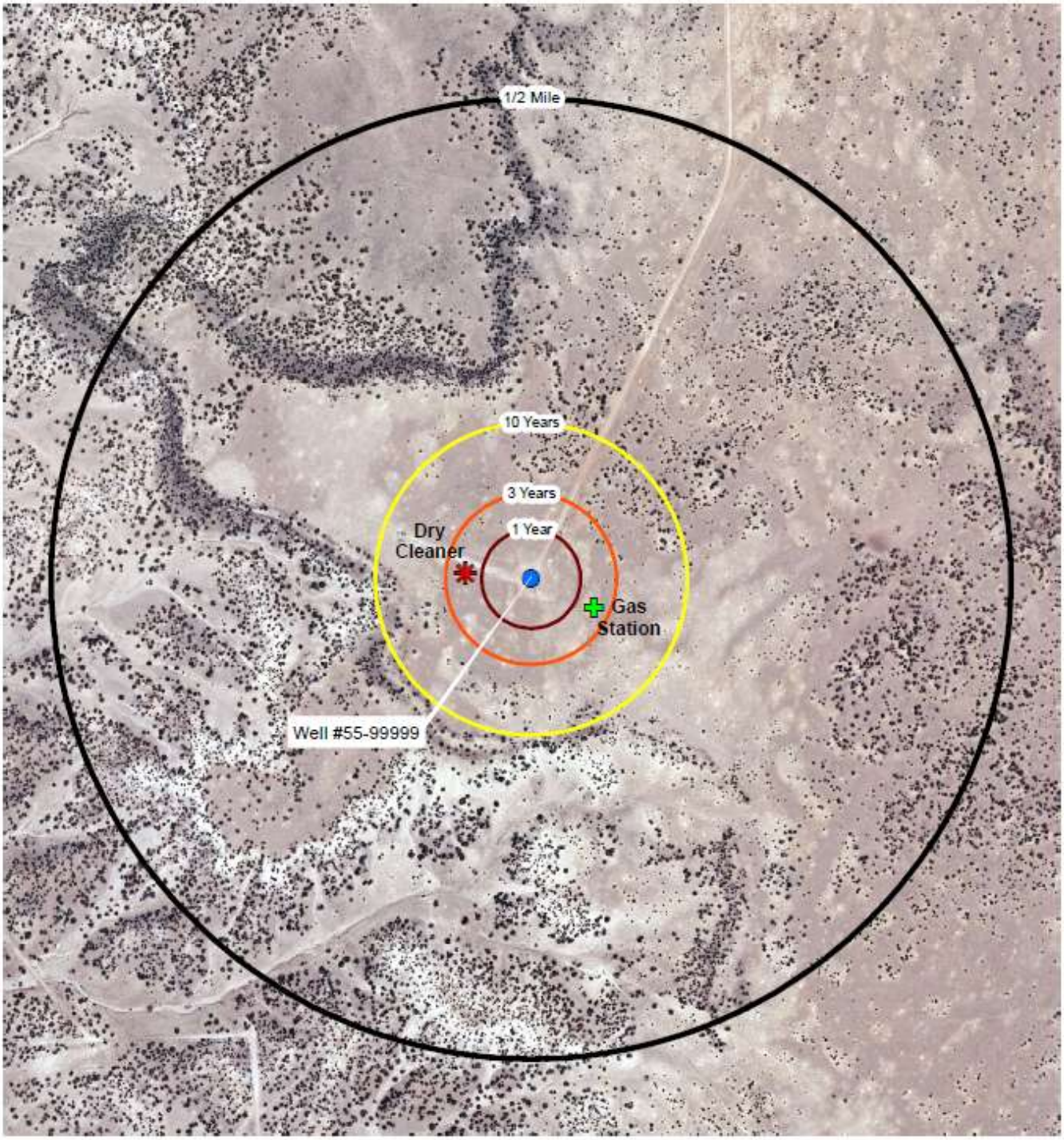
Depth to groundwater

Appendix G - Example Map and Source Data Sheet

Source Data Sheet	
Facility Name:	ABC Convenience Store
Facility Type:	Gas Station
Address:	111 E Main Street, Nowhere, AZ 85000
Lat/Long:	34°14 31.6"N 110°01'09.5"W
Time of Travel from Source:	2.75 years
Best Management Practices attached:	◉ Yes ○ No
Facility Name:	123 Dry Cleaning
Facility Type:	Dry Cleaners
Address:	111 E Main Street, Nowhere, AZ 85000
Lat/Long:	34°14 31.6"N 110°01'09.5"W
Time of Travel from Source:	1.25 years
Best Management Practices attached:	◉ Yes ○ No
Facility Name:	
Facility Type:	
Address:	
Lat/Long:	
Time of Travel from Source:	
Best Management Practices attached:	○ Yes ○ No

PWS Name
Public Water System #AZ04XXXXX
Well #'s 55-99999

Potential Contaminant Time-of-Travel
(in years) to Reach Water Supply



PWS Name
Well #' 55-99999

Time-of-Travel
1 years = 272 ft
3 years = 470 ft
10 years = 858 ft

Sample Well

N

0 0.085 0.17 0.255 0.34 0.425
Miles

1 in = 0.14 miles

This map is for general reference only and may not be all inclusive. More detailed information and specific locations can be obtained by contacting the Arizona Department of Environmental Quality.