The PDEQ* Virtual Septic Inspection

Trench/Aggregate Systems

* Pima County Department of Environmental Quality
Use this step-by-step guide to learn what PDEQ inspectors are looking for

Inspection criteria are highlighted so you know what to expect

Additional questions?

Call and ask to speak with an inspector:
520-724-7400
The following slides will illustrate how to:

- Schedule your inspection
- Help the inspector find your jobsite
- Ensure you provide the correct paperwork
To Schedule An Inspection For Non-remote Areas

- Use the Interactive Voice Response (IVR) System (see phone number below)
- Call 520-724-6970 by 4:00 pm for an inspection the following business day
- Have the 10-digit activity number available
- The 5-digit septic inspection code is 03060
To Schedule An Inspection For A Remote Area

- Remote areas include: Ajo, Why, Lukeville, Arivaca, Sasabe, Redington and Mt. Lemmon
- Call PDEQ at least 48 hours in advance to schedule inspection
  520-724-7400
Post the address at the jobsite
Put the paperwork in a location that is easy for the inspector to find.
What Paperwork Should Be At The Jobsite?

- Many inspections are rejected because the necessary paperwork is not at the jobsite.
- Continue with the Virtual Inspection to find out what paperwork must be provided at the time of your requested inspection.
Required Paperwork
1 of 4

POST AT JOB SITE Checklist

Provide the required paperwork in a visible location at the jobsite.
Required Paperwork 2 of 4

Certificate of Watertightness (must be completely filled out PRIOR to inspection)

Note: Not required for projects with a Notice of Intent dated 11-12-05 or before
To help you correctly fill out the Certificate of Watertightness, follow the instructions to the right.

If you still have questions, contact an inspector (see slide #2 for phone number).

How to conduct a watertightness test:
(Arizona Administrative Code R18-9-A314.5.d)

Fill the septic tank to the outlet.
Once filled, note the date and time on the Certificate of Watertightness on line 1 (see example below).
Allow the tank to soak for 24 hours.
After 24 hours has passed, refill the tank to the outlet and make a note of the water level. Fill in the date and time on line 2 (see example). This is the start of the field watertightness test.
After 1 hour has elapsed, look at the water level again. Fill in the date and time on line 3 (see example). This is the end of the field watertightness test.
Check the appropriate box indicating whether the tank passed the watertightness test without repair or if it passed the watertightness test following repair. NOTE: The tank passes if the water level does not drop over the one-hour period.
Be sure the rest of the information, including the signature of the tester, is filled in on the Certificate of Watertightness of an Installed Septic Tank.

EXAMPLE:
Watertightness Test Information

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-10-07</td>
<td>9:00am</td>
</tr>
<tr>
<td>2-11-07</td>
<td>9:00am</td>
</tr>
<tr>
<td>2-11-07</td>
<td>10:00am</td>
</tr>
</tbody>
</table>

□ Passed watertightness test without repair
   (no water drop over 1-hour period per A.A.C. R18-9-A314(5)(d)(ii))

□ Passed watertightness test following repair

Indicate Repairs Made:

___________________________________________________________
___________________________________________________________
___________________________________________________________
## Required Paperwork

### Construction Authorization (Form C) – needs to be the original copy provided in the inspection packet

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**PIMA COUNTY DEPARTMENT OF ENVIRONMENTAL QUALITY**

**CONSTRUCTION AUTHORIZATION**

**FOR AN ONSITE WASTEWATER TREATMENT FACILITY**

**TYPE 4.02 THROUGH 4.22 GENERAL PERMITS**

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**Property Address:** 1234 N. EASY ST.

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<table>
<thead>
<tr>
<th>Applicant Information:</th>
<th>File Number: P07CP00000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name:</td>
<td>Permitted Design Flow:</td>
</tr>
<tr>
<td></td>
<td>600 Gallons Per Day</td>
</tr>
<tr>
<td>Address:</td>
<td>□ Manufactured/mobile</td>
</tr>
<tr>
<td>54321 E. PARK ST.</td>
<td>□ Site built (SFR)</td>
</tr>
<tr>
<td>TUCSON, AZ 85777</td>
<td>Number of Bedrooms:</td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Number of Fixture Units:</td>
</tr>
<tr>
<td></td>
<td>37</td>
</tr>
</tbody>
</table>

- **Name:** JOHN Q. PUBLIC
- **Address:** 54321 E. PARK ST., TUCSON, AZ 85777

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**Characteristics of the Wastewater Source(s):**

- Typical sewage from a single family residence
- Sewage source(s) other than residential:

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**Design Documents That Are The Basis For The Authorization:**

- Notice of Intent, dated 3/1/07
- Site Investigation, dated 1/1/07
- Site plan, dated 1/1/07
- List of Materials, dated 1/1/07
- Design plan, dated 1/1/07
- Soil Evaluation results, dated 1/1/07
- Operation and Maintenance Plan, dated
- Other document(s)

**Construction is Authorized Under the Following General Permits:**

- General Permit 4.02
- General Permit
- General Permit

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**Design Criteria**

- Tank Size Required: **1250 Gals.**
- Distribution Boxes: **1**
- Permanent Inspection Pipes: **2**
- Soil Absorption Rate (SAR): **0.67 gpd/Sq.Ft.**
- Absorption Area per Linear Foot: **7 Sq.Ft.**
- Number of Trenches: **2**
- Trench Length: **64’**
- Trench Depth: **11’ MAX**
- Trench Width: **12”**
- Effective Absorption Area Required: **895.52 Sq. Ft.**
- Depth Below Pipe: **36”**

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**File Number:** P07CP00000

**Permitted Design Flow:** 600 Gallons Per Day

**County:** Pima

**Parcel No:** 000-000R

**Latitude:** 00° 00’ 17” N

**Longitude:** 00° 00’ 00” W

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**Signature**

**Title**

**Date**

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**Construction Authorization Stipulations:**

This Construction Authorization is issued in accordance with the Arizona Administrative Code Title 18, Chapter 9, Article 3. The applicant is authorized to construct the facility at the location specified herein based on the listed design documents under the terms and conditions of the checked General Permit number(s) and the requirements of Arizona Revised Statutes Title 49, Chapter 2. The Applicant has two years from the approval date of this document to complete construction and submit the Request for Discharge Authorization form and any additional required documents specified in A.A.C. R18-9-A309(C) or the checked General Permits. Construction shall conform to the approved design documents. A County Inspector shall perform the final inspection of the system and submit the results to Development Services for issuance of a Discharge Authorization.
Required Paperwork 4 of 4

- Site Plan - needs to be the original plan with any As-built changes noted

APPROVAL FOR CONSTRUCTION
DEPARTMENT OF ENVIRONMENTAL QUALITY
DATE 01-01-07 BY _____________

- Proposed 2-bdrm mobile home
  - Proposed 1000 gallon septic tank
  - 2 trenches at 50' each
As-built Plan

- The As-built Plan should be an accurate reflection of what the installed system looks like.

  - **Major** changes, such as relocating the trenches, require a revision through Development Services PRIOR TO INSPECTION.

- Even minor changes (i.e. the leach lines exit the D-box on the middle and left sides instead of on the right and left) should be drawn in.

- What inspectors see in the ground must be reflected on the As-built Plan.
Construction Authorization

- Look on the Construction Authorization (Form C) for important design and installation criteria
  - Tank size
  - Number of trenches
  - Trench length
  - Trench width
  - Trench depth (Form C often sets minimum and maximum depths – stay within limits or contact the designer AND Development Services for a revision)
  - Depth below pipe (also know as effective depth)
Get A Revision From Development Services If...

- You install a chamber system when an aggregate/trench (perforated pipe) system is called for on the Construction Authorization.
The Inspection
Effective 10/01/2007
Conventional Septic Inspections will cost $130 (per inspection)

- The fee for the first inspection is included when you pay for your Permit at Development Services.
- All additional inspections will cost $130 each, including partials.
- Remember, this may affect your final cost.
The Septic Tank

- Clean off the top of the tank so that tank specs can be seen:
  - Manufacturer’s name
  - Tank size
  - Date of manufacture
  - Maximum depth of cover
  - “Inlet” and “Outlet” (marked on the top or sides)
Septic Tank

- Leave BOTH access openings/manholes open for inspection
The Septic Tank

- Ensure that the septic tank is level
The Septic Tank

- **Inlet:**
  The sanitary ‘T’ needs to extend 4 inches above and 12 inches below the water surface; should be accessible from the manhole

- **Outlet:**
  An effluent filter (with the arrow pointing toward the outlet) must be installed; should be accessible from the manhole
The Septic Tank

- Access to the manholes needs to be within 6 inches of finished grade. Install risers if necessary to make this possible.
The Septic Tank

- Ensure the pipe between the tank and the D-box is supported by natural ground or compacted fill
The D-box/junction box

- Ensure the D-box/junction box:
  - is level
  - is on a stable surface
  - is installed so that the inlet is at least 1 inch above the outlet(s)
Put temporary inspection pipes every 10’ in the trenches

Inspectors will pull out the temporary inspection pipes to check the effective depth (depth below the perforated pipe)
Trenches - Spacing

- Needs to be 2X the effective depth (the distance between the bottom of the disposal pipe and the bottom of the trench bed) or 5 feet, whichever is greater (i.e. effective depth is 4 feet, therefore trenches must be spaced at least 8 feet apart)

- Measured between nearest sidewalls
Trenches

- Must be located according to the site plan (note **minor** changes on the As-Built Plan; initial and date the change)
- Need to follow the contour of the land
- Distribution pipes must be level
Trenches – Depth of Cover

- There must be at least 9 inches of cover over the aggregate surrounding the disposal pipe.
- Thin-walled pipe may be installed if there is LESS than 2 feet of cover over the aggregate surrounding the disposal pipe.

Photo shows thin-walled pipes.
Trenches – Depth of Cover

- SDR 35 or equivalent pipe MUST be installed if there is **MORE than 2 feet of cover** over the aggregate surrounding the disposal pipe.
Aggregated

- There needs to be 2 inches of aggregate over the distribution pipes.
- Aggregate should be free of fine materials (i.e. dirt).
- Aggregate should be between ¾” and 2 ½” in size.
Geotextile Filter Material

- Covers aggregate
- Needs to cover the entire width and length of trench
Distribution Pipes

- Expose ends of distribution pipes for inspection
- Ends of distribution pipes need to be capped
Observation Ports

- Need to be capped
- Ensure there are no perforations (holes) above grade
- Stabilize ports when backfilling to ensure they are straight
Common Installation Mistakes

The following slides show mistakes that PDEQ inspectors commonly see in the field.
Avoid This Common Installation Mistake

- Pipes in the distribution/junction box overlap
- This prevents effluent from being evenly distributed
Avoid This Common Installation Mistake

- The pipe from the tank to the D-box is not supported by soil
- The pipe could collapse when backfilled
Avoid This Common Installation Mistake

- Tank lids are not removed for the inspection
- Inspectors cannot verify the presence of the sanitary ‘T’, the effluent filter and the baffle

Photo courtesy of Bob’s Backhoe
Avoid This Common Installation Mistake

- Tank is not filled and the watertightness paperwork is not completed at the time of the inspection

Photo courtesy of Bob’s Backhoe
Avoid This Common Installation Mistake

- Perforations (holes) in the observation port are present above grade.
- This can contribute to disease-carrying organisms.
Avoid This Common Installation Mistake

- Observation ports are not capped
- This can contribute to disease-carrying organisms
Online

https://webcms.pima.gov/government/environmental_quality/

- What’s new?
- Forms
- Regulations
- Checklists
- Links
- Contact information
Contact

Pima County Department of Environmental Quality

33 N. Stone, 7th floor
Tucson, Arizona 85701
520-724-7400

https://webcms.pima.gov/government/environmental_quality/