



**ENGINEERING REVIEW**  
**REQUEST FOR DISCHARGE AUTHORIZATION**  
**SEWAGE COLLECTION SYSTEM**

**APPLICANT CERTIFICATION**

**1 Project Name and Number**

Project Name \_\_\_\_\_  
 ADEQ File Number \_\_\_\_\_ Date the Construction Authorization was issued: \_\_\_\_\_

**2 Applicant [R18-9-A301(B)(2)(a)]**

(Check One)  Owner  Operator [R18-9-A301(B)(2)(c)]  
 Name \_\_\_\_\_ Phone \_\_\_\_\_  
 Title \_\_\_\_\_ Firm Name \_\_\_\_\_  
 Mailing Address \_\_\_\_\_  
 City, State, Zip \_\_\_\_\_ E-mail address \_\_\_\_\_

**3 Contact Person/Agent (Please fill out if different than the Applicant) [R18-9-A301 (B)(2)(b)]**

(Check all that apply)  Engineer  Consultant  Contractor  Attorney  Other (Specify) \_\_\_\_\_  
 Name \_\_\_\_\_ Phone \_\_\_\_\_  
 Title \_\_\_\_\_ Firm Name \_\_\_\_\_  
 Mailing Address \_\_\_\_\_  
 City, State, Zip \_\_\_\_\_ E-mail address \_\_\_\_\_

**4 Operation and Maintenance (O&M) Plan**

- A) An O&M manual exists for the sewage collection system  Yes  No
- B) The O&M manual addresses components of operation and maintenance listed in the attached Engineers Certificate of Completion  Yes  No
- C) The emergency number of the owner/operator of the sewage collection system is \_\_\_\_\_
- D) The address where the O&M manual is maintained and confirms that the manual is available for inspection at that address by the Department on request is \_\_\_\_\_

**5 Certification (To be completed by the applicant in item 2 above)**

I, \_\_\_\_\_, certify that this Request for Discharge Authorization and all attachments were prepared under my direction or authorization and all information is, to the best of my knowledge, true, accurate and complete. I also certify that the sewage collection system described in this form is constructed as described in the Engineers Certificate of Completion and will be operated in accordance with terms and conditions of the Type 4.01 General Aquifer Protection Permit (A.A.C. R18-9-E301) and applicable requirements of Arizona Revised Statutes Title 49, Chapter 2, and Arizona Administrative Code Title 18, Chapter 9. I am aware that there are significant penalties for submitting false information including permit revocation as well as the possibility of fines and imprisonment.

Signature \_\_\_\_\_

Date \_\_\_\_\_

| DEPARTMENT USE ONLY        |  | ADEQ DATE STAMP |
|----------------------------|--|-----------------|
| Constructed within 2 years | <input type="checkbox"/> Yes <input type="checkbox"/> No |                 |
| ADEQ File                  |  |                 |
| LTF Number                 |  |                 |



## ENGINEERING REVIEW SECTION

### ENGINEERS CERTIFICATE OF COMPLETION (ECC)

### Sewage Collection System

**ATTACHMENT 1: Engineer's Certificate of Completion (ECC) [AAC R18-9-E301(E)(1)]**

**1 Project As Built Summary (Please select as appropriate for this project)**

- Material summary is on page \_\_\_\_\_ of the as-built plans or  the material summary is presented below.
- Provide a summary of gravity sewer piping materials installed for this project:

| Diameter (in)                  | Length (feet) | Material of Construction | Standard (SDR-35, etc) |
|--------------------------------|---------------|--------------------------|------------------------|
|                                |               |                          |                        |
|                                |               |                          |                        |
|                                |               |                          |                        |
|                                |               |                          |                        |
| Total length of gravity lines: |               |                          | feet                   |

- Provide the number of manholes installed for this project:  
 Number of manholes: \_\_\_\_\_

- Provide a summary of force mains installed for this project:

| Diameter (in)                | Length (feet) | Material of Construction | Standard (SDR-35, etc) |
|------------------------------|---------------|--------------------------|------------------------|
|                              |               |                          |                        |
|                              |               |                          |                        |
|                              |               |                          |                        |
|                              |               |                          |                        |
| Total length of force mains: |               |                          | feet                   |

- Provide the number of lift stations and pump details installed for this project:  
 Number of lift stations \_\_\_\_\_

| Lift station # | Number of Pumps | Rated Capacity (gpm) | Horsepower | Manufacturer | Model # | Grinder or ≥ 2.5 inch sphere (indicate pump type) |
|----------------|-----------------|----------------------|------------|--------------|---------|---|
|                |                 |                      |            |              |         | Grinder / ≥ 2.5 Inch                              |
|                |                 |                      |            |              |         | Grinder / ≥ 2.5 Inch                              |
|                |                 |                      |            |              |         | Grinder / ≥ 2.5 Inch                              |
|                |                 |                      |            |              |         | Grinder / ≥ 2.5 Inch                              |

**2 Construction Work Performed**

The work on this project was completed on \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ by the following contractors:

| Contractor Name | Work Performed | License Type/ROC # | Date Completed |
|-----------------|----------------|--------------------|----------------|
|                 |                |                    |                |
|                 |                |                    |                |
|                 |                |                    |                |
|                 |                |                    |                |
|                 |                |                    |                |

- List of additional contractors attached

### 3 Performance Test Results

Pre-operational tests (sewer deflection/leakage/uniform slope, manhole leakage, lift station leakage, and/ or force main leakage) were conducted and/or were observed by the Professional Engineer listed in item 7 below or staff under their direct supervision. The identified performance tests were performed by the following persons, with the results satisfactorily meeting all pertinent requirements in A.A.C. R18-9-E301(D) and (E) and all field test result reports attached to this certificate.

| Identify Tests Performed   | Contractor/Agency Name | Test Performed/<br>Observed by | Date of<br>Final<br>Testing | Satisfactory<br>Results<br>Attached |
|--|------------------------|--------------------------------|-----------------------------|-------------------------------------|
| <input type="checkbox"/> Uniform Slope – Lamp Lighting                                     |                        |                                |                             | <input type="checkbox"/> Yes        |
| <input type="checkbox"/> Uniform Slope and Deflection – Camera (logs attached)             |                        |                                |                             | <input type="checkbox"/> Yes        |
| <input type="checkbox"/> Deflection Test – Mandrel   |                        |                                |                             | <input type="checkbox"/> Yes        |
| <input type="checkbox"/> ASTM F1417 – Plastic Pipe   |                        |                                |                             | <input type="checkbox"/> Yes        |
| <input type="checkbox"/> ASTM C924 – Concrete Pipe – Low Pressure Air                      |                        |                                |                             | <input type="checkbox"/> Yes        |
| <input type="checkbox"/> ASTM C828 – Vitrified Clay - Low Pressure Air                     |                        |                                |                             | <input type="checkbox"/> Yes        |
| <input type="checkbox"/> ASTM C1091 – Vitrified Clay - Hydrostatic Testing                 |                        |                                |                             | <input type="checkbox"/> Yes        |
| <input type="checkbox"/> ASTM C969 – Concrete Pipe – Infiltration/Exfiltration             |                        |                                |                             | <input type="checkbox"/> Yes        |
| <input type="checkbox"/> ASTM D2321 – Thermoplastic Pipe                                   |                        |                                |                             | <input type="checkbox"/> Yes        |
| <input type="checkbox"/> Water loss not exceeding 0.0034 of total manhole volume per hour. |                        |                                |                             | <input type="checkbox"/> Yes        |
| <input type="checkbox"/> ASTM C1244 – Manhole Negative air pressure testing.               |                        |                                |                             | <input type="checkbox"/> Yes        |
| <input type="checkbox"/> NACE RP0274 0 – High-Voltage Electrical Inspection                |                        |                                |                             | <input type="checkbox"/> Yes        |
| <input type="checkbox"/> Force main tested at _____ psi for 2 or more hours                |                        |                                |                             | <input type="checkbox"/> Yes        |
| <input type="checkbox"/>   |                        |                                |                             | <input type="checkbox"/> Yes        |
| <input type="checkbox"/>   |                        |                                |                             | <input type="checkbox"/> Yes        |

- List of contractors and test methodologies is attached.
- Performance test results are summarized on the attached performance log sheets.

### 4 Construction Plans (Check One)

- The original construction plans submitted with the Notice of Intent to Discharge accurately reflect final location, configuration, and construction of components (as-built plans are required for gravity components).
- Attached as-built plans are properly identified and numbered and were sealed and signed by \_\_\_\_\_, Registered as a professional \_\_\_\_\_, Arizona Certificate Number \_\_\_\_\_.

Note: A change made during construction in location, configuration, dimension, depth, material, or installation procedure is allowed under A.A.C. R18-9-A301(D)(1)(e) only if the change continues to conform with the specific standard in rule used as the basis of design. Any such changes must be recorded on the site plan. (Changes to the original plans noted in the as-built plans shall be identified by “highlighting” or other conspicuous method as set forth by the Arizona Board of Technical Registration statutes, rules, and substantive policies).

### 5 Operation and Maintenance (O&M) Plan (Check One)

- The original O&M plan submitted with the Notice of Intent to Discharge is unchanged and satisfies the final plan requirement per A.A.C. R18-9-E301(E)(3).
- A final O&M plan is attached.

**6 Other Information Required by the Department under A.A.C. R18-9-E301(E)(2) (Check One)**

- No other information was required.
- Other information required by the Department is attached.

**7 Certification Statement**

I, \_\_\_\_\_ (print name), a Professional Engineer registered in the State of Arizona, have provided the evidence listed in this Engineers Certificate of Completion, that the construction of the above described project was completed, to the best of my knowledge, in compliance with the Construction Authorization of General Permit Conformance or with changes as reflected in as-built plans that meet the terms and conditions of the Type 4.01 General Permit (A.A.C. R18-9-E301) and applicable requirements of Arizona Revised Statutes Title 49, Chapter 2, and Arizona Administrative Code Title 18, Chapter 9..

Affix Seal per A.A.C. R4-30-304(E)

## APPENDIX 1 – PERFORMANCE TESTING REPORTS

### GENERAL INSTRUCTIONS

These forms are included to assist the applicant in collecting the data required by rule. The use of these forms are not required but if used they will assist the applicant in collecting the correct data for most gravity sewage collection systems.

### PERFORMANCE TEST LOG 1 – ASTM F1417 TESTING PROCEDURE

1. All testing shall be performed in accordance with “Standard Test method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low-Pressure Air”, ASTM F-1417-92 testing method. The information provided herein does not displace or supersede the applicable standards, rules, and regulations.
2. This test method is applicable to all gravity sewer lines made of thermoplastic pipe, reinforced thermosetting resin (RTRP) pipe, and reinforced plastic mortar (RPM) pipe.
3. The basic test procedure is as follows:
  - a. Isolate the section of sewer line to be tested by inflatable stoppers or other suitable test plugs.
  - b. All openings in the test section must be plugged (branches, laterals, tees, etc.).
  - c. Slowly add air to the test section until the pressure inside the pipe reaches 4.0 psig. After obtaining the 4.0 psig pressure, the air supply must be regulated such that the pressure is maintained between 3.5 and 4.0 psig for at least 2 minutes depending on air/ground temperature conditions.
  - d. Determine the rate of air loss by either constant pressure method or the time-pressure drop method.
    - i. Constant Pressure Method - Add air until the internal air pressure of the sewer line is raised to 4.0 psig and the test pipe section is stabilized as in 3(c). Release the pressure to 3.5 psig to run the constant pressure test. The air-flow rate in standard cubic feet per minute is read directly by a rotameter. Convert this air-flow rate to actual cubic feet per minute of air leaking from the test section by using the absolute pressure and temperature in the test section. The requirements for air loss under the constant pressure method shall be considered satisfied if the air loss does not exceed the specified leakage rate in cubic feet per minute per square foot of internal pipe surface area.
    - ii. Time-Pressure Drop Method (1 psig Pressure Drop) – Air is slowly introduced in the pipe section to be tested, until the air pressure is raised to approximately 4.0 psig and the test section is stabilized as in section 3(c). Decrease the pressure to 3.5 psig before starting the test. Determine the time required for the pressure to drop from 3.5 psig to 2.5 psig, and compare this time with the required time from Table 1 (for pipe diameters greater than 21 inches please refer to ASTM F-1417).
    - iii. Time-Pressure Drop Method (0.5 psig Pressure Drop) – Follow the same procedure as in Section 3(d)(ii). The time required for the pressure to drop 0.5 psig is determined from Table 2 (for pipe diameters greater than 21 inches please refer to ASTM F-1417).

### Special Notes

1. Uniform Standard Specifications for Public Works Construction 2009, published by the Maricopa Association of Governments, Section 610.15 is **NOT** an acceptable pressure testing method as hold times listed in Table 615-1 are not calculated as specified in ASTM F1417.
2. PIMA 508-3.05 (2003) is an acceptable method to comply with R18-9-E301(D)(2)(j). Pima 508-3.05(D) describes a joint test methodology for pipe diameters greater than 48”. This method, though not explicitly listed in R18-9-E301(D)(2)(j), is an acceptable alternative test method **IF** the test method and vacuum hold times were included in the construction specifications as part of the approved Construction Authorization and the Engineer of Record witnesses and provides acceptance for the results.

Table 1 – Minimum Specified Time Required for a 1.0 psig Pressure drop for Size and Length of Pipe Indicated

| Pipe Diameter (in) | Minimum Time, min:s | Length for Minimum Time, ft | Time for longer lengths, s | Specification Time for Length (L) Shown, min:s |        |        |        |        |        |        |        |
|--------------------|---------------------|-----------------------------|----------------------------|--|--------|--------|--------|--------|--------|--------|--------|
|                    |                     |                             |                            | 100 ft   | 150 ft | 200 ft | 250 ft | 300 ft | 350 ft | 400 ft | 450 ft |
| 6                  | 5:40                | 398                         | 0.854L                     | 5:40   | 5:40   | 5:40   | 5:40   | 5:40   | 5:40   | 5:42   | 6:24   |
| 8                  | 7:34                | 298                         | 1.520L                     | 7:34   | 7:34   | 7:34   | 7:34   | 7:36   | 8:52   | 10:08  | 11:24  |
| 10                 | 9:26                | 239                         | 2.374L                     | 9:26   | 9:26   | 9:26   | 9:53   | 11:52  | 13:51  | 15:49  | 17:48  |
| 12                 | 11:20               | 199                         | 3.418L                     | 11:20  | 11:20  | 11:24  | 14:15  | 17:05  | 19:56  | 22:47  | 25:38  |
| 15                 | 14:10               | 159                         | 5.342L                     | 14:10  | 14:10  | 17:48  | 22:15  | 26:42  | 31:09  | 35:36  | 40:04  |
| 18                 | 17:00               | 133                         | 7.692L                     | 17:00  | 19:13  | 25:38  | 32:03  | 38:27  | 44:52  | 51:16  | 57:41  |
| 21                 | 19:50               | 114                         | 10.470L                    | 19:50  | 26:10  | 34:54  | 43:37  | 52:21  | 61:00  | 69:48  | 78:31  |

Table 2 – Minimum Specified Time Required for a 0.5 psig Pressure drop for Size and Length of Pipe Indicated

| Pipe Diameter (in) | Minimum Time, min:s | Length for Minimum Time, ft | Time for longer lengths, s | Specification Time for Length (L) Shown, min:s |        |        |        |        |        |        |        |
|--------------------|---------------------|-----------------------------|----------------------------|--|--------|--------|--------|--------|--------|--------|--------|
|                    |                     |                             |                            | 100 ft   | 150 ft | 200 ft | 250 ft | 300 ft | 350 ft | 400 ft | 450 ft |
| 6                  | 2:50                | 398                         | 0.427                      | 2:50   | 2:50   | 2:50   | 2:50   | 2:50   | 2:50   | 2:51   | 3:12   |
| 8                  | 3:47                | 298                         | 0.760                      | 3:47   | 3:47   | 3:47   | 3:47   | 3:48   | 4:26   | 5:04   | 5:42   |
| 10                 | 4:43                | 239                         | 1.187                      | 4:43   | 4:43   | 4:43   | 4:57   | 5:56   | 6:55   | 7:54   | 8:54   |
| 12                 | 5:40                | 199                         | 1.709                      | 5:40   | 5:40   | 5:42   | 7:08   | 8:33   | 9:58   | 11:24  | 12:50  |
| 15                 | 7:05                | 159                         | 2.671                      | 7:05   | 7:05   | 8:54   | 11:08  | 13:21  | 15:35  | 17:48  | 20:02  |
| 18                 | 8:30                | 133                         | 3.846                      | 8:30   | 9:37   | 12:49  | 16:01  | 19:14  | 22:26  | 25:38  | 28:51  |
| 21                 | 9:55                | 114                         | 5.235                      | 9:55   | 13:05  | 17:27  | 21:49  | 26:11  | 30:32  | 34:54  | 39:16  |

Please refer to ASTM F1417 for testing details. The standard is available for purchase at <http://www.astm.org/>.

**PERFORMANCE TEST LOG 1 – GRAVITY SEWER LEAKAGE TEST – STANDARDIZED REPORT FORM**

ADEQ File# \_\_\_\_\_  
 Tested by \_\_\_\_\_  
 Date Tested \_\_\_\_\_  
 Test Method  ASTM F1417 or  \_\_\_\_\_

Project Name \_\_\_\_\_  
 Parcel Number \_\_\_\_\_  
 1.0 psi – Table 1       0.5 psi – Table 2

| MH From | MH To | Pipe Diameter (inches) | Segment Length (feet) | Minimum Test Run (mm'ss'') | Start Time | End Time | Total Test Length (feet) | Initial Pressure (psi) | End Pressure (psi) | Actual Pressure Lost | Acceptable pressure loss | Pass/Fail | Operator initials |
|---------|-------|------------------------|-----------------------|----------------------------|------------|----------|--------------------------|------------------------|--------------------|----------------------|--------------------------|-----------|-------------------|
|         |       |                        |                       |                            |            |          |                          |                        |                    |                      |                          |           |                   |
|         |       |                        |                       |                            |            |          |                          |                        |                    |                      |                          |           |                   |
|         |       |                        |                       |                            |            |          |                          |                        |                    |                      |                          |           |                   |
|         |       |                        |                       |                            |            |          |                          |                        |                    |                      |                          |           |                   |
|         |       |                        |                       |                            |            |          |                          |                        |                    |                      |                          |           |                   |
|         |       |                        |                       |                            |            |          |                          |                        |                    |                      |                          |           |                   |
|         |       |                        |                       |                            |            |          |                          |                        |                    |                      |                          |           |                   |
|         |       |                        |                       |                            |            |          |                          |                        |                    |                      |                          |           |                   |
|         |       |                        |                       |                            |            |          |                          |                        |                    |                      |                          |           |                   |
|         |       |                        |                       |                            |            |          |                          |                        |                    |                      |                          |           |                   |
|         |       |                        |                       |                            |            |          |                          |                        |                    |                      |                          |           |                   |
|         |       |                        |                       |                            |            |          |                          |                        |                    |                      |                          |           |                   |
|         |       |                        |                       |                            |            |          |                          |                        |                    |                      |                          |           |                   |
|         |       |                        |                       |                            |            |          |                          |                        |                    |                      |                          |           |                   |
|         |       |                        |                       |                            |            |          |                          |                        |                    |                      |                          |           |                   |
|         |       |                        |                       |                            |            |          |                          |                        |                    |                      |                          |           |                   |
|         |       |                        |                       |                            |            |          |                          |                        |                    |                      |                          |           |                   |
|         |       |                        |                       |                            |            |          |                          |                        |                    |                      |                          |           |                   |
|         |       |                        |                       |                            |            |          |                          |                        |                    |                      |                          |           |                   |
|         |       |                        |                       |                            |            |          |                          |                        |                    |                      |                          |           |                   |

Comments \_\_\_\_\_

Supervisor: \_\_\_\_\_  
 Name: \_\_\_\_\_  
 Company: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Phone \_\_\_\_\_ Fax \_\_\_\_\_  
 Email \_\_\_\_\_

Professional Seal



