From the perspective of developing different grade levels of O&M providers from "low to high expertise," we offer the following:

O&M SERVICE PROVIDER:

GRADE 1: (Septic System Operator)

- **Is by definition, a septic system service provider.**
- **Has a knowledge of septic system operation and gravity drainfields, inspection and troubleshooting.**
- **Has a knowledge of anaerobic treatment in the septic tank and aerobic treatment in the drainfield.**
- **Has a knowledge of what constitutes a confined space entry situation.**

GRADE 2: (ATU Operator)

- **Can do everything a Grade 1 Operator can do, plus…**
- **Has the additional knowledge to be considered an ATU level service provider**
- **Has a good working knowledge of all treatment processes in the ATU and drainfield.**
- **Has a working knowledge of all ATU system components**
- **Can inspect and troubleshoot ATU systems.**
- **Has a knowledge of what constitutes a confined space entry situation.**

GRADE 3: (Supervisor Level)

- **Has expert level knowledge of Septic and ATU systems.**
- **Can act in a supervisory capacity over a field crew.**
- **Can write and file final reports to owner or government agency.**
- **Has a good working knowledge of terminology, nomenclature and regulations governing all aspects of the job.**
- **Has excellent Public Relations skills.**
- **Has an absolute knowledge of confined space entry procedures and holds an OSHA certification.**

These grade levels are footnoted in red as G1, G2 and G3 in the aspect of Need-to-Know in the following outline.

O&M Service provider – Need to Know

I. Understand administrative requirements required by the ~~local ordinance~~ Aquifer Protection Permitting Program

A. G3 ~~7080 requirements~~ Title 18, Chapter 9 requirements for Type 4 system operation and maintenance for the specific system type.
B. ~~Local ordinance per 7080~~
C. G3 There should be a Provision that requires ~~MPCA~~ either factory trained, ADEQ certified, or ROC registered and licensed professionals (Qualified Employees and Designated Registered Professionals)
D. G3 ~~LUG cannot issue additional licenses~~ Not sure what LUG is or Arizona equivalent.
E. G3 ~~Ordinance~~ Title 18, Chapter 9 requirements for Type 4 system operation and maintenance for the specific system type.
    1. Management plan
    2. Monitoring
    3. Mitigation
F. G1, G2, G3 System classifications As this applies to property transfers, absolute and clear definitions will need to be made.
    1. ~~Acceptable~~ Functional
    2. ~~Unacceptable~~ Nonfunctional
    3. ~~Needing maintenance~~ Functional with concerns
G. G3 ~~Local units of government~~ ADEQ or their delegated authorities must enforce their ordinance
H. G3 Permit requirements
    1. Operating permits
    2. Operating and mitigation plans
I. G1, G2, G3 Inspection Requirements
J. G3 Recordkeeping Requirements
K. G3 Annual Reporting Requirements to ~~MPCA~~ ADEQ.

II. General O&M

1. Terminology G1, G2, G3
    a. Inspection
    b. Operation
    c. Maintanence
    d. Monitoring
    e. Repair/ Upgrade
    f. Mitigation
    g. Management
2. System Treatment train G1, G2, G3

a. Identify components
b. Reading a permit
c. Completing an inspection- ~~form 1.1~~ There is no standard form for O&M, unless one has been provided from the manufacturer.

3. Developing a Service Company G3
   a. Tools
   b. Methods
4. Developing a Service Contract G3
   a. Creating a File
   b. ~~Form 1.2~~ Mfr. Form or Company Form/Report
5. Site Assessment G1, G2, G3
   a. Surface water
   b. Encroachments
   c. Vegetation
   d. GW Monitoring wells

III. O&M of Piping G1,G2,G3

1. Flow line
2. Cleanout locations
3. Cleaning

IV. O&M of Septic and Holding Tanks G1, G2, G3

1. Acceptable tank conditions Define "acceptable".
2. Tank access
3. Alarms
4. Operating conditions
5. Pumping recommended
6. Baffles
   a. Effluent screens
7. Tank structure

V. O&M of Pump Tanks G2, G3

1. Acceptable tank conditions
2. Tank access
3. Alarms
4. Operating conditions
5. Discharge assembly
6. Electrical
7. Tank structure
8. Baffles
   a. Screens or filters

VI. O&M of Pumps, Floats, and Controls G2, G3

A. Correct pump, placement and connections
B. Verify dose frequency and volumes
C. Wiring safe
D. Float placement and tie downs
    1. Dose volume
E. Flow measurement
F. Timer settings
G. Safety
    1. Confined space
    2. Hygiene
    3. Hazard awareness and control
    4. Written Health & Safety Program

VII. O&M of Distribution Systems (gravity and pressure)

A. Gravity G1, G2, G3
    1. System identification
    2. General assessment
    3. Distribution
    4. Inspection pipes
        a. Ponding
    5. Switching valves or make flow adjustments at distribution box.
B. ~~Pressure~~ Pressurized drip systems G2, G3
    1. System identification
    2. General assessment
    3. Distribution
        a. ~~Distill~~ Observe on/off pressures.
        b. Verify pressure gage is working.
    4. Inspection pipes
        a. Ponding
    5. ~~Switching valves~~ Open return valve and flush drain field lines back to the dosing tank. Return drain valve to original position.
    6. Inspect, clean or replace strainer screens
    7. Inspect air relief valves
    8. Calculate flow

VIII. O&M of At-grade Systems & Mound Systems G2, G3

1. Pressure distribution
2. Ponding
3. Seepage at the toes

~~IX. O&M of Drip systems *~~

1. ~~System identification~~
2. ~~General assessment~~
3. ~~Filters~~
4. ~~Distribution~~
    a. ~~System pressure~~
5. ~~Air release valves~~
6. ~~Switching valves~~
7. ~~Flow calculation~~

X. O&M of Alternative Systems * G2, G3

A. ATU
1. System identification
2. General assessment
3. Air supply
4. Mixed liqueur
5. Separation
    a. Settling
    b. Growth
6. Return
7. Effluent quality

B. Media filter
1. System identification
2. General assessment
3. Distribution
    a. Ponding
4. Media replacement
5. Effluent quality

C. Constructed Wetland Systems
1. System identification
2. General assessment
3. Water level
4. Vegetation
5. Effluent quality

D. Disinfection systems
1. System identification
2. General assessment
3. Disinfection agent

XI. Monitoring of Systems G2, G3

1. Types of monitoring
2. Necessary tools
   a. Monitoring
   b. Shipping
3. Monitoring location
4. Sampling and reporting requirements
5. Sample handling
   a. COC
   b. Lab needs

XII. Reporting G3

1. Who gets report
2. Method
3. Forms

XIII. Large System Reporting G3

1. Frequency
2. Who gets report
3. Additional legal requirements
   a. Operator licenses
4. Method
   a. Groundwater monitoring
5. Forms

XII. Basic Math Requirements G1, G2, G3

A. Add, subtract, multiply and divide
   1. Slope
   2. Unit conversion
      a. Metric to ~~English~~ Standard
      b. ~~English unit conversion~~ Standard to Metric
      c. Fahrenheit/Centigrade
B. Average
   1. Weighted average
C. Use powers and percentages
D. Graphing (pump curves), pressure calculation
E. Basic algebra/geometry
F. Calculate volumes and flow rates
G. Calculate chemical dilution
H. Calculate detention time
I. Know the logarithmic nature of pH values.