NOTICES OF FINAL RULEMAKING

The Administrative Procedure Act requires the publication of the final rules of the state's agencies. Final rules are those which have appeared in the Register first as proposed rules and have been through the formal rulemaking process including approval by the Governor's Regulatory Review Council. The Secretary of State shall publish the notice along with the Preamble and the full text in the next available issue of the Register after the final rules have been submitted for filing and publication.

NOTICE OF FINAL RULEMAKING

TITLE 18. ENVIRONMENTAL QUALITY

CHAPTER 9. DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER POLLUTION CONTROL

PREAMBLE

1. Sections Affected	Rulemaking Action
Article 1	Amend
R18-9-101	Amend
R18-9-102	Amend
R18-9-103	Repeal
R18-9-103	New Section
R18-9-104	Amend
R18-9-105	Repeal
R18-9-105	New Section
R18-9-106	Amend
R18-9-107	Repeal
R18-9-107	New Section
R18-9-108	Repeal
R18-9-108	New Section
R18-9-109	Repeal
R18-9-109	New Section
R18-9-110	Repeal
R18-9-110	New Section
R18-9-111	Repeal
R18-9-112	Repeal
R18-9-113	Repeal
R18-9-114	Repeal
R18-9-115	Repeal
R18-9-116	Repeal
R18-9-117	Repeal
R18-9-118	Repeal
R18-9-119	Repeal
R18-9-121	Repeal
R18-9-122	Repeal
R18-9-124	Repeal
R18-9-125	Repeal
R18-9-126	Repeal
R18-9-127	Repeal
R18-9-129	Repeal
R18-9-130	Repeal
Appendix I	Repeal
Article 2	Renumber
R18-9-201	Renumber
R18-9-202	Renumber
R18-9-203	Renumber
Article 2	New Article
Part A	New Part
R18-9-A201	New Section
R18-9-A202	New Section
R18-9-A203	New Section

R18-9-A204	New Section
R18-9-A205	New Section
R18-9-A206	New Section
R18-9-A207	New Section
R18-9-A208	New Section
R18-9-A209	New Section
R18-9-A210	New Section
R18-9-A211	New Section
R18-9-A212	New Section
R18-9-A213	New Section
Part B	New Part
R18-9-B201	New Section
R18-9-B202	New Section
R18-9-B203	New Section
R18-9-B204	New Section
R18-9-B205	New Section
R18-9-B206	New Section
Article 3	New Article
Part A	New Part
R18-9-A301	New Section
R18-9-A302	New Section
R18-9-A303	New Section
R18-9-A304	New Section
R18-9-A305	New Section
R18-9-A306	New Section
R18-9-A307	New Section
R18-9-A308	New Section
R18-9-A309	New Section
R18-9-A310	New Section
R18-9-A311	New Section
R18-9-A312	New Section
R18-9-A313	New Section
R18-9-A314	New Section
R18-9-A315	New Section
R18-9-A316	New Section
Part B	New Part
R18-9-B301	New Section
Part C	New Part
R18-9-C301	New Section
R18-9-C302	New Section
R18-9-C303	New Section
Part D	New Part
R18-9-D301	New Section
R18-9-D302	New Section
R18-9-D303	New Section
R18-9-D304	New Section
R18-9-D305	New Section
R18-9-D306	New Section
R18-9-D307	New Section
Part E	New Part
R18-9-E301	New Section
R18-9-E302	New Section
R18-9-E303	New Section
R18-9-E304	New Section
R18-9-E305	New Section
R18-9-E306	New Section
R18-9-E307	New Section
R18-9-E308	New Section
R18-9-E309	New Section
R18-9-E310	New Section
R18-9-E311	New Section
R18-9-E312	New Section
R18-9-E313	New Section
R18-9-E314	New Section
R18-9-E315	New Section

R18-9-E316	New Section
R18-9-E317	New Section
R18-9-E318	New Section
R18-9-E319	New Section
R18-9-E320	New Section
R18-9-E321	New Section
R18-9-E322	New Section
R18-9-E323	New Section
Table 1	New Table
Article 4	Renumber
R18-9-401	Renumber
R18-9-401	Amend
R18-9-402	Renumber
R18-9-402	Amend
R18-9-403	Renumber
R18-9-403	Amend
Article 8	Repeal
R18-9-801	Repeal
R18-9-802	Repeal
R18-9-803	Repeal
R18-9-804	Repeal
R18-9-805	Repeal
R18-9-806	Repeal
R18-9-807	Repeal
R18-9-808	Repeal
R18-9-809	Repeal
R18-9-810	Repeal
R18-9-811	Repeal
R18-9-812	Repeal
R18-9-813	Repeal
R18-9-814	Repeal
R18-9-815	Repeal
R18-9-816	Repeal
R18-9-817	Repeal
R18-9-818	Repeal
R18-9-819	Repeal

2. The specific authority for the rulemaking, including both the authorizing statute (general) and the statutes the rules are implementing (specific):

Authorizing statutes: A.R.S. §§ 49-104, 49-203, 49-241, 49-242, 49-243.01, 49-245, 49-247, 49-250, 49-361, and 49-362

Implementing statutes: A.R.S. §§ 49-104, 49-107, 49-109, 49-111, 49-112, 49-201, 49-203, 49-208, 49-241.01, 49-242, 49-243, 49-243.01, 49-244, 49-245, 49-246, 49-247, 49-250, 49-251, 49-261, 49-362, and 49-363

3. The effective date of the rules:

Article 1, Article 2, and Article 3, effective January 1, 2001. This delayed effective date coincides with the January 1, 2001 repeal of 49 A.R.S. 2, Article 10, Wastewater Collection and Treatment, and with the January 1, 2001 repeal and effective date of various Sections under 49 A.R.S. 2, Article 3, Aquifer Protection Permits.

R18-9-A316, effective January 1, 2002. This delay allows realtors, financial institutions, other regulatory agencies, and the private sector additional time to develop a uniform process for implementation.

4. List of all previous notices appearing in the register addressing the final rule:

Notice of Rulemaking Docket Opening: 5 A.A.R. 2014, June 18, 1999

Notice of Rulemaking Docket Opening: 6 A.A.R. 1325, April 7, 2000

Notice of Proposed Rulemaking: 6 A.A.R. 1205, April 7, 2000

Notice of Public Information: 6 A.A.R. 1925, May 26, 2000

5. The name and address of agency personnel with whom persons may communicate regarding the rulemaking:

Name: Michele Robertson

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6. An explanation of the rule, including the agency's reasons for initiating the rule:

In July 1997, the Department formed a Unified Water Quality Permit Rewrite Steering Committee composed of 22 members representing several stakeholder organizations that included private businesses, large and small municipalities, county governments, and other agencies. The Department requested that the committee review existing water permitting processes and develop recommendations for process improvements through the consolidation and streamlining of current requirements.

The Steering Committee met in August 1997 and members agreed on a consensus model of decision-making with an option for "grudging consent" and submittal of minority opinions. Because of the complexity of technical issues, the necessity for a detailed evaluation of existing requirements and processes and the plan to develop strategies for improvement, the Steering Committee established subcommittees of stakeholders with expertise in specific areas (industrial discharge, constructed wetlands, reclaimed water, mines, and sewage treatment facilities).

Steering Committee meetings were open to the public and attendees were allowed to participate in the discussions. Participation in the subcommittees was open to anyone expressing an interest in becoming involved in the process. The Steering Committee and subcommittees spent approximately one year evaluating existing Water Permit Section (WPS) permitting procedures. Volunteer subcommittee members spent a tremendous amount of time developing recommendations that would streamline and enhance the effectiveness of the permitting process for both the Department and regulated entities. Subcommittees submitted their recommendations to the Steering Committee for discussion, revision, and approval. The Steering Committee wrote its Final Report (Unified Water Quality Permit Rewrite Project, Final Report of the Steering Committee) and transmitted it to the Department in August 1998. The Final Report provided a basis for Senate Bill 1379 that became law in August 1999.

Senate Bill 1379 provided statutory changes to pave the way for rule revisions. After passage of the bill, the Department reconvened the Steering Committee and the various subcommittees. These groups have continued to meet regularly with Department staff to identify implementation issues that may require further action and to assist in drafting the rule. A particular focus of the subcommittees has been in the development of numerous general permits to be issued by rule. In the Fall of 1999, the Department held state-wide meetings to educate stakeholders about the anticipated changes to the Aquifer Protection Permit and sewerage construction programs that will be implemented by this rulemaking. Meetings were held in Yuma, Phoenix, Pinetop-Lakeside, Flagstaff, Parker, and Sierra Vista.

Many changes incorporated into this rulemaking were identified in the Department's 5-Year Review Report prepared for the Governor's Regulatory Review Council. The rules amend, repeal, and consolidate the current Chapter 9, Articles 1, 2, and 8, incorporating those aspects of Article 8, Sewerage Construction Program that remain relevant into the Aquifer Protection Permit Program. Because of this consolidation, the Department has named our approach the Unified Water Quality Permit.

The Department expects the rules to reduce the process requirements currently placed upon entities that discharge pollutants, such as mining operations, sewage treatment facilities, solid waste disposal facilities, large septic tank systems, certain industrial facilities, and most discharges to navigable waters by streamlining some permitting requirements, eliminating others that are redundant, and relying on general permits to a much greater extent than previous rules allowed while still protecting groundwater quality.

The rules contain the following four major program improvements:

(1) The rules eliminate duplicative processes by consolidating design reviews for sewage treatment facilities into the Aquifer Protection Permit process as a component of the best available demonstrated control technology (BADCT). Current sewerage rules require review and approval of detailed engineering plans before construction and operation of all sewage treatment facilities, from the largest municipal sewage treatment facilities to septic tank systems installed at single family residences. For sewage treatment facilities required to obtain an individual permit, this review duplicates and overlaps many engineering requirements of the Aquifer Protection Permit program. The new rules reduce the number of facilities required to submit complete detailed engineering plans for Department review and approval. As part of the Aquifer Protection Permit process, the Department will perform a review only of design reports for most larger facilities. A detailed engineering plan review may still be performed on large facilities when warranted based on criteria clearly specified in the rule.

(2) As recommended by the Steering Committee, the rules raise the standard of treatment for new sewage treatment facilities and major expansions of old facilities. These facilities may experience increased costs to meet the more stringent BADCT requirements. However, the biggest contributors to cost are nitrogen removal and dechlorination treatments already commonly required in Aquifer Protection Permits. The rules define BADCT requirements for sewage treatment facilities and allow flexibility to vary from those requirements, if warranted by site conditions. The result is less ambiguity and more uniformity in interpretation of BADCT. This change should reduce the time and effort currently devoted to negotiations between the Department and the applicant over permit conditions. Improved effluent quality should encourage the use of reclaimed water and contribute to water conservation efforts. In addition, complex sewage treatment facilities with flows between 3000 and 24,000 gallons per day that qualified for a general permit under the existing rule will now be required to obtain an individual permit. The increased cost to permit these facilities is anticipated to be offset by an improvement in operation, maintenance, and dependability that will provide a level of confidence to homeowners who rely on continued performance and to county health officials and other regulators who monitor compliance with permit requirements.

(3) The rulemaking provides a greatly expanded number of general permits that replace individual permits for major industry groups, such as mining and other industrial operations. These new general permits rely on clear technical standards to ensure that a discharging facility does not violate Aquifer Water Quality Standards and that the facility employs BADCT in its design, construction, and operation and maintenance. Under current Department statutes and rules, there are 16 general permits. The rulemaking expands this number to 41, increasing by almost three-fold the circumstances under which an applicant may obtain a general permit. General permits are simpler and take fewer hours to process than an individual permit. This simpler procedure reduces cost and expedites processing of these permits. To simplify this large number of general permits, the Department developed four types of general permit categories. Only Type 2, Type 3, and Type 4 General Permits have specified recordkeeping and reporting requirements.

A Type 1 General Permit does not require notice to the Department before a discharge. The final rulemaking includes nine Type 1 General Permits which were covered in the current rule. These general permits cover facilities, such as dockside facilities and watercraft, and earth pit privies.

A Type 2 General Permit requires that a Notice of Intent to Discharge be filed with the Department before a discharge is allowed. No verification is provided by the Department before the permit is issued. The permittee need only agree to comply with the terms of the specific Type 2 General Permit. There are three permits of this type.

A Type 3 General Permit requires an applicant to file a Notice of Intent to Discharge and receive written Verification of General Permit Conformance before a discharge is allowed. There are seven permits of this type.

A Type 4 General Permit requires an applicant to file a Notice of Intent to Discharge and receive a written Provisional Verification of General Permit Conformance before facility construction and a written Verification of General Permit Conformance before a discharge is allowed. There are 23 permits of this type. To ensure continued compliance with the general permit conditions, Type 2 and Type 3 general permits require renewal at specified time intervals. On average, the renewal periods are every five years.

(4) The on-site program oversees the location, design, installation, and maintenance of small sewage treatment and disposal systems that usually serve individual residences. The most common systems use a septic tank and a soil absorption trench. Current rules for on-site systems require a general or individual permit and Approvals to Construct and Approvals of Construction. This rulemaking will require that a general or individual permit applicant obtain a Verification of General Permit Conformance prior to discharge. During the review period, the Department has included an interim step, the Provisional Verification of General Permit Conformance, which allows the applicant time to complete construction of the approved design. Counties with delegation agreements will oversee monitoring, reporting, and operation and maintenance requirements for select systems. The most important change is the inclusion of technical standards for design approval. Previously, these standards were contained in guidance documents. Enforcement was spotty or inconsistent, resulting in the issuance of general permits that were not directly linked to the technical standards.

This rulemaking provides clear criteria for the design and installation of conventional septic tank systems and 22 types of alternative systems. If the site investigation indicates the presence of adverse site conditions that will prevent a conventional system from operating properly, this rulemaking provides requirements for selecting the proper alternative on-site system.

Soil evaluation is required to determine whether a conventional system may be used at a site or whether an alternative system is needed. In either case, the soil evaluation provides the soil absorption and other data that allows proper sizing and design of the disposal field. The options provided in this rulemaking for soil evaluation include: 1) percolation tests, 2) a method of investigation called “soil characterization,” and 3) other methods that provide equivalent information for system selection and design. This rulemaking disallows use of percolation tests as the sole method of performing a soil investigation if certain adverse site conditions exist. In these circumstances, percolation tests may not provide accurate data on which to select and design an on-site system.

This rulemaking establishes a design process for on-site systems that is dependent on three factors.

1. The soil absorption rate determined from the soil evaluation. This rate allows proper sizing of the disposal field for a conventional system. Proper sizing is important to prevent both "surfacing" of septic tank effluent, and inadequate filtration of effluent in the subsurface, both conditions that can create health hazards. If the soil absorption value is "out of range" for installing a conventional system, determination of the value nevertheless allows selection of an appropriate alternative system and proper subsequent design.
2. The minimum depth to groundwater. Conventional systems may be installed at sites that have a minimum depth to groundwater greater than either 5 or 10 feet depending on soil type. (This restriction limits the use of a conventional system in only a few areas of the state.)
3. Lot size. Lots of less than 1 acre may require systems that provide nitrogen reduction to prevent exceeding drinking water standards for nitrate in the groundwater. This rulemaking provides criteria to determine when systems may be excepted from this requirement.

Focusing on technical standards in rule to achieve prompt project approval makes the regulatory process more effective, instead of relying on a "cure" that is more costly and time-consuming, particularly for the system owner. To ensure that technical standards and operational requirements are met, programs are being developed by Northern Arizona University and the University of Arizona to train potential contractors on design and installation of on-site systems. The inclusion of technical standards that encompass design criteria and the selection of an appropriate disposal system based on site conditions will contribute to improved decisions for construction and more efficient operations to achieve Aquifer Water Quality Standards. Although the design approval technical standards may cost system owners more in initial expenditures, the long term operation and maintenance costs are expected to decline considerably with continuous updates in the use of conventional and alternative technologies.

7. A reference to any study that the agency relies on in its evaluation of or justification for the rule and where the public may obtain or review the study, all data underlying each study, any analysis for the study and other supporting material:

None

8. A showing of good cause why the rule is necessary to promote a statewide interest if the rule will diminish a previous grant of authority to a political subdivision of this state:

Not applicable

9. The summary of the economic, small business, and consumer impact:

This rulemaking allows the Department to accomplish its mission to protect public health and the environment by preventing inappropriate discharges to the state's groundwater through focusing on prevention and avoiding multiple costs that accompany environmental cleanups.

This rulemaking is the final product of an extensive stakeholder process that covered nearly three years of meetings and discussions. The rulemaking does not impose new regulations, rather it integrates the regulatory requirements of the Aquifer Protection Permit program with those of the Sewerage Construction Program to produce a single, unified water quality permit program. Integration and consolidation of the current rules results in a streamlined process for the development and issuance of permits and should reduce costs to permit applicants. Although streamlined, the process ensures continued protection of human health and the environment. Integration and consolidation of the permit requirements will be achieved by several strategies.

First, the rulemaking eliminates duplicative processes by consolidating design reviews for sewage treatment and disposal facilities into the Aquifer Protection Permit process as a component of the BADCT demonstration. A.R.S. § 49-104(B)(13) requires design review and approval of all municipal and domestic sewage treatment facilities and disposal facilities, from the largest municipal sewage treatment facility to septic tank (on-site) systems installed at a single family residence. For sewage treatment facilities, this review duplicates and overlaps many requirements of the Aquifer Protection Permit program.

Second, a clarification and more precise statement of BADCT requirements for sewage treatment facilities and their incorporation in this rulemaking will decrease the timelines required for plan review – another reason why applicants will be able to obtain their permits more quickly. This will result in less ambiguity and more uniform interpretation of what constitutes BADCT reducing the time and effort currently devoted to negotiations between the Department and the applicant over permit conditions. The shorter timelines necessary for obtaining permits will have clear advantages for permittees and applicants who have restricted construction schedules and those with heavy borrowing costs.

Third, greater flexibility is achieved by allowing four instead of only one type of general permit to deal with varying circumstances. Also, subject to specified terms and conditions, this rulemaking provides more general permits to replace an individual permit for facilities within mining operations, selected industrial discharges, and municipal and domestic sewage treatment facilities. Under this rulemaking, general permitting application types range between: 1) no notification, 2) notification without Department verification, 3) notification with Department verification, and 4) notification with a two-stage verification (provisional and final).

The individual permit process may include:

1. The submittal of an application giving details about a wide range of information;

2. A comprehensive hydrogeologic report; and

3. A more involved process that includes public hearings, public noticing, and monitoring and reporting requirements not usually required for general permits.

In comparison, general permits are simpler, have less stringent monitoring and reporting requirements and take fewer hours to process than individual permits. The individual permitting process is more costly for applicants because the applications take more effort and technical expertise to prepare and longer to process and review, and the public participation process is more extensive. Although the Department plans to charge fees for three of the four types of general permits, the Department anticipates that these fees will be considerably less, on average, than current fees for individual permits. In all cases, the Aquifer Protection Permit program requires that a discharging facility must not violate Aquifer Water Quality Standards and must employ BADCT in its design, construction, operation and maintenance.

Currently, an application or fee is not required for general permit coverage. The WPS reviews applications for individual or other permits at the hourly rate of $49 up to a maximum fee cap that varies with the type of permit, except for state-owned facilities that are statutorily exempt from the payment of fees. Before November, 1996 permit fees were $31.84 per hour with a statutory maximum of $16,000. Under this rulemaking, some applications that would have been processed as individual permits will now qualify for coverage under one of the new general permits.

The costs and benefits of this rulemaking pertain essentially to the streamlining and other process improvements planned for Aquifer Protection Permits issued by the Department. Cost impacts to the regulated and regulatory entities are assumed to be reduced overall. No analysis of costs and benefits relating to permitting fees expressed in dollar terms are covered in this economic, small business, and consumer impact statement, however, reference is made to the probable benefits in terms of a reduction in permit processing hours by Department staff. To estimate the impacts on review hours, the WPS compiled average work hours necessary to process different types of permits (e.g., mining, industrial, wastewater treatment) to benchmark the process improvements. Additionally, each stakeholder subcommittee was asked to research one typical case of a permittee/applicant (a regulated entity) to show how much in time, money, and other resources was spent under the current rules to obtain a water quality permit, although only one responded. Another assumption is that the WPS will issue permits within the specified temporal boundaries (expressed in business days) under licensing time-frames.

I. Estimated Costs and Benefits to State Agencies.

A. Arizona Department of Environmental Quality.

The Department is the implementing agency for this rulemaking, and the WPS is charged with the various aspects of reviewing and processing permit applications. The WPS has 43 FTE positions appropriated to work, in full or in part, on Aquifer Protection Permit or engineering review applications. Of the 43 positions, 5% are vacant at any given time. WPS staff include 33 Aquifer Protection Permit technical and engineering review staff, five clerical support staff, four supervisory staff and one Section Manager. Selected portions of staff work hours are designated as billable and non-billable. The 43 FTEs, combined, have more than 80,000 annual work hours with approximately 62% of these hours dedicated to processing applications that will be billed to applicants. (Department staff activities and budget items designated billable and non-billable are indicated in the fee rulemaking, being promulgated in conjunction with this rulemaking.) There will be no incremental employment impacts of this rulemaking since no new FTEs will be hired

Although the Department initiated this rulemaking to adopt the process improvements developed with stakeholders, it will also benefit the Department's efforts to process its workload inventory to meet statutory deadlines. In 1989, the Department compiled a list of 1071 existing facilities that discharge or have the potential to discharge to groundwater and thus require Aquifer Protection Permits. A sizeable portion of these existing facility owners required to obtain Aquifer Protection Permits have not done so. SB 1379 extended the deadlines for the Department to issue the remaining permits. In addition, the workload inventory includes permit applications for new facilities and requests for modifications of issued permits. As of June 30, 2000, 198 applications for permit actions were pending, while 107 non-mining facilities and 22 mining facilities from the existing facilities list remain to be permitted.

Table 1 projects the schedule for processing and completion of the pending permits for existing non-mining and mining facilities for FY00 - FY06 and estimates the number of additional applications for permit actions considered "new." The statutory deadlines for the completion of permit actions for existing non-mining and mining facility applications are January 1, 2004 and January 1, 2006, respectively. An estimated 30-50% of the permits for existing facilities are projected as general permits as a result of this rulemaking and the other portion are individual permits or clean closure approvals. Although, the WPS has implemented several permitting changes over the last few years that have aided in the significant increase in individual permit actions issued, the Department expects to achieve most permitting efficiencies through the issuance of general permits. The cumulative frequency column (cum f) in Table 1 shows the planned rate at which the workload inventory including projected estimates for new applications will be completed.

Table 1. Aquifer Protection Permit Inventory – FY00 - FY06							
	Non-Mining	Mining	New Applications	Total Pending	Completions **	% of Total	cum f %
2000	187	44	109	340	166	22.13%	22.13%
2001	90	42	125	257	183	24.40%	46.53%
2002	40	40	100	180	127	16.93%	63.47%
2003	0	28	100	128	102	13.60%	77.07%
2004	0	16	100	116	62	8.27%	85.33%
2005	0	6	100	106	60	8.00%	93.33%
2006	0	0	100	100	50	6.67%	100.00%
					750	100.00%	

** Completions include issuances, general permitted and exempted facilities.

Table 2 shows the number of individual Aquifer Protection Permits completed (either issued or denied) in the last five fiscal years. The data indicate that more than 1/2 were for sewage treatment facilities, less than 1/3 were for industrial operations, and slightly less than 1/10 were for mining facilities. Drywells were the fewest in number. Although mining permits are also few in number, they are invariably more complex, encompass numerous discharging facilities, and take longer to process. In addition to the permits issued or denied, the WPS issued a significant number of modifications to permits and clean closure approvals.

Table 2. Individual Aquifer Protection Permits (Issued or Denied) by Type and Fiscal Year							
TYPE	**1996**	**1997**	**1998**	**1999**	**2000**	**Total**	**%**
Drywells	5	1	2	8	4	20	7.5%
Industrial	14	11	15	28	12	80	29.9%
Mining	4	7	5	5	1	22	8.2%
Waste Water Treatment Facilities	24	25	25	29	43	146	54.4%
TOTAL	47	44	47	70	60	268	100.00%

Based on Table 2 data, WPS staff calculated the average hours to process different types of permits indicated in Table 3. Caution should be used when attempting to interpret the numbers because of the high variability in the data, even for applications within the same sector and those that have similar site conditions. Variability in the time to complete can be affected by quality and completeness of the application, the complexity of the discharge scenario, the degree of public interest, and whether the Department experienced staff turnover during the application review period. Measures of variability, however, cannot be calculated because of the very small number of observations in selected categories.

Data for Table 3 pertain to average hours billed and the high and low number of hours to complete those actions, although there is no direct correlation with revenues received because of the fee caps. The hours also may not reflect the actual hours used by the Department to process the permits since some activities, such as travel time are non-billable. However, the data in Table 3 are being used to benchmark the current process, so that the streamlining efficiencies and other improvements mandated by SB 1379 may be tracked.

Table 3. Billable Hours for APP Actions Completed between FY96-FY00				
Action	**Number of Observations**	**Average Billable Hours**	**High**	**Low**
APP Permits and Denials				
Drywells	20	46.5	126.1	13.9
Industrial	79	137.6	984.4	18.0
Mining	21	707.9	2266.7	12.8
Wastewater	138	122.8	490.3	22.3

Aquifer Protection Permit Major Modifications				
Drywells	1	59.8	59.8	59.8
Industrial	8	161.3	687.9	13.0
Mining	5	478.3	1705.6	16.5
Wastewater	47	69.1	344.5	8.8
Clean Closure Approvals				
Drywells	37	34.2	79.1	6.0
Industrial	23	71.4	243.2	7.5
Mining	4	151.0	326.2	31.0
Wastewater	12	50.1	153.0	8.0

Table 4 shows a comparison of the estimated average hours to complete permits under the current and final rules. While it is recognized that the average permit may not apply to any specific case or application (since all facilities and sites have unique conditions), the average hours are hypothetical constructs that are based, in part, on existing data about selected cases, and on assumptions about implementation of this final rulemaking.

For individual permits, the estimated decrease in processing hours range from less than 5% for a mining operation changing from an individual permit to another individual permit, with an addition of a Type 2 or Type 3 General Permit; to an almost 90% decrease for a drywell facility shifting from an individual to a Type 2 General Permit. Most of the permitting efficiencies (reductions in hours) will occur for those permits processed as individual permits under the current rules, but will qualify for general permits under this rulemaking. The Department estimates that approximately 10-20% of the applications for existing facilities may qualify for a Type 2 or a Type 3 general permit in lieu of an individual permit. The Department expects a much higher percentage of new facilities to qualify for the general permits, because the facilities are not built yet and can be designed to meet the general permit conditions.

Although the majority of savings are expected to occur from the shift to general permits, some facility owners will still be required to obtain individual permits. The combination of general permits, the elimination of time spent registering, monitoring and reporting (for some cases), the merging of Approvals to Construct (ATC) and Approvals of Construction (AOC) and other duplicative processes, and the increased clarity of the rules are all expected to significantly decrease overall permitting costs.

Table 4.
Comparison of Hours to Complete Permits under Current and Final Rules

Permit Type	Scenario	Type Change	Average Hours to Complete under Current Rule			Estimated Hours to Complete under Final Rules	Percent Change
			APP	ATC/ AOC	TOTAL		
Wastewater							
flow > 1 MGD	a	Individual to Individual	123	55	178	150	-15.73%
24,000 gpd < flow < 1 MGD or package facilities w/ flow > 20000 gpd	b	Individual to Individual Permit	123	45	163	145	-11.04%
20,000 gpd < flow < 24000 gpd	c	Individual to Type 4 General Permit	123	40	163	35	-78.53%
package facilities* with flow between 3000 gpd and 20,000 gpd	d	General to Individual Permit	10	30	40	80	100.00%
non-package facilities with flow between 3000 gpd and 20,000 gpd	e	Type 1 General to Type 4 General Permit	10	30	40	30	-25.00%
2000 gpd < flow < 3000 gpd	f	Type 1 General to Type 4 General Permit	2	30	32	30	-6.25%
flow <2000 gpd (individual onsite)	g	Type 1 General to Type 4 General Permit	0	30	30	28	-6.67%
Mining Operation	h	Individual to Individual + Type 2 and/ or Type 3 General Permit	708			675	-4.66%

Industrial Operation	i	Individual to Individual Permit	138			138	0.00%
	j	Individual to Type 3 General Permit	138			25	-81.88%
Drywell Facility	k	Individual to Type 2 General Permit	47			5	-89.36%
Sewage Collection							
Gravity System serving 51 to 300 connections	l	ATC/AOC to Type 4 General Permit		25		20	-20.00%
Forced main system serving 51 to 300 connections	m	ATC/AOC to Type 4 General Permit		35			-28.57%

gpd = gallons per day MGD = million gallons per day

*package facilities = pre-fabricated, manufactured treatment works

Scenario a. Wastewater facilities with design flow greater than one MGD are still subject to the individual permitting process. A facility in this category benefits from the merging of the ATC/AOC process with the BADCT review process. The Department estimates that the review hours associated with the design review (ATC component) averages 40 hours and this time should be reduced by approximately 1/3 because, in the future, the same Department staff person should perform the BADCT review and design review. BADCT and design reviews will be based on a design report instead of all design plans, unless design plans are requested for review. In addition, the construction review (AOC component) estimated at 15 hours will be eliminated. Therefore, the new individual permits are estimated to average 150 hours.

Scenario b. Facilities with design flow between 24,000 gallons per day and one MGD and those using pre-fabricated, manufactured treatment works with design flow greater than 20,000 gallons per day will still need to be covered by an individual permit. The Department should experience reductions in review time due to the merging of the BADCT and ATC/AOC processes, as well as standardizing the BADCT requirements in rule. These facilities are required to submit design plans, so the ATC component (30 hours) of the review will be reduced by 1/3 and the AOC component (15 hours) will be eliminated. Therefore, the Department estimates that the new individual permit will, on average, take 145 hours.

Scenario c. Facilities with design flow between 20,000 gallons per day and 24,000 gallons per day not using pre-fabricated, manufactured treatment works will no longer be subject to individual permit requirements, but should qualify for a Type 4 General Permit. The Department will benefit from this change significantly, because specific activities relating to processing an individual permit (drafting a permit, public noticing, and finalizing a permit) are no longer necessary and applications will be more complete due to the specificity of the Type 4 General Permits. Additionally, the Department will no longer need to register these facilities annually and will not need to record monitoring and reporting information.

Scenario d. Facilities using pre-fabricated, manufactured treatment works with design flow between 3000 gallons per day and 20,000 gallons per day will now be required to obtain an individual permit. The Department expects that there will be a large increase in review time for these facilities due to permit drafting and public noticing. Under the current rule, the Department performs a “determination of applicability” in most cases to ensure that the applicant qualifies for the general permit. This determination takes an average of 10 hours to perform. Additionally, the facility design and construction review and approval takes about 30 hours to complete. The Department will process this application as an individual permit and envisions developing a permit template for these types of facilities so that the permit may be issued expeditiously. The Department estimates that these permits should take, on average, approximately 80 hours to perform the expanded BADCT review (in lieu of the ATC review) and the other permit processing steps.

Scenario e. Facilities not using pre-fabricated, manufactured treatment works with flows between 3000 and 20,000 gallons per day will need to apply for a Type 4 General Permit instead of one of the existing general permits in the current rule. For these facilities, the Department commonly performs a determination of applicability that takes approximately 10 hours and an additional 30 hours for facility design and construction review and approval. The Department will now process the applications under R18-9-E323, 4.23 General Permit: 3000 to Less Than 24,000 Gallons Per Day. The Department estimates that an average of 30 hours of review time will be necessary for this type of general permit.

Scenario f. Facilities with design flow between 2000 gallons per day and 3000 gallons per day will be subject to Type 4 General Permit requirements. Under the current rule, the Department spends an average of two hours for the determination of applicability, 20 hours for the ATC, and 10 hours for the AOC. Based on this rulemaking, the Department will still perform design review and construction approval actions. Therefore, the Department should not experience any impact based on the rule changes for this facility category.

Scenario g. Facilities with design flow less than 2000 gallons per day (individual on-site) will be subject to Type 4 General Permit requirements. Under the current rule, the Department rarely performed a determination of applicability for these situations because they clearly fell under general permits. Because all counties are delegated authority to review and approve design and construction for septic tank and leachfield disposal systems, the Department reviews only the more complex on-site systems using alternative technologies. These reviews routinely takes 20 hours for the ATC and 10 hours for the AOC. Based on this rulemaking, the Department will still perform design review and construction approval actions (including two site visits). Therefore, the Department has not estimated any impact based on the rule changes for these facilities although the clear criteria for design and installation can be expected to result in some savings.

Scenario h. This rulemaking still requires individual permits for mining operations, however, some facilities on the site may qualify for a general permit. Currently, the Department spends, on average, 708 hours processing individual permits for mining operations. It is likely that under this rulemaking a typical site could qualify for at least one Type 2 General Permit and one Type 3 General Permit. Based on this assumption, the Department estimates that the time for an individual permit is reduced by 60 hours, while processing time for the Type 2 General Permit is five hours, and for the Type 3 General Permit is 25 hours. The average hours for processing individual permits for mining operations should decrease by 30 hours. The Department will benefit most when mining operations are issued a general permit for a new facility instead of amending an individual permit to add a facility.

Scenarios i and j. For industrial facilities that need to be covered by an individual permit, the Department estimates that this rulemaking will not change review time. Some industrial facilities will qualify for a Type 3 General Permit in lieu of the individual permit. An analysis of time spent for the pre-application, administrative completeness review, and technical completeness review stages for industrial facilities (issued FY96-FY99) that will match one of the final Type 3 General Permits, showed that on average, it took approximately 50 hours for those stages. General permits provide prescriptive requirements. It is assumed that approximately 25-30 hours will be needed to verify conformance with general permit conditions. Based on the estimated time to verify conformance, the Department estimates a significant reduction in review time.

Scenario k. The Department should realize a significant reduction in review time for drywell facilities that may be covered under the Type 2 General Permit. It is anticipated that the Department will spend approximately five hours to review the notification by a facility to operate under this type permit.

Scenarios l and m. The Department estimates 17 hours of review time for ATCs and 8 hours for AOCs for gravity-based sewage collection systems serving 51 to 300 connections. An additional 8 hours for ATC and two hours for AOC is required when a force-main is involved. Under this rulemaking, these systems will be covered under R18-9-E301, 4.01 General Permit: Sewage Collection Systems. The general permit conditions do not differ greatly from the guidelines (Engineer Bulletin #11) that were used previously by the Department. The Department estimates that review time will be reduced by 10 hours due to the detail of technical standards specified in the rule.

All Type 1, 2, 3 and 4 General Permits are issued for the operational life of the facility, however, Type 2 and Type 3 General Permits must be renewed. The Department specified a renewal period of two, five, or seven years for each Type 2 and Type 3 General Permit. Because many of these permits do not require regular reporting to the Department, renewal is an opportunity for the Department to confirm that changes have not been made to the facility. Additionally, the permittee certifies that the facility continues to comply with the technical standards in rule. Facilities qualifying for Type 1 General Permits will not experience any impact. The Department discussed the estimated economic impacts of Type 2, 3, and 4 General Permits in the previous paragraphs of this economic impact statement.

Table 5 shows the number and percent breakdown of facility owners issued permits during FY96 through FY00, by their census Standard Industrial Classification. The table indicates that about 66% of the permittees for this period were in the private sector and slightly more than 34% were government entities, including federal agencies. The most numerous permits were issued to private firms classified under the finance, insurance, and real estate industry (mainly residential subdivisions and mobile home parks), and to municipalities in the public sector (sewage treatment facilities).

Table 5. Individual Permits Issued or Denied FY96 - FY00		
Classification	**Number**	**%**
A. Agriculture, Forestry, Fishing	3	1.0%
B. Mining	24	9.0%
C. Construction	1	0.4%
D. Manufacturing	27	10.1%
E. Transportation, Public Utilities	32	11.9%
F. Wholesale Trade	1	0.4%
G. Retail Trade	6	2.2%
H. Finance, Insurance, Real Estate	55	20.5%
I. Services	28	10.4%
J. Government		
Federal	13	4.9%
State	6	2.2%
County	14	5.2%
Municipality	50	18.7%
District	8	3.0%
TOTAL	268	100.0%

B. Other State Agencies.

State agencies, such as the Department of Corrections and the Department of Transportation, and all municipalities that own and operate a wastewater treatment plant and/or other discharging facilities, are subject to the same regulatory requirements as facility owners in the private sector. As regulated entities they will benefit from the new streamlined permitting process and should obtain a permit more quickly.

State agencies are statutorily exempt from paying fees for the Aquifer Protection Permit application review. Most state-owned facilities are sewage treatment facilities from parks or correctional facilities/prisons. The impacts of this rulemaking on these agencies will vary depending on the size and design of the sewage treatment facility. The impacts will be in the amount of time within which a permit is issued and the effect from the BADCT requirements.

The effect of the specified BADCT requirements is expected to be minimal because the Department is currently implementing these requirements. In fact, the requirements in R18-9-B205 will have a benefit to some entities who, under the current rules would have spent more because the cost ceiling was not clearly distinguished.

II. Estimated Costs and Benefits to Political Subdivisions.

Counties and municipalities are the main political subdivisions of the state that will be affected by this rulemaking. These entities have two roles to play: as regulators, if they have delegation agreements with the Department; and as regulated entities, if they are owners or operators of a facility that is subject to these regulations.

A. Political Subdivisions with Delegation Agreements.

Counties that have delegation agreements with the Department for specific water quality management functions will implement this rulemaking in their respective jurisdictions. If the Department has delegated a service to a county, the applicant pays any applicable fee to the appropriate county agency instead of the Department.

The ATC and AOC functions for wastewater have been fully delegated to Maricopa County and to Pima County, with the exception of federal, state and county facilities located within their jurisdictions. The ATC and AOC functions are partially delegated to Yavapai County. Approval of plans and construction for septic tank systems, are delegated to all counties. ATC/AOCs for alternative individual on-site systems (indicated in Engineering Bulletin 12) are delegated to counties except Cochise, Graham, Greenlee, Navajo, and Santa Cruz Counties. It is assumed that this rulemaking will have the same, or broadly the same, cost-saving efficiencies for the counties as for the Department. Any fees charged by the local authority for services they render is limited to the cost of the service, including all direct and indirect costs. The cities of Kingman, Prescott, Flagstaff, Sierra Vista, and Casa Grande are municipalities that have similar delegation agreements with the Department.

The Department anticipates revising delegation agreements for all the counties in the near future. The Department will be responsible for issuing Type 4 General Permits for applications that do not fall under County Delegation agreements. The Department expects to expand the delegations for Coconino, Mohave, Pinal, Yavapai, and Yuma. Based on one year estimates from the counties, approximately 13,000 conventional systems and 425 alternative systems are issued annually by the counties. In order to estimate the number of systems which may need some type of alternative system, the Department assumes the following:

- None of the conventional septic systems in Pima will need alternative systems for nitrogen reduction because of the county ordinance requiring a minimum one acre lot size.
- 10% of the non-Pima County conventional systems will need alternative systems because of site-specific constraints.
- An additional 5% of the non-Pima County conventional systems will need denitrification due to the provisions of this rulemaking for onsite wastewater systems with flow less than 3000 gallons per day.
- Within Maricopa, Mohave, Pinal and Yavapai Counties, a percentage of lots needing alternative systems (50% for Maricopa and 25% for the others) will connect to sewer systems instead of relying on alternative onsite wastewater treatment systems.

Based on those assumptions, the Department estimates that as many as 1300 additional systems per year statewide may need some type of alternative system.

For conventional systems which are handled by all Counties currently, the fees range between $120 and $250 per system not including site inspections. For alternative systems handled by the delegated counties, fees range between $300 and $1800 with an estimated average of $900 per system.

A Type 4 General Permit issued for a facility will not expire unless the facility is not built within a specified time-frame. Because these permits do not expire, the permits do not need to be renewed. The rule does require that owners of these systems notify the appropriate delegated entity of any property transfer. It also authorizes a fee for processing the transfer. The transfer fee applies to all systems, even if the system was built before the effective date of the rule. The Department estimates that of approximately 400,000 lots with conventional or alternative systems in the state, a property is transferred once every 10 years, therefore approximately 40,000 transfers occur annually in Arizona. The benefit from this transfer fee is that it allows counties to:

- Keep an accurate record of the general permitted facilities,
- Identify systems with previously unseen deficiencies that might adversely impact public health and water quality,
- Perform adequate compliance assistance, where necessary.

The transfer also enhances the disclosure process and therefore protects buyers from problems that normally go unseen.

B. Political Subdivisions that are Regulated Entities.

Approximately 27% of all individual permits issued between FY96-FY00 were for municipal, district, or county entities. These facilities primarily own and operate sewage treatment facilities subject to the regulatory requirements. All facilities will benefit from the streamlined permitting process. The economic impact of this rulemaking on existing and prospective permittees and applicants is likely to vary greatly depending on the facility and site condition. If the application is of average complexity and completeness, and the situation requires an individual permit, the illustrations in scenarios a through d outlined in Table 4 may apply. However, if a general permit is processed in addition to, or instead of, an individual permit, then moderate to significant savings in terms of time and money may occur.

1. The majority of facilities with design flow greater than one MGD are still subject to the individual permitting process. A facility in this category benefits from the merging of the ATC/AOC process with the BADCT review process because the applicant no longer needs to submit design plans for review and approval. As mentioned under the impacts to the Department, the total hours for review time may be reduced by 16%.
2. Facilities with design flow between 24,000 gallons per day and one MGD and those using pre-fabricated, manufactured treatment works with design flow greater than 20,000 gallons per day will still need an individual permit. These facilities will most likely experience impacts from the change in BADCT requirements and benefits from the streamlining.
3. Facilities with design flow between 20,000 gallons per day and 24,000 gallons per day (not using prefabricated, manufactured treatment works) benefit by a Type 4 General Permit. These facilities significantly benefit from the reduction in processing time, reduced monitoring, and reporting costs (may be up to $5000/yr if no groundwater monitoring or $15,000/yr with groundwater monitoring is required), and are not subject to annual registration fees ($100/yr). Additionally, a simpler application will reduce consultation fees.

4. Facilities with design flow between 3000 gallons per day and 20,000 gallons per day that use package treatment will experience an increase in costs because this rulemaking requires the facilities to obtain an individual permit. Under the current rule, these facilities were subject to the ATC and AOC requirements and paid fees for those services. The facilities qualified for the wastewater general permit but did not pay fees for an Aquifer Protection Permit, nor were they subject to annual registration fees or monitoring or report data. The Department estimates that the ATC and AOC reviews for these facilities typically takes 40 hours. The Department estimates that an individual permit will be processed in approximately 80 hours or an increase of approximately 100%. These facilities will also be subject to annual registration fees of either $25/yr (for 3000 to 9999 gallons per day of flow) or $100/yr (for 10,000 to 20,000 gallons per day of flow), and most likely quarterly monitoring and reporting costs of $1000/yr. The Department believes that the increase in costs for these facilities is justified because of the environmental impact from ensuring that these facilities will be maintained long after the permits/approvals have been issued.

5. Facilities with design flow between 3000 gallons per day and 20,000 gallons per day that do not use prefabricated, manufactured treatment works should qualify under R18-9-E323, 4.23 General Permit: 3000 to Less Than 24,000 Gallons Per Day. Under the current rule, these facilities were subject to the ATC and AOC requirements and paid fees for those services. These facilities qualified for the wastewater general permit, but did not pay fees for permitting, were not subject to annual registration fees, and did not have to monitor or report data to the Department. The Department estimates that the ATC/AOC fees for these facilities are based on 30 hours of review. The Department estimates that review time will be reduced by 10 hours due to the specificity in rule.

6. Sewer collection systems (sewer line, manholes, interceptors, lift or pump stations) are subject to R18-9-E301, 4.01 General Permit: Sewage Collection Systems under this rulemaking. Under the current rule and the guidelines in Engineering Bulletin #11, the Department estimates 17 hours of review time for ATCs and 8 hours for AOCs for gravity collection systems serving between 51 and 300 connections, and 22 hours for ATC and 10 hours for AOC for force-main collection systems serving between 51 and 300 connections. The conditions of R18-9-E301, 4.01 General Permit: Sewage Collection Systems do not differ greatly from Engineering Bulletin #11. The Department estimates that review time will be reduced by 10 hours due to the specificity in rule.

III. Costs and Benefits to Businesses Directly Affected By the Rulemaking.

A. Aquifer Protection Permit Permittees and Applicants.

The same savings that will be realized by regulated entities in the public sector are expected for those in the private sector. The combination of general permits, the elimination of time spent registering, monitoring, and reporting (for some cases), and the increased clarity of the rules are all expected to significantly decrease overall permit costs.

These regulated entities are owners or operators of facilities that may discharge pollutants to the land, the underlying soil, or to groundwater. These discharging facilities include impoundments, solid or special waste disposal operations, injection wells, land treatment facilities, mine tailings or leaching operations, septic tank systems, groundwater recharge projects, underground storage and recovery projects, point source discharge to navigable waters, and sewage treatment facilities.

The economic impacts of this rulemaking on existing and prospective permittees and applicants are likely to vary greatly with their facility and site conditions.

Examples from the mining industry are given below. The data were provided by the Mining Sub-Committee which was comprised of stakeholders and agency staff who actively participated in the development of this rulemaking. The Mining Sub-Committee provided information for two examples, one for hard rock mining, the other for sand and gravel. The data for a hard rock mining operation in Table 6 shows that the company has the potential of saving $31,292, assuming the estimates hold true.

Table 6. **Mining Example: Current Rules vs. Final Rules**				
	Current Rule	Final Rule	% Change	Savings
Number of Facility Staff	1	1	0.0%	
Internal Staff Hours	240	104	-130.8%	136
Hourly Rate	$35	$35	0.0%	
Cost of Staff	$8,400	$3,640	-130.8%	$4,760
External Consultant				
Hours	450	256	-75.8%	194
Hourly Rate	$75	$75	0.0%	
Dollars	$33,750	$19,200	-75.8%	$14,550
Fees Paid to the Department				
Hourly Rate	$31.84	$49.00	35.0%	
Total Fees	$16,000	$4,018	-298.0%	$11,982

In the sand and gravel example provided by the Sub-Committee, no data were supplied for staff hours reduced or dollars saved. However, an industry representative estimated that adoption of a vehicle wash general permit could save a company between $10,000 to $15,000 per site. This example assumes that sampling (soil and/or groundwater) will not be required. The Sub-Committee speculates that there could be significant time savings, since the time-frames for general permits will be much less than it has historically taken to obtain individual permits.

This rulemaking still requires individual permits for mining operations, however some facilities on the site may qualify for a general permit. Under the current rule, individual permits for mining operations take on average 708 hours to process. Based on changes to the rule, it is likely that a typical site will qualify for at least one Type 2 General Permit and one Type 3 General Permit. Based on this assumption, the Department estimates that the review time for an individual permit will be reduced by 60 hours, while estimated processing time for the Type 2 General Permit is five hours and for the Type 3 General Permit will be 25 hours. Based on these assumptions the average hours for processing individual permits for mining operations may decrease by 30 hours. These operations will benefit the most when new facilities are added to the site. Once the general permits are available, facilities qualifying for a general permit should be "permitted" more quickly compared with the time to amend an individual permit. The shorter approval time is a benefit because facilities may "construct and operate" the facility based on a schedule set by the operation and not restricted by permitting time-frames. The permitting fee for the general permit will be less then the fee for the permit amendment. Once a facility is covered by a general permit, the final rule provides for consolidation with the individual permit, if the permittee desires. The consolidation feature provides the operation with options for deciding the most economical means for permitting.

For industrial facilities that need to be covered by an individual permit, the Department estimates no change in review time due to rule changes.

Some industrial facilities will qualify for a Type 3 General Permit in lieu of the individual permit. An analysis of time spent for the pre-application, administrative completeness review, and technical completeness review stages for industrial facilities (issued FY96-FY99) that match one of the final Type 3 General Permits showed that, on average, it took approximately 50 hours for those permitting stages. General permits provide very prescriptive requirements and it is assumed that approximately 25-30 hours is required to verify conformance with general permit conditions. Based on the estimated time to verify conformance, the Department estimates a significant reduction in review time and, if the hours were charged at an hourly rate, a significant decrease in permitting fees and the elimination of annual registration fee payments that would have ranged between $100 to $5000 per year. The fact that the permit must be renewed every five years, when most individual permits have been issued for the life of the facility, means that additional permitting costs will be incurred. However, based on an average, a permittee would be able to operate for 25+ years before the fees paid for general permits would equal the costs for the individual permit under the current rules. The facility will save 25 years of annual registration fees ($2500 to $125,000). The facility will also save on reporting time that will make up for the additional time the facility needs to process renewal applications.

For drywell facilities that can be covered under the Type 2 General Permit, the facility should realize a significant reduction in approval time and permitting fees because the facility is authorized to operate under a Type 2 General Permit solely by notification to the Department that it meets the technical standards specified in the general permit. Drywell facilities typically do not have to pay annual registration fees because the actual discharge is less than 3000 gallons per day. The fact that the permit must be renewed every five years, when most individual permits have been issued for the life of the facility, means that additional permitting costs will be incurred. However, based on the average hours to process permits provided in Table 4, the permittee would be able to operate for 45+ years before a fee paid for general permits (based on an hourly rate charge) would equal the cost for the individual permit under the old rules. The facility will save on reporting time that will make up for the additional time the facility needs to process renewal applications.

B. Private Sector Engineering, Scientific, Legal, and other Consultants.

These entities are qualified professionals, some of whom provide consulting services to permit applicants to assist them in the preparation of their applications.

Fees for consultants' services are borne by the applicant, and while there are maximum fee limits on what applicants pay to the Department, there are no such limits imposed on fees paid to private consultants for application preparation. The more detailed rule provisions should result in fewer private consultant hours for each application. In the case of shifts from an individual to a general permit, necessary consultant hours decrease most significantly.

Consultants are also contracted by the Department to perform expedited permit reviews for individual permit applications. This rulemaking will impact consultants in the same manner as the Department. To date, few applicants have used an expedited review process.

C. Private Sector Contractors for On-Site Systems.

Contractors who install on-site and other decentralized wastewater systems; manufacturers and distributors of septic tanks and ancillary products for on-site systems; and consulting companies with expertise in engineering, hydrogeology, law, and related fields who are involved in the design, construction, installation, operation, inspection, and maintenance of on-site systems will have to be qualified to implement the requirements of these rules. If they are not presently qualified, they will need to obtain the necessary training.

In the 1997 economic census published by the U.S. Department of Commerce, there were a total of 11,230 business establishments in Arizona classified under the major industry classification of construction. This number included general contractors and operative builders, who employed more than 25,000 people. (A business owner may own more than one establishment.) Another category called special trade contractors included 1480 who specialized in plumbing, heating, and air-conditioning. Those contractors who are not presently qualified will need to upgrade their skills. But those contractors who are qualified will benefit from the rule requirements, because implementation and enforcement of the rule will increase the demand for their services. This is especially true of the areas in the state that are continuing to experience rapid economic development and population growth.

D. Manufacturers and Distributors of Approved Products for On-Site Systems

In 1996, the Department published a document entitled List of Approved Systems and Products for Private Sewage Disposal Systems. The document covers the design and manufacturing standards for septic tanks, graywater holding tanks, and grease interceptors. There are a variety of product types, material (pre-cast concrete, cast-in-place concrete, fiberglass and polyethylene), and tank capacity (in gallons from 964 to 12,750). R18-9-A309(E)(1) requires the Department to maintain a list of proprietary and other reviewed products that may be used for on-site sewage treatment facilities. Any company wishing to list a product may submit a request to the Department under R18-9-A309(E)(3). These companies will benefit from appropriate enforcement of this rule to the extent that competing manufactured products that do not meet requirements will be disallowed, and therefore, forced out of the market unless they upgrade to meet specifications.

In Arizona, the minimum size of a standard septic tank is 960 gallons. This rulemaking increases the minimum size to 1000 gallons as recommended by stakeholder groups. As a policy, until the supply of 960 gallon septic tanks currently in stock are sold for use in single residences with three or less bedrooms and two or less bathrooms, the Department will consider the 960 gallon tank to be meet the provision of R18-9-A314(C).

IV. Reduction of Impacts to Small Business.

Small businesses required to obtain an Aquifer Protection Permit will benefit from this rulemaking because of the availability of different types of general permits to suit their needs. Under current rules, a facility owner is required to apply for an individual permit unless the conditions of the current general permit are met. A facility may operate under the current general permit conditions without notifying and receiving verification from the Department. Few businesses were covered under non-wastewater general permits in the current rule. Those that were will not be impacted because the current general permits are the same as Type 1 General Permits under this rule with no change in the requirements.

Small businesses operating under the current wastewater general permits may continue to operate under the Type 1 General Permit established by R18-9-B301(I) as long as the conditions of that subsection are met.

Facilities with design flows between 2000 gallons per day and 3000 gallons per day are required to obtain coverage under one or more Type 4 General Permits. Under the current rule and the guidelines of Engineering Bulletin 12, these facilities were subject to the ATC and AOC requirements and paid fees for those services, but qualified for the wastewater general permit and did not pay fees for Aquifer Protection Permits, were not subject to annual registration fees, and did not have to monitor or report data to the Department. The Department estimates that the ATC/AOC review takes approximately 40 hours per application. Under the final rulemaking and, if the service was provided at an hourly rate, these facilities will experience a slight reduction in permitting/approval fees. Impacts from new requirements for septic tanks and disposal fields will range between a $553 savings to an additional $465 in the cost of the system. ($553 savings is based on $50 for effluent filter, $100 for access hole risers, $5 for markers for access hole risers, $100 for increase in minimum size of tank, $2 for marking on side of tank, $300 savings for soil characterization, and $550 savings for sizing requirements for shallow trenches.) ($465 additional costs is based on $50 for effluent filter, $100 for access hole risers, $10 for markers for access hole risers, $150 for minimum size of tank, $5 for marking on side of tank, no savings for soil characterization, and $150 cost for sizing requirements for deep trenches.) These facilities are not subject to annual registration fees (savings of $25/yr) and are not required to monitor or report data to the Department.

Under this rulemaking, owners of pre-fabricated, manufactured treatment works with flows between 3000 and 20,000 gallons per day will be required to obtain individual permits. These facilities are most commonly used in subdivisions and mobile home parks that have approximately 40 units per community or in smaller remote hotels and motels. This type of facility requires significant expertise and attention so that the facility is operated properly. Individual permitting is necessary to ensure financial capability and technical capability and that Aquifer Water Quality Standards are met at an applicable point of compliance to protect the water supply in these locations. In addition, the Department specifies the qualifications for the operator and monitoring requirements in these individual permits to ensure that qualified operators are maintaining the treatment works and that standards are met. Between FY99-FY00, the Department issued 51 onsite or wastewater treatment ATC approvals. Only two of the 51 approvals (approximately 4%) were for facilities falling into this category and therefore the Department expects a minor impact due to this requirement.

Depending on the fee structure for general permits under this rulemaking, these applicants should have the advantage of a predictable cost for permitting. This will aid small businesses in their planning and budgeting process.

V. Estimated Costs and Benefits to Consumers and the Public.

This rulemaking lessens the complexity of the requirements for the Aquifer Protection Permit regulatory approval, but for the management of on-site disposal systems, there is a significant shift from the use of guidelines and guidance documents to placing the technical requirements and standards in rule. The on-site program oversees the location, design, installation, and maintenance of small sewage treatment and disposal systems that usually serve individual residences or groups of dwellings and businesses that are located relatively close together. The most common systems use a septic tank and a soil absorption trench. The performance of on-site and other decentralized wastewater systems is a national issue of great concern because improperly operating systems are significant contributors to major water quality problems. In a majority of cases, the homeowner or property owner is not aware of system failure until it becomes catastrophic. In many areas, local authorities cannot even locate the systems within their service areas. According to the Environmental Protection Agency (EPA), state agencies report that on-site or decentralized systems have failed because of inappropriate siting, design, or inadequate long-term maintenance, and that septic systems constitute the third most common source of groundwater contamination (EPA Guidelines for Management of On-site/Decentralized Wastewater Systems, May 31, 2000).

According to the 1997 U.S. Economic Census Data, on-site or decentralized wastewater treatment systems serve approximately 25% of households nationally and almost 40% of new development, an indication of their growing use. But the EPA reports that these systems often have not achieved their intended level of performance and have failed to meet reasonable public health and environmental protection standards. More than half of existing systems are over 30 years old and, at any given time, homeowners report that at least 10% of all systems are not working at all. Other data indicate that at least 25% of systems are malfunctioning to some degree, even though this is not apparent to the average homeowner. These historically high failure rates indicate a need for better management of these systems to protect water quality and public health. The specific requirements of the on-site rule document streamlines the technical standards necessary for efficient program administration.

These on-site septic tanks systems have increased the problems associated with water pollution due to unqualified contractors, the use of inferior construction material, and shoddy workmanship. These problems have been noted not only by the Department, but also by county and other local agencies that have regulatory authority through delegation agreements for their respective jurisdictions.

On-site systems currently require certificates of ATCs and AOCs based on general rules and technical guidelines. This rulemaking requires a general permit to be based on detailed technical standards and allows for work processes that may be used by counties under a delegation agreement. But the most important change introduced is the inclusion in rule of design technical standards that were previously located in guidance documents. This rulemaking makes the regulatory process more effective by focusing on the use of technical standards to obtain prompt project approval. The inclusion of technical standards encompassing design criteria and the selection of an appropriate disposal system based on site conditions, contributes to improved decisions for construction and more efficient operations to achieve Aquifer Water Quality Standards.

Consumers will be impacted indirectly because expenditures made to ensure the protection of groundwater from pollutants discharged as a result of various activities will be more efficiently used for the protection of public health and safety. To the extent that fewer resources will be required to obtain Aquifer Protection Permits, many applicants will be able to obtain these permits faster and at less cost. Consumers may realize a reduction in costs for water services if the facilities pass on the savings generated by obtaining a general permit.

Residents with On-Site Systems.

For on-site systems nationwide, approximately one in every four households relies on some form of on-site system to treat or dispose of “blackwater” from toilets and “graywater” from showers, tubs, sinks, washing machines, dishwashers, water softeners, and garbage disposals. According to the 1997 U.S. Economic Census Data, nearly 40% of homes built in the previous four years had on-site septic systems. Of the 25.6 million U.S. households being served by on-site systems, the majority are in suburbs of metropolitan areas, not in rural areas.

In Arizona, there were 282,897 (17% of the estimated 1.7 million) housing units that had on-site septic tanks or similar systems, according to data extracted from the 1990 U.S. Census. According to engineers with the National Small Flows Clearinghouse at West Virginia University, these systems remain the most efficient method of wastewater treatment until a conventional, gravity type sewer system reaches their properties.

Arizona residents who purchase a home and become users of individual on-site or cluster wastewater systems (commonly referred to as septic systems, private sewage systems, or individual sewage systems) will be affected by this rulemaking. The technical standards and operational requirements incorporated in rule (instead of merely in guidance documents, such as Engineering Bulletin 12) means that residents with these type systems, or who will need these systems, will have to hire contractors and installers who are better trained and more knowledgeable about the new requirements being introduced in rule for the first time. These contractors and the engineers and designers for developers and builders will be more likely to use manufactured products and construct systems that meet the specifications and technical standards. The cost to homeowners will depend on the type of products purchased, transportation and installation costs, location of the property, and site conditions.

Residents who build on-site treatment systems on private property are also subject to these requirements.

Although the technical standards are not new, the fact that they are being put into rule means that they will become enforceable. This will decrease the likelihood of shoddy workmanship and system failures, therefore, preventing public health and water quality problems from occurring. While the initial cost to install an on-site system that meets these standards may be higher in some cases than those that do not meet these standards, the overall long-term cost will be less. EPA concluded that a majority of homeowners are not aware of system failure until it becomes catastrophic. The cost to cure at this stage becomes prohibitive.

VI. Estimated Costs and Benefits to State Revenues.

This rulemaking will have no impact on state revenues.

Requirements of § 41-1035.

1. Establish less stringent compliance and reporting requirements for small businesses.

   The majority of small businesses subject to this rulemaking will apply for a Type 4 General Permit. Type 4 General Permits are for the life of the facility and generally do not require reporting to the Department. For the remaining small businesses, if an applicant qualifies, the applicant now has an option to obtain a general permit instead of an individual permit. Reporting requirements for general permits are less stringent than those for individual permits.

2. Establish less stringent compliance or reporting schedules or deadlines for small businesses.

   The Department has some flexibility in determining compliance deadlines and reporting schedules deadlines within an individual permit, if necessary. It is not possible, however, to employ less stringent compliance or reporting schedules or deadlines for small business because all discharging facility owners are required to have a permit.

3. Consolidate or simplify the rule's compliance and reporting requirements for small businesses.

   Consolidation and simplification of the Aquifer Protection Permit process has been achieved for most, if not all, small business applicants with the development of the general permits. Most general permits require minimal monitoring requirements and no reporting requirements.

4. Establish performance standards for small businesses to replace design and operational standards.

   Because of the importance of reducing impacts to groundwater, the Department currently maintains a performance-based approach to permitting. This rulemaking develops many general permits to provide an easy permitting process for applicants that can design and operate facilities according to a standard design.

5. Exempt small businesses from any or all requirements of the rule.

   It is neither legal nor feasible to exempt any discharging facility from the requirements of this rulemaking.

10. A description of the changes between the proposed rules, including supplemental notices, and final rules (if applicable):

This rulemaking has been extensively edited to provide clarity and to comply with the requirements of the Secretary of State concerning clear, concise, and understandable language. Significant formatting changes have been implemented (including renumbering Sections and establishing Parts), which gives the appearance of new information, but rather clarifies and streamlines the requirements and permitting process.

Sections are now grouped into three distinct categories: (1) common information applying to Articles 1, 2, and 3; (2) common information for individual permits (Part A), and BADCT requirements (Part B); and (3) common information for general permits (Part A), Type 1 General Permits (Part B), Type 2 General Permits (Part C), Type 3 General Permits (Part D), and Type 4 General Permits (Part E).

Terms such as "when applicable," "at its earliest opportunity," "fully," "should," "must," "will," "could," "promptly," "adequately," "within a reasonable period of time," "properly," "appropriately," "when justified," "for any purpose," "likely," and "periodically," have been clarified or deleted.

Two incorporations by reference originally proposed in R18-9-434(D)(1)(a), "Pumps rated for effluent service by Underwriters Laboratories," and R18-9-434(D)(2)(c), "National Electrical Manufacturers Association junction boxes rated by UL," have not been included in the final rulemaking. The Department did not intend to incorporate product manufacturers. The rulemaking specifies that any pump used for effluent service and all connections made in junction boxes shall be certified by Underwriters Laboratories. The product manufacturer is dependent upon certification by the Underwriters Laboratories.

The language from three incorporations by reference originally proposed in R18-9-430(B)(3), "Prefabricated Septic Tanks," IAPMO PS1-99; R18-9-434(D)(2)(d), "Residential Wastewater Treatment Systems"; and R18-9-437(E), MAG Standard Specification 795.2, has been integrated in the final rulemaking, making the incorporations by reference unnecessary.

The § 103 CERCLA (42 U.S.C. 9603) citation originally specified in R18-9-415(G) did not provide the hazardous substances and applicable reportable quantities required. This U.S.C. citation is the parent law authorizing 40 CFR 302.4, "Designation of Hazardous Substances," and 40 CFR 302.5, "Determination of Reportable Quantities," which has been incorporated by reference instead.

Ambiguous references pertaining to when an applicant is required to provide specific information have been clarified throughout the rulemaking.

The proposed rulemaking stated in numerous places that a permit shall [may] specify a requirement, implying that the permit had authority. These references have been clarified.

Proposed R18-9-108, Articles 1 through 4: Interaction With Other Applicable Legal Requirements, restated the hierarchy of enforcement authorized by statute and has been deleted. The information proposed in R18-9-407, Recordkeeping, has been moved to the appropriate Sections and the rule has been deleted.

General information, such as public notice (R18-9-403), has been moved to Article 1. Although public participation (R18-9-225) only deals with individual permits, administrative process information more appropriately belongs within Article 1, and has been moved to that location.

Fees were mentioned throughout Article 3 for general permits, and although the authority exists in A.R.S. §§ 49-241.02 and 49-242 to charge fees for individual permits, individual permit fees were not specified in the appropriate individual permit Sections. The Department considered moving R18-9-411, Fees, to Article 1, providing stakeholders with one place to locate this information. However, it makes more sense to add a fee requirement to each applicable Section so that it is clear a fee is required before a permit is issued.

Many Sections have been combined and duplicative information eliminated. Comparisons were made between like-Sections and language was adjusted accordingly.

A distinction between specific permits has been clarified throughout the rulemaking.

1. The term "Aquifer Protection Permit" is a general term applying to all permits issued under this Chapter.
2. The term "individual permit" means a permit based on site specific conditions issued for any of the following sectors: drywell, industrial, mining, and wastewater.
3. The term "general permit" means a Type 1, Type 2, Type 3, or Type 4 General Permit issued for a variety of discharges.

Through an oversight, the proposed rulemaking did not specify that Appendix I, Average Daily Sewage Flow, located in current Article 1 was no longer valid and should have been deleted. Appendix I is currently cited in R18-9-126, General permits: Sewage disposal systems, which is being repealed in this rulemaking. The information contained in Appendix I, however, was updated in the proposed rulemaking in Table l. Unit Daily Design Flows, located at the end of Article 3.

Rulemaking changes made as a result of responses to comments are described in question #11, a summary of the principal comments and the agency response to them.

ARTICLE 1. AQUIFER PROTECTION PERMITS - GENERAL PROVISIONS

R18-9-101. Definitions. Definitions proposed in specific Sections throughout the rulemaking, such as "aggregate," "intermediate stockpile," "mining site," "process solution," "tracer," and "tracer study," have been moved into this Section.

"Daily flow," "operational life," and "waters of the United States" are newly defined terms.

Proposed definitions for "Department," "facility," "person," and "well," are currently defined in A.R.S. § 49-201 and have been deleted.

The definition for "design capacity" was rewritten to clarify the second part of the proposed definition.

Proposed definitions for "ASTM," "MAG Standard Detail," "MAG Standard Specification," "PC/COT WWM Standard Detail," are terms relating to incorporations by reference and are not used in the rulemaking or have been defined within each incorporation by reference. These terms have been deleted.

Proposed definitions for "drywell" and "underground storage facility" have been changed to duplicate their statutory definitions.

R18-9-102. Facilities to Which Articles 1, 2, and 3 Do Not Apply. This Section was proposed as R18-9-103. The phrase "unless the drywell drains an area in which a hazardous substance is used, stored, loaded, or treated" has been removed from subsection (1). All drywells that receive storm runoff are exempt from Articles 1, 2, and 3. (Proposed E18-9-102 consisted solely of references to other sections and has been deleted.)

R18-9-103. Class Exemptions. This Section was proposed as R18-9-106. See question #11 for a description of the changes between this Section and the final rule.

R18-9-104. Transition of Notice of Disposals and Groundwater Quality Protection Permitted Facilities. This Section has been renamed to clearly state the information contained in the Section. See question #11 for a description of the changes between this Section and the final rule.

R18-9-105. Continuance and Transition of Permits. This Section was proposed as R18-9-105. The citation (R18-9-308) proposed in subsection (H) was erroneous and has been deleted. This Section does not deal with the "unification" of permits and has been retitle. See question #11 for a description of the changes between this Section and the final rule.

R18-9-106. Determination of Applicability. This Section was proposed as R18-9-107.

R18-9-107. Consolidation of Aquifer Protection Permits. This Section was proposed as R18-9-223.

R18-9-108. Public Notice. This Section is a combination of Sections proposed as R18-9-224 and R18-9-403.

R18-9-109. Public Participation. This Section was proposed as R18-9-225.

R18-9-110. Inspections, Violations, and Enforcement. This Section was proposed as R18-9-109. See question #11 for a description of the changes between this Section and the final rule.

ARTICLE 2. AQUIFER PROTECTION PERMITS - INDIVIDUAL PERMITS

PART A. INDIVIDUAL PERMIT REQUIREMENTS

R18-9-A201. Application. This Section contains all information relating to an application, such as the application process (R18-9-201), general requirements (R18-9-202), application requirements for underground storage facilities (R18-9-205), permit duration (R18-9-216), and permit issuance (R18-9-218).

Permit durations previously located in the specific Type 2 and Type 3 General Permit Sections have been moved to this Section.

Subsections (A)(1) and (A)(2) have been updated to state the different sectors for which a permit may be applied and to provide an applicant the specific information required with the application submittal.

Section (A)(2) includes the requirement specified under A.R.S. §§ 25-320(K) and 25-502(E) that all agencies issuing licenses record an applicant's social security number. This requirement allows the Department of Economic Security (DES) to "locate" a parent who is not paying ordered child support. Recent interpretation by DES indicates that the law does not require a licensing agency to record the federal tax identification number of a corporation or limited liability company, or the social security number of a partnership that is licensed; that doing so would go beyond the intent of the legislation. Thus, this rulemaking requires that all applicants who are individuals submit their social security numbers. Federal tax identification numbers are not required of licensed entities.

Public participation requirements have been moved to R18-9-110, Public Participation. See question #11 for a description of the changes between this Section and the final rule.

R18-9-A202. Technical Requirements. The proposed technical requirement Section (R18-9-203) and technical capability Section (R18-9-215) each contained information that belonged in the other Section and included information that duplicated information in the opposite Section. The Sections have been combined and the duplicate information deleted. See question #11 for a description of the changes between this Section and the final rule.

R18-9-A203. Financial Requirements. The proposed financial requirement Section (R18-9-204) and financial capability Section (R18-9-214) each contained information that belonged in the other Section and included information that duplicated information in the opposite Section. The Sections have been combined and the duplicate information deleted.

In reviewing the financial demonstrations listed in subsection (B), no requirement was specified for an individual, non-business applicant. Subsection (B) has been amended to specify that an individual, non-business applicant must submit a current financial statement and evidence of current personal income.

Subsection (D) contains a list of financial assurance mechanisms that an applicant may use to determine financial capability. The proposed list, determined by A.R.S. § 49-761(J), was not complete and additional financial assurance mechanisms have been added.

See question #11 for a description of the changes between this Section and the final rule.

R18-9-A204. Contingency Plan. This Section was proposed as R18-9-211. See question #11 for a description of the changes between this Section and the final rule.

R18-9-A205. Alert Levels and Discharge Limitations. This Section is a consolidation of R18-9-206 and R18-9-207. See question #11 for a description of the changes between this Section and the final rule.

R18-9-A206. Monitoring Requirements. This Section is a consolidation of R18-9-208 and R18-9-209. See question #11 for a description of the changes between this Section and the final rule.

R18-9-A207. Reporting Requirements. This Section was proposed as R18-9-210.

R18-9-A208. Compliance Schedule. This Section was proposed as R18-9-212.

R18-9-A209. Temporary Cessation, Closure, Post-closure. This Section was proposed as R18-9-213. See question #11 for a description of the changes between this Section and the final rule.

R18-9-A210. Temporary Permit. This Section was proposed as R18-9-217.

R18-9-A211. Permit Amendments. This Section was proposed as R18-9-220. See question #11 for a description of the changes between this Section and the final rule.

R18-9-A212. Permit Transfer. This Section was proposed as R18-9-221. See question #11 for a description of the changes between this Section and the final rule.

R18-9-A213. Permit Suspension, Revocation, or Denial. This Section is a consolidation of R18-9-219, Individual Permit Denial and R18-9-222, Individual Permit Revocation.

PART B. BADCT FOR SEWAGE TREATMENT FACILITIES

The BADCT language for existing facilities currently found in the guidance document is not clear. The permitting approach is to accept the existing facility BADCT, as long as the monitor well is clean. Clarifying the BADCT requirements in this rulemaking will alter the approach to BADCT for existing facilities and the permitting process will become somewhat more stringent than is currently used. However, no additional requirements have been placed on the applicant.

Requirements currently specified in the BADCT guidance document or used as practice in permitting, and setback requirements found in Bulletin 11 and used in practice, have been transferred to this Part. Combining requirements from Aquifer Protection Permits and Approvals to Construct have removed some of the duplication of effort that occurs when the same information is reviewed by each program.

R18-9-B201. General Considerations and Prohibitions. This Section is a consolidation of R18-9-301 and R18-9-302. This Section covered permit issuance and denial, but it did not address issuance or denial of permit applications received before the August 16, 1999 effective date of the licensing time-frames. Subsection (E)(4) has been added to deal with these permit applications:

E. Permit issuance or denial.

4. Permit applications received before August 16, 1999, not subject to licensing time-frames shall be issued or denied within 30 days after close of public comment established in the public notice, or if a public hearing is held, within 45 days after the public hearing record is closed.

a. If the Department denies an individual permit application the Department shall provide the applicant with a written notification that explains:

i. The reason for the denial with reference to the statute or rule on which the denial is based;

ii. The applicant's right to appeal the denial, including the number of days the applicant has to file a protest challenging the denial and the name and telephone number of the Department contact person who can answer questions regarding the appeals process; and

iii. The applicant's right to request an informal settlement conference under A.R.S. §§ 41-1092.03(A) and 41-1092.06.

iv. The Director may extend the final decision deadline for not more than 90 days after the close of the public comment period, or, if a public hearing is held, after the public hearing record is closed, if the Director determines that additional information is required to make the decision whether to issue or deny a permit.

v. The Director shall give the applicant written notification of a decision to extend the final decision deadline.

See question #11 for a description of the changes between this Section and the final rule.

R18-9-B202. Application Requirements. This Section was proposed as R18-9-304.

R18-9-B203. Application Review and Approval. This Section was proposed as R18-9-305. See question #11 for a description of the changes between this Section and the final rule.

R18-9-B204. Treatment Performance Requirements For New Facilities. This Section was proposed as R18-9-303. The applicability requirements proposed in subsection (A) has been moved to R18-9-B201(A). See question #11 for a description of the changes between this Section and the final rule.

R18-9-B205. Treatment Performance Requirements for Existing Facilities. This Section was proposed as R18-9-306. See question #11 for a description of the changes between this Section and the final rule.

R18-9-B206. Treatment Performance Requirements for Expansion of a Permitted Facility. This Section was proposed as R18-9-307.

ARTICLE 3. AQUIFER PROTECTION PERMITS - GENERAL PERMITS

PART A. GENERAL PROVISIONS

The general information proposed in Article 4, such as R18-9-426, Type 4 General Permit: On-site Wastewater Treatment Facilities, General Provisions; R18-9-427, Type 4 General Permit: On-site Wastewater Treatment Facilities, Site Investigation Requirements; R18-9-428, Type 4 General Permit: On-site Wastewater Treatment Facilities, Facility Selection Requirements; R18-9-429, Type 4 General Permit: On-site Wastewater Treatment Facilities, Facilities, Design and Installation Requirements; R18-9-430, Type 4 General Permit: On-site Wastewater Treatment Facilities, Septic Tank Design, Manufacturing and Installation Requirements; R18-9-431, Type 4 General Permit: On-site Wastewater Treatment Facilities, Interceptor Design, Manufacturing and Installation Requirements; has been moved to Article 3, Part A, which contains the common information for general permits.

R18-9-A301. Discharging Under a General Permit. This Section is a consolidation of R18-9-401, General Aquifer Protection Permits Type 1 Through 4; and R18-9-412, General Permits: Technical Capability. The rule now contains 4 distinct subsections. (1) General permit requirements, (2) Notice of Intent to Discharge, (3) Provisional Verification of General Permit Conformance, and (4) Verification of General Permit Conformance. The time-frames have been removed from this Section and will be promulgated in a separate rulemaking. See question #11 for a description of the changes between this Section and the final rule.

R18-9-A302. Point of Compliance. This Section was proposed as R18-9-402.

R18-9-A303. Permit Renewal. This Section is a consolidation of R18-9-404 and R18-9-405. See question #11 for a description of the changes between this Section and the final rule. Additional language has been added in subsection (C) to deal with a permit not being renewed. The following language clarifies that a permit expires if it has not been renewed.

If the general permit is not renewed within the renewal period specified in subsection (B)(1), the general permit expires.

R18-9-A304. Notice of Transfer. This Section was proposed as R18-9-406.

R18-9-A305. Facility Expansion. This Section was proposed as R18-9-408.

R18-9-A306. Closure. This Section was proposed as R18-9-409 and has been revised to clarify that facilities do not need to comply with clean closure, but they must comply with closure requirements. The 1.09 General Permit facility has been included in this subsection to clarify which closure requirements apply to facilities of this type. Subsection (C) has been revised to clarify that if the permittee complies with the closure requirements in R18-9-A309(D), the closure requirements of this Section have also been satisfied.

For an on-site wastewater treatment facility or a 1.09 General Permit facility, *a permittee shall comply with the requirements of R18-9-A309(D) to meet the requirements of this Section.*

See question #11 for additional changes between this Section and the final rule.

R18-9-A307. Permit Revocation. This Section was proposed as R18-9-410.

R18-9-A308. Violations and Enforcement For On-site Wastewater Treatment Facilities. This Section was proposed as R18-9-413.

R18-9-A309. General Provisions For On-site Wastewater Treatment Facilities. This Section was proposed as R18-9-426. See question #11 for a description of the changes between this Section and the final rule.

R18-9-A310. Site Investigation For On-site Wastewater Treatment Facilities. This Section was proposed as R18-9-427. See question #11 for a description of the changes between this Section and the final rule.

R18-9-A311. Facility Selection For On-site Wastewater Treatment Facilities. This Section was proposed as R18-9-428.

R18-9-A312. Facility Design For On-site Wastewater Treatment Facilities. This Section was proposed as R18-9-429. To make it easier for a permittee to comply with facility design requirements, the Department listed the design considerations and flow determinations proposed in each general permit into subsection (B). This information, which was taken from the proposed general permit Sections, R18-9-433 through R18-9-452, clarifies the facility design requirements.

For example: Subsection (B)(4)(c) contains the requirement that: "components, piping, ports, seals, and appurtenances shall be designed to withstand installation loads, internal and external operational loads, and buoyant forces. Ports shall be designed for firmness of position, and openings shall be capped or covered for protection.." These components were obtained from the following proposed subsections: R18-9-420(D), R18-9-421(D), R18-9-422(D), R18-9-434(D), R18-9-445(A), R18-9-446(A), and R18-9-449(D).

See question #11 for a description of the changes between this Section and the final rule.

R18-9-A313. Type 4 Facility Installation, and Operation and Maintenance Plan For On-site Wastewater Treatment Facilities. The facility installation, and operation and maintenance information was located throughout the general permitting Article in the proposed rulemaking making it difficult for applicants to know exactly what requirements were necessary for application submittal. This Section contains all those installation requirements proposed in R18-9-429, and the operation and maintenance requirements proposed throughout the Type 4 Sections necessary to obtain a general permit. See question #11 for a description of the changes between this Section and the final rule.

R18-9-A314. Septic Tank Design, Manufacturing, and Installation For On-site Wastewater Treatment Facilities. This Section was proposed as R18-9-430. See question #11 for a description of the changes between this Section and the final rule.

R18-9-A315. Interceptor Design, Manufacturing, and Installation for On-site Wastewater Treatment Facilities. This Section was proposed as R18-9-431. See question #11 for a description of the changes between this Section and the final rule.

R18-9-A316. Transfer Inspection For On-site Wastewater Treatment Facilities. This Section was subsection (B) under R18-9-426. See question #11 for a description of the changes between this Section and the final rule.

PART B. TYPE 1 GENERAL PERMITS

R18-9-B301. Type 1 General Permit. This Section was proposed as R18-9-414. See question #11 for a description of the changes between this Section and the final rule.

PART C. TYPE 2 GENERAL PERMITS

R18-9-C301. 2.01 General Permit: Drywells That Drain Areas Where Hazardous Substances Are Used, Stored, Loaded, or Treated. This Section was proposed as R18-9-415. See question #11 for a description of the changes between this Section and the final rule.

R18-9-C302. 2.02 General Permit: Intermediate Stockpiles at Mining Sites;\. This Section was proposed as R18-9-416. See question #11 for a description of the changes between this Section and the final rule.

R18-9-C303. 2.03 General Permit: Hydrologic Tracer Studies. This Section was proposed as R18-9-417. See question #11 for a description of the changes between this Section and the final rule.

PART D. TYPE 3 GENERAL PERMITS

R18-9-D301. 3.02 General Permit: Lined Impoundments. This Section was proposed as R18-9-418. See question #11 for a description of the changes between this Section and the final rule.

R18-9-D302. 3.02 General Permit: Process Water Discharges from Water Treatment Plants. This Section was proposed as R18-9-419. See question #11 for a description of changes between this Section and the final rule.

R18-9-D303. 3.03 General Permit: Vehicle and Equipment Washes. This Section was proposed as R18-9-420. See question #11 for a description of the changes between this Section and the final rule.

R18-9-D304. 3.04 General Permit: Non-storm Water Impoundments at Mining Sites. This Section was proposed as R18-9-421. Subsection (F) required an applicant to "implement the contingency plan required by this Section," but a contingency plan wasn't specified in the Section. The Department remedied this oversight by adding the contingency plan requirement in subsection (B). See question #11 for a description of the changes between this Section and the final rule.

R18-9-D305. 3.05 General Permit: Disposal Wetlands. This Section was proposed as R18-9-422. See question #11 for a description of the changes between this Section and the final rule.

R18-9-D306. 3.06 General Permit: Constructed Wetlands to Treat Acid Rock Drainage at Mining Sites. This Section was proposed as R18-9-423. See question #11 for a description of the changes between this Section and the final rule.

R18-9-D307. 3.07 General Permit: Tertiary Treatment Wetlands. This Section was proposed as R18-9-424. See question #11 for a description of the changes between this Section and the final rule.

PART E. TYPE 4 GENERAL PERMITS FOR SEWAGE COLLECTION SYSTEMS AND ON-SITE WASTEWATER TREATMENT FACILITIES

R18-9-E301. 4.01 General Permit: Sewage Collection Systems. This Section was proposed as R18-9-425. See question #11 for a description of the changes between this Section and the final rule.

R18-9-E302. 4.02 General Permit: Septic Tank With Disposal by Trench, Bed, Chamber Technology or Seepage Pit, Less Than 3000 Gallons Per Day. This Section was proposed as R18-9-432. The calculation specified in subsection (4)(a) was missing a factor and has been corrected. See question #11 for a description of the changes between this Section and the final rule.

R18-9-E303. 4.03 General Permit: Composting Toilet, Less Than 3000 Gallons Per Day. This Section was proposed as R18-9-433. See question #11 for a description of the changes between this Section and the final rule.

R18-9-E304. 4.04 General Permit: Pressure Distribution System, Less Than 3000 Gallons Per Day. This Section was proposed as R18-9-434. See question #11 for a description of the changes between this Section and the final rule.

R18-9-E305. 4.05 General Permit: Gravelless Trench, Less Than 3000 Gallons Per Day. This Section was proposed as R18-9-435. See question #11 for a description of the changes between this Section and the final rule.

R18-9-E306. 4.06 General Permit: natural Seal Evapotranspiration Bed, Less Than 3000 Gallons Per Day. This Section was proposed as R18-9-436. See question #11 for a description of the changes between this Section and the final rule.

R18-9-E307. 4.07 General Permit: Lined Evapotranspiration Bed, Less Than 3000 Gallons Per Day. This Section was proposed as R18-9-437. See question #11 for a description of the changes between this Section and the final rule.

R18-9-E308. 4.08 General Permit: Wisconsin Mound, Less Than 3000 Gallons Per Day. This Section was proposed as R18-9-438. See question #11 for a description of the changes between this Section and the final rule.

R18-9-E309. 4.09 General Permit: Engineered Pad, Less Than 3000 Gallons Per Day. This Section was proposed as R18-9-439. See question #11 for a description of the changes between this Section and the final rule.

R18-9-E310. 4.10 General Permit: Intermittent Sand Filter, Less Than 3000 Gallons Per Day. This Section was proposed as R18-9-440. See question #11 for a description of the changes between this Section and the final rule.

R18-9-E311. 4.11 General Permit: Peat Filter, Less Than 3000 Gallons Per Day. This Section was proposed as R18-9-441. See question #11 for a description of the changes between this Section and the final rule.

R18-9-E312. 4.12 General Permit: Textile Filter, Less Than 3000 Gallons Per Day. This Section was proposed as R18-9-442. See question #11 for a description of the changes between this Section and the final rule.

R18-9-E313. 4.13 General Permit: RUCK® System, Less Than 3000 Gallons Per Day. This Section was proposed as R18-9-443. See question #11 for a description of the changes between this Section and the final rule.

R18-9-E314. 4.14 General Permit: Sewage Vault, Less Than 3000 Gallons Per Day. This Section was proposed as R18-9-444. See question #11 for a description of the changes between this Section and the final rule.

R18-9-E315. 4.15 General Permit: Aerobic System With Subsurface Disposal, Less Than 3000 Gallons Per Day. This Section was proposed as R18-9-445. See question #11 for a description of the changes between this Section and the final rule.

R18-9-E316. 4.16 General Permit: Aerobic system With Surface Disposal, Less Than 3000 Gallons Per Day. This Section was proposed as R18-9-446. See question #11 for a description of the changes between this Section and the final rule.

R18-9-E317. 4.17 General Permit: Cap System, Less Than 3000 Gallons Per Day. This Section was proposed as R18-9-447. See question #11 for a description of the changes between this Section and the final rule.

R18-9-E318. 4.18 General Permit: Constructed Wetlands, Less Than 3000 Gallons Per Day. This Section was proposed as R18-9-448. See question #11 for a description of the changes between this Section and the final rule.

R18-9-E319. 4.19 General Permit: Sand Lined Trench, Less Than 3000 Gallons Per Day. This Section was proposed as R18-9-449. See question #11 for a description of the changes between this Section and the final rule.

R18-9-E320. 4.20 General Permit: Disinfection Devices, Less Than 3000 Gallons Per Day. This Section was proposed as R18-9-450. See question #11 for a description of the changes between this Section and the final rule.

R18-9-E321. 4.21 General Permit: Sequencing batch Reactor, Less Than 3000 Gallons Per Day. This Section was proposed as R18-9-451. See question #11 for a description of the changes between this Section and the final rule.

R18-9-E322. 4.02 General Permit: Subsurface Drip Irrigation Disposal, Less Than 3000 Gallons Per Day. This Section was proposed as R18-9-452. See question #11 for a description of the changes between this Section and the final rule.

R18-9-E323. 4.023 General Permit: 3000 to less Than 24,000 Gallons Per Day. This Section was proposed as R18-9-453. See question #11 for a description of the changes between this Section and the final rule.

ARTICLE 4. AGRICULTURAL GENERAL PERMITS

This Article was propose as Article 5. Final editing combined general Aquifer Protection Permit information in Article 1; individual permit information in Article 2; and general permit information in Article 3. Article 4, which, as proposed, contained Type 4 General Permit information is no longer used for that purpose. Thus, the change of the Agricultural General Permits Article to Article 4.

As a result of the final editing process this Article has been updated to meet the clear, concise, and understandable requirements under A.R.S. § 41-1052(C)(4).

Grammatical and clarification rule changes throughout the rule package were made at the request of G.R.R.C. staff.

Changes Made at the Request of the Governor's Regulatory Review Council

At the request of the Governor's Regulatory Review Council, the Department removed R18-9-A312(F), nitrogen management, from the rulemaking and made appropriate conforming changes throughout Article 3.

The Department believes that the responses originally made to comments concerning nitrogen management should remain on the record and has not made conforming changes to the Preamble or the Concise Economic Statement.

11. A summary of the principal comments and the agency response to them:

The Department received over 840 individual comments from 40 commenters. The following information contains the Department's response to comments. When the Department is in agreement with the commenter's suggested rulemaking change, the response either acknowledges that the change has been implemented as proposed, or specifies the rulemaking change in the response.

GENERAL COMMENTS

Comment 1 - 2: The verbiage needs to be clarified in the rule to deal with conditions where ambient groundwater quality exceeds the Aquifer Water Quality Standards. There are situations where wastewater treatment plant effluent would be unable to meet Aquifer Water Quality Standards because the groundwater does not meet those standards.

Response: A.R.S. § 49-243(B)(3) makes it clear that in areas where groundwater presently exceeds aquifer water quality standards, discharging facilities may not cause further degradation of groundwater quality. Measurement of compliance with aquifer water quality standards will be at the point of compliance and will be based on the concentration of pollutants present in the groundwater at the time of permit issuance. The fact that groundwater does not meet aquifer water quality standards would not change the requirement for a wastewater facility's discharge to comply with the rule requirements. No change has been made to the rule.

Comment 2 - 10: There are many sections that refer to a form or format or appropriate written document on which data is to be submitted to the agency. Who will prepare and when will these documents be available for review and/or use?

Response: The Department is currently developing forms based on this rulemaking. The forms are expected to be available before January 1, 2001, the date this rulemaking will take effect. No change has been made to the rule.

Comment 5 - 55: The Department should hold design workshops with the largest cities and counties and the professional engineers around the state to clarify design issues regarding technical design criteria included in these rules?

Response: Although this is a rule implementation rather than rule making issue, the Department agrees. The Department is already working with Northern Arizona University and others to develop training materials, training sessions, and workshops. In addition, the Department also has made considerable effort to present relevant parts of the proposed rules to stakeholder groups around Arizona. In September, the Department sponsored a design course prepared by Northern Arizona University and co-sponsored by the county health and environmental directors association although, ironically, this was criticized as being "too early." Further such courses are planned in the fall and winter. No change has been made to the rule.

Comment 5 - 143: The proposed rules are full of illegal and non-compliant provisions. The proposed rules will illicit substantial cost impacts on the public and small business but the Department has failed to perform the mandated Economic Impact Statement analysis. Why? The Department statements that these rules will improve administrative efficiency are grossly incorrect. In addition, the Department statements that cost to consumers will be reduced are totally false. The Department must perform a complete economic impact statement.

Response: The Department disagrees with this comment. This rulemaking removes duplicative review processes and clarifies many requirements to assist with compliance. These actions will reduce costs to the regulated public through streamlining and simplifying the permitting process and by reducing the cost of Department services for the duplicative reviews. In addition, clarification of the rules should reduce the time necessary to reach resolution on issues that resulted from unclear requirements. Any savings of time in the permitting process equates to reduced costs. The economic impact statement published in the proposed rulemaking is only a general statement of the how stakeholders will be impacted by the rule. The final rulemaking contains a thorough evaluation of the economic impacts as required by statute (A.R.S. § 41-1024(E). No change has been made to the rule.

Comment 5 - 144: Where are the rules for dumping sulfuric acid into seepage pits? I petitioned for rulemaking on this matter and was assured by the Director that the Unified Permit rules would be addressing this erroneous practice. The Department responded to my petition to avoid having to deal with this issue through separate rulemaking and now they have not mentioned one word about this practice. Why?

Response: The Department has developed some guidelines for the usage of sulfuric acid in on-site systems. These guidelines address the frequency of use and amount of product used to minimize the impact of dosing a system. The guidelines also make clear that the Department does not endorse the application of sulfuric acid as a universal solution for poorly performing leachfields. The guidelines stress the preventive benefit of routine pumping of solids from septic tanks to avoid clogging. These guidelines are being incorporated in an agency policy. Once approved, we will make the guidelines available to county authorities, septagepumpers, and others in the industry who may have occasion to consider use of sulfuric acid to treat on-site systems.

Comment 5 - 145: The Department should put these rules out for public comment by holding design workshops with the engineering community and equipment suppliers so that accurate design standards can be developed.

Comment 7 - 6: Not enough time in the comment period.

Comment 11 - 1: City strongly urges that the comment period be extended 120 days.

Response: The Department provided the public an opportunity to comment on the rules as required by law. In addition, the Department worked with the engineering community and other interested parties in rule development. The Department's On-Site Wastewater Advisory Committee and prior stakeholder groups have worked tirelessly for several years to develop a large percentage of the standards that appear in this rulemaking.

In addition, the Department hosted extensive stakeholder meetings that included opportunities for informal comment before drafting any part of this rulemaking. Workshops were scheduled throughout the state to present the conceptual approach to the rules and to accept comments on that approach before the rules were drafted. Before these workshops were held, the Department mailed a huge number of notices to the parties most likely to be impacted by the rules, including municipal and county agencies, engineering consultants, developers, industry groups, and environmental groups. The Department changed its proposed approach in a number of areas based on comments received at these workshops.

The draft rules were released for informal comment in December 1999. In March 2000, the Department submitted the Notice of Proposed Rulemaking to the Secretary of State for publication in the *Arizona Administrative Register*. This April 7, 2000 publication initiated the formal rulemaking process that included the official public comment period and the public hearings. No change has been made to the rule.

Comment 6 - 16: Two facilities covered under current general permits will be subject to individual permits. (The Mount Lemmon Wastewater Treatment Facility and The Fairgrounds Wastewater Treatment Facility).

Response: The Department provided coverage for these facilities in R18-9-B301(I) [proposed R18-9-414(9)]. This provision allows facilities that were operating under a general permit in the current rules to continue to operate under a general permit as long as the facility continues to comply with the permit requirements and there are no changes to the facility that would make it ineligible for the general permit coverage. No change has been made to the rule.

Comment 10 - 2: Style problems and language problems because of the different authorships.

Comment 7 - 5: The sections on the individual systems are non-uniform. There is no common language between them. Some are very lenient and others are very prescriptive. This seems to set an unfair precedent. Additional time should be spent to straighten this out.

Response: The Department agrees that there were some inconsistencies in language and style due to the collaboration of a number of people. A number of common requirements in the following Sections have been consolidated: R18-9-A312(B), general installation to general design; R18-9-A313(A), general installation; and R18-9-A313(B) general operation and maintenance.

In fact, the final rulemaking has undergone extensive editing for conformity, and format and structure changes to comply with the requirements of the Governor's Regulatory Review Council and the Secretary of State. The Department believes this rulemaking has benefitted from a single person doing the final organization and rule language. Changes have been made throughout the rule.

Comment 11 - 2: The Department would be far better served by issuing permits with performance-based conditions rather the overly proscriptive design and operational mandates included in these rules. While most stakeholders participating in this project seemed to clearly favor performance-based permits, the resulting proposal is more proscriptive than the existing rules we sought to replace.

Response: It is not clear what part or parts of the rule are questioned in this comment. The Aquifer Protection Permit program is a performance based approach to environmental protection and this rule is based on that approach. The only portions of the rule the Department would equate to a 'proscriptive' approach would be those areas where technical standards are specified to achieve compliance with the performance based standard required under statute and rule. No change has been made to the rule.

Comment 12 - 1: Unintended consequences of these rules may be common unless the opportunity to fairly understand these rules is provided to all impacted and concerned persons.

Response: The Department intends to develop training for the regulated community as well as the delegated agencies and internal staff who will be implementing portions of the rule. The Department considers these activities to be part of the implementation phase that will occur following rule promulgation. No change has been made to the rule.

Comment 12 - 4: These proposed rules will reduce governmental plan review and design that is highly valued by small communities, new developments, and individual homeowners. Revise the delegation agreements with the counties concurrently with the effective date of the rules.

Response: The Department does not agree that plan review will be significantly reduced for the referenced entities. Engineering approval in the form of the verification of general permit conformance provides similar governmental review to what was performed under the Approval to Construct and Approval of Construction processes. In addition, the rule provides criteria for the Department to perform plan review when deemed necessary (see R18-9-B203(A)), including at the request of the facility owner (see R18-9-B203(B)). The Department will revise the delegations agreements when this rulemaking becomes final. No change has been made to the rule.

Comment 12 - 5: These proposed rules will dilute the input of local cities, counties, and planning agencies in decisions made by the Department that may aggravate local growth and associated planning. Strengthen the input of local agencies in permit actions taken by the Department before sewage facility construction.

Response: The Department disagrees that the rules will dilute the input of municipalities, counties and planning agencies. Quite the opposite. The Department has proposed a separate set of Water Quality Management Planning rules that will have the same effective date as these rules. The Water Quality Management Planning rules require concurrence by regional planning agencies before the Department issues any individual permit for a sewage treatment facility. No change has been made to the rule.

Comment 12 - 6: These proposed rules will reduce the public's right to know about the Department permitting actions. Restore in the proposed rules the instructions for requesting a public hearing. Separately submit each type of general permit to public notice (e.g., residential on-site treatment and disposal systems; non-residential domestic treatment and disposal systems; and industrial treatment and disposal systems).

Response: The Department disagrees that the rules will reduce the public's right to know about Department permitting actions. In fact, the rules preserves existing public participation processes. The rules do not reduce the public notice, comment, and hearing processes that currently exist for individual permits. The existing rule does not require these processes for general permits because the technical requirements for general permits are expressly established in rule to ensure protection of public health and water quality. This concept has not changed in the final rule; new general permits are established with detailed technical standards that are protective of the environment. No change has been made to the rule.

Comment 12 - 8: To avoid or minimize the impact of these proposed rules on the process used by small communities seeking financial assistance for wastewater construction programs, the Department should revise WIFA rules to conform with the these proposed rules before implementation of the rules, or retain the current program referenced by Chapter 15.

Response: The Department is unclear as to what impacts on small communities the commenter is referring to. The Department does not believe that the rules will substantially alter the process communities follow in applying for Water Infrastructure Financing Authority (WIFA) loans. Additionally, the Department does not have authority to revise WIFA rules. Only WIFA has that authority. No change has been made to the rule.

Comment 12 - 9: These proposed rules do not meet the criteria for issuing general permits as specified under A.R.S. § 49-245.A. The Department should provide the justification and analyses required by law for each of the proposed general permits and re-submit these rules to public notice. We are very concerned about the significant increase in the number of general permits (from 16 to 41) which are allowed under this proposed rule including several related to mining activities, and we question the appropriateness of including some of them in that category.

Comment 28 - 3: We are very concerned about the significant increase in the number of general permits (from 16 to 41) which are allowed under this proposed rule including several related to mining activities, and we question the appropriateness of including some of them in that category. Under the rule, the general permits provide no opportunity for public comment and involvement. That is unacceptable. Overall we question the significant increase in the number of general permits and whether or not these facilities are appropriately addressed under these permits.

Response: The Department disagrees that the general permits included in this rulemaking do not meet the requirements of A.R.S. § 49-245(A). The general permits were developed to deal with large numbers of facilities that the Department currently individually permits at considerable expense to the regulated community and to the state. The types of facilities for which general permits were developed pose low risk to the environment or public health and therefore can be readily addressed through a general permit approach. The general permits reflect the same requirements that the Department has included in individual permits issued for these facilities and therefore satisfy the statutory requirements. No change has been made to the rule.

Comment 12 - 10: These proposed rules would create inconsistencies between the Department subdivision rules and the Department of Real Estate rules. These proposed rules will require a total of nine or more other rule change packages to ensure that the overall impact of the rules can be fully understood and properly implemented. These rules should be withdrawn until other rules impacted by these rules are changed concurrently. Future proposals by the Department should address all impacts to affected stakeholders in the preamble contained in the docket.

Response: The Department has undertaken five separate rulemaking efforts this year to address potential conflicts or omissions resulting from this rulemaking. In addition, the Department intends to revise the subdivision rule in the coming year. No change has been made to the rule.

The economic impact statement published in the proposed rulemaking is only a general statement of the how stakeholders will be impacted by the rule. The definition of "preamble" under A.R.S. § 41-1001 lists the specific information that must be included in the proposed rulemaking. The proposed rulemaking must contain only a preliminary summary of the economic, small business and consumer impact statement. The final rulemaking contains a thorough evaluation of the economic impacts as required by statute (A.R.S. § 41-1024(E).

Comment 12 - 30: The additional Notice of Intent submittal requirements as noted in R18-9-453(B)(1) to (3) shall also apply to treatment systems under 3000 gallons per day.

Response: The Department disagrees that as a general rule, the requirements under R18-9-453(B)(1) to (3) [now R18-9-E323(B)(1) to (3)] should apply to systems under 3000 gallons per day. For example, the Department does not believe that submittal of a performance assurance plan is necessary for a conventional septic tank/disposal field system under 3000 gallons per day. For on-site systems where the complexity of the system requires submittal of additional information to assure compliance with the general permit conditions, the Department has indicated those specific submittal requirements in the general permit. In summary, the Department believes it already has appropriately tailored information submittal for each on-site system general permit. No change has been made to the rule.

Comment 14 - 1: All footnoted items should have a superscript footnote number to distinguish it from numbers that are part of the text.

Response: There were problems with the transcription of the rule text when it was published in the Administrative Register. These publication errors demonstrated to the Department that, in some cases, using superscripts was not the best way to note specific items. This rulemaking has been revised with corrected subscripts and superscripts which the Department believes will provide clarity.

Comment 20 - 4: Explanation of how the old programs will transition into the new program seems to be lacking. What happens in situations where under the old program an ATC has been issued, but not the AOC? How will this be handled under the new program? The same question can be asked in regard to existing facilities operating under general permit. At what point or under what conditions do the general permit requirements under the new program become applicable to facilities operating under the old program general permit?

Response: Transition is provided for in R18-9-105 and R18-9-B301(I). An Approval to Construct issued before January 1, 2001is valid. After construction, the facility would be issued a Verification of General Permit Conformance, assuming all the requirements of the Approval to Construct are met. All existing on-site wastewater treatment facilities are grandfathered in as a Type 1 General Permit as provided in R18-9-B301(I). No change has been made to the rule.

Comment 22 - 47: The rule should (probably in proposed R18-9-220(F)) make clear that when a permit is modified and public comment is required, that comment is limited to the modified terms of the permit (and not to provisions of the permit not being changed).

Response: The Department agrees that comments on a previously issued permit should be limited to the changes made to the permit. The rule defines what types of changes to the permit constitute the different types of amendments. The Department believes that it is clear that the public notice and/or public participation requirements in R18-9-A211(F) apply to the amendment and not for the permit as a whole. No change has been made to the rule.

Comment 22 - 53: Clarify that a permittee may cover multiple facilities of the same type (e.g., truck washes) under a single general permit.

Response: The Department never intended that more than one discharging facility would be covered by one general permit. No change has been made to the rule.

Comment 22 - 69: Clarify that a permittee may choose to close a general permitted facility that is within the boundaries of a facility covered by an area-wide permit as part of the closure activities undertaken pursuant to the area-wide permit, if the closure activities are happening at the same time.

Response: It may be advantageous to close a general permitted facility at the same time that other facilities covered by an area-wide individual permit are going through closure activities. However, this is a decision that should be made on a case-by-case basis based on site-specific circumstances. The Department does not believe there are any rule requirements that would prohibit this action. No change has been made to the rule.

Comment 25 - 28: The Department should clarify in the preamble to the final rule that by expanding the list of available general permits, the Department is not intending to expand the scope of the Aquifer Protection Permit program beyond the limitations of the Aquifer Protection Permit statute. In other words, if an activity appears to be covered by a general permit, but it would otherwise qualify for an exemption or other exclusion from the Aquifer Protection Permit program, the general permits and other requirements in Article 4 would not require the owner or operator of the facility to obtain general permit coverage simply because the type of activity was described as an activity that could be covered under one or more general permits.

Response: The Department agrees with this comment.

Comment 25 - 19: Language implies that sewage collection, sewage treatment, or on-site wastewater treatment facilities are required, no matter the design, to obtain Aquifer Protection Permit coverage. Because of the exemptions in A.R.S.§ 49-250, any language in the proposed Aquifer Protection Permit rules that implies that sewage collection or treatment facilities are automatically subject to Aquifer Protection Permit requirements, should be deleted or modified appropriately. In addition, the Department should clarify in the final rule preamble that (1) its BADCT requirements in Article 3 do not apply to sewage treatment facilities that are otherwise exempt from the Aquifer Protection Permit program, (2) the general permit for sewage collection systems in proposed R18-9-425 does not apply to sewage collection system that are otherwise exempt from the Aquifer Protection Permit program, and (3) the general permits for on-site wastewater treatment facilities do not apply to facilities that otherwise qualify for an exemption from the Aquifer Protection Permit program.

Response: It is true that an exempt facility is not subject to these rule requirements. For example, a sewage treatment facility that is designed and constructed not to discharge and is built on an impermeable barrier that can be visually inspected for leakage, would be exempt under A.R.S. § 49-250(B)(21). The Department will consider evaluating on a case-by-case basis through a Determination of Applicability whether a sewage collection system or an on-site wastewater treatment system is exempt, but as a general rule believes that these are non-exempt facilities.

Comment 26 - 16: In several sections of the proposed rules the language "shall be sufficient to provide adequate and credible information..." is used. Who is going to make the determination as to what adequate and credible information means? The guidelines should be specific.

Response: The Department agrees with your comment. As mentioned in the preliminary explanation of rule changes, terms such as "when applicable," "at its earliest opportunity," "fully," "should," "must," "will," "could," "promptly," "adequately," "within a reasonable period of time," "properly," "appropriately," "when justified," "for any purpose," "likely," and "periodically," -- those terms that require a further determination or that create an unclear situation, have been clarified or deleted. When terms such as "as approved" or "acceptable" have been used they have been further defined as to who approves or who the circumstance is acceptable to.

Comment 26 - 19: These rules are greatly expanding the potential use of many different types of alternative on-site systems, some of which require regular operational and maintenance practices. Because of the increased complexity and the expanded operational requirements of these systems, we recommend the revised rules require a third party compliance inspection to occur periodically. The inspection frequently could be proportional to the complexity of the system.

Response: While the Department agrees that regular inspections of on-site wastewater treatment facilities are highly beneficial, especially for alternative systems, the Department believes that it is too premature to mandate inspections, either by third parties or the Department or its delegated agencies. The Department believes that technical standards proposed in this rule for design and performance, combined with the required operation and maintenance plan for systems permitted under General Permits 4.03 through 4.23, should significantly improve the operation and performance of these systems. For this reason, the Department has declined to prescribe a new government inspection program, which would be complex and costly. However, the Department takes notice of the concern expressed by the commenter. The Department believes this rule needs to become effective and allow some time for an implementation history to be developed before considering mandated inspections. For this reason, there is no change to rule.

Comment 27 - 4: Include a general permit for well discharges of uncontaminated groundwater to the aquifer of origin, other than that for hydrologic testing purposes. The U.S. EPA is currently developing a general NPDES permit for various other types of well discharges. For instance, the City of Tempe discharges from recovery wells on the banks of Tempe Town Lake into the Lake as a means of capturing lake seepage. This recirculation process will be covered under the general NPDES permit. Pursuant to A.R.S. § 49-241.B.9, any point source discharge to navigable waters requires an Aquifer Protection Permit. Similar to developments under the Clean Water Act permitting process, a general permit must be established for this type of activity under the Aquifer Protection Permit program. Although the flow from these wells may be greater than those allowed under the general permit for hydrologic testing, these discharges are de minimus, and do not warrant the issuance of an individual permit.

Response: The Department agrees that well discharges of uncontaminated groundwater back to the aquifer of origin are the types of discharges that fit under a general permit. In fact, 1.04 General Permit covers this type of discharge. However, the Department also believes that it is appropriate to have a general permit that covers similar de minimus well discharges that will soon be covered under a NPDES general permit. It makes little sense to require individual permits for discharges that will be subject to regulation under a federal general permitting program. The 1.01 General Permit, 1.04 General Permit and 1.02 General Permit in R18-9-B301 have been modified as follows:

A. A 1.01 General Permit allows any discharge of wash water from a sand and gravel operation, placer mining operation, or other similar activity, <u>including construction, foundation, and underground dewatering</u>, if only physical processes are employed and only hazardous substances at naturally occurring concentrations in the sand, gravel, or other rock material are present in the discharge.

B. A 1.02 General Permit allows any discharge from hydrostatic tests of a drinking water distribution system and pipelines not previously used, if all the following conditions are met:

1. The quality of the water used for the test does not violate any Aquifer Water Quality Standard;

2. The discharge is not to waters of the United States, <u>unless the discharge is under a National Pollution Discharge Elimination System permit</u>; and

3. The test site is restored to its natural grade.

C. No change.

D. A 1.04 General Permit allows any discharge from a facility that, for water quality sampling, hydrologic parameter testing, well development, redevelopment, <u>or potable water system maintenance and repair purposes</u>, receives water, drilling fluids, or drill cuttings from a well if the discharge is to the same aquifer in approximately the same location from which the water supply was originally withdrawn, <u>or the discharge is under a National Pollution Discharge Elimination System permit, or both</u>.

Comment 28 - 1: Ongoing concern about the Arizona Department of Environmental Quality's continued reliance on the regulated industries to write the rules. We believe it is inappropriate to conduct the process in this fashion and that the Department is shirking its responsibility for protection of Arizona's environment when it allows the industries to dictate the agenda. We also have significant concerns about the so-called stakeholder model for approaching rule writing. When some of the key stakeholders-the general public who must live with the consequences of any inadequate protections-are not at the table, then many critical factors and issues are not addressed. It is nearly impossible for the general public to participate to any great degree when these "stakeholder" meetings are held during work hours for fairly lengthy periods of time. Simply put, these groups are industry stakeholder groups and they represent the interest of those regulated entities.

Response: The Department acknowledges that it worked closely with stakeholders in developing the general permits included in this rule. The assistance was critical to provide the manpower and, at times, technical expertise to develop the large number of general permits. Department staff participated on each subcommittee and was involved in the development of all subcommittee work products. Although regulated industries participated in this effort and some had representatives that chaired several of the subcommittees, the regulated industries did not write the rules. The Department had final say in writing the rule and made whatever changes were deemed necessary to ensure protection of public health and the environment.

The Department has tried to encourage the participation of the general public in its stakeholder efforts but recognizes that the timing of activities makes it difficult for the general public to participate in every part of the process. No change has been made to the rule.

Comment 28 - 2: Will the public's health and the waters of this state be adequately protected? Will these proposed rules violate the First Amended Consent Decree Gregory V. Schafer signed by Director Schafer? The entire premise of the aquifer protection permit program is to prevent the pollution of our state's aquifers. In order to achieve that prevention, it means that entities have to do more up front and that they have to use the Best Available Demonstrated Control Technology (BADCT) to achieve it. It also means that there must be adequate monitoring and reporting requirements. This proposed rule appears to turn back the preventative nature of the program and move it toward a more reactive program.

Response: The Department disagrees that the rules propose a less protective program. The two basic principles of the Aquifer Protection Permit Program include the requirement for the application of BADCT and prevention of violations of Aquifer Water Quality Standards at the point of compliance. The final rule does not change those principles in any manner. The rules include specific standards for BADCT for sewage treatment facilities with the assumption that future rules will further expand the BADCT standards for other types of facilities. Also, the rules provides individual general permits for a large number of on-site wastewater systems that were previously lumped under one general permit that required no notification to the agency for its application. The Department believes the rules have been improved so that there is no misunderstanding regarding the requirements. Compliance with the program requirements should be easier for facilities to achieve. When compliance with the rules is not achieved, clear rule requirements should facilitate Department enforcement. No change has been made to the rule.

Comment 28 - 4: The current sewerage rules require The Department to review engineering plans before construction and operation of sewage treatment facilities. We are very concerned about elimination of this engineering review and that again these rules move away from pollution prevention.

Response: The current rule does not eliminate the ability to review engineering plans for sewage treatment facilities. Under the rule, facilities discharging under one million gallons per day are required to submit for review a design report and engineering plans and specifications (R18-9-B203(A)(9)). For facilities with flows greater than one million gallons per day, a detailed design report must be submitted (described in R18-9-B203(A)). However, full engineering plans can be requested if the design report is not sufficient to issue the individual permit. The Department disagrees for several reasons that these rules move away from pollution prevention. First, BADCT for new sewage treatment facilities prescribes a very high level of treatment performance. This, in itself, will have great beneficial effect on pollution prevention, probably more so than any other consideration. Second, provision of a design report should allow the reviewer to determine, faster and with more certainty, that BADCT treatment performance requirements will be met, than inspecting the "nuts and bolts" of the facility on a sheaf of plans. Finally, as many stakeholders have asserted, operation and maintenance problems rather than poor design are usually the primary reason for treatment performance deficiencies. This is where the individual permit plays a critical role because the facility must operate to comply with permit conditions regarding performance and monitoring, and permit limitations on flow, and water quality. The Department believes that potential penalties arising from permit violations are a significant deterrent to poor design. The Department's experience indicates that sewage treatment facilities operating under Individual permits constitute a smaller compliance workload than those operating under older Notices of Disposal, for which review of design plans was the chief mechanism for assuring proper operation. In summary, the Department believes that the proposed approach will result in appropriately designed plants that will provide reliable treatment performance in accordance with BADCT and permit requirements. No change has been made to this rule.

Comment 31 - 15: The unified permit process should have been established first and then the technical side following. The document is riddled with inconsistencies and is not a user-friendly document at all. I am truly unsure who the target audience is. It poses unnecessary hardships for the regulatory community and could not be comprehended by the average citizen. I feel the document is unnecessarily strict without adequate support. The cost for design and installation of all wastewater systems will be increased. In those areas where a decision should have been made it was typically left wide open, i.e.; tank size, seepage pits, soils/percs and now SAR.

Response: The Department has performed a comprehensive edit of this rule to make it clearer and more understandable. As can be seen by the extent of these responses, the Department has carefully considered commenter's suggestions and has made extensive changes to this rule in response. The Department disagrees that where a decision should be made, "it was typically left wide open." The rule's provisions regarding tank size, seepage pits, soil evaluation, and percolation tests and soil absorption rate are very detailed. The Department believes the commenter will find provisions on this subjects much clearer due to the edit. On this basis, no change has been made to the rule.

Comment 32 - 5: There are several other areas in this rule where an attempt was made to change or limit A.R.S. § 32-144 as it relates to the exemption to engineering small wastewater treatment and collection systems. The other areas in this rule, not specifically mentioned, need to be changed to comply with current practice and to prevent an economic hardship on the public, Canyon Services, Inc., and similar small businesses. The site evaluation, assembly of premanufactured components, and use of standard construction practices supports the continued approval of non-registrants to design systems less than $12,500. If the Department wishes to change this practice, what is the justification and where is the evaluation of the Economic Impact? The last time A.R.S. § 32-144.A.6 ($12,500) was increased to account for inflation was over 10 years ago. Due to the probable future increases to the $12,500 limit, I recommend that all reference to qualifications include "except as allowed in A.R.S. § 32-144."

Response: The Department has responded to many comments on this point later in this summary. Based on the comments. the Department has made extensive changes in the rule for consistency with A.R.S. § 32-144. The commenter is referred to those responses and to R18-9-A312(A), where the changes have been incorporated.

Comment 35 - 12: Object to the expansion of general permits on several grounds. 1) The Department is eroding the individual permit program and the protections it offers the public; 2) The Department is shirking its responsibility as the safeguard of the aquifer; 3) Loss of the public participation in the permitting process; and 4) Loss of monitoring and reporting requirements for permittees. Only 3 (GP2.02; 2.03; and 3.02) require any form of monitoring. Virtually no reporting requirements that will allow the Department to ensure compliance on a regular, ongoing basis. An obligation to report only arises in the event of a violation. Provides no way that the Department can be assured that such reports are in fact made. The current monitoring and reporting system is central to the Department's enforcement obligations under the Consent Decree. We believe that an effort by the Department to avoid its enforcement responsibilities by eliminating the monitoring and reporting requirements for most Aquifer Protection Permits and therefore violate Consent Decree.

Response: The Department disagrees that the general permits included in this rulemaking do not provide protection of groundwater quality. The general permits were developed to deal with large numbers of facilities that the Department currently individually permits at considerable expense to the regulated community and to the state. The types of facilities for which general permits were developed pose low risk to the environment or public health and therefore can be readily addressed through a general permit approach. The general permits reflect the same requirements that the Department has included in individual permits issued for these facilities and therefore satisfy the statutory requirements. In addition, the rule establishes the technical standards that must be achieved for any facility covered under a general permit. The rulemaking is the opportunity for the public to comment on the technical standards. Once these technical standards have been established, they will be applied in the general permit where a facility can demonstrate that the standards are met. If a particular type of facility cannot demonstrate that they meet the specific technical requirements of a general permit, the facility will require an individual permit before discharge, which will include opportunity for public comment. The Department proposed these general permits to expedite the permitting process while still maintaining protection of the environment and public health through the technical standards. There was no intent to avoid enforcement. In fact, under this rulemaking, more facilities operating under general permits will be providing notice to the Department and, therefore, will be in the pool of facilities targeted for regular inspections and subsequent enforcement if those inspections reveal permit violations. No change has been made to the rule.

Comment 36 - 1: Why was our industry never notified that there would be issues concerning service stations in the rule package? We understand that there were many discussions held over the last two years, but we were never informed of this proposed rule package.

Comment 36 - 2: Was never discussed in the roundtable sessions. Therefore, our question is, how can this be an open process when the issue in question was never discussed with our industry.

Response: The Department has worked with stakeholders since August of 1997 to identify improvements to the water quality permitting process. A diverse group comprised the original Unified Water Quality Permit Rewrite Project Steering Committee. These members represented business associations such as the Arizona Chamber of Commerce, Arizona Association of Industries, Arizona Mining Association, Association of General Contractors, Arizona Consulting Engineers, Valley Partnerships, Arizona Water Pollution Control Association, and the Development Industries; large and small municipalities; county governments; and regulatory agencies.

Recommendations from the Steering Committee formed the basis for the statutory changes of Senate Bill 1379 and the starting point for the subcommittees tasked with development of the general permits in this rule. Both the original Steering Committee and the group reconvened in June, 1999 received input from an extensive stakeholder list that included approximately 200 interested parties. These people received notice of all meetings and distribution of materials associated with the process.

In addition, the Department targeted a larger audience when workshops were scheduled to discuss the rule concepts. We also included this information on our website. The Aquifer Protection Permit does not specifically address service stations – nor does this rule. However, if service stations contain facilities that are discharging facilities under Aquifer Protection Permits, they would be subject to regulation under these rules. The Department believes that it did an tremendous amount of outreach. Unfortunately some entities didn't take an active interest in these activities until the last minute. The Department believes that the regulated community needs to take responsibility for determining what may affect them and become involved as the rulemaking process unfolds.

Comment 36 - 3: Rule package is very cumbersome with many different issues in question. Most general permits are noticed individually. We believe that each permit should have its own rule package instead of lumping everything together making it difficult to read and comprehend the actions of the rule package. This would be the fair way to issue the rule package.

Response: The Department disagrees. The final rulemaking has been rewritten to conform to the clear, concise, and understandable requirements of the Governor's Regulatory Review Council and the Secretary of State. A description of the changes made between the proposed rules and the final rules is found in #10.

Comment 36 - 6: There is nowhere in the rule package that discusses cost for the permit or the number of hours necessary to perform work for the permit. How much can owners of service stations be expected to pay for this new permit? What is the economic impact of the service station industry if this rule package is approved? Is the agency requiring this rule to drive up the number of permits? Permits are required for public health; what will these permits do to protect public health and the environment?.

Response: Although the Department has generated some data to indicate the department's costs to permit drywells, the Department has not tracked the cost of permitting drywells for service stations specifically. Overall, the cost of an Aquifer Protection Permit for a drywell that receives discharges that cause it to be regulated under Aquifer Protection Permit range from $690 to $6200 (an average of $2300). The status of service stations with respect to the Aquifer Protection Permit program has not changed with this rule. If a service station has a drywell or drywells that are subject to an Aquifer Protection Permit regulation, then the 2.01 General Permit provides a simpler and more streamlined approach to permitting if those drywells can meet the technical standards of the general permit. Therefore, the overall cost to the service station industry should be reduced by this rule. The Department has revised the Aquifer Protection Permit rules to streamline our permitting efforts. No expansion of regulatory authority has occurred. The Department believes that the new rule will assist in the permitting of facilities that previously took tremendous time and resources on the part of the agency as well as the regulated community. The permits required under the Aquifer Protection Permit program are designed to protect waters of the state from the uncontrolled discharge of pollutants that could impair Arizona's water quality. No change has been made to the rule.

Comment 36 - 7: Will the service stations that also have car washes be required to carry two different general permits? If so, do the permits conflict with each other? What about the economic impact to these facilities? These issues are not addressed in the rule package and need to be addressed before the package goes further.

Response: This rule does not require any facility to get a general permit. The expanded list of general permits is provided in an attempt to make the permitting process simpler for those facilities for which the statutory requirements for establishing general permits apply. Therefore, no service station will be required to have two general permits. However, if a service station or any other site contains more than one discharging facility, each discharging facility must have a permit in order to discharge. The Department may issue an individual permit for each discharging facility. Alternatively, an individual area-wide permit can be issued to the site under A.R.S. § 49-243(P). There will be no conflict between permits because the purpose is the same for all Aquifer Protection Permits. The assumption is that general permits will be less expensive than a single individual permit. However, general permits must be renewed every five years. A particular facility must evaluate the economic benefit of one individual area-wide Aquifer Protection Permit that does not need to be renewed but for which annual registration fees will be assessed versus the economic benefit of two or more general permits that are less expensive to permit and are not subject to annual registration fees but must be renewed regularly. No change has been made to the rule.

Comments 36 - 8 and 36 - 9: Since we do not see how this rule will help improve human health and the environment, we believe the only reason for including service stations in the process is so we are required to give you every aspect of information on the facility. With this information it is very easy for the agency and the attorney general to issue $25,000 fines and class five felonies.

Response: The Department disagrees with this comment. The existing rules have been revised to clarify the regulatory requirements and to streamline the permitting process, among other things. The Department did not add a requirement for service stations (see previous comments). A general permit for drywells is included in the rule as a result of stakeholder interest and support for this approach. Service stations that have discharging facilities subject to Aquifer Protection Permit regulation receive the same benefits from the revision of the rule as other discharging facilities. If a facility has a discharge that is required to have a permit but that facility has avoided regulation, it could be subject to enforcement and resultant fines. The operator of a facility makes the decision to comply with the law or not and this rule will not change that fact. No change has been made to the rule.

COMMENTS TO RULES NO LONGER IN THE FINAL RULEMAKING

[R18-9-102, Requirements for an Aquifer Protection Permit]

Comments 22 - 4, 25 - 2, and 25 - 3: It is unclear what the Department means by the language "is not subject to R18-9-105(A) or (B)" in subparagraph three of proposed R18-9-102. The language could be read to mean that unless a facility is subject to proposed R18-9-105(A) or (B) (facilities subject to a groundwater quality protection permit ("GWQPP") or a notice of disposal (NOD)), the facility is exempt from the Aquifer Protection Permit requirement. Thus, new facilities arguably would be exempt from the Aquifer Protection Permit program under this language. This language should either be deleted or clarified. In addition, the Department needs at least two additional subparagraphs to proposed R18-9-102. The Department should reference the language in A.R.S. 49-241(B) and 251.

Response: The language was intended to allow operation of a discharging facility without an Aquifer Protection Permit as long as the facility had filed a Notice of Disposal or was issued a Groundwater Quality Protection Permit. The Department agrees the language is unclear however, further review confirms that no new information is being proposed and this Section has been deleted.

Comment 23 - 5: It would be very helpful if all exempt facilities were listed in a single rule including the list in A.R.S. § 49-250.B. We recognize that the nature of the exemptions vary but those variations can be easily described in the rule?

Response: The Department agrees that the rule will be more clear if all exempt facilities are listed in the same rule, therefore, R18-9-103 has been revised. However, the Department does not agree that the exempt facilities in A.R.S. § 49-250(B) should be listed in the rule. See comment above.

Comments 5 - 5 and 5 - 6: R18-9-120 and R18-9-128 is missing.

Response: R18-9-120 was repealed on July 14, 1998 and R18-9-128 was repealed on November 12, 1996. Since these Sections do not contain data, their inclusion in a rulemaking is not necessary or practical.

[R18-9-108. Articles 1 through 4: Interaction With Other Applicable Legal Requirements]

Comments 25 - 6 and 22 - 10: Because this section appears to imply that not even the Department, as a state agency, will have its authority superseded, restricted, or negated by the final Aquifer Protection Permit rules, the section should be deleted. Although an alternative approach would be to clarify that the Department is excluded from any language that would limit the application of the rules to governmental agencies, the better alternative is to simply delete the language because it is not necessary and sets a precedent that similar language is needed in every the Department or other state and local agency rulemaking?

Response: The Department agrees and has deleted this provision from the rule.

Comment 34 - 11: Confirm whether this paragraph allows Lake Havasu City to continue with the implementation of their wastewater master plan?

This language appears to be overly broad. Accordingly, because the rules are intended to specifically define and limit the authority of the Department, the word "other" should be inserted just before the phrase "state agency" in proposed R18-9-108 to clarify that the language does not apply to the Department?

Response: Nothing in this paragraph was intended to limit the authority or responsibility of other agencies. This paragraph has been deleted from the final rule.

ECONOMIC IMPACT STATEMENT COMMENTS

Comment 5 - 146: The economic impact statement must include a cost benefit analysis for the implementing agency, the political subdivisions directly affected by the rule, businesses directly affected by the rules, and the persons directly affected by the rules. To accomplish this legal requirement, the Department must provide data concerning the time required to process all the different types of permits both within the Department and the cities and counties that issue permits, the number of the different types of permits, documentation of the number of problems or pollution that has occurred that will be eliminated with the rules, and the estimates of the costs reductions professed by the Department.

Response: The final economic impact statement deals with the impact to all parties affected. Data for permits by types issued in the past and projections for the future are also given. The benefits impact is measured in terms of permits processing hours reduced, not in dollar terms. The dollar impacts will be identified in the fee rulemaking.

There are no systematically collected data available, only anecdotal evidence, for pollution problems that will be eliminated by these rules. But the more stringent standards and BADCT requirements will eliminate problems.

Comment 5 - 147: Effectiveness Measures. What are inappropriate discharges to groundwater? How many have been permitted by the Department? The new rules regarding large treatment facilities are being relaxed since the Department does not have the expertise to review large treatment plants. Additional scrutiny is proposed for facilities between 3000 and 24,000 gpd. Why? Where is the documentation that illustrates the need for the increased permitting review? Where are the problems that justify the increased regulation? The economic impact statement must provide this information to justify the increased regulations.

Response: The Department does not agree with the multiple, contradictory premises theorized by the commenter. The Department does not issue individual and general aquifer protection permits for inappropriate discharges. In fact, the Department issues permits for discharges only if groundwater quality will be protected at appropriate points of compliance. If a discharge becomes "inappropriate," a variety of compliance and enforcement measures are available to the Department to remedy the problem. Furthermore, the Department disagrees that rules for large treatment facilities are being relaxed or that is there a lack of Department expertise to review and issue permits for large facilities. With regard to certain complex systems with flows between 3000 and 24,000 gallons per day, the rule does, in fact, require more scrutiny because these facilities currently comprise a significant proportion of the compliance workload because out-of-compliance operation.

Comment 5 - 148: General permit increase will reduce operating costs. This generalized statement is false. The Department must provide data illustrating the impacts. I would estimate that 80% of all permits are issued for sewer systems and on-site systems in Arizona. The rules will increase costs for these facilities by the higher permits requirements and bureaucratic paperwork (i.e., transfers of permits). In addition, RV parks and subdivisions will incur extensive cost impacts for individual permits and increased design standards that they did not experience before. The Department must include these costs in the economic impact statement. I find these blatantly incorrect statements very disturbing. Only a small percentage of the permits issued will be changed from individual permit to general permits and most of these are for industrial projects. Very little of these cost savings will be passed to consumers.

Response: General permits are projected to cost less than individual permits because they will take less time to process. The Department estimates that about 1/2 of all applicants (existing and new) who are applying for an individual permit under the current rules, will be eligible for a general permit.

The more stringent design standards for on-site systems are intended to prevent the widespread problems documented by EPA.

Comment 5 - 149: Technical Standards could costs more. The last paragraph states that proposed technical standards will cost more than currently but operation and maintenance will be reduced. This statement acknowledges increased costs. The Department has finally acknowledged that costs will increase. How much? The statement about lower operation and maintenance costs is false. Higher technical facilities will require higher operation and maintenance costs. This has been proven over and over regarding treatment facilities. Where is the Department's data to support this statement? The economic impact statement must provide the documentation to support the Department's claim.

Response: Changes incurred for on-site systems subject to the Type 4 General Permit are expected in many cost areas. The most common on-site wastewater treatment facility is the 4.02 General Permit, representing approximately 90% of the state-wide total for on-site facilities. Where site limitations are not present, an estimated savings of $553 for a three-bedroom residence is expected. Using the streamlined regulatory review process provided in this rulemaking will provide additional savings for construction and processing time. The inclusion of minimum requirements in rule is expected to contribute to the savings realized by streamlining. The largest single increased cost area is for instruction of on-site facilities on a lot with limitations due to poor soil conditions (shallow or low permeability), rock, steep-sloped, or a small-sized lot. Increased performance necessary to overcome severe site limitations will be accompanied by increased operation and maintenance cost. This situation represents less than 10$ of the installations state-wide. The comprehensive framework for Type 4 General Permits incorporates more than 20 technologies for treatment and disposal, and includes performance adjustment criteria that can be continuously applied over the range of necessary performance. Overall the most common systems become economical when slight or no site restrictions are present, and more expensive when systems must overcome significant site restrictions. The rule-based framework will result in permit processing and ensure improved state-wide consistency.

Comment 5 - 150: The Department average work hours. Where is the data documenting the average work hours for these permits? It must include the work hours from counties and cities that issue the vast majority of the sewer system permits and the on-site facility permits. I know Maricopa County and Yavapai County are very efficient and timely in issuing their permits. How do the other counties compare to the Department and Maricopa County? If the Counties are more efficient that the Department, shouldn't all of the Counties and Cities issue the sewer system and on-site permits?

Response: Average hours by permit types issued by the Department are given in the final economic impact statement. The Department does not collect data on average hours it takes delegated counties and cities to issue their permits.

Comment 5 - 151: The EIS must present data instead of generalized statements otherwise the rules should not be considered for adoption. How has the Department fulfilled the legal requirements of A.R.S. 41-1035 regarding analyzing the impacts of these rules on small businesses? The EIS must address the five requirements of this statute.

Response: The final economic impact statement analyzes the requirements of A.R.S. § 41-1035.

Comment 5 - 152: Extensive Stakeholder Process. The on-site wastewater system rules, which compose most of the proposed rules did not involve an extensive stakeholder process. The proposed rules were first published and distributed around March 18 at the On-site Wastewater Advisory Committee meeting. They were subsequently published in the Arizona Register on April 7. The engineering community and on-site professionals have had limited involvement in the development of the rules. The extensive design standards outlined in the rules should be reviewed by these professionals through group meetings around the state and should have been distributed to ASCE, WPCA, NSPE and the Consulting Engineers Council for comments.

Response: Stakeholder involvement in this rulemaking commenced in the latter half of 1997and continued until after the passage of SB 1379 and publication of the Notice of Proposed Rulemaking. Several informal and formal public hearings were publicized and held at various places and times up to and after submittal of the rule package to the Secretary of State's Office. Anyone wanting to become involved was allowed to participate during the stakeholder Steering Committee and sub-committee meetings, and to comment on any aspect of the rule during the informal and formal public involvement process, and to submit written comments if they so choose.

Comment 5 - 153: Streamlining the permit process. This statement is totally false. Currently a general permit covers on-site systems so they do not need to obtain an Aquifer Protection Permit. They do need to obtain an Authorization to Construct permit before construction and an Authorization of Construction permit after construction has been completed. This two permit process is just having a name change since the new rules will still require a two permit process (Provisional Verification of General Permit Conformance and a Verification of General Permit Conformance). In addition, there are numerous new submittal requirements with the permit application. The economic impact statement must contain the truth about the increase in the bureaucratic process and the added requirements.

Comment 5 - 157: Efficiency - 1. Elimination of the ATC/AOC process - This statement is false since the existing two-step process (ATC/AOC) will just have a name change to Provisional Verification of General Permit Conformance Verification of General Permit Conformance. If the Department is really trying to improve the permitting process, why not just issue one permit with the requirement for a final inspection? What cost savings could be realized if this system were implemented? The system is exactly the same as a building permit or a plumbing permit. Why have a two-step process with separate licensing time-frames and separate permit fees. A one-step process will work.

Response: A general permit that covers on-site systems <u>is</u> an Aquifer Protection Permit. Under the sewerage rules, on-site systems were also required to obtain Approval to Construct and Approval of Construction. These approvals were in addition to the Aquifer Protection Permit. Because on-site systems qualified for a general permit under the current rule requiring no notice to the Department, many owners may not have realize they were permitted under the Aquifer Protection Permit program. The Department disagrees that the final rule just changes the name of the same approval process. The Department has worked to streamline the process and has identified projected savings to the applicant and permittee in the Economic Impact Statement. The Verification of General Permit Conformance is the actual approval from the Department that allows the discharge to occurrence all the requirements of the general permit are satisfied. The application requirements have been clarified in the rule so that the Department can verify that the permit requirements are met.

Comment 5 - 154: Previous Individual permits will become General Permits. This statement is true for a small number of facilities. The impact statement must provide data on the number of permits the Department has processed in the last several years including the number of on-site wastewater permits. A large number of commercial facilities like restaurants, RV parks, and small community treatment plans will now have to obtain individual permits instead of being covered by general permits. The Department must provide data illustrating the number and types of permits that have been issued under the old program and provide estimates of the number and type of new permits expected to be issued. There are far more on-site system permits and sewerage system permits issued than any other type. The Department must present a case for demonstrating the claimed change in permit types so that cost impacts may be estimated.

Comment 5 - 159: Reduce Cost - The economic impact statement must provide data to support this claim. The number of facilities that will now only need a general permit instead of an individual permit will be small compared to the number of RV parks, commercial facilities and subdivisions that will now have to obtain an individual permit. The data must be provided to document the increased costs to small businesses.

Comment 5 - 156: Housing units on septic tank systems. The data provided is extremely out of date. The Department has been obtaining data on the number of on-site systems every year for the last decade through their permit system and the quarterly reports from the delegated counties. There are currently over 400,000 on-site systems in Arizona and increasing rapidly. The economic impact statement should provide yearly data on the number of facilities as well as the number of sewer system permits over the last five year to document the number of permits issued and serve as the basis for estimating the cost impacts of the proposed rules.

Response: The Department disagrees with the assertion that only a small number of facilities will qualify for the general permits. As the comment states, many on-site wastewater permits are issued by the Department and all will continue to fall under the general permits in this rule. In fact, the increase of daily flow from 20,000 gallons per day under the current rule to 24,000 gallons per day under the final rule means that more restaurants, RV parks, and small community systems will qualify for one or more of the general permits. There is one category of sewage treatment facility that will no longer qualify for a general permit but must get an individual permit under the final rule - those sewage treatment facilities with flows between 3000 and 24,000 gallons per day that are package plants (pre-fabricated, manufactured treatment works). Under the current rule, the general permit classification was based solely on daily flows. This rule recognizes that a small package plant is more similar to a large municipal treatment plant in its technology than it is similar to a cluster wastewater system. Documented problems with these plants have focused attention on the need to ensure the owner/operator has the technical and financial capability for proper operation and maintenance. The individual permit provides confidence that the plants will provide a level of performance that will protect groundwater quality and will provide homeowners with dependable service. The Department does not currently process all on-site systems the majority of which are reviewed and approved by delegated agencies, therefore, numbers are not available as requested in the comment.

Comment 5 - 155: Rules do not impose additional restrictions. This statement is incredible. The proposed rules will impose significant new regulations, restrictions, and costs on the average homeowner and small business entities. The new design standards will significantly increase the cost of on-site treatment facilities. The economic impact statement must include the estimated cost impacts to the average home construction and new commercial facilities that will have an on-site system.

Comment 30 - 2: Summary of Economic Impacts is very misleading. It should state that most of the existing on-site septic systems will not meet the new requirements and will require owners of these systems to abandon their existing systems and upgrade to new systems at a very substantial cost, estimated in most cases at $10,000 - $20,000 or more. The State of Arizona should make available grants and or low interest loans to assist people through this transition. Some type of waiver process should also be in place to allow non-conforming installations to continue to function, when it can be shown through testing that the systems are treating properly.

Response: The Department does not intend, nor would it be practical, to require septic systems that do not meet standards in the final rule to upgrade. In fact, the Department intends that these systems be grandfathered under a Type 1 General Permit. General Permit 1.09 (R18-9-414(9) of the final rule; now renumbered as R18-9-B301(I)) was developed for this purpose. However, as originally proposed, this general permit inadvertently covered only sewage treatment facilities with flows from 2000 to less than 20,000 gallons per day, rather than both sewage treatment facilities and on-site wastewater treatment facilities with flows less than 20,000 gallons per day. R18-9-B301(I) corrects this error and establishes the 1.09 General Permit grandfathering in all facilities with flows less than 20,000 gallons per day.

Comment 5 - 158: Efficiency - 5. Overall reduction in number of hours for a water permit - First of all, these are wastewater permits. Where is the data to support this statement? Licensing time-frames were established based on data. The Department is supposed to be monitoring their permit time processes and report to GRRC. Where is this data? How long does it take to process a permit from the Department? I had a single-family house on-site permit take eight months to process. A client of mine spent a year trying to get a permit without success. In fact, some counties who issue these permits also take an extraordinary amount of time to process permits. The economic impact statement should use the existing time data to estimate the improvement or increase in time to issue a permit.

Response: The Department reports its compliance with licensing time-frames monthly and annually and has been very successful in complying with the requirements of statute and rule. Therefore, delays in issuance of approvals could result from an inadequate application submittal or a delay in a response from the applicant to deficiencies identified by the Department. Not all delays in issuance of approvals can be attributed solely to the Department or delegated agency. The Economic Impact Statement provides an analysis of costs and savings expected to result from this rulemaking.

ARTICLE 1. AQUIFER PROTECTION PERMITS - GENERAL

R18-9-101. Definitions.

Comment 5 - 1: How can seepage pits be classified as meeting this definition when they hydraulically saturate the soil and the Department has no scientific evidence on how they perform in treating septic tank effluent??

Response: This comment has been addressed extensively in a later comments in the specific general permit section regarding seepage pits. The commenter is directed to those responses.

Comment 6 - 1: Correct the definition of "ASTM" to mean ASTM; include a definition of "effluent."

Response: The term "ASTM" is no longer used in the rulemaking. The acronym has been spelled out in every instance. "Effluent" is not defined because the term is typically used as a term of art in the industry specifying a type of device. Whenever "effluent" has been used and a device is not intended, the term has been changed to "wastewater."

Comment 22 - 1: Delete the definitions for "Department," "facility..... person," and "well" because they are defined in statute.

The definitions for "Department," "facility," "on-site wastewater treatment facility," "person," and "well" should be deleted from the list of definitions because they are defined in statute?

Response: The terms "Department," "facility," "person," and "well" are defined under A.R.S. § 49-201 and have been excluded from this rulemaking.

Comment 25 - 1: The Department is proposing to define "sewage treatment facility" to include a plant or system for "sewage treatment and disposal ... that consists of treatment works, disposal works, and appurtenant. . ." (Emphasis added.) The Department also is proposing a separate definition of "disposal works" to mean "the system for disposing of treated wastewater generated by the treatment works of a sewage treatment facility . . ." Because of the separate definition that covers the disposal of treated wastewater from a sewage treatment facility, the phrases "and disposal" and "disposal works" should be deleted from the definition of "sewage treatment facility" to avoid confusion and duplication.

The term "on-site wastewater treatment facility" is statutorily defined in A.R.S. § 49-201. The Department should either delete its proposed regulatory definition of "on-site wastewater treatment facility" or provide an explanation of why it believes it is necessary to alter the statutory definition by excluding a certain type and size of system from the definition of "on-site wastewater treatment facility?"

Response: The Department disagrees that the terms "disposal" and "disposal works" should be removed from the definition of "sewage treatment facility." As the commenter mentions, the sewage treatment facility consists of both treatment works and disposal works. "Disposal works" is defined to provide greater detail on the processes and components involved. A main reason for defining "disposal works" is its importance in the on-site wastewater treatment facility general permits, where the necessary treatment may be gained through the treatment works or disposal works, or both. The commenter also questions the definition of "on-site wastewater treatment facility." The purpose of the this definition is to provide greater specificity than statutory definition. In particular, the Department does not consider complex treatment systems generating over 3000 gallons per day of wastewater and using an activated sludge process an on-site wastewater treatment facility. These facilities have enough great complexity and potential for environmental risk that they should operate under an individual permit. No change has been made to the rule.

Comment 9 - 1: The definition of sewage should have the word "untreated" removed as this will lead to loopholes in the Aquifer Protection Permit process.

Response: It is unclear what "loopholes" are anticipated because the comment provided no further discussion. The Department intended the term "sewage" to mean waste that had not yet been treated by any process. No change has been made to the rule.

R18-9-102. Facilities to Which Articles 1, 2, and 3 Do Not Apply

Comment 27 - 1: Sludge from the treatment of river water for potable uses should exempt from the Aquifer Protection Permit process.

Comment: If the Department intends on regulating water treatment plant sludge as a liquid material under APP, land application of such material, if it complies with the requirements of 40 CFR 257, should be specified as exempt in section R18-9-103 due to the material's inert nature. If land-applied sewage sludge which is regulated under the State's solid waste regulations is exempt from the Aquifer Protection Permit process, the sludge from the treatment of river water for potable uses should be exempt from the Aquifer Protection Permit process.

Response: The land application of biosolids (sewage sludge) is exempt from Aquifer Protection Permitting because it is regulated under solid waste rules at 18 A.A.C. 13. These rules ensure that the land application of biosolids is protective of human health and the environment. Therefore, the application of biosolids is exempt from Aquifer Protection Permitting because it is already regulated by another program. There is no equivalent level of regulation of water treatment plant sludge and the Department has determined that these sludges do not meet the definition of inert. An Aquifer Protection Permit is required for the land application of water treatment plant sludge. No change has been made to the rule.

R18-9-103. Class Exemptions.

Comment 22 - 9: Allow a class exemption or general permit for point source discharges covered by individual or general NPDES permits. If not, then develop a class exemption or general permit for the types of discharges covered in the pending NPDES general permit for well discharges and other de minimis discharges.

Response: The Department does not concur with the suggestion to adopt a class exemption for point source discharges covered by an NPDES permit. However, the Department does agree that it makes sense to have a general Aquifer Protection Permit for the types of discharges that will be covered by the pending NPDES general permit.

The 1.01 General Permit, 1.02 General Permit, and 1.04 General Permit in R18-9-B301 have been modified as follows:

A. A 1.01 General Permit allows any discharge of wash water from a sand and gravel operation, placer mining operation, or other similar activity, including construction, foundation, and underground dewatering, if only physical processes are employed and only hazardous substances at naturally occurring concentrations in the sand, gravel, or other rock material are present in the discharge.

B. A 1.02 General Permit allows any discharge from hydrostatic tests of a drinking water distribution system and pipelines not previously used, if all the following conditions are met:

1. The quality of the water used for the test does not violate any Aquifer Water Quality Standard;

2. The discharge is not to waters of the United States, unless the discharge is under a National Pollution Discharge Elimination System permit; and

3. The test site is restored to its natural grade.

C. No change.

D. A 1.04 General Permit allows any discharge from a facility that, for water quality sampling, hydrologic parameter testing, well development, redevelopment, or potable water system maintenance and repair purposes, receives water, drilling fluids, or drill cuttings from a well if the discharge is to the same aquifer in approximately the same location from which the water supply was originally withdrawn, or the discharge is under a National Pollution Discharge Elimination System permit, or both.

Comment 25 - 4: Based on the Department's statutory authority under A.R.S. § 49-250.A to adopt class exemptions and on the Department's 401 certification review of NPDES permits issued to point source discharges in Arizona, Pinnacle West respectfully requests that the Department adopt a class exemption for point source discharges to navigable waters which are covered by individual or general NPDES permits by adding the following language**:** "Point source discharges to navigable waters that have been issued a national pollutant discharge elimination system permit pursuant to the federal Clean Water Act (33 U.S.C. § 1342). This exemption applies only to the actual point source discharge. It does not apply to wastewaters while they are being collected, stored, or treated before discharge."

If the Department decides not to adopt the above requested class exemption, it should at the very least, adopt an exemption for point source discharges that will obtain coverage under the pending NPDES general permit for certain de minimis discharges, including discharges associated with well development activities.

Response: The Department believes that A.R.S. § 49-241(B)(9) is clear that a permit is required for point source discharges covered by a NPDES permit and therefore, a class exemption cannot be provided. However, the Department does agree that it makes sense to have a general Aquifer Protection Permit for the types of discharges that will be covered by the pending NPDES general permit. See response to previous comment.

R18-9-104. Transition of Notice of Disposal and Groundwater Quality Protection Permitted Facilities.

Comment 22 - 3: Amend the first sentence of proposed R18-9-104(A) as follows**:** "A person who has filed a notice of disposal shall notify the Department before any temporary cessation OF OPERATION OF FACILITY FOR A PERIOD OF GREATER THAN 60 DAYS BUT NO MORE THAN THREE YEARS UNLESS THE PERSON HAS (1) ALREADY SUBMITTED AN APPLICATION FOR AN INDIVIDUAL AQUIFER PROTECTION PERMIT, (2) COVERED THE FACILITY UNDER AN APPLICABLE GENERAL PERMIT, OR (3) REACHED AGREEMENT WITH THE DEPARTMENT TO SUBMIT AN PROTECTION PERMIT AT A LATER DATE DUE TO ECONOMIC CONDITIONS OR OPERATIONAL STATUS OF THE FACILITY."

Include references to statutory authority in A.R.S. § 49-241(B) and 251.

Response: The Department has determined that the provision for temporary cessation for a facility operating under a Notice of Disposal or Groundwater Quality Protection Permit should be deleted from the rule. The statute requires these facilities to obtain an Aquifer Protection Permit or clean closure approval. The rule has been revised to reflect this position. See the response to comment below.

Comment 22 - 5: Consistent with the above requested change to proposed R18-9-104(A), proposed R18-9-104(B) should be revised to provide alternative options to either submitting a permit application or closure plan for NOD facilities that temporarily cease operations for more than three years. The Department needs to provide for flexibility in situations where NOD facilities must cease operations for longer than three years because of economic or other similar circumstances.

Response: The Department believes there are no other alternatives allowed by statute. All existing facilities that operate under a Notice of Disposal or a Groundwater Quality Protection Permit are required to get an Aquifer Protection Permit. The Department has contacted all facilities to notify them of the requirement to apply for their Aquifer Protection Permits. A number of facilities have not submitted applications and are considered delinquent. The Department has not aggressively pursued enforcement against these facilities to date but is in the process of evaluating future actions. A number of facilities have claimed that because they are in temporary cessation, they are not required to get a permit. The Department disagrees with this interpretation. In fact, the statutory requirement to obtain an Aquifer Protection Permit or clean closure approval at A.R.S. § 49-241.01 is quite clear. Therefore, the rule is intended to make it clear that there are only two options available to an existing facility currently operating under a Notice of Disposal or a Groundwater Quality Protection Permit and that is to 1) apply for an Aquifer Protection Permit, or submit a closure plan. The Department further believes that failure to operate for a period of three years under the Notice of Disposal or Groundwater Quality Protection Permit requires the owner or operator to select one of these actions:

The rule has been revised as follows:

A. A person who ~~has filed a notice of disposal as required by R9-20-205~~ filed a Notice of Disposal or received a Groundwater Quality Protection Permit shall notify the ~~Director~~ Department before any ~~temporary~~ cessation. The Director shall specify any ~~measures~~ measure to be taken by the person ~~in order~~ to prevent a ~~violations~~ violation of an Aquifer Water Quality ~~Standards~~ Standard at the ~~applicable~~ point of compliance, determined by the criteria established in A.R.S. § 49-244.

B. ~~A person who has filed a notice of disposal as required by R9-20-205 and who owns or operates a facility that is required to obtain an individual Aquifer Protection Permit, under Title 49, Chapter 2, Article 3 of the Arizona Revised Statutes and Articles 1-3 of this Chapter shall submit an application for an individual Aquifer Protection Permit under Title 49, Chapter 2, Article 3 of The Arizona Revised Statutes and this Article if there is a cessation, for a period of at least three years, of the activity for which a facility or portion of a facility was designed and operated.~~

A person who owns or operated a facility, for which a Notice of Disposal was filed or a Groundwater Quality Protection Permit was issued, or who owns or operates a facility required to obtain an Aquifer Protection Permit shall, within 90 days from the date on the Director's notification, submit an application for an Aquifer Protection Permit or a closure plan as specified under A.R.S. § 49-252.

R18-9-105. Continuance and Transition of Permits.

Comment 22 - 6: Explain in the preamble to the final rule what it means by the language "is determined by the type of pollutant and nearest down gradient use of the aquifer" and how this standard will be interpreted at facilities with historically degraded aquifers. It may therefore be appropriate to include in proposed R18-9-105(A)(2)(b) and R18-9-105(B) the concept of no further degradation (rather than compliance with aquifer water quality standards) for already degraded aquifers.

Response: Compliance with Aquifer Water Quality Standards is normally determined at a point of compliance designated in a permit following the criteria in A.R.S. § 49-244. If a point of compliance has not been previously designated for existing facilities operating under a Notice of Disposal or a Groundwater Quality Protection Permit, the point of compliance would need to be established under A.R.S. § 49-244, to determine if a violation of an Aquifer water Quality Standard occurred. In determining compliance with Aquifer Water Quality Standards, the Department will take into consideration historical impacts to groundwater quality. No change has been made to the rule.

Comment 22 - 7: Specify that there is a, single point(s) of compliance for purposes of both GWQPPs and APPs: the point of compliance defined in A.R.S. § 49-244. Other conditions of the GWQPP, of course, would continue to apply until an Aquifer Protection Permit is issued.

Response: Existing facilities that operate under a Groundwater Quality Protection Permit do not have a specified point of compliance, instead they may be required to measure compliance with standards at various points designated in the permit. Therefore, there may not be a single point of compliance in the permit as defined in A.R.S. § 49-244. However, the Department agrees that there must be a point at which a determination can be made that a facility does or does not meet Aquifer Water Quality Standards and that point would be identified based on the criteria in A.R.S. § 49-244. This Section has been revised as follows:

(A)(1)(b)(ii) Is not causing or contributing to the violation of any Aquifer Water Quality Standard at a point of compliance, determined by the criteria in A.R.S. § 49-244.

(A)(2) Notice of Disposal. A person who owns or operates a facility for which a Notice of Disposal was filed before September 27, 1989 complies with Articles 1, 2, and 3 of this Chapter and A.R.S. Title 49, Chapter 2, Article 3 if the facility is not causing or contributing to the violation of an Aquifer Water Quality Standard at a point of compliance, determined by the criteria in A.R.S. § 49-244.

Comment 23 - 1: Requested change**:** strike a. and b. and substitute**:** a. Is not causing or contributing to a violation of an Aquifer Water Quality Standard at a point of compliance determined in accordance with A.R.S. § 49-244; and b. Is in compliance with the conditions of the Groundwater Quality Protection Permit. For purposes of determining such compliance, the point of compliance determined in accordance with subparagraph (a) shall be used.

Response: The Department does not agree with the proposed juxtaposition. See response to previous comments for revisions to this section.

Comment 22 - 8: Delete this provision.

Response: Before adoption of the current rules, there was an opportunity for existing facilities that were exempt from the requirement to file a Notice of Disposal or be issued a Groundwater Quality Protection Permit to provide notice to the Department to continue to operate until an Aquifer Protection Permit is issued. This provision allows a continuation of operation as long as an application for an Aquifer Protection Permit has been submitted by the effective date of this rule. No change has been made to the rule.

Comment 5 - 2: Why place the burden of notifying the Department of change of ownership for any facility currently operating under a permit? This places a new burden on homeowners. What is the benefit this rule is supposed to accomplish? Many violations of the rule will be expected and the Department will not enforce this rule so why have it?

Response: The intent of this comment is unclear. The referenced provision of the rules relate to those existing facilities defined under A.R.S. § 49-201(16) that are operating under either a Notice of Disposal or Groundwater Quality Protection Permit. It is unlikely that a homeowner would be affected by this rule provision. The Department requires information about change in ownership to track continued compliance with the requirements of these legacy permits. These facilities are also subject to annual registration fees under A.R.S. § 49-242. Therefore, the Department needs current information regarding addresses and facility contacts. The comment does not provide a basis for the claim that this rule will be commonly violated and the Department will not enforce it. The Department often receives change of ownership information and makes the necessary changes to the permit. No change has been made to the rule.

Comment 39 - 1: The owner is required to notify the Department if there is a change in operation within 10 days. This section should either define what "operation" is or drop it from the paragraph.

Response: The "operation" of a facility is defined in the Groundwater Quality Protection Permit or in the Notice of Disposal that was submitted for the facility and is the activity of the facility that results in a discharge that is regulated under the Aquifer Protection Permit Program. No change has been made to the rule.

R18-9-106. Determination of Applicability.

Comment 11 - 3: It is not clear whether an applicant for a "determination of applicability" will be subject to liability for failure to have an Aquifer Protection Permit if the Department determines that the rules were applicable to an ongoing activity. Similarly, if the Department withdraws its determination under subsection 107(D), it is not clear whether the applicant (who relied on that determination) will be subject to liability for failure to obtain an Aquifer Protection Permit or be required to immediately cease operations until an Aquifer Protection Permit is issued.

Response: The Department interprets A.R.S. § 49-241(B) to be a prospective determination, that is, that the determination will be performed before the discharging activity. Therefore, if the Department discovers that a facility should have been permitted but failed to get an Aquifer Protection Permit, that facility would be subject to enforcement. Additionally, if the Department determined that no permit was necessary but later changed that determination based on inaccurate information supplied by the applicant, the facility would be subject to enforcement. A determination to take an enforcement action or the type of enforcement to be taken would be made by the Department based on the circumstances of the specific case. No change has been made to the rule.

Comment 5 - 3: This provision is unclear and will be misused by the Department. What information will the Department request? This unlimited power should not be provided. The Department should list the items that they will need to determine compliance with the rules.

Response: The Department cannot misuse this provision because it is purely voluntary. The Department will provide a determination of applicability as a courtesy to help the regulated community comply with Aquifer Protection Permit regulations. There is no requirement to submit a request for determination of applicability. This is entirely voluntary on the part of the regulated party and therefore, if at anytime the applicant does not want to provide additional information to assist the Department in its determination, the party is free to do so. However, the party must recognized that incomplete information may result in the Department not being able to make a determination. No change has been made to the rule.

R18-9-107. Consolidation of Aquifer Protection Permits.

Comment 11 - 21: The concept is good but the implementation mechanics need further specification. It is unclear to us how general permits will, from a practical standpoint be consolidated with individual permits or what real efficiencies this would create. It was our understanding that a general permit would not result in the issuance of a "permit." Rather, a facility would be deemed to be permitted if it complied with the general permit rules associated with a particular type of facility. Is this section intended to focus on a consolidated Aquifer Protection Permit application process in these instances or the issuance of a "master" permit listing permit conditions of general applicability to related facilities? Would consolidation alter the applicable fees?

Comment 5 - 16: The consolidation of General permits into an Individual permit will result in significant cost impacts to the general permit applicants. Where is this process currently being used in Arizona? What specific circumstances or examples would this provision be used for? A homeowner who now has to apply for an Individual permit will incur tremendous cost impacts to obtain an Individual permit. What benefit does this provision provide?

Response: This Section gives the Department the ability to consolidate permits if it makes sense to do so. Generally, consolidation is at the request of a permittee. If a site contains more than one discharging facility, each discharging facility must have a permit to discharge. Because there are a number of options for permitting facilities under this rulemaking, it is conceivable that a single site may have both general permits and an individual permit. A particular facility must evaluate the economic benefit of consolidating into one individual area-wide permit that does not need to be renewed but for which annual registration fees will be assessed versus the economic benefit of two or more general permits that are less expensive to permit and are not subject to annual registration fees but must be renewed regularly. No change has been made to the rule.

Comment 39 - 3: We have concerns that this section as written could allow under some circumstances the ability for the Department to place individual on-site systems, of which currently the city has no control, responsibility or jurisdiction over, under a single permit and combine with one or more of the city's existing or future permits. Somehow, this needs to be rewritten to eliminate any possibility of this happening.

Response: This provision allows a political subdivision to place both community sewer treatment facilities and, with proper jurisdiction, on-site wastewater treatment facilities, under a single individual permit. The Department could not force, nor would a permittee considering accepting, an individual permit for facilities it has no jurisdiction over. This intent of this provision is to allow political subdivisions with a master plan encompassing sewage treatment facilities, sewer collection systems and on-site wastewater treatment systems to better manage these facilities under a single Aquifer Protection Permit. No change has been made to the rule.

R18-9-108. Public Notice.

Comment 5 - 17: These types of public notifications should also apply to General permits. Currently, the Department delegation agreements require reports on on-site wastewater treatment permits from Counties but the Department has failed to enforce or publish this public information. Why has the Department only established these public information requirements for individual permit only?

Response: The rule establishes the technical standards that must be achieved for any facility covered under a general permit. The rulemaking is the opportunity for the public to comment on the technical standards. Once these technical standards have been established, they will be applied in the general permit where a facility can demonstrate that the standards are met. If a particular type of facility cannot demonstrate that they meet the specific technical requirements of a general permit, the facility will require an individual permit before discharge, which will include opportunity for public comment. The Department proposed these general permits to expedite the permitting process while still maintaining protection of the environment and public health through the technical standards. No change has been made to the rule.

Comment 5 - 34: The provisions outlined in R18-9-224 should be included to require the Department and the Counties to publish their permitting activities for public notice. Why has the Department failed to gather reports from counties as outlined in their delegation agreements? The number and types of on-site systems have been issued by the Department and the Counties should be supplied? This information is needed to determine the costs impacts of the rules.

Comment 28 - 17: Eliminate the proposed language. Replace with language that requires opportunity for public comment and public hearing as needed.

Response: The Department disagrees with the need to provide public comment and/or public hearings for general permits. The rule establishes the technical standards that must be achieved for any facility that will be covered under a general permit. This rulemaking is the opportunity for the public to comment on the technical standards. Once these have been established, they will be applied in the general permit whenever a facility can demonstrate that the standards are met. If a particular type of facility cannot demonstrate that they meet the specific technical requirements of a general permit, the facility will require an individual permit before discharge, which will include opportunity for public comment. The Department has proposed these general permits to expedite the permitting process while still maintaining protection of the environment and public health through the technical standards. Discussion of the economic impact of the rule can be found in the Economic Impact Statement. No change has been made to the rule.

R18-9-110. Inspections, Violations, and Enforcement.

Comment 5 - 4: This rule conflicts with other provisions in the rule package requiring an Engineer to inspect and provide an Engineers' Certificate of Completion. Any Department inspection should be performed by professional engineers. What are unsatisfactory conditions? Are they permit violations? The Department should only inspect for permit compliance and not subject matter outside their jurisdiction.

Response: The Department disagrees that this rule violates other provisions of the rule. Inspections can be made by the Department for many purposes and by different processes. Ultimately, however, Department inspections are for the purpose of ascertaining compliance with Department statutes and rules. The Department has not proposed any inspections regarding statutes and rules outside its jurisdiction. Therefore, no change has been made to the rule.

Comments 22 - 11 and 25 - 7: Modify proposed R18-9-109(A) to simply refer to or incorporate the inspection authority (and attending limitations) in A.R.S. § 41-1009, i.e. "inspections of permitted facilities shall be made pursuant to A.R.S. § 41-1009." What is meant by an the Department "designated representative" as used in the first sentence in proposed R18-9-109(A)? The language relating to the identification of "unsatisfactory conditions" and the use of designated representatives is arguably inconsistent with the Department's inspection authority in A.R.S. § 41-1009 and should therefore be deleted. If the Department is simply intending to preserve the rights of counties with delegated programs to conduct inspections under those programs if the delegation agreement so allows, then this language should be revised to more precisely articulate that concept.

The language in this subsection should be replaced by language that merely incorporates by reference the inspection authority (and attending limitations) in A.R.S. § 41-1009. The language relating to the identification of "unsatisfactory conditions" and the use of designated representatives is arguably inconsistent with the Department's inspection authority in A.R.S. § 41-1009 and should therefore be deleted.

Response: The Department agrees that the requirements of A.R.S. § 41-1009 should be referenced in this section of the rule. R18-9-109(A) has been renumbered to R18-9-110 and revised as follows:

R18-9-110. Inspections, Violations, and Enforcement

A. The Department shall conduct any inspection of a permitted facility as specified under A.R.S. § 41-1009.

B. Except as provided in R18-9-A308, a person who owns or operates a facility contrary to a provision of Articles 1, 2, and 3 of this Chapter, violates a condition of an Aquifer Protection Permit, or violates a Groundwater Quality Protection Permit continued by R18-9-105(A)(1) is subject to the enforcement actions established under A.R.S. Title 49, Chapter 2, Article 4.

ARTICLE 2. AQUIFER PROTECTION PERMITS - INDIVIDUAL PERMITS

PART A. INDIVIDUAL PERMIT REQUIREMENTS

R18-9-A201. Application.

Comment 23 - 5: It would be helpful if the following language or something like it could be added to the end of the subsection**:** "The Department and the permit applicant may agree upon a non-binding schedule for permit processing."

Response: The Department agrees that there is mutual benefit to developing workplans and schedules with the applicant for permit processing. However, we do not think this should be a rule provision. No change has been made to the rule.

Comment 5 - 7: These provisions require the Department compliance with Licensing time-frame rules and should specifically be clarified to apply to ALL permits issued by the Department. Otherwise, the rules will conflict with A.R.S. § 41-1074 and A.R.S. § 41-1075. This conflict should be eliminated.

Response: There is no need for a statement that licensing time-frames apply to all Department permits because these rules apply to the Aquifer Protection Permit Program only. Additionally, the rules at 18 A.A.C. 1 provide the means for licensing time-frames to apply department-wide. No change has been made to the rule.

Comment 11 - 4: It is unclear what the standard "....its earliest opportunity..." means and how the timing of providing a draft permit to the applicant will relate to the publishing of a notice of a preliminary decision on the application. We recommend providing a draft permit to the applicant several days before publication to permit time for applicant feedback.

Response: The Department agrees that it is beneficial for the applicant to have an opportunity to review the draft permit before the formal publication. Subsection (C) has been revised as follows:

Draft permit. The Department shall provide the applicant with a draft of the individual permit on or immediately before publication of the Notice of Preliminary Decision specified in R18-9-109.

Comments 23 - 6 and 11 - 5: It would be extremely helpful if all of the public participation requirements for issuance of individual APPs could be found in one place, indeed, most of [Subsection (F) is rendered unnecessary if it is integrated into R18-9-224 and R18-9-225.

The factors that will be evaluated by the Department in determining whether to conduct a public hearing should be set forth.

Response: The Department agrees that reorganization of the rule will be helpful and made those changes during the reorganization and editing of the final rulemaking. The various public notice and participation, as well as public hearing requirements appear in the final rule at R18-9-107 and R18-9-108, respectively.

Comment 5 - 8: This section should be included in Articles 3 and 4 since they are guaranteed civil rights provided by A.R.S. 41 -1001.01 Regulatory Bill of Rights. All permits issued by the Department must carry these rights with them.

Response: The Department agrees that the right to appeal applies to all agency final decisions on permit actions. A similar provision appears in the section on general permits. The rule has been revised to make the rule provisions consistent.

Comment 11 - 6: Please indicate what type of "evidence" of compliance is contemplated. It might be administratively easier to require the applicant to certify that it is in compliance, notify the city of the applicant within its jurisdiction, and let the city object if the applicant is not in compliance.

Response: The Department believes that it is the applicant's responsibility to demonstrate compliance with zoning requirements. In the past, the Department has accepted different forms of evidence such as a letter from the city or county, or a letter from the applicant that includes a city or county zoning map with a legend that provides sufficient detail to confirm the zoning designation. No change has been made to the rule.

Comment 5 - 11: This rule is unclear since it does not provide a defined permit life. What is the duration of the current Aquifer Protection Permit permits specified in rule? Each time a permit expires, a new application process and fees will be required. What are the cost impacts for permit renewals if the duration was 5 years, 10 years, 20 years, or for the life of the facility? What is the benefit of having shorter permit periods when the facility is in compliance with permit conditions? What are the impacts to small businesses such as RV Parks, that have a flow over 3000 gpd that need an individual permit?

Comment 11 - 19: Delete the provision that a permit is issued "... for a specified term not to exceed the life of the facility."

Response: This provision applies to individual permits. The Department has always issued individual permits for the life of the facility, which includes closure and post closure periods. This rulemaking does not change that practice but the language implies that there will be a change. Subsection (D) has been revised as follows:

D. Permit Duration. Except for a temporary permit, an individual permit is valid for the operational life of the facility and any period during which the facility is subject to a post-closure plan under R18-9-A209(C).

"Operational life" has been defined in R18-9-101 as meaning:

> *"Operational life" means the designed or planned useful period during which a facility remains operational while continuing to be subject to permit conditions, including closure requirements. Operational life does not include post closure activities.*

R18-9-A202. Technical Requirements.

Comment 11 - 7: The special definition of "known" should be removed from this section. By implication this could be deemed to mean that the term "known" used elsewhere in the Department rule requires actual knowledge.

Response: The definition for "known" has been removed from this rulemaking. This term is found in most, or all, dictionaries and does not require further definition in this rulemaking.

Comment 35 - 3: Clarify what the applicable point of compliance is. Facilities should not cause or contribute to a violation of an aquifer quality standard anywhere in the aquifer. Adherence to this requirement should not be limited to some arbitrary "point of compliance."

Response: The point of compliance is defined in statute at A.R.S. § 49-244 as the point in the aquifer at which compliance with aquifer water quality standards is measured. Each Aquifer Protection Permit establishes a point or points of compliance based on the criteria in A.R.S. § 49-244. No change has been made to the rule.

Comment 14 - 5: "When formal as-built submittals are not available" Why? What Conditions? As-built drawings should be required in all cases. They could go out and survey if need be.

Comment 38 - 1: The reference to a facility design document should be a preliminary design report which identifies the major elements affecting discharge. Please clarify that this does not mean design drawings.

Response: The design document must provide sufficient detail for the Department to make a determination that the rule satisfies the requirements of R18-9-A202 and can be permitted. There may be instances when design drawings are required (see Article 2, Part B). No change has been made to the rule.

Comment 11 - 8: It would be more clear to start the section with**:** "Unless BADCT for a particular facility is covered by Article 3..."

Response: The Department agrees that this subsection should be clarified. However, it's only when a sewage treatment facility meets the BADCT requirements in Article 2, Part B, that the information in subsection (5) is considered to have been met. Therefore, adding this exception at the beginning of this subsection is not correct. A following new subsection (B)(5)(e) has been added to the list as an exception:

The above requirements do not apply if the Department verifies that a sewage treatment facility meets the BADCT requirements under Article 2, Part B of this Chapter.

Comment 14 - 6: Substantial justification for expected performance should be provided for any BADCT not already commonly used in small scale on-site systems.

Response: The BADCT demonstration required by this rule is for individual permits. An on-site system is covered under one of the general permits under Article 3. Each general permit specifies the technical standards necessary to demonstrate that the proposed discharge (on-site system) will meet the required performance standards of the Aquifer Protection Permit program. No change has been made to the rule.

Comment 35 - 1: Revise to read as follows**:** "If an Aquifer Water Quality Standard for a pollutant has been exceeded in an aquifer at the time of permit issuance, that**:** 1) no additional degradation of the aquifer, relative to that pollutant . . . will occur as a result of the discharge from the proposed facility; and 2) the facility will not cause or contribute to a violation of any other Aquifer Water Quality Standards."

Response: The Department believes that the rule language is consistent with the intent of this comment. R18-9-A202(B)(6)(a) requires that the facility will not cause or contribute to a violation of an Aquifer Water Quality Standard. R18-9-A202(B)(6)(b) allows the agency to recognize there may be historic impacts to water quality, but clarifies that future discharges shall not further degrade the aquifer water quality. No change has been made to the rule.

Comment 11 - 9: Please specify the conditions for which a hydrogeologic study may be limited and/or eliminated. We generally believe such studies should not be required for the discharge of "A+" reclaimed water absent verifiable site specific concerns. It is unclear when a prior study can be used or whether there is any requirement that a prior study must be somewhat current. Subsection 203(6) seems to simply duplicate subsections 203(9)(a) and (b). It is unclear what the Department anticipates in the what of a "demonstration" other than a hydro geologic test.

Response: Because there is such diversity in the types of discharging facilities that apply for an Aquifer Protection Permit, the Department needs to maintain the flexibility to eliminate, limit, or require a more detailed hydrogeologic study based on site-specific circumstances. Therefore, the Department does not think it is appropriate to include a rule provision to eliminate the hydrogeologic study in all cases when the discharge will meet Aquifer Water Quality Standards.

The reference to A+ reclaimed water cannot be included at this time. The Department is currently proposing a rulemaking to adopt standards for the treatment of wastewater that includes a class termed A+, however, that rulemaking has not been finalized. In addition, the Reclaimed Water Quality Standards will only apply to treatment of wastewater and will not affect other types of discharges that may be required to obtain an individual permit under this rule.

Although it makes sense to allow submittal of a prior hydrogeologic study instead of requiring a new study be performed, the Department recognizes that changes in hydrogeologic conditions may occur over relatively short periods of time and the need for a current analysis of existing conditions is desirable. Therefore, R18-9-A202(B)(8) has been revised as follows:

*A hydrogeologic study that defines. . . Information from a previous study of the affected area may be included to meet a requirement of the hydrogeologic study, if the previous study accurately represents current hydrogeologic conditions. The hydro*geologic study shall demonstrate: . . .

Comment 22 - 12: Support the language allowing the Department to require an abbreviated hydrogeologic study, or none whatsoever, if conditions so warrant (including if the study would result in duplication of already known information). To account for flexibility if a hydrologic sink is present, add a reference to the new language (e.g., by adding "including whether all or part of the facility being permitted is located within a hydrologic sink as defined in A.R.S. § 49-243(G)(1)," after "methods of disposal and site conditions"). At the very least, the Department should explain in the preamble to the final Aquifer Protection Permit rules that the fact that all or part of a facility is located within a hydrologic sink should be considered in determining whether to allow for no hydrogeologic study or an abbreviated hydrogeologic study. Also, remove the requirement to assess the discharge impact area after closure for facilities that submit closure strategies rather than closure plans with the application. An alternative would be to require an analysis at closure

Response: The Department assumes that this comment implies that a hydrologic sink has already been demonstrated to exist at the facility being permitted and, therefore, the comment relates to existing facilities that are applying for an Aquifer Protection Permit. This section of the rule also applies to new facilities and the technical information that is required at the time of application for a permit. In either case, the applicant would need to demonstrate to the Department's satisfaction that a hydrologic sink will be created or does, in fact, exist. The Department believes that the rule language provides flexibility and is adequate to address all the concerns expressed in this comment. No change has been made to the rule.

Comment 44 - 7: If a standard is not exceeded there should be some limitation on how much any one individual can push the stream toward exceeding a limit. Some elementary WLA approach could be implemented?

Comment 11 - 10: It should be clarified as to whether items (b)(i) through (b)(xiii) would be requested only when an aquifer water quality standard has been exceeded in the aquifer. Also, shouldn't this section refer to an exceedance "prior to permit issuance," rather than "at the time of permit issuance?" Further the "shall" should be a "may" given the overall context of this section.

Comment 35 - 1: Revise to read as follows**:** "[i]f an Aquifer Water Quality Standard for a pollutant has been exceeded in an aquifer at the time of permit issuance, that**:** 1) no additional degradation of the aquifer, relative to that pollutant . . . will occur as a result of the discharge from the proposed facility; and 2) the facility will not cause or contribute to a violation of any other Aquifer Water Quality Standards."

Response: The rule has been revised to make it clear that the listed components of a hydrogeologic study may be required regardless of whether or not an Aquifer Water Quality Standard has been exceeded in the aquifer. A.R.S. § 49-243(B)(3) uses the term "at the time of permit issuance" so it is appropriate to use the same term in rule. The determination of a violation or potential violation of Aquifer Water Quality Standard must be made at a point of compliance.

Comment 23 - 7: Asking for a report on "any known soil contamination in the vicinity of the facility," whether it is of a kind that could impact groundwater or is even on the permit applicant's property, is somewhat overreaching. This language should be modified to at least be limited to soil contamination that constitutes a discharge and that is at the site.

Response: The Department has revised the rule to make it clear that the information on soil contamination is related to the site where the facility is located. Subsection (B)(8)(c)(vii) has been revised as follows:

Documentation of the extent and degree of any known soil contamination at the site;

Comment 5 - 10: This rule [Technical Capability] does not meet the definition of clear, concise and understandable. What criteria will the Department use to determine the technical capabilities of an applicant? This rule needs to be specific. If a certified operator is required then the permit should specify this existing rule requirement. What are the cost impacts to the applicant to meet this rule? How can an impact be determined if no requirements are defined.

Response: The technical capability requirements proposed in R18-9-203(7) has been reorganized in subsection (C) of this Section. Technical capability requirements are not new and are currently cited under R18-9-108(B)(7) and authorized under A.R.S. § 49-243(N). If a certified operator is required under the environmental reviews and certification Article (18 A.A.C. 5), the permit will specify this requirement. No change has been made to the rule.

R18-9-A203. Financial Requirements.

Comment 22 - 15: Revise the language of subsection (A)(1)(c) as follows**:** "The cost of closure of described in [R18-9-A209(C)] CONSISTENT WITH THE CLOSURE PLAN OR STRATEGY SUBMITTED UNDER [R18-9-A202(B)(9)]." "Make the same reference to subsection (A)(1)(d)."

Response: The Department agrees with the suggested revision. The changes have been made.

Comment11 - 11: Very seldom would one have competitive bids to determine closure costs at the time of the permit application. It is also unclear how the "regional fair market costs" component will be implemented.

Subsection (A)(2) should be deleted on the grounds that it creates too difficult of a requirement to meet for providing cost estimates. In many instances associate facilities or activities will perform construction and other related activities internally and will not hire outside assistance. Because of this, there may not be competitive bids, specifications, or take-offs from which to provide cost estimates and the applicant would be unable to comply with this particular provision and requirement.

Change the following to subsection (A)(2): "The cost estimates FOR FACILITY CONSTRUCTION AND OPERATION AND MAINTENANCE shall be derived from competitive bids, take-offs, or specifications, IF AVAILABLE, prepared by an engineer, contractor or accountant [and]. ALL COST ESTIMATES SHALL BE representative or regional fair market costs." The commenter also suggested that the introductory language should require cost estimates only for discharging facilities or facilities to be covered by the permit.

Response: Subsection (A)(2) lists competitive bids as only one of three methods used to determine the cost estimate. It was never intended for everyone to use that method. An applicant may choose whatever means necessary to obtain the cost estimate. The cost estimate submitted, however, must be representative of the cost conditions for the location of the facility. Thus the term "regional fair market costs."

Subsection (A) specifies that the financial capability information requested by this Section is predicated on the fact that the individual permit must comply with A.R.S. Title 49, Chapter 2, Article 3; and Articles 1 and 2 of this Chapter. This presumes that no other "discharging" facilities are covered by the permit. The Department disagrees that clarification should be made in the introductory language requiring "cost estimates only for discharging facilities or facilities to be covered by the permit." Aquifer Protection Permits have one purpose and one purpose only – to authorize a facility to discharge. No change has been made on this issue. The Department does agree, however, with the proposed revisions to subsections (A)(1) and (A)(2) and appropriate changes have been made.

Comment 22 - 14: Clarify in the rule or preamble that for existing facilities, the estimated cost of facility construction refers to future activities, not past construction costs and should be clarified in the rule or preamble.

Response: The Department agrees with the commenter that facility construction refers to future activities, not past construction costs. Subsection (A)(1)(a) has been changed to "[t]otal cost of new facility construction."

Comment 22 - 17: Revise the first sentence in subsection (B) as follows**:** "IN LIEU OF SUBMITTING EVIDENCE OF A FINANCIAL ASSURANCE MECHANISM PURSUANT TO SUBSECTION (D), the applicant's . . ."

Response: The Department believes that the extensive revision made to this Section as part of the overall rulemaking corrects this concern. Subsection (A) still requires that the applicant's chief financial officer must provide the specific financial demonstration information. However, subsection (D) provides the applicant with a financial option that contains the financial assurance mechanisms. An applicant must always read an entire Section to find which requirements apply. No change has been made.

Comment 22 - 19: Revise subsection (B)(1) as follows**:** "The statement shall specify in detail THE alternate financial arrangements for meeting the estimated closure and post-closure costs, according to the plans OR STRATEGIES submitted under R18-9-A202(10) and assure that the applicant shall make financial resources available to the Department anytime during the permit duration, if necessary to conduct closure or post-closure care."

The Department should delete the language in subsection (B)(1) that requires that the chief financial officer statement identify alternate financial arrangements for meeting the closure and post-closure obligations. The Department also should delete the language that requires the permittee to make financial resources available to the Department throughout the life of the permit to conduct closure of post-closure activities. The Department should not have the unfettered authority to appropriate financial assurance funds if it somehow believes that it is appropriate.

Response: The term "alternate" in this subsection is confusing because it seems to point to the financial demonstration option offered in subsection (D). This is not what was intended. The chief financial officer need only detail how financial demonstration will be achieved during the permit duration. The term "alternate" has been deleted with the requirement to make financial resources available to the Department. Subsection (B)(1) has been revised as follows:

> *The statement shall specify in detail the financial arrangements for meeting the estimated closure and post-closure costs, according to the plans or strategies submitted under R18-9-A202(B)(9).*

Comment 22 - 20: Revise subsection (B)(2)(a) as follows: "If a publicly traded corporation, the latest fiscal year-end copy of the applicant's 10K Form or 20F Form filed under section 13 or 15(d) of the Federal Securities and Exchange Act of 1934 (c.404, title 1; 48, Stat 894-95; 15 U.S.C. 78m and 78o, as amended),

Response: The Department agrees with the suggested revision. The change has been made

Comment 11 - 12: The way subsection (C) is worded, it appears that the Department has the discretion (not mandatory) to determine financial incapability to meet closure requirements if the specified conditions exist and no discretion to make such a determination if these conditions do not exist. Is this what is intended?

Another commenter suggest that the sentence be revised as follows**:** "The Department may consider an applicant unable to demonstrate the financial capability necessary to fully carry out the terms of the permit, AS DESCRIBED IN SUBSECTION (B), AND MAY REQUIRE THE APPLICANT TO SUBMIT A FINANCIAL ASSURANCE MECHANISM PURSUANT TO SUBSECTION (D) if any one of the following conditions exists:"

Response: The department's intent is to facilitate and clarify the qualification for self financial determination. If an applicant meets the conditions and the Department concurs, then the applicant should not need to demonstrate further financial assurances.

The Department agrees with the suggested revision. The change has been made.

Comment 23 - 2: The reference to a 20(f) Form should be included in subsection (C)(1)(a).

Response: The Department agrees. The change has been made.

Comment 11 - 13: It should be made clear that a guarantor must meet the conditions outlined in subsection (C) to demonstrate financial assurance.

A "guarantee" should only be considered sufficient to meet the requirements of subsection (B) if the guarantor is demonstrated to be financially capable. Moreover, the commenter seriously questions the wisdom of including a guarantee in subsection (D) since, unlike the other items listed, it can be discharged in bankruptcy, thus leaving the state with no financial recourse.

Response: Guarantees are acceptable in other environmental programs and in guidance provided in the Code of Federal Regulations. A.R.S. § 4-761(F) requires that the Department adopt rules relating to financial assurance requirements. "The rules shall indicate the types of financial assurance mechanisms required."

Subsection (D) contains a list of financial assurance mechanisms that an applicant may use to determine financial capability. The proposed list, which is determined by A.R.S. § 49-761(J), was not complete and the additional financial assurance mechanisms listed under this citation have been added.

The Department agrees that a guarantor must also meet the financial demonstration. Subsection (D)(1) adds this requirement.

Comment 22 - 18: The first two sentences should be revised as follows: "In place of the financial demonstration described in subsection (B) an applicant may submit evidence of one OR MORE of the following financial assurance mechanisms, sufficient to cover the costs DESCRIBED IN SUBSECTION (A) of meeting the terms and conditions of the Aquifer Protection Permit."

Response: The Department understands that an applicant may not always be able to meet the criteria established under subsection (B). And, in an attempt to meet the financial demonstration criteria, they may fall short for all the reasons listed in subsection (C). Subsection (D) offers an applicant an alternative method of providing financial assurance. Whether the applicant gets to this alternative method by not qualifying for the financial demonstration of subsection(B), or through bypassing that method altogether and deciding to submit a financial mechanisms listed in subsection (C) is entirely up to the applicant.

The Department agrees with the suggested revision. The change has been made. However, because of the extensive editing of the entire rule package, the final wording is slightly different than suggested. Subsection (D)(1) has been revised as follows:

> *Instead of the financial demonstration required in subsection (B), an applicant may submit evidence of one or more of the following financial assurance mechanisms, listed in A.R.S. § 49-761(J), sufficient to cover the costs described in subsection (A). The applicant shall provide written documentation demonstrating compliance with the listed requirements for each financial assurance mechanism.*

Comment 28 - 5: A commenter suggested that the phrase "additional financial assurance mechanism that may be acceptable to the Department" specified in subsection (D)(1)(h) was vague and should be deleted.

Response: A.R.S. § 49-761(F) specifically states that an applicant may provide an additional financial assurance mechanism if approved by the Department. No change has been made.

Comment 5 - 9: This rule [financial capability] permits the Department to use funds from financial assurance mechanisms. What statutory authority permits the Department to require these types of funds and the authority to use these funds? What are the expected costs to the public for implementing this provision?

Comment 23 - 10: The Department probably lacks the authority to require a "financial assurance mechanism" for any purpose, but surely lacks the authority to require such a mechanism to cover all ongoing Aquifer Protection Permit compliance costs. Also, this entire section should be moved to follow R18-9-204 to consolidate all of the financial capability requirements in one place.

Comment 25- 12: The second sentence purports to give the Department the broad authority to use funds provided by a financial assurance mechanism to carry out the terms and conditions of the individual APP. As discussed above, it is inappropriate for the Department to have unfettered access to financial assurance funds. This sentence should be removed from the formal rules.

Comment 11 - 18: Subsections 214(B) and 215(B) are unclear. What permit conditions would be fashioned based on financial or technical capability? Please note that applicants that meet the requirements of proposed subsection 201(C) are deemed to have the requisite financial capability. Presumably someone would either meet the financial and technical requirements set forth in rule (and be issued a permit) or fail to meet these standards (and be denied a permit). It should be clarified that the last sentence in subsection 214(E) refers to state or federal financial capability demonstrations for that particular facility and that are no less stringent than those set forth in these rules.

Comment 22 - 23: This language should be deleted or acceptable limitations should be placed on the ability of the Department to use the funds.

Response: The provision for Department use of financial assurance mechanism funds has been removed from this rulemaking. The information contained in the proposed R18-9-214, Financial Capability has been transferred to this Section.

The Department uses its overall statutory authority under A.R.S. § 49-242, for an individual permit, and A.R.S. § 49-245, for a general permit, to request these financial assurance mechanisms. However, this list was derived from A.R.S. § 49-761(j), under the solid waste program. Remember, this list provides the applicant with an alternative to the financial demonstration specified under subsection (B). Whether an applicant uses one or more of these financial assurance mechanisms is entirely up to the applicant. This rulemaking is not requiring financial assurance mechanism use.

Comment 22 - 24: For clarification purposes, the phrase "pursuant to R18-9-204(B)" should be added to the end of the first sentence.

Response: The addition of this or similar language adds to the clarity of the requirements for the financial capability demonstration. Subsection (D)(3) has been revised as follows:

> *A permittee shall hold the financial assurance mechanism for the duration of the permit or until the permittee is able to demonstrate the financial capability under subsection (B) necessary to carry out the terms of the Aquifer Protection Permit.*

Comment: Amend as follows: "If, subsequent to issuing an Aquifer Protection Permit, the Department determines PURSUANT TO R18-9-204(C) that a permittee is not able to maintain the financial capability necessary to fully carry out the terms and conditions of the permit, AS DESCRIBED IN R18-9-204(B), the Department MAY require the permittee to provide evidence of a financial assurance mechanism described in R18-9-204(D)."

Response: The Department believes that the extensive revision of proposed R18-9-204 and R18-9-214 done as a result of overall editing for clear, concise, and understandable, and through public comments clarifies the procedure to provide financial demonstration, including the financial assurance mechanism option.

Comment 22 - 26: Supports the provision to exempt from financial capability requirements (in whole or in part) persons who can demonstrate that such a showing is duplicative or inconsistent with previous financial capability demonstrations made to the state or federal government.

Response: The Department appreciates the comment.

R18-9-A204. Contingency Plan.

Comment 11 - 16: Instead of requiring that the applicant "devise a specific corrective action in a contingency plan for a prospective issue particularly where the corrective action must be approved by the Department," the applicant should be required to "prevent imminent damage to the environment and submit a proposed corrective action plan to the Department" within some specified time-frame to address actual issues. The Department should develop guidance as to when the items that "may" be required will be required to promote consistency. How would a contingency plan prepared in accordance with the Federal acts identified in subsection 211(E) have to be "amended" to satisfy this section and why should meeting the Federal requirements not also suffice here?

Comment 22 - 28: Reword to begin as follows**:** "Any contingency plan required by an individual aquifer protection permit shall specify..."

Comment 22 - 31: Clarify in the preamble to the final rules that the types of actions specified in proposed R18-9-211(B) are implemented solely through contingency plans negotiated with individual Aquifer Protection Permit applicants. In other words, the actions are not intended to be applicable in every instance to any discharge described in proposed R18-9-211(A). Rather, the actions are only applicable if they are required as part of the agreed-upon contingency plan.

Comment 25 - 16: The Department should clarify in the final rule preamble that the actions listed in proposed R18-9-211.B are only suggestions of alternative actions that may be included as part of contingency plans negotiated between the applicant and the Department. The Department should remove the references to compliance with soil remediation levels or surface water quality standards from proposed R18-9-211(B)(7)(b) and (c).

Comment 28 - 7: A contingency plan should be required.

Comment 23 - 8: Cross reference the soil clean-up rule.

Comment 22 - 32: Revised subparagraph (b) to remove the phrase "to comply with soil remediation levels;" subparagraph (c) to remove the phrase "to comply with surface water quality standards'; and subparagraph (d) to remove the phrase "to comply with aquifer water quality standards." If these sections are not deleted, subparagraph (b) should be revised to refer to compliance with the soil remediation "standards." In addition, the reference to compliance with aquifer water quality standards in subparagraph (d) is inappropriate because of the language in A.R.S. § 49-243(B)(3) that provides an alternative to the aquifer water quality standards for pollutants that exceed the standards at the time of permit issuance.

Response: The Department has determined that is necessary to require submittal of a contingency plan as part of the application for an individual permit. The language of the rule is provided to assist the applicant in identifying the types of actions that should be considered in the development of the contingency plan. Any individual contingency plan may require some or all of the actions depending on the type of facility being permitted. Subsection (B)(7) has been revised to delete the statements that required compliance with specific standards to make it consistent with statutes and other rules.

R18-9-A205. Alert Levels and Discharge Limitations.

Comment 11 - 20: The conditions under which the Department "may prescribe" measurements should be further specified. R18-9-206(D) is unneeded and already specifically covered in subsections 210 and 211.

Comment 25 - 13: Based on the language in A.R.S. § 49-243.K and the clear legislative intent behind the language, the Department should change proposed R18-9-206 to provide that an individual permit may prescribe alert levels instead of stating that the Department shall prescribe alert levels. The establishment of alert levels simply may not be necessary in every instance.

Comment 22 - 27: Reword to begin as follows**:** "Any alert levels established in an individual aquifer protection permit shall be..." (this tracks the introductory language in R18-9-212).

Comment 22 - 29: Add "in accordance with A.R.S. § 49-223(G)."

Response: The Department believes that alert levels are a fundamental aspect of the preventive nature of Aquifer Protection Permits. R18-9-A205 has been revised as follows:

A. Alert levels.

1. The Department shall establish alert levels in an individual permit. The alert levels shall be based on the site-specific conditions described by the applicant in the application submitted under R18-9-A201(A)(2) or other information available to the Department.

2. The Department may specify an alert level based on a pollutant that indicates the potential appearance of another pollutant.

3. The Department may specify the measurement of an alert level at a location appropriate for the discharge activity, considering the physical, chemical, and biological characteristics of the discharge, the particular treatment process, and the site-specific conditions.

R18-9-A206. Monitoring Requirements.

Comment 11 - 15: Why is the "otherwise known by the Department" provision included in subsection 206(A) and not in subsection 207(A)? Further, an individual permit would presumably always have discharge limitations and the "may" should be a "shall" (if there are no DL's the permit should be a general permit or no permit should be required). Similarly the "may" should be a "shall" in subsection 208(A). Subsection 207(B) is unneeded for the same reasons referenced for subsection 206(D).

Response: The definition for "known" was removed from this rulemaking. This term is found in most, or all, dictionaries. However, the Department expects that the applicant will make an effort to acquire information that is available but which may require some research on the part of the applicant. Also, see response to following comments. No change has been made to the rule.

Comment 35 - 6: Object to the change. Change is contrary to First Amended Consent Decree entered by the court Gregory v. Shafer, (Maricopa County Superior Court, Case No. CV93-01458)

Comment: Monitoring should not be discretionary. The language in the current rule that indicates that an individual Aquifer Protection Permit require monitoring should be restored. How can the Department assure that violations are not occurring if the department does not require monitoring? This proposed change in the rule also violates the First Amendment Consent Decree Gregory V. Schafer. We ask that the Department restore the language in the current rule relating to monitoring.

Response: The Department disagrees that the rule is contrary to Gregory v. Schafer. The statute at A.R.S. § 49-243(K) states that the Director "shall consider and may prescribe" permit conditions for a list of activities including monitoring and reporting requirements. The Department's review of the permit application provides an opportunity for the Department to consider the necessity of monitoring and reporting requirements. The rule states that the Department "may" require which we believe is consistent with the statutory requirements. In practice, the Department has required monitoring and reporting in individual permits because they are necessary to ensure compliance with the permit's terms and conditions. No change has been made to the rule.

Comment 22 - 30: Revise proposed R18-9-208(A) as follows**:** "An individual Aquifer Protection Permit may require that the permittee conduct any monitoring activity necessary to assure compliance with Aquifer Protection Permit conditions, with the applicable AQUIFER water quality standards established following A.R.S. §§ 49-221 and 49-223, with A.R.S. §§ 49-241 through 49-244, and 49-250 through 49-252." (Will then be consistent with language in R18-9-410(B).)

Comment 25 - 14: This language could be interpreted to give the Department the authority to require monitoring to ensure compliance for surface water quality standards (in addition to the narrative aquifer water quality standard that prohibits discharges from causing or contributing to a violation of a water quality standard established for a navigable water of the state (see A.A.C. R18-11-405)). Accordingly, because the proposed language is beyond the Department's statutory authority under the Aquifer Protection Permit program, this language should be modified as follows**:** "the applicable aquifer water quality standards established pursuant to A.R.S. § 49-221 and 49-223." This proposed change would be consistent with the language in the general permit modification section (see proposed R18-9-410(B)) which includes the term "aquifer" to modify the phrase "water quality standards." In prior versions of proposed Aquifer Protection Permit rule revisions, proposed R18-9-410(B) referred only to "water quality standards."

Response: The Department has made the requested change to the rule.

Comment 25 - 15: Should be modified to clarify that the monitoring recordkeeping requirements apply only to analytical samples taken pursuant to an individual permit and not to other types of measurements, such as flow volume. If the Department wants to maintain recordkeeping requirements for other types of measurements, it should address such requirements in a separate section that contains information relevant to such measurements.

Response: The Department agrees that some of the requirements of this section in the proposed rule only apply to analytical samples. However, the Department wants to retain the requirement to collect similar information for those measurements that may not require laboratory analysis. Subsection (B) has been revised as follows:

B. Recordkeeping.

1. A permittee shall make a monitoring record for each sample taken as required by the individual permit consisting of all of the following:

a. The date, time, and exact place of a sampling and the name of each individual who performed the sampling;

b. The procedures used to collect the sample;

c. The date sample analysis was completed;

d. The name of each individual or laboratory performing the analysis;

e. The analytical techniques or methods used to perform the sampling and analysis;

f. The chain of custody records; and

g. Any field notes relating to the information described in subsections (B)(1)(a) through (B)(1)(f).

2. A permittee shall make a monitoring record for each measurement made as required by the individual permit consisting of all of the following:

a. The date, time, and exact place of the measurement and the name of each individual who performed the measurement;

b. The procedures used to make the measurement; and

c. Any field notes relating to the information described in subsections (B)(2)(a) and (B)(2)(b).

3. A permittee shall maintain monitoring records for at least 10 years after the date of the sample or measurement.

R18-9-A209. Temporary Cessation, Closure, Post-closure.

Comment 11 - 17: It is unclear as to how the closure plan referenced in subsection 213(C) (to be submitted within 90 days of notice of intent to cease operations) relates to the closure plan required at time of application (and that is used to determine closure costs for financial assurance purposes).

Response: At the time of application for an individual permit, an applicant can only estimate the type of closure activities required at a particular facility and the cost of those closure activities. Once a facility has been in operation and a decision is made to cease those operations, it should be clear what must be included in the closure plan to address the requirements of R18-9-A209(B) [proposed as R18-9-213(C)]. No change has been made to the rule.

Comment 23 - 9: The term "temporary" needs to be defined.

Response: The definition of temporary cessation has been removed from the final rulemaking because the term is used differently in two places. A facility that ceases to function for at least 60-days meets the criteria for temporary cessation. If a facility is not functioning after three-years -- the facility still has ceased to function. The maximum time limit specified in the proposed rulemaking did not add anything to the proposed definition. Subsection (A)(1) has been revised as follows:

The permittee shall notify the Department before a cessation of operations at the facility of at least 60 days.

R18-9-A210. Temporary Permit.

Comment 22 - 33: Supports retaining the temporary permit concept, however language should be revised to allow for larger, experimental projects.

Comment 35 - 7: Object to the revisions regarding temporary permits. The proposed rule expands the use of temporary permits from strictly emergency situations to include "pilot projects" and "temporary" facilities with a discharge that lasts no more than six months. We are not aware of any provision in the Water Quality Statutes that would authorize this expansion of temporary permits. Indeed, we believe that the issuance of a temporary permit for either a pilot project or a temporary facility under this provision would violate the basic requirements of A.R.S. 49-241 and 243. Clearly, this proposed rule would create a loophole neither authorized by nor consistent with the Water Quality Act

Comment 28 - 8: The temporary permit should only be used for emergency situations and not for pilot projects and other facilities.

Response: The Department disagrees with the statement that issuance of a temporary permit will violate the requirements of an Aquifer Protection Permit. Although this rule gives the Department added flexibility in the use of temporary permits, the Department will not grant permits without consideration of the potential impacts to groundwater quality. A temporary permit does not equate to no regulation of discharges. There is a temporary emergency waiver provision in statute at A.R.S. § 49-251 that the Department may use in the event of an emergency and which allows the Department to waive the requirement to get a permit - much broader authority than that provided by this rule. No change has been made to the rule. The Department believes it has the flexibility to evaluate a variety of projects for coverage under the temporary permit.

R18-9-A211. Permit Amendments.

Comment 11 - 20: The conditions under which the Department can unilaterally modify an issued permit should be limited to clearly defined circumstances identified in rule. This needs to be further emphasized in the rule with respect to amendments made on "...the Department's initiative." The provision at subsection 220(B)(3) relating to violations that "...could reasonably be expected to cause..." as reference to "could" "as a standard is simply too broad (see also language similar to the language that we have proposed at subsection 222(3)).

Comment 5 - 14: "Upon the Department's initiative" should be stricken from the rule since it is not defined and tries to grant the Department unlimited and uncontrolled power to amend a permit for whatever reasons it desires. Under what situations would the Department use this power? What are the benefits to this provision as compared to the public costs for a facility that is meeting its existing permit conditions?

Response: The Department believes that, in most cases, the permittee will initiate a permit amendment based on a change to the facility that they plan to build. However, there are instances when the Department may want to initiate a change to the permit because the Department has acquired some information that indicates a permit amendment is needed. Most of the conditions listed would be known to the permittee only. However, the condition stated in subsection (B)(3) will be a reason for the Department to initiate an amendment. Subsection (B)(3) has been revised. See response below.

Comment 25 - 17: Concerns with the types of items listed as triggering the requirement to go through a significant permit amendment with full public notice and public participation. For example, significant permit amendment is defined to include any increase of 10% or more in the permitted volume of pollutants discharged. This language could be applied to trigger a significant permit amendment based on an increase in production levels that have no real impact on the ability of the facility to discharge. The Department also is proposing to define significant increase in the concentration of pollutants discharged to include any increase that brings the level of a pollutant to within 80% or more of an aquifer water quality standard. This language is inconsistent with A.R.S. § 49-243(B)(3) which sets aquifer water quality limits for already degraded aquifers at a level that is less stringent than the aquifer water quality standards.

Comment 22 - 36: Delete this language.

Response: The rule specifies an "increase in the permitted volume of pollutants discharged." The Department believes this language could be revised to make it more clear. An increase in production levels that translates into an equivalent increase in the volume discharged would trigger the requirement to make a significant amendment to the permit, however, that is not expected to be the case very often. Subsection (B)(2)(d) has been revised as follows:

For any pollutant not addressed in a facility's individual permit, any increase that brings the level of the pollutant to within 80% or more of a numeric Aquifer Water Quality Standard at the point of compliance.

Comment 35 - 8: Object to the several provisions in this proposed rule allow for the increase in the discharge of a pollutant by a facility or the relaxation of discharge limitations contained in an Aquifer Protection Permit. (See e.g., R18-9-220 (B)(2)(a)(c)(d)(e), (B)(6), and (D)(6).) These provisions are contrary to the anti-backsliding doctrine (See 33 U.S.C. § 1342(o)) and contrary to the spirit and intent of the Water Quality Act.

Response: These provisions rule only identify the types of changes to a facility that would trigger amendments to a previously issued permit. The department does not have authority to stop a facility from expanding or changing its operations. This rule does, however, provide the means to adjust permit conditions in response to these changes. The discussion of an increase in a discharge is a way to identify how much re-evaluation of the permit conditions is required to adjust for increases in pollutant volumes or types. The rule provides the criteria for the changes that trigger the response. The more the facility changes, the more involved the process becomes, both from the Department's review and the public participation perspectives. No change has been made to the rule.

Comment 5 - 13: "Upon the Department's initiative" should be stricken from the rule since it is not defined and tries to grant the Department unlimited and uncontrolled power to amend a permit for what ever reason it desires. Under what situations would the Department use this power? What are the benefits to this provision as compared to the public costs for a facility that is meeting its existing permit conditions?

Response: The Department believes that in most cases, the permittee will initiate a permit amendment based on a change to the facility that they plan to make. However, there are instances when the Department may want to initiate a change to the permit because the Department has acquired some information that indicates a permit amendment is needed. Most of the conditions listed would be known to the permittee only. However, the condition specified in subsection (D)(4)(g) may be a reason for the Department to initiate an amendment. No change has been made to the rule.

Comment 39 - 2: These are fairly stringent requirements for amending the permit should the design flow increase by 6%. This could happen from one season to the next, or even during an abnormal peak day.

Response: The rule refers to an increase in the design flow, which is a defined term (see R18-9-101). An individual permit will be issued with the design flow as the discharge limit. Therefore, the rule identifies those increases to the permitted flow that would require a significant amendment to the permit. Subsection (B)(2)(b) has been revised to clarify the design flow and identify the limits for facilities with flows less than 500,000 gallons per day.

Permitted Design Flow	*% Increase in Design Flow*
500,000 gallons per day or less	*10%*

Comment 22 - 34: Clarify the intent behind this proposed language.

Response: Subsection (B)(1) states "Part or all of an existing facility becomes a new facility under A.R.S. § 49-201." A.R.S. § 49-201(22) defines when an existing facility, which is defined under A.R.S. § 49-201(16), becomes a new facility. The Department believes that a modification to an existing facility that results in this change of classification should trigger a significant amendment to the permit. No change has been made to the rule.

Comment 22 - 35: Revise as follows**:** "An increase of ~~10%~~ 25% or more in the ~~permitted volume of pollutants discharged~~ VOLUME OF DISCHARGE FROM A FACILITY AS ESTABLISHED IN THE PERMIT PROCESS, except for a sewage treatment facility. AT ITS DISCRETION, AND BASED ON THE PARTICULAR CIRCUMSTANCES OF THE FACILITY INVOLVED, THE DEPARTMENT MAY DETERMINE THAT AN INCREASE OF BETWEEN 10% AND 25% IN THE VOLUME OF DISCHARGE FROM A FACILITY AS ESTABLISHED IN THE PERMIT PROCESS QUALIFIES AS A SIGNIFICANT PERMIT AMENDMENT. ANY INCREASE OF BETWEEN 10% AND 25% IN THE VOLUME OF DISCHARGE THAT THE DEPARTMENT DETERMINES IS NOT A SIGNIFICANT PERMIT AMENDMENT SHALL BE TREATED AS AN OTHER PERMIT AMENDMENT PURSUANT TO SUBSECTION D OF THIS SECTION."

Response: The Department proposed these provisions to clarify what types of facility and discharge changes would warrant a significant amendment to a permit. The comment proposes a process that would be difficult to implement consistently. No change has been made to the rule.

Comment 22 - 37: Clarify that an increase in a § 49-243(I) pollutant will trigger a significant permit amendment only if the increase is measured at the POC (or at least somewhere in the aquifer). An increase at the surface that does not result in a discharge (or an increase in discharge) should not require a significant permit amendment.

Comment 23 - 11: Declaring that "any" increase in concentration requires a significant permit amendment is unrealistic.

Response: This provision is intended to require a significant permit amendment when the concentration of a pollutant listed in A.R.S. § 49-243(I) increases in a facility's discharge. Subsection (B)(2)(e) has been revised as follows:

An increase in the concentration in the discharge of a pollutant listed under A.R.S. § 49-243(I).

Comment 22 - 38: Either delete from the proposed rule or revised to include appropriate language from A.R.S. § 49-243(B)(3) that recognizes that APPs may be issued to facilities with aquifers that already violate aquifer water quality standards for one or more pollutants.

Response: The Department agrees that the proposed language is unclear and did not clearly acknowledge the possibility that an Aquifer Water Quality Standard may have been exceeded before the permit was issued. Subsection (B)(3) has been revised as follows:

Based upon available information, the facility can no longer demonstrate that its discharge will comply with A.R.S. § 49-243(B)(2) or (3).

Comment 22 - 39: The parameters to be utilized in determining when the Department might change the designation of a point of compliance (subsection 220(B)(5)) or closure requirement (subsection 220(B)(7)) should be set forth-particularly if an amendment could be initiated by the Department on either basis. Delete this provision.

Response: There are a number of reasons that the point of compliance may need to be changed for a permitted facility**:** the use of the aquifer has changed or will change from that anticipated at the time of permit issuance; the volume and characteristics of the pollutants discharged has changed or will change; there is a change in the understanding of the hydrogeology or geology; or the vadose zone does not act as anticipated at the time of permit issuance. These factors are the same factors established in A.R.S. § 49-244 that are considered when designating a point of compliance and provide the basis for making this determination. No change has been made to the rule.

Comment 35 - 9: Object to the provision which allows an amendment when "Material and substantial alteration or additions to a permitted facility justify a change in permit conditions (emphasis added). This "catch-all" provision sets forth no criteria or conditions which would "justify" an amendment, and appears to allow an amendment under virtually limitless circumstances.

Response: This provision of the rule only identifies a type of change to a facility that would trigger an amendment to a previously issued permit. The Department does not have authority to stop a facility from expanding or changing its operations. This rule does, however, provide the means to adjust permit conditions in response to these changes and the criteria that trigger the permit amendment. The more the facility changes, the more involved the process becomes both from the Department's review and the public participation perspectives. It should be noted that the permit must be amended before any additional discharge occurs. No change has been made to the rule.

Comment 40 - 1: How would this provision work in the real world? For example, there are literally thousands of organic chemicals, which may be present in the Phoenix sewer system. Does this rule require that a significant permit amendment occur for every organic chemical for which there is not a permit limit or monitoring requirement? This appears unreasonable. The language regarding "other" amendment needs to be clarified to address what "a pollutant with a chemical composition substantially similar to a pollutant the permit already allows" really means and how it would operate.

Response: The language is intended to require a significant permit amendment when a facility changes its operation in such a way that new pollutants will be present in the discharge. This assumes that these pollutants were not evaluated when the permit was issued. The provision gives the Department discretion to make an "other" amendment when a facility adds a pollutant of similar chemical characteristics to those originally evaluated in the permit. This recognizes that pollutants of similar chemical characteristics may be expected to act similarly in the environment and may have similar toxicological effects that can be considered when deciding the type of amendment is needed. No change has been made to the rule.

Comment 40 - 2: Provisions five and six should trigger a significant permit amendment unless minor permit amendments are appealable agency actions.

Response: The rule provides that the Department can make a minor permit amendment "with written concurrence of the permittee." The Department believes this provides sufficient protection for a permittee by assuring the permittee that the Department will not make these changes on its own initiative without the permittee's knowledge. No change has been made to the rule.

Comment 22 - 43: Add the following: "10. TO MODIFY AN INDIVIDUAL PERMIT TO REFLECT THAT CERTAIN FACILITIES COVERED IN THE PERMIT HAVE TRANSFERRED COVERAGE TO A GENERAL PERMIT (SO LONG AS THIS CHANGE DOES NOT RESULT IN A CHANGE IN THE APPLICABLE POINT OF COMPLIANCE, WHICH IS DEFINED AS A SIGNIFICANT AMENDMENT)."

Response: It is unclear what advantage there would be for an already permitted facility within a larger individual area-wide permit to transfer coverage under a general permit. However, this option should be available under the rule. The Department believes that once the facility qualifies for the general permit, deleting that facility from the list in the individual permit would be just an administrative change to the permit. No change has been made to the rule.

Comment 22 - 40: Add the following: "7. TO ALLOW FOR A CHANGE IN OWNER, OPERATOR, OR PERMITTEE WHEN THE DEPARTMENT DETERMINES THAT NO OTHER CHANGE IN THE PERMIT IS NECESSARY, PROVIDED THAT A WRITTEN AGREEMENT CONTAINING A SPECIFIC DATE FOR TRANSFER OF PERMIT RESPONSIBILITY, COVERAGE AND LIABILITY BETWEEN THE CURRENT AND NEW OWNERS, OPERATORS, OR PERMITTEE HAS BEEN SUBMITTED TO ADEQ."

Response: The Department disagrees that change in owner, operator, or permittee should be a minor permit amendment. The Department must evaluate the financial and technical capability of the new owner, operator, or permittee to determine that they are capable of carrying out the terms of the permit. No change has been made to the rule.

Comment 22 - 44: Revise as follows: "To insert calculated alert levels or other permit limits into a permit based on monitoring Subsequent to permit issuance, when the REQUIREMENT TO ESTABLISH SUCH LEVELS OR LIMITS was set forth in the original permit."

Response: The Department agrees that the rule needs to be clarified. Subsection (C)(6) has been revised as follows:

Insert calculated alert levels or other permit limits into a permit based on monitoring subsequent to permit issuance, if a requirement to establish the levels or limits and the method for calculation of the levels or limits was established in the original permit.

Comment 22 - 41: Add the following: "8. TO CORRECT MISTAKEN INTERPRETATIONS OF LAW MADE IN DETERMINING PERMIT CONDITIONS."

Response: The Department disagrees that the proposed language would fall within the category of a minor permit amendment. However, the type of change requested in the comment was envisioned when R18-9-220(D)(7) was proposed. Subsection (D)(2)(g), has been revised as follows:

An adjustment of the permit to conform to rule or statutory provisions.

Comment 22 -42: Add the following [Subsection (C)(9)]: "9. TO COMBINE TWO OR MORE PERMITS AT THE SAME SITE IN ACCORDANCE WITH R18-9-223."

Response: Although the ability to combine two or more permits was included in the proposed rule, no specific mechanism was identified to change the permits. Because the actual consolidation (redrafted permit, record revisions) will take some effort on the part of Department staff, the Department believes this activity more appropriately falls within the "other" amendment category. Subsection (C)(4)(h) has been added as follows:

A combination of two or more permits at the same site as specified under R18-9-107.

Comment 40 - 3: Facilities may make many minor construction or operational changes during the life of the facility to improve its performance. Facilities should have the flexibility to make such changes without necessarily having to request revisions to the permit every time, especially if it will not change discharge and aquifer water quality limits. If a construction change or operational practice improves the performance of a facility it should not require a permit amendment of any kind. It simply results in less risk of permit exceptions.

Response: The Department agrees that facilities should have the flexibility to make minor adjustments in their operations to improve performance without revising the permit. The provision cited is intended to address changes that may result in changes to the discharge that should be reflected in changes to the permit. No change has been made to the rule.

Comment 35 - 10: Modify to reflect a requirement that the substitute financial assurance mechanism be equal to or better than the mechanism it is replacing.

Response: The Department agrees that the rule needs clarification. Subsection (D)(2)(c) has been revised as follows:

A change in the permittee's financial assurance mechanism under R18-9-A203(D)(2);

Comment 22 -45: Revise as follows**:** "Transfers by amendment described in R18-9-221, EXCEPT FOR TRANSFERS THAT QUALIFY AS MINOR PERMIT AMENDMENTS PURSUANT TO R18-9-220(C)(5)."

Response: As stated above, the Department disagrees that a change in owner, operator, or permittee should be a minor permit amendment. Therefore, the proposed language will not be consistent with this determination. No change has been made to the rule.

Comment 25 - 18: States that an "other" permit amendment may be based on rule or statutory changes that require changes in a permit. This provision should be deleted because it implies that the Department may reopen a permit based on subsequent rule or statutory changes and impose different BADCT or other similar requirements than the requirements already negotiated during the issuance of the Aquifer Protection Permit.

Response: There may be instances when changes in rule or statute may require a reopening a permit. Changes in standards have resulted in revisions to permit discharge limits and this provision allows these adjustments to be made to a permit. The adoption of BADCT requirements in rule would not affect those permits already issued. This situation is specifically addressed under A.R.S. § 49-243.01(D). No change has been made to the rule.

Comment 22 - 46: Clarify that a facility does not need to submit an entire Aquifer Protection Permit application in order to amend an individual APP; rather, the facility need only submit the information relevant to the amendment.

Response: This concern is addressed in R18-9-A211(E). No change has been made to the rule.

R18-9-A212. Permit Transfer.

Comment 5 - 15: The requirement to demonstrate technical and financial capabilities for permit transfers will cost small business. What are the financial impacts to business and municipalities? What existing problems are you trying solve with this rule?

Response: This is not a new requirement. Both statute and rule require that a permittee demonstrate the technical and financial capability to meet the terms of the permit at the time of application and throughout the duration of the permit. It would not make sense to evaluate the original owner/operator and not subsequent ones. No change has been made to the rule.

Comment 22 - 48: Revise as follows**:** "A permittee may transfer an individual Aquifer Protection Permit to a new permittee only if the Department has amended the permit to identify the new permittee PURSUANT TO R18-9-220(C)(7) OR R18-9-220(D)(4) and to hold the new permittee responsible for all conditions therein."

Response: The Department does not agree with the requested changes to the identified rule provisions. See previous responses. No change has been made to the rule.

Comment 23 - 3: Requested change**:** After the "and" in the first line, substitute the following for the proposed language**:** "shall provide a signed declaration by the new permittee/transferee that it has reviewed the permit and agrees to be bound buy its terms and conditions."

Comment 22 - 48: Revise as follows**:** "1. The new permittee shall notify the Department of the transfer and shall include a ~~written agreement between the existing and new permittee indicating a specific date for transfer of all permit responsibility, coverage, and liability between them~~ SIGNED DECLARATION BY THE NEW PERMITTEE/ TRANSFEREE THAT IT HAS REVIEWED THE PERMIT AND AGREES TO BE BOUND BY ITS TERMS AND CONDITIONS.

Response: The Department agrees that the proposed language makes the new permittee declare their understanding of the permit requirements and their willingness to accept the obligations. Subsection (A) has been revised as follows:

The owner or operator of a facility subject to the continuance requirements under R18-9-105(A)(1), (A)(2), or (A)(3) shall notify the Department by certified mail within 15 days following a change of ownership. The notice shall include:

1. *The name of the transferor owner or operator;*
2. *The name and social security number of the transferee owner or operator, if the transferee owner operator is an individual;*
3. *The name and location of the facility;*
4. *The written agreement between the existing and new permittee indicating a specific date for transfer of all permit responsibility, coverage, and liability;*
5. *A signed declaration by the new permittee that the permittee has reviewed the permit and agrees to be bound by its terms; and*
6. *The applicable fee established in 18 A.A.C. 14.*

R18-9-A213. Permit Suspension, Revocation, or Denial.

Comment 28 - 9: Delete the provisions in this section, [Revocation R18-9-222] which allow for an increase in the discharge of pollutant by a facility.

Response: This section provides the justification needed for the Department to revoke a permit. A discharging facility cannot operate without a permit. If this were deleted, protection of the environment would be weakened. No change has been made to the rule.

Comment 40 - 4: This provision places sewage treatment facilities in double jeopardy. It is not possible to stop the flow to most sewage treatment facilities. Therefore, not only would the facility potentially be in violation for whatever the Department believes is causing the violation or may cause a violation, but it will also be in violation of discharging without a permit. There needs to be some other mechanism of dealing with such situations.

Response: This rule gives the Department discretion on whether or not to revoke a permit, The Department would be cautious in allowing a facility to continue to discharge if there is potential for violating a standard. If a standard was already violated, there may be little flexibility in our response. No change has been made to the rule.

Comment 28 - 10: Revise to**:** "If the Department determines that the permitted activity is causing or will cause a violation of any Aquifer Water Quality Standard." It should not matter where the violation occurs only that it will or does cause a violation.

Response: A.R.S. § 49-244 is clear that compliance with Aquifer Water Quality Standards is determined at the point of compliance. The Department has no discretion in that respect. No change has been made to the rule.

Comment 28 - 11: Subsection should reflect language that is contained in the current rule**:** "If the permitted discharge has the potential to cause or will cause imminent and substantial endangerment to public health or the environment."

Response: The Department believes that the revised wording has the same meaning as the current rule. No change has been made to the rule.

Comment 11 - 21: Violates the civil rights established in A.R.S. 41-1001.01. [R18-9-219, Denial] The Department can only deny a permit if it fails to comply with statute or rule. This rule is unclear and not understandable. The Administrative Completeness Review will determine if the application provides the required information. The Substantive Review of technical requirements required in rule will demonstrate compliance with technical rules. The unlimited power of the Department to require any information it desires is a gross abuse of power. This section should be eliminated since is conflicts with 41-1052(4) and (5).

Response: The department disagrees with the assertions in this comment. The proposed rule included the requirement to provide notice to the applicant of the denial of a permit application in R18-9-201(I). This provision has been renumbered in the final rule to R18-9-A201(E)(3).

PART B. BADCT FOR SEWAGE TREATMENT FACILITIES

R18-9-B201. General Considerations and Prohibitions.

Comment 22 - 50: The Department should explain in the preamble to the final rule that it does not intend to apply its Article 3 BADCT to instances where mining or other industrial facilities treat wastewater containing only a relatively small component of sewage for reuse or other similar purposes.

Comment 25 - 20: Clarify that the BADCT requirements in Article 3 do not apply to industrial facilities that may treat only a relatively small component of sewage in relation to the other sources of treated water or wastewater. Industrial wastewater should be treated on a case-by-case basis.

Response: The Department believes that the situations described by the commenter are provided under R18-9-B204(B), formerly R18-9-303(D), and needs no special attention in the preamble.

Comment 12 - 2: These proposed rules may create unintended consequences that may allow certain facilities to produce a lesser quality of wastewater effluent with an associated higher public exposure.

Response: The BADCT provisions will require some treatment plants to improve the quality of their effluent while many others that can already meet the BADCT requirements will continue to produce high-quality effluent. Since BADCT requirements will be written into Aquifer Protection Permits, continued performance will be assured by permit conditions.

Comment 25 - 21: Pinnacle West strongly supports the Department's decision to remove the requirement that all facilities operate at their "highest practical efficiency." The proposal to require operation at the "highest practical efficiency" was troubling for several reasons including that it is a very subjective standard that would have allowed the Department to review and control the operations of industrial facilities, regardless of the potential of the operations to discharge of pollutants.

Comment 22 - 52: Supports the wording of this provision.

Response: The Department appreciates this comment.

Comment 28 - 12: Subsection (A) Should state that**:** "The Department SHALL specify in an individual Aquifer Protection Permit alert levels, discharge limitations, design specifications and operation and maintenance requirements..." The proposed language make this discretionary.

Comment 11 - 24: It is unclear why "may" is used rather than "shall."

Response: The Department has used "may" in this instance because there may be facilities where alert levels, discharge limitations, design specifications, or operation and maintenance requirements are not necessary to be included as permit conditions. The Department does recognize that prescribing alert levels and discharge limitations in each permit is not discretionary, these limits may not always be associated with the BADCT information provided by the applicant under A.R.S. §49-243(B)(1). The requirement that alert levels and discharge limitations be set in all cases is contained in R18-9-A205, formerly R18-9-206 and 207. R18-9-A205(B) has been changed to "shall" corresponding to current requirements.

Comment 36 - 5: Service stations should fall under the exemptions as stated in A.R.S. 49-250.B(23)(d) and (c) and not be subject to this rule.

Comment 24 - 1: Clarify that because "hazardous substance" does not include petroleum, drywells that receive storm water and pavement wash water containing only petroleum residues are exempt from the Aquifer Protection Permit program pursuant to A.R.S. § 49-250(B)(23) and/or drywells at service stations could qualify under the exemption if petroleum spills were cleaned up before pavement washing and detergents were not used in this process. As a possible alternative regulatory approach, the Department should, pursuant to A.R.S. § 49-333(A), "establishing standards for new and existing drywells pertaining to their performance, operation, construction, design, closure, location and inspection."

Response: Service stations are not discharging facilities under Aquifer Protection Permitting and, therefore, do not need an exemption. However, the statutory reference is to drywells and their exemption from the requirement to obtain an Aquifer Protection Permit. The specific references cited provide an exemption for drywells that receive storm water but also discharges from irrigation drainage and lawn watering under A.R.S. § 49-250(B)(23)(c) or discharges from routine external building wash down without detergents under A.R.S. § 49-250(B)(23)(d). Clearly, drywells that meet these conditions would be exempt from the requirement to obtain an Aquifer Protection Permit. At many service stations, drywells are located so that they drain areas where it is likely that gasoline spills from the pumps or other spills from service areas are likely to be washed into the drywells. In these cases, the drywell exemption from Aquifer Protection Permit would not be valid and an Aquifer Protection Permit is required.

The definition of hazardous substance as it applies to Aquifer Protection Permits is found at A.R.S. § 49-201(18) and is broader than just the definition under CERCLA, which excludes petroleum. Just the potential for spills into a drywell is reason to require a permit because drywells provide a conduit for materials to move quickly to groundwater. Part of the intent of the permit is to require practices that will prevent spills from entering the dry well and the aquifer. The Department has not pursued establishing a separate program for regulation of drywells but has historically regulated those drywells that are not used exclusively for storm water under the Aquifer Protection Permit program. These dry wells are Class V injection wells under the federal Underground Injection Control Program. The Department has expressed interest in pursuing primacy for the federal program and continues to evaluate opportunities to do so. No change has been made to the rule.

Comment 5 - 18: This provision is illegal since it conflicts with A.R.S. 49-104(B)(13). The Department is permitted under this statute to prescribe rule that contain minimum standards for operating the systems. This rule does not prescribe minimum standards but attempts to grant the Department unlimited and unregulated power to determine a permit condition on whatever is in the Operation and Maintenance Plan. The Department should prescribe specific minimum operating standards.

The operation and maintenance manual is a living document that changes as site specific operations are determined. Such manuals are generally not specifically adhered to due to these site specific conditions and problem solving during daily operations. Requiring strict adherence could cause permit violations instead of allowing their prevention.

Adherence to any specific term in an operation and maintenance manual should NOT be included as part of the permit unless there is express regulatory authority for inclusion-in which case it would not be necessary to refer to the operation and maintenance manual in the permit. The rule does not specify when an operation and maintenance manual would be part of the permit and/or the process to be taken to amend the manual, if and when it were to be included as part of the permit.

Does not agree with the suggestion in subsection (B) that adherence to Operation and Maintenance Plan should be included as an enforceable permit condition. Operation and Maintenance Plans are full of errors and omissions, are overly conservative, and were created at the self-interest of the vendor/supplier. This requirement would force negotiation with vendors and loss of operational/maintenance flexibility or sensibility. The Department should not include compliance with Operation and Maintenance Plans as an enforceable permit condition.

Response: A.R.S. §49-104(B)(13) requires the Department to establish minimum standards not minimal standards, and the Department sees following an Operation and Maintenance Plan as a minimum standard of conduct for treatment plant operators. "Operating methods" are identified as a component of BADCT in A.R.S. §49-243(B)(1). The Department has required an Operation and Maintenance Plan under the sewage system rules since their inception in 1979. Inclusion of the requirement in the rule is not new to the way that the Department conducts business. Our stakeholder committee recommended inclusion of this provision. The Department believes that submittal of the Operation and Maintenance Plan is meaningless without this provision that compels operators to follow the plan. Inclusion of the Operation and Maintenance Plan as a permit condition does not make it inaccessible to change. Most changes would be accomplished in the category of permit amendments referred to as "other" amendments in R18-9-A211(D). If vendors are supplying inadequate, erroneous, or inflexible Operation and Maintenance Plan, the Department will work with the permittee during the engineering review to develop appropriate operation and maintenance content.

Comment 40 - 5: In this day and age in the arid west the term "public water supply" could also mean reclaimed water going to reuse. Since many sewage treatment facilities treat to reuse standards this rule may create unintended ambiguities and problems. Since the rules main intent is to ensure that cross connections to potable water lines will be avoided we recommend that you omit the term "public water supply" from this rule.

Response: The Department concurs with this suggested change. Subsection (D) has been revised as follows:

> *A person shall not install or maintain a connection between any part of a sewage treatment facility and a potable water supply so that sewage or wastewater finds its way into or otherwise contaminates a potable or public water supply.*

Comment 25 - 23: Because the statutory definitions are incorporated by reference for purposes of the proposed Aquifer Protection Permit rules, the term "reclaimed water" should be used in place of the terms "sewage" and "wastewater." Furthermore, it is inappropriate to state that all reclaimed water dispensed from sewage treatment facilities "is regulated" by the reclaimed water quality standards and permit requirements. Certain reuse of reclaimed water is exempt from the standards and/or the permit requirements. Based on the foregoing discussion proposed R18-9-302.E should be revised as follows**:** "...sewage as wastewater RECLAIMED WATER dispensed to a direct use site from a sewage treatment facility MAY BE ~~is~~ regulated by the reclaimed water quality standards developed under A.R.S. § 49-221(E) and reclaimed water permit requirements developed under A.R.S. § 49-203(A)(6)."

Response: While the term "reclaimed water" includes "wastewater" as it is used here it does not include all material that falls under the definition of "sewage" in the rule. The proposed change in wording from "is" to "may be" is an acceptable portrayal of the regulatory situation. Subsection (F) has been revised as follows:

> *Reclaimed water dispensed to a direct reuse site from a sewage treatment facility is regulated under Reclaimed Water Quality Standards established under A.R.S. § 49-221(E) and reclaimed water permit requirements under A.R.S.§ 49-203(A)(6).*

Comment 11 - 24: It is unclear why a decision would not be issued here-particularly given time-frames issues. If the applicant does not meet requirements the actions should be to deny-not to withhold a decision. Please also clarify that the plans identified have been listed as specific requirements to obtaining a permit and why this requirement is separately set forth here.

Response: Conformance with the Certified Water Quality Management Plan and Facility Plan are not listed as specific application requirements because this review and approval is usually conducted in a parallel track to the Aquifer Protection Permit review. The provision states that the Department will not "publish the preliminary decision to issue" until conformance is shown. Ultimately under licensing time-frames, the Department would have to deny a facility that did not meet this requirement. The intent is to give the applicant as much time as the process allows to achieve approval.

Comment 5 - 20: How were these setback established? What authority? What is an "aesthetically acceptable" fence? This is unclear and should be stricken. This a new rule will significantly impact small business owners. Why has the Department not included the costs of impacts in the EIS?

Response: The setbacks were proposed by the Department's stakeholder group. They were adapted with some simplification from Table VI-1of Engineering Bulletin 11, published by the Arizona Department of Health Services in 1978. These setbacks have been applied to wastewater plants in Arizona for over 20 years. Because the setbacks are already established, they are not anticipated to add significantly to the cost of wastewater treatment plant construction. An "aesthetically acceptable" fence is one with an appearance that blends with the surroundings -- this effect may be accomplished through landscaping or material design.

Comment 6 - 3: The "aesthetically acceptable" description for the type of fencing that surrounds the facility should be deleted.

Response: It is the Department's experience that this approach to enclosing a facility is necessary when a wastewater treatment plant is located as close as the setbacks allow to adjacent property. The fencing requirement is one that has been our practice since 1978 when Engineering Bulletin 11 was published. See the response to the above comment.

Comment 11 - 25: It should be specified that this section only applies to new facilities. There should be room for some middle ground between "no controls" and "full controls." It should also be made clear that this and other requirements will not be retroactively enforced.

Response: Indeed the provision should only apply to new facilities or facilities undergoing a major modification. The middle ground between full control and no control is provided by the waiver provision in R18-9-302(H)(2), as has been the Department's practice with the similar provision in Bulletin 11. Subsection (I) has been revised as follows:

> *The owner or operator of a sewage treatment facility <u>that is a new facility or is undergoing a major modification</u> shall provide....*

Comment 40 - 6: The set-back distances established for Sewage Treatment Facility Design Flows of 100,000 - 500,000 gallons per day (gpd); 500,000 - 1,000,000 gpd; and greater than 1,000,000 for Full Noise, Odor and Aesthetic Controls are too stringent. A sewage treatment facility cannot condemn property for the purpose of establishing a buffer. We recommend numbers that are intermediate between the proposed distances and those for No Noise, Odor or Aesthetic Controls.

Response: These setbacks are, in fact, less stringent than those currently used by the Department from Engineering Bulletin 11. Intermediate setbacks can be attained with signage of a waiver by property owners as provided by the waiver provision in R18-9-302(I)(2). See the response to the above comment.

Comment 5 - 21: The waiver from setback rules cannot be granted to a property owner via a Department rule. Where is the Department's authority to grant a waiver from any of it rules? The Department has been given the authority to create minimum standards but not to permit waivers from the rules.

Response: The Department's rules can be conditional. In this instance the setbacks established in rule are in force unless another condition is met. Since the setbacks are established to protect adjacent property owners from noise, odor, and aesthetic impact, it is reasonable to waive the setbacks if the adjacent property owners agree to such terms.

<u>R18-9-B202. Application Requirements.</u>

Comment 5 -24: What is the cost to an applicant to supply this more extensive list of items? How many subdivisions has the Department encountered over the last several years? This data would be useful in determining the impacts on the public and developers.

Response: The design report requirement contains essentially the same information the Department required under the previous wastewater rules. However, since the design report replaces the old process of full design plan submittal, for some applicants this rule represents considerable lessening of the amount of material submitted. The Department anticipates that these streamlined requirements will significantly save costs for applicants having facilities exceeding 1M gallons per day. For facilities discharging less than this amount, the information submitted is the same as required by the current rules.

Comment 25 - 25: Clarify the connection between this section and the proposed R18-9-303. Language should be added referring to the need for "new" sewage treatment facilities subject to R18-9-303 to submit the information required under R18-9-304.

Response: The requirement for design report submittal is not limited to new facilities.

Comment 28 - 14: We strongly support the section that requires entities to provide additional information when a sewage treatment facility is going to be conveyed to a homeowners association or a private operation. They should definitely have to demonstrate that they are technically capable of carrying out the terms and conditions of permit. This would help address a problem that occurs all to frequently in some parts of the state.

Response: The Department appreciates this comment.

R18-9-B203. Application Review and Approval.

Comment 5 -25: This rule is not clear. When will the Department review plans and specifications? In addition, this rule should be modified to require that the Department must use professional engineers to review treatment plant designs submitted by a professional engineer. Any changes to design plans must comply with A.R.S. 32-130 and be sealed by the professional engineer who required the changes. Why has the Department not complied with A.R.S. 32-130 in the review of design plans?

Response: Department reviewers are not authorized by this rule to modify, by their own hand, any drawings, plans, or design specifications submitted by an applicant for their review. The Department simply reviews these documents to determine consistency with design standards established in rule. If a design is inconsistent, the applicant is required to make any changes to the design.

Comment 25 - 26: Clarify the connection between this section and the proposed R18-9-303. Language should be added referring to the need for "new" sewage treatment facilities subject to R18-9-303 to submit the information required under R18-9-305.

Response: The requirement for design report submittal is not limited to new facilities.

Comment 28 - 15: The Department should be required to review engineering plans and specifications and to comment where appropriate.

Comment 28 -16: The Department should be required to review the engineering plans and specifications and to comment where appropriate.

Response: The department does, in fact, review all information required to be submitted. The requirement for the Director to make a permitting decision that hinges on the demonstration of consistency with BADCT compels the review of all engineering information available. The discretionary term "may" used in R18-9-305(A) and (B) is meant to convey that the Department could require additional submittal of engineering plans and specifications beyond a design report if the circumstances listed apply. This Section has been revised to clarify this intent.

Comment 6 - 6: Revise as follows**:** "The Department shall review engineering plans and specifications in addition to a design report upon request by an applicant seeking a permit for a sewage treatment facility, regardless of its flow. All review work shall be done by a professional engineer registered in the State of Arizona."

Response: Whether or not review work has to be performed by a Arizona-registered professional engineer is determined by the rules and statute of the State Board of Technical Registration. The Department sees no need to reiterate those requirements in this rule.

Comment 5 - 29: Why are larger treatment plants not being reviewed by the Department while the smaller types need to limit design plans, specifications, and operation and maintenance plans? What is the cost to the public and small business of this rule? An alternate system would be to rely on the professional engineer who designs the systems to comply with the design standards provided in rule and the Department to provide inspection services. What would be the cost reductions to the public and small business if this system were implemented as required in A.R.S. § 41-1035?

Response: The commenter is mistaken that the rule eliminates review of larger sewage treatment facilities. Under the rule, facilities discharging under one million gallons per day are required to submit for review a design report and engineering plans and specifications (R18-9-B203(A)(9)). For facilities with flows greater than one million gallons per day, a detailed design report must be submitted for review (described in R18-9-B203(A)). Because the design report is signed and sealed by a professional engineer, the Department is relying on the expertise of the engineer, in part, as the commenter appears to desire. Rather than increasing costs, the Department believes the design report requirements will not only reduce costs to the permittee, but allow the Department to better determine that the facility can meet performance levels specified by BADCT. No change has been made to this rule.

R18-9-B204. Treatment Performance Requirements For New Facilities.

Comment 25 - 24: Subsection (A) states that the BADCT requirements in proposed R18-9-303 apply to any new sewage treatment facility with a design flow of 3000 gallons or more per day unless the discharge from the facility is covered by a general permit in Article 4. Because sewage treatment facilities may also qualify for exemptions or other exclusions from the Aquifer Protection Permit program the phrase "is exempt or" should be added to proposed R18-9-303.A after the phrase "unless the discharge from the facility." In addition, because "new sewage treatment facility" is not defined, the Department should clarify that this term means sewage treatment facilities constructed after the effective date of the final Aquifer Protection Permit rule revisions.

Response: Facilities qualifying for an exemption contained in either this Article or A.R.S. § 49-250 are exempt from all provisions of this rule. No additional language is necessary to preserve this exempt status. Where the rule states "new sewage treatment facility" it means a new facility that treats sewage. New facility has the meaning ascribed to it in A.R.S. §49-201.

Comment 27 - 2: The treatment performance requirements should apply to all facilities (existing and new), as alternative criteria may be established for existing facilities based on the evaluation criteria in A.R.S. § 49-243.B.1.a through h.

Response: Existing facilities are covered under R18-9-B205 and R18-9-B206.

Comment 12 - 3: These proposed rules may create unintended consequences that may allow certain facilities to produce a lesser quality of wastewater effluent with an associated higher public exposure.

Response: This subsection of the rule may, indeed, allow facilities to produce a lesser quality wastewater effluent, but it is not an unintended consequence. If the plant uses the containment structures specified the discharge to the aquifer is minimized. The Department anticipates that all Aquifer Water Quality Standards will be met by such a configuration. Containment further guarantees that there will not be an associated higher public exposure.

Comment 5 - 22: The effluent limitation will dramatically increase the cost of wastewater treatment for businesses and the public. What is the scientific justification for the new 10 mg/l standard? Where are the problems with nitrate pollution created by sewage treatment facilities in Arizona? What is the basis for this far-reaching rule?

Response: This provision puts into rule what the Department has been practicing as BADCT for new wastewater plants for over a decade. The effluent limitations are those that are identified in our BADCT guidance document and were recommended by the Department's stakeholder group for inclusion as rule. In adopting the 10 mg/l performance criteria for nitrate the Department has considered what technology is best, available, and demonstrated for achieving reduction of this pollutant. The technology of nitrification/denitrification in the wastewater industry is widely accepted to routinely achieve levels well below eight mg/l. In setting the level at 10 mg/l the Department has allowed operators a margin of error that we believe is acceptable. In establishing BADCT the statute does not require that the pollutant targeted for discharge reduction be one that shows evidence of a widespread problem. However, one does not have to look far in Arizona to find wells contaminated by nitrate or threatened with elevated levels. Communities such as Quartzsite, Bullhead City, Sedona, Apache Junction, and Marana are a few examples of many that have struggled to solve problems with high nitrate in water supply wells.

Comment 5 - 23: What is justification for 10 mg/L nitrogen limit and the additional costs for businesses and the public to meet this limit? Where are the problems with nitrate pollution created by sewage treatment facilities in Arizona. What data or documentation does an applicant need to submit to justify trying to use soil aquifer treatment as a means of not having to install nitrogen removal equipment? What is the cost of nitrogen removal equipment for a 3000-gpd plant, a 100,000-gpd plant and a 1,000,000-gpd plant? How much nitrogen is added to the groundwater by agriculture versus treatment plants in the 3000 to 100,000 gpd plants? When will existing plants need to upgrade? How many plants or permits have been issued by the Department? What will be their expected costs to upgrade?

Response: Soil aquifer treatment is widely documented in the literature. Generally, an applicant trying to demonstrate soil aquifer treatment would provide pilot tests of their site or column tests from a lab. Good data regarding surface soil types and subsurface soil profiles would be provided along with hydrologic properties. Nitrogen removal may add 10% to the cost of a treatment plant, however our stakeholder group indicated that most treatment plants are projected to be using denitrification in the near future regardless of cost. Our records indicate that 40% of treatment plants currently use denitrification, and our projection is that the number will rise to 75% within 3 years -- without implementation of the final rule. BADCT provisions of the statute do not allow us to consider the amount of nitrogen added to aquifers by agriculture compared to that from treatment plants. The Department recognizes that agriculture is a large source of nonpoint pollution to aquifers, and the agricultural general permits with best management practices are provided to address this source. See response to the above comment.

Comment 38 - 4: Insert between (C)(4) and (C)(5) "Turbidity removal - Upon demonstration by an applicant, and with appropriate monitoring requirements specified in the individual Aquifer Protection Permit, the Department may approve soil-aquifer treatment for the removal of turbidity, as an alternative to meeting the numerical Aquifer Water Quality Standard in Rl8-11-406(G), if the soil-aquifer process will produce a turbidity level that meets the limits specified in Rl8-11-406(G) in the wastewater that percolates to groundwater."

Response: The Department has chosen not to establish BADCT performance levels for turbidity. A level for this parameter was present in our previous guidance document, but in practice we found that it was difficult for facilities to achieve consistently. The stakeholder group recommended using the TSS level instead.

Comment 6 - 4: The requirement to "achieve a removal efficiency of 85% for BOD5 or CBOD5 and TSS" should be eliminated as this requirement could create a more restrictive standard for the treatment of some influent that is required (e.g., BOD5 of 100mg/a treated to remove 85% ends up requiring treatment to a 15mg/1 BOD5).

Comment 38 - 2: Delete the subsection that requires the removal efficiency of 85% for BOD5 or CBOD5 and TSS.

Response: The intent of the requirement is to be more restrictive than the treatment levels specified in R18-9-B204(C)(1)(a) and (C)(1)(b). The 85% removal efficiency is routinely used as a performance criterion for NPDES permits for wastewater treatment plants, and it constitutes a widely accepted standard of treatment plant operational performance.

Comment 40 - 7: Secondary treatment by waste stabilization ponds should not be ruled out as meeting BADCT. Lagoon systems treating less than 1,000,000 gpd may be better than a mechanical plant of this size that is only visited by operational personnel a couple of times per week. This may be an operational issue, the point being that this may be a plant specific determination.

Response: The Department has provided for exceptions to the prohibition of lagoon systems if the applicant can show that any of the factors specified in A.R.S. §49-243(B)(1) come into play.

Comment 40 - 8: Subsection (B)(4)(b) The proposed BADCT for pathogen removal would require full-time filtration to comply at the point of discharge. Water of this quality would be required for those types of reuse involving open access irrigation. Reuse water of this quality is not and should not be mandated under all circumstances. While reuse makes sense in the and west, it may not always be practical or cost effective. A facility should be allowed to demonstrate that it can meet the aquifer water quality standards for coliforms by soil aquifer treatment rather than mandating filtration, which is the treatment method that would be necessary to meet the levels specified under the proposed R18-9-303(C)(4)(b). BADCT has not required filtration for all wastewater treatment plants in the past.

Response: In this case the BADCT performance level is less stringent than the aquifer water quality standard. However, soil aquifer treatment to meet the BADCT performance standards is provided in subsections (B)(4)(c) and (D).

Comment 38 - 3: Revise as follows**:** "Upon demonstration by an applicant and with appropriate monitoring requirements specified in the individual Aquifer Protection Permit, the Department may approve a greater fecal coliform limit for a facility using subsurface infiltration as a method of wastewater disposal if site characteristics soil-aquifer treatment for the removal of fecal coliform, as an alternative to meeting the performance requirement specified in (C)(4)(b), if the soil-aquifer process will produce in the wastewater that percolates in groundwater a fecal coliform level that meets the limits specified in (B)(4)(b) in the wastewater that percolates to groundwater."

Response: The Department agrees that subsurface soil and aquifer conditions may achieve parallel fecal coliform removal. Subsection (A)(4)(c) has been revised as follows:

The Department may approve soil aquifer treatment for the removal of fecal coliform as an alternative to meeting the performance requirement in subsection (B)(4)(b), if the soil aquifer treatment process will produce a fecal coliform concentration less than that required under subsection (B)(4)(b) in wastewater that percolates to goundwater.

Comment 38 - 5: As written, this appears to set a NAWQS for all constituents listed in Rl8-9-406, except for compounds regulated under A.R.S. § 49-243(i). The proposed rules Rl8-9-303(C)(3) and (C)(4)(c) take into account that effluent is not intended for potable uses and can receive additional improvements through soil-aquifer treatment by allowing higher limits for nitrate and pathogens. The recommendation takes into account the preceding subsections.

Response: This subsection is not setting numeric Aquifer Water Quality Standards. It does, however, use certain numeric Aquifer Water Quality Standards that are set elsewhere in rule to establish the BADCT performance levels. BADCT performance levels are different from numeric Aquifer Water Quality Standards in that they must be met in the discharge rather than in the aquifer downgradient of the facility. Soil aquifer treatment to meet BADCT performance levels for the referenced constituents may be used based upon the provision in subsection (D).

Comment 40 - 9: This provision is already found in A.R.S. § 49-243.I. It is not necessary to repeat in the rule.

Response: The provision provides more clarity than the simple prescription of A.R.S. § 49-243(I). Subsections (a) and (b) provide several ways that are accepted practice used on an industry-wide basis in which wastewater treatment plants can conform to the statute.

Comment 40 - 10: This rule was debated at length within the Wastewater Treatment Plant Subcommittee. The City acknowledges the Department's efforts to identify technologies that may meet this rule. However, this list may not be all inclusive. There may be other technologies available now and in the future. Listing the few shown here may restrict the technologies that could be used. The technologies used for this purpose should be determined by design engineers and the water utilities on a facility-by-facility basis and not dictated by rule.

Response: The Department does not intend this list to be limiting. The language has been changed to allow other technologies that can be demonstrated to have equivalent or better performance than the ones identified in the rule. Subsection (A)(6)(a) has been revised as follows:

> *An operator shall minimize trihalomethane compounds generated as disinfection byproducts using chlorination, dechlorination, ultraviolet, or ozone as the disinfection system or* *using a technology demonstrated to have equivalent or better performance for removing or preventing triahalomethane compounds.*

Comment 6 - 5: Define an "Industrial Pretreatment Program" or identify the program as "Federally approved."

Comment 40 - 11: The City acknowledges the Department's effort to identify an element that will allow sewage treatment facilities to comply with this rule. However, it does not indicate what the breadth and scope of this program might be. The language should be amended to indicate a "reasonable industrial pretreatment program" or an "industrial pretreatment program approved by the U.S. Environmental Protection Agency" or it should be eliminated altogether.

Response: The Department agrees. Because this requirement is used only in this Section, a definition is not warranted. This Section has been clarified to offer an operator three options for complying with the industrial pretreatment requirement. "Subsection B204(A)(6)(b) has been revised as follows:

b. For other pollutants regulated by A.R.S. § 49-243(I), an operator shall use one of the following methods to achieve industrial pretreatment:

i. Regulate industrial sources of influent to the sewage treatment facility by setting limits on pollutant concentrations, monitoring for pollutants, and enforcing the limits to reduce, eliminate, or alter the nature of a pollutant before release into a sewage collection system; or

ii. Meet the pretreatment requirements of Section 307 of the Federal Water Pollution Control Act; or

iii. For sewage treatment facilities without significant industrial input, conduct periodic monitoring to detect industrial discharge.

Comment 40 - 12: While this leakage rate of 550 gallons per acre per day has been in the Unified Permit Rewrite process for some time, further research shows that the current American Concrete Institute standards allow more leakage than this from concrete structures. This standard would have been used for construction of most of the major facility structures in recent time. This value, may therefore, be too restrictive.

Response: The Department has been using this figure in guidance for several years and is not aware of any facilities having trouble achieving this performance. If some facilities have been constructed with a lesser standard, they will be regarded as existing in this regard, and the new BADCT performance level will generally not apply to them because the cost of retrofitting would likely be too expensive.

Comment 22 - 51: The Department should explain in the preamble to the final rule that it does not intend to apply its Article 3 BADCT to instances where mining or other industrial facilities treat wastewater containing only a relatively small component of sewage for reuse or other similar purposes.

Response: These facilities will be given consideration under R18-9-B204(C).

Comment 5 - 19: What is a Certified Water Quality Management Plan and Facility Plan? If this requirement is to be legal, the documents should be incorporated by reference like any of the ASTM standards. Moreover, licensing timeframe rules will likely be violated since it is unclear who makes the decision of conformance with such a Water Quality Management Plan. How many of these plans have been adopted around the state? What are the impacts to applicants to seek conformance with these plans?

Response: "Certified Water Quality Management Plan" is defined in R18-9-102. See also comment 11 -25.

Comment 28-13: We are pleased to see facilities that generate flows between 3000 and 24,000 gallons per day included in the provisions for an individual permit.

Response: The Department thanks you for your comment.

R18-9-B205. Existing Facility.

Comment 25 -27: Should be deleted as it imposes BADCT requirements on existing facilities that require them to implement design improvements that would bring the facilities "closer to or within the treatment performance requirements specified in R18-9-303." This type of language is very subjective and could be difficult to implement. Existing sewage treatment tactics should simply be required to meet the same BADCT requirements as other existing facilities are required to do as described in A.R.S. § 49-243.

Response: A.R.S. § 49-243(B)(1) describes how BADCT applies to new facilities and then introduces additional considerations for existing facilities by stating, "[i]n addition, the director shall consider the following factors for existing facilities:" A list of factors that may moderate the BADCT for an existing facility follows and includes costs weighed in relation to the discharge reduction to be achieved. The fact that this list of factors is applied in addition to the considerations for new facilities implies that the new facility BADCT is a reference point from which BADCT for existing facilities may be determined.

Comment 27 - 3: The $0.05 per gallon cost cut-off for new technology in existing facilities seems to be an arbitrary number for a cost-benefit analysis. Is $0.05 per gallon the industry standard for the cost of facility expansions? Depending on site-specific conditions, which may be evaluated under A.R.S. § 49-243.B.1.a. through h, $0.05 per gallon may not be enough cost to ensure that a facility is protective of drinking water aquifers, and may be too much for a facility which does not need to incur this cost in order to protect such aquifers.

Response: The Department's stakeholder group recommended that the cost ceiling be established for implementing A.R.S. § 49-243(B)(1)(b). While the other factors in A.R.S. § 49-243(B)(1)(a) through (h) affect the nature of the alternative design improvement(s) to meet R18-9-B205(1), cost is used here as the sole factor involved in determining whether or not to implement the alternative as BADCT. Protection of the aquifer for drinking water use is achieved in all cases of Aquifer Protection Permit issuance since a facility cannot cause or contribute to violation of the Aquifer Water Quality Standards. The cost factor determines when it is economical to achieve better performance than simply meeting the Aquifer Water Quality Standards.

Comment 35 - 11: Language is vague and, therefore, problematic. Subsection (1) provides that the applicant shall identify one or more alternative design improvements that bring the facility closer to or within the treatment performance requirements specified in R18-9-303. What is unclear is how close is close enough, and on what basis is that decision made?

Response: The determining factors as to how close a facility can approach the requirements specified in R18-9-303 are found in A.R.S. § 49-243(B)(1)(a) and (B)(1)(c) through (B)(1)(h). Subsection (1) has been revised to include a reference to these factors.

1. *The designer shall identify one or more design improvements that bring the facility closer to or within the treatment performance requirements specified in R18-9-B204, considering the factors listed in A.R.S. § 49-243(B)(1)(a) and (B)(1)(c) through (B)(1)(h),*

Comment 40 - 13: These provisions should be eliminated. Existing facilities should be allowed to maintain their current level of treatment, especially if it is complying with the provisions of its current aquifer protection permit. When and if the facility expands, it would consider reasonable process upgrades based on the existing facilities, hydrogeologic setting, costs and other relevant factors.

Response: A.R.S. § 49-243(B)(1) requires both new and existing facilities to meet BADCT. Existing facilities that comply with the provisions of their Aquifer Protection Permit and are not expanding do not need to apply for another permit. These facilities have met BADCT at permit issuance and continue to meet BADCT by complying with their permit. The commenter is correct that when a facility expands the permittee will consider reasonable process upgrades as "alternative design improvements" following the statutory and rule provisions. See comment 25 - 27.

Comment 5 - 26: How many plants exist in Arizona? How many come up for renewal or modification each year? What is the cost to submit for a new permit under these rules? What will be the estimated cost to upgrade the plants to BADCT annually? Why hasn't the Department complied with the statutes to document the significant cost increases to the public and small business regarding this rule? How much direct contact with affected parties has the Department performed?

Response: The application of BADCT in the Aquifer Protection Permit program is not new and the cost to submit an application under this rulemaking and the requirements to describe existing facility BADCT and BADCT for expansion has not increased for applicants. However, in the past the distinction based upon cost of which upgrades constitute BADCT was not clearly drawn. The new cost ceiling found in R18-9-B205 will eliminate expenditures for upgrades for many applicants.

ARTICLE 3. AQUIFER PROTECTION PERMITS - GENERAL PERMITS

PART A. GENERAL PROVISIONS

Comment 5 - 38: Clarify what will be required. [R18-9-407 Recordkeeping] What type of facilities will require record keeping? How long will records need to be maintained? Will the Department check record keeping? Clearly delineate which types of facilities need to keep records and which do not.

Comment 4 - 7: The records should be kept for as long as the system is in operation. Chances are home owners may lose their copy and come to the county for help. As-Builts are a must to keep.

Response: This Section has been deleted from this rulemaking. The recordkeeping requirements were not required in all general permits. When reading this Section on its own, an applicant would not know if the provisions applied until a specific general permit was reviewed. It made more sense to move these provisions to each Sections so that the applicant will know immediately what recordkeeping requirements must be maintained. Therefore, a general section on recordkeeping is unnecessary.

Comment 4 - 8: Does A.R.S. 49-112 say what counties can charge for parts of the fee make-up?

Comment 5 - 40: The reference to A.R.S. 49-112 is applauded. Will the Department require the counties who have charged higher fees to refund the higher fees to the public applicants? What are the costs to process the Type 4 permits? How many are issued throughout the state? How much will the fees be for reviewing plans? How much will be charged for processing, inspections, renewal, and transfers?

Response: A.R.S. § 49-112 provides authority for a county to adopt a rule, ordinance, or other regulation for fees or taxes provided the statutory conditions are met. The Department does not regulate the fees charged by counties and, therefore, cannot require counties to refund fees. The fees for permitting services included in this rule may be found in 18 A.A.C. 14. No change has been made to the rule.

Comment 13 - 1: The proposed rules for systems having mechanical components are not sufficient to protect the public's health. These types of systems should be required through rule to obtain an operating permit that is renewable on a yearly basis. Minimum requirements for renewal should be**:** monthly inspection and maintenance by a minimum certification as a Class 2 Wastewater Treatment Plant Operator or the equivalent; maintenance of an operation and maintenance log; annual reporting; yearly inspection governing agency; routing effluent sampling; monthly chlorine residual and quarterly fecal coliform testing for systems utilizing surface irrigation; and other criteria specified to ensure proper operation.

Response: The Department disagrees that these rules will not protect public health. The rules provide specification for design, installation, and operation and maintenance of these systems that the current rules lack. For the same reason, the Department disagrees that these systems require a Class 2 Operator and the other requirements mentioned by the commenter. The Department agrees that operation and maintenance is critical for proper operation of these facilities. The rule provides for development of an operation and maintenance plan as well as conformance with operation and maintenance requirements at R18-9-A313. For this reason, the Department believes the rule is adequate and therefore proposes no change.

Comment 14 - 35: I am concerned about the statement in the nitrogen management sections that any house on at least one acre will be considered within the nitrogen discharge limits. The numbers work out for a three bedroom house (or less) but larger homes, which are becoming more and more typical, can have five, 6, or more bedrooms. This, in effect, discriminates in favor of wealthy homeowners who could but a six-bedroom home on a one acre parcel without de-nitrification but a three bedroom home on + an acre would likely require de-nitrification. Or seen another way a two or three bedroom home each on adjacent + acre parcels would both be required to invest in de-nitrification equipment but one large six bedroom home on the entire one acre would not be required to de-nitrify.

Response: This was not the intention of the rule. The Department has significantly edited this rule, at R18-9-A312(F) for clarity. All on-site wastewater treatment facilities, regardless of size or flow, must meet the nitrogen management requirements, unless exempted under one of four circumstances listed in the rule. The rule has been clarified to indicate that the optional equation presented for single-family residences applies only up to four bedrooms. Larger residences would have to meet the more general nitrogen management requirements specified in R18-9-A312(F)(1)(a). The Department appreciates the commenter's implied support for the nitrogen management provisions.

R18-9-A301. Discharging Under a General Permit.

Comment 9- 2: [Subsections (A) through (C)] should not be exempt from provisional verification of general permit conformance. At minimum, General Permit l.01, 1.05, 1.08, 3.01, 3.03, 3.05, 3.06, and 3.07 should.

Response: The Department disagrees. This rulemaking treats General Permits 1.01, 1.05, and 1.08 in the same way they have been treated under the current rule. The Department believes that the Type 3 General Permits can be properly reviewed and managed through the proposed administrative processes. As with any general permit, the Department may undertake revocation if the terms of the general permit are violated and require the permittee to obtain an individual permit. The Department believes these provisions are adequate for the kinds of discharges allowed under these general permits. No change has been made to the rule.

Comment 22 - 55: Revise as follows**:** "A signature on the Notice of Intent certifying that the permittee agrees to comply with all APPLICABLE requirements of this Article, including specific terms and conditions of the applicable General Aquifer Protection Permit."

Comment 25 - 29: Should be revised by inserting the word "applicable" after the phrase "to comply with all." It would be impossible for a potential applicant for a Type 2 or 3 general permit to certify that it will comply with all requirements of Article 4, when many of the requirements are clearly inapplicable. Consequently, this language must be modified to limit the certification requirements to only those requirements that are applicable to the particular general permit.

Response: The Department agrees. The word "applicable" has been added to this provision, now R18-9-A301(B)(2)(h).

Comment 15 - 1: Amend to specify that obtaining a "Verification of General Permit Conformance" is subject to, and enjoys the protections of, licensing time-frames law, in a format similar to that employed at R18-9-201(C), (D), (F) and (H).

Response: These provisions have been completely rewritten and licensing time-frames have been built in.

Comment 22 - 54: Revise as follows**:** "The applicant shall submit the Notice of Intent to Discharge Under a General Aquifer Protection Permit (Type 3) on a form provided by the Department REQUESTING the information specified in R18-9-401(B)(3)."

Response: The Department believes this word is not needed as the following provision specifies the information that must be submitted. No change has been made to this rule.

Comment 25 - 30: Should be revised as follows to clarify that the Department will not request information that is not listed in proposed R18-9-401(B)**:** "The applicant shall submit the Notice of Intent to Discharge Under a General Aquifer Protection Permit (Type 3) on a form provided by the Department containing the information specified in R18-9-401(B)(3).

Response: The provisions of this Section have been rewritten for greater clarity, including the information requirements. For this reason, there is no further need to change the rule.

Comment 5 - 27: This rule provides for a 45 day licensing time-frame. Is this an Administrative Review or a Substantive Review period? Since this type of permit only requires general information to be submitted, why does it take the Department 45 days to issue Verification of General Permit Conformance? The review period should be 14 days.

Response: The provisions regarding information submittal and verification requirements have been rewritten for greater clarity and to more directly address licensing time-frame requirements. Because the administrative process proposed in this rule simplifies current Approval to Construct/Approval of Construction processes from the licensing time-frame standpoint, the Department has established time-frames that are significantly shorter than in the current licensing time-frame rule. The Department advises that these time-frames are maximums. For simple septic tank systems permitted under General Permit 4.02, the Department expects rapid processing. No further change has been made to the rule.

Comment 5 - 28: What is the number of permits issued statewide for this type of' permit currently? What are the differences between the old and the new processes? Why can't the permit system be modified to eliminate the Provisional Verification of General Permit Conformance and just require a final inspection by the Department before the on-site system can be operated? What would be the cost difference to the public and small businesses if the alternate system were employed as required in A.R.S. 41-1035?

Response: The Department has completely rewritten this Section for greater clarity. As the commenter has considerable knowledge about the current process Approval to Construct/Approval of Construction process, the proposed process can be summarized as elimination of dual administrative completeness review and substantive review time-frames, thus allowing the Department to reduce licensing time-frames. In addition, because of the consolidation of permitting processes and the provision of detailed technical standards in the rule, the Department anticipates that the need for submittal of Determinations of Applicability should greatly decrease. This will further speed up administrative processes for both the applicant and the Department. The Department does not believe Type 4 General Permits can be issued without review of the submitted information before construction. In the experience of the Department and delegated agencies, this step is crucial to ensuring that the system is designed and installed properly. Many homeowners would be faced with greatly increased costs if this step were not performed and expensive alterations had to be made after the system is essentially constructed. No further change has been made to the rule.

Comment 25 - 31: Should be revised as follows to clarify that the Department will not request information that is not listed in proposed R18-9-401(B)**:** "The applicant shall submit the Notice of Intent to Discharge Under a General Aquifer Protection Permit (Type 4) on a form provided by the Department containing the information specified in R18-9-401(B)(3).

Response: The notice of intent provision now clearly lists the specific information that must be submitted. No further change has been made to this rule.

Comment 5 - 30: What is the justification for a 45 day licensing time-frame? Is there an Administrative Review licensing time-frame review established for this type of permit? Currently, most permits issued for conventional septic tank systems take about one to two weeks to issue a permit. Why would the Department propose a 45 day time-frame? If the counties are more efficient than the Department, why not remove the Department administrative inefficiencies altogether and the Department just establish the standards. How much money would the public and small businesses save under this alternate program?

Response: The Department has completely rewritten this Section for greater clarity. The proposed processes for administrative completeness review and substantive review are now clearly defined. Consolidation of processes compared to current rules has allowed the Department to significantly reduce licensing time-frames. This rule does not alter the counties' role in approving conventional septic tank systems as the Department has delegated this responsibility to the counties. This will not change under the proposed rule, as the Department still intends to delegate these responsibilities to the counties. The Department expects that, with the more complete and clearer technical standards contained in this rule, that county processing time will actually decrease. No further change has been made to this rule.

Comment 5 - 31: Why prohibit smaller plants from beginning construction before issuance of the Provisional permit when larger treatment plants do not have this restriction? What is the cost to homeowners and small business if they have to wait for a permit for 45 days and cannot start construction? How much interest or increased costs will be incurred due to this rule? Why are the small systems being discriminated against? Why should smaller systems be treated differently than larger systems? As a professional engineer, the larger systems need more review since they are more complicated systems.

Response: The Department disagrees with the commenter's premises. As logic would dictate, larger facilities receive a much higher level of review because of their potential environmental impact. This review is done in the context of an individual permit. Investment in such plants, which are mostly municipally owned, is so large that only a reckless applicant would begin construction before receiving the individual permit. For smaller plants, the Department believes that submitted information must be reviewed before construction. In the experience of the Department and delegated agencies, this step is crucial to ensuring that the system is designed and installed properly. Many homeowners would be faced with greatly increased costs if this step were not performed and expensive alterations had to be made after the system is essentially constructed.

Comment 4 - 5: Why do Type 4 permits have two years to construct? This seems excessively long since these systems only take up to a few weeks to build. Limit it to one year at the most.

Response: Rather than establishing separate construction time periods for various types of Type 4 facilities, for simplicity, the Department established a single time allowance of two years. This should provide ample time for construction of conventional septic tank systems, as well as for more complex on-site systems and sewer collection systems. Nothing prevents a person from constructing a simple system in a week or two and quickly obtaining the Verification of General Permit Conformance. No change has been made to this rule.

Comment 5 - 32: The refund of 1/2 of the permit fee if the Department fails to issue a permit in 45 days violates the licensing time-frame statute A.R.S. 41-1077 that provides for a full refund if an agency does not comply. Why is the Department proposing this rule?

Response: The Department has completely rewritten the administrative completeness review and substantive review provisions for greater clarity and for consistency with license time-frame requirements. The provision for refunding 1/2 the fee has been eliminated.

Comment 26 - 20: This section states if provisional verification is not issued within 45 business days and the applicant is not notified by the department that it will not issue the verification or that the department needs another 45 days, then both the provisional verification and the verification automatically become effective. Does this suggest that the department must issue every comment through certified mail to ensure that the applicant is notified within 45 days? How will notification be defined under these proposed rules? What happens if the applicant does not pick up his certified mail?

Response: The Department has completely rewritten the administrative completeness review and substantive review provisions for greater clarity and for consistency with license time-frame requirements. The certified mail provision the applicant refers to has been removed.

Comment 5 - 33: What authority does the Department have to require an Engineers Certificate of Completion? What is the cost to the public and small businesses of this requirement? What is the benefit to the public of this requirement? Why not consider just having the Department provide construction inspection? Why is the Department trying to pass additional liability to a professional engineer?

Response: The Department has broad authority under A.R.S. § 49-104, 49-203 and elsewhere to adopt rules regarding the design, construction, operation, and closure of wastewater facilities. The Department has long required an Engineer's Certificate of Completion to provide assurance that the engineered works have been constructed as designed. There is no procedure change and therefore no economic impact. No change has been made to the rule.

Comment 5 - Unclear and not understandable as required in A.R.S. 41-1052(4). Will a permit be denied for a retired couple with an aerobic system with spray irrigation? What technical capabilities are being required? Why is the Department trying to insert unlimited discretionary powers into rule? This provision needs to be stricken, What will be the cost impacts be to a "person" that can't meet these unclear rules?

Response: The Department has completely rewritten the administrative completeness review and substantive review provisions for greater clarity. There is not a requirement for technical capability relating to issuance or non-issuance of a Verification of General Permit Conformance. No further changes to rule have been made.

R18-9-A302. Point of Compliance.

Comment 11 - 26: The procedure for identifying a point a compliance was not clear to us. While we acknowledge that the proposed was taken from portions of A.R.S. 49-244, some additional clarification would be helpful.

Comment 12 - 7: Add more instruction, assurances and/or requirements so applicants (especially small businesses) will not unintentionally violate federal drinking source water protection laws. This is especially significant for applicants that intend to discharge to unlined impoundments as allowed by this general permit.

Comment 12 - 56: Revise as follows**:** "... The pollutant management area is the limit projected in the horizontal plane of the area on which pollutants are or will be placed, AS MORE FULLY DEFINED IN A.R.S. § 49-244. If the facility is located within a larger PMA established under an individual permit issued to the same person OR AGREED UPON WITH THE DEPARTMENT IN THE PERMIT ISSUANCE PROCESS, the POC is the APPLICABLE POC established in the individual APP OR PERMIT PROCESS."

Comment 25-32: Delete the reference to establishing the point of compliance for general permitted facilities as the limit of the pollutant management area. The reference to the pollutant management area may in some instances be inconsistent with the identification of the point of compliance as established under A.R.S. § 49-244.

Response - Although A.R.S. § 49-244 allows some flexibility in the establishment of a point of compliance, it is believed that the statute anticipated that the point of compliance would be established at the time an individual permit is being developed. The general permits referenced in this rule do not allow for negotiation of the point of compliance. Therefore, the Department proposed a conservative approach that would establish the point of compliance at the downgradient edge of the pollutant management area. For the general permits, the pollutant management area is the horizontal areal extent of the single discharging facility being permitted. The Department did not take into consideration facilities with general permits that may be located within a larger site that has been issued an individual area-wide permit. Depending on the location of the general permitted facility, it may or may not be within the boundary of the pollutant management area established in the individual area-wide permit. If the facility is located within the established pollutant management area, its point of compliance will be the applicable point(s) of compliance established in the permit. The Department has revised the rule to address this situation in addition to the scenario originally proposed. R18-9-A302 has been revised as follows:

The point of compliance is the point at which compliance with Aquifer Water Quality Standards is determined.

1. *Except as provided in this Section or as stated in a specific general permit, the applicable point of compliance at a facility operating under a general permit is a vertical plane downgradient of the facility that extends through the uppermost aquifers underlying that facility.*
2. *The point of compliance is the limit of the pollutant management area.*
    a. *The pollutant management area is the horizontal plane of the area on which pollutants are or will be placed.*
    b. *If a facility operating under a general permit is located within a larger pollutant management area established under an individual permit issued to the same person, the point of compliance is the applicable point of compliance established in the individual permit.*

R18-9-A303. Permit Renewal.

Comment 5 - 35: This rule conflicts with itself. Are Type 4 permits issued for the life of the facility or some other time-frame? This needs to be clarified.

Comment 11 - 27: As referenced earlier, the permit duration for all permits should be for the life of the facility.

Comment 22 - 58: Revise the text as follows**:** "Except where otherwise stated, general permits established under this Article are valid for the life of the facility, including any closure activities required by a specific general permit. For general permits established with a duration of less than the life of the facility, the duration of the permit shall be based on the date or receipt by the Department of the Notice of Intent to Discharge Under a General Permit."

Comment 25 -33: General permits (consistent with individual Aquifer Protection Permits and Type 1 general permits) should be valid for the life of the facility. Proposed R18-9-404 should be revised accordingly as well as each of the Type 2 and Type 3 general permits that have language in the actual general permit limiting the duration of the permit.

Comment 26 - 17: This section should read "...general permits established under this article are valid for the life of the facility, unless additions or modifications are proposed, at which time application for a new general permit or individual permit is required..."

Comment 5 - 36: Why would a Type 4 permit be issued for less than the life of the facility? Is this an attempt by the Department to generate more fees? The Department's right to inspect any facility any time and this should be sufficient to determine if any facility is in compliance with its permit. Why does the Department want to require shorter permit periods? The Department should inspect operating on-site facilities in the state. What is the cost to the public and small businesses for a shorter permit period than the life of the facility?

Comment 22 - 57: Change title from "General Permits; Renewal" to "General Permits; Notification of Change; Periodic Notification."

Comment 22 - 59: Revise as follows**:** "Except as otherwise provided, general permits established with durations of less than the operational life of the facility shall be renewed at least 90 days before the expiration date of the general permit. The application for renewal shall be submitted on a form provided by the Department with any applicable fee following R18-9-101 et seq. A. THE PERMITTEE SHALL NOTIFY THE DEPARTMENT PRIOR TO ALTERING THE OPERATION OR MANAGEMENT OF THE PERMITTED FACILITY IN A FASHION NOT COVERED ON THE NOTIFICATION SUBMITTED TO THE DEPARTMENT PURSUANT TO R18-9-401(B)(3) TO OBTAIN GENERAL PERMIT COVERAGE. B. UNTIL A FACILITY COVERED UNDER A GENERAL PERMIT COMMENCES CLOSURE ACTIVITIES IN ACCORDANCE WITH R18-9-409, THE PERMITTEE SHALL SUBMIT A NOTIFICATION ONCE EVERY THREE YEARS CERTIFYING THAT THE FACILITY IS STILL OPERATING IN COMPLIANCE WITH THE TERMS OF THE APPLICABLE GENERAL PERMIT."

Comment 25 - 34: Because general permits should be for the life of the facility, proposed R18-9-405 should be restructured to require periodic (e.g., every four or five years) notification (not renewal) that the pemittee is continuing to operate in compliance with the requirements of the applicable general

Response: The Department believes that Type 2 and Type 3 General Permits are issued for the life of the facility, but must be renewed. Because many of these permits do not require regular reporting to the Department, renewal is an opportunity for the Department to confirm that changes have not been made to the facility. Additionally, the permittee certifies that the facility continues to comply with the technical standards in rule. The Department intends the renewal process for Type 2 General Permits if no changes to the facility to be a simple notification but the Type 3 General Permits may require some technical review to assure compliance with the rule requirements. Type 1 and Type 4 General Permits are issued for the life of the facility including any closure period.

The Department agrees that some clarification of this section of the rule would be beneficial. R18-9-A303 has been revised as follows:

A. Unless a general permit is transferred, a facility is authorized to discharge under the general permit for the operational life of the facility, including any closure activities required by a specific general permit.

B. A permittee shall submit the application for renewal on a form provided by the Department with the applicable fee established in 18 A.A.C. 14 at least 90 days before the end of the renewal period.

1. The following are the renewal periods for Type 2 General Permits and Type 3 General Permits:

a. 2.01 General Permit, five years;

b. 2.02 General Permit, seven years;

c. 2.03 General Permit, two years;

d. Type 3 General Permits, five years.

2. The renewal period for a Type 2 General Permit begins on the date of the Department's receipt of the Notice of Intent to Discharge.

3. The renewal period for a Type 3 General Permit begins on the date that the Director issues the written Verification of General Permit Conformance.

R18-9-A304. Notice of Transfer.

Comment 4 - 6: The transfer should also be tied to a re-sale inspection, or reference that section of the rule.

Comment 5 - 37: This rule should be stricken. What is the benefit? What is the problem the Department is trying to solve? What is the cost of the fee? What will be the time and cost impact on the closing of a property? Will the closing on a parcel be delayed until the Department responds to the transfer notice? What is the Department going to do with the information? Why generate a ton of paperwork and administrative cost to track property transfers? What other information will the Department require if "authorized by the specific general permit?" What does this mean? This rule is unclear. Will a new permit be required if the volume or discharge characteristics change? If the on-site system receives a doubling in the flow because a six-person family replaces a three-person family, will a new permit be required? If an office building changes ownership and a beauty salon replaces a warehouse use, will a new permit be required?

Comment 9 - 3: Mandating notification on change of ownership is an administrative burden on counties. This should be administered by the Department or funds should be provided to counties to hire staff.

Comment 20 - 5: Neither reference spells out the whole range of requirements. It may be helpful to have the full set of requirements appear in the same place.

Response: The Department has clarified these requirements in R18-9-A304 and R18-9-A309. Because the requirements at R18-9-A309 are a specific instance at R18-9-A304, they should not be consolidated.

R18-9-A305. Facility Expansion.

Comment 2 - 8: Are repairs or updates or expansions treated in the same manner as new systems?

Response: This comment appears to refer to on-site wastewater treatment systems. An expansion to an on-site system requires submittal of a new Notice of Intent to Discharge under R18-9-A305(B), although the applicant may benefit from certain reduced information submittal requirements described in this subsection. Updates and repairs to a system would not require submittal of a new Notice of Intent to Discharge unless the general permit conditions are no longer met. In that case, a Notice of Intent to Discharge under the appropriate general permit would have to be submitted, or if no general permit applied, an application for an Individual Aquifer Protection Permit would have to be submitted. No change has been made to the rule.

Comment 2 - 9: Establish a process to address training, testing, and certification of participants in this field, especially the qualifications of site evaluators for on-site systems.

Response: The Department agrees. However, no change to the rule is necessary to establish these implementation processes.

R18-9-A306. Closure.

Comment 25 - 35: Subsections (A)(3) and (A)(4) are unclear and do not make sense grammatically. Subsection (A)(2) repeats language from A.R.S. § 49-252 relating to clean closure, consequently, the subsection implies that all facilities covered by general permits will be required to undergo clean closure. This may not be appropriate or required in all instances. In addition, it is unclear what is intended by the phrase "if necessary to ensure protection of the aquifer" in subsection (B). Delete proposed R18-9-409 or clarify that Type 1 general permit are not subject to closure requirements by limiting the application of proposed R18-9-409 to Types 2, 3, and 4.

Comment 22 - 65: Revise "an" general permit to "a" general permit.

Comment 11 - 28: The term "may contribute" should be changed to "will likely contribute."

Comment 22 - 66: Clarify in the preamble, at a minimum, how the requirement to remove any material that may contribute to a continued discharge impacts certain general permits and how this requirement relates to the requirement in proposed R18-9-416(E). Modify the lead-in-sentence to provide that the requirements of that section apply unless they are inconsistent with closure requirements in particular general permits.

Comment 22 - 67: Clarify the meaning of this provision.

Comment 5 - 39: Clarify. May give the Department unlimited power to require anything it desires. Each type of on-site system should clearly define the closure requirements. Why can't the Department describe the standards for closure?

Comment 22 - 68: Clarify what "further closure activities" might be required beyond those already set forth in subsection (A)(l)(3), which require elimination to the greatest degree practicable of any reasonable probability of further discharge and of exceeding standards at the point of compliance, and also reference the possibility of post-closure care. Second, the standard of "ensuring protection of the aquifer" is inappropriately vague. Delete the provision if the Department cannot be specific as to what additional measures it may wish to require, and if it cannot more clearly specify the standard that it wishes permittee to meet.

Response: The Department did not intend to require that all general permitted facilities must meet the clean closure requirements under A.R.S. § 49-252. However, if a general permitted facility cannot meet the requirements for clean closure approval, an individual permit will be required to cover the period of post-closure. The Department does not envision closure requirements for most Type 1 General Permit facilities beyond what is specified in the general permits. R18-9-A306 has been revised as follows:

A. In addition to the closure requirements specified in a general permit, a permittee shall submit the closure plan specified under A.R.S. § 49-252.

B. The closure plan submitted under A.R.S. § 49-252 meets the clean closure requirement if the permittee:

1. Removes material that may contribute to a continued discharge; and

2. Eliminates, to the greatest degree practical, any reasonable probability of further discharge from the facility and of exceeding Aquifer Water Quality Standards at the applicable point of compliance.

C. For an on-site wastewater treatment facility, a permittee shall comply with the requirements of R18-9-A309(D) to meet the requirements of this Section.

D. For a facility operating under a general permit and located at a site where an individual area-wide permit has been issued, a permittee may defer some or all closure activities required by this subsection if the Director approves the deferral in writing. The closure activities shall be performed no later than the closure activities identified in the individual area-wide permit.

R18-9-A308. Violations and Enforcement For On-site Wastewater Treatment Facilities

Comment 5 - 42: This provision expands enforcement powers of the Department to any person involved in the design, construction, or operation of the small on-site system (Type 4). Why are these enforcement provisions not applied to all individual and general permits? How can the Department issue a compliance order against a professional engineer or licensed contractor or certified operator when the permit is issued to a property owner? How can the Department take enforcement action against the designer, contractor, or operator? What statute authorizes this expansion of power? Why shouldn't the Department and delegated counties also be held responsible for violation of the rules? If the Department permits an on-site system that does not comply with the minimum standards, the Department should be held partially responsible to the rule violation.

Response: See comment 5 - 83 in R18-9-A309.

R18-9-A309. General Provisions For On-site Wastewater Treatment Facilities.

Comment 5 - 69: What are the provisions to ensure the Department and delegated county compliance with licensing time-frame requirements? Where are the provisions to ensure the Department and delegated county compliance with A.R.S. 41-1001.01 Regulatory Bill of Rights? Currently, the Department has provided a written statement that delegated counties do not have to comply with licensing time-frames and A.R.S. 41-1001.01 for permits issued for on-site systems. The public's civil rights are being violated by the Department's position.

Response: Licensing time-frame requirements have been incorporated into this rule. In all cases, the time-frames for sewage collection systems are shorter than in corresponding time-frames for the Approvals to Construct and of Construction in the Sewerage System rules that this rulemaking will replace on January 1, 2001.

The other issues the commenter raises are outside the scope of this rule and are addressed in a separate venue. No change has been made to this rule.

Comment 5 - 70: Clarify why seepage pits are being permitted when cesspools are not. How can the Department profess that deep disposal seepage pits meet the definition of BADCT? What studies has the Department performed or obtained that documents the performance of 100-foot deep seepage pits? Many soil studies have been performed indicating that a clogging mat will occur if the soil is loaded at a hydraulic rate greater than the Soil Application Rate.

Response: Seepage pits are entirely different from cesspools. Seepage pits, like disposal trenches, are designed to properly dispose of wastewater that has been treated by a septic tank. Cesspools, on the other hand, are excavations that were once used to dispose of raw sewage. For this reason, cesspools have been prohibited in rule since at least 1979; this prohibition is retained in this rulemaking.

The proposed rule specifies both design standards and a method of hydraulic testing to ensure that seepage pits will perform properly. In addition, the rule limits seepage pits to specific alluvial basin settings where proper performance and protection of groundwater quality are ensured. Under current Department guidance, thousands of seepage pits have been successfully constructed and operated. In fact, the final rulemaking specifies more stringent locational, design, and testing criteria than current guidance. The Department is confident that these measures are adequate for environmental protection. No change has been made to the rule.

Comment 2 - 4: Be cautious about approving reference designs for portions of systems. There are usually too many varying site conditions to be addressed totally by a reference design.

Response: The Department agrees with the cautionary comment regarding reference designs. However, if the range of acceptable site conditions are clearly stated for each reference design, as the Department intends, the use of reference designs should simplify system design and lower overall cost to the homeowner. No change has been made to the rule.

Comment 1 - 3: Ignoring the difference between on-site system annual OM&R costs and annual charges by the owner of the sewage collection system results in an inaccurate determination of what is practical.

Comment 5 - 71: Strike or clarify the Department's authority to require a connection to a sewage collection system. The Department has not determined the cost impacts to the public and small business as a result of this rule. How many instances has the Department encountered that forced a person to connect to a sewage collection system?

Comment 12 - 12: Amend to read**:** "... sewer is less than 400 feet from the nearest property line and the cost is less than three times the cost of installing a new on-site wastewater treatment facility of the type authorized by R18-9-432, General Permit 4.02." Cost basis shall not include fees and engineering costs.

Comment 14 - 8: Should consider political boundaries. A parcel may be within 400 ft. but be in the county and not within the service boundary of the nearest city or sewered community.

Comment 26 - 14: By using "twice the cost" as a determining factor as to whether or not sewer connection is "practical," the result is that in almost all cases a septic system would be allowed. If the intent of the proposed rules is to encourage sewer connection, then along with changing the distance to sewer from 200 to 400 feet, the cost factor should be increased.

Comment 39 - 9: We recommend that instead of using the qualifying statement about on-site septic system costs, the rule state some distance regardless of cost. In Lake Havasu City this is 100', however, the Department may wish to use a greater distance. One issue in particular that would need to be clarified, is whether you base this value on the cost to extend the sewer main to the property, or just use the cost of the lateral connection from the main to the property.

Response: The Department rule currently prohibits the use of individual disposal systems "where the connection to a sewer is determined by the Department to be practical." (R18-9-803(C)(1). Further guidance is provided by Department Engineering Bulletin 12, which calls for hookup to a public sewer system if a sewer is within 200 feet and the cost of connecting is less than two times the cost of installing an on-site wastewater treatment facility. In its final rule, the Department essentially carried over the language from the current rule, then appended distance and cost criteria derived from Bulletin 12 concepts. As the comments indicate, the key problem is the ambiguousness of the cost of connecting to a sewer, because the cost of a septic tank/disposal field system (General Permit 4.02) is so variable. The Department removed this ambiguous standard and revised subsection (A)(5) to provide a uniform cost standard, as follows:

The Department shall require connection to a sewage collection system if the connection is practical. A connection is practical if the distance to connect to the sewer is 400 feet or less and the total cost of the connection is less than $6000 if capacity is available and performance of the sewage collection system and receiving sewage treatment facility are not impaired.

Comment 39 - 10: Specific criteria for determining what constitutes an unsanitary condition or public health nuisance should be added. The statement as written is vague and may be difficult to enforce

This rule violates A.R.S. 41-1052 in that it is not clear or understandable and exceeds the limited powers granted to the Department.

Response: The Department has modified the rule by substituting the phrase "environmental nuisance" for "public health nuisance." A.R.S. § 49-141 provides the detailed list of environmental nuisances that the first commenters requests. The Department does not see the relevancy of the reference by the second commenter to A.R.S. § 41-1052, which is a statute pertaining to Governor Regulatory Review Council review responsibilities. Subsection (A)(6) has been revised as follows:

The Department shall prohibit installation of an on-site wastewater treatment facility if the installation will create an unsanitary condition or environmental nuisance or cause or contribute to a violation of an Aquifer Water Quality Standard.

Comment 2 - 12: This section does not provide for any enforcement. Is this covered elsewhere? It would be great to have the written authority to take care of a serious problem with County forces and have the ability to recover costs via assessments or fines, and have it covered in this section.

This mandates that the Department can require servicing or repair when justified, but does not give the enforcement criteria.

What is the definition of "servicing?" Can the Department order servicing of an on-site system? What statute grants the Department this authority?

A statement needs to be made that any system requiring a repair due to a failure must meet current Department rules for siting and design. There also needs to be provisions for enforcement.

Response: This provision has been reworded to more clearly state the permittee's responsibility to service or repair a system that creates an unsanitary condition or environmental nuisance. Failure by the permittee to do so would subject the permittee to the enforcement provisions of R18-9-A308. This change also makes clear in context the definition of servicing–it is for the purpose of remedying the unsanitary condition or environmental nuisance. Subsection (A)(7) has been revised as follows:

A permittee shall service or repair an operating on-site wastewater treatment facility, or installed a replacement facility if the facility has created or if its use creates an unsanitary condition or environmental nuisance or has caused or causes a violation of an Aquifer Water Quality Standard.

Comment 5 - 74: Paragraphs (c) & (d) are in conflict and unclear. Does a restaurant need to pretreat its high BOD wastewater to domestic levels in addition to an interceptor? An interceptor is only designed to remove grease and oils and not lower BOD or solid levels. What are the cost impacts for high strength wastewater from restaurants to install pretreatment devices?

Response: To clear up any possible confusion, subsection (A)(8)(d) has been modified as follows:

A typical sewage flow with a component of flow from nonresidential food preparation or laundry service is adequately pretreated by an interceptor that complies with R18-9-A315 or another device authorized by a general permit or approved by the Department under R18-9-A312(H).

Comment 5 - 75: Delete. What is the benefit of such a program? What are the costs to the public and small businesses? What are the standards for inspecting an on-site system? Instead of delaying the effective date, eliminate the program entirely from these rules until the program can be developed with stakeholders like real estate, engineering, and county personnel. Every on-site system should be inspected before the sale of the property. Need to expand the components of the system which need to be inspected and reduce conflicts of interest (i.e. a pumper who usually recommends the tank be pumped also inspecting the tank). Define "qualified inspector" and specify who make this determination. Develop a certification and training program for designers, installers, regulatory reviewers, operators, and inspectors of on-site systems or explain why it isn't necessary. Develop the minimum inspection requirements for on-site systems and then propose the rules.

Comment 9 - 5: If rule R18-9-406 is kept, then the wording of this section should be changed to read "affirm that it was serviced in accordance with established guidelines, repaired as necessary, and is in good working condition at the time of inspection." The criteria for a 'qualified inspector should be left to the Counties to decide.

Comment 19 - 1: Additional requirements to verify system conditions should be added to the rule. These include testing the system, verifying all building codes are met, opening all lids to the tank need to be open and inspected if possible.

Comment 4 - 11: What criteria will the qualified inspector use to determine the condition of the facility? How is he to determine that the system is in good working condition or is this to be defined by each county for re-sales?

Comment 12 - 13: Amend to read**:** "... and affirm that it was serviced in accordance with established guidelines, repaired as necessary, and is in good working condition at the time of inspection.

Comment 26 - 15: Clarification should be provided as to exactly what constitutes a "qualified inspector."

Comment 4 - 12: Define what competence may be required or is this to be defined by each county?

Response: There seems to be a consensus among stakeholders that periodic inspections of on-site wastewater treatment facilities are necessary to ensure proper long term operation. As an alternative to more onerous inspection schemes, the Department's On-Site Wastewater Advisory Committee supported an approach involving an inspection at the time of home ownership change, because such an inspection would provide the greatest benefit to the home buyer. Under this approach, inspection of the on-site wastewater treatment facility would be handled similar to other inspections at the time of ownership change, such as the termite inspection. In some areas of the state, formal or informal processes for on-site system inspections already have been established as part of the transfer of ownership disclosure. Comments received as part of this rulemaking indicate concern about the scope of the inspection.

The Department originally proposed that the inspection result in a certificate affirming that the system was serviced, repaired, and is in good working condition. Based on these comments, the Department has since decided that the simplest and most effective approach is for the inspection to note the physical and operational condition of the on-site wastewater treatment facility and any deficiencies. Remedy of any deficiencies would then become a matter of negotiation between the buyer and seller, like other deficiencies identified by inspections or the disclosure. Because of the need to develop joint processes with realtors, financial institutions, other regulatory agencies, and the private sector performing the inspections, the Department is delaying implementation of the transfer inspection requirements until January 1, 2002. The Department believes that no further detail is needed in the rule regarding what needs to be inspected or what constitutes a qualified inspector. This more specific information can be developed during calendar year 2001 for eventual implementation.

R18-9-A316 has been revised as follows:

A. A person possessing working knowledge of the type of facility and the inspection process shall perform a transfer inspection of an on-site wastewater treatment facility.

B. The applicant shall send the Report of Inspection and Notice of Transfer forms required by R18-9-A304 and approved by the Department, and any applicable fee to the health or environmental agency delegated by the Director to administer the on-site wastewater treatment facility program.

1. The Report of Inspection shall:

a. Indicate that the on-site wastewater treatment facility was inspected within six months before the deed of transfer for the property was recorded, and

b. Address the physical and operational condition of the on-site wastewater treatment facility and identify associated deficiencies.

2. A copy of the Report of Inspection shall be transmitted to the buyer of the property.

C. This Section does not apply to the first sale of a house or property from a developer or subdivider to the buyer of the property.

Comment 12 - 14: Amend to read**:** "Parcel and lot number, if applicable, a copy of the recorded deed after lot splits, a survey of the lots involved, and the boundaries of the property on which the on-site wastewater treatment facility is to be installed. The site plan may also need to contain additional information as required by the local authority."

Comment 26 - 2: The plot plan should include a listing of the property address or appropriate legal description.

Response: The Department agrees with the language regarding parcel and lot number, but believes the requirements a recorded deed and survey are too burdensome for the typical homeowner applicant. The Department agrees that the property address or other appropriate legal description should also be indicated on the site plan. Subsection (B)(2)(a) has been modified as follows:

The parcel and lot number, if applicable, the property address or other appropriate legal description, the property size in acres, and the boundaries of the property on which the on-site wastewater treatment facility will be installed.

Comment 4 - 13: Why is it required to show a drinking water well that is 300 feet away when it is only required to have a 100 foot set-back? This may require encroaching on private property when the information is not needed; 100 feet separation is the minimum requirement to show, right?

Comment 12 - 15: Amend to read "... any public sewer if less than 400 feet and any water well including abandoned, irrigation and monitoring types if less than 300 feet from the property line."

Comment 2 - 14: Delete or justify the requirement for showing the location of existing facilities far outside the limits of setbacks or hookup requirements.

Comment 5 - 76: Define "appropriate contour intervals" and specify statutory authority to justify this power. Subsection (2)(b)(v) is redundant to subsection (ii).

Response: The Department believes the requirement for contour intervals is clear as proposed. No change has been made to the rule. The Department has modified subsection (B)(2)(b)(v) by removing the reference to drinking water wells, which is covered by subsection (B)(2)(ii). The distance to a public sewer now corresponds to the sewer hookup requirement. Subsection (B)(2)(b)(v) has been revised as follows:

Location of any public sewer if 400 feet or less from the property line.

Comment 4 - 14: Is this for dry lot subdivision, property splits, etc? If so, then state it that way.

Delete. How can a person comply in areas where properties depend on wells and on-site systems? What is a person supposed to submit? The Department is attempting to impose land use controls that are outside its jurisdictional authority.

What must be submitted in these instances?

Response: The Department believes this requirement is clear, with one minor exception which is indicated below. This provision may apply to dry lots, property splits, or other situations – which was the reason for the wording. The purpose of this provision is to ensure that the rights of all adjoining property owners to construct a drinking water well or on-site wastewater treatment facility are maintained to the maximum extent possible. Just as important, this provision protects all mutually adjacent property owners from adverse impacts from septic waste disposal. The rule has been revised as follows:

For improvements...an on-site wastewater treatment facility, the location <u>of features</u> within the boundaries....

Comment 5 - 78: Clarify which flow rates from Table 1 should be used and which method (number of bedrooms or the number of fixture units) should be used to design the system. With these important and far reaching rules, why has the Department not taken the effort to seek input? Technical errors in the on-site rules must be corrected.

Response: It is not possible to state which flow rates to use from Table 1 because that is dependent on the sources contributing to the on-site wastewater treatment facility. Almost any of the sources listed in Table 1 could contribute. No change has been made to the rule.

Comment 5 - 79: Define seasonal high water table. Is a soil evaluation supposed to be performed up to 10 feet below the bottom of the disposal trench? The current practice is to excavate only five feet below the bottom of the trench. What are the cost impacts of this new rule?

Amend to read**:** "...seasonal high water table if less than 40 feet below ... and. performance."

Response: The Department believes there is very little confusion in the professional community about the meaning of seasonal water table, therefore there is no need to define the term. However, the Department is amending the rule to reflect the concerns about providing information on the depth of the seasonal high water table. The seasonal high water table should be indicated on the cross sections only if it is within the interval that would potentially affect system design (i.e., within 10 feet for disposal fields and 60 feet for seepage pits). On the other hand, one of the comments mistakenly implies that actual excavation is needed to those depths. In the vast majority of Arizona localities, the water table is deep enough to moot the issue of high seasonal water tablet. Water table records are readily available and may be referenced in these instances. Subsection (B)(4)(d) has been revised as follows:

Cross sections showing construction details...surface, seasonal high water table if less than 10 feet below the bottom of a disposal field or 60 feet below the bottom of a seepage pit, and a soil evaluation....

Comment 26 - 3: We recommend that plan and profile and cross-sections of all components not be required for standard systems.

Response: The Department agrees. In fact, the Department had intended that none of the provisions relating to construction quality drawings should apply to a facility, including treatment and disposal works, permitted solely under the 4.02 General Permit. Subsections (B)(2)(b)(iv) and (B)(4)(f) have been revised as follows:

(B)(2)(b)(iv) *Location and identification of the treatment and disposal works and connecting pipelines, the reserve disposal area, and location and identification of all sites of percolation testing and soil evaluation performed under R18-9-A310; and*

(B)(4)(f) *Construction quality drawings are not required if the entire facility at the site, including treatment and disposal works, is permitted under R18-9-E302.*

Comment 9 - 6: Add - "Construction notes for each system, subsystem and key components."

Response: The Department agrees. In addition, with changes the Department has made to R18-9-A312, Qualifications, it is appropriate to identify in the Notice of Intent the name of the engineer who will sign and seal the Certificate of Completion when the signing and sealing is required by R18-9-A312. Subsections (B)(4)(a) and (B)(8) have been revised as follows:

(B)(4)(a) *Systems, subsystems, and key components, including manufacturer's name, model number, and associated construction notes and inspection milestones, as applicable.*

Comment 5 - 80: Clarify why a list of materials is needed when the design plans will illustrate the products being installed. Why are basic conventional septic systems not required to list the filters, distribution boxes and piping materials? Shouldn't all components be listed for every on-site system?

Response: The list of materials, components, and equipment is required only for the more complex systems (General Permits 4.03 through 4.23) because the higher performance standards set for those systems require more attention to proper installation and operation and maintenance of the components and equipment. No change has been made to the rule.

Comment 5 - 81: Clarify why a draft Operation and Maintenance Plan is needed and what is to be included in the manual. Clarify why basic septic systems are exempt from the operation and maintenance rule?

Response: Proper operation and maintenance is much more critical for complex systems than a conventional septic tank/disposal field. The requirement for a draft Operation and Maintenance Plan at the Notice of Intent stage and a final Operation and Maintenance Plan at the Verification stage is logical because modifications to the draft Operation and Maintenance Plan are likely as a result of data collected during installation and startup. No change has been made to the rule.

Comment 5 - 82: Clarify the size and format specified by the Department.

Response: The Department disagrees that size and format be specified in rule. This is particularly true in light of the rapid spread of electronically-based business processes. No change has been made to the rule.

Comment 20 - 7: The verification process must include the required Operation and Maintenance for each general permit system type as well as contain the as-built plans. If operation and maintenance and as-builts are not a part of the Verification of General Permit Conformance, where will these elements reside? The rule should identify whose responsibility it is to retain the Verification of General Permit Conformance. The likely candidate will be the home or property owner. Any general permit transfer should also include the Verification of General Permit Conformance that includes the operation and maintenance and as-builts as part of the permit transfer.

Response: The Department agrees that the verification process must include both as builts, including any changes to equipment and materials, and the Operation and Maintenance Plans for General Permits 4.03 through 4.23. In general, the requirements for verification for various systems need to be more clearly defined. Subsection (C) has been revised as follows:

Additional verification of general permit conformance requirements.

1. *If the entire on-site wastewater treatment facility at the site, including treatment and disposal works, is permitted under the 4.02 General Permit, the Director shall issue the Verification of General Permit Conformance only if the site plan accurately reflects the final location and configuration of the components of the treatment and disposal works.*
2. *If the facility is permitted under any 4.03 through 4.23 General Permit, either separately or in some combination of these permits or the 4.02 General Permit, the Director shall issue the Verification of General Permit Conformance only if the following record documents have been submitted:*
    a. *As-built plans;*
    b. *A final list of equipment and materials, if different from the list specified in subsection (B)(5);*
    c. *A final operation and maintenance plan;*

d. Other documents, if required by the separate general permits; and

e. A Certificate of Completion signed by the person responsible for assuring that installation of the facility conforms with the design approved under the Provisional Verification of General Permit Conformance.

3. The Director shall specify in the Verification of General Permit Conformance:

a. The permitted design flow of the facility,

b. The characteristics of the wastewater sources contributing to the facility, and

c. A list of the record documents accepted by the Department satisfying subsection (C)(2).

Comment 5 - 93: Define seasonal high water table. Does this requirement mean that an observation hole needs to be excavated 10 feet below the trench bottom to satisfy this requirement? What are the cost impacts to the public and small businesses to now have to increase the existing practice of five feet of excavation?

Response: An essentially identical comment was responded to in R18-9-A309(C)(4)(d).

Comment 2 - 13: Need method to establish inspector qualifications. Specify items that must be addressed on any transfer inspection.

Comment 2 - 15: Add current lists of products that have been "approved" by the Department.

Comment 9 - 7: Change to read "Remove all sewage from facility and dispose in a manner approved by the Department."

Comment 12 - 17: Amend to read**:** "Remove all sewage from the facility and dispose of in a manner approved by the Department."

Comment 9 - 8: Change to read "Remove or collapse the top and puncture the bottom of any tank or containment structure.

Comment 12 - 18: Amend to read**:** "...containment structure and puncture the bottom."

Comment 4 - 15: Why not require the closure activities**:** removing sewage, crushing the top in, filling tile tank, etc, be witnessed or inspected by the county health departments?

Response: The Department agrees that sewage should be disposed lawfully. The Department also agrees that the bottom of any tank or containment structure should be punctured if there is a chance that a rise of a shallow water table could float out a tank or containment structure. The Department believes there is no compelling need to establish personnel or witnessing qualifications. The following sentence has been added to subsection (D)(1):

Remove all sewage from the facility and dispose of the sewage in a lawful manner;

Comment 5 - 83: Why are these enforcement provisions not applied to all individual and general permits? Specify the authority for the Department to issue a compliance order against a professional engineer or licensed contractor or certified operator instead of a property owner. Why shouldn't the Department and delegated counties also be held responsible for violation of the rules? If the Department permits an on-site system that does not comply with the minimum standards, the Department should be held partially responsible to the rule violation.

Response: A.R.S. Title 49, Chapter 2, Article 4, Enforcement, does apply to all provisions of Article 3, Aquifer Protection Permits, including provisions for both individual and general permits and all provisions of Article 2, Water Quality Standards. A person who violates Article 2 or Article 3 is subject to the enforcement provisions of Article 4. R18-9-A308 has been revised, as follows, to more clearly reflect the Department's enforcement authority:

A. A person who owns or operates an on-site wastewater treatment facility contrary to the provisions of a Type 4 General Permit is subject to the enforcement actions under A.R.S. § 49-261;

B. A person who violates this Article or a specific term of a general permit for an on-site wastewater treatment facility is subject to enforcement actions under A.R.S. § 49-261.

Comment 5 - 84: Specify the Department's authority to list products that can be used in an on-site system and the criteria used to say if a product is acceptable. Specify the monitoring requirements which the Department will perform to ensure conformance with acceptable standards. Is it the role of the Department to approve products or the professional engineer? What are the cost impacts to small business to submit and the Department to process the product review? The Department should consider permitting professional engineers to specify products without Department intervention. Another option would be to permit products approved by other states to be used in Arizona. This method would eliminate any workload requirements and costs to small business.

States "the department shall maintain a list of proprietary and other reviewed products that may be used for on-site wastewater treatment facilities in order to comply with the requirements of this Article. The list shall include appropriate information on the applicability and limitations of each product." Where will this list come from? What will be the basis of authority for including or excluding various products and uses?

Response: The Department has both broad and more specific authority for approving equipment and devices relating to compliance with environmental statutes (ARS §§ 49-104(B)(10), 49-104(B)(13), 49-203(A)(4), 49-203(A)(8) and 49-243 and others). The Department disagrees that for key on-site wastewater treatment system components the professional engineer should specify products without prior Department approval. The general permit framework for on-site system technologies relies on clear statement of the performance capability of each general-permitted system. Maintaining an approved product list is the only way that the Department (and ultimately the homeowner) can have confidence that the installed system will meet performance standards prescribed in the general permit. Extravagant performance claims for on-site system components and equipment are all common and often do not address site limitation and operation and maintenance issues. The proposed product review process, overseen by the Department, will ensure that manufacturer's claims are adequately evaluated with respect to specified performance requirements. In general, based on Department conversations with product manufacturers, reputable manufacturers support a product listing process because it will discourage products with unsupported claims from being sold in Arizona. For this reason, the Department is not changing the rule except to clarify, in subsection (D)(3), that a proposed reference design can be submitted as part of the product review request.

A person may request that the Department add a product to the list of proprietary and other reviewed products. The request may include a proposed reference design for review. The Department may assess fees for product review.

R18-9-A310. Site Investigation For On-site Wastewater Treatment Facilities.

Comment 10 - 3: Supports soil evaluation as the primary methodology for determining the suitability of on-site systems. Should consider other alternative methodologies besides just the standard perc tests.

Response: The Department disagrees. The rule is comprehensive by providing for soil evaluation methods, percolation test methods, and alternative methods, as well as providing the criteria for when these can or can not be used. No change has been made to the rule.

Comment 15 - 4: "Sewage" is distinct from wastewater such as equipment wash water that is pretreated in an oil/water separator. This distinction should be clearly articulated in the final rules, either in definitions at R18-9-101 or at R18-9-426.A by stating, "For the purposes of this Article, 'on-site wastewater treatment facilities' means facilities treating sewage or wastewater containing a component of sewage." This definition will help to avoid future regulatory construction that would apply R18-9-427 through R18-9-453 to wastewater treatment units not containing any sewage.

Response: "Sewage" is defined in R18-9-101. The language the commenter requests is found at R18-9-A309(A)(1). No change has been made to the rule.

Comment 5 - 85: Prescribe the format. Require that professional engineers perform all site investigations. What recourse does the public have if a site investigation test is performed incorrectly under these rules?

Response: In this rule, the Department has taken a comprehensive approach to permitting on-site wastewater treatment facilities. This approach includes specifying**:** 1) the site investigation methodology and the purpose of the site investigation, which is to identify any site and soil conditions at the site that would limit the use of a conventional, 4.02 General Permit system; 2) the process for selecting an appropriate system that will overcome the site limitations; 3) the process for designing the system, whether a conventional system if no site limitations are identified or alternative technologies if site limitations exist; and 4) design, performance, installation, and operation and maintenance requirements for each general-permitted technology to ensure that the applicable site limitations are overcome and that the constructed system will, in fact, work properly and protect public health and water quality. The Department's response to all comments dealing with R18-9-A310 through R18-9-E323 is in the context of this comprehensive framework.

The Department has described the format requirements in the Notice of Intention to Discharge requirements, R18-9-A309(C). Qualification requirements are described in R18-9-A310(G) and R18-9-A312(A). A key disincentive to performing a site investigation test incorrectly is the requirement for a Certification of Completion by an Arizona-registered professional engineer, R18-9-A312(A)(6), for all Type 4 General Permits other than the 4.02 General Permit.

Comment 5 - 86: Define soil absorption rate and specify how it differs from the Soil Application Rate? Correct method listed as the Seepage Pit Performance test that uses at least 30 feet of water to determine the percolation rate of the soil. Why has the Department proposed this test? What is the scientific basis for defining a soil absorption rate of 1.4 gallons per square foot per day? This rule should not prevent a professional engineer from utilizing different systems that would adequately treat the wastewater. (NOTE**:** Maybe the statement re Seepage Pit Performance applies to 427(B)(2)??)

Strike the reference to the seepage pit performance test. What research has the Department performed on the suitability of this test and seepage pits? What research is the Department using to classify seepage pits as BADCT? Why has the Department refused to ban seepage pits when their own study presented to the AUPC indicated that saturated flow occurs below a seepage pit and has the potential to pollute groundwater?

Response: The term "soil application rate" was used inadvertently in only one place, in the 4.08 General Permit for Wisconsin mounds. This has been corrected. The term "soil absorption rate" is defined contextually relative to the approved testing method determinations, therefore, no further definition is needed.

Seepage pits are an inherently different method of disposal than disposal trenches and beds. To apply percolation test methodology to seepage pits would be utterly inappropriate. The seepage pit testing methodology was developed in conjunction with stakeholders with expertise in constructing and testing seepage pits. Except for minor changes to the seepage pit testing methodology described below, the Department stands by the proposed criteria. Additionally, this rule does not prevent an engineer from using different systems to treat and dispose of wastewater from an on-site wastewater treatment facility. The procedure specified in R18-9-A312(H) is available, if applicable, to an engineer, or the applicant has the option of applying for an individual permit

Finally, the commenter misconstrues the Department modeling results relative to seepage pits. In typical soil conditions where seepage pits are installed, the Department modeling runs show unsaturated conditions below the seepage pit. Even in finer-grained soils, where saturated conditions might develop, the modeling shows that travel times are so long – weeks to months – that aquifer water quality will be protected from microbial contamination. The Department proposes minimum vertical separation distances to groundwater that are at least five times that specified for shallow and deep trenches (R18-9-A312(E)), to provide an even greater margin of safety than for shallow and deep trenches.

In summary, the Department believes that the proposed requirements for seepage pits are protective of public health and water quality. In later comments, inconsistencies in the maximum minimum allowable soil application rates were pointed out by commenters. To resolve these, subsection (B)(1) has been revised as follows:

a. The soil absorption rate determined by the requirements of this Article is more than 1.20 gallons per square foot per day;

b. The soil absorption rate determined by the requirements of this Article is less than 0.13 gallons per square foot per day;

Comment 9 - 9: Describe what the limiting subsurface condition is, i.e., seasonal high water table capillary fringe, impermeable layer of soil or rock, fractured rock or soil with greater than 50% rock fragments.

Comment 20- 8: Limiting subsurface condition should be defined. The limiting condition may not be a limiting condition depending on type of treatment.

Response: The term "seasonal high water table" has been retained, rather than adopting the term "seasonal high water table capillary fringe," because the seasonal high water table is an easily measurable, physically distinct point, whereas the top of the capillary fringe is difficult to measure without sophisticated instrumentation and can be highly variable even over short distances. As mentioned in a previous response, the purpose of identifying limiting conditions are to allow selection of an on-site wastewater treatment facility that will overcome those limiting conditions.

Lastly, one additional limiting condition has been added to ensure that an on-site wastewater treatment facility will not cause a violation of a surface water quality standard established under A.R.S. Title 49, Chapter 2, Article 2.

Subsection (B)(10)(1) has been revised in response to comments and to eliminate the redundancy between subsections (B)(1)(c) and (B)(1)(f).

(B)(1)(c)	*The vertical separation distance from the bottom of the lowest point of the disposal system to the seasonal high water table is less than the minimum vertical separation specified by R18-9-A312(E), or seasonal saturation at the surface occurs.*
(B)(1)(f)	*The vertical separation distance from the bottom of the lowest point of the disposal system to a subsurface condition that will cause surfacing of wastewater at the design flow rate or provide a direct conduit to the aquifer is less than the minimum vertical separation specified by R18-9-A312(E).*
(B)(1)(i)	*The vertical separation distance from the bottom of the lowest point of the disposal system to a subsurface condition that will convey wastewater to a water of the state to cause or contribute to a violation of a Aquifer Water Quality Standard established under A.R.S. Title 49, Chapter 2, Article 2 is less than the minimum vertical separation specified under R18-9-A312(E).*

Comment 5 - 87: What does this rule mean? What is an appropriate on-site system? Who makes the decision**:** the Department or the engineer?

Response: The Department believes R18-9-A310(B)(2) is clear. The rule states that the site investigation must provide enough information to allow selection of a system that will overcome any identified site limitation. No change has been made to the rule.

Comment 2 - 16: Specify the qualifications for a person to do a site investigation.

Response: The specific regulatory reference relating to competence to perform a site investigation is found at R18-9-A310(G). The Department has not provided additional detail to this rule because it intends to work with stakeholders to develop specific criteria and training. No change has been made to the rule.

Comment 4 - 16: The last sentence is incomplete. What is meant?

Response: When (C) is read in its entirety, the sentence is complete. No change has been made to the rule.

Comment 26 - 5: Soil characterization at a site, can be accomplished or must be accomplished under certain circumstances, using several different ASTM methods. Is there training available on these methods?

Response: The Department is developing training in conjunction with stakeholders, but this is an implementation issue beyond the scope of this rule. No change has been made to the rule.

Comment 9 - 10: The number of soil test pits & percolation tests should be specified. A minimum of three test pits and three perc tests per site should be required. The qualifications of who can run these tests should be left to the Counties.

Comment 2 - 19: Increase the number of required site evaluation holes and the number of percolation tests. Clarify how many site holes are to be excavated vs the number of percolation holes to be dug. Explain why a specified time-frame within which the tests are to be performed after a presoak process was omitted from the rule.

Comment 5 - 94: Specify a number of test holes.

Response: The number of soil test pits and percolation tests are specified in subsection (E)(1)(a) and (G)(1), respectively. The Department believes that the number of tests requirements are appropriate. The Department intends to develop qualification criteria in coordination with the counties. Subsection (E)(3)(a) has been revised as follows, to address the presoak time-frame comment:

3. Conducting the test. The investigator shall:

a. Conduct the percolation test before soil hydraulic conditions established by the presoaking procedure substantially change. Any loose materials in the percolation test hole shall be removed to ensure that the specified dimensions of the hole are maintained and the infiltration surfaces are undisturbed native soil;

Comment 5 - 89: [Subsection (C)] Clarify when it will be "necessary" to perform a percolation test along with a soil evaluation?

Response: The criteria the commenter requests is provided, now in subsection (D). Although the criteria are the same as originally proposed, the Department has rewritten this subsection to provide greater clarity.

Comment 2 -18: Require that both percolation tests and soils evaluation be used for a predetermined period of time, such as two years, to allow for proper training of site evaluators and reviewers in the art of soils evaluation.

Response: The Department believes requiring the soils evaluation method only where limiting site conditions exist, rather than all situations, is sufficient to ensure that this method will become familiar to site evaluators and reviewers and will become the subject of training courses. In fact, this is already beginning to happen as a result of stakeholder involvement in the development of this rule. No change has been made to the rule.

Comment 4 - 17: Does this mean that the conservative home owner, who wants to do a composting toilet with gray water and pressure distribution into the flower garden area, can't do it unless he submits justification?

Response: The commenter is actually referring to R18-9-A311(D), however the answer is yes. The purpose of R18-9-A311(D) is to protect a homeowner from being sold a system that is more than what is needed. If the applicant wishes to install other than a standard system, for example, to allow reuse of the wastewater, this rule merely requires that the applicant state that desire in the Notice of Intention to Discharge. No change has been made to the rule

Comment 5 - 90: Clarify when a percolation test only or some other test will be required. Are these tests valid in fractured rock formations? What will the additional cost to the public of this rule? Extensive time delays will occur in permit processing when a person performs a percolation test only and after permit submittal is required to submit a soil evaluation.

Response: The criteria the commenter requests is provided in subsection (D). Although the criteria are the same as originally proposed, the Department has rewritten this subsection to provide greater clarity. The Department disagrees that extensive time delays will occur because a percolation test can not be used as the sole soil evaluation method in fractured rock formations. No change has been made to the rule.

Comment 5 - 91: Define bedrock and other consolidated formation. The definition should follow the Oregon definition that rock, fractured rock, bedrock or consolidated formation is defined as anything that can't be excavated with a hand shovel.

Comment 4 - 18: What is the definition of bedrock? Other consolidated formations? If these are dug by a track hoe then they are okay?

Response: Subsection (D)(2)(b) has been revised as follows:

Bedrock or similar consolidated formation that cannot be excavated with a shovel outcrops within the lot or is known to exist less than 10 feet below the land surface.

Comment 4 - 1: Define "chamber technology" "rock," "bed rock," "competence to do such work," "proficiency," and "extraction method that does not alter the soil structure."

Response: The definitions of chamber technology, rock, bedrock, and extraction method that does not alter the soil structure are either sufficiently explained in context or with respect to indicated performance standards that no further definition is needed. The Department believes that "competence to do such work" and "proficiency" should not be defined in rule. The Department is working with stakeholders to develop training materials and courses that will provide a basis for determining competency and proficiency. No change has been made to the rule.

Comment 4 - 2: Clarify what is meant by the "stabilized rate."

Response: Stabilized rate is defined in context by a percentage range. No change has been made to the rule.

Comment 26 - 10: It is likely that many lots on Mt. Lemmon and other rocky, steeply sloped areas will not qualify for percolation testing and will also not meet acceptable soil classification requirements. These sites will need alternative systems and therefore greatly increased costs to future land developers.

Response: The Department believes that this type of lot does require a thorough site evaluation to ensure that an on-site wastewater treatment facility will work properly and not result in surfacing of wastewater. The Department does agree, however, that in some cases, a system covered by a 4.02 General Permit (a septic tank with conventional trench, bed or chamber) can be designed for proper operation to overcome some specific site limitations. R18-9-A311(C) has been revised as follows:

A person seeking to install an on-site wastewater treatment facility shall select a facility that is appropriate for the site's geographic location, setback limitations, slope, topography, soil classification, wastewater infiltration capability, and depth to seasonally high groundwater table or other limiting subsurface condition. An on-site wastewater treatment facility described in R18-9-E302 shall not be used by itself at a site where limiting site conditions are identified, except the Department shall review and may approve a facility based on the procedures and conditions under R18-9-A312(H) if no more than one of the limiting site conditions specified by R18-9-A310(B)(1)(a), (B)(1)(b) or (B)(1)(d) exists.

Comment 4 - 19: What is the definition of rock fragments; whole cobbles, stones, 6", 3" etc?

Response: The Department believes this standard under subsection (D)(2)(c), is clear. No change has been made to the rule.

Comment 5 - 92: Contradicts ASTM standard D5921-96. Rock fragments are defined by the US Department of Agriculture as any soil particle that is larger than two mm in diameter. Is it permissible to perform a percolation test in gravel? Gravel particles are less than 1" in diameter. Where did this technical criterion come from?

Response: In the context of this standard, the terminology is clear and does not conflict with unrelated requirements of ASTM D5921-96. Department stakeholders developed this standard as an appropriate threshold where percolation tests may not be diagnostic. The following additional criteria has been added to subsection (D)(2)(e) to address the last comment:

A percolation test yields results outside the limits specified in subsections (B)(1)(a) and (B)(1)(b).

Comment 9 - 11: Add verbiage describing how to run a perc test in freezing temperatures; when the ground is frozen.

Response: The Department cannot anticipate every possible aberration of weather or site conditions. The person performing the percolation test should confer with the Department to see how these adverse conditions may be accommodated within the constraints of the procedure. No change has been made to the rule.

Comment 1 - 4: For a subdivision of 100 lots, this would require 200 percolation tests. In the alluvial basins of southwestern Arizona, this is completely unnecessary due to the homogenous nature of the soils. These new rules need the flexibility to allow the design professional, i.e., registered engineer or geologist, to exercise his or her judgement based on site specific conditions.

Response: Subsection (C)(6) does allow other methods of soil evaluation to be approved by the Director. The Department added this option precisely for situations such as that described by the commenter. No change has been made to the rule.

Comment 4 -20: The minimum of two sites will become the norm. It would be better to start off at a higher number and then have the site conditions dictate a lesser number of test trenches will do, than to start with a lower number of trenches and try to require more than one trench.

Comment 26 -6: The proposed rule calls for a minimum of two percolation tests per site. There is no specific criteria listed as to when more tests should be required. Who will produce the written guidance to allow these decisions to be made?

Response: The Department disagrees that more percolation tests are needed. The Department believes that the requirement for a minimum of two per test locations site, combined with all of the other provisions of the site investigation and facility design process, will ensure that on-site systems are located and designed properly. No change has been made to the rule.

Comment 14 - 9: Revise to state**:** "... one within the perimeter of the primary disposal area and one within the perimeter of the reserve disposal area.

Response: The Department believes that the previous sentence in subsection (E)(1)(a) provides sufficient guidance on the number and location of the percolation tests. No change has been made to the rule.

Comment 4 - 21: Thank goodness a reference point is finally stated for the percolation test hole depth.

Response: No response required.

Comment 5 - 95: Clarify why the Department is permitting seepage pits to completely saturate the soil?

Response: The minimum vertical separation specified in R18-9-A312(E) provides a sufficient distance of unsaturated medium for both disposal trenches and seepage pits. No change has been made to the rule.

Comment 20 - 10: To be consistent with purpose, the language contained in R18-9-427(H)(2) should be the same as the language found in 427(F)(1)(b) substituting soil evaluation for percolation testing.

Response: The Department believes that the soil evaluation method should provide lithologic descriptions of sufficient depth and detail that they are comparable to the percolation testing requirements. The Department also believes that the guidance provided in subsections (G)(2), (G)(3) and (G)(4) provide this equivalency. No change has been made to the rule.

Comment 4 - 22: Why not define the method that will alter the soil structure, such as, electrical/mechanical tools? Or state manual hand tools shall be used without the aid of any mechanical or power tool equipment.

Response: The Department believes that the requirement for not altering the structure of the soil is sufficiently defined. No change has been made to the rule.

Comment 4 - 23: Add to first sentence**:** on a bench a minimum of three feet from the edge of any cut area, appropriate.

Comment 14 - 10: Add**:** "...irregularities caused by rocks, roots, or voids shall not alter the total volume or any dimension by more than 10%."

Response: The Department cannot anticipate every possible aberration of a site. The person performing the percolation test should confer with the Department to see how these conditions may be accommodated within the constraints of the procedure. No change has been made to the rule.

Comment 4 - 24: Does the bad soil areas mean rock outcrops, claylayers, etc? Why not include this, such as rock out crops, clay, etc. in the sentence?

Response: This rule does not use the phrase "bad soil areas." The actual wording is "soil features that yield unrepresentative or misleading data..." The Department believes that this contextual definition adequately defines the conditions for locating a percolation test hole. No change has been made to the rule.

Comment 4 - 25: The buckets need to be just shy of the hole size or faster percolation readings may occur with holes being dug smaller due to buckets being two to four inches smaller than the hole and tile soil tester not having enough pea gravel for the gap between. Where is pea gravel defined?

Response: The rule adequately defines the requirements of the test: The bucket must support the sidewall and the space between the bucket and the sidewall must be filled with pea gravel. No change has been made to the rule.

Comment 14 - 11: Add**:** "...the percolation rate should be adjusted to reflect the volume of gravel used."

Response: If the test is conducted in accordance with the requirements of the rule, there is no need to adjust the percolation rate. (See above comment). No change has been made to the rule.

Comment 26 - 11: In Pima County, current pre-soaking requirements appear to be sufficient. We believe that the proposed pre-soaking requirements may be much more extensive than that which is necessary to accurately determine a stabilized soil percolation rate.

Response: Delegated authorities with variations in these or other soil characterization methods can request Department approval under R18-9-A310(C)(6). As this rule states, the Department's standard for approval is that the method must ensure proper location, selection, design, installation, and operation of the on-site system. No change has been made to the rule.

Comment 14 - 12: Add**:** "...the temperature of the water used shall not exceed 100 degrees F." Add**:** "... the percolation test hole may be insulated during the night."

Response: As mentioned in a previous comment about conducting percolation tests in frozen holes, the Department cannot anticipate every possible aberration of weather or site conditions. The person performing the percolation test should confer with the Department to see how such adverse conditions can be accommodated within the constraints of the procedure. No change has been made to the rule.

Comment 20 - 9: The term clean water is used in the percolation testing section. The term clear water is used in R18-9-427.G, Seepage pit performance testing. These are both variations of a percolation test. Clean water is defined for the purpose of this Section yet the term only appears in subsection F. Does one use clean water or clear water when performing a percolation test using the subsection G procedures? References to clear water should be changed to clean water.

Response: The term "clean water" is now defined in R18-9-A310(A), and all subsequent references to "clear water" have been changed to "clean water."

Comment 9 - 12: Add verbiage that clay or fine textured soils must have clean water added to the hole for at least 24 hours. Some clay soils can take several days to swell, thus, presoaking for only four hours are going to give you a false percolation rate.

Response: The Department cannot anticipate every possible aberration of weather or site conditions. The person performing the percolation test should confer with the Department to see how such adverse conditions can be accommodated within the constraints of the procedure. No change has been made to the rule.

Comment 9 - 13: Provide a maximum time to perform the perc test. You have provided a minimum time (24 hours), however, you must also provide a maximum time as the way it currently reads you could come back days later and finish the test. My suggestion is leaving it as Bulletin 12 currently reads, i.e., run the test between 16-24 hours after presoaking.

Response: The Department agrees. The second sentence of subsection (E)(2)(d) has been revised as follows:

The inspector shall protect the hole from precipitation and runoff, and the percolation test specified in subsection (E)(3) shall be performed between 16 and 24 hours after presoaking.

Comment 14 - 13: Add**:** "If the dimensions or volume of the hole change by > 10% the test shall be repeated with suitable precautions against hole collapse."

Response: The Department believes inclusion of this language would be redundant, as the requirements of subsection (E), especially subsection (E)(3)(a), already address this possibility. No change has been made to the rule.

Comment 4 - 26: In the last sentence it appears that it is talking about the method used to fill up the hole to the required six-inch level. Why not also say**:** pour water into the test hole from no more than two feet above the top of the test hole or benched area?

Response: The Department believes the existing language is satisfactory, but has made a few editorial changes for further clarity.

Comment 4 - 27: The stabilized rate method needs better explanation. The current Bulletin 12 states this is generally indicated when three consecutive percolation rate measurements vary by no more than 10%. But the present Bulletin does not state which MPI is the base for the computation**:** the starting MPI or the ending MPI! Which MPI one can use does make a difference when taken to compute the percent (min difference/MPI 1 or MPI 2)? Also, need to demonstrate the graphical method and when to use it. And finally, which MPI becomes the design rate, the highest, an average? Will counties have to define this too?

Comment 5 - 96: The stabilized rate should be defined as the one in which three consecutive tests are within 10% of each other. This is the current practice. Why has the Department changed the current practice?

Response: The Department has modified the rule, now subsection (E)(3)(d), to further describe the stabilized percolation rate drawing on language from Engineering Bulletin 12. The Department does not believe it has to precisely describe which rate to use (or whether the design rate should be the median, average, or some other statistical measure) because of the widely varying situations that can arise. The applicant may use professional judgement in this determination, and since all percolation results must be reported, the delegated agency has an opportunity to review the determination. Also, the Department believes that that description of alternate graphical methods should be in the form of guidance, not rule. Subsection (E)(3)(d) has been revised as follows:

3. Conducting the test. The investigator shall:

d. Use the stabilized percolation rate as the basis for design if, when three consecutive measurements vary by no more than 10%. If three consecutive measurements indicate that the percolation rate results are not stabilizing or the percolation rate is between 60 and 120 minutes per inch, an alternate method based on a graphical solution of the test data shall be used to approximate the stabilized percolation rate; and

Comment 5 - 97: The Department should clearly require a soil evaluation along with a percolation test.

Comment 2 - 20: Has any WPS employee seen this test process performed? Clarify whether soils evaluation is required with seepage pits designs.

Comment 9 - 14: Where did this procedure come from? Are soil test pits then waived?

Response: The Department disagrees that a soil evaluation is required with the seepage pit performance test. The Department believes that the initial siting criteria, the seepage pit performance test, and the requirement to log the test hole together are sufficient to ensure the proper performance of the seepage pit. The testing procedure, which is more stringent than the test currently used as per Engineering Bulletin 12, was developed by stakeholders with considerable experience in this area. No change has been made to the rule.

Comment 5 - 98: Strike the seepage pit performance test. Test is erroneous and will produce a design percolation rate that is artificially reduce due to the high head of water. What technical soil or wastewater treatment document provides for a high head percolation test? What other states or ASTM has this type of percolation test? This provides an unfair economic advantage to seepage pit contractors since all other types of on-site systems must perform a percolation test. Clarify the justification for allowing seepage pits to saturate the soil. What are the cost impacts to the public for this erroneous design criterion? What treatment performance does the Department have to demonstrate that seepage pits adequately treat wastewater? Clarify why shallow trench, chamber systems, or other alternative systems are not permitted to hydraulically load soil at 59 times the value that will form a clogging mat.

Response: As mentioned in a previous comment, seepage pits are an inherently different method of disposal than disposal trenches and beds. To apply percolation test methodology to seepage pits would be utterly inappropriate. The seepage pit testing methodology was developed in conjunction with stakeholders with expertise in constructing and testing seepage pits. Its purpose is to test the hydraulic capability of the pit under higher head conditions, which is how a seepage pit operates. This is precisely the reason why low head percolation tests are inappropriate. This use of this test confers no economic advantage or disadvantage; it is the appropriate test for this type of facility and has been used in essentially this form for years in Arizona. The Department disagrees with the commenter on his characterization of seepage pit hydraulics and performance and the Department's approach to these rules. In fact, to provide an even greater measure of conservatism in the original rule proposal, primarily in response to the person submitting this comment, the minimum vertical separation distances to groundwater that are from 5 to 12 times those currently indicated in Engineering Bulletin 12, even though there is no evidence that the original separation distances have created groundwater contamination problems. In summary, the Department believes that the proposed requirements for seepage pits are protective of public health and water quality and will result in a properly operating system. The Department stands by its rulemaking.

Comment 26 - 8: Seepage pit performance testing is an option under these new rules. What minimum level of training is needed to perform this testing and who will provide the training?

Response: See page pit performance testing is a requirement if a seepage pit is constructed. Training is an implementation issue. No change has been made to the rule.

Comment 5 - 99: Define the "log" of the test hole. What are the cost impacts for alternate systems and shallow trench systems since they do not get to hydraulically saturate the soils?

Response: The Department has provided further definition for test hole logging as indicated below. There is no cost impact because drillers already log holes and submit that information under current guidance. Subsection(F)(3)(d)(ii) has been revised as follows:

The log of the test hole indicating lithologic characteristics and points of change; and

Comment 4 - 28: This appears to conflict with 427.D as it states the Director determines that .... other methods will provide adequate and credible information. R18-9-427.H states a soil evaluation shall apply regardless of one or more procedures are being followed in 427.B. Hence, the soil evaluation is mandatory anyway for all sites, right? If so, then 427.D is irrelevant and should be deleted.

Response: The commenter's concern has been addressed in R18-9-A310(D). A description of the changes is provided in an earlier comment.

Comment 1 - 5: For a subdivision of 100 lots, this would require 200 percolation tests. In the alluvial basins of southwestern Arizona, this is completely unnecessary due to the homogenous nature of the soils. These new rules need the flexibility to allow the design professional, i.e., registered engineer or geologist, to exercise his or her judgement based on site specific conditions.

Response: The Department agrees with the commenter. This is why the Department included the option for other methods of soil evaluation described in R18-9-310(C)(6). No change has been made to the rule.

Comment 4 - 29: The minimum of two sites will become the norm. It would be better to start off at a higher number and then have the site conditions dictate a lesser number of test trenches will do, than to start with a lower number of trenches and try to require more than one trench.

Response: The Department disagrees. The sentence in R18-9-A310(E)(1)(a) immediately preceding the requirement for a minimum of two sites states that the number of sites selected for testing shall be sufficient to provide adequate and credible information to locate and design the system. The Department believes this provides sufficient direction. No change has been made to the rule.

Comment 4 - 30: Need to define rock by size, hardness, etc.

Response: The Department disagrees and believes the existing language provides sufficient guidance. No change has been made to the rule.

Comment 2 - 17: Revise to state**:** "The Department shall require...provide evidence demonstrating competence....."

Comment 4 - 31: Why is it a may require... evidence demonstrating competence to perform? This will leave it up to the counties to define the requirements in their ordinance or regulations. That won't be uniform throughout the state.

Comment 5 - 100: Specify the evidence needed to demonstrate a "qualified" soils evaluators or percolation or seepage pit performance tester? This rule is neither clear nor understandable since no specific criterion is provided by the Department. What is the cost to a person who hires a person to perform a percolation test and then the Department or a delegated county does not accept it?

Response: The Department continues to believe that only knowledgeable persons should perform the soil evaluations, but also believes that a number of options to accomplish this need to be examined. The Department intends to do this in consultation with delegated counties and stakeholders after this rulemaking becomes effective. To eliminate confusion as to the requirements and evidence for demonstrating competence, the Department removed this provision from the rule.

R18-9-A311. Facility Selection For On-site Wastewater Treatment Facilities.

Comment 5 - 101: Prohibit seepage pits. Define valley-fill sediments and basin-and-range alluvial basin.

Response: ADEQ has commented at length on seepage pits in previous comments. The Department disagrees that the term "valley-fill sediments in a basin-and-range alluvial basin" needs to be further defined. No change has been made to the rule.

Comment 5 - 102: This rule incomplete. The Department was notified of the mistake in draft rules, why wasn't this correction made?

Response: The commenter has provided no information on which to base any change. No change has been made to the rule.

Comment 12 - 19: Last sentence is incomplete.

Response: The missing words, "on-site wastewater treatment facility," have been added to R18-9-A311(B)(3) to complete the sentence.

Comment 5 - 103: Clarify the purpose of this rule or strike. What will be the cost of this rule to implement?

Comment 39 - 11: Specific criteria is needed in which to allow the director of the Department to approve alternate products that are not covered under the proposed rules. A statement alone should not be considered sufficient for this purpose.

Response: Commenters have misinterpreted the purpose of this rule, now R18-9-A311(D), which is to protect a homeowner from being sold a more expensive and complicated system if a conventional septic/disposal field system will work. If the applicant wishes to install other than a standard system, for example to allow reuse of the wastewater, this rule merely requires that the applicant state that desire in the Notice of Intention to Discharge. No change have been made to the rule.

R18-9-A312. Facility Design For On-site Wastewater Treatment Facilities.

Comment 2 - 21: Specify the qualifications for someone to do the work instead of exceptions to exceptions to other rules such as the Board of Technical Registration. Refer to the Board of Technical Registration's rules concerning the $12,500 figure. Work with the Board to more clearly define the purpose of the $12,500 exception. Establish minimum qualifications for doing the design and review of these facilities without hiding behind the $12,500 figure.

Comment 21 - 2: It seems odd to distinguish the need for an engineer based on a dollar value. The complexity of a system and its reliance on engineering science, technology, and operation and maintenance doesn't necessarily make it the most costly to install. Typically, less costly options require more engineering and attention to details.

Comment 26 - 18: What guidelines will be used to determine if someone has "proficiency in preparing the Notice of Intent to Discharge Under a General Permit and associated design and operations and maintenance documents?" We suggest that an Engineers Certificate of Completion be completed before the verification of general permit conformance, in order to ensure adequate construction of the approved design.

Comment 31 - 5: The restrictions on less than $12,500.00 are unfair and not appropriate.

Comment 5 - 104: Conflicts with the Board of Technical Registration legislation and is illegal. Specify the Department's authority to establish who can design an on-site wastewater treatment system. Why has the Department included the cost of site investigations and design? Where is the requirement for the Department and County reviewers to be professional engineers? What is the expected cost to the public of lending an engineer when one was not needed before?

Comment 7 - 1: Technology does not require a licensed Engineer. Better to generate training and design development instead of creating a caste system where only engineers prevail. Also, engineering costs have increased incrementally yearly, the $12,500 figure needs to be increased.

Comment 4 - 32: Define proficiency necessary to prepare the NOI.

Comment 10 - 4: The $12,500 needs to be raised. Also, the qualifications requirement will raise the price of these systems beyond what they really need to be. Do not restrict the people who are authorized to perform the design.

Comment 4 - 33: So anybody can design any alternative system when the construction costs are under $12,500. Seems we need to split from the Board of Technical Registration and limit the cost to $5,000 so a GP 4.02 can be designed by a contractor, if he has shown to be proficient at what ever the requirements are, but not design the more complicated alternative systems since he doesn't carry liability insurance. Who is to determine if the designer is competent to do the design?

Comment 9 - 15: Specify the qualifications of who can do this work, not base it on exceptions. Small alternative systems are non-complex and most present little risk to public health or environmental quality,. If you must consider a dollar amount, I suggest you change the $12,500 cost to $17,000. In addition, when figuring the cost you should eliminate engineering fees as this has no bearing on the system costs. The determining factor for which system requires an engineer should be based on its complexity, not a dollar amount as it creates an unfair playing field in our county.

Comment 32 - 1: This section is in direct conflict with A.R.S. § 32-144.A.6. This will cause a significant Economic Impact to Canyon Services, Inc by not allowing us to design & construct small (less than $12,500) wastewater system improvements without involving a registered P.E. This change, if it is allowed, will cause a significant delay and cost increase to the general public that I don't see addressed in your Economic Impact Statement.

Comment 39 - 12: As indicated above, what constitutes "fair market value" should be clearly defined, and all costs that are to be included in this determination should be stated. Are connection and permit costs charged by a county, city or other agency, or any other costs, to be included in the fair market value? And finally, how will "proficiency" be determined by the department? This could dramatically impact the quality and accuracy of the design of on-site systems, as well as the quality of the effluent generated by them. We feel that specific requirements and procedures should be included in this section to clearly delineate how proficiency will be determined.

Comment 20 - 11: Remove the $12,500 figure. Factors such as the complexity of the proposed system, which technologies will be used in the system, the distance to anti-degradation water bodies and the like should dictate when a P.E. is required. . If nothing else, the site investigation component should be excluded from $12,500 figure.

Comment 5 - 105: Conflicts with A.R.S. 32-144. A non-registrant could easily design a liner used for containment on a sand filter but the Department rules require an engineer. If the Department believes that the public will be better served by requiring engineers to perform all wastewater designs or only under certain circumstances, it should coordinate new rules through the Board of Technical Registration.

Comment 32 - 2: This section should affect only those designs that exceed $12,500 to comply with A.R.S. § 32-144. Otherwise, this change in current will cause a significant increase in cost which, again, has not been addressed in the Economic Impact Statement. How can this change be made when if conflicts with A.R.S. § 32-144?

Comment 9 - 16: Eliminate the need for an engineer to design lined systems, treatment processes using disinfection and pressure dose distribution. These are not complex components of an alternate system and can easily be determined by 'qualified' non-registrants. This was intentionally put in here as a catchall and basically eliminates the waivers granted in the section following it (R18-9-429.A.2) because almost all alternate systems using pressure dosing for disposal. If should be the Department's and the Counties goal and intent to reduce the costs of installing these systems for residents in the state. One way is to come up with reference designs for most all alternate systems that are basically 'cut sheets' that a qualified designer can use to produce a quality design that meets all the technical requirements of the Department, but is not economically unfeasible for the homeowner. No justification for just an ET bed requiring an engineered design on the complete design. Possibly for watertightness testing.

Comment 5 - 106: Conflicts with A.R.S. 32-144. Currently a non-registrant can design a grease interceptor according to the adopted Arizona Uniform Plumbing Code. The Code provides for design standards. Why is the Department trying to require an engineer design the interceptor? What is the cost to the public and small business to implement this provision? An alternate method would be for the Department to reference the AUPC regarding the design standards for interceptors.

Comment 32 - 3: This rule will conflict with A.R.S. § 32-244.A.6 and will restrict Interceptor Design & Construction due to a significant cost increase to the public. This cost increase has not been addressed in the Economic Impact Statement.

Comment 5 - 107: Conflicts with A.R.S. 32-144 in that a pressure distribution system could be purchased and installed for less than $12,500 and therefore does not need to be designed by a professional engineer.

Comment 32 - 4: This rule will conflict with A.R.S. § 32-144 and will limit the use of cost effective waste disposal systems using simple Pressure Distribution & Shallow Trenches. I have not read any language addressing this new cost increase to the public or to small businesses such as Canyon Services, Inc.

Comment 4 - 32: Doesn't this allow a non-registrant to design an alternative system by just putting on paper the numbers required for the specific system listed in 433 to 452 without really understanding all the ramifications of the system? The county will end up helping in the design and become 100% libel because there is no mechanism to hold the non-registrant libel. He's not even insured!

Comment 5 - 108: Conflicts with A.R.S. 32-144. Specify reference designs. How can the Department rule supersede state statute? Where are the reference designs? Why has the Department not followed state law and incorporated the reference designs by reference?

Comment 9 - 17: We are in support of this rule, which allows a qualified non-registrant to design an alternate system where there is reference designs approved by the Department. The Department, however, has the responsibility for putting these out at the time the rule is approved. No delaying.

Comment 4 - 35: This should be changed to shall or perhaps the counties will have to define what is meant by confidence to perform such work.

Comment 5 - 109: Strike or clarify the Department's criteria to determine the qualifications of a designer?

Comment 4 - 36: How is this to be enforced? Seems more to be a philosophical statement.

Comment 5 - 110: This rule is also unclear and grants the Department powers that is does not have. The Department is required to provide minimum design standards for on-site systems. Why has the Department not complied with this mandate? How can the Department not grant a permit for a design that meets the design standards?

Response: The above comments reflect strongly held views about who should or should not be allowed to design certain on-site wastewater treatment facilities. The comments also reflect concerns over whether the Department's rule is consistent with A.R.S. § 32-144(A)(6), an Arizona Board of Technical Registration statute that exempts design of a wastewater facility by a professional engineer if the total construction cost of the project is not more than $12,500.

The proposed rulemaking attempted to establish design qualification criteria based on the complexity of the on-site wastewater treatment facility. That is, can a particular facility be designed by a registered engineer or a non-registrant? The Department's review of the comments, its proposed rule, and statutes and rules of the Arizona Board of Technical Registration led to the following conclusions:

1. The Department's original proposed rule is inconsistent with A.R.S. § 32-144(A)(6).

2. Although the comments indicated strong and sometimes polar views about the appropriateness of both the Board of Technical Registration's design exemption and the $12,500 limit, these are Board matters because the Board has jurisdiction in defining and licensing engineering practice. These comments are outside the scope of the Department's rule deliberations.

3. The final rulemaking should not be inconsistent with the provisions of A.R.S. § 32-144(A)(6) in the context of permitting and qualification requirements for on-site wastewater treatment facilities.

Based on these conclusions, the Department developed new simplified language for this subsection. The new language is intended to ensure that design documents are properly signed regardless of facility cost or complexity, and the location and design of the on-site wastewater treatment facility follows the good design judgement and relies on appropriate design methods and calculations, again regardless of facility costs or complexity Thus, proper location and designs is addressed whether the facility is exempt from or covered by Board requirements. If a facility is covered under Board statutes and rules, a professional engineer must design and must sign and seal any associated design documents. Any signed and sealed design documents would therefore, be included as part of the Notice of Intent to Discharge submitted to the Department.

Subsection (A) has been revised as follows:

A. General design requirements. A person designing the on-site wastewater treatment facility shall:

1. Sign design documents submitted as part of the Notice of Intent to Discharge or subsequently to obtain a Provisional Verification of General Permit Conformance, including plans, specifications, drawings, reports, and calculations; and

2. Locate and design the on-site wastewater treatment facility project using good design judgement and rely on appropriate design methods and calculations.

Comment 2 - 22: Explain how you determine that a system can and will meet a 20 year design life. What criteria do we use to show the Department that it, in fact, meets this requirement.

Comment 5 - 111: A design life of 20 years is too long.

Response: The Department believes that an on-site wastewater treatment facility should be designed and able to operate, with proper maintenance for at least 20 years. Proper maintenance includes replacement of appurtenances, such as pumps, motors, and compressors; fuses; and lamps; consumables, such as filter cartridges, etc. On the other hand, the Department realizes that designers cannot design an on-site wastewater treatment facility, or for that matter, most engineered works, to a precise number of years. For this reason, subsection (B)(1), as modified below, provides a time-frame yardstick, not as an enforcement mechanism, but as a basis for rejecting designs that are clearly under-engineered or contain materials that clearly can not meet the stated longevity.

Design the facility to satisfy a 20 year operational life;

Comment 4 - 37: The second and third sentences are wordy and need to be written in plain English.

Comment 5 - 122: This rule is unclear. What is the Department trying to prevent?

Response: The Department agrees. Subsection (B)(2) has been revised as follows:

B. Design considerations and flow determination. A person designing the facility shall:

2. Design the facility based on design flow:

a. General Permits 4.02 through 4.22 apply only to facilities with a design flow of less than 3000 gallons per day.

b. General Permit 4.23 applies only to facilities with a design flow of 3000 gallons per day to less than 24,000 gallons per day;

Comment 4 - 38: Note 7. This really needs a sketch to detail what this means or the counties will have to define it in their terms as it is confusing to visualize from the definition.

Comment 4 - 39: Note 5. May need a sketch to denote what this means.

Response: The Department agrees. However, this should be in the form of a guidance document rather than a rule.

Comment 5 - 113: Strike. The Department does not have the authority to control land use control. What are the significant cost impacts to small lot subdivisions? All septic tank systems must be located 100 feet from any existing wells. A new well may be located closer than 100 feet from a septic tank system with approval of the Department of Water Resources. Why is this setback needed? Footnote (2) provides a waiver from the rule that can only be applied if an adjoining property owner grants a waiver. What authority does the Department have to grant waivers from its rules? What authority does the Department have to pass authority for waivers to individual people.

Response: The commenter's assumptions are mistaken. Environmental setbacks for public health and environmental protection are a fundamental component of environmental permitting. They are reflected as points of compliance or mixing zones in more complicated permits or can be simple setback distances as established for general permits in this rule. The purpose of these mechanisms, as is the purpose of environmental regulation and permitting in general, is to protect people and property from adverse impacts from the regulated facilities. The setbacks established in this rule have a long history of institutionalization, with modifications based on the expertise and support of many stakeholders. While any one person might quibble about the specific distance in feet for a specific setback, in general, the Department is confident that the proposed setbacks will protect human health and water quality, not only for the owner of the on-site wastewater treatment facility, but for neighboring land owners as well. In fact, without this framework in place, a facility constructed by an applicant could be construed as a "takings" from an adjoining property owner, with the Department as a knowing accomplice. No change has been made to the rule.

Comment 9 - 18: The setback of a disposal trench, bed or seepage pit should be increased to 200 feet if the SAR is faster than 1.4 gpd or three minutes/inch perc rate, unless there's pretreatment. (NOTE**:** Dan said two min/inch during Oral Proceeding) But, for primary treatment it should be 200 ft. In addition, the section of the chart showing a 200 ft. setback for Drinking Water Intakes should also include the setback for unique waters or impaired waters.

Response: The Department disagrees that the setback should be increased from 100 feet to 200 feet. The Department believes that, considering the sum total of the siting, design, installation, and operation and maintenance requirements in this rule, the indicated setbacks adequately protect public health and water quality. The Department agrees that in some circumstances, such as to ensure compliance with special water quality standards established for unique water (defined in R18-11-101(44)), setbacks may need to be more stringent. Subsection (C) has been modified as follows:

Setbacks. The following setbacks apply unless the Department has authorized a different setback under the procedure specified in subsection (H), or has established a more stringent setback on a site- or area-specific basis to ensure compliance with water quality standards.

Comment 9 - 19: The Setback Chart Note #2 should have the word "recorded" added to it as follows "adjacent properties agree by an appropriate recorded written document....."

Comment 20 - 12: Note 2 refers to a procedure and conditions by which the 50 foot setback may be reduced. The conditions for reducing the setback are good. The appropriate written document, however, needs to be better defined. In our case the document must be duly recorded with the County Recorder's Office. Ideally, the waiver of setback would be recorded on the property deed along with easements, water rights, etc.

Comment 10 - 5: Supports the 50ft setback from the property line that is shared or adjoined that is not served by a drinking water system.

Response: The Department appreciates these comments supporting its approach to maintaining property rights of adjoining landowners while ensuring protection of public health and water quality. The Department worded Note 2 so as not to limit other possible mechanisms for documenting a setback agreement between adjacent land owners. No change has been made to the rule.

Comment 20 - 13: Notes 3, 4, and 5 are not consistent. A hydrological reference point determines the setbacks in Notes 3 and 4 while the setback in Note 5 has a morphologic point of beginning. To be consistent, one or the other should be used. It would seem that the morphological reference might be easier to determine in most cases.

Response: The Department appreciates this comment and the need for consistency if possible. In this case, however, the Department believes that a hydrological reference is needed for Notes 3 and 4 because the purpose is to protect "live" water from possible contamination, while a morphological reference point is more appropriate for Note 5, which refers to dry drainage easements or washes. No change has been made to the rule.

Comment 26 - 9: If a property owner wants to site a new septic system closer than 50 ft to the property line he or she will need to obtain written permission from a neighbor if that neighbor does not have water service to his or her lot line. How will inspectors know if an adjoining undeveloped lot has water service or not? This will add yet another step and expense to the expanding permitting process.

Response: This procedure has been applied on a guidance basis by the Department through it delegated agencies for many years and has worked relatively well. The Department does not believe the new rule creates any additional work or expense. No change has been made to the rule.

Comment 4 - 3: There is no provision made for garbage disposals or seasonal residences with intermittent flow. How are these considered? How should they be designed for the alternative systems?

Response: The Department cannot anticipate every possible variation in design or circumstance. The person designing the system should confer with the Department to see how these variations may be accommodated. No change has been made to the rule.

Comment 1 - 6: Reducing the SAR for what is termed "Deep Disposal Field" is not justified. The existing rules are more than adequate for this. This does nothing more than increase construction and development costs for no reason.

Response: Literature sources and subsequent stakeholder analysis support this approach. No change has been made to the rule.

Comment 5 - 114: The Department has incorrectly used Soil Absorption Rate instead of Soil Application Rate. The rule is unclear in defining what circumstances will permit the Director to grant an exception.

Response: The Department believes the definition and use of soil absorption rate are clear in the rules. This is further supported by a significant amount of positive feedback the Department has received on this approach through its On-Site Wastewater Advisory Committee and other stakeholder forums. Procedures described in R18-9-A311(C) and R18-9-A312(H) define the circumstances for requesting use of different or out of limit values. No change has been made to the rule.

Comment 7 - 2: Replace formula with a chart or table that is easy to use and understand. The SAR formula is unnecessary.

Comment 31 - 1: Delete the SAR formula.

Response: The Department agrees that a chart or table would be useful. However, for the purposes of the rule, a chart would be unmanageably large. The Department intends to provide further guidance on use and application of this formula and will work with Northern Arizona University and others who already are developing such materials. No change has been made to the rule.

Comment 10 - 6: Change the maximum application rate in the Percolation Rate table to 1.2.

Comment 9 - 20: At the bottom of the perc rate chart under 60.0+ to 120+, in second and third columns remove the 0.20 and the 0.13 respectively and replace with See Note. Then, in the Note below the chart, change it to read "Note**:** A septic tank and disposal field...is not allowed due to the slow or high rate of absorption."

Comment 12 - 20: Concerning the table on page 1274, for percolation rates of 1.0 to 3.0 the SAR for a shallow field is 1.40. In the next table, Sequence of Soil Characteristics Questions, on page 1275, the maximum SAR for coarse sand is 1.2. Amend the first table to match the second table. Also, the note for the table on page 1274 states that "A septic tank and disposal field described in R18-9-432, General Permit 4.02. is not allowed due to the high rate of absorption." Add the following language**:** "... due to the high rate of absorption unless the effluent is highly treated and disinfected in such a manner as to reduce contaminants to levels comparable to systems designed for surface discharge."

Response: Subsections (D)(2)(a) and (D)(2)(b) have been modified as follows to correct a few inconsistent values that cropped up in different parts of the rule and to provide a consistent approach for out of limit results from percolation tests and the soil evaluation method. There is no need to add the proposed language on high rates of absorption because this is addressed in a full reading of subsections (D)(2) and (D)(3).

Subsection (D)(2)(a) Table. Greater than 120 and the "See Note" instructions in the following two columns was in See Note advertently omitted and has been added to last row of the table.

"The Note" information was revised as follows:

A disposal field described in R18-9-E302 is not allowed unless approved by the Department under R18-9-A311(C).

Subsection (D)(2)(b) Table. All "0" entries were replaced with the "See Note" instruction.

Subsection (D)(2)(b) Table. The following "Note" was added at bottom of table:

Note: A disposal field described in R18-9-E302 is not allowed, unless approved by the Department under R18-9-A311(C) and an applicable SAR is provided.

Comment 20 - 14: The 0 SAR values found in the R18-9-429.D.2.b table do not address situations where advanced technologies might be employed ahead of ultimate discharge to the given class of soil. Perhaps these some or all of the 0 SAR values should be footnoted with values that might be acceptable in those cases where alternative type of treatment technologies are utilized.

Response: The tables in subsection (D)(2) apply only to conventional septic tank/disposal systems permitted by the 4.02 General Permit. Subsection (D)(3) provides the procedure for determining the SAR to size disposal systems for the other on-site wastewater treatment facility general permits. No change has been made to the rule.

Comment 5 - 115: The Department has proposed design-loading rates based on two systems; percolation and soil evaluation. Clarify why the Department has specified different design criteria when different design criterion is not supported by research of scientific data. What are the cost impacts to the small business suppliers that their product is not economically feasible when compared to the grossly under designed seepage pit?

Response: Determination of the SAR is a key element in the design process proposed by the Department. The soil evaluation method directly provides the SAR (the table in R18-9-A312(D)(2)(b)). The percolation test method provides percolation rates in minutes per inch, which then must be translated to an SAR (the table in R18-9-A312(D)(2)(a)). This latter approach has been followed in Arizona since at least 1989. The translation was based on literature sources and augmented after thorough recent analysis by many stakeholders with expertise in this subject. Both methods are allowed in this rule to ensure the most economical determination in a variety of site conditions. The Department stands by the results.

Comment 39 - 13: The questions asked regarding soil characteristics are somewhat complex, and should be answered by a qualified geologist, engineer or other qualified person such as a certified geotechnical technician. Also, is this questionnaire required for each individual on-site system? If not, what are the criteria for when it is required? It appears that the use of soil characteristics, if performed by a qualified individual, would be far more accurate in many instances than a percolation test. See comments on R18-9-429(D)(I)(a) for concerns relating to "proficiency" of the individuals making the investigations and determinations.

Response: Stakeholders have overwhelmingly supported inclusion of the soils evaluation approach in this rulemaking. R18-9-A310(D) provides the criteria for determining when soil evaluation, percolation testing, or other approved methods may be used. The Department agrees that soils evaluation training is a component of the rule implementation process in order to ensure the proper performance of this procedure. However, there is no need to modify the rule.

Comment 26 - 11: It is likely that many lots on Mt. Lemmon and other rocky, steeply sloped areas will not qualify for percolation testing and will also not meet acceptable soil classification requirements. These sites will need alternative systems and therefore greatly increased costs to future land developers. (see Comment 27, subcomment 10)

Response: This comment has been answered previously, and the procedure in R18-9-A311(C) was developed to partially address this situation.

Comment 2 - 23: The change from shallow to deep with shallow should be at five feet even.

Response: The Department agrees. Subsection (D)(2)(c) has been revised as follows:

For subsections (D)(2)(a) and (D)(2)(b), a shallow disposal field has a maximum depth below finished grade of five feet or less and a deep disposal field has a depth below finished grade of more than five feet.

Comment 5 - 116: Clarify the basis for the adjusted loading rate formula and provide the scientific study which justifies this formula. The Department should produce a comparison of the old credit against the new formula credits and should justify the cost impact against the benefits, whatever they may be. What BOD or TSS values will be used in the formula? Will the Department allow a smaller disposal field, if evidence is provided that indicates that certain on-site systems produce lower BOD and TSS values than outlined in these rules? Will the Department be able to disapprove my use of this formula along with my data? This provision should be stricken and soil application rates for alternate systems should be individually defined in the rules for that type of system.

Response: The Department most strongly disagrees that this provision should be stricken and SARs for alternate systems should be individually defined. This provision is perhaps the most essential element in providing a consistent design approach to allow comparison and sizing of disposal fields for the full range of treatment technology performance. Under the Department's approach, all systems are evaluated with respect to their performance. This formula provides that higher performance systems have correspondingly smaller disposal fields. Abandonment of this principle would result in inconsistent disposal field sizing and subject the homeowner to potentially greater costs than necessary to overcome site conditions.

The Department developed the formula by combining two commonly used design formulas into one comprehensive approach. The first of these is the relationship between better treatment system performance, measured by the concentration of Total Suspended Solids (TSS) and five-Day Biochemical Oxygen Demand Levels (BOD_5). Higher levels of treatment allow corresponding smaller-sized disposal fields according to the cube root of the sum of TSS and BOD_5 (often referred to as the Laak relationship developed by Dr. Rein Laak). The second relationship is the effect of soil permeabilty (soil absorption rate or SAR). At lower soil permeabilities, the level of treatment has smaller impact than at higher soil permeabilities. The description of this effect is commonly attributed to Dr. Jerry Tyler at the University of Wisconsin. Both of these relationships have been discussed exhaustively by stakeholders, have been modified as needed, and enjoy broad support among on-site system professionals in Arizona. In using the formula, the correct TSS and BOD_5 values are those provided in the performance data section in each on-site wastewater treatment facility general permit. As stated numerous times in these responses to comments, an applicant may provide data indicating better treatment performance under the process described in subsection (H) and receive the corresponding benefit of a smaller-sized disposal field. The commenter's reference to the "old credit" omits mention that the Department limited this credit to only a single specialized technology–half-pipe disposal with integral sprayers. No change has been made to the rule.

Comment 9 - 21: The SAR formula is not user friendly or easily comprehensible. It needs to be simplified or eliminated and replaced with a chart.

Comment10 - 7: Formula too complicated. Put credits in a table format for different treatment levels and how that reflects with the soil application rate

Comment 12- 21: Provide sample calculations and explanations to assist designers and reviewers.

Response: The formula is intended to provide a consistent basis for allowing a system designer to reduce the size of the disposal field in exchange for providing higher levels of wastewater treatment. In turn, this reduces system cost. The formula is somewhat complicated because of the different factors that must be considered including the Total Suspended Solds level, the Biochemical Oxygen Demand Level, and the soil permeability itself (exemplified by the SAR). However, the Department believes that anyone designing such a system must be able to understand the effect of these variables and apply the equation to achieve a satisfactory design. The Department agrees that sample calculations can be provided, but in guidance. The Department intends to provide guidance on use and application of this formula and will work with Northern Arizona University and others who already are developing such materials. No change has been made to the rule.

Comment 4 - 40: Can this be specified on the deed or legally to the property card by the county with an As-Built showing that the property cannot be split in the area of the 100% reserve area.

Response: The Department agrees that the location of the primary and reserve disposal areas should be indicated, but that this information should be provided on the site plan. Subsection R18-9-A309(B)(2)(b)(iv) has been modified as follows:

> *Location and identification of the treatment and disposal works and connecting pipelines, the reserve disposal area, and location and identification of all sites of percolation testing and soil evaluation performed under R18-9-A310; and*

Comment 2 - 24: Clarify the requirement for verification of vertical separation, especially for the 60 feet required in the seepage pits.

Response: Information that can be submitted for verifying vertical separation is found in R18-9-A310. No further change to the rule is needed.

Comment 4 - 41: Why doesn't the chart address the disposal bed?

Response: The fourth column of the table is retitled, "Shallow or Deep Disposal Field, or Bed."

Comment 12 - 22: The same comments stated for (D)(2)(a) apply to this table.

Response: The corrections were made to this table also.

Comment 39 - 14: Lake Havasu City has concerns that the minimum vertical separations stated in this section may not protect the groundwater of the Colorado River aquifer. Evidence from the monitoring wells installed by the Department as a part of their lake investigation in the mid-1990's suggests that significantly greater separations than the minimums stated here would be appropriate, in addition to increased horizontal setbacks from those stated in R18-9-429(C). Another concern is the maximum hydraulic loading. The loading rates for the coarse soils are high, which could result in FC penetration deep within the profile.

Response: See the following response for an explanation of the Department's approach in this rule. The Department believes that the proposed minimum vertical separation distances will be protective in the Colorado River area for several reasons. The minimum vertical separation criteria must be viewed in the context of the entire rulemaking. This includes construction standards for septic tanks, a site investigation process that will identify adverse site conditions, limitations in high hydraulic load situations (i.e., SAR value greater than 1.20), establishment of numerous alternative system general permits to overcome problems of highly permeable soils or shallow groundwater, etc. For this reason, the Department is confident that these standards will adequately protect groundwater quality. No change has been made to the rule.

Comment 5 - 117: Identify the scientific basis for the minimum vertical separation for coliform concentrations. What data can the Department produce to justify the a five-foot separation from rock? What data can the Department produce to justify the five-foot separation from groundwater? What are the cost impacts to small business to construct an alternative system when the five-foot separation cannot be maintained for a conventional system. Clarify what data needs to be supplied to the Department to demonstrate the performance of the treatment system? Explain why the Department is changing the method. A comparison of the old method and the new method should be provided in the EIS to demonstrate what the cost impacts will be.

Comment 7 - 3: Explain the significance of the numbers. This chart has an economic impact on the installation of wastewater systems. This chart needs to be user friendly, or cross-referenced so that the information can be accessed. Where are the references to 1-6? Where is the third party scientific proof that the citizens of Arizona must uphold a higher standard in this area? If research is being conducted that shows a lesser standard, then my concern, is that if these are our templates for design, we will actually be penalized because the counties will adhere to the written policy.

Comment 31 - 2: Clarify the Minimum Vertical Separation chart and provide some cross-referencing or notation on what the significance of the numbers really mean. Within the chart there appears to be some inconsistencies with what current research and development are saying.

Response: As part of the 1989 Aquifer Protection Permit rulemaking, the Department did a thorough study of literature and research on vertical separation intervals for septic tank effluent needed to filter out or impede bacterial movement to groundwater. The result was incorporated at that time under the current R18-9-126(C)(3) for systems from 2000 to 20,000 gallons per day and in Engineering Bulletin 12 for smaller systems. Both the rule and Bulletin 12 specified 5 and 10 foot separation intervals for the same percolation rate intervals the Department is proposing in this rulemaking. In other words, the Department's proposal is identical to these institutionalized criteria.

Stakeholders further reviewed draft versions of this rule and generally supported these numbers. The new aspect of this rule is to tie reductions in minimum vertical separation distances to higher wastewater treatment performance. The Department's approach assumes that any disposal of treated wastewater on the land surface must be essentially pathogen free, that is have a total coliform level of $\log_{10}0$. From this starting point, it is a simple matter to interpolate the appropriate total coliform log cycle reductions from $\log_{10}8$, which is the bacterial level in septic tank effluent, to $\log_{10}0$. This interpolation effort is reflected in the table. The logarithmic method is a generally accepted methodology for distributing organism counts.

Although other approaches may be used, the Department believes this approach is the most rational one from a scientific standpoint. Under the current rule, if a site cannot meet the 5 or 10 foot minimum separation interval, the facility would either have to obtain an individual permit or get a system approved under Engineering Bulletin 12, which provides little guidance on this issue. This has led to inconsistent application of different technologies and standards across the state. This rulemaking will eliminate this inconsistency by providing a rational approach to system selection and design. Economically, it will ensure that a homeowner install only the system needed to overcome the site limitation, nothing more. The Department stands by this approach and this rule. No change has been made to the rule.

Comment 9 - 22: We are in support of the minimum vertical separation charts and corresponding numbers based on absorption rates and on Total Coliform concentrations. It does appear that the vertical separations for the SAR column of 0.63 to 1.10 are too restrictive. They should each be lowered by 1 ft. for Logs 2-8.

Response: The Department believes the approach for these low permeability soils (SAR from 0.20 to 0.63) is correct. If the separation were reduced one foot for each log cycle, this would yield the unintended consequence of allowing wastewater with a total coliform level of 1000 cfu/100 ml ($\text{Log}_{10}3$) to be discharged on the land surface. No change has been made to the rule.

Comment 9 - 23: The maximum depth of a 'shallow disposal field' should not be more than four feet instead of five feet as the soil has little to no oxygen to aid in treatment at this depth.

Response: The Department disagrees. The Department established the five-foot maximum based on literature references, Department modeling that was performed for the original Aquifer Protection Permit rule in 1989, and stakeholder's best professional judgement more recently. No change has been made to the rule.

Comment 4 - 42: Why is 50% rock fragments shown here and it is 35% elsewhere?

Response: The numbers are used differently. The 35% level is used a threshold level for requiring the use of a soil evaluation method. The 50% value in specified in this rule is a level at which significant impedance to flow might occur. No change has been made to the rule.

Comment 1 - 7: The determination of allowable total nitrogen disposal density should be made on a site specific basis and based on, at a minimum, analysis of depth to groundwater, ambient groundwater nitrate concentration, groundwater gradient, vadose zone total volume, vadose zone water volume, subsurface geology, basin aquifer water volume, growth rate, groundwater extraction rate, basin area available for development, total basin area, depth to bedrock, and basin demographics, including average household population and annual occupancy rates. Additionally, the applicant should be given the option to present detailed hydrogeologic studies, including chemistry, to support total nitrogen disposal density requests. Accurate calculation of actual total nitrogen concentration increase in groundwater cannot be done without consideration of annual occupancy. Anything less is bad science, bad policy, and discriminatory to rural Arizona.

Comment 1 - 8: What is the department's goal in setting total nitrogen disposal density? The limit of 0.15 lbs. of total nitrogen per acre per day in one, even with the exceptions in four, over simplifies the issue. It unreasonable constrains the use of on-site disposal where such disposal is applicable, thereby restricting development in rural areas overlying large groundwater basins with considerable depth to water and low ambient nitrate concentration. It also allows the use of on-site disposal where contamination of ambient groundwater is more certain.

Comment 2 - 25: What is the process for the Director to approve a modification to the Nitrogen management requirements? How do the Counties address this issue in the delegation agreements? It is my understanding that this loading rate will not allow for any system that does not denitrify to be installed on a lot smaller than one acre. It is also my understanding that this section applies to existing lots. If this is so, it should be thoroughly explained and considered in the economic analysis. Where do we consider areas that already have a serious nitrogen problem? Should this not be considered in this section? There are not many of the General Permit systems that do provide for a denitrification process.

Comment 5 - 121: Why has the Department provided escape clauses for certain properties and developers from the nitrogen removal requirements? This nitrogen removal requirement is so unclear and not understandable that it is clearly not ready to implement in rule. The Department must demonstrate the scientific basis for the nitrogen removal requirements and demonstrate the need for such a rule. The Department must determine and clarify the loopholes, otherwise the rule will be so inconsistently applied throughout the state that nobody will know when nitrogen removal is required.

Response: The commenters ask several questions including what is Department's intent with respect to the nitrogen management provisions, how were they derived and justified, how will they be applied, and what is the economic basis? This response will address these questions.

The Department proposes these nitrogen management provisions because nitrate contamination of groundwater by septic tank discharges is perhaps the single most vexing septic tank issue in Arizona. Nitrate problems from septic tank discharges arise primarily due to the density of septic tanks–the smaller the lot size in unsewered areas, the greater the potential for groundwater contamination. Nitrate contamination from septic tank discharges has been identified in areas of both shallow and deeper groundwater. The problem is most prevalent in rapidly growing unsewered areas where lot density is high. Significant problems have been identified in most counties and regions of the state, with particularly notable problems along the Colorado River in Lake Havasu City, Bullhead City and Parker, and in Quartzsite, Casa Grande, Sedona, Oak Creek, and many other areas of Arizona. In these areas, groundwater concentrations of nitrate typically exceed the drinking water Maximum Contaminant Level. Consequently, drinking water supply wells have been forced to close. For this reason some cities, including Bullhead City and Lake Havasu City, have embarked on expensive public works projects to develop treatment plants and sewer system infrastructure of eliminate the septic tank pollution problem. The project cost for these two cities will total over $200,000,000.

The Department has for some time stated that its current rule is ineffective for preventing groundwater contamination by septic tank systems. The primary reason is that septic tank density is uncontrolled. Some provisions exist in rule, but they are largely reactive. The Department can revoke general permits for septic tank systems, but only after groundwater is already contaminated. Obviously, this measure does nothing to solve the contamination problem. Therefore, it is really an unusable option unless there is a viable alternative to the installed base of septic tank systems.

For this reason, the Department proposes a preventative approach in this rule, which conforms with the philosophy and intent of the Aquifer Protection Permit program. After analyzing a variety of options, the Department determined that the only workable preventative approach would have to rely on density-control. The Department developed a relatively simple analytical groundwater equation to analyze this problem. This equation (or model) relates septic tank density to calculated concentration of nitrate in groundwater. The analysis accounts for lot size, number of lots in an area, the flow and strength of septic tank wastewater from the lots, the amount of incidental nitrogen reduction in the subsurface, the size of the mixing zone for nitrate dilution in the groundwater, and the velocity of groundwater. Based on this equation, the Department determined that the areal discharge of nitrogen should not exceed 0.15 pounds of nitrogen per acre per day. This is equivalent to one septic tank per acre for up to a four-bedroom residence. Limited to this nitrogen loading rate, groundwater quality should be protected in many cases. To be sure, there are combinations of assumptions that indicate that even this density will not be protective. However, for many cases likely to be found in Arizona, the Department believes that this areal nitrogen loading rate will adequately protect groundwater from nitrate concentrations high enough to close drinking water wells. Additionally, this density is consistent with practices in other states. In Arizona, Pima County already has an ordinance on the books limiting septic tanks to lots of one acre or larger.

In summary, the proposed rule establishes a limit of 0.15 pounds of nitrogen discharge per acre. On this basis, the proposed rule allows conventional septic tanks to be constructed for residences f up to four bedrooms on lots of one acre or more. For smaller lots (or for higher strength or higher volume discharges), the nitrogen loading rate of 0.15 pounds of nitrogen per acre per day applies. Thus, for lots smaller than one acre, systems providing some level of nitrogen reduction are required. Anticipating this, the Department has provided a number of general permits for on-site wastewater treatment facilities capable of nitrogen removal. The Department believes that by providing clear technical standards for the design, installation, and construction of these systems, the price of these systems will fall due to both reduced engineering costs and competition among manufacturers. The Department hopes that this rule will provide a continuum of available systems and corresponding costs for nitrogen reduction such that when such a system is required, the cost will be incrementally rather than abundantly higher.

The Department also recognizes, as some of the commenters point out, that situations exist in which conventional systems on smaller lots are acceptable, or when the nitrogen loading can be greater than 0.15 pounds of nitrogen per acre without adversely affecting groundwater quality. For this reason, the Department has proposed four exceptions to the nitrogen loading limitation. As one of the commenter's suggests, a demonstration may be made on the basis of hydrologic principles that the septic tank discharge will not adversely affect groundwater quality. Such a demonstration might apply for a small lot in a remote area or for lots where groundwater is very deep and intervening layers intercept or spread out the downward percolating septic system wastewater.

In evaluating the different approaches to nitrogen management, the Department rejected a currently applied approach of basing septic system approval on the ambient nitrogen concentrations in groundwater. This approach has proved to be arbitrary because data insufficiency. It is also not a protective approach, as groundwater must become contaminated to a significant level before action is triggered. On the other hand, the approach proposed herein is preventative, is consistent, and is based on scientific analysis. Importantly, it compatible with the preventative philosophy of the aquifer protection permit program. The Department believes this is the only rational approach to preventing nitrate contamination by septic tank systems and stands by this proposed rule. Further related responses are provided in the comments below.

Comment 5 - 118: Define "active treatment zone." What is the documented problem that necessitated this very costly new rule? What is the benefit to this rule? What has the Department determined are the cost impacts to the public and small businesses? The Department should estimate from the thousands of on-site permits issued annually in the state what the cost impacts will be of this rule. Where is the documented problem in the state that the Department is trying to solve? What is the engineering logic for only granting a treatment facility between 3000 and 24,000 gpd 1/2 the area of the property in determining the nitrogen loading rule when systems under 3000 gpd can use their entire lot in the calculations? This supplemental rule will drastically impact larger homes, restaurants, RV parks, and other small businesses.

Response: The wording "active treatment zone" was used to differentiate the zone of treatment within and immediately surrounding the disposal field from incidental nitrogen reduction that takes place in the deeper vadose zone. All of the Department's proposed general permits for on-site system treatment and disposal works specify performance requirements for nitrogen. For disposal technologies, the performance is associated with the release of the treated wastewater from the "active treatment zone" to the deeper vadose zone. This provides the basis for system selection. Further nitrogen reduction may take place in the deeper vadose zone. The modeling approach the Department used to assist in developing this rule assumes 15% nitrogen reduction in the deeper vadose zone before wastewater impingement on the water table surface. The referenced term is used to clarify any confusion that might arise regarding nitrogen treatment provided by the constructed facility and incidental nitrogen reduction due to the deeper subsurface environment.

Nitrate contamination of groundwater by high septic tank densities has been identified in many localities in Arizona, particularly in rapidly growing areas. Public drinking water wells have been closed and tens to hundreds of millions of dollars of investment in constructed or planned wastewater treatment system infrastructure have been required to address this problem. The need to address nitrogen management is evident to nearly all professionals and regulators in the field, including all county agencies delegated by the Department who are on the front lines in dealing with the impact of high septic tank densities. In summary, the Department believes there is overwhelming justification for the nitrogen management provisions. Other responses above and below address costs and provisions relating to larger on-site systems. No change has been made to the rule.

Comment 9 - 24: We are in support of section, however, there needs to be clarification that the Department will make the determination of a variance under #4. In addition, if perc rate values are faster than 1 min./in., then is a nitrogen reduction system required? This needs to be addressed, along with any other criteria to be used to determine if a lot requires denitrification? I assume this applies to existing undeveloped lots? What if an existing system fails, do they need to comply? If the failure occurs in an area with nitrogen problems, then must those denitrify? Need standards for on-site systems near impaired or unique waters.. how to address specific design criteria for those impaired waters.

Response: The proposed rule provides for four circumstances in which a nitrogen loading of more than 0.15 pounds of nitrogen per acre per day may be allowed. One of those, subsection (F)(4)(d) allows the Department to declare for a specific geographic area a nitrogen loading of greater than 0.15 pounds of nitrogen per acre per day. The Department expects, however, that subdivisions, master-planned communities, and political subdivisions, particularly in growing areas, may pursue the option described in subsection (F)(3)(c), which allows them to develop a tailored, phased approach to wastewater treatment plant construction and expansion, sewer collection system construction and expansion, and often simultaneous construction and phase-out of septic tank systems with the longer term goal of preventing groundwater contamination by nitrate or ameliorating already contaminated groundwater. The rule does not address percolation rate values as this is not a significant factor in long term nitrate migration of nitrate to groundwater compared to the overall density of septic tank systems. The rule encompasses all lots, both future and existing. Septic tank system replacement requirements are explained in a comment below. The rule requires designs that comply with water quality standards. Consideration of unique waters in the context of setbacks is covered in R18-9-A312(C). No change has been made to the rule.

Comment 10 - 8: Supports nitrogen management. Note**:** the formula in there tends to give you an allowable nitrogen concentration in milligrams per liter while in 429(F)(1), the standard is stated in pounds of nitrogen per acre per day. Need consistency in what nitrogen concentrations should actually be reflected in maximum allowable pounds per acre per day.

Comment 5 - 119: Provide the justification for this formula. Shouldn't this formula be a simple ratio of the area of the lot (in acres) multiplied by 53 mg/l to determine the required performance level?

Response: This formula is intended for use for a single-family residence to provide a simple alternative to determining compliance with the nitrogen loading limitation. The formula gives a nitrogen concentration in mg/l, as the commenter states, but is predicated on meeting the 0.15 pounds of nitrogen per acre limitation. The result from using the formula–an allowable discharge concentration in mg/l--can then be compared directly to the nitrogen removal performance ratings for the various general permit treatment technologies. The only input to the formula is lot size. The formula has been slightly adjusted from the original, now in subsection (F)(2)(b), to incorporate a 15% natural nitrogen degradation factor for smaller lot sizes. In the original formula, this was accounted for in larger lots only. The adjusted formula is: $N = (45.8 \times A) + 7.2$.

Comment 20 - 2: The term "single-family residence" should be clarified.

Response: This term has been clarified in subsection (F)(1)(c) to mean up to and including a four-bedroom house. The nitrogen modeling results and the formula presented in the previous comment were based on the nitrogen discharge from a four-bedroom house.

Comment 20 - 15: Given the nitrate problems we have in Pinal County, I am very much in favor of the approach to nitrogen management outlined in subsection (F). This rule seems to provide a reasonable and intelligible means of dealing with the nitrogen issue. Once rule, I assume the 429.F criteria will apply to all lots, future and well as existing. What criteria does the Department intends to use to determine existing and reasonably foreseeable uses of groundwater that would allow increased loading rates above that specified in the rule in 427(4)(a)?

Response: The rule does encompass all lots, both future and existing. The Department has added factors in subsection (F)(4)(a) that may assist in determining existing and reasonably foreseeable uses of groundwater:

> *Using the procedure specified in subsection (H), the applicant demonstrates that there is no existing or reasonably forseeable use of groundwater that might be adversely affected by the discharge from the on-site wastewater treatment facility over its operational life. The Department shall consider the number, location, and depth of nearby wells; the number and location of nearby existing and potential sources of nitrogen discharges; the projected growth for the area; and the source and location of future any water supply in making a determination under this subsection.*

Comment 39 - 15: Lake Havasu City has significant concerns over how this section, as well as the overall proposed rules for Type 4 General Permits, will affect the existing one-mile conventional on-site septic system bans implemented by the Department in 1996 in the city, as well as overall impact to our groundwater. It appears that the criteria utilized by the department in 1996 to make these determinations may not apply any longer with these proposed rules, and systems that provide less nitrogen removal than the currently allowed systems may be allowed under the proposed rule.

Response: The Department's rule provides a more comprehensive, preventative, science-based approach to nitrogen management than one-mile circle septic tank bans imposed in Mohave County. Under the new rule, the one-mile bans will not apply. Instead, the Department expects that Lake Havasu City will avail itself of the opportunity to develop a master plan under subsection (F)(4)(c) that will provide a comprehensive approach to nitrogen management in the area, including phasing of treatment plant expansion, management of septic tank construction and phase-out, protection of drinking water supplies, and improvement of existing nitrate groundwater contamination. No change has been made to the rule.

Comment 3 - 1:...for an on-site wastewater treatment facility authorized by R18-9-453, general permit 4.23, with the design flow from 3000 to less than 24,000 gallons per day, the nitrogen loading shall be calculated using 1/2 of the area for the property upon which the on-site wastewater treatment facility will be constructed." Too restrictive for small projects such as small mobile home parks in the rural areas. Specify in a different chart where more than 1/2 of that acreage could be used for 5-6000 gallon treatment.

Response: This provision, now subsection (F)(1)(b) has been edited for greater clarity. In addition, criteria are now given for determining the area over which the nitrogen loading calculation is made. The potential environmental impact, both because of higher flows and flow intensities, merits the more conservative approach. Although, the allowable nitrogen loading rate is lower than for small on-site systems, the applicant may include streets, common areas and other non-contributing areas into the area calculation, which somewhat offsets the more conservative nitrogen loading value. Subsection (F)(1)(b) has been revised as follows:

For an on-site wastewater treatment facility with a design flow from 3000 to less than 24,000 gallons per day:

i. The nitrogen loading to groundwater calculated over the area served, including streets, common areas, and other non-contributing areas, is not more than 0.075 pounds (34.0 grams) of total nitrogen per day per acre, or

ii. The nitrogen loading over the area served calculated at a horizontal plane immediately beneath the active treatment zone of the disposal field, is not more than 0.088 pounds (39.9 grams) of total nitrogen per day per acre.

Comment 5 - 120: This rule creates and exception for existing on-site treatment systems from removing nitrogen if the system is replaced? Why is the Department granting this exception when the larger facilities will be required to upgrade to nitrogen removal? Is this fair and equal treatment?

Response: The Department believes that subsection (F)(3), is the proper approach to small system replacement. If severe environmental impacts exist, the rule provides mechanisms for requiring treatment performance upgrade at the time of system replacement. For larger systems (over 3000 gallons per day up to tens of millions gallons per day), common sense dictates their magnified potential for adversely affecting water quality. This magnified potential is the reason for an entire section in this rule on BADCT requirements for expansions of wastewater treatment facilities under Individual permits (R18-9-B206). These requirements are not as simplistic as the commenter suggests. No change has been made to the rule.

Comment 4 - 43: What is meant by otherwise prepared to be free of fine materials. Is the process to shake it up, air blow clean, etc?

Response: The definition in R18-9-101 of "aggregate" is now worded "free of fine materials that would impair absorption surface performance."

Comment 5 - 122: Strike. The rule is illegal since the manufacturers specifications and recommendations are not incorporated by reference. How can a rule be implemented without giving the public the specific criteria?

Response: The Department disagrees. The designer of the system has full responsibility over the selection of components and should be fully aware of the manufacturer's specifications for design and installation. If the designer does not agree with the manufacturer's specifications, he or she can select other components or request alternative procedures under subsection (H). The Department has dropped the word "recommendations" at two places in subsection (G)(2)(a), while retaining the word "specifications." No other change has been made to the rule.

Comment 14 - 14: A typo. Assume the language should read**:** "...shall be operate in the 'Auto' position for normal system operation." (Instead of "CONT.")

Response: The following revision of subsections (G)(3)(b) and (G)(3)(c) have been revised to be more general:

b. The control panel shall be equipped with a multimode operation switch, red alarm light, buzzer, and reset button.

c. The multimode operation switch shall operate in the automatic position for normal system operation.

Comment 5 - 123: Clarify what information needs to be submitted to the Department and what criteria the Department will use to render a decision of the applicability of the new technology. What are the expected costs to business that want to bring new technologies into the state for sale? An alternate method would be to grant automatic use of a new product is another state has already approved its use. Another alternate method would be for professional engineers to review and judge whether they feel the technology will be included in their designs. This would take the Department out of the product review business. If the Department retains the approval process for new products, the rule should indicate the Department professional engineers would review the product submittal and render a decision on its applicability.

Response: The Department believes the information requirements and decision criteria are clearly stated. This provision is for design alternatives for a specific on-site wastewater treatment facility. It is not intended for general reviews of new technologies, for which the Department has established a process at R18-9-A309(E). The Department believes the process in R18-9-A309(E) provides a more comprehensive framework than the alternatives suggested by the commenter, but the Department's process does not rule out approval based on the options presented by the commenter. No change has been made to the rule.

Comment 10 - 9: Add more specific language about pressure and pumping dosing systems. See paper done by Terry Bounds, P.E., Orenco Systems, regarding pressure dose systems and with materials and manufacture standards relating to those systems.

Response: The alternative design procedure is a general procedure that applies to all on-site system general permits, not to specific technologies. No change has been made to the rule.

Comment 30 - 1: How much is the fee required under R-18-9-429H(2) and? How many "reference designs" will be available to begin with? What other fees are in effect for a single family residence? Can reference designs be utilized without expensive engineering reports?

Response: Fees are addressed in separate fee rules. The Department cannot answer how many reference designs will be available upon the effective date of this rule, but are confident that the number will increase over time as these processes become more institutionalized. The intent of reference designs is to provide standardized designs and drawings, that with addition of dimensions and other applicable data by the designer, will reduce both the cost to the applicant and the review time by the Department. No change has been made to the rule.

Comment 4 - 44: Typo on General Permit 2.01; I believe it is 4.02.

Response: Thank you for pointing this out. This provision, now subsection (I) has been edited for clarity and no longer contains the error.

R18-9-A313. Facility Installation, and Operation and Maintenance Plan For On-site Wastewater Treatment Facilities.

Comment 2 - 2: Address the startup of the systems and how and if you can use the systems on a part time or vacation home basis.

Response: This comment appears to refer to on-site wastewater treatment systems. Requirements established in each on-site system general permit are sufficient to protect public health and groundwater quality at the design flow identified in the Verification of General Permit issued by the Department. For a system intended for part time or vacation use, any special startup or operational conditions may be described in the Operation & Maintenance Plan required for submittal as part of the Provisional Verification and Verification process. No change has been made to the rule.

Comment 22 - 2: Modify the definition of "temporary cessation." If that isn't possible, either 1) utilize a longer time-frame than three years to define temporary cessation (10 years may be more realistic); (2) utilize a shorter time-frame but allow for renewals if conditions warrant; or (3) do not specify a maximum time period for temporary closure, but require periodic reports on the status of the facility.

Response: The Department has determined that the definition of temporary cessation caused conflicts within the rule because the term is used differently in two places. Therefore, the term will be defined in the context of its use in the rule. The definition has been deleted. See also the response under R18-9-104(A) and (B).

R18-9-A314. Septic Tank Design, Manufacturing, and Installation For On-site Wastewater Treatment Facilities.

Comment 33 - 1: Leaky septic tanks must not be allowed, anywhere in the state, regardless of the depth of the groundwater.

Response: The Department's proposed rule specifies that septic tanks must be watertight at R18-9-A314(A)(2). No further change to the rule is needed.

Comment 26 - 12: The proposed rule requires that a new septic tank be permanently marked with certain system information, such as month and year of manufacture, and remain readable for the life of the tank. We recommend that this information should be required on the re-certification documentation that will be required after the implementation date of this rule.

Response: Because these standards become effective on the effective date of this rule, there is no need for a recertification requirement. No change has been made to the rule.

Comment 9 - 25: Add the following "within six inches below finished grade."

Comment 12 - 23: Amend to read**:** "...within six inches below finished grade."

Response: The Department agrees. The word "finished" has been added in R18-9-A314(A)(4)(c).

Comment 39 - 16: The proposed rule should allow for the installation of risers with locking covers and concrete collars flush with the ground surface, in lieu of the 6" cover requirement below surface.

Response: The riser requirement is a tank construction standard. It does not exclude installation as described by the commenter. No change has been made to the rule.

Comment 10 - 10: If concrete tanks are manufactured with adequate mix, adequate six sacks mix or 4000 psi concrete at 28 days, you do not need a bituminous coating or fly ash.

Response: This standard, now R18-9-A314(B)(1) allows corrosion protection by other acceptable means. No change has been made to the rule.

Comment 1 - 9: Changing the septic tank sizing ratio from 1.6 to 2.1 is not justified. This is especially true since the required design daily flows have been historically proven to be too high. This does nothing more than increase construction and development costs for no reason.

Response: This requirement was developed by stakeholders after much discussion. The Department has no information to justify another number. No change has been made to the rule.

Comment 10 - 11: Delete the minimum size of tank. Revise recommended size to the minimum size. Supports 1,500 gallons as the minimum tank size, period.

Comment 9 - 26: Eliminate 'Recommended Septic Tank Size' as it is confusing.

Response: The Department agrees. The column "Recommended Septic Tank Size" has been deleted in R18-9-A314(C)(1).

Comment 20 - 3: The term "residence" should be clarified.

Response: The Department believes the term "residence" in the context of the table is sufficient, since the key design criteria for determining the correct size of a septic tank – number of bedrooms, occupants, baths, and fixtures – are listed. No change has been made to the rule.

Comment 14 - 15: Need a reasonable definition of bedroom (UBC or real estate or??). Need a reasonable approach to double sinks with separate faucets in bathrooms.

Response: Because the Verification of General Permit Conformance, which governs the operation of the facility, specifies the daily design flow, in addition to the number of bedrooms or fixture units, the need to precisely define bedrooms becomes moot. For a residence, the Department believes that there is no need to establish an accounting method for separate faucets in bathrooms because some flexibility is built into the table in R18-9-A314(C)(1). For most other types of sources to an on-site wastewater treatment facility, flows are tabulated in terms or people, rooms or similar units rather than fixture units. No change has been made to the rule.

Comment 1 - 10: Effluent filters are not justified. See Figure 4-1 of draft Engineering Bulletin 12. This does nothing more than increase construction and development costs for no reason. The requirement for filters in septic tanks is unwarranted. When considering the economic feasibility of connecting to an existing sewer system rather than installing an on-site wastewater treatment and disposal system, the sewer user fees and annual charges for using that sewer system must be taken into consideration.

Response: The Department believes that effluent filters will increase the lifetime of the disposal field by minimizing disposal field clogging. The Department believes that the small initial cost, which has been estimated at about $50, will significantly return on the initial cost. No change has been made to the rule.

Comment 2 - 26: Add a section on maintenance of the septic tank or the outlet filter.

Response: Effluent filter maintenance is covered in R18-9-A313(B)(2).

Comment 26 - 13: New septic system tanks must be tested for water tightness unless the depth to groundwater table is more than 60 feet below the bottom of the septic tank is installed in valley-fill sediments in a basin-and-range alluvial basin. Who will determine depth to water table and type of soil formation? Pima County currently does not have the resources to accurately determine this on a county wide basis.

Comment 20 - 16: I can only guess that the reasoning here is the sixty-foot separation to groundwater will provide adequate protection from wastewater that might be migrating down from a leaky septic tank. While septic tank exfiltration might not be a problem in valley-fill sediments, infiltration could adversely effect the operation and performance of any number of system types in any location. It doesn't seem right that a septic tank that can't be used in one part of the state because it leaks is perfectly acceptable in another part of the state. The real issue here is construction standards and practices.

Comment 31 - 3: The exclusion for leaking tanks in Maricopa is shameful.

Comment 2 - 27: All tanks should be tested for watertightness. Tanks within Maricopa County should not be exempted from this requirement.

Comment 5 - 124: Apply statewide or explain why the Department has exempted from water tightness testing septic tanks used within Maricopa County. What are the cost impacts to people in other counties? If a tank leaks then it is not performing as designed. Define valley-fill sediments and basin-and-range alluvial basin? Conflicts with R18-9-429(G)(2)(c) and ASTM standards for concrete tanks.

Comment 9 - 27: All tanks should be watertight regardless of depth to groundwater.

Comment 33 - 1: Leaky septic tanks must not be allowed anywhere in the state, regardless of the depth of the groundwater.

Comment 10 - 13: All tanks need to be watertightness tested. See paper entitled**:** "Design and Performance of Septic Tanks" by Terry Bounds, P.E., Orenco Systems.

Comment 21 - 3: All tanks should be water tested regardless of how deep the water table is.

Comment 4 - 45: It appears by the wording that the water tightness test is not required in Maricopa County, but everywhere else in the state. Is the and meant to be or?

Response: The Department agrees that all tanks should be watertight. The Department has reviewed the septic tank construction standards as originally proposed, as well as the environmental benefits versus estimated cost of performing an "in-field" watertightness test. On this basis, the Department has concluded that an "in-field" test will not provide a significant environmental benefit except in the case of cast-in-place septic tanks or multi-part septic tanks assembled and installed at the site of use. Instead, the Department believes that the tank construction standards specified in this Section are by far most significant, and will virtually eliminate watertightness problems during the manufacturing process except for tanks that must be assembled and sealed at the site or cast-in-place tanks. Except in the case of multi-part or cast-in-place tanks, the Department believes that tank watertightness and overall quality can best be assured through the product review process specified in R18-9-A309(E) and periodic inspections at the tank manufacturing site. The economic impact to a homeowner of an "in-field" watertightness is unreasonably high compared to any benefit to the environment. The Department estimates that an "in-field" watertightness test will cost the homeowner $100-$300 if water is supplied to the lot, and $500-$1000 if water must be hauled. If the tank is tested by a vacuum test method, the cost of the test is about $90 if travel times to the site are not excessive. For one-piece tanks constructed in accordance with R18-9-A314, the Department believes in-plant quality control and the simplicity of installation will effect watertight performance. The Department considers leaks from this type of tank less likely than potential leaks from piping and joints. The following tank watertightness provisions in have been added to subsections R18-9-A314(C) and (D)(4) as follows:

(C) (last sentence) *The Department may inspect septic tanks at the site of manufacturing to verify compliance with subsections (A) and (B).*

4. Test cast-in-place septic tanks and multi-part septic tanks assembled and sealed at the site of use for watertightness after installation by the water test or the vacuum test and repair, if necessary.

a. Water test.

i. The applicant shall ensure that the tank is filled with clean water to the invert of the outlet and the water left standing in the tank for 24 hours. The applicant shall:

(1) After 24 hours, refill the tank to the invert, if necessary;

(2) Record the initial water level and time; and

(3) After one hour, record the water level and time;

ii. The tank passes the water test if the water level dropped less than 1/4 inch over the one hour period. Any visible leak of flowing water is considered a failure. A damp or wet spot that is not flowing is not considered a failure.

b. Vacuum test.

i. The applicant shall:

(1) Seal the empty tank,

(2) Apply and stabilize a vacuum of two inches of mercury, and

(3) Monitor the vacuum for one hour.

ii. The tank passes the vacuum test if the mercury level dropped no more than 0.2 inches over the one hour period.

Comment 30 - 3: Emphasize the importance of NOT compacting the soil in the drainfield area. Also, require the installation of "cleanout and inspection risers" on the EXTERIOR inlet and outlet pipes going into and out of septic tank on all installations. The Department should recommend that washing machine lint filters be used to prevent premature soil absorption field failure.

Response: The drainfield installation comment is covered by R18-9-A313(A)(3). The Department does not address installation of cleanouts in this rule. Stakeholders may want to address this subject for a subsequent rulemaking. Subsection (D)(3) provides for the installation of approved septic tank effluent filters on tanks, thus not limiting the range of filters that can be used. No change has been made to the rule.

Comment 10 - 12: Add some language to link the cleaning of the effluent filter to pump out frequency or at least put a minimum length of time the filter can go before it needs to be cleaned.

Response: This comment is addressed in the responses for subsection R18-9-A313(B). No change to the rule has been made.

Comment 2 - 28: How do you keep water in the tank if you fill it to the invert elevation at the inlet of the tank. Should this not be at the outlet elevation?

Comment 4 - 46: Typo. Fill the tank up to the outlet (it's in two sentences) not the inlet.

Response: Subsection (D)(5)(a) has been revised as follows:

The tank shall be filled with clean water to the invert of the outlet and water left standing in the tank for 24 hours.

R18-9-A315. Interceptor Design, Manufacturing, and Installation For On-site Wastewater Treatment Facilities.

Comment 2 - 29: Explain why there is no maintenance requirement for an interceptor tank.

Comment 9 - 28: Include operation and maintenance on interceptors.

Response: Interceptors, when required by this Part, become an element of the system treatment train permitted under the general permit and thus are subject to the Operation and Maintenance Plan requirements. The Operation and Maintenance Plan is where interceptor maintenance can be addressed. The Department has stricken subsection (C), titled "Interceptor installation," because the referenced rule does not describe the installation of interceptors.

Comment 5 - 125: This rule conflicts with the existing AUPC rules regarding flow rates used for the design of the interceptor. Why is the Department proposing different rules? What are the cost impacts to small business (restaurants and laundries) for the sizing changes? The Department should evaluate these cost impacts in the economic impact statement.

Response: The Arizona Uniform Plumbing Code does not contain a rule tabulating wastewater flow rates or specifying sizing of the interceptors described in this Section. This rule ensures that wastewater from laundries, laundromats, and non-residential kitchens will be adequately pretreated before entry into the on-site wastewater treatment facility. Adequate pretreatment allows both the treatment works and disposal works of the on-site system to operate effectively over the life of the facility. No change has been made to the rule.

Comment 5 - 127: Why did the Department remove the word "rock" from the exclusionary material? Is it acceptable to place septic tank effluent in fractured rock? ASTM 5921-96 indicates that soils with greater than 15% rock fragments (>2mm) are unacceptable.

Response: The Department relies on the determination of "unacceptable material" by the appropriate soil evaluation procedure which is then used to determine the soil absorption rate and the vertical interval that should provide the an acceptable zone of unsaturated flow for septic tank effluent. If the ASTM 5921-96 is used and indicates "unacceptable material," then the design using other approaches must be followed. It is not acceptable to place septic tank effluent in "unacceptable material."

Comment 5 - 128: Clarify the reason for requiring a bed area to be 50% greater that a conventional trench. Explain why a shallow bed system is penalized when it has more available oxygen for the aerobic organisms? This is a design error in the Department rules and should be stricken.

Response: The Department's decision for considering all bed systems as having the deep trench soil absorption rate is based on the knowledge that a more restrictive anerobic biomat is formed in bed drainfields when compared to shallow trenches because horizontal oxygen flow in soil is restricted at more than three feet inward from the drainfield perimeter and the minimum bed width is 10 feet. For long beds of this width approximately 38% of the bed has stronger hydraulic resistance, resulting in the lower soil absorption rate used for the design.

PART B. TYPE 1 GENERAL PERMITS

R18-9-B301. Type 1 General Permit Criteria.

Comment 22 - 70: Supports promulgation of this Type I general permit.

Response: The 1.06 General Permit has been revised to clarify the conditions under which the tires may be buried at the mining site. The Department believes the cover requirements of R18-8-703 fulfill the requirements of this general permit. Subsection (F) has been revised as follows:

A 1.06 General Permit allows the burial of mining industry off-road motor vehicle waste tires at the mine site in a manner consistent with the cover requirements in R18-8-703.

Comment: Does this mean those facilities discharging greater than 2000 gal per day but less than 20,000 gal per day are grand fathered?

Response: The facilities that qualified for a general permit under the existing Aquifer Protection Permit rules may continue to discharge under the 1.09 General Permit if the conditions of the general permit are met. No change has been made to the rule.

Comment 17 - 1: The phrase "other similar activities" is too general and could be interpreted by certain industries to include activities and facilities which should be evaluated under A.R.S. 49-241(A). If there is another activity or industry that is intended to be included in this rule, perhaps the rule should be modified to specifically state that activity or industry and not be left open for interpretation. What criteria is the Water Permits Section using to determine that "rock material" used in some types of operations may be general permitted while "rock material" at most mine sites is subject to a demonstration on "inertness?" This slight variation to R18-9-129.A seems to contradict A.R.S. 49-201.19.

Response: The Department has revised the language of the 1.01 General Permit to include an example of "other activities." This general permit is only intended to cover the discharge of wash water from either placer mining operations or wash water used as a result of employing physical processes (such as crushing and washing with water) in the non-metallic mining industry, such as aggregates or industrial minerals. "Rock material" is not to be interpreted as inclusive of lithologies that may be sources of acid rock drainage and that are subject to an inert materials demonstration according to A.R.S. § 49-201(19) or that are considered exempt under A.R.S. § 49-250(5). Subsection (A), (B), and (D) have been revised as follows:

A. A 1.01 General Permit allows any discharge of wash water from a sand and gravel operation, placer mining operation, or other similar activity, including construction, foundation, and underground dewatering, if only physical processes are employed and only hazardous substances at naturally occurring concentrations in the sand, gravel, or other rock material are present in the discharge.

B. A 1.02 General Permit allows any discharge from hydrostatic tests of a drinking water distribution system and pipelines not previously used, if all the following conditions are met:

1. The quality of the water used for the test does not violate any Aquifer Water Quality Standard;

2. The discharge is not to waters of the United States, unless the discharge is under a National Pollution Discharge Elimination System permit; and

3. The test site is restored to its natural grade.

C. No change.

D. A 1.04 General Permit allows any discharge from a facility that, for water quality sampling, hydrologic parameter testing, well development, redevelopment, or potable water system maintenance and repair purposes, receives water, drilling fluids, or drill cuttings from a well if the discharge is to the same aquifer in approximately the same location from which the water supply was originally withdrawn, or the discharge is under a National Pollution Discharge Elimination System permit, or both.

Comment 25 - 32: Delete the reference to establishing the point of compliance for general permitted facilities as the limit of the pollutant management area. The reference to the pollutant management area may in some instances be inconsistent with the identification of the point of compliance as established under A.R.S. § 49-244.

Response: Although A.R.S. § 49-244 allows some flexibility in the establishment of a point of compliance, it is believed that the statute anticipated that the point of compliance would be established at the time an individual permit is being developed. The general permits referenced in this rule do not allow for negotiation of the point of compliance. Therefore, the Department proposed a conservative approach that would establish the point of compliance at the downgradient edge of the pollutant management area. For the general permits, the pollutant management area is the horizontal areal extent of the single discharging facility being permitted. The Department did not take into consideration facilities with general permits that may be located within a larger site that have been issued an individual area-wide permit. Depending on the location of the general permitted facility, it may or may not be within the boundary of the pollutant management area established in the individual area-wide permit. If the facility is located within the established pollutant management area, its point of compliance will be the applicable point(s) of compliance established in the individual permit. The Department revised the rule to address this situation in addition to the scenario originally proposed. R18-9-A302 has been revised as follows:

The point of compliance is the point at which compliance with Aquifer Water Quality Standards is determined.

1. *Except as provided in this Section or as stated in a specific general permit, the applicable point of compliance at a facility operating under a general permit is a vertical plane downgradient of the facility that extends through the uppermost aquifers underlying that facility.*
2. *The point of compliance is the limit of the pollutant management area.*
    a. *The pollutant management area is the horizontal plane of the area on which pollutants are or will be placed.*
    b. *If a facility operating under a general permit is located within a larger pollutant management area established under an individual permit issued to the same person, the point of compliance is the applicable point of compliance established in the individual permit.*

PART C. TYPE 2 GENERAL PERMITS

R18-9-C301. 2.01 General Permit: Drywells That Drain Areas Where Hazardous Substances Are Used, Stored, Loaded, or Treated

Comment 5 - 43: Why would the Department only want to get a Notice of Intent for drywells that drain areas where hazardous wastes are used or stored? A spill or contaminated storm water would drain directly to the drywell and into the deep drywell and contaminate the soil and groundwater. This type of facility should be prohibited since there is no method for containment, or treatment; only disposal into the ground. This type of permit is dangerous to the environment and the extraordinary risks necessitate formally banning drywells where hazardous materials are stored, used, or loaded.

Response: The Department disagrees with the comment and its assumption that spills cannot be controlled. The reason for developing the general permit (and requiring an Aquifer Protection Permit in the first place) is the need to control potential discharges of hazardous substances and other materials that have the potential to adversely impact groundwater quality. A drywell that only receives storm water is exempt from the requirement to get an Aquifer Protection Permit. The addition of, or potential addition of, pollutants with the storm water triggers the permit requirement. As drafted, the general permit relies on best management practices to eliminate, or at least minimize, the potential for pollutants to impact groundwater. No change has been made to the rule.

Comment 25 - 36: The word "Residential" in subsection (C)(2) of the drywell general permit should at the very least be replaced, with the word "Nonresidential." Drywells that would drain areas where hazardous substances are used, stored, loaded, or treated will be located in commercial or industrial areas, not in residential areas. The use of the residential soil remediation levels to determine the need to conduct additional soil borings or groundwater investigations will discourage many drywell owners or operators from seeking general permit or any type of permit coverage under the Aquifer Protection Permit program. The Department needs to balance the need for some type of Aquifer Protection Permit coverage for drywells (which would still give the Department the ability to inspect and revoke general permit coverage when warranted) that drywell owners and operators would be likely to use in contrast to a general permit that drywell owners and operators would not use but would rather choose to remain identified and not covered by an individual or general APP.

Response: The reference to residential soil remediation levels is included for screening purposes and does not imply any requirement to cleanup to residential standards should remediation be required. The screening requirements are the same requirements that the Department has employed in the permitting of these facilities for a number of years. The general permit was developed to simplify the permitting process for those drywells that can meet the permit standards. It is unfortunate if owners and operators do not take advantage of the general permit format. However, it should be noted that failure to apply for either a general permit or an individual permit if required to do so would provide the basis for enforcement action. No change has been made to the rule.

Comment 24 - 2: The duration for this general permit should be for the life of the facility (perhaps with periodic certifications of continued compliance). At a minimum, a longer time-frame should be allowed before renewal is required (e.g., 10 years).

Response: The Department believes that general permits should be periodically renewed. See previous response to comments on permit duration. Renewal of a Type 2 General Permit is expected to be a simple process. No change has been made to the rule.

Comment 24 - 3: The proposed screening criterion is too restrictive. If a sample of settling chamber sediment exceeds residential SRLs or GPLS, the required certification cannot be provided, and soil borings or groundwater investigations "may be" required. The Department should provide some guidance (perhaps in the preamble) to when additional investigation would be necessary and could lead to certification in such a case (including what factors the Department will look at). It is unclear who must obtain the permit. At most service stations, ownership and operation are distinct. Do both entities need to be applicants? Who is held responsible for compliance?

Comment 5 - 44: Why is the Department trying to transfer liability for all storm water deposited into a drywell over the life of the well to an engineer? What authority gives the Department this authority to regulate engineers? The Department should perform the sampling and certify that the drywell can accept storm water from areas that handle hazardous waste.

Response: The department has clarified that the certification is intended to ensure that investigation results comply with the screening required by the general permit. Subsection (B)(2) has been revised as follows:

2. For a drywell constructed before January 1, 2001, a certification signed and sealed by an Arizona-registered professional engineer or geologist that a site investigation has concluded either of the following:

i. Analytical results from sampling of the settling chamber sediment for pollutants reasonably expected to be present do not exceed the residential soil remediation levels or groundwater protection levels; or

ii. Soil borings or groundwater investigations document that there is no exceedance of an Aquifer Water Quality Standard in groundwater beneath the drywell.

Comment 24 - 4: Clarify that many of the requirements apply to new facilities but not to existing facilities. If applied to existing drywells, these requirements could essentially mandate closure of those wells, even though they are the only method for storm water control (and even though in some cases their installation has been required by cities or counties). The Coalition suggests that most of the requirements in subsections D and E be limited in their application to new facilities. Clarify that the reference to an underground storage tank means the tank itself, and not the rest of the UST system.

Response: The provisions of the general permit apply regardless of whether the drywell is existing or new. If an existing facility cannot meet the requirements of the general permit, an individual permit will be required not necessarily closure of the dry well. The permit is clear that the distance specified is from the underground storage tank. No change has been made to the rule.

Comment 5 - 45: The 10-foot separation distance will not protect groundwater from contamination. What scientific studies has the Department performed to prove that hazardous substances will be treated in only 10 feet of soil? The requirements for flow control or pretreatment devices are not clearly defined. What is an engineer supposed to design by this rule? What are the cost impacts to small business for installing flow control and pretreatment equipment? What level of pretreatment is necessary? This rule should be stricken.

Response: The 10 foot separation between the bottom of the drywell and groundwater is not intended to provide "treatment" of hazardous substances. The intent of this general permit is to control potential discharges so that they do not enter the dry well in the first place. This rule does not place new requirements on facilities already required to get an Aquifer Protection Permit. Instead, the general permit is provided in an attempt to expedite the permitting process. Facilities that can qualify for general permits are expected to experience significant savings over the cost of an individual permit for the same activity. No change has been made to the rule.

Comment 24 - 5: It is not clear what sort of controls the Department intends be installed at existing drywells at service stations. Must facilities be regraded? Are storm water retention basins (which themselves may trigger Aquifer Protection Permit scrutiny) required? Must the devices or structures control the dissolved fraction of petroleum constituents? This requirement (especially if it mandates retrofitting existing drywells) could impose an enormous burden on service station owners, even though the benefits of implementing such measures have not been clearly articulated by the Department.

Response: The language has been clarified to indicate that any one control shall satisfy this requirement. Subsection (C)(4) has been revised as follows:

C. Design requirements. An applicant shall:

4. Ensure that the drywell design includes a flow control or pretreatment device, such as an interceptor, sump, or another device or structure designed to remove, intercept, or collect pollutants.

Comment 24 - 6: This vague language should be deleted. The specific requirements of the BMP plan are set forth in subsections (a) - (e), and there is no need for the broad and vague language quoted above in the introduction to those subsections.

Comment 24 - 7: The reference should be to floor drains "that lead to the drywell." In addition, it should be clarified that the site plan need only identify water supply and monitor wells on-site, not off-site.

Comment 24 - 8: The requirement to have a design plan showing details of drywell design and construction should be required for existing drywells only if such information is available. For some of these drywells, design plans no longer exist (if they ever did). Permittees should not be required to recreate information that no longer exists (if it ever did).

Comment 24 - 9: The phrase "impact to the drywell" is vague and confusing. It would be clearer if the language referred to minimizing the discharge of pollutants to the drywell.

Comment 24 - 10: The phrase "proper handling of hazardous substances" should be limited to those materials that may be discharged to the drywell. This permit is not a general permit focusing on worker safety or overall hazardous material handling, but is instead designed to address potential discharges to the aquifer via a drywell.

Comment 4 - 11: Clarify that employee training requirements can be satisfied through training given under other programs (e.g., OSHA, SPCC, internal company training, etc.). In addition, it should be emphasized that the sole purpose of the training required by this permit is spill prevention (the proposed language requires training "including" spill prevention, which implies that more training is required by this permit).

Response: The Department disagrees with most of the comments including the request to delete the general requirements for the Best Management Practices Plan. The Department believes the general permit provisions provide direction to the applicant and that the requirement to provide basic design details on the drywell is reasonable. There is no requirement of the permit that reaches beyond the need to prevent hazardous and other substances from reaching the dry well. Subsection (D)(5) has been revised as follows:

c. Procedures to prevent and contain spills and minimize discharges to the drywell;

d. Operational practices that include routine inspection and maintenance of the drywell, periodic inspection of waste storage facilities, and proper handling of hazardous substances to prevent discharges to the dry well; and

e. Procedures for periodic employee training on practices required by the Best Management Practices Plan.

Comment 24 - 12: The recordkeeping provision requires maintenance of a log book documenting (inter alia) sampling activities. Sampling is not required under the permit, although it may be required to obtain the necessary certification. This reference should be clarified. In addition, it should be made clear that the log book need not contain sampling results required under other programs (e.g., UST), but rather need contain only any sampling that might be done pursuant to this general permit.

Response: The Department believes that the recordkeeping requirements are clear that these are requirements related to the dry well Best Management Practices Plan. No change has been made to the rule.

Comment 5 - 46: Where did the 25 gallons of petroleum products come from? A quart of oil disposed improperly can contaminate a million gallons of water. Why would the Department permit any petroleum product to be disposed of in a drywell? Can auto shops dispose of 24 gallons of used oil per day into a drywell and be legal? Can septic tank pumpers dump hundreds of gallons of sulfuric acid into a seepage pit in an attempt to unclog the pit?

Response: The general permit was drafted by a group of stakeholder who spent numerous hours in discussion. This provision does not grant permission to discharge into a drywell or other facility. No change has been made to the rule.

Comment 24 - 13: The requirement to report spills within 24 hours should be tied to discovery of the spill, not to its occurrence. In addition, this provision appears redundant; the Department already is required to be notified of significant spills under WQARF and the UST statute. See A.R.S. §§ 49-284(A) & 49-1004.

Response: Regardless of the notification requirements of this general permit, reporting of spills of reportable quantities of hazardous substances is required. It is not clear how the Department would be expected to hold someone responsible to report a spill if they do not have knowledge of it yet. However, the Department expects that the operations under this general permit will be controlled to the extent that significant time would not pass before someone discovered a spill. The intent of the Best Management Practices Plan is to control operations so that problems do not occur. No change has been made to the rule.

Comment 25 - 37: The Department also should clarify in the final preamble to the Aquifer Protection Permit rules that the spill reporting requirement in subsection (G) is triggered only if a reportable quantity of a hazardous substance or 25 gallons of oil actually are discharged into the drywell. In other words, if 30 gallons of petroleum are spilled onto the ground near a drywell, but only 20 gallons actually enters the drywell, the spill reporting requirement is not triggered.

Response: The Department believes that the language in the rule is clear. No change has been made to the Preamble or final rulemaking.

R18-9-C301. 2.02 General Permit: Intermediate Stockpiles at Mining Sites

Comment 22 - 71: There is a typographical error in this section. The subsection identified as F should be identified as E. Qualify the requirement to remove material to the greatest extent practicable at closure by allowing the Department to approve a less demanding alternative.

Comment 22 - 60: Delete permit duration.

Response: The rule has been corrected to appropriately label the subsection. The rule regarding closure of general permitted facilities has also been changed to reflect the closure options under A.R.S. § 49-252. See response to R18-9-409 comment above. Also, general permit duration is addressed in response to R18-9-404 comment.

R18-9-C302. 2.03 General Permit: Hydrologic Tracer Studies

Comment 22 - 72: Revise as follows**:** "... This permit does not authorize the use in tracer studies of any hazardous substance IN AN AMOUNT EXCEEDING THE REPORTABLE QUANTITY ESTABLISHED FOR THAT SUBSTANCE, radioactive material WITH A HALF LIFE OF GREATER THAN 30 DAYS or any substance identified in A.R.S. § 49-243(l)..."

Comment 22 - 61: Delete the two-year permit duration. The six-month limit on the duration of any single tracer test is acceptable.

Response: The Department does not believe it is appropriate to make the requested changes to a Type 2 General Permit that only upon renewal requires notification to the Department. The use of hazardous substances or radioactive materials more appropriately falls under an individual permit approach although the Department recognizes that these materials are useful for tracer studies. The Department is willing to consider and would welcome assistance in the development of presumptive BADCT for tracer studies that would provide the basis for developing an expedited permit process. Please refer to previous responses on permit duration. No change has been made to the rule.

Comment 22 - 73: Clarify in the preamble that the Department will consider a passive containment system to be "established" if the Department and the applicant have agreed on its contours in the permit process and this agreement is reflected in the record.

Response: The Department believes that a passive containment system can only be "established" if it is included in an Aquifer Protection Permit. No change has been made to the rule.

PART D. TYPE 3 GENERAL PERMITS

R18-9-D301. 3.01 General Permit: Lined Impoundments

Comment 25 - 38: To clarify the liner requirement in accordance with the Department representations, R18-9-418(D)(4)(a) should be revised as follows**:** "The liner shall be constructed of at least a 30-mil geomembrane liner or 60-mil liner if HDPE is used, or an alternative liner that achieves a calculated seepage rate of 550 gallons per acre per day.

Comment 25 - 39: Note comment says (H)(4). Delete the language that requires the owner or operator to "remedy all impacts" in the event that soil remediation levels are exceeded at the time of closure. The owner or operator should be required only to submit an action plan to the Department for review and approval. In addition, the reference to soil remediation levels should be changed to soil remediation standards to account for risk-based soil standard approaches.

Response: The Department intended the seepage rate limitation to apply to all liners, including the geomembrane and HDPE. During the rewrite of the rule, this language has been revised to make it more clear. The reference to soil remediation levels is intended to be used as a trigger for determining whether or not an action plan is required. Any cleanup that might be required would be satisfied by meeting the appropriate soil remediation standards. The Department does agree that this provision should only reference the requirement to submit an action plan. Subsection (G)(3) has been revised as follows:

> *If evidence of leakage is discovered, remove the liner in the area of suspected leakage and sample potentially impacted soil. If soil remediation levels are exceeded, the permittee shall, within 60 days notify the Department and submit an action plan for the Department's approval an action plan before implementing the plan;*

R18-9-D302. 3.02 General Permit: Process Water Discharges from Water Treatment Plants

Comment 40 - 14: The approach in the proposed rule does not appear realistic. Contaminants found in source waters and in the case of surface water treatment plants, surface water sources, are concentrated in the filter backwash and sludges associated with sedimentation and coagulation. Direct discharges of these process streams may exceed Aquifer Water Quality Standards at the point of discharge. The question to ask is if these process streams have the potential to contaminate groundwater when discharged to surface waters or when they are placed in impoundments. Recommend that monitoring for inorganic chemicals, organic chemicals and pesticides be conducted in the groundwater at the point of compliance, that microbiological monitoring be conducted in the groundwater at the point of compliance for total coliforms.

Response: The general permits included in this rule do not require monitoring of groundwater. Instead, they rely on controlling the discharge of pollutants at the point of discharge. When it is not possible to meet the requirements of this general permit, an individual permit will be required. No change has been made to the rule.

R18-9-D303. 3.03 General Permit: Vehicle and Equipment Washes

Comment 5 - 47: The five-year permit period will cause small businesses to incur additional regulatory fees and process. What are the costs to small businesses for a five-year permit life? If the facility is complying with its permit conditions, why should it need to submit for another permit? An alternate program would be for the Department to get out of the office and inspect the facility for conformance. What would be the cost of this alternate program?

Comment 15 - 2: The general permit duration specified in the rules should be superseded by an alternative duration that a facility requests in its "Notice of Intent to Discharge Under a General APP," provided the request is approved by the Department in its "Verification of General Permit Conformance."

Comment 22 - 62: Delete permit duration.

Response: The Department believes that Type 2 and Type 3 General Permits cannot be issued for the life of the facility. Because many of these permits do not require regular reporting to the Department, renewal is an opportunity for the agency to confirm that changes have not been made to the facility. Additionally, the permittee certifies that the facility continues to comply with the technical standards in rule. The Department expects the cost of a general permit to be significantly less than the cost to individually permit the same facility. Further discussion of the economic impact to small businesses appears in the Economic Impact Statement. No change has been made to the rule.

Comment 5 - 48: What are the design standards for oil/water separators? The Department needs to define the minimum standards are required by A.R.S. 49-104(B)(13). A statement like "appropriate safety factor" is unclear and will be left to the Department to determine. Why can't the Department define the loading design criteria and safety factor or perhaps leave it to an engineer?

Comment 17 - 2: The language should be clarified so that bare soil or ground is not an acceptable "liner" for a wash pad. The language should require some minimum criteria of material or hydraulic conductivity for the wash pad construction.

Comment 22 - 75: Define what is meant by "an appropriate safety factor." This issue should be clarified in the final language or in the preamble.

Comment 22 - 74: Revise as follows**:** "A surface impoundment shall not exceed a maximum depth of eight feet and shall meet the requirements of R18-9-418(D)(1) and (D)(3). Berms or dikes at the impoundment shall WITHSTAND be protected against wave action erosion and BE adequately compacted to a uniform density of not less than 95%."

Comment 15 - 3: The Department should clarify whether R18-9-418(D)(4) is the only subsection of R18-9-418 that applies when a surface impoundment liner is required under R18-9-420.A.1. The Department should clarify that use of the surface impoundment liner avoids the requirements at R18-9-420(D)(5) and (F), as discussed in the rule drafting workshops.

Comment 5 - 49: Where did the Department get the 50 feet of separation to groundwater? What studies have been conducted or researched to reach the conclusion that 50 feet of separation will provide treatment to vehicle wash water? Does this prohibit subsurface disposal for wash facilities in these sections of Arizona? What are the cost impacts to the public to provide a different treatment method?

Comment 17 - 3: An owner or operator of a general permitted vehicle wash facility is required to collect a sample of the wash water every quarter and analyze it for pH and C10-C32 hydrocarbons. What is a representative sample of vehicle wash water?

Response: Minimum performance standards for an oil/water separator are included in the rule at subsection (C)(5)(d). The Department expects that the design of such a facility will be performed by a qualified professional. The minimum standards for the wash pad can be found in subsection (C)(1). The Department agrees that the proposed language provides clarification of the general permit requirements and has revised the rule.

The Department has reviewed the language in proposed R18-9-418 and agrees that the entire subsection applies to lined surface impoundments. The requirements proposed under R18-9-420(D)(5) and (F) only applied to unlined surface impoundments. The Department does not believe there is need to revise the rule to clarify further. The depth of 50 feet to groundwater is a conservative value to be protective in the majority of instances where this general permit may be applied. Costs of the general permits are expected to be significantly less that the cost of an individual permit for the same types of discharge. Subsections (C)(3) and (C)(4) have been revised as follows:

C. Design, installation, and testing requirements. An applicant shall:

3. Ensure that a surface impoundment meets the requirements in R18-9-D301(C)(1) and (C)(3). The applicant shall ensure that berms or dikes at the impoundment can withstand wave action erosion and are adequately compacted to a uniform density not less than 95%;

4. Ensure that a surface impoundment required for wash water described in subsection (A)(1) meets the design and installation requirements in R18-9-D301(C);

R18-9-D304. 3.04 General Permit: Non-storm Water Impoundments at Mining Sites

Comment 22 - 63: Delete permit duration.

Comment 22 - 76: Clarify as follows**:** "The liner shall be constructed of at least a 30-mil geomembrane liner or a 60-mil liner if HDPE is used, or an alternative ~~and the liner shall~~ LINER THAT achieves a calculated seepage rate of 550 gallons per acre per day."

Comment 22 - 77: Revise as follows**:** "If the inspection of a liner reveals the presence of one or more holes or tears or defective seams, the liner shall be removed and the underlying surface inspected for visual signs of impact. IF SUCH VISUAL SIGNS OF IMPACT ARE DETECTED, THE PERMITTEE SHALL WITHIN 60 DAYS NOTIFY THE DEPARTMENT AND SUBMIT PROPOSED ACTION PLAN FOR DEPARTMENT REVIEW AND APPROVAL."

Response: The Department intended the seepage rate limitation to apply to all liners, including the geomembrane and HDPE. During revision of the rule, this language has been revised to make it more clear. The reference to soil remediation levels is intended to be used as a trigger for determining whether or not an action plan is required. Any cleanup that might be required would be satisfied by meeting the appropriate soil remediation standards. The Department does agree that this provision should only reference the requirement to submit an action plan. Subsection (G)(3) has been revised as follows:

> *If evidence of leakage is discovered, remove the liner in the area of suspected leakage and sample potentially impacted soil. If soil remediation levels are exceeded, the permittee shall, within 60 days notify the Department and submit an action plan for the Department's approval before implementing the plan;*

R18-9-D305. 3.05 General Permit: Disposal Wetlands

Comment 5 - 50: Why are disposal wetland permits only for five years? What are the impacts to the public and small businesses for a five-year permit renewal? Perhaps an the Department inspection program would be better to determine compliance with the permit.

Response: All Type 3 General Permits must be renewed every five years as previously discussed. The rule does not require that a facility opt for the general permit approach. The Department expects that cost to obtain a general permit will be significantly less than a comparable individual permit. The applicant must decide which approach is better based on their individual circumstances. No change has been made to the rule.

R18-9-D306. 3.06 General Permit: Constructed Wetlands to Treat Acid Rock Drainage at Mining Sites

Comment 22 - 78: Supports promulgation of this general permit. The reference in subsection A to facilities closed before August 13, 1986 should be modified, this general permit should be available at any facility, closed or otherwise. If this isn't acceptable, then modify the language to simply refer to "closed" facilities, without referring a specific data of closure.

Comment 28 - 18: This type of facility should be required to meet the more stringent provisions of an individual permit, especially monitoring and reporting, and also be subject to public review and comment.

Comment 22 - 64: Delete permit duration.

Response: The Department believes that this general permit has applicability to those facilities that closed before August 13, 1986. However, A.R.S. § 49-201(7) defines a closed facility, therefore, the rule has been revised to include this defined term. This general permit provides monitoring and reporting requirements to ensure that the requirements of the general permit are met. The general permits are not subject to public review and comment because the technical requirements have been submitted to the public for review and comment through this rulemaking. As long as a facility can demonstrate compliance with the general permit requirements, they are eligible to operate under the general permit. Subsection (A) has been revised as follows:

> *A 3.06 General Permit allows the operation of constructed wetlands that receive, with the intent to treat, acid rock drainage from a closed facility.*

Comment 22 - 79: Should refer to the possibility of industrial reuse of water from the wetlands. Clarify, if water is to be reused, why it would need to meet all numeric aquifer water quality standards (proposed [Subsection (D)(1)(b)).

Response: Regardless of the final disposition or use of the water released from the wetlands, the water still has to meet the numeric Aquifer Water Quality Standards. No change has been made to the rule.

Comment 22 - 81: Allow applicants to utilize available information in making the determination as to whether the bottom of the treatment wetlands is 20 feet above the seasonal high groundwater table. In addition, the Department should have the ability to approve a lesser distance if site specific conditions so warrant.

Response: The requirement to maintain the distance between the bottom of the wetlands and the groundwater table is intended to be conservative to account for variations in the locations of facilities that may fall under this general permit. If site-specific conditions are to be considered, then an individual permit is required. No change has been made to the rule.

Comment 22 - 80: Delete R18-9-423(D)(7) which requires the wetlands to comply with zoning and land use requirements. These requirements are enforced by other agencies and apply independent of the conditions of this permit. This provision is unnecessary and should be deleted.

Response: The Department agrees with that zoning and land use restrictions apply independent of this rule provision, therefore, it has been deleted from the final rule.

Comment 17 - 4: Clarify whether this applies only to surface water releases. For cases of surface water releases, then the time period for the laboratory and re-sampling in this rule should be shortened significantly.

Response: The Department believes that the proposed verification sampling periods are adequate to determine the facility's compliance with the general permit requirements. No change has been made to the rule.

R18-9-D307. 3.07 General Permit: Tertiary Treatment Wetlands

Comment 38 - 7: Revise as follows**:** "... that meet the requirements of R18-9-303(C)(1)(a) through (c), provided that..." The removal efficiency of 85% is redundant to the treatment criteria specified in the preceding subsections.

Response: The intent of the requirement is to be more restrictive than the treatment levels specified in R18-9-B204(C)(1)(a) and (C)(1)(b). The 85% removal efficiency is routinely used as a performance criterion for NPDES permits for wastewater treatment plants, and it represents a widely accepted standard of treatment plant operational performance. No change has been made to the rule.

Comment 5 - 51: Why are disposal wetland permits only for five years? What are the impacts to the public and small businesses for a five-year permit renewal? Perhaps an the Department inspection program would be better to determine compliance with the permit.

Response: All Type 3 General Permits must be renewed every five years as previously discussed. The rule does not require that a facility opt for the general permit approach. The Department expects that cost to obtain a general permit will be significantly less than a comparable individual permit. The applicant must decide which approach is better based on their individual circumstances. No change has been made to the rule.

Comment 38 - 6: Delete.

Response: The Department believes that there is a need to specify the set back requirements for the treatment wetlands. This provision was developed by stakeholders through extensive discussions. No change has been made to the rule.

PART E. TYPE 4 GENERAL PERMITS

GENERAL COMMENTS

Comment 1 - 1: In evaluating site conditions, both surface and sub-surface, to determine the feasibility of the use and type and design of on-site wastewater disposal systems, the design professional, engineer or geologist, should be given the latitude to exercise judgment, professional experience, and practice their profession. In as much as they are the people that will be liable in court, but whether or not the system works, not the Department or the State of Arizona.

Response: The Department relies on the expertise of a wide range of practitioners, subject to the limitations of A.R.S. § 32-144(A). The rules provide alternative methods for soil evaluation, design, installation, and operation and maintenance to offer practitioners the opportunity to use options to do what they think is best for the public. In the case where the practitioner closely follows the rule, the regulatory decision will be made with less design effort and in less time. No change has been made to the rule.

Comment 2 - 3: Several of the systems list electricity service as a limiting condition. This is not a limiting condition as solar energy and gas generators are readily available to serve these units.

Response: In response to comments, the rule has been modified so that design documents specify the power source when electricity is necessary for facility operation. The requirement is consolidated under R18-9-A312(B).

Comment 2 - 5: None of the systems adequately address alarm and control systems.

Response: The Department has responded to specific comments about alarms and controls in this response section. The Department is unable to determine what is not adequate to the commenter. No change has been made to the rule.

Comment 2 - 7: Most of the systems have a paragraph referring to the "variance" section-R18-9-428(H), these paragraphs should be replaced with a lead-in to each section.

Comment 14 - 3: Alternative Designs. How much certification testing would be necessary for an alternative design which seems to have the necessary design characteristics but has not been field tested? Many designs seem adequate on paper but don't work as intended for a variety or reasons. Existing and accepted designs have the numbers as well as have the test trials.

Response: The Department disagrees with the "variance" comment if it is referring to the technical standards for the Type 4.02 through 4.23 General Permits. The design rule and the installation rule make reference to alternative features. Certification testing follows the test procedure of the certifying agency, such as NSF, and testing must be appropriate to the specified performance level and statistical method of representing the data. Inspection and access parts specified in the rule could be used by researchers to collect operational data to confirm the percent reduction of pollutants under a wide variety of service conditions. This data could be considered in making decisions about the acceptability of a proposed alternate design, installation, or operation and maintenance feature. No change has been made to the rule.

Comment 2 - 11: Several of the systems call for corrective measures if anomalous ponding or dry conditions exist. Please explain what is the intent of this statement in the Operations and Maintenance sections?

Response: The presence of water saturation in a fixed bed filter or drainfield flooding, or a nearly dry pumping tank could strongly suggest operational problems The condition is not consistent with the design or the Operation and Maintenance Plan, i.e., anomalous, and requiring later confirmation or further investigation. If the condition is persistent, satisfactory facility performance is in doubt and something, such as corrective action, is necessary. No change has been made to the rule.

Comment 7 - 4: I could not located the section to reference, but I take offense to the Maricopa County leaking tank exemption. If we all have to test for water tightness in all containment vessels, than they need to.

Response: This comment is addressed in the responses for R18-9-A314.

Comment 8 - 1: Need to include nitrogen management theory and justification behind SAR formula

Response: This comment is addressed in the responses for R18-9-A312.

Comment 9 - 72: The performance criteria for the alternative systems do not appear to be based on scientific data, but seem more random than anything. Where did the data come from?

Response: The Department uses data from several types of fixed bed media and configurations, reported performance data for aerobic systems from third party testers, and stakeholder input. Whenever data were not available for a specific technology the performance values were estimated. An applicant may use the uniform alternative features process specified in R18-9-A313(H) for using alternate performance levels if sufficient third party data are submitted with the application.

Comment 2 - 1: Need to specify requirements for the operation and maintenance of the facilities and the construction inspection phase of the projects.

Comment 9 - 73: More details are needed for the construction inspections of all systems by the regulatory agency.

Response: The rule requires a final inspection and a sealed certificate of completion and a final operation and maintenance plan to ensure performance requirements are met. The owner of an on-site wastewater treatment facility has the responsibility to perform or hire a person to perform the necessary operation and maintenance function. The Department's position is that construction inspections are to confirm that the installation and start-up conforms with the approved plans, installation requirements, and the draft Operation and Maintenance Plan, where applicable. Inspection checklists and procedures should begin as a state-wide guideline with eventual adoption as rule. No change has been made to the rule.

Comment 9 - 75: Standards/design criteria for on-site systems within 200 ft. of Unique Waters or impaired waters. Standards/design criteria for sites where perc rates exceed 120 min./in. in all soil horizons and where an evapotranspiration bed is not suitable due negative net evaporation in winter months,. We have been utilizing secondary treatment (TSS & BOD less than 30 mg/1), a three day storage overflow tank and a pressure-dosed disposal trench equipped with a high water sensor placed at the low end of the system to indicate when effluent is within 12" of finished grade. The sensor shuts off flow from the treatment systems thus sending the effluent to the overflow tank until such time as the effluent in the disposal trench recedes and it can be used again.

Response: Whenever surface water quality is linked to discharge to an aquifer, current rules allow more restrictive discharge limitations. When any sensitive or threatened waterbody is threatened, alternate treatment will be required under the final rules. The uniform alternate features process in R18-9-A313(H) should be used to establish a unique combination of Type 4 General Permits to solve the problem. No change has been made to the rule.

Comment 9 - 77: We need some standards/options for properties that have perc rate values greater than 120 minutes per inch in higher depth of soil.

Response: The Department anticipates that evapotranspiration systems will often be used in these areas, except in low temperature and high precipitation areas. The uniform alternate features process in R18-9-A313(H) should facilitate addressing these extreme site limitations. No change has been made to the rule.

Comment 10 - 25: Discuss dosing cycles. See paper by Eric Hall, P.E., at Orenco Systems, about the design, use and installation of dosing cycles in on-site wastewater systems. They didn't even have provisions in there for dosing cycling.

Comment 9 - 74: Design criteria for dosing siphons.

Response: The Department will rely on the expertise of the designer to properly design, specify, and establish the Operation and Maintenance Plan for the use of dosing siphons. No change has been made to the rule.

Comment 12 - 28: Existing home aerobic units shall also implement an annual compliance management program and be required to obtain an annual operating permit.

Comment 13 - 2: Require that existing home aerobic units already in operation in the county implement an annual compliance management program and obtain an annual operating permit. The spray irrigation from home aerobic units should not be allowed. The Department should develop a homeowner education program and rules governing the transfer of ownership for home aerobic units and sequencing batch reactors and pressure distribution systems.

Response: Inclusion of the Operation and Maintenance Plan in the rule and the record documents that will become a part of the verification will ensure appropriate operation and maintenance actions will occur without additional rules. Spray irrigation disposal is subject to one of the most restrictive conditions for effluent quality and reliability. No change has been made to the rule.

Comment 12 - 32: The Department should develop a homeowner education program.

Response: The Department is working with a stakeholder group to develop plans for training all participants in the on-site program, including facility owners subject to the rule. No change has been made to the rule.

Comment 12 - 29: Surface irrigation disposal from a single family home aerobic, sequencing batch reactor or other treatment system should be allowed only when no other disposal option is available.

Comment 12 - 31: Spray irrigation shall not be allowed.

Response: The purpose of the facility selection rule is to ensure proper justification. The technical standards for spray irrigation are significant and should ensure consideration of several options. No change has been made to the rule.

Comment 12 - 33: The Department should develop rules governing the transfer of ownership.

Comment 2 - 6: None of the systems adequately address an annual inspection or a summary of items to be inspected in a transfer of ownership inspection.

Response: The Department has responded to specific comments about annual inspection and is actively working with a stakeholder group to develop an inspection program at the time property is transferred to a new owner. The Department is unable to determine what is not adequate about the proposal for inspections. No change has been made to the rule.

Comment 14 - 2: Referenced Designs. These referenced designs are to be developed in time. Can a referenced design include proprietary components? If yes are you creating a monopoly? If no, in some cases are you in danger of violating copyrights and patents?

Response: The Department adopted the reference design approach to help improve permit processing efficiency. There is no rule or statute that prohibits approval of proprietary components to be used for a reference design. However, if other components were assembled in the reference design configuration that provided equivalent performance, a permit will be issued. No change has been made to the rule.

Comment 14 - 4: Pleased that the proposed rule will result in a rational discrimination between technologies based upon availability of treatment within the soils and water quality management goals.

Response: The Department appreciates the comment.

Comment 18 - 1: Eliminate the $12,500 exclusion. Require an engineers stamp on systems deemed sufficiently complicated to require such oversight (e.g., with three or more pumps, or any system that is deemed commercial). On simple systems require an engineers review and approval but eliminate the requirement for the stamp, and the liability that goes with it.

Comment 4 - 4: Limit of $12,500 too low and limit should be tied to the proficiency in the design of the system.

Response: This comment is addressed in the responses to R18-9-A312.

Comment 20 - 18: Two areas where the rule falls short are qualifications and O&M. The issue of qualifications for individuals performing site evaluations, doing system design, conducting construction inspections, and performing operation and maintenance have not been adequately covered in this version of the rule. General operation and maintenance practices and programs are scantily covered in the rule. operation and maintenance and how to make sure it is being done is always at the top of everyone's list when it comes to discussion of on-site systems. This rule does not assure that the Type 4 General Permit systems will adequately monitored, properly operated, and maintained to the degree that many of us would like. My point is that while I think we have a pretty good rule, we must address training, qualifications, and operation and maintenance as an integral part of the rule.

Response: The Department's objective is to implement SB 1379 which required technical standards in rule. The Department is working with a stakeholder group to develop the vital parts to the overall program. Options are being explored to use existing education and certification programs. R18-9-A313(B) and the operation and maintenance portions of R18-9-E303 through R18-9-E323 include specific regulatory requirements to ensure operation and maintenance is performed. Changes made to appropriate rules are mentioned throughout this comment/response section.

Comment 26 - 1: Currently the Department staff perform site suitability determination inspections, including percolation testing. The proposed rules outline requirements, such as soil characterization analysis and changes to the percolation testing process that will require Pima County staff to receive specialized training and will result in a large increase in the amount of staff time dedicated to field inspections and permit processing activities. Pima County anticipates the current permitting income will fall short of the amounts that will be needed to cover increased costs for training, longer inspections, and more complicated permit processing activities. Further, the County may not be successful in increasing permit fees to a level that will pay for the expected increased costs discussed above due to limitations imposed by A.R.S. § 49-112.

Response: The Department recognized the issue during the rule development., and consistently worked to include both types of soil testing, unless there were specific site limitations that might result in erroneous results. Counties operating under A.R.S. § 49-107 delegation agreements must have their own source of adequate funds at this time. No change has been made to the rule.

Comment 31 - 4: The allowance of seepage pits while prescribing enhanced performance in almost every category is deplorable.

Response: The Department evaluated the available data and performed model analyses of several seepage pit scenarios. The resulting rule has increased the minimum vertical separation for seepage pits by at least a factor of 500%. The Department is sponsoring a study in the "valley fill" areas to further evaluate seepage pit pollution risks. No change has been made to the rule.

Comment 31 - 6: The write-up on the different system installation requirements is inconsistent. They read as if a different author wrote each. Some are very prescriptive while others give away the farm.

Response: The Department agrees. Changes have been incorporated in the following sections for: general design (R18-9-A312(B)), general installation (R18-9-A313(A)), and general operation and maintenance (R18-9-A313(B)), and eliminated duplicative elements throughout Article 3.

Comment 31 - 7: Provide the third party data allowing the use of cinders for treatment material.

Response: The Department has collected some data on the availability of cinder sand for some treatment media. Whenever possible, there are alternate performance ratings for material with greater fines, such as cinder sand.

Comment 31 - 8: Provide the third party data on the use of sand lined trenches.

Response: The Department considered performance data for sand media filters from independent testing sources of different configuration and made adjustment for the sand line trench configuration in the proposed performance levels. The material specification in the rule controls the media quality. No change has been made to the rule.

Comment 31 - 9: Why read any further than the At-Grade? By these guidelines, if you do not qualify for a standard, you could put in an At-Grade. There are no limitations.

Response: The Department has approached the rule development effort with a commitment to use performance-based standards wherever possible. If the commented has specific information about at-grade system performance, and the rule is deficient, the department would appreciate the information. No change has been made to the rule.

Comment 31 - 10: Why build a mound system when you can plop engineered pads on the surface without any consideration for hydraulic conductivity?

Response: Engineered pad installation procedures specify the method of preparing the soil and pad foundation. The general design and detailed design rule specify methods of analysis and calculation for site conditions. No change has been made to the rule.

Comment 31 - 11: Engineered pads had the least requirements of any system, yet what third party information has this company provided on performance?

Response: The engineered pad system, like all others, will have to be sized and operated under the criteria that is related to treatment performance and site conditions. No change has been made to the rule.

Comment 31 - 12: The numbers assigned to determine loading rates are inconsistent and in some cases unsupportable. If everyone has to have third party testing with numbers for fecals then lets see them instead of making them up. Who determines the fate of these systems? I would like to see the data that was the baseline for these determinations.

Response: The Department used test data from independent authorities for most of the fixed media systems. When manufacturers data were used it was correlated with independent test data. Aerobic and sequencing batch reactor plants were based on ANSI/NSF 40 and independent third party data in the literature Manufacturers that have acceptable independent test data may submit information for adjustment using the uniform alternate features provision in R18-9-312(H). Records used for the performance credits are available for inspection. No change has been made to the rule.

Comment 37 - 1: Please be clear in identifying who can perform on-site soil evaluations. Also, what classes will individuals be required to attend to obtain permission/certification to perform this evaluation?

Response: The Department has not specified who can perform soil evaluations. However, the rule allows the Department the authority to do so. The Department stakeholder process is actively reviewing needs and options for a more formalized training and certification program. No change has been made to the rule.

Comment 37 - 2: Be specific when listing exactly which treatment systems will be allowed. When will this list be available to engineers and designers?

Response: The Department will permit any on-site wastewater treatment facility application if it demonstrates conformance with applicable parts of the rule. There are no preferred or discouraged technologies, just the performance operation and maintenance. No change has been made to the rule.

Comment 9 - 71: Require annual permits; routine (2x per year) inspections by a third party; annual inspections by the regulatory authority; annual sampling by the homeowner to ensure compliance, with treatment performance criteria; and the maintenance of an operation and maintenance log.

Response: While the Department agrees that regular inspections for on-site wastewater treatment facilities are highly beneficial, especially for alternative systems, the Department disagrees that annual permits are the appropriate way to ensure proper operation and maintenance. The technical standards proposed in this rule for design and performance, combined with the required operation and maintenance plan for systems permitted under General Permits 4.03 through 4.23, should significantly improve the operation and performance of these systems. For this reason, the Department has declined to prescribe a new government inspection program, which would be complex and costly. The Department believes this rule needs to become effective and an implementation history developed before any consideration of a mandated government inspection program. No change has been made to the rule.

R18-9-E301. 4.01 General Permit: Sewage Collection Systems.

Comment 5 - 53: What are the benefits of duplicating sewer system design review by the cities and the Department? What are the cost impacts to small business for the duplicate process? What measures has the Department examined to reduce the regulatory burden to small businesses? What are the benefits of having a set of plans reviewed twice as are required by A.R.S. § 41-1052?

Response: The Department's current rule does not require duplicate reviews of sewer collection systems by cities, nor does the final rule. Under A.R.S. 49-107, the Department has the authority to delegate its rules, including authorities for sewer system design, to political subdivisions. In fact, the Department does delegate these responsibilities to political subdivisions and intends to continue the practice. When the Department does delegate these responsibilities, it does not duplicate those efforts at the state level. Under its own authority, a city may perform a separate review of sewer collection system design, but usually for reasons unrelated to environmental protection requirements. Thus, there is no need for change to the rule.

Comment 5 - 54: Clarify whether an applicant needs to get a PVOGPC before starting construction? From reading the draft regulations, it could be construed that only a Notice of Intent must be submitted but operation of the sewer collection system could not begin until a Verification of General Permit Conformance has been issued.

Response: The Type 4 General Permit process requirements are described in Article 3, Part A. The Type 4 General Permit process requires that the Department issue a Provisional Verification of General Permit Conformance before starting construction. The rule clearly describes this process. No change has been made to the rule.

Comment 10 - 1: Incorporate alternative sewer designs and specifically technologies and effluent sewer technologies, septic tank effluent gravity systems, and septic tank effluent pump systems into rule. See paper by Terry Bounds, P.E., Orenco Systems, concerning alternative sewer designs. R18-9-425(E)(4) states "sewer lines shall be 8" in diameter or larger except if either of the following apply:." None of the exceptions that are given there would allow for effluent sewer technologies.

Comment 21 - 1: Expand to include "Effluent Sewer" options. Decentralized septic tank effluent pumping and small diameter gravity sewer collection systems provide an alternative that has proven superior in many ways to antiquated large diameter gravity sewers.

Response: The technical standards for sewage collection systems were not intended to encompass every possible alternative technology or approach to system design. The rule would become unmanageably large. The Department had intended that alternative design features be submitted under the procedure specified in R18-9-429(H), but omitted this option in the proposed rule. The final rule corrects this deficiency. Subsection (D)(1)(e) has been revised as follows:

1. *General Provisions. An applicant shall ensure that the design, installation, and testing of a new sewage collection system or an expansion to an existing sewage collection system involving new construction complies with the following rules. An applicant shall:*

    e. *Request review and approval of an alternative to a design feature specified in this Section by following the requirements of R18-9-A312(H).*

Comment 11 - 29: This section could prove unworkable if triggered every time someone extends a sewer line within a municipality. At a minimum the proposal would likely prove wholly impracticable and overly bureaucratic-particularly as a Type 4 General Permit requiring 45 days notice and two levels approval for each sewer line extension for each new development. This is potentially far worse that the prior rules which were repealed. Application of the proposal becomes absurd when combined with a five-year permit duration.

Comment 5 - 52: This provision [subsection(A)(1)(a)] should strike the words "public or." You have stated publicly on several occasions that one of the prime purposes of the Unified Permit program is to improve the Department's administrative efficiency. The above proposal will reduce the Department and delegated county regulatory burden significantly by not duplicating the actions already performed by city and county utility departments that review sewer collection system plans.

Response: These comments are based on incorrect premises. The Department is not imposing an additional regulatory process for sewer collection systems or bringing new systems under regulation. In fact, the rule actually simplifies the Department's current regulatory process, which requires the Department or its delegated agencies to issues two separate approvals with two separate fees for sewage collection systems. The final rule simplifies the permit process to one permit (and therefore only one fee). The final rule also provides clear technical standards for sewage collection systems, which currently reside in guidance. Together, these changes actually allow the permitting process to be shortened compared to current licensing time-frames requirements. The duration of this permit is also incorrectly stated, which is for the operational life of the facility, not five years. Finally, the technical standards in the final rule are designed to ensure proper environmental performance of the sewer collection system. Cities, if imposing additional requirements for non-environmental reasons, also may elect to review design plans. The Department has recognized this and has delegated its permitting authority to some cities that desire to combine these reviews. The Department intends to continue this practice in the future. For these reasons, no change has been made to the rule.

Comment 5 - 56: This section [subsection (B)] should be eliminated. The rules are so general in nature that they are neither measurable nor enforceable. What is meant by "appropriate sizing" or "adequate inspection?"

Response: This subsection specifies general performance standards that underlie the detailed technical standards comprising the rest of this general permit. The Department considers the exposition of these performance standards necessary for understanding the context of the technical standards. No change has been made to the rule.

Comment 6 - 7: Revise [(B)(5)] as follows**:** "Provision for adequate inspection, maintenance, testing, visibility, accessibility, and"

Response: The Department agrees. Subsection (B)(5) has been revised as follows:

Provision for adequate inspection, maintenance, testing, visibility and accessibility; and.

Comment 5 - 57: This section [Subsection (C)] references section R18-9-402(B). As provided in R18-9-401(B)(2), is the applicant supposed to certify that all the requirements of a Type 2 General Permit are met for a Type 4 General Permit?

Response: The Department agrees. The regulatory process for Types 1 through 4 General Permits have been clarified in Section R18-9-A301. This and other similar "mismatch" problems have been eliminated.

Comment 5 - 58: What are the standards for "construction quality drawings? Why can't the Department define the standards as required in A.R.S. § 49-104(13)(a)?

Response: The Department has, in fact, defined the standards for "construction quality drawings" in the context of this entire provision. For example, the drawings must include plans and profiles, cross-sections, elevations, slopes, drainage features, etc. No change has been made to the rule.

Comment 5 - 59: Prescribe what has to be included in the manual. This [subsection (C)(6)] violates A.R.S. § 49-104(13)(a), which requires the Department to prescribe "minimum standards."

Response: The Department believes it has met the requirement of A.R.S. § 49-104(B)(13)(a) to provide minimum standards, not only for sewage collection systems in general, but for the specific concern of the commenter, the Operation and Maintenance Plan. Minimum requirements for the Operation and Maintenance Plan are provided in R18-9-301(E)(2) and 301(F). No change has been made to the rule.

Comment 5 - 60: Delete [subsection (C)(8)]. The requirement that engineering documents be prepared and sealed by a professional engineer if the fair market value is over $12,500, exceeds the authority granted in A.R.S. § 49-104 et seq. The authority to regulate professional engineering conduct rests with the Board of Technical Registration as provided in A.R.S. § 36-106(F). This subsection is in conflict with A.R.S. § 32-144(A)(6) which provides for the $12,500 exception on the basis of "total construction cost."

Comment 39 - 5: A definition for "fair market value," along with guidelines on how to calculate, should be provided in the rule, to eliminate any confusion when this section applies. See also R18-9-425(D)(4).

Response: The Department agrees that this rule should not conflict with statutes of the Arizona Board of Technical Registration. The Department has revised this subsection of the rule, now R18-9-E301(C)(8), so that it is not inconsistent with the Board's statutes. Based on the comments, subsection (C)(8) has been revised as follows:

Design documents, including plans, specifications, drawings, reports, and calculations that are signed and sealed by an Arizona-registered professional engineer unless prohibited by law. The designer shall use good engineering judgement following engineering standards of practice, and rely on appropriate engineering methods, calculations, and guidance.

Comment 5 - 61: Define what "appropriately documented" means. Can an applicant submit a statement that he will not use 100 gpd? Can an applicant submit documentation from literature sources indicating a lower water consumption usage?

Response: The Department believes that this provision is very clear if read in its entirety. The entire sentence reads**:** "If appropriately documented by the applicant, the Department may accept lower unit flow values in the served area due to significant use of low flow fixtures." The applicant would have to provide documentation of significant use of low flow fixtures. No change has been made to the rule.

Comment 5 - 62: These [subsection (C)(8)] have not been incorporated by reference. What specific standards or details is the Department trying to adopt as acceptable minimum design standards as provided for by A.R.S. § 49-104(13)(a)?

Response: The Maricopa Association of Governments, Pima County Wastewater Management and other standards the commenter refers to have been incorporated by reference at applicable points within this Section, including R18-9-E301(D)(1)(b), E301(D)(2)(h) and elsewhere. No change has been made to the rule.

Comment 5 - 63: Define "where conditions allow?" Delete the first sentence. Clarify which method of calculating flows should be used? Can an engineer use whichever he desires? Several counties currently require several methods to be used and require that the highest value be used. The rules should provide direction as to who gets to make the decision on the method of flow determination. There will be economic impacts to the public if the Department and counties require the highest value method. What are these costs?

Response: The Department believes that the meaning of the phrase in the first sentence, "where conditions allow," is very clear if the sentence is read in its entirety. The "conditions" are those factors (for example, topography) that would allow a gravity sewage collection system to function properly. With regard to the second comment, the Department agrees that a selection criterion is needed to determine which of the two proposed sewer main flow determination methods is acceptable. Subsection (D)(1)(c) has been revised as follows:

Use gravity sewer lines, if appropriate. The applicant shall design gravity sewer lines and all other sewer collection system components, including force mains, manholes, lift stations, and appurtenant devices and structures to accommodate maximum sewage flows as <u>determined by the method specified in subsections (D)(1)(c)(i) or (D)(1)(c)(ii) that yields the greatest calculated flow</u>:

i. Any point in a sewer main when flowing full can accommodate an average flow of 100 gallons per capita per day for all populations upstream from that point; or

ii. Any point in a sewer collection system can accommodate a peak flow for all populations upstream from that point as tabulated below:

In response to the last comments, the Department is responsible for verifying calculated flows as part of the substantive review process for issuing the Verification of General Permit Conformance. Thus, there is no need for providing further direction as to who makes the decision. Lastly, this provision results in similar flow determination values as yielded by current the Department guidance and engineering practice, therefore the economic impact is not substantial.

Comment 39 - 6: Difficult to accurately calculating populations for small to medium-sized drainage basins. Our recommendation is to include at least one or more methods to calculate peaking factors based on the average daily flow that is contributory to the segment in question, utilizing published formulas considered acceptable to the industry. We would recommend that the population method proposed in the rule be kept also, and that any of these methods be allowed.

Response: The Department agrees that other methods for calculating peaking factors exist. The method in the final rule was recommended by a stakeholder group consisting of engineers from regulatory agencies and large and small communities. An applicant always has the option to submit a request for a different calculation under the procedure established for alternative design, installation, or operational features under R18-9-A312(H). No change has been made to the rule.

Comment 5 - 64: Strike first sentence since it conflicts with A.R.S. § 32-144(A)(6). The Department does not have the authority to regulate professions. Strike the sentence which reads, "Strict compliance with the requirements of this section does not necessarily establish the sufficiency of the engineering design, installation or testing." This section does not meet the definition of a clear, concise and understandable rule as provided in A.R.S. § 41-1052(C)(4). Strike the last sentence since the Department has once again exceeded its authority by not defining clear, understandable minimum standards. What criteria will the Department use to determine if a person is qualified to design or supervise construction?

Comment 6 - 8: Define the term Section, which is referred to in the third sentence. "Strict compliance with requirements of this Section does not necessarily establish the sufficiency of engineering design, installation or testing."

Comment 6 - 9: Revise the last sentence as follows**:** "The Department may require a person designing or supervising construction of a sewage collection system project to provide evidence demonstrating competence to perform such work if the person is not a professional engineer registered in the State of Arizona (for the design elements of the project) or a contractor registered in the State of Arizona in the appropriate category (for the construction elements of the project).

Response: As mentioned in a previous comment, the Department has substantially revised subsection (C)(8), so that it is not inconsistent with Arizona Board of Technical Registration statues.

> *Design documents, including plans, specifications, drawings, reports, and calculations that are signed and sealed by an Arizona-registered professional engineer unless prohibited by law. The designer shall use good engineering judgement following engineering standards of practice, and rely on appropriate engineering methods, calculations, and guidance.*

Comment 6 - 13: The ASTM references should be revised to read as ASTM F1417-98 and ASTM C924-97 if the latest edition is 1998 and 1997, respectively.

Response: The ASTM references indicated in subsection (D)(2)(j) have been revised to reflect the correct bibliographic style.

Comment 39 - 7: What will be the procedures (if any) required to obtain approval from the Department to construct a sewer with less than three feet of cover? This should be indicated.

Response: The language later in this subsection (D)(2)(b), describes the procedures for constructing a sewer with less than three feet of cover, for example, using ductile iron pipe. No change has been made to the rule.

Comment 5 - 65: Clarify what is the 100 year storm scour depth and specify a formula for calculating it.

Response: The Department believes the phenomenon, terminology, and methods for calculation of the 100-year storm scour depth are well established in the engineering profession and do not need further discourse in this rule. No change has been made to the rule.

Comment 5 - 66: This rule conflicts with the existing rule and should be adjusted to accurately reflect the existing rule, references the Arizona Uniform Plumbing Code by only concerning RV parks while Appendix E also includes manufactured and mobile home parks.

Response: The Department has revised this subsection to reflect the need for a minimum four-inch sewer for manufactured home, mobile home, and recreational vehicle park up to 20 units. This size is necessary to ensure adequate maintenance of the sewer collection system to reduce the chance of sewer system overflow. Sewer pipe sizes and the corresponding number of units for five-inch and six-inch pipes, consistent with Appendix E, are also added to the rule. Subsection (D)(2)(d)(ii) has been revised as follows:

> *The sewer lines for a sewage collection system for a manufactured home, mobile home, or recreational vehicle park are not less than four-inches in diameter for up to 20 units, five-inches in diameter for 21 to 36 units, and six-inches in diameter for 37 to 60 units.*

Comment 6 - 10: Revise the initial sentence [subsection (E)(7)] as follows: "Sewer lines and their connections and fittings shall be designed with materials and installed following the manufacturer's specifications as a minimum to:"

Response: Subsection (D)(2)(g) has been revised as follows:

> *Design and install sewer lines, connections, and fittings with materials that meet or exceed manufacturer's specifications not inconsistent with this Chapter to:*
>
> *i. Limit inflows, infiltration, and exfiltration;*
>
> *ii. Resist corrosion in the project electrochemical environment;*
>
> *iii. Withstand anticipated live and dead loads; and*
>
> *iv. Provide internal erosion protection.*

Comment 6 - 11: Revise [subsection (E)(7)(a)] to read as follows**:** "Limit inflows, infiltration and exfiltration."

Response: The Department agrees that the addition of "inflows" better reflects the intent of this standard. Subsection (D)(2)(g)(i) has been revised as follows:

Limit inflows, infiltration and exfiltration,

Comment 6 - 12: Revise to read as follows: "The total length of all sewer lines consisting of flexible materials shall be deflection tested to at least the manufacturer's recommendations, and the results shall be recorded."

Response: The Department agrees. Subsection (D)(2)(i) has been revised as follows:

Perform a deflection test of the total length of all sewer lines made of flexible materials to ensure that the installation meets or exceeds the manufacturer's recommendations and record the results.

Comment 6 - 14: Revise as follows**:** "All manholes shall be located to provide, when the manhole and its planed surroundings have been built, adequate visibility and vehicular maintenance accessibility."

Response: The Department agrees. Subsection (D)(3)(h) has been revised as follows:

The applicant shall locate a manhole to provide adequate visibility and vehicular maintenance accessibility after the manhole has been built.

Comment 6 - 15: Eliminate the second sentence of the paragraph [subsection (H)(3)(c)] since the retention time of most pump stations will be several hours during the time period of 1:00 am to 6:00 am. It will be impossible to get a retention time of 30 minutes or less. Furthermore, any attempt to decrease the working volume of the pumps to get a lower retention time during the low flows could lead to premature pump failure because of short cycling during the high flow period.

Response: The Department agrees and has stricken the sentence. The preceding and following sentences adequately state the performance expectation. After reorganization and renumbering, this is now subsection E301(D)(4)(iii).

Comment 39 - 8: We recommend that standby power be required for any public wastewater pump station, unless it serves only one facility (i.e., one building or a restroom, etc.), regardless of flow. We also recommend that specific criteria for standby power be placed in the final rule, including how many pumps to be operated at one time on emergency power, and what other minimum facilities at a site will need to be operated from the emergency power supply. It may also be a good idea to place standby power requirements on private pump stations based on a minimum design flow, say 50 gpm or some other value.

Response: The Department believes too many permutations, possible uses, and equipment exist to adequately detail these in the rule. The general performance standards in subsection (B) require the sewage collection system to have adequate wastewater flow capacity for the system and prevent sanitary sewer overflows through appropriate sizing and capacities. The Department believes that the more detailed design elements for standby power sources can best be addressed through guidance. No change has been made to the rule.

Comment 5 - 67: What authority does the Department have to mandate an Engineer's Certificate of Completion? What will be the cost impacts to the public for now requiring an engineer to be on-site during construction in order for him to execute a Certificate of Completion and certify the test results of all system testing? This cost must be provided in the Economic Impact Statement since substantial additional costs will be incurred.

Response: The Department has broad authority under A.R.S. §§ 49-104, 49-203, and elsewhere to adopt rules regarding the design, construction, operation, and closure of wastewater facilities. The Department has long required an Engineer's Certificate of Completion to provide assurance that the engineered works have been constructed as designed. There is no procedure change and therefore no economic impact. However, the Department has revised subsection (E)(1) so that it is not inconsistent with Arizona Board of Technical Registration statutes:

Additional Verification of General Permit Conformance requirements. An applicant shall:

1. *Supply a signed and sealed Engineer's Certificate of Completion, unless prohibited by law, in a format approved by the Department that provides the following:*

Comment 5 - 68: Strike or clarify [subsection (I)(l)(b)] what other relevant information may be required.

Response: The sentence itself, now subsection (E)(2), provides the criteria for requesting other relevant information, i.e., information needed to determine that the facility conforms to the terms of the general permit. No change has been made to the rule.

R18-9-E302. 4.02 General Permit: Septic Tank With Disposal by Trench, Bed, Chamber Technology or Seepage Pit, Less Than 3000 Gallons Per Day

Comment 2 - 31: The calculation method for sizing fields [subsection (C)(2)] is significantly different than current practice. How is this covered in the cost calculations for this rule?

Response: Septic tank disposal fields sized under this rulemaking will be smaller for shallow trench fields and larger for deep trench fields than calculated by current practice. For shallow trench fields, the proposed calculation method will result in a field that is 25% smaller than the current practice provides, thus saving the homeowner about $550 for a septic tank installation compared to current practice. For deep trench fields, the proposed calculation method will result in a field that is 13% larger than current practice provides, thus adding about $150 to the cost of the system compared to current practice. In both shallow and deep trench situations, the change in calculation method provides appropriate treatment to ensure protection of groundwater quality. The change was endorsed by a large stakeholder's group knowledgeable in septic tank system performance. No change has been made to the rule.

Comment 31 - 14: Do not allow a size option on tankage, make a stand.

Response: If the commented is referring to dosing or septic tanks, minimum sizing has not changed. However, the recommended size was deleted because it is unenforceable. Recommended sizes may be included in a guideline. No change has been made to the rule.

Comment 21 - 1: Septic tank size for residences is based on bedrooms. There is, however, no definition of what constitutes a bedroom. This could result in undersized systems when what are initially called dens and offices suddenly become bedrooms.

Response: This comment is addressed in R18-9-A314.

R18-9-E303. 4.03 General Permit: Composting Toilet, Less Than 3000 Gallons Per Day

Comment 2 - 33: Composting toilets should be tied to a gray water disposal system properly designed to be sure of no contamination.

Comment 9 - 32: Include siting, sizing & other design criteria for the graywater system. Include restrictions.

Response: Composting toilets are limited to collecting human excrement and qualified designers and regulators know that other sources of domestic waste must be managed by other means. Criteria for graywater systems are cited in the revised language at R18-9-E303(C)(2). The following sentences have been added to Subsections (B)(2) and (C)(2):

(B)(2) A composting toilet system receives only human excrement.

(C)(2) Manages gray water as provided in this Article or under A.R.S. Title 18, and

Comment 9 - 71: Require annual permits; routine (2x per year) inspections by a third party; annual inspections by the regulatory authority; annual sampling by the homeowner to ensure compliance, with treatment performance criteria; and the maintenance of an operation and maintenance log.

Response: Technical standards for the design, installation, and operation and maintenance of on-site wastewater treatment facilities were not intended to encompass every aspect of facility management. The technical standards in rule defines minimum performance ensures proper operation and maintenance by implementation of the required Operation and Maintenance Plan or performance assurance plan. This provides reasonable opportunity for the designer, regulator and owner to agree on appropriate Operation and Maintenance actions without further rule expansion or a costly new government program. Inspection needs will continue to be under study by the Department On-site Wastewater Advisory Committee. No change has been made to the rule.

Comment 2 - 34: What is the basis for 15 year floodplain? Do not allow burial of compost in any floodplain.

Comment 9 - 33: Consult with your Solid Waste Section before allowing disposal of compost material on-site.

Response: It is recognized that disposal of composted human excrement residues are regulated elsewhere in Title 18. The rule is modified by the following changes:

R18-9-E303(D)(7) "The calculation of waste volume and planned method for disposing of the composted human excrement residue."

R18-9-433(D)(8) and R18-9-433(E)(5)(a) through (f) has been deleted.

R18-9-E303(E)(5) "Dispose of the composted product at the end of the treatment process as provided under A.R.S. Title 18, Chapters 8 and 13."

Comment 30 - 4: The specifications are too restrictive. The approved "Aggregate" should also provide for the possibility of "alternate approved media" such as rubber chips or engineered plastic aggregates.

Response: Cited rule and comment are inconsistent. If the commenter is referring to R18-9-E312(G)(1) the alternate material can be addressed as an alternative design feature by R18-9-E312(H). No change has been made to the rule.

R18-9-E304. 4.04 General Permit: Pressure Distribution System, Less Than 3000 Gallons Per Day

Comment 5 - 131: A number of other documents (manufacturers recommendations, NEC) are referenced in these rules but have not been incorporated into the rules as required by law. Why hasn't this been done? Dosing tanks need to be watertight. Can they leak in valley sediment areas like Maricopa County? This conflicts with previous rules. The rule requires annual inspection. What are the cost impacts to property owners for this annual inspection? Who performs the inspection? Does the Department perform the inspection?

Comment 2 - 38: Specify the frequency that systems are required to be inspected and/or tested, starting with annually on any system that has moving parts or is more complex than the standard system. Also, mention required testing for fecal coliform and/or chlorine residual or explain why it isn't necessary.

Response: Operation and maintenance, which ultimately is the responsibility of the facility owner, is necessary to ensure the performance of the systems that require more active management as provided for in 4.03 through 4.23 General Permits to ensure protection of public health and water quality. Subsection (G) has been revised as follows:

1. *The operation and maintenance plan for the on-site wastewater treatment facility that supplies the wastewater to the pressure distribution system specifies inspection and maintenance needed for the following items:*

    a. *Sludge level in the bottom of the treatment and dosing tanks.*

    d. *Piping and other components functioning within design limits.*

Comment 2 - 35: This section was initially intended to provide for replacing that section of existing Bulletin 12 that allows for use of pressure distribution in areas of borderline soils having a percolation rate of between 60 and 120 minutes per inch. It now is a combination of pressure trenches, surface distribution, etc?

Response: The Department intends that use with any disposal technology requires effluent distribution under pressure. No change has been made to the rule.

Comment 12 - 27: The proposed rules for systems having mechanical components, such as pressure distribution, aerobic and sequencing batch reactor systems, are not sufficient to protect the public's health. It is essential that these types of systems be required through rule to obtain an operating permit that is renewable on a yearly basis. The minimum requirements for renewal of the permit should be as follows**:** monthly inspection and maintenance by a Class II wastewater treatment plant operator or equivalent; maintenance of an operation and maintenance log; submission of an annual summary report; yearly inspection; routine effluent sampling; monthly chlorine residual and quarterly fecal coliform for systems utilizing surface irrigation; and any other criteria as may be specified by the governing agency to ensure the proper operation of the system.

Response: The Department disagrees that these standards are insufficient to protect public health. If the systems contained in these general permits are designed, installed, operated and maintained in accordance with the requirements of this Article, the systems should perform properly to protect public health and the environment. No change has been made to the rule.

Comment 2 - 36: This section does not belong in the pressure distribution system and should be included in the general permit that includes surface distribution with aerobic treatment.

Response: The Department agrees. Subsection (B)(1) has been revised as follows:

B. Performance. An applicant shall ensure that a pressure distribution system:

1. Has Department -approved dispersing components that provide proper dispersal of wastewater so that loading rates are optimized for the particular system, and

Proposed subsection (B)(1) language has been transferred to R18-9-E316(C)(3).

Use sprinkler, bubbler heads, or other components that provide dispersal to optimize wastewater loading rates and prevent ponding on the land surface.

Comment 9 - 34: Need to add a requirement that three floats are necessary in the pump tank 1) high water 2) on/off and 3) low water redundant off. In addition, there needs to be verbiage on drainback to the pump tank in cold climate due to the potential of the manifold line freezing.

Response: The Department agrees that three float pump controls are more reliable. Cold climate design considerations common for general design of systems under R18-9-E302 through R18-9-E322 are consolidated in the final rulemaking. No change has been made to the rule.

Comment 10 - 14: Justify prohibition on pressure diaphragm level control switches.

Response: The Department position is that float switches are more testable for operation and maintenance tasks. Optional designs may be approved under R18-9429(H). No change has been made to the rule.

Comment 10 - 15: Specify what the minimum internal/external loads are.

Response: The Department considers the loads to include those reasonable to the site conditions and reasonably expected land uses. The Department agrees that some further clarification is helpful. The rule has been revised as follows:

Subsection (D)(3) "Dosing tanks and effluent distribution components. The applicant shall:

a. Design dosing tanks to withstand anticipated internal and external loads under full and empty conditions, and design concrete tanks shall meet the "Standard Specification for Precast Concrete Water and Wastewater Structures," . . . "

Subsection (D)(3)(e) "Ensure that dosing tanks are watertight and anti-buoyant."

Comment 2 - 37: This applies only to surface distribution and does not belong here. Incidentally, where does this requirement come from? How was it decided that it was okay to allow runoff if the storm was greater than 10 year frequency? Investigate the berming requirement further.

Response: The Department agrees that subsection (E)(2) should be a part of the surface irrigation rule. The 10 year frequency is adapted from USEPA containment rules for program consistency. Subsection (E)(2) has been transferred to R18-9-E316(C)(8).

Comment 10 - 16: One of the operation and maintenance requirements proposed under R18-9-434(G)(1)(b) is watertightness. Is this situation exempted in Subsection (D)?

Response: This operation and maintenance requirement is to ensure continued watertightness. No change has been made to the rule.

Comment 14 - 20: In general operation and maintenance requirements should specify when for the required testing, at construction or annual O&M?

Comment 14- 22: "...shall be observed" When?

Response: Operation and maintenance requirements pertain to the operation, not construction. No change has been made to the rule.

Comment 14 - 21: "...shall be tested" When?

Response: Operation and maintenance requirements shall be performed during inspections specified in the Operation and Maintenance Plan. Subsection (G)(2) has been revised as follows:

All critical control functions are specified in the Operation and Maintenance Plan for testing to demonstrate compliance with design specifications, including:

Comment 14 - 23: "Pressurized lines (including transmission lines, manifolds and laterals) shall be periodically rodded and flushed." This should apply to all pressurized lines for mounds, sand filters, dosed trenches, dosed media and dosed chambers that receive septic tank effluent.

Response: This rulemaking provides for these activities for all systems. The Operation and Maintenance subsection in R18-9-A313(B) incorporates these activities.

Operation and maintenance. In addition to operation and maintenance requirements in the general permit or specified in the Operation and Maintenance Plan, the permittee shall perform the following tasks as applicable.

1. *Inspect and clean pretreatment and wastewater distribution components;*
2. *Clean or backwash any effluent filters, and return cleaning water to the pretreatment headworks;*
3. *Inspect and clean the effluent baffle screen and pump tank, and properly dispose of cleaning residue;*
4. *Clean the dosing tank effluent screen, pump switches, and floats, and properly dispose of cleaning residue;*
5. *Flush lateral lines and return flush water to the pretreatment headworks;*
6. *Inspect, remove and replace, if necessary, and properly dispose of filter media;*
7. *Rod pressurized wastewater delivery lines and secondary distribution lines (for dosing systems), and return cleaning water to the pretreatment headworks;*
8. *Inspect and clean pump inlets and controls and return cleaning water to the pretreatment headworks;*
9. *Implement corrective measures if anomalous ponding, dryness, noise, odor, or differential settling is observed; and*
10. *Inspect and monitor inspection and access ports, as applicable, to verify that operation is within expected limits for:*
    a. *Influent wastewater quality;*
    b. *Pressurized dosing system operation;*
    c. *Aggregate infiltration bed and mound system operation and performance;*

d. Wastewater delivery and engineered pad operation and performance;

e. Pressurized delivery system, filter, underdrain, and native soil absorption system operation and performance;

f Saturation condition status, operation and performance in peat and other media; and

g. Treatment system components.

R18-9-E305. 4.05 General Permit: Gravelless Trench, Less than 3000 Gallons per Day

Comment 5 - 132: What data did the Department use to determine the nitrogen and coliform performance to these systems? What is the purpose of requiring an applicant to submit a calculation for a conventional disposal field trench? Why are the manufacturer installation and warranty performance needed? If a half pipe is used, there is no manufacturer involved. Why does the gravelless system need to be 12 inches below native soil? The design requirements in subsection (2)(a) and (b) are confusing and unclear. Is a chamber system to be designed according to R18-9-432 or R18-9-435?

Comment 12 - 25: Amend to read**:** "For 10 inch diameter pipe, three square feet of absorption area shall be allowed per linear foot."

Response: As stated in subsection (A), the gravelless trench receives discharge from a septic tank (4.05 General Permit). The commenter confuses the term "soil absorption area" as used in the rule with a "calculation for a conventional disposal field trench." The requested "soil absorption area" and the absorption area per unit length of the gravelless pipe are used to calculate the pipe length necessary. The manufacturers performance claim for the specified septic tank effluent criteria is necessary to ensure the effluent loading rate does not exceed the manufacturers warrantee and conditions for installation. The absorption area per linear foot of gravelless pipe is intended to be unchanged form the current standard in Engineering Bulletin 12 as adopted in 1989, but subsection (D)(2)(b) contains an error that is corrected below.

Also, the last sentence of subsection (D)(1) is inconsistent and may be contributing to the commenters difficulties. The minimum cover specified is adapted from the existing guideline and staff professional judgement. Technical standards for the on-site wastewater treatment and disposal systems were not intended to incorporate every possible alternative technology or approach to system design. Otherwise, the rule would become unmanageably large. The "half pipe" gravelless system may be used as an option, however, the effluent absorption area needs to be determined by the designer. Whenever practical, the Department will rely on a foundation of clear and concise technical standards, and the uniform options process in R18-9-A313(H) for approving alternative design, installation, and operation and maintenance features. Chamber systems that conform with R18-9-E302 shall be applied for as such. The rule has been revised as follows:

The following sentence has been added to Subsection *(A):*

This general permit authorizes the discharge of wastewater from a septic tank that meets the requirements of R18-9-A314 to the gravelless pipe system described in this Section.

The last sentence of subsection (D)(1) has been deleted.

(D)(2) Calculate the infiltration surface as follows:

a. For eight inch diameter pipe, two square feet of absorption area is allowed per linear foot;

b. For 10 inch diameter pipe, three square feet of absorption area is allowed per linear foot;

c. For bundles of two pipes of the same diameter, the absorption area is calculated as 1.67 times the absorption area of one pipe; and

d. For bundles of three pipes of the same diameter, the absorption area is calculated as 2.00 times the absorption area of one pipe;

Comment 9 - 35: This section should follow section R18-9-432 as it is more closely associated with this type of system than following sections on alternative systems.

Response: The Department stakeholder group for on-site systems considered gravelless pipe as a separate disposal technology, consistent with the existing guideline. No change has been made to the rule.

Comment 2 - 39: We have duplicated the chamber system in this section.

Response: Chamber systems and conventional trench drainfields generally have more than double the internal void volume compared to gravelless pipe for the same disposal capacity and, therefor, have greater surge capacity. A separate general permit for gravelless pipe allows the Department to streamline the permitting for the more conventional systems. No change has been made to the rule.

Comment 2 - 40: Check the formulas or the design criteria. My calculations make the use of this technology completely cost prohibitive. Explain the requirement for pressure distribution in the type of soils specified. It would seem that pressure distribution would be a greater benefit in tight soils???

Response: The effective effluent absorption area for single pipe gravelless disposal is unchanged form the current standard in Engineering Bulletin 12 as adopted in 1989. The effluent absorption area adjustment for clustered gravelless pipe is the hydraulic perimeter of the pipe cluster. Technical standards for gravelless pipe are included as an option to overcome identified site limitations. Pressure distribution in coarse soil results in a more evenly distributed biofilm forming on the effluent infiltration surfaces, improving soil aquifer treatment. No change has been made to the rule.

Comment 14 - 24: It seems that two and three pipe bundles get a bonus of 1*Diameter beyond the bottom and side wall areas of the excavated trench. Single pipes get no bonus beyond bottom and side wall areas. Is this supported?

Response: The effluent absorption area adjustment for clustered gravelless pipe is the calculated hydraulic perimeter of the pipe cluster compared to the perimeter of a single gravelless pipe. Technical standards for gravelless pipe are included as an option to overcome identified site limitations. No change has been made to the rule.

R18-9-E306. 4.06 General Permit: Natural Seal Evapotranspiration Bed, Less Than 3000 Gallons Per Day

Comment 2 - 41: This general permit fails to consider those situations where an unlined ET may be used for a combination of evaporation and absorption. Also there is no design criteria included in the section.

Response: The rule provides the foundation for many possible design variations and allows options for alternative design, installation and operation features in subsection (H) such as that suggested by the commenter. No change has been made to the rule.

Comment 5 - 133: What is the reference design on file with the Department? This file does not exist. Therefore the rule is invalid. A reference design must be incorporated by reference which the Department has not done. The design must be completed by a professional engineer if the cost of material and labor is greater than $12,500. This rule violates state law.

Response: The Department adopted the reference design approach to streamline the design approval process for both the applicant and Department. Reference designs will be developed as needed and more than one reference design may be available for each general permit. Natural seal evapotranspiration bed applications will be accepted as an optional feature under R18-9-A312(H) until a reference design is available.

To preclude confusion of the appropriate treatment technology, R18-9-E306(A) and R18-9-E307(B) are clarified similarly in R18-9-E305. The following sentence has been added to *subsection (A) and R18-9-E307(A)*:

> *This general permit authorizes the discharge of wastewater from a septic tank that meets the requirements of R18-9-E314 to the general permitted disposal feature described in this Section.*

Comment 9 - 36: Include design criteria. Keep the requirement on mass water balance. Do not allow the use of cinders unless strict parameters are provided on.

Response: The rule is substantially modified as described above. The mass water balance is retained in R18-9-E307(E)(2). Fill material is based on the capillary rise performance of the sand or other durable bed media. No further change to the rule.

Comment 14 - 25: Design requirements material should be combined where possible. The natural seal design should also be tested to insure that it does not leak excessively. A performance standard for the "engineered" liner consisting of natural soil and clay material (R18-9-E304(A)) should be specified as you do for the liner material (550 gallons per acre per day — R18-9-E307(E)(3)).

Response: R18-9-E306 is substantially modified as described above. The Department is confident the change will ensure adequate leakage control. No change has been made to the rule.

Comment 9 - 37: It appears these systems are not going to be permitted in the higher elevations, i.e., above the Mogollon Rim. If you are going to eliminate their use in our county (high altitude counties), what are we to do with those lots where no other system is permissible per your rules? What about those that were already approved?

Response: Technical standards for the on-site wastewater treatment and disposal systems were not intended to incorporate every possible alternative technology or approach to system design. Otherwise, the rule would become unmanageably large. The Department intends to use the uniform options process in R18-9-A312(H) for approving alternative design criteria for this case. Applications for previously approved subdivision lots will have to comply with the rule. Alternate design, construction, and operation and maintenance features will be required until a reference design applies. No change has been made to the rule.

Comment 9 - 38: ET Bed natural seal performance criteria needs to be more specific on what soils they are useful in, i.e., where perc rates exceed 120 min./in?

Response: R18-9-E307(A) states the ET disposal feature may be used when the site conditions restrict soil infiltration. The Department considers the scope sufficient to result in acceptable designs. No change has been made to the rule.

R18-9-E307. 4.07 General Permit: Lined Evapotranspiration Bed, Less Than 3000 Gallons Per Day

Comment 2 - 43: What was used to establish this seepage rate? It would allow approximately 38 gallons per day on a 3000 square foot system. This seems excessive as it is approximately 10% of the design flow.

Response: A stakeholder group determined that this seepage rate represents BADCT. It is equivalent to a one foot thick liner with 10^{-7} cm/sec permeability under four feet water head. No change has been made to the rule.

Comment 9 - 39: It appears these systems are not going to be permitted in the higher elevations, i.e., above the Mogollon Rim. If you are going to eliminate their use in our county (high altitude counties), what are we to do with those lots where no other system is permissible per your rules? What about those that were already approved?

Response: Technical standards for the on-site wastewater treatment and disposal systems were not intended to incorporate every possible alternative technology or approach to system design. Otherwise the rule would become unmanageably large. The Department intends to use the uniform options process in R18-9-A312(H) for approving alternative design criteria for this case. No change has been made to the rule.

Comment 2 - 42: The requirement of a mass water balance is not currently being considered by current Bulletin 12 systems.

Response: The Department added the mass balance criteria based on discussions with the stakeholder group. The analysis will facilitate the use of the options provision, R18-9-E312(H). No change has been made to the rule.

Comment 9 - 41: ET Bed minimal vertical separation to the water table should be a minimum of 12" for lined beds and 24-36" for natural lined beds as it is difficult to determine the exact elevation of a water table due to fluctuating seasonality and groundwater mounding which is typically 12". You need to be more conservative with natural lined beds as percolation of the effluent still occurs.

Response: The Department agrees. Subsection (E)(1)(10) has been revised as follows:

> *Instead of the minimum vertical separation required under R18-9-A312(E), ensure that the minimum vertical separation of the bottom of the evapotranspiration bed liner to the surface of the water table or impervious layer or formation is 12 inches.*

Comment 2 - 44: Clarify why a registered engineer is needed to measure to determine if a system is leaking. Suggest that this requirement be revisited.

Response: The Department considers performance testing of wastewater liners to be a critical verification of performance to achieve health and environmental standards, and that the interest of the property owner can most effectively be preserved by leak testing being performed by a regulated practitioner that is accountable by their professional license and subject to civil penalty for violation. No change has been made to the rule.

R18-9-E308. 4.08 General Permit: Wisconsin Mound, Less Than 3000 Gallons Per Day

Comment 14 - 26: Replace "two scaled cross sections of the mound" with "two scaled or dimensioned cross sections of the mound." There is no reason for all views to be to scale when dimensions are required either on the drawing or in an associated table of dimensions.

Response: The Department agrees with the commenter. Subsection (C)(2) has been revised as follows:

> *Two scaled or dimensioned cross sections of the mound (one of the shortest basal area footprint dimension and one of the lengthwise dimension), and*

Comment 2 - 45: Does the 30 foot setback apply to other near surface disposal systems such as shallow trenches, drip systems, or Orenco trenches?

Response: No, the 30 foot setback applies only to the Wisconsin Mounds. No change has been made to the rule.

Comment 2 - 46: What is the documentation that allows for this 50% reduction in sizing of the bed? It definitely does not apply to the installation of mound systems in areas to tighter soils with borderline percolation rates. Also what is the "mound bed inlet surface?"

Response: The Department disagrees with the commenter's statement because the loading rate multiplier of "up to two inches is for infiltration loading rate into the top of the sand fill, not the discharge from the sand fill into the native soil at the basal area contact. The Department agrees that the multiplier value may be high when the sum of the TSS and BOD is 60 mg/l using the equation in R18-9-E312(D)(3). Subsection (D)(11)(b) has been revised as follows:

> *Apply the soil application rates specified in R18-9-A312(D). <u>The allowable loading rate to the mound bed inlet surface may be increased up to 1.6 times if the wastewater dispersed to the mound is pretreated to reduce the sum of TSS and BOD5 to 60 mg/l or less.</u> The soil application rate may be increased to not more than 0.20 gallons per day per square foot of effective basal area if the following slowly permeable soils underlie the mound:*
>
> *i. Sandy clay loam, clay loam, silty clay loam or finer with weak platy structure; or*
>
> *ii. Sandy clay loam, clay loam, silty clay loam or silt loam with massive structure;*

Comment 9 - 45: The two time reduction in the mound size should only be allowed if the TSS and BOD is less than 30 mg/l, not 60 mg/L. You need this higher quality of effluent for the soils to adequately absorb the effluent at a higher rate.

Response: The Department disagrees with the comment because the loading rate multiplier of "up to two" is for infiltration loading rate into the top of the sand fill, not the discharge from the sand fill into the native soil at the basal area contact. If any interested party provides additional data that can serve as the basis for revising any performance or design criterion for a treatment or disposal technology, the Department will use the uniform options process in R18-9-E312(H), or will consider it under R18-9-E309(G). No change has been made to the rule.

Comment 9 - 44: Do not allow cinder sand. If it is allowed, the standard should be changed to 4% passing a sieve size of 200. Require the cinder sand to be washed.

Response: The Department has found that the literature tends not to support the 7% fines for mound bed media, however, analyses of cinder sand has shown 5% to be acceptable in some cases. Rather than establish a generally unacceptable criterion in rule, the Department will modify the limit downward and consider variance under the uniform options process under R18-9-E312(H) for approving alternative design criteria and features. Subsection (D)(2)(a) has been revised as follows:

Not more than 1.0 gallon per day per square foot of mound bed inlet surface if the mound bed media conforms with the "Standard Specification for Concrete Aggregates," (C 33-99a^{E1}), published by the American Society for Testing and Materials, approved July 10, 1999, and the Wisconsin Mound Manual, except if cinder sand is used that is the appropriate grade with <u>not more than 5% passing</u> a #200 screen.

Comment 12 - 26: Amend to read**:** "The minimum depth of mound bed media shall be 12 inches."

Response: The Department agrees with the commenter to strike the end of the sentence in the final rule. This will result in a precise correlation with the performance values given in R18-9-E308(B). Subsection (D)(7) has been revised as follows:

The minimum depth of mound bed media is 12 inches.

Comment 2 - 47: Suggest that it be made clear that there is a fee for any modification permit.

Response: The fee rule clarifies this point. The commenter is referring to the alternative design feature procedure under R18-9-A312(H). Subsection (H)(2) addresses fees. No change has been made to the rule.

Comment 14 - 27: All requirements of pressure distribution should apply here as well.

Response: The Department agrees. Subsection (F)(3) has been revised as follows:

Specify servicing and waste disposal procedures and task schedules necessary for clearing the main pressurized wastewater line and secondary distribution lines, septic tank effluent filter, pump intake, and controls.

Comment 14 - 28: This type of material should be developed for other systems as well. Checking the performance of the design after construction should be required of all systems. Any system which fails to achieve its design goal should be reevaluated and adjusted when possible.

Response: The Department agrees with the commenter and will consider this for future rulemaking. No change has been made to the rule.

Comment 31 - 13: The MVS for the mound system is not in accordance with current research.

Response: The Department rule for minimum vertical separation embraces a standardized approach across all on-site systems in which minimum vertical separation is dependent on treatment performance for total coliform bacteria reduction. The purpose of this standardized approach is to eliminate inconsistencies in minimum vertical separation requirements from system to system even though the systems may perform equally. If data is developed in the future to suggest changes to the minimum vertical separation requirements, a new rulemaking could be initiated. However, the Department would change the minimum vertical separations for all systems rather than a specific system. For this reason, no change has been made to the rule.

<u>R18-9-E309. 4.09 General Permit: Engineered Pad, Less Than 3000 Gallons Per Day</u>

Comment 2 - 48: Dr. Laak recommends that the system not use pressure distribution with Ruck System. The design treatment level is very high for this system. Please review the manufacturers data.

Response: The Department response is within the context of R18-9-E313, Ruck proprietary system and determined performance values and averaging times are supportable. Careful design can closely approximate gravity flow distribution. If the manufacturer or other interested party provides additional data that can serve as the basis for revising these criterion, the Department will use the uniform options profess in R18-9-E312(H) for approving alternative design criteria, or will consider it sunder subsection (G). No change has been made to the rule.

Comment 5 - 134: This rule does not provide technical engineering design requirements. Can the engineered pad be installed over fractured rock? How many pads are needed? What is the loading rate for the pads? This rule is grossly incomplete.

Response: The Department disagrees. The performance values in the proposed rule are sufficient to establish the minimum vertical zone of unsaturated flow beneath the engineered pad system and the design soil absorption rate. The overall rule includes provisions for sizing systems, including engineered pad absorption areas. No change has been made to the rule.

Comment 9 - 43: The performance on mounds should be more of a Log_{10} 3.

Response: The 95 percentile value for total coliform is for the system discharge to native soil after supplemental treatment of effluent from a pretreatment system authorized by R18-9-432. No change has been made to the rule.

Comment 9 - 46: The performance of Total coliform to a (Log of $_{10}$ 6) with only 6" is not supported by reliable data. The bottomless Intermittent Sand Filter with 24" of sand is only rated at (Log_{10} 5). What data show that an Eljen produces that log level.

Response: Treatment of septic tank effluent is provided by the pad assembly and the concrete sand bed and is unique compared to other treatment technologies. If the manufacturer or other interested party provides additional data that can serve as the basis for revising these criterion, the Department will use the uniform options process in R18-9-E312(H) for approving alternative design criteria, or will consider it under subsection (G). No change has been made to the rule.

Comment 9 - 47: Provide sizing and design criteria for these systems. Do not allow these systems to be placed above grade unless they are pressure dosed and criteria similar to designing a mound are used.

Response: The performance values in the rule are sufficient to establish the minimum vertical zone of unsaturated flow beneath the engineered pad system and the design soil absorption rate for the infiltration surfaces into the native soil. The overall rule includes provisions for sizing systems, including engineered pad absorption areas. No change has been made to the rule.

Comment 14 - 29: Credits & absorption area comps ?? (R18-9-E302 does not address.) Why limit the number of doses per day. Why not more?

Response: Absorption area calculation methods for systems authorized by R18-9-E302 have been amplified elsewhere as a result of comments received about that rule. The Department agrees that the higher doses may be appropriate in some instances, however, the rule can be generally applied as intended or tailored for a specific purpose using the uniform options process in R18-9-E312(H) for approving alternative design criteria for this case. No change has been made to the rule.

Comment 14 - 30: Should we also do this for mounds and sand filters???

Response: The 1990 Mound Manual referenced in R18-9-E308 includes the high soil moisture precaution. Common installation, and operation and maintenance requirements in R18-9-E302 through R18-9-E323 are consolidated in R18-9-A313. The first sentence in proposed subsection (E) has been moved to R18-9-A317(E), installation requirements.

> *The applicant shall prepare the disposal site when high soil moisture is not present and equipment operation will not create platy soil conditions.*

R18-9-E310. 4.10 General Permit: Intermittent Sand Filter, Less Than 3000 Gallons Per Day

Comment 2 - 49: The intermittent sand filter can be used in a number of applications not mentioned in the introduction. Suggest you review. Why is there a difference between the performance of of a bottomless filter and one with a liner?

Response: The Department believes the scope of the potential applications are satisfactory. Performance of sand filters with the underdrain are well documented. Comparable data for bottomless sand filters are not available and the footprint and native soil contact surface resembles a leaching bed that is designed with a soil absorption multiplier of less than 1. If a manufacturer or other interested party provides additional data that can serve as the basis for revising these criterion, the Department will use the uniform options process in R18-9-E312(H) for approving alternative design criteria, or will consider it under subsection (G). No change has been made to the rule.

Comment 5 - 135: Explain what causes the difference in system performance between an underdrain system and a bottomless filter. Where did the data come from for system performance? What is the cost impact because of the differing performance criteria? The Department has permitted these systems for years with different clean water and MVS credits. How do these rules impact the cost of the systems? The Department must provide this analysis in the Economic Impact Statement. In paragraph (D)(9), the setback reduction to a well is illegal since existing state rules require a 100-foot separation from wells. What are the design standards for this system? The Department has failed to provide the minimum design standards as required in A.R.S. 49-104. What soil application rate should be used for coarse sand or fractured rock? Why didn't the Department include a system which is designed without a liner or containment vessel?

Response: Performance of sand filters with the underdrain are well documented. Comparable data for bottomless sand filters are not available and the footprint and native soil contact surface resembles a leaching bed. This uncertainty is reflected by the more conservative performance credit, which will cause a minimal increase for the overall system cost. Provisions for reducing the minimum horizontal setback limits are consolidated in R18-9-E312(H). Design standards are in subsection (D) and are linked to the performance and design and installation requirements enumerated elsewhere in the rule. Discharge of treated wastewater to an acceptable vertical zone of unsaturated flow is addressed in R18-9-E312 and R18-9-E310(B) for this treatment technology. Technical standards for the on-site wastewater treatment and disposal systems were not intended to incorporate every possible alternative technology or approach to system design. Otherwise, the rule would become unmanageably large. Whenever practical, the Department will rely on a foundation of clear and concise technical standards, and the uniform options process in R18-9-429(H) for approving alternative design, installation, and operation and maintenance features. No change has been made to the rule.

Comment 10 - 17: Clarify why the performance and treatment requirements differ for the two types of intermittent sand filters. Bottomless sand filters should be limited to very few soil conditions. Tie the bottomless sand filter uses back to the soil and perc rate tables. Include recirculating sand filters. See papers by Terry Bounds and another by Jeff Ball and Grant Denn, all three from Orenco Systems, on recirculating sand filters.

Comment 9 - 48: Disposal should only be allowed in soils that have SAR's similar to that given to the sand media itself, that is 1.2 gpd. If you assume a two- or three-fold reduction in the SAR is allowed for the high quality of effluent produced by a sand filter, then bottomless sand filters should only be allowed where the receiving soils have perc rates faster than 20 min./in. Note**:** The same applies to disposal from a bottomless peat filter.

Response: Performance of sand filters with the underdrain are well documented. Comparable data for bottomless sand filters are not available and the footprint and native soil contact surface resembles a leaching bed which is designed with a soil absorption multiplier of less than 1. If a manufacturer or other interested party provides additional data that can serve as the basis for revising these criterion, the Department will use the uniform options process in R18-9-E312(H) for approving alternative design criteria, or will consider it under R18-9-E309(G). The Department agrees that the bottomless design should be limited to the native soil absorption capability for the quality of effluent discharged. Subsection (D)(11) has been added as follows:

The bottomless sand filter discharge rate per unit area to the native soil does not exceed the adjusted soil application rate for the quality of effluent specified in subsection (B)(2).

Comment 32 - 6: Sand Lined Trenches & Bottomless Sand Filters are identical to the design of Intermittent Sand Filters described in R18-9-440. The effluent quality of these three should be identical. What is the justification for the difference and the Economic Impact to the public for the inconsistency?

Response: The Department disagrees with the comment. Performance of sand filters with the underdrain are well documented. Comparable data for bottomless sand filters are not available and the footprint and native soil contact surface resembles a leaching bed. This uncertainty is reflected by the more conservative performance credit, that will cause a minimal increase for the overall system cost which is infinitesimal compared to the cost resulting from site limitations that preclude the use a system authorized by R18-9-E302. If an interested party provides additional data that can serve as the basis for revising the performance criteria, the Department will use the uniform options process in R18-9-E312(H) for approving alternative design criteria, or will consider it under R18-9-E309(G). No change has been made to the rule.

Comment 2 - 50: Define good engineering practice as it relates to even distribution.

Response: Good engineering practice includes, but is not limited to, the practicable application relevant technical knowledge and skill to an engineering endeavor. For wastewater distribution systems, good engineering practice includes, but is not limited to, the economical and reliable delivery of wastewater quantities at the correct times and locations to achieve treatment performance. No change has been made to the rule.

Comment 2 - 51: I do not believe that the emergency storage should be in the sand filter. This is not consistent with other filter systems nor is it economically practical. Suggest that the emergency storage by in the septic tank.

Comment 9 - 49: The overflow storage in the sand filter should not be allowed. It should only be measured in a separate tank.

Response: Technical standards for the on-site wastewater treatment and disposal systems were not intended to incorporate every possible alternative technology or approach to system design. Otherwise, the rule would become unmanageably large. Emergency storage in a separate tank is an option. The Department agrees that emergency storage in another location may be appropriate in some instances However, the rule is more protective to the sand bed and can be generally applied as intended by the rule or tailored for a specific purpose using the uniform options process in R18-9-E312(H) for approving alternative design criteria. No change has been made to the rule.

Comment 2 - 53: Please explain the new term "saturated wastewater."

Response: The term is incorrectly used in this rulemaking. Subsection (D)(8) has been revised as follows:

. . . The applicant shall ensure that companion modifications are made that eliminate the containment vessel bottom and underdrain and relocate the underdrain inspection port to ensure reliable indication of the presence or absence of water saturation in the sand media.

Comment 2 - 52: Clarify the reasoning behind reducing the setbacks from wells streams, lakes or reservoirs? The reduction in unacceptable.

Comment 9 - 50: A reduction of 1/2 the setback requirements to wells, live streams, lakes, surface water washes and drainage easements should not be allowed for these systems (or R18-9-449(D)(1) - Sand Lined Trench or R18-9-452(E)(12) - Drip Irrigation). Why are we selecting out only these three particular systems or components for reducing setbacks? What makes them better than any other secondary treatment system? These systems are subject to failure, hydraulic overload, and other problems that make the risk to great to reduce any setbacks. It also contradicts the Department of Water Resources setback of 100 feet from the well.

Response: The Department intends to use the setbacks in R18-9-E312(C) for all on-site wastewater treatment components and facilities unless additional design, installation, and operation and maintenance features are incorporated to justify change for adverse site conditions or planned improvements. For this reason, the provisions for reducing setback limits are removed from all 4.03 through 4.23 General Permits. The procedure described in R18-9-A312(H) may be used by the applicant to request an alternative design feature, such as a setback reduction.

R18-9-E311. 4.11 General Permit: Peat Filter, Less Than 3000 Gallons Per Day

Comment 5 - 136: How was the peat filter performance criteria developed? Why has the Department not allowed partial nitrogen removal credit for these systems? Since peat systems will not be allowed in fractured rock, what will happen to currently approved systems that are to fractured rock? The Department must demonstrate that the system criterion needs to be upgraded in order to justify the more stringent rules. What are the cost impacts between the previously permitted system costs and the proposed regulations? The Department must perform this analysis for the Economic Impact statement.

Response: The Department adopted the performance requirements based on filter test data. Subsection (A)(5)(b) does indicate that peat systems may be considered for fractured rock situations. The Department cannot interpret what is meant by "the system criterion needs to be upgraded in order to justify the more stringent rules." Previous approvals are addressed elsewhere in this rulemaking. No change has been made to the rule.

Comment 10 - 18: Specify the minimum depth of media for pre-packaged peat module filters.

Response: The minimum depth was omitted from rule proposal, but 24 inches is the value used for module systems. Subsection (D)(2)(e) has been revised as follows:

Ensure that the peat media depth is a minimum of 24 inches and the peat is installed with the top and bottom surfaces level. The applicant shall ensure that the maximum wastewater loading rate is 5.0 gallons per day per square foot of inlet surface at the rated daily design flow.

Comment 9 - 51: Continuing on with bottomless Peat systems. Need to restrict where we allow the bottomless disposals to go. The receiving soils have to have a similar application rate as the media itself to absorb. Add some more definitive criteria. We shouldn't be putting bottomless systems into the finer textured soils.

Response: Bottomless peat filters are not specifically addressed in this Section. Technical standards for the on-site wastewater treatment and disposal systems were not intended to incorporate every possible alternative technology or approach to system design. Otherwise the rule would become unmanageably large. Whenever practical, the Department will rely on a foundation of clear and concise technical standards, and the uniform alternative features in R18-9-E312(H) for approving alternative design, installation, and operation and maintenance features. No change has been made to the rule.

Comment 2 - 54: This section [A] provides for use in cold weather sites. Is this intended to be something product specific for Peat Filters?

Response: Common general design requirements, such as extreme climate conditions, for R18-9-E302 through R18-9-E323 are consolidated in R18-9-A313. No change to this subsection.

Comment 29 - 1: The proposal should be changed to the following**:** "1. TSS of 10 milligrams per liter, 30-day arithmetic mean. 2. BODs of 10 milligrams per liter, 30-day arithmetic mean. 3. Total nitrogen (as nitrogen) of 53 milligrams per liter, five-month arithmetic mean. 4. Total coliform level of 10,000 ($\text{Log}_{10} 4$) colony forming units per 100 milliliters on a geometric mean.

Response: The data the Department evaluated support the proposed rule limits. The Department agrees that higher performance may be achieved by a specific product, however, the rule can be generally applied as written, or modified for a specific product by using the uniform alternative features in R18-9-A312(H) for approving alternative designs for the product. No change has been made to the rule.

Comment 2 - 55: What is the basis for the difference in performance standards for the Peat Filters and sand filters?

Response: Different sets of performance data are available for the two technologies. No change has been made to the rule.

Comment 5 - 137: What is the meaning of daily flow averaged over the week shall not exceed 2/3 of the daily design flow? What is the purpose of this design criterion? Why don't other systems have this same requirement? Why is the Department discriminating against peat filters?

Comment 14 - 31: Peaking factor issues should be generic and apply to all systems.

Response: The definition of design flow is encompassed in the definitions, R18-9-101 and the weekly sewage flow limit is deleted.

Comment 5 - 138: What does the gravel bed design have to do with the ability of the soil or fractured rock to accept wastewater? Define the "long term acceptance rate of the native soil. Is this an engineering design criteria determined by the engineer? Can a peat system be designed without modules? Include standards permit both line and unlined peat filters in addition to modules. Why is the Department not including these design standards into rules? What is the cost impact to only permit one type of peat system? Why is it prohibited to place fill over the modules? If a peat system can be installed over a small depth of soil or fractured rock at the ground surface, why can't fill be placed over the module for landscaping purposes? An alternative to these rules will to reference the design criteria from Washington and other states or leave the design criteria to the professional engineer to decide what is appropriate.

Response: The gravel bed is specified in the manufacturer's design package reviewed by the Department and is listed as a design feature for a module. The intended absorption term for the native soil was not used and is corrected. The technical standards in rule establish design criteria in many cases. The rule includes the bed configuration in subsection (D)(4). The reviewed modular system is underlain by a gravel bed that discharges directly to the soil. The rule includes no lined peat filter. The alternative design features in R18-9-A312(H) for approving alternative designs may be used for design variations. The rule is modified for inclusion of the cover material over a peat module. Both module and bed types are included. Subsections (D)(2)(c) and (D)(2)(d) have been revised as follows:

c. For modules designed to allow wastewater flow through the peat filter and base material into underlying native soil, size the base on which the modules rest to accommodate the soil absorption rate of the native soil;

d. Place fill over the module so that it conforms to the manufacturer's specification if the specification is consistent with this Chapter. If the fill is planted, the applicant shall use only grass or shallow rooted plants; and

Comment 29 - 2: The proposal should be changed to the following**:** "The maximum loading rate shall be 10.0 gallons per day per square foot of the inlet surface at the rated daily design flow," or the whole sentence out should be eliminated.

Response: The Department agrees that higher performance may be achieved by a specific product. However, the rule can be generally applied as written or modified for a specific product by using the uniform alternative features process in R18-9-A312(H) for approving alternative design criteria for the product. No change has been made to the rule.

Comment 2 - 57: Is it the intent that this fall into the peat filter bed classification. If so, it will eliminate it from consideration because of the loading rate.

Response: The rule is for bed installations. The loading rate data evaluated by the Department support the rule limits. The Department agrees that higher performance may be achieved by a specific product, however, the rule can be generally applied as written or modified for a specific product or peat specification by an interested party to use the uniform alternative features process in R18-9-A312(H) for approving alternative design criteria for the product. No change has been made to the rule.

Comment 5 - 139: Extensive peat performance monitoring has been done which indicates that the loading rate for peat systems varies with the type of peat. To arbitrarily set a loading rate at 1.0 gpd/sq. ft. is ridiculous. If a peat material can be loaded at five gpd/sq. ft. then why can't a peat bed system be designed to this higher rate? What is the cost to the public and small business for this arbitrary design restriction? What is the purpose of the 10-14 inch peat requirement over the distribution pipes? This peat does not provide any treatment and therefore this criterion is not valid. Why can't other material like sand, gravel, mulch, or bark be used for cover material? Why can't chambers or half pipes be used to distribute wastewater'? Why is this criteria restricted to gravel?

Response: The Department disagrees with the loading rate comments. The loading rate data considered support the rule limits. The Department agrees that the different performance may be achieved by a specific product or different cover limits specified for different site conditions. The rule is not intended to incorporate every possible alternative technology, performance, or approach to system design. Otherwise, the rule would become unmanageably large. However, the rule may be generally applied as written or it may be adapted for a specific product, material specification or site condition by an interested party to use the uniform options process in R18-9-A312(H) for approving alternative design criteria for the product. No change has been made to the rule.

Comment 9 - 52: Eliminated. Peat systems should only be pre-manufactured to maintain quality control of the peat media.

Response: The Department intends not to restrict consideration of reasonably available technology, installation methods, or operational methods that provide acceptable treatment and disposal of on-site wastewater. The rule can be generally applied as written or it may be adapted for a specific product, material specification or site condition by an interested party to use the uniform alternative features process in R18-9-A312(H) for approving alternative design criteria for the product. No change has been made to the rule.

Comment 2 - 58: Very weak. It is missing a major factor which is the replacement frequency of the peat itself. Manufacturers of the system believe that it will last no longer than eight years. Extremely dry conditions in the Southwest could impact this.

Response: The Department agrees with the commenter. Common installation and operation and maintenance requirements in R18-9-E302 through R18-9-E323, including those of manufacturers are consolidated in R18-9-E313. The Operations and Maintenance Plan content is located elsewhere in this rulemaking. The operations and maintenance Section addresses facility servicing and waste disposal procedures and task schedules necessary for ensuring performance. No change has been made to the rule.

Comment 14 - 31: "Each lift shall be compacted..." to what degree, how??

Response: The Department will rely on the designer's expertise until the time that there is agreement or a performance basis for such a specification. No change has been made to the rule.

R18-9-E312. 4.12 General Permit: Textile Filter, Less Than 3000 Gallons Per Day

Comment 10 - 19: Textile filters should be is referred to by its trademark Advantex™, and not generically as textile filters.

Comment 21 - 4: This section should set up like the Ruck system (section 443) since textile treatment products are proprietary to the Orenco treatment packages.

Response: Textile filter performance, submittal, design, installation, and operation and maintenance requirements are for textile-based fixed film treatment, not for a specific product. If an interested party provides additional data that can serve as the basis for revising any performance or design criterion for a treatment or disposal technology, the Department will use the uniform alternative same process in R18-9-A312(H), or will consider it under R18-9-A309(E). No change has been made to the rule.

At the time of rule proposal, Ruck was approved for general application and fixed film media (textile) treatment units have been approved for site-specific applications. If an interested party provides additional data that can serve as the basis for revising any performance or design criterion for a treatment or disposal technology, the Department will use the uniform alternative features process in R18-9-A312(H), or will consider it under R18-9-A309(E). No change to rule.

Comment 2 - 59: Why is the textile filter singled out on the restrictions for power? It is not appropriate or needed.

Response: The requirement for electric power is in other locations of the rulemaking. The requirement is consolidated in the general design rule in subsection (B).

Comment 9 - 53: Sizing requirements need to he provided for these technologies, that is, how many gallons per day per square foot of textile filter is necessary? Why is it being singled out as a restriction requiring power?

Comment 2 - 62: Address the recirculation rate and process in the design calculations.

Response: The Department will rely on the designer's expertise until the time that a specific technical standard is established. No change has been made to the rule. The requirement for electric power is in other locations of the proposed rule. The requirement is consolidated in the general design rule in subsection (B).

Comment 9 - 55: Include information on recirculation rates and processes.

Response: The Department will rely on the designer's expertise until the time that a specific technical standard is established. No change has been made to the rule.

Comment 2 - 60: The manufacturer requires pressure distribution to his media.

Comment 9 - 54: These systems all need a pump.

Response: Design must comply with manufacturer's specification. No change has been made to the rule.

Comment 2 - 61: Where does this requirement come from?

Response: The weekly average flow criteria is used in other general permits and is applicable to all systems. Common general design requirements, such as weekly average flow and peaking factors for Type 4 treatment units, are consolidated in the final rule in subsection (B). No change has been made to this rule.

R18-9-E313. 4.13 General Permit: RUCK® System, Less Than 3000 Gallons Per Day

Comment 2 - 63: In my opinion, this system is not consistent enough to be considered a reference design at this time. There has not been sufficient data accumulated on the Arizona installation methods to verify it as a consistent denitrification system. There needs to be significant more effort put into the installation, operation and maintenance and monitoring of the system.

Comment 9 - 56: There is not enough data out on these systems. They should not be included in the rule at this point, but should be allowed as a demonstration system only.

Response: The technology has been generally approved by the Department for use in site-specific applications based on a record of data. If substantially different updated data are generated, the Department will consider modifying the performance levels in a future rule change. No change has been made to the rule.

Comment 10 - 20: Delete Ruck system or use language from the Rhode Island rules for the Ruck system.

Response: The Department disagrees. The technology has been previously approved for general use. This rule establishes the corresponding performance and design standards. No change has been made to the rule.

R18-9-E314. 4.14 General Permit: Sewage Vault, Less Than 3000 Gallons Per Day

Comment 2 - 64: Specify a minimum sized tank of 1000 gallons with a one day storage required above a required high water alarm system. Is it your intent that all vault and haul systems have a limited time-frame to the permit?

Comment 9 - 57: This section should be eliminated as a permanent alternative to on-site wastewater treatment and disposal. If the Department maintains this in rule, the following should be included as restrictions**:** Allowed for seasonal use sites only - require a 5 or 10 year service contract with a pumper, record the contract and system requirements to the deed; and require a vault tank with 10 days storage, with a high water alarm placed at seven days to give the homeowner three days to get the pumper out to the site.

Response: The reference design will address size, use limitations, alarm, installation, and operation and maintenance. No change has been made to the rule.

R18-9-E315. 4.15 General Permit: Aerobic System With Subsurface Disposal, Less Than 3000 Gallons Per Day

Comment 2 - 65: It should be included in the scope that some of these systems do denitrify. The last sentence in the scope is unnecessary and out of place.

Response: The Department disagrees that the last sentence is out of place, but does agree that nitrogen removal should be in the scope. Subsection (A)(2)(d) has been modified as follows:

> *Nitrogen removal is needed, provided that the nitrogen removal achieves the requirements in R18-9-A312(F) and the design meets other requirements of this general permit.*

Comment 9 - 58: Include restrictions for utilization for seasonal use residence and properties with power restrictions.

Response: Electric power and seasonal use are consolidated in the general design rule under R18-9-A312(B). No change has been made to the rule.

Comment 2 - 66: The design requirements should include such items as alarms, controls, time dosing specifications and filters.

Response: Alarms, controls, time dosing, filter alarms, controls, time dosing, and filter specifications use consolidated in R18-9-A312(B) of the general design rule. No change has been made to the rule.

Comment 9 - 59: Design requirements should include pre-treatment tank requirements, pumps, alarms, controls, time dosing specifications and filters.

Response: Pretreatment tank needs are specified in the testing report literature for treatment units tested under NSF/ANSI 40. Sludge pumping and other servicing will be covered by the Operation and Maintenance Plan specified in R18-9-313(B). No change has been made to this rule.

Comment 2 - 67: Only the installation of the plant itself are briefly covered here. The remainder of the system needs to be addressed.

Comment: 9 - 60: Include more information on other component installation requirements.

Response: Installation requirements have been more fully specified and consolidated in R18-9-A313(A). No change has been made to this rule.

Comment 2 - 68 and 9 - 61: Operation and maintenance requirements need to be significantly increased. Where is startup, shutdown and vacation use of these systems addressed?

Response: The treatment unit for this general permit is a manufactured and tested device that includes derailed operation and maintenance instructions and is addressed in the general requirements for the operation and maintenance plan in R18-9-313(B). No change has been made to the rule.

R18-9-E316. 4.16 General Permit: Aerobic System With Surface Disposal, Less Than 3000 Gallons Per Day

Comment 2 - 69: What has happened to the requirement of filtration before surface disposal that is such a big issue with the Department?

Response: Performance requirements for biological/disinfection reliability may require a back flush type physical filter. No change has been made to the rule.

Comment 14 - 33: This restriction should apply to any electrified system (obviously).

Response: The requirement for electric power is in other locations of the rulemaking. The requirement is consolidated in the general design rule at R18-9-A312(B). No change has been made to the rule.

R18-9-E317. 4.17 General Permit: Cap System, Less Than 3000 Gallons Per Day

Comment 5 - 140: This rule limits the use of cap systems to soils that are no finer than silly clay loam for unsaturated flow in the soil. Why is this system restricted to unsaturated flow when seepage pits are permitted to have saturated flow conditions? What is the cost savings to a property if the cap system could be designed for saturated flow conditions? The Department must perform this cost impact analysis for the Economic Impact Statement. Why is the cap system cover required to be 10 inches when nine inches is required for a conventional trench?

Response: The cap system was incorporated based on stakeholder group input, primarily from the commenter. The Department has thoroughly addressed seepage pits by responses to previous comments by this commenter and others. The vertical separation for seepage pits is at least five times the vertical zone of unsaturated flow for trench systems. The minimum thickness of the cap cover over the top of the aggregate fill is changed to nine inches for consistency with the 4.02 General Permit. The following comment is related to this change and is included with the change made by the next commenter.

Comment 9 - 62: There was not enough research done on cap systems. It should be eliminated until more info is collected. If you do allow, place a restriction for the maximum height that can be put above grade to 18". Without having a limit, these systems could in theory be 10 ft. tall. People will try to do this to get around installing an alternate system due to soil or groundwater limitations on their lot.

Response: The Department agrees with the commenter. Close scrutiny during the construction and operation will be necessary to ensure proper construction and the absence of unauthorized discharge. The maximum height of the cap should be specified Subsection (D)(3)(c) and (D)(3)(c)(ii) have been modified as follows:

c. The cap fill cover above the top of the aggregate cover shall be at least nine inches but not more than 18 inches and has sloped sides not more than one vertical to three horizontal.

ii. Intersecting fill surfaces are sloped to route surface drainage around the ends of the trench.

R18-9-E318. 4.18 General Permit: Constructed Wetlands, Less Than 3000 Gallons Per Day

Comment 2 - 70: Include design requirements for the wetlands systems.

Comment 9 - 63: Provide design and siting criteria. Require verification or performance data that the system, will meet performance criteria in winter months. In our county, the few we have allowed have no plant growth for several months out of the year. Are they truly meeting the criteria you have set?

Response: The Department will rely on the designer's expertise until the time that a specific technical standard is established. The technology has been approved by the Department for site-specific applications. If updated data are provided, the Department will use the uniform alternative features process in R18-9-A312(H), or will consider it under R18-9-A309(E). No change has been made to the rule.

R18-9-E319. 4.19 General Permit: Sand Lined Trench, Less Than 3000 Gallons Per Day

Comment 10 - 21: Add language to the sand lined trench section that specifies when it's acceptable to use it. Use sand lined trenches for final polishing and even disinfection after one of the other treatment systems that are outlined in here rather than using it in conjunction with standard septic tank effluent.

Response: Sand lined trench designs with septic tank effluent achieve a three log reduction in the 95th percentile total coliform. Other levels of pretreatment to produce better effluent quality may be considered. Technical standards for on-site wastewater treatment and disposal systems were not intended to incorporate every possible alternative technology or approach to system design. Otherwise the rule would become unmanageably large. The Department will rely on a foundation of clear and concise technical standards, and the uniform alternative features process in R18-9-A312(H) for approving alternative design, installation, and operation and maintenance features. No change has been made to the rule.

Comment 2 - 71: Specify/clarify how to size the system.

Response: Sizing will be based on the design flow, absorption surface area of the trench, minimum vertical separation below the trench bottom, the design effluent infiltration rate at the top of the sand fill, and the adjusted soil absorption rate for the final effluent BOD + TSS sum. Subsection (D)(2) has been revised as follows:

b. The inlet filter media surface, wastewater distribution pipe, and bottom of the trench isbe level and the maximum effluent loading rate is be more than 1.0 gallons per day per square foot of sand media inlet surface;

h. The trench design is based on the design flow, native soil absorption area of the trench, minimum vertical separation below the trench bottom, design effluent infiltration rate at the top of the sand fill, and the adjusted soil absorption rate for the final effluent quality.

Comment 9 - 64: There was not enough data collected on these systems. It should be eliminated until more info is collected. If you do allow, 1) provide design and siting criteria and lower the rating of TSS and BOD at 20 mg/l until further data is obtained. Consider allowing them only as a polisher after pretreatment, with a secondary treatment component. They should not be considered secondary treatment in and of itself. As described previously, under Intermittent Sand Filters, the 1/2 setback reduction should not be allowed. Cinder sand should not be allowed in these systems. If you decide to allow it, there should be no more than 4% passing the #200 screen.

Response: See response to previous comment. Close scrutiny during the construction and operation will be necessary to ensure proper construction and the absence of unauthorized discharge. Setback limits are removed from this rule and the limits in R18-9-A312(C)will be used in conjunction with R18-9-A312(H) on a case by case basis. Cinder sand is not authorized by the rule. The following information has been deleted from the rule:

~~Setbacks indicated in R18-9-A312(C) may be reduced by 1/2 for wells, live streams, lakes or reservoirs, surface water, drinking water intakes, and wash and drainage easements.~~

Comment 2 - 72: Reduction in setback is unacceptable.

Response: Setback limits have been removed from this rule and the limits in R18-9-A312(C) will be used in conjunction with R18-9-429(H) on a case by case basis.

R18-9-E320. 4.20 General Permit: Disinfection Devices, Less Than 3000 Gallons Per Day

Comment 2 - 73: Please define a "fail safe mechanism." How do you administer a requirement such as this?

Comment 9 - 65: What is a "fail safe mechanism?"

Response: A fail safe mechanism in connection with wastewater effluent quality are design, installation, and/or operation and maintenance features that result in the total containment of nonconforming wastewater effluent within the on-site wastewater treatment facility. The general design, installation, and operation and maintenance requirements are added in R18-9-A312(B), R18-9-A313(A) and R18-9-A313(B). No change has been made to the rule.

R18-9-E321. 4.21 General Permit: Sequencing Batch Reactor, Less Than 3000 Gallons Per Day

Comment 2 - 74: The statement in the scope that indicates that disinfected effluent is a goal is a misleading requirement.

Response: The Department disagrees. No change has been made to the rule.

Comment 32 - 7: SBR technology causes Biological Nitrogen Reduction. There is an extensive amount of research showing effluent quality below 10 mg/l. What is the justification for allowing Textile Filters (R18-9-442) to have a 30 mg/l Nitrogen concentration and not recognizing the substantial amount of data to support 10 mg/l using SBR technology. The negative Economic Impact to sellers and users of SBR systems has not been evaluated.

Comment 2 - 75: The manufacturer claims to do much better than this on nitrogen.

Response: Sequencing batch reactors are specified in the rule in the general sense and may be designed with or without denitrification. The reference design will address performance, design, installation, and operation and maintenance. To address the possibility of performance with denitrification, subsection (B)(3) has been modified as follows:

Total nitrogen (as nitrogen) of 53 milligrams per liter, five-month arithmetic mean. If a total nitrogen level from 15 to 53 milligrams per liter is proposed, the applicant shall submit the specifications on system nitrogen reduction performance and corroborating third party test data with the Notice of Intent; and

R18-9-E322. 4.22 General Permit: Subsurface Drip Irrigation Disposal, Less Than 3000 Gallons Per Day

Comment 16 - 13: Rules for the use of drip irrigation are too restrictive, in that they take away too many of the engineering decisions that make this such a flexible method of effluent dispersal. There are probably more design limitations in this section than in any other. Properly designed, these systems work great and can be an effective way to deal with severe site limitations. Maintenance is of course the key.

Response: The Department recognizes that the two types provided are only part of the range of alternative designs possible. The rule provides a streamlined approach by specifying limiting technical criteria for simplified review and permitting. The Department will use the uniform alternative features process in R18-9-A312(H) for adaptations and, in the near future, intends to establish reference designs for some regional settings. No change has been made to the rule.

Comment 2 - 77: How were these exclusions arrived at? Some of these systems may be applicable in parallel modules to provide adequate treatment and controls.

Response: The Department relied primarily on stakeholder input to develop this standard. No proposals were submitted for parallel modules. No change has been made to the rule.

Comment 9 - 66: What does the Total Coliform of (Log_{10} 2) mean for Category B? Does it mean that disinfection is required for allow pretreatment systems before discharging into a drip system?

Response: The Total Coliform of (Log_{10} 2) means that this system can (and must) reduce the total coliform level to 100 cfu/100ml at the point of release to the soil. To do this, the overall treatment train must include disinfection described by the 4.20 General Permit. No change has been made to the rule.

Comment 9 - 67: Eliminate the design requirement for al least 50% for evapotranspiration. This will become a major obstacle for use in our county and is not justified.

Comment 10 - 22: Most of the areas in Arizona that currently, that the drip irrigation technology is going into is areas that do not have 50% evapotranspiration in the air during the winter season. Remove and limit the criteria of drip irrigation to everything being moving down or either vertical or horizontal of subsurface flow. Consider including a credit for evapotranspiration for systems located in areas where credit may be given.

Comment 16 - 1: Too restrictive. Use the older method of percolation rate combined with local evapotranspiration rate. Why this restriction plus the minimum percolation rates noted in (E)(11)? These should both be engineering decisions based on site conditions.

Comment 16 - 9: Too restrictive. Use the older method of percolation rate combined with local evapotranspiration rate. Why this restriction plus the minimum percolation rates noted in (E)(11)? These should both be engineering decisions based on site conditions. Why aren't faster percolation rates allowed (see Geoflow and American Manufacturing). I can also see conditions where large available dispersal areas can allow discharge where percolation rates are greater than 120 MPI (therefore more evapotranspiration).

Comment 2 - 76: This again is not justified. No reduction of setbacks should be allowed unless a very positive barrier is part of the design or unless treatment is to drinking water standards.

Response: The Department agrees that different performance and design standards could be used, however as stated above, the rule provides a streamlined approach by specifying limiting technical criteria for simplified review and permitting. It is recognized that the categories could be expanded regional cases or by reference design. The rule can be generally applied as intended or tailored for a specific purpose using the uniform alternative features process. The Department will use the uniform alternative features process in R18-9-A312(H) for adaptations and intends to establish reference designs for some regional settings. The (E)(11) language contained an error. Subsection (E)(11) has been revised as follows:

a. Sandy clay loam, clay loam, silty clay loam, ~~and~~ <u>or</u> finer with weak platy structure or in soil with a percolation rate from 45 to 120 minutes per inch; and

b. Sandy clay loam, clay loam, silty clay loam, ~~and~~ <u>or</u> silt loam with massive structure or in soil with a percolation rate from 31 to 120 minutes per inch.

Setback limits are removed from this subsection and the limits in R18-9-E312(C) will be used in conjunction with R18-9-E312(H) on a case by case basis.

Comment 16 - 2: This is not even required for surface discharge. How about no discharge if a system malfunction has been detected?

Response: The Department disagrees. The Department did incorporate a fail-safe mechanism for surface discharge. No change has been made to the rule.

Comment 16 - 3: There is no reason to limit the depth to 12 inches. This is another engineering decision based on site conditions and type of soil cover, if any. Also, why no engineered fill over these lines as long as they are placed in native soil?

Response: The depth range is to ensure evaporation is achieved. However, the alternative design option is available as summarized above. No change to rule.

Comment 16 - 10: Supports reduced setbacks.

Comment 16 - 11: Supports reduced vertical separation.

Response: The Department appreciates the comment.

Comment 10 - 23: Is 150 mesh equal to 100 microns? Need to ensure that 100 microns is correct.

Response: The specification is correct. 100 micron inorganic particles are removed by a 150 mesh filter. No change has been made to the rule.

Comment 16 - 4: Depending on the dosing pump and type of drip line being used, a pressure regulator is not always necessary, and in those cases is just another part that can fail. Engineering decision?

Response: Technical standards for the on-site wastewater treatment and disposal systems were not intended to incorporate every possible alternative technology or approach to system design. Otherwise the rule would become unmanageably large. The Department will rely on the designer's expertise if the deletion of the component does not limit the manufacturers warrantee or adversely effects performance or operation and maintenance. Whenever practical, the Department will rely the uniform alternative features process in R 18-9-A312(H) for approving alternative design, installation, and operation and maintenance features. No change has been made to the rule.

Comment 16 - 5: This should be for the flushing cycle only. This velocity usually cannot be met in the normal discharge mode for a single-family home.

Response: The Department agrees. Subsection (D)(5) has been modified as follows:

Wastewater distribution pipe is Schedule 40 PVC or better, sized for a flow velocity <u>during flushing of at least two feet per second.</u>

Comment 16 - 6: Add**:** "Discharge (flush) return should always be to the treatment system inlet."

Response: This is already included. No change has been made to the rule.

Comment 10 - 24: Eliminate the minimum spacing. Note that manufacturers have products that have emitters as close as six inches, and, so that, the language needs to read that, instead of saying the minimum of two feet apart, you may want to say a maximum of two feet apart.

Comment 16 - 7: Geoflow, for one, manufactures drip lines with emitters spaced closer together. If 12-inch spacing is allowed between drip lines, 12-inch spacing should also be allowed between emitters. This is a site-specific design factor. (Engineering decision?)

Response: The Department agrees. Subsection (D)(8)(a) has been modified as follows:

Drip lines are placed from 12 and 24 inches apart unless ~~slight~~ variations in spacing allow preservation of existing trees and shrubs or enhance performance to overcome site limitations.

Comment 16 - 8: This is dangerous, in that it allows the potential of saturating the dispersal area. How is one to maintain the acceptance rate of the dispersal area? At the minimum, soil moisture sensors should be required, with automatic shut-off controls.

Response: The Department will rely on the designer's expertise if supplemental irrigation water is needed for plant maintenance. Whenever practical, the Department will rely on the uniform alternative features process in R18-9-A312(H) for approving alternative design, installation, and operational and maintenance features. No change has been made to the rule.

Comment 9 - 68: Do not allow a 1/2 setback reduction as discussed earlier. This is not justified

Response: Setback limits are removed from this subsection and the limits in R18-9-A312(C) will be used in conjunction with R18-9-A312(H) on a case by case basis.

Comment 9 - 69: Include verbiage on protection of the manifold, submanifold and other components from freezing in cold climates.

Response: Common general design requirements proposed in R18-9-432 through R18-9-453 are now consolidated in R18-9-E312.

Comment 16 - 12: Add**:** "Discharge (flush) return should always be to the treatment system inlet."

Response: Common installation, and operation and maintenance requirements proposed in R18-9-432 through R18-9-453, including the manufacturer's recommendations where appropriate, are now consolidated in R18-9-A313.

<u>R18-9-E323. 4.23 General Permit: 3000 to Less Than 24,000 Gallons Per Day</u>

Comment 5 - 141: This proposed rule will permit multiple on-site systems in lieu of meeting BADCT requirements under Article 3. Why have seepage pits been excluded from the list of available technologies? What is the cost impact to small business like RV parks and restaurants that cannot install a seepage pit if their flow is over 3000 gpd? How can a professional engineer sign a performance assurance plan? Why is the Department trying to transfer operational responsibility to a professional engineer when he is not the owner or operator of the facility? The Department should be responsible for inspecting the facilities to ensure compliance with the general permit conditions. The final inspection of the facility should rest with the Department. What authority does the Department have to require a professional engineer's certificate of completions? How much would be saved for businesses and the public if the Department performed the construction inspection themselves? This alternative should be investigated and analyzed in the Economic Impact Statement.

Response: The commenter is mistaken in his assumptions. The Department has provided a wide variety of technologies that may be used for RV parks and other facilities generating between 3000 and 24,000 gallons per day. These technologies represent BADCT for a variety of site conditions, performance requirements, and end uses. The Department has listed five technologies in subsections (A)(3)(a) through (e), which for reasons of complexity of the system or potential adverse impact to water quality because of the greater flows, are not suitable for permitting under a general permit. The Department is not prohibiting these facilities. They may be permitted under an individual permit. The Department's position is that the five systems need more attention.

The performance assurance plan is a plan prepared by an Arizona-registered professional engineer that explains to the permittee how the facility must be operated to meet the requirements of the general permit. The Department strongly disagrees that a design engineer has no responsibility to provide documentation to the eventual owner/operator on how to properly operate the system after it is built. In fact, failure to provide this information will likely be a violation of the standards of the engineering profession as regulated by the State Board of Technical Registration. The commenter confuses the requirement of an Engineer's Certificate of Completion with inspections by the Department. The Department's rule allows for inspections by the Department. No change has been made to the rule.

Comment 32 - 8: This section excludes Aeration, Disinfection, and Sequencing Reactor Technology from the benefits of being included in the less than 3000 gallon classification. These types of waste treatment devices are pre-manufactured and have been used extensively by the Arizona Wastewater Community. All other systems allowed that are less than 3000 gallons have just as many mechanical components to operate and maintain. Where is the justification and Economic Impact to discriminate against the use of these technologies?

Response: The cost of these systems are generally part of a business or public works decision that includes substantial operational management and associated costs. The life cycle cost of a contemplated large onsite wastewater system as a part of the overall decision, alerting the prospective owners of both the initial cost and the operational cost of a design including costs to ensure compliance with public health and water quality protection requirements.

Comment 14 - 34: Isn't this necessary for <3000 gpd systems as well?

Response: Not always required

Table 1 Unit Flows For Sewage Flow Design.

Comment 1 - 15: The table in the new rule, showing the wastewater generation on a daily basis for design purposes, is in some cases inaccurate, and in some cases has numbers for which there has not been presented justification. As an example, how does the 25 gallons per day per fixture unit take into consideration that the plumbing code requires 1.6 gallons per flush toilets? From where does the number come from, saying that RV parks use 100 gallons per space per day? The new rule requires septic tanks that are in excess of the size that required under old engineering bulletin 12 and, in fact are in excess of the size of those required by the uniform plumbing code. This is not justified.

Comment 1 - 16: Park - Unit flows for RV parks without sewer and water connections is shown at 75 gpd. We have proven to the Department on numerous occasions that actual flows in parks with sewer and water connections is less than 50 gpd. Plumbing fixtures and piping in RV's are such that flow rates are only 50% of those found in residences. These numbers are unrealistic. Design should be based on actual flow rates and the resulting higher wastewater concentrations.

Response: Table 1 was taken from a variety of recognized sources. There is a difference between typical measured wastewater flow and design flow for on-site systems. Measure flow is typically averaged over a week or month, while the design flow is a maximum expected day. Without provision for flow equalization or site specific date about waste strength and as assurance that subsequent homeowners will sparingly produce wastewater, the rule will be administered with the option of using the uniform alternative features process in R18-9-A312(H).

The Department and plumbing code proposals for septic tank size are essentially the same, however, the final Department rule has eliminated one column in the liquid capacity table at R18-9-A314(C)(i). The Department believes the criteria and options process offer defensible technical standards and flexibility. No change has been made to the rule.

Comment 1 - 17: Residence - Please provide the calculation resulting in 25 gpd per fixture. Does this number take into account the code required 1.6 gallons per flush toilets. If not, it should. Complete written cannot be provided without all the data.

Response: The fixture unit flow before the requirement for low flow devices was 33.3 gallons per day. With the 25% proposed reduction, the low flow rate is 24.975 gallons per day, rounded to 25. The bedroom count flow has been reduced by 25% from 200 gallons per day before the low flow fixtures were required. No change has been made to the rule.

Comment 1 - 18: Laundry - As can be determined from the specifications of an washing machine manufacturer, 50 gallons of water per cycle is not realistic. The table also does not indicated the daily cycles per machine the Department will require. Complete written comments cannot be provided with all the data.

Response: The Department relies on the designer to estimate the number of cycles that should be included in the daily design flow. When manufacturer data is considered, a more accurate design flow estimate is expected. The designer should reply on a safety factor depending on their professional judgement. No change has been made to the rule.

Comment 2 - 78: There appears to be discrepancy between the single family residence and a mobile home flows. Clarify whether the mobile home flows are in a park and not on an individual lot. Allow for records of existing flows at the site or similar sites to be submitted for a design consideration.

Response: The Department treats single family residences and mobile homes differently, using virtually identical values in Engineering Bulletin 12 and the rule. Mobile home installations that resemble "stick" homes may approach the single family residence unit design flow. The Department will rely on the designer to perform the necessary analyses to establish a reasonable design flow. No change has been made to the rule.

Comment 9 - 70: There is a discrepancy between a single family home and a mobile home flows and need to include a category for light manufacturing facilities.

Response: The Department and stakeholders who provided advice on this rulemaking did not consider a separate category for light industrial facilities. Until additional rulemaking is undertaken, the Department will rely on the uniform alternative features process in R18-9-A312(H). No change has been made to the rule.

ARTICLE 4. AGRICULTURAL GENERAL PERMITS

R18-9-401. Definitions.

Comment 5 - 142: Rules are not clear and concise. There are no technical standards. Why is the Department not attacking this nitrogen pollution problem with new monitoring standards and soil measurements to determine when nitrogen should be added to the fields? What inspection is being performed by the Department? If agriculture is going to be asked to "do their best," then why doesn't the Department use the same process for on-site treatment systems? What would the cost savings to the public if the Department didn't issue general permits for on-site systems? The Department should consider implementing a simple system that relies on professional engineers to design on-site systems with just notification to the Department.

Response: The Department did not intend to address the rule language for agriculture general permits. This Article was proposed solely to renumber the Article to conform to this rulemaking. Through the final rulemaking process, however, this Article has been edited to conform to clear, concise, and understandable requirements for current rulemaking. Any changes to this Article would require a subsequent rulemaking.

R18-9-402. Agricultural General Permits: Nitrogen Fertilizers.

Comment 39 - 4: Does this Section require anyone who applies fertilizer to apply for a permit (i.e. golf course, parks department, cemetery, sports complex, school ball field, etc.), or is it stating that they automatically fall into this category? This needs to be clarified. If an actual permit is required, then specific fertilizer application rates should be established, similar to the nitrogen loading criteria being established for on-site systems.

Response: The Department did not intend to address the rule language for agriculture general permits. This Article was proposed solely to renumber the Article to conform to this rulemaking. Through the final rulemaking process, however, this Article has been edited to conform to clear, concise, and understandable requirements for current rulemaking. Any changes to this Article would require a subsequent rulemaking.

12. Any other matters prescribed by statute that are applicable to the specific agency or to any specific rule or class of rules:

None

13. Incorporations by reference and their location in the rules:

R18-9-A310(B)(1).	"Standard Practice for Surface Site Characterization for On-site Septic Systems" published by the American Society for Testing and Materials, (D 5879-95^{E1}), approved December 10, 1995.
R18-9-A310(B)(2).	"Standard Practice for Subsurface Site Characterization of Test Pits for On-Site Septic Systems," published by the American Society for Testing and Materials, (D 5921-96^{E1}), approved February 10, 1996.
R18-9-A310(B)(3).	"Standard Practice for Soil Investigation and Sampling by Auger Borings," published by the American Society for Testing and Materials, (D 1452-80), reapproved 1995**.**
R18-9-A314(B)(1)(b).	"Building Code Requirements for Structural Concrete (ACI 318-99) and Commentary (ACI 318R-99)," published by the American Concrete Institute, June 1999; and the "Environmental Engineering Concrete Structures (ACI 350R-89)," published by the American Concrete Institute, January 2000.
R18-9-A314(B)(3).	"Standard Specification for Precast Concrete Septic Tanks," published by the American Society for Testing and Materials, (C 1227-00), approved January 10, 2000.

R18-9-A314(B)(4).	"Material and Property Standards for Prefabricated Septic Tanks," published by the International Association of Plumbing and Mechanical Officials, (IAPMO PS 1-99), revised January 1999.
R18-9-C301(F).	40 CFR 302.4, "Designation of Hazardous Substances," and 40 CFR 302.5, "Determination of Reportable Quantities," July 1, 1999 Edition.
R18-9-D301(C)(4)(b).	"Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effect (12,400 ft-lbf/ft^3)," (D 698-91), published by the American Society for Testing and Materials, reapproved 1998.
R18-9-E301(D)(2)(h)(i).	"Trench Excavation, Backfilling, and Compaction" (Section 601), published in the "Uniform Standard Specifications for Public Works Construction," published by the Maricopa Association of Governments, revisions through 2000.
R18-9-E301(D)(2)(h)(ii).	"Rigid Pipe Bedding for Sanitary Sewers" (WWM 104), and "Flexible Pipe Bedding for Sanitary Sewers" (WWM 105), published by Pima County Wastewater Management, revised November 1994.
R18-9-E301(D)(2)(j)(i).	"Standard Test Method for Installation of Acceptance of Plastic Gravity Sewer Lines Using Low-Pressure Air" published by the American Society for Testing and Materials, (F 1417-92), reapproved 1998.
R18-9-E301(D)(2)(j)(ii).	"Standard Practice for Testing Concrete Pipe Sewer Lines by Low-Pressure Air Test Method" published by the American Society for Testing and Materials, (C 924-89), reapproved 1997.
R18-9-E301(D)(2)(j)(iii).	"Standard Test Method for Low-Pressure Air Test of Vitrified Clay Pipe Lines" published by the American Society for Testing and Materials, (C 828-98), approved March 10, 1998.
R18-9-E301(D)(3)(c).	"Pre-cast Concrete Sewer Manhole" (#420), "Offset Manhole for 8" - 30" Pipe" (#421), and "Brick Sewer Manhole and Cover Frame Adjustment" (#422), published by the Maricopa Association of Governments, revised 1999.
R18-9-E301(D)(3)(c).	"Manholes and Appurtenant Items" (WWM 201 through WWM 211), Standard Details for Public Improvements, 1994 Edition, published by Pima County Wastewater Management.
R18-9-E301(D)(3)(f)(ii).	"Standard Test Method for Concrete Sewer Manholes by Negative Air Pressure (Vacuum) Test," published by the American Society for Testing and Materials, (C 1244-93), approved August 15, 1993.
R18-9-E304(D)(2)(e).	National Electrical Code, 1999 Edition, published by the National Fire Protection Association.
R18-9-E304(D)(3)(a).	"Standard Specification for Precast Concrete Water and Wastewater Structures," published by the American Society for Testing and Materials, (C 913-98), approved December 10, 1998.
R18-9-E307(E)(1).	"Standard Test Method for Capillary-Moisture Relationships for Coarse- and Medium-Textured by Porous-Plate Apparatus," published by the American Society for Testing and Materials, (D 2325-68), reapproved 1994^{E1}.
R18-9-E308(C)(3).	"Wisconsin Mound Soil Absorption System: Siting, Design, and Construction Manual," published by the University of Wisconsin - Madison, January 1990 Edition.
R18-9-E308(D)(2)(a).	"Standard Specification for Concrete Aggregates," (C $33\text{-}99a^{E1}$), published by the American Society for Testing and Materials, approved July 10, 1999.
R18-9-E319(D)(1).	"Standard Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing," (C 117-95), approved March 15, 1995.

14. Was this rule previously adopted as an emergency rule:

No

15. The full text of the rules can be found in Part 3 of 3 (page 375) of this issue of the Register: