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Mr. Douglas W. Dunham
ARIZONA DEPARTMENT OF WATER RESOURCES
3550 North Central Avenue
Phoenix, AZ 85012

**SUBJECT: COMMENTS ON DRAFT SUBSTANTIVE POLICY STATEMENT FOR
HYDROLOGIC STUDIES FOR ASSURED/ADEQUATE WATER SUPPLIES**

Dear Mr. Dunham:

Montgomery & Associates appreciates the opportunity to comment on the draft substantive policy statement and guidelines for the Assured/Adequate Water Supply (AAWS) program. Our general comments on the overall process are followed by more specific comments.

General Comments

Our understanding is that substantive policy statements by definition cannot impose additional requirements or penalties on regulated parties. The draft substantive policy statement appears to impose significant new requirements that should go through the formal rulemaking process.

The requirement that professional registrants must stamp and submit documents is a rule not a policy statement. While Montgomery & Associates strongly agrees with the requirement to have registered geologists submit those documents, it is more appropriate to require this by Administrative rule.

The Department's proposed change to existing rule R12-15-716(c) would allow the Department to lower the maximum allowable depth to groundwater only if certain criteria are met. Such a policy would necessitate a formal rulemaking process. Similarly, we feel that the proposed requirement for pre-application meetings should be formalized through the rulemaking process.

There are numerous instances in the guidelines where indicate applicants "must consult" with the Department during the application process. We are concerned that this could add a substantial amount of time and delay to the process. The pre-application meetings should be structured to address and resolve as many of the "must consult" issues as possible prior to conduct of hydrologic studies and submittal of applications.

At several instances in the guidelines (and also in some rules) where referring to depth-to-water criteria, it seems to be implied that groundwater cannot be withdrawn, or is not available, from depths greater than 1,200 feet (or other specific depth). It should be allowable, and in many cases,



cannot be physically avoided, to obtain groundwater from depths greater than 1,200 feet (or other specific depth). The depth-to-water criteria apply to groundwater levels, not to the depth from which groundwater is withdrawn.

In several places in the proposed guidelines, the term “applicant must” is used. The term “must” seems more appropriate for rules than for a guidance document. We recommend that this phrase be changed to “applicant should”.

The guidelines make no mention of water quality. A water quality section should be added indicating that water quality data are not required if the water provider is currently in compliance with the ADEQ Drinking Water Compliance Unit. However, if the water provider is new, or in the case of a “dry lot” subdivision, recent “new source” water quality data should be provided to demonstrate that the water supply can meet ADEQ primary drinking water standards. Additional verbiage should be added to describe the information needed if water treatment will be required to meet ADEQ drinking water standards.

The guidelines should recommend that hydrologic studies include well inventory tables for all “55” and GWSI wells included in the study area.

The guidelines should provide some guidance concerning identification of potential impacts to surface water or springs by proposed groundwater pumping. The guidelines should also address the need to mitigate or acquire surface water rights if such impacts are likely.

Specific Comments:

Page 5, Item II.B: As we all know from the recent real estate downturn, an AAWS applicant who appears to be financially capable today may not be financially capable at the time the development actually occurs. Perhaps the Department should consider something other than a paper demonstration of such financial condition as assurance that water will be available to future property owners. Physically installing all required supply wells, or posting a bond therefore, would provide much more assurance of access to groundwater by future property owners.

Page 5, Item II.B.1: What is the basis for the larger depth-to-water variance for consolidated sedimentary rock? It seems logical that such a variance may also apply to other areas and/or other aquifers outside of AMAs. There are some alluvial aquifers where existing depths to water approach 800 feet and could increase to 1,200 feet with pumping. If the rationale behind such a variance is based on the fact that depth to water may already be or potentially be greater than 1,200 feet and substantial water level decline is not occurring, the proposed policy should reflect this rationale, rather than being based on the lithology of the aquifer.

Page 6, Item II.C: For dry lot subdivisions where projected depths to water will exceed 400 feet, we suggest that the Department consider approving only those portions of the subdivision(s) where projected depth to water is less than 400 feet, rather than denying the entire application. If the Department’s intent is to require the developer to revise or amend the application to include only those lots, it should be explained in the guidelines.

Page 7, Item III, 1st Paragraph: One of the required elements of the hydrologic report should be “a detailed description of the methods of drawdown analysis”.



Page 7, Item III.A.1: Regional maps should not be limited to USGS topographic base maps; other maps should be permissible provided that they come from reliable sources and have similar information and features as the USGS maps. Also, in the last sentence of this paragraph, all graphs should indicate the source(s) of data.

Page 7, Item III.C, 2nd Paragraph: In this paragraph, and several other places in the proposed guidelines, there are references to “municipal provider” which we assume include city water systems private water companies, and water improvement districts. For clarity, we suggest “municipal provider” be changed to “public water provider” throughout this document.

Page 8, Item III.D.1, 1st Paragraph: It should be explained under what circumstances it is appropriate to represent existing uses by incorporating the current rate of water level decline (e.g. in areas where groundwater demands have been stable or decreasing over the past few decades).

Page 9, Item III.D.1, 4th Paragraph: The guidelines should explain how to determine and incorporate future agricultural water use in the analysis, in consideration of the fact that such agricultural use in AMAs is subject to conservation requirements and extinguishment. Should agricultural use be presumed to continue unchanged for 100 years?

Page 9, Item III.D.1, 4th Paragraph: Reference to “the Department’s AMA offices” should be changed now that those offices are closing.

Page 10, Item III.D.3.b: The ADWR demand calculator should be revised to include utilization of reclaimed water in the calculations. Also, the demand calculator should be revised to estimate water demand for schools using a 180-day, rather than a 365-day, school year. Finally, it is unclear what is meant by the last sentence, “The Department recommends that the applicant seek approval prior to finalizing the hydrologic study.” Please clarify.

Page 11, Item III.F.1: It should be pointed out that the study area may need to be expanded after the initial assessment of impacts is completed.

Page 11, Item III.F.2: The guidelines should also require geologic maps and cross-sections.

Page 12, Item III.F.5: The guidelines should require that interpretations of hydrogeology based on geophysical studies should be supported with borehole data to support interpretations (e.g. lithologic logs).

Page 12, Item III.F.8: The guidelines should require that data used from previous studies should be updated with current (recent) groundwater level and groundwater quality data, if more than 3 years old, particularly if the study is in an area of declining or widely fluctuating groundwater levels. This comment also applies to **Item F.14**.

Page 13, Item III.F.11: The Department should provide rationale as to the requirement for 48-hour aquifer tests. In our experience, 24-hour tests are often sufficient, unless the presence of a nearby aquifer boundary is suspected or unless hydrogeologic conditions are complex or unknown, in which case a test longer than 48 hours may be appropriate. Except where such reasons are applicable, we feel that a 24-hour test should be the norm, with the stipulation that the test be extended at least an additional 24 hours if a substantial change in drawdown trend occurs before the end of the first 24



hours. Additionally, we believe that water level recovery should be monitored for a period of time equal to the pumping period.

Page 14, Item III.F.11: The guidelines seem somewhat idealistic concerning which wells should be used for aquifer tests. We do not believe that the locations of aquifer tests in the study area need necessarily correspond to the exact locations of proposed supply wells. Quite often, the exact locations of future wells are not known or proposed at the time of the hydrologic study. We believe it is reasonable for the Department to recommend, but not require, that tested wells correspond to future supply well locations.

Page 14, Item III.F.13, 2nd Paragraph: This paragraph is confusing and should be rewritten to clarify the meaning. This will have large implications to the considerable amount of water storage which has occurred in the state with no current plans for recovery. Also, it should be explained how this paragraph applies (or does not apply) to areas outside of AMAs where stored water is not specifically reserved.

Page 15, Item III.F.14: Concerning the use of non-ADWR or non-USGS groundwater level data, rather than requiring a narrative, we recommend the guidelines include an example water level measurement form that specifies the data and documentation that should be included for each measurement. Given the current budget crisis, groundwater level data collection efforts by ADWR and USGS will likely be substantially reduced for the foreseeable future, necessitating substantial increase in water level data obtained by the private sector. The use of water level measurement forms to prescribe the specific data and documentation requirements will provide a mechanism for incorporation of non-agency data into their databases.

Page 15, Item III.F.15. It is unclear why both short- and long-term hydrographs would be necessary. The short-term trend should be fairly obvious from the long-term hydrograph. We suggest requiring that the long-term hydrograph be of sufficient size to display short-term trends.

Page 16, Item III.F.16: The phrase "...standard aquifer analytical techniques cannot be used" should be changed to "...standard aquifer analytical techniques *may not be applicable*".

Page 16, Items III.F and G: These items should be relabeled as Items G and H.

Page 16, Item IV, 1st Paragraph, Last Sentence: This sentence is misleading as currently written. We suggest it be changed to: "*If there are limited reliable lithologic information to indicate the depth of the aquifer, the maximum depth of the deepest well for which reliable lithologic information are available should be assumed to be the depth to bedrock.*"

Page 17, Item IV.B.1: Rather than be categorically disallowed, we suggest simplified approaches such as a "tank analogy" be limited to relatively undeveloped areas where groundwater levels are not experiencing substantial declines. We do not believe that groundwater flux calculations provide a valid approach toward demonstration of assured/adequate water supplies, unless the flux represents a discharge from the aquifer that the applicant intends to capture by groundwater pumping.

Page 19, Item IV.B.1, Last Paragraph: We recommend that the first sentence of this paragraph be removed because the term "reasonable period of time" is almost impossible to define. What may be a

reasonable period of time for a relatively simple investigation may not be reasonable for a large investigation where substantial drilling and field testing must occur.

Because of the substantial monetary and time investment involved with large AAWS applications and studies, the Department should seriously consider developing a system (in rule and policy) that would allow for time-intensive studies/applications to be completed without having the water supplies allocated in the interim to nearby, competing developments.

Page 19, Item IV.B.3: The conditions specified for use of an analytical model seem overly restrictive, particularly in areas where ADWR or USGS have groundwater models that can be used by the Department to check the validity of analytical model results.

Page 20, Item IV.B.3.b., 2nd Paragraph: In light of the recent budget cutbacks, the Department may need to reconsider reliance on groundwater data collected by ADWR and USGS. Such data may become less available in the future, making definition of “current conditions” difficult without relying on data collected by the private sector.

Page 20, Item IV.B.3.d: We recommend this criterion be based on total groundwater use (committed demand) approved in the study area, rather than the number of applications.

Page 21, Item IV.B.4: Requiring additional data to be included for an application after it is filed but before it is determined complete and correct should be reconsidered. If the application filed contains all of the required information, and a hydrologic study is submitted, the application should be determined a “complete and correct application” within 45 days, even though a substantive review of the hydrologic study may not have not been completed. The process for the AAWS program should be consistent in this respect to other ADWR programs such as the Underground Water Storage (Recharge) program, so that the applicant can establish a priority and not be required to revise their hydrologic study to account for nearby, competing applications received subsequently. Subsequent applications received by the Department should be required to account for such “complete and correct” applications in their hydrologic studies. During the substantive review process, it can then be evaluated whether the hydrologic study itself is complete and correct and accurately represents the hydrologic system or if additional data needs to be submitted.

Pages 32 through 34, Items IV.F.3 through 7: The proposed policy to require mitigation of impacts of proposed developments on Grandfathered Right holders, Groundwater Withdrawal Permit holders, and Indian Tribes seems to add requirements that are not currently in rule or statute. As such, these requirements would necessitate statutory revision and/or a formal rulemaking process.

Page 34, Item IV.F.7: Considering that Indian Tribes do not typically provide well locations, well depths, water level data, or pumping information to the Department, how would such information be obtained or made available to the applicant? Some provisions or exceptions for the applicant should be specified in the event insufficient information and documentation is made available.



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Montgomery & Associates appreciates the opportunity to review and comment on the draft substantive policy statement on hydrologic study guidelines. We look forward to working with ADWR on future policy and rule development processes.

Sincerely,

MONTGOMERY & ASSOCIATES

James S. Davis

Mark M. Cross

SENT VIA EMAIL

cc: Sandra Fabritz-Whitney, ADWR
Greg Wallace, Montgomery & Associates