July 14th, 2021 Recharge Subgroup Meeting Questionnaire Responses

These are reponses collected from a questionnaire distributed during the July 14, 2020, Recharge Subgroup Meeting.

(***Note**: Different colors are diffent reponses**)**

Please provide input on how "area of shallow groundwater" might be defined:
I don't support this program suggestion as it seems there is no need for it. The existing permit processes already take these impacts into account. I do not see a strong incentive in this.
Unsure of how this should be defined, however there are some issues that need to be considered when defining it such as: o How to distinguish between surface water and groundwater o Does the shallow groundwater benefit a riparian habitat? o During recovery do the wells have to pump at a certain level to access the "shallow groundwater"? Pima County defines shallow groundwater as "areas having a depth to water of 50 feet or less. In areas with a lack of water level data, SGAs were demarcated by indicator plants that thrive on shallow groundwater, including cottonwood, willow and mesquite bosque. https://webcms.pima.gov/UserFiles/Servers/Server_6/File/Government/Flood%20Control/Reports/Groundwater%20Evaluation%20Reports/SGWAs_2009.pdf I would be interested in seeing a map of where the Pima County definition occurs in the Phoenix AMA
With a combination of physical measurements and computer modeling with an emphasis on physical measurements. Any definition should take into account at minimum water level history and trends, environmental benefits of shallow groundwater, subflow, actual negative impacts weighed against the benefit of recharging renewable water, and water quality. Area designations should be reviewed at some regular interval, perhaps five or ten years.
At this point it's difficult to make suggestions on a definition of "shallow groundwater" knowing that an obvious area where this definition would apply is the Buckeye Water-Logged Area. For the most part, the BWLA is located in and around the Gila River channel. Other areas that might be included in this definition will likely also be near river or stream channels which according to state statute are surface water. We feel that careful consideration should be given before enacting new groundwater regulations in a stream channel or immediately adjacent to the channel prior to adjudication. Incentivizing withdrawals in these areas could result in problems such as: 1) surface water right holders filing objections, and/or 2) negatively impacting riparian habitat. It seems prudent to take a step back for further evaluation before moving forward with this in the 5MP.
The criteria for defining "area of shallow groundwater" must go beyond just a depth to water measurement. Potential criteria should consider the length of time that shallow groundwater conditions have existed, as well as a mechanism for reviewing a defined area at regular intervals to address changing conditions. If there are "shallow groundwater" criteria that can be agreed to by stakeholders, it will be important to consider the impacts of implementing this policy against realistic examples. The language contained within the 3rd and 4th Management Plans refers to "areas . . . *experiencing problems* associated with shallow depth to water" (emphasis added). Special attention should be given to ensure that the definition clearly focuses on areas of shallow groundwater where there are problems and not where there are no problems. Environmental features such as wetlands and riparian areas as well as underground storage facilities are examples of areas where shallow groundwater is not necessarily a problem, and this policy may not be appropriate."

Identify criteria for determining "area of shallow groundwater" and how it will be distinguished from mounded areas in close proximity to a recharge site.

SRP believes that more information is required to determine how to define areas of shallow groundwater. We had a few questions that we believe would require some clarification:

- What problem is the policy proposal attempting to address—is it related to the hydrologic disconnect?
- Has the Department considered evaluating areas of declining groundwater levels?
- What ballpark depth to groundwater does the Department believe would be considered an area of shallow groundwater?
    - If the Department had a set of depth to groundwater levels in mind, what facilities would be impacted at current permitted recharge facilities for each elevation under consideration (e.g. provide a snapshot in time of what facilities or areas would be impacted if it were in effect today, excluding future new recharge facilities or modified permits)?

Please provide input on part 1 of the proposal - Implement Existing Requirements (Slide 14 of presentation: https://new.azwater.gov/sites/default/files/media/2021-07-14_Recharge_Subgroup_Presentation.pdf)

The biggest concern with the implementation of the existing policy is the definition of the AOI. This was voiced during the meeting and we appreciate that the Department is looking to redefine the "Maximum AOI". Given the current definition of the Maximum AOI, we currently see that the maximum often impacts huge areas of the AMA for small volumes of recharge. The current modeling methods would make this policy overly restrictive given that the maximum AOI would likely cause impacts to shallow groundwater areas many miles away and then restrict recovery to within the 1-mile safe harbor.

Potentially the existing policy could eliminate the requirement that recovery can only occur in the AOI and instead just add that recovery is consistent with the management plan within the shallow groundwater area. Meaning recovery outside the AOI can still occur. I am unclear of the issues related to "shallow groundwater" areas and recharge.

Peoria opposes the use of Maximum AOI as defined by the substantive policy statement. First, using a threshold of a 1-foot rise is overly conservative given the imprecision of modeling and inconsistency of real world measurements e.g., timing, precision. Second, the 1-foot threshold as currently modeled is intuitively unrealistic when discussing unreasonable harm to a third-party. For example, in 2009 Peoria had a consultant model the extent of a 1-foot rise for the Agua Fria Recharge Project (AFRP) and Beardsley WRF Underground Storage Facility. In just ten years at real-world recharge volumes, the modeled 1-foot rise extended over 20 miles from AFRP and over 10 miles from Beardsley. The New River-Agua Fria Underground Storage Projects (NAUSP) Maximum AOI likely intersects the Buckeye Waterlogged Area. However, given the rate of surrounding pumping as well as the current groundwater gradients, not to mention the fact that NAUSP is only able to physically recharge at around one-third of its permitted capacity, it is unlikely that NAUSP is significantly negatively affecting the Buckeye Waterlogged Area. Under the current proposal, the more than 50,000 long-term storage credits Peoria has at NAUSP would need to be recovered within 1-mile of the facility i.e., within Glendale, or in the Buckeye Waterlogged Area, if defined as an area of shallow groundwater. Spending limited dollars to address a situation like this makes little sense given the amount of renewable water being delivered directly to the Buckeye Waterlogged Area today.

Perhaps a higher modeled water level rise threshold would be appropriate, such as four or five feet. Modeling could also take into account real world recharge conditions as well, as opposed to solely relying on permitted recharge volumes. Similarly, perhaps the AOI around the recharge facility could be expanded to two or three miles versus the currently proposed one-mile radius."

"Using the Maximum AOI as currently defined creates the potential for an underground storage facility many miles away to trigger this Policy and be labeled as "contributing to an area of shallow groundwater." Subsequent recovery would only be allowed in the "area of shallow groundwater" and the 1-mile safe harbor AOI. This methodology could negatively impact water providers who recover near a recharge facility in a hydrologically responsible manner yet fall outside of the 1-mile safe harbor radius.

It would be beneficial for ADWR to consider using an alternative indicator other than the Maximum AOI, which often extends many miles away from a USF. Additionally, recovery should be allowed in an area that is larger than the 1-mile safe harbor.

We would like to see a proposal of criteria for identifying areas of shallow groundwater, and an evaluation of the recharge facilities that would be impacted.

SRP believes some of the existing requirements are already used when permitting a recharge facility. When the impacts from permitting a new or existing facility are being modeled, a facility will not be permitted if recharge at the facility would surface above ground, or cause unreasonable harm to a nearby property owner, as a result of the recharge.

Please provide input on part 2 of the proposal - New Requirements for Recovery in Shallow Groundwater Areas (Slide 15 of presentation: https://new.azwater.gov/sites/default/files/media/2021-07-14_Recharge_Subgroup_Presentation.pdf)

Since the USF impacts to the shallow groundwater area are defined based on the Maximum AOI, it seems logical that the recovery should be able to occur anywhere within the Maximum AOI. Limiting it to the 1-mile safe harbor or the shallow groundwater area seems unnecessarily restrictive given how large the maximum AOI is under current modeling methods.

Given the unknowns to the benefits/concerns with shallow groundwater areas, it may be unwise to incentivize recovery in these areas. If the shallow groundwater areas are established riparian habitat then recovery should not be occurring in these areas.

There needs to be monitoring of the shallow groundwater areas. The department discussed a specific timeframe for reviewing and this would be important to define. If the area is no longer a shallow groundwater area, would recovery revert to the non-shallow groundwater rules for recovery wells? This needs special attention especially if a utility puts in infrastructure to recover from the shallow groundwater areas and then recovery no longer qualifies for meeting the management plan.

Peoria is interested in how this change would affect the ability of water providers to recover water from within Peoria's service territory e.g., around Agua Fria Recharge Project.

Assuming at some point "shallow groundwater" is defined, issues associated with incentivizing recovery and consistency with the management plan include:

1- Proposed language that includes something to the effect that the recovery well is automatically deemed ""consistent with the Management Plan" is concerning. This would leave local providers' AWS wells unprotected. Local providers should have the same protections as other AWS providers in the AMA.

2- Potential implementation issues:

a. Currently a provider must agree to a recovery well within their service area. Speaking for Goodyear, this is a practice we generally don't allow. Would service area approval be waived?

b. Another option would be an exchange of, for example, CAP water for LTSCs. For local providers in the BWLA, this amounts to exchanging good water for brackish water. Additionally, in Goodyear's case, there is a limit to what is allowed

to be pumped in Goodyear's DAWS, i.e. our physical availability. The city would literally be trading away wet water supplies from our portfolio. c. Local providers try to avoid withdrawing water from the BWLA due to the high cost of treating/desalinating. Only Goodyear has the ability to treat brackish water (in the BWLA) at this time. Who could actually take advantage of this proposal? Again, Goodyear would suggest taking a step back to evaluate the impacts and determine if this actually could accomplish what is intended before including as a part of the 5MP.
It is our understanding that the proposal to incentivize Recovery in an "area with shallow groundwater" would apply to LTSC that were accrued at any location in the same AMA, including those accrued prior to the "area" being delineated. We would appreciate it if this could be confirmed or clarified. Please describe what, if any, changes the proposed recovery incentives will have on the regulatory requirements for persons who seek to recover water near or within the service areas of other entities.
General feedback that the incentive proposed for this program may not be as attractive to providers as the Department intends due to groundwater quality concerns in the known areas of shallow groundwater (i.e. Buckeye).
We understand the premise behind wanting to pump in shallow groundwater areas and recharge in areas of declining groundwater levels. We think at face value, the concept is a good idea. We do have some concerns about how this could be exploited due to the location of shallow water levels and the scale of the Phoenix AMA where entities are pumping.

What other recharge topics may need to be explored in the future, outside the scope of the 5MP?
Put 1 mile safe harbor in legislation or a formal rulemaking so that stakeholders can count on it in project planning.
Examining the current Area of Impact definition is critically important to Peoria. The currently defined 1-mile radius does not reflect actual groundwater impacts to surrounding aquifers whether modeled or measured. However, Peoria understands the intent of the rule in incentivizing the use of direct delivery over aquifer delivery via ""virtual pipe."" Perhaps expanding the radius to three miles, for example, or allowing provider to submit for a radius variance that persists for five or ten years would be more realistic. Preserving areas highly favorable to recharge and recovery from development is another topic important to Peoria as it grows northward. One reason central Arizona struggles with the hydrologic disconnect is because the best local areas for recharge have been paved over. This prioritization of private development value over public water supply value shifts the costs of a sustainable water supply into the future and from profit seekers to homeowners. For example, strategically setting aside 10-20 acre parcels throughout the Valley for recharge could have saved water providers untold millions they will have to eventually spend to address variable groundwater conditions both in quantity and quality due to the hydrologic disconnect. The fact that these costs are not yet apparent simply means the bill has not yet come due. Peoria encourages ADWR to work closely with the State Lands department to work on identifying and setting aside high-priority recharge zones from future development.
AMWUA would like to have further discussions about the methodology for calculating the AOI for purposes of recovery. The current 1-mile safe harbor standard leaves many water providers recovering outside of the AOI despite having wells that are just over a mile or two away from the recharge facility. Additionally, the requirement that an alternative AOI be calculated on an annual basis is costly, burdensome, and unrealistic for municipal water providers. There are significant volumes of recovery that are happening in a hydrologically responsible manner that should receive the benefits of being classified as withdrawals occurring within the AOI.

We would like to see ADWR review its standards regarding the permitting of recovery wells. If an entity wishes to have a current well permitted as a recovery well, without increasing the total permitted volume or any other physical changes to the well itself, ADWR should not require an impact analysis.

Do you have any other questions/comments not addressed above?

I would greatly appreciate an understanding of why this policy is a priority as well as history on the development of the policy specifically in the Phoenix AMA. It seems that other policies are addressing issues such as impacts to water quality (APP permitting process) and the Buckeye Water Logged Area that help alleviate issues regarding shallow groundwater. I am unsure of the issue that this policy addresses.

Thank you to ADWR staff for continuing to drive regulatory improvement forward.

Goodyear would like to thank the Department for allowing stakeholders to comment on this important water management proposal. The city appreciates the Department taking a step forward in addressing the hydrologic disconnect between recharge and recovery and hope to continue the discussion.

We'd also like to acknowledge the Recharge Program - Hydrology Section's efforts to work with applicants to get water in the ground within the statutory requirements. The City of Goodyear is very appreciative.

The City of Phoenix (Phoenix) values this opportunity to provide these comments to the Department on its 5MP ""Shallow Groundwater"" Policy proposal. Phoenix appreciates the complexity of administering the State's innovative Underground Water Storage, Savings and Recovery Act (""UWS Act"") and the need to ensure that water storage and recovery under the UWS Act does not exacerbate water issues facing the Phoenix AMA. Phoenix is fully supportive of those efforts; however, the Shallow Groundwater Policy proposal is concerning in that it would appear to limit water management flexibility provided by the UWS Act while not necessarily achieving the goals desired by the Department. Further, it may also result in negative unintended consequences.

The first prong of the Shallow Groundwater Policy proposal is to require recovery of stored water within the area of impact if the storage has occurred in areas ""experiencing problems associated with shallow depth to water."" Criteria 8-801(B)(1), 4MP, Phoenix AMA. The narrative supporting this criterion describes the problem as one in which ""dewatering is required as a direct result of water storage or savings."" P. 8-27, 4MP, Phoenix AMA.

Any such problem, however, would seemingly already have been addressed in permitting the underground storage facility (""USF""). In issuing the USF permit, the Director is required to determine that ""storage of the maximum amount of water that could be in storage at any one time at the facility is hydrologically feasible"" and that ""[s]torage at the facility will not cause unreasonable harm to land or other water users within the maximum area of impact of the maximum amount of water that could be in storage at any one time."" A.R.S. § 45-811.01(C)(2) & (3). If Director has already determined that the maximum storage is feasible in the aquifer and there is no harm to surrounding land and water users, it is unclear what problem the first prong of the proposed Shallow Groundwater Policy proposal is meant to address.

Further, one of the two express policies and purposes of the UWS Act is to ""allow for the efficient and cost-effective management of water supplies by allowing the use of storage facilities for filtration and distribution of surface water instead of constructing surface water treatment plants and pipeline distribution systems."" A.R.S. § 45-801.01. Recovery of stored water away from the area of impact of storage is one of the UWS Act provisions that allows for cost-effective management of water in furtherance of this policy. The first prong of the Shallow Groundwater Policy proposal would be a significant impediment of this UWS Act policy by requiring recovery only in the area of impact. The policy could require a storer to find storage facilities elsewhere, if that is possible, build a costly pipeline, or forego storage completely, at the

expense of its future water security. If the proposed Shallow Groundwater Policy resolved an identified and significant problem, it might be justified; however, as reviewed above, it is less than clear what benefit would be achieved by the proposed policy.

It is evident that the State is entering an era of continued growth while its water resources are threatened by drought. During this time, water providers need as much flexibility as possible to manage their supplies as cost-efficiently as possible. Therefore, the tools provided by the UWS Act should not be eliminated without a clear and pressing reason to do so. Phoenix would propose eliminating the first prong of the proposed Shallow Groundwater Policy or, in the alternative, clearly defining the problem to be addressed and then narrowly tailoring a regulation to address that problem. Because of the time constraints the Department faces in adopting the 5MP for the Phoenix AMA, it might be best to address this issue in the post-2025 management programs to allow time to clearly articulate the problem and craft the appropriate solution.

The second prong of the Shallow Groundwater Policy proposal is to incentivize recovery in areas of shallow groundwater by deeming such recovery consistent with the management goal. Again, Phoenix supports the overall goal of providing certainty and flexibility in recovering stored water while achieving the water management objectives of the Phoenix AMA. The complexity of this issue, however, requires careful study, and any such provision must be carefully crafted to ensure that it does not result in negative unintended consequences.

It is difficult to assess potential benefits or consequences of the proposal without a clear definition of what would be considered a shallow depth to groundwater. Undoubtedly, however, a generic definition of the term might likely include many of the areas of shallow depth to water that occur around natural streambeds. Incentivized recovery in areas of shallow depth to water along such natural streambeds may target natural, developed, or restored wetlands and riparian habitats which have been viewed as critical for environmental and ecological diversity. Phoenix is particularly concerned with the potential risk and harm to Tres Rios and Rio Salado. Therefore, any definition of "shallow depth to groundwater" for the second prong of the policy proposal must guard against adverse impacts to wetlands and riparian habitats.

Another potential consequence that must be carefully considered before incentivizing recovery in areas along natural streams is the impact to subflow. Under Arizona law, underground water that is closely associated with a stream is considered ""subflow"" of the stream; that is, it is considered to be a part of the stream and is governed by surface water law, not the Groundwater Code. In re Gen. Adjudication of All Rights to Use Water in Gila River Sys. & Source, 198 Ariz. 330, 334–35, 9 P.3d 1069, 1073–74 (2000). These principles have been the law in Arizona for at least 90 years. Id.

The consequences of the Department incentivizing the placement of recovery wells so that they are in all likelihood pumping subflow cannot be ignored. The Department's position of simply relying on the presumption that water pumped from a well is groundwater until the adjudication court delineates a subflow zone is unsatisfactory. By taking this position, the Department is encouraging investment in the construction of recovery wells in an area that someday may be found to be subflow. At some point, the adjudication court will delineate the subflow zones along the streambeds in the Phoenix AMA. It is likely that recovery of water not stored in the area will then become legally prohibited. The persons who invested in the recovery wells will look for compensation or may assert the right to continue to pump subflow at the expense of valid surface water right holders.

This scenario is already occurring in the adjudication court following the Department's, and its predecessor agencies', granting hundreds, if not thousands, of well and well drilling permits across the state over the past decades in areas that are almost certainly areas in which subflow occurs. Now that a subflow zone has been delineated in the San Pedro watershed, pumpers in that watershed now assert the right to continue to pump subflow at the expense of persons who obtained valid appropriative rights under the Surface Water Code. See In re the General Stream Adjudication of All Rights

to Use Water in the Gila River System and Source, W-1, W-2, W-3, W-4, Contested Case No. W1-11-0245, Notice of Designation of Issues of Broad Legal Importance, June 18, 2020. The Department should not propagate these issues by actually incentivizing the placement of wells in likely subflow zones. The potential consequences of incentivizing recovery in areas of shallow depth to groundwater are too complex and important to adopt a rule that is not fully considered and vetted. Again, given the time and resource constraints the Department faces in meeting its goal of adopting the 5MP for the Phoenix AMA in 2022, Phoenix requests that this second proposed prong be delayed until the post-2025 management programs to allow sufficient time to consider fully all the potential consequences. Thank you for considering Phoenix's comments. If you would like to discuss any of these issues further, please feel free to contact me.
Numerous stakeholders, including our members, have raised concerns about delineating an area as experiencing shallow groundwater conditions that is in effect surface water or subflow. Even if an area has not yet been adjudicated, ADWR should be very cautious about adding another regulatory layer and classification to areas that will be adjudicated in the future. Understanding other changes that ADWR is currently exploring or willing to make to the Recharge Program would be helpful in evaluating this policy proposal. For example, if ADWR is currently planning to modify the definition of Maximum AOI and/or expanding the AOI beyond the 1-mile safe harbor it could affect the impacts of this policy proposal. We acknowledge ADWR's proposal is an effort to address the hydrologic disconnect and to encourage recovery in areas where groundwater conditions would benefit from increased pumping. Several stakeholders have indicated that this may not be a significant water management problem currently in the Phoenix AMA, and that the administrative and regulatory additions may outweigh the benefits of implementation. We appreciate that the Department is seeking to identify any potential unintended consequences before implementing this policy. Based on issues raised by our members and other stakeholders, it will probably be difficult to fine-tune this proposal in an acceptable way for stakeholders within the Department's 5MP timeframe. However, we do encourage ADWR to continue to consider ways that the Recharge Program can be improved and streamlined to build upon the successes of this important water management institution.
SRP appreciates the Department's efforts in trying to find creative solutions.