5th Management Plans Work Group
Safe-Yield Technical Subgroup Meeting

February 4, 2020
I. Welcome

II. Detailed Discussion of Individual Safe-Yield Components

III. Closing Remarks
A.R.S. § 45-563 (A)

“The director shall develop a management plan for each initial active management area for each of five management periods... and shall adopt the plans only after public hearings... The plans shall include a continuing mandatory conservation program... designed to achieve reductions in withdrawals of groundwater.”

ADWR-led stakeholder forum for the development of the 5th Management Plans

Goals:

* Assess existing conservation programs
* Update existing management strategies
* Develop new management strategies
5MP Safe-Yield Technical Subgroup

Goals

* Consensus on methodology and definitions
  * Assessing each component
  * Identifying a general approach for assessing long-term status
  * Consistency across AMAs
* Clear communication of status of each AMA

Strategy

* Annual Calculation
  * Consensus on treatment of components
  * Consensus on annual calculation
* Long-Term Analysis
  * Approach(es) for “Long-Term” Analysis
  * Assessing “Progress toward goal”
* Best Practices for Communicating Status
Safe-Yield Data and Calculation
**Management Goals**

(A.R.S. § 45-562)

**Safe-yield:**
“A groundwater management goal which attempts to achieve and thereafter maintain a long-term balance between the annual amount of groundwater withdrawn in an active management area and the annual amount of natural and artificial recharge in the active management area.”

(A.R.S. § 45-561(12))

**Prescott, Phoenix, and Tucson AMAs:**
Safe-yield by the year 2025

**Pinal AMA:**
To allow development of non-irrigation uses and to preserve existing agricultural economies in the AMA for as long as feasible, consistent with the necessity to preserve future water supplies for non-irrigation uses.

**Santa Cruz AMA:**
To maintain a safe-yield condition in the AMA and to prevent local water tables from experiencing long term declines.
### Inflows

- **Natural**
  - Groundwater Inflow
  - Streambed Recharge
  - Mountain-front Recharge
- **Artificial**
  - Incidental Recharge
  - Agricultural
  - Municipal
  - Industrial
  - Canal Seepage
  - Cut to the Aquifer
  - CAGRD Replenishment

### Outflows

- **Natural**
  - Groundwater Outflow
  - Riparian Demand
- **Artificial**
  - Sector Demands
    - Agricultural
    - Municipal
    - Industrial
    - Indian
  - Remediated Groundwater
  - Poor Quality Groundwater

Items highlighted in **blue** are outputs of ADWR’s regional groundwater models.
Items highlighted in **gray** are compiled from AMA Annual Reports.
ADWR Data

AMA Compilation

Sector Compilation

Data Entry & Quality

AMA Annual Reports

Statewide Water Use Estimates

Regional Groundwater Models
Safe-Yield Components: Inflows
* Inflow
* Natural component
* Output of ADWR’s regional groundwater models
* Inflow
* Natural component
* Output of ADWR’s regional groundwater models
* Variable year to year
* Method of lagging differs between AMAs
* Inflow
* Natural component
* Output of ADWR’s regional groundwater models
* Typically constant year-to-year
Incidental Recharge

- Inflow
- Artificial
- Estimated for Agricultural, Municipal, & Industrial sectors

  - Agricultural Incidental Recharge is an output of ADWR’s regional groundwater models
    - Method of lagging may differ between AMAs
  - Municipal & Industrial Incidental Recharge are calculated as a percent of total sector demands
    - Demands are compiled from AMA Annual Reports
    - Not lagged
* Inflow
* Artificial
* Output of ADWR’s regional groundwater models
* Inflow
* Artificial
* Compiled from AMA/Recharge Annual Reports
* Percent cut varies by facility type and water type
* Not lagged
Inflow

Artificial

Replenishment of groundwater pumping that has already occurred

Obligation is incurred when a municipal provider uses groundwater in excess of groundwater allowance balance

Inflow is counted in the year the obligation is incurred

CAGRD = Central Arizona Groundwater Replenishment District
Safe-Yield Components: Outflows
Groundwater Outflow

* Outflow
* Natural
* Output of ADWR’s regional groundwater models
* Outflow
* Natural
* Output of ADWR’s regional groundwater models
Sector Demands

- Outflow
- Artificial
- Compiled for Agricultural, Municipal, Industrial, & Indian sectors
  - Agricultural, Municipal, & Industrial demands are compiled from AMA Annual Reports
  - Indian demands are estimated
  - Paper groundwater pumping only
Remediating Groundwater

- Outflow
- Artificial
- Compiled from AMA Annual Reports

➢ Allowable groundwater pumping, may be legally required. Typically exempt from conservation requirements
Poor Quality Groundwater

- Outflow
- Artificial
- Compiled from AMA Annual Reports

- Allowable groundwater pumping, may be exempt from certain conservation requirements
* Reported data is compiled and updated on an annual basis.
* Data from ADWR’s models lags behind the reported data.
  * Source data from the dashboard can also be downloaded from this site.
* In progress:
  * Reformatting data
  * Safe-yield Dashboard
Questions?

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Management Plans Work Group:
new.azwater.gov/5MP

Full Text of Management Plans:
new.azwater.gov/ama/management-plans