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TUCSON AMA SAFE-YIELD TASK FORCE
ISSUE OUTLINE
3/24/00

ISSUE: INDUSTRIAL GROUNDWATER RIGHTS

Industrial water users with grandfathered rights may continue to mine groundwater in perpetuity. This represents an ongoing impact on the ability of the AMA to achieve the safe-yield goal. Industrial interests have grandfathered rights that far exceed the amount of water currently used by industrial rightholders and permits may be obtained for new industrial uses. This represents the potential for an increase in industrial groundwater pumping over time.

BACKGROUND

Industrial water users include turf-related facilities (e.g. golf courses, parks, schools, and cemeteries), sand and gravel facilities, metal mining facilities, large-scale power plants, large-scale cooling facilities, dairies, and other uses not served by service area rights or agricultural grandfathered rights. Industrial grandfathered rights and permits to groundwater currently account for about 58,600 acre-feet (17%) of the AMA's residual pumping. Industrial groundwater use is projected to increase to 70,700 (37%) by 2025. Rights and permits held by industrial users total nearly 195,000 acre-feet. In 1997, the unused portion was more than 136,000 acre-feet. Except for new turf-related facilities subject to the Pima County and City of Tucson renewable supply use ordinances, industrial users may use groundwater up to the volume of their right allotment.

There are several types of industrial rights and permits including Type 2 Mineral Extraction Grandfathered Rights, Type 2 Non-Irrigation Grandfathered Rights, Type 2 Power Generation Grandfathered Rights, Type 1 Grandfathered Rights and Groundwater Withdrawal Permits. Mineral extraction and power generation Type 2 rights can only be used for those purposes while other Type 2 non-irrigation rights may be used for a variety of industrial uses. Groundwater Withdrawal Permits are issued for dewatering, hydrologic testing, poor quality water mitigation, temporary electrical energy generation, drainage improvement, mineral extraction and for general industrial use. With the exception of dewatering, poor quality water mitigation and drainage improvement permits, these permits are "shall issue" as long as certain provisions specified in the Code are met. Type 2 rights are transferable within the AMA. In 1997 water use by mines and sand and gravel operations accounted for 11% of the AMA water use, electric power used 1% and 3% of the total use was used by Type 2 non-irrigation rightholders.

Irrigation grandfathered rights may be retired to a Type 1 non-irrigation right. Irrigation rights and Type 1 rights are appurtenant to land and may not be transferred as can Type 2 rights. When retired, the volume of the irrigation right is diminished on an acre-foot per acre basis with no more than 3 acre-feet per acre allotted under the Type 1 right. While this retirement diminishes the volume of water that can be withdrawn pursuant to grandfathered rights, it allows an increase in industrial groundwater use, typically for golf courses.

Of the 74,000 acre-feet of Type 1 allotment in the AMA, only 3,000 acre-feet, 1% of the total, was used in 1997. The largest holder is the City of Tucson and municipal pumping by Tucson is subject to replenishment. Groundwater Withdrawal Permit volumes are small, accounting for about 2% of the AMA residual pumping. The number of permit applications may increase in the future as the availability of Type 2 rights to serve industrial uses becomes more limited.

While there is a large volume of unused allotment that could potentially be used, it is unlikely that the full volume would actually be put to use. Type 1 and non-irrigation Type 2 rights may be extinguished for assured water supply credits. This provides a mechanism to permanently extinguish industrial rights. Because industrial rights may continue to use groundwater and new industrial users, such as golf courses constructed on retired farmland, are expected to expand in the future, industrial users represent an ongoing impact on the achievement of safe-yield.

SOLUTIONS CONSIDERED

The following ideas have been considered. Additional ideas may be added to this list.

- Mines and sand and gravel operations should be encouraged to use renewable water supplies to the maximum extent practicable considering economic costs and benefits. Investigate ways to implement a replenishment obligation.
- Consider limiting the transfer of Type 2 rights to other facilities (e.g. electric power rights could not be transferred to a new location to start a new use) or lease or sale of Type 2 rights owned by water providers. On transfer of a Type 2 right, require proof that renewable supplies are not available.
- Limit Irrigation GFR conversion (retirement) to Type 1 rights (which is a method to establish a new golf course) either during a phase out period or after 2025. This could involve a reduction in the volume allowed under the conversion over time.
- Issue new general industrial use and mineral extraction permits only if there is some obligation to replenish or use renewable supplies directly.
- Limit use of Type 1 water to the original appurtenant land. Currently, use off the land is allowed subject to certain conditions.

PRELIMINARY RECOMMENDATIONS

- Mines and sand and gravel operations are the largest industrial user category in the Tucson AMA and have the potential to use renewable supplies in the extractive process. An investigation of cost effective mechanisms to promote the use of renewable water supplies, such as incentives or a replenishment obligation, needs to be pursued.

- Investigate restricting the conversion of Irrigation GFRs to Type 1 rights as a way to constrain the amount of new industrial use in the future. The legal implications and mechanisms of restricting conversion need to be examined. Restrictions could be phased in, such as reducing the conversion volume allowed over time, or could take effect after a specific time such as 2025.

- Investigate establishing conditions for the issuance of new general industrial use permits and mineral extraction permits that would require the use of renewable water supplies. This would involve legal and economic feasibility considerations.

OBSERVATIONS

Unlike municipal entities, industrial pumpage is limited by the volume of the right or permit. However, new permits can be issued for new industrial uses. Renewable supply use is limited by physical, economic and legal barriers. Potential industrial users are scattered and often far removed from conveyance systems making direct delivery a less accessible option than replenishment. Water quality regulations such as wastewater reuse rules or aquifer protection permit rules may provide impediments to using CAP water or effluent although matching water quality with certain industrial users has promise. Water use by Tucson AMA metal mines is almost 70% of the total industrial use and is expected to decline in the future. If use does not decline, phasing in a replenishment requirement could be considered. However, requiring replenishment by metal mining facilities may be difficult to implement given the volatility of world markets and the difficulty of predicting water use trends. Diminishing the volume of the right over time could necessitate compensation to the user and require statutory change.

The industrial sector currently uses less renewable water supplies than the municipal and agricultural sectors which raises equity issues related to sector contribution to achievement of the safe-yield goal. While replenishment by industrial users might be an alternative, if progress toward safe-yield is not being made, a replenishment requirement by all residual pumpers could be an option.