

GUIDELINES FOR THE DEMING-COLUMBUS  
ADMINISTRATIVE AREA

FOR REVIEW OF WATER RIGHT APPLICATIONS

OFFICE OF THE STATE ENGINEER



JOHN R. D'ANTONIO, JR., P.E.  
STATE ENGINEER

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**INTRODUCTION**

The purpose of this document is to provide guidelines to Office of the State Engineer (OSE) personnel on the procedures for processing water rights applications filed within the Deming-Columbus Administrative Area (DCAA) within the Mimbres Underground Water Basin. The DCAA is located in Luna County in southwestern New Mexico (Figure 1). The Mimbres Basin was declared on July 29, 1931 by State Engineer Order 1. Since that date there have been 7 orders extending the boundaries of the basin. These guidelines replace the Mimbres Basin Administrative Criteria adopted in 1982 (NMOSE, 1982).

The OSE has developed administrative guidelines in order to promote the orderly development of water resources in the DCAA while meeting statutory obligations regarding impairment, conservation of water within the state, and public welfare of the state. Applications filed on or after the adoption date of the guidelines shall be evaluated using these guidelines. All pending applications submitted prior to this date shall be reviewed on a case-by-case basis. These guidelines do not apply to the permitting of applications filed under NMSA Section 72-12-1.1, 72-12-1.2 and 72-12-1.3. The guidelines apply to applications within the DCAA proposing production from the basin-fill alluvium, which is composed of gravel, sand, clay, silt and interbedded basalt flows. Applications proposing diversion from other geologic units, or outside of the boundaries of the DCAA, will be processed on a case-by-case basis.

Block administration and local assessment methods are applied to limit drawdowns caused by pending and future applications. The regional groundwater flow model developed by Cuddy and Keyes (2011) is available for block administration and may also be applied to assess local drawdown if the Theis equation is unsuitable. The model grid is shown in Figure 2. Each groundwater model cell is 2,000 feet by 2,000 feet in size and represents an administrative block. A 40-year planning period ending in year 2050 has been selected for block administration.

A block administrative drawdown limit of 2.50 feet per year was adopted for the 1982 basin

criteria to protect irrigation and other non-domestic wells from excessive drawdown. This limit was evaluated and deemed appropriate for the administration of the DCAA. Domestic wells were also assessed to determine whether the 2.50 limit was appropriate to prevent excessive drawdown. The average domestic water column in the DCAA is about 140 feet based on WATERS using wells which were completed after January 1, 2000. If the allowable drawdown within DCAA is assumed to be about 70 percent of the average water column, a drawdown limit of about 100 feet is obtained which is equivalent to a rate of decline of 2.50 feet per year over the 40-year planning period.

Modeling studies predict portions of the aquifer in the DCAA will experience an average annual water level decline of more than 2.50 feet per year over the planning period due to the full exercise of existing permits and declarations. To protect water availability for existing rights over the planning period these areas require a greater level of restriction compared to other areas and are designated Critical Management Areas (CMAs). In addition to these areas, areas previously closed to new appropriations by order of the State Engineer shall remain closed. The boundaries of the CMAs and closed areas are shown in Figure 3 and 4, respectively.

Figure 3 and 4 provide a general representation of the boundaries at a basin scale. However, because the model grid and boundaries do not align everywhere with PLSS sections, it may not be possible to accurately determine whether a given application is located within an area using Figure 3 and 4 alone. The boundaries are defined by the geographic information systems (GIS) layer (based on the model grid) that was used to produce Figure 3 and 4. The OSE Hydrology Bureau will maintain and provide both the model and the GIS layer of the boundaries for use by OSE and the public.

No unappropriated water exists within the CMAs and areas closed by OSE order. For this reason, and to protect against impairment of existing rights located in the CMAs and closed areas, all new applications filed under NMSA Section 72-12-3 to appropriate water from the CMA and closed areas shall be denied. In addition, changes in point of diversion from the areas outside of a CMA into the CMA will be denied and changes in point of diversion from the areas outside of a closed area into a closed area shall be denied.

Preventing any level of new impact within a CMA is impractical, as this would result in the denial of applications causing relatively small impacts. Drawdown allowances have been selected to define the relatively small impacts that may be allowed to occur on CMA cells by year 2050. Applications may be allowed to induce drawdowns on CMAs up to 0.10 feet per year times the

number of years in the simulation period. The drawdown allowance selected is comparable to the values used for other basins and was applied in the 1982 basin criteria. The simulation period starts January 1 of the calendar year in which the calculations are performed and ends January 1, 2050.

In summary, a groundwater model was used to estimate the drawdowns in year 2050 due to the exercise of existing permits and declarations. If the average rate of decline exceeds 2.50 feet per year in any model block, that block will be classified as a CMA and the allowable impacts thereafter on that block from any application should not exceed 0.10 feet per year. For blocks which have not been designated as a CMA at the time of application review, an application, in conjunction with existing rights, may cause declines to reach a rate up to 2.50 feet per year, and the application may be allowed to induce an additional 0.10 feet per year (total decline of 2.6 ft/yr). If a block is classified as a CMA at the time the application is being acted upon, all future applications for new appropriations under NMSA Section 72-12-3 will be denied if they are located within that block. In general, water rights may be moved within a CMA, or supplemental wells may be proposed, if the net effect on any CMA block does not exceed 0.10 feet per year and other statutory requirements have been met. However, water rights may not be transferred from outside of a CMA to within a CMA.

In addition to the block administration guidelines described above, applications are also evaluated to assess local impacts to nearby wells. Well completions and other site-specific information are considered to assess local impacts.

The more restrictive provisions of the guidelines may provide the basis for decision making; however nothing in these guidelines shall limit the State Engineer's authority to take alternative or additional actions relating to the management of the water resources of the DCAA as provided by New Mexico statutes, orders of the court, or Rules and Regulations of the Office of the State Engineer. Basin guidelines are to be applied on a case-by-case basis and alternative guidelines may be used, as recommended by the District Chief and approved by the Director of Water Rights. A glossary is also provided at the end of this document.

# BASIN GUIDELINES

## I. GENERAL GUIDELINES

A. New Appropriations: Applications filed under NMSA Section 72-12-3 to appropriate water from the CMA shall be denied if they were filed on or after the adoption date of these guidelines. Pending applications submitted before this date shall be assessed on a case-by-case basis.

B. Closed Areas: Areas closed to new appropriations under NMSA Section 72-12-3 by State Engineer order shall remain closed. Changes in point of diversion from the areas outside of a closed area into a closed area will be denied. Closed areas are shown in Figure 4.

C. Critical Management Area (CMA): Model cells have been designated a CMA if predicted drawdowns exceed an average annual decline of 2.50 feet per year over the planning period. The designation of CMA cells is based on the assumption that existing declarations and permits are exercised to their full extent. Designated CMA cells at the date of guideline approval are shown in Figure 3. The OSE has the sole responsibility to determine the boundaries of the CMAs and may modify these as applications are processed or as new data become available. Additional CMAs may be designated if predicted drawdowns exceed an average annual decline of 2.50 feet per year over the simulation period, which extends from the year calculations are performed to 2050.

D. Declaration and Permit Limits: For declarations of water rights other than those that meet the provisions of NMSA Section 72-1-9 (Water Development Plans), the OSE determination of the amount of ground water placed to consumptive beneficial use shall be the limit of any subsequent permit. For permitted water rights, that quantity of water applied to consumptive beneficial use is available for transfer provided the permit is in good standing. The inability to apply water to beneficial use for reasons beyond the owner's control may be taken into consideration.

E. Water Right Transfers: Applications may be accompanied with proof of the amount of water consumptively used. A farm delivery requirement (FDR) and consumptive irrigation requirement (CIR) of 3.00 and 1.6 acre-feet per acre per annum will be applied, respectively. The following limits shall apply unless the other values are recommended by the District Chief and approved by the Director of Water Rights:

1. For applications proposing to change the purpose of use of irrigation rights, diversions will be

limited to the CIR times the irrigated acreage of the existing right placed to beneficial use.

2. For applications to change purpose of use of spread or stacked irrigation rights, diversions will be limited to the CIR times the irrigated acreage of the original water right placed to beneficial use.
3. For applications proposing to change the place of use of irrigation rights, other than spread or stacked water rights, diversions will be limited to the FDR times the irrigated acreage of the existing right.
4. For applications proposing to change the place of use of irrigation rights, where water will be spread, diversions will be limited to the CIR acre-feet per acre per year times the irrigated acreage of the existing right placed to beneficial use.
5. For applications proposing to change place of use of irrigation rights, where water will be stacked, diversions will be limited to the combined diversion amount.
6. For applications proposing to change the purpose of use from non-irrigation to irrigation, diversions will be limited to the amount placed to consumptive beneficial use, unless Section I.E.7 applies.
7. Non-irrigation water rights placed to consumptive beneficial use which originated as irrigation water rights may be transferred back to irrigation use at the same diversion rate associated with the original water right.
8. For applications proposing the transfer of rights placed in conservation reserve program, in accordance with NMSA Section 72-12-8, diversions will be limited to the amount placed to beneficial use prior to the date the water right was placed in the program.
9. Applications to change place or purpose of use (without changing the point of diversion) will be considered throughout the basin regardless of CMA designation.

**F. Water Quality:** Groundwater quality assessments may be performed when necessary and shall consider groundwater capture and migration patterns. The evaluation technique to assess potential water quality degradation shall be selected on a case-by-case basis.

**G. Metering Requirements:** Meters may be required for wells permitted under NMSA Section 72-12-1.1, 72-12-1.2, and 72-12-1.3, in accordance with OSE rules and regulations. All other wells permitted after the adoption of these guidelines shall be metered. Permits issued for supplemental

wells, or other points of diversion shall be conditioned to require metering of each point of diversion (existing and new) covered under the permit.

H. Conservation of Water: Applications shall be reviewed to ensure that the highest and best technology practically available and economically feasible for the intended purpose is used. The applicant may be required to provide information to support this review.

I. Supplemental Wells: When applying for a well (an additional point of diversion) that will be used in conjunction with other wells associated with the permit, the applicant should submit a pumping schedule with the application for the proposed and existing wells. If the applicant does not submit a schedule, the OSE may return the application for additional information or assume a worst case pumping distribution. The maximum combined diversion from all authorized points of diversion shall be the permitted diversion limit for a permit in good standing or the amount placed to beneficial use for a declared water right.

J. Return Flow Plan: A permit is required in order to increase a diversion based on return flow credit. If an application for return flow credit is filed, it shall include a return flow plan containing meter readings demonstrating flows directly to the source aquifer. Return flow credit will not be considered or granted for leakage or seepage occurring from irrigation or dairy operations, ponds, or any flows from onsite wastewater dispersal (septic) systems, or other constructed works not specifically designed to return water directly to the underground source.

K. Eastern Extension Area Restrictions: In accordance with State Engineer Order 46, wells shall not exceed 230 feet in depth except in instances where the formation at the 230 foot depth is sand and gravel not sufficiently stable to afford a satisfactory casing seat. In those instances the driller may, with the consent and under the supervision of the District Chief, proceed with the drilling to the top of the first clay strata next encountered below the 230 foot depth. The boundaries of the Eastern Extension Area are shown in Figure 4.

L. Calculation Methods: General methods include:

1. Drawdowns due to a change in point of diversion shall be estimated by finding the water level decline difference (net drawdown) between pumping the move-from and move-to wells. Drawdowns due to supplemental wells shall be computed by finding the net drawdown between the existing and proposed pumping configurations.

2. Calculations shall be made by assuming full production of the requested diversion amount unless the applicant has filed a pumping schedule acceptable to the OSE. If a reasonable pumping schedule has been proposed for the application and existing associated permits under the control of the applicant, analyses shall be performed in accordance with the schedule. If approved, the permit shall be conditioned to limit pumping in accordance with the schedule or as the OSE otherwise determines necessary.
3. For drawdown calculation purposes only, the diversion amount will be considered to be fully consumed unless the State Engineer has approved a return flow plan.
4. Drawdowns due to the full exercise of existing water rights shall be estimated using the model developed by Cuddy and Keyes (2011) or other models accepted by the OSE.
5. References to CMAs and non-CMAs in this document pertain to model cells within the Cuddy and Keyes (2011) numerical model. The non-CMA or CMA designation assigned to any model cell extends vertically through all layers of the model. CMA designations pertain to the estimated conditions at year 2050 prior to the review of an application.
6. Local assessments shall be performed using the Theis equation or a numerical model.
7. Applications involving dry model cells shall be assessed on a case-by-case basis.

## II. REGIONAL ASSESSMENTS

A. Restrictions for Wells to be Located Outside of a CMA: If a proposed well is outside of a CMA, the more restrictive of the following shall apply.

1. An application, in conjunction with the full exercise of existing wells, may be permitted to induce drawdowns up to the rate of 2.50 feet per year on any cell outside of the CMA.
2. If drawdowns reach 2.50 feet per year, an application may be permitted to induce a drawdown allowance of 0.10 feet times the number of years in the simulation period. The simulation period starts January 1 of the calendar year in which the calculations are performed and ends January 1, 2050.
3. For CMA cells existing prior to application evaluation, an application may be permitted provided the rate of drawdown on these cells does not exceed 0.10 feet per year times the number of years in the simulation period, unless the cumulative effects become excessive.



4. Applications to change point of diversion from a CMA to an area outside of the CMA will be considered.

B. Restrictions for Wells to be Located Within a CMA: For applications where the proposed well is within the CMA, the more restrictive of the following will apply:

1. Applications filed under NMSA Section 72-12-3, on or after the adoption date of these guidelines shall be denied. All pending applications filed before the adoption date shall be reviewed on a case-by-case basis.
2. Applications to move a point of diversion into the CMA from outside of the CMA will generally be denied but the District Chief may recommend to the Director of Water Rights that special circumstances be considered.
3. Applications to change point of diversion within a CMA are generally limited to transfers within contiguous CMA cells but the District Chief may recommend to the Director of Water Rights that special circumstances be considered. An application may be allowed to induce a net drawdown in a CMA up to 0.10 feet per year; times the number of years in the simulation period, unless the cumulative effects become excessive. Section II.A.1 and II.A.2 shall also apply.
4. If a permittee owns a primary or supplemental well within the area outside of the CMA, which abuts a CMA, an application for a supplemental well within that CMA may be considered.

C. Administrative Model: Applications may be evaluated using the Cuddy – Keyes Model (2011), or other subsequent model version selected by the OSE. The input files will be immediately updated following application approval for applications other than those filed under NMSA Section 72-12-1.1, 72-12-1.2, and 72-12-1.3. Model input files will be made available to the public upon request. Applications located in areas where the model is deemed inappropriate by the OSE shall be evaluated on a case-by-case basis by applying the Theis equation or other method. Observed field conditions may be incorporated.

D. Calculations: The following methods shall apply:

1. The diversion from any individual well shall be simulated from a single model cell and shall not be divided among more than one cell unless the vertical distribution into more than one layer is appropriate. If the applied-for location creates uncertainty as to which model cell the

well could be located in, the most realistic scenario resulting in the greater impact will be used.

2. For a multi-layer stack of cells, the maximum drawdown in any layer shall be the value used to apply the guidelines. If any layer cell becomes a CMA, the other layers within the stack will also be considered a CMA.
3. Calculations shall be performed by assuming diversions begin in January of the calendar year the calculations are performed to January 2050, unless an alternative schedule has been proposed by the applicant and accepted by the OSE.
4. The rate of drawdown shall be computed by dividing the net drawdown by the number of years between the year the calculations are performed and year 2050.
5. Effects due to existing permits and declarations shall be made by assuming full production of the permitted and declared rights up to year 2050. If the OSE modifies the amount permitted or found valid, these modifications may be incorporated to update baseline estimates. An updated inventory of water rights will be maintained by the OSE following the approval of any application other than those filed under NMSA Section 72-12-1.1, 72-12-1.2, and 72-12-1.3.

### III. LOCAL AREA ASSESSMENTS

A. Water Level Decline Restrictions: Local area assessments shall evaluate 40-year impacts on nearby wells of other ownership using the following guidelines:

1. Applications to appropriate water, in conjunction with the full exercise of existing rights, may be permitted to reduce water levels at existing well sites as follows:
  - a. Up to 70 percent of the current water column.
  - b. For domestic well sites, the water column may be reduced to 20.0 feet, unless the 70 percent guideline is more restrictive.
  - c. For non-domestic well sites, the allowable drawdown will be assessed on a case-by-case basis using the procedures presented in Morrison (2006), or other appropriate method.
  - d. Other limits as deemed appropriate.
2. If the limits in 111.A.1 are reached due to the use of existing rights alone, or in conjunction

with the application, the application may be permitted to induce a drawdown up to 0.10 feet per year times 40 years.

3. Applications to replace an existing well within 100 feet of the existing well location may be allowed to impact junior users by any amount. The State Engineer assumption, which may be confirmed by calculation, is that pumping from a new well within 100-feet of the old well will cause no impairment to existing water rights.
4. Decisions pertaining to local impairment shall be made on a case-by-case basis. Failure to meet any limit may be sufficient for rendering a negative decision. Upon recommendation by the District Chief, the Director of Water Rights may also consider:
  - a. Validity of the water right of the affected well(s).
  - b. Age of the affected well(s).
  - c. Well yield.
  - d. Water level decline and saturated thickness data.
  - e. Whether the affected well(s) may be deepened and were constructed to secure a 40-year minimum supply.
  - f. Conditional approval for an amount lower than requested to meet drawdown limits.
  - g. Conditional approval based on the submittal of an acceptable monitoring and mitigation plan.
  - h. Other appropriate considerations.

**B. Calculations:** The following methods shall apply:

1. Applications shall be evaluated on a case-by-case basis to assess impacts to nearby water supply wells of other ownership, including those permitted under NMSA 72-12-1.1, 72-12-1.2, and 72-12-1.3.
2. Local assessments may be performed using the Theis equation or appropriate numerical model. A numerical model may be used to estimate the 40-year impacts due to the full use of existing water rights.
3. Aquifer parameters used to calculate drawdowns on nearby wells may be obtained from accepted groundwater flow models or from reasonable site-specific information.
4. Calculations shall be computed for a 40-year period beginning at the start of the calendar year the calculations are being performed.

Adopted this twentieth day of May' 2011.

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John R. D'Antonio, Jr., P.E.  
State Engineer



## REFERENCES

Cuddy, Alan, and Keyes, Eric, 2011, Groundwater Model of the Mimbres Basin, Luna, Grant, Sierra and Dona Ana Counties, New Mexico: New Mexico Office of the State Engineer, Hydrology Bureau Technical Report 11-1.

Morrison, Tom, 2006, Guidelines for the Assessment of Drawdown Estimates: New Mexico Office of the State Engineer, Hydrology Bureau Report 06-01.

New Mexico Office of the State Engineer (NMOSE), 1982, Mimbres Basin Administrative Criteria. Prepared by New Mexico State Engineer Office, August 1982.

## GLOSSARY

**Acre-foot:** Quantity of water that will cover one acre of land to a depth of one foot; 43,560 cubic feet or 325,851 gallons of water.

**Aquifer:** A saturated underground geologic formation of permeable materials capable of storing water and transmitting usable amounts of water to wells.

**Basin-fill alluvium:** The primary water supply source in the Mimbres Basin consisting of sand, gravel, clay and silt.

**Beneficial use:** All uses not defined by court decisions, statute, or the OSE as being wasteful. All beneficial uses are equal under New Mexico law.

**Block administration:** A procedure used in many areas of the state to administer water rights on a regional scale. An underground basin is divided into blocks or cells of land and guidelines are applied as a way of determining which applications should be approved or denied. For the DCAA, an administrative block is 2,000 by 2,000 feet in size and is represented by a groundwater model cell.

**Cell:** A unit used in a numerical groundwater flow model that simulates part of an aquifer system. Aquifer properties, water levels and flows may vary from cell to cell, but are assumed to be uniform within a cell. Groundwater diversions and aquifer properties are assigned to each cell. Drawdowns are computed for each saturated cell and this information is compared to the guideline restrictions. Cells are used to represent administrative blocks.

**Closed area:** An area in which new appropriations under NMSA Section 72-12-3 are prohibited.

**Consumptive beneficial use:** The consumptive beneficial use for irrigation rights does not include incidental depletions. Consumptive beneficial use for non-irrigation rights is the diversion amount

less any return flow accepted by the OSE.

**Critical management area (CMA):** Model cells within the regional model boundaries requiring a greater degree of water level decline restriction compared to other areas. CMA limits are the threshold drawdowns that result in a non-CMA becoming a CMA.

**Declared underground water basin:** An area designated by the state engineer as requiring management to prevent impairment to existing water rights and to ensure the orderly development of water rights. Following the declaration of a basin by the OSE, applications must be filed to appropriate groundwater or to make changes to an existing water right.

**Declared water right:** A right established prior to the State Engineer's declaration of an underground water basin.

**Diversion:** The amount of ground water withdrawn by wells.

**Domestic wells:** Wells permitted under NMSA Section 72-12-1.1.

**Drawdown:** The decline in the water level over a given time caused by well diversions.

**Ground water:** Water located below the surface of the earth that is stored in pores of geologic sediments (sands and gravels), cracks and crevices of rocks (fractures) and solution cavities in limestone.

**Groundwater-flow model:** A series of mathematical equations representing the aquifers in the area that are solved using a computer. Models are used to estimate the water level declines due to the use of wells.

**Guidelines:** A statement of general procedure to be applied in a specific area by OSE personnel to any application to ensure a consistent set of guiding principles is used to evaluate all applications. Due to the wide variety of physical conditions that may be encountered, guidelines should be applied on a case-by-case basis.

**Hydrogeologic:** Characteristics that enable geologic units to store and transmit water.

**Impairment (underground water):** A finding by the state engineer of negative impact based on water level decline, remaining saturated thickness, available water columns and other relevant factors or facts.

**Licensed water right:** A water right in which a license has been issued by the State Engineer that defines the extent of the water right.

**Local assessment:** The determination and assessment of water level decline on water supply wells in the vicinity of a proposed well.

Move-from well: The well from which the water rights will be transferred.

Move-to well: The well to which water rights are being transferred.

New appropriation: A groundwater diversion permitted under NMSA Section 72-12-3.

NMSA: New Mexico Statutes Annotated.

Non-CMA: Areas within the regional model boundaries that are not designated a Critical Management Area. Restrictions are placed on non-CMAs that are less severe relative to those placed on CMAs.

Pending application: Any application that was filed with the OSE but has not been acted upon.

Permit: Is an application that has been approved by the state engineer for a specific purpose, such as changing point of diversion, drilling a supplemental or replacement well, changing place or purpose of use, etc.

Permitted right: The right to use water as provided for by permit. A water right is established by exercising a permit and by putting water to continuous beneficial use.

Primary well: The well that was originally permitted or declared.

Pumping schedule: May include a changing diversion rate with time for a given well, or the diversion rate for multiple wells.

Regional groundwater flow model: Is typically a basin-wide numerical model that allows the estimation of impacts due to existing wells and proposed appropriations.

Return flow credit: Is that amount of water directly returned to the same immediate underground source from which it was appropriated, after the water has been applied to beneficial use. Return flow credit will not be considered or granted for incidental leakage or seepage occurring from irrigation use, constructed works, or ponds, or for any flows from onsite dispersal (septic) systems.

Return flow plan: Is a report based on factual and acceptable scientific measurements demonstrating return flow credit.

Saturated thickness: The underground zone in which the void spaces in the rocks and soils are filled with water. As water levels decline, the saturated thickness also declines.

Section 72-1-9: The statute which allows municipalities, counties, state universities and public utilities supplying water to municipalities or counties to acquire water rights pursuant to a water development plan for reasonably projected water needs that will occur within 40 years.

Section 72-12-1.1: The statute that regulates wells required for relatively small amounts of water for

single or multiple households, including drinking and sanitary uses in conjunction with a commercial operation.

Section 72-12-1.2: The statute that regulates livestock wells.

Section 72-12-1.3: The statute that regulates wells used for a period not to exceed one-year for specifically listed purposes of use.

Section 72-12-3: The statute that regulates wells for new appropriation other than those applications filed under Section 72-12-1. Section 72-12-3 applications generally seek to obtain quantities of water greater than allowed by the OSE for Section 72-12-1 wells.

Spread irrigation water rights: Irrigation water rights on an acre of land that are less than the amount of water per irrigated acre associated with the average basin-wide cropping pattern.

Stacked water rights: Irrigation rights on an acre of land that exceed the amount of water per irrigated acre associated with the average basin basin-wide cropping pattern.

Statutory: Regulated by law.

Supplemental well: An alternate point of diversion to supplement the supply of an existing water right.

Theis equation: An analytical method that calculates water level declines using one set of aquifer parameters .

Transfer: Is a general term that is not defined in the statutes but is used to indicate a change in point of diversion or change of place or purpose of use of a water right.

Water column: Is the length of the column of water in a well that is potentially available for production. It is generally calculated by subtracting the non pumping water level from the well depth for wells that have screens extending to the bottom of the well. As water levels decline due to pumping, water columns and well yields also decline.

Water right: The amount of water that can be legally placed to beneficial use by the water right owner.

Well completion: The specific well construction information provided in a well record, such as the depth of a well, perforated interval, casing materials, surface seals, or other relevant data.