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30 2003

<p>SUPREME COURT, STATE OF COLORADO 2 East 14th Avenue, 4th Floor Denver, Colorado 80203</p>	
<p>Appeal from the District Court, Water Division No. 1 Hon. Jonathan W. Hays, Case No. 96CW14</p>	
<p>IN THE MATTER OF THE APPLICATION FOR WATER RIGHTS OF PARK COUNTY SPORTSMEN'S RANCH,</p>	
<p>Applicant-Appellants: City of Aurora, a municipal corporation of the counties of Adams, Arapahoe and Douglas, acting by and through its Utility Enterprise; Park County Sportsmen's Ranch, LLP, a limited liability partnership; and Kenneth J. Burke, former counsel for applicant,</p>	
<p>v</p>	
<p>Objectors-Appellees: Colorado State Engineer, Harold D. Simpson, P.E., and Division Engineer for Water Division No. 1, Colorado Water Conservation Board, Colorado Division of Wildlife, City of Thornton, City of Englewood, City of Denver, Park County, Center of Colorado Water Conservancy District, Elkhorn Ranch Home Owners Association, Upper South Platte Water Conservancy District, Board of Commissioners of County of Park, Park County Water Preservation Coalition, United States of America, Centennial Water and Sanitation District, Union Pacific Resources Company, The Frieda Wahl Trust, Steve Bargas, Kimberly Bargas, Frida Bargas, H.D. and Mary Catherine Coleman, James T. Benes, James T. Benes Jr., and Cassandra L. Benes Trust, Tarryall Land and Cattle, LLC, Magness Land Holdings, LLC, Estate of Bob Magness, Personal Representatives of the Estate of Bob Magness, Town of Fairplay, Jim Campbell, James Campbell, Ruth Bartle, Indian Mountain Corporation, Jill E. Boice, Bob Burch, Robert W. Heckendorf, Michael and Vicki Lothrop, Richard A. Grenfell, David Wilson, Darrell Johns, David Johns, John Johns, Joseph G. & Joyce C. Minke, James E. Copanos, Central Colorado Cattlemen's Association, Gregory Snapp, Roy G. Doerr, Erik Taylor, Wildwood Recreational Village Assoc., Mark and Carol Carrington, Hansludwig Kommert and Stephen R. Cline.</p>	
<p>▲ COURT USE ONLY ▲</p>	
<p>Porzak Browning & Bushong LLP Glenn E. Porzak (#2793) Steven J. Bushong (#21782) Kevin J. Kinnear (#28704) 929 Pearl Street, Suite 300 Boulder, Colorado 80302 Phone: (303) 443-6800</p>	<p>Case Number: 01SA412</p>
<p>PARK COUNTY SPORTSMEN'S RANCH OPENING BRIEF ON THE MERITS</p>	

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EXPLANATION OF RECORD CITES

Trial transcripts exist for July 10, 2000 through February 22, 2001. Since transcripts are not denoted by record volume, citations in this Brief refer to the date of the cited trial transcript by noting the month/day followed by page and line numbers (e.g. 7/13 p.20, l.13-p.25, l.6). Any transcript cite for pre-trial or post-trial hearing also denotes the year. Trial transcripts for July 12 and July 26 are split between morning and afternoon, with page numbering that starts over in the afternoon. Thus, citations to those dates refer to a.m. or p.m. to designate whether citing the morning or afternoon preceeding (e.g. 7/12 pm, p.32, l.14-25). Transcripts on July 19 are split between witness Ross Bethel and witness Dr. Eastman, with page numbering that starts over for Dr. Eastman. Citations to that date thus refer to Bethel or Eastman to designate which portion of the transcript is being cited. Finally, it is noted that the page numbering of the transcripts from February 20 - 22 are consecutive, meaning transcripts for February 21 and 22 do not begin at page 1, and rather begin where the previous day left off.

Exhibits and/or pleadings are not denoted by record volume and are thus cited by exhibit number or name of pleading. Copies of such documents that are included as an Appendix are identified as such and all Water Court Orders cited herein are included in the Appendix.

I. STATEMENT OF THE ISSUES

- A. Whether the Water Court erred in (1) applying Rule 41(b); (2) the requirements it imposed to satisfy a *prima facie* case; (3) reviewing the adequacy of the augmentation plan; (4) rejecting the right to store water underground; (5) the manner in which it treated water that was expected to leak into the underground storage; and (6) dismissing the claimed water rights without addressing the prerequisites for such rights.
- B. Whether the Water Court erred by excluding evidence on proposed terms and conditions to prevent injury and by excluding, as a matter of law, the use of contemporaneous, post-project monitoring to measure project depletions that require augmentation.
- C. Whether the Water Court erred in dismissing the application based upon a finding that a computer model was unreliable when that finding is unsupported in the record and contradicted by the experts; when the model was not critical to proving any element of the case; and when the Court excluded the very evidence it claimed was missing.

II. STATEMENT OF THE CASE

Park County Sportsmen's Ranch ("PCSR" or "Applicant"), as agent for the City of Aurora ("Aurora"), developed a conjunctive use project in the South Park basin ("Project," also referred to as "SPCUP" in the record) intended to deliver water to Aurora and PCSR. The Project involves pumping ground water from the aquifers which, in turn, creates a "cone of depression." Water is then stored in the cone of depression (or elsewhere in the aquifers) by artificial recharge with surface water diverted and stored in priority, or with water that can otherwise be stored without injury to others. The Project also allows water to be used directly from its surface facilities. Applicant sought approval of the water rights, exchanges and augmentation plan associated with the Project. After 8 weeks of uncontradicted testimony from 1 lay witness and 6 expert witnesses, all on behalf of the Project, the Water Court dismissed the application.

III. STATEMENT OF THE FACTS

A. Summary of the Water Rights Application and Proposed Project.

The water rights application sought junior and for the most part conditional water rights for wells, underground storage, surface storage facilities and collection system, and approval of associated exchanges and an augmentation plan. PCSR sought the water rights for itself and for Aurora, for whom PCSR was acting as an agent-in-fact as contemplated under C.R.S. § 37-92-103. (See, e.g. Application p.1, ¶ 1b, App’x A).

Notwithstanding significant complex modeling, the Project’s design is quite simple. Well pumping will initially exceed recharge, thus creating a hole or cone of depression in the aquifers that is available for later storage, along with other available storage already present in the aquifers. Recharge water stored in the aquifers will consist of surface water diverted in priority and stored in recharge facilities, and other water stored underground without injury. The surface water is also available for direct use. Accordingly, during its initial phase, the Project will produce the water pumped to create the underground storage, plus water stored underground by recharge. (8/7 p.52, 1.12-p.53, 1.2; p.144, 1.1-12; 8/24 p.50, 1.23-p.52, 1.1; 2/22, p.360, 1.15-p.362, 1.10). After that initial phase of operation, Project well pumping will decrease so that it equals the rate of recharge. (Id.).

South Park is an ideal location for a conjunctive use project. The South Park aquifers (1) are confined to the basin by impermeable geologic formations creating a bathtub or dam effect, (8/24 pp.5-8; 2/20, p.11, 1.19-p.12, 1.11; p.116, 1.11-21) (see opposing counsel’s reference to “bathtub” effect at 5/2/01 p.6, 1.7-12); (2) contain ancient water that would otherwise remain untapped (water in the aquifer was dated at an average of 27,600 years) (2/20 pp.10-13); (3) yet, are situated to allow artificial recharge through surface facilities because the aquifers dip to the

surface (8/24 pp.27-28). In short, the Project was developed to utilize a small fraction of the ground water in the South Park aquifers that ordinarily would not leave the basin, in conjunction with the surface water available in priority in the basin.

Project wells can pump from South Park aquifers without immediately impacting surface streams in the area. Impacts on three surface streams in the Project area will eventually occur when the cone of depression created by such pumping intercepts the alluvium of the streams, thus inducing water into the cone and causing a stream depletion. The project proposes to monitor those depletions. (Infra § III.C.4). The augmentation plan called for replacing those stream depletions using any water available to the Project, including: (1) pumping the very water that leaked into the cone back to the stream, (see, e.g. 8/28 p.157, l.10-p.158, l.23); (2) using other water available in surface or underground storage (Exh. A-700, pp.59-63, App'x B); and (3) water rights dedicated to the plan. (Id.).

B. Park County I and Park County II Appeals.

Even before trial there was a Supreme Court appeal in this matter. The State Engineer first determined that the groundwater in the Larimie-Fox Hills aquifer underlying PCSR's lands was "nontributary" under C.R.S. § 37-90-137(10.5) because withdrawals would cause minimal depletions to surface streams. *Park County Sportsmen's Ranch LLP v. Bargas*, 986 P.2d 262, 264-65 (Colo. 1999) ("*Park County I*"). The State Engineer later held the groundwater was "not nontributary" under subsection (10.7) of that same provision. *Id.* In ruling upon motions for summary judgment, the Water Court held that said subsections (10.5) and (10.7) were not applicable to groundwater in South Park, meaning all aquifers were tributary, and that PCSR must augment or replace 100% of its out-of-priority diversions from the aquifers. *Id.* at 265.

On appeal, this Court upheld the Water Court in part, and reversed it in part. This Court ruled that subsections (10.5) and (10.7) were legally inapplicable to aquifers outside the Denver Basin regardless of the extent to which the aquifers were hydrologically disconnected to surface streams. *Id.* at 275. However, this Court reversed the Water Court by holding PCSR is not required to replace or augment 100% of its out of priority ground water withdrawals, only the out of priority depletions that actually cause injury. *Id.*

Certain Objectors filed a separate declaratory judgment action seeking a determination that storage of water below the surface of their lands would constitute a trespass. The Water Court rejected that argument and on appeal, its decision was upheld by this Court. *Board of County Com'rs of Park County v. Park County Sportsmen's Ranch, LLP*, 45 P.3d 693 (Colo. 2002) (*Park County II*). In reaching its conclusion, this Court discussed the benefits of conjunctive use projects, how a cone of depression may be created for storage, and the legislative authorization for such projects. *Id.* at 702-05. The Water Court did not have the benefit of the *Park County II* decision when it dismissed the present application. *See Id.* at 697-98.

C. Applicant Presented its Case-in-Chief during an 8-Week Trial.

During the course of an 8 week trial, six expert witnesses and two lay witnesses presented substantial evidence on behalf of the Applicant and in support of the Project. The following is a very abbreviated review of that evidence.

1. Evidence of Intent and the Lack of Any Speculative Motive Was Clear.

Mr. Kemper, the Water Resources Manager for Aurora, testified regarding Aurora's need for Project water, its long-term water supply planning, and how Aurora had already spent \$4 million in pursuit of the Project. (7/12 am, pp.22-24, 26-27). In this regard, one of the benefits of the underground storage component is that Aurora loses up to 12,000 acre-feet a year of its

water supply to surface evaporation alone. (7/12 am, p.24, l.6-10). Mr. Griswold, then Aurora's Director of Utilities, also testified that Aurora intends to complete the Project, needs the Project for its water supply, and has already budgeted for the Project. (7/14, pp. 11-18). By agreement with PCSR's predecessor, PCSR is required to act as Aurora's agent in completing the Project. (Exh. A-4, p.2, App'x C). Evidence of PCSR's intent to fulfill its contractual obligation (7/12 am, p.67, l.19-24), and the steps taken in pursuit of that intent (see 8/24 p.94, l.21-p.102, l.20), are clear throughout the record. As this Court held in *Park County II*, 45 P.3d at 699-700, n.6, some Project facilities for recharging the aquifers have already been constructed.

2. Evidence on Water Availability.

Ross Bethel, a water resources expert with 25 years experience, (7/12 pm, pp.7-13) devoted in excess of 2,000 hours studying the surface water available for the Project. (7/12 pm, p.5, l.3-21). Since the gauge records for the Project's source streams were sparse, Mr. Bethel relied upon an adjacent drainage (North Fork South Platte) that is similar to the Project streams, but with continuous USGS gauge records since 1943. (7/12 pm, p.29). By comparing those records with Tarryall Creek, a Project stream with 8-9 years of USGS gauge data, a mathematical relationship was derived that explained 93% of the observed variance between the streams' flow data and that relationship, in turn, was used to predict flows in Tarryall Creek for other years. (7/12 pm, p.32, l.14-p.33, l.8; p.41, l.3-p.45, l.23; pp. 58-63; see Exh. A-500, App'x D).

Flows in Tarryall Creek were then used to predict flows in 6 other drainages that were claimed as surface water sources for the Project. (Id.). As historical gauge records were even less complete in these other streams, Mr. Bethel estimated their flows by comparing the size, average precipitation and runoff of each basin to the Tarryall Creek basin. (See, e.g. 7/13 p.18, l.18-p.29, l.8; p.85; 7/12 pm, p.110, l.22-p.117, l.24). Mr. Bethel then applied a widely used and

accepted computer model that he personally developed in the early 1980s (RIBSIM) to determine how much of the water in the Project streams would likely be legally available in priority. (Exh. A-600, § III.1, App'x E).

To assist in the modeling, Mr. Bethel studied irrigated lands (diversions, water consumption, irrigation efficiency and return flows), lands taken out of irrigation, natural consumptive use satisfied by sub-irrigation by groundwater, the effect of 66 different changed water rights, the existence of in-stream flow water rights, and numerous other variables in the Project area. (See, e.g. 7/13 pp.111-122, 130, 147; Exh. A-600). After that information was input to the model, RIBSIM allocated the available water to water rights in the basin based upon seniority and availability, and determined the average amount available for the Project. (7/13 p.133, 1.10-p.136, 1.14; Exh. A-600 ¶ III.1). Mr. Bethel performed annual and even daily modeling of water availability for a 47 year period (1950-1996). (7/13 p.123, 1.7-p.124, 1.4).

3. Geologic Setting and Project Feasibility

The geology of the Project site, aquifer characteristics, the ability to pump and recharge the aquifers, and the overall feasibility of the Project were all topics subject to considerable testimony by four experts. Dr. Harvey Eastman and Mr. Jehn testified on their work performed on behalf of PCSR, and Messrs. Hesemann and Ault at Rocky Mountain Consultants (RMC) testified to their independent review of the Project for Aurora.

i. Testimony of Dr. Eastman and Mr. Jehn Demonstrating Project Feasibility.

Dr. Eastman gathered and reviewed extensive information regarding the geology and hydrology of the basin and the Project site, including previous geologic studies, drilling cores, well log data, seismic data, geologic maps, aerial photography, laboratory analyses of cores, pump test and infiltration test data, and his own extensive personal field investigations of the

geology and aquifers, combined with the studies of others.¹ (See, e.g. 7/19 Eastman, p.95, 1.4-p.106, 1.25). Dr. Eastman concluded that the South Park basin contains a lower and upper aquifer separated by a low permeability formation, (7/24 p.57, 1.21-p.58, 1.20; p.132, 1.8-12), and the basin is confined by impermeable geologic formations that help control water for purposes of a conjunctive use project, essentially creating a bathtub effect. (See Exh. A-1203.2 and A-1522, depicting a hydrogeologic cross-section, App'x F; Exh. A-846; 2/20 p.116, 1.11-21).

Dr. Eastman's investigations also helped determine aquifer and geology characteristics² relevant to the movement of groundwater, which helped demonstrate the ability to create and maintain a cone of depression, store water in the cone, recharge the aquifers through surface facilities, and the impact of the cone on stream depletions. (Exh.A-800, pp.54-58, App'x G). Once determined, Dr. Eastman input and calibrated these factors into a widely used and accepted groundwater flow computer program ("MODFLOW") (Id.; see also 7/26 am, p.61, 1.20-p.68, 1.9; 7/26 pm, p.9, 1.16-p.28, 1.6), which was used as a baseline model to predict the general effects of the Project on the overall hydrologic regime of the South Park Basin (Exh. A-800, p.1).

On the details of MODFLOW, a grid of 7,776 cells (each 1000 feet by 1000 feet) in each of five layers was used in MODFLOW to predict the movement of ground water between the cells in the area of the Project under various conditions. (Exh. A-800, pp.43, 49; see generally 7/26 am, pp.43-72; 7/27 p.60, 1.3-9). MODFLOW incorporated the water availability work done by Mr. Bethel (8/3 p.23, 1.15-p.31, 1.24), and analyzed a mass balance of all the sources of inflow

¹Dr. Eastman has a Ph.D. in geology from Stanford University and a degree in hydrogeology from the Colorado School of Mines. (Exh. A-104).

²Including hydraulic conductivity, specific yield, storativity, drainable yield, thickness, transmissivity and conductance factors. (7/24 p.113, 1.23-p.125, 1.11).

and outflow of water in the groundwater system, (Exh. A-800, pp. 59-68; 7/28 p.8, 1.8-p.16, 1.22; 8/1 p.36, 1.17-p.37, 1.9; 8/4 p.71, 1.12-p.76, 1.9). Data on Aurora's expected use patterns were also used to model a 94-year simulation of how SPCUP might be operated in the future, given one possible pumping scenario, and how the cone of depression and recharge would respond in that scenario. (Exh. A-700, pp.1-8, 29-30; see 8/7 p.52, 1.8-22; 2/20 p.107, 1.17-p.114, 1.20).

MODFLOW was helpful in designing the Project by demonstrating efficient methods of recharge, reasonable pumping scenarios, reasonable recharge facility design, and potential stream depletions. (8/10 p.36, 1.21-p.37, 1.24). For these purposes, MODFLOW was successful as a predictive tool to a reasonable degree of scientific certainty. (Id.; App'x B to Exh.A-700, B-1).

Mr. Jehn is also an expert in groundwater modeling (8/23 p.56, 1.22-p.57, 1.2), and a partner in PCSR. (8/23 p.36, 1.20-23). He testified in detail regarding the percolation tests, well pump tests, piezometer studies and measurement of aquifer characteristics that he performed (see generally 8/23 pp.89-107, 113; 8/24 pp. 11-14), and his review of relevant information (see 8/23 pp. 57-85, 108, 121-28, 131-39, 151-153). Mr. Jehn spent approximately 4,500 - 5,000 hours without duplicating the work of Dr. Eastman. (8/23 p.119, 1.3-12). Mr. Jehn oversaw portions of the groundwater modeling, provided critical comments on MODFLOW, helped validate the model for PCSR and prepared portions of the reports. (See, e.g. 8/24 p.15, 1.8-p.22, 1.12).

Mr. Jehn testified that the recharge water would be possessed and controlled in the underground reservoir where it is effectively captured by the hydraulic gradients that make up the cone of depression, and confined by the impermeable geologic formations surrounding the site. (8/28 p.50, 1.1-p.54, 1.2; p.55, 1.15-p.58, 1.10). Mr. Jehn also testified that the size and location of the cone of depression could be controlled by well pumping, by redistributing the groundwater using wells, and by the recharge facilities used. (8/24 p.65, 1.17-p.75, 1.13; p.83,

1.5-p.85, 1.22). Since pumping from the lower aquifer has less effect on the stream alluvium than the upper aquifer (8/24 p.24, 1.18-25), Project flexibility is further enhanced by using wells to move water between the upper and lower aquifers. (8/24, p.85, 1.3-22).

ii. Aurora's Verification of Project Feasibility by Messrs. Hesemann and Ault.

Aurora hired Mr. Hesemann and Mr. Ault of RMC to conduct an independent review of the work done by Dr. Eastman and Mr. Jehn before entering into an agreement with PCSR. (7/14 p.27, 1.10-p.28, 1.13; 8/28 p.173, 1.21-p.174, 1.5; 2/20, p.93, 1.12-p.95, 1.3).

Mr. Hesemann conducted independent field visits, and constructed and operated test holes, test pits and piezometers to study and verify the geology and aquifer characteristics. (8/29 p.12, 1.4-p.19, 1.5; p.25, 1.19-p.27, 1.1). He also completed water quality analyses (8/29 pp.86-111), geochemical modeling to determine the suitability of the aquifer for recharge (8/29 p.111, 1.22-p.117, 1.20), and age-dating of the aquifer water (2/20 p.10, 1.6-p.12, 1.11). Based upon his studies, Mr. Hesemann concluded that the confining geologic formations and fault structures had very low permeability (less permeable than a liner for a solid waste fill). (8/29 p.85, 1.11-p.86, 1.18). He further concluded the Project site was an excellent place for a conjunctive use project (8/29 p.17, 1.6-24), and the Project would control water by holding it deep in the aquifer where it would stay until removed by pumping. (2/20 p.36, 1.13-p.38, 1.12).

Mr. Hesemann further testified that he performed a peer review of Dr. Eastman's model, including independent runs of MODFLOW, and testified at length on how he agreed with Dr. Eastman's modeling. (See, e.g. 2/20 pp.15-35, 47-48). Mr. Hesemann concluded that the design of MODFLOW, the aquifer parameters used in MODFLOW, and its predictions were all reasonable and representative of basin hydrology. (Id.). Mr. Hesemann also testified that

MODFLOW complied with technical (ASTM) guidelines (2/20 p.79, 1.17-23), but that the model was not necessary to demonstrate the feasibility of the Project. (2/20 p.15, 1.1-10; pp. 47-48).

Mr. Ault examined Aurora's need for the water, the surface water availability, expected Project yield, and the computer models. (2/20 p.93, 1.12 - p.95, 1.5, p.131, 1.3-8). Mr. Ault confirmed that the groundwater would clearly be possessed and controlled by the Project, as even the Court acknowledged during his testimony. (2/22 p.334, 1.12-p.335, 1.18). Mr. Ault's opinions included that the Project was economically feasible (2/21 p.266, 1.13-p.268, 1.25); technically feasible (with or without MODFLOW) (2/21 p.272, 1.4-p.273, 1.11); that "the project can pay back the stream depletions" in time, amount, and location (2/22 p.332, 1.22-p.333, 1.5); and that the proposed decree would protect water rights from injury. (2/22, p.335, 1.19-23).

4. Proposed Conditions to Prevent Injury.

PCSR proposed a monitoring plan to measure the timing and location of Project depletions and to use those measurements to continually refine and calibrate MODFLOW with observed water level data. (Exh. A-700, pp.64-67, 71). Applicant proposed a decree, filed in February, 1999 (App'x H), that contained the monitoring plan in Decree Exhibit Z ("Original Exhibit Z"). In an effort to address Objectors' concerns, the proposed decree subsequently tendered to the Water Court before trial (Exh. A-1609, App'x I) included a more detailed monitoring plan to measure depletions as a protective term and condition ("New Exhibit Z"). (See generally 2/22 p.422, 1.11-20; 2/20 p.58, 1.17-p.59, 1.10; p.69, 1.18-p.70, 1.23).

Testimony on how the details in New Exhibit Z would prevent injury was precluded by a pre-trial Order of the Water Court. (See infra § V.C.2; see also 2/20 pp.65-69; 2/22 pp.432-441). Over numerous objections, a limited factual description of New Exhibit Z was allowed, demonstrating that the revised plan in New Exhibit Z would increase the number of monitoring

wells to 74, (2/20 p.65, 1.7-16) and included a very gradual phase-in of the Project with monitoring at every stage, and retained jurisdiction that would last at least 40 years. (2/21 p.312, 1.14-p.315, 1.11). New Exhibit Z also contemplates piezometers and numerous permanent and portable gaging stations. (See Exh. A-1609; see generally, 2/22 pp.371-381).

Testimony was allowed on the Original Exhibit Z. That testimony demonstrated that gauges upstream and downstream of the Project could monitor net gains and losses to the three streams impacted by the Project. (See 2/21 p.304, 1.8-p.312, 1.8; 2/22, p.332, 1.5-p.333, 1.11; pp.363-382, 418-427; 2/20 pp.55-62). Testimony also established how monitoring wells and piezometers could measure the extent of the cone of depression, and that information used to calculate stream depletions induced into the cone using common mathematical equations. (Id.; see also 2/20 p.75, 1.22-p.78, 1.15). Actual measurements of depletions were always proposed as a preferred alternative to just modeling depletions because measurements are considered more accurate. (2/22 p.370, 1.1-24). Testimony further demonstrated that other water right decrees have similarly relied upon gages to measure stream depletions caused by groundwater pumping in the manner proposed by PCSR. (2/22 pp. 382-414).

Although the Original Exhibit Z lacks many aspects of the New Exhibit Z, the experts testified that even the original proposal was adequate to monitor Project impacts and return the depletions to the stream, (2/22 p.333, 1.4), and that such an approach would prevent injury to other water rights (2/22 p.430, 1.10-p.432, 1.15; p.440, 1.23-p.441, 1.15; 2/20 p.55, 1.17-23).

D. Water Court's Orders Dismissing Application.

After the testimony of eight witnesses all on behalf of the application and in support of the Project, the Water Court dismissed the application pursuant to Rule 41(b)(1), C.R.C.P. by Order dated June 1, 2001 (the "Order," App'x J). PCSR sought reconsideration of the Order and

Opposers sought attorney fees and the joinder of Aurora as a party for purposes of fees. The Water Court addressed all post-trial motions in its November 13, 2001 Order Concerning Post-Trial Motions (the “Post-trial Order,” App’x K), in which the Court denied PCSR’s motion and granted the Opposers’ motions for fees and the joinder of Aurora for fees.

IV. SUMMARY OF ARGUMENT

The Water Court repeatedly applied the wrong legal standards and assumptions. Contrary to the express holding in *Park County I*, the Court assumed any well pumping was injurious and required 100% augmentation. Starting with that false premise, the Court based its dismissal solely upon its review of the augmentation plan, without even addressing the elements of the claimed water rights. The Court rejected the *prima facie* standard historically applied to augmentation plans and compounded that error by applying the wrong substantive law for such plans and wrongly excluding evidence on proposed terms and conditions to prevent injury. The Court further held that, as a matter of law, monitoring was not a proper way to measure depletions, despite its previous approval of similar plans. The Water Court’s additional legal holdings that storage cannot occur in a cone of depression; and water inadvertently captured in such storage cannot be returned to replace depletions, renders any conjunctive use project infeasible. Finally, the Water Court ignored the law regarding the credit that is allowed for reduced evapo-transpiration associated with tributary storage facilities and well pumping.

After applying the wrong legal standards, the Water Court held the computer modeling lacked adequate reliability to demonstrate depletions and the availability of water for 100% augmentation. The reasons stated by the Court for its holding, however, are wholly unsupported by the record; are based upon its erroneous interpretation of technical modeling guidelines; and required it to ignore uncontradicted testimony by the experts whom it had qualified on the topic.

Further, the computer models were not necessary to prove the elements of the claimed water rights. Finally, the Court excluded some of the very evidence in support of the models that it found lacking.

V. ARGUMENT

The Water Court's dismissal of the application is expressed largely in terms of its findings regarding the Applicant's computer models for the augmentation plan. First, however, the Court's application of incorrect legal standards and improper assumptions must be examined.

A. Standard of Appellate Review.

This Court reviews legal issues determined by the Water Court *de novo*, without deferring to the Water Court's decisions on those matters. *City of Thornton v. Bijou Irrig. Co.*, 926 P.2d 1, 40 (Colo. 1996). Factual determinations by the trial court, on the other hand, are reversed if "clearly erroneous and not supported by the record." *Arapahoe County Bd. of Equalization v. Podoll*, 935 P.2d 14, 18 (Colo. 1997); *see also Bijou*, 926 P.2d at 40. On appeal, the inquiry with respect to findings of fact is "whether there was sufficient evidence in the record to sustain the trial court's findings." *Linley v. Hanson*, 477 P.2d 453, 454 (Colo. 1970). The deference ordinarily attributed to factual findings, however, does not apply when the trial court applies the wrong legal standard. *NAACP v. Duval County School*, 273 F.3d 960, 965 (11th Cir. 2001); *In the Interest of J.R.T.*, 55 P.3d 217, 219 (Colo.App. 2002), *aff'd on other grounds*, *People v. Martinez*, 70 P.3d 474 (Colo. 2003).

B. The Water Court Erred as a Matter of Law in Requiring 100% Replacement of Out-of-Priority Withdrawals.

Turning to the augmentation plan that was the exclusive focus of the Water Court in its dismissal, the Court clearly erred in presuming 100% augmentation was required. Specifically, the Order is premised on the Water Court's legal conclusion that all "out-of-priority pumping is

presumed to be injurious.” (Order, p.6) (emphasis added). As a result, the Court concluded the entire “140,000 AF [that] will be withdrawn [to create the underground storage facility] . . . must be replaced.” (*Id.*). Thus, PCSR was required to replace by augmentation every drop it proposed to divert.³ This critical ruling contradicts the express holding by this Court in *Park County I*.

In *Park County I*, this Court did “not agree with the water court’s determination that . . . PCSR must replace 100% of its out-of-priority withdrawals.” *Park County I*, 986 P.2d at 275 (citing *Cache La Poudre Water Users Ass’n v. Glacier View Meadows*, 550 P.2d 288 (Colo. 1976)). This Court reasoned that only depletions that result in injury must be replaced. *Id.* Accordingly, this Court held “[w]e thus reverse the water court with respect to its determination that PCSR must augment 100% of its out-of-priority withdrawals.” *Id.* (emphasis added). See also *City of Grand Junction v. Kannah Creek Ass’n*, 557 P.2d 1169, 1172 (Colo. 1976) (injury is not merely inferred).

The Water Court ignored this Court’s earlier ruling and applied the wrong law by requiring PCSR to augment all out-of-priority withdrawals. (Order, p.6, 14). This error, in turn, led to other legal errors apparent in the dismissal, including a prejudiced review of the augmentation plan and ultimate conclusion that more than 100% replacement of withdrawals was required, (*infra* § V.D.3); finding underground storage in a cone of depression unlawful (*infra* § V.D.1); and dismissing the claimed water rights without reaching their merits (*infra* § V.E).

C. The Water Court Applied Improper Law in Dismissing the Plan for Augmentation.

The Water Court’s review of the augmentation plan and resulting dismissal of the application was further in error because the Court applied the wrong legal standards for

³The Court likewise held in a bench ruling at the trial management conference that PCSR must “replace drop per drop for every out-of-priority diversion.” (6/13/00 p.43, 1.19-23).

dismissal, for Applicant's burden of proof, and for augmentation plans in general. These errors were then compounded by the fact the Court precluded evidence on the very protective terms and conditions it found lacking.

1. The Water Court Applied the Wrong Standard for Dismissal.

The Water Court applied the wrong legal standard for dismissal under Rule 41(b)(1). In dismissing the application, the Water Court held that the standard for Rule 41(b)(1) "is not whether the plaintiff established a prima facie case, but whether judgment in favor of defendant is justified on the evidence presented." (Order p.1) (citing *Teodonno v. Bachman*, 404 P.2d 284, 285 (Colo. 1965)). Although the *Teodonno* standard cited by the Court is applicable to conditional water rights, **it is not applicable to augmentation plans.**

The applicability of *Teodonno* to applications for changes of water rights and plans for augmentation was expressly rejected by this Court in *Public Service Co. of Colorado v. Board of Water Works of Pueblo*, 831 P.2d 470, 479-80 (1992). Instead, the standard of review under Rule 41(b)(1) is that "once an applicant has made a *prima facie* showing that no injury will result . . . the burden of going forward with evidence of potential injury shifts to the objectors." *Id.* at 479 (quoting *Wagner v. Allen* 688 P.2d 1102, 1108 (Colo. 1984)).⁴ Thus, contrary to the Water Court's ruling, PCSR was only required to meet a *prima facie* case to survive dismissal on its augmentation plan.

The Water Court was advised by post-trial motion that it incorrectly applied the *Teodonno* standard to the augmentation plan in its Order. In response, the Court first restated its

⁴ Applications that include a plan for augmentation are evaluated by the water court based upon the same no-injury analysis as is used in evaluating an application for a change in water right. *Simpson v. Yale Investments, Inc.*, 886 P.2d 689, 696 (Colo. 1984).

rejection of the *prima facie* standard (Post-Trial Order, p.1), but then acknowledged it (Post-Trial Order, p.6). However, even in acknowledging the *prima facie* standard, the Court still held that Applicant must satisfy in its case-in-chief, a “burden of proof, by a preponderance of the evidence.” (Post-Trial Order, p.6). Therefore, even if the Water Court ultimately applied the *prima facie* standard, it did so incorrectly.

The burden of satisfying a *prima facie* standard in the water rights context was succinctly stated by this Court as follows:

[W]here the evidence presented by petitioners at least creates a doubt concerning (a) the existence of injury and (b) whether compensatory conditions can be imposed once the evidence is fully developed, we hold that it is error for the trial court to simply dismiss the petition at the close of petitioner’s case.

Mannon v. Farmer’s Highline Canal and Res. Co., 360 P.2d 417, 423 (Colo. 1961). *Mannon* sets forth the level of proof required to meet applicant’s *prima facie* case (evidence sufficient to create a doubt) and the required substance of that showing (no injury or the possibility of terms and conditions to prevent injury). The Water Court erred in both accounts.

i. The Water Court Misconstrued the Standard of Proof to Meet a *Prima Facie* Standard and the Reason for Such a Standard.

The rationale for applying a *prima facie* standard to augmentation plans is consistent with long-standing Colorado water law. Section 37-92-305(3) provides:

A change of water right or plan for augmentation, including a water exchange project, **shall be approved if such change or plan will not injuriously affect the owner of or persons entitled to use water under a vested water right or a decreed conditional water right.**

C.R.S. § 37-92-305(3) (2002) (emphasis added). Even where a proposed augmentation plan will have an injurious effect, C.R.S. § 37-92-305(3) further mandates that:

[T]he referee or the water judge, as the case may be, shall afford the applicant or any person opposed to the application an opportunity to propose terms or conditions which would prevent such injurious effect.

Under this standard, even a finding of injury is insufficient grounds to dismiss a case under C.R.C.P. 41(b)(1). Instead, the water court must first find that it is “**impossible** to impose reasonable conditions” to prevent injury, before it may dismiss the application. *Farmer’s Highline Canal and Res. Co. v. City of Golden*, 272 P.2d 629, 635 (Colo. 1954) (emphasis added); *see also Mannon*, 360 P.2d at 423 (same); *Means v. Pratt*, 331 P.2d 805, 808 (Colo. 1958) (same). Moreover, “[i]t is the water court’s **duty** to . . . aid the parties in crafting decree conditions to prevent such injury.” *Farmers High Line Canal and Res. Co. v. City of Golden*, 975 P.2d 189, 197 (Colo. 1999) (emphasis added); *see also Mannon*, 360 P.2d at 423 (requiring the court to play an active role).

Section 37-92-305(3) “anticipates the active participation of the objectors” in determining the type and extent of any injury they might suffer. *Public Service*, 831 P.2d at 480. Thus, “once an applicant has made a *prima facie* showing that no injury will result . . . the burden of going forward with evidence of potential injury shifts to the objectors.” *Id.* at 479 (*quoting Wagner*, 688 P.2d at 1108, and *citing* other cases). Stated another way, “[t]he burden of proof on petitioner . . . requires him to meet only the grounds of injury to protestants asserted by them.” *Colorado Springs v. Yust*, 249 P.2d 151, 155 (Colo. 1952). Thus, as set forth in *Mannon*, if the applicant presents evidence that “at least creates a doubt” regarding injury, the *prima facie* case is satisfied and it becomes objectors’ burden to prove any injury that must be addressed through protective terms and conditions fashioned by the Court and the parties.⁵

⁵It is only after objectors have met their burden, that it becomes the “ultimate burden” of the applicant to avoid injury. *Farmers Reservoir and Irrigation Co. v. Consolidated Mutual*

Finally, in determining whether a *prima facie* case has been met, courts are required to “consider all the facts in the light most favorable to the nonmoving party” and may only dismiss the case if the “minds of reasonable men could not be in disagreement.” *Rocky Mountain Hospital and Medical Service v. Mariani*, 916 P.2d 519, 527 (Colo. 1996); *Romero v. Denver and Rio Grande Western Ry Co.*, 514 P.2d 626, 628-29 (Colo. 1973) (same);⁶ *see also Teodonno*, 404 P.2d at 285 (explaining the difference between the *Teodonno* and *prima facie* standards).

In this instance, the Water Court did not consider the facts in a light most favorable to the Applicant. To the contrary, it expressly ruled that it could ignore uncontradicted evidence presented in support of the *prima facie* case. (Post-Trial Order, p.6). The Water Court based that holding on *Teodonno* and its progeny, notwithstanding the fact that *Teodonno* was expressly inapplicable to a *prima facie* case. *Teodonno*, 404 P.2d at 285. Moreover, the evidence ignored by the Court was testimony by leading experts in hydrology and geology who had spent thousands of hours studying the technical issues. Indeed, the fact the experts were qualified and allowed to offer opinion testimony under C.R.E. Rule 702, demonstrates a threshold “reliable and relevant” standard was satisfied. *People v. Shreck*, 22 P.3d 68, 77-78 (Colo. 2001).

In summary, even if one assumes the Water Court applied a *prima facie* standard in its Post-Trial Order, it did so incorrectly. The standard for applicant’s case-in-chief is clearly not a “burden of proof, by a preponderance of the evidence.” (Post-Trial Order, p.6). Moreover, there

Water Co., 33 P.3d 799, 811-12 (Colo. 2001).

⁶*Mariani* and *Romero* are cases involving motions for directed verdict in a jury trial which raises the question of whether a *prima facie* case was established. *Mariani*, 916 P.2d at 526-27; *Romero*, 514 P.2d at 628-29 (same). The standards and inferences for any *prima facie* case should be universal and typically requires, by definition, only that evidence be offered that, until contradicted, would prevail. *See BLACK’S LAW DICTIONARY* (5th Ed.1979).

was no finding that protective conditions were impossible to fashion in this instance; the Water Court did not engage in its duty to help fashion such conditions (and precluded such evidence, infra § V.C.2); and did not consider the evidence in a light most favorable to the Applicant.

ii. The Water Court also Required the Wrong Elements of Proof for PCSR's Prima Facie Case.

Not only did the Water Court err in the burden of proof it required for a *prima facie* case, it erred in the substantive law it applied as well. As held in *Mannon*, a *prima facie* case requires some evidence of no injury or feasibility of protective conditions to proceed beyond the case-in-chief. *Mannon*, 360 P.2d at 423. This burden was clearly met by the Applicant. However, the Water Court imposed an entirely new *prima facie* standard requiring the Applicant to meet a burden of proof regarding the timing and location of depletions in its case-in-chief, and then used that as a legal basis to exclude evidence on Applicant's proposed monitoring plan (that would measure timing and location of depletions) and other protective terms and conditions.

In developing terms and conditions to prevent injury, the General Assembly provided the following guidance to Water Courts:

[I]n considering terms and conditions that may be necessary to avoid injury, the referee or the water judge shall consider the depletions from an applicant's use or proposed use of water, in quantity and in time, the amount and timing of augmentation water that would be provided by the applicant, and the existence, if any, of injury to any owner of or person entitled to use water under a vested water right or decreed conditional water right.

C.R.S. § 37-92-305(8).

Under § 37-92-305(8), the timing and location of depletions must be considered by the Court in developing terms and conditions. That does not necessarily turn these judicial considerations into Applicant's burden of proof as part of its *prima facie* case. The Water Court

ruled, however, that proof of these matters is “a prerequisite to any determination of injury” and a required component of “a *prima facie* showing of no injury.” (Post-Trial Order, p.4; see also Id. at 2, 4-6). Having found that Applicant did not prove such facts in its case-in-chief “by a preponderance of the evidence” the court held on that “basis alone, PCSR has not met its burden.” (Order, p.7). The Water Court erred by replacing the traditional *prima facie* injury standard with a formalistic application of the considerations in C.R.S. § 37-92-305(8).

The Water Court then used its reasoning to reject the very evidence offered by PCSR regarding protective terms and conditions. Specifically, PCSR proposed as a protective term and condition a detailed monitoring plan to measure the timing and location of depletions for replacement purposes. In response, the Water Court rejected such evidence on purely legal grounds:

PCSR’s alternative plan, to establish depletions and recharge in quantity and time by way of a monitoring program, is prospective, incapable of predicting depletions until after they have occurred, and cannot satisfy PCSR’s burden of proof at trial.

(Post-Trial Order, pp. 1-2). In essence, the Water Court put the cart before the horse. By assuming a threshold burden of proof that is not required by law, the Water Court then ignored the very evidence that is required to satisfy a *prima facie* case and that it is required to consider.

The Court’s ruling is especially erroneous in this instance, where any depletions are caused by leakage from streams into the cone of depression and such leakage can either be measured or modeled. PCSR did both. PCSR presented testimony on the computer model that estimated and predicted the timing of Project depletions.⁷ At the same time, PCSR always

⁷Applications for augmentation plans often “estimate” timing and quantity of diversions and resulting depletions to demonstrate the plan will prevent injury. *See* JAMES CORBRIDGE AND TERESA RICE, VRANESH’S COLORADO WATER LAW, Rev. Ed., pp. 156-162 (1999). The record

proposed measuring those depletions to administer the Project and ensure no injury. (Supra § III.C.4). Measuring depletions is clearly the more precise of the two methods because a model only attempts to represent the real world for purposes of prediction – while monitoring measures the real world. (2/22 p.370, 1.1-24). That is why PCSR proposed that monitoring control. (Id.).

The Water Court’s holding that the proposed plan to measure depletions was improper was solely because it was “prospective” in nature, not because it found the plan factually unworkable. By dismissing the application on these grounds, the Water Court required computer modeling over monitoring as a matter of law. That holding is contrary to the fact that modeling is typically not required for Water Court applications, and to the limitations this Court has duly noted regarding modeling. *See Board of County Comm’rs. of Arapahoe v. United States*, 891 P.2d 952, 968-69, n.20, 21 (Colo. 1995). Moreover, the Water Court’s ruling: (1) denied PCSR the ability to address specific questions of injury with terms and conditions per § 37-92-305(3); (2) improperly shifted the burden of proving no injury to Applicant in its case-in-chief (supra § V.C.1.i); (3) ignored the fact that preventing injury is the real “touchstone” of any augmentation plan, *Danielson v. Castle Meadows Inc.*, 791 P.2d 1106, 1114-15 (Colo. 1990); and (4) is inconsistent with the fact this same Water Court previously approved similar monitoring plans to measure well pumping depletions for replacement purposes. (2/22 pp.382-414).

Finally, the Water Court’s misapplication of § 37-92-305(8) caused it to ignore the remainder of that statutory provision that provides as follows:

A proposed plan for augmentation that relies upon a supply of augmentation water which . . . is limited in duration shall not be

clearly shows MODFLOW served its function of making such estimates to a reasonable degree of scientific certainty, (see infra § V.G.1), but the Water Court’s dismissal clearly indicates it believes estimates of depletions to be inadequate.

denied solely upon the ground that the supply of augmentation water is limited in duration, so long as the terms and conditions of the plan prevent injury to vested water rights.

2. **The Water Court Further Erred by Precluding Evidence Offered by Applicant on Protective Terms and Conditions.**

Not only did the Water Court find that measuring depletions was inadequate as a matter of law, it excluded Applicant's proposed testimony on that and other protective conditions solely because it found the conditions were not timely disclosed. Although this would be reversible error in any context given the law cited above, it is especially true when the conditions were part of the proposed decree timely tendered to the Water Court.

The General Assembly requires proposed terms and conditions for augmentation plans to be tendered to the Court as part of a proposed final decree:

the applicant shall provide to the referee or to the water judge, as the case may be, a proposed ruling or decree to prevent such injurious effect in advance of any hearing on the merits of the application. . . . If it is determined that the proposed . . . ruling or decree would cause such injurious effect, the referee or **the water judge . . . shall afford the applicant . . . an opportunity to propose terms and conditions which would prevent such injurious effect."**

C.R.S. § 37-92-305(3) (emphasis added). Thus, a decree must be tendered before trial with proposed conditions to prevent injury, and if it is deemed inadequate, the applicant is still afforded an opportunity to propose new terms and conditions. Under the Uniform Local Rules for all State Water Court Divisions, that proposed decree must be filed with the Water Court and served upon the parties at least 15 days prior to trial. Water Court Rule 2(f).

In this case, Applicant timely filed its proposed decree under Rule 2(f) with protective terms and conditions set forth in New Exhibit Z. Even the Water Court acknowledges the timeliness of the tendered decree. (10/31/00 Order, p.2, App'x L). Moreover, the contents of

New Exhibit Z were disclosed in expert reports submitted by May 1, 2000, (see 2/14/01 Order, p.3, App'x M), more than 2 months prior to trial and 6 weeks before the Rule 2(f) deadline. New Exhibit Z contained detailed provisions to prevent injury, including extensive monitoring and a long-term gradual phase-in of the Project. (Exh. A-1609).

In its Orders dated October 31, 2000 and February 14, 2001, the Water Court held that Applicant's experts could not testify about the protective nature of the terms and conditions in New Exhibit Z. The Court's reasoning was that the terms and conditions were not disclosed as part of the much earlier expert disclosures required under C.R.C.P. 26(a)(2). (10/31/00 Order, p.2; 2/14/01 Order, p.3). Although the Court recited the general law requiring an Applicant be given the opportunity to propose terms and conditions to prevent injury, it proceeded to rule that the conditions in the proposed decree are nothing more than rebuttal. (2/14/01 Order, pp.3-4). The Court then explained that Objectors could strategically limit their case so as not to open the door on protective conditions, thereby preventing any rebuttal case on such conditions. (Id. at 4).

The Court's ruling reflects a misunderstanding of the law. First, if objectors elected not to put on any evidence of injury, they could not meet their burden of proving injury. (See supra § V.C.1). Second, if objectors are not claiming any injury under the augmentation plan, then the plan must be adequate and there is no need for additional protective conditions. Third, the Court precluded the very evidence of protective conditions that would more than satisfy Applicant's *prima facie* case. It did so notwithstanding the fact the conditions were in the tendered decree and the Court had already approved such a decree as part of stipulations. (See Stipulations dated May 8, 2000 and July 7, 2000, and approved by Orders dated September 5, 2000). Finally, since § 37-92-305(3) expressly allows evidence on terms and conditions even if those in the proposed

decree are deemed inadequate, then at a minimum, PCSR was entitled to present evidence on the conditions in its proposed decree.⁸

In short, a court cannot find that it is “impossible to impose reasonable conditions,” as it must in order to dismiss a case, *Farmer’s Highline Canal*, 272 P.2d at 635, yet preclude evidence on the terms and conditions proposed by the applicant. PCSR was placed in an impossible position in this case. It worked with Objectors to develop protective terms and conditions and complied with the law by offering its proposed decree with those conditions before the deadline. Applicant was then precluded from offering testimony regarding the effect of those terms and conditions unless offered in the form of later rebuttal. The application was then dismissed before getting to any rebuttal, in part, for allegedly failing to demonstrate how water rights would be protected from injury.

Finally, the Court’s Order is also premised upon a factual mistake. The Court states that “[o]n the eve of trial, PCSR for the first time proposed an extensive on-the-ground monitoring program to prevent injury” and this “represents a new theory of injury prevention.” (2/14/02 Order at 4). To the contrary, a 1998 expert report devoted a chapter to the monitoring plan, citing it as a “key aspect” of the Project. (Exh. A-700, pp.64-67). That report specifically states how the monitoring can help measure “Project effects,” and “[p]rovide information on water levels and stream flows occurring during operation of SPCUP,” but that monitoring will be further developed in working with Objectors. (*Id.*). Aspects of the monitoring plan were then

⁸The Court’s ruling also ignores its duty to help fashion protective conditions, *see, Farmers High Line*, 975 P.2d at 197, and contradicts the requirement to maximize scarce water resources by making every effort to make augmentation plans work if feasible to do so. *See, e.g. Kelly Ranch v. Southeastern Colorado Water Cons. Dist.*, 550 P.2d 297, 303-08 (Colo. 1976); *Mannon*, 360 P.2d at 423; C.R.S. §§ 37-92-102(2)(b), 305(3).

included in Original Exhibit Z, attached to the initial proposed decree filed with the Court in February, 1999, 1 ½ years before trial. (App'x H; see supra § III.C.4). The Court then allowed limited testimony on the monitoring plan in Original Exhibit Z. (See supra § III.C.4). New Exhibit Z was simply a modified and more detailed version of the monitoring plan proposed all along and was developed in response to the position taken by Objectors prior to trial. (Id.).

3. **The Water Court Further Misapplied the Proper Legal Standards by Ignoring the Purpose of Retained Jurisdiction to Address Uncertainties.**

Dismissal of a proposed plan for augmentation based upon concerns regarding injury is often unwarranted because of retained jurisdiction. Water Courts are required to retain jurisdiction over augmentation plans “as is necessary or desirable to preclude or remedy any . . . injury.” C.R.S. § 37-92-304(6). This provision “is a recognition by the General Assembly that *predictions of future injury* caused by plans for augmentation . . . involve an inherent amount of uncertainty.” *Consolidated Mutual*, 33 P.3d at 811 (*quoting City of Florence v. Board of Waterworks of Pueblo*, 793 P.2d 148, 152 (Colo. 1990) (Erickson, J., concurring) (emphasis in original)). Retained jurisdiction is intended “to address injurious effects that result from placing the . . . augmentation plan into operation.” *Consolidated Mutual*, 33 P.3d at 812.

Thus, the remedy for uncertainty regarding injury that may arise from operating a plan is retained jurisdiction, not dismissal. This Court has “repeatedly held that uncertainties are not fatal to a plan for augmentation.” *Simpson*, 886 P.2d at 699; *see also Public Service Co. v. Willows Water District*, 856 P.2d 829, 835 (Colo. 1993). The reason is that uncertainty is “[i]nherent in the hydrological and geological analysis” upon which augmentation plans are founded, and “no greater than that inherent in the administration of water rights generally and is

not of great significance.” *Kelly Ranch*, 550 P.2d at 304 (quoting *Cache LaPoudre Water Users Ass’n. v. Glacier View Meadows*, 550 P.2d 288 (Colo. 1976)).

In this case, Applicant proposed a gradual phase-in of the Project over a minimum of 15 years and a period of retained jurisdiction that extended an additional 25 years after that. (Exh. A-1609, New Exhibit Z, p. Z-22). That 40-year period coupled with the detailed monitoring protects water rights from injury (2/22 p.332, 1.22-p.333, 1.11; p.335, 1.19-23), and provides ample opportunity to address uncertainties as required by law.

D. The Water Court’s Misapplication of Law and Misunderstanding of Underground Storage Further Created an Impossible Standard for Any Conjunctive Use Project.

Noting the importance of conjunctive use projects for the welfare of Colorado, the General Assembly declared such projects “shall be recognized to the fullest extent possible.” C.R.S. § 37-92-102(2)(b); *see also Park County II*, 45 P.3d at 703-05. However, by misapplication of law and a misunderstanding of the Project, the Water Court virtually eliminates the possibility of any future conjunctive use project.

1. The Water Court Erroneously Determined as a Matter of Law that Storage Cannot Take Place in a Cone of Depression or a Saturated Aquifer.

A significant component of any conjunctive use project is storage of water in the aquifer using surface recharge facilities. *See Park County II*, 45 P.3d at 703. The General Assembly has expressly allowed for storage of water in underground reservoirs. C.R.S. §§ 37-92-103(10.5), 37-92-305(9)(c) and 37-87-101(2). The Water Court, however, held that such underground storage is unlawful. Specifically, in its dismissal of the application, the Water Court held “that recharging a cone of depression is not ‘storage.’” (Order, p.13). After that ruling was challenged by post-trial motion, the Court re-stated its ruling somewhat as follows: “[i]n order to store water, the artificial recharge must be introduced into an existing unsaturated portion of the

aquifer” and cannot occur “in a saturated aquifer that is tributary to an over-appropriated stream system.” (Post-Trial Order, p.7).

The Water Court misapplied the law. The only express legislative limitation in storing water in underground reservoirs is that the storage must occur by “other than natural means” and must be done under “a conditional or decreed right.” C.R.S. § 37-92-103(10.5); *see also* § 37-92-305(9)(c) (same); 37-87-101(2) (same). These factors are clearly met as the proposed storage would occur through constructed surface recharge facilities, well pumping, and/or by capturing water in the hydraulic gradients of the artificially created cone of depression, and would occur under the water rights being sought in the application. The Water Court did not disagree.

Reading the requirements for underground storage in conjunction with general notions of Colorado water law, this Court derived eight conditions that should be met in order to utilize an aquifer for storage of recharged water. *Park County II*, 45 P.3d at 705 n.19. These conditions are all satisfied by uncontradicted evidence in this case. (See supra III.C). For purposes of this appeal, however, it is noteworthy that (1) the Water Court did not consider or apply these conditions; and (2) the Water Court’s conclusion that storage cannot, as a matter of law, occur by “recharging a cone of depression,” (Order, p.13), or in a saturated aquifer, (Post-Trial Order, p.7) is contrary to the holding in *Park County II* on how such storage can be lawful.⁹ *Id.* at 701-05

The Water Court’s legal conclusion disallowing storage in a cone of depression is also inconsistent with the policy of maximum utilization by prohibiting virtually any conjunctive use project. Even if this Court were to adopt that conclusion, the Water Court still erred because the

⁹Since the Water Court wrongly presumed 100% of all withdrawals must be augmented, (supra § V.B), it concluded “[a]ny water [PCSR] places into the aquifer will be replacement water,” thus prohibiting storage in any cone of depression. (Post-Trial Order, p.7).

application also claimed storage in the “unsaturated portion of the South Park Formation [which] itself contains storage capacity which Applicant will utilize.” (Application at p.12, ¶2.a).

2. The Water Court Misunderstood the Purpose of Returning Induced Depletions to the Stream.

The Water Court further limited the usefulness of any conjunctive use project by assuming that water inadvertently captured in underground storage and pumped back out was itself mining of the aquifer. As discussed above, the conceptual design of the Project included storing water in an artificially created cone of depression. That cone will eventually induce and capture water that would otherwise be in a surface stream causing, at times, out-of-priority depletions. (See 8/28 p.158, 1.8-13). The captured water can simply be pumped back to the stream to replace the depletion and prevent injury to downstream rights. This is directly analogous to surface reservoirs that inadvertently capture water they are not entitled to store, and the reservoir is then administered to release that water back to the stream.

The extent to which the Water Court misunderstood or ignored the proposal to return leakage water to the stream is best exemplified by its ruling that the “proposal is no more than a scheme to augment out-of-priority depletions with additional out-of-priority pumping” that would further “exacerbate[] depletions.” (Order, p.12). The Water Court’s ruling fails to recognize that such water pumped and released from the Project’s underground storage directly coincides with the water that caused the depletion when it went into the storage. Pumping the water out does not “exacerbate” the depletion, it returns it to the stream.

Clearly, any storage facility must be allowed to return surface or seepage water to the stream to which it is not entitled – regardless of whether this is called augmentation as it was in this case, or simply administration. For example, if a surface reservoir captures seepage water

and surface flows out-of-priority which creates injurious depletions, the water must be returned to the stream. Passing water through surface reservoirs in this fashion is routine administration, with the amount of water returned to the stream determined by a combination of inflow gages, outflow gages, reservoir staff gages, and equations that predict evaporation losses. *See, e.g.* C.R.S. § 37-84-117. The same is true of any underground reservoirs, but monitoring wells and stream gauges above and below the Project would determine the amount to be returned. This is no more “a scheme to augment out-of-priority depletions with additional out-of-priority” water, than is any reservoir administered to release such water. (See Order, p.12).

3. The Water Court’s Fatal Flaw Theory Is Fatally Flawed.

The Water Court combined its above legal conclusions into a fatal flaw theory that permeates the dismissal. This is perhaps most clearly set forth at page 13 of its Order where the “court concludes that recharging a cone of depletion [sic] is not ‘storage,’” but “augmentation,” and then analogizes the entire Project to borrowing money, and paying the original loan with more borrowed money. However, in making that analogy, the Water Court first mistakenly assumes that every drop of water pumped from Project wells must be replaced (contrary to *Park County I*). This then leads to the conclusion that there can be no storage in the cone of depression created by that pumping (contrary to *Park County II*). This is then compounded by the belief that “supplemental pumping” to return the water leaking into the hole from surface streams back to the streams actually adds to the deficit (i.e., it constitutes more borrowing).

These conclusions are not only legally incorrect, they create an impossible standard. In fact, the Water Court ultimately concludes such a project is feasible “if and only if the recharge rate . . . **exceeds** the depletion rate caused by pumping,” thus requiring **more than 100% replacement**. (Order, p.12) (emphasis added). The Water Court’s confusion in this regard is

compounded by its mistaken belief that PCSR is required to pump a minimum of 2,500 acre-feet a year to meet its contractual obligations, thus creating a constant need to draw down the aquifers. (Order, p.11). The Agreement between Aurora and PCSR's predecessor provides for no such minimum water delivery. To the contrary, it calls simply for average withdrawals to equal average replacements to the South Park aquifer after initial pumping. (Exhibit A-4, ¶5A, App'x C). The Water Court apparently mistook a \$2,500 per acre-foot payment under the Agreement as a mandatory 2,500 acre-feet per year water delivery obligation. (See Id.).

Finally, the fact that the South Platte Basin is generally over-appropriated as cited by the Court is a reason to support a conjunctive use project, not a reason to deny it. *See Kelly Ranch*, 550 P.2d at 304. As the recent drought indicates, this is a time for creative water supply solutions. This Project would tap a fraction of an aquifer that would otherwise lay trapped underground for tens of thousands of years. In reviewing the application, the Water Court has created an artificial standard that not only prevents such a conjunctive use project as a matter of law, it then imposed attorneys fees for trying to implement such a project.

E. The Water Court Erred in Dismissing the Claimed Water Rights.

Turning to the rest of the application, the principal claims are for conditional water rights, including surface reservoirs, surface collection system, wells and underground storage (although absolute rights were also claimed for the PCSR Spring No. 4 Collection System). The Water Court never addressed the elements of those claims in its dismissal. Instead, the Court held that "out-of-priority pumping is presumed injurious" and thus requires an approved augmentation plan. (Order p.6). Apparently, since the Court rejected the proposed augmentation plan, it never reached the merits of the remainder of the application. In essence, the claimed water rights were dismissed because the augmentation plan was dismissed.

In some instance, augmentation plans have been required to obtain water rights, but only where there are findings that the claimed rights would necessarily result in injury without augmentation. *See, e.g. Bohn v. Kuiper*, 575 P.2d 402, 403 (Colo. 1978); *Lionelle v. Southeastern Colorado Water Conservancy Dist.*, 676 P.2d 1162, 1167-68 (Colo. 1984); *Fox v. Division Engineer*, 810 P.2d 644, 645 (Colo. 1991). Unlike those cases, the Water Court in this instance simply presumed injury.

Although the Project's well pumping will often require augmentation because delayed depletions to the streams could occur out-of-priority, there is simply no evidence that diverting and storing water under the claimed surface rights, in priority, would result in injury without augmentation. In fact, the Water Court presumed injury only with respect to well "pumping." (Order, p.6). Clearly, the proposed surface rights will not result in injury because they will only divert and store water in priority. No augmentation for the surface rights is required. At a minimum, the Water Court should not have dismissed those rights.

Applicant presented uncontested evidence in support of its claimed water rights. For the conditional rights, "an applicant must show in general that a 'first step' toward the appropriation of a certain amount of water has been taken, that the applicant's intent to appropriate is not based upon the speculative sale or transfer of the appropriative rights, and that there is a substantial probability that the applicant can and will complete the appropriation with diligence." *Bijou Irrigation*, 926 P.2d at 31. The so-called "can and will" requirement is "not . . . applied rigidly to prevent beneficial uses where an applicant otherwise satisfies the legal standard of establishing a nonspeculative intent to appropriate for a beneficial use." *Id.* at 43; *see* C.R.S. § 37-92-305(9)(b). The evidence supporting these requirements for the claimed conditional rights, as well as the claimed absolute right, were never addressed by the Water Court. (*See supra* § III.C).

In the context of examining “[a]vailability of water for augmentation,” (Order, p.7), the Water Court did rule that it believed water availability for augmentation was over-estimated. (Order, p.12). However, the Court never applied the standard of water availability required to satisfy the “can and will” test for a conditional water right.¹⁰ That standard is only one of “reasonable availability of water to prove that the applicant ‘can’ complete the appropriation.” *Aspen Wilderness Workshop, Inc. v. Hines Highlands Ltd. Partnership*, 929 P.2d 718, 723 (Colo. 1996). This does not require that the water always be available. To the contrary, “unless injury to a senior user will result every time a junior user diverts water, the junior appropriator is entitled to his or her priority if the necessary showing of facts constituting an appropriation has been made.” *Id.* at 724 (emphasis added).

If the Water Court had applied the correct legal standard, it would have found that water was available for the claimed appropriations. For example, in contending that the augmentation supply may be over-estimated, the Water Court itself states that “when the river is free [of a call], PCSR will not always be able to divert and store the entire available stream flow,” because “[o]nce the reservoirs are full, the excess will spill from the reservoirs into the stream.” (Post-Trial Order, p.8). Although PCSR strenuously disagrees with the Water Court’s ruling on the proposed augmentation plan as discussed above, this clearly demonstrates sufficient water availability for the claimed surface rights.

Finally, in one sentence at the end of the Order, the Court tries to justify the dismissal of the entire application by stating: “PCSR’s claims are interdependent and no claim can survive the failure of another.” (Order p.13). There is no evidence to support that ruling. The in-priority

¹⁰The availability of water has been viewed as a component of the can and will test. *Arapahoe County*, 891 P.2d at 961-62 (*but see* J. Mullarkey, J. Rovira and J. Scott, dissenting).

surface diversions themselves would constitute a significant municipal water supply. Although the total Project envisions using the surface supply in conjunction with available groundwater to maximize Project yield and minimize evaporative losses, the claimed surface rights have stand-alone value. The Water Court was in no position to substitute its vision for that of PCSR and Aurora. As this Court has ruled:

The trial court had no right to substitute its opinion as to the course of future events, for that of those charged with the duty of supplying water for municipalities and other public bodies, who have made careful studies of the questions and problems presented and have in good faith put their vision, work, money and energies into a program by which they seek to put the public waters of the state to beneficial use. If they have miscalculated and fail, the loss is theirs – if they succeed, it will be for the eternal benefit of the peoples of the state of Colorado.

Metropolitan Suburban Water Users Ass’n v. Colo. River Water Conserv. Dist., 365 P.2d 273, 288 (Colo. 1961). That sentiment is particularly applicable here, where Aurora and PCSR spent millions of dollars in developing the Project. The extent of their success in turning vision into reality should be measured in future diligence proceedings and applications to make absolute the conditional rights – not by substituting the Court’s view for that of Aurora and its agent, PCSR.

F. The Water Court Erred in Denying Credit for Reducing Evapo-Transpiration.

Applicant claimed a credit for water saved by reducing plant evapo-transpiration (“ET”) when the groundwater table is lowered by Project well pumping. ET was necessarily calculated and modeled as part of the “mass balance” for the Project, because it is a physical source of water into the cone of depression. (7/28 p.8, 1.8 - p16, 1.22; 2/22 p.339, 1.20-p.340, 1.1; 8/3 pp.151-164; 8/8 p.59, 1.16-p.73, 1.17; see Exh. A-700, pp.43-44). There is no debate on whether such a reduction will occur, the only question is whether PCSR should be allowed credit. On motions for partial summary judgment, the Water Court ruled Applicant could not claim credit for the

reduced ET, (6/5/00 Order, App'x N), and later stated the claim was frivolous in awarding attorneys fees, (Post-Trial Order, p.10).

1. The Application is Analogous to the Storage Facility Exceptions and Distinguishable from *Shelton Farms* and its Progeny.

In *Southeastern Colo. Water Conservancy Dist. v. Shelton Farms, Inc.*, 529 P.2d 1321 (Colo. 1975), a landowner who eradicated cottonwood trees along a stream was not permitted a water right free of the call of the river for the water that was conserved. This Court expressed the concern that such a water right would create an incentive to eradicate vegetation to maximize the utilization of water to the detriment of other natural resources, but expressly left it to the legislature to address the issue. *Id.* at 1327; *see also State Engineer v. Castle Meadows*, 856 P.2d 496, 505 (Colo. 1993); *R.J.A., Inc. v. Water Users Ass'n of Dist. No. 6*, 690 P.2d 823 (Colo. 1984); *Giffen v. State*, 690 P.2d 1244 (Colo. 1984).

C.R.S. § 37-92-103(9) is a partial codification of the holding in *Shelton Farms*. *See Giffen*, 690 P.2d at 1248 (recognizing that *Shelton Farms* resulted in the statutory amendment). Section 37-92-102(9) provides as follows: “‘Plan for augmentation’ does not include the salvage of tributary waters by the eradication of phreatophytes.”

The prohibition expressed by the General Assembly in § 37-92-103(9) does not, however, apply to all situations involving “salvaged” water. Un-lined gravel pits and on-channel reservoirs, both tributary water storage facilities, are allowed by statute to take credit for the natural consumption of water that occurred by the pre-existing vegetation and/or waterway. C.R.S. §§ 37-92-305(12)(a), 37-84-117(5). Such tributary storage facilities raise a somewhat different issue than found in *Shelton Farms* and its progeny. Rather than seek a water right free of the river call for increased stream flows caused by destroying phreatophytes, tributary storage

facilities are allowed credit in their administration for water that would have been consumed by vegetation at that location and which is now captured in the storage facility.

Underground tributary storage facilities are like surface tributary storage facilities. The creation of the underground storage facility necessarily results in a reduction in the pre-existing ET and the tributary water saved from consumption is captured by the facility. If such credit is not given, then Applicant will be forced to over-compensate the stream when it replaces stream depletions caused by the Project. *See Central Colorado Water Conservancy Dist. v. Simpson*, 877 P.2d 335, 346 (Colo. 1994) (distinguishing the gravel pit statute from *Shelton Farms* on the basis that gravel pit operators “would be required to make available to downstream users an amount of water greater than that available prior to commencement of their mining operation”). Moreover, allowing credit for this water does not create an incentive to destroy phreatophytes to create super-senior water rights, which was the concern in *Shelton Farms*.¹¹

If anything, the argument for allowing a salvaged water credit for underground, tributary surface facilities is greater than that for surface facilities. The Water Court’s holding would require the Applicant to pro-actively, and at its own cost, pump the salvaged water out of the underground storage facility for the benefit of downstream appropriators that never received the water in the past. Not only is that a Court-mandated windfall for the Objectors, but Applicant

¹¹The Water Court distinguishes between surface storage facilities that “necessarily” result in a loss of vegetation, and underground storage facilities where the loss in vegetation “is only an incidental consequence” of creating the storage. (6/5/00 Order, p.2). This a distinction without a difference. In both cases, creating and operating the facility results in a loss of water-consuming vegetation. In fact, the Water Court later holds that “vegetation will be destroyed as the direct result of PCSR’s lowering of the water table by its pumping regime.” (Order, p.2). Even if there was a basis for the distinction, there is no reason why it should matter.

would be required to pay the cost of the windfall (pumping costs, plus operation and maintenance costs) in perpetuity in the administration of its facility.

More importantly, the Water Court's ruling results in a double hit to PCSR. PCSR lands overlie the heart of the cone of depression and thus the "salvaged" water is derived, in part, from water that sub-irrigated those lands. One of the uses of Project water, in turn, is to provide a supplemental irrigation supply for the PCSR lands. (See Application, p.7, ¶10). Thus, if allowed to stand, the Water Court's ruling means PCSR must pump out the water historically used to naturally irrigate its lands and deliver that water to downstream Objectors as a windfall. This is in addition to replacing actual, injurious stream depletions, and pumping out additional water stored in priority to irrigate its own lands.

2. "Salvaged" Water Should be Available for Wells under Colorado Law.

The Water Court's ruling is in conflict with the 1969 Act as it pertains to wells. C.R.S. § 37-92-501(1) provides as follows regarding well pumping:

It is the legislative intent . . . that ground water diversions shall not be curtailed nor required to replace water withdrawn, for the benefit of surface right priorities, even though such surface right priorities be senior in priority date, when, assuming the absence of ground water withdrawal by junior priorities, water would not have been available for diversion by such surface right under the priority system.

C.R.S. § 37-92-501(1). Thus, where an applicant is pumping ground water, the Legislature has determined that such pumping may continue if that water would not have been available to the stream absent such pumping. On its face, this provision is directly applicable because the water salvaged by well pumping would not have been available for diversion by senior surface rights.

In fact, the Legislature found it necessary to make a specific exception for the confined aquifer underlying portions of the San Luis valley in Water Division 3 by declaring that for new

groundwater withdrawals, the “reduction of water consumption by nonirrigated native vegetation” shall not factor into the determination of water availability or injury. C.R.S. §§ 37-92-305(6)(c), 37-90-137(12)(b)(I). The need for that legislation necessarily presumes that water salvaged by wells is taken into account for other aquifers that do not have such prohibitions.

Consistent with the provisions of the 1969 Act, this Court suggested it may be permissible for wells to take credit for the natural reduction in ET. *See Kuiper v. Atchison, Topeka and Santa Fe Ry Co.*, 581 P.2d 293, 295 (Colo. 1978) (explaining that restricting well pumping “does not necessarily result in a comparable increase in the supply of surface water” due in part to the “reduction in evaporation and phreatophyte losses as a result of lowering the water table”). In another case, this Court expressly determined it did not need to decide whether *Shelton Farms* was applicable to well pumping in a designated groundwater basin because the case was decided on other grounds. *Jaeger v. Colorado Ground Water Comm’n*, 746 P.2d 515, 523, n.10 (Colo. 1987) (the hearing officer had ruled that 6,600 acre-feet of water was available for appropriation by the well without injury as a result of lowering the water table and reducing ET losses).

There is also water court precedent for taking credits for reduced ET when caused by wells. In *Closed Basin Landowners Ass’n v. Rio Grande Water Conservation Dist.*, 734 P.2d 627, 629-31, 635-37 (Colo. 1987), the Water Court granted water rights for “salvaged” water resulting from well-induced reductions in ET, and although this Court did not reach the merits, it confirmed the decree and did not comment negatively on the Water Court decision.¹²

¹² *See also, Alamosa-La Jara Water Users Protection Ass’n v. Gould*, 674 P.2d 914, 920 (Colo. 1983) (discussing the finding that well pumping salvages “as much as one million acre-feet a year, that would otherwise be lost through evapotranspiration”); *American Water Development, Inc. v. City of Alamosa*, 874 P.2d 352, 368 (Colo. 1994) (noting the finding that the applicant “overstated the potential for reducing loss of water by evapo-transpiration by lowering the water table through pumping”).

Accordingly, the Legislature, this Court, and at least one Water Court have expressly held or implied that the credit sought in this case is appropriate in these circumstances. By refusing such credit, the Water Court further prejudiced its consideration of the application and the augmentation requirements. At a minimum, it cannot be frivolous to further explore the issue.

3. Judicial Admission Does Not Apply.

Without explanation, and after concluding Applicant was not entitled to credit for reducing ET, the Water Court held that Applicant's response to the partial summary judgment motion ("Response," App'x O) also constituted a "judicial admission" that it would only seek credits for a reduction in ET as a junior right when available in-priority. (6/5/00 Order, p.2). The Water Court misconstrues the Response.

A judicial admission is a statement made in a judicial proceeding "for the purpose of dispensing with proof of formal matter or of facts about which there is no real dispute." *Kempton v. Hurd*, 713 P.2d 1274, 1279 (Colo. 1986). To prevent the inadvertent loss of valuable rights, the alleged judicial admission must be unequivocal. *In re Marriage of Burford*, 26 P.3d 550, 560 (Colo.App 2001); *Anderson v. Watson*, 929 P.2d 6, 9 (Colo.App. 1996), *aff'd on other grounds*, 953 P.2d 1284 (Colo. 1998).

In this instance, PCSR claimed credit for water captured as a result of reduced ET and asserted this right at length in its Response.¹³ (Response, pp.3-4, 13). It is only near the end of the Response, in responding to arguments by Objectors, that PCSR states it is not seeking "water rights free of the call of the river . . . only a junior priority for its project." (*Id.* p.13; see also *Id.*

¹³For example, PCSR states: "Colorado law clearly supports the recognition of such credit, and any failure to recognize it in this case would require PCSR to make available to downstream users an amount of water greater than that available prior to commencement of its operations." (Response, pp. 3-4).

p.14). The Water Court read this to mean that PCSR was foregoing its claimed credit for ET water. The Water Court's interpretation contradicts the entire thrust of the Response.

The Response makes a distinction between "credits" and "water rights free of the call of the river." The Response correctly states that PCSR is seeking junior water rights for the Project, not water rights free of the river call. (*Id.* pp.13-14). However, PCSR also sought the right to take full "credit" for the reduced ET so that it need not over-augment stream depletions. (*Id.*). There is absolutely no reason to argue that a tributary underground reservoir is entitled to the same ET credits as tributary surface reservoirs (*Id.* pp.11-12), if PCSR was not claiming the credit. The fine distinction between "credits" and a water right free of any call was in direct response to the way this Court dealt with the tension that exists between the tributary storage statutes and the phreatophyte statute in *Simpson*, 877 P.2d at 346.

One statement taken out of context in the Response, especially given the entirety of the Response, is not an unequivocal admission as required under *Burford, supra*. Consistent with that fact, Applicant maintained the right to use this credit at trial. (Post-Trial Order, pp.11-12).

G. The Water Court Made Findings Regarding MODFLOW that Were Wholly Unsupported in the Record and Not a Basis for Dismissal.

After applying all the wrong legal standards and assumptions discussed above, the Water Court concluded MODFLOW was not sufficiently reliable based upon its interpretation of technical modeling guidelines. (Order, pp.2-5). There was no factual basis for that determination and, in any event, the Court's findings are not a basis for dismissal.

1. The Water Court's Findings Regarding MODFLOW are Unsupported in the Record.

The Water Court acknowledged that MODFLOW "is widely used to model aquifer parameters." (Order, p.3). However, after summarizing its interpretation of the technical ASTM

modeling guidelines, (Id. pp.3-5), the Court held that MODFLOW was not sufficiently reliable based primarily upon the following conclusions: (1) the model was not calibrated in accordance with accepted standards; (2) “no sensitivity analysis was conducted on the model”; (3) the model was not subject to a completed peer review; and (4) the model produced anomalous results that Applicant’s experts were unable to explain. (Id. p.5). These findings by the Water Court have no basis in the record and are certainly not viewed in a light most favorable to the Applicant, which is the appropriate standard for dismissal. (Supra § V.C.1.i).

First, on the question of calibration, MODFLOW was repeatedly calibrated to observed flow and water level data over the course of about 90 model runs, including simulations with and without the Project. (See, e.g. 8/1 p.28, 1.13-p.29, 1.12; p.85, 1.19-p.86, 1.14; 8/4 p.26, 1.19-p.29, 1.23; p.70, 1.23-p.71, 1.11; 8/15 p.128, 1.6-p.131, 1.6; 8/22, p.40, 1.24-p.44, 1.15; Exh. A-800, pp.69-82; Appendix B to Exh. A-700).¹⁴ Calibrations included statistical analyses comparing measured versus simulated values. (See, e.g. 7/26 pm, pp.45-48; 8/4, p.35, 1.11-15; Exh. A-800, pp.69-82). Dr. Eastman testified that calibrations were in accordance with guidelines and literature, (8/14 p.147, 1.10-p.148, 1.11; 8/18 p.134, 1.2-8; 8/23 p.24, 1.8-p.25, 1.22), and this was confirmed on peer review by Mr. Hesemann. (2/20 p.79, 1.17-23). Calibrations were also consistent with groundwater modeling done in other water rights matters. (8/18 p.134, 1.13-p.135, 1.3). There is no contrary evidence to support the Court’s conclusion on calibration.

¹⁴MODFLOW was first calibrated to measured water levels and stream flows for the period of 1950 - 1975, before hydrological changes in the basin (Exh.A-800, pp.1-2, 50-53, 69-82). MODFLOW was then calibrated to observed data for subsequent time periods to assess the stress of newly drilled wells and changes in irrigation practices. (Id.). Later calibrations were performed in response to additional observed data, during predictive simulations, and in response to opposers’ concerns. (Exh. A-700, App’x B).

Second, Dr. Eastman expressly testified at length regarding the sensitivity analyses he performed on the model during calibration. (See, e.g. 8/4 p.124, 1.19-p.141, 1.14; 8/7, p.6, 1.20-p.16, 1.12; 8/22, p.106, 1.12-p.107, 1.25). Dr. Eastman's sensitivity analyses were performed in consultation with a professor at the Colorado School of Mines and other peers. (8/7 p.16, 1.13-p.18, 1.14). Those analyses are also contained in his reports. (Exh. A-800, chapter 8.3 entitled "Model Sensitivity," pp. 78-82; App'x B to Exh. A-700, chapter 6, entitled "Model Sensitivity," pp.B-18 -22). The Court's finding that "no sensitivity analysis was conducted" is simply wrong.

There is also no evidence that the sensitivity analyses that were completed were somehow inadequate. Sensitivity analyses simply help the modeler determine how sensitive the model is to certain model input. (See Exh. P-566, ¶ 3.1.9, App'x P). In any event, additional sensitivity analyses that were performed by other experts were excluded by the Court as addressed below.

Third, the evidence likewise contradicts the Water Court's finding that the model was not subject to peer review. Mr. Hesemann expressly testified to the "peer review" he conducted of the model for Aurora. (2/20 p.18, 1.14-20). Although certain aspects of Mr. Hesemann's continuation of that peer review were excluded as discussed below, he testified at length on how he agreed with the manner in which Dr. Eastman had done the modeling and that it was consistent with basin hydrology. (See 2/20 pp. 15-35, 47-48, p.79, 1.17-23). Moreover, the Water Court's underlying opinion that peer review is somehow a prerequisite for a computer model is also unsupported in the record. Peer review is nothing more than review by another expert. At best, if there were conflicting models (which there are not in this case), the existence of a peer review for one model might go to the weight of its evidence. It is not a basis for dismissing an application.

Lastly, the Water Court's finding of unexplained "anomalous" results ignores the testimony about the model. Dr. Eastman testified that isolated anomalies where MODFLOW's predictions failed to converge with field measurements were exceedingly rare, at a rate of 9 per 48,000 for model runs with the Project (SPCUP), and 6 per 48,000 for model runs with the Project not operating (NOCUP). (8/23 p.20, 1.14-p.21, 1.1). Essentially, the Court rejected a model as unreliable for reasonably predicting water levels only 99.99% of the time instead of 100%. No record evidence supports that finding.

The anomalies were also explained in detail. The model examined water levels and depletions on an average, regional level, which is why model cells were 1,000 sq. ft. (Supra § III.C.3.i; see, e.g. 8/16 p.30, 1.21-p.33, 1.1). Since the model averaged water levels over the entire area of a cell, and cells contain hills and changes in elevation, some anomalies are expected in comparing predicted average water levels in a cell to those observed at a specific well or spring in that cell. (8/4 p.68, 1.5-p.70, 1.13; see 8/18 p.37, 1.8-p.38, 1.2). Thus, a few site-specific "anomalies" does not render MODFLOW unreliable in predicting average water levels.

As Dr. Eastman further explained, using smaller cell sizes in an effort to pinpoint the exact extent of depletions at a specific location was never the purpose of the model, and was unnecessary since depletions must only be replaced upstream of water rights that might be injured. (8/16 p.30, 1.21 - p.33, 1.1).¹⁵ Mr. Hesemann, in his peer review of MODFLOW,

¹⁵Such precision is unnecessary also because the model was never proposed as a tool to administer the plan without monitoring. (See supra § III.C.4; Exh. A-700, pp.10-12 ("the [ground water] model was calibrated to provide a realistic tool to predict the effects of the [Project] on the aquifers and streams of the South Park Basin and vicinity," and those possible effects "formed the basis for a monitoring program to monitor the actual effects of the [Project] on the South Park Basin during actual operation."); see also 2/21 p.269, 1.1-p.270, 1.1; 2/22 p.332, 1.2- p.333, 1.5) (the model demonstrates overall feasibility, but the monitoring program is used for replacing stream depletions).

concurred with Dr. Eastman and specifically rejected the notion of using smaller cell sizes. (2/20 p.19, 1.8-p.20, 1.1). In any event, Dr. Eastman testified that the anomalies tended to be on the edges of the modeled area (8/23 p.21, 1.2-18), because models are calibrated for the area of concern. In short, the only evidence is that MODFLOW achieved its intended purpose to a reasonable degree of scientific certainty. (8/10 p.36, 1.21-p.38, 1.17).

The Water Court's findings are also unsupported as they are largely based upon substituting its interpretation of the technical ASTM guideline for that of the experts. The guideline itself states it "*does not recommend a specific course of action . . . cannot replace education or experience . . . should be used in conjunction with professional judgment . . . and may [not] be applicable in all circumstances.*" (Exh. P-569 ¶ 1.7, App'x Q) (emphasis in original). The guideline further states it "is not meant to be an inflexible description of techniques" and "other techniques may be applied . . . and some of the techniques herein may be omitted, altered, or enhanced." (*Id.* ¶ 5.3) (see also Exh. P-566, p.1 (the guideline "is not intended to be all inclusive" and "[e]ach ground-water model is unique").

Thus, even setting aside the fact that the experts uniformly testified the model was properly calibrated under ASTM guidelines, the Court's interpretation of the guidelines ignores their stated purpose and assumes they are an inflexible standard. The guidelines are not a standard, they are guidelines, and do not supplant the expert's judgment. (Exh. P-569, ¶ 1.7).

The Court also made a finding that Dr. Eastman recognized the need for additional work on the model, (Order, p.5), which in turn was cited as a basis for attorneys' fees, (Post-Trial Order, p.10). For brevity, PCSR adopts and incorporates herein the arguments on this point by Aurora, Kenneth Burke and PCSR in their Opening Briefs addressing costs and fees. It should be noted, however, that the memorandum is nothing more than a list of potential modeling tasks

and is prefaced by stating the tasks would be “useful,” not essential. (Exh. 158, p.1). Moreover, since MODFLOW was not proposed as a stand alone administrative tool, the additional work was not necessary. Yet, even when some of the additional work was performed, it was excluded by the Court as explained below. (Infra § V.I).

2. The Court’s Findings Regarding MODFLOW Are Not a Basis for Dismissal.

In addition to the lack of support for the Water Court’s findings regarding MODFLOW, they are not a basis for dismissal. Given that computer models are designed only as a “representation of the real world,” there will always be some “elements that cannot be fully modeled.” (2/22 p.370, l.1-24). There is no legal, factual or policy basis for requiring 100% certainty from a computer model (instead of 99.99%). To the extent uncertainties exist, they are inherent in hydrological analyses and not fatal to an augmentation plan. (See cases cited at supra § V.C.3; *see also Mannon*, 360 P.2d at 423 (question regarding accuracy of expert’s calculations not a basis to dismiss). In fact, this Court has not required computer modeling to prove elements of an application because it is unduly burdensome on the applicant and, in any event, there are acknowledged uncertainties in modeling. *See Arapahoe County*, 891 P.2d at 968, n.20.

In this instance, although MODFLOW provided relevant evidence on several aspects of the Project, it was not even necessary to prove the elements of the claimed appropriations.¹⁶ For example, MODFLOW demonstrated how the various aspects of the Project were coordinated to maximize yield and predicted Project yield over time. (See 8/24 p.43, l.20-p.57, l.16). However, average annual yield is not an element for a conditional water right. MODFLOW was also

¹⁶Although Dr. Eastman testified in part about MODFLOW, and was on the stand for a total of approximately 6 weeks, most of that time was spent on voir dire, cross examination and argument by opposing counsel.

useful in estimating the timing and location of Project-wide depletions on a regional basis, as discussed above, but monitoring was proposed to pinpoint depletions, administer the plan, prevent injury and replace depletions. Overall, the stated primary purpose of MODFLOW was to help design the Project to maximize efficiency and show overall feasibility (8/10 p.36, 1.24-p.37, 1.7), but the un rebutted testimony was that Project feasibility did not depend upon the model. (2/20 p.15, 1.1-10; p.47, 1.18-p.48, 1.11; 2/21 p.272, 1.4-p.273, 1.11).

Accordingly, even if the Water Court had applied the correct legal standards, and even if there was record evidence to support its conclusions regarding MODFLOW, its finding that MODFLOW was not adequately reliable is not a basis to dismiss the application. (Order, p.5).

H. The Water Court's RIBSIM Findings Are Likewise Not a Basis for Dismissal and Wholly Unsupported by the Record.

The Water Court also found that RIBSIM computer modeling was “insufficiently reliable as a basis for determining either average stream flow or legal availability of water in the Tarryall Creek basin.” (Order, pp.7-12).¹⁷ Given the improper legal standards imposed (ultimately leading the Court to conclude more than 100% replacement was required, supra § V.D.3), any finding regarding the adequacy of the proposed augmentation supply is fundamentally flawed. Moreover, the Court’s finding regarding RIBSIM is unsupported in the record.

Replacement water may be from “any source legally available,” *Williams v. Midway Ranches Property Owners Ass’n*, 938 P.2d 515, 522 (Colo. 1997), and need not necessarily equate to 100% of the water taken. *Park County I*, 986 P.2d at 275; *Glacier View*, 550 P.2d at 293-94. If insufficient water is available for replacement, then either additional water must be

¹⁷The Water Court’s finding was limited to the “Tarryall Creek basin,” but that was only one source stream for the Project. The Court does not even make findings regarding the other Project streams.

acquired or the applicant must simply reduce its depletions. *Kelly Ranch*, 550 P.2d at 307. The analysis of factors such as available water are based on “necessarily imperfect predictions of future events and conditions,” *Arapahoe County*, 891 P.2d at 961-62, and “elaborate computer models” are unnecessary to prove its availability. *Id.* at 968-70, n.20, 21.

In this case, Mr. Bethel went through a very detailed and thorough analysis of water availability. (See record citations at supra § III.C.2). Mr. Bethel testified that although there are simpler ways to extrapolate from basins with more flow data to the basins with less flow data that existed in the Project area, his approach was clearly the “best” method. (7/13 p.20, 1.13-p.25, 1.6; see Exh. A-500.2, App’x R). In fact, even the Water Court held that Mr. Bethel’s “method for determining average annual stream flows produces reasonable threshold estimates,” (Order, p.9) (emphasis added). This alone was adequate to satisfy Applicant’s *prima facie* case.

For purposes of water availability for replacing out-of-priority depletions caused by the Project, it is critical to recall that those depletions occur when water that would otherwise be in surface streams is captured by the cone of depression. (See supra § V.D.2). Since that water can be measured and returned to the stream, injury is prevented.

Finally, the principal reasons given by the Water Court for even questioning RIBSIM’s reliability are: (i) there is an inherent presumption that precipitation alone is responsible for runoff and other variables should have been assessed; (ii) no range of error determinations were made; and (iii) calculation of legally available flows did not factor in irrigation runoff or the changing call regime. (Order, pp. 9-10). These findings ignore uncontradicted testimony.

Mr. Bethel repeatedly testified that precipitation is the primary factor affecting stream flows. (7/13 p.10, 1.6-15; 7/14 p.172, 1.5-p.173, 1.8). Thus, there was no reason to derive other relationships to determine average stream flows as the Water Court required. (Order, pp.9-10).

Moreover, it is wrong for the Water Court to conclude that “only” precipitation was considered. Mr. Bethel expressly considered the size of each basin and the gauge records that were available for each stream. (7/13 p.18, l.18-p.19, l.14; pp.21-25; p.85, l.17-23; see Exh. A-500.2). Finally, Mr. Bethel explained that other factors, such as the type of vegetation and slope of each basin, are already integrated into the gauge flows to the extent they influence runoff in the streams. (7/18 p.120, l.10-p.121, l.20; p.200, l.23-p.201, l.7)

As for the Court’s other findings, Mr. Bethel testified it is uncommon for experts in his field to calculate “error brackets” in estimating water availability and that he was unaware of any expert having done so. (7/19, Bethel, p.5, l.13-p.6, l.10). There is no contrary evidence. Mr. Bethel likewise testified it is standard practice to assume the call environment of the past is replicated in the future and that was uncontested. (7/18 p.160, l.6-24). In any event, the availability of in-priority water to the Project is driven by peak flows, (7/18 p.187, l.10-p.189, l.18; p.194, l.7-p.195, l.18), and calls matter less at peak flows. That is why one of the larger years for water availability was 1995, after the newer water rights had been appropriated. (See Exh. A-600, § V). In fact, average available water was greatest in years after the application was filed (7/18 p.165, l.8-p.166, l.9), as the Court itself acknowledged (7/18 p.174, l.9-21). Finally, the Water Court was simply wrong in holding that irrigation return flows were not considered by Mr. Bethel. (7/13 p.120, l.14-21; p.140, l.13-25; 7/17 p.70, l.14-23; pp.80-83).

I. The Water Court Abused Its Discretion in Excluding Some of the Very Evidence It Claimed Was Lacking in Support of the Augmentation Plan.

The Water Court abused its discretion by excluding the very evidence it found lacking. Specifically, evidence excluded by the Court included: (1) additional sensitivity analysis performed in a continuing peer review of MODFLOW (10/31/00 Order; 2/14/01 Order);

(2) recent years of water availability after the application was filed (7/18 p.179, 1.17-p.180, 1.3); (3) testimony on the ability of terms and conditions in New Exhibit Z to prevent injury; and (4) a Glover analysis that supported MODFLOW's predictions. (7/20 p.75, 1.18-p.77, 1.21).

Late disclosures are governed by C.R.C.P. Rule 37(c), under which evidence is excluded only if the failure to timely disclose is "without substantial justification . . . unless such failure is harmless." Thus, even if late disclosures lacked justification, the question then becomes whether that "will prejudice the opposing party by denying that party an adequate opportunity to defend against the evidence." *Todd v. Bear Valley Village Apts.*, 980 P.2d 973, 979 (Colo. 1999). A party should not be denied a day in court because of an inflexible application of a procedural rule. *Id.*; see also *Dawkins v. Chavez*, 285 P.2d 821, 823-24 (Colo. 1955).

As the Water Court acknowledged in its February 14, 2001 Order, due to the case's "complexity, discovery was an ongoing process that could not be fully satisfied by initial Rule 26 disclosures." (2/14/2001 Order, p.3). That finding, by itself, indicates the justification for the late disclosures and is supported by the flurry of discovery-related time extensions, expert disclosures, and noticed depositions filed with the Court in the 10 weeks before trial (many filed by Objectors). Yet, the Water Court excluded Applicant's and Aurora's expert reports simply because they were not disclosed by the initial Rule 26 disclosure deadline. (10/31/00 Order). As in many Water Court cases, the give and take between Applicant and Objectors from the time the application was filed until the case went to trial (5 ½ years in this instance), resulted in newly identified concerns and analyses to address those concerns.

Even if not justified, the late disclosures certainly did not result in any prejudice. The additional sensitivity analysis and further peer review of MODFLOW by Mr. Hesemann was disclosed on May 1, 2000, six weeks before the trial started and 11 months before his direct

testimony was completed after the trial reconvened. Moreover, the model itself, previous sensitivity analyses, and Mr. Hesemann's initial peer review of the model were all timely disclosed as the 10/31/00 Order acknowledges. The additional excluded work was just a continuation of the work already disclosed. Apparently recognizing the lack of prejudice, the Water Court offered an alternative basis for excluding the peer review by stating that, in any event, it was "little more than an opinion about an opinion." (2/14/01 Order, p.5). Yet, the Water Court then cited the lack of model peer review as a basis for rejecting the model. (Order, p.5). A peer review cannot be both necessary and inadmissible.

Mr. Bethel's proposed testimony on water availability for 1997 - 1999 was based upon a memorandum he prepared in November, 1999, long before trial, and was endorsed by one of the Objectors as a trial exhibit. (7/18 p.166, 1.10-p.169, 1.22). In this instance, the Water Court explicitly found no prejudice (Id.), but proceeded to exclude the evidence for failure to timely disclose. (7/18 p.179, 1.17-p.180, 1.3). The Court supported its ruling by suggesting that flow data after the application was filed is irrelevant. (Id.). Yet, the evidence was offered in response to hypothetical questions regarding the effect newer water rights might have on water availability (7/18 p.172, 1.8-15, p.167, 1.20-23), which was then cited as a basis for dismissal, (Order, p.10).

The Court's improper exclusion of the proposed terms and conditions in New Exhibit Z included in the proposed decree was discussed in detail above. (Supra § V.C.2). For purposes of the "harmless" analysis under Rule 37, it is further noted that (1) New Exhibit Z was a more detailed version of Original Exhibit Z filed long before trial (supra § III.C.4); (2) opinions on the new conditions were disclosed on May 1, 2000, consistent with the rebuttal deadline of the modified Case Management Order; (see 2/14/01 Order, p.3); (3) the Objectors were given an opportunity to review those disclosures and offered late sur-rebuttals on the issue; and (4)

PCSR's initial expert disclosures put Objectors on notice by explaining they would discuss the "sufficiency of proposed terms and conditions" (See 10/31/00 Order, p.2).

Finally, Applicant conducted and disclosed standard Glover calculations that were used to estimate the rate at which stream depletions would be induced into the cone of depression. (See Rebuttal Expert Disclosure, dated May 1, 2000). Although Glover calculations are much more simplistic than MODFLOW, they produced comparable results. (See Ault Affidavit, attached to Response to Motion to Exclude [Glover Model], App'x S). This additional work was done in response to criticism by Objectors. (Id.). Objectors were not prejudiced because Glover analyses are widely used and, in this instance, was only offered to support MODFLOW's predictive abilities. (Id.). The Glover analyses were also disclosed 11 months before Mr. Ault testified.

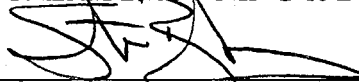
The Court's additional finding that slight modifications to the Glover code made it inadmissible for lack of scientific foundation (7/20 p.77, 1.18-21) is unsupported in the record as the Court did not allow testimony to explain those modifications. The Court itself acknowledged that without testimony, it had "no notion" as to the significance of the changes (7/20 p.77, 1.12-16), or whether they were "generally accepted" by such experts (7/20 p.77, 1.2-4).

CONCLUSION

For the reasons given above, the Water Court's dismissal should be reversed, the case remanded with instructions, and the award of fees and costs over-turned.

Dated this 30th day of September, 2003.

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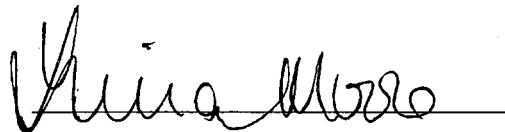
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A handwritten signature in black ink, appearing to read "Maria Morero", is written over a horizontal line.