

II. South Platte Well Development Timeline

The South Platte River
and Alluvial Aquifer

HB 1278 South Platte Groundwater Study



A Brief Timeline of Groundwater Management in the South Platte Basin

Early History

- 1886 - First irrigation well of record was excavated by E.F. Hurdle in the Lone Tree alluvium east of Eaton. He installed a total of 3 wells with centrifugal pumps powered by steam engines. The first well supplied water to 80 acres.
- 1893 – Case of McClellon v Hurdle charged injury from well pumping. The Court held that Hurdle had not invaded the rights of the prior appropriator (McClellon) but also held that it is an invasion of the rights of a prior appropriator from a stream by any means. However, the court felt the evidence of injury was too vague to declare damages.
- 1890-1930 – approximately 300 high capacity wells constructed in the S. Platte during this period.
- 1922 - Colorado Agricultural College professor, Ralph Parshall completes a study of the return flow phenomenon on the South Platte stating that due to surface irrigation the groundwater table had risen significantly resulting in stream flow increasing from 2 to 8 cfs per mile.
- Drought of 1930's resulted in an additional 1400 wells constructed in the basin.

1940s and 50s: Well Development

- Late 1940's – REAs brought electric power to rural areas and turbine pump technology became available, making diversions of ground water significantly more feasible.
- Drought in early 1950s reduced surface supplies, leading to the construction of an additional 1200 wells. The legislature took the first step toward regulating tributary ground water when it passed Senate Bill 120 (1953 Act). The 1953 Act, entitled "Underground Water", required well drillers to be licensed, the filing of advance notice of well drilling, and the filing of well logs after drilling, all under the supervision of the Colorado Water Conservation Board.
- 1956 - Ralph Parshall presents to Fort Collins Rotary Club and states that seepage return flow in 1956 was "nil" partly due to the fact that more than 4000 irrigation wells pumped enough water to fill Horsetooth Reservoir 4 times during the season of 1955 (584,000 ac-ft). This affected senior direct flow diversion and reservoir storage causing many diversions to be severely curtailed with some diversions receiving no water during extended periods from 1955 to 1957.
- By 1957 there was recognition of the need to regulate groundwater development in the State. The Colorado Ground Water Law of 1957 established that a permit from the State Engineer was a prerequisite to drilling a well and obtaining a water right but was administrative only with no evaluation standards and therefore no basis to deny. The 1957 Act also established that a well permit "shall not have the effect of granting or conferring a ground water right upon the user," that the priority date of a "ground water appropriation shall not be postponed

to a time later than its true date of appropriation by failure to adjudicate the right in a surface water adjudication,” and that the newly established Ground Water Commission shall identify critical ground water areas that “have approached, reached or exceeded the normal annual rate of replenishment,” 1957 Colo. Sess. Laws, Ch. 289, 863-73.

1960s: Passage of the Ground Water Management Act and Early Attempts at Regulation

- The General Assembly, in 1965, in response to the conflict between surface and ground water users passed §148-11-22, C.R.S. (1963, as amended). This new section gave the State Engineer the first tools for addressing the impact of wells on other vested water users. §148-11-22(1). The same year saw the passage of the Colorado Ground Water Management Act, §148-18-1 et seq., C.R.S. (1963, as amended) (now codified at § 37-90-101 et seq., C.R.S. (2006)) (“1965 Act”). These statutes put ground water within the regulatory authority of the State Engineer and for the first time allowed the State Engineer to deny a well permit application if the State Engineer found that there was no unappropriated water available or that the proposed well would materially injure other vested water rights.
- Although the 1965 Act subjected new wells to an injury analysis, it did not require wells to get a decreed water right, and did not provide for administration in priority of permitted wells. Thus, while the 1965 Act enunciated a regulatory connection between surface and ground water, actual priority administration was not possible because many wells had no adjudicated priority dates.
- During the mid-1960s dry conditions and low streamflows resulted in complaints by senior surface water rights on South Platte River and Arkansas River, claiming wells were causing depletions and should be regulated within the priority system like surface water rights.
- In June 1966, the Division Engineer in the Arkansas River basin attempted to regulate a limited number of wells, in response to complaints by holders of senior surface water rights.
- This led to the important 1968 Colorado Supreme Court decision in *Fellhauer v. People*, 167 Colo. 320, 447 P.2d 986 (1968). In *Fellhauer*, the Supreme Court held that any regulation of wells must be preceded by the promulgation of reasonable rules and regulations, and that wells should only be regulated to the extent that it resulted in a reasonable lessening of material injury to senior water rights. The Court stated that wells should be allowed to operate, to the extent possible, pursuant to conditions that protected senior users. *Fellhauer* contained the now-famous statement by Justice Groves that “as administration of water approaches its second century, the curtain is opening upon the new drama of maximum utilization and how constitutionally that doctrine can be integrated into the law of vested rights.” 167 Colo. at 336, 447 P.2d at 994.
- In 1967, the Legislature passed Senate Bill 407, appropriating \$50,000 for a two-year investigation and study of the relationships between surface and groundwater to evaluate the need for additional legislation to effectuate integrated administration of surface and groundwater. Vranesh at 260. Senate Bill 407 resulted in a study by Morton W. Bittinger & Associates and Wright Water Engineers on the interaction between surface water and

groundwater in the South Platte Basin (Bittering Study).

- The Bittering Study found:
 - *The average annual water supply within the South Platte River basin is adequate to meet present requirements. However, because of the wide fluctuations in runoff, the distribution of water availability is far from satisfactory.*
 - *The groundwater reservoir along the mainstem of the South Platte River between Denver and the State line contains approximately ten million AF of water. Only a small percentage of this capacity is utilized and this only in a haphazard and unplanned way.*
 - *Groundwater pumping and transmountain importations have been the major factors in stabilizing water supplies in the South Platte Basin. However, the pumping of groundwater has caused infringement upon prior surface water rights. Studies indicate that this infringement is not as severe as many have felt it to be.*
 - *The water supplies of the South Platte Basin are not being utilized or administered as efficiently and effectively as they could be.*
 - *Deficiencies exist in the completeness and accuracy of water use records.*

The Bittering Study concluded:

- *Planned utilization of 10 percent to 15 percent of the available groundwater storage capacity in the alluvium is reasonably attainable. Use of the groundwater storage capacity can provide more efficient utilization of the total resources of the Basin, reduce shortages, and minimize conflicts between water users. This planned utilization in conjunction with surface water supplies would basically involve a heavier draft upon the groundwater supplies during low runoff years with provision for replenishment of those supplies during years of surplus runoff.*
- *To achieve more optimum distribution of water supplies and accomplish desired goals, certain surface water rights should be served from groundwater sources during low runoff periods. Such operations would allow more surface water to be diverted in the upper regions, making greater re-use of return flows possible.*
- *Since the groundwater in storage adjacent to the mainstem of the South Platte is currently being used to support the flowing stream, and many users are dependent upon and have rights in the return flow which joins the River via the groundwater system, provisions must be made to protect these rights and to supply them with alternate sources of water to insure the continued utilization of the groundwater supply. The cost of providing such facilities should be borne by those who benefit.*
- *Optimum use of water resources within the South Platte Basin cannot be achieved without control of non-beneficial uses or waste of water.*
- *Integrated management of groundwater and surface water can be best achieved on an overall South Platte River Basin basis.*

The Bittering Study recommended that legislation should be passed which will allow and

encourage the integrated management and administration of groundwater and surface water in the South Platte Basin. (Adapted from Vranesh at 260-261)

Passage of the 1969 Act and Subsequent Regulations

- Following the Bittinger Study and the *Fellhauer* decision, the Legislature repealed House Bill 1066 and enacted comprehensive legislation entitled the Water Right Determination and Administration Act of 1969 (the “1969 Act”). See § 37-92-101 et. seq., C.R.S. The 1969 Act was the Legislature’s attempt to integrate surface and groundwater use and promote the constitutionally mandated protection of vested rights and maximum utilization articulated by the Colorado Supreme Court in *Fellhauer*. Vranesh at 265. The 1969 Act intentionally brought all alluvial groundwater within the ambit of the State’s Prior Appropriation Doctrine. In order to provide priority dates for the wells, the General Assembly allowed well owners a grace period to adjudicate priorities for the wells in the state’s water courts. It further required the State Engineer to administer the wells in priority in relation to surface rights in the same stream system.
- Among other provisions, the 69 Act stated that (1) tributary groundwater and surface water shall be administered according to the doctrine of prior appropriation, in order to maximize beneficial use; (2) vested surface water and tributary groundwater rights shall be protected in order of their decreed priorities; (3) wells that have not obtained adjudication of their priorities have a period of two years in which to file for their original appropriation date and, if not, their priorities shall be postponed to other priorities that have been adjudicated by the courts; and (4) augmentation plans may be decreed to allow out-of-priority diversions that are not subject to State Engineer curtailment, if sufficient replacement water is provided to alleviate material injury to adjudicated water rights, 1969 Colo. Sess. Laws, Ch. 373, 1200-1224.
- The legislative declaration of the 1969 Act provides that “it is the policy of this state to integrate the appropriation, use, and administration of underground water tributary to a stream with the use of surface water in such a way as to maximize the beneficial use of all of the waters of this state.” C.R.S. § 37-92-102(1)(a).
- The 1969 Act introduced the concept of a “plan for augmentation,” by which a well or other junior water right could divert or operate out-of-priority so long as replacement water was supplied in time, location, and amount sufficient to prevent injury to senior water rights.
- The 1969 Act placed jurisdiction for administration of the water rights of the state completely within the control of the State and Division Engineers. Section 148-21-34, C.R.S. (1963, as amended) (now codified at § 37-92-501, C.R.S.).

1970s: Development of Augmentation Plans and Temporary Supply Plans

- Though the 1969 Act called for adjudication of all augmentation plans by the water court, in order to ease the transition, the 1969 Act further provided the ability for the State Engineer to

approve temporary augmentation plans pending court adjudication of the final plans. The statute granting this authority was repealed in 1977. *Id.* The State Engineer’s approval of temporary plans would prove to be an issue precipitating a major crisis in 2002.

- In the wake of the 1969 Act, most South Platte Well Users adjudicated their wells and received priority dates. Some sought court approval of augmentation plans, but the vast majority of South Platte wells sought shelter in State Engineer approved “substitute supply plans” — annual administrative approvals that allowed ongoing pumping. Because of the high cost of obtaining the “replacement water” necessary for the adjudication of a permanent plan, the well owners sought strength in numbers. Two major well augmentation groups formed on the South Platte — one under the auspices of the Ground Water Management Subdistrict of the Central Colorado Water Conservancy District (GMS), and the other a private entity bearing the name “Ground Water Appropriators of the South Platte (GASP).
- Neither GMS nor GASP sought a court approved augmentation plan in the 1970s, 80s or 90s. Though the statute giving the State Engineer express authority to approve temporary plans was revoked in 1977, the State Engineer nevertheless continued to review and approve annual “Substitute Supply Plans” for these entities. At the time, the State Engineer believed that he had the authority to approve the plans indefinitely. Some South Platte water users questioned his conclusion in this regard, and became increasingly dissatisfied with the approval process, accusing GMS, GASP, and the State Engineer of providing inadequate replacement of depletions. However, from 1980 to 2000 the South Platte enjoyed 20 of the wettest years of record, blunting criticism and masking supply shortages.
- GMS and GASP took different approaches. While both continued to enjoy temporary administrative approvals, GMS set its sights on obtaining augmentation plans approved by water court, and worked towards assembling permanent supplies. GASP opted for a less costly route, arranging temporary leases and shorter term supplies that supported the annual approvals, but were less useful in a permanent augmentation plan.
- In 1970 State Engineer Kuiper began rulemaking to curtail wells on graduated basis, i.e., one day per week in 1970, two days in 1971, and so on unless wells were operating in accordance with a court approved augmentation plan or a plan approved by the State Engineer under C.R.S. § 37-80-120 (“1969 Act Rules”). The 1969 Act Rules were challenged by a host of protesters that raised numerous objections. The most vocal objectors were well owners that wanted no regulation or curtailment of wells whatsoever. The water court agreed with the well owners and permanently enjoined the operation of the 1969 Act Rules. The Supreme Court reversed the judgment of the water court, holding: *We suggest that there is a slight indication of a feeling upon the part of plaintiffs and on the part of the trial court that changes should not be required in the operation of wells on the Platte River. There must be change, and courts, legislators, the State Engineer and users must recognize it.* *Kuiper v. Well Owners Conservation Ass’n*, 176 Colo. 119, 150, 490 P. 2d. 268, 283 (1971).
- The General Assembly reacted to the water court dismissal of the 1969 Act Rules by enacting HB 71-1205. This was the bill that established State Engineer’s rule-making authority for water rules. HB 71-1205 added the following policy statement to what is now

C.R.S. § 37-92-501: *It is the legislative intent that the operation of this section shall not be used to allow ground water withdrawal which would deprive senior surface rights of the amount of water to which said surface rights would have been entitled in the absence of such ground water withdrawal and 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. The state engineer may adopt rules and regulations to assist in, but not as a prerequisite to, the performance of the foregoing duties.* 1971 Colorado. Sess. Laws, 1330, 1331, ch.372, § 1 (amending § 148-21-34, C.R.S. (1963 as amended)). Because the 1969 Act Rules had already expired before the Supreme Court resolved the *Kuiper v. Well Owners* appeal, the case was not remanded for a new trial, but the State Engineer immediately began work on new rules.

- The 1969 Act Rules would eventually become the 1974 Amended Rules. After they were proposed, the rules were challenged by a well owner organization, and a four-week trial took place in 1974. During trial, however, the parties stipulated to a decree incorporating the rules as they had originally been proposed, and the Amended Rules were issued in 1974.
- The 1974 Amended Rules were also influenced by legislation passed that year. The bill, SB 74-7, encouraged the promulgation of rules to act as guidelines for the temporary augmentation plan process that had been authorized by statute earlier that same year. SB 74-7 also authorized the State Engineer to grant temporary plans for augmentation where an applicant had filed an application for a plan for augmentation in the water court.
- Because the 1974 Amended Rules included guidelines for use of the temporary augmentation plan statute, the State Engineer considered that aspect of the 1974 Amended Rules to be obsolete as a result of the repeal of § 37-92-307. However, the basic replacement criteria included within the 1974 Amended Rules continued to be followed by the State Engineer as required by § 37-92-501.5.
- In 1977 the Colorado General Assembly repeals legislation it had enacted in 1974 (1974 Colo. Sess. Laws, Ch. 111, 440-42) that had allowed the State Engineer to approve temporary augmentation plans while the water court was adjudicating applications for augmentation plans, 1977 Colo. Sess. Laws, Ch. 483, 1702-04. This repeal was based on concerns raised by the Supreme Court in *Kelly Ranch v. Southeastern Colorado Water Conservancy District*, 191 Colo. 65, 550 P.2d 297 (1976) about the constitutionality of the procedures. Specifically, the Supreme Court stated in dicta that the lack of notice to interested parties, coupled with the presumptive effect to be given to the State Engineer's findings concerning the adequacy of an augmentation plan, raised due process concerns. 191 Colo. at 76, 550 P.2d at 305.

1980s and 1990s

- Wet years during the 1980s and 1990s resulted in years of relative calm, although the State

Engineer continued to advise well users to obtain adjudicated augmentation plans. While many junior irrigation well-pumpers had adjudicated augmentation plans under the 1969 Act, many had not, but yet they continued to enjoy State Engineer approval of annual “substitute supply plans. Because the 1980s and 1990s were relatively good water years, senior water right owners had not pressed the issue.

GASP and Central

- In the early 1970s State Engineer Kuiper encouraged well owners to form associations or conservancy districts to develop plans to replace well depletions that occurred when there was a call on the South Platte River, which in the 1970s, 1980s and 1990s was usually only during the months of July and August.
- GASP (Groundwater Appropriators of the South Platte) was established in 1972 (approximately 4,000 wells) and the Central Colorado Water Conservancy District’s Ground Water Management Subdistrict (“Central GMS”) was formed in 1973 (approximately 1,000 wells). Both organizations operated under annual SWSPs approved by the State Engineer under C.R.S. § 37-80-120. Both plans relied on the fact that the period for senior calls was very limited due to generally good runoff conditions.
- This practice continued under State Engineer Jeris Danielson from 1980 to 1991. While State Engineer Hal Simpson continued this annual approval of SWSPs starting in 1992, he included in each letter of approval a strong warning that both organizations needed to prepare for a drought condition and acquire more water. Central GMS did acquire more water since it had a tax base to use to secure and pay off indebtedness. GASP did not have this ability and relied solely on annual assessments to each well owner based on acre-feet pumped.

2000-2003: Empire Lodge and Simpson v. Bijou Decisions; HB 02-1414

- In 2000, litigation was initiated in the Arkansas River basin between the Empire Lodge Homeowners Association and Anne and Russel Moyer. The dispute involved access issues, but a fight over water also developed, and the issue was the State Engineer’s approval of a SWSP under C.R.S. § 37-80-120 that allowed a pond to be filled by exchange out of the Arkansas River up a small tributary. The water judge ruled that the legislature did not give the State Engineer authority to approve SWSPs.
- This ruling was appealed to the Colorado Supreme Court, and in December 2001, the Court’s decision in *Empire Lodge Homeowner’s Association v. Moyer*, 39 P.2d 1139 (Colo. 2001), affirmed the water court’s decision that the State Engineer did not have legal authority to approve SWSPs under the statute (C.R.S. § 37-80-120) that had historically been relied upon. The Empire Lodge case had a direct and immediate impact on the administration of water rights in the South Platte River basin, since the State Engineer no longer had authority to approve SWSPs, including the large plans covering thousands of wells that were operated by Central GMS and GASP. The *Colorado Supreme Court held that through the 1969 Act (1)*

the General Assembly created a new statutory authorization for water uses that, when decreed, are not subject to curtailment by priority administration; (2) this statutory authorization is for out- of-priority diversions for beneficial use that operate under the terms of decreed augmentation plans; (3) plans for augmentation allow diversions of water out-of-priority while ensuring the protection of senior water rights through a replacement water supply that off- sets injurious out-of-priority depletions; and (4) injurious depletions not adequately replaced shall result in curtailment of the out-of-priority diversions. Empire Lodge Homeowners' Association v. Moyer, 39 P.3d 1139, 1150 (Colo. 2001).

- 2001 Empire Lodge case affirmed that augmentation plans are a legislatively created device to provide replacement water for senior water rights and thereby allow junior appropriators to divert water when they otherwise would be curtailed under strict prior appropriation administration. Depletions not adequately replaced result in curtailment of the out-of-priority diversions, a non-discretionary duty the water administration officials must discharge.
- One remaining question was whether the operation of the pre-1972 wells had to be adjudicated by the water court under augmentation plans, or whether operation of these wells could continue under annual plans approved by the State Engineer, without water court adjudication. The owners of many surface water rights believed that water court adjudication was required. The State Engineer and GASP did not, and responded to the Empire Lodge decision by proposing amended rules and regulations pursuant to § 37-92-501, under which annual State Engineer approval would have continued without water court adjudication.
- During the 2002 session, the General Assembly responded to Empire Lodge by enacting HB 02-1414 (C.R.S. § 37-92-308). This legislation granted the State Engineer specific authority to review and approve SWSPs under four circumstances: (1) all previously approved SWSPs could be re-approved for 2002 only; § 37-92-308(3); (2) augmentation plans filed with the water court could be approved as SWSPs while the water court adjudication was pending; § 37-92-308(4); (3) short duration water uses (not exceeding 5 years) could be approved as SWSPs without water court adjudication; § 37-92-308(5); and (4) water use necessitated by a public health and safety emergency could be approved as SWSPs without water court adjudication for a period not to exceed 90 days. § 37-92-308(7). HB 02-1414 acknowledged the pre-existing rulemaking authority of the State Engineer under § 37-92-501, but it did not address the question of whether that rulemaking authority was broad enough to include annual approval of out-of-priority depletions without water court adjudication.
- State Engineer Simpson filed proposed new rules in May 2002. The rules, which were nearly identical to the rules promulgated successfully in the Arkansas River basin in 1996, would have allowed the State Engineer to annually approve “replacement plans” under much more stringent standards.
- 2002, however, also brought the worst drought in recorded history. The call by senior water rights began in June and stayed on throughout the rest of the year. The calls in 2003 lasted nearly the entire year, and in 2004 the situation was similar. As a result, replacement of depletions caused by wells required considerably more augmentation water and GASP ultimately went out of business in 2006. Central GMS had to scramble to lease additional

water in order to obtain approval of its SWSP during those years.

- With the drought as a backdrop, more than 30 water user entities and individuals opposed the State Engineer's proposed rules. Only a handful supported them. The parties agreed that there were threshold legal issues that could be briefed and decided as questions of law, prior to trial. Accordingly, several motions were filed in the Division 1 Water Court, challenging the State Engineer's authority to adopt the proposed rules, and arguing that they could not take effect until after a full trial on the merits had been completed (the State Engineer wanted the rules to become automatically effective December 31, 2002, regardless of the status of water court review). These issues were briefed in the fall of 2002 and argued in December.
- In separate rulings, the water judge held that: 1) the rules could not take effect until after review by the water court had been completed; and 2) the rules must be dismissed in their entirety because the State Engineer lacked statutory authority to review and approve annual replacement plans outside the statutory framework of express authorization granted by § 37-92-308. The final dismissal by the water judge was signed on December 30, 2002. The State Engineer filed an appeal the next day, and requested expedited review by the Supreme Court. That request was granted, the case was fully briefed in approximately five weeks, and oral argument was held on February 19, 2003. Also in December of 2002, Central GMS filed an application with the Division 1 Water Court for approval of a large plan for augmentation to cover depletions associated with nearly 1000 wells in the South Platte River Basin. Case No. 02CW335, Water Division 1.
- The Supreme Court ruled on April 30, 2003, regarding the rules proposed by State Engineer Simpson in May 2002. *Simpson v. Bijou Irrigation Co.*, 69 P.3d 50. The Supreme Court agreed with the water court that there was no statutory authority for this type of rules for well administration. The Court remanded the rules back to the water court for consideration of the portion of the rules that pertained to an interstate compact. The majority of the *Simpson v. Bijou* decision was devoted to analysis of the scope of State Engineer authority under the water rule power of C.R.S. § 37-92-501. After detailed analysis of existing statutes and legislative history, the Supreme Court concluded that the replacement plans contemplated by the proposed rules were the functional equivalent of temporary augmentation plans, that the State Engineer did not have legal authority to review and approve such plans except for the authority expressly granted to him by the General Assembly in § 37-92-308 (and a couple of other statutes not relevant here), and that review and approval of augmentation plans is within the exclusive jurisdiction of the water court. After reaching these conclusions, the Supreme Court held that the State Engineer does have authority to enact rules and regulations to enforce the South Platte River Compact under the compact rule authority, but that such rules must also fall within the scope of the water rule power.
- Attorney General, Ken Salazar, commissioned a committee of well users and surface users to work on compromise legislation. From the committee emerged Senate Bill 03-73 which provides that the State Engineer can approve substitute water supply plans for wells in the South Platte River Basin through December 31, 2005, and that thereafter, the wells will be curtailed unless they are included in a water court-approved plan for augmentation, are the

subject of a pending water court application for approval of a plan for augmentation, or can be operated under their own priorities without augmentation.

- On the same day that Simpson v. Bijou was decided, the Governor signed SB 03-73, giving well organizations in the South Platte River basin three years to file a plan for augmentation with the water court, and allowing the State Engineer to annually approve an SWSP after conducting a hearing. The basic structure was patterned after the SWSP process already contained in § 37-92-308. However, changes in the water market in the Basin following the 2002 drought resulted in many of the well owners were unable to find sufficient replacement water at an affordable to take advantage of the Legislature's authorization.

2003 Demise of GASP; Central GMS and WAS Augmentation Plan Litigation

- SB03-73 included 37-92-308(3) which stated that "Beginning January 1, 2006, ground water diversions from all such wells shall be continuously curtailed unless the wells are included in a plan for augmentation approved by the water judge for water division 1, are included in a substitute water supply plan approved pursuant to subsection (4) of this section, or can be operated under their own priorities without augmentation." This allowed for a well user to obtain an SWSP without having to first file in water court. This allowance was made explicitly for the years 2003, 2004, and 2005 "to provide sufficient time to fully integrate certain wells into the water court adjudication process for augmentation plans." But, such plans were still required to "replace all out of priority stream depletions in time location and amount." So, before, January 2006, wells were able to get an SWSP under 37-92-308(3) or 308(4). Afterward, as the statute states, they were required to come in under 308(4). Coincidentally, during 2006, Central WAS had an SWSP application before the State Engineer for approval that was heavily reliant on recharge from spring runoff and augmentation wells. During that spring, the forecast for runoff was extremely pessimistic. This caused an even greater reliance on augmentation wells in the plan which created more future obligations requiring replacement. With the prospect of the SWSP application being denied because of a lack of augmentation water, Central WAS withdrew its application. That lack of an SWSP impacted 449 wells.
- In 2003, GASP filed for approval of a SWSP under SB 03-73. The plan was approved to allow for replacement of ongoing stream depletions that resulted from past pumping, but did not allow any new pumping in 2003. GASP went out of business shortly thereafter, leaving hundreds of wells without augmentation coverage.
- River calls in 2003 occurred nearly the entire year. There were several reasons for the extended periods of call occurring. As the need for recharge credits increased, the downstream reservoirs could not take a chance that they might not fill. The gentlemen's agreement that had existed for so many was discontinued. Further the pressure on well owners to reduce their depletions to the river resulted in many ditches starting the ditch operations earlier than had occurred when wells were being used to provide the first irrigation water.

- In GASP's stead, other groups were formed. These groups were mainly associated either with areas such as a part of a County or ditches. The groups filed augmentation plans in water court. The "South Platte Well Owners" filed two applications for augmentation plans with the Water Court and sought approval of an SWSP for 380 wells. The SWSP was approved in June 2003. This group was composed of former members of GASP.
- In 2004, Central Colorado Water Conservancy District established the Well Augmentation Subdistrict ("Central WAS") which included the above 380 wells and 61 additional wells, for a total of 441 wells. An SWSP was approved for Central WAS in April 2004, and Central took over prosecution of the combined WAS cases, Consolidated Case Nos.03CW99 and 03CW177 in the water court.
- Meanwhile, the Central GMS application (Case No. 02CW335) was being prepared for a 2005 trial in the Water Court. The case was opposed by numerous water users, including a diverse group of municipalities, ditch companies, and other holders of senior surface rights.
- In 2004 the Colorado General Assembly passed SB 04-239 allowing South Platte tributary groundwater wells to operate out-of-priority under State Engineer-approved substitute supply plans, with provisos that (1) augmentation plan applications must be filed in Division No. 1 Water Court by December 31, 2005, and (2) wells not included in an adjudicated augmentation plan or State Engineer-approved substitute supply plan shall be "continuously curtailed" from operating out of priority, 2004 Colo. Sess. Laws, Ch. 316, 1205.
- In May of 2005, the Central GMS case settled on the eve of trial. The resulting consent decree was the result of extensive settlement negotiations and contained numerous restrictive terms and conditions for the protection of senior water rights. The Central GMS decree utilized a "projection tool" to forecast future depletions and anticipated replacement of Central GMS member wells. After lengthy multi-party negotiations, GMS — the largest and oldest of the remaining augmentation groups — settled out of court with water users opposing its plan, and presented a stipulated augmentation plan to the judge. The principal breakthrough facilitating settlement and resulting in a 2005 decree was a concept referred to as a "Projection Tool." *See Findings of Fact, Conclusions of Law and Decree of the Water Court, Case No. 02CW335, Division One Water Court, June 3, 2005.* The GMS plan did not have enough water supplies to cover depletions from pumping its member wells at 100% capacity. As a result, there was a need to limit pumping such that depletions would never exceed replacement supply. The Projection Tool (Tool) is a mechanism described by the decree that facilitates a comparison of anticipated depletions from well pumping with anticipated future supplies. In practice, it is an Excel spreadsheet prepared by GMS' engineering consultants. On the depletion side, the Tool forecasts the amount and timing of depletions that are expected to affect the river from metered well pumping that has already occurred. It also has the capability to project anticipated depletions from varying amounts of anticipated pumping. By adjusting the amount of proposed pumping, future depletions can be manipulated. Anticipated pumping is expressed in terms of a percentage of full demand. This "Quota" is the amount that members are allowed to pump. For the purposes of the Tool, it is assumed that there will be a call senior to the wells for every future day for the entire

length of the projection. In reality, there may not be a call for every day — there will almost certainly be times when the wells are in priority and do not have to replace their depletions. However, the “year round call” assumption is considered a prudent, conservative estimate designed to accommodate a worst case scenario. Depletions are calculated for each well, taking into account consumptive use and return flows, to establish the impact on surface flows. The net depletion for all wells is determined by adding up all the net depletions calculated for each individual well. No consideration is given to regional aquifer conditions resulting from the operation of wells generally, such as the lowering of groundwater tables and resulting elimination of phreatophytes (water loving plants), for example. The decree does not mandate any measurements or monitoring of the alluvial aquifer. Instead, it requires a mathematical calculation of depletions based on analytical equations described by Glover (Glover, Robert E., 1977, *Transient Ground Water Hydraulics*, Water Resources Publications). The wells are required to replace the calculated depletions in the time and amount that the “Glover” analysis dictates, at a location set forth in the decree. For supply, GMS is allowed to project deliveries of senior rights it owns based on a dry year yield. It may project deliveries from surface storage to the extent that there is water in storage at the time of the projection. Similarly, it may predict groundwater accretions to the extent that water has already been delivered to recharge sites for aquifer percolation. It may not assume any future deliveries of junior rights. The length of the GMS projection is seven years. This time period is intended to match the approximate time it takes for the bulk of delayed depletions from pumping the member wells to affect the river. The projection is updated annually by April 15. This “Projection Tool” methodology was also applied successfully to GASP orphan groups located downstream of Fort Morgan. Since its inception, it has been refined in a series of South Platte decrees and has become the de facto standard for South Platte Augmentation plans. Since the entry of its decree, GMS has been able to declare quotas ranging from 15% to 40% of calculated demand.

- In June 2005, the Central WAS SWSP was again approved for 445 wells, while Central WAS began to prepare for a 2006 trial in the Water Court. The Central WAS case was again opposed by most of the same water users that had litigated the Central GMS case.
- In April 2006, with the May 2006 trial date approaching, Central WAS petitioned the water court to postpone trial on its augmentation plan. Many water users opposed the postponement, arguing that their water rights were presently being injured by the operation of the WAS wells under the State Engineer-approved SWSPs. The water judge agreed to postpone the trial to February 2007, but only after the objectors who had appealed the approval of the 2003 and 2004 SWSPs were allowed to have a hearing beginning May 8, 2006, to show how the operation of SWSPs had injured their water rights.
- During the spring of 2006, Central WAS engaged in an increasingly challenging and contentious effort to secure the ability of its member wells to pump during the 2006 irrigation season. Central WAS’s struggles during this period illustrate the challenges involved in the operation of a large-scale augmentation plan during a period of extended drought.
- Central WAS initially submitted a request for approval of a SWSP for 449 wells with a

proposed pumping quota of 20 percent (of average historical pumping), based on a projected annual call period of 70 percent of the days of the year. Based on the projected 70 percent call, Central WAS projected that junior diversions to storage and recharge could provide almost 5,700 acre-feet of replacement water (approximately 50 percent of total replacement water in the plan). Importantly, the 70 percent annual call assumption also reduced the amount of out-of-priority depletions that would need to be replaced.

- In April, after considerable review, a preliminary decision was reached by State Engineer staff that based on the above-average April 1 snow pack, the plan could work if the number of days of “no call” was reasonable. Periods of no call, or “free river,” would allow the Central WAS plan to store water under a junior water right in a lined gravel pit (2,359 acre-feet of storage was initially projected for the Shores Pit; however, later information revealed only 1,500 acre-feet of storage volume was available and the liner for the pit had yet to complete a test to ensure it did not leak). The plan also proposed to use some recently completed recharge sites. A subsequent reduction in the projected number of days of “no call” required Central WAS to seek to obtain additional replacement sources.
- By May 1, the snow pack had declined to well below average and the State Engineer’s anticipated number of days of “no call” was reduced to nearly zero. This exacerbated the need for Central WAS to obtain additional replacement water. Some of the water expected to be available by lease, for example from Fort Collins (4,000 to 5,000 acre-feet), was no longer available due to the changing runoff situation.
- The Central WAS projection was updated on May 5, 2006 to include all legally available water. The increased shortage that resulted from reduced lease water and storage was proposed to be made up by pumping “augmentation wells” by the amount of approximately 8,400 acre-feet. The out-of-priority depletions from Central WAS wells in 2006 totaled approximately 16,000 acre-feet—with a pumping quota of only 15 percent. The projection provided by Central WAS for 2007 and 2008 also provided that there would be no CBT (Colorado-Big Thompson Project) water available since CBT cannot be used in a permanent plan for augmentation (policy of Northern Colorado Water Conservancy District). As CBT water played a large role in the replacement supply for the proposed 2006 plan, the effect was to require that the augmentation wells would have to be pumped by an even larger amount in 2007 and 2008. Pumping of augmentation wells creates an immediate supply of replacement water but only postpones the timing of depletions, and it created a future obligation that Central WAS could not meet with existing water rights and assets.
- State Engineer Simpson informed Tom Cech, manager of Central Colorado Water Conservancy District, on May 5, 2006 that he could not approve the Central WAS SWSP as proposed, and suggested that if the plan was denied, Central WAS could appeal it to the water judge to be considered together with the appeals of the approvals of the 2003 and 2004 SWSPs that was set begin on May 8, 2006.
- Instead, the Central Board, based upon advice from their attorneys, decided to withdraw the 2006 SWSP request. Central stipulated with the objectors that Central WAS would not pursue approval of the 2006 SWSP if the objectors agreed to withdraw their appeals of the

2003 and 2004 SWSPs. This stipulation was incorporated into an order by Judge Klein issued on May 8, 2006. The Order also stated that the Central WAS member wells could not be pumped at all until the water court approved an augmentation plan. The result was severe: barely a month into the 2006 irrigation season, the Central WAS wells were ordered not to pump until further notice.

- Consistent with the withdrawal of the 2006 SWSP and the Water Court's order, the Division Engineer ordered all of the 449 Central WAS member wells to cease pumping. Notification was done primarily via certified mail. Division staff posted notices on the well sites when certified mail was not accepted. Division staff field inspected the great majority of Central WAS wells, collecting power meter and flow meter information to verify compliance with the stop-pumping order. As with other wells, Division staff have continued to monitor these wells and have filed complaints with the water court when a user has violated the order.
- After Central WAS withdrew its SWSP request for 2006, the Division of Water Resources has received approximately 11 individual SWSP requests from former or existing members of Central WAS.
- As the February 2007 trial date neared in the Central WAS augmentation plan cases (03CW99 and 03CW177), Central WAS dropped 230 wells from the applications, leaving approximately 219 wells in the plan. A disputed issue was whether or not Central WAS would still be responsible for replacing depletions associated with the past pumping of wells that were dropped from the plan. The water judge ruled that Central WAS did not have to replace any depletions associated with dropped wells, except for those depletions associated with operations under the 2003, 2004, and 2005 SWSPs. Central WAS later asked for a reconsideration of that ruling.
- Approximately 6 weeks of trial for the Central WAS augmentation plan began on February 5, 2007. The majority of the trial was held in February, with portions also held in March, April, and May. The last day of trial was held on May 3. On the last day of trial, Judge Klein set a schedule for the filing of a proposed decree and briefs from the parties. This briefing was completed and proposed rulings submitted on June 14, 2007.
- Central WAS was not able to settle out of court with senior surface rights owners opposing the application, principally because these opposers believed that WAS did not have enough augmentation supplies to justify the entry of a decree, and the opposers made multiple motions for dismissal of the application. WAS wells did not receive temporary approval to operate in 2006, and were curtailed. This curtailment was an extreme hardship on well owners, and drew attention from national media.
- Whereas GMS had been assembling permanent supplies for 30 years, WAS had only four years and limited means. Faced with relatively small amounts of permanent supply, and the reality that available funding was insufficient to allow the large scale purchase of senior water rights, WAS developed an aggressive program of groundwater recharge designed to capture "free" river water during times of surplus and re-time it to replace well depletions. WAS' recharge program consists of a series of shallow infiltration basins, generally located

on existing ditch systems. When water is available, it is delivered via agreement with the ditch company to the recharge sites, where it is allowed to infiltrate into the alluvial aquifer. The same analytical equations that are used to calculate depletions are then used to calculate “accretions” and predict when these accretions will supplement river flows. In addition, many of the projects involve the use of alluvial wells to take water from the aquifer and deliver it to the river to supplement river flows (“augmentation wells”) or take water from the river and deliver it to recharge sites (“headgate wells”). Operated together, these facilities give WAS the ability to take water when it is available and retine it to match the pattern of groundwater depletions caused by the member wells used for irrigation.

- Concurrent with the efforts of Central WAS to adjudicate its augmentation plan in 2006 and early 2007, the Central Colorado Water Conservancy District undertook an effort to create a “designated ground water basin” in the Box Elder Creek drainage basin. See C.R.S. § 37-90-103(6). The drainage of Box Elder Creek extends from its origin just south of Interstate 70 near Watkins, northward to where it joins with the alluvial aquifer of the South Platte River approximately ten miles southeast of Greeley. If successful, this effort would have removed the area that was subject of the proposed designated ground water basin from the jurisdiction of the water court and the provisions of 1969 Act and instead, the subject area would have been under the administrative jurisdiction of the Colorado Ground Water Commission (“Commission”) pursuant to the 1965 Act. If approved this would have had numerous implications, the most important to Central WAS being the fact that well owners would no longer be affected by the South Platte Rules and the augmentation requirements included therein. This would have been the first such basin created within the last twenty years; most were created during the 1960s and 1970s, under the provisions of the 1965 Act. See C.R.S. § 37-90-106.

Era of full augmentation to present

- 2007 – Governor Ritter’s June 8, 2007 Executive Order convened the South Task Force, chaired by Harris Sherman, to deliberate on groundwater management and propose solutions. The Task Force met six times from June 29 to September 30, 2007 and eventually made ten recommendations to the Governor, including continued funding for the SPDSS, evaluation of the efficiency of the Water Court process, forgiveness of current depletions caused by pre-1974 pumping, among several other minor recommendations. From 1995 to 2007 the number of decreed plans for augmentation has gone from a little over 400 to over 750. From 1995 to 2007 the number of mainstem call changes has gone from 40 to 160, year round. This is a result of better streamflow information and resulted in reduced use of wells and increased reliance on direct flow rights during the summer. From 1995 to 2007 the number of water rights for which daily diversions are recorded has gone from 3250 to almost 4900. This is in large part a result of junior recharge projects coming online and decreed augmentation plans and changes of water rights that require daily recording of diversions. We continue to see the length of calls increasing from what occurred in the period from the 1970’s to 2000. The historic lack of river calls from November through March has ceased since reservoirs need to

place calls to assure that they can fill their reservoirs and not have compete for the water that otherwise will diverted by junior recharge water rights and storage rights.

- 2008 – Initial reports of high groundwater levels in the Pawnee Ridge and the Country Club Hills subdivisions of Sterling.
- 2009 – Colorado General Assembly passes HB 09-1174, exempting new augmentation plans requirements from augmentation requirements for out of priority well pumping depletions that occurred prior to 1974. SB 09-147 also passed into law, allowing the State Engineer to approve Substitute Water Supply Plans for the use of augmentation water sources not identified in decreed augmentation plans.
- 2009 – 2011 More reports of high groundwater levels in the vicinity of Sterling and the Gilcrest / LaSalle areas in District 2. Snowpack was slightly above average in 2009 and 2010 and were exceptional in 2011. Summer precipitation was above average in the lower river, particularly in District 64 during the period, while it was normal in the District 2 stretch of the river.
- 2012 – The Colorado legislature passes HB12-1278 funding a study to the South Platte alluvial aquifer. 2012 was an abnormally low snowpack and summer precipitation year across Colorado. Much of the South Platte Basin was in drought designation for the majority of the summer.

Colorado Division of Water Resources instruments pilot studies of groundwater levels in the Sterling and LaSalle areas.

- 2013 – State Engineer promulgates the *Rules Governing the Measurement of Tributary Ground Water Diversions by Wells Located in the South Platte River Basin within Water Division No. 1*. Approved by Div. 1 Water Court on 22 March, 2013 requiring all nonexempt tributary wells to be metered by an approved method and well owners must provide an annual report of monthly total well diversions by December 1 for the previous 12 month period (Nov 1 through Oct 31).