

## CHANGE REQUEST for FY 08-09 BUDGET REQUEST CYCLE

Department:	Department of Natural Resources, Division of Water Resources
Priority Number:	4 of 18
Change Request Title:	Republican River Compact Compliance

**SELECT ONE (click on box):**

- Decision Item FY 08-09
- Base Reduction Item FY 08-09
- Supplemental Request FY 07-08
- Budget Request Amendment FY 08-09

**SELECT ONE (click on box):**

Supplemental or Budget Request Amendment Criterion:

- Not a Supplemental or Budget Request Amendment
- An emergency
- A technical error which has a substantial effect on the operation of the program
- New data resulting in substantial changes in funding needs
- Unforeseen contingency such as a significant workload change

Short Summary of Request:

This is a request to add 0.9 FTE and \$ 109,179 in General Funds in FY 2008-09 and 1.0 FTE and \$ 105,668 in General Funds in 2009-10, to partially fund a well measurement program and assist in compliance with the Republican River Compact.

Background and Appropriation History:

The headwaters of the Republican River arise on the high plains of northeastern Colorado and western Kansas and Nebraska. The watershed encompasses an area of approximately 24,955 square miles, of which 7,722 are in Colorado, 9,714 in Nebraska, and 7,519 in Kansas. The topography in the watershed is generally characterized by near-level lands in the Great Plains that are traversed by broad and shallow river valleys in the upper and westward regions and are transformed toward the eastern portion by rolling hills and more steeply incised stream banks. The mainstem of the Republican River is formed by the junction of the North Fork of the Republican River and the Arikaree River near Haigler, Nebraska. From its headwaters, the river flows in a generally eastern direction for approximately 445 miles and decreases in elevation from 5,500 feet above mean sea level to 1,000 feet when it joins the Smoky Hill River at its confluence to form the Kansas River at Junction City, Kansas.

Within the Republican River Basin in Colorado, surface water ditches irrigate 4,700 acres; ground water irrigates 580,000 acres by 4,000 large capacity irrigation wells; 1.5 million acres are under dry-land farming practices; and 1.8 million acres are in pasture range. The total annual value of cropland sales in the basin in Colorado is approximately \$500 million, including irrigated and dryland crops.<sup>1</sup> The present population within the Republican River basin in Colorado is estimated to be approximately 31,000.<sup>2</sup>

On December 31, 1942, Colorado, Kansas, and Nebraska signed the Republican River Compact to equitably divide the interstate river waters and to help facilitate federal storage projects for flood protection and irrigation development. The Republican River Compact is a legally binding and enforceable contract that was ratified by the legislative authority in each of the three states, enacted by the U.S. Congress, and signed into federal law by the President of the United States. In May 1998, Kansas filed a complaint against Nebraska, claiming that Nebraska had injured Kansas through overuse of ground water in the Republican River Basin. Nebraska countersued Kansas, naming Colorado as a formal party in November 2000. The United States Supreme Court Special Master concurred that the compact included ground water use “to the extent it depletes Republican River Basin streamflows.” Settlement efforts thus began between the three states in October 2001 (*Kansas v. Colorado and Nebraska*, No. 126 Original: Second report of the Special Master Vincent McKusick, April 15, 2003).

The State of Colorado was successful in negotiating a mutually acceptable Final Settlement Stipulation that obviated the need for an anticipated 9-month trial. In addition to saving an estimated \$5 million in legal/technical expenses, the Final Stipulation Settlement allowed Colorado to create terms and conditions to meet compliance obligations to the Republican River Compact while simultaneously protecting the agrarian economy in seven counties in northeastern Colorado.

Governor Bill Owens signed into law Senate Bill 04-235, establishing a Republican River Water Conservation District (“RRWCD”) in Phillips and Yuma counties, and those

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<sup>1</sup> Department of Agricultural and Resource Economics, Colorado State University (2005).

<sup>2</sup> Colorado Department of Local Affairs (July 2005). The peak population in the Republican River Basin within Colorado was approximately 40,380 residents in 1930.

portions of Kit Carson, Lincoln, Logan, Sedgwick, and Washington counties within the Republican River Basin. The RRWCD is empowered to take such actions as are necessary to cooperate with and assist the state of Colorado to carry out the state's duty to comply with the compact. The RRWCD Board membership consists almost entirely of agricultural irrigators and has worked diligently to educate and cooperate with other irrigators in the basin. The county commissioners of each county, the ground water management districts, and the Colorado Ground Water Commission have representatives on the RRWCD's board. Through water fee assessments, the RRWCD has raised funds needed to share in the costs of various federal programs and to enter into its own water right lease and purchase agreements.

Colorado is in the final year of the first five year rolling average compliance period of the Republican River Compact, which ends December 31, 2007. The five year rolling average was part of the Final Settlement Stipulation (*Kansas v. Colorado and Nebraska*, No. 126 Original); for the year 2006, Colorado is approximately 10,800 acre feet out of compliance with the Republican River Compact. Unfortunately, the first four years of this period (2003 through 2006) have been a continuation of the drought, which began in this area in the year 2000. For the period of 2003-2006, Colorado exceeded its Republican River Compact allocation by an average of 11,350 acre-feet per year.

The protection of existing Colorado water rights and the ability to meet interstate compact obligations are critical. Late in the spring of 2007, the Kansas Legislature passed a measure setting forth a framework for distributing damage payments from other states received as a result of violations of the Republican River Compact, which is viewed as the precursor to re-filing a lawsuit before the U.S. Supreme Court. Thus, the need to implement and administer well rules and regulations on the Republican River is increasing. Rules and Regulations for well measurement in the Republican River Basin will be promulgated by an Order of the State Engineer in October 2007 and are anticipated to go into effect July 1, 2008. This will generate the demand for well administration, physical inspection of irrigated acreage, and subsequent enforcement measures.

New personnel are therefore required to assist in meeting Colorado's interstate river compact obligations and effectively administer water rights in Colorado pursuant to implementation of the Rules and Regulations. This request provides partial funding to address the additional workload demand on the Division of Water Resources in achieving compliance under well measurement rules, to address Colorado's ability to comply with the Republican River Compact, and to identify the impact of pumping on the aquifers and senior water rights. Funding of this decision item is also necessary to promote the conservation of water in Colorado and simultaneously attempt to protect Colorado from another potential lawsuit from Kansas.

The Division anticipates that 4.0 FTE and supporting resources must be devoted for Water Division 1 to secure necessary and sufficient personnel and funding to address the additional workload demand on the Division of Water Resources in achieving compliance with the Republican River Compact. This request seeks the necessary funding to support two new positions (a net increase of 1.0 FTE). The balance of the funding will come from reallocation of Division personnel and operating costs.

General Description of Request:

Ground water administration in the Republican River Basin is rapidly emerging in response to recent court actions within the State of Colorado. In a similar situation in the Arkansas River Basin, well pumping reduced compact deliveries to Kansas and resulted in an interstate lawsuit. Resolution of that lawsuit not only held Colorado liable for \$34.7 million (excluding the potential settlement of an additional \$4 million in court costs), but also resulted in strict well administration with a well measurement program requiring 14 new FTE.

As mentioned above, the State Engineer is promulgating compact rules pursuant to 37-80-104 C.R.S. (2007) to address the impacts of well pumping on stream flows and compact compliance. It would be difficult, if not impossible, to legally administer these wells for Compact purposes without rules.<sup>3</sup> However, the issue of the State Engineer's

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<sup>3</sup> See, Fellhauer v. People, 447 P.2d 986 (Colo. 1968).

authority to curtail wells in a designated basin is not clear.<sup>4</sup> Therefore, well measurement is required to determine the impact of the ground water diversions on surface water rights, the aquifers, and ultimately compliance with the Republican River Compact. The proposed rules will require measurement of all large capacity wells of 50 gallons per minute and larger. The rules allow for various types of measurement systems (e.g. power conversion coefficient utilizing utility measurements, flow meters, sonic metering, etc.) and are patterned after the Rio Grande Basin measurement rules promulgated in 2004.

The measurement rules are designed to give the widest latitude to the owners/operators of ground water rights in selecting measurement types/techniques including variances for alternative techniques. The rules require annual reporting of usage and the certification of the metering method. To accurately and fairly implement the rules, each meter/system will require database tracking. The measurement rules will require additional staffing to:

- 1) ensure accurate measurement devices are installed and maintained;
- 2) collect, evaluate and process the data;
- 3) ensure compliance with the rules, Final Permits and any court orders; and
- 4) evaluate the effectiveness of proposed replacement plans.

Additionally, the State Engineer expects any rules to be protested by at least some parties. Litigation of the Rules may take a considerable amount of time and the rules are not effective until that litigation is concluded.<sup>5</sup> Therefore, well regulation must be seen as a long term solution to assure compact compliance. The State Engineer will strive to avoid long-term administration of pre-compact water rights and, therefore, is not considering rules to administer surface water rights to meet Colorado's compact obligations at this time.

In lieu of measurement rules, the State Engineer will be unable to evaluate the effectiveness of curtailing wells upon impact to the Republican River Compact, surface water rights, and the aquifers. Without additional measures, the likelihood of court-

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<sup>4</sup> Compare C.R.S. § 37-80-102(a) with Gallegos v. Colorado Ground Water Commission, 147 P.3d 20 (Colo. 2006).

<sup>5</sup> Simpson v. Bijou Irrigation Co., 69 P.3d 50, 71-72 (Colo. 2003)

ordered cessation of ground water use becomes greater. Such a cessation would significantly and abruptly injure the crop value and long-term value of 580,000 acres of irrigated land within the Republican River Basin.

### **Personnel**

In all, 4.0 FTE are required to implement and enforce the ground water measurement rules. As a reference point, Division 2 required the hiring of 14 FTE as a result of needed ground water enforcement to administer augmentation plans in a similar interstate river litigation referred to as *Kansas v. Colorado*, No. 108 Original.

These new positions will be tasked with:

- Developing an inventory of large capacity wells within the Republican River Basin in Division 1;
- Conducting verification tests to assure compliance with the measurement rules and the integrity of the resultant data;
- Training well meter test contractors for approval<sup>6</sup>;
- Reviewing and approving or denying variance requests to measurement rules;
- Monitoring the usage of “inactive” wells or independent power-supply wells (those not subject to power conversion coefficients);
- Monitoring for re-certification needs;
- Modifying and maintaining the measurement databases:
  - DWR has several existing database systems that will be the initial structure for metering requirements.
  - Databases will include: metering system, calibration schedules, contact information, power conversion coefficients, complexity of the operating system, power company downloads, web-centered owner input.
- Enforcing the terms and conditions in final well permits; and
- Administration and enforcement of water diversion orders made in accordance with the Republican River Compact Rules and Regulations.

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<sup>6</sup> The well meter test contractors will be paid by the well owner. The Division must provide a comprehensive training to meet out strict standards initially and every two years thereafter. This is seen as a form of continuing education.

These tasks are quantified in the following analysis.

**Engineering and Physical Scientist Technician I (EPST I, 2.0 FTE)** - Ground water enforcement technicians: These positions are responsible for the enforcement of the measurement rules. These positions will also handle incoming questions as the rules are initiated, help process variance requests, Power Conversion Coefficient (PCC) reviews, system complexity reviews, and ensure that enforcement actions are verified and properly filed. Under the proposed rules, with approximately 4,000 wells on a four-year test schedule, there are many wells to re-certify annually. Additional bi-annual tests may be required to accurately report well pumping of those wells that rely on PCCs (as power requirements vary with well water levels throughout the year). All recertification tests must be reviewed and 10-15% subject to field measurement to ensure that the testers are correctly performing the certifications. For test failures, these positions will work with the owners to ensure proper measurement technique and equipment. These positions will train and certify independent meter testers.

Other staffing requirements to be sought internally:

**Professional Engineer (PE II, 1.0 FTE)** - Ground water measurement leader: As an expert on the determination of adequate measurement technique for wells, this position will approve variances to the measurement rules, determine compliance with the rules, analyze data comparing indicated to observed measurements, and review the operation of and recommend amendments to the rules. Public input on the rules indicates that variances on measurement technique may be requested for half of the wells (2,000). As measuring techniques are tested and new devices are developed, the Division expects a substantial number of changes in measuring techniques to be implemented. All require review, inspection and certification. Additionally, this position will be responsible for recommending and coordinating enforcement actions for non-compliance. For enforcement actions, this position will be the expert for well measuring techniques and systems. With approximately 4,000 wells, 5% non-compliance rates will generate approximately 200 actions per year. This position will also be responsible for analysis of the pumping impacts and/or replacement plans and will testify as an expert on such matters.

**Engineering Physical Science Assistant III (EPSA III 1.0 FTE)** – Ground water enforcement assistant: This position would provide the field verification discussed above for replacement water delivered to the stream or diverted to recharge sites from senior water rights, junior surface rights and augmentation or recharge wells. This position would also check other aspects of approved replacement plans such as reported well pumping, reduced irrigated acreage and covered, but un-used wells. This position will require the staff to conduct tests on wells to verify the accuracy of measurement techniques, compile data from well meter tests, conduct meter enforcement, review inactive wells, observe well meter tests, advise owners on available measurement techniques, and work generally for the Technicians. This position is required to meet the workload of review, inspection, certification, testing, retesting, data collection, and enforcement action regarding well meters.

#### **New Resources Required**

Resources required for the requested staff include two 4-wheel drive field vehicles sufficient to carry test equipment, office and field equipment, and telecommunication support. All of the positions require extensive field time in investigating, measuring, ensuring compliance and calibrating the metering methods selected. These positions will use state-owned vehicles to travel to and carry equipment for the field sites, requiring measuring equipment suitable to the various types of metering systems installed. The Division will be required to give up two positions to fund the PE II. The capital and operating expenses and equipment that had once been utilized by one of those positions is assumed to transfer to the PE II and the second set of expenses and equipment will transfer to one of the new EPST I positions. This is displayed in the Calculations for Request section. However, this leaves one new EPST I without equipment. Therefore, the Division will incur capital expenses for office furniture and field equipment, as well as routine operating expenses. Although this employee conducts much of his/her work in the field, the employee is required to maintain an office in his home; consequently, the Division must provide appropriate office furniture. In addition, field equipment must be obtained for the second EPST I position, because it is specialized measurement equipment required for enforcement of compact rules and not available elsewhere within the agency.

### **Support Equipment**

The Division requests vehicles for the two new employees. Although the Division plans to reallocate two Water Commissioner positions, there is no guarantee that these individuals have access to state-owned vehicles; approximately 50% of existing Water Commissioners do not have state vehicles. Furthermore, most state vehicles operated by the Division are not appropriately equipped for the tasks specific to this work.

In the course of their duties, these individuals must obtain or download data from streamflow gages, satellite monitoring systems, ground water management districts, ditch associations, and replacement plan coordinators. Also needed is field equipment including GPS units, Collins meters, sonic meters, magnetic meters, and small tools.

Well testing personnel carry heavy and bulky State-owned calibrated measuring equipment that has a value in excess of \$12,000. Hard mounted storage bins/utility boxes for the equipment are necessary to prevent damage or loss. This equipment includes: Collins meters, Ultrasonic meters, various-sized McCrometer meters (6", 8", and 10" diameter), pipe, connectors, hand and power tools, and electronic recording instruments. This equipment is a necessity for testing and measuring water flow, requiring storage and transportation in utility type enclosures to prevent damage. If equipment is improperly stored and transported, subsequent recalibration of equipment is required at a cost to the State in funds and lost productivity. The amount of equipment necessary to perform these daily tasks requires a ½ ton pickup truck for volumetric and weight-carrying capacity.

Employees cannot provide vehicles with hard mounted utility-type enclosures/storage boxes to protect and transport State of Colorado owned equipment. Private vehicles have neither the capability to store and transport this equipment or the insurance to cover loss or damage in the event of an accident. If employees use their private vehicles, equipment must be loaded and unloaded during every day of field use to address security needs. This requirement leads to loss of employee productivity, excess mileage expense to transport equipment to a secured location at day's end, the need to lease secure storage space, additional recalibration of equipment due to excess handling requirements, and

potential loss of field equipment. These expenses exceed the cost of acquisition of properly outfitted State-owned vehicles.

Consequences if Not Funded:

There are three important consequences that exist for not initiating well measurement rules and violating provisions of the Republican River Compact:

1. The U.S. Supreme Court *may* order the full curtailment of approximately 4,000 wells;
2. The cost to well users and the economic impact to the State of Colorado *could* be as much as a loss of sales of \$208.8 million per year, causing an extremely negative economic impact on the Republican River basin communities<sup>7</sup>.
3. An extensive trial, anticipated to last a minimum of nine months, costing in excess of \$5 million in legal and expert witness fees. These figures are based upon financial costs associated with the *Kansas v. Colorado* lawsuit on the Arkansas River and time, legal fees, and expert witness fees, estimated by senior attorneys with the Colorado Attorney General's Office.

Further, this year's request can be traced to (1) Pioneer litigation [*Pioneer Irrigation District, et al v. Colorado Ground Water Commission, et al, and Stulp Investment CO., LLC, et al.*, Yuma County District Court Case No. 06-CV-14]<sup>8</sup>. (2) the Final Settlement Stipulation of the *Kansas v. Colorado and Nebraska*, No. 126 Original, a mutually accepted negotiation between the three states; and (3) Compliance with the Republican River Compact.

The magnitude of the consequences for not completing the well measurement rules and subsequently violating provisions of the Republican River Compact are so severe that the Division believes it *must* fund the program even if this request is denied by reallocating 2

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<sup>7</sup> Please refer to the Cost Benefit Analysis for reference.

<sup>8</sup> A recent ruling in this matter from the District Court Judge remanded the decision back to the Ground Water Commission, who must determine if the designation of the Northern High Plains Designated Basin is necessary. This may lead to complex administration of up to 4,500 wells within the prior appropriation system.

FTE internally. Because of the necessity to implement a program to inventory wells and assure compliance with metering requirements, there would be a reallocation of a part-time Water Commissioner, part-time Hydrographer, and Senior Water Commissioner.

The consequences of reallocating a part-time Water Commissioner and a senior full-time Water Commissioner equate to a decrease in surface water administration and an increase in the likelihood for illegal pumping to go unmonitored. Further, the senior water rights owners will not receive all of the water to which they are entitled and will suffer economic consequences due to a loss in crop production, estimated at \$770,000 per year.<sup>9</sup> In addition, this reallocation of personnel reduces response time to complaints and inquiries, perpetuates disputes between individual water users, delays and/or causes incomplete water supplier reports, and leads to a declining accuracy of the reporting.

Reallocation of the part-time hydrographer limits the Division's ability to make adequate streamflow measurements on the North and South Forks of the Republican River and on the Arikaree River. In addition, the Division will be unable to adequately monitor 300-400 new recharge sites in Water Division 1. The division estimates that monitoring of 20 recharge sites is equivalent to the work required for operation and maintenance of one satellite monitoring gauging station. The estimated benefit of one gauging station is \$117,250 per year<sup>10</sup>. Using an annual benefit of \$117,250 per gage, estimated benefits for the state equal approximately \$1.8 million (\$117,250 water value / gage / year \* 15 gages = \$1,758,750). Thus, the consequences of reallocating the hydrographer could have a negative economic impact of at least \$1.8 million resulting from diminished surface water administration.

### Calculations for Request

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<sup>9</sup> The loss of one Water Commissioner is estimated to result in the illegal diversion of 7,700 acre-feet of water. To reallocate 1.5 Water Commissioners, the value of crop production lost to holders of senior water rights is 7,700 acre-ft/ Commissioner \* 1.5 Commissioners \* \$66.67 (water value per acre ft.)= \$770,000. This is consistent with the financial analysis contained within the Decision Item submitted for vehicle operating expenses.

<sup>10</sup> In an average year 35,000 acre-feet will pass through a satellite monitored streamflow gage. Valuing water at \$67/ per acre foot, a single gauge could be valued at 35,000 acre-feet/gage/year \* \$67/ acre foot \* 5 % improved delivery = \$117,250.

<b>Summary of Request FY 08-09</b>	<b>Total Funds</b>	<b>General Fund</b>	<b>Cash Funds</b>	<b>Cash Funds Exempt</b>	<b>Federal Funds</b>	<b>FTE</b>
Total Request	109,179	109,179	0	0	0	0.9
Vehicle Lease	2,056	2,056	0	0	0	0.0
Republican River Compact Compliance	270,697	270,697	0	0	0	3.7
Personnel Services	(140,727)	(140,727)	0	0	0	(2.8)
Operating Expense	(24,534)	(24,534)	0	0	0	0.0
Amortization Equalization Disbursement	1,241	1,241	0	0	0	0.0
Supplemental Amortization Equalization Disbursement	582	582	0	0	0	0

<b>Summary of Request FY 09-10</b>	<b>Total Funds</b>	<b>General Fund</b>	<b>Cash Funds</b>	<b>Cash Funds Exempt</b>	<b>Federal Funds</b>	<b>FTE</b>
Total Request	105,668	105,668	0	0	0	1.0
Vehicle Lease	6,168	6,168	0	0	0	0.0
Republican River Compact Compliance	273,210	273,210	0	0	0	4.0
Personnel Services	(153,909)	(153,909)	0	0	0	(3.0)
Operating Expense	(21,174)	(21,174)	0	0	0	0.0
Amortization Equalization Disbursement	1,357	1,357	0	0	0	0
Supplemental Amortization Equalization Disbursement	424	424	0	0	0	0

FTE and Operating Costs								GRAND TOTAL	
Fiscal Year(s) of Request		FY 08-09	FY 09-10	FY 08-09	FY 09-10	FY 08-09	FY 09-10	FY 08-09	FY 09-10
<b>PERSONAL SERVICES</b>	Title:	EPST I		PE II		EPSA III			
Number of PERSONS / class title		2.0	2.0	1.0	1.0	1.0	1.0	4.0	4.0
Calculated FTE per classification		1.83	2.00	0.92	1.00	0.92	1.00	3.67	4.00
Annual base salary (monthly * 12)	\$	42,396		98,856		38,208		221,856	221,856
Number months working in FY 08-09 and FY 09-10		11	12	11	12	11	12	44	48
Salary		\$77,585	\$84,792	\$90,948	\$98,856	\$35,151	\$38,208	\$203,684	\$221,856
PERA	10.15%	\$7,875	\$8,606	\$9,231	\$10,034	\$3,568	\$3,878	\$20,674	\$22,518
FICA	1.45%	\$1,125	\$1,229	\$1,319	\$1,433	\$510	\$554	\$2,954	\$3,216
Prior Year SAED	N/A	\$0	\$582	\$0	\$682	\$0	\$264	\$0	\$1,528
<b>Subtotal Personal Services at Division Level</b>		\$86,585	\$95,209	\$101,498	\$111,005	\$39,229	\$42,904	\$227,312	\$249,118
<b>Subtotal AED at EDO Long Bill Group Level</b>	1.60%	\$1,241	\$1,357	\$1,455	\$1,582	\$562	\$611	\$3,258	\$3,550
<b>Subtotal SAED at EDO Long Bill Group Level</b>	Varies	\$582	\$424	\$682	\$494	\$264	\$191	\$1,528	\$1,109
<b>Department Specific Average Cost for HLD / Employee**</b>		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Subtotal for Health, Life, Dental (if over 20 FTE)</b>	N/A	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Subtotal for Short Term Disability (if over 20 FTE)</b>	0.13%	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>OPERATING</b>									
Supplies @ \$500/\$500	\$ 500	\$1,000	\$1,000	\$500	\$500	\$500	\$500	\$2,000	\$2,000
Computer @ \$900/\$0	\$ 900	\$900	\$0	\$0	\$0	\$0	\$0	\$900	\$0
Office Suite Software @ \$330/\$0	\$ 330	\$330	\$0	\$0	\$0	\$0	\$0	\$330	\$0
Office Equipment @ \$2,225 /\$0	\$ 2,225	\$2,225	\$0	\$0	\$0	\$0	\$0	\$2,225	\$0
Printer @ \$1,500/\$0	\$ 1,500	\$1,500	\$0	\$0	\$0	\$0	\$0	\$1,500	\$0
Internet Modem Fee @ \$50/\$0	\$ 50	\$50	\$0	\$0	\$0	\$0	\$0	\$50	\$0
Field Equipment @ \$4,000/\$0	\$ 4,000	\$8,000	\$0	\$0	\$0	\$4,000	\$0	\$12,000	\$0
Internet (High Speed DSL \$30 monthly)	\$ 360	\$720	\$720	\$360	\$360	\$360	\$360	\$1,440	\$1,440
Cell Phone (\$40 monthly)	\$ 480	\$960	\$960	\$480	\$480	\$480	\$480	\$1,920	\$1,920
Telephone Base (Annual) (\$37.50 monthly)	\$ 450.0	\$900	\$900	\$450	\$450	\$450	\$450	\$1,800	\$1,800
Mileage Expenses		\$9,896	\$7,608	\$5,520	\$5,520	\$3,804	\$3,804	\$19,220	\$16,932

FTE and Operating Costs								GRAND TOTAL	
Fiscal Year(s) of Request		FY 08-09	FY 09-10	FY 08-09	FY 09-10	FY 08-09	FY 09-10	FY 08-09	FY 09-10
Subtotal Operating		\$26,481	\$11,188	\$7,310	\$7,310	\$9,594	\$5,594	\$43,385	\$24,092
Total Republican River Compact		\$113,066	\$106,397	\$108,808	\$118,315	\$48,823	\$48,498	\$270,697	\$273,210
Vehicle Lease		\$2,056	\$6,168	\$0	\$0	\$0	\$0	\$2,056	\$6,168
Personal Services				(101,498)	(111,005)	(39,229)	(42,904)	(\$140,727)	(\$153,909)
Prior Year SAED		\$0	(\$582)	\$0	(\$682)	\$0	-\$264	\$0	(\$1,528)
Subtotal AED at EDO Long Bill Group Level				(1,455)	(1,582)	(562)	(611)	(2,017)	(2,193)
Subtotal SAED at EDO Long Bill Group Level				(682)	(494)	(264)	(191)	(946)	(685)
<b>Operating Deductions</b>									
Supplies		(500)	(500)						
Internet (High Speed DSL \$30 monthly)		(360)	(360)						
Cell Phone (\$40 monthly)		(480)	(480)						
Telephone Base (Annual)(\$37.50 monthly)		(450)	(450)						
Mileage expenses		(5,976)	(6,888)						
Subtotal Operating Deductions		(7,766)	(8,678)	(7,310)	(7,310)	(9,594)	(5,594)	(24,670)	(21,582)
<b>GRAND TOTAL ALL COSTS</b>		<b>109,179</b>	<b>105,668</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>109,179</b>	<b>105,668</b>

Assumptions for Calculations:

Ron Clatterbuck of State Fleet Management provided the information regarding vehicle leases. For FY 2008-09 a ½ ton 4x4 pickup truck is \$1,028; for FY 2009-10, the vehicle lease is \$3084.

The variable vehicle rates were established for a ½ ton, 4-wheel drive vehicle driven by employees of the Department of Natural Resources. Beginning July 1, 2007, State Fleet Management has increased mileage operating rates by 5.7% for State-owned vehicles. Fleet rate per mile is .317.

The salary for the Professional Engineer is based upon the current salary of an existing employee.

The salary for the Engineering Physical Scientist Assistant is based upon the current salary of an existing employee with a state-owned vehicle.

The salary for all new employees assumes the minimum range salary level.

Water Commissioners are assumed to work from home offices.

State Fleet Management does not issue vehicles until March 1, 2009. Employees typically drive a minimum of 12,000 miles annually; therefore, in FY 2008-2009, a new employee would be required to drive eight months in a personal vehicle and drive four months in a state-owned vehicle. Mileage operating rates for personal vehicles per mile is 0.46 and for state-owned vehicles, fleet rate per mile is .317. The following table displays the breakdown of calculated mileage:

<b>FY 2008-09</b>					
<b>Job Title</b>		<b>D1: EPST I</b>	<b>DI: PE II</b>	<b>DI: EPSA III</b>	<b>Grand Total</b>

<b>FY 2008-09</b>					
Personal Miles		16,000	12,000		28,000
Per mile Cost		0.46	0.46		
Mileage Reimbursement		7,360	5,520	0	12,880
Fleet Miles		8,000		12,000	20,000
Per Mile Fleet Rate		0.317		0.317	
Total Mileage Expense		2,536		3,804	6,340

<b>FY 2009-10</b>					
<b>Job Title</b>		<b>D1: EPST I</b>	<b>DI: PE II</b>	<b>DI: EPSA III</b>	<b>Grand Total</b>

<b>FY 2009-10</b>					
Personal Miles			12,000		12,000
Per mile Cost			0.46		
Mileage Reimbursement			5,520		5,520
Fleet Miles		24,000		12,000	36,000
Per Mile Fleet Rate		0.317		0.317	
Total Mileage Expense		7,608		3,804	11,412

\$67 acre-foot for agricultural water based upon the assumption that one acre of irrigated land will generate \$200 in income from crop production; one acre of irrigated land typically uses 3 acre-feet of water.

Yield per acre of irrigated corn and non-irrigated corn was calculated by personal account of an individual farmer in the Republican River Basin.

Market commodity prices are based on June 27, 2007 prices tabulated from the Chicago Board of Trade. On June 27, 2007, the future price of corn, for delivery on July, 2008, closed at \$4.00/bushel.

#### Cost Benefit Analysis:

The net cost of funding the requested field staff, plus the cost of computers, office furniture and equipment, specialized field equipment, telecommunications support, and operating expenses equals \$109,179 (please refer to the Calculations for Request section for full table).

The selected benefit technique is to compare the cost of the request to the benefit of securing appropriate levels of staff to adequately administer the well measurement program and enforce the terms and conditions of Republican River Compact Rules and Regulations. The benefits are measured through (1) the avoided expense of interstate litigation; (2) the avoided loss of crop production in the Republican River Basin; and (3) the value of water illegally diverted due to the reallocation of staff.

#### **Potential Interstate Litigation Avoided**

Additional costs could be incurred by the state for failure to meet its interstate water delivery obligations under the Republican River Compact and non-compliance with the Final Settlement Stipulation in *Kansas v. Colorado and Nebraska*, No. 126 Original. Based upon financial costs associated with the *Kansas v. Colorado* lawsuit on the Arkansas River (pursuant to a Senior Attorney with the Attorney General's Office) *defense of our apportionment on the Republican River in a new lawsuit brought by the downstream states of Kansas and Nebraska, is estimated to be at least \$5 million in legal and expert witness fees.*

#### **Price of Irrigated Crop versus Dryland Crop**

The financial analysis examines net returns dependant on harvest yields and market prices. The benefit of funding this program is continued lawful irrigation of 580,000 acres of cropland (dominated by corn) production in the Republican River Basin.

Yield per acre:

120/bushel/acre of irrigated corn  
30/bushel/acre of non-irrigated or dryland corn  
90 bushel/acre of corn: net benefit or incremental yield

90 bushel/acre of corn\* \$4.00/ bushel of corn<sup>11</sup> \* 580,000 acres= \$208,800,000

As stated above, the total benefit to the State from funding of the well measurement program includes the avoidance of \$5 million of litigation expense and \$208.8 million in economic crop loss. However, to accomplish this program, the State loses the benefit of 3 FTE that will be reallocated to staff this program. Specifically, the Division expects to:

- Transfer a senior Professional Engineer from the Denver Office to staff this program. This individual is currently required to analyze and approve Substitute Water Supply Plans. The resulting inability to support this work could generate a loss to the State of tens of millions of dollars. Consequently, the Division must secure funds to replace the Professional Engineer.
- Hire a new Professional Engineer for the Denver Office to perform the functions currently supported by the individual to be transferred. This will require eliminating two Water Commissioner positions from the Personal Services budget to secure the needed funding to pay the salary and expenses of a Professional Engineer.
- Reallocate one Water Commissioner position from the Personal Services budget to staff the required Engineering Physical Science Assistant III position.

*To calculate the net benefit to the State, the loss of three Water Commissioners must be accounted for by subtracting their total value from the sum of the total benefit of avoided litigation and crop loss. The Water Commissioner position is the most common position with the Division of Water Resources. Because of this fact, the Division assumed these*

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<sup>11</sup> Source: Chicago Board of Trade, June 27, 2007

positions would be the most likely to be reallocated to allow for the addition of new employees. However, at this time, it is too early to make a definite decision in this regard. When it is time to implement this change, the final decision will be based on generating the smallest net impact to the State of Colorado as possible. Following is a description of this projected loss.

### **Illegally Diverted Water**

The loss of three Water Commissioners increases the potential for the illegal diversion of water. The Division estimates a theft of water by junior water rights owners of 23,100 acre-feet of water, valued at \$66.67 per acre-foot. The estimate of value is based upon the assumption that one acre of irrigated land will generate \$200 in income from crop production; one acre of irrigated land typically uses 3 acre-feet of water. At \$66.67 per acre-foot, the estimated value of total crop production lost to the senior water rights owners equals the value of the water, \$1,540,077 per year.

### **Net Benefit Analysis Summary**

The analysis below derives a net benefit of \$212,259,923. This is calculated by subtracting the benefits lost due to reallocation of staff from the benefits of avoiding interstate litigation and maintaining existing crop production.

\$5,000,000 (interstate litigation) + \$208,800,000 million (crop production) =  
\$213,800,000

Reallocation of staff (Illegally diverted water) = \$1,540,077

\$213,800,000 - \$1,540,077 = \$212,259,923

### **Cost Benefit Ratio**

The Cost Benefit Ratio is 1,944:1. This represents the net benefit (\$212,259,923) divided by the net cost of funding the requested FTE and associated operating expenses (\$109,179).

**Required Budget Transfers**

The need for 4.0 FTE is essential to accomplish the entire well measurement program and to assist in compact compliance. However, the request is for 0.9 new FTE and operating costs to accomplish a portion of the increased duties that accompany the well measurement program. Because this project is of utmost importance, the Division will reallocate 2.8 FTE within the Division. This action requires a transfer in spending authority of \$140,727 in personal services expense and \$ 24,534 in operating expense for FY 2008-09 to the Republican River Compact line.

Implementation Schedule (anticipated):

<b>Task</b>	<b>Month/Year</b>
Determine Qualifications and Examination Requirements for the two EPST I Positions	April 1, 2008
Advertise Position to the Public	April 8, 2008
Close Position to the Public	April 15, 2008
Review, Analyze, and Determine Top Candidates Based on Application and Examination	May 1, 2008
Contact Top Candidates and Require Further Testing	May 15, 2008
Conduct Further Testing and Interview	June 1, 2008
FTEs Hired	July 1, 2008
New Employee Orientation	July 1, 2008

Statutory and Federal Authority:

37-67-101. C.R.S. (2007) Republican River Compact- Ratification, purpose, and articles of compact.

*Article IX*

*It shall be the duty of the three states to administer the compact through the official in each state who is now or may hereafter be charged with the duty of administering the public water supplies, and to collect and correlate through such officials the data necessary for the proper administration of the provisions of this compact. Such officials may, by unanimous action, adopt rules and regulations consistent with the provisions of this compact.*

37-80-102 (k). C.R.S. (2007). Water Rights and Irrigation- General duties of state engineer- supervision and utilization of employees- satellite monitoring system.

*(k) Such other acts as may be reasonably necessary to enable him to secure the effective and efficient operation of the division of water resources, including power and authority to make and enforce such rules or regulations as he may find necessary or desirable to effectuate the performance of his duties. The making of such rules or regulations shall not be a prerequisite to control of personnel of the division of water resources or the*

*performance of his duties under the constitution or laws of Colorado or any compact, treaty, or judicial decree or decision which does not, by its specific terms, require implementation by such rule or regulation.*

37-80-104. C.R.S. (2007). Water Rights and Irrigation- Compact requirements- state engineer's duties.

*The state engineer shall make and enforce such regulations with respect to deliveries of water as will enable the state of Colorado to meet its compact commitments. In those cases where the compact is deficient in establishing standards for administration within Colorado to provide for meeting its terms, the state engineer shall make such regulations as will be legal and equitable to regulate distribution among the appropriators within Colorado obligated to curtail diversions to meet compact commitments, so as to restore lawful use conditions as they were before the effective date of the compact insofar as possible.*

37-92-501 (1). C.R.S. (2007). Water Right Determination and Administration- Jurisdiction over water- rules and regulations.

*(1) The state engineer and the division engineers shall administer, distribute, and regulate the waters of the state in accordance with the constitution of the state of Colorado, the provisions of this article and other applicable laws, and written instructions and orders of the state engineer, in conformity with such constitution and laws, and no other official, board, commission, department, or agency, except as provided in this article and article 8 of title 25, C.R.S., has jurisdiction and authority with respect to said administration, distribution, and regulation. . . The state engineer may adopt rules and regulations to assist in, but not as a prerequisite to, the performance of the foregoing duties.*

Performance Measures:

<b>Performance Measure</b>		<b>FY 05-06 Actual</b>	<b>FY 06-07 Actual</b>	<b>FY 07-08 Appropriation</b>	<b>FY 08-09 Request</b>
DNR Performance Measure #3 - Overall compliance with interstate water compacts (expressed as a percentage)	Benchmark	100%	100%	100%	100%
	Outcome	90%	90%		
<p>It is critical that the State of Colorado meet its contractual water delivery obligations for each of its nine compacts, two United States Supreme Court decrees and interstate water allocation agreements while simultaneously protecting the right of Colorado to develop its full interstate compact apportionment.</p> <p>DNR will provide an annual tabulation that quantifies the water allocation and the subsequent delivery obligation for each compact to assess compact compliance in terms relevant to that specific compact. The performance measure for each compact and interstate agreement will assess overall compliance with the compact for each year. For the year 2006, the State of Colorado was in compliance with both U.S. Supreme Court Decrees and seven of its interstate river compacts. Colorado was out of compliance with the Republican River Compact and the Animas-La Plata Compact was deemed non-operational.</p>					