DESCRIPTION OF THE COLORADO-BIG THOMPSON PROJECT

The Colorado-Big Thompson Project is one of the largest and most complex natural resource developments undertaken by the Bureau of Reclamation. It consists of over 100 structures integrated into a trans-mountain water diversion system through which multiple benefits are provided.

The Project spreads over approximately 250 miles in the State of Colorado. It stores, regulates, and diverts water from the Colorado River west of the Rocky Mountains, providing supplemental water for irrigation of 720,000 acres of land east of the Rocky Mountains. It also provides water for municipal use, industrial use, hydroelectric power, and water-oriented recreation.

Major features of the Project include dams, dikes, reservoirs, powerplants, pumping plants, pipelines, tunnels, transmission lines, substations, and other associated structures (table 1, exhibits 1 and 2).

Historically, the Project has diverted approximately 230,000 acre-feet of water annually (310,000 acre-feet maximum) from the Colorado River headwaters on the western slope to the South Platte River Basin on the eastern slope, for distribution to project lands and communities. The Northern Colorado Water Conservancy District apportions the water used for irrigation to more than 120 ditches and 60 reservoirs. Twenty-nine communities receive municipal and industrial water from the Project. The Western Division of the Pick-Sloan Missouri Basin Program markets the electric power produced at the six powerplants.

The western slope collection system captures runoff from the high mountains and stores, regulates, and conveys the water to Adams Tunnel for diversion to the East Slope under the Continental Divide.

To ensure irrigation and power generation under prior rights on the Colorado River, Green Mountain Reservoir was constructed on the Blue River. Spring runoff is stored in this reservoir and later released to meet the requirements of the senior water rights holders downstream along the Colorado River and to allow East Slope diversion of water by the Project throughout the year.

Pursuant to authorities in Senate Document 80, (which authorized the C-BT), and the 1984 Green Mountain Operating Policy and the agreements in the September 1996 Stipulation and Agreement of the Orchard Mesa Check Case settlement (Case No. 91CW247, Colorado Water Div. 5), the content of the Historic Users Pool (HUP) in Green Mountain Reservoir is evaluated during the summer to determine the availability of water surplus to historic beneficiaries needs. If it is determined that surplus water is available, it may be delivered based upon need, first to the federal Grand Valley powerplant and then to other uses based on a priority system or on specific agreements.

Irrigation systems on the Colorado River, above the Blue River confluence, were improved to enable continued use of existing rights. Releases are made from Lake Granby to maintain the Colorado River as a live fishing stream.

The C-BTs principal storage facilities on the West Slope are Lake Granby, Grand Lake, and Shadow Mountain Reservoir located on the Colorado River near Granby, and Willow Creek Reservoir located on Willow Creek, a tributary to the Colorado River below Lake Granby. Willow Creek

Pumping Plant lifts the water 175 feet. It then flows by gravity via the Willow Creek Feeder Canal down to Lake Granby.

Granby Pumping Plant lifts the water 99 feet from Lake Granby to Granby Pump Canal. The canal conveys the water 1.8 miles to Shadow Mountain Lake, which also intercepts North Fork flows of the Colorado River. Shadow Mountain Lake connects with Grand Lake to make a single body of water from which diversions flow to Adams Tunnel to begin the journey to the eastern slope.

Emerging from Adams Tunnel into the East Portal Reservoir, the water flows across Aspen Creek Valley in a siphon and then under Rams Horn Mountain through a tunnel. At this point, it enters a steel penstock and falls 205 feet to Marys Lake Powerplant. This powerplant is located on the west shore of Marys Lake, which provides afterbay and forebay capacity for re-regulating the flow. The water is conveyed between Marys Lake and Estes PowerPlant, on the shore of Lake Estes, through Prospect Mountain Conduit and Prospect Mountain Tunnel.

Lake Estes, which serves as an afterbay for the Estes Powerplant, is formed by Olympus Dam. The storage in Lake Estes and the forebay storage in Marys Lake enable the Estes Powerplant to meet daily variations in energy demand.

Water from Lake Estes and the Big Thompson River flows are conveyed by Olympus Siphon and Tunnel, and Pole Hill Tunnel and Canal, to a penstock through which the water drops 815 feet to Pole Hill PowerPlant. The flow is then routed through Pole Hill PowerPlant Afterbay, Rattlesnake Tunnel, Pinewood Lake, and Bald Mountain Pressure Tunnel, and eventually dropped 1,055 feet through two penstocks to Flatiron PowerPlant. This powerplant discharges into Flatiron Reservoir, which regulates the water for release to the foothills storage and distribution system. The afterbay storage in Flatiron Reservoir and the forebay storage in Pinewood Lake enable Flatiron PowerPlant to meet daily power loads.

Southward, the Flatiron reversible pump/turbine lifts water from Flatiron Reservoir, a maximum of 297 feet, and delivers it through Carter Lake Pressure Conduit and Tunnel to Carter Lake. When the flow is reversed, the unit acts as a turbine-generator and produces electrical energy.

The St. Vrain Supply Canal delivers water from Carter Lake to the Little Thompson River, St. Vrain Creek, and Boulder Creek Supply Canal. The latter delivers water to Boulder Creek and Boulder Reservoir. The South Platte Supply Canal, diverting from Boulder Creek, delivers water to the South Platte River.

Northward, the Charles Hansen Feeder Canal transports water from Flatiron Reservoir to the Big Thompson River and Horsetooth Reservoir. The canal crosses the Big Thompson River in a siphon above the river and highway. Water from the Big Thompson River can be diverted into the canal by Dille Diversion Dam and utilized for power generation at Big Thompson PowerPlant.

Project water deliveries and Big Thompson River water to be returned to the river are dropped through a chute from the feeder canal ahead of the siphon crossing, or are passed through the Big Thompson PowerPlant to convert the available head to electrical energy.

Horsetooth Reservoir is located west of Fort Collins between two hogback ridges, where Horsetooth Dam closes the gap at one end. Soldier, Dixon, and Spring Canyon Dams and Satanka Dike close the remaining gaps. An outlet at Soldier Canyon Dam supplies water to the City of Fort Collins, three rural domestic water districts, Colorado State University, and the Dixon Feeder Canal for the irrigated area cut off from its original water supply by the reservoir. The principal outlet from Horsetooth Reservoir is through Horsetooth Dam into the Charles Hansen Supply Canal. This canal delivers water to a chute discharging into the Cache la Poudre River and to a siphon crossing the river to supply the Windsor Reservoir and Canal Company. A turnout from the Supply Canal supplies the City of Greeley municipal water works. Water is delivered to the river to replace, by exchange, water diverted upstream to the North Poudre Supply Canal, which conveys it to the North Poudre Irrigation Company System.

SUMMARY OF 2002 OPERATIONS

For at least the third consecutive year, dry conditions prevailed over the Colorado-Big Thompson Project (C-BT) area during Water Year 2002. According to weather experts, calendar year 2002 was the driest on record in some areas of Colorado. Storage at most reservoirs deteriorated considerably after the dry calendar year of 2001. Snowpack totals during Water Year 2002 remained below average resulting in reservoirs over the area experiencing some of the lowest inflows in decades. Peak inflows in May and June did not last long enough to fill West Slope reservoirs to capacity. In fact, some were at record low storage levels.

Replacement of the ring seal gates for Green Mountain Reservoir penstocks, scheduled for the summer of 2002 was, for the second consecutive year, postponed because of the lower than average inflows. The highest inflow into Green Mountain Reservoir was observed on June 1, 2002, a 24-hour average of 555 ft^3/s. In comparison, the previous year which was also considered to be a dry year, had a highest observed inflow of 948 ft^3/s. In order to perform the work needed to replace the ring seal gates, while at the same time continuing water deliveries to the Colorado River system, the reservoir level must reach the top of the tadial gates. That level was never reached during the Water Year 2002.

Lake Granby also experienced the lowest total inflow for a Water Year in reservoir history. The total inflow for the Water Year 2002 was only 111,300 acre-feet. In comparison, the 30-year average inflow is 252,930 acre-feet. The highest daily natural inflow was observed on June 1, 2002, an average of 1,234 ft^3/s. The reservoir content never reached the spillway crest during the Water Year, therefore, no spills were observed. By September 2002, Lake Granby had reached its lowest water surface levels since the spring of 1990, 8216.56 feet above sea level. The reservoir level stabilized during October, as movement of water through Adams Tunnel was discontinued due to maintenance work at different C-BT facilities. In early November, 2002, the reservoir level began to decline once again, and by the middle of December, 2002, the total storage had dropped to less than 147,000 acre-feet.

Total inflow into Willow Creek Reservoir during the Water Year 2002 was also the lowest in reservoir history. The 15,600 acre-feet inflow was only one quarter of the 30-year average, and 9,000 acre-feet less than the previous low, recorded in 1977. The highest daily average inflow was reported on May 24, 2002, 74 ft^3/s. The highest inflow for the previous year was 409 ft^3/s.

Temperatures in general were relatively normal during the winter, both on the West Slope and the East Slope. But, by the time spring arrived, temperatures were warmer than average, which contributed to the early snowmelt. Peak daily average inflows at Willow Creek and Granby reservoirs were observed in May and early June. During average weather years, peak monthly inflows at these two reservoirs are observed later in June. Warmer temperatures in the spring also contributed to more evenly distributed inflow totals for some of the reservoirs during the spring and summer months. The peak monthly-undepleted inflow at Green Mountain was observed in June, 2002, a total of 36,300 acre-feet. That was 50,000 acre-feet lower that the previous year, and over 90,000 acre-feet lower than the 30-year average. Inflows into Green Mountain are dependent on the releases from Dillon Reservoir upstream. Dillon Reservoir experienced its highest monthly inflow in May.

Precipitation over the West Slope was low during most of the Water Year. Summer showers were few and produced limited runoff, bringing little relief to the area. The dry summer season was also accompanied by numerous forest fires across the state. Massive fires left large areas of forest scarred, and open for potential future land slides that could threaten water supply reservoirs and streams.

Weather patterns over the East Slope were similar to the West Slope. Native inflow into Lake Estes remained low all year. The total annual inflow of 42,800 acre-feet was the also the lowest in reservoir history. That total was less than one half of the 30-year average of 94,100 acre-feet. The highest release of native inflow out of Lake Estes during Water Year 2002 was 362 ft^3/s, recorded on June 2. In contrast to the low flows recorded on the Big Thompson River, flows along the Poudre River were 100% of the 30-year average, although the reservoirs in the upper basin remained low all year.

Alva B. Adams Tunnel (Adams Tunnel) diversions for the Water Year 2002 totaled 267,900 acre-feet. That total is equal to 118% of the 30-year average flow for the tunnel. The quota declared in April by the Northern Colorado Water Conservancy District for Water Year 2002 was 70% (217,000 acre-feet) to be used for the allocation of C-BT water to allotment contract holders.

The seasonal water deliveries (November 2001-October 2002) were 196,900 acre-feet.

Total project generation for the Water Year 2002 was below average at 590 giga-watt-hours, or 93% of average.

PROJECT PLANNING AND CONTROL

The C-BT is operated to provide supplemental municipal and industrial water supply, irrigation water supplies, hydroelectric power production, flood control, recreation, fish and wildlife preservation, and other purposes. The project is operated for the purposes for which it was authorized and constructed.

The integrated operation of the C-BT is planned and coordinated by the Bureau of Reclamation, Water Scheduling and Control Group, Colorado Area Office in Loveland, Colorado. This office collects and analyzes information daily and makes the decisions necessary for successful operation of the C-BT. This continuous water management function involves coordination between the Northern Colorado Water Conservancy District, Upper Colorado and Great Plains Regions of Reclamation, the Department of Energy, and many other local, state, and Federal agencies.

Experience has proven that proper utilization of the available water resource in a multi-purpose project such as this can be achieved only through careful budgeting and management of the anticipated water supply. The technical end product of this budgeting and management process is an Annual Operating Plan (AOP).

The C-BT is operated on a water year basis (October 1 through September 30). The AOP is prepared in October or November of each year, following the plan's review and necessary public meetings. AOPs are prepared for reasonable maximum and reasonable minimum conditions of water supply and requirements as well as for the most probable runoff conditions. The C-BT is operated to optimize the most probable water supply without jeopardizing operational position should either the reasonable maximum or the reasonable minimum water supply conditions occur. The plan is reviewed and revised as necessary during the year as new information or changing conditions occur. Flexibility is a keynote and a necessity of the plan. Computer programs and models are used by Reclamation to develop the AOP's and water supply forecasts.

WATER YEAR 2002 OPERATIONS

Green Mountain Reservoir

Green Mountain Reservoir and Powerplant, completed in 1943, are located south of the town of Kremmling, a few miles upstream of the confluence of the Blue River and the Colorado River in North Central Colorado. The reservoir, with a total capacity of 153,639 acre-feet, provides storage water releases for power production, replacement of out-of-priority depletions, and contract water deliveries.

The powerplant has two units with a total installed capacity of 26 megawatts. The spillway located on the left abutment is controlled by three 25 x 22 foot radial gates and is capable of discharging 25,000 ft^3/s.

Reservoir storage on October 1, 2001 was low at 98,665 acre-feet, compared to an average September 30 storage of 123,390 acre-feet (30-year average).

Flows along the Colorado River were below average during most of the year, although they were adequate to meet downstream water users demands. However, releases from Green Mountain Reservoir were needed to meet the requirements at the Cameo stream gage. During the month of October, 2001, the releases from Green Mountain Reservoir totaled 30,600 acre-feet, which was 6,400 acre-feet above the 30-year average. For the remainder of the Water Year, monthly releases were reduced, and fell below the 30-year average. Releases for the year totaled 169,900 acre-feet, the lowest since Water Year 1964.

Even with October-January precipitation over the Green Mountain watershed at 98% of the 30-year average, by February 1 the snow-water content was only 6.5 inches, or 70% of the 30-year average. As the spring season arrived, the snowpack remained low and never recovered from **its** slow start. Snow-water content remained low throughout the spring season. By late March, temperatures had begun to rise slightly, and flow rates along the West Slope streams began to increase. Depleted inflows into Green Mountain Reservoir had been as high as the 30-year average until late March. The April to July most-probable-forecast was estimated at 201,000 acre-feet, 73% of the 30-year average. But, that forecast never materialized.

April 12 was selected as the start-of-fill for Water Year 2002 at Green Mountain Reservoir. But by late April, it became clear that flows were not going to be high enough to fill. Inflow for the reservoir did not increase as previously anticipated. Total depleted inflows for the months of May and June were only 23% of the 30-year average. By the end of the Water Year, depleted inflows into Green Mountain Reservoir had totaled only 123,200 acre-feet, the lowest in C-BT history, and over 200,000 acre-feet below the 30-year average.

The reservoir reached its lowest level on May 1, a water surface elevation of 7896.7 feet, with a total storage volume of 67,053 acre-feet. A targeted storage of 60,000 acre-feet at the end of April is desired for the most probable runoff condition, while 50,000 acre-feet is desired for the maximum runoff condition. The filling period brought the water surface elevation back up to

7910.73 feet by June 20, with a storage volume of 84,787 acre-feet. That low volume was more than 27,000 acre-feet less than the minimum-probable-runoff condition forecasted.

Depleted inflow for the year at Green Mountain Reservoir peaked at 555 ft^3/s on June 1, 2002. Releases from Green Mountain remained at the minimum flow of approximately 60 ft^3/s between early May and the middle of June. After June 20, releases were increased, in order to satisfy the water demands from senior water rights holders. Immediately after June 20 the water surface level began to drop.

Dillon Reservoir, a Denver Water Reservoir upstream of Green Mountain, spilled for only a few days during Water Year 2002. That spill occurred in October, 2001. Due to the on-going drought, that reservoir never reached full capacity. On the contrary, its content continued to diminish throughout the entire Water Year. Its maximum water surface level for the Water Year was reported on October 1, 2001 at 9,011.89 feet above sea level. Maximum discharges into the river were reported between October 1 and October 6; a flow of 161 ft^3/s. Total volume of water spilled for the Water Year was less than 2,500 acre-feet. Releases for the Water Year totaled 51,900 acre-feet, the lowest total since Water Year 1981. Required releases from Dillon were substituted with releases from Williams Fork and Wolford reservoirs throughout the year. Therefore. Dillon releases were mostly kept to a minimum. This type of operation affected Green Mountain Reservoir elevations because inflows were lower than expected. Dillon Reservoir ended the Water Year at a storage level of 152,668 acre-feet. The 30-year average for the end-of-the-year storage content is 237,390 acre-feet.

Due to the extremely dry conditions, the Green Mountain Reservoir achieved a maximum content for the year of 84,745 acre-feet on June 19, approximately 68,900 acre-feet short of a physical fill. In fact, even with the 32,886 acre-feet of substitution water owed to Green Mountain by Denver Water and the City of Colorado Springs for out-of-priority diversions, Green Mountain fell approximately 29,700 acre-feet short of achieving a "paper" fill. The substitution water was paid back this year by a combination of releases from Williams Fork Reservoir, Wolford Mountain Reservoir, and from Ruedi Reservoir through an exchange with Wolford Mountain Reservoir. The physical water in Green Mountain in combination with the substitution water was sufficient to fill the 52,000 acre-foot Colorado-Big Thompson Project replacement pool, the 5,000 acre-foot Silt Project replacement pool, and the 66,000 acre-foot HUP. However, due to the large "paper" fill deficit, there was no water available for Green Mountain contractors this year.

Landslide concerns resulted in a restriction requiring Green Mountain Reservoir's water surface elevation to remain above 7850.0 feet (27,000 acre-feet), effectively "stranding" 20,000 acre-feet of HUP water in the reservoir. This loss of water was mitigated through a lease making up to 10,000 acre-feet of Ruedi Reservoir water available as HUP water and an agreement that 10,000 acre-feet of the "stranded" water would be considered to be from the 52,000 acre-foot Colorado-Big Thompson Project replacement pool.

Releases to satisfy the water rights of HUP beneficiaries downstream of Green Mountain began on 36,112, with a total of 21,985 acre-feet being released for that purpose between April 12 and September 24. Major conservation efforts by the Grand Valley irrigators resulted in only requiring 36,617 acre-feet of water to be released from the HUP to support the Cameo call

between June 27 and September 30. Since the entire HUP was needed to meet the needs of the HUP beneficiaries this year, there was no declaration of HUP surplus water to support the target flows in the 15-Mile Reach or the Grand Valley Power Plant. Together, the releases for HUP beneficiaries downstream of Green Mountain and to support the Cameo call totaled 58,602 acre-feet. In addition, there were 706 acre-feet of evaporation from the HUP and 210 acre-feet of depletions by HUP beneficiaries upstream of Green Mountain this year, resulting in an HUP balance of 6,482 acre-feet on November 1.

The dry conditions over the region were reflected in the low storage volumes and stream flows recorded for the Water Year. A good example of the precarious situation was the measured flows at the Dotsero gage. The volume of water that passed through that location during Water Year 2002 only totaled 672,200 acre-feet, one of the lowest ever observed at that location. The 30-year average for that location is 1,578,970 acre-feet.

The total 2002 Water Year undepleted inflow at Green Mountain was 176,300 acre-feet, less than half the 30-year average of 395,600 acre-feet. Blue River, Dillon Reservoir, and Green Mountain Reservoir operations for Water Year 2002 are summarized in table 2.

Gross generation at the Green Mountain PowerPlant totaled 24,800,000 kilowatt-hours for Water Year 2002, 42 % of the 30-year average.

Willow Creek Reservoir

Completed in 1953, Willow Creek Reservoir has a total storage capacity of 10,600 acre-feet. The uncontrolled spillway, located at the left abutment, has a capacity of 3,200 ft^3/s. The Willow Creek Feeder Canal begins at the left abutment with a capacity of 400 ft^3/s for pumping to Granby Reservoir.

Reservoir carryover storage coming into Water Year 2003 was 9,777 acre-feet, 887 acre-feet higher than the 30-year average.

Similar to the conditions over the Green Mountain Reservoir watershed, the February 1 snow-water content for the Willow Creek Reservoir watershed was only 55% of average. This resulted in an April-July most-probable-runoff forecast of only 32,000 acre-feet, which is 16,000 acre-feet below the average most-probable forecast. However, inflow into Willow Creek Reservoir was average during the winter months, but extremely low during the runoff season, when compared to the 30-year averages. Total inflow for the entire Water Year was only 15,600 acre-feet, less than one half of the expected volume, and the lowest in C-BT history. The 30-year average inflow for Willow Creek Reservoir is 59,910 acre-feet.

The peak daily inflow for the Water Year was reported on May 24, a daily average of 74 ft^3/s. To illustrate the severity of the situation, by comparison, records from Water Year 2001 report a peak daily average inflow of 409 ft^3/s. Water Year 2001 was one of the driest on record for the area. Pumping from Willow Creek into Granby Reservoir was very limited during Water Year 2002.

There was pumping during October, November, April and June, but the total volume was only 5,300 acre-feet. By contrast, the 30-year average volume is 27,650 acre-feet.

During the Water Year 2002, a total of 8,800 acre-feet of controlled releases into the river were made out of Willow Creek Reservoir. That total was the lowest volume in 20 years.

Granby Reservoir

Completed in 1950, the Granby Reservoir on the upper Colorado River collects and stores most of the water supply for the C-BT. The reservoir stores the flow of the Colorado River as well as water pumped from Willow Creek Reservoir. The reservoir has a total storage capacity of 539,800 acre-feet. The spillway is located on the left abutment. Flows over the spillway are controlled by two radial gates, with a total release capacity of 11,500 ft^3/s. The Granby Pumping Plant has three units with a combined installed capacity of 600 ft^3/s.

Reservoir carryover storage into Water Year 2002 was 374,219 acre-feet, which is 63,800 acre-feet below the 30-year average of 438,000 acre-feet.

A total of 12.06 inches of precipitation was reported forth: Lake Granby watershed for Water Year 2002. That total was only 70% of the average. Taking into account the low precipitation totals during the first few months of the Water Year, the March 1 forecast for April-July was estimated at 169,000 acre-feet of storage. That forecast was 28,000 acre-feet below the average. By April 1, the expectations were significantly lower, as the dry weather continued to dominate. The forecasted volume for the period May-July was only 135,000 acre-feet. That total was 62,000 lower than the historical average. Inflow into Lake Granby remained close to or slightly above the 30-year average until late April. But, by the beginning of May, runoff volume began to fall below the average. By late June, most of the snowpack had dissipated and the runoff was diminishing. The total April-July runoff was 79,500 acre-feet, which represents 38% of the 30-year average. The April-July runoff for Water Year 2002 was the lowest ever reported at Granby Reservoir.

Except for the month of June, during the peak of the runoff season, the reservoir storage at Lake Granby continued to decline steadily throughout the Water Year. The water surface level dropped approximately 38 feet during the year, causing problems for recreationist and marina operators. With the reservoir storage at critical low levels, a total of 26,600 ft^3/s used for river releases was restricted to the required minimum daily flow rates. As was the case during Water Year 2001, there was no water spilled from Lake Granby during Water Year 2002. Windy Gap did not pump to Granby during Water Year 2002.

Lake Granby ended the Water Year with 176,778 acre-feet in storage. This volume was 261,300 acre-feet below the 30-year average, and almost 200,000 acre-feet lower than the volume recorder on September 30, 2001.

Adams Tunnel

Flows through the Adams Tunnel remained near or above average during most of the Water Year. although maintenance schedules required temporary shutdowns. The low runoff and dry conditions along the East Slope contributed to the high flows through the tunnel. Adams Tunnel diversions were near maximum capacity during the months of May and June. The total volume diverted through Adams Tunnel during Water Year 2002 was 267,900 acre-feet, 118% of the 30-year average.

Lake Estes

Completed in 1949, Lake Estes on the Big Thompson River provides regulating capacity for power purposes. The lake has a total capacity of 3,100 acre-feet and controls the discharge of Estes PowerPlant, river inflow, river outflow, and releases of water to the Foothills Power System via Olympus Tunnel (550 ft^3/s capacity). The Estes PowerPlant has three hydroelectric units with a total installed capacity of 45 megawatts. The combined flow capacity for the three units is 1,300 $ft^{3/}s$. The spillway, located on the right abutment, has five radial gates with a total discharge capacity of 21,200 ft^3/s. The center gate has been automated, and is operated remotely from the Loveland Control Center.

During the winter months, C-BT water is diverted through Adams and Olympus Tunnels and routed through the Foothills Power System on its journey to terminal storage at Carter Lake and Horsetooth Reservoir.

Similar to the dry weather conditions on the West Slope, the October-January precipitation for the Big Thompson River Basin above. Lake Estes was low at only 61% of the 30-year average, with precipitation for January at 83%. The spring months precipitation totals continued well below average.

The February 1 snowpack water content measurement was only 58% of the 30-year average, which resulted in an April-July most-probable-runoff forecast volume of 59,000 acre-feet, 12,000 acre-feet below the historical average. The April 1 snowpack water content was reported at 62% of the 30-year average, as the April-July most probable runoff forecast volume dropped to 56,000 acre-feet. The actual inflow for the period April-July was only half of what was predicted; a total of 28,000 acre-feet, or 39% of the 30-year average.

Total precipitation for the Water Year at the Lake Estes automated tipping bucket rain gage was 11.83 inches, 64% of the 30-year average (not an official National Weather Service rainfall station). The natural inflow into Lake Estes for Water Year 2002 was 42,800 acre-feet, the lowest since 1954 and only 45% of the 30-year average.

Natural inflow into Lake Estes began to increase by the middle of May. The peak inflow of 399 ft^3/s occurred on May 31. Releases to the river below Olympus Dam peaked at 362 ft^3/s on June 2, 2002. Precipitation during the summer continued to be well below average.

The Big Thompson River natural inflow into Lake Estes, in excess of the minimum outflow required by the State of Colorado below Lake Estes, was diverted as skim water through Olympus Tunnel. Skim operations began on June 5, but were very limited due to the low runoff. Water diverted was used for power generation at Pole Hill, Flatiron and the Big Thompson powerplants, and eventually returned to the river below the Big Thompson Canyon. The total volume skimmed through the Olympus Tunnel during Water Year 2002 was only 1,910 acre-feet, all of it in June.

Dille Tunnel operations diverted a total of 13,800 acre-feet, mainly between the months of May and September. Water diverted through this tunnel serves two purposes; 1) it can supply the City of Loveland and other users with their priority water from the Big Thompson River; 2) diverted water can also be used as skim water and passed through the Big Thompson Powerplant to generate electricity. Skim water is returned to the river below the Trifurcation of the Charles Hansen Feeder Canal at the Big Thompson Canyon mouth. The total volume diverted through Dille Tunnel during Water Year 2002 was over 10,000 acre-feet less than the 30-year average.

Water Year 2002 was a very dry period across Colorado. Runoff along the Big Thompson River watershed was extremely low. Due to the dry conditions experienced across the region, there was no Big Thompson River priority water for the C-BT during Water Year 2002.

Estes PowerPlant generation totaled 113,700,000 kilowatt-hours for the Water Year, 112% of the 1966-1995 average. When added to the other C-BT powerplants on the East Slope, they combined for a total generation of 565,200,000 kilowatt-hours, 100% of the average.

Carter Lake

Completed in 1952 with three dams, Carter Lake has a total storage capacity of 112,200 acre-feet. Inflow of C-BT water to Carter Lake is from the Flatiron Pumping Plant with a capacity of up to 400 ft^3/s.

Carter Lake storage content was 57,100 acre-feet at the beginning of the Water Year, slightly higher than the 30 year average, and 17,000 acre-feet higher than the year before.

Pumping from Flatiron Reservoir to Carter Lake began on November 16, and continued uninterrupted until March 28, as the reservoir reached its highest level for the Water Year at 5758.72 feet, with a storage volume of 111,909 acre-feet. A total of 114,200 acre-feet of water was pumped into Carter Lake during the Water Year 2002, 35,000 acre-feet more than the 30-year average. This activity required a total of 36,600,000 kilowatt-hours of energy, 143% of average. Immediately after reaching its maximum elevation, the reservoir level began to drop steadily, as water demands increased. Pumping resumed in May and continued to early July, alleviating the speedy drop in water surface elevation. Water deliveries to the St.Vrain Supply Canal for Water Year 2002 totaled 86,700 acre-feet. The 30-year average is 70,150 acre-feet. The month of July had the highest volume delivered, with 18,600 acre-feet. Flatiron Unit 3 was not used for hydropower generation during Water Year 2002.

Horsetooth Reservoir

Completed in 1949, with four dams, Horsetooth Reservoir has a total constructed capacity of 156,700 acre-feet. Inflow of C-BT water comes from Flatiron Reservoir via the Charles Hansen Feeder Canal.

Horsetooth began the Water Year 2002with an estimated storage of 3,500 acre-feet. Since calendar year 2000, ongoing Safety of Dams work has limited the reservoir elevation to a maximum of 5360.00 feet. This restriction is expected to be lifted in Fall 2003 when construction work is completed.

The reservoir reached its highest elevation on May 3 at 5359.23, a storage volume of 46,296 acre-feet. Water deliveries made through the Charles Hansen Supply Canal totaled 89,100 acre-feet for the year, with the highest deliveries in July of 24,400 acre-feet. Flows through the canal were typically 200 ft^3/s in May and June, and increased to 500 ft^3/s in July. Horsetooth ended the Water Year with a storage volume of 10,900 acre-feet.

FLOOD BENEFITS

Precipitation on the upper Colorado River basin was significantly low for the third consecutive year. Snowpack remained below average during most of the winter and spring. Consequently, the C-BT reservoir levels were below average during most of the Water Year.

According to figures provided by the U.S. Army Corps of Engineers, C-BT reservoirs did not prevent any flood damages during Water Year 2002.

Since construction, the C-BT has prevented flood damages totaling $316,000.

OPERATING CRITERIA FOR GREEN MOUNTAIN RESERVOIR

Paragraph 6 of the October 5, 1955, Stipulation and Decree (as amended on October 12, 1955, and filed with the United States District Court for the District of Colorado in civil action Nos. 2782. 5016, and 5017) calls for the development and submission of operating plans for Green Mountain Reservoir and are included as a part of this report. Paragraph 3.e.(1) of the Green Mountain Historic Users Pool (HUP) Operating Criteria, developed pursuant to Paragraph 5.a. of the Stipulation and Agreement of the Orchard Mesa Check Case (case No. 91 CW247, Colo. Water Div. 5) calls for the annual development of an HUP Operating Plan which is included in the following criteria.

The provisions that relate to the operation of Green Mountain Reservoir are contained in the:

October 12, 1955, Stipulation and Decree
April 16, 1964, Stipulation and Decree
November 2, 1977, Memorandum Opinion and Order
February 9, 1978, Supplemental Judgment and Decree
Consolidated Case Nos. 2782, 5016, and 5017
Senate Document No. 80, 75th Congress, 1st Session
December 22, 1983, Federal Register, Operating Policy as amended September 11, 1987
September 4, 1996, Stipulation and Agreement of the Orchard Mesa Check Case, Colorado Water Div. 5, 91CW247 and attached HUP Operating Criteria.

Operations will be consistent with these provisions.

The criteria are listed below.

1. Winter operation (November-March)

a. Bypass inflow to supply downstream vested rights.

b. Replace water withheld by the C-BT, as required.

c. Make required releases for West Slope natural flow domestic water users depletions per Green Mountain Operating Policy and Orchard Mesa Check case Settlement.

d. Make required releases for contract water depletions.

e. Maximize power generation, while maintaining:

(1) Adequate storage to meet the anticipated requirements of Senate Document No. 80 and the agreements under the Stipulation and Agreement of the Orchard Mesa Check Case.

(2) A minimum power head, which is consistent with the integrated system power operations.

2. Operation during snowmelt period (April-July)

a. Bypass inflow, as required, to supply downstream vested rights.

b. Replace water withheld by the C-BT, as required.

c. Make required releases for West Slope natural flow irrigation and domestic water users depletions.

d. Reduce releases from traditional levels before and after the peak flow enhancement for the Coordinated Reservoir Operations effort. During peak flow enhancement, release the lesser of inflows or turbine capacity (approx. 1500 ft^3/s) for approximately a ten-day period.

e. On or before June 30, each year, assess availability of surplus water in the Historic Users Pool (HUP), on a regular basis, in consultation with the Managing Entities established under the settlement of the Orchard Mesa Check Case.

f. If a surplus condition is declared in the HUP, make releases, under agreement, to the Grand Valley PowerPlant to the lesser of the amount of the surplus or the capacity of the Grand Valley PowerPlant canal system or the amount needed to generate power at the Grand Valley PowerPlant.

g. Release surplus amounts to other needs downstream.

h. Make required releases for contract water depletions.

i. Fill without spilling.

j. Maximize power operation consistent with 1.e.

k. Make releases as outlined in the above referenced documents.[1]

3. Operation after snowmelt period (August-October

a. Bypass inflow as required, to supply downstream vested rights.

b. Replace water withheld by the C-BT, as required.

c. Make required releases for West Slope natural flow irrigation and domestic water users depletions.

d. Assess availability of surplus water in the Historic Users Pool (HUP), on a regular basis, in consultation with the Managing Entities established under the settlement of the Orchard Mesa Check Case.

e. If a surplus condition is declared in the HUP, make releases, under agreement, to the Grand Valley PowerPlant to the lesser of the amount of the surplus or the capacity of the Grand Valley PowerPlant canal system or the amount needed to generate power at the Grand Valley PowerPlant.

f. Make required releases for contract water depletions.

g. Release to other surplus amounts.

h. Maximize power operation consistent with 1.e.

i. Make releases as outlined in the above referenced documents.

1 By the use of these criteria for current operating purposes, the United States does not intend to imply any definition of rights and obligations. The order in which these criteria are listed does not reflect any intended priority.

GREEN MOUNTAIN HISTORIC USERS POOL AND THE ORCHARD MESA CHECK CASE SETTLEMENT

Background and Authority

The Orchard Mesa Check (Check) is a structure below the common afterbay of the Orchard Mesa Irrigation District (OMID) Pumping Plant and the federal Grand Valley PowerPlant in the Grand Valley of Colorado. The operation of the Check provides the ability to raise the water level in the common afterbay to a level, which causes water to flow through the bypass channel and return to the Colorado River upstream of the Grand Valley Irrigation Company (GVIC) diversion dam.

Operation of the Check was determined to constitute an 'exchange' of water whereby water destined for the senior GVIC irrigation water rights is borrowed for pumping and hydroelectric power generation purposes and returned to GVIC for irrigation use. Operation of the Check influences the supply of water available to Grand Valley irrigation systems; to the Grand Valley PowerPlant for power production; Green Mountain Reservoir releases; and the flow in the 15-Mile Reach of the Colorado River. The 15-Mile Reach is that section of the Colorado River from the GVIC diversion dam to the confluence of the Gunnison River and has been designated critical habitat by the Upper Colorado River Endangered Fish Recovery Program.

The Check has been operated on an informal basis without a decreed right since approximately 1926 to manage flows in the Colorado River for the benefit of the United States, Grand Valley Water Users Association (GVWUA), and OMID (Co-applicants). In the late 1980's, a hydropower development was proposed in a reach of the Colorado River between the Grand Valley Diversion Dam, the point where the exchange water is diverted, and the GVIC diversion dam where the exchange water is returned. The Co-applicants were concerned that a water right awarded for this development would have the ability to interfere with the exchange of water. In response to this potential threat to the continued operation of the exchange, the Co-applicants filed an application in State Water Court on December 30, 1991, for approval of an exchange of water. This case (Water Division 5, Case No. 91CW247) was informally known as the Orchard Mesa Check Case. Resolution of the case resulted in a negotiated Stipulation and Agreement entered into the District Court, Water Division No. 5, State of Colorado, on September 4, 1996.

Overview of the Stipulated Settlement

The settlement contains two major components: the Stipulation and Agreement and the Green Mountain Reservoir Historic Users Pool Operating Criteria (Operating Criteria). The Operating Criteria further defines operation of the Green Mountain Reservoir Historic Users Pool (HUP) consistent with Senate Document 80 and the 1984 Operating Policy. The parts of the Stipulation and Agreement pertinent to the operation of the HUP are summarized below:

As part of the Stipulation and Agreement the Co-applicants and GVIC agree not to exercise their irrigation rights against any upstream HUP beneficiary provided that the Check is physically operable; there is at least 66,000 acre-feet of water in storage in the Green Mountain Reservoir HUP, or approved substitute storage reservoir, when Green Mountain Reservoir storage rights cease to be

in priority; and the water rights for the Shoshone PowerPlant continue to be exercised in a manner consistent with their historical operation. (Section 3.b. of the Stipulation and Agreement)

The Stipulation and Agreement also provides that Reclamation will declare surplus water which is in excess of the needs of HUP beneficiaries for a given Water Year. Water declared surplus might be delivered through agreements to beneficial uses in Western Colorado. This is to be done in accordance with the provisions of the HUP Operating Criteria, which are summarized below:

Management of the HUP Under the Operating Criteria

The management of the HUP is accomplished through the process defined in Sections 3.d. and 3.e. of the Operating Criteria. This process requires the development of this Annual HUP Operating Plan on or before June 30 of each year.

The Annual HUP Operating Plan is developed by the Bureau of Reclamation, in consultation with the Grand Valley Water Users Association, the Orchard Mesa Irrigation District, the Grand Valley Irrigation Company, the Division 5 Engineer, the Colorado Water Conservation Board and, Fish and Wildlife Service. These entities are collectively known as the 'Managing Entities'. The Managing Entities agree to make a good faith effort to develop an Annual HUP Operating Plan that is unanimously supported. However, the Bureau of Reclamation reserves the right to establish a release schedule, should unanimous consent be unattainable.

The Annual HUP Operating Plan is based upon actual HUP storage conditions; projected runoff forecasts; operational and climatological conditions; projected irrigation demands; and, 15-Mile Reach flow needs. It is expressly recognized, however, that in some years, release of the entire HUP by the end of the irrigation season will not be necessary or possible.

On or before June 30 of each year, the Bureau of Reclamation assembles initial information on storage in the HUP and comparative runoff years. Based upon the information assembled, a meeting is held with the other Managing Entities. During this meeting, a review of the forecasts is analyzed, and initial determinations of the level of "checking" required to preserve water in the HUP, as well as any determination of water surplus to HUP beneficiaries needs are made.

The HUP operations are reviewed and modified by the Managing Entities as necessary to respond to changing conditions. Subsequent meetings or conference calls are held on an as needed basis to reexamine HUP storage conditions, runoff forecasts, climatological conditions, irrigation demands, 15-Mile Reach flow needs, and other operational conditions. Based upon this information, the Managing Entities adjust the checking. They also determine the water surplus for HUP beneficiary needs, as well as the release of such water. During periods of below average river flows, review meetings or conference calls may be held as frequently as every week.

This mechanism provides a way to integr• management of releases from the HUP with operation of the Check to accomplish the purposes of The Operating Criteria. The mechanism is also used to integrate releases from the HUP with releases for the endangered fish from other reservoirs including Ruedi and Wolford Mountain.

OPERATION SKIM

Big Thompson River water in excess of the minimum requirements, as recommended by the State of Colorado Division of Wildlife and the United States Fish and Wildlife Service, is diverted at Lake Estes into the Foothills System for power generation. This operation is known as operation "skim." The amount diverted depends on the flow at the Big Thompson River and the tributaries above Lake Estes, importations through the Adams Tunnel, and the capacity of the Foothills System.

The water taken from the Big Thompson River can be used for power generation immediately. It can also be held in storage and replaced to the river with water from other sections of the system, depending on the power requirements. In general, water taken from the Big Thompson River at a variable rate, on a given date, is returned to the river at a flat rate, on the following day.

Operation "skim" and storage of surplus water from the Big Thompson River in C-BT reservoirs are managed according to the AOP and as prescribed by the ECAO Water Scheduling staff.

During Water Year 2002, a total of 1,910 acre-feet of water was diverted through Olympus Tunnel for "skim" operations, less than 6 % of the 30-year average. Skim operations through Olympus Tunnel took place only during the month of June. Dille Tunnel diversions totaled 10, 433 acre-feet for Water Year 2002. That total represents 43 % of the 30-year average.

TABLE I

WESTERN DIVISION - PICK-SLOAN MISSOURI BASIN PROGRAM
PERTINENT RESERVOIR DATA

(Data in Acre-feet)

Reservoir	Dead Storage 1/	Active Storage 2/	Total Storage	Normal Minimum Storage	Limitation on normal minimum storage
Green Mountain	6,860	146,779	153,639	47,684	Minimum elevation for rated power output
Willow Creek	1,486	9,779	10,553	6,675	Elevation of pump canal head-works
Lake Granby	74,190	465,568	539,758	74,190	Lowest outlet elevation
Shadow Mountain	506	16,848	17,354	16,026	Minimum permissible Grand Lake elevation; 8,366 ft.
Grand Lake	3/	511	1,015	504	Legislation limits fluctuation
Marys Lake	42	885	927	308	Minimum elevation for power generation
Lake Estes	409	2,659	3,068	740	Minimum elevation to release 550 ft^3/s
Pinewood Lake	416	1,765	2,181	613	Minimum elevation for power generation
Flatiron	125	635	760	324	Minimum elevation to release 550 ft^3/s
Carter Lake	3,306	108,924	112,230	306	Lowest outlet elevation
Horsetooth	7,003	149,732	156,735	17,600	Elevation on highest delivery works
Total	94,343	903,373	998,220	167,970	

1/ Storage capacity below elevation of lowest outlet
2/ Total storage minus dead storage
3/ Not determined

COLORADO-BIG THOMPSON PROJECT

WATER YEAR 2002 — MONTHLY SUMMARY OF BLUE RIVER OPERATIONS — (ACRE-FEET)

	INI	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
UNDEPLETED RUNOFF ABOVE GREEN MTN. RESERVOIR		11.400	10,200	8,900	9,200	7,000	8.700	16.400	30,100	36.300	15,500	11,900	10.700	176,300
UNDEPLETED RUNOFF ABOVE DILLON RES.		7,596	6,666	5,152	5,620	4,636	5,452	9.962	20,034	19,490	7.784	7,070	6,388	95,850
PERCENT OF TOTAL UN-DEPLETED RUNOFF ORI-GINATING ABOVE DILLON		0.666	0 653	0.579	0 611	0.662	0.570	0.627	0.620	0 666	0.502	0.594	0.597	0 605
DEPLETIONS BY 1929 COLORADO SPRINGS RIGHT		0	0	0	0	0	0	22	79	87	0	0	0	188
DEPLETIONS BY 1949 COLORADO SPRINGS RIGHT		-1085	-146	0	0	0	0	49	987	2109	0	0	0	1914
INFLOW TO DILLON		8,700	6,800	5,100	5,600	4,600	5,400	9,900	18,900	17,300	7,800	7,100	6,400	103,600
DILLON STORAGE (1000 AF)	2380	225.3	2198	212.8	205.5	200 1	193 8	185.9	184.0	179.4	162.9	154.3	1527	
ROBERTS TUNNEL DIVERSIONS		11,502	5288	7,286	7,506	6,878	7,746	13,794	17,248	18,028	20,284	11,516	4,230	131,306
DILLON OUTFLOW TO THE RIVER		9,000	5,800	4,900	5.400	3,100	4,000	3,900	3,200	3.100	3,200	3,200	3,100	51,900
TOTAL DEPLETIONS BY DENVER		-300	-L000	-200	-200	-1,500	-1,400	-5,900	-15,600	-14,003	-4,500	3,800	-3,200	-51,000
RUNOFF ORIGINATING BETWEEN DILLON AND GREEN MTN RESERVOIR		3,700	3.600	3,800	3,600	2,400	3,300	6,500	10,300	17,000	7,800	4,900	4,400	71,300
ACTUAL INFLOW TO GREEN MTN RESERVOIR		12.700	9,400	8.700	9,000	5,500	7,300	10,400	13,500	20,100	11,000	8,100	7,500	123.200
GREEN MTN RESERVOIR STORAGE (1000 AF)	987	60.5	79.0	78.7	75.7	736	71.5	67.2	74.5	80.7	56.4	452	48.5	
TOTAL GREEN MTN OUTFLOW		30,600	10,800	9,100	11,900	7,600	9,400	14,500	5,600	13.1 00	34.600	18,800	3,900	169,900

PICK-SLOAN MISSOURI BASIN PROGRAM
WESTERN DIVISION WATER AND POWER SYSTEM
COLORADO-BIG THOMPSON PROJECT

2002 ACTUAL OPERATIONS

WATER IN 1000 ACRE-FEET — ENERGY IN GWH

	INITIAL OR TOTAL	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
GREEN MOUNTAIN RESERVOIR													
Depleted Watershed Inflow	123.2	12 70	a40	8.70	9.00	5.50	7.30	1040	13.50	20.10	11.00	8 10	7.50
Turbine Release	156 5	30.6	10.1	5.4	1 1.9	7.6	9.3	13.3	2.8	11.5	34 6	18.8	0.6
Bypass	133	0.0	07	36	00	0.0	00	1 2	2.9	1 6	0.0	00	3.3
Spill	0.0	0.0	0.0	00	00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
End of Month Contenl	98.7	80.50	79.00	78.70	75.70	7360	71.50	67.20	74.50	80.70	56.40	45.20	48.50
KWWAF		196.1	148.5	111.1	126.1	118.4	118.3	153.9	107.1	173.9	176.3	1489	N/A
Generation	24.8	6.0	1.5	06	1.5	09	1.1	2.0	03	20	6.1	2.8	0.0
WILLOW CREEK RESERVOIR													
Inflow	156	0.9	0.9	0.8	08	06	0.9	26	38	2.3	0.9	06	0.5
Release to River	8.80	OA	04	0.4	04	04	0.4	07	2.7	1.8	0.6	03	0.3
Pumped to Granby	5.3	1	2.1	0	0	0	0	21	0	0.1	0	0	0
End of Month Content	102.8	9 1	7.4	7 7	8.1	8.3	8.7	8.3	9	9 1	9.1	9	9
Pump Energy	1.0	02	0.4	0.0	0.0	00	0.0	04	0.0	0.0	0.0	0.0	0.0
GRANBY - SHADOW MOUNTAIN - GRAND LAKE													
Natural Watershed Inflow	111 3	4 3	3 4	3.3	3 3	2 8	3.5	12.1	26.7	31.5	9.2	6.1	5.1
Total Inflow into Granby	84 6	5.2	6 5	3 4	3 1	2.4	22	97	15.3	18 5	7.4	4 4	4.6
Granby Fish Release	26 6	1 6	1.2	1.2	1.2	1.1	1.2	1 2	4	5.2	4.9	22	1.6
Granby Seepage	48	04	04	0.4	0.4	0.4	0.4	03	0.3	0.4	0.5	0.5	04
Granby Spill	00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	00	0.0
Adams Tunnel	267.9	176	167	29.6	297	269	28.8	16.1	302	288	14.5	20.4	8.4
Granby End of Month content	374 2	358.5	345 5	317.5	289 6	264.2	237.2	233.3	222.9	216.7	203 1	183 2	176 7
SM-GL End of Month Content	177	17 6	17.7	17 7	17 8	17 8	17 8	17 6	17.9	177	17 6	17 9	17.5
Pumped from Granby	239 2	178	17.9	300	295	266	276	116	19.8	16.7	13.6	19.9	82
Granby Pump Kwh/AF		162 9	1620	170 0	172 8	176 2	184 8	1897	186.9	191.6	191 2	196 0	195 1
Granby Pump Energy	430	2.9	29	5 1	5 1	47	5 1	22	3.7	3.2	28	39	1 6

PICK-SLOAN MISSOURI BASIN PROGRAM
WESTERN DIVISION WATER MD POWER SYSTEM
COLORADO-BIG THOMPSON PROJECT

2002 ACTUAL OPERATIONS

WATER IN 1000 ACRE-FEET ENERGY IN GWH

	INITIAL OR TOTAL	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MARYS LAKE - ESTES - FLATIRON													
Adams Tunnel Water	267 9	176	16.7	298	297	269	288	16.1	30.2	288	145	204	84
Marys Lake Generation	43.2	1.2	30	4.4	52	4.7	50	2.6	5.3	50	22	3.4	1.2
Estes Generation	110 5	76	73	128	128	116	128	6.0	13.1	123	57	8.4	3.3
DivertiNe Big-Thompson	29.7	00	04	04	03	00	0.0	0.0	12.3	11.9	29	1 1	0.5
Diverted Big-Thompson Water	11.3	0.0	0.0	00	00	00	00	0 1	6.5	3 1	1.1	05	0.0
Olympus Tunnel	261.6	35	16.0	32 1	330	26.8	17.5	2.7	21.6	321	306	255	20.2
Pole Hill Generation	182 1	93	113	21.1	211	190	20.1	10.4	21.7	21.8	9.1	13.3	3.9
Flatiron 182 Generation	222 6	132	137	252	259	229	239	12.6	261	26.2	11.4	16.6	4.9
Flatiron 3 Turbine Release	00	00	00	00	00	00	00	00	00	0.0	00	0.0	0.0
Flatiron 3 Kwh/AF Gen		00	0.0	00	00	00	00	00	00	00	00	00	00
Flatiron 3 Generation	00	00	0.0	00	00	00	00	00	0.0	00	0.0	00	00
Flatiron 3 Pumping	114 3	08	12.0	239	212	173	154	0.0	10.2	12.0	1.5	00	00
Flatiron 3 KvitVAF Pump		250 0	266.7	288 7	316 0	329.5	357 1	0.0	362.8	350.0	333.3	0.0	0.0
Flatiron 3 Pump Energy	366	02	32	69	67	57	55	0.0	3.7	42	0.5	0.0	0.0
CARTER LAKE													
Pumped from Flatiron	114 2	08	12	239	212	17.2	15.4	0	102	12	1.5	0	0
Release to Flatiron	00	00	0.0	00	00	00	00	oa	0.0	0.0	0.0	00	0.0
Irrigation Delivery	86 7	8 3	1 9	1 4	1 5	1 2	1 3	5.4	123	11 3	18.6	15 5	8
Evaporalion & Seepage	27	02	01	0.0	00	00	0.0	0.3	0.3	06	07	0.4	01
End of Month Canton!	520	44.2	539	738	923	106.5	108 2	101.5	103 5	105.7	840	596	409
BIG THOMPSON POWERPLANT													
Diverted Dille Tunnel Water	138	04	0.4	0	0	0	0	0	0.8	8.5	21	02	1 4
Irrigation Delivery	329	43	04	04	04	03	05	09	39	3.3	ea	75	22
Turbine Release	271	00	0.0	00	00	00	00	00	31	131	70	39	00
Generation	36	0.0	0.0	00	00	00	0.0	0.0	04	1 9	09	04	00
HORSETOOTH RESERVOIR													
Hansen Feeder Canal Inflow	109 8	12.1	33	53	68	83	113	137	154	124	35	118	59
Irrigation Delivery	89 1	6.8	1 8	1 2	1 2	1.1	1 5	31	152	174	244	115	39
Evaporation	24	0.0	00	00	00	00	00	03	03	05	06	04	03
End of Month Content		89	121	162	209	271	362	454	436	356	132	93	109
TOTAL CDT DELIVERY	208 7	19.4	41	3.0	31	26	33	94	314	320	518	345	141

PICK-SLOAN MISSOURI BASIN PROGRAM
WESTERN DIVISION WATER AND POWER SYSTEM
COLORADO-BIG THOMPSON PROJECT

2002 ACTUAL OPERATIONS

WATER IN 1000 ACRE-FEET ENERGY IN GWH

	INITIAL OR TOTAL	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
BASE GENERATION													
Green Mountain	24.8	60	1.5	0.6	1 5	0.9	1.1	20	0.3	2.0	6.1	2.8	00
Flatiron 3	0.0	0.0	0.0	00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Big Thompson	36	00	0.0	00	00	00	00	0.0	0.4	1.9	0.9	0.4	0.0
TOTAL	284	6.0	1.5	06	1.5	0.9	1.1	2.0	07	3.9	TO	3.2	00
LOAD FOLLOWING GENERATION													
Marys Lake	43.2	1 2	3.0	4.4	5.2	47	50	26	5.3	5.0	2.2	34	1.2
Estes	113.7	76	7.3	128	128	11.6	12.8	60	13.1	12.3	5.7	8.4	33
Pole Hill	182 1	9.3	11.3	21.1	211	190	20 1	10.4	217	21.8	9 1	133	39
Flatiron 1 8. 2	222 6	132	137	252	259	229	239	126	26 1	262	11.4	16.6	49
TOTAL	561 6	31.3	353	63.5	65	582	61.8	31.6	66.2	65.3	284	417	13.3
PUMP ENERGY													
Willow Creek	1.0	02	04	0.0	0.0	0.0	00	0.4	00	00	0.0	00	00
Granby	430	29	29	5 1	51	4.7	5 1	22	37	32	26	39	1 6
Flatiron 3	37.0	0.2	3.2	6.9	67	5.7	5.9	0.0	37	4.2	0.5	00	00
TOTAL	810	3.3	6.5	12.0	11.8	10.4	110	2.6	7.4	7.4	3 1	3.9	1.6
TOTAL GENERATION	590 0	37.3	368	64 1	66.5	59.1	62.9	33.6	669	69.2	354	44.9	133
TOTAL GENERATION MINUS PUMP	509 0	34.0	30.3	52 1	54.7	48 7	51 9	31 0	59 5	61.8	32.3	41.0	11 7

COLORADO-BIG THOMPSON PROJECT

FLOOD DAMAGE PREVENTED IN 2002

	Cumulative Total Prior to WY2002	WY2002	Cumulative Total Current
Granby	$228,000	$0	$228,000
Green Mountain	$92,000	$0	$92,000
Total	$320,000	$0	$320,000

WESTERN DIVISION POWER SYSTEM
WATER YEAR 2002 – GENERATION AND PUMP ENERGY

The Western Division Power System (System) boundaries are illustrated in Exhibit 1. Hydropower generation was slightly above average across the East Slope system of the Colorado-Big Thompson Project (C-BT), but the dry conditions over the West Slope limited the generation capacity of Green Mountain Reservoir. Green Mountain only produced 24.8 gigawatt-hours (gWh) during Water Year 2002, almost half of its average yearly production.

During Water Year 2002, the total System generation for load was 1851.9 gWh compared to the 30-year average of 2768.8 gWh. Due to the dry conditions over the region and the low runoff season, more pumping was required to move water to the East Slope terminal reservoirs than normal. Therefore, the total generation for load for the Water Year was 1375.8 gWh, much lower than average. The total generation for load is the gross generation less the total C-BT pumping; gross generation includes one-half of the Yellowtail generation. The total System load includes firm energy deliveries, C-BT use energy, support energy, plant station service, and an estimate of transmission system losses. Power generation was below average during the entire Water Year. By the end of September, the gross generation for all the powerplants in the system (Table 1) was only 67 percent of average. That is a total of 2,768.8 gWh, very close to the total for Water Year 2001. Table 3 shows monthly generation and pumping energy, by plant, as well as monthly System loads for Water Year 2002. The total energy required to operate the pumps in the System (Table 2) was 196 percent of the 1975-2000 average (476.1 gWh), and 53 gWh lower than the previous Water Year.

The Western Area Power Administration's Loveland Area Office sold 2,050,500 mWh of power during Water Year 2002, with the price of $42,716,180. Energy deficits were covered by a combination of scheduled interchange energy, use of the Mt. Elbert pumped storage plant, and power purchases. The Western Area Power Administration's Loveland Area Office power purchases totaled $35,997,000 for Water Year 2002, a total of 1,023,815 mWh.

WESTERN DIVISION SYSTEM
PUMP ENERGY-WATER YEAR 2002

Pumping Plant	October-September Pump Energy		
	WY 2002	Avg. 1/	Percent of Avg.
Willow Greek	1.0	5.7	18.0
Granby	43.0	29.8	144.0
Flatiron 3	36.6	25.6	143.0
Mt. Elbert	395.5	182.1 2/	217.0
Total	476.1	243.2	196.0

1/ 30-year average
2/ 1990-1999 average

TABLE 1

WESTERN DIVISION SYSTEM
GROSS GENERATION - WATER YEAR 2002
(Pnerav in nwh)

Powerplant	Accumulated Gross General on 1/		
	WY 2002	Yearly Avg.2/	Percent of Avg.
Green Mountain	24.8	59.0	42
Marys Lake	43.2	38.5	112
Estes	113.7	101.5	112
Pole Hill	182.1	178.5	102
Flatiron 1 & 2	222.6	232.5	96
Big Thompson	3.6	12.2	30
Seminoe	75.9	148.0	51
Kortes	86.4	155.0	56
Fremont Canyon	178.5	261.8	68
Alcova	78.9	130.1	61
Glendo	44.5	89.5	50
Guernsey	11.1	22.4	50
Boysen	26.1	80.7	32
Heart Mountain	17.4	13.1 3/	133
Buffalo Bill	38.6	82.6 3/	47
Shoshone	14.9	21.7 3/	69
Spirit Mountain	12.8	13.7 4/	93
Mt. Elbert	311.7	169.0 5/	184
Yellowtail4/	365.1	959.0 6/	38
Total	1851.9	2768.8	67

1/ October-September
2/ 30-year average
3/1993-2000 average
4/1995-2000 average
5/1990-1999 average
6/ 1971-1990 average; one-half of the Yellowtail energy is marketed through the Western Division System. The other half is marketed through the Eastern Division System.

TABLE 3

PICK-SLOAN MISOURI BASIN PROGRAM WESTERN DIVISION POWER SYSTEM
WATER YEAR 2002 ACTUAL SYSTEM OPERATIONS

GROSS GENERATION AND PUMPING IN GIGAWATT-HOURS

	OCT	NOV	DEC	JAN	FEB	KKR	APR	MAY	JON	JUL	AUG	SEP	TOTAL
Mt. Elbert •	0.3	2.1	4.1	4.6	3.2	4.3	3.4	1.1	0.0	0.0	2.7	5.9	31.9
Green Mtn.	6.0		0.6	1.5	0.9	1.1	2.0	0.3	2.0	6.1	2.8	0.0	24.8
Willow Cr. pump	0.2	0.4	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	1.0
Farr pump	2.9	2.9	5.1	5.1	4.7	5.1	2.2	3.7	3.2	2.6	3.9	1.6	43.0
Nary. Lake	1.2	3.0	4.4	5.2	4.7	5.0	2.6	5.3	5.0	2.2	3.4	1.2	43.2
Estes	7.6	7.3	12.8	12.8	11.6	12.8	6.0	13.1	12.3	5.7	8.4	3.3	113.7
Pole gill	9.3	11.3	21.1	21.1	19.0	20.1	10.4	21.7	21.$	9.1	13.3	3.9	182.1
flatiron 162	13.2	13.7	25.2	25.9	22.9	23.9	12.6	26.1	26.2	11.4	16.6	4.9	222.6
Flatiron 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.C.	0.0
Flatiron 3 Pus.	0.2	3.2	6.9	6.7	5.7	5.5	0.0	3.7	4.2	0.5	0.0	0.0	36.6
Big Thompson	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.9	0.9	0.4	0.0	3.6
Seminole	8.1	7.8	7.5	7.2	7.1	7.6	6.8	7.0	4.7	4.4	3.8	6.9	75.9
Lorries	8.4	8.3	7.9	7.9	8.1	8.9	7.6	7.9	5.8	5.6	4.9	5 1	86.4
Fremont Canyon	5.5	9.3	9.8	9.6	8.4	9.1	15.0	12.6	31.4	35.9	24.1	7.8	178.5
Alcove	5.8	4.5	4.3	4.2	3.7	4.0	3.9	4.4	13.3	16.3	11.1	1.4	78.9
Glendo	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.9	15.7	17.8	8.0	C.0	44.5
Guernsey	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	4.1	1.3	3.7	0.0	11.1
Pilot Butte se	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.0	0.9	0.1	3.9
moysen	1.3	1.3	1.3	1.1	1.3	1.3	1.7	4.0	4.0	3.9	3.0		26.1
Shoshone	0.9	0.4	0.6	0.7	0.7	0.9	0.0	1.7	1.9	2.1	2.1	1.8	13.8
Buffalo Bill	0.4	0.0	0.0	0.0	0.0	0.0	1.8	8.6	8.0	9.2	7.2	3.4	38.6
Spirit Mtn.	0.4	0.0	0.0	0.0	0.0	0.0	0.0	1.4	2.4	3.0	2.9		12.8
Diamond Cr. pump	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	U.C.	0.0
React Mtn.	0.5	0.0	0.0	0.0	0.0	0.0	0.0	3.6	3.3	3.4	3.4	3.2	17.4
Yellowtail/2	11.6	12.6	15.3	15.8	16.1	13.4	12.6	16.8	18.0	18.7	18.6	13.3	183.6
Fry-Ark	0.3	2.1	4.1	4.8	3.2	4.3	3.4	1.1	0.0	0.0	2.7	5.9	31.9
CAT	34.0	30.3	52.1	54.7	40.7	52.3	31.0	59.5	61.8	32.3	41.0	11.7	509.4
North Platte	27.8	29.9	29.5	28.9	27.3	29.6	33.4	36.8	75.0	81.3	55.6	20.2	475.3
Bighorn	15.6	14.8	17.2	17.8	18.1	15.6	16.1	36.1	38.5	41.3	38.1	26.2	295.2
TOTAL GEN	77.7	77.0	102.8	106.2	97.2	101.8	83.9	133.5	175.3	154.9	137.3	64.0	1311.7
TOTAL LOAD	162.6	162.4	177.4	173.1	137.3	149.9	176.4	184.3	211.5	263.0	212.0	157.0	2167.4
SURPLUS/DEFICIT			-74.6							-108.1			-855.7

• projected value' are historic average flow through energy

•• projected values are marketed energy

WESTERN DIVISION - PICK-SLOAN MISSOURI BASIN PROGRAM

POWERPLANT DATA

Facility	No. Units	Capacity Each Unit	Total Installed Capacity	Normal Operating Head (ft)	Output at Rated Head (ft3/s)
Green Mountain	2	13,000	26,000	192-262	1,660
Marys Lake	1	8,100	8,100	202-217	550
Estes	3	16,500	49,500	551-571	1,300
Pole Hill	1	33,250	33,250	830-838	550
Flatiron	2	43,000	86,000	1,096 - 1,118	1,070
(Flatiron 1/)	1	8,500	8,500	158-287	440
Big Thompson	1	5,300	5,300	183- 184	350
Seminoe	3	15,000	45,000	97-227	2,850
Kortes	3	12,000	36,000	192-204	2,700
Fremont Canyon	2	33,000	66,000	247-363	2,200
Alcova	2	18,000	36,000	153-165	2,200
Glendo	2	19,000	38,000	73-156	2,800
Guernsey	2	2,400	4,800	89-91	820
Pilot Butte2/	2	800	1,600	-- --	---
Boysen	2	7,500	15,000	72-112	2,415
Shoshone3/	1	3,000	3,000	-- --	---
Buffalo Bill3/	3	6,000	18,000	-- --	---
Heart Mountain	1	5,000	5,000	265-275	355
Mt. Elbert	2	103,000	206,000	447-477	6,400
Yellowtail	4	72,000	288,000	327-440	8,500
TOTAL	34		979,050		

TABLE 7

WESTERN DIVISION - PICK-SLOAN MISSOURI BASIN PROGRAM

PUMPING PLANT DATA

	Pumping Units			Plant Rating	
Facilities	No	Capacity (ft3/s)	Normal Operating Head (ft)	Installed (Hp)	Kwh to Pump 1-Acre-ft at Maximum Head
Granby	3	600	92-186	18,000	227
Willow Creek	2	400	167-169	18,000	227
Flatiron	11/	440	173-287	13,000	391
Mt. Elbert	2	5,690	447-477	340,000	620

Exhibit 2

LAP GROSS GENERATION LESS PUMPING
WATER YEAR 2002