RECLAMATION

Managing Water in the West

2010 Salmon Flow Augmentation Program and Other Activities Associated with the NOAA Fisheries Service 2008 Biological Opinion and Incidental Take Statement for Operations and Maintenance of Bureau of Reclamation Projects in the Snake River Basin above Brownlee Reservoir

Annual Progress Report

U.S. Department of the Interior
Bureau of Reclamation
Pacific Northwest Region

December 1, 2010

INTRODUCTION

On May 5, 2008, National Oceanic Atmospheric Administration (NOAA) Fisheries released a new biological opinion (2008 Upper Snake BiOp) for the continued operation and maintenance of Bureau of Reclamation projects in the Snake River Basin above Brownlee Reservoir. The incidental take statement included reasonable and prudent measures (RPMs) and associated terms and conditions to minimize incidental take to 13 listed salmon and steelhead Evolutionary Significant Units (ESUs).

This document reports the status of activities related to the incidental take statement, including Reclamation's flow augmentation program, status of new contracts, coordination activities, and conservation activities. This report meets Reclamation's responsibility to submit an annual progress report by December 31 of each year.

RECLAMATION'S 2010 SALMON FLOW AUGMENTATION PROGRAM

Overview of Salmon Flow Augmentation Program

Reclamation was able to provide 487,000 acre-feet of water for flow augmentation in 2010, the upper limit to be provided in any given year (See Table 1). Water supply conditions looked very bleak in 2010, and it appeared unlikely that the full goal of 487,000 acre-feet would be achieved. However, a dramatic turnaround in conditions occurred in June when heavy rains hit the entire Snake River basin and provided an unexpected surge of runoff. Flood conditions were noted in many locations during what would have otherwise been a significant drought. This resulted in a favorable situation where augmentation flows were provided when needed most, and the full 487,000 acre-feet could be provided without impacting the reliability for the 2011 flow augmentation program.

November carryover storage from 2009 was near average in the Payette basin (100%) and in the Boise basin (104%), and above average in the Upper Snake Basin above Milner (116%). Despite a wet October, the rest of the 2010 winter saw well below average snowfall, and by April 1 snowpacks in these three basins were 64%, 70%, and 55% of average, respectively, with similarly low runoff forecasts. However, a cool spring and a very wet June (over 200% of average in the middle and upper Snake basins) helped offset snowpack deficiencies and added substantially to the runoff. Observed unregulated runoff for the April through July period was 89 percent for the Payette River at Horseshoe Bend, 80 percent for the Boise River near Boise, and 73 percent of average for the Snake River at Heise. It is notable that these observed runoff volumes fell near or outside of the 95% confidence interval for the runoff forecasts, indicating how unexpected these results were.

The sequence of low runoff forecasts followed by unexpected high inflows presented multiple challenges in 2010. The April 1 forecast of April through July runoff at the Snake River above Heise (Upper Snake) was 54% of average. Under the terms of the Nez Perce Agreement, this low forecast results in no rental water being obligated from

Water District 01 (Snake River above Milner). Combined with low water supplies from other basins, Reclamation was challenged to procure enough augmentation water to even meet its secondary goal of 427,000 acre-feet. To do so required the following actions: 1) a one-time rental of additional natural flow water rights (at more than triple the cost of other typical rental sources), and; 2) commitment of the entire amount of powerhead water held in Palisades Reservoir. This latter action is important because use of this water subjects it to "last to fill" provisions, thus potentially impacting Reclamation's ability to provide flow augmentation water the following year, and possibly requiring shut down of the powerplant. In addition, use of powerhead water legally limits flow augmentation to 427,000 acre-feet under the terms of the Nez Perce Agreement.

Meanwhile, the combination of low supplies and cool temperatures resulted in flows well below the targets on the lower Snake and Columbia Rivers in April and May, at a time when listed fish were showing up and could potentially derive the greatest benefit from increased flows. With the support of the Technical Management Team, Reclamation made a concerted effort to provide an early timing of flow augmentation water in May. The entire expected amount from the upper Snake above Milner, approximately 157,000 acre-feet, was released in May. This release was deliberate to coincide with migration and would not have otherwise occurred during the desired time frame.

Heavy rains in June gave an unexpected boost to inflows, changing the situation from a moderate to severe drought to one with adequate water supplies. Despite the unexpected inflows, 54,000 acre-feet of powerhead space did not fill in the Upper Snake, thus Reclamation remained limited to providing 427,000 acre-feet.

Through cooperation with the State and Water District 01, irrigators were willing (under no obligation) to rent Reclamation enough water to cover the unfilled powerhead space, thus freeing up Reclamation to provide an additional 60,000 acre-feet of augmentation to reach the 487,000 acre-feet target. Approximately 40 kaf of this additional water was provided from above Milner from June 30 to July 14; the remainder was added to the volume from the Payette Basin.

Restoring Reclamation powerhead through this arrangement was a significant benefit, allowing for the full target to be achieved and adding reliability for the future.

The Payette reservoir system refilled completely in 2010, with record releases from Cascade reservoir in June following back to back rain events. The Boise reservoir system had sufficient water to refill completely as well, but was deliberately held about 19,600 acre-feet from full in order to move the flow augmentation release to an earlier timeframe as outlined in the 2008 BiOp. See **Timing Considerations for Flow Augmentation Releases** section for more detail.

The 487,000 acre-feet volume includes 60,000 acre-feet of natural flow rights, a small portion (10,500 acre-feet) of which is considered to occur outside of the April 3 to August 31 migration period.

In Season Management Considerations for Meeting Augmentation Targets

Reclamation manages its in-season storage releases for flow augmentation relying on the best data available at the time in order to set release rates. Reclamation utilizes preliminary water rights accounting provided by the state of Idaho to estimate volumes available in storage accounts and amounts delivered. This accounting is provisional and subject to change at a later date when data are finalized and after-the-fact accounting is completed. Therefore, while it is difficult to deliver the precise targeted volume on a real time basis, Reclamation strives to come as close as possible, with a typical margin of error of less than one percent

Table 1 summarizes the source, amount, and timing for Reclamation's 2010 salmon flow augmentation program.

Table 1. Summary of Reclamation's 2010 Salmon Flow Augmentation Program.

SOURCE	AMOUNT (acre-feet)	DATES OF DELIVERY
Upper Snake above Milner Dam		
Reclamation Uncontracted Space	42,521[1]	May 3 – May 31 June 30 – July 14
Reclamation Powerhead Space	137,344[2]	
Rentals – Water District 01	19,101	
Rentals – Tribes	0	
Subtotal	***198,966***	
Payette		
Reclamation Space	91,415	June 18 – August 22
Rentals	69,000	
Subtotal	***160,415***	
Boise		
Reclamation Uncontracted Space	40,932	June 16 – July 16
Reclamation Powerhead Space	0	
Rentals	1,700	
Subtotal	***42,632***	
Natural Flows		
IWRB Lease (Idaho)	60,000[3]	April 3 – August 31
Skyline Farms (Oregon)	24,987[4]	
Subtotal	***77,649***	
TOTAL	**487,000**	

[1] Includes 20,000 af rented in May that subsequently filled during June, and an additional 22,521 released in early July. Pursuant to the Nez Perce Term Sheet C.III.9, the releases are treated as flow augmentation.

[2] The rental of 54,100 af from the WD01 spaceholders combined with the unexpected high flows in June effectively replaced the storage in Reclamation's powerhead space which was released in May for flow augmentation.

[3] See section titled "Lease of Natural Flow Water Rights Below Milner Dam."
[4] Includes a one-time lease of 7,338 af from Larson Farms.

Uncontracted Space and Space Reacquired for Flow Augmentation

Reclamation's 95,000 acre-feet of uncontracted space assigned to flow augmentation in the Payette system fully refilled, as did 22,896[1] acre-feet of uncontracted space in the Upper Snake above Milner. The 40,932 acre-feet of space reacquired for flow augmentation in the Boise system reservoirs completely refilled as well.

Reclamation provided all of the accrual from the Boise basin to the 2010 flow augmentation program. In the Payette basin 91,415 acre-feet was provided; ample rental water was available to allow the remaining 3,585 acre-feet to be carried over into 2011 while still meeting the flow augmentation target. Reclamation anticipated that approximately 20,000 acre-feet of its uncontracted space in the Upper Snake above Milner would be available in 2010, and released this amount in May to coincide with fish migration needs. Unexpected high inflows in June filled this space, allowing for a second release of 22,521 acre-feet in July.

The 17,649 acre-feet of natural flow rights Reclamation has acquired in Oregon (Skyline Farms) were fully available again in 2010.

Additional Rental of Oregon Natural Flow Rights

Due to the very low snowpack conditions and runoff forecasts, Reclamation recognized that providing even the lower target of 427,000 acre-feet in 2010 could be problematic and would likely require extraordinary actions. One such action was to seek new water rentals from willing sources, even if at significantly higher cost than other traditional sources of rental water. This resulted in the one-time rental of 7,338 acre-feet of natural flow water rights from Larson Farms on the Snake River in Oregon. These water rights are very similar in all aspects to the 17,649 acre-feet of natural flow rights Reclamation has acquired from Skyline Farms in Oregon. It was verified that no irrigation occurred in 2010 on the lands from which the natural flow rights were rented. In hindsight, given the heavy rains in June, it was not necessary to have rented this water in 2010, but Reclamation needed to commit early to secure any available water.

Rentals from Shoshone–Bannock Tribes

The Shoshone-Bannock Tribes have contract space in American Falls Reservoir. They are able to rent water from this space for downstream uses in accordance with the terms of the Fort Hall Water Rights Settlement of 1990. Tribal policy requires that on-

[1] Based on provisional IDWR water accounting. The final yield in the Upper Snake uncontracted account was 22,521 acre-feet after evaporation charges were administered according to water accounting rules.

reservation water needs are served first. The Tribes' space in Palisades Reservoir is usually adequate to meet their irrigation requirements, freeing up the space in American Falls Reservoir for potential rental. Reclamation and the Tribes were not able to negotiate rentals consistent with the price stipulated in the Nez Perce Settlement, so no rental of Tribal storage water occurred in 2010. However, Idaho Power Company executed a late season lease with the Tribe at a price reportedly well above that stipulated in the Nez Perce Settlement and released this volume between August 2 and September 11 at a rate of about 725 cubic feet per second (cfs). This water is not included in Reclamation's 487,000 acre-foot volume.

Annual Rentals

Reclamation relies heavily each year on annual rentals from water users to acquire water for its flow augmentation program. Water availability from the Water District 01 Rental Pool (Upper Snake above Milner Dam) is determined by a chart (Attachment 1) that considers carryover storage on November 1 and the April 1 runoff forecast for the Snake River at Heise to determine contributions to the rental pool for the flow augmentation program. Use of this chart was enacted after negotiation of the Nez Perce Water Rights Settlement and is fully consistent with Reclamation's description of its flow augmentation program in its 2004 and 2007 Upper Snake Biological Assessments.

In 2010, the chart specified that Water District 01 was under no obligation to provide rental water due to the very low April 1 runoff forecast. Carryover from 2009 on November 1 was 2,440,460 acre-feet, and the April 1 runoff forecast was 2,262,100 acre-feet (54 percent of average) for the April through September period. However, the heavy rains in June dramatically improved the water supply, and the Upper Snake irrigators willingly made rental water available even though they were under no obligation. Reclamation made two rentals from this source: 54,100 acre-feet to effectively replace the amount of powerhead space that was released in May and did not refill; and an additional 19,101 acre-feet that was released in early July.

In the Payette basin, 69,000 acre-feet was made available and rented by Reclamation, and 1,700 acre-feet was rented from the Boise basin in 2010, marking the third year in a row that rental water has been made available from this basin.

Powerhead Space

As part of the Nez Perce Water Rights Settlement, Reclamation may utilize powerhead space in Palisades Reservoir and Anderson Ranch Reservoir for flow augmentation. In order for Palisades Reservoir powerhead space to be used, the sum from all other sources must be less than 427,000 acre-feet, and this powerhead space cannot be used to exceed a flow augmentation total of 427,000 acre-feet. It is anticipated that this powerhead space will be used relatively infrequently. However, with the significant drought conditions forecasted for 2010, it appeared that it would be necessary to use a significant amount of Palisades powerhead space in 2010 in order to provide 427,000 acre-feet of augmentation water. Releases from Milner commenced in May to provide requested augmentation water, and 137,344 acre-feet of powerhead water was released. Of this amount, all but

54,100 acre-feet subsequently filled in June. Through cooperation with Water District 01 and the State, this remaining unfilled amount was able to be rented and effectively replaced use of powerhead space in 2010. This meant that Reclamation was no longer restricted to 427,000 acre-feet of augmentation water, and was able to procure an additional 60,000 acre-feet to provide the full 487,000 acre-foot target. It also allows the full amount of powerhead space to be available should it be needed in 2011.

Use of powerhead space from Anderson Ranch Reservoir is less restrictive, and can be used to provide flow augmentation volumes in excess of 427,000, if available. Reclamation considers use of this powerhead space to be undesirable due to the difficulty in refilling the water right the following year and the potential for shutting down the powerplant during a continuing drought. Fortunately, the June rains meant it was not necessary to use any of this powerhead space in 2010, and the account remains full.

Lease of Natural Flow Water Rights below Milner Dam

The Nez Perce Water Rights Settlement authorized the use of up to 60,000 acre-feet of natural flow rights downstream of Milner Dam for the purpose of flow augmentation. In better water years, this will increase the volume of water available for augmentation. In 2005 the Idaho Water Resources Board (IWRB) purchased approximately 98,000 acre-feet of water rights from the Bell Rapids Mutual Irrigation Company; this is water that served roughly 25,000 acres via high-lift pumps. Reclamation then entered into a 30-year lease with the State for 60,000 acre-feet of this water for salmon augmentation (IWRB Lease in Table 1).

Flow augmentation from natural flow rights downstream of Milner Dam occurs during the entire irrigation season, roughly April 1 to October 31. The IWRB Lease of 60,000 acre-feet is comprised of 49,500 acre-feet estimated to occur within the Apri1 3 to August 31 period, and 10,500 acre-feet estimated to occur before and after the migration period. Even though these 10,500 acre-feet are delivered outside the April 3 to August 31 period, it provides an instream benefit and continued flow augmentation.

Timing Considerations for Flow Augmentation Releases

The timing of flow augmentation releases depends on the individual basin and source of water. Flow augmentation releases in 2010 mark the second year of operations under the 2008 BiOp, in which Reclamation committed to shifting releases to earlier in the migration season when Snake River flows are more beneficial to listed fish. The primary goal of the earlier releases is to minimize the amount of warmer water provided in August and to shift it into July or earlier. The opportunity and ability to shift the releases will vary depending on the water year type, total augmentation volume available, and by which basin the augmentation originates from. Consistent with the 2008 BiOp, not all water can be shifted from August releases, particularly in the Payette basin. The changes in release patterns for 2010 will be highlighted in the following discussion for each basin.

As discussed in the previous section, the 60,000 acre-feet of natural flow rights from the IWRB was provided for augmentation during the irrigation season, which ends on October 31.

To the extent possible, Reclamation will strive to benefit local resources when implementing its proposed actions while also meeting its obligations under the biological opinion and incidental take statement.

Upper Snake Basin:
The primary strategy for shifting augmentation releases in the Upper Snake basin above Milner involves higher release rates and a relaxation of down-ramping criteria at the conclusion of augmentation. Formerly, the down-ramping rate of 100 cfs per day was very restrictive and forced lower release rates to avoid a protracted down-ramping period. With the restrictive rate, it was necessary to extend augmentation releases past Milner into mid to late August in most years. It is anticipated that augmentation releases can begin in May or June in average or lower water years, which was the case in 2010. Reclamation was able to accelerate the releases in 2010 so that most augmentation from above Milner occurred by May 31, with another small block of water made available in early July. In coordination with the Technical Management Team, augmentation releases commenced on May 3 to help alleviate low flow conditions on the Lower Snake and Columbia Rivers. Releases quickly ramped up to approximately 3,200 cfs by May 5, where they remained through May 25, and were then ramped down at about 500 cfs per day until reaching minimum flow by June 1. An additional block of water was released between June 30 and July 14 at an approximate rate of 1,600 cfs.

Boise Basin:
Augmentation flows began on the Boise system in mid June and ended by July 16. The shift to earlier delivery of flow augmentation in the Boise basin relies on a combination of two strategies. First, in flood control years when the system is assured to fill, some portion of the augmentation volume will be delivered by reserving an equivalent amount of system space that is not allowed to refill. In other words, as flood control operations near their end, releases are not cut in order to fill the last remaining space; that vacant space is considered to have been delivered as flow augmentation instead.

The second strategy for shifting augmentation timing from the Boise basin is to increase the rate of releases. This relies on the opportunity to make higher releases before the recreational floating season begins on the river. Floating season typically begins once streamflows through the city of Boise drop below 1,500 cfs, the weather warms up, the river is inspected and hazards removed, and the county officially opens the launch facilities. Once floating season begins, flows are limited to about 500 cfs above irrigation demand for public safety concerns. Reclamation will look for opportunities to make higher releases; in flood control years this can easily be accomplished by maintaining higher releases rather than immediately ramping down at the end of flood control. In non flood control years, it can likely be accomplished by releasing in May (or early June) before the float season begins.

In 2010, the Boise reservoir system was actively operated for flood control due to the unexpected rains in June, with moderately large releases (but below flood stage) necessary for a short period in mid June. Under the first strategy outlined above, the system was deliberately operated to not refill completely, with about 19,600 acre-feet of space left vacant by June 16 credited to flow augmentation. Releases were made at higher rates (utilizing the second strategy) by ramping down from about 4,700 cfs on June 16 to about 1,500 cfs on June 26. Releases were then held at about 1,400 cfs (about 400 cfs above irrigation demand) to coincide with the opening of recreational floating on the river. Delivery of augmentation water was completed on July 16 according to preliminary State water accounting.

Payette Basin:
Augmentation releases from the Payette system began on June 18 and ended by August 22. Strategies for shifting the timing of flow augmentation from the Payette basin include a combination of deliberately foregoing an amount of refill during years when the reservoirs would otherwise fill (similar to the Boise strategy), or by increasing the initial rate of release in order to "front load" a portion of the augmentation volume. This latter strategy was employed in 2010. Due to water quality concerns in Cascade Lake, some amount of flow augmentation water will continue to be released in August. Two significant rain events hit the Payette Basin in early June when the reservoirs were nearing full pool, radically transforming a drought year to one of record or near record streamflows. The releases from Cascade Dam eventually peaked at over 7,000 cfs, the highest since the project was completed in 1950. In order to control downstream flooding, the reservoir began surcharging on June 6, and did not draft back down below full pool until June 18, at which point augmentation releases commenced. No drafting of reservoir storage for irrigation would have been necessary prior to July 17[2], so all reservoir draft (including Deadwood Reservoir) up to that point (89,358 acre-feet) was for release of flow augmentation water. The high release rate of 2,250 cfs from Lake Cascade was maintained until July 16 then reduced to about 1,700 cfs, where it was held until early August and eventually ramped down to 1,400 cfs. The amount of flow credited toward flow augmentation varied according to available natural flow and irrigation demand, incrementally ramping up from about 1,300 cfs on June 18 to a peak of about 2,500 cfs from late June through July 17, then dropping to approximately 1,100 cfs above irrigation demand by July 25, where it remained through August 14. Augmentation flows then ramped down until their conclusion on August 22.

Mean Monthly Inflows to Brownlee Reservoir[3]

April	15,999 cfs
May	19,110 cfs
June	29,712 cfs
July	11,254 cfs

[2] Unregulated runoff in the basin was sufficient to meet irrigation demands through July 16 according to preliminary State water accounting.
[3] Source: http://www.nwrfc.noaa.gov/runoff/runoff_product.cgi?year=2010

August 9,156 cfs

November 1 Carryover

At the end of the 2010 irrigation season (November 1, 2010), the carryover storage into the 2011 water year was as follows:

Upper Snake above Milner Dam	1,853,759 acre-feet
Boise River system	409,040 acre-feet
Payette River system	462,751 acre-feet

OTHER REASONABLE AND PRUDENT MEASURES

National Marine Fisheries Service's (NMFS) incidental take statement contains two other RPMs and associated terms and conditions to ensure that Reclamation implements its salmon flow augmentation program as described in its Upper Snake Biological Assessment (BA) and supporting documents.

New Contracts for Water Stored in Reclamation Projects

RPM 13.3.1 states

> Because Reclamation's salmon flow augmentation program is heavily dependent on annual water rentals from Idaho's water rental pools, which are variable and insecure sources. Due to this variability Reclamation must consult with NMFS Fisheries prior to issuing a new contract would reduce streamflows or reduce Reclamation's ability to meet salmon flow augmentation commitments, as described in its proposed actions, or whenever Reclamation otherwise determines that listed salmon or steelhead species or critical habitat may be affected.

NMFS Upper Snake BiOp at page 13-4.

NMFS's intent is to ensure that any contract actions taken by Reclamation result in "an improvement or 'zero net impact' on Snake River flows and on Reclamation's ability to provide up to 487,000 acre-feet for salmon flow augmentation."

Reclamation committed in its March 2009 Decision Document to consult with NMFS before entering into new, renewed, or supplemental contracts for storage water, if Reclamation determined that it would affect its ability to provide salmon flow augmentation water as described in the Upper Snake BA, or if it determined that listed species or critical habitat may be adversely affected.

In the past year, Reclamation has not entered into any new contracts for uncontracted space in any of the reservoirs covered in the Upper Snake BiOp. Further, Reclamation has not entered into any renewed or supplemental contracts for storage water that would

result in reduced streamflows or affect Reclamation's ability to meet its salmon flow augmentation commitments.

Annual Coordination of the Salmon Flow Augmentation Program

RPM 13.3.2 states

> Reclamation must continue to coordinate annually with the Technical Management Team (TMT) and Regional Forum when planning and implementing its annual salmon flow augmentation program.

NMFS Upper Snake BiOp at page 13-4.

Reclamation continued to coordinate with the TMT and Regional Forum when planning and implementing its 2010 annual salmon flow augmentation program. Reclamation staff regularly attended these meetings and provided estimates and updates of the salmon flow augmentation program acquisitions and delivery.

CONSERVATION RECOMMENDATIONS

NMFS included voluntary conservation recommendations in its Upper Snake BiOp at page 12-3, recommending Reclamation's participation in Total Maximum Daily Load (TMDL) planning efforts in the Upper Snake River Basin. In its March 2009 Decision Document, Reclamation noted that it was generally amenable to implementing the Conservation Recommendations to the extent funding and staffing can be made available within its existing authorities. The following summarizes relevant activities that Reclamation has been involved in over the past year.

As part of the Idaho and Oregon's on-going TMDL development and implementation activities, Snake River Area Office and/or Pacific Northwest Region Reclamation staff continued to participate in all appropriate watershed advisory group and watershed council meetings in the Upper Snake River Basin. These included activities in the Lower Boise River, North Fork Payette River, Lower Payette River, Mid Snake River, Lake Walcott, and American Falls Reservoir Watershed Advisory Groups, as well as the Owyhee/Malheur Watershed Council.

Reclamation continued to provide technical assistance to irrigation system operators and other appropriate entities throughout its project areas in the Upper Snake River Basin. Reclamation's Pacific Northwest Region Laboratory also provided financial assistance for analytical laboratory services to several entities in the basin in 2010. These entities included:

- Idaho Department of Environmental Quality – Twin Falls Region
- Idaho Department of Environmental Quality – Pocatello Region
- Oregon Department of Environmental Quality
- U.S. Geological Survey

- Aberdeen Springfield Irrigation District
- Owyhee Watershed Council
- A & B Irrigation District
- Minidoka Irrigation District
- Lake Walcott Watershed Advisory Group
- Malheur Soil & Water Conservation District
- Shoshone Paiute Tribe at Duck Valley Nevada

Upper Snake Temperature Monitoring - Project Summary

In coordination with the U.S. Geological Survey, Reclamation continued to operate a comprehensive basin-wide temperature monitoring study for the Upper Snake River Basin. Data collection at 52 sites in the Upper Snake River and major tributaries was initiated in 2004 and will continue through at least through 2011. An interim summary of the data collected thus far was prepared in 2007 and further updated in 2008. The project will culminate with a completion report describing temperature conditions in the Upper Snake River and relationships to storage, irrigation, and hydropower facilities in the basin.

Attachment 1

Stipulated Augmentation Rental -Water District 01

Stipulated Augmentation Rental Dist 01

November 1 Carryover 1000s af	<---------- April 1 Heise Forecast (Apr-Sep) 1000s af ---------->						
	< 2,450	< 2,920	< 3,450	< 4,208	< 5,042	< 5,670	> 5,670
0	0	0	0	0	150000	185000	185000
100	0	0	0	0	150000	185000	185000
200	0	0	0	0	150000	185000	185000
300	0	0	0	0	150000	185000	185000
400	0	0	0	0	150000	185000	185000
500	0	0	0	0	150000	185000	185000
600	0	0	0	60000	150000	185000	185000
700	0	0	0	60000	150000	185000	185000
800	0	0	0	60000	150000	185000	185000
900	0	0	60000	60000	150000	185000	185000
1,000	0	0	60000	60000	150000	185000	185000
1,100	0	0	60000	60000	150000	185000	185000
1,200	0	0	60000	60000	150000	185000	185000
1,300	0	0	60000	60000	150000	185000	185000
1,400	0	0	60000	60000	150000	185000	185000
1,500	0	0	100000	150000	185000	185000	185000
1,600	0	0	100000	150000	185000	185000	185000
1,700	0	0	100000	150000	185000	185000	185000
1,800	0	0	100000	150000	185000	185000	185000
1,900	0	0	100000	150000	185000	185000	185000
2,000	0	0	100000	150000	185000	185000	185000
2,100	0	0	100000	150000	205000	205000	205000
2,200	0	0	100000	150000	205000	205000	205000
2,300	0	0	100000	150000	205000	205000	205000
2,400	0	0	100000	150000	205000	205000	205000
2,500	0	0	100000	150000	205000	205000	205000
2,600	0	0	185000	185000	205000	205000	205000
2,700	0	0	185000	185000	205000	205000	205000
2,800	0	0	185000	185000	205000	205000	205000
2,900	0	0	185000	185000	205000	205000	205000
3,000	60000	60000	185000	185000	205000	205000	205000
3,100	60000	60000	185000	185000	205000	205000	205000
3,200	100000	100000	185000	185000	205000	205000	205000
3,300	100000	100000	185000	185000	205000	205000	205000
3,400	100000	100000	185000	185000	205000	205000	205000
3,500	100000	100000	185000	185000	205000	205000	205000
3,600	100000	100000	185000	185000	205000	205000	205000