

Libby/Canadian Storage Swap Follow-up & Accounting September 2008

B.C. Hydro and BPA, on behalf of the Entities under the Columbia River Treaty, recently completed storage activities under an agreement that allowed for a “swap” of water between Libby storage in the United States and Arrow and other Treaty storage in Canada. As promised, these activities were carried out in a manner that was flow neutral – i.e., there was no effect from these activities on downstream flows – and the full amount of the swap was exchanged. In addition, Libby was operated in accordance with expectations, ending August 31 at elevation 2441.7 ft (58.6 ksf). There was, however, an end-of-the-month variation from the targeted operation of Canadian storage that was revealed in after-the-fact accounting. The following provides an explanation of this variation.

As described previously at TMT, the swap operation targeted 60 ksf below TSR for Canadian storage during the period Aug 8-31, with Libby targeted for an equivalent amount higher. In carrying out the Treaty, Treaty Flow Requests by the U.S. to Canada are finalized weekly on Fridays for average flows at the US/Canadian border. In order to achieve the 60 ksf objective throughout August, the weekly flows requested were higher than if we had been targeting the TSR alone (0 ksf). Given the Aug 29 inflow forecast, the Treaty Flow Request made on Friday, Aug 29 was expected to yield the full amount of the swap at 59.9 ksf below TSR.

The attached spreadsheets show the after-the-fact final Treaty accounting along with the final Treaty Request and forecasts from which the request was made. The accounting shows that Treaty storage ended at 26.1 ksf below TSR instead of 60 ksf. This variation was due to:

- Higher than forecast basin inflows in the Columbia and Kootenay basins that resulted in 19.7 more ksf of storage than was expected.
- A faulty reservoir elevation gage at Duncan (since corrected) and unanticipated reduction of Duncan releases on Aug 29-31 related to not exceeding required maximum flows of 8.8 kcf on the Duncan River below the Lardeau River, which combined to result in 6.2 more ksf of storage than was expected.
- A reservoir elevation conversion difference, resulting from reading a reservoir gage in feet and converting to storage content. This resulted in Arrow being 7.8 ksf higher than expected (this difference is well within the normal bounds of measurement deviation and represents less than an inch in Arrow reservoir elevation).

It is important to note that this accounting variation would have occurred even if there had been no swap and the parties been targeting the TSR alone. Had there been no swap, the Treaty storage would have been 33.7 ksf above TSR. TSR (i.e., the sum of the variances above – 19.7 forecast deviation plus 6.2 ksf Duncan underrun plus 7.8 ksf storage difference). The difference between positive 33.7 ksf and negative 26.1 ksf is 59.8 ksf, the net effect is that the full swap amount was delivered.