

August 6, 2003

Note

To: Tom Scott  
 Subject: Carson Division Supply  
 From: Rod Hall

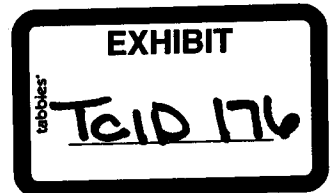
This note presents some observations I made from review of the alternative Truckee operation study results. Five alternative's selected average annual water supplies are as indicated in the following tabulation:

Average Annual Supplies (1901 -2000)  
 (Amounts in 1000 acre-feet)

	Irrigation Diversion	TMWA Diversion from Truck.	TMWRF Discharge	Irrigation + TMWA - TMWRF	Total Derby Flow	Carson Division Shortage	Carson Division Supply	Pyramid Lake Inflow
Current Conditions	39.15	62.46	29.71	71.90	572.96	6.37	269.35	495.44
LWSA	20.72	100.75	44.81	76.66	555.89	8.26	260.61	488.65
LWSA - Alternative W.R.s	4.69	100.79	44.81	60.67	568.82	7.70	261.17	500.82
No Action	20.72	99.77	44.81	75.68	556.96	8.15	260.72	489.58
TROA	4.69	100.13	44.81	60.01	568.06	8.18	260.69	500.71

If we compare the four full development conditions, we note:

- o The basic Local Water Supply and the No Action alternatives both have about the same net diversion ("Irrigation + TMWA - TMWRF") from the Truckee above Derby Dam. These two have about the same Carson Division supplies and the same



Pyramid Lake inflow. The difference in net diversion above Derby Dam is almost the same as the difference in Carson Division supply plus Pyramid inflow.

- The Local Water Supply with water right utilization equal to that of TROA and the TROA operation both have about the same net diversion from the Truckee above Derby Dam. The Carson Division supplies plus the Pyramid supplies are also about the same. However, the Carson Division supply under TROA is significantly less than the Carson Division supply under the Local Water Supply alternative (with water right utilization equal to TROA).
- The Carson Division water supplies are about the same under the basic Local Water Supply, the No Action and the TROA alternatives. And, these are less than the water supply for the alternative based upon Local Water Supply but with water right utilization equal to TROA's.

During certain months of dry years, water is available to serve all Truckee Meadows water rights. But, the potential diversion to Lahontan Reservoir (under applicable provisions of OCAP) may allow diversion of more water than is in the Truckee River. In such months, TROA provides the opportunity to exercise more water rights because TROA allows establishment of credit storage using water rights that have been acquired by Truckee Meadows interests. When Truckee Meadows water rights are exercised by establishing credit storage, the quantity of water released from Truckee Reservoirs is reduced, thereby reducing the quantity of water available for diversion to the Newlands Project.

When credit storage is accumulated, it reduces the dry year supply to the Carson division. The following tabulation illustrates the dry year impact of credit storage establishment upon the Carson Division supply. Three dry years are illustrated in the table.

- For the LWSA alternative that assumes diversions upstream from Derby Dam equal to those in TROA (that has irrigation diversion reduced from the basic LWSA), the annual Carson Division supply and the end-of-water year Lahontan storage are tabulated in two columns.
- For the TROA alternative, three columns are tabulated indicating annual Carson Division supply, end-of-water year Lahontan storage and credit storage establishment that reduces Truckee River flow during months when such water would be diverted into the Truckee Canal.

- o If, under TROA, no credit storage had been established, then either the annual Carson Division supply would have been greater or, in 1933 when there is a full Carson Division supply, there would have been greater carry-over storage in Lahontan. These potential Carson Division supplies and Lahontan storages are tabulated in the last two columns. (Note that the extra carry-over storage in 1933 increases the Carson Division supply in 1934.
- o This tabulation indicates that the three-year average supply under the LWSA alternative with Truckee Meadows diversion the same as under TROA and under TROA if TROA had not reduced the Truckee Canal diversion by establishing credit storage would be essentially equal.

Comparison of Carson Division Supplies  
LWSA and TROA, With Equal Irrigation in Truckee Meadows  
(amounts in 1000 ac-ft)

	LWSA with Reduced TM Diversion			TROA Operation			TROA Impact w/o Credit Storage	
	Carson Division Supply	Lahontan 30 Sept Storage	Carson Division Supply	Lahontan 30 Sept Storage	TROA Credit Storage	Carson Division Supply	Lahontan 30 Sept Storage	Carson Division Supply
1931	199.85	3.99	198.51	3.99	3.73	202.24	3.73	3.73
1933	268.87	37.02	268.87	24.60	6.92	268.87	31.52	31.52
1934	202.04	3.88	189.76	3.67	3.68	200.36	3.68	3.68
Average	223.59		219.05			223.82		

Review of the results and the associated operation studies suggests the following reasons for such impacts:

- o The diversion using water rights upstream from Derby Dam is the primary factor influencing total flow at Derby Dam. And, this impact, in terms of average flow, is the greatest when looking at Pyramid inflow. The reason that most of the impact upon total Derby Dam flow primarily impacts Pyramid inflow is that, during normal and wet years, the Carson Division gets a full water supply because the Carson Division supply is provided before water in excess of Orr Ditch rights (primarily Claims

~~No. 1 and No. 2~~ is released to provide inflow to Pyramid Lake. In general terms, this relationship is not related to TROA or non-TROA conditions, as long as water use upstream from Derby is unchanged.

- o During some months of dry years TROA provides the opportunity to exercise more water rights because TROA allows establishment of credit storage using water rights that have been acquired by Truckee Meadows interests. When Truckee Meadows water rights are exercised by establishing credit storage, the quantity of water available for diversion to the Newlands Project is reduced. Thus, TROA has a negative impact upon Carson Division supply during dry years. (Again, note that this reduction in Newlands supply results from reduction in reservoir release and not from a change in depletion of Truckee River flows between Farad and Derby Dam.)
- o As indicated by the first tabulation, the credit storage establishment impacts upon Carson Division supply under TROA are almost balanced by the increase in water available for diversion at Derby Dam that is provided by the reduction in irrigation diversion from the Truckee River upstream from Derby Dam.