TCID-287
REBUTTAL EXPERT REPORT

DATE: 28 July 2010

TO: Michael J. Van Zandt, Esq.
Nathan Metcalf, Esq.
Rusty Jardine, Esq.

FROM: Chris C. Mahannah, P.E., SWRS

RE: Rebuttal Report – BOR SWRCB Applications to Appropriate 31487 & 31488 & Petitions to Change Licenses 3723, 4196, 10180 & Permit 11605

This rebuttal report will address selected exhibits and reports submitted to the Board by the applicants.

I. Water Availability Analysis for Stampede & Prosser (USBR-7, 20 & 21)

The BOR has submitted a Water Availability Analysis (WAA) (Exhibit USBR-7, 20 & 21) through witness Mr. Sharoody in support of their applications to appropriate additional waters in Stampede reservoir (31487) and Prosser Creek reservoir (31488). As stated in my direct testimony on these applications, the Nevada State Engineer and TROA signatory parties agree the Truckee River and tributaries, in Nevada, are fully appropriated. Approximately 95% of the flow in the river originates in California watersheds, therefore it is reasonable to conclude the entire Truckee River and tributary system in both states are fully appropriated. Therefore, new and junior appropriations sought under applications 31487 and 31488 should be denied by the Board on similar grounds found by the Nevada State Engineer declaring the system fully appropriated. Approving new appropriations on a fully appropriated system will harm existing rights and prove detrimental to the public interest.

In Ruling 4683 the Nevada State Engineer granted the PLIT Permits 48061 and 48494 for all unappropriated water of the Truckee River and its tributaries for a total combined duty of 477,851 afa and rates not to exceed 3,000 cfs. In Ruling 4683A, the State Engineer found the Permits 48061 and 48494 issued to the PLIT were for instream/*in situ* use below Derby Dam and did not allow for upstream storage of those waters. The District Court affirmed Rulings 4683

and 4683A stating it will be necessary as a matter of State law for the Tribe to file change applications and obtain Nevada State Engineer's approval in order for the water to be stored and used as anticipated in TROA. TROA may anticipate storage but it doesn't authorize storage, only the State Engineer gets to authorize storage. No applications to change Permits 48061 or 48494 have been filed with the State Engineer seeking to store the remaining waters of the Truckee River in upstream California reservoirs therefore it is premature for the Board consider Applications 31487 and 31488. At footnote 2, page 9 of USBR-7 it states:

> "Tribe gives its consent to store water from the little Truckee River in Stampede Reservoir that would otherwise flow to Pyramid Lake."

The Tribe cannot simply give their consent to store the unappropriated water in upstream reservoirs granted them under Permits 48061 and 48494 without first seeking a permit to do so before the Nevada State Engineer. TMWA has sought permits from the Nevada State Engineer seeking to store the consumptive use portion of their acquired Orr Ditch rights which is the subject of Ruling 6035 (TMWA 1-5) that is currently under appeal. See Mr. Van Camp's testimony at TMWA 3-0 in the last line of his testimony, he states: "Without that Nevada State Engineer permit, it must be passed through the reservoir." I am in complete agreement with that opinion, therefore the Tribe should also have filed change applications seeking to store all or a portion of their unappropriated water granted under permits 48061 and 48494 which are currently only valid for instream/*in situ* use below Derby Dam. During presentation of his direct testimony at the Board hearing, Mr. Sharoody indicated the Tribe will be filing these applications in Nevada seeking to store their unappropriated water. Until that is done and acted upon by the Nevada State Engineer, it would be premature for the Board to act on Applications 31487 and 31488.

The logic presented in the Stampede and Prosser WAA's are critically flawed for four primary reasons:

1. Analysis incorrectly assumes a flow regime below Derby Dam which is inconsistent with the unappropriated water permits granted to the Tribe under Permits 48061 and 48494.
2. Neglects to consider the physical or flood control capacities of the reservoirs

3. They are historical static analysis which does not mimic future conditions predicated under the TROA
4. The WAA's include water that is already within their permitted allotment in their analysis as available water in addition to the amount stored in the reservoir.

Flaw #1: The WAA's assume a Pyramid Lake Inflow target Flow Regime 1 (Table 2, page 10) which totals approximately 251,000 afa which is roughly half the 477,851 afa granted to the Tribe under permits 48061 and 48494. Attachment "A" to the Tribe's Applications 48061 and 48494 stated:

> "2A. These flows are required for the recreational purpose of natural spawning of Lahontan cutthroat trout and cui-ui in the Truckee River below Derby Dam, to fulfill the purposes of the establishment of the Pyramid Lake Indian Reservation, to provide sustenance for the members of the PLIT, to prevent the loss of and to conserve the endangered cui-ui and the threatened Lahontan cutthroat trout, for operation of the Marble Bluff Dam and Pyramid Lake Fish-way in support of that fishery and to maintain Pyramid Lake at a stable level to support the lake's use for recreation.
>
> 2B. The second component of the amount of water applied for is for the maintenance of the level of Pyramid Lake. For this purpose, the average annual inflow of the Truckee River to the lake of approximately 400,000 acre-feet is required. Based upon the historic flows of the Truckee River and the existing diversions from and depletions of those flows, the Applicant's intent is to appropriate all of the water in the Truckee River and its tributaries that is not subject to valid existing rights." ((TCID-211) & (TCID- 212), emphasis added)

Attachment "A" also detailed the Recreation Flow Requirements the Tribe was seeking below Derby Dam as follows:

PLIT PERMIT 48061 & 48494 FISH & RECREATION FLOW REQUIREMENTS BELOW DERBY DAM

MONTH	FLOW	VOLUME
	(cfs)	(af)
Jan	150	9,226
Feb	150	8,333
Mar	200 - 600	27,181
Apr	700 - 1500	61,505
May	2000 - 3000	163,680
Jun	2200 - 3000	153,166
Jul	150	9,226
Aug	150	9,226
Sep	150	8,928
Oct	150	9,226
Nov	150	8,928
Dec	150	9,226
	Total:	**477,851**

At the unappropriated water hearings held before the Nevada State Engineer on 2 February 1996 regarding TCID Application 9330, significant testimony was provided by Mr. Buchanan, Mr. Strekal and Mr. Wagner defending the need for these volumes of water below Derby for Fish Flow Requirement, riparian habitat enhancement in the lower Truckee River and the needs of recovering and maintaining Pyramid Lake. Mr. Buchanan, Strekal and Wagner's testimony is provided in the hearing transcript at TCID-288. At this same hearing I presented testimony on unappropriated water in support of the TCID Application 9330 which relied upon a fish flow regime below Derby totaling 204,000 afa. This was slightly less than the Flow Regime 1 of 251,000 afa used in the WAA's at Table 2. The 204,000 target I used was based upon "Simulated Water Management and Evaluation Proceedures for Cui-ui, Buchanan & Strekal, September, 1988" (TCID-289). At the hearing Mr. Strekal provided testimony they needed 400,000+ afa and that 204,000 afa was inadequate for fish flows. (See pages 522-523, TCID-288). Mr. Wagner provided testimony that Pyramid Lake needs "an inflow of about 525,000 afa for the next 20 years and then it needs a minimum of 410,000 afa to maintain that level." (See page 545, TCID-288). At the hearing before the Board on 23 July 2010, Mr. Sharoody testified that the area of Pyramid Lake at an elevation of 3,801 feet was approximately 120,000 acres and the annual evaporation rate was 3.5-4.0 af/acre or 450,000 – 480,000 afa. He also stated the desired lake elevation for Delta passage of fish was 3,812 feet. According to the recently

published *Evapotranspiration and Net Irrigation Water Requirements for Nevada* published by the Nevada State Engineer's office in January, 2010, the annual open water evaporation in Pyramid Lake Valley is 5.0 af/ac and net evaporation is 4.4 af/ac http://water.nv.gov/NVET/ET.html. This would yield an evaporation loss from Pyramid Lake of 600,000 afa assuming an area of 120,000 acres. Mr. Wagner also provided testimony that late spring flows of 700 – 4,000 cfs were needed below Derby for re-establishment of riparian Cottonwood seedlings (Page 548, TCID-288). The maximum flow reported in Table 2 of the WAA under the maximum Flow Regime 1 is 1,000 cfs in May. There are many more examples in the transcript where Mr. Buchanan, Strekal or Wagner testify about the large quantities of water needed below Derby and for Pyramid Lake and were critical of the 204,000 afa flow regime I used below Derby which is now similar to Flow Regime 1 of 251,000 afa used in the WAA's. At the hearing on TCID Application 9330, the Tribe's experts were critical of a flow regime of 204,000 afa, stating they needed much more and now they are calling for a similar amount (251,000 afa) below Derby and requesting to retain any excess in storage. Obviously reducing demand below Derby will inflate any WAA result at an upstream location such as Stampede and Prosser. The WAA's should have considered the permitted instream/*in situ* water right demand below Derby which is the 477,851 afa granted to the Tribe in their unappropriated water permits 48061 and 48494 and for which there is no storage right or permit.

Flaw #2: Both of the WAA's failed to consider either the physical or flood control limits on capacity in their analysis which severely limits the ability to store additional water. The current physical capacity of Stampede is 226,500 af and Prosser's capacity is 29,840 af. As presented in Mr. Blanchard's (Joint-20) testimony, there are flood control limits required to maintain a specific amount of free space in Stampede and Prosser from November 1 – April 10 of each year. For Stampede, the flood control capacity limit is 204,500 af and 9,840 af for Prosser. Under normal conditions, storage into the flood control reserve space may begin on April 10, and the reservoirs may be full by May 20. However, during years with above normal projected runoff, the reservoir filling schedule may be delayed, per the U.S. Army Corp of Engineers Flood Control Regulations. The delay will continue until a large enough portion of the runoff has passed in order to reduce the risk of having a full reservoir with a significant snowpack and a substantial amount of runoff yet to come. Each year is different under the high

snow-melt parameter, depending on how much runoff is forecasted and how much has already come off.

USBR-7, Table 3-Revised is included at TCID-298 which is identical to Table 3, pages 12-14 included in the Stampede portion of the WAA however column [21] has been added to the table which is shows the theoretical end-of-month (EOM) storage capacity required to store the monthly amount of available water computed in column [20]. Values are shaded light blue when the EOM storage value exceeds either the flood limit of 204,500 af or 226,500 af capacity. Professional judgment was used based on water year type as to which month the flood control limit of 204,500 af was lifted and filling to capacity of 226,500 was allowed per the delayed filling schedule imposed by the Corps during wet years. The result is that in all but five (5) years (1973, 1980, 1993, 2003, 2005) out of the nineteen (19) years analyzed, EOM storage values exceeded the flood control or physical limits, some by a substantial margin. The most extreme example is in 1983 when Stampede would have needed a capacity of 449,247 af to capture the amount of available water identified in TCID-298 or nearly twice the 226,500 af capacity of Stampede reservoir. Substantial capacity exceedence occurs particularly in wet years 1974, 1982, 1983, 1984, 1986, 1995, 1996, 1997, 1998, 1999 and 2006 or eleven (11) years out of the nineteen years analyzed. This is generally due to pre-runoff season EOM storage capacities already being high and/or high spring runoff flows.

USBR-7, Table 8-Revised at TCID-299 is a similar EOM storage analysis for Prosser Creek reservoir where the capacity or flood control limits are substantially exceeded every year analyzed except 2003. During 1982 Prosser would have needed a capacity of 145,085 af to capture all available water computed in Table 8 or nearly fifteen (15) times the flood control capacity of 9,840 af or five (5) time the physical capacity of 29,840 af.

In summary, the flood and/or physical capacity limits were ignored in both the Stampede and Prosser WAA analyses and theoretical EOM storage amounts for Stampede and Prosser substantially exceed these limits most years. Simply put, one can't store water beyond the physical capacity of the reservoir. By not constraining the WAA analysis to the flood and/or physical capacity renders the analysis to merely a theoretical exercise to compute available water

which serves no purpose unless additional storage is contemplated. For this reason alone, both Prosser and Stampede WAA's should be rejected by the Board.

Flaw #1 & 2 Impact on WAA: In order to address the magnitude of the effects of Flaws #1 and #2 on the Stampede WAA, an analysis was performed using similar logic except the constraints identified in Flaws 1 and 2 were imposed. In other words a 477,851 afa demand below Derby was imposed exactly as permitted in the Tribe's instream/*in situ* unappropriated water permits 48061 and 48494 and per the monthly demand identified in Attachment "A" to the applications. This was supported in the testimony of Mr. Buchanan, Strekal and Wagner at the 2 February 1996 hearing before the Nevada State Engineer (TCID-288). Additionally, the flood and/or physical capacity limits were imposed on Stampede reservoir at either 204,500 af or 226,500 af depending on month and water year status. The spreadsheet computations are shown in USBR-7, Table 3-Revised in TCID-300 which is summarized in the following table:

USBR-7, Table 4 - Revised
Available Water for Storage in Stampede Reservoir
WY 1970-2006

Water Year	USBR-7 Exhibit, Table 3 - Revised [19] Available Water in addition to Stored Amount in Stampede Reservoir - Unlimited Storage Capacity (afa)	TCID-287 Rebuttal Exhibit, Table 3 - Revised [19a] Adjusted Available Water in addition to Stored Amount in Stampede Reservoir - Capacity Limited[1] (afa)
1971	56,071	12,323
1973	8,568	944
1974	93,181	11,679
1975	44,949	0
1980	30,107	0
1982	130,470	18,468
1983	194,847	23,833
1984	139,995	1,109
1986	94,408	26,415
1993	17,564	0
1995	69,919	22,853
1996	121,502	0
1997	147,797	23,167
1998	97,188	23,687
1999	124,083	21,900
2000	18,674	467
2003	0	0
2005	2,906	0
2006	141,345	29,167
Max	194,847	29,167
Min	0	0
Average	80,714	11,369

[1] EOM storage limited to either physical capacity of 226,500 af or the flood control limit of 204,500 af generally imposed from November 1 - April 10

Imposing the permitted instream/*in situ* demand below Derby Dam and storage flood or capacity limits on the WAA has a dramatic effect on reducing the amount of available water at Stampede Reservoir. Using these constraints, the amount of additional available water at Stampede reservoir ranges from 0 – 29,167 afa and averages 11,369 afa which is considerably below the additional storage volume Application 31487 is seeking of 100,500 af. A detailed analysis was not performed for Prosser Creek reservoir, however the results would have been similar or most likely a more dramatic reduction in available water due to the relatively low

flood storage limit of 9,840 af and much smaller capacity of 29,840 af compared to Stampede's capacity of 226,500 af.

TCID-301 is a summary of the BOR annual progress reports (SWRCB-3) for Stampede reservoir showing the beginning of storage season January 1 volume and maximum storage volumes annually from the time the dam was commissioned in 1969 to 2005. The average annual storage volumes over this time period are 38,491 afa and range from 0 – 167,473 afa. Although these storage volumes are not computed using the '30-day rule' (TCID-291) which may show increased storage amounts if there were intervening drawdown and re-filling cycle(s) during the year, they are illustrative of historical storage volumes in Stampede reservoir. Apparently the water right holder (BOR) is responsible for determining the storage quantities when filling out the progress reports, however they did not comply with the procedure outlined in the '30-day rule' nor does the SWRCB routinely check storage gages to see if the reported storage values are correct. See email correspondence with Ms. Kathryn Gaffney at the SWRCB in exhibit TCID-292 on this issue. There was only one year (1995) where the annual increase in storage of 167,473 af exceeded the currently permitted annual volume of 126,000 af under Permit 11605 during the 37 year period of record from 1969 – 2005 summarized in TCID-301. This period of record included some of the wettest years of record where storage capacity of Stampede exceeded capacity of 226,500 afa during spillway flow events in five (5) years of the 1969-2005 record with the maximum storage of 254,161 af occurring in 1983. The historical storage record, which includes some very wet years following a drought (1992 -1995), there is only one year (1995) where annual storage accretion exceeded the permitted amount of 126,000 afa. This calls into question the need for additional storage or water to appropriate. There were twenty-seven (27) years out of the thirty-seven (37) year period of record in which storage volume exceeded the 126,000 af permitted (TCID-301).

Flaw #3: The WAA's are static analyses which only look at historical data and do not consider future actions proposed under TROA. One of the primary tenants of TROA is to retain additional water in upstream reservoirs for drought protection and instream flows to Pyramid Lake. Under future TROA conditions EOM reservoir storage values will be higher than the historical EOM values used in the WAA's. As demonstrated, when the storage capacity limits

are imposed it has a dramatic effect on reducing the amount of available water. The effects will be even larger under future TROA conditions when carry-over EOM storage values are higher prior to the spring runoff season. The relatively simplistic WAA spreadsheet using only selected years and static historical data, which will change under future TROA operations, does not adequately address the amount of available water. A robust river / storage accounting model such a *Riverware*® should have been employed to perform the WAA's which could have looked at future conditions. See further testimony by Dr. Schreüder (TCID-275B) on modeling issues.

Flaw #4: The WAA's include water that is already within their permitted allotment in their analysis as available water in addition to the amount stored in the reservoir. For example in USBR-7, Table 3, Column [2] there are numerous years and months where the amount of additional available water is computed within the existing permitted amount of 126,000 af. Inclusion of any water within the permitted amount of 126,000 af as additional water to appropriate is incorrect.

Summary & Recommendation: For the foregoing reasons presented in Flaws 1-4, the WAA's submitted by the BOR should be rejected due to their substantial deficiencies and applications 31487 and 31488 should be denied. In lieu of denial, the applicant should be required to submit defensible WAA's which address Flaws 1-4. Consideration should be given to using *Riverware*® to perform the WAA's such that future TROA operations can be incorporated in the analysis. It is respectfully requested that the letter dated 22 April 2009 from the Board to the BOR and Stetson Engineers relating to evaluation and endorsement of the Prosser and Stampede WAA's be amended accordingly (TCID-294).

II. Independence / Van Camp Testimony (TMWA-3-0)

Proposed petitions request changes to points of diversion, redistribution and re-diversion. Boca petition proposes changes to License 3723 seeking Stampede Dam and Independence Dam as added upstream points of diversion, re-diversion and redistribution to storage. Stampede petition proposes changes to Permit 11605 seeking Boca Dam and Independence Dam be added as downstream (Boca) and upstream (Independence) points of diversion and redistribution of storage. Independence petition proposes changes to License 4196 seeking Boca Dam and

Stampede Dam as additional down stream points of diversion, redistribution of storage and re-diversion. In other words, TROA contemplates storage trades and exchanges both upstream and downstream between Boca, Stampede, and Independence including other reservoirs on the Truckee including Lake Tahoe, Prosser reservoir and Donner Lake.

In determining whether a change in point of diversions constitutes a new water right the Board offered the following at TCID-197 in Ms. Mahaney's legal memorandum to the Division:

> "Accordingly, when considering a request to change the point of diversion to a different tributary, the Division must evaluate whether the proposed change will initiate a new right by enlarging the existing right (e.g, by increasing the amount of water that the appropriator could divert) or by adding a new source." Page 10

The memorandum further outlined several factors to be considered by the Board in evaluating whether a change involves the same source are:

1. Hydrologic connectivity
2. Geographic scale of the proposed change
3. Water availability
4. No injury

Mr. Van Camp offers an opinion in TMWA 3-0 that the proposed petitions and changes in points of diversion do not constitute a new water right. I disagree for the following reasons, particularly for changes in points of diversion and redistribution of storage seeking to move storage rights upstream from either Boca or Stampede into Independence. The geographic scale differences between the Boca and Stampede watersheds compared to Independence are large. Stampede Dam is located approximately 15 miles downstream of Independence Dam and Boca Dam is approximately 21 miles downstream of Independence. Independence creek is a tributary to the Little Truckee River; however it has gone dry on occasion prior to the construction and regulation of the dam. Cursory review of the Independence reservoir storage and Independence Creek outflow gage indicate there are times, especially during drought periods where there is no natural or unregulated flow in Independence Creek. Therefore it is not hydrologically connected to the Little Truckee at all times, especially pre-regulation of flows released from Independence Lake dam.

The contributing watershed areas to each of these reservoirs are vastly different. Refer to the individual contributing watershed map at TCID-265 which shows the contributing areas for

Independence, Stampede, Boca and Prosser. Independence has a watershed area of only 7.8 mi^2 while Stampede has a contributing area of 128.7 mi^2 and Boca's contributing area is 36.4 mi^2. Stampede's headwater watershed area elevations and associated precipitation distribution would be similar to Independence; however the watershed area for Stampede is approximately seventeen (17) times as large as Independence. The Independence watershed is 6% of the size of Stampede's watershed and 4.7% of the combined size of Boca and Stampede's watershed area.

The map at TCID-265 was further broken down into sub-watersheds pursuant to Calwater delineations http://www.ca.nrcs.usda.gov/features/calwater/ and is shown at TCID-295. There are a total of fifteen (15) individual sub-watersheds which are tributary to Boca and Stampede, 12 of which are tributary to Stampede alone. The following table summarizes each sub-watershed and associated tributary creek and unnamed springs / creeks.

Stampede & Boca Sub-Watershed Summary

No.	Sub-Watershed Name [1]	Tributary Stream(s) Name
	Sub-watersheds Tributary to Stampede	
1	Webber Lake	Lacey Creek/Webber Lake/ Unamed Springs & Tributaries - Headwaters & Start of Little Truckee River
2	Cold Stream	Cold Stream, Perrazo Meadows, Unamed Springs & Tributaries
3	Lower Independence Creek	Independence Creek & Unamed Springs & Tributaries
4	Upper Sagehen Creek	Sagehen Creek & Unamed Springs & Tributaries
5	Lower Sagehen Creek	Sagehen Creek & Unamed Springs & Tributaries
6	Kyburz Flat	Unamed Springs & Tributaries
7	Inlet to Stampede	Unamed Springs & Tributaries
8	Stampede Reservoir	Unamed Springs & Tributaries
9	West Davies Creek	Davies Creek & Unamed Springs & Tributaries
10	East Davies Creek	Davies Creek, Sardine Valley & Unamed Springs & Tributaries
11	Merrill Creek	Merrill Creek & Unamed Springs & Tributaries
12	Hoke Valley	Unamed Springs & Tributaries
	Sub-watersheds Tributary to Boca & Stampede	
13	Russel Valley	Dry Creek & Unamed Springs & Tributaries
14	Worn Mill Canyon	Unamed Springs & Tributaries
15	Boca Reservoir (East Boca Springs)	East Boca Canyon & Unamed Springs & Tributaries

[1] http://www.ca.nrcs.usda.gov/features/calwater/

The following photographs further illustrate the differences between the Independence and Stampede watersheds:

Photo #1: Independence Lake & Watershed viewed to SW, 7/17/10

Photo #2: Cold Stream Watershed & Little TR viewed to South, 7/17/10

Photo #3: Cold Stream/Perazzo Watershed & Little TR viewed to SW, 7/17/10

Photo #4: Perazzo Meadow viewed to South, 7/17/10

Photo #5 Webber Lake & Watershed Viewed to NE, 7/17/10

Summary: The geographic scale and water availability at Independence Dam verses either Stampede or Boca dams are vastly different due to the large difference in watershed contributing areas compared to the respective points of diversion and the numerous creeks and springs which are tributary to Boca and Stampede but not to Independence Lake. Hence, redistribution of storage upstream from Boca or Stampede, which have a much greater yield due to larger tributary watershed areas, to Independence which would have a much smaller yield in comparison, has the potential to expand the yield and storage potential. Due to the vastly different geographic scales, 21+ miles between points of diversion, and potential to expand water availability or yield due to much larger contributing watershed areas for Boca and Stampede compared to Independence, the changes in points of diversion contemplated will initiate a new right by enlarging the existing right and adding a new source.

TMWA 3-0 (Van Camp), TMWA 2-0 (Carson) and App/Pet Joint-20 (Blanchard) all discuss the current and anticipated practice of capturing water released from Independence to

Stampede which can then be released and captured at Boca and labeled TMWA Independence water in theses other reservoirs. This practice typically happens in the fall (Joint-20, page 19, lines 13-14) before the winter and spring runoff season. By making additional storage room available in Independence in the fall and storing in much larger capacity reservoirs (Stampede is 13 times larger than Independence) has the potential to expand the ability to store more water in Independence which would also initiate a new water right. In other words, if that fall release to downstream reservoirs had not been made, there would be less room to store water in Independence.

III. WQSA – Claim 3 Storage / Mahin Testimony (TMWA 4-0)

Mr. Mahin's testimony addresses water rights acquired pursuant to the Water Quality Settlement Agreement (WQSA), most of which were acquired from the Truckee Division of the Newlands Project. These are mostly Orr Ditch Claim-3 rights having a priority of 1902. TROA contemplates credit storing water acquired under the WQSA in addition to storage of the consumptive use portion of TMWA's acquired rights and the Tribe's unappropriated water. It is anticipated that carry over storage will occur in upstream reservoirs to provide a more reliable supply for the lower Truckee River. By providing additional upstream carry over storage for rights acquired under the WQSA from Newlands Project Claim 3 rights will effectively enhance the yield and reliability of water rights having an identical priority of 1902. This change in point of diversion to upstream storage certainly constitutes a massive change in geographic scale and enhances water availability, thus initiating a new water right. Such storage of WQSA Claim 3 water should be rejected or at a minimum suffer a loss in priority to the date the change applications are filed.

Furthermore, contemplated storage of the Tribe's unappropriated water under permits 48061 and 48494 having the most junior priority on the Truckee River of 25 May 1984, places them in a situation of having upstream carry over storage, thus firming up the yield of the water right. This may, in some cases, unfairly place those most junior rights on the river in a position of having a better and more reliable supply than the Claim-3, 1902 priority rights. They were permitted by the Nevada State Engineer for the excess instream/*insitu* flood flows below Derby

Dam. Any storage of these rights would constitute a new right due to the massive change in geographic scale, increased water availability and potential injury to the Newlands Project.

Applicant's testimony has continued to rely on the '25% Rule' in the Orr Ditch Decree to store their water rights which per my direct testimony has been misinterpreted. The Orr Ditch Decree (Joint-7) states at page 87:

> "No owner or person or party entitled to the use of water under this decree shall be allowed to use for irrigation during any calendar month more than 25% of the quantity of direct water in acre feet hereby allowed for the land for the season." Emphasis added

This 25% rule is repeated again on page 88 of the Orr Ditch Decree. This provision in the Decree applies to direct diversion for irrigation and should not be interpreted to apply to storage of any consumptive use rights. Allowing one to store 25% in any one month without considering the initial use of that right and its respective consumptive use or return flow patterns has the potential to harm downstream rights. For example, as presented in my M&I and Ag CU reports, there would not be 25% of the right consumed during any month of the year, particularly during the Fall, Winter and Spring seasons when crops are dormant or outdoor watering is not occurring.

Additionally the, use of the 25% rule by a single large water right owner such as the Tribe to call on large blocks of direct diversion water such as Claims 1 & 2 at a single point of diversion or call below Derby dam was never contemplated under in this provision of the Orr Ditch Decree. Rather, the intent was to allow individual small farmers to call on their direct diversion irrigation rights at a rate of 25% per month to manage their water supply for farming practices. The Tribe has misused this provision in the Decree such that combining their call on their Claim 1 & 2 rights plus WQSA acquired rights and others at a 25% per month demand can effectively require all flow to pass Derby Dam at certain times of the year. Mr. Schank discussed this in his direct testimony during the 2009 irrigation season where Truckee Division users were deprived of their water for a six (6) week period due to the Tribe's call on their water at the 25% per month demand at this same time. Timing of storage should mimic the historical return flows in time, location and amount so as to protect the existing rights of the Newlands Project.

IV. Summary & Conclusions

1. Storage of TMWA Truckee Meadows rights should be limited to actual historical M&I Consumptive use rate of 50% of acquired rights sought to be stored.

2. Timing of storage should mimic historical M&I consumptive use pattern. The 25% rule referenced in the Orr Ditch Decree does not and should not apply to storage of the consumptive use portion of the rights.

3. By limiting storage amount to historical M&I consumptive use and timing storage will protect existing rights by maintaining historical return flows in time, location and amount.

4. There is no additional available water to appropriate under Applications 31487 and 31488 because the Truckee River and its tributaries are fully appropriated pursuant to the Nevada State Engineer granting the Tribe's unappropriated water permits 48061/48494 and TROA signatory parties have agreed the river is fully appropriated.

5. The Tribes unappropriated water permits 48061/48494 are for in-stream flow purposes only and there is no authorization for storage of these waters by the Nevada State Engineer. Change applications seeking to store these waters have not been filed with the State Engineer, therefore it is premature for the Board to consider Applications 31487 and 31788.

6. The WAA's for Stampede and Prosser reservoirs are fatally flawed because they neglected to consider the full amount of the Tribe's permitted water rights under unappropriated water permits 48061/48494 and their Claim 1 & 2 rights below Derby Dam.

7. The WAA's for Stampede and Prosser reservoirs are fatally flawed because they did not consider the physical or flood storage limits in the reservoirs. During most years when there is extra available water, the reservoirs are full and there is little to no room to store additional water. Without considering construction of additional storage capacity, this flaw renders the WAA's useless. Simply put, you can't store water beyond the physical capacity of the reservoir. The Stampede WAA is flawed because it included water within the permitted amount o 126,000 af as additional water to appropriate.

8. The WAA's are also fatally flawed because they only looked at selected years using historical storage values and did not consider future conditions under TROA where EOM storage values will be higher.

9. The Petitions to change Boca, Stampede, Independence and Prosser storage rights will initiate a new water right and expand the storage rights. Storage of WQSA, Claim-3 waters or the Tribe's unappropriated water will expand the rights and initiate a new water right. Pursuant to California Water Code §1702, petitioner shall establish, to the satisfaction of the Board that the change will not operate to the injury of any legal user of the water involved. Petitioners own testimony has demonstrated injury.

10. Applications 34187 and 31488 should be denied on the grounds there that the Truckee River and its tributaries are fully appropriated, consistent with the Nevada State Engineer. At a minimum, the Board should defer action on these until the Tribe files change applications in Nevada seeking to store their unappropriated water and those applications and rulings have exhausted all appeals.

11. If the Board should decide to approve the applications or petitions, then water stored in these upstream reservoirs should be made available for use in the Newlands so as to prevent shortages.

EXHIBIT LIST - TCID-xxx

Exhibit	
TCID-287	Chris Mahannah Rebuttal Expert Report, 7/27/10
TCID-288	Hearing Transcript of Buchanan, Strekal and Wagner's testimony, 2/2/96
TCID-289	Simulated Water Management and Evaluation Procedures for Cui-ui, Buchanan & Strekal, September, 1988
SWRCB-3	BOR Stampede Reservoir Progress Reports (1969 – 2005)
TCID-291	Storage/Regulatory Determination for Reservoirs Filled in Whole or Part More Than Once During a Single Water Year regarding the '30-day Rule' Title 23, Div. 3, CCR §657.
TCID-292	Email correspondence between C. Mahannah and Kate Gaffney, SWRCB, 6/29/10
TCID-294	Board letter dated 4/22/09 from Mr. Cowan to BOR/Stetson Engineers
TCID-295	Sub-Watershed Map of Prosser, Stampede, Independence, Boca Reservoirs
TCID-298	USBR- 7, Table 3 – Revised: Estimates of Available Water for Storage in Stampede Reservoir & Calculation of Theoretical Stampede Storage Volume to Capture Available Water
TCID-299	USBR- 7, Table 8 – Revised: Estimates of Available Water for Storage in Prosser Creek Reservoir & Calculation of Theoretical Prosser Storage Volume to Capture Available Water
TCID-300	USBR- 7, Table 3 – Revised: Estimates of Available Water for Storage in Stampede Reservoir using Permits 48061 & 48494 Demand Below Derby & Limiting Storage to Capacity or Flood Control Limit
TCID-301	Summary of BOR Stampede Storage Progress Reports