Alternative Compliance Plan

Water Right Applications A001270, A002372, A006701, A006702, A008178 and A008180

Nevada Irrigation District

June 2017

Alternative Compliance Plan - Applications A001270, A002372, A006701, A006702, A008178 and A008180

Introduction:
Nevada Irrigation District (District) holds water right License 12795, 12798, 12799, 128001, and 12802 (Applications 1270, 2372, 6701, 6702, and 8178, respectively), and Permit 5815 (Application 8180) for direct diversion from Texas Creek, Fall Creek, Trap Creek, Clear Creek, and Rucker Creek (hereinafter referred to as tributaries). The source of water under each License and Permit includes all or some of the tributaries wherein the points of diversion are located where each tributary enters the Bowman-Spaulding Canal (Canal). The topography upstream of the canal is steep and the tributary channels are chiefly made up of cobble to boulder size material. The elevation of the tributary inlets to the Canal range from 5,400 ft. to 6800 ft., and the flows vary seasonally with high flows in the spring during snowmelt that recede to quite low flows in the fall.

The basis for the submittal of this Alternative Compliance Plan (Plan) is "not feasible" and "would unreasonably affect public trust uses". Strict compliance with the requirements for measuring and monitoring at each of the points of diversion is not feasible due to the lack of an adequate control to cover the range of flows within the natural stream channel near each of the points of diversion. According to USGS: "The two key attributes of a satisfactory control are permanent (stability) and sensitivity." At each point of diversion the natural tributary channels are steep and consist of large cobbles. These conditions result in unsatisfactory controls pursuant to the US Geological Survey. In addition, access is limited in the winter due to snow, and there is limited access to the uphill side of the Bowman-Spalding Canal where any measurement equipment would be installed on the tributaries.

In order to try to eliminate or alleviate these undesirable factors, artificial controls would need to be constructed, but "would unreasonably affect public trust uses". Potential artificial controls include weirs, flumes, or concrete sections of channel installed in the natural bed of the tributaries. These artificial controls would likely not eliminate the undesirable factors and conditions needed to strictly satisfy the measurement and monitoring requirements. The instream construction and maintenance of these potential artificial controls, would unreasonably affect the public trust resources, including fisheries and aesthetic values.

In the winter and spring months the spillways along the downhill side of the Canal are used to relieve the Canal of excess water in order to maintain operational freeboard. There is a spill near each tributary inflow and the inflow to the Canal may be spilled depending upon available capacity of the Canal. The water spilled would need to be subtracted from the water diverted into the canal. Therefore each tributary would need measurement equipment at each point of diversion and at each spillway.

For the above reasons the District is submitting this Plan pursuant to Section 935 of the California Code of Regulations. This plan is consistent with the Division of Water Rights licensing, is compliant with the accuracy requirements when viewed from the five (5) points of diversion covered, and allows the Division to regulate without impact to other water right holders.

Plan Details:

(A) Contact information:

Nevada Irrigation District
1036 West Main Street
Grass Valley, CA 95945

(530) 273-6185

(B) Primary contact:

Sue Sindt
Nevada Irrigation District
1036 West Main Street
Grass Valley, CA 95945
(530) 273-6185

(C) Identification of each right covered:

Application A001270 (for Texas, Fall and Trap Creeks)
Owner: Nevada Irrigation District
Type: Post -1914 Appropriative
Priority: May 7, 1919
Points of Diversion: Texas Creek BSC – By California Coordinate System of 1983, Zone 2, North 2,276,390 feet and East 6,935,710 feet, being within SW ¼ of SW ¼ of Section 19, T18N, R12E, MDB&M; Fall Creek BSC – By California Coordinate System of 1983, Zone 2, North 2,264,690 feet and East 6,935,410 feet, being within NW ¼ of NW ¼ of Section 6, T17N, R12E, MDB&M; Trap Creek BSC – By California Coordinate System of 1983 Zone 2, North 2,262,490 feet and East 6,935,410 feet, being within NW ¼ of SW ¼ of Section 6, T17N, R12E, MDB&M
Amount: 30 cfs from Texas Creek, 15 cfs from Fall Creek, 5 cfs from Trap Creek
Place of use: Service area as shown on NID Drawing 4365 on file with the Division
Purpose(s) of use: Irrigation, municipal, domestic, mining

Application: A002372 (for Texas, Fall and Trap Creeks)
Owner: Nevada Irrigation District
Type: Post -1914 Appropriative
Priority: June 3, 1921
Points of Diversion: Texas Creek BSC – By California Coordinate System of 1983, Zone 2, North 2,276,390 feet and East 6,935,710 feet, being within SW ¼ of SW ¼ of Section 19, T18N, R12E, MDB&M; Fall Creek BSC – By California Coordinate System of 1983, Zone 2, North 2,264,690 feet and East 6,935,410 feet, being within NW ¼ of NW ¼ of Section 6, T17N, R12E, MDB&M; Trap Creek BSC – By California Coordinate System of 1983 Zone 2, North 2,262,490 feet and East 6,935,410 feet, being within NW ¼ of SW ¼ of Section 6, T17N, R12E, MDB&M
Amount: 30 cfs from Texas Creek, 15 cfs from Fall Creek, 5 cfs from Trap Creek
Place of use: Spaulding #3 Powerhouse
Purpose(s) of use: Power

Application: A006701
Owner: Nevada Irrigation District
Type: Post -1914 Appropriative
Priority: June 16, 1930
Points of Diversion: Clear Creek BSC – By California Coordinate System of 1983, Zone 2, North 2,267,490 feet and East 6,934,560 feet being within NW ¼ of SE ¼ of Section 36, T18N, R11E, MDB&M; Fall Creek BSC – By California Coordinate System of 1983, Zone 2, North 2,264,690 feet and East 6,935,410 feet, being within NW ¼ of NW ¼ of Section 6, T17N, R12E, MDB&M; Trap Creek BSC – By California Coordinate System of 1983 Zone

2, North 2,262,490 feet and East 6,935,410 feet, being within NW ¼ of SW ¼ of Section 6, T17N, R12E, MDB&M
Amount: 5 cfs from Clear Creek, 10 cfs from Fall Creek, 5 cfs from Trap Creek
Place of use: Spaulding #3, Spaulding #1, Spaulding #2, Deer Creek, Drum, Dutch Flat #1, Dutch Flat #2 and Chicago Park powerhouses
Purpose(s) of use: Power

Application: A006702
Owner: Nevada Irrigation District
Type: Post -1914 Appropriative
Priority: June 16, 1930
Points of Diversion: Clear Creek BSC – By California Coordinate System of 1983, Zone 2, North 2,267,490 feet and East 6,934,560 feet being within NW ¼ of SE ¼ of Section 36, T18N, R11E, MDB&M; Fall Creek BSC – By California Coordinate System of 1983, Zone 2, North 2,264,690 feet and East 6,935,410 feet, being within NW ¼ of NW ¼ of Section 6, T17N, R12E, MDB&M; Trap Creek BSC – By California Coordinate System of 1983 Zone 2, North 2,262,490 feet and East 6,935,410 feet, being within NW ¼ of SW ¼ of Section 6, T17N, R12E, MDB&M
Amount: 5 cfs from Clear Creek, 10 cfs from Fall Creek, 5 cfs from Trap Creek
Place of use: Service area as shown on NID Drawing 4365 on file with the Division
Purpose(s) of use: Irrigation

Application: A008178
Owner: Nevada Irrigation District
Type: Post -1914 Appropriative
Priority: November 27, 1934
Points of Diversion: Texas Creek BSC – By California Coordinate System of 1983, Zone 2, North 2,276,390 feet and East 6,935,710 feet, being within SW ¼ of SW ¼ of Section 19, T18N, R12E, MDB&M; Fall Creek BSC – By California Coordinate System of 1983, Zone 2, North 2,264,690 feet and East 6,935,410 feet, being within NW ¼ of NW ¼ of Section 6, T17N, R12E, MDB&M; Trap Creek BSC – By California Coordinate System of 1983 Zone 2, North 2,262,490 feet and East 6,935,410 feet, being within NW ¼ of SW ¼ of Section 6, T17N, R12E, MDB&M; Clear Creek BSC – By California Coordinate System of 1983, Zone 2, North 2,267,490 feet and East 6,934,560 feet being within NW ¼ of SE ¼ of Section 36, T18N, R11E, MDB&M; Rucker Creek BSC – By California Coordinate System of 1983, Zone 2, North 2,258,370 feet and East 6,939,140 feet, being within SE ¼ of NE ¼ of Section 7, T17N, R12E, MDB&M
Amount: 68 cfs from Texas Creek, 13.6 cfs from Clear Creek, 75.7 cfs from Fall Creek, 8.6 cfs from Trap Creek, 25 cfs from Rucker Creek
Place of use: Spaulding #3, Spaulding #1, Spaulding #2, Deer Creek, Drum, Dutch Flat #1, Dutch Flat #2, Chicago Park, Halsey and Wise powerhouses
Purpose(s) of use: Power

Application: A008180
Owner: Nevada Irrigation District
Type: Post -1914 Appropriative
Priority: November 27, 1934
Points of Diversion: Texas Creek BSC – By California Coordinate System of 1983, Zone 2, North 2,276,390 feet and East 6,935,710 feet, being within SW ¼ of SW ¼ of Section 19, T18N, R12E, MDB&M; Fall Creek BSC – By California Coordinate System of 1983, Zone 2, North 2,264,690 feet and East 6,935,410 feet, being within NW ¼ of NW ¼ of Section 6,

T17N, R12E, MDB&M; Trap Creek BSC – By California Coordinate System of 1983 Zone 2, North 2,262,490 feet and East 6,935,410 feet, being within NW ¼ of SW ¼ of Section 6, T17N, R12E, MDB&M; Clear Creek BSC – By California Coordinate System of 1983, Zone 2, North 2,267,490 feet and East 6,934,560 feet being within NW ¼ of SE ¼ of Section 36, T18N, R11E, MDB&M; Rucker Creek BSC – By California Coordinate System of 1983, Zone 2, North 2,258,370 feet and East 6,939,140 feet, being within SE ¼ of NE ¼ of Section 7, T17N, R12E, MDB&M
Amount: 30 cfs from Clear Creek, 70 cfs from Texas Creek, 85 cfs from Fall Creek, 15 cfs Trap Creek, 25 cfs Rucker Creek
Place of use: Service area as shown on NID Map 1020 and on Drawing 5305 submitted with Change Petitions both on file with the Division
Purpose(s) of use: Irrigation and domestic

(D) Area served by the plan:

Within the gross service area of the District; see NID Drawing 4365, sheet 2 Service Area and Map 1020 both on file with the Division. Powerhouses covered are listed above.

(E) Assessor's parcel numbers and ownership:

Customers served within the gross place of use of the Nevada Irrigation District. Too many to list individual parcel numbers.

(F) Identification of proposed measurement frequency:

USGS Gages to be used have continuous recording data loggers. They are currently set to record every 15 minutes.

(G) Identification of the proposed measurement methodology:

As previously identified, there are five tributaries (Texas Creek, Fall Creek, Clear Creek, Trap Creek and Rucker Creek) covered under this Alternative Compliance Plan that bisect the District's Bowman-Spaulding Canal (Canal). The point of diversion named in the water rights is where the tributaries flow into the Canal. See attached map depicting USGS gage locations, Canal and five points of diversion. The amount diverted is the amount that is retained in the Canal and delivered to the District's service area.

The quantity diverted has been measured and calculated, and used by the Division of Water Rights (Division) for Licensing, by subtracting the flow from the gage at the lower end of the canal (USGS 11416100 - Bowman-Spaulding Canal at Jordan Creek Siphon Venturi, Near Emigrant Gap, CA) from the flow from the gage at the head of the canal (USGS 11416000 - Bowman –Spaulding Canal Intake near Graniteville, CA). Then a proration is made of that quantity by the watershed area of each of the five watersheds to determine the quantity from each source. The total area has been apportioned as follows: Texas Creek 32%, Clear Creek 6%, Fall Creek 41%, Trap Creek 6% and Rucker Creek 15%.

This methodology was proposed by the District in a March 1983 letter to the Division. The Division concurred this to be a reasonable approach in a June 1985 letter to the District. A March 1987 Memo re-affirmed the approach and it was used to finalize licensing quantities for Applications 1270, 2372, 6701, 6702 and 8178 for each of the tributaries.

For determining license quantities for Application 8180, this approach was used again in 2006. The Division's Report of Inspection for Application 8180 details the gage data used and the calculations necessary to determine quantities (Inspection report attached).

The same approach will be used for compliance of California Code of Regulations, Chapter 2.8. The two gages being used are USGS gages maintained by the District under the supervision of USGS. Both gages have continuous recording data loggers and are currently recording data on a 15 minute interval. The data is available from either USGS or the District.

USGS 11416100 - Bowman-Spaulding Canal at Jordan Creek Siphon Venturi, Near Emigrant Gap, CA has a rated accuracy of excellent by USGS which is +/- 2% (see attached station description).

USGS 11416000 -Bowman –Spaulding Canal Intake near Graniteville, CA has a rated accuracy of good by USGS which is +/- 5% (see attached station description and 2016 USGS letter of approval).

The Alternative Compliance Plan accuracy is the greater of the two gages used which is +/- 5%. This is better than the +/- 15% required pursuant to Chapter 2.8, Section 933 of the California Code of Regulations based on the date of gage installation and quantity diverted.

To convert discharge (cubic feet per second; cfs) to volume the mean daily flow is multiplied by the conversion factor of 1.9835 acre feet per day (i.e. 1 cfs = 1.9835 acre feet). The mean daily flow is the mean of the 15 minute logged stage data for each day; converted to flow using the then current rating table.

Because the diversion of this water is done under six different Applications obtaining the data from the gages is only the first step in determining how much was diverted under each right, and at each point of diversion. The amount diverted by right and source is done in a post-processing Water Diversion and Use Monitoring Program (Program) utilizing the data from the gages. At the request of the Division and in collaboration with Division staff, the District completed and submitted to the Division in June 2011 a Water Diversion and Use Monitoring Program. This Program incorporates the methodology used to determine licensing quantities for each right by utilizing the spreadsheets developed through the licensing process. The District has been utilizing the Program since 2011 for completing all water right reporting.

By utilizing the Water Diversion and Use Monitoring Program the available water each year is also allocated by priority for reporting purposes and could be used for other purposes during periods of insufficient supply.

(H) Topographic map(s) or aerial photographs of the area covered by the plan that show the separate places of use authorized to be served by the claimed water rights covered by the plan and showing acreage served:

Place of use is shown on NID drawing 4365 and Map 1020 on file at the Division.

(I) Implementation schedule:

The District is currently utilizing this approach.

(J) Budget for implementation of the plan:

The District annually includes in their budget monies for USGS review, equipment repairs/replacement and hydrographer staff time.

(K) Permits required:

None

(L) An affirmation signed by all diverters covered by the plan, that the plan will be implemented in accordance with the schedule contained therein and that all claimed water rights covered by the plan will not be exercised outside the plan:

The District is the only water right owner in the plan; by submitting the plan the District is affirming to the plan.

Certification:

I, Marc Van Camp, 455 University Ave Suite 100, Sacramento, California, hereby certify that this Alternative Compliance Plan is in compliance with Chapter 2.8, Section 935 of the California Code of Regulations. The compliance is based on the use of USGS gages which are within the accuracy and frequency called for in Chapter 2.8, Section 933 of the California Code of Regulations to determine the combined diversion of 5 points of diversion. The distribution of this diversion quantity by drainage area is consistent with the Division of Water Rights recent licensing process. This Alternative Compliance Plan is reasonable and practical (based on my June 20, 2017 field investigation), and facilitates the District's water right reporting and the Division's overall water right management and regulation pursuant to Title 23, California Code of Regulations.

Marc Van Camp
CA PE # 43104

Attachments:

Map
Station descriptions
USGS 2016 letter
Division Inspection Report for Application 8180