LAVACA REGIONAL WATER PLANNING GROUP

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June 21, 2018

Mr. Jeff Walker
Executive Administrator
Texas Water Development Board
P.O. Box 13231
1700 North Congress Avenue
Austin, Texas 78711-3231

Subject: Request by the Lavaca Regional Water Planning Group (Region P) to use a modified TCEQ WAM Run 3 for surface water availability modeling in the 2021 Lavaca Regional Water Plan development (Hydrologic Variance Request)

Dear Mr. Walker:

On June 18, 2018, the Lavaca Regional Water Planning Group (Region P) authorized submitting this request to you for approval to use a modified version of the TCEQ Lavaca WAM Run 3 Model (version date of 9/2/2014) in determining availability of surface water resources for development of the 2021 Lavaca Regional Water Plan (RWP). This request to use the modified model is for both surface water supply availability and for evaluating water management strategies. For water management strategies requiring a new water right appropriation, if the modified model is not accepted by TCEQ during the current planning cycle, the unmodified TCEQ Lavaca WAM Run 3 model will be used per TWDB requirements.

This request is based on a review of the Lavaca River WAM Run 3 model, version date of 9/2/2014, which Freese & Nichols, Inc. (FNI) performed in 2016. The WAM had been updated by TCEQ in 2014 to include new code for modeling the Senate Bill 3 (SB3) environmental flows. During the review, FNI observed a few issues with the model related to the SB3 pulse flows, consistency with standard Run 3 assumptions, and consistency with water right permit terms. FNI proposed revisions to address the issues and prepared a memo to TCEQ detailing the revisions. The FNI memo is included as Attachment A to the request. Region P agrees that these revisions create a more accurate model.

TCEQ has reviewed the proposed revisions from FNI, but they have not yet made the revisions to the TCEQ model and adopted it. A summary of the proposed revisions to the TCEQ Lavaca WAM Run 3 includes:

1. Several changes to the existing code used to model SB3 pulse flow requirements in the Lavaca WAM.

2. Addition of missing SB3 pulse flow code for the Navidad River at Strane Park near Edna.

3. Revisions to Lake Texana SV SA records

   - These records will also then update for 2020-2070 sedimentation for regional water planning analysis, as required by TWDB guidelines.

4. Addition of a synthetic primary control point to correct a naturalized flow calculation.

5. Revisions to modeling of Lake Texana interruptible diversions

   - 3 authorizations split out rather than lumped under one diversion
   - Include annual diversion limit (simplifies the coding)
   - Pattern change to allow more water to be diverted in the last three months of the year (if available)

6. Revisions to Stage 2 of the Palmetto Bend Project location and SV SA records to model it as described in COA 16-2095.

The FNI modified model and the TCEQ WAM Run 3 were both adjusted for 2020-2070 sedimentation and run to see how the surface water available supply results compared for the two model versions.

There was no change to the firm availability of the interruptible water rights – they remained at 0 acre-feet/ year for both model versions for all decades.

In the FNI modified model, the firm yield of Lake Texana was 74,500 acre-feet/year for all decades. In the TCEQ WAM Run 3, the firm yield of Lake Texana was 74,500 acre-feet/year for the 2020 decade but decreases each decade down to 73,290 acre-feet/year by 2070, due to sedimentation. Overall, the use of the modified model increases the firm yield availability of Lake Texana in the 2030-2070 decades.

Region P believes the modifications to the TCEQ Lavaca WAM Run 3 listed above create a more accurate model for use in analyzing surface water availabilities. We respectfully request to use this modified version of the TCEQ Lavaca WAM Run 3 Model (version date of 9/2/2014) in determining availability of surface water resources for development of the 2021 Lavaca Regional Water Plan (RWP). We appreciate your consideration of this request. Should you have any questions regarding this submittal, please contact our Consultant, Jaime Burke, via phone at (512) 457-7798 or via email at jaime.burke@aecom.com.

Sincerely,

Phillip Spenrath, Chairman
Lavaca Regional Water Planning Group

Enclosures: Attachment A – FNI Memo to TCEQ

C: Ms. Elizabeth McCoy, TWDB (electronically)

Region P Hydrologic Variance Request
Attachment A

MEMORANDUM

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TO: Kathy Alexander, TCEQ

CC: Patrick Brzozowski, Bill Dugat, Doug Caroom

FROM: Philip Taucer, Jon Albright

SUBJECT: Proposed Revisions to Lavaca and Lavaca-Guadalupe WAMs

DATE: March 29, 2016

PROJECT: LVA15590

Freese and Nichols, Inc. (FNI) has performed a review of the most recent available Run 3 Water Availability Models (WAMs) for the Lavaca River Basin and Lavaca-Guadalupe Coastal Basin. The Lavaca WAM, with a version date of 9/2/2014, was obtained from the TCEQ website and includes new code for modeling of Senate Bill 3 (SB3) environmental flows. TCEQ provided FNI with a draft WAM Run 3 for the Lavaca-Guadalupe Coastal Basin, with a version date of 7/30/2015. The results of the model review indicated a number of opportunities to enhance the model. The identified issues are related primarily to SB3 pulse flows, consistency with standard Run 3 assumptions, and consistency with water right permit terms. Proposed revisions to address these issues are discussed in greater detail in the sections below.

Revisions of Existing Senate Bill 3 WRAP Code

FNI proposes several changes to the existing code used to model SB3 pulse flow requirements in the Lavaca WAM. During a review of model results, it was observed that the target volume of small pulses for the Lavaca River near Edna occasionally differed from expected values. It was determined that the CI record which sets the duration for this pulse differed from the values specified in *Title 30, Texas Administrative Code, Chapter 298 (30 TAC §298)* for the Fall season. The following revision is proposed:

```
CILESPND       6       6       7       7       7       7
CI             4       4       6       6       6       6
```

A similar issue was identified with the CI record setting the large pulse duration for Sandy Creek near Ganado. The following revision is proposed:

```
CISGLPND       8       8      10      10      10      10
CI             7       7       7       7       7       8
```

It was also observed that the target volume of the annual pulse for all SB3 locations in the model intermittently differed from expected values. It was determined that a TO record within the annual pulse calculation for each SB3 location was referencing records for the large pulse. The proposed revision for the Lavaca River near Edna is shown below. Similar charges are also recommended for the other three SB3 locations.

```
WRFKLE03          XMONTH20110301                                BF-LEB-AP1
TO     2             ADD                 DAYSPY                     CONT
TO     2             SUB                 LEAPND
```

Additions to Senate Bill 3 WRAP Code: Lavaca WAM

The existing Lavaca WAM does not include SB3 pulse flow code for the Navidad River at Strane Park near Edna (USGS Gage 08164390) as described by *30 TAC §298.330(e)(16)*. While the exclusion of SB3 code for this point does not appear to impact regulated flows in the existing model due to the junior priority of the SB3 code, there is the potential for impacts to future appropriations with a more junior priority date. FNI has generated additional code to model the SB3 pulse flow requirements at this location. The proposed code closely follows the approach applied by the existing Lavaca WAM for the other SB3 locations. The following changes were made to the model code:

1. Control point connectivity in the DAT file was modified to add a new control point (GSNE1) at the SB3 location as well as associated dummy control points for pulse flow calculations.

```
**CP RF502   DV501                      7          GS500      -1
CP RF502   GSNE1                     7          GS500      -1
CP GSNE1  NESUBS                     7          GS500      -1
CPNESUBS  NEBASE                     7          GS500      -1
CPNEBASE  NESPUL                     7          GS500      -1
CPNESPUL  NELPUL                     7          GS500      -1
CPNELPUL  NEAPUL                     7          GS500      -1
CPNEAPUL   DV501                     7          GS500      -1
```

2. FD and WP records for these additional control points were also added to the DIS file. The drainage area reflected on the WP records was set to match the contributing area listed for USGS Gage 08164390. Remaining properties listed on the WP records were copied from control point RF502.

```
FD GSNE1   GS500       1   GS550  GS1000
FDNESUBS   GS500       1   GS550  GS1000
FDNEBASE   GS500       1   GS550  GS1000
FDNESPUL   GS500       1   GS550  GS1000
FDNELPUL   GS500       1   GS550  GS1000
FDNEAPUL   GS500       1   GS550  GS1000

WP GSNE1  579.00   70.73   39.69     1.0
WPNESUBS  579.00   70.73   39.69     1.0
WPNEBASE  579.00   70.73   39.69     1.0
WPNESPUL  579.00   70.73   39.69     1.0
WPNELPUL  579.00   70.73   39.69     1.0
WPNEAPUL  579.00   70.73   39.69     1.0
```

3. UC records for pulse volumes were also added.

```
** NE UCs
UC NESUB      61      56     172     167     172     167     =     1401
UC            74      74     131     135     131      61
UC NEDRY     861     784    1107    1071    1107    1071     =    12883
UC          1476    1476    1012    1045    1012     861
UC NEAVG    2152    1961    2152    2083    2152    2083     =    26833
UC          2890    2890    2083    2152    2083    2152
UC NEWET    4366    3978    4366    4225    4366    4225     =    53038
UC          5165    5165    4225    4366    4225    4366
```

4. Other changes associated with the addition of this SB3 location included addition of dummy CP and CI records to facilitate calculations as well as the WR and IF records used to set pulse targets. These changes are not included in this section due to their length, but are included in ***Attachment A***.

5. Hydrologic conditions for SB3 pulse flow modeling are determined through the HIS file included with the existing Lavaca WAM. Per *30 TAC §298.320(d)*, the seasonal hydrologic conditions in the Lavaca River Basin are a function of reservoir elevation in Lake Texana at the end of the preceding season. However, an estimate of hydrologic condition based on the SV and SA records and modeled storage from the existing WAM results in hydrologic conditions which differ from the HIS file in approximately 40 percent of seasons. Because the SB3 code is currently the most junior in the model, this assumption does not appear to impact regulated flows in the existing model. However, modeled hydrologic conditions could impact future appropriations with a more junior priority date. TCEQ may wish to consider use of an updated HIS file generated from modeled reservoir storage from the WAM, inclusive of any other model revisions incorporated by TCEQ. Alternately, the model code could be modified to dynamically calculate hydrologic condition without the need for an HIS file.

Additions to Senate Bill 3 WRAP Code: Lavaca-Guadalupe WAM

The existing Lavaca-Guadalupe WAM does not include SB3 pulse flow code for Garcitas Creek near Inez (USGS Gage 08164600) as described by *30 TAC §298.330(e)(20)*. While the exclusion of SB3 code for this point does not appear to impact regulated flows in the existing model due to the junior priority of the SB3 code, there is the potential for impacts to future appropriations with a more junior priority date. FNI has generated additional code to model the SB3 pulse flow requirements at this location. The proposed code closely follows the approach applied by the existing Lavaca WAM for SB3 locations. The following changes were made to the model code:

1. Control point connectivity in the DAT file was modified to add dummy control points for pulse flow calculations.

```
**CPGS1200  CB1190                      1
CPGS1200   GSGC1                      1
CP GSGC1  GCSUBS                      7          GS1200      -1
CPGCSUBS  GCBASE                      7          GS1200      -1
CPGCBASE  GCSPUL                      7          GS1200      -1
CPGCSPUL  GCLPUL                      7          GS1200      -1
CPGCLPUL  GCAPUL                      7          GS1200      -1
CPGCAPUL  CB1190                      7          GS1200      -1
CPDAYSPY     OUT                      2    ZERO    ZERO
```

2. FD and WP records for these additional control points were also added to the DIS file. The parameters on the WP records were set to match the contributing area listed for control point GS1200, the primary control point which represents USGS Gage 08164600.

```
FD GSGC1  GS1200
FDGCSUBS  GS1200
FDGCBASE  GS1200
FDGCSPUL  GS1200
FDGCLPUL  GS1200
FDGCAPUL  GS1200

WP GSGC1   97.36   63.90   38.35     1.0
WPGCSUBS   97.36   63.90   38.35     1.0
WPGCBASE   97.36   63.90   38.35     1.0
WPGCSPUL   97.36   63.90   38.35     1.0
WPGCLPUL   97.36   63.90   38.35     1.0
WPGCAPUL   97.36   63.90   38.35     1.0
```

3. UC records for pulse volumes were also added.

```
** GC UCs
UC GCSUB      61      56      61      60      61      60      =      723
UC            61      61      60      61      60      61
UC GCDRY     123     112     123     119     123     119      =     1145
UC            61      61      60      61      60     123
UC GCAVG     246     224     246     238     246     238      =     2291
UC           123     123     119     123     119     246
UC GCWET     430     392     430     417     430     417      =     3856
UC           184     184     179     184     179     430
```

4. Because a HIS file is not included as part of the existing Lavaca-Guadalupe WAM, hydrologic conditions were assumed to mirror the Lavaca River Basin; therefore, the HIS file for the Lavaca WAM was applied for the Lavaca-Guadalupe WAM as well. Because the SB3 code is currently the most junior in the model, this assumption does not appear to impact regulated flows in the existing model. However, modeled hydrologic conditions could impact future appropriations with a more junior priority date. Potential alternative approaches which TCEQ may wish to consider include using a basin-specific HIS file generated from modeled naturalized flows or modification of model code to dynamically calculate hydrologic condition without the need for an HIS file.

5. Other changes associated with the addition of this SB3 location included addition of dummy CP and CI records to facilitate calculations as well as the WR and IF records used to set pulse targets. These changes are not included in this section due to their length, but are included in ***Attachment B***.

Revisions to Lake Texana SVSA Records

The SV and SA records included in the Lavaca WAM for Lake Texana do not follow the standard Run 3 assumption of original surveyed area and capacity. While the reservoir began impounding flows in 1980, the SVSA records primarily reflect measurements from a year 2000 survey of the lake by the Texas Water Development Board (TWDB). TWDB data is used up to the conservation elevation of 44 feet above mean sea level (ft msl), with an additional pair of area and capacity values corresponding to the authorized storage of 170,300 ac-ft at an assumed elevation of 45 ft msl. In addition to departing from Run 3 assumptions, this potentially introduces inconsistencies into a) the modeling of reservoir operation, as bay and estuary release requirements for the lake as specified in Certificate of Adjudication (COA) 16-2095B are contingent on a percentage of storage capacity, b) the frequency and reliability of interruptible diversions from Lake Texana and c) with the operation of upstream junior irrigators that can only divert when Texana is above 43 feet.

FNI recommends use of the authorized area and capacity dataset from the Texas Department of Water Resources (TWDR) year 1984 operational analysis of Lake Texana to improve consistency with standard Run 3 assumptions. In order to confirm the reasonableness of the TDWR dataset as a representation of original reservoir conditions, the survey data and calculated sedimentation rate from TWDB's year 2010 *Volumetric and Sedimentation Survey of Lake Texana* report were used to estimate year 1980 reservoir storage. The calculated original storage based on the sedimentation in the 2010 survey is approximately 171,100 ac-ft at elevation 44 ft msl, which is very close to the authorized storage capacity of 170,300 ac-ft.

Updated model code was developed to implement this revised storage data. The following changes

were made to the model code:

1. The SV and SA records from the existing WAM were replaced with values representing TDWR data.

```
SVTEXANA       0     480    2950    9190   21420   40060   64210   94790  132820  170300  180840
SATEXANA       0     190     790    1700    3190    4270    5390    6840    8370   10370   10880
```

2. A minor adjustment was made to the WS record for the non-interruptible diversion from Lake Texana to reflect updated storage parameters. The TDWR storage-area tables did not have the corresponding elevations. By back-calculating the incremental elevation between storage/area values for the 9th and 10th entries in the SV/SA records, it was determined that the elevation corresponding with storage 132,820 ac-ft was 4 feet lower than the elevation at 170,300 ac-ft. Assuming that the maximum storage is at elevation 44 feet, then the elevation at 132,820 ac-ft was at 40 feet. With these two points, the storage at elevation 43 feet could be calculated (160,930 acre-feet).

```
WRDV221A   74500      TA19720515   1   1                                  C2095_1 TEXANA1
WSTEXANA  160930
```

3. Adjustments were made to DI records to reflect updated storage parameters.

```
** DROUGHT INDEX RECORDS for B&E when below 78.18% conservation
DI     1   0   1  TEXANA
IS     6       0   10000  100000  133140  133141  170301
IP           100     100     100     100       0       0
**
** DROUGHT INDEX RECORDS for B&E when above 78.18% conservation
DI     2   0   1  TEXANA
IS     6       0   10000  100000  133140  133141  170301
IP             0       0       0       0     100     100
**
** DROUGHT INDEX RECORDS water rights that have the 43 ft msl restriction.
DI     3   0   1  TEXANA
IS     6       0   10000  100000  160930  160931  170300
IP             0       0       0       0     100     100
```

Addition of Synthetic Primary Control Point

The original Lavaca WAM uses flows at control point GS500 (USGS Gage 08164500, Navidad River near Ganado) to estimate flows at control point EP000, the mouth of the Lavaca River. As a result, in approximately 26 percent of the months the naturalized flow at the mouth was less than the combined naturalized flow from the upstream primary control points GS500, GS300 (USGS Gage 08164000, Lavaca River near Edna) and WGS800 (USGS Gage 08164503, West Mustang Creek near Ganado). A summary of naturalized flows for these points from the existing Lavaca WAM is included in ***Attachment C***. Because the naturalized flow calculation for EP000 is solely based on GS500, whenever flow at GS500 is zero, flow at EP000 is also modeled as zero even though there are flows shown from the Lavaca River and West Mustang Creek. It does not seem reasonable to assume that these flows are lost prior to entering the bay. These observations indicate that the naturalized flow methodology applied for EP000 in the existing model is not a reliable approach.

WRAP is unable to directly calculate incremental flows below multiple primary control points. Therefore, FNI recommends addressing this issue by treating EP000 as a primary model control point

with naturalized flows synthesized externally from naturalized flows at the other primary control points. FNI calculated new naturalized flows at EP000 using the total flow at GS500, GS300, and WGS800 multiplied by the ratio of the drainage areas found in the DIS file (2,322.46 divided by 822.05 + 1058.52+ 167.53 equals 1.134). This is consistent with the method used by WRAP to calculate naturalized flows at secondary control points between primary control points. This is also consistent with a number of other WAMs which have synthetic flows at the outlet point of the model.

The following proposed code changes implement the new naturalized flows at the mouth.

1. A modified CP record changes EP000 from a secondary to a primary control point.

```
CP EP000     OUT                          1           GS300       0
```

2. The following IN records were added to the INF file.

```
IN EP000    1940  2090.7 26948.5  5332.9  3707.4  7929.7 23720.6639742.9  7358.4  4238.2 41153.7728331.6347518.9
IN EP000    1941119749.2 72502.6221902.4269463.5438255.8291206.0139189.6 51369.0 18366.7 67584.4 65360.1 25033.9
IN EP000    1942 10873.5 14823.0 15068.6174049.1 15590.5 13164.0221570.7 14218.5 43974.3 15073.0 25871.1 15765.1
IN EP000    1943 30324.2 10251.7 59369.1  9478.6 30296.5 16451.4 24444.6  9659.1  7135.7  5978.3 50465.5 76706.4
IN EP000    1944192479.2 43633.8307243.9 19213.7178756.1 20630.3 11070.0  7742.1 36672.3  7857.2 33994.9 81711.6
IN EP000    1945 82422.6 27362.0 20095.6210268.9 11194.8 15455.9  9637.9 43345.7 12651.5 16381.5  5450.9 17978.3
IN EP000    1946 48893.2115426.4 69399.5 28169.3 71036.8234881.2 34622.0 88200.0226323.3184951.0145143.6 32193.2
IN EP000    1947154774.4 16801.3 38700.4 26285.7110784.0  8516.0  9493.2  8734.9  7708.8  3264.7  8773.4 19871.8
IN EP000    1948 24928.4 55144.5 45498.8  9122.1151905.6  6450.6 12879.7   803.1  9609.7  2468.3  4834.1  2689.3
IN EP000    1949  5213.7 53345.4 28429.2218539.8 29374.6  6545.3 17822.1 15598.8 11826.1191600.5 11652.3105499.5
IN EP000    1950 45526.4 34829.1  7269.0 27761.3 11201.0 75919.3  6830.1   342.3  8421.1  2466.8  2947.3  2123.8
IN EP000    1951  1693.2  2992.1  6635.2  4229.2  3836.5 86156.3  2251.9     0.0 36705.4  9784.6  4859.0  2814.3
IN EP000    1952  1272.4 10829.9  5277.3 88717.3219581.3 33196.6  4978.0  1466.3  7287.6  1879.6 52075.0 87359.8
IN EP000    1953 12117.8 13125.6  5145.4  6476.6161518.8  2339.5  6572.5 53183.7 75035.9  5872.3  5267.8  7810.6
IN EP000    1954  1952.6  2317.7  1726.7  7664.9 12569.4   261.3  1796.8   206.7  1351.5  2709.7  2318.0   696.7
IN EP000    1955  1514.7103160.7  1690.8  5037.7 99206.5 19019.4  2756.9 15006.1 20370.2 14653.6  2335.8   887.7
IN EP000    1956   872.8  8022.8   640.3  2882.3  2916.2     0.0  3186.9     0.0    73.4   765.9  2341.3  6614.9
IN EP000    1957     0.9 14443.7122317.2250494.9140918.8126944.7  3055.9   171.3 45338.0358842.1207530.9 19566.8
IN EP000    1958135682.4188849.9 23429.6 12069.5 68970.9  2500.0 20515.6  1000.7 70343.1 38097.8 21122.1 42542.4
IN EP000    1959 22238.7238171.0 17788.6305689.5 61885.7 76755.8 11524.5 22639.8 18217.5 92510.7 66779.8 65386.0
IN EP000    1960 59319.2 65915.7 16462.4 27904.0 38350.7349034.7 60992.7138141.0 22064.1482953.4181637.3132192.7
IN EP000    1961198123.5292766.8 27028.5 18377.4 15580.0285187.3126135.2 11538.7464724.2 21677.3160588.1 17203.4
IN EP000    1962 15002.3 16393.5 11177.0 90558.7 21379.0 43665.1 18479.3  1535.0 27730.0  8287.5  5637.8 19793.0
IN EP000    1963 26036.7 43530.2  6719.4  4849.4  8537.3  6686.5 27990.2   402.1  1914.7  2698.9 11397.9 20413.1
IN EP000    1964  5777.1 26369.1 18700.1  8928.6  5252.2 53428.0  6460.8  2753.1 48196.4 13189.9  6901.4  2766.0
IN EP000    1965 90378.1123659.3 10040.4 11646.4315458.4 98309.8 11985.0  2479.3 11670.5 26637.4171274.1 61713.6
IN EP000    1966 37240.7 72822.2 38400.9111372.3193786.9 43374.0 23390.3 17586.8 13956.1  8786.1  4237.3  3521.2
IN EP000    1967  4355.9  3486.5  3476.6 14801.6 11547.7  1248.3  4021.8 19288.6394597.4143305.0 13450.2  6288.0
IN EP000    1968305217.7 29962.2 29329.6 36123.0255916.9518567.1 59057.9  8982.4 29754.6 22864.0 18104.6 54656.8
IN EP000    1969 31532.4222380.2146490.6224752.8269762.7 17396.5  6318.4  2849.1 17209.1 26800.1 16911.4 58847.9
IN EP000    1970 58130.4 10424.1109639.7 18254.2246297.4 70845.1 19730.1  4315.2107681.7126512.2 10030.1  5474.8
IN EP000    1971  4215.4  6386.1  4739.3  7928.5  8050.4  6141.6  4443.0 93715.6243004.1103831.3 11636.5116313.2
IN EP000    1972 65627.5107044.4 36413.9 11194.7546948.0 79854.1 32928.9 19686.1 15013.3 10059.1 10215.5  5319.6
IN EP000    1973 19070.7 40148.1209229.9478659.4 92606.4965679.3 72542.7 41403.8130105.4300523.6 51277.0 23646.9
IN EP000    1974245445.4 36674.6 22707.2 34417.9110405.7126901.7 14974.3 23001.3407122.6 34066.7169927.2 65183.6
IN EP000    1975 36303.3 28911.2 13747.2 90101.3326517.0124750.9 80591.8 26107.5 26662.0 17822.1  9016.7 61034.4
IN EP000    1976  7298.4  6679.1  7103.1 81499.4128432.6 76227.6 66206.3  3237.2  9048.0113943.6 61646.5409538.6
IN EP000    1977 58199.4179226.4 22486.5197443.5 33108.4 74756.9 17937.5  2904.3  6001.7  6004.2 38806.0  5296.4
IN EP000    1978 73279.9 46725.7 12182.9 37054.7  2787.8 39600.0 15851.0  1189.7504590.6 22795.3 33865.3 16854.2
IN EP000    1979328344.8154065.5 78472.6222374.2379935.2155362.5 36208.6  8068.9270814.4  6017.8  8093.1 11959.2
IN EP000    1980214429.4 37071.7 11002.6 10382.5154725.0  7463.9 13796.8  2121.1  9100.2 33266.1  5917.1  8184.3
IN EP000    1981  9053.4  6998.0 11409.7 35901.3 68242.0416622.0 76587.9 58141.3476075.5 81384.2347454.1 26581.1
IN EP000    1982  9603.4 82802.1 25832.0 27558.2520352.9 19251.3 20748.4  1958.7  7943.3 12730.0192815.5 16414.4
IN EP000    1983 73316.0205624.4185353.8 34821.1 62308.9 16195.3111186.2 13388.4130033.5179570.7116676.8  7270.5
IN EP000    1984 73694.9 28969.0 22098.1 16338.4 13780.0 14631.0 20879.0  4491.0  1289.5209596.7 20092.9 15504.7
IN EP000    1985 97135.0 62613.3199652.5311015.9 43615.0 22521.4 38716.4 11019.5 16835.8 34831.3234181.9 53999.4
IN EP000    1986  5231.9  7476.6  2692.6 11351.7 13537.6222155.7 18822.5  6647.8 20944.3 46198.1 35759.8205256.1
IN EP000    1987 62688.7147733.4 46920.7 16782.0 70739.9641075.9 54200.7  9430.1  5010.2  1650.7 92411.3 88231.4
IN EP000    1988 10869.3  2616.8 23180.7 24584.8 18234.0 13524.9 23770.9  7784.3    95.3 14043.5  1834.1 12217.9
IN EP000    1989111586.8 17773.5 12246.6  5264.7130619.7 14957.8  7438.9  2644.6     0.0  4063.1  5210.9   361.1
IN EP000    1990  3278.0 31669.1 65935.9 51452.6 33591.2    26.9 25582.4  3156.9 13740.7 11035.7  1594.6    22.5
IN EP000    1991171119.6 61208.7 16555.0302089.4 34939.3 37368.7 48253.2  8537.6 33876.8  2490.7  6802.8376359.2
IN EP000    1992334581.3883200.3133695.2419298.4456711.8246171.7 31863.9  9491.1  9644.1  8018.2 68756.1 61189.6
IN EP000    1993 80669.9124668.1125973.9110964.4451581.3674427.7 44156.1 21405.6  2708.0 29939.2  6379.5 43800.5
IN EP000    1994  9577.9  2141.5 38242.6 40219.6237854.3 73967.3 12097.1 27520.4 20486.4 1147303 14445.0116565.0
IN EP000    1995129152.6  9865.1202807.3 46508.2124490.0 27104.2 48545.2 18165.1 10761.5   686.2 17050.8 66300.2
IN EP000    1996  8009.8  3691.9 10633.4  9639.6 13425.4 68185.9 17246.4 15949.2 99096.7  1835.9 15087.5 19054.0
```

3. The following records were changed in the DIS file.

On Lavaca:

```
FD 20955   EP000       1   GS300  WGS800   GS500
FD CB220   EP000       1   GS300  WGS800   GS500
FD DV211   EP000       1   GS300  WGS800   GS500
FD DV212   EP000       1   GS300  WGS800   GS500
FD DV213   EP000       1   GS300  WGS800   GS500
FD DV214   EP000       1   GS300  WGS800   GS500
FD DV215   EP000       1   GS300  WGS800   GS500
FD DV216   EP000       1   GS300  WGS800   GS500
FD WQ002   EP000       1   GS300  WGS800   GS500
```

On Navidad:

```
FD CB230   EP000       2  WGS800   GS500   GS300
FDDV221A   EP000       2  WGS800   GS500   GS300
FDDV221B   EP000       2  WGS800   GS500   GS300
FDRSRTRN   EP000       2  WGS800   GS500   GS300
FD WQ004   EP000       2  WGS800   GS500   GS300
```

Below confluence of Lavaca and Navidad:

```
FD CB210   EP000       3   GS300  WGS800   GS500
FD DV201   EP000       3   GS300  WGS800   GS500
FD GS100   EP000       3   GS300  WGS800   GS500
FD GS200   EP000       3   GS300  WGS800   GS500
FD WQ001   EP000       3   GS300  WGS800   GS500
FD WQ003   EP000       3   GS300  WGS800   GS500
```

Revisions to Modeling of Lake Texana Interruptible Diversions

The 12,000 acre-feet per year of interruptible supply from Lake Texana consists of three separate authorizations:

- *500 acre-feet per year from the original 75,000 acre-feet per year authorized from Lake Texana in the unamended certificate with a priority date of May 15, 1972.* Amendment D changed this supply to interruptible because the implementation of bay and estuary pass-through requirements in Amendment B reduced the firm yield of the reservoir from 79,000 acre-feet per year to 74,500 acre-feet per year. So 500 acre-feet per year of the original authorization was changed to interruptible. It appears that the priority date of this authorization was not changed.
- *4,000 acre-feet per year authorized in Amendment B with a priority date of May 15, 1982*. This is the remaining 4,000 acre-feet per year of the 4,500 acre-foot total reduction in firm yield mentioned in the previous bullet. Amendment D makes this interruptible without changing the priority date.
- *7,500 acre-feet per year authorized in Amendment D with a priority date of July 1, 2002.*

According to Special Condition 5.B. of Amendment D, the 12,000 acre-feet of the interruptible water can only be diverted when the lake level is above 43 feet. The upper tier of the bay and estuary pass-through requirements must be met at all times for interruptible water to be diverted, as specified in Bay and Estuary Release Schedule 4.A.1 of Amendment B, and repeated in Special Condition 5.A. of Amendment D.

In the current TCEQ WAM, the interruptible authorization is modeled as a single 12,000 acre-feet per year diverted at a July 2, 2002 priority date. The reason for the change in the priority date of the authorization is not documented, but it may be due to the implementation of the LNRA Water Management Plan and the 1996 *Compromise Settlement Agreement* between LNRA and upstream water right holders, which is included in the

Water Management Plan. The compromise agreement allows upstream diverters to take water when Lake Texana is above 43 feet. Changing the priority date allows the upstream diverters to take water when Texana is above 43 feet but below 170,300 acre-feet. The proposed modifications to the interruptible code split out the three authorizations so that their origin can be clearly linked to the water rights. The junior priority date of all authorizations has been maintained, but it has been changed to the July 1, 2002 date found in Amendment D.

Two other revisions have been proposed for the interruptible modeling. The first uses the annual diversion limit in Field 10 of the SO Record to limit annual diversions rather than diverting more water than needed to a dummy control point and returning unused water to the reservoir. The annual diversion limit option was not available when the Lavaca WAM was developed. The proposed technique is simpler and more robust than the previous version. The second change uses a pattern that allows more water to be diverted in the last three months of the year if interruptible targets have not been met earlier in the year. The annual limits on the SO record prevent over-use of water.

Like the previous modeling, the 43-foot limit is established by making storage below 43 feet inactive (Field 7 of the WS Record) and bay and estuary limits are implemented using a drought index tied to 78.18 percent of the storage in Lake Texana.

The following changes were made to the model code:

1. A new UC record was added to set monthly interruptible diversion targets. A monthly limit of 2,880 ac-ft has been retained from the old model for the first nine months of the year. This has been increased for the last three months so that the full amount of interruptible water may be diverted if it was not available earlier in the year.

```
UC  INTW     288     288     288     288     288     288
UC           288     288     288     480     480     480
```

2. The 500 ac-ft/yr of interruptible water originating from firm authorization in the original permit is modeled using the following code. Please note that a separate water right record that fills Lake Texana at the 2002 priority date has been commented out because the proposed revisions no longer rely on diverting more water from the reservoir than is needed to meet interruptible targets. The annual diversion target is set to divert 120 ac-ft/month during the first nine months of the year and 200 ac-ft/month in the last three months of the year. Field 10 of the SO record limits annual diversions to 500 ac-ft/yr. The 160,930 ac-ft limit in the WS record prevents the reservoir from dropping below 43 ft msl because of this diversion. If Lake Texana is below 78.18 percent, the reference to Drought Index 2 on the WR record sets the diversion target to zero target to zero.

```
**   500 ac-ft at from original authorization, set to 2002 priority to reflect subordination
**
WRDV221A    1680    INTW20020701   1   1     1.0    NOUT       2      72_INTERUP          TEXANA
WSTEXANA  170300                           160930
SO                                                                  500
```

3. The 4,000 ac-ft/yr of interruptible water authorized by Amendment B is modeled using the following code. The annual diversion target is set to divert 960 ac-ft/month during the first nine months of the year and 1,600 ac-ft/month in the last three months of the year. Field 10 of the SO record limits annual diversions to 4,000 ac-ft/yr. The 160,930 ac-ft limit in the WS record prevents the reservoir from dropping below 43 ft msl because of this diversion. If Lake Texana is below 78.18 percent, the reference to Drought Index 2 on the WR record sets

the diversion target to zero.

```
**  4,000 ac-ft from 1982 authorization, set to 2002 priority to reflect subordination
**
WRDV221A   13440    INTW20020701   1   1     1.0    NOUT       2      82_INTERUP          TEXANA
WSTEXANA  170300                            160930
SO                                                          4000
```

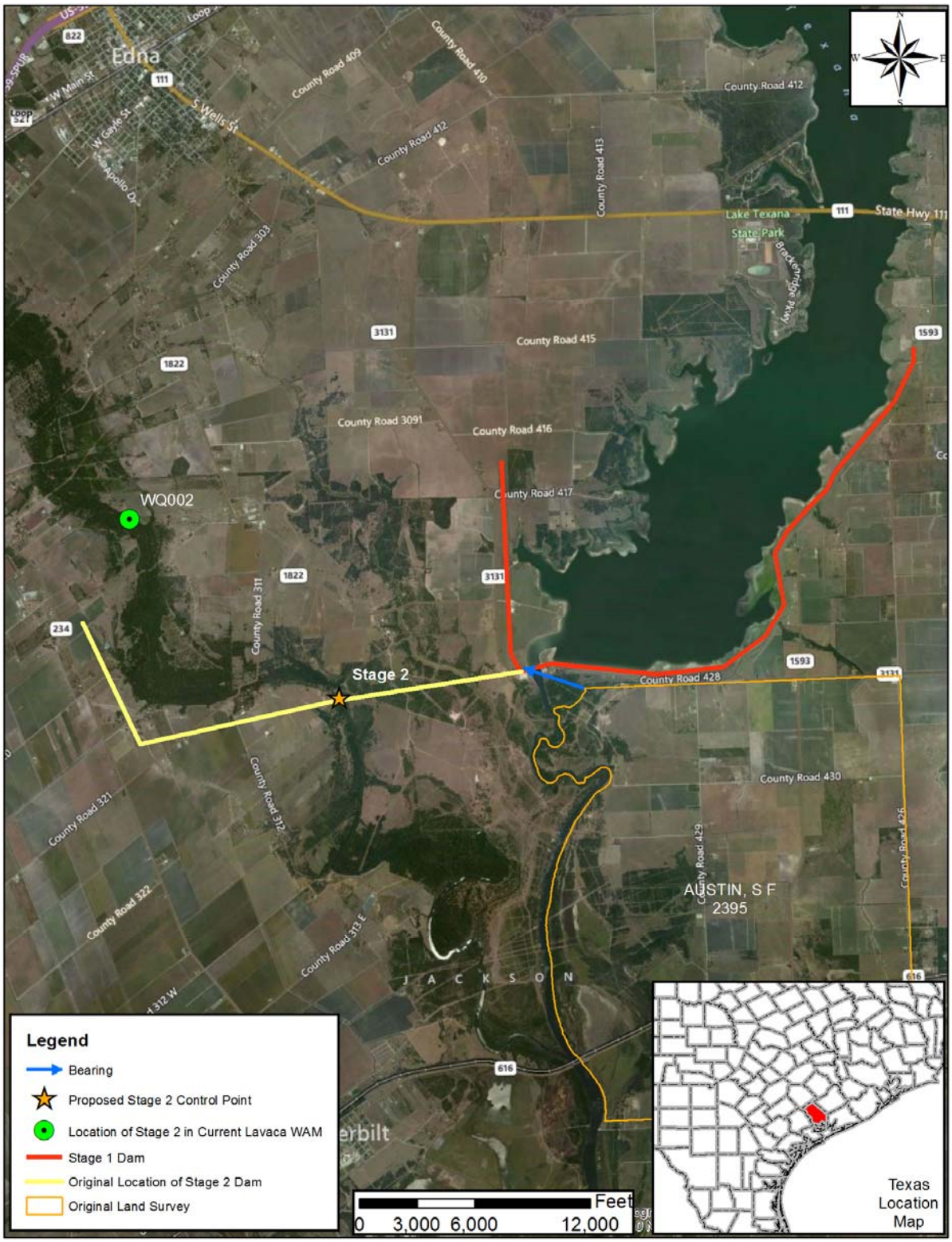
4. The following code models the 7,500 ac-ft/yr of interruptible water authorized in Amendment D. The annual diversion target is set to divert 1,920 ac-ft/month during the first nine months of the year and 3,200 ac-ft/month in the last three months of the year. Field 10 of the SO record limits annual diversions to 7,500 ac-ft/yr. The 160,930 ac-ft limit in the WS record prevents the reservoir from dropping below 43 ft msl because of this diversion. If Lake Texana is below 78.18 percent, the reference to Drought Index 2 on the WR record sets the diversion target to zero.

```
**  7,500 ac-ft from Amendment D.
**
WRDV221A   26880    INTW20020701   1   1     1.0    NOUT       2      02_INTERUP          TEXANA
WSTEXANA  170300                            160930
SO                                                          7500
```

Revisions to Stage 2 Location and SVSA Records

In the existing Lavaca WAM, Stage 2 of the Palmetto Bend project does not appear to be modeled at the location or capacity authorized in COA 16-2095, as amended. The location description in the permit states that "Station 129+60 on the centerline, being a point common to the Stage 1 and Stage 2 Dams, bears N 71°27'W, 3333 feet from the northwest corner of the Stephen F. Austin Survey, Abstract No. 5, Jackson Co. Texas." This point is at the tip of the blue arrow in ***Figure 1***, approximately where the proposed Stage 2 dam intersects the existing Stage 1 dam. ***Figure 1*** also shows the proposed location of the Stage 2 dam from the 1963 report *Plan of Development for Palmetto Bend Project Texas (1963 Report*). The existing WAM has Stage 2 modeled at control point WQ002, also shown on ***Figure 1***, which is upstream of the location described in the permit. COA 16-2095A authorizes the storage of 93,340 ac-ft in Stage 2. In the existing WAM, the storage for the project is 62,454 ac-ft. The storage in the existing WAM appears to be the location and storage for an alternative version of Stage 2 described in the 1991 report *Cost Update for Palmetto Bend Stage 2 and Yield Enhancement Alternative for Lake Texana and Palmetto Bend Stage 2*. FNI was unable to find any indication that the permit was amended to reflect either the upstream location or the reduced storage.

Figure 1. Model Stage 2 Reservoir Location



In order to model Stage 2 as described and authorized in COA 16-2095, FNI proposes:

a) Adding a new control point STG_II where the dam described in the 1963 Report intersects the Lavaca River
b) Moving the location of the dam to the new control point
c) Using the storage-area relationship found in the 1963 Report.

The Stage 2 dam, as proposed in the 1963 Report, would also impound water flowing down Dry Creek, a tributary located between the Lavaca and Navidad Rivers. The dam is upstream of the confluence of Dry Creek and the Navidad River, cutting off a portion of the Dry Creek drainage area. The drainage area for the new control point STG_II includes the portion of the Dry Creek drainage area above the dam.

FNI estimated the drainage area of control point STG_II to be 865 square miles based on the incremental drainage area between control point DV211 and the dam (including the Dry Creek drainage area above the dam). This is less than the 929 square miles in the 1963 Report. The 1963 Report also has a drainage area of 887 square miles for the Lavaca River near Edna, TX (USGS Gage 08164000). This was the gage drainage area reported by the USGS at the time. The USGS subsequently revised the gage drainage area to 817 square miles. The Lavaca WAM has a drainage area of 822.0499 square miles for the Edna gage (control point GS300). Applying the delta between the Lavaca WAM drainage area for GS300 (822 square miles) and the Edna gage drainage area in the 1963 Report (887 square miles) to the Stage 2 drainage area in the 1963 Report (929 square miles) results in a drainage area of 864 square miles; this is very close to the recommended drainage area of 865 square miles.

In order to implement the proposed changes, the following revisions were made to the model:

1. A new control point (STG_II) was added to the DAT file.

```
**  FNI change - add new control point for Stage 2 authorized location
**CP DV211   CB220                      7          GS300      -2
CP DV211  STG_II                     7          GS300      -2
CPSTG_II   CB220                     7          GS300      -2
**  FNI change - this control point is above Stage 2 authorized location
**CPTWW217   CB220                      7          GS300      -1
CPTWW217  STG_II                     7          GS300      -1
**  end FNI change
```

2. Associated revisions were also made to the DIS file. Note that this code assumes a primary control point at EP000.

```
** new control point STG_II for authorized location
FDSTG_II   EP000       1   GS300  WGS800   GS500

**  FNI change - new control point at authorized location for Stage 2
WPSTG_II  865.00                    1.0
```

3. Modeling of diversion and storage was revised. The only changes to the existing code for these records are the control point and the storage amount.

```
**  FNI change - move to authorized location at new control point STG_II and store full amount
authorized in water right
**
WRSTG_II    7150       119720515   1   1    0.00                    61602095_3 TEXANA2
WSSTAGE2   93340
```

```
**
WRSTG_II   22850       219720515   1   1    0.00                      61602095_4 TEXANA2
WSSTAGE2   93340
**
WRSTG_II   18122  BAYES119931006   1   1     1.0   20955                 2095_5
**
```

4. New SV and SA records for the downstream location from the 1963 Report were added.

```
**  FNI change
**  Stage 2 SVSA from 1963 Definite Plan Report Palmetto Bend Project Texas
**  elev       0       5      10      15      20      25      30      35      40      44      47      50
SVSTAGE2      0     133     563    1388    4168   11301   24320   43358   68338   93344  116279  147046
SASTAGE2      0      53     119     211     901    1952    3256    4359    5633    6870    8420   11234
**
```

References

HDR Engineering, Inc. 1991. *Regional Planning Water Study Cost Update for Palmetto Bend Stage 2 and Yield Enhancement Alternative for Lake Texana and Palmetto Bend Stage 2*, prepared for the Lavaca Navidad River Authority.

Texas Department of Water Resources. 1984. *Lavaca Navidad River Authority Bay and Estuary Releases*.

Texas Water Development Board. 2011. *Volumetric and Sedimentation Survey of Lake Texana: January – March 2010 Survey.*

Unites States Department of the Interior Bureau of Reclamation, Region 5. 1963. *Plan of Development for Palmetto Bend Project, Texas*, revised October 1963.

ATTACHMENT A
PROPOSED SB3 CODE FOR THE NAVIDAD RIVER AT STRANE PARK NEAR EDNA

DAT File Revisions

UC Records

```
**  FNI change - add UCs for Navidad Rv at Strane Pk nr Edna
** NE UCs
UC NESUB      61      56     172     167     172     167     =     1401
UC            74      74     131     135     131      61
UC NEDRY     861     784    1107    1071    1107    1071     =    12883
UC          1476    1476    1012    1045    1012     861
UC NEAVG    2152    1961    2152    2083    2152    2083     =    26833
UC          2890    2890    2083    2152    2083    2152
UC NEWET    4366    3978    4366    4225    4366    4225     =    53038
UC          5165    5165    4225    4366    4225    4366
**  FNI change end
```

CP Records

```
**  FNI change - edit connectivity for Navidad Rv at Strane Pk nr Edna
**CP RF502   DV501                      7          GS500      -1
CP RF502   GSNE1                      7          GS500      -1
CP GSNE1  NESUBS                      7          GS500      -1
CPNESUBS  NEBASE                      7          GS500      -1
CPNEBASE  NESPUL                      7          GS500      -1
CPNESPUL  NELPUL                      7          GS500      -1
CPNELPUL  NEAPUL                      7          GS500      -1
CPNEAPUL   DV501                      7          GS500      -1
**  FNI change end


** FNI change - add points for Navidad Rv at Strane Pk nr Edna
**** NE Base Flows CPS
CPNESEVT    OUT                      2    NONE    NONE
CPNESVD1    OUT                      2    NONE    NONE
CPNESVT2    OUT                      2    NONE    NONE
CPNESVT3    OUT                      2    NONE    NONE
CPNEBDRY    OUT                      2    NONE    NONE
CPNEBAVG    OUT                      2    NONE    NONE
CPNEBWET    OUT                      2    NONE    NONE
**
** NE Pulse CPS
CPNESPND     OUT                      2    ZERO    ZERO
CPNELPND     OUT                      2    ZERO    ZERO
CPNEAPND     OUT                      2    ZERO    ZERO
**
CPFKNE01     OUT                      2    NONE    NONE
CPFKNE02     OUT                      2    NONE    NONE
CPFKNE03     OUT                      2    NONE    NONE
CPFKNE04     OUT                      2    NONE    NONE
CPFKNE05     OUT                      2    NONE    NONE
CPFKNE06     OUT                      2    NONE    NONE
CPFKNE07     OUT                      2    NONE    NONE
CPFKNE08     OUT                      2    NONE    NONE
CPFKNE09     OUT                      2    NONE    NONE
CPFKNE10     OUT                      2    NONE    NONE
CPFKNE11     OUT                      2    NONE    NONE
CPFKNE12     OUT                      2    NONE    NONE
CPFKNE13     OUT                      2    NONE    NONE
CPFKNE14     OUT                      2    NONE    NONE
CPFKNE15     OUT                      2    NONE    NONE
CPFKNE16     OUT                      2    NONE    NONE
CPFKNE17     OUT                      2    NONE    NONE
CPFKNE18     OUT                      2    NONE    NONE
CPFKNE19     OUT                      2    NONE    NONE
CPFKNE20     OUT                      2    NONE    NONE
```

```
CPFKNE21     OUT                       2    NONE    NONE
CPFKNE22     OUT                       2    NONE    NONE
CPNEAPFA     OUT                       2    NONE    NONE
CPNEAPFB     OUT                       2    NONE    NONE
** FNI change end
```

CI Records

```
**  FNI change - add data for Navidad Rv at Strane Pk nr Edna
**** Navidad Rv at Strane Pk nr Edna BASE CIs
CINESEVT 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CINESVD1 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CINESVT2 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CINESVT3 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CINEBDRY 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CINEBAVG 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CINEBWET 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
** NE PULSE CIs
*** NE Pulse Duration
CINESPND       6       6       7       7       7       7
CI             5       5       6       6       6       6
CINELPND       7       7       7       7       7       7
CI             6       6       7       7       7       7
CINEAPND       7       7       7       7       7       7
CI             7       7       7       7       7       7
*** NE Pulse Calculation
CIFKNE01 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKNE02 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKNE03 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKNE04 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKNE05 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKNE06 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKNE07 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKNE08 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKNE09 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKNE10 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKNE11 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKNE12 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKNE13 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKNE14 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKNE15 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKNE16 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKNE17 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKNE18 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKNE19 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
```

```
CIFKNE20 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKNE21 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKNE22 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CINEAPFA 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CINEAPFB 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
**
**  FNI change end
```

WR/IF Records for Pulse Flows

```
**  FNI Change - add code for Navidad Rv at Strane Park nr Edna
*************START E-Flows Navidad Rv at Strane Park nr Edna
**Start Base NE
** During Severe Conditions set Sub or Base trigger
WRNESVD1   12883   NEDRY20110301                                      FKNESEVD1
WRNESEVT          XMONTH20110301                                     SEVTRIGGER
TO     2             ADD                  GSNE1                          CONT
TO     6             DIV                                    FKNESEVD1
**** Severe Condition Subsistence or Base
WRNESVT2   12883   NEDRY20110301                                      FKNESEVD2
TO    16             LIM       1       1  DV221A
FS     5  NESEVT       1       0       1 9999999   1
WRNESVT3    1401   NESUB20110301                                     FKNESEVSUB
TO    16             LIM       1       1  DV221A
FS     5  NESVT2       1       0       0       1   1
*** Dry, Average, Wet Conditions, see .HIS file for Hydrologic conditions
WRNEBDRY   12883   NEDRY20110301                                       FKNEBASD
TO    16             LIM       2       2  DV221A
WRNEBAVG   26833   NEAVG20110301                                       FKNEBASM
TO    16             LIM       3       3  DV221A
WRNEBWET   53038   NEWET20110301                                       FKNEBASW
TO    16             LIM       4       4  DV221A
** COMBINE TO CREATE BASE FOR ENTIRE YEAR.
IFNEBASE               20110301   2                NEBASEFIN
TO    13             ADD                                    FKNESEVSUB    CONT
TO    13             ADD                                     FKNESEVD2    CONT
TO    13             ADD                                       FKNEBASD    CONT
TO    13             ADD                                       FKNEBASM    CONT
TO    13             ADD                                       FKNEBASW
***
********** NE SMALL PULSE ********************************************************************
** DETERMINE NUMBER OF DAYS THAT ARE OUTSIDE OF THE VARIOUS VOLUMES, TO TAKE INTO ACCOUNT THAT
** PULSE VOLUME WAS FOR A PERIOD OF LESS THAN 1 MONTH. AND DETERMINE FACTORS TO
** BE APPLIED TO BASE FLOWS TO REPRESENT THE PERIOD OF THE MONTH OUTSIDE OF PULSE
WRFKNE01          XMONTH20110301                                     BF-NEB-SP1
TO     2             ADD                  DAYSPY                         CONT
TO     2             SUB                  NESPND
WRFKNE01          XMONTH20110301                                     BF-NEB-SP2
TO     6             ADD                                    BF-NEB-SP1    CONT
TO     2             DIV                  DAYSPY
WRFKNE01          XMONTH20110301                                     BF-NEB-SP3
TO    13             ADD                                     NEBASEFIN    CONT
TO     6             MUL                                    BF-NEB-SP2
**
** Developing pulse+base flow targets, Determining if Reg Flow at GSNE1 exceeded target
WRFKNE04    9000  XMONTH20110301                                       FKNESPULW
TO     6             ADD                                    BF-NEB-SP3
WRFKNE05          XMONTH20110301                                       NEWINONOFF
TO     2             ADD                  GSNE1                          CONT
TO     6             DIV                                     FKNESPULW
**
WRFKNE06   11250  XMONTH20110301                                       FKNESPUSP
TO     6             ADD                                    BF-NEB-SP3
WRFKNE07          XMONTH20110301                                       NESPRONOFF
TO     2             ADD                  GSNE1                          CONT
TO     6             DIV                                     FKNESPUSP
```

```
**
WRFKNE08    1000  XMONTH20110301                                    FKNESPULS
TO     6             ADD                                  BF-NEB-SP3
WRFKNE09          XMONTH20110301                                    NESUMONOFF
TO     2             ADD                   GSNE1                       CONT
TO     6             DIV                                  FKNESPULS
**
WRFKNE10    8700  XMONTH20110301                                    FKNESPULF
TO     6             ADD                                  BF-NEB-SP3
WRFKNE11          XMONTH20110301                                    NEFALONOFF
TO     2             ADD                   GSNE1                       CONT
TO     6             DIV                                  FKNESPULF
** ENGAGING  PULSE
IFNESPUL    9000  XMONTH20110301                         NESPULW1
TO     6             ADD                                  BF-NEB-SP3
FS     5  FKNE05       1       0       1 9999999   2   1   2   2  12   2
IFNESPUL    9000  XMONTH20110301   3                     NESPULW2
TO     6             ADD                                  BF-NEB-SP3
FS     5  FKNE05       1       0       1 9999999   2   1   2   0  12   2
IFNESPUL   11250  XMONTH20110301                         NESPUSP1
TO     6             ADD                                  BF-NEB-SP3
FS     5  FKNE07       1       0       1 9999999   2   1   2   3   3   6
IFNESPUL   11250  XMONTH20110301   3                     NESPUSP2
TO     6             ADD                                  BF-NEB-SP3
FS     5  FKNE07       1       0       1 9999999   2   1   2   0   3   6
IFNESPUL    1000  XMONTH20110301                         NESPULS1
TO     6             ADD                                  BF-NEB-SP3
FS     5  FKNE09       1       0       1 9999999   2   1   2   1   7   8
IFNESPUL    1000  XMONTH20110301   3                     NESPULS2
TO     6             ADD                                  BF-NEB-SP3
FS     5  FKNE09       1       0       1 9999999   2   1   2   0   7   8
IFNESPUL    8700  XMONTH20110301                         NESPULF1
TO     6             ADD                                  BF-NEB-SP3
FS     5  FKNE11       1       0       1 9999999   2   1   2   2   9  11
IFNESPUL    8700  XMONTH20110301   3                     NESPULF2
TO     6             ADD                                  BF-NEB-SP3
FS     5  FKNE11       1       0       1 9999999   2   1   2   0   9  11
** COMBINE TO CREATE IF FOR ENTIRE YEAR.
IFNESPUL               20110301                           NESPFIN
TO    13             ADD                                    NESPULW2    CONT
TO    13             ADD                                    NESPUSP2    CONT
TO    13             ADD                                    NESPULS2    CONT
TO    13             ADD                                    NESPULF2
**
***********NE LARGE PULSE ************************************************************
** DETERMINE NUMBER OF DAYS THAT ARE OUTSIDE OF THE VARIOUS VOLUMES, TO TAKE INTO ACCOUNT THAT
** PULSE VOLUME WAS FOR A PERIOD OF LESS THAN 1 MONTH. AND DETERMINE FACTORS TO
** BE APPLIED TO BASE FLOWS TO REPRESENT THE PERIOD OF THE MONTH OUTSIDE OF PULSE
WRFKNE02          XMONTH20110301                                    BF-NEB-LP1
TO     2             ADD                DAYSPY                          CONT
TO     2             SUB                NELPND
WRFKNE02          XMONTH20110301                                    BF-NEB-LP2
TO     6             ADD                                  BF-NEB-LP1    CONT
TO     2             DIV                DAYSPY
WRFKNE02          XMONTH20110301                                    BF-NEB-LP3
TO    13             ADD                                   NEBASEFIN    CONT
TO     6             MUL                                  BF-NEB-LP2
**
** Developing pulse+base flow targets, Determining if Reg Flow at GSNE1 exceeded target
WRFKNE12   11250  XMONTH20110301                                    FKNELPULW
TO     6             ADD                                  BF-NEB-LP3
WRFKNE13          XMONTH20110301                                    NELWINONOFF
TO     2             ADD                   GSNE1                       CONT
TO     6             DIV                                  FKNELPULW
**
WRFKNE14   11250  XMONTH20110301                                    FKNELPUSP
TO     6             ADD                                  BF-NEB-LP3
WRFKNE15          XMONTH20110301                                    NELSPRONOFF
TO     2             ADD                   GSNE1                       CONT
TO     6             DIV                                  FKNELPUSP
**
WRFKNE16    3400  XMONTH20110301                                    FKNELPULS
```

```
TO     6             ADD                                        BF-NEB-LP3
WRFKNE17          XMONTH20110301                                      NELSUMONOFF
TO     2             ADD                   GSNE1                          CONT
TO     6             DIV                                         FKNELPULS
**
WRFKNE18   11250  XMONTH20110301                                        FKNELPULF
TO     6             ADD                                        BF-NEB-LP3
WRFKNE19          XMONTH20110301                                      NELFALONOFF
TO     2             ADD                   GSNE1                          CONT
TO     6             DIV                                         FKNELPULF
** ENGAGING  PULSE
IFNELPUL   11250  XMONTH20110301                          NELPULW1
TO     6             ADD                                        BF-NEB-LP3
FS     5  FKNE13       1       0       1 9999999   2   1   1   2  12   2
IFNELPUL   11250  XMONTH20110301   3                     NELPULW2
TO     6             ADD                                        BF-NEB-LP3
FS     5  FKNE13       1       0       1 9999999   2   1   1   0  12   2
IFNELPUL   11250  XMONTH20110301                         NELPUSP1
TO     6             ADD                                        BF-NEB-LP3
FS     5  FKNE15       1       0       1 9999999   2   1   1   3   3   6
IFNELPUL   11250  XMONTH20110301   3                     NELPUSP2
TO     6             ADD                                        BF-NEB-LP3
FS     5  FKNE15       1       0       1 9999999   2   1   1   0   3   6
IFNELPUL    3400  XMONTH20110301                         NELPULS1
TO     6             ADD                                        BF-NEB-LP3
FS     5  FKNE17       1       0       1 9999999   2   1   1   1   7   8
IFNELPUL    3400  XMONTH20110301   3                     NELPULS2
TO     6             ADD                                        BF-NEB-LP3
FS     5  FKNE17       1       0       1 9999999   2   1   1   0   7   8
IFNELPUL   11250  XMONTH20110301                         NELPULF1
TO     6             ADD                                        BF-NEB-LP3
FS     5  FKNE19       1       0       1 9999999   2   1   1   2   9  11
IFNELPUL   11250  XMONTH20110301   3                     NELPULF2
TO     6             ADD                                        BF-NEB-LP3
FS     5  FKNE19       1       0       1 9999999   2   1   1   0   9  11
** COMBINE TO CREATE IF FOR ENTIRE YEAR.
IFNELPUL              20110301                        NELPFIN
TO    13             ADD                                NELPULW2    CONT
TO    13             ADD                                NELPUSP2    CONT
TO    13             ADD                                NELPULS2    CONT
TO    13             ADD                                NELPULF2
**********************
***********NE Annual PULSE ************************************************************
** DETERMINE NUMBER OF DAYS THAT ARE OUTSIDE OF THE VARIOUS VOLUMES, TO TAKE INTO ACCOUNT THAT
** PULSE VOLUME WAS FOR A PERIOD OF LESS THAN 1 MONTH. AND DETERMINE FACTORS TO
** BE APPLIED TO BASE FLOWS TO REPRESENT THE PERIOD OF THE MONTH OUTSIDE OF PULSE
WRFKNE03          XMONTH20110301                                      BF-NEB-AP1
TO     2             ADD                DAYSPY                          CONT
TO     2             SUB                NEAPND
WRFKNE03          XMONTH20110301                                      BF-NEB-AP2
TO     6             ADD                                        BF-NEB-AP1    CONT
TO     2             DIV                DAYSPY
WRFKNE03          XMONTH20110301                                      BF-NEB-AP3
TO    13             ADD                                         NEBASEFIN    CONT
TO     6             MUL                                        BF-NEB-AP2
**
** Developing pulse+base flow targets, Determining if Reg Flow at GSNE1 exceeded target
WRFKNE20   11250  XMONTH20110301                                       FKNEAPUL
TO     6             ADD                                        BF-NEB-AP3
WRFKNE21          XMONTH20110301                                      NEANNONOFF
TO     2             ADD                   GSNE1                          CONT
TO     6             DIV                                          FKNEAPUL
** ENGAGING  PULSE
IFNEAPFA   11250  XMONTH20110301                          NEAPLA1
TO     6             ADD                                        BF-NEB-AP3
FS     5  FKNE21       1       0       1 9999999   2   1   1   5  1    6       1
IFNEAPFA   11250  XMONTH20110301   3                     NEAPLA2
TO     6             ADD                                        BF-NEB-AP3
FS     5  FKNE21       1       0       1 9999999   2   1   1   0  1    6       1
IFNEAPFB   11250  XMONTH20110301                         NEAPLB1
TO     6             ADD                                        BF-NEB-AP3
FS     5  FKNE21       1       0       1 9999999   2   1   1   5  7   12       1
```

```
IFNEAPFB   11250  XMONTH20110301   3                     NEAPLB2
TO     6             ADD                                    BF-NEB-AP3
FS     5  FKNE21       1       0       1 9999999   2   1   1   0  7   12       1
WRFKNE22                20110301                                   NEFRSTHALF
TO    13                                                  NEAPLA2
IFNEAPFB                20110301   3                    NEAPLB3
TO    13                                                  NEAPLB2
FS    10                0       1       1 9999999   2   1   1  11  1    6       1      NEFRSTHALF
** COMBINE TO CREATE IF FOR ENTIRE YEAR.
IFNEAPUL                20110301                        NEAPFIN
TO    13             ADD                                    NEAPLA2    CONT
TO    13             ADD                                    NEAPLB3
**********************
****************** End E-FLOWS FOR Navidad Rv at Strane Park nr Edna
**  FNI change end
```

DIS File Revisions

FD Records

```
**  FNI change - add FD cards for Navidad Rv at Strane Park nr Edna
FD GSNE1   GS500       1   GS550  GS1000
FDNESUBS   GS500       1   GS550  GS1000
FDNEBASE   GS500       1   GS550  GS1000
FDNESPUL   GS500       1   GS550  GS1000
FDNELPUL   GS500       1   GS550  GS1000
FDNEAPUL   GS500       1   GS550  GS1000
** FNI Change End
```

WP Records

```
**  FNI change - add WP cards for Navidad Rv at Strane Park nr Edna
WP GSNE1  579.00   70.73   39.69     1.0
WPNESUBS  579.00   70.73   39.69     1.0
WPNEBASE  579.00   70.73   39.69     1.0
WPNESPUL  579.00   70.73   39.69     1.0
WPNELPUL  579.00   70.73   39.69     1.0
WPNEAPUL  579.00   70.73   39.69     1.0
**  FNI change End
```

ATTACHMENT B
PROPOSED SB3 CODE FOR GARCITAS CREEK NEAR INEZ

DAT File Revisions

UC Records

```
**  FNI change - add UCs for Carcitas Creek near Inez
** GC UCs
UC GCSUB      61      56      61      60      61      60     =      723
UC             61      61      60      61      60      61
UC GCDRY     123     112     123     119     123     119     =     1145
UC             61      61      60      61      60     123
UC GCAVG     246     224     246     238     246     238     =     2291
UC           123     123     119     123     119     246
UC GCWET     430     392     430     417     430     417     =     3856
UC           184     184     179     184     179     430
**  FNI change end
```

CP Records

```
**  FNI change - edit connectivity for Garcitas Creek near Inez
**CPGS1200  CB1190                      1
CPGS1200   GSGC1                      1
CP GSGC1  GCSUBS                      7          GS1200      -1
CPGCSUBS  GCBASE                      7          GS1200      -1
CPGCBASE  GCSPUL                      7          GS1200      -1
CPGCSPUL  GCLPUL                      7          GS1200      -1
CPGCLPUL  GCAPUL                      7          GS1200      -1
CPGCAPUL  CB1190                      7          GS1200      -1
CPDAYSPY     OUT                      2    ZERO    ZERO
**  FNI change end

** FNI change - add points for Garcitas Creek near Inez
**** GC Base Flows CPS
CPGCSEVT    OUT                     2    NONE    NONE
CPGCSVD1    OUT                     2    NONE    NONE
CPGCSVT2    OUT                     2    NONE    NONE
CPGCSVT3    OUT                     2    NONE    NONE
CPGCBDRY    OUT                     2    NONE    NONE
CPGCBAVG    OUT                     2    NONE    NONE
CPGCBWET    OUT                     2    NONE    NONE
**
** GC Pulse CPS
CPGCSPND     OUT                     2    ZERO    ZERO
CPGCLPND     OUT                     2    ZERO    ZERO
CPGCAPND     OUT                     2    ZERO    ZERO
**
CPFKGC01     OUT                     2    NONE    NONE
CPFKGC02     OUT                     2    NONE    NONE
CPFKGC03     OUT                     2    NONE    NONE
CPFKGC04     OUT                     2    NONE    NONE
CPFKGC05     OUT                     2    NONE    NONE
CPFKGC06     OUT                     2    NONE    NONE
CPFKGC07     OUT                     2    NONE    NONE
CPFKGC08     OUT                     2    NONE    NONE
CPFKGC09     OUT                     2    NONE    NONE
CPFKGC10     OUT                     2    NONE    NONE
CPFKGC11     OUT                     2    NONE    NONE
CPFKGC12     OUT                     2    NONE    NONE
CPFKGC13     OUT                     2    NONE    NONE
CPFKGC14     OUT                     2    NONE    NONE
CPFKGC15     OUT                     2    NONE    NONE
CPFKGC16     OUT                     2    NONE    NONE
CPFKGC17     OUT                     2    NONE    NONE
CPFKGC18     OUT                     2    NONE    NONE
CPFKGC19     OUT                     2    NONE    NONE
CPFKGC20     OUT                     2    NONE    NONE
CPFKGC21     OUT                     2    NONE    NONE
CPFKGC22     OUT                     2    NONE    NONE
CPGCAPFA     OUT                     2    NONE    NONE
```

```
CPGCAPFB     OUT                        2    NONE    NONE
** FNI change end
```

CI Records

```
**  FNI change - add data for Garcitas Creek near Inez
CIDAYSPY      31   28.25      31      30      31      30
CI            31      31      30      31      30      31
**** Garcitas Creek near Inez BASE CIs
CIGCSEVT 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIGCSVD1 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIGCSVT2 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIGCSVT3 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIGCBDRY 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIGCBAVG 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIGCBWET 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
** GC PULSE CIs
*** GC Pulse Duration
CIGCSPND       8       8      10      10      10      10
CI             4       4       8       8       8       8
CIGCLPND      10      10      10      10      10      10
CI             8       8      10      10      10      10
CIGCAPND      10      10      10      10      10      10
CI            10      10      10      10      10      10
*** GC Pulse Calculation
CIFKGC01 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKGC02 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKGC03 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKGC04 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKGC05 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKGC06 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKGC07 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKGC08 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKGC09 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKGC10 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKGC11 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKGC12 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKGC13 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKGC14 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKGC15 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKGC16 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKGC17 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKGC18 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKGC19 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKGC20 9999999 9999999 9999999 9999999 9999999 9999999
```

```
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKGC21 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIFKGC22 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIGCAPFA 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
CIGCAPFB 9999999 9999999 9999999 9999999 9999999 9999999
CI       9999999 9999999 9999999 9999999 9999999 9999999
**
**  FNI change end
```

WR/IF Records for Pulse Flows

```
**  FNI Change - add code for Garcitas Creek near Inez
*************START E-Flows Garcitas Creek near Inez
**Start Base GC
** During Severe Conditions set Sub or Base trigger
WRGCSVD1    1145   GCDRY20110301                                      FKGCSEVD1
WRGCSEVT          XMONTH20110301                                     SEVTRIGGER
TO     2             ADD                   GSGC1                         CONT
TO     6             DIV                                      FKGCSEVD1
**** Severe Condition Subsistence or Base
WRGCSVT2    1145   GCDRY20110301                                      FKGCSEVD2
TO    16             LIM       1       1  GS1200
FS     5  GCSEVT       1       0       1 9999999   1
WRGCSVT3     723   GCSUB20110301                                     FKGCSEVSUB
TO    16             LIM       1       1  GS1200
FS     5  GCSVT2       1       0       0       1   1
*** Dry, Average, Wet Conditions, see .HIS file for Hydrologic conditions
WRGCBDRY    1145   GCDRY20110301                                       FKGCBASD
TO    16             LIM       2       2  GS1200
WRGCBAVG    2291   GCAVG20110301                                       FKGCBASM
TO    16             LIM       3       3  GS1200
WRGCBWET    3856   GCWET20110301                                       FKGCBASW
TO    16             LIM       4       4  GS1200
** COMBINE TO CREATE BASE FOR ENTIRE YEAR.
IFGCBASE               20110301   2                GCBASEFIN
TO    13             ADD                                     FKGCSEVSUB    CONT
TO    13             ADD                                      FKGCSEVD2    CONT
TO    13             ADD                                        FKGCBASD    CONT
TO    13             ADD                                        FKGCBASM    CONT
TO    13             ADD                                        FKGCBASW
***
********** GC SMALL PULSE ********************************************************************
** DETERMINE NUMBER OF DAYS THAT ARE OUTSIDE OF THE VARIOUS VOLUMES, TO TAKE INTO ACCOUNT THAT
** PULSE VOLUME WAS FOR A PERIOD OF LESS THAN 1 MONTH. AND DETERMINE FACTORS TO
** BE APPLIED TO BASE FLOWS TO REPRESENT THE PERIOD OF THE MONTH OUTSIDE OF PULSE
WRFKGC01          XMONTH20110301                                      BF-GCB-SP1
TO     2             ADD                  DAYSPY                         CONT
TO     2             SUB                  GCSPND
WRFKGC01          XMONTH20110301                                      BF-GCB-SP2
TO     6             ADD                                     BF-GCB-SP1    CONT
TO     2             DIV                  DAYSPY
WRFKGC01          XMONTH20110301                                      BF-GCB-SP3
TO    13             ADD                                      GCBASEFIN    CONT
TO     6             MUL                                     BF-GCB-SP2
**
** Developing pulse+base flow targets, Determining if Reg Flow at GSGC1 exceeded target
WRFKGC04     520  XMONTH20110301                                       FKGCSPULW
TO     6             ADD                                     BF-GCB-SP3
WRFKGC05          XMONTH20110301                                      GCWINONOFF
TO     2             ADD                   GSGC1                         CONT
TO     6             DIV                                      FKGCSPULW
**
WRFKGC06    1500  XMONTH20110301                                       FKGCSPUSP
TO     6             ADD                                     BF-GCB-SP3
WRFKGC07          XMONTH20110301                                      GCSPRONOFF
TO     2             ADD                   GSGC1                         CONT
TO     6             DIV                                      FKGCSPUSP
**
```

```
WRFKGC08      28  XMONTH20110301                                    FKGCSPULS
TO     6             ADD                                  BF-GCB-SP3
WRFKGC09          XMONTH20110301                                    GCSUMONOFF
TO     2             ADD                  GSGC1                        CONT
TO     6             DIV                                   FKGCSPULS
**
WRFKGC10     420  XMONTH20110301                                    FKGCSPULF
TO     6             ADD                                  BF-GCB-SP3
WRFKGC11          XMONTH20110301                                    GCFALONOFF
TO     2             ADD                  GSGC1                        CONT
TO     6             DIV                                   FKGCSPULF
** ENGAGING  PULSE
IFGCSPUL     520  XMONTH20110301                        GCSPULW1
TO     6             ADD                                       BF-GCB-SP3
FS     5  FKGC05       1       0       1 9999999   2   1   2   2  12   2
IFGCSPUL     520  XMONTH20110301   3                    GCSPULW2
TO     6             ADD                                       BF-GCB-SP3
FS     5  FKGC05       1       0       1 9999999   2   1   2   0  12   2
IFGCSPUL    1500  XMONTH20110301                        GCSPUSP1
TO     6             ADD                                       BF-GCB-SP3
FS     5  FKGC07       1       0       1 9999999   2   1   2   3   3   6
IFGCSPUL    1500  XMONTH20110301   3                    GCSPUSP2
TO     6             ADD                                       BF-GCB-SP3
FS     5  FKGC07       1       0       1 9999999   2   1   2   0   3   6
IFGCSPUL      28  XMONTH20110301                        GCSPULS1
TO     6             ADD                                       BF-GCB-SP3
FS     5  FKGC09       1       0       1 9999999   2   1   2   1   7   8
IFGCSPUL      28  XMONTH20110301   3                    GCSPULS2
TO     6             ADD                                       BF-GCB-SP3
FS     5  FKGC09       1       0       1 9999999   2   1   2   0   7   8
IFGCSPUL     420  XMONTH20110301                        GCSPULF1
TO     6             ADD                                       BF-GCB-SP3
FS     5  FKGC11       1       0       1 9999999   2   1   2   2   9  11
IFGCSPUL     420  XMONTH20110301   3                    GCSPULF2
TO     6             ADD                                       BF-GCB-SP3
FS     5  FKGC11       1       0       1 9999999   2   1   2   0   9  11
** COMBINE TO CREATE IF FOR ENTIRE YEAR.
IFGCSPUL               20110301                       GCSPFIN
TO    13             ADD                                    GCSPULW2    CONT
TO    13             ADD                                    GCSPUSP2    CONT
TO    13             ADD                                    GCSPULS2    CONT
TO    13             ADD                                    GCSPULF2
**
***********GC LARGE PULSE ************************************************************
** DETERMINE NUMBER OF DAYS THAT ARE OUTSIDE OF THE VARIOUS VOLUMES, TO TAKE INTO ACCOUNT THAT
** PULSE VOLUME WAS FOR A PERIOD OF LESS THAN 1 MONTH. AND DETERMINE FACTORS TO
** BE APPLIED TO BASE FLOWS TO REPRESENT THE PERIOD OF THE MONTH OUTSIDE OF PULSE
WRFKGC02          XMONTH20110301                                    BF-GCB-LP1
TO     2             ADD                 DAYSPY                         CONT
TO     2             SUB                 GCLPND
WRFKGC02          XMONTH20110301                                    BF-GCB-LP2
TO     6             ADD                                  BF-GCB-LP1    CONT
TO     2             DIV                 DAYSPY
WRFKGC02          XMONTH20110301                                    BF-GCB-LP3
TO    13             ADD                                   GCBASEFIN    CONT
TO     6             MUL                                  BF-GCB-LP2
**
** Developing pulse+base flow targets, Determining if Reg Flow at GSGC1 exceeded target
WRFKGC12    1500  XMONTH20110301                                    FKGCLPULW
TO     6             ADD                                  BF-GCB-LP3
WRFKGC13          XMONTH20110301                                    GCLWINONOFF
TO     2             ADD                  GSGC1                        CONT
TO     6             DIV                                   FKGCLPULW
**
WRFKGC14    1500  XMONTH20110301                                    FKGCLPUSP
TO     6             ADD                                  BF-GCB-LP3
WRFKGC15          XMONTH20110301                                    GCLSPRONOFF
TO     2             ADD                  GSGC1                        CONT
TO     6             DIV                                   FKGCLPUSP
**
WRFKGC16     150  XMONTH20110301                                    FKGCLPULS
TO     6             ADD                                  BF-GCB-LP3
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WRFKGC17          XMONTH20110301                                    GCLSUMONOFF
TO     2             ADD                  GSGC1                          CONT
TO     6             DIV                                      FKGCLPULS
**
WRFKGC18    1500  XMONTH20110301                                      FKGCLPULF
TO     6             ADD                                    BF-GCB-LP3
WRFKGC19          XMONTH20110301                                    GCLFALONOFF
TO     2             ADD                  GSGC1                          CONT
TO     6             DIV                                      FKGCLPULF
** ENGAGING  PULSE
IFGCLPUL    1500  XMONTH20110301                         GCLPULW1
TO     6             ADD                                    BF-GCB-LP3
FS     5  FKGC13       1       0       1 9999999   2   1   1   2  12   2
IFGCLPUL    1500  XMONTH20110301   3                     GCLPULW2
TO     6             ADD                                    BF-GCB-LP3
FS     5  FKGC13       1       0       1 9999999   2   1   1   0  12   2
IFGCLPUL    1500  XMONTH20110301                         GCLPUSP1
TO     6             ADD                                    BF-GCB-LP3
FS     5  FKGC15       1       0       1 9999999   2   1   1   3   3   6
IFGCLPUL    1500  XMONTH20110301   3                     GCLPUSP2
TO     6             ADD                                    BF-GCB-LP3
FS     5  FKGC15       1       0       1 9999999   2   1   1   0   3   6
IFGCLPUL     150  XMONTH20110301                         GCLPULS1
TO     6             ADD                                    BF-GCB-LP3
FS     5  FKGC17       1       0       1 9999999   2   1   1   1   7   8
IFGCLPUL     150  XMONTH20110301   3                     GCLPULS2
TO     6             ADD                                    BF-GCB-LP3
FS     5  FKGC17       1       0       1 9999999   2   1   1   0   7   8
IFGCLPUL    1500  XMONTH20110301                         GCLPULF1
TO     6             ADD                                    BF-GCB-LP3
FS     5  FKGC19       1       0       1 9999999   2   1   1   2   9  11
IFGCLPUL    1500  XMONTH20110301   3                     GCLPULF2
TO     6             ADD                                    BF-GCB-LP3
FS     5  FKGC19       1       0       1 9999999   2   1   1   0   9  11
** COMBINE TO CREATE IF FOR ENTIRE YEAR.
IFGCLPUL              20110301                       GCLPFIN
TO    13             ADD                                GCLPULW2    CONT
TO    13             ADD                                GCLPUSP2    CONT
TO    13             ADD                                GCLPULS2    CONT
TO    13             ADD                                GCLPULF2
**********************
***********GC Annual PULSE ************************************************************
** DETERMINE NUMBER OF DAYS THAT ARE OUTSIDE OF THE VARIOUS VOLUMES, TO TAKE INTO ACCOUNT THAT
** PULSE VOLUME WAS FOR A PERIOD OF LESS THAN 1 MONTH. AND DETERMINE FACTORS TO
** BE APPLIED TO BASE FLOWS TO REPRESENT THE PERIOD OF THE MONTH OUTSIDE OF PULSE
WRFKGC03          XMONTH20110301                                      BF-GCB-AP1
TO     2             ADD                  DAYSPY                         CONT
TO     2             SUB                  GCAPND
WRFKGC03          XMONTH20110301                                      BF-GCB-AP2
TO     6             ADD                                    BF-GCB-AP1    CONT
TO     2             DIV                  DAYSPY
WRFKGC03          XMONTH20110301                                      BF-GCB-AP3
TO    13             ADD                                   GCBASEFIN    CONT
TO     6             MUL                                    BF-GCB-AP2
**
** Developing pulse+base flow targets, Determining if Reg Flow at GSGC1 exceeded target
WRFKGC20    1500  XMONTH20110301                                       FKGCAPUL
TO     6             ADD                                    BF-GCB-AP3
WRFKGC21          XMONTH20110301                                    GCANNONOFF
TO     2             ADD                  GSGC1                          CONT
TO     6             DIV                                      FKGCAPUL
** ENGAGING  PULSE
IFGCAPFA    1500  XMONTH20110301                         GCAPLA1
TO     6             ADD                                    BF-GCB-AP3
FS     5  FKGC21       1       0       1 9999999   2   1   1   5  1    6       1
IFGCAPFA    1500  XMONTH20110301   3                     GCAPLA2
TO     6             ADD                                    BF-GCB-AP3
FS     5  FKGC21       1       0       1 9999999   2   1   1   0  1    6       1
IFGCAPFB    1500  XMONTH20110301                         GCAPLB1
TO     6             ADD                                    BF-GCB-AP3
FS     5  FKGC21       1       0       1 9999999   2   1   1   5  7   12       1
IFGCAPFB    1500  XMONTH20110301   3                     GCAPLB2
```

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TO     6             ADD                                      BF-GCB-AP3
FS     5  FKGC21       1       0       1 9999999   2   1   1   0  7   12       1
WRFKGC22                 20110301                                   GCFRSTHALF
TO    13                                                       GCAPLA2
IFGCAPFB                 20110301   3                   GCAPLB3
TO    13                                                       GCAPLB2
FS    10                 0       1       1 9999999   2   1   1  11  1    6       1      GCFRSTHALF
** COMBINE TO CREATE IF FOR ENTIRE YEAR.
IFGCAPUL                 20110301                         GCAPFIN
TO    13             ADD                                      GCAPLA2    CONT
TO    13             ADD                                      GCAPLB3
**********************
******************** End E-FLOWS FOR Garcitas Creek near Inez
**  FNI change end
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DIS File Revisions

FD Records

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**  FNI change - Add for SB3 Garcitas Creek near Inez
FD GSGC1  GS1200
FDGCSUBS  GS1200
FDGCBASE  GS1200
FDGCSPUL  GS1200
FDGCLPUL  GS1200
FDGCAPUL  GS1200
**  FNI change end
```

WP Records

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**  FNI change - Add for SB3 Garcitas Creek near Inez
WP GSGC1   97.36   63.90   38.35     1.0
WPGCSUBS   97.36   63.90   38.35     1.0
WPGCBASE   97.36   63.90   38.35     1.0
WPGCSPUL   97.36   63.90   38.35     1.0
WPGCLPUL   97.36   63.90   38.35     1.0
WPGCAPUL   97.36   63.90   38.35     1.0
**  FNI change end
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ATTACHMENT C
LAVACA WAM NATURALIZED FLOWS

Date	Modeled Naturalized Flow (ac-ft)					EP000 < Sum of Upstream Primary CPs?
	GS300	GS500	WGS800	Sum of Upstream Primary CPs	EP000	
Jan-40	1,023	820	-	1,844	1,800	Y
Feb-40	11,381	9,858	2,527	23,765	21,628	Y
Mar-40	1,988	2,182	534	4,703	4,787	
Apr-40	1,350	1,223	697	3,269	2,682	Y
May-40	2,420	1,958	2,615	6,993	4,297	Y
Jun-40	5,807	13,502	1,610	20,918	29,624	
Jul-40	245,847	215,046	103,275	564,168	471,825	Y
Aug-40	3,507	2,218	764	6,489	4,866	Y
Sep-40	1,760	1,594	384	3,738	3,497	Y
Oct-40	11,987	19,276	5,030	36,292	42,292	
Nov-40	204,146	383,786	54,360	642,291	842,051	
Dec-40	102,495	166,547	37,424	306,465	365,414	
Jan-41	37,314	55,143	13,146	105,603	120,988	
Feb-41	25,339	32,144	6,455	63,938	70,525	
Mar-41	82,410	100,927	12,352	195,688	221,440	
Apr-41	75,382	137,787	24,462	237,631	302,313	
May-41	171,088	186,190	29,205	386,483	408,514	
Jun-41	120,647	116,008	20,150	256,805	254,529	Y
Jul-41	25,608	84,954	12,185	122,747	186,394	
Aug-41	12,066	30,606	2,629	45,301	67,151	
Sep-41	5,246	9,808	1,143	16,197	21,519	
Oct-41	9,748	40,102	9,750	59,600	87,987	
Nov-41	14,584	36,096	6,959	57,639	79,196	
Dec-41	5,884	12,769	3,424	22,077	28,015	
Jan-42	4,424	4,420	745	9,589	9,698	
Feb-42	4,358	6,738	1,977	13,072	14,783	
Mar-42	4,673	7,452	1,164	13,289	16,350	
Apr-42	54,692	83,739	15,057	153,488	183,729	
May-42	5,335	5,315	3,099	13,749	11,661	Y
Jun-42	3,132	7,883	594	11,609	17,296	
Jul-42	66,036	100,455	28,906	195,396	220,404	
Aug-42	3,555	8,210	775	12,539	18,012	
Sep-42	16,648	18,504	3,627	38,780	40,599	
Oct-42	5,045	6,184	2,063	13,292	13,568	
Nov-42	5,188	13,719	3,908	22,815	30,100	
Dec-42	4,258	7,407	2,238	13,903	16,251	
Jan-43	5,938	16,987	3,817	26,742	37,271	

Date	Modeled Naturalized Flow (ac-ft)					EP000 < Sum of Upstream Primary CPs?
	GS300	GS500	WGS800	Sum of Upstream Primary CPs	EP000	
Feb-43	3,327	4,187	1,527	9,041	9,185	
Mar-43	12,775	35,107	4,474	52,356	77,026	
Apr-43	3,482	3,742	1,135	8,359	8,211	Y
May-43	6,836	15,336	4,546	26,718	33,647	
Jun-43	8,016	6,202	290	14,508	13,608	Y
Jul-43	8,061	8,568	4,927	21,557	18,800	Y
Aug-43	3,306	4,491	720	8,518	9,854	
Sep-43	2,099	3,737	457	6,293	8,199	
Oct-43	1,638	2,424	1,211	5,272	5,318	
Nov-43	7,917	30,404	6,183	44,504	66,707	
Dec-43	20,037	38,496	9,112	67,645	84,462	
Jan-44	41,891	103,003	24,847	169,741	225,995	
Feb-44	11,204	22,518	4,758	38,479	49,405	
Mar-44	80,078	170,225	20,645	270,948	373,484	
Apr-44	7,716	7,448	1,780	16,944	16,341	Y
May-44	50,325	91,741	15,573	157,639	201,286	
Jun-44	7,987	9,347	858	18,193	20,509	
Jul-44	3,122	3,756	2,885	9,762	8,241	Y
Aug-44	2,957	3,226	644	6,828	7,078	
Sep-44	12,285	17,379	2,677	32,340	38,130	
Oct-44	2,130	3,373	1,426	6,929	7,401	
Nov-44	6,045	19,269	4,665	29,979	42,278	
Dec-44	9,890	50,421	11,749	72,059	110,626	
Jan-45	22,557	40,551	9,578	72,686	88,971	
Feb-45	6,270	14,512	3,347	24,130	31,841	
Mar-45	7,796	8,622	1,304	17,722	18,916	
Apr-45	36,707	126,265	22,457	185,429	277,033	
May-45	3,373	3,642	2,858	9,872	7,990	Y
Jun-45	7,801	5,641	188	13,630	12,377	Y
Jul-45	1,922	4,189	2,388	8,499	9,191	
Aug-45	2,568	35,098	560	38,225	77,007	
Sep-45	933	10,021	203	11,157	21,986	
Oct-45	2,567	9,146	2,734	14,446	20,066	
Nov-45	1,180	1,398	2,229	4,807	3,068	Y
Dec-45	1,964	10,884	3,007	15,855	23,879	
Jan-46	5,061	30,850	7,206	43,117	67,687	
Feb-46	27,765	62,262	11,764	101,791	136,608	

Date	Modeled Naturalized Flow (ac-ft)					EP000 < Sum of Upstream Primary CPs?
	GS300	GS500	WGS800	Sum of Upstream Primary CPs	EP000	
Mar-46	14,891	41,117	5,193	61,201	90,212	
Apr-46	6,355	15,334	3,153	24,842	33,644	
May-46	10,090	43,888	8,667	62,645	96,294	
Jun-46	49,179	134,467	23,489	207,134	295,028	
Jul-46	6,498	19,754	4,281	30,532	43,341	
Aug-46	43,771	24,474	9,536	77,781	53,697	Y
Sep-46	96,539	82,015	21,033	199,587	179,946	Y
Oct-46	86,823	61,646	14,633	163,102	135,255	Y
Nov-46	39,359	76,211	12,428	127,997	167,211	
Dec-46	10,782	13,929	3,680	28,390	30,560	
Jan-47	39,027	78,586	18,877	136,490	172,422	
Feb-47	6,747	6,189	1,880	14,817	13,580	Y
Mar-47	12,619	18,967	2,542	34,129	41,616	
Apr-47	10,121	10,711	2,348	23,181	23,501	
May-47	35,898	51,967	9,832	97,697	114,018	
Jun-47	4,050	3,460	-	7,510	7,591	
Jul-47	1,944	4,030	2,397	8,372	8,843	
Aug-47	1,532	5,837	334	7,703	12,806	
Sep-47	941	5,652	205	6,798	12,401	
Oct-47	1,024	973	882	2,879	2,134	Y
Nov-47	2,048	3,213	2,476	7,737	7,049	Y
Dec-47	2,701	11,648	3,176	17,524	25,556	
Jan-48	3,655	14,998	3,331	21,984	32,906	
Feb-48	10,195	32,004	6,430	48,630	70,219	
Mar-48	9,471	27,133	3,520	40,124	59,532	
Apr-48	2,443	4,359	1,243	8,045	9,564	
May-48	73,030	51,208	9,723	133,961	112,353	Y
Jun-48	4,182	1,507	-	5,689	3,306	Y
Jul-48	2,854	5,730	2,774	11,358	12,573	
Aug-48	582	-	127	708	-	Y
Sep-48	1,050	7,196	229	8,475	15,789	
Oct-48	607	741	829	2,177	1,625	Y
Nov-48	728	1,318	2,218	4,263	2,891	Y
Dec-48	899	715	759	2,372	1,568	Y
Jan-49	2,185	2,209	204	4,598	4,846	
Feb-49	9,829	30,967	6,248	47,044	67,944	
Mar-49	4,308	18,300	2,463	25,071	40,152	

Date	Modeled Naturalized Flow (ac-ft)					EP000 < Sum of Upstream Primary CPs?
	GS300	GS500	WGS800	Sum of Upstream Primary CPs	EP000	
Apr-49	62,058	110,884	19,781	192,723	243,287	
May-49	9,353	12,426	4,126	25,905	27,262	
Jun-49	3,554	2,219	-	5,772	4,868	Y
Jul-49	3,955	8,532	3,229	15,717	18,720	
Aug-49	5,163	7,468	1,125	13,756	16,386	
Sep-49	1,979	8,018	431	10,429	17,593	
Oct-49	23,632	117,942	27,392	168,966	258,771	
Nov-49	2,196	5,317	2,763	10,276	11,666	
Dec-49	27,051	53,546	12,440	93,037	117,484	
Jan-50	7,022	26,889	6,238	40,148	58,996	
Feb-50	5,847	20,470	4,397	30,715	44,913	
Mar-50	2,579	3,178	653	6,410	6,973	
Apr-50	6,557	14,855	3,069	24,482	32,594	
May-50	4,738	2,454	2,686	9,878	5,384	Y
Jun-50	7,888	50,721	8,342	66,951	111,285	
Jul-50	1,628	2,128	2,267	6,023	4,669	Y
Aug-50	248	-	54	302	-	Y
Sep-50	289	7,075	63	7,426	15,522	
Oct-50	218	1,057	901	2,175	2,318	
Nov-50	242	281	2,076	2,599	617	Y
Dec-50	570	575	728	1,873	1,262	Y
Jan-51	808	686	-	1,493	1,504	
Feb-51	901	806	931	2,639	1,768	Y
Mar-51	1,102	3,998	751	5,851	8,772	
Apr-51	842	2,047	840	3,730	4,491	
May-51	577	415	2,392	3,383	909	Y
Jun-51	19,043	55,144	1,792	75,978	120,989	
Jul-51	278	-	1,708	1,986	-	Y
Aug-51	-	-	-	-	-	
Sep-51	8,287	22,277	1,805	32,369	48,878	
Oct-51	1,677	5,128	1,824	8,629	11,251	
Nov-51	736	1,330	2,219	4,285	2,917	Y
Dec-51	759	919	804	2,482	2,017	Y
Jan-52	570	552	-	1,122	1,212	
Feb-52	2,029	5,724	1,798	9,551	12,558	
Mar-52	1,378	2,683	594	4,654	5,886	
Apr-52	14,204	54,129	9,904	78,237	118,763	

Date	Modeled Naturalized Flow (ac-ft)					EP000 < Sum of Upstream Primary CPs?
	GS300	GS500	WGS800	Sum of Upstream Primary CPs	EP000	
May-52	79,510	97,699	16,433	193,641	214,357	
Jun-52	11,867	15,447	1,962	29,275	33,891	
Jul-52	1,663	446	2,281	4,390	978	Y
Aug-52	1,062	-	231	1,293	-	Y
Sep-52	896	5,336	195	6,427	11,708	
Oct-52	153	688	817	1,658	1,509	Y
Nov-52	17,004	23,656	5,263	45,923	51,903	
Dec-52	23,611	43,263	10,166	77,040	94,921	
Jan-53	2,958	6,480	1,248	10,686	14,217	
Feb-53	3,149	6,492	1,934	11,575	14,245	
Mar-53	1,900	2,113	525	4,538	4,635	
Apr-53	2,875	2,004	833	5,712	4,397	Y
May-53	41,820	85,890	14,728	142,438	188,447	
Jun-53	1,484	580	-	2,063	1,272	Y
Jul-53	988	2,806	2,002	5,796	6,156	
Aug-53	14,099	29,730	3,072	46,901	65,229	
Sep-53	6,522	58,228	1,421	66,172	127,757	
Oct-53	1,480	2,476	1,223	5,179	5,433	
Nov-53	972	1,440	2,234	4,646	3,159	Y
Dec-53	910	4,404	1,574	6,888	9,662	
Jan-54	885	837	-	1,722	1,836	
Feb-54	645	518	881	2,044	1,137	Y
Mar-54	643	542	337	1,523	1,190	Y
Apr-54	4,962	1,119	679	6,759	2,455	Y
May-54	4,117	4,050	2,917	11,085	8,887	Y
Jun-54	230	-	-	230	-	Y
Jul-54	-	-	1,585	1,585	-	Y
Aug-54	150	-	33	182	-	Y
Sep-54	311	813	68	1,192	1,783	
Oct-54	-	1,409	981	2,390	3,091	
Nov-54	-	6	2,039	2,044	12	Y
Dec-54	-	11	603	614	25	Y
Jan-55	486	849	-	1,336	1,864	
Feb-55	35,929	46,126	8,920	90,974	101,203	
Mar-55	859	321	311	1,491	704	Y
Apr-55	1,791	1,846	805	4,443	4,050	Y
May-55	42,574	37,211	7,703	87,487	81,642	Y

Date	Modeled Naturalized Flow (ac-ft)					EP000 < Sum of Upstream Primary CPs?
	GS300	GS500	WGS800	Sum of Upstream Primary CPs	EP000	
Jun-55	6,388	9,499	886	16,773	20,841	
Jul-55	593	-	1,839	2,431	-	Y
Aug-55	9,107	2,142	1,984	13,233	4,700	Y
Sep-55	2,461	14,967	536	17,964	32,837	
Oct-55	198	9,834	2,890	12,923	21,577	
Nov-55	24	-	2,036	2,060	-	Y
Dec-55	185	-	598	783	-	Y
Jan-56	229	541	-	770	1,187	
Feb-56	946	4,540	1,589	7,075	9,960	
Mar-56	294	-	271	565	-	Y
Apr-56	150	1,625	767	2,542	3,565	
May-56	363	-	2,209	2,572	-	Y
Jun-56	-	-	-	-	-	
Jul-56	861	-	1,950	2,810	-	Y
Aug-56	-	-	-	-	-	
Sep-56	-	65	-	65	142	
Oct-56	-	12	664	675	25	Y
Nov-56	-	24	2,041	2,065	52	Y
Dec-56	1,890	2,738	1,206	5,834	6,007	
Jan-57	-	1	-	1	2	
Feb-57	4,497	6,334	1,906	12,737	13,898	
Mar-57	27,353	71,665	8,849	107,868	157,238	
Apr-57	84,645	115,649	20,610	220,903	253,741	
May-57	28,155	81,956	14,161	124,272	179,816	
Jun-57	18,294	80,014	13,640	111,948	175,557	
Jul-57	779	-	1,916	2,695	-	Y
Aug-57	124	-	27	151	-	Y
Sep-57	9,911	27,912	2,159	39,982	61,240	
Oct-57	116,984	191,114	8,353	316,451	419,316	
Nov-57	68,782	98,735	15,499	183,015	216,630	
Dec-57	7,252	7,700	2,303	17,255	16,895	Y
Jan-58	40,968	63,498	15,188	119,654	139,318	
Feb-58	65,782	84,989	15,770	166,540	186,471	
Mar-58	10,106	9,184	1,372	20,662	20,151	Y
Apr-58	4,390	4,915	1,339	10,644	10,783	
May-58	23,639	30,456	6,728	60,823	66,822	
Jun-58	1,687	518	-	2,205	1,136	Y

Date	Modeled Naturalized Flow (ac-ft)					EP000 < Sum of Upstream Primary CPs?
	GS300	GS500	WGS800	Sum of Upstream Primary CPs	EP000	
Jul-58	7,286	6,200	4,607	18,092	13,603	Y
Aug-58	725	-	158	883	-	Y
Sep-58	22,898	34,147	4,989	62,033	74,920	
Oct-58	13,962	15,468	4,167	33,597	33,937	
Nov-58	3,856	11,205	3,566	18,627	24,585	
Dec-58	7,038	24,468	6,010	37,517	53,684	
Jan-59	3,584	13,149	2,879	19,612	28,850	
Feb-59	64,801	122,800	22,434	210,035	269,431	
Mar-59	6,330	8,114	1,244	15,687	17,802	
Apr-59	78,903	161,998	28,676	269,577	355,435	
May-59	20,885	27,402	6,287	54,575	60,122	
Jun-59	8,204	51,079	8,406	67,688	112,069	
Jul-59	3,444	3,701	3,018	10,163	8,121	Y
Aug-59	4,174	14,882	909	19,965	32,651	
Sep-59	4,311	10,815	939	16,065	23,728	
Oct-59	16,152	52,801	12,629	81,582	115,849	
Nov-59	13,800	37,888	7,203	58,891	83,128	
Dec-59	10,328	38,271	9,062	57,662	83,970	
Jan-60	11,350	33,184	7,777	52,312	72,808	
Feb-60	12,683	37,965	7,481	58,129	83,298	
Mar-60	4,944	8,307	1,267	14,518	18,227	
Apr-60	6,757	14,792	3,058	24,608	32,455	
May-60	5,097	23,062	5,661	33,820	50,600	
Jun-60	64,335	206,881	36,586	307,802	453,910	
Jul-60	11,082	36,529	6,177	53,787	80,147	
Aug-60	39,104	74,198	8,520	121,822	162,795	
Sep-60	4,537	13,932	989	19,458	30,568	
Oct-60	223,165	164,737	37,999	425,901	361,443	Y
Nov-60	50,570	94,666	14,944	160,180	207,703	
Dec-60	36,385	65,180	15,012	116,576	143,008	
Jan-61	58,368	93,763	22,588	174,719	205,721	
Feb-61	63,650	164,710	29,822	258,181	361,383	
Mar-61	9,911	12,193	1,732	23,836	26,753	
Apr-61	6,769	7,626	1,811	16,206	16,733	
May-61	5,591	5,083	3,066	13,740	11,152	Y
Jun-61	80,999	145,089	25,410	251,497	318,334	
Jul-61	34,490	60,886	15,858	111,234	133,587	

Date	Modeled Naturalized Flow (ac-ft)					EP000 < Sum of Upstream Primary CPs?
	GS300	GS500	WGS800	Sum of Upstream Primary CPs	EP000	
Aug-61	4,873	4,241	1,062	10,176	9,304	Y
Sep-61	123,171	259,819	26,835	409,825	570,060	
Oct-61	9,552	7,258	2,306	19,117	15,925	Y
Nov-61	65,144	65,505	10,968	141,617	143,722	
Dec-61	7,593	5,714	1,864	15,171	12,537	Y
Jan-62	5,773	6,262	1,195	13,230	13,739	
Feb-62	5,239	7,166	2,052	14,457	15,722	
Mar-62	4,354	4,671	832	9,857	10,249	
Apr-62	37,031	39,736	3,094	79,861	87,183	
May-62	5,796	9,373	3,685	18,853	20,564	
Jun-62	14,054	21,413	3,041	38,507	46,980	
Jul-62	3,200	10,179	2,917	16,296	22,334	
Aug-62	1,112	-	242	1,354	-	Y
Sep-62	8,997	13,497	1,960	24,454	29,613	
Oct-62	3,496	2,569	1,244	7,309	5,636	Y
Nov-62	2,006	816	2,149	4,972	1,791	Y
Dec-62	3,579	10,872	3,004	17,455	23,853	
Jan-63	4,982	14,717	3,262	22,961	32,290	
Feb-63	17,552	17,043	3,793	38,388	37,392	Y
Mar-63	2,936	2,427	563	5,926	5,324	Y
Apr-63	1,679	1,801	797	4,277	3,950	Y
May-63	1,701	3,054	2,773	7,529	6,702	Y
Jun-63	1,573	4,324	-	5,897	9,487	
Jul-63	4,304	17,006	3,373	24,684	37,313	
Aug-63	291	-	63	355	-	Y
Sep-63	256	1,377	56	1,689	3,021	
Oct-63	210	1,230	940	2,380	2,698	
Nov-63	1,054	6,125	2,873	10,051	13,438	
Dec-63	2,268	12,393	3,341	18,002	27,192	
Jan-64	2,116	2,664	315	5,095	5,844	
Feb-64	4,095	15,617	3,542	23,254	34,265	
Mar-64	5,360	9,698	1,433	16,491	21,278	
Apr-64	4,313	2,620	940	7,874	5,749	Y
May-64	1,718	509	2,406	4,632	1,116	Y
Jun-64	17,407	25,864	3,846	47,116	56,747	
Jul-64	943	2,771	1,984	5,698	6,080	
Aug-64	1,434	681	313	2,428	1,495	Y

Date	Modeled Naturalized Flow (ac-ft)					EP000 < Sum of Upstream Primary CPs?
	GS300	GS500	WGS800	Sum of Upstream Primary CPs	EP000	
Sep-64	11,332	28,702	2,469	42,503	62,974	
Oct-64	2,410	6,979	2,243	11,632	15,311	
Nov-64	523	3,103	2,461	6,086	6,807	
Dec-64	794	856	790	2,439	1,878	Y
Jan-65	36,461	35,016	8,225	79,701	76,826	Y
Feb-65	55,753	44,640	8,658	109,051	97,943	Y
Mar-65	4,978	3,218	658	8,854	7,061	Y
Apr-65	4,129	4,819	1,323	10,271	10,573	
May-65	99,470	154,143	24,579	278,192	338,199	
Jun-65	40,640	39,706	6,349	86,696	87,118	
Jul-65	2,882	4,901	2,786	10,569	10,754	
Aug-65	1,795	-	391	2,186	-	Y
Sep-65	1,107	8,943	241	10,292	19,622	
Oct-65	5,254	14,328	3,909	23,491	31,436	
Nov-65	48,575	88,379	14,087	151,041	193,909	
Dec-65	17,005	33,720	3,698	54,423	73,984	
Jan-66	7,453	20,671	4,718	32,841	45,353	
Feb-66	15,971	40,347	7,901	64,220	88,525	
Mar-66	9,130	21,847	2,887	33,865	47,934	
Apr-66	34,763	53,635	9,818	98,216	117,677	
May-66	44,984	107,992	17,919	170,894	236,942	
Jun-66	8,299	26,069	3,883	38,250	57,196	
Jul-66	5,189	11,699	3,739	20,627	25,669	
Aug-66	2,572	12,377	560	15,509	27,155	
Sep-66	1,994	9,879	434	12,307	21,675	
Oct-66	1,056	4,917	1,776	7,748	10,787	
Nov-66	1,008	608	2,121	3,737	1,334	Y
Dec-66	1,225	1,048	832	3,105	2,299	Y
Jan-67	1,395	2,236	211	3,841	4,905	
Feb-67	1,090	1,016	968	3,075	2,229	Y
Mar-67	1,553	1,108	405	3,066	2,431	Y
Apr-67	4,342	7,007	1,703	13,053	15,374	
May-67	2,176	4,960	3,048	10,184	10,882	
Jun-67	540	561	-	1,101	1,230	
Jul-67	126	1,775	1,646	3,547	3,895	
Aug-67	982	15,814	214	17,010	34,698	
Sep-67	111,966	211,623	24,394	347,982	464,314	

Date	Modeled Naturalized Flow (ac-ft)					EP000 < Sum of Upstream Primary CPs?
	GS300	GS500	WGS800	Sum of Upstream Primary CPs	EP000	
Oct-67	51,582	60,435	14,359	126,376	132,598	
Nov-67	4,887	4,344	2,630	11,861	9,530	Y
Dec-67	2,723	1,819	1,003	5,545	3,992	Y
Jan-68	61,217	167,362	40,582	269,161	367,203	
Feb-68	8,727	14,373	3,323	26,423	31,535	
Mar-68	10,017	13,911	1,937	25,865	30,521	
Apr-68	13,108	15,556	3,191	31,856	34,131	
May-68	83,488	122,224	19,973	225,685	268,168	
Jun-68	114,656	290,873	51,778	457,307	638,194	
Jul-68	12,628	32,637	6,816	52,081	71,607	
Aug-68	3,621	3,512	789	7,921	7,704	Y
Sep-68	6,407	18,437	1,396	26,240	40,451	
Oct-68	2,654	13,734	3,774	20,163	30,134	
Nov-68	2,757	9,831	3,378	15,966	21,569	
Dec-68	12,305	28,904	6,991	48,200	63,417	
Jan-69	6,820	17,134	3,853	27,807	37,593	
Feb-69	62,639	112,799	20,672	196,110	247,489	
Mar-69	44,111	75,738	9,337	129,185	166,173	
Apr-69	83,346	97,419	17,437	198,202	213,743	
May-69	87,432	129,448	21,015	237,895	284,017	
Jun-69	6,580	8,124	637	15,341	17,825	
Jul-69	2,815	-	2,758	5,572	-	Y
Aug-69	2,063	-	450	2,513	-	Y
Sep-69	2,974	11,554	648	15,176	25,350	
Oct-69	7,455	12,651	3,529	23,634	27,756	
Nov-69	3,713	8,063	3,137	14,914	17,691	
Dec-69	18,140	27,152	6,604	51,896	59,574	
Jan-70	16,469	28,229	6,566	51,263	61,936	
Feb-70	3,938	3,797	1,458	9,193	8,330	Y
Mar-70	22,337	66,160	8,191	96,688	145,159	
Apr-70	4,698	9,298	2,102	16,098	20,400	
May-70	76,769	120,683	19,750	217,202	264,786	
Jun-70	26,067	31,538	4,872	62,476	69,195	
Jul-70	3,575	10,753	3,072	17,399	23,592	
Aug-70	2,545	706	555	3,805	1,549	Y
Sep-70	21,676	68,563	4,723	94,961	150,431	
Oct-70	16,111	77,280	18,177	111,567	169,556	

Date	Modeled Naturalized Flow (ac-ft)					EP000 < Sum of Upstream Primary CPs?
	GS300	GS500	WGS800	Sum of Upstream Primary CPs	EP000	
Nov-70	2,351	3,922	2,573	8,845	8,605	Y
Dec-70	2,014	1,813	1,001	4,828	3,978	Y
Jan-71	1,893	1,736	89	3,717	3,810	
Feb-71	1,954	2,456	1,222	5,632	5,388	Y
Mar-71	2,177	1,545	457	4,179	3,389	Y
Apr-71	1,677	4,115	1,200	6,992	9,028	
May-71	1,344	2,991	2,764	7,099	6,562	Y
Jun-71	5,208	209	-	5,416	458	Y
Jul-71	979	941	1,998	3,918	2,065	Y
Aug-71	39,396	34,665	8,583	82,645	76,057	Y
Sep-71	83,037	113,170	18,091	214,297	248,301	
Oct-71	22,025	56,153	13,388	91,565	123,203	
Nov-71	4,689	3,111	2,462	10,262	6,825	Y
Dec-71	33,969	55,690	12,914	102,573	122,188	
Jan-72	21,834	29,230	6,810	57,875	64,132	
Feb-72	26,465	57,083	10,851	94,399	125,244	
Mar-72	13,857	16,061	2,195	32,112	35,238	
Apr-72	3,703	4,842	1,327	9,872	10,624	
May-72	190,906	252,635	38,794	482,335	554,297	
Jun-72	23,518	40,423	6,479	70,421	88,692	
Jul-72	6,396	18,404	4,239	29,039	40,380	
Aug-72	6,351	9,626	1,384	17,361	21,121	
Sep-72	2,719	9,928	593	13,240	21,782	
Oct-72	2,286	4,829	1,756	8,871	10,595	
Nov-72	2,287	4,122	2,600	9,009	9,043	
Dec-72	2,034	1,684	973	4,691	3,696	Y
Jan-73	4,241	10,376	2,201	16,818	22,765	
Feb-73	9,384	21,451	4,570	35,405	47,066	
Mar-73	65,214	106,304	12,995	184,513	233,238	
Apr-73	153,465	228,415	40,234	422,114	501,157	
May-73	34,011	39,607	8,049	81,667	86,899	
Jun-73	297,620	547,560	6,421	851,600	1,201,381	
Jul-73	23,547	29,094	11,332	63,973	63,834	Y
Aug-73	9,731	24,662	2,120	36,513	54,110	
Sep-73	14,272	97,355	3,109	114,736	213,602	
Oct-73	110,068	125,784	29,170	265,022	275,978	

Date	Modeled Naturalized Flow (ac-ft)					EP000 < Sum of Upstream Primary CPs?
	GS300	GS500	WGS800	Sum of Upstream Primary CPs	EP000	
Nov-73	12,780	26,754	5,685	45,220	58,700	
Dec-73	7,737	10,250	2,867	20,853	22,489	
Jan-74	67,993	119,562	28,895	216,450	262,327	
Feb-74	13,186	15,615	3,542	32,342	34,260	
Mar-74	7,434	11,002	1,589	20,025	24,139	
Apr-74	5,793	20,507	4,053	30,352	44,993	
May-74	30,763	56,163	10,438	97,363	123,224	
Jun-74	50,672	52,564	8,675	111,910	115,328	
Jul-74	3,711	6,367	3,128	13,205	13,969	
Aug-74	6,331	12,574	1,379	20,284	27,588	
Sep-74	90,222	249,150	19,657	359,028	546,650	
Oct-74	8,809	16,771	4,463	30,042	36,797	
Nov-74	37,728	96,880	15,246	149,853	212,560	
Dec-74	17,133	32,552	7,798	57,483	71,421	
Jan-75	10,307	17,713	3,995	32,015	38,864	
Feb-75	9,521	12,910	3,065	25,496	28,326	
Mar-75	5,815	5,391	918	12,123	11,828	Y
Apr-75	34,849	37,584	7,025	79,457	82,462	
May-75	105,958	156,996	24,991	287,944	344,459	
Jun-75	28,735	69,535	11,744	110,014	152,564	
Jul-75	27,225	30,993	12,854	71,071	68,000	Y
Aug-75	5,837	15,915	1,272	23,023	34,918	
Sep-75	4,420	18,129	963	23,512	39,776	
Oct-75	3,397	9,505	2,816	15,717	20,853	
Nov-75	2,709	2,820	2,422	7,952	6,187	Y
Dec-75	12,620	33,252	7,953	53,824	72,957	
Jan-76	2,945	3,076	416	6,436	6,748	
Feb-76	2,351	2,338	1,201	5,890	5,129	Y
Mar-76	3,163	2,526	575	6,264	5,543	Y
Apr-76	31,366	34,089	6,416	71,872	74,794	
May-76	50,594	52,725	9,942	113,260	115,682	
Jun-76	16,888	43,330	7,005	67,223	95,069	
Jul-76	17,906	31,480	8,999	58,385	69,069	
Aug-76	2,344	-	511	2,855	-	Y
Sep-76	3,963	3,153	863	7,979	6,917	Y
Oct-76	54,965	36,569	8,950	100,483	80,234	Y
Nov-76	22,417	26,321	5,626	54,364	57,750	

Date	Modeled Naturalized Flow (ac-ft)					EP000 < Sum of Upstream Primary CPs?
	GS300	GS500	WGS800	Sum of Upstream Primary CPs	EP000	
Dec-76	147,442	209,574	4,142	361,158	459,820	
Jan-77	21,105	24,552	5,667	51,324	53,869	
Feb-77	60,594	82,184	15,275	158,054	180,317	
Mar-77	11,261	7,410	1,159	19,830	16,258	Y
Apr-77	55,437	100,678	18,004	174,119	220,893	
May-77	12,822	12,272	4,103	29,197	26,925	Y
Jun-77	17,450	41,755	6,720	65,926	91,614	
Jul-77	3,834	8,805	3,179	15,819	19,319	
Aug-77	2,103	-	458	2,561	-	Y
Sep-77	3,881	567	846	5,293	1,243	Y
Oct-77	1,537	2,824	935	5,295	6,195	
Nov-77	9,400	16,397	8,425	34,222	35,976	
Dec-77	2,788	1,750	134	4,671	3,839	Y
Jan-78	9,178	42,076	13,369	64,623	92,318	
Feb-78	9,177	24,466	7,563	41,206	53,679	
Mar-78	6,383	4,302	60	10,744	9,438	Y
Apr-78	15,092	14,144	3,441	32,677	31,033	Y
May-78	2,459	-	-	2,459	-	Y
Jun-78	8,217	21,767	4,939	34,922	47,757	
Jul-78	2,497	5,618	5,864	13,979	12,326	Y
Aug-78	1,049	-	-	1,049	-	Y
Sep-78	168,898	232,001	44,083	444,982	509,025	
Oct-78	7,571	9,387	3,144	20,102	20,596	
Nov-78	7,800	15,154	6,911	29,865	33,248	
Dec-78	4,372	6,312	4,179	14,863	13,850	Y
Jan-79	96,003	162,030	31,523	289,556	355,504	
Feb-79	44,823	74,721	16,322	135,865	163,942	
Mar-79	23,964	38,152	7,086	69,202	83,707	
Apr-79	63,800	104,768	27,537	196,104	229,867	
May-79	151,064	168,474	15,514	335,052	369,643	
Jun-79	89,903	42,014	5,093	137,009	92,180	Y
Jul-79	10,076	14,955	6,900	31,931	32,812	
Aug-79	4,334	652	2,130	7,116	1,430	Y
Sep-79	49,278	128,628	60,917	238,822	282,217	
Oct-79	3,916	1,231	160	5,307	2,701	Y
Nov-79	2,806	3,272	1,059	7,137	7,178	
Dec-79	3,489	2,974	4,083	10,546	6,526	Y

Date	Modeled Naturalized Flow (ac-ft)					EP000 < Sum of Upstream Primary CPs?
	GS300	GS500	WGS800	Sum of Upstream Primary CPs	EP000	
Jan-80	31,759	103,236	54,103	189,098	226,507	
Feb-80	13,598	15,034	4,061	32,692	32,984	
Mar-80	4,750	4,412	541	9,703	9,680	Y
Apr-80	4,019	4,068	1,069	9,156	8,926	Y
May-80	52,619	69,045	14,784	136,447	151,488	
Jun-80	3,414	3,168	-	6,582	6,951	
Jul-80	1,635	9,876	656	12,167	21,669	
Aug-80	1,043	828	-	1,871	1,816	Y
Sep-80	2,070	1,228	4,728	8,025	2,694	Y
Oct-80	1,899	20,945	6,493	29,336	45,954	
Nov-80	1,252	3,513	453	5,218	7,707	
Dec-80	1,552	4,780	886	7,218	10,487	
Jan-81	2,257	4,707	1,020	7,984	10,328	
Feb-81	1,507	4,322	343	6,171	9,482	
Mar-81	1,988	7,859	214	10,062	17,244	
Apr-81	9,672	18,932	3,056	31,660	41,539	
May-81	14,212	26,752	19,217	60,180	58,696	Y
Jun-81	137,738	187,303	42,364	367,405	410,955	
Jul-81	22,820	29,811	14,909	67,540	65,407	Y
Aug-81	4,350	44,652	2,271	51,273	97,970	
Sep-81	141,120	268,255	10,460	419,835	588,569	
Oct-81	16,447	42,492	12,831	71,770	93,230	
Nov-81	103,563	182,641	20,204	306,408	400,727	
Dec-81	8,562	14,589	290	23,441	32,010	
Jan-82	5,997	2,421	50	8,469	5,312	Y
Feb-82	32,877	32,131	8,013	73,020	70,497	Y
Mar-82	10,033	11,965	783	22,780	26,251	
Apr-82	6,295	14,189	3,819	24,303	31,132	
May-82	198,967	217,862	42,052	458,882	478,004	
Jun-82	9,155	7,822	-	16,977	17,162	
Jul-82	3,775	13,697	825	18,297	30,052	
Aug-82	1,727	-	-	1,727	-	Y
Sep-82	3,433	3,202	370	7,005	7,026	
Oct-82	2,987	6,381	1,859	11,226	13,999	
Nov-82	64,093	83,009	22,935	170,038	182,127	
Dec-82	11,112	-	3,363	14,475	-	Y
Jan-83	12,829	46,077	5,750	64,655	101,095	

Date	Modeled Naturalized Flow (ac-ft)					EP000 < Sum of Upstream Primary CPs?
	GS300	GS500	WGS800	Sum of Upstream Primary CPs	EP000	
Feb-83	46,769	113,035	21,530	181,333	248,005	
Mar-83	50,939	97,569	14,949	163,457	214,073	
Apr-83	7,101	22,906	700	30,708	50,257	
May-83	21,867	30,901	2,180	54,948	67,798	
Jun-83	5,499	8,783	-	14,282	19,271	
Jul-83	54,135	20,609	23,308	98,051	45,217	Y
Aug-83	8,224	-	3,583	11,807	-	Y
Sep-83	8,796	81,517	24,359	114,672	178,853	
Oct-83	12,716	113,014	32,627	158,357	247,960	
Nov-83	28,025	68,104	6,764	102,893	149,424	
Dec-83	3,857	745	1,810	6,412	1,635	Y
Jan-84	19,804	39,842	5,343	64,989	87,416	
Feb-84	5,813	18,051	1,683	25,547	39,605	
Mar-84	6,873	12,423	191	19,488	27,258	
Apr-84	3,200	10,003	1,206	14,408	21,947	
May-84	4,350	-	7,802	12,152	-	Y
Jun-84	4,006	8,896	-	12,903	19,519	
Jul-84	1,063	14,272	3,078	18,413	31,313	
Aug-84	804	3,087	69	3,961	6,774	
Sep-84	526	581	30	1,137	1,275	
Oct-84	20,707	134,262	29,868	184,836	294,579	
Nov-84	3,594	11,262	2,863	17,719	24,710	
Dec-84	3,485	8,906	1,283	13,673	19,541	
Jan-85	21,703	56,254	7,704	85,660	123,425	
Feb-85	20,283	29,602	5,332	55,217	64,949	
Mar-85	40,571	113,626	21,870	176,067	249,302	
Apr-85	112,956	134,281	27,037	274,275	294,622	
May-85	13,127	23,851	1,485	38,463	52,330	
Jun-85	5,543	13,221	1,097	19,861	29,008	
Jul-85	11,073	19,427	3,642	34,143	42,624	
Aug-85	918	8,649	151	9,718	18,976	
Sep-85	2,556	9,883	2,408	14,847	21,684	
Oct-85	3,455	19,368	7,893	30,717	42,495	
Nov-85	49,337	133,474	23,707	206,517	292,850	
Dec-85	7,270	33,690	6,661	47,620	73,917	
Jan-86	3,032	1,428	154	4,614	3,133	Y
Feb-86	3,500	3,020	74	6,593	6,626	

Date	Modeled Naturalized Flow (ac-ft)					EP000 < Sum of Upstream Primary CPs?
	GS300	GS500	WGS800	Sum of Upstream Primary CPs	EP000	
Mar-86	2,280	-	94	2,375	-	Y
Apr-86	1,457	7,610	943	10,011	16,697	
May-86	2,398	7,776	1,765	11,938	17,060	
Jun-86	62,335	111,005	22,573	195,912	243,551	
Jul-86	1,775	13,230	1,594	16,599	29,027	
Aug-86	594	5,269	-	5,863	11,559	
Sep-86	2,572	13,743	2,156	18,470	30,153	
Oct-86	6,732	26,802	7,207	40,741	58,806	
Nov-86	1,908	26,877	2,751	31,535	58,969	
Dec-86	64,214	94,937	21,858	181,009	208,297	
Jan-87	18,126	30,113	7,044	55,283	66,071	
Feb-87	53,338	64,122	12,821	130,281	140,688	
Mar-87	16,814	21,759	2,805	41,378	47,740	
Apr-87	3,434	10,222	1,143	14,800	22,428	
May-87	7,726	40,335	14,322	62,383	88,497	
Jun-87	287,605	242,684	35,054	565,343	532,465	Y
Jul-87	11,639	30,692	5,467	47,798	67,341	
Aug-87	3,187	4,556	574	8,316	9,996	
Sep-87	2,105	2,314	-	4,418	5,076	
Oct-87	1,456	-	-	1,456	-	Y
Nov-87	13,067	55,879	12,549	81,494	122,602	
Dec-87	16,332	50,404	11,072	77,808	110,590	
Jan-88	2,975	6,034	577	9,585	13,238	
Feb-88	2,184	-	124	2,308	-	Y
Mar-88	3,084	15,363	1,995	20,442	33,708	
Apr-88	2,082	16,952	2,647	21,681	37,194	
May-88	5,178	9,920	982	16,080	21,766	
Jun-88	4,922	7,005	-	11,927	15,369	
Jul-88	3,533	16,048	1,381	20,963	35,211	
Aug-88	361	5,700	803	6,865	12,507	
Sep-88	84	-	-	84	-	Y
Oct-88	105	10,589	1,690	12,385	23,234	
Nov-88	205	809	604	1,617	1,776	
Dec-88	530	8,037	2,208	10,775	17,634	
Jan-89	10,120	70,647	17,638	98,405	155,004	
Feb-89	3,871	10,118	1,685	15,674	22,200	
Mar-89	2,062	8,592	146	10,800	18,850	

Date	Modeled Naturalized Flow (ac-ft)					EP000 < Sum of Upstream Primary CPs?
	GS300	GS500	WGS800	Sum of Upstream Primary CPs	EP000	
Apr-89	1,053	2,832	758	4,643	6,212	
May-89	9,733	86,835	18,621	115,189	190,522	
Jun-89	2,283	10,115	793	13,191	22,193	
Jul-89	213	4,945	1,403	6,560	10,849	
Aug-89	-	2,332	-	2,332	5,117	
Sep-89	-	-	-	-	-	
Oct-89	18	3,565	-	3,583	7,822	
Nov-89	66	4,143	386	4,595	9,091	
Dec-89	193	-	125	318	-	Y
Jan-90	512	2,132	247	2,891	4,679	
Feb-90	1,190	23,189	3,549	27,928	50,879	
Mar-90	5,868	47,176	5,102	58,147	103,508	
Apr-90	8,726	31,388	5,261	45,374	68,867	
May-90	3,989	17,466	8,168	29,623	38,322	
Jun-90	24	-	-	24	-	Y
Jul-90	1,446	19,552	1,562	22,560	42,898	
Aug-90	-	2,507	277	2,784	5,501	
Sep-90	1,374	10,740	3	12,118	23,564	
Oct-90	-	8,275	1,457	9,732	18,155	
Nov-90	17	946	444	1,406	2,075	
Dec-90	-	-	20	20	-	Y
Jan-91	34,505	92,023	24,377	150,905	201,904	
Feb-91	11,496	36,576	5,906	53,978	80,249	
Mar-91	1,971	10,447	2,182	14,599	22,920	
Apr-91	82,404	151,111	32,887	266,403	331,548	
May-91	9,763	18,979	2,070	30,812	41,641	
Jun-91	4,161	24,216	4,578	32,954	53,130	
Jul-91	9,770	25,671	7,112	42,553	56,324	
Aug-91	94	6,981	455	7,529	15,316	
Sep-91	2,636	20,429	6,810	29,875	44,822	
Oct-91	655	663	879	2,197	1,455	Y
Nov-91	4,420	788	791	5,999	1,729	Y
Dec-91	133,097	162,661	36,141	331,899	356,887	
Jan-92	92,413	168,751	33,892	295,056	370,251	
Feb-92	299,673	407,807	71,385	778,865	894,754	
Mar-92	42,029	70,346	5,526	117,901	154,344	
Apr-92	164,461	183,690	21,615	369,765	403,027	

Date	Modeled Naturalized Flow (ac-ft)					EP000 < Sum of Upstream Primary CPs?
	GS300	GS500	WGS800	Sum of Upstream Primary CPs	EP000	
May-92	151,256	221,930	29,573	402,759	486,929	
Jun-92	104,544	103,212	9,334	217,091	226,454	
Jul-92	6,599	18,257	3,244	28,100	40,057	
Aug-92	2,707	5,631	32	8,370	12,356	
Sep-92	1,824	4,500	2,181	8,505	9,873	
Oct-92	1,865	5,207	-	7,071	11,423	
Nov-92	6,655	43,046	10,933	60,634	94,446	
Dec-92	17,435	29,479	7,047	53,961	64,678	
Jan-93	16,995	46,255	7,890	71,140	101,487	
Feb-93	20,673	72,294	16,974	109,941	158,617	
Mar-93	43,394	59,380	8,318	111,092	130,283	
Apr-93	28,742	59,160	9,954	97,856	129,801	
May-93	138,379	216,965	42,891	398,234	476,035	
Jun-93	236,335	302,170	56,251	594,755	662,979	
Jul-93	10,624	25,934	2,382	38,940	56,901	
Aug-93	3,330	14,541	1,006	18,877	31,904	
Sep-93	1,801	587	-	2,388	1,287	Y
Oct-93	2,082	20,610	3,710	26,402	45,220	
Nov-93	1,732	289	3,605	5,626	635	Y
Dec-93	2,635	34,901	1,090	38,626	76,575	
Jan-94	2,454	5,773	219	8,446	12,666	
Feb-94	1,747	-	141	1,889	-	Y
Mar-94	6,738	21,142	5,845	33,725	46,387	
Apr-94	2,937	29,919	2,612	35,468	65,645	
May-94	95,673	102,981	11,102	209,756	225,947	
Jun-94	6,177	50,608	8,444	65,229	111,037	
Jul-94	1,271	8,469	928	10,668	18,581	
Aug-94	1,335	21,192	1,743	24,269	46,496	
Sep-94	5,268	10,211	2,587	18,066	22,404	
Oct-94	437,500	468,800	105,469	1,011,768	1,028,576	
Nov-94	8,182	4,132	425	12,739	9,066	Y
Dec-94	18,432	62,939	21,424	102,795	138,091	
Jan-95	35,600	64,397	13,898	113,895	141,292	
Feb-95	5,987	2,317	396	8,700	5,084	Y
Mar-95	37,653	133,214	7,982	178,849	292,280	
Apr-95	35,491	393	5,130	41,014	862	Y

Date	Modeled Naturalized Flow (ac-ft)					EP000 < Sum of Upstream Primary CPs?
	GS300	GS500	WGS800	Sum of Upstream Primary CPs	EP000	
May-95	10,051	94,707	5,026	109,784	207,793	
Jun-95	17,997	1,127	4,779	23,902	2,472	Y
Jul-95	2,881	30,833	9,096	42,810	67,650	
Aug-95	2,233	11,869	1,918	16,019	26,040	
Sep-95	961	6,543	1,987	9,490	14,355	
Oct-95	605	-	-	605	-	Y
Nov-95	3,306	8,376	3,354	15,037	18,378	
Dec-95	4,891	40,223	13,354	58,468	88,251	
Jan-96	1,200	5,397	467	7,064	11,842	
Feb-96	882	2,252	122	3,256	4,942	
Mar-96	1,162	8,030	186	9,377	17,618	
Apr-96	964	6,730	807	8,501	14,765	
May-96	506	11,317	17	11,839	24,830	
Jun-96	7,573	45,380	7,178	60,131	99,567	
Jul-96	1,723	10,988	2,499	15,209	24,107	
Aug-96	5,304	1,859	6,903	14,065	4,078	Y
Sep-96	39,311	32,443	15,636	87,390	71,182	Y
Oct-96	1,619	-	-	1,619	-	Y
Nov-96	1,849	5,784	5,672	13,305	12,691	Y
Dec-96	3,955	7,627	5,221	16,803	16,735	Y