

## Appendix H

---

### Brazos River Authority Accounting Plans



## Appendix H – Brazos River Authority Accounting Plans

### Table of Contents

H.1.	Brazos River Authority Accounting Plan, BRA Approach to Return Flows.....	1
H.1.1	Introduction .....	1
H.1.2	Structure of Accounting Plan .....	6
H.1.3	Reference File Tables .....	8
H.1.3.1	Table REF1 – Introduction and Table of Contents .....	8
H.1.3.2	Table REF2 – Average Monthly Return Flows in MGD.....	8
H.1.3.3	Table REF3 – Reach Diversions.....	9
H.1.3.4	Table REF 4 – Reservoir Data .....	15
H.1.3.5	Table REF5 – Pan Factors .....	15
H.1.3.6	Table REF6 – Conversion Factors .....	16
H.1.3.7	Table DATA1 – Basic Data for Instream Flow Gages and Reservoirs .....	16
H.1.3.8	Table DATA2 – Palmer Hydrological Drought Indices.....	19
H.1.3.9	Tables ACE1 though ACE11 .....	19
H.1.3.10	Tables BASIC1 through BASIC11 .....	20
H.1.4	Reservoir File Tables .....	23
H.1.4.1	Inputs .....	23
H.1.4.2	Inflow Calculation .....	24
H.1.4.3	Lakeside Use Accounting.....	25
H.1.4.4	Downstream Use Accounting.....	27
H.1.4.5	Storage Accounting .....	28
H.1.4.6	Accounting for Impoundment under the System Operation Permit.....	31
H.1.5	Reach File Tables.....	33
H.1.5.1	Table INTRO2 Introduction .....	34
H.1.5.2	Table REACH1 – Possum Kingdom to Palo Pinto.....	34
H.1.5.3	Table READJ1 to READJ21 .....	36
H.1.5.4	Table REACH2 – Palo Pinto to Lk Granbury Headwaters .....	37
H.1.5.5	Table REACH3 – Lake Granbury to Lake Whitney Headwaters.....	39
H.1.5.6	Table REACH4 – Lake Aquilla to Aquilla/Brazos Confluence.....	42
H.1.5.7	Table REACH5 – Lake Whitney to Aquilla/Brazos Confluence .....	44

H.1.5.8	Table REACH6 – Aquilla/Brazos Confluence to Little/Brazos Confluence.....	47
H.1.5.9	Table REACH7 – Lake Proctor to Hasse Gage.....	50
H.1.5.10	Table REACH8 – Hasse Gage to Belton Headwaters .....	52
H.1.5.11	Table REACH9 – Lake Belton to Little River Gage .....	54
H.1.5.12	Table REACH10 – Lake Stillhouse Hollow to Little River Gage .....	57
H.1.5.13	Table REACH11 – Little River Gage to Little/San Gabriel Confluence .....	59
H.1.5.14	Table REACH12 – Lake Georgetown to Granger Headwaters.....	61
H.1.5.15	Table REACH13 – Lake Granger to San Gabriel/Little Confluence.....	64
H.1.5.16	Table REACH14 – San Gabriel/Little Confluence to Little/Brazos Confluence.....	66
H.1.5.17	Table REACH15 – Little/Brazos Confluence to Brazos/Yegua Confluence.....	69
H.1.5.18	Table REACH16 – Lake Somerville to Yegua/Brazos Confluence .....	72
H.1.5.19	Table REACH17 – Yegua/Brazos Confluence to Navasota/Brazos Confluence .....	74
H.1.5.20	Table REACH18 – Lake Limestone to Navasota/Brazos Confluence .....	76
H.1.5.21	Table REACH19 – Navasota/Brazos Confluence to Hempstead.....	78
H.1.5.22	Table REACH20 – Hempstead to Richmond.....	80
H.1.5.23	Table REACH21 – Richmond to Dow .....	84
H.1.6	Instream Flow File Tables.....	89
H.1.6.1	Table INTRO3 Introduction .....	89
H.1.6.2	Table CARRY1 Carry-Over Data .....	89
H.1.6.3	Table COND1 Climatic Conditions Calculations .....	90
H.1.6.4	Chart FLOWC1 through FLOWC12 .....	91
H.1.6.5	Tables IF1 through IF12 – Instream Flow Calculations .....	92
H.1.6.6	Tables CRI1 through CRI12.....	107
H.1.7	Summary File Tables .....	109
H.1.7.1	Table INTRO4 – Introduction and Table of Contents.....	109
H.1.7.2	Tables SUM1 through SUM11 – Reservoir Water Use Summaries.....	109
H.1.7.3	Table SUM12 – Reservoir Water Use by Permit .....	111
H.1.7.4	Table SUM13 – System Operation Water Use by Reach.....	112
H.1.7.5	Table SUM14 – Environmental Flow Report.....	114
<b>H.1.7.6</b>	<b>Tables REP1 through REP52 – Surface Water Use Reports.....</b>	<b>115</b>
H.1.7.7	Table R1 SUM_ROR – Summary of Run of River Diversions .....	116
H.2.	Brazos River Authority Accounting Plan, Executive Director’s Approach to Return Flows .....	117

- H.2.1 Introduction ..... 117
- H.2.2 Structure of Accounting Plan ..... 122
- H.2.3 Reference File Tables ..... 124
  - H.2.3.1 Table REF1 – Introduction and Table of Contents ..... 124
  - H.2.3.2 Table REF2 – Average Monthly and Daily Return Flows in MGD ..... 124
  - H.2.3.3 Table REF3 – Reach Diversions..... 128
  - H.2.3.4 Table REF 4 – Reservoir Data ..... 134
  - H.2.3.5 Table REF5 – Pan Factors ..... 135
  - H.2.3.6 Table REF6 – Conversion Factors ..... 135
  - H.2.3.7 Table DATA1 – Basic Data for USGS Gages and Reservoirs ..... 135
  - H.2.3.8 Table DATA2 – Palmer Hydrological Drought Indices ..... 138
  - H.2.3.9 Tables ACE1 though ACE11 ..... 138
  - H.2.3.10 Tables BASIC1 through BASIC11 ..... 139
- H.2.4 Reservoir File Tables ..... 145
  - H.2.4.1 Inputs ..... 145
  - H.2.4.2 Inflow Calculation ..... 146
  - H.2.4.3 Lakeside Use Accounting..... 148
  - H.2.4.4 Downstream Use Accounting..... 149
  - H.2.4.5 Storage Accounting ..... 151
  - H.2.4.6 Accounting for Impoundment under the System Operation Permit ..... 155
- H.2.5 Reach File Tables ..... 157
  - H.2.5.1 Table INTRO2 Introduction ..... 158
  - H.2.5.2 Table REACH1 – Possum Kingdom to Palo Pinto..... 158
  - H.2.5.3 Table READJ1 to READJ21 ..... 161
  - H.2.5.4 Table REACH2 – Palo Pinto to Lk Granbury Headwaters ..... 162
  - H.2.5.5 Table REACH3 – Lake Granbury to Lake Whitney Headwaters..... 165
  - H.2.5.6 Table REACH4 – Lake Aquilla to Aquilla/Brazos Confluence..... 169
  - H.2.5.7 Table REACH5 – Lake Whitney to Aquilla/Brazos Confluence ..... 173
  - H.2.5.8 Table REACH6 – Aquilla/Brazos Confluence to Little/Brazos Confluence..... 176
  - H.2.5.9 Table REACH7 – Lake Proctor to Hasse Gage..... 181
  - H.2.5.10 Table REACH8 – Hasse Gage to Belton Headwaters ..... 183
  - H.2.5.11 Table REACH9 – Lake Belton to Little River Gage ..... 187

H.2.5.12	Table REACH10 – Lake Stillhouse Hollow to Little River Gage .....	191
H.2.5.13	Table REACH11 – Little River Gage to Little/San Gabriel Confluence .....	194
H.2.5.14	Table REACH12 – Lake Georgetown to Granger Headwaters.....	197
H.2.5.15	Table REACH13 – Lake Granger to San Gabriel/Little Confluence.....	201
H.2.5.16	Table REACH14 – San Gabriel/Little Confluence to Little/Brazos Confluence.....	204
H.2.5.17	Table REACH15 – Little/Brazos Confluence to Brazos/Yegua Confluence.....	209
H.2.5.18	Table REACH16 – Lake Somerville to Yegua/Brazos Confluence .....	212
H.2.5.19	Table REACH17 – Yegua/Brazos Confluence to Navasota/Brazos Confluence .....	216
H.2.5.20	Table REACH18 – Lake Limestone to Navasota/Brazos Confluence .....	218
H.2.5.21	Table REACH19 – Navasota/Brazos Confluence to Hempstead.....	222
H.2.5.22	Table REACH20 – Hempstead to Richmond.....	224
H.2.5.23	Table REACH21 – Richmond to Dow .....	229
H.2.6	Instream Flow File Tables.....	237
H.2.6.1	Table INTRO3 Introduction .....	237
H.2.6.2	Table CARRY1 Carry-Over Data .....	237
H.2.6.3	Table COND1 Climatic Conditions Calculations .....	238
H.2.6.4	Chart FLOWC1 through FLOWC12 .....	239
H.2.6.5	Tables IF1 through IF12 – Instream Flow Calculations .....	240
H.2.6.6	Tables CRI1 through CRI12.....	255
H.2.7	Summary File Tables .....	257
H.2.7.1	Table INTRO4 – Introduction and Table of Contents.....	257
H.2.7.2	Tables SUM1 through SUM11 – Reservoir Water Use Summaries.....	257
H.2.7.3	Table SUM12 – Reservoir Water Use by Permit .....	259
H.2.7.4	Table SUM13 – System Operation Water Use by Reach.....	261
H.2.7.5	Table SUM14 – Environmental Flow Report.....	264
<b>H.2.7.6</b>	<b>Tables REP1 through REP52 – Surface Water Use Reports.....</b>	<b>265</b>
H.2.7.7	Table R1 SUM_ROR – Summary of Run of River Diversions .....	265



## Appendix H-1

---

### Brazos River Authority Accounting Plan, BRA Approach to Return Flows



## **H.1. Brazos River Authority Accounting Plan, BRA Approach to Return Flows**

### **H.1.1 Introduction**

The Brazos River Authority (BRA) Accounting Plan (Accounting Plan) includes reservoir accounting, daily deliveries to customers by reach, compliance with environmental flow requirements in the Water Management Plan (WMP), and water rights reporting.

The Accounting Plan includes daily reservoir accounting for the eleven BRA System reservoirs: Possum Kingdom (Certificate of Adjudication (COA) No. 12-5155), Granbury (COA No. 12-5156), Whitney (COA No. 12-5157), Aquilla (COA No. 12-5158), Proctor (COA No. 12-5159), Belton (COA No. 12-5160), Stillhouse Hollow (COA No. 12-5161), Georgetown (COA No. 12-5162), Granger (COA No. 12-5163), Somerville (COA No. 5164), and Limestone (COA No. 12-5165). Reservoir accounting is described in Section H.1.4 below.

The Accounting Plan reports return flows discharged during the year for sources that were considered as part of the BRA's water availability analysis. These return flows will be used by the BRA to update that analysis as needed.

Delivery accounting is organized by reach. The Accounting Plan divides the Brazos River basin from Possum Kingdom Lake to the Gulf of Mexico into the 40 reaches listed in Table H.1.1. Some reaches are reservoirs, and include the area from the headwaters of the normal pool of the reservoir to the dam. Reservoir reaches are included in the Reservoir File of the Accounting Plan described in Section H.1.4 below. Other reaches are stream segments bounded by a reservoir, stream gage or confluence. These reaches are included in the Reach File of the Accounting Plan described in Section H.1.5 below. The tables in the Reach File can include multiple reaches. The reach accounting file of the Accounting Plan tracks BRA water supply releases as they travel through these reaches, applying corrections for travel times and losses. The reach accounting also tracks the diversions of releases and unappropriated flows by reach.

**Table H.1.1 Reaches**

No	Reach Name	Accounting Plan Table(s)
1	Possum Kingdom Lake	RES1
2	Possum Kingdom Lake Dam to Palo Pinto gage	REACH1
3	Palo Pinto gage to Dennis gage	REACH2
4	Dennis gage to Lake Granbury Dam	REACH2 and RES2
5	Lake Granbury Dam to Glen Rose gage	REACH3
6	Glen Rose gage to Lake Whitney Dam	REACH3 and RES3
7	Lake Whitney Dam to Aquilla Creek/Brazos Rv confluence	REACH5
8	Lake Aquilla	RES4
9	Lake Aquilla Dam to Aquilla Creek gage	REACH4
10	Aquilla Creek gage to Aquilla Creek/Brazos Rv confluence	REACH4
11	Aquilla Creek/ Brazos confluence to Highbank gage	REACH6
12	Lake Proctor	RES5
13	Lake Proctor Dam to Leon Rv at Gatesville gage	REACH7 and REACH8
14	Leon Rv at Gatesville to Lake Belton Dam	REACH8 and RES6
15	Lake Belton Dam to Leon Rv nr Belton gage	REACH9
16	Leon Rv nr Belton gage to Little River gage	REACH9
17	Lake Stillhouse Hollow	RES7
18	Lake Stillhouse Hollow Dam to Lampasas Rv nr Belton gage	REACH10
19	Lampasas Rv nr Belton gage to Little River gage	REACH10
20	Little River gage to Little Rv/San Gabriel Rv confluence	REACH11
21	Lake Georgetown	RES8
22	Lake Georgetown Dam to N San Gabriel gage	REACH12
23	N San Gabriel gage to Lake Granger Dam	REACH12 and RES9
24	Lake Granger Dam to Lanepport gage	REACH13
25	Lanepport gage to Little Rv/San Gabriel confluence	REACH13
26	Little/San Gabriel confluence to Little Rv at Cameron gage	REACH14
27	Cameron gage to Brazos Rv/Little Rv confluence	REACH14
28	Highbank gage to Brazos Rv/Little Rv confluence	REACH6
29	Brazos Rv/Little Rv confluence to Bryan gage	REACH15
30	Bryan gage to Brazos Rv/Yegua Crk confluence	REACH15
31	Lake Somerville	RES10
32	Lake Somerville Dam to Yegua Crk gage	REACH16
33	Yegua Crk gage to Brazos Rv/Yegua Crk confluence	REACH16
34	Brazos Rv/Yegua Crk confluence to Brazos Rv/Navasota Rv confluence	REACH17
35	Lake Limestone	RES11
36	Lake Limestone Dam to Easterly gage	REACH18
37	Easterly gage to Brazos Rv/Navasota Rv confluence	REACH18
38	Brazos Rv/Navasota Rv confluence to Hempstead gage	REACH19
39	Hempstead gage to Richmond gage	REACH20
40	Richmond gage to Gulf of Mexico	REACH21

Tables H.1.2a through H.1.2g show the travel times and losses used in the Accounting Plan.

Table H.1.2a - Lake Possum Kingdom to Gulf of Mexico						
Location	BRA Incremental Loss (%)	BRA Cumulative Loss (%)	BRA Travel Time (days)	Total Delivery (%)	Incremental Delivery Factor	Incremental Travel Time (days)
Lk PK	0.000	0.000	0.000	100.00		
Palo Pinto Gage (Hwy 4)	0.520	0.520	0.510	99.48	0.995	0.5
Dennis	1.980	2.500	2.470	97.50	0.980	2.0
Lk Granbury	1.200	3.700	4.000	96.30	0.988	1.5
Brazos Rv at Glen Rose	0.840	4.540	5.700	95.46	0.991	1.7
Lk Whitney	1.860	6.400	10.000	93.60	0.981	4.3
Jct Brazos Rv - Aquilla Cr	0.450	6.850	10.560	93.15	0.995	0.6
Brazos Rv at Waco	0.300	7.150	11.000	92.85	0.997	0.4
Highbank	0.940	8.090	12.390	91.91	0.990	1.4
Little-Brazos	0.610	8.700	13.290	91.30	0.993	0.9
Brazos at Bryan	0.860	9.560	14.090	90.44	0.991	0.8
JCT Yegua-Brazos	1.060	10.620	15.080	89.38	0.988	1.0
JCT Brazos-Navasota	0.460	11.080	15.510	88.92	0.995	0.4
Hempstead	0.930	12.010	16.380	87.99	0.990	0.9
Richmond	2.820	14.830	19.000	85.17	0.968	2.6
Rosharon	0.980	15.810	19.920	84.19	0.988	0.9
Gulf	1.580	17.390	21.390	82.61	0.981	1.5
<b>Total</b>	<b>17.39</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>21.4</b>

Table H.1.2b - Lake Aquilla to Brazos Confluence						
Location	BRA Incremental Loss (%)	BRA Cumulative Loss (%)	BRA Travel Time (days)	Total Delivery (%)	Incremental Delivery Factor	Incremental Travel Time (days)
Lk Aquilla	0.000	0.000	0.000	100.00		
Aquilla Ck abv Aquilla	0.110	0.110	0.120	99.89	0.999	0.1
JCT Aquilla Ck-Brazos Rv	0.390	0.500	0.560	99.50	0.996	0.4
<b>Total</b>	<b>0.500</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>0.5</b>

Table H.1.2c - Lake Proctor to Little/Brazos Confluence						
Location	BRA Incremental Loss (%)	BRA Cumulative Loss (%)	BRA Travel Time (days)	Total Delivery (%)	Incremental Delivery Factor	Incremental Travel Time (days)
Lk Proctor	0.000	0.000	0.000	100.00		
Leon Rv nr Hasse	2.700	2.700	1.000	97.30	0.973	1.0
Leon Rv at Gatesville	45.800	48.500	4.300	51.50	0.529	3.3
Lake Belton	2.600	51.100	7.000	48.90	0.950	2.7
Leon Rv nr Belton	0.160	51.260	7.200	48.74	0.997	0.2
Little Rv nr Little Rv	0.890	52.150	8.100	47.85	0.982	0.9
Jct San Gabriel Rv - Little Rv	2.390	54.540	9.800	45.46	0.950	1.7
Little Rv at Cameron	0.500	55.040	10.200	44.96	0.989	0.4
Jct Little Rv - Brazos Rv	1.560	56.600	11.300	43.40	0.965	1.1
<b>Total</b>	<b>56.600</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>11.3</b>

Table H.1.2d - Lake Stillhouse Hollow to Little River Gage						
Location	BRA Incremental Loss (%)	BRA Cumulative Loss (%)	BRA Travel Time (days)	Total Delivery (%)	Incremental Delivery Factor	Incremental Travel Time (days)
Lk Stillhouse	0.000	0.000	0.000	100.00		
Lampassas R nr Belton	0.050	0.050	0.140	99.95	0.9995	0.1
Little Rv nr Little Rv	0.530	0.580	1.090	99.42	0.9947	1.0
<b>Total</b>	<b>0.580</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>1.1</b>

Table H.1.2e - Lake Georgetown to Little/San Gabriel Confluence						
Location	BRA Incremental Loss (%)	BRA Cumulative Loss (%)	BRA Travel Time (days)	Total Delivery (%)	Incremental Delivery Factor	Incremental Travel Time (days)
Lk Georgetown	0.000	0.000	0.000	100.00		
N San Gabriel nr Georgetown	0.020	0.020	0.030	99.98	0.9998	0.0
Lk Granger	0.780	0.800	1.000	99.20	0.9922	1.0
San Gabriel nr Lanepport	0.130	0.930	1.130	99.07	0.9987	0.1
Jct San Gabriel - Little	0.670	1.600	1.810	98.40	0.9932	0.7
<b>Total</b>	<b>1.600</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>1.8</b>

Table H.1.2f - Lake Somerville to Brazos/Yegua Confluence						
Location	BRA Incremental Loss (%)	BRA Cumulative Loss (%)	BRA Travel Time (days)	Total Delivery (%)	Incremental Delivery Factor	Incremental Travel Time (days)
Lk Somerville	0.000	0.000	0.000	100.00		
Yegua nr Somerville	0.070	0.070	0.070	99.93	0.999	0.1
Jct Yegua-Brazos	1.030	1.100	1.080	98.90	0.990	1.0
<b>Total</b>	<b>1.100</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>1.1</b>

Table H.1.2g - Lake Limestone to Brazos/Navasota Confluence						
Location	BRA Incremental Loss (%)	BRA Cumulative Loss (%)	BRA Travel Time (days)	Total Delivery (%)	Incremental Delivery Factor	Incremental Travel Time (days)
Lk Limestone	0.000	0.000	0.000	100.00		
Nava at Easterly	0.880	0.880	1.210	99.12	0.991	1.2
JCT Navasota-Brazos	3.620	4.500	6.520	95.50	0.963	5.3
<b>Total</b>	<b>4.500</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>6.5</b>

Instream flow accounting tracks compliance with the environmental flow requirements from the Water Management Plan (WMP) at twelve USGS stream gage locations: the Brazos River near South Bend (USGS0808800), the Brazos River near Palo Pinto (USGS 08089000), the Brazos River near Glen Rose (USGS 08091000), the Brazos River at Waco (USGS 08096500), the Leon River at Gatesville (USGS 08100500), the Little River near Little River (USGS 08104500), the Navasota River near Easterly (USGS 08110500), the Little River at Cameron (USGS 08106500), the Brazos River at SH 21 near Bryan (USGS 08108700), the Brazos River near Hempstead (USGS 08111500), the Brazos River at Richmond (USGS 08114000) and the Brazos River near Rosharon (USGS 08116650). The Instream Flow File of the Accounting Plan described in Section H.1.6 below determines seasonal climatic conditions (Wet, Average, or Dry), and classifies the flows at each gage as either base flows or high flow pulses (HFP or pulse). Flows are then compared to base flow and HFP criteria. Compliance with environmental flow requirements is tracked at the diversion points in the reservoir and Reach Files described in Sections H.1.4 and H.1.5 below, and summarized in the achievement report in the reporting file described in Section H.1.7 below.

Table H.1.3 is a summary of the BRA reservoir water rights included in this Accounting Plan. Other water rights in the Accounting Plan include the Excess Flows Permit (Certificate of Adjudication 12-5166) and the System Operation Permit (Permit 12-5851). The Accounting Plan also includes diversions made under the System Operation Order (System Order). The System Order was originally adopted July 23, 1964, and subsequently amended and incorporated into BRA's reservoir water rights.

### **H.1.2 Structure of Accounting Plan**

The Accounting Plan consists of five Microsoft Excel workbooks and associated documentation. The five workbooks are:

Reference.xlsb	Miscellaneous data used in other workbooks, including historical data, reservoir information, conversion factors, etc.
IFCalcs.xlsb	Instream flow calculations
Reservoirs.xlsb	Information on the operation of the eleven existing BRA System reservoirs (Allens Creek not included at this time)
Reaches.xlsb	Tracking of water supply releases
Summary.xlsb	Summary and water rights reporting

Each workbook has several tables that are discussed in detail below.

The Accounting Plan includes reports and calculations on both a daily and monthly basis. In general, monthly values are located at the top of each table and daily values are underneath. Colors and shading are used to help identify different categories of calculations and types of use. Columns with a label that has purple text are entered manually by BRA staff. Columns with a label that has orange text contain data that references a separate file, sheet or cell. Columns with a label with light blue text are calculated within the current table.

**Table H.1.3 - Summary of Brazos River Authority Reservoir Water Rights**

Water Right ID	Reservoir Name	Authorized Storage (acft)	Priority Date	Priority Diversion (acft/yr)	Max Diversion Rate (cfs)	*System Order Diversions	
						Amount (acft/yr)	Type Use
COA 12-5155	Possum Kingdom	724,739	4/6/1938	230,750	Unspecified	175,000	Mun
						250,000	Ind
						250,000	Irr
						49,800	Min
						--	Hydro
COA 12-5156	Granbury	155,000	2/13/1964	64,712	Unspecified	40,000	Mun
						45,000	Ind
						14,500	Irr
						500	Min
COA 12-5157	Whitney	50,000	8/30/1982	18,336	5,000	25,000	Mun
						25,000	Ind
COA 12-5158	Aquila	52,400	10/25/1976	13,896	2,100 releases through dam & 90 from reservoir perimeter	17,000	Mun
						18,200	Ind
						200	Min
COA 12-5159	Proctor	59,400	12/16/1963	19,658	Unspecified	18,000	Mun
						17,800	Ind
						18,000	Irr
						200	Min
COA 12-5160	Belton	457,600	12/16/1963	100,257	Unspecified	95,000	Mun
						150,000	Ind
						149,500	Irr
						500	Min
COA 12-5161	Stillhouse Hollow	235,700	12/16/1963	67,768	Unspecified	74,000	Mun
						74,000	Ind
						73,700	Irr
						300	Min
COA 12-5162	Georgetown	37,100	2/12/1968	13,610	Unspecified	16,500	Mun
						16,400	Ind
						4,100	Irr
						100	Min
COA 12-5163	Granger	65,500	2/15/1968	19,840	Unspecified	30,000	Mun
						29,800	Ind
						5,500	Irr
						200	Min
COA 12-5164	Somerville	160,110	12/16/1963	48,000	Unspecified	49,500	Mun
						50,000	Ind
						50,000	Irr
						500	Min
COA 12-5165	Limestone	225,400	5/6/1974 for 217,494 acft & 9/4/1979 for 7,906 acft	65,074	Unspecified	69,500	Mun
						70,000	Ind
						77,500	Irr
						500	Min

\*The total amount of water diverted or released from any one System reservoir for a particular purpose may exceed the authorization for that purpose under that reservoir's certificate of adjudication, but may not exceed the total authorized diversions for all purposes from that reservoir in any calendar year.

Abbreviations for type of use are as follows: Mun = Municipal, Ind = Industrial, Irr = Irrigation, Min = Mining

The Accounting Plan was developed using Microsoft Excel 2010. Macros must be enabled for the workbooks to calculate correctly. It is recommended that the workbooks remain in binary format (xlsb extension) to reduce file size.

### **H.1.3 Reference File Tables**

The reference file is the primary location for entry of historical data by BRA staff. It also includes other data such as area-capacity-elevation tables and other miscellaneous data used in other parts of the Accounting Plan.

#### *H.1.3.1 Table REF1 – Introduction and Table of Contents*

This table contains title information for the Accounting Plan. BRA staff will enter the year of the Accounting Plan. The spreadsheet will determine if the year is a leap year. The table also includes a Table of Contents for the Reference Files.

#### *H.1.3.2 Table REF2 – Average Monthly Return Flows in MGD*

Table REF2 contains monthly average return flows considered in the water availability analyses used for development of the initial BRA Water Management Plan. These flows will be used by BRA staff to update water availability analyses of the BRA system.

Row 6 of the spreadsheet is the TPDES number for the discharge. The WAM control point for the discharge is in Row 7 of the spreadsheet. Row 8 of the spreadsheet shows the reach number where the discharge is located. Reach numbers are shown in Table H.1.1.

### H.1.3.3 Table REF3 – Reach Diversions

Table REF3 contains the daily diversions by reach. All values are entered by BRA staff. Except for larger BRA customers, diversions are assumed to be aggregated at the downstream end of the reach. Each reach has five different columns that are summed together in the Reach File. Major customers have their own entry column. Row 5 of the REF3 spreadsheet contains the table name from the Reach File. Row 6 shows the reach name (see Table H.1.1 above). In some cases these reaches have been divided into sub-reaches because there is a gage or a major diversion in the reach. These sub-reaches are shown in Row 6. All values are assumed to be in acre-feet per day. BRA staff may change this to other units as long as the corresponding conversion factor in the reaches file is changed.

The following describes the columns in Table REF3:

Column	Reach Table	Reach	Sub-Reach	Units	Column Label	Description
L1				none	Month	Month number
L2				none	EOMonth	End-of-month date
L3				none	Date	Date
D1	REACH1	Possum Kingdom to Palo Pinto gage		acft	Div1	Daily diversion 1
D2				acft	Div2	Daily diversion 2
D3				acft	Div3	Daily diversion 3
D4				acft	Div4	Daily diversion 4
D5				acft	Div5	Daily diversion 5
D6	REACH2	Palo Pinto gage to Dennis gage		acft	Div1	Daily diversion 1
D7				acft	Div2	Daily diversion 2
D8				acft	Div3	Daily diversion 3
D9				acft	Div4	Daily diversion 4
D10				acft	Div5	Daily diversion 5
D11		Dennis Gage to Lk Granbury		acft	Div1	Daily diversion 1
D12				acft	Div2	Daily diversion 2
D13				acft	Div3	Daily diversion 3
D14				acft	Div4	Daily diversion 4
D15				acft	Div5	Daily diversion 5
D16	REACH3	Lk Granbury to Glen Rose Gage		acft	Div1	Daily diversion 1
D17				acft	Div2	Daily diversion 2
D18				acft	Div3	Daily diversion 3

Column	Reach Table	Reach	Sub-Reach	Units	Column Label	Description
D19		Glen Rose Gage to Lake Whitney		acft	Div4	Daily diversion 4
D20				acft	Div5	Daily diversion 5
D21				acft	Div1	Daily diversion 1
D22				acft	Div2	Daily diversion 2
D23				acft	Div3	Daily diversion 3
D24				acft	Div4	Daily diversion 4
D25				acft	Div5	Daily diversion 5
D26	REACH4	Lake Aquilla to Aquilla/Brazos Confluence	Above Gage	acft	Div1	Daily diversion 1
D27				acft	Div2	Daily diversion 2
D28				acft	Div3	Daily diversion 3
D29				acft	Div4	Daily diversion 4
D30				acft	Div5	Daily diversion 5
D31			Below Gage	acft	Div1	Daily diversion 1
D32				acft	Div2	Daily diversion 2
D33				acft	Div3	Daily diversion 3
D34				acft	Div4	Daily diversion 4
D35				acft	Div5	Daily diversion 5
D36	REACH5	Lk Whitney to Aquilla/Brazos Confluence	Above Gage	acft	Div1	Daily diversion 1
D37				acft	Div2	Daily diversion 2
D38				acft	Div3	Daily diversion 3
D39				acft	Div4	Daily diversion 4
D40				acft	Div5	Daily diversion 5
D41			Below Gage	acft	Div1	Daily diversion 1
D42				acft	Div2	Daily diversion 2
D43				acft	Div3	Daily diversion 3
D44				acft	Div4	Daily diversion 4
D45				acft	Div5	Daily diversion 5
D46	REACH6	Aquilla/Brazos Confluence to Waco Gage		acft	Div1	Daily diversion 1
D47				acft	Div2	Daily diversion 2
D48				acft	Div3	Daily diversion 3
D49				acft	Div4	Daily diversion 4
D50				acft	Div5	Daily diversion 5
D51		Waco Gage to Highbank Gage		acft	Div1	Daily diversion 1
D52				acft	Div2	Daily diversion 2
D53				acft	Div3	Daily diversion 3
D54				acft	Div4	Daily diversion 4
D55				acft	Div5	Daily diversion 5
D56		Highbank Gage to Brazos/Little Confluence		acft	Div1	Daily diversion 1
D57				acft	Div2	Daily diversion 2
D58				acft	Div3	Daily diversion 3

Column	Reach Table	Reach	Sub-Reach	Units	Column Label	Description	
D59				acft	Div4	Daily diversion 4	
D60				acft	Div5	Daily diversion 5	
D61	REACH7	Lake Proctor to Leon at Gatesville Gage	Above Hasse Gage	acft	Div1	Daily diversion 1	
D62				acft	Div2	Daily diversion 2	
D63				acft	Div3	Daily diversion 3	
D64				acft	Div4	Daily diversion 4	
D65				acft	Div5	Daily diversion 5	
D66	REACH8			Below Hasse Gage	acft	Div1	Daily diversion 1
D67					acft	Div2	Daily diversion 2
D68					acft	Div3	Daily diversion 3
D69					acft	Div4	Daily diversion 4
D70					acft	Div5	Daily diversion 5
D71		Gatesville Gage to Lake Belton		acft	Div1	Daily diversion 1	
D72				acft	Div2	Daily diversion 2	
D73				acft	Div3	Daily diversion 3	
D74				acft	Div4	Daily diversion 4	
D75				acft	Div5	Daily diversion 5	
D76	REACH9	Lk Belton to Leon Belton Gage		acft	Div1	Daily diversion 1	
D77				acft	Div2	Daily diversion 2	
D78				acft	Div3	Daily diversion 3	
D79				acft	Div4	Daily diversion 4	
D80				acft	Div5	Daily diversion 5	
D81			City of Temple		acft		Daily City of Temple diversion
D82			Leon R nr Belton Gage to Little R at Little River Gage		acft	Div1	Daily diversion 1
D83					acft	Div2	Daily diversion 2
D84					acft	Div3	Daily diversion 3
D85					acft	Div4	Daily diversion 4
D86				acft	Div5	Daily diversion 5	
D87	REACH10	Stillhouse Hollow to Lampasas nr Belton Gage		acft	Div1	Daily diversion 1	
D88				acft	Div2	Daily diversion 2	
D89				acft	Div3	Daily diversion 3	
D90				acft	Div4	Daily diversion 4	
D91				acft	Div5	Daily diversion 5	
D92			Lampasas nr Belton Gage to Little R at Little River Gage		acft	Div1	Daily diversion 1
D93					acft	Div2	Daily diversion 2
D94					acft	Div3	Daily diversion 3
D95					acft	Div4	Daily diversion 4
D96					acft	Div5	Daily diversion 5
D97	REACH11	Little R at Little R to Little/San Gabriel Confluence		acft	Div1	Daily diversion 1	
D98				acft	Div2	Daily diversion 2	

Column	Reach Table	Reach	Sub-Reach	Units	Column Label	Description
D99				acft	Div3	Daily diversion 3
D100				acft	Div4	Daily diversion 4
D101				acft	Div5	Daily diversion 5
D102	REACH12	Lake Georgetown to N Fk San Gabriel Gage		acft	Div1	Daily diversion 1
D103				acft	Div2	Daily diversion 2
D104				acft	Div3	Daily diversion 3
D105				acft	Div4	Daily diversion 4
D106				acft	Div5	Daily diversion 5
D107		N Fk San Gabriel Gage to Lake Granger		acft	Div1	Daily diversion 1
D108				acft	Div2	Daily diversion 2
D109				acft	Div3	Daily diversion 3
D110				acft	Div4	Daily diversion 4
D111				acft	Div5	Daily diversion 5
D112	REACH13	Lake Granger to Laneport Gage		acft	Div1	Daily diversion 1
D113				acft	Div2	Daily diversion 2
D114				acft	Div3	Daily diversion 3
D115				acft	Div4	Daily diversion 4
D116				acft	Div5	Daily diversion 5
D117		Laneport Gage to San Gabriel/Little Confluence		acft	Div1	Daily diversion 1
D118				acft	Div2	Daily diversion 2
D119				acft	Div3	Daily diversion 3
D120				acft	Div4	Daily diversion 4
D121				acft	Div5	Daily diversion 5
D122	REACH14	Little/San Gabriel Confluence to Cameron Gage	Confluence to Alcoa Diversion	acft	Div1	Daily diversion 1
D123				acft	Div2	Daily diversion 2
D124				acft	Div3	Daily diversion 3
D125				acft	Div4	Daily diversion 4
D126				acft	Div5	Daily diversion 5
D127			Alcoa Diversion to Cameron	acft	Alcoa	Daily Alcoa diversion
D128				acft	Div1	Daily diversion 1
D129				acft	Div2	Daily diversion 2
D130				acft	Div3	Daily diversion 3
D131				acft	Div4	Daily diversion 4
D132		acft	Div5	Daily diversion 5		
D133		Cameron Gage to Little/Brazos Confluence		acft	Div1	Daily diversion 1
D134				acft	Div2	Daily diversion 2
D135				acft	Div3	Daily diversion 3
D136				acft	Div4	Daily diversion 4
D137				acft	Div5	Daily diversion 5
D138	REACH15	Brazos/Little Confluence		acft	Div1	Daily diversion 1

Column	Reach Table	Reach	Sub-Reach	Units	Column Label	Description
D139		to Bryan Gage		acft	Div2	Daily diversion 2
D140				acft	Div3	Daily diversion 3
D141				acft	Div4	Daily diversion 4
D142				acft	Div5	Daily diversion 5
D143				acft	Div1	Daily diversion 1
D144		Bryan Gage to Brazos/Yegua Confluence		acft	Div2	Daily diversion 2
D145				acft	Div3	Daily diversion 3
D146				acft	Div4	Daily diversion 4
D147				acft	Div5	Daily diversion 5
D148			REACH16	Lake Somerville to Yegua Gage		acft
D149		acft			Div2	Daily diversion 2
D150		acft			Div3	Daily diversion 3
D151		acft			Div4	Daily diversion 4
D152		acft			Div5	Daily diversion 5
D153	Yegua Gage to Yegua/Brazos Confluence			acft	Div1	Daily diversion 1
D154				acft	Div2	Daily diversion 2
D155				acft	Div3	Daily diversion 3
D156				acft	Div4	Daily diversion 4
D157				acft	Div5	Daily diversion 5
D158	REACH17	Brazos/Yegua Confluence to Brazos/Navasota Confluence		acft	Div1	Daily diversion 1
D159				acft	Div2	Daily diversion 2
D160				acft	Div3	Daily diversion 3
D161				acft	Div4	Daily diversion 4
D162				acft	Div5	Daily diversion 5
D163	REACH18	Lake Limestone to Easterly Gage		acft	Div1	Daily diversion 1
D164				acft	Div2	Daily diversion 2
D165				acft	Div3	Daily diversion 3
D166				acft	Div4	Daily diversion 4
D167				acft	Div5	Daily diversion 5
D168		Easterly Gage to Navasota/Brazos Confluence		acft	TMPA	Daily TMPA diversion
D169				acft	Div1	Daily diversion 1
D170				acft	Div2	Daily diversion 2
D171				acft	Div3	Daily diversion 3
D172				acft	Div4	Daily diversion 4
D173		acft	Div5	Daily diversion 5		
D174	REACH19	Brazos/Navasota Confluence to Hempstead Gage		acft	Div1	Daily diversion 1
D175				acft	Div2	Daily diversion 2
D176				acft	Div3	Daily diversion 3
D177				acft	Div4	Daily diversion 4
D178				acft	Div5	Daily diversion 5

Column	Reach Table	Reach	Sub-Reach	Units	Column Label	Description
D179	REACH20	Hempstead to Richmond Gage	Hempstead to Canal A	acft	Div1	Daily diversion 1
D180				acft	Div2	Daily diversion 2
D181				acft	Div3	Daily diversion 3
D182				acft	Div4	Daily diversion 4
D183				acft	Div5	Daily diversion 5
D184			Canal A	acft		Daily Canal A diversion
D185			Canal A to NRG	acft	Div1	Daily diversion 1
D186				acft	Div2	Daily diversion 2
D187				acft	Div3	Daily diversion 3
D188				acft	Div4	Daily diversion 4
D189				acft	Div5	Daily diversion 5
D190			NRG	acft		Daily NRG diversion
D191			REACH21	Richmond Gage to Gulf	Richmond Gage to GCWA1	acft
D192	acft	Div2				Daily diversion 2
D193	acft	Div3				Daily diversion 3
D194	acft	Div4				Daily diversion 4
D195	acft	Div5				Daily diversion 5
D196	GCWA1	acft				Daily GCWA diversion
D197	GCWA1 to GCWA2	acft			Div1	Daily diversion 1
D198		acft			Div2	Daily diversion 2
D199		acft			Div3	Daily diversion 3
D200		acft			Div4	Daily diversion 4
D201		acft			Div5	Daily diversion 5
D202	GCWA2	acft				Daily GCWA diversion
D203	Rosharon Gage to Dow Harris	acft			Div1	Daily diversion 1
D204		acft			Div2	Daily diversion 2
D205		acft			Div3	Daily diversion 3
D206		acft			Div4	Daily diversion 4
D207		acft			Div5	Daily diversion 5
D208	Dow Harris	acft				Daily Dow Harris diversion
D209	Dow Harris to Dow Brazoria	acft			Div1	Daily diversion 1
D210		acft			Div2	Daily diversion 2
D211		acft	Div3	Daily diversion 3		
D212		acft	Div4	Daily diversion 4		
D213		acft	Div5	Daily diversion 5		
D214	Dow Brazoria	acft		Daily Dow Brazoria diversion		

#### H.1.3.4 Table REF 4 – Reservoir Data

Table REF4 contains conservation elevation and total storage for the eleven BRA system reservoirs. Additional data regarding BRA’s authorized storage, conservation storage, hydropower storage (SWPA storage) and dead storage are included for Lake Whitney. These data are referenced in the instream flow and Reservoir Files.

The storage is calculated from elevation using the Excel user function INTERPOLATE. Macros must be enabled in order for this function to perform its calculations, and the workbooks must be saved as a macro-enabled file type (.xlsm or .xlsb).

The following is a description of the columns in Table REF4:

Column	Label	Units	Description
R1	Reservoir	none	Reservoir name
R2	Elevation	feet	Elevation at the top of the reservoir conservation pool
R3	Storage	acft	Total storage volume below the top of conservation pool. Calculated from Area-Capacity-Elevation table in Reference spreadsheet. Uses special INTERPOLATE function.
R4	Feature	None	Lake Whitney storage feature.
R5	Elevation	Feet	Elevation associated with Lake Whitney storage feature
R6	Storage	acft	Storage volume associated with Lake Whitney storage feature

#### H.1.3.5 Table REF5 – Pan Factors

Table REF5 contains the pan factors used to convert pan evaporation measured at the BRA reservoirs to gross reservoir evaporation. These factors are used in the Reservoir File as part of the inflow calculation.

The following describes the columns in Table REF5.

Column	Label	Units	Description
F1	Month	None	Month
F2	Pan Factor	none	Monthly evaporation pan factors

### *H.1.3.6 Table REF6 – Conversion Factors*

Table REF6 has conversion factors used to change units from cfs to acft/day, MGD to cfs and MGD to acft/day. All workbooks use these factors.

### *H.1.3.7 Table DATA1 – Basic Data for Instream Flow Gages and Reservoirs*

Table DATA1 is the entry point for historical gage flows used for environmental flow calculations. These data will be entered by BRA staff. The table also imports elevation data from the BASIC data tables in the reference file and calculates daily storage values, using the area-capacity data from the ACE tables. Historical monthly BRA storage in Lake Whitney is entered here by BRA staff

The following describes the columns in Table DATA1:

Column	Label	Units	Description	Tables Referenced
L1	Month	none	Month of the year	
W1	BRA Beginning-of-Month Storage in Lake Whitney	acft	Beginning-of-Month historical BRA storage in Lake Whitney. Derived from other sources.	
L2	Date	none		
G1	SOUT2 USGS 08088000 Brazos River nr South Bend	cfs	Historical daily average streamflow at 08088000. Used in Table IF 1 of the instream flow file.	
G2	PLOT2 USGS 08089000 Brazos Rv nr Palo Pinto	cfs	Historical daily average streamflow at 08089000. Used in Table IF2 of the instream flow file and table REACH 1 of the reaches file.	
G3	GLRT2 USGS 08091000 Brazos Rv nr Glen Rose	cfs	Historical daily average streamflow at 08091000. Used in Table IF3 of the instream flow file and table REACH 3 of the reaches file.	
G4	WBAT2 USGS 08096500 Brazos River at Waco	cfs	Historical daily average streamflow at 08096500. Used in Table IF4 of the instream flow file.	
G5	USGS 08100500 Leon Rv at Gatesville	cfs	Historical daily average streamflow at 08100500. Used in Table IF 5 of the instream flow file and table REACH 8 of the reaches file.	
G6	LRIT2 USGS 08104500 Little Rv nr Little River	cfs	Historical daily average streamflow at 08104500. Used in Table IF6 of the instream flow file and table REACH 11 of the reaches file.	

Column	Label	Units	Description	Tables Referenced
G7	CMNT2 USGS 08106500 Little Rv nr Cameron	cfs	Historical daily average streamflow at 08106500. Used in table IF7 of the instream flow file and table REACH 14 of the reaches file.	
G8	BBZT2 USGS 08108700 Brazos Rv at SH 21 nr Bryan, TX	cfs	Historical daily average streamflow at 08108700. Used in table IF8 of the instream flow file and table REACH 15 of the reaches file.	
G9	EAST2 USGS 08110500 Navasota Rv nr Easterly	cfs	Historical daily average streamflow at 08110500. Used in table IF9 of the instream flow file and table REACH 18 of the reaches file.	
G10	HPDT2 USGS 08111500 Brazos Rv nr Hempstead, TX	cfs	Historical daily average streamflow at 08111500. Used in table IF10 of the instream flow file and table REACH 19 of the reaches file.	
G11	RMOT2 USGS 08114000 Brazos Rv at Richmond	cfs	Historical daily average streamflow at 08114000. Used in table IF11 of the instream flow file and table REACH 20 of the reaches file.	
G12	ROST2 USGS 08116650 Brazos Rv nr Rosharon	cfs	Historical daily average streamflow at 08116650. Used in table IF11 of the instream flow file and table REACH 21 of the reaches file.	
G13	DNNT2 USGS 08090800 Brazos Rv nr Dennis, TX	cfs	Historical daily average streamflow at 08090800. Used in table REACH 2 of the reaches file.	
G14	USGS 08099500 Leon Rv nr Hasse, TX	cfs	Historical daily average streamflow at 08099500. Used in table REACH 7 of the reaches file.	
G15	HPDT2 USGS 08098290 Brazos Rv nr Highbank	cfs	Historical daily average streamflow at 08098290. Used in table REACH 6 of the reaches file.	
G16	USGS 08110000 Yegua Ck nr Somerville	cfs	Historical daily average streamflow at 08110000. Used in table REACH 16 of the reaches file.	
G17	AQIT2 USGS 08093360 Aquilla Ck abv Aquilla	cfs	Historical daily average streamflow at 08093360. Used in table REACH 4 of the reaches file.	
G18	AQLT2 USGS 08093100 Brazos Rv nr Aquilla	cfs	Historical daily average streamflow at 08093100. Used in table REACH 5 of the reaches file.	
G19	BLET2 USGS 08102500 Leon Rv nr Belton	cfs	Historical daily average streamflow at 08102500. Used in Table REACH 9 of the reaches file.	
G20	USGS 08104100 Lampasas Rv nr Belton	cfs	Historical daily average streamflow at 08104100. Used in table REACH 10 of the reaches file.	
G21	GERT2 USGS 08104700 N Fk San Gabriel Rv nr Georgetown	cfs	Historical daily average streamflow at 08104700. Used in table REACH 12 of the reaches file.	
G22	GGRT2 USGS 08105700 San Gabriel Rv at Laneport	cfs	Historical daily average streamflow at 08105700. Used in table REACH 13 of the reaches file.	
E1	PSMT2 Possum Kingdom	feet	Historical reservoir elevation for Possum Kingdom	BASIC1
E2	GBYT2 Granbury	feet	Historical reservoir elevation for Granbury	BASIC2
E3	WYTY2 Whitney	feet	Historical reservoir elevation for Whitney	BASIC3
E4	ALAT2 Aquilla	feet	Historical reservoir elevation for Aquilla	BASIC4
E5	PCTT2 Proctor	feet	Historical reservoir elevation for Proctor	BASIC5
E6	BLNT2 Belton	feet	Historical reservoir elevation for Belton	BASIC6
E7	STIT2 Stillhouse	feet	Historical reservoir elevation for Stillhouse	BASIC7
E8	GGLT2 Georgetown	feet	Historical reservoir elevation for Georgetown	BASIC8
E9	GLKT2 Granger	feet	Historical reservoir elevation for Granger	BASIC9
E10	SOMT2 Somerville	feet	Historical reservoir elevation for Somerville	BASIC10
E11	LLST2 Limestone	feet	Historical reservoir elevation for Limestone	BASIC11

Column	Label	Units	Description	Tables Referenced
V1	PSMT2 Possum Kingdom	acft	Reservoir storage volume for Possum Kingdom. Calculated from Area-Capacity-Elevation table in Reference spreadsheet. Uses special INTERPOLATE function.	ACE1
V2	GBYT2 Granbury	acft	Reservoir storage volume for Lk Granbury. Calculated from Area-Capacity-Elevation table in Reference spreadsheet. Uses special INTERPOLATE function.	ACE2
V3	WTYT2 Whitney	acft	Reservoir storage volume for Lk Whitney. Calculated from Area-Capacity-Elevation table in Reference spreadsheet. Uses special INTERPOLATE function.	ACE3
V4	ALAT2 Aquilla	acft	Reservoir storage volume for Lk Aquilla. Calculated from Area-Capacity-Elevation table in Reference spreadsheet. Uses special INTERPOLATE function.	ACE4
V5	PCTT2 Proctor	acft	Reservoir storage volume for Lk Proctor. Calculated from Area-Capacity-Elevation table in Reference spreadsheet. Uses special INTERPOLATE function.	ACE5
V6	BLNT2 Belton	acft	Reservoir storage volume for Lk Belton. Calculated from Area-Capacity-Elevation table in Reference spreadsheet. Uses special INTERPOLATE function.	ACE6
V7	STIT2 Stillhouse	acft	Reservoir storage volume for Lk Stillhouse Hollow. Calculated from Area-Capacity-Elevation table in Reference spreadsheet. Uses special INTERPOLATE function.	ACE7
V8	GGLT2 Georgetown	acft	Reservoir storage volume for Lk Georgetown. Calculated from Area-Capacity-Elevation table in Reference spreadsheet. Uses special INTERPOLATE function.	ACE8
V9	GLKT2 Granger	acft	Reservoir storage volume for Lk Granger. Calculated from Area-Capacity-Elevation table in Reference spreadsheet. Uses special INTERPOLATE function.	ACE9
V10	SOMT2 Somerville	acft	Reservoir storage volume for Lk Somerville. Calculated from Area-Capacity-Elevation table in Reference spreadsheet. Uses special INTERPOLATE function.	ACE10
V11	LLST2 Limestone	acft	Reservoir storage volume for Lk Limestone. Calculated from Area-Capacity-Elevation table in Reference spreadsheet. Uses special INTERPOLATE function.	ACE11
V12	Total Storage	acft	Sum of columns [V1] through [V11]	

### H.1.3.8 Table DATA2 – Palmer Hydrological Drought Indices

Table DATA2 contains historical Palmer Hydrological Drought Indices (PHDI) for the last day of the previous season. These values are used in the instream flow file to determine the climatic condition for each season.

The following is a description of the columns in Table DATA2

Column	Units	Label	Description
PD1	none	Season	Name of season (Winter, Spring or Summer)
PD2	none	Date	Date of the end of the previous season
PD3	none	High Plains PHDI	PHDI for the High Plains region on the associated date
PD4	none	Low Rolling Plains PHDI	PHDI for the Low Rolling Plains region on the associated date
PD5	none	North Central PHDI	PHDI for the North Central region on the associated date
PD6	none	East Texas PHDI	PHDI for the East Texas region on the associated date
PD7	none	Edwards Plateau PHDI	PHDI for the Edwards Plateau region on the associated date
PD8	none	South Central PHDI	PHDI for the South Central region on the associated date
PD9	none	Upper Coast PHDI	PHDI for the Upper Coast region on the associated date

### H.1.3.9 Tables ACE1 through ACE11

Tables ACE1 through ACE11 are area-capacity-elevation tables for the eleven BRA system reservoirs. Information about the source of the data is included below the table title. These tables are used here in the reference file to calculate storage from elevations, in the Reservoir File to calculate surface areas, and at other locations in the Accounting Plan.

The following is a description of the columns in the ACE tables:

Column No	Label	Units	Description
R1	Elevation	feet	Elevation
R2	Area	acres	Reservoir water surface area corresponding to a particular elevation.
R3	Volume	acre-feet	Reservoir storage volume corresponding to a particular elevation.

H.1.3.10 Tables BASIC1 through BASIC11

Tables BASIC1 through BASIC11 contain basic information used in the Reservoir File, as well as data that is passed on to reaches that are below reservoirs. BRA staff enter daily data for evaporation, rainfall, diversions directly from the reservoir, downstream releases (both total and portion dedicated for water supply), and reservoir elevation. The tables import information from the Instream Flow File regarding applicable instream flow criteria.

Most of the tables have a standard layout. Lake Granbury (BASIC2), Lake Aquilla (BASIC4), Lake Proctor (BASIC5), Lake Stillhouse Hollow (BASIC7), Lake Granger (BASIC9), Lake Somerville (BASIC10) and Lake Limestone (BASIC11) all use the same layout. The following is a description of the columns for tables using the standard layout:

Column	Label	Units	Description
L1	Month	none	Month number for associated data value
L2	End of Month	none	End-of-month associated with date value
L3	Date	none	Date
F1	Evaporation	inches	Daily recorded evaporation. Entered by BRA staff.
F2	Rainfall	inches	Daily recorded rainfall. Entered by BRA staff.
F3	Lakeside Diversions	dsf	Daily lakeside diversions from the reservoir. Entered by BRA staff.
F4	Downstream Release	dsf	Daily downstream releases from the reservoir. Entered by BRA staff.
F5	Elevation	feet	Daily recorded reservoir water surface elevation. Entered by BRA staff.
F6	Water Supply Release	dsf	Daily water supply releases from the reservoir. Entered by BRA staff.
F7	Downstream Flows Exceed Criteria?	none	TRUE if flows at the downstream measurement point exceed the instream flow criteria. Otherwise, FALSE. Imported from the measurement point for each reservoir.

Possum Kingdom Lake (BASIC1) adds an additional column for the upstream environmental flow criteria, which apply to diversions or water supply releases from the reservoir.

Column	Label	Units	Description
L1	Month	none	Month number for associated data value
L2	End of Month	none	End-of-month associated with date value
L3	Date	none	Date
F1	Evaporation	inches	Daily recorded evaporation. Entered by BRA staff.
F2	Rainfall	inches	Daily recorded rainfall. Entered by BRA staff.
F3	Lakeside Diversions	dsf	Daily lakeside diversions from the reservoir. Entered by BRA staff.
F4	Downstream Release	dsf	Daily downstream releases from the reservoir. Entered by BRA staff.
F5	Elevation	feet	Daily recorded reservoir water surface elevation. Entered by BRA staff.
F6	Water Supply Release	dsf	Daily water supply releases from the reservoir. Entered by BRA staff.
F7	Upstream Flows Exceed Criteria?	none	TRUE if flows at the South Bend gage exceed the instream flow criteria plus diversions and water supply releases from PK. Otherwise, FALSE. Imported from the South Bend instream flow calculations.
F8	Downstream Flows Exceed Criteria?	none	TRUE if flows at the Palo Pinto gage exceed the instream flow criteria. Otherwise, FALSE. Imported from the measurement point for each reservoir.

Lake Whitney (BASIC3) has a column for hydropower releases plus a column for upstream environmental flow criteria.

Column	Label	Units	Description
L1	Month	None	Month number for associated data value
L2	End of Month	None	End-of-month associated with date value
L3	Date	None	Date
F1	Evaporation	Inches	Daily recorded evaporation. Entered by BRA staff.
F2	Rainfall	Inches	Daily recorded rainfall. Entered by BRA staff.
F3	Turbine release	dsf	Average daily hydropower release. Entered by BRA staff.
F4	Lakeside Diversions	Dsf	Daily lakeside diversions from the reservoir. Entered by BRA staff.
F5	Downstream Release	Dsf	Daily downstream releases from the reservoir. Entered by BRA staff.
F6	Elevation	Feet	Daily recorded reservoir water surface elevation. Entered by BRA staff.
F7	Water Supply Release	Dsf	Daily water supply releases from the reservoir. Entered by BRA staff.
F8	Upstream Flows Exceed Criteria?	None	TRUE if flows at the Glen Rose gage exceed the instream flow criteria plus diversions and water supply releases from Lake Whitney. Otherwise, FALSE. Imported from the South Bend instream flow calculations.
F9	Downstream Flows Exceed Criteria?	none	TRUE if flows at the Waco gage exceed the instream flow criteria. Otherwise, FALSE. Imported from the measurement point for each reservoir.

Lake Belton (BASIC6) adds a column for diversions under the Fort Hood right (COA 12-2936), which are used in the mass balance calculation for Lake Belton.

Column	Label	Units	Description
L1	Month	none	Month number for associated data value
L2	End of Month	none	End-of-month associated with date value
L3	Date	none	Date
F1	Evaporation	inches	Daily recorded evaporation. Entered by BRA staff.
F2	Rainfall	inches	Daily recorded rainfall. Entered by BRA staff.
F3	Lakeside Diversions	dsf	Daily lakeside diversions from the reservoir. Entered by BRA staff.
F4	Downstream Release	dsf	Daily downstream releases from the reservoir. Entered by BRA staff.
F5	Elevation	feet	Daily recorded reservoir water surface elevation. Entered by BRA staff.
F6	Water Supply Release	dsf	Daily water supply releases from the reservoir. Entered by BRA staff.
F7	Fort Hood Diversion	acft	Diversions from Lake Belton made under COA 12-2936. Entered by BRA staff. Used for Lake Belton water balance calculations (Table RES6 of Reservoir File).
F8	Downstream Flows Exceed Criteria?	none	TRUE if flows at the Little River gage exceed the instream flow criteria. Otherwise, FALSE. Imported from the measurement point for each reservoir.

Lake Georgetown (BASIC8) adds a column for water pumped into the reservoir from Lake Stillhouse Hollow.

Column	Label	Units	Description
L1	Month	none	Month number for associated data value
L2	End of Month	none	End-of-month associated with date value
L3	Date	none	Date
F1	Evaporation	inches	Daily recorded evaporation. Entered by BRA staff.
F2	Rainfall	inches	Daily recorded rainfall. Entered by BRA staff.
F3	Lakeside Diversions	dsf	Daily lakeside diversions from the reservoir. Entered by BRA staff.
F4	Downstream Release	dsf	Daily downstream releases from the reservoir. Entered by BRA staff.
F5	Elevation	feet	Daily recorded reservoir water surface elevation. Entered by BRA staff.
F6	Water Supply Release	dsf	Daily water supply releases from the reservoir. Entered by BRA staff.
F7	Pumping from Stillhouse	dsf	Daily water pumped from Lake Stillhouse Hollow. Entered by BRA staff.
F8	Downstream Flows Exceed Criteria?	none	TRUE if flows at the Cameron gage exceed the instream flow criteria. Otherwise, FALSE. Imported from the measurement point for each reservoir.

## H.1.4 Reservoir File Tables

The Accounting Plan includes daily reservoir accounting for the eleven BRA System reservoirs: Possum Kingdom, Granbury, Whitney, Aquilla, Proctor, Belton, Stillhouse Hollow, Georgetown, Granger, Somerville, and Limestone. The worksheet for each reservoir includes inputs, inflow calculation, lakeside use accounting, downstream use accounting, storage accounting, and accounting for impoundment under the System Operation Permit. With the exception of Lakes Whitney and Belton, the format of the worksheets for the reservoirs is identical. The worksheets are described by section below, including descriptions of each column in the computation.

### H.1.4.1 Inputs

Columns I1 through I7 give basic data to be used in the computation. The inputs include the portion of lakeside and downstream use that is under the System Operation Permit. The inputs section is preceded by two columns that give the month and date. The columns for the date and the inputs are the same for all reservoirs and are as follows:

Column	Label	Units	Daily Description	Tables Referenced
L1	Month	none	Numeric monthly index (1-12)	
L2	Date	none	Current date from basic data	BASIC
I1	Total Lakeside Use	acre-feet	Total BRA lakeside use from basic data in the Reference spreadsheet.	BASIC
I2	Total Water Supply Release	acre-feet	Total BRA release from basic data in the Reference spreadsheet.	BASIC
I3	SysOps Lakeside Use	acre-feet	Portion of lakeside use of natural inflows and stored natural inflows that is under SysOps.	
I4	SysOps Downstream Use	acre-feet	Portion of downstream use of natural inflows and stored natural inflows released from this lake that is under SysOps.	
I5	Use Check	none	Check to see if SysOps use less than or equal to total use.	

Column	Label	Units	Daily Description	Tables Referenced
I6	Flows > Instream Flows During Month?	none	From IF Reference spreadsheet / basic data. If TRUE then flows at the applicable measurement point are greater than the calculated instream flow criteria from the instream flow file. Referenced through the BASIC tables in the reference file. For PK and Whitney, this is an upstream gage. For all other files, it is a downstream measurement point.	BASIC
I7	Upstream Water Supply Releases	acre-feet	BRA Water Supply Releases passed into reservoir from upstream reach. If no reach upstream, set to zero.	Upstream Reach Worksheet

#### *H.1.4.2 Inflow Calculation*

Columns F1 through F13 give the computations of inflows to the reservoir. The total inflow is computed by a mass balance. Natural inflows available to BRA are determined by adjusting total inflows for upstream releases and bypasses (releases that are not BRA water supply releases). Natural inflows include any return flows that are available for use by the BRA. Because of inconsistent data, daily reservoir inflows may be computed to be negative on some days. When this happens, the accounting plan assigns diversions to stored water and maintains the proper mass balance. Although the format is the same for all reservoirs, BRA is entitled to only 22.017 percent of the total inflow to Lake Whitney (because of the division of inflows between the hydropower and water supply pools). The columns for the inflow calculation are as follows:

Column	Label	Units	Daily Description	Tables Referenced
F1	End-of-Day Elevation	feet	End-of-day reservoir elevation from basic data in the Reference spreadsheet.	BASIC
F2	End-of-Day Reservoir Storage	acre-feet	End-of-day reservoir storage, calculated from basic gage data table in Reference spreadsheet. Uses special INTERPOLATE function.	ACE
F3	Precipitation	inches	Daily precipitation from basic data in Reference spreadsheet.	BASIC

Column	Label	Units	Daily Description	Tables Referenced
F4	Pan Evaporation	inches	Daily pan evaporation from basic data in Reference spreadsheet.	BASIC
F5	Pan Factor	none	Monthly pan factor from basic data in Reference spreadsheet.	REF
F6	Net Evaporation	feet	Daily net evaporation	
F7	End-of-Day Surface Area	acres	End-of-day surface area, calculated from Area-Capacity-Elevation table in Reference spreadsheet.	ACE
F8	Evaporation	acre-feet	Net evaporative loss. Calculated by multiplying net evaporation rate times previous day's surface area. Could be entered if calculated elsewhere.	
F9	Lakeside Diversion	acre-feet	Total diversion taken lakeside (includes non-BRA diversions, if any). Repeat of column [I1] for all reservoirs except Lake Belton. (For Lake Belton, U.S. Army diversions from Table BASIC6 in the reference spreadsheet are added.)	BASIC6 (Belton only)
F10	Total Outflow	acre-feet	Total of all releases from reservoir, including BRA Water Supply releases and other releases. From basic data in Reference spreadsheet.	BASIC
F11	Calculated Inflow	acre-feet	Calculated inflow (could be entered if calculated elsewhere)	
F12	Non-Determinant Flows	acre-feet	Amount of outflow that is not a BRA water supply release. This is outflow that is not being used for anything else. Includes spills as well as other types of releases. This should be water that could not be considered part of a water supply release. So if it is picked up downstream under this reservoir's right it should be in the water supply release column. From basic data in Reference spreadsheet.	BASIC
F13	Available Natural Inflows	acre-feet	Total inflows less upstream BRA Water Supply Releases, BRA Return Flows, and bypasses.	

#### *H.1.4.3 Lakeside Use Accounting*

Columns LU1 through LU11 give the accounting for lakeside use from the reservoir. The lakeside use accounting tracks use of upstream releases, natural inflows and stored

water separately. It is identical for all reservoirs. The columns for the lakeside use accounting are as follows:

Column	Label	Units	Daily Description
LU1	Lakeside Use of Upstream Releases	acre-feet	Portion of Lakeside Demand met from Upstream BRA Water Supply Releases. Limited to positive flows. Use will be assigned to the source of the upstream release. This source will be used SECOND, if available, after use of natural inflows under SysOps.
LU2	Lakeside Use from Upstream Release Override	none	A non-negative value overrides the previous column.
LU3	Lakeside Use Natural Inflow under CAXXXX	acre-feet	Portion of Lakeside Demand met from natural inflows, appropriated under reservoir's water rights permit. This source is used THIRD, after use of inflows under SysOps and use of upstream releases (if any). Use of inflows under SysOps is manually entered.
LU4	Lakeside Use of Natural Inflows under SysOps	acre-feet	Portion of Lakeside Demand met from natural inflows appropriated under the System Operation Permit (P5851). If instream flow criteria are met and diversions are being made under SysOps (Column [I3]), then this source is used FIRST. Use is manually entered in Column [I3].
LU5	Lakeside Use from Storage	acre-feet	Remaining Lakeside Demand not met from inflows.
LU6	Lakeside Use from CAXXXX Storage	acre-feet	Portion of Lakeside Demand met from reservoir's permit storage account. This stored water is used SECOND. Since this value is calculated after all other sources there is no override.
LU7	Lakeside Use from Upstream Release Storage	acre-feet	Portion of Lakeside Demand met from Upstream Release storage account. Formula causes this stored water to be used FIRST. Formula-based distribution can be manually overridden.
LU8	Upstream Release Storage Override	none	A non-negative value overrides the previous column.
LU9	Lakeside Diversion Check	none	If all Lakeside Demand met exactly then value will be zero. A positive value indicates that Lakeside demand is over-supplied. A negative value indicates an under-supply.
LU10	Remaining Upstream Release	acre-feet	Remaining upstream BRA Water Supply Release after meeting Lakeside Demands.
LU11	Remaining Natural Inflow	acre-feet	Remaining available natural inflow after meeting Lakeside Demands.

#### H.1.4.4 Downstream Use Accounting

Columns DS1 through DS9 give the accounting for downstream use of releases from the reservoir. The downstream use accounting tracks use of upstream releases, natural inflows and stored water separately. It is identical for all reservoirs. The columns for the downstream use accounting are as follows:

Column	Label	Units	Daily Description
DS1	Water Supply Release	acre-feet	Water supply release. Repeated from Column [I2]
DS2	Pass Through of Upstream Release	acre-feet	Portion of downstream BRA Water Supply Release to be met by passing through upstream BRA Water Supply Releases. Formula will cause this source to be used FIRST. Formula-based distribution can be overridden in next column.
DS3	Upstream Release Override	none	A non-negative value overrides the previous column.
DS4	Pass Through of Inflows to Meet Downstream Demand	acre-feet	Portion of downstream BRA Water Supply Release to be met by passing natural inflows. Formula will cause this source to be used SECOND. Formula-based distribution can be overridden in next column.
DS5	Inflow Pass Through Override	none	A non-negative value overrides the previous column.
DS6	Release from CAXXXX Storage	acre-feet	Portion of downstream BRA Water Supply Release to be met by releasing water from reservoir's base right storage account. Formula will cause this source to be used LAST. Since this formula is executed last, there is no override.
DS7	Release from Upstream Release Storage	acre-feet	Portion of downstream BRA Water Supply Release to be met by releasing water from Upstream Release Storage account (will be charged to upstream water right). Formula will cause this source to be used THIRD. Formula-based distribution can be overridden in next column.
DS8	Upstream Release Storage Override	none	A non-negative value overrides the previous column.
DS9	Water Supply Release Check	none	A zero value means all BRA downstream water supply release has been met. A negative value indicates an under-supply. A positive value indicates an over-supply.

### H.1.4.5 Storage Accounting

Columns ST1 through ST15 give the accounting for storage in the reservoir. The storage accounting tracks storage of upstream releases and storage under the reservoir's existing water right separately. The storage accounting is different for Lake Whitney, as will be described below. The columns for storage accounting for all reservoirs but Whitney are as follows:

Column	Label	Units	Daily Description
ST1	Unused Inflows	acre-feet	Inflows that are not used for Lakeside Demand or Downstream Water Supply and are not stored in BRA storage (spills and inflows to flood storage).
ST2	Upstream Release to Storage	acre-feet	Upstream BRA Water Supply release going into Upstream Release storage account.
ST3	Inflows to CAXXXX Storage	acre-feet	Natural inflows going into reservoir's water right storage account. Set to zero if storage is full.
ST4	Inflow check	none	Check to see if all available natural inflows have been distributed. A positive value indicates more inflows have been assigned than occurred. A negative value indicates that some of the inflow is unassigned.
ST5	Upstream Release Check	none	Check to see if all Upstream BRA Water Supply releases have been distributed.
ST6	End-of-Day Conservation Storage	acre-feet	Calculated storage, limited to conservation storage.
ST7	End-of-Day CAXXXX Storage	acre-feet	Storage account for reservoir's existing water right. If reservoir is at conservation storage, this is the conservation storage less the other storage accounts. Otherwise calculated as the previous day's storage plus inflows into account less outflows and proportioned evaporation. Can be manually overridden.
ST8	End-of-Day Upstream Release Storage	acre-feet	Storage account for Upstream BRA Water Supply releases. Calculated as previous day's storage plus inflows less outflows and proportioned evaporation. Can be manually overridden.
ST9	Stor Check	none	Check to see if storage accounts add up to storage, limited to conservation storage.
ST10	CAXXXX Storage Override	acre-feet	A non-negative value overrides the reservoir's existing water right storage account calculated by formula.
ST11	Upstream Release Storage Override	acre-feet	A non-negative value overrides the Upstream Water Supply storage account calculated by formula.

Column	Label	Units	Daily Description
ST12	End-of-Day % CAXXXX Storage	none	% of total conservation storage in reservoir's existing water right storage account. Used for evaporation distribution in the next day.
ST13	End-of-Day % Upstream Release Storage	none	% of total conservation storage in Upstream Release storage account. Used for evaporation distribution in the next day.
ST14	CAXXXX Storage Evaploss	acre-feet	Portion of evaporative loss assigned to the current permit. Equal to total evaporative loss less portion assigned to the storage account for Upstream Release.
ST15	Upstream Release Storage Evaploss	acre-feet	Portion of evaporative loss assigned to the Upstream Release storage account. Equal to the lesser of the previous day's percentage of upstream release storage under the account multiplied by total evaporation or the sum of prior day storage and current day releases to the account less lakeside and downstream use from the account.

The Lake Whitney storage accounting is the same as the other reservoirs for Columns ST1 through ST6. It includes Columns ST7 through ST10 to apportion conservation storage between BRA storage and hydropower storage and to adjust the accounting monthly to match Corps of Engineers accounting. Columns ST11 through ST19 are the same as ST7 through ST15 for the other reservoirs. The columns for storage accounting for Lake Whitney are as follows:

Column	Label	Units	Daily Description
ST1	Unused Inflows	acre-feet	Inflows that are not used for Lakeside Demand or Downstream Water Supply and are not stored in BRA storage (spills and inflows to flood storage).
ST2	Upstream Release to Storage	acre-feet	Upstream BRA Water Supply release going into Upstream Release storage account.
ST3	Inflows to CA5157 Storage	acre-feet	Natural inflows going into reservoir's water right storage account. Set to zero if storage is full.
ST4	Inflow check	none	Check to see if all available natural inflows have been distributed. A positive value indicates more inflows have been assigned than occurred. A negative value indicates that some of the inflow is unassigned.

Column	Label	Units	Daily Description
ST5	Upstream Release Check	none	Check to see if all Upstream BRA Water Supply releases have been distributed.
ST6	End-of-Day Conservation Storage	acre-feet	Calculated storage, limited to conservation storage.
ST7	End-of-Day SWPA Storage	acre-feet	SWPA storage volume. Equal to end-of-day conservation storage less adjusted end-of-day BRA storage.
ST8	Calculated End-of-Day BRA Storage	acre-feet	Portion of storage assigned to BRA. Calculated by adding the inflows and subtracting evaporative losses. This value is then added to storage or, if set, target end of day storage for the prior day. Prior day storage is limited to the BRA portion of conservation storage.
ST9	Adjusted End-of-Day BRA Storage	acre-feet	Total end of day storage in the BRA portion of Lake Whitney.
ST10	End-of-Day CA5157 Storage	acre-feet	Storage account for reservoir's existing water right. If reservoir is at conservation storage, this is the conservation storage less the other storage accounts. Otherwise calculated as the previous day's storage plus inflows into account less outflows and proportioned evaporation. Can be manually overridden.
ST11	End-of-Day Upstream Release Storage	acre-feet	Storage account for Upstream BRA Water Supply releases. Calculated as previous day's storage plus inflows less outflows and proportioned evaporation. Can be manually overridden.
ST12	Stor Check	none	Check to see if storage accounts add up to storage, limited to conservation storage.
ST13	CA5157 Storage Override	acre-feet	A non-negative value overrides the reservoir's existing water right storage account calculated by formula.
ST14	Upstream Release Storage Override	acre-feet	A non-negative value overrides the Upstream Water Supply storage account calculated by formula.
ST15	End-of-Day % CA5157 Storage	none	% of total conservation storage in reservoir's existing water right storage account. Used for evaporation distribution in the next day.
ST16	End-of-Day % Upstream Release Storage	none	% of total conservation storage in Upstream Release storage account. Used for evaporation distribution in the next day.
ST17	CA5157 Storage Evaploss	acre-feet	Portion of evaporative loss assigned to the current permit. Equal to total evaporative loss less portions assigned to the storage accounts for SysOps and Upstream Release.

Column	Label	Units	Daily Description
ST18	Upstream Release Storage Evaploss	acre-feet	Portion of evaporative loss assigned to the Upstream Release storage account. Equal to the lesser of the previous day's percentage of upstream release storage under the account multiplied by total evaporation or the sum of prior day storage and current day releases to the account less lakeside and downstream use from the account.

#### *H.1.4.6 Accounting for Impoundment under the System Operation Permit*

Columns SO1 through SO23 give the accounting for impoundment under the System Operation Permit. This part of the Accounting Plan tracks storage emptied under the System Operation Permit and the storage of water under the System Operation Permit. When water is impounded under the System Operation Permit, this part of the Accounting Plan tracks storage of pulse flows and the release of stored pulse flows from storage. Accounting for impoundment under the System Operation Permit is the same for all reservoirs, and the columns are as follows:

Column	Label	Units	Daily Description
SO1	Other Use Under SysOps	acre-feet	Flows diverted under SysOps
SO2	End-of-Day Actual Empty Storage	acre-feet	Empty conservation storage
SO3	End-of-Day Storage Emptied by SysOps	acre-feet	Storage emptied by diversions under SysOps. Calculated in column [SO11].
SO4	End-of-Day Storage without SysOps	acre-feet	What storage would have been without SysOps diversions. Calculated as the storage emptied by SysOps plus current storage.
SO5	End-of-Day Actual Surface Area	acres	Actual surface area, as calculated in Column [F7]
SO6	End-of-Day Surface Area without SysOps	acres	Surface area if there were no SysOps diversions. Uses customer INTERPOLATE worksheet function on area-capacity-elevation tables in Reference spreadsheet.
SO7	Net Evaporation	feet	Net evaporation rate calculated in column [F6].
SO8	Actual Evaploss	acre-feet	Actual evaporative loss, as calculated in column [F8].

Column	Label	Units	Daily Description
SO9	Evaploss without SysOps	acre-feet	What the evaporation would have been if there were no SysOps diversions.
SO10	Change in Evaploss due to SysOps	acre-feet	Change in evaporation due to SysOps diversions.
SO11	End-of-Day Empty Storage due to SysOps	acre-feet	Storage emptied by SysOps diversions. Calculated as the minimum of the current empty storage and (the previous day's empty storage less the change in evaporative loss plus diversions under SysOps).
SO12	Non-Release Inflow	acre-feet	Total inflow into reservoir less upstream water supply releases. Portion of inflow potentially subject to instream flows if appropriated under SysOps.
SO13	Impounded Water	acre-feet	Amount impounded under the storage account for the existing permit. Assigned a value of zero if the net impoundment is negative.
SO14	Change in Storage Emptied by SysOps	acre-feet	Change in the amount of storage emptied by SysOps. Equal to the current day's empty storage due to SysOps less the prior day's empty storage due to SysOps.
SO15	Reservoir Outflow	acre-feet	Total outflow from reservoir. Repeated from Column F10.
SO16	Water Stored under SysOps	acre-feet	Water impounded under the system operation permit during the day. Equal to change in storage less change in evaporation due to SysOps with a minimum of zero.
SO17	Pulse Stored or Diverted under SysOps	acre-feet	Manual entry of amount of a pulse that has been stored or diverted under SysOps
SO18	Cumulative Pulse Storage under SysOps	acre-feet	Cumulative amount of pulse flow stored under SysOps. Equal to the current day pulse storage under SysOps plus the cumulative pulse storage under SysOps for the prior day minus Pulse passage (the amount of stored pulse flows released).
SO19	Pulse Passage	acre-feet	Manual entry of amount of a pulse that has been passed.
SO20	Cumulative Pulse Passage	acre-feet	Cumulative amount of flow passed in an ongoing pulse passage. The value in the column returns to zero if [SO20] is zero.
SO21	Impounding Under SysOps?	none	Indicates whether water is being impounded under SysOps. If col. [SO16] is greater than zero equal to TRUE. Otherwise FALSE.
SO22	Flows > Instream Flow Criteria?	none	For PK and Whitney, this refers to the downstream measurement point for the reservoir, which applies to passage of pulse flows. For other reservoirs, this is a repeat of column [I8]. TRUE if flows at the measurement point exceed the instream flow criteria.

Column	Label	Units	Daily Description
SO23	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

### H.1.5 Reach File Tables

The REACH tables track BRA reservoir releases as they travel through the reaches shown in Table H.1.1 above. The tables apply travel times and losses to flows as they travel downstream. Table H.1.2 above shows the travel times and losses applied in the Accounting Plan. The REACH tables also show diversions of reservoir releases and natural flows. At selected USGS stream gage locations, the BRA flows are compared to the actual historical flows. If the calculated flows are greater than the historical flows, the BRA flows are reduced.

The tracking of BRA flows and diversions is done on a daily or sub-daily (10<sup>th</sup> of a day) basis. Sub-daily calculations are done to facilitate the use of travel times that are less than one day. These calculations occur in the REACH tables.

Because of the lags associated with the travel times, data must be imported from the previous year's Accounting Plan. The reach tables each have 10 days from the previous year at the beginning of the daily data that are pasted by BRA staff in each REACH table.

The reconciliation with historical gage flows is done on a monthly basis. The travel times and losses are based on averages, so the historical timing and losses may be somewhat different, resulting in day-to-day discrepancies in flow volume. These small errors should cancel out on a monthly basis. If the monthly volume of BRA flows is greater than the monthly historical volume at the gage, the daily releases are multiplied by scaling factors so that the volume of the BRA flow is equal to the historical measured flow. These calculations occur in the READJ tables.

### *H.1.5.1 Table INTRO2 Introduction*

This table contains year information from the reference file and a table of contents for the Reach File.

### *H.1.5.2 Table REACH1 – Possum Kingdom to Palo Pinto*

Table REACH1 tracks flows from Possum Kingdom Dam to the Palo Pinto gage. BRA flow reconciliation occurs at the downstream gage.

Row 23 of the REACH1 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH1:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	TRUE when flows at the Palo Pinto gage are greater than the instream flow criteria. Daily values imported from Table IF2 in the Instream Flow File.
U1	Total Outflows	dsf	Total Outflows from Lake Possum Kingdom. Daily values imported from Table BASIC1 of reference file. Not used for subsequent calculations.
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases from Possum Kingdom. Daily values imported from Table BASIC1 of reference file. Daily values divided by 10 for use in the sub-daily calculations.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
R-A1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table BASIC1 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A3	Diversion of Upstream Water Supply Release	dsf	Diversion less local run-of-river flow [R-A4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-A5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses (([R-A2] - [R-A3])). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Equal to [R-A6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	PLOT2 - Brazos River nr Palo Pinto	dsf	Historical daily average flows measured at gage. Imported from Table DATA1 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A10] of Table READJ1.
G-A3	Adjusted Water Supply Releases at PLOT2	dsf	BRA Water Supply Releases from upstream reach (column [R-A6]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.

Column	Daily Label	Units	Description
G-A4	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

### H.1.5.3 Table READJ1 to READJ21

The READJ tables perform the adjustment calculations for situations when the monthly flow volume measured at the gage is less than the calculated BRA water supply releases. Calculations are performed on a monthly basis. The table calculates scale factors for the daily flow that are multiplied by the daily flow values in each month (a scale factor of 1.0 or 100% means no adjustment). There is no READJ17.

The following describes the columns in the READJ tables:

Column	Units	Label	Description
A1	none	Days	Number of days per month
A2	none	Month Number	Sequence number of month
A3	none	Month	Month of year
A4	acre-feet	BRA Water Supply Releases	Monthly BRA Water Supply Releases at gage. From monthly REACH table.
A5	acre-feet	BRA Total	Monthly Total BRA water at gage. From monthly REACH table.
A6	acre-feet	[Gage Name]	Monthly historical gage flows. From monthly REACH table.
A7	acre-feet	Discrepancy	Amount that total BRA water exceeds measured monthly flow. Maximum of [A5] - [A6] or zero. If positive, then BRA water is more than measured flow and will be adjusted. If zero no adjustment is needed. The adjustments occur when the measured flows at the gage are less than the total of the BRA flows and return flows. The assumption is that return flows have been diverted by other water rights within the reach, so return flows are reduced first.
A8	none	% Water Supply Releases	% of the total BRA water that is BRA Water Supply Releases. Column [A4] divided by [A5]
A9	acre-feet	Monthly Water Supply Adjustment	Monthly volume reduction needed so that the BRA Water Supply Releases match measured flows. Calculated as the difference between the Discrepancy (column [A8]) and the Monthly Return Flow Adjustment (column [A11]).
A11	acre-feet	Monthly Return Flow Adjustment	Monthly volume reduction needed so that the BRA Return Flows match the measured flows. The adjustments occur when the measured flows at the gage are less than the total of the BRA flows and return flows. The assumption is that return flows have been diverted by other water rights within the reach, so return flows are reduced first. Same as column [A7]

Column	Units	Label	Description
A12	none	% Remaining Water Supply	Percent of water supply remaining after accounting for discrepancy. If [A4] is not zero, equal to $1 - [A9] / [A4]$ . Otherwise zero. This number is multiplied by the daily flows.
A13	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

#### H.1.5.4 Table REACH2 – Palo Pinto to Lk Granbury Headwaters

Table REACH2 tracks flows from the Palo Pinto gage to the headwaters of Lake Granbury. BRA flow reconciliation occurs at the Dennis gage.

Row 23 of the REACH2 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH2:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name

Column	Daily Label	Units	Description
L3	Flow at Gage > IF Criteria?	none	If TRUE then flows at the Palo Pinto gage are greater than the instream flow criteria plus downstream diversions. Daily values imported from Table IF2 of the Instream Flow File.
U1	Total Outflows	dsf	Total flow at Palo Pinto gage. Daily values imported from Table REACH1. Not used for subsequent calculations.
U2	BRA Water Supply Releases	dsf	BRA Water Supply flows at Palo Pinto gage. Daily values imported from Table REACH1. Daily values divided by 10 for use in the sub-daily calculations.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
R-A1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A3	Diversion of Upstream Water Supply Release	dsf	Diversion less local run-of-river flow [R-A4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-A5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-A2] - [R-A3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-A6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	DNNT2 - Brazos River nr Dennis	dsf	Historical daily average flows measured at gage. Imported from Table REF4 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A10] of Table READJ2.
G-A3	Adjusted Water Supply Releases at DNNT2	dsf	BRA Water Supply Releases from upstream reach (column [R-A6]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.

Column	Daily Label	Units	Description
R-B1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-B3	Diversion of Upstream Water Supply Release	dsf	Diversion less local run-of-river flow [R-B4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-B4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-B5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses $([R-B2] - [R-B3])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-B6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B8	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

#### *H.1.5.5 Table REACH3 – Lake Granbury to Lake Whitney Headwaters*

Table REACH3 tracks flows from the Lake Granbury dam to the headwaters of Lake Whitney. BRA flow reconciliation occurs at the Glen Rose gage.

Row 23 of the REACH3 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for

each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH3:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flows at the Glen Rose gage are greater than the instream flow criteria. Daily values imported from Table IF3 of Instream Flow File.
U1	Total Outflows	dsf	Total Outflows from Lake Granbury. Daily values imported from Table BASIC2 of reference file. Not used for subsequent calculations.
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases from Lake Granbury. Daily values imported from Table BASIC2 of reference file. Daily values divided by 10 for use in the sub-daily calculations.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
R-A1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-A4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.

Column	Daily Label	Units	Description
R-A4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-A5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-A2] - [R-A3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-A6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	GLRT2 - Brazos River at Glen Rose	dsf	Historical daily average flows measured at gage. Imported from Table DATA1 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A10] of Table READJ3.
G-A3	Adjusted Water Supply Releases at GLRT2	dsf	BRA Water Supply Releases from upstream reach (column [R-A6]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.
G-A4	Flows > IF Criteria?	none	If TRUE then flows at the Glen Rose gage are greater than the instream flow criteria plus downstream diversions. Daily values imported from Table IF3 of Instream Flow File.
R-B1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-B3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-B4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-B4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-B5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.

Column	Daily Label	Units	Description
R-B6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-B2] - [R-B3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-B6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B8	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

#### *H.1.5.6 Table REACH4 – Lake Aquilla to Aquilla/Brazos Confluence*

Table REACH4 tracks flows from the Lake Aquilla dam to the confluence of Aquilla Creek and the Brazos River. BRA flow reconciliation occurs at the Aquilla Creek above Aquilla gage.

Row 23 of the REACH4 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH4:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flows at the Waco gage are greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF4 of the Instream Flow File.
U1	Total Outflows	dsf	Total Outflows from Lake Aquilla. Daily values imported from Table BASIC4 of reference file. Not used for subsequent calculations.
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases from Lake Aquilla. Daily values imported from Table BASIC4 of reference file. Daily values divided by 10 for use in the sub-daily calculations.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
R-A1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-A4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-A5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-A2] - [R-A3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-A6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	AQIT2 – Aquilla Creek above Aquilla	dsf	Historical daily average flows measured at gage. Imported from Table DATA1 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ4.

Column	Daily Label	Units	Description
G-A3	Adjusted Water Supply Releases at AQIT2	dsf	BRA Water Supply Releases from upstream reach (column [R-A6]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.
R-B1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-B3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-B4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-B4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-B5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ( $[R-B2] - [R-B3]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-B6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B8	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

#### *H.1.5.7 Table REACH5 – Lake Whitney to Aquilla/Brazos Confluence*

Table REACH5 tracks BRA flows from the Lake Whitney dam to the confluence of Aquilla Creek and the Brazos River. BRA flow reconciliation occurs at the Brazos River near Aquilla gage.

Row 23 of the REACH5 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for

the diversion within the reach is from the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH5:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flows at the Waco gage are greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF4 of the Instream Flow File.
U1	Total Outflows	dsf	Total Outflows from Lake Whitney. Daily values imported from Table BASIC3 of reference file. Not used for subsequent calculations.
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases from Lake Whitney. Daily values imported from Table BASIC3 of reference file. Daily values divided by 10 for use in the sub-daily calculations.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
R-A1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.

Column	Daily Label	Units	Description
R-A3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-A4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-A5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-A2] - [R-A3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-A6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	AQLT2 – Brazos River nr Aquilla	dsf	Historical daily average flows measured at gage. Imported from Table DATA1 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ5.
G-A3	Adjusted Water Supply Releases at AQLT2	dsf	BRA Water Supply Releases from upstream reach (column [R-A6]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.
R-B1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-B3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-B4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-B4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-B5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-B2] - [R-B3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.

Column	Daily Label	Units	Description
R-B7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-B6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B8	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

#### *H.1.5.8 Table REACH6 – Aquilla/Brazos Confluence to Little/Brazos Confluence*

Table REACH6 tracks BRA flows from the confluence of Aquilla Creek and the Brazos River to the confluence of the Brazos River and the Little River. BRA flow reconciliation occurs at the Brazos River near Highbank gage.

Row 23 of the REACH6 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH6:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flows at the Waco gage are greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF4 of the Instream Flow File.
U1	Total Outflows	dsf	Total flow at confluence. Not calculated so set to NA
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases at confluence. Sum of sub-daily values imported from Tables REACH4 and REACH5. Daily values and monthly values calculated by summing the sub-daily values.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
R-A1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-A4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-A5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-A2] - [R-A3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-A6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B0	Flows > Upstream IF Criteria?	none	TRUE if flows at the Waco gage are greater than the instream flow criteria plus diversions in the downstream reach. Imported from Table IF4 in the Instream Flow File.
R-B1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [R-A6]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [R-A6] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.

Column	Daily Label	Units	Description
R-B3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-B4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-B4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [R-B0] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-B5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-B2] - [R-B3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-B6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	HIBT2 – Brazos River nr Highbank	dsf	Historical daily average flows measured at gage. Imported from Table DATA1 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ6.
G-A3	Adjusted Water Supply Releases at HIBT2	dsf	BRA Water Supply Releases from upstream reach (column [R-B6]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.
G-A4	Flows > Downstream IF Criteria	None	TRUE if flows at the Bryan gage are greater than the instream flow criteria. Imported from Table IF8 of the Instream Flow File.
R-C1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-C2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-C3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-C4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-C4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [G-A4] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-C5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-C5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-C6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-C2] - [R-C3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-C7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-C6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.

Column	Daily Label	Units	Description
R-C8	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

### H.1.5.9 Table REACH7 – Lake Proctor to Hasse Gage

Table REACH7 tracks BRA flows from the Lake Proctor dam to the Leon River near Hasse gage. BRA flow reconciliation occurs at the Hasse gage.

Row 23 of the REACH7 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH7:

Column	Daily Label	Units	Description
L1	Index	none	Month number

Column	Daily Label	Units	Description
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flow at the Gatesville gage is greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF5 of the Instream Flow File.
U1	Total Outflows	dsf	Total Outflows from Lake Proctor. Daily values imported from Table BASIC5 of reference file. Not used for subsequent calculations.
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases from Lake Proctor. Daily values imported from Table BASIC5 of reference file. Daily values divided by 10 for use in the sub-daily calculations.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
R-A1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-A4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-A5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses (([R-A2] - [R-A3])). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-A6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	Leon R nr Hasse	dsf	Historical daily average flows measured at gage. Imported from Table REF4 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ7.
G-A3	Adjusted Water Supply Releases at Hasse	dsf	BRA Water Supply Releases from upstream reach (column [R-A6]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.

Column	Daily Label	Units	Description
G-A4	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

*H.1.5.10 Table REACH8 – Hasse Gage to Belton Headwaters*

Table REACH8 tracks flows from the Leon River near Hasse gage to the headwaters of Lake Belton. BRA flow reconciliation occurs at the Leon River near Gatesville gage.

Row 23 of the REACH8 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH8:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name

Column	Daily Label	Units	Description
L3	Flow at Gage > IF Criteria?	none	If TRUE then flow at the Gatesville gage is greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Tables COMP1 and IF5 of Instream Flow File.
U1	Total Outflows	dsf	Total flow at Hasse gage. Daily values imported from Table REACH7. Not used for subsequent calculations.
U2	BRA Water Supply Releases	dsf	BRA Water Supply flows at Hasse gage. Daily values imported from Table REACH7. Daily values divided by 10 for use in the sub-daily calculations.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
R-A1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-A4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-A5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-A2] - [R-A3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-A6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	Leon R nr Gatesville	dsf	Historical daily average flows measured at gage. Imported from Table DATA1 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ8.
G-A3	Adjusted Water Supply Releases at Gatesville	dsf	BRA Water Supply Releases from upstream reach (column [R-A6]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.

Column	Daily Label	Units	Description
G-A4	Flows > Downstream IF Criteria	none	TRUE if flows at the Gatesville gage, plus downstream reach diversions, are greater than the instream flow criteria. Imported from Table IF5 of the Instream Flow File.
R-B1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-B3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-B4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-B4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [G-A4] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-B5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses $([R-B2] - [R-B3])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-B6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B8	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

#### H.1.5.11 *Table REACH9 – Lake Belton to Little River Gage*

Table REACH9 tracks BRA flows from the Lake Belton dam to just upstream of the Little River near Little River gage. The Little River gage is just downstream of the confluence of the Leon and Lampasas Rivers. BRA flow reconciliation occurs at the Leon River near Belton gage.

Row 23 of the REACH9 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in

rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH9:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flow at the Little River nr Little River gage is greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF6 of the Instream Flow File
U1	Total Outflows	dsf	Total Outflows from Lake Belton. Daily values imported from Table BASIC6 of reference file. Not used for subsequent calculations.
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases from Lake Belton. Daily values imported from Table BASIC6 of reference file. Daily values divided by 10 for use in the sub-daily calculations.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
R-A1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.

Column	Daily Label	Units	Description
R-A3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-A4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-A5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-A2] - [R-A3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-A6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	BLET2 – Leon nr Belton Gage	dsf	Historical daily average flows measured at gage. Imported from Table DATA1 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ9.
G-A3	Adjusted Water Supply Releases at BLET2	dsf	BRA Water Supply Releases from upstream reach (column [R-A6]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.
R-B1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-B3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-B4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-B4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-B5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-B2] - [R-B3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-B6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.

Column	Daily Label	Units	Description
R-B8	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

*H.1.5.12 Table REACH10 – Lake Stillhouse Hollow to Little River Gage*

Table REACH10 tracks BRA flows from the Lake Stillhouse Hollow dam to just upstream of the Little River near Little River gage. The Little River gage is just downstream of the confluence of the Leon and Lampasas Rivers. BRA flow reconciliation occurs at the Lampasas River near Belton gage.

Row 23 of the REACH10 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH10:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flow at the Little River nr Little River gage is greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF6 of the Instream Flow File.
U1	Total Outflows	dsf	Total Outflows from Lake Stillhouse Hollow. Daily values imported from Table BASIC7 of reference file. Not used for subsequent calculations.
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases from Lake Stillhouse Hollow. Daily values imported from Table BASIC7 of reference file. Daily values divided by 10 for use in the sub-daily calculations.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
R-A1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-A4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-A5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-A2] - [R-A3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-A6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	Lampasas River nr Belton	dsf	Historical daily average flows measured at gage. Imported from Table DATA1 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ10.
G-A3	Adjusted Water Supply Releases at Lampasas Gage	dsf	BRA Water Supply Releases from upstream reach (column [R-A6]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.

Column	Daily Label	Units	Description
R-B1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-B3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-B4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-B4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-B5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses $([R-B2] - [R-B3])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-B6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B8	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

### H.1.5.13 Table REACH11 – Little River Gage to Little/San Gabriel Confluence

Table REACH11 tracks flows from just above the Little River near Little River gage to the confluence of the Little and San Gabriel Rivers. The Little River near Little River gage is just downstream of the confluence of the Leon and Lampasas Rivers, which then become the Little River. BRA flow reconciliation occurs at the Little River near Little River gage.

Row 23 of the REACH11 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in

rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH11:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flow at the Cameron gage is greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF7 of Instream Flow File.
U1	Total Outflows	dsf	Not calculated. Set to NA.
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases just above gage. Sum of sub-daily values imported from Tables REACH9 and REACH10. Daily values and monthly values calculated by summing the sub-daily values.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
U4	BRA total at LRIT	dsf	Total BRA flow just above gage. Sum of columns [U2] and [U3].
G-A1	LRIT2 – Little River at Little River	dsf	Historical daily average flows measured at gage. Imported from Table REF4 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ11.

Column	Daily Label	Units	Description
G-A3	Adjusted Water Supply Releases at LRIT	dsf	BRA Water Supply Releases from upstream reach (column [U2]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.
R-A1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-A4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-A5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses $([R-A2] - [R-A3])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-A6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A8	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

#### H.1.5.14 Table REACH12 – Lake Georgetown to Granger Headwaters

Table REACH12 tracks BRA flows from the Lake Georgetown dam to the Lake Granger headwaters. BRA flow reconciliation occurs at the North Fork of the San Gabriel near Georgetown gage.

Row 23 of the REACH13 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in

rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH12:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flow at the Cameron gage is greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF7 and COMP1 of the Instream Flow File.
U1	Total Outflows	dsf	Total Outflows from Lake Georgetown. Daily values imported from Table BASIC8 of reference file. Not used for subsequent calculations.
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases from Lake Georgetown. Daily values imported from Table BASIC8 of reference file. Daily values divided by 10 for use in the sub-daily calculations.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
R-A1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.

Column	Daily Label	Units	Description
R-A3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-A4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-A5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-A2] - [R-A3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-A6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	GERT2 – N Fk San Gabriel nr Georgetown	dsf	Historical daily average flows measured at gage. Imported from Table DATA1 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ12.
G-A3	Adjusted Water Supply Releases at N Fork	dsf	BRA Water Supply Releases from upstream reach (column [R-A6]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.
R-B1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-B3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-B4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-B4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-B5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-B2] - [R-B3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-B6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.

Column	Daily Label	Units	Description
R-B8	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

*H.1.5.15 Table REACH13 – Lake Granger to San Gabriel/Little Confluence*

Table REACH13 tracks BRA flows from the Lake Granger dam to the confluence of the San Gabriel and Little Rivers. BRA flow reconciliation occurs at the San Gabriel at Laneport gage.

Row 23 of the REACH13 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH13:

Column	Daily Label	Units	Description
L1	Index	none	Month number

Column	Daily Label	Units	Description
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flow at the Cameron gage is greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF7 of the Instream Flow File.
U1	Total Outflows	dsf	Total Outflows from Lake Granger. Daily values imported from Table BASIC9 of reference file. Not used for subsequent calculations.
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases from Lake Granger. Daily values imported from Table BASIC9 of reference file. Daily values divided by 10 for use in the sub-daily calculations.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
R-A1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-A4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-A5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-A2] - [R-A3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-A6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	GERT2 –San Gabriel at Laneport	dsf	Historical daily average flows measured at gage. Imported from Table DATA1 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ13.
G-A3	Adjusted Water Supply Releases at Laneport	dsf	BRA Water Supply Releases from upstream reach (column [R-A6]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.
R-B1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.

Column	Daily Label	Units	Description
R-B2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-B3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-B4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-B4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-B5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-B2] - [R-B3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-B6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B8	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

*H.1.5.16 Table REACH14 – San Gabriel/Little Confluence to Little/Brazos Confluence*

Table REACH14 tracks BRA flows from the confluence of the San Gabriel and Little Rivers to the confluence of the Little River and the Brazos River. BRA flow reconciliation occurs at the Little River near Cameron gage. The Alcoa diversion is included in column [R-A1].

Row 23 of the REACH14 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are

aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH14:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flow at the Cameron gage is greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF7 of the Instream Flow File.
U1	Total Outflows	dsf	Total flow at confluence. Not calculated so set to NA
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases at confluence. Sum of sub-daily values imported from Tables REACH11 and REACH13. Daily values and monthly values calculated by summing the sub-daily values.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
R-A1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-A4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.

Column	Daily Label	Units	Description
R-A4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-A5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-A2] - [R-A3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-A6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B1	Alcoa to Cameron Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B2	Alcoa Water Supply Release at Cameron	dsf	Upstream BRA Water Supply releases (column [R-A6]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [R-A6] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-B3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-B4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-B4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-B5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B6	Remaining Water Supply Releases at Cameron	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-B2] - [R-B3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B7	BRA Total at Cameron	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-B6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	CMNT2 – Little River nr Cameron	dsf	Historical daily average flows measured at gage. Imported from Table DATA1 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A10] of Table READJ14.
G-A3	Adjusted Water Supply Releases at Cameron	dsf	BRA Water Supply Releases from upstream reach (column [R-B6]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.
G-A4	Flows > Downstream IF Criteria	none	TRUE if flows at the Cameron gage, plus downstream reach diversions, are greater than the instream flow criteria. Imported from Table IF7 of the Instream Flow File.

Column	Daily Label	Units	Description
R-C1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-C2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-C3	Diversions of Upstream Water Supply Release	dsf	Diversions less diverted local run-of-river flow [R-C4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-C4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [G-A4] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-C5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-C5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-C6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses $([R-C2] - [R-C3])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-C7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-C6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-C8	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

#### *H.1.5.17 Table REACH15 – Little/Brazos Confluence to Brazos/Yegua Confluence*

Table REACH15 tracks BRA flows from the confluence of the Little River and the Brazos River to the confluence of the Brazos River and Yegua Creek. BRA flow reconciliation occurs at the Brazos River at State Highway 21 near Bryan gage. This gage is very near the former Brazos River near Bryan gage.

Row 23 of the REACH15 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from the System Operation Permit. These flags are

associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH15:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria? (SH 21)	none	If TRUE then flow at the Bryan gage is greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF8 of the Instream Flow File.
U1	Total Outflows	dsf	Total flow at confluence. Not calculated so set to NA
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases at confluence. Sum of sub-daily values imported from Tables REACH6 and REACH14. Daily values and monthly values calculated by summing the sub-daily values.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
R-A1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-A4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.

Column	Daily Label	Units	Description
R-A4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-A5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-A2] - [R-A3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-A6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	BBZT2 – Brazos River at SH 21 nr Bryan	dsf	Historical daily average flows measured at gage. Imported from Table REF4 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ15.
G-A3	Adjusted Water Supply Releases at BBZT	dsf	BRA Water Supply Releases from upstream reach (column [R-A6]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.
G-A4	Flows > IF Criteria? (Hempstead)	none	TRUE if flows at the Hempstead gage, are greater than the instream flow criteria. Imported from Table IF10 of the Instream Flow File.
R-B1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-B3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-B4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-B4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [G-A4] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-B5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-B2] - [R-B3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.

Column	Daily Label	Units	Description
R-B7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-B6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B8	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

*H.1.5.18 Table REACH16 – Lake Somerville to Yegua/Brazos Confluence*

Table REACH16 tracks BRA flows from the Lake Somerville dam to the confluence of the Yegua Creek and the Brazos River. BRA flow reconciliation occurs at the Yegua Creek near Somerville gage.

Row 23 of the REACH16 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH16:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flow at the Hempstead gage is greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF10 of the Instream Flow File.
U1	Total Outflows	dsf	Total Outflows from Lake Somerville. Daily values imported from Table BASIC10 of reference file. Not used for subsequent calculations.
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases from Lake Somerville. Daily values imported from Table BASIC10 of reference file. Daily values divided by 10 for use in the sub-daily calculations.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
R-A1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-A4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-A5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses (([R-A2] - [R-A3])). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-A6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	Yegua Creek nr Somerville	dsf	Historical daily average flows measured at gage. Imported from Table DATA1 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ16.
G-A3	Adjusted Water Supply Releases at YCSO	dsf	BRA Water Supply Releases from upstream reach (column [R-A6]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.

Column	Daily Label	Units	Description
R-B1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-B3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-B4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-B4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-B5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-B2] - [R-B3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-B6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B8	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

#### *H.1.5.19 Table REACH17 – Yegua/Brazos Confluence to Navasota/Brazos Confluence*

Table REACH17 tracks BRA flows from the confluence of the Yegua Creek and the Brazos River to the confluence of the Navasota and Brazos Rivers. There is no gage in the reach.

Row 23 of the REACH17 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from the System Operation Permit. These flags are

associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH17:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flow at the Hempstead gage is greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF10 of the Instream Flow File.
U1	Total Outflows	dsf	Total flow at confluence. Not calculated so set to NA
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases at confluence. Sum of sub-daily values imported from Tables REACH15 and REACH16. Daily values and monthly values calculated by summing the sub-daily values.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
R-A1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-A4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.

Column	Daily Label	Units	Description
R-A4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-A5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-A2] - [R-A3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-A6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A8	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

#### *H.1.5.20 Table REACH18 – Lake Limestone to Navasota/Brazos Confluence*

Table REACH18 tracks BRA flows from the Lake Limestone dam to the confluence of the Navasota and Brazos Rivers. BRA flow reconciliation occurs at the Navasota River near Easterly gage.

Row 23 of the REACH18 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically

exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH18:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flow at the Easterly gage is greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF9 of the Instream Flow File.
U1	Total Outflows	dsf	Total Outflows from Lake Limestone. Daily values imported from Table BASIC11 of reference file. Not used for subsequent calculations.
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases from Lake Limestone. Daily values imported from Table BASIC11 of reference file. Daily values divided by 10 for use in the sub-daily calculations.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
R-A1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-A4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-A5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-A2] - [R-A3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-A6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.

Column	Daily Label	Units	Description
G-A1	EAST2 – Navasota R nr Easterly	dsf	Historical daily average flows measured at gage. Imported from Table DATA1 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ18.
G-A3	Adjusted Water Supply Releases at EAST	dsf	BRA Water Supply Releases from upstream reach (column [R-A6]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.
G-A4	Flows > Downstream IF Criteria	none	If TRUE then flows at the Easterly gage are greater than the instream flow criteria plus downstream reach diversions. Imported from Table IF9 of the instream flow file.
R-B1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-B3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-B4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-B4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [G-A6] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-B5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-B2] - [R-B3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-B6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B8	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

*H.1.5.21 Table REACH19 – Navasota/Brazos Confluence to Hempstead*

Table REACH19 tracks BRA flows from the confluence of the Navasota River and the Brazos River to the Hempstead gage. BRA flow reconciliation occurs at the Brazos River near Hempstead gage.

Row 23 of the REACH19 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH19:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flow at the Hempstead gage is greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF10 of the Instream Flow File.
U1	Total Outflows	dsf	Total flow at confluence. Not calculated so set to NA
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases at confluence. Sum of sub-daily values imported from Tables REACH17 and REACH18. Daily values and monthly values calculated by summing the sub-daily values.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.

Column	Daily Label	Units	Description
R-A1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-A4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-A5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses $([R-A2] - [R-A3])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-A6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	HPDT2 – Brazos River nr Hempstead	dsf	Historical daily average flows measured at gage. Imported from Table REF4 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ19.
G-A3	Adjusted Water Supply Releases at HPDT	dsf	BRA Water Supply Releases from upstream reach (column [R-A6]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.
G-A4	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

### H.1.5.22 Table REACH20 – Hempstead to Richmond

Table REACH20 tracks flows from just below the Hempstead gage to the Richmond gage. BRA flow reconciliation occurs at the Richmond gage.

Row 23 of the REACH20 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This

value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH20:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flow at the Richmond gage is greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF11 of Instream Flow File.
U1	Total Outflows	dsf	Total flow at Hempstead gage. Daily values imported from Table REACH19. Not used for subsequent calculations.
U2	BRA Water Supply Releases	dsf	BRA Water Supply flows at Hempstead gage. Daily values imported from Table REACH19. Daily values divided by 10 for use in the sub-daily calculations.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
R-A1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.

Column	Daily Label	Units	Description
R-A3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-A4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-A5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-A2] - [R-A3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-A6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B1	Canal A Diversions	dsf	Diversions at GCWA Canal A. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B2	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-B3]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-B3	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-B4]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B4	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B5	Remaining Water Supply Releases after Diversions	dsf	Remaining BRA Water Supply Release after diversion ([R-A6] - [R-B2]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B6	BRA Total after Diversions	dsf	Total BRA water at end of reach after diversion. Same as column [R-B5]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-C1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-C2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [R-B5]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [R-B5] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-C3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-C4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.

Column	Daily Label	Units	Description
R-C4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-C5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-C5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-C6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-C2] - [R-C3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-C7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-C6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-D1	NRG Diversions	dsf	Diversions at NRG/Richmond Irrigation diversion point. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-D2	Diversion under Excess Flows	dsf	NRG diversions using the Excess Flows Permit (COA 12-5166). Entered here by BRA staff.
R-D3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-D4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-D4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-D5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-D5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-D6	Remaining Water Supply Releases after Diversions	dsf	Remaining BRA Water Supply Release after diversion ([R-C6] - [R-D3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-D7	BRA Total after Diversions	dsf	Total BRA water at end of reach after diversion. Same as column [R-D6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	RMOT2 – Brazos River at Richmond	dsf	Historical daily average flows measured at gage. Imported from Table DATA1 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A10] of Table READJ20.
G-A3	Adjusted Water Supply Releases at RMOT	dsf	BRA Water Supply Releases from upstream reach (column [R-D6]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.

Column	Daily Label	Units	Description
G-A4	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

#### H.1.5.23 Table REACH21 – Richmond to Dow

Table REACH21 tracks flows from just below the Richmond gage to Dow Chemical’s diversion for Brazoria Reservoir, the lowest BRA delivery point. BRA flow reconciliation occurs at the Rosharon gage.

Row 23 of the REACH21 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH21:

Column	Daily Label	Units	Description
L1	Index	none	Month number

Column	Daily Label	Units	Description
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flow at the Rosharon gage is greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF12 of Instream Flow File.
U1	Total Outflows	dsf	Total flow at Richmond gage. Daily values imported from Table REACH20. Not used for subsequent calculations.
U2	BRA Water Supply Releases	dsf	BRA Water Supply flows at Richmond gage. Daily values imported from Table REACH20. Daily values divided by 10 for use in the sub-daily calculations.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
R-A1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-A4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-A5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-A2] - [R-A3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-A6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B1	GCWA Briscoe Diversions	dsf	Diversions at GCWA's Briscoe diversion point. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B2	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-B3]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-B3	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-B4]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.

Column	Daily Label	Units	Description
R-B4	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B5	Remaining Water Supply Releases after Diversions	dsf	Remaining BRA Water Supply Release after diversion ( $[R-A6] - [R-B2]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B6	BRA Total after Diversions	dsf	Total BRA water at end of reach after diversion. Same as column [R-B5]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-C1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-C2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [R-B5]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [R-B5] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-C3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-C4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-C4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-C5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-C5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-C6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ( $[R-C2] - [R-C3]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-C7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-C6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-D1	GCWA Juliff Diversions	dsf	Diversions at GCWA's Juliff diversion point. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-D2	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-D3]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-D3	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-D4]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-D4	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-D5	Remaining Water Supply Releases after Diversions	dsf	Remaining BRA Water Supply Release after diversion ( $[R-C6] - [R-D2]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.

Column	Daily Label	Units	Description
R-D6	BRA Total after Diversions	dsf	Total BRA water at end of reach after diversion. Same as column [R-D5]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values
G-A1	ROST2 – Brazos River nr Rosharon	dsf	Historical daily average flows measured at gage. Imported from Table DATA1 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A10] of Table READJ21.
G-A3	Adjusted Water Supply Releases at RMOT	dsf	BRA Water Supply Releases from upstream reach (column [R-D5]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.
G-A4	Flows > downstream IF Criteria	none	If TRUE then flow at the Rosharon gage plus downstream diversions is greater than the instream flow criteria. Imported from Table IF12 of the Instream Flow File.
R-E1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-E2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-E3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-E4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-E4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [G-A4] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-E5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-E5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-E6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-E2] - [R-E3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-E7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-E6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-F1	Harris Diversions	dsf	Diversions at Dow's diversion for Harris Reservoir. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-F2	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-F3]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-F3	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [G-A4] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-F4]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.

Column	Daily Label	Units	Description
R-F4	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-F5	Remaining Water Supply Releases after Diversions	dsf	Remaining BRA Water Supply Release after diversion $([R-E6] - [R-F2])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-F6	BRA Total after Diversions	dsf	Total BRA water at end of reach after diversion. Same as column [R-F5]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values
R-G1	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-G2	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [R-F5]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [R-F5] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-G3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-G4]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-G4	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [G-A4] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-G5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-G5	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-G6	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses $([R-G2] - [R-G3])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-G7	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses. Same as column [R-G6]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-H1	Brazoria Diversions	dsf	Diversions at Dow's diversion for Brazoria Reservoir. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-H2	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted local run-of-river flow [R-H3]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-H3	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [G-A4] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Calculation may be overridden by a non-negative entry in column [R-H4]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-H4	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-H5	Remaining Water Supply Releases after Diversions	dsf	Remaining BRA Water Supply Release after diversion $([R-G6] - [R-H2])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.

Column	Daily Label	Units	Description
R-H6	BRA Total after Diversions	dsf	Total BRA water at end of reach after diversion. Same as column [R-H5]. Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values
R-H7	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

### H.1.6 Instream Flow File Tables

The Instream Flow file compares historical gage flows to the environmental flow criteria in the WMP. The file determines climatic conditions (Wet, Average and Dry), identifies base flow and pulse flow days, compares base flows to the interim base flow conditions, and identifies and counts qualifying high flow pulses (HFPS). The instream flow calculations output a series of daily flows that represent the minimum environmental flow criteria on any given day. Diversions under the System Operation Permit should not affect these minimum flows. Based on these criteria, the instream flow calculations create logical flags for each instream flow measurement point that show whether or not flows are above the criteria. These flags are passed on to the reach and Reservoir Files. Table SUM14 in the summary file summarize achievement of the environmental flow criteria.

#### H.1.6.1 Table INTRO3 Introduction

This table contains year information from the reference file and a table of contents for the Instream Flow File.

#### H.1.6.2 Table CARRY1 Carry-Over Data

Table CARRY1 contains data that has been copied over from the previous year's Accounting Plan. These data set initial conditions for instream flow calculations. CARRY1 also has a table of data that can be copied to next year's Accounting Plan. The column numbers and labels reference the columns in the IF tables of the Instream

Flow File. Data at the top is from the previous year’s plan and is directly linked to the appropriate IF table. Data at the bottom is from this year’s plan, imported from the December 31 row of each IF table. (The December 31 row varies depending on whether it is a leap year.)

*H.1.6.3 Table COND1 Climatic Conditions Calculations*

Table COND1 calculates the climatic condition based on the Palmer Hydrological Drought Indices (PHDI) at the beginning of each season. PHDI values are imported from the reference file and are weighted in accordance with TCEQ rules to determine the current climatic condition for the Upper, Middle and Lower Brazos Basins. Daily flags identifying climatic condition are assigned to each day of the year for use in other calculations.

Since seasons do not follow a calendar year, the climatic condition for the months of January and February must be imported from the previous year’s Accounting Plan.

Columns [PD1] through [PD10] contain the seasonal climatic condition calculations. Columns [C1] through [C8] distribute the seasonal calculations by month and by day of the year.

The following is a description of the columns in Table COND1:

Column	Units	Column Label	Description
PD1		Season	Winter (from previous year), Spring, Summer, or Winter (current year).
PD2	none	Upper Basin PHDI	Calculated seasonal PHDI for the Upper Basin. Product of PHDI regional data from Reference file table DATA3 and regional weighting factors from Table DATA2_IF Data.
PD3	none	Middle Basin PHDI	Calculated seasonal PHDI for the Middle Basin. Product of PHDI regional data from Reference file table DATA3 and regional weighting factors from Table DATA2_IF Data.
PD4	none	Lower Basin PHDI	Calculated seasonal PHDI for the Lower Basin. Product of PHDI regional data from Reference file table DATA3 and regional weighting factors from Table DATA2_IF Data.
PD5	none	Upper Basin Climatic Condition	Code for current Upper Basin climatic condition, based on data in Table DATA2_IF Data.

Column	Units	Column Label	Description
PD6	none	Middle Basin Climatic Condition	Code for current Middle Basin climatic condition, based on data in Table DATA2_IF Data.
PD7	none	Lower Basin Climatic Condition	Code for current Lower Basin climatic condition, based on data in Table DATA2_IF Data.
PD8	none	Upper Basin Climatic Condition	Current Upper Basin climatic condition (Wet, Average, or Dry), based on data in Table DATA2_IF Data.
PD9	none	Middle Basin Climatic Condition	Current Middle Basin climatic condition (Wet, Average, or Dry), based on data in Table DATA2_IF Data.
PD10	none	Lower Basin Climatic Condition	Current Lower Basin climatic condition (Wet, Average, or Dry), based on data in Table DATA2_IF Data.

The following table distributes the seasonal codes calculated above to the individual month or day for later reference.

Column	Units	Column Label	Description
C1	none	Month Number	Month sequence number
C2	none	Start of Month or Data	First day of month (monthly data) or date (daily data)
C3	none	Upper Basin Climatic Condition Code	Code for current climatic condition (1 = Dry, 2 = Average, 3 = Wet) from previous table
C4	none	Upper Basin Climatic Condition	Current climatic condition (Dry, Average, or Wet) from previous table
C5	none	Middle Basin Climatic Condition Code	Code for current climatic condition (1 = Dry, 2 = Average, 3 = Wet) from previous table
C6	none	Middle Basin Climatic Condition	Current climatic condition (Dry, Average, or Wet) from previous table
C7	none	Lower Basin Climatic Condition Code	Code for current climatic condition (1 = Dry, 2 = Average, 3 = Wet) from previous table
C8	none	Lower Basin Climatic Condition	Current climatic condition (Dry, Average, or Wet) from previous table

#### *H.1.6.4 Chart FLOWC1 through FLOWC12*

These charts show the historical flow for the year at the twelve measurement points. There are two charts of the same data, one with a decimal scale for the flow axis and one with a logarithmic scale for the flow axis. BRA staff may adjust the minima and maxima of these axes as appropriate. Flow data are imported from column [M7] of the IF files. For measurement points with only one type of pulse, red dots indicate days that are classified as HFPs (based on column [M20] of the IF files being TRUE) and green dots indicate base flows (based on column [M20] of the IF files being FALSE). Measurement points with large and small pulses have an x for each large pulse day, based on column [M44] being TRUE. The seasonal subsistence flow criteria (column [M8], base flow criteria (column [M9]), small or single pulse flow trigger level (column

[M12]) and , if applicable, large pulse flow trigger level (column [M36]) are shown on the charts for reference.

#### *H.1.6.5 Tables IF1 through IF12 – Instream Flow Calculations*

Tables IF1 through IF12 take historical flow data at the twelve measurement points and classify each day as either a base flow day or a HFP day. The spreadsheet groups HFP days into pulse events and identifies events that meet either the duration or and volume criteria. The spreadsheet counts the number of these events in a season. The IF tables generate flags which are TRUE when streamflows are greater than the instream flow criteria, as well as flags that identify when instream flow criteria have been fully met.

The calculations in the IF table occur on a daily basis. Monthly summaries are provided at the top of the table. These summaries are primarily for the convenience of BRA staff.

BRA staff will monitor these calculations closely. Because of the wide variation found in flow data, all automated methods used to separate flows into base flows and pulse flows occasionally produce less than desirable results. For example, reservoir releases often do not mimic natural pulse events, and are sometimes cyclical (for example hydropower releases or releases made for weekend recreation). For gages that are dominated by releases from reservoirs, the criteria used to identify a HFP do not always result in a reasonable flow classification. To deal with these occasions, the Accounting Plan allows BRA staff to override the classification of a day as a HFP or a base flow in column [M21] for single pulses or small pulses or [M45] for large pulses (if applicable). It is also difficult to automate the separation of HFP events that do not have a full day below the pulse flow trigger level between the events. To simplify the calculations, columns [M22] and [M46] of the spreadsheet allows BRA staff to manually separate longer pulse flow events. The separation should occur when a new HFP occurs in response to a new rainfall event.

The following describes the monthly columns in the IF tables for measurement points with one pulse (South Bend, Waco, Gatesville, Little River, Cameron, Bryan, Easterly, Hempstead, Richmond and Rosharon):

Column	Units	Monthly Column Label	Description
M1	none	Month	Month sequence number.
M2	none	Days/Month	Number of days during the current month.
M3	none	Season	Name of season (Winter, Spring, or Summer). Winter months for the season beginning the previous year are labeled "Winter (previous)". Uses the month in column [M1] to find the corresponding row in column [S3] of Table DATA2_IF DATA.
M4	none	Season Code 2	Winter = 1, Spring = 2, Summer = 3. Uses the month in column [M1] to find the corresponding row in column [S5] of Table DATA2_IF DATA.
M5	none	Climatic Condition Code – (Upper or Lower) Basin	Dry = 1, Average = 2, Wet = 3. Imported from column [C3] or [C7] of Table COND1, depending on whether the gage is in the Upper, Middle or Lower Basin, respectively.
M6	none	Climatic Condition – (Upper or Lower) Basin	Dry, Average or Wet. Imported from column [C4] or [C8] of Table COND1, depending on whether the gage is in the Upper, Middle or Lower Basin, respectively.
M7	cfs	Average Flow	Monthly average of the historical flow from the daily portion of column [M7]. Averages the flows where column [M1] of the daily data matches the current month.
M8	cfs	Subsistence Flow Criteria	Subsistence Flow Criteria. Imported from row 7 of [I2], [I3] or [I4] of the associated CRI table.
M9	cfs	Base Flow Criteria	Base flow criteria for the current season and climatic condition. Imported from columns [I2], [I3] or [I4] of the associated CRI table.
M10	cfs	Base Criteria Series (Average)	Monthly average of the daily Base Criteria Series in daily column [M8] of this table. Averages the flows where column [M1] of the daily data matches the current month.
M11	none	Number of Days Meeting Base Series Criteria	Number of days in each month where base flow criteria met. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].
M12	cfs	Pulse Flow Trigger Criteria	This month's pulse flow trigger level for the current season and climatic condition. Imported from columns [K2], [K3] or [K4] of the associated CRI table. If there are no pulse flow criteria for the season, set to #N/A.
M13	days	Pulse Flow Duration Criteria	This month's pulse flow duration criteria for the current season and climatic condition. Imported from columns [D2], [D3] or [D4] of the associated CRI table. If there are no pulse flow duration criteria for the season, set to #N/A.
M14	ac-ft	Pulse Flow Volume Criteria	This month's pulse flow volume criteria for the current season and climatic condition. Imported from columns [P2], [P3] or [P4] of the associated CRI table. If there are no pulse volume criteria for the season, set to #N/A.
M15	none	Number of Pulses Criteria	The number of pulses for the current season and climatic condition. Imported from columns [C2], [C3] or [C4] of the associated CRI table. If there are no pulse criteria for the season, set to #N/A.
M16	days	Number of Days Flow > Pulse Trigger	Number of days that flows are above the pulse flow trigger criteria in column [M12]. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].
M17	days	Number of Initiate Pulse Days	Number of times in the current month that a new pulse was initiated. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].
M18	days	Number of Stop Pulse Days	Number of times in the current month that a pulse event met either the volume or duration criteria. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].
M19	days	Number of Calculated Pulse Days	Counts the number of times that the calculations defined a qualifying pulse event in the current month. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].

Column	Units	Monthly Column Label	Description
M20	days	Total Number of Pulse Days	Counts the total number of pulse events in the current month. Includes manual overrides from column [M21]. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].
M21	none	Count of B or P Override	Count of the number of times classification has been modified each month in daily column [M21].
M22	none	Count of Manual Counter Adjustment	Count of the number of times a manual adjustment has occurred during the current month in the daily column [M22].
M23	days	End of Month Pulse Counter	Shows how many pulses have occurred so far in the current month. Based on the end-of-month value in daily column [M23].
M24	days	Cumulative Days in Pulse	Count of the number of days that are identified as a pulse, based on the daily values in column [M24].
M25	days	Pulse Duration	Sum of the maximum number of days in a pulse event in the current month. Based on the end-of-event duration in daily column [M25] and having the end-of-pulse flag in daily column [M29] set to TRUE.
M26	dsf	Cumulative Volume	Total pulse volume in the current month in day-second-feet (dsf). Based on the end-of-pulse cumulative volume as defined in daily columns [M26] and [M29].
M27	acre-feet	Cumulative Volume	Same as column [M26] but converted to acre-feet.
M28	acre-feet	Event Volume	Total pulse volume in the current month based on the daily event volume in daily column [M28] and the end-of-event flag in daily column [M29].
M29	none	Count of End of Pulse	Number of times the end-of-pulse flag has been set in the current month.
M30	dsf	Average Flow	Average monthly gage flow. Repeat of column [M7].
M31	none	Count of Pulse Days	Count of the number of days the P flag is set in each month.
M32	none	Count of Qualifying Volume	Count of the number of times a pulse meets the volume criteria in the current month.
M33	none	Count of Meets Duration	Count of the number of times a pulse meets the duration criteria in the current month.
M34	none	Count of Qualifying Pulses	Count of the number of qualifying pulse events (meets either duration or volume criteria)
M35	none	Number of Pulses Current Season	Number of seasonal pulses as of the current month.
M36	none	Number of Pulses Criteria	Number of required pulses. Repeat of column [M15].
M37	days	Number of Days Base Criteria Met	Number of days the base flow criteria series is met or exceeded in the current month.
M38	days	Number of Days Pulse Target Met	Number of days that the number of pulse flow events has been met or exceeded in the current month.
M39	days	Number of Days IF Criteria Met	Number of days both the base flow and number of pulse flow events have been met in the current month.
M40	cfs	Average Base and Pulse Criteria Series	Monthly average of the daily base and pulse flow criteria series in daily column [M40].
M41	cfs	Average Base Only Criteria Series	Monthly average of the base flow criteria only, based on the daily flows in column [M41].
M42	cfs	20% of Pulse Trigger Criteria	20% of the pulse flow trigger level, based on current season and climatic conditions.
M43	cfs	Average Upstream Reach Diversion Rate	Average monthly diversion rate for BRA contract diversions in the reach upstream of the current measurement point.
M44	cfs	Average Downstream Reach Diversion Rates	Average monthly diversion rate for BRA contract diversions in the reach downstream of the current measurement point. Applicable only if the current measurement point is applied to downstream diversions.
M45	none	Flow > Criteria Series in Month	TRUE if the flow is greater than the instream flow criteria series at any time during the current month.
M46	none	Flow > Criteria Series + Downstream Reach Diversions in Month	TRUE if the flow is greater than the instream flow criteria series, plus the applicable downstream diversions, during the current month.
M47	none	Flow > Base & Pulse Criteria Series in Month	TRUE if the flow is greater than the base and pulse criteria series at any time during the month.

The South Bend gage applies to diversions in Possum Kingdom. So Table IF1 includes the following:

Column	Units	Monthly Column Label	Description
M48	cfs	Average PK Diversion Rates	Average monthly diversion rate for lakeside diversions and downstream water supply releases made from Possum Kingdom.
M49	none	Flow > Base & Pulse Criteria + PK Diversions in Month	TRUE if the flow is greater than the base and pulse criteria, plus the PK diversions, at any time during the current month.

The following describes the daily columns at the measurement locations with one pulse level:

Column	Units	Daily Column Label	Description
M1	none	Month	Month sequence number.
M2	none	Date	Current date.
M3	none	Season	Name of season (Winter, Spring, or Summer). Winter months for the season beginning the previous year are labeled "Winter (previous)". Uses the month in column [M1] to find the corresponding row in column [S3] of Table DATA2_IF DATA.
M4	none	Season Code 2	Winter = 1, Spring = 2, Summer = 3. Uses the month in column [M1] to find the corresponding row in column [S5] of Table DATA2_IF DATA.
M5	none	Climatic Condition Code – (Upper or Lower) Basin	Dry = 1, Average = 2, Wet = 3. Imported from column [C3] or [C7] of daily Table COND1, depending on whether the gage is in the Upper, Middle or Lower Basin, respectively.
M6	none	Climatic Condition – (Upper or Lower) Basin	Dry, Average or Wet. Imported from column [C4] or [C8] of daily Table COND1, depending on whether the gage is in the Upper, Middle or Lower Basin, respectively.
M7	cfs	[Gage Name]	Daily average gage flows for the current year. Read from Table DATA1 in the Reference spreadsheet.
M8	cfs	Subsistence Flow Criteria	Subsistence Flow Criteria. Imported from row 7 of [I2], [I3] or [I4] of the associated CRI table.
M9	cfs	Base Flow Criteria	Base flow criteria for the current season and climatic condition. Imported from columns [I2], [I3] or [I4] of the associated CRI table.
M10	cfs	Base Criteria Series	Series of flows that define the minimum base flow environmental flow criteria, which vary by season, climatic condition and in some cases measured flow. If in Dry conditions and flows are below the Subsistence criteria, then the Subsistence criteria apply. If in Dry conditions and flows are between Subsistence and the Dry Base criteria, then the criteria are the Subsistence criteria plus 50% of the difference between the current measured streamflow and the Subsistence criteria. If in Dry conditions and flows are above the Dry criteria, then the Dry criteria apply. If in Average or Wet conditions, then the appropriate Average or Wet criteria apply. Subsistence, Dry, Average and Wet criteria are imported from columns [I2], [I3] and [I4] of the associated CRI table.
M11	none	Meets Base Criteria?	TURE is the flow in daily column [M7] is greater than the Base Criteria Series in column [M10]. FALSE otherwise.
M12	cfs	Pulse Flow Trigger Criteria	Current pulse flow trigger level for the current season and climatic condition. Imported from columns [K2], [K3] or [K4] of the associated CRI table. If there are no pulse flow criteria for the season, set to #N/A.
M13	days	Pulse Flow Duration Criteria	Current pulse flow duration criteria for the current season and climatic condition. Imported from columns [D2], [D3] or [D4] of the associated CRI table. If there are no pulse flow duration criteria for the season, set to #N/A.
M14	ac-ft	Pulse Flow Volume Criteria	Current pulse flow volume criteria for the current season and climatic condition. Imported from columns [P2], [P3] or [P4] of the associated CRI table. If there are no pulse volume criteria for the season, set to #N/A.

Column	Units	Daily Column Label	Description
M15	none	Number of Pulses Criteria	The number of pulses for the current season and climatic condition. Imported from columns [C2], [C3] or [C4] of the associated CRI table. If there are no pulse criteria for the season, set to #N/A.
M16	none	Flow > Pulse Trigger?	TRUE if flows in column [M7] are above the Pulse Flow Trigger criteria in column [M12]. FALSE otherwise. If there are no pulse criteria for the season (column [M12] is #N/A), set to FALSE.
M17	none	Initiate Pulse?	TRUE if today the flow is above the pulse flow trigger level (today's value for column [M16] is TRUE) and yesterday the flow was below the pulse flow trigger level (yesterday's value for column [M16] is FALSE). Otherwise FALSE.
M18	none	Stop Pulse?	TRUE if a pulse has qualified (met either volume or duration criteria) on the previous day. Checks if the cumulative days in pulse (column [M24]) are greater than or equal to the duration criteria (column [M13]) or the cumulative volume (column [M27]) is greater than or equal to the volume criteria (column [M14]). If there are no pulse criteria for the current season (column [M12] is #N/A) then set to FALSE. Otherwise FALSE.
M19	none	Is Pulse?	TRUE for every day that the calculations define as a qualifying pulse. TRUE if today is the first day above the pulse flow trigger level (column [M17] is TRUE), or yesterday this column was TRUE and the pulse flow criteria have not been met previously (column [M18] is FALSE). Otherwise FALSE.
M20	none	Is Pulse Day	TRUE if the calculations have identified today as a pulse day (column [M19] is TRUE) or the manual override in the next column has been set to a pulse (column [M21] is equal to "P") Set to FALSE if the manual override in the next column is set to base (column [M21] is equal to "B"), or if there are no pulse criteria for the season (column [M12] is #N/A). Otherwise FALSE.
M21	none	B or P Override	Manual override of Base or Pulse calculation. Entering a "B" forces the day to be a base flow day. Entering a "P" forces today to be a pulse flow day. If initiating a new pulse, the Manual Counter Adjustment in column [M22] may need to be set to 1 to increment the Pulse Counter in column [M23].
M22	none	Manual Counter Adjustment	A numerical entry in this column is added to the Pulse Counter in column [M23]. Used with B or P override in column [M21], or when a new distinct pulse is initiated the day after a preceding pulse qualifies.
M23	days	Pulse Counter	Assigns a number to each pulse, beginning with 1 for the first pulse of the year. TRUE if today is the first day of a pulse ([M19] is TRUE today and FALSE yesterday). Can be manually incremented or decremented in column [M22].
M24	days	Cumulative Days in Pulse	Increments by 1 for each day in a pulse. Set to 1 if [M22] is greater than zero. Set to zero during base flow days.
M25	days	Pulse Duration	Finds the maximum number of days in the current pulse event. Uses an Excel array formula that multiplies logical values (which are actually 0 or 1) that are TRUE for the current event by the Cumulative Days in the pulse in column [M24] and then finds the maximum.
M26	dsf	Cumulative Volume	Cumulative volume to date in current pulse event in dsf. Adds the flow in column [M7] to yesterday's volume during a pulse event.
M27	acre-feet	Cumulative Volume	Same as column [M26] but converted to acre-feet.
M28	acre-feet	Event Volume	Finds the maximum volume in the pulse event. Uses an Excel array formula that multiplies logical values (which are actually 0 or 1) that are TRUE for the current event by the Cumulative Volume in the pulse (column [M27]) and then finds the maximum.
M29	none	End of Pulse?	Last day of a qualifying pulse event. TRUE if cumulative number of days (column [M24]) is equal to the duration of the event (column [M25]). Takes into account both calculated and manual override to define the last day of a qualifying pulse event.
M30	cfs	Gage Name	Repeat of historical flows from column [M7].
M31	none	Base Flow or Pulse	If today is a pulse day (column [M20] is TRUE), set to "P". If today is a base flow or subsistence day, set to "B" (column [M20] is FALSE).

Column	Units	Daily Column Label	Description
M32	none	Qualifying Volume	Set to "Q" if the volume to date in a pulse is greater than or equal to the volume criteria (column [M20] is TRUE and column [M27] is greater than or equal to column [M14]). Otherwise set to "P" if today is a pulse day (only column [M20] is TRUE) or "B" if today is a base flow day (column [M20] is FALSE).
M33	none	Meets Duration?	Set to "Q" if the number of days to date in a pulse is greater than or equal to the duration criteria (column [M20] is TRUE and column [M24] is greater than or equal to column [M13]). Otherwise set to "P" if today is a pulse day (only column [M20] is TRUE) or "B" if today is a base flow day (column [M20] is FALSE).
M34	none	Qualifying Pulse?	TRUE if either the duration or volume criteria have been met for a pulse event (columns [M32] or [M33] is equal to "Q").
M35	none	Number of Pulses Current Season	Increments by 1 for each qualifying pulse in each season. On the first day of a season (column [M4] today is not equal to yesterday), sets the initial condition to zero. Otherwise, the initial condition is the number of pulses so far in the season from the previous day. Incremented by 1 if today is the first day of a qualifying pulse (column [M34] is TRUE today and FALSE yesterday). Otherwise value is not incremented.
M36	none	Number of Pulses Criteria	Number of required pulses. Identical to column [M15], except that if there are no pulse criteria for the season it is set to 0.
M37	none	Base Criteria Met?	TRUE if base or subsistence flow criteria met. Repeat of column [M11].
M38	none	Pulse Target Met?	TRUE if number of pulses per season has been met (column [M35] is greater than or equal to [M36]). Also TRUE if there are no pulse criteria for the season. Otherwise FALSE.
M39	none	IF Criteria Met?	TRUE if base flow criteria are met for the day and there has been the required number of pulse flows in the season (both [M37] and [M38] are TRUE). Otherwise FALSE.
M40	cfs	Base and Pulse Criteria Series	Defines an average daily flow series based on the currently applicable base and pulse criteria. Uses a user-defined function <i>setcriteria</i> to select the applicable flow level. This sets the value based on the following: <ul style="list-style-type: none"> <li>• If today is a base flow day (column [M20] is FALSE), then the value is set to the current base flow criteria in column [M10].</li> <li>• If today is a pulse day (column [M20] is TRUE) and the pulse flow frequency has not been met for the season (column [M38] is FALSE), then the value is set to the current pulse flow trigger level (column [M12]).</li> <li>• If today is a pulse day (column [M20] is TRUE, and either today is the first day that the seasonal pulse frequency has been met, or today is the beginning of a new season, then the value is set to the current pulse flow trigger level (column [M12]).</li> <li>• If today is a pulse day (column [M20] is TRUE) and either the seasonal pulse frequency has not been met or today is the first day of a new season, then the value is set to the current pulse flow trigger level (column [M12]).</li> <li>• If today is a pulse day (column [M20] is TRUE) and either the seasonal criteria has been met on the previous day or today is the first day of a new season (this can occur when there are no seasonal pulse criteria), the value is set to the base flow criteria.</li> <li>• Other combinations are unsupported and return an error message.</li> </ul>
M41	cfs	Base Only Criteria Series	Repeat of column [M10].
M42	cfs	20% of Pulse Trigger Criteria	20% of the pulse flow trigger level, based on current season and climatic conditions.
M43	cfs	Upstream Reach Diversion Rates	Total daily diversion rates for BRA contract diversions in the reach upstream of the current measurement point.
M44	cfs	Downstream Reach Diversion Rates	Total daily diversion rates for BRA contract diversions in the reach downstream of the current measurement point. Applicable only if the current measurement point is applied to downstream diversions.

Column	Units	Daily Column Label	Description
M45	cfs	Flow > Criteria Series	TRUE if the flow (column [M30]) is greater than the applicable instream flow criteria series. The applicable instream flow series depends on the diversion rate. If the diversion rate is greater than 20% of the pulse criteria (column [M42]) then the base only criteria in column [M41] apply. Otherwise, the base and pulse criteria in column [M40] apply. Used for run-of-the-river diversions in the applicable reach above the measurement point.
M46	cfs	Flow > Criteria Series + Downstream Reach Diversions	TRUE if the flow (column [M30]) is greater than the applicable instream flow criteria series, plus the applicable downstream diversions in column [M44]. The applicable instream flow series depends on the diversion rate. If the diversion rate is greater than 20% of the pulse criteria (column [M42]) then the base only criteria in column [M41] apply. Otherwise, the base and pulse criteria in column [M40] apply. Used for run-of-the-river diversions in the applicable reach below the measurement point (if any).
M47	cfs	Flow > Base & Pulse Criteria Series	TRUE if the flow (column [M30]) is greater than the base and pulse criteria series in column [M40]. Used for reservoir diversion and storage under the System Operation Permit.
M48	none	Comments	Place to record comments about base or pulse overrides, or any other observations about this year's calculations.

The South Bend gage applies to diversions in Possum Kingdom. So Table IF1 includes the following:

Column	Units	Daily Column Label	Description
M48	cfs	PK Diversions	Daily diversions and downstream water supply releases from Possum Kingdom. Imported from Table BASIC1 in the reference file.
M49	none	Flow > Base & Pulse Criteria + PK Diversions	TRUE if today's flow in column [M30] is greater than the base and pulse criteria in column [M40] plus the PK diversions in column [M48].

The Palo Pinto and Glen Rose gages have small and large pulses. The monthly table for these two gages includes the following columns:

Column	Units	Monthly Column Label	Description
M1	none	Month	Month sequence number.
M2	none	Days/Month	Number of days during the current month.
M3	none	Season	Name of season (Winter, Spring, or Summer). Winter months for the season beginning the previous year are labeled "Winter (previous)". Uses the month in column [M1] to find the corresponding row in column [S3] of Table DATA2_IF DATA.
M4	none	Season Code 2	Winter = 1, Spring = 2, Summer = 3. Uses the month in column [M1] to find the corresponding row in column [S5] of Table DATA2_IF DATA.
M5	none	Climatic Condition Code - Middle Basin	Dry = 1, Average = 2, Wet = 3. Imported from column [C5] of daily Table COND1.
M6	none	Climatic Condition - Middle Basin	Dry, Average or Wet. Imported from column [C6] of daily Table COND1.
M7	cfs	Average Flow	Monthly average of the historical flow from the daily portion of column [M7]. Averages the flows where column [M1] of the daily data matches the current month.
M8	cfs	Subsistence Flow Criteria	Subsistence Flow Criteria. Imported from row 7 of [I2], [I3] or [I4] of the associated CRI table.
M9	cfs	Base Flow Criteria	Base flow criteria for the current season and climatic condition. Imported from columns [I2], [I3] or [I4] of the associated CRI table.
M10	cfs	Base Criteria Series (Average)	Monthly average of the daily Base Criteria Series in daily column [M8] of this table. Averages the flows where column [M1] of the daily data matches the current month.

Column	Units	Monthly Column Label	Description
M11	none	Number of Days Meeting Base Series Criteria	Number of days in each month where base flow criteria met. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].
M12	cfs	Small Pulse Flow Trigger Criteria	Current small pulse flow trigger level for the current season and climatic condition. Imported from columns [K2], [K3] or [K4] of the associated CRI table. If there are no pulse flow criteria for the season, set to #N/A.
M13	days	Small Pulse Flow Duration Criteria	Current small pulse flow duration criteria for the current season and climatic condition. Imported from columns [D2], [D3] or [D4] of the associated CRI table. If there are no pulse flow duration criteria for the season, set to #N/A.
M14	ac-ft	Small Pulse Flow Volume Criteria	Current small pulse flow volume criteria for the current season and climatic condition. Imported from columns [P2], [P3] or [P4] of the associated CRI table. If there are no pulse volume criteria for the season, set to #N/A.
M15	none	Number of Small Pulses Criteria	The number of small pulses for the current season and climatic condition. Imported from columns [C2], [C3] or [C4] of the associated CRI table. If there are no pulse criteria for the season, set to #N/A.
M16	none	Number of Days Flow > Pulse Trigger	Number of days that flows are above the small pulse flow trigger criteria in column [M12]. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].
M17	none	Number of Initiate Pulse Days	Number of times in the current month that a new small pulse was initiated. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].
M18	none	Number of Stop Pulse Days	Number of times in the current month that a small pulse event met either the volume or duration criteria. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].
M19	none	Number of Calculated Small Pulse Days	Counts the number of times that the calculations defined a qualifying small pulse event in the current month. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].
M20	none	Total Number of Small Pulse Days	Counts the total number of pulse events in the current month. Includes manual overrides from column [M21]. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].
M21	none	Count of B or P Override	Count of the number of times small pulse classification has been modified each month in daily column [M21].
M22	none	Count of Manual Counter Adjustment	Count of the number of times a manual adjustment to small pulses has occurred during the current month in the daily column [M22].
M23	days	End of Month Small Pulse Counter	Shows how many small pulses have occurred so far in the current month. Based on the end-of-month value in daily column [M23]
M24	days	Cumulative Days in Small Pulse	Count of the number of days that are identified as a pulse, based on the daily values in column [M24].
M25	days	Small Pulse Duration	Sum of the maximum number of days in a small pulse event in the current month. Based on the end-of-event duration in daily column [M25] and having the end-of-pulse flag in daily column [M29] set to TRUE.
M26	dsf	Cumulative Small Pulse Volume	Total pulse volume in the current month in day-second-feet (dsf). Based on the end-of-pulse cumulative volume as defined in daily columns [M26] and [M29].
M27	acre-feet	Cumulative Small Pulse Volume	Same as column [M26] but converted to acre-feet.
M28	acre-feet	Small Pulse Event Volume	Total small pulse volume in the current month based on the daily event volume in daily column [M28] and the end-of-event flag in daily column [M29].
M29	none	End of Small Pulse?	Number of times the end-of-pulse flag has been set in the current month.
M30	cfs	Average Flow	Average monthly gage flow. Repeat of column [M7].
M31	none	Count of Pulse Days	Count of the number of days the P flag is set in each month.
M32	none	Count of Qualifying Volume	Count of the number of times a pulse meets the volume criteria in the current month.

Column	Units	Monthly Column Label	Description
M33	none	Count of Meets Duration	Count of the number of times a pulse meets the duration criteria in the current month.
M34	none	Count of Qualifying Pulses	Count of the number of qualifying pulse events (meets either duration or volume criteria)
M35	none	Number of Small Pulses Current Season	Number of seasonal small pulses as of the current month.
M36	cfs	Large Pulse Flow Trigger Criteria	This month's large pulse flow trigger level for the current season and climatic condition. Imported from columns [K6], [K7] or [K8] of the associated CRI table. If there are no pulse criteria for the season, set to #N/A.
M37	days	Large Pulse Flow Duration Criteria	This month's large pulse flow duration criteria for the current season and climatic condition. Imported from columns [D6], [D7] or [D8] of the associated CRI table. If there are no pulse criteria for the season, set to #N/A.
M38	ac-ft	Large Pulse Flow Volume Criteria	This month's large pulse flow volume criteria for the current season and climatic condition. Imported from columns [P6], [P7] or [P8] of the associated CRI table. If there are no pulse criteria for the season, set to #N/A.
M39	none	Number of Large Pulses Criteria	The number of large pulses for the current season and climatic condition. Imported from columns [C6], [C7] or [C8] of the associated CRI table. If there are no pulse criteria for the season, set to #N/A.
M40	none	Number of Days Flow > Pulse Trigger	Number of days that flows are above the large pulse flow trigger criteria in column [M36]. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].
M41	none	Number of Initiate Pulse Days	Number of times in the current month that a new large pulse was initiated. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].
M42	none	Number of Stop Pulse Days	Number of times in the current month that a pulse event met either the volume or duration criteria. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].
M43	none	Number of Calculated Large Pulse Days	Counts the number of times that the calculations defined a qualifying large pulse event in the current month. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].
M44	none	Total Number of Large Pulse Days	Counts the total number of large pulse events in the current month. Includes manual overrides from column [M45]. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].
M45	none	Count of B or P Override	Count of the number of times classification has been modified each month in daily column [M45].
M46	none	Count of Manual Counter Adjustment	Count of the number of times a manual adjustment has occurred during the current month in the daily column [M22].
M47	days	Previous Small Pulse Days	Monthly sum of the number of small pulse days that has occurred immediately before initiation of the current large pulse.
M48	dsf	Previous Small Pulse Volume	Monthly sum of the small pulse volume that has occurred immediately before initiation of the current large pulse.
M49	none	Count of Use Small Pulse Buildup	Counts the number of times in a month that the values in columns [M47] and [M48] have been added to a large pulse.
M50	days	End of Month Large Pulse Counter	Shows how many large pulses have occurred so far in the current month. Based on the end-of-month value in daily column [M50].
M51	days	Cumulative Days in Large Pulse	Count of the number of days that are identified as a pulse, based on the daily values in column [M51].
M52	days	Large Pulse Duration	Sum of the maximum number of days in a large pulse event in the current month. Based on the end-of-event duration in daily column [M52] and having the end-of-pulse flag in daily column [M56] set to TRUE.
M53	dsf	Cumulative Large Pulse Volume	Total large pulse volume in the current month in day-second-feet (dsf). Based on the end-of-pulse cumulative volume as defined in daily columns [M53] and [M56].
M54	acre-feet	Cumulative Large Pulse Volume	Same as column [M53] but converted to acre-feet.
M55	acre-feet	Large Pulse Event Volume	Total large pulse volume in the current month based on the daily event volume in daily column [M55] and the end-of-event flag in daily column [M56].

Column	Units	Monthly Column Label	Description
M56	none	End of Large Pulse?	Number of times the end-of-pulse flag has been set in the current month.
M57	cfs	Average Flow	Average monthly gage flow. Repeat of column [M7].
M58	none	Count of Pulse Days	Count of the number of days the P flag is set in each month for a large pulse.
M59	none	Count of Qualifying Volume	Count of the number of times a large pulse meets the volume criteria in the current month.
M60	none	Count of Meets Duration	Count of the number of times a large pulse meets the duration criteria in the current month
M61	none	Count of Qualifying Pulses	Count of the number of qualifying large pulse events (meets either duration or volume criteria)
M62	none	Number of Large Pulses Current Season	Number of seasonal large pulses as of the current month.
M63	none	Number of Small Pulses Current Season	Repeat of column [M35]
M64	none	Count of Pulse Days	Count of the number of days that were either a large or small pulse in the current month.
M65	none	Number of Small Pulses Criteria	Number of required small pulses. Identical to column [M15], except that if there are no pulse criteria for the season it is set to 0.
M66	none	Number of Large Pulses Criteria	Number of required large pulses. Identical to column [M39], except that if there are no pulse criteria for the season it is set to 0.
M67	none	Number of Days Base Criteria Met	Number of days the base flow criteria series is exceeded in the current month.
M68	none	Number of Days Small Pulse Target Met	Number of days that the number of small pulse flow events has been met/exceeded in the current month.
M69	none	Number of Days Large Pulse Target Met	Number of days that the number of large pulse flow events has been met/exceeded in the current month.
M70	none	Number of Days IF Criteria Met	Number of days both the base flow and number of large and small pulse flow events have both been met in the current month.
M71	cfs	Average Based and Pulse Criteria Series	Monthly average of the daily base and pulse flow criteria series in daily column [M71].
M72	cfs	Average Base Only Criteria Series	Monthly average of the base flow criteria only, based on the daily flows in column [M72].
M73	cfs	20% of Pulse Trigger Criteria	Monthly average of 20% of the daily pulse flow trigger level, based on current season, climatic conditions, and achievement of large pulse frequency.
M74	cfs	Average Upstream Reach Diversion Rate	Average monthly diversion rate for BRA contract diversions in the reach upstream of the current measurement point.
M75	cfs	Average Downstream Reach Diversion Rates	Average monthly diversion rate for BRA contract diversions in the reach downstream of the current measurement point. Applicable only if the current measurement point is applied to downstream diversions.
M76	cfs	Flow > Criteria Series in Month	TRUE if the flow is greater than the instream flow criteria series at any time during the current month.
M77	cfs	Flow > Criteria Series + Downstream Reach Diversions in Month	TRUE if the flow is greater than the instream flow criteria series, plus the applicable downstream diversions, during the current month.
M78	cfs	Flow > Base & Pulse Criteria Series in Month	TRUE if the flow is greater than the base and pulse criteria series at any time during the month.

The Glen Rose measurement point includes two additional columns to account for downstream diversions at Lake Whitney:

Column	Units	Monthly Column Label	Description
M48	cfs	Average Lake Whitney Diversion Rates	Average monthly diversion rate for lakeside diversions and downstream water supply releases made from Lake Whitney.
M49	none	Flow > Base & Pulse Criteria + Reservoir Diversions in Month	TRUE if the flow is greater than the base and pulse criteria, plus the Lake Whitney diversions, at any time during the current month.

The daily columns for Palo Pinto and Glen Rose are:

Column	Units	Daily Column Label	Description
M1	none	Month	Month sequence number.
M2	none	Date	Current date.
M3	none	Season	Name of season (Winter, Spring, or Summer). Winter months for the season beginning the previous year are labeled "Winter (previous)". Uses the month in column [M1] to find the corresponding row in column [S3] of Table DATA2_IF DATA.
M4	none	Season Code 2	Winter = 1, Spring = 2, Summer = 3. Uses the month in column [M1] to find the corresponding row in column [S5] of Table DATA2_IF DATA.
M5	none	Climatic Condition Code – (Upper, Middle or Lower) Basin	Dry = 1, Average = 2, Wet = 3. Imported from column [C3], [C5] or [C7] of daily Table COND1, depending on whether the gage is in the Upper, Middle or Lower Basin, respectively.
M6	none	Climatic Condition - Middle Basin	Dry, Average or Wet. Imported from column [C4], [C6] or [C8] of daily Table COND1, depending on whether the gage is in the Upper, Middle or Lower Basin, respectively.
M7	cfs	[Gage name]	Daily average gage flows for the current year. Read from Table DATA1 in the Reference spreadsheet.
M8	cfs	Subsistence Flow Criteria	Subsistence Flow Criteria. Imported from row 7 of [I2], [I3] or [I4] of the associated CRI table.
M9	cfs	Base Flow Criteria	Base flow criteria for the current season and climatic condition. Imported from columns [I2], [I3] or [I4] of the associated CRI table.
M10	cfs	Base Criteria Series	Series of flows that define the minimum base flow environmental flow criteria, which vary by season, climatic condition and in some cases measured flow. If in Dry conditions and flows are below the Subsistence criteria, then the Subsistence criteria apply. If in Dry conditions and flows are between Subsistence and the Dry Base criteria, then the criteria are the Subsistence criteria plus 50% of the difference between the current measured streamflow and the Subsistence criteria. If in Dry conditions and flows are above the Dry criteria, then the Dry criteria apply. If in Average or Wet conditions, then the appropriate Average or Wet criteria apply. Subsistence, Dry, Average and Wet criteria are imported from columns [I2], [I3] and [I4] of the associated CRI table.
M11	none	Meets Base Criteria?	TRUE is the flow in daily column [M7] is greater than the Base Criteria Series in column [M10]. FALSE otherwise.
M12	cfs	Small Pulse Flow Trigger Criteria	Current small pulse flow trigger level for the current season and climatic condition. Imported from columns [K2], [K3] or [K4] of the associated CRI table. If there are no pulse criteria for the season, set to #N/A.
M13	days	Small Pulse Flow Duration Criteria	Current small pulse flow duration criteria for the current season and climatic condition. Imported from columns [D2], [D3] or [D4] of the associated CRI table. If there are no pulse flow duration criteria for the season, set to #N/A.
M14	ac-ft	Small Pulse Flow Volume Criteria	Current small pulse flow volume criteria for the current season and climatic condition. Imported from columns [P2], [P3] or [P4] of the associated CRI table. If there are no pulse volume criteria for the season, set to #N/A.
M15	none	Number of Small Pulses Criteria	The number of small pulses for the current season and climatic condition. Imported from columns [C2], [C3] or [C4] of the associated CRI table. If there are no pulse criteria for the season, set to #N/A.
M16	none	Flow > Small Pulse Trigger?	TRUE if flows in column [M7] are above the Small Pulse Flow Trigger criteria in column [M12]. FALSE otherwise. If there are no pulse criteria for the season (column [M12] is #N/A), set to FALSE.
M17	none	Initiate Small Pulse?	TRUE if today the flow is above the small pulse flow trigger level (today's value for column [M16] is TRUE) and yesterday the flow was below the small pulse flow trigger level (yesterday's value for column [M16] is FALSE). Otherwise FALSE.
M18	none	Stop Small Pulse?	TRUE if a small pulse has qualified (met either volume or duration criteria) on the previous day. Checks if the cumulative days in pulse (column [M24]) are greater than or equal to the duration criteria (column [M13]) or the cumulative volume (column [M27]) is greater than or equal to the volume criteria (column [M14]). If there are no small pulse criteria for the current season (column [M12] is #N/A) then set to FALSE. Otherwise FALSE.

Column	Units	Daily Column Label	Description
M19	none	Is Small Pulse?	TRUE for every day that the calculations define as a qualifying small pulse. TRUE if today is the first day above the small pulse flow trigger level (column [M17] is TRUE), or yesterday's this column was TRUE and the small pulse flow criteria have not been met previously (column [M18] is FALSE). Otherwise FALSE.
M20	none	Is Small Pulse Day?	TRUE if the calculations have identified today as a small pulse day (column [M19] is TRUE) or the manual override in the next column has been set to a pulse (column [M21] is equal to "P") Set to FALSE if the manual override in the next column is set to base (column [M21] is equal to "B"), or if there are no small pulse criteria for the season (column [M12] is #N/A). Otherwise FALSE.
M21	none	B or P Override	Manual override of Base or Pulse calculation. Entering a "B" forces the day to be a base flow day. Entering a "P" forces today to be a small pulse flow day. If initiating a new small pulse, the Manual Counter Adjustment in column [M22] may need to be set to 1 to increment the Small Pulse Counter in column [M23].
M22	none	Manual Counter Adjustment	A numerical entry in this column is added to the Small Pulse Counter in column [M23]. Used with B or P override in column [M21], when a new distinct pulse is initiated the day after a preceding pulse qualifies, or when there are conflicts between small and large pulse calculations.
M23	days	Small Pulse Counter	Assigns a number to each small pulse, beginning with 1 for the first pulse of the year. TRUE if today is the first day of a small pulse ([M19] is TRUE today and FALSE yesterday). Can be manually incremented or decremented in column [M22].
M24	days	Cumulative Days in Small Pulse	Increments by 1 for each day in a small pulse. Set to 1 if [M22] is greater than zero. Set to zero during base flow days.
M25	days	Small Pulse Duration	Finds the maximum number of days in the current small pulse event. Uses an Excel array formula that multiplies logical values (which are actually 0 or 1) that are TRUE for the current event by the Cumulative Days in the pulse in column [M24] and then finds the maximum.
M26	dsf	Cumulative Small Pulse Volume	Cumulative volume to date in current small pulse event in dsf. Adds the flow in column [M7] to yesterday's volume during a pulse event.
M27	acre-feet	Cumulative Small Pulse Volume	Same as column [M26] but converted to acre-feet.
M28	acre-feet	Small Pulse Event Volume	Finds the maximum volume in the small pulse event. Uses an Excel array formula that multiplies logical values (which are actually 0 or 1) that are TRUE for the current event by the Cumulative Volume in the pulse (column [M27]) and then finds the maximum.
M29	none	End of Small Pulse?	Last day of a qualifying small pulse event. TRUE if cumulative number of days (column [M24]) is equal to the duration of the event (column [M25]). Takes into account both calculated and manual override to define the last day of a qualifying pulse event.
M30	cfs	[Gage name]	Repeat of historical flows from column [M7].
M31	none	Base Flow or Pulse	If today is a small pulse day (column [M20] is TRUE), set to "P". If today is a base flow or subsistence day, set to "B" (column [M20] is FALSE).
M32	none	Qualifying Volume	Set to "Q" if the volume to date in a small pulse is greater than or equal to the small pulse volume criteria (column [M20] is TRUE and column [M27] is greater than or equal to column [M14]). Otherwise set to "P" if today is a pulse day (only column [M20] is TRUE) or "B" if today is a base flow day (column [M20] is FALSE).
M33	none	Meets Duration?	Set to "Q" if the number of days to date in a small pulse is greater than or equal to the small pulse duration criteria (column [M20] is TRUE and column [M24] is greater than or equal to column [M13]). Otherwise set to "P" if today is a small pulse day (only column [M20] is TRUE) or "B" if today is a base flow day (column [M20] is FALSE).
M34	none	Qualifying Pulse?	TRUE if either the duration or volume criteria have been met for a small pulse event (columns [M32] or [M33] is equal to "Q").

Column	Units	Daily Column Label	Description
M35	none	Number of Small Pulses Current Season	Increments by 1 for each qualifying small pulse in each season. On the first day of a season (column [M4] today is not equal to yesterday), sets the initial condition to zero. Otherwise, the initial condition is the number of small pulses so far in the season from the previous day. Incremented by 1 if today is the first day of a qualifying pulse (column [M34] is TRUE today and FALSE yesterday). Otherwise value is not incremented.
M36	cfs	Large Pulse Flow Trigger Criteria	Current large pulse flow trigger level for the current season and climatic condition. Imported from columns [K6], [K7] or [K8] of the associated CRI table. If there are no pulse criteria for the season, set to #N/A.
M37	days	Large Pulse Flow Duration Criteria	Current large pulse flow duration criteria for the current season and climatic condition. Imported from columns [D6], [D7] or [D8] of the associated CRI table. If there are no pulse criteria for the season, set to #N/A.
M38	ac-ft	Large Pulse Flow Volume Criteria	Current large pulse flow volume criteria for the current season and climatic condition. Imported from columns [P6], [P7] or [P8] of the associated CRI table. If there are no pulse criteria for the season, set to #N/A.
M39	none	Number of Large Pulses Criteria	The number of large pulses for the current season and climatic condition. Imported from columns [C6], [C7] or [C8] of the associated CRI table. If there are no pulse criteria for the season, set to #N/A.
M40	none	Flow > Large Pulse Trigger?	TRUE if flows in column [M7] are above the Large Pulse Flow Trigger criteria in column [M36]. FALSE otherwise. If there are no pulse criteria for the season (column [M36] is #N/A), set to FALSE.
M41	none	Initiate Large Pulse?	TRUE if today the flow is above the large pulse flow trigger level (today's value for column [M40] is TRUE) and yesterday the flow was below the large pulse flow trigger level (yesterday's value for column [M40] is FALSE). Otherwise FALSE.
M42	none	Stop Large Pulse?	TRUE if a large pulse has qualified (met either volume or duration criteria) on the previous day. Checks if the cumulative days in pulse (column [M51]) are greater than or equal to the duration criteria (column [M37]) or the cumulative volume (column [M53]) is greater than or equal to the volume criteria (column [M38]). If there are no large pulse criteria for the current season (column [M36] is #N/A) then set to FALSE. Otherwise FALSE.
M43	none	Is Large Pulse?	TRUE for every day that the calculations define as a qualifying large pulse. TRUE if today is the first day above the large pulse flow trigger level (column [M40] is TRUE), or yesterday this column was TRUE and the large pulse flow criteria have not been met previously (column [M42] is FALSE). Otherwise FALSE.
M44	none	Is Large Pulse Day	TRUE if the calculations have identified today as a large pulse day (column [M43] is TRUE) or the manual override in the next column has been set to a pulse (column [M45] is equal to "P") Set to FALSE if the manual override in the next column is set to base (column [M45] is equal to "B"), or if there are no large pulse criteria for the season (column [M36] is #N/A). Otherwise FALSE.
M45	none	B or P Override	Manual override of Base or Pulse calculation. Entering a "B" forces the day to be a base flow day. Entering a "P" forces today to be a large pulse flow day. If initiating a new large pulse, the Manual Counter Adjustment in column [M46] may need to be set to 1 to increment the Large Pulse Counter in column [M50].
M46	none	Manual Counter Adjustment	A numerical entry in this column is added to the Large Pulse Counter in column [M50]. Used with B or P override in column [M45], when a new distinct pulse is initiated the day after a preceding pulse qualifies, or when there are conflicts between large and large pulse calculations.
M47	days	Previous Small Pulse Days	If today is the first day of a large pulse (column [M41] is TRUE), the value is the cumulative number of small pulse days on the previous day (column [M24]). Otherwise set to zero. Used to account for any previous days in a small pulse that may count toward the duration of a large pulse.

Column	Units	Daily Column Label	Description
M48	dsf	Previous Small Pulse Volume	If today is the first day of a large pulse (column [M41] is TRUE), the value is the cumulative small pulse volume on the previous day (column [M26]). Otherwise set to zero. Used to account for any previous volume in a small pulse that may count toward the duration of a large pulse.
M49	none	Use Small Pulse Buildup	An entry of any kind in this column indicates that the values in columns [M47] and [M48] will be used as part of the large pulse calculation. The default is not to use any previous small pulse flows as part of the large pulse calculation.
M50	days	Large Pulse Counter	Assigns a number to each pulse, beginning with 1 for the first large pulse of the year. TRUE if today is the first day of a pulse ([M43] is TRUE today and FALSE yesterday). Can be manually incremented or decremented in column [M46].
M51	days	Cumulative Days in Large Pulse	Increments by 1 for each day in a large pulse. Set to 1 if M46 is greater than zero. If column [M49] has an entry of any kind, the number of previous small pulse days (column [M47] is added to this value. Set to zero during base flow days.
M52	days	Large Pulse Duration	Finds the maximum number of days in the current large pulse event (including days from a small event, if used). Uses an Excel array formula that multiplies logical values (which are actually 0 or 1) that are TRUE for the current event by the Cumulative Days in the pulse in column [M24] and then finds the maximum.
M53	dsf	Cumulative Large Pulse Volume	Cumulative volume to date in current large pulse event in dsf. Adds the flow in column [M7] to yesterday's volume during a large pulse event. If any value is entered in column [M49], the previous small pulse volume in column [M48] is added.
M54	acre-feet	Cumulative Large Pulse Volume	Same as column [M53] but converted to acre-feet.
M55	acre-feet	Large Pulse Event Volume	Finds the maximum volume in the large pulse event. Uses an Excel array formula that multiplies logical values (which are actually 0 or 1) that are TRUE for the current event by the Cumulative Volume in the pulse (column [M54]) and then finds the maximum. Includes any volume added from the preceding small pulse.
M56	none	End of Large Pulse?	Last day of a qualifying pulse event. TRUE if cumulative number of days (column [M51]) is equal to the duration of the event (column [M52]). Takes into account both calculated and manual override to define the last day of a qualifying pulse event.
M57	cfs	[Gage name]	Repeat of historical flows from column [M7].
M58	none	Base Flow or Pulse	If today is a large pulse day (column [M44] is TRUE), set to "P". If today is a base flow or subsistence day, set to "B" (column [M44] is FALSE).
M59	none	Qualifying Volume	Set to "Q" if the volume to date in a large pulse is greater than or equal to the large pulse volume criteria (column [M44] is TRUE and column [M54] is greater than or equal to column [M38]). Otherwise set to "P" if today is a large pulse day (only column [M44] is TRUE) or "B" if today is a base flow day (column [M44] is FALSE).
M60	none	Meets Duration?	Set to "Q" if the number of days to date in a large pulse is greater than or equal to the large pulse duration criteria (column [M44] is TRUE and column [M51] is greater than or equal to column [M37]). Otherwise set to "P" if today is a pulse day (only column [M44] is TRUE) or "B" if today is a base flow day (column [M44] is FALSE).
M61	none	Qualifying Pulse?	TRUE if either the duration or volume criteria have been met for a pulse event (columns [M59] or [M60] is equal to "Q").
M62	none	Number of Large Pulses Current Season	Increments by 1 for each qualifying large pulse in each season. On the first day of a season (column [M4] today is not equal to yesterday), sets the initial condition to zero. Otherwise, the initial condition is the number of pulses so far in the season from the previous day. Incremented by 1 if today is the first day of a qualifying pulse (column [M61] is TRUE today and FALSE yesterday). Otherwise value is not incremented.
M63	none	Number of Small Pulses Current Season	Repeat of column [M35]
M64	none	Is a Pulse	TRUE if today is either a small pulse day ([M20] is TRUE) or a large pulse day ([M44] is TRUE).

Column	Units	Daily Column Label	Description
M65	none	Number of Small Pulses Criteria	Number of required small pulses. Identical to column [M15], except that if there are no pulse criteria for the season it is set to 0.
M66	none	Number of Large Pulses Criteria	Number of required large pulses. Identical to column [M39], except that if there are no pulse criteria for the season it is set to 0.
M67	none	Base Criteria Met?	TRUE if base or subsistence flow criteria met. Repeat of column [M11].
M68	none	Small Pulse Target Met?	TRUE if number of small pulses per season has been met (column [M35] is greater than or equal to [M65]). Also TRUE if there are no small pulse criteria for the season. Otherwise FALSE.
M69	none	Large Pulse Target Met?	TRUE if number of large pulses per season has been met (column [M62] is greater than or equal to [M66]). Also TRUE if there are no large pulse criteria for the season. Otherwise FALSE.
M70	none	IF Criteria Met?	TRUE if base flow criteria are met for the day and there has been the required number of small and large pulse flows in the season ([M67], [M68] and [M69] are all TRUE). Otherwise FALSE.
M71	cfs	Base and Pulse Criteria Series	<p>Defines an average daily flow series based on the currently applicable base and pulse criteria. Uses a user-defined function <i>setcriteria</i> to select the applicable flow level. If today is a large pulse day (column [M44] is TRUE), the large pulse criteria are used. Otherwise, small pulse criteria are used.</p> <p>The function sets the value based on the following:</p> <ul style="list-style-type: none"> <li>• If today is a base flow day (column [M20] or [M44] is FALSE), then the value is set to the current base flow criteria in column [M10].</li> <li>• If today is a pulse day (column [M20] or [M44] is TRUE) and the pulse flow frequency has not been met for the season (column [M68] or [M69] is FALSE), then the value is set to the current pulse flow trigger level (column [M12] or [M36]).</li> <li>• If today is a pulse day (column [M20] or [M44] is TRUE, and either today is the first day that the seasonal pulse frequency has been met, or today is the beginning of a new season, then the value is set to the current pulse flow trigger level (column [M12] or [M36]).</li> <li>• If today is a pulse day (column [M20] or [M44] is TRUE) and either the seasonal pulse frequency has not been met or today is the first day of a new season, then the value is set to the current pulse flow trigger level (column [M12] or column [M36]).</li> <li>• If today is a pulse day (column [M20] or [M44] is TRUE) and either the seasonal criteria has been met on the previous day or today is the first day of a new season (this can occur when there are no seasonal pulse criteria), the value is set to the base flow criteria.</li> </ul> <p>Other combinations are unsupported and return an error message.</p>
M72	cfs	Base Only Criteria Series	Repeat of column [M10].
M73	cfs	20% of Pulse Trigger Criteria	20% of the pulse flow trigger level, based on current season and climatic conditions. Uses the large pulse trigger level (column [M36]) until the large pulse frequency has been met (column [M69] is TRUE). Once the large pulse frequency has been met, the small pulse trigger level is used (column [M12]).
M74	cfs	Upstream Reach Diversion Rates	Total daily diversion rates for BRA contract diversions in the reach upstream of the current measurement point.
M75	cfs	Downstream Reach Diversion Rates	Total daily diversion rates for BRA contract diversions in the reach downstream of the current measurement point. Applicable only if the current measurement point is applied to downstream diversions.
M76	cfs	Flow > Criteria Series	TRUE if the flow (column [M57] is greater than the applicable instream flow criteria series. The applicable instream flow series depends on the diversion rate. If the diversion rate is greater than 20% of the pulse criteria (column [M73]) then the base only criteria in column [M72] apply. Otherwise, the base and pulse criteria in column [M71] apply. Used for run-of-the-river diversions in the applicable reach above the measurement point.

Column	Units	Daily Column Label	Description
M77	cfs	Flow > Criteria Series + Downstream Reach Diversions	TRUE if the flow (column [M57]) is greater than the applicable instream flow criteria series, plus the applicable downstream diversions in column [M75]. The applicable instream flow series depends on the diversion rate. If the diversion rate is greater than 20% of the pulse criteria (column [M73]) then the base only criteria in column [M72] apply. Otherwise, the base and pulse criteria in column [M71] apply. Used for run-of-the-river diversions in the applicable reach below the measurement point (if any)
M78	cfs	Flow > Base & Pulse Criteria Series	TRUE if the flow (column [M57]) is greater than the base and pulse criteria series in column [M71]. Used for reservoir diversion and storage under the System Operation Permit.
M79	none	Comments	Place to record comments about base or pulse overrides, or any other observations about this year's calculations.

The Glen Rose Gage has two additional columns to account for downstream diversions from Lake Whitney:

Column	Units	Column Label	Description
M79	cfs	Lake Whitney Diversion Rate	Daily diversions and downstream water supply releases from Lake Whitney. Imported from Table BASIC3 in the reference file.
M80	cfs	Flow > Criteria Series + Reservoir Diversions	TRUE if today's flow in column [M57] is greater than the base and pulse criteria in column [M71] plus the Lake Whitney diversions in column [M79].

#### H.1.6.6 Tables CRI1 through CRI12

The CRI tables contain the instream flow criteria from the Water Management Plan

The following is a description of the columns in the CRI tables:

Column	Label	Units	Description
I1	Hydrologic Condition	none	Hydrologic condition for each climatic level - subsistence, dry, average, or wet.
I2	Winter	cfs	Base and subsistence flow requirement for Winter by hydrologic condition.
I3	Spring	cfs	Base and subsistence flow requirement for Spring by hydrologic condition.
I4	Summer	cfs	Base and subsistence flow requirement for Summer by hydrologic condition.
P1	Hydrologic Condition	none	Hydrologic condition as determined by PDHI. Classified as dry, average, or wet.
P2	Winter	acre-feet	Pulse flow volume requirement for Winter by hydrologic condition.
P3	Spring	acre-feet	Pulse flow volume requirement for Spring by hydrologic condition.
P4	Summer	acre-feet	Pulse flow volume requirement for Summer by hydrologic condition.
P5	Hydrologic Condition	none	Hydrologic condition as determined by PDHI. Classified as dry, average, or wet.

Column	Label	Units	Description
P6	Winter	acre-feet	Large pulse flow volume requirement for Winter by hydrologic condition, if applicable.
P7	Spring	acre-feet	Large pulse flow volume requirement for Spring by hydrologic condition, if applicable.
P8	Summer	acre-feet	Large pulse flow volume requirement for Summer by hydrologic condition, if applicable.
K1	Hydrologic Condition	none	Hydrologic condition as determined by PDHI. Classified as dry, average, or wet.
K2	Winter	cfs	Pulse flow trigger level for Winter by hydrologic condition.
K3	Spring	cfs	Pulse flow trigger level for Spring by hydrologic condition.
K4	Summer	cfs	Pulse flow trigger level requirement for Summer by hydrologic condition.
K5	Hydrologic Condition	none	Hydrologic condition as determined by PDHI. Classified as dry, average, or wet.
K6	Winter	cfs	Large pulse flow trigger level for Winter by hydrologic condition, if applicable.
K7	Spring	cfs	Large pulse flow trigger level for Spring by hydrologic condition, if applicable.
K8	Summer	cfs	Large pulse flow trigger level requirement for Summer by hydrologic condition, if applicable.
D1	Hydrologic Condition	none	Hydrologic condition as determined by PDHI. Classified as dry, average, or wet.
D2	Winter	days	Pulse duration requirement for Winter by hydrologic condition.
D3	Spring	days	Pulse duration requirement for Spring by hydrologic condition.
D4	Summer	days	Pulse duration requirement for Summer by hydrologic condition.
D5	Hydrologic Condition	none	Hydrologic condition as determined by PDHI. Classified as dry, average, or wet.
D6	Winter	days	Large pulse duration requirement for Winter by hydrologic condition, if applicable.
D7	Spring	days	Large pulse duration requirement for Spring by hydrologic condition, if applicable.
D8	Summer	days	Large pulse duration requirement for Summer by hydrologic condition, if applicable.
C1	Hydrologic Condition	none	Hydrologic condition as determined by PDHI. Classified as dry, average, or wet.
C2	Winter	none	Pulse count requirement for Winter by hydrologic condition.
C3	Spring	none	Pulse count requirement for Spring by hydrologic condition.
C4	Summer	none	Pulse count requirement for Summer by hydrologic condition.
C5	Hydrologic Condition	none	Hydrologic condition as determined by PDHI. Classified as dry, average, or wet.
C6	Winter	none	Large pulse count requirement for Winter by hydrologic condition, if applicable.
C7	Spring	none	Large pulse count requirement for Spring by hydrologic condition, if applicable.
C8	Summer	none	Large pulse count requirement for Summer by hydrologic condition, if applicable.

## **H.1.7 Summary File Tables**

The summary file contains several reporting and data summary components. Overall water use for each reservoir is summarized, with locations for entry of water use by water right and use type by BRA staff. Also included are System Operation diversion summaries, surface water usage reporting tables and summaries of instream flows.

### *H.1.7.1 Table INTRO4 – Introduction and Table of Contents*

This table contains title information for the accounting plan. BRA staff will enter the year of the Accounting Plan in the reference file. The spreadsheet will determine if the year is a leap year. The table also includes several unit conversion factors imported from the reference file and a Table of Contents for the summary workbook.

### *H.1.7.2 Tables SUM1 through SUM11 – Reservoir Water Use Summaries*

Tables SUM1 through SUM11 summarize the water use at each reservoir by priority use under the reservoir permit, System Order use, and System Operation use. Use under the reservoir permit and System Order is further categorized as municipal (mun), irrigation (irr), industrial (ind), and mining (min) use types. Additional fields are provided for entry of Storage Credit adjustments and the locations for System Order diversions. Storage Credit adjustments are the portion of water released from a BRA reservoir that would be charged under the customer's own water right. Columns shaded in yellow indicate locations for manual entry of values by BRA staff. Note that while a number of the yellow-shaded columns may contain formulas, these are intended solely to generate values for illustrative purposes; in actual use, these formulas would be replaced with manually entered values. Other columns either reference other files in the Accounting Plan or calculate results based on the values entered into the table by BRA staff.

Row 6 of the spreadsheet includes the units for each column, while Rows 7 and 8 list the column heading and use type. Rows 9 through 20 contain monthly values, while Row 21 lists annual totals.

All eleven tables follow a standard layout. However, not all water use types are applicable for all reservoirs. Irrigation and mining uses are not applicable to Lake Whitney, and irrigation use is not applicable at Lake Aquilla. The columns at these reservoirs associated with non-applicable use types are marked with crosshatching to indicate that no data entry is needed. The following is a description of the columns for the standardized layout of the tables:

Column	Label	Use Type	Units	Formula	Description	Tables Referenced
L1	Month		none	None	Month number for associated data value	INTRO4
L2	End of Month		none	None	End-of-month associated with date value	
S1	BRA Lakeside Diversions		acft	None	BRA lakeside diversions from reservoir	RES
S2	BRA Downstream Water Supply Release		acft	None	BRA downstream water supply release from reservoir	RES
S3	Storage Credit Adjustments		acft	None	Storage credit adjustments from reservoir	
S4	Use of Upstream Releases		acft	None	Use of upstream releases from reservoir	RES
S5	Total Water Use		acft	[S1] + [S2] + [S3] + [S4]	Total water use from reservoir	
S6	Priority Water Use Under Permit		acft	[S5] - [S17] - [S18]	Priority water use under the permit for reservoir	
S7	Type of Use Under Permit	Mun	acft	None	Municipal priority water use under reservoir permit	
S8		Irr	acft	None	Irrigation priority water use under reservoir permit	
S9		Ind	acft	None	Industrial priority water use under reservoir permit	
S10		Min	acft	None	Mining priority water use under reservoir permit	
S11	System Order Water Use Under Permit	Mun	acft	None	Municipal System Order water use under reservoir permit	
S12		Irr	acft	None	Irrigation System Order water use under reservoir permit	
S13		Ind	acft	None	Industrial System Order water use under reservoir permit	
S14		Min	acft	None	Mining System Order water use under reservoir permit	
S15	Location of System Order Diversion		acft	None	Location of System Order diversion	
S16	Total Use Under Permit		acft	[S6] + [S11] + [S12] + [S13] + [S14]	Total water use under reservoir permit	
S17	System Order Use Under Another Right		acft	None	Amount of System Order use recorded against another water right	
S18	P5851 Water Use at Reservoir		acft	None	P5851 water use at reservoir	RES

*H.1.7.3 Table SUM12 – Reservoir Water Use by Permit*

Table SUM12 summarizes water use by reservoir and permit. Monthly diversions are listed by reservoir and permit, with further categorization of values as priority, System Order, and total diversions. Monthly diversion values are also listed for the Excess Flows permit (Certificate of Adjudication 5166) as well as System Operation. All values in the table are either calculated automatically or reference data from other portions of the Accounting Plan. No columns in table SUM12 require manual entry of values by BRA staff.

Row 6 of the spreadsheet includes the units for each column, while Rows 7 and 8 list the reservoir or permit and diversion category. Rows 9 through 20 contain monthly values, while Row 21 lists annual totals. The following describes the columns in Table SUM12:

Column	Reservoir / Permit	Units	Column Label	Formula	Description	Tables Referenced
L1		none	Month	none	Numeric month	
L2		none	End-of-Month	none	Month end date	INTRO4, SUM1
S1	CA5155 Possum Kingdom	acft	Priority	none	Monthly priority water use under CA5155	SUM1
S2		acft	System Order	none	Monthly system order water use under CA5155	SUM1
S3		acft	Total	[S1] + [S2]	Monthly total water use under CA5155	
S4	CA5156 Lake Granbury	acft	Priority	none	Monthly priority water use under CA5156	SUM2
S5		acft	System Order	none	Monthly system order water use under CA5156	SUM2
S6		acft	Total	[S4] + [S5]	Monthly total water use under CA5156	
S7	CA5157 Lake Whitney	acft	Priority	none	Monthly priority water use under CA5157	SUM3
S8		acft	System Order	none	Monthly system order water use under CA5157	SUM3
S9		acft	Total	[S7] + [S8]	Monthly total water use under CA5157	
S10	CA5158 Lake Aquilla	acft	Priority	none	Monthly priority water use under CA5158	SUM4
S11		acft	System Order	none	Monthly system order water use under CA5158	SUM4
S12		acft	Total	[S10] + [S11]	Monthly total water use under CA5158	
S13	CA5159 Lake Proctor	acft	Priority	none	Monthly priority water use under CA5159	SUM5

Column	Reservoir / Permit	Units	Column Label	Formula	Description	Tables Referenced
S14		acft	System Order	none	Monthly system order water use under CA5159	SUM5
S15		acft	Total	[S13] + [S14]	Monthly total water use under CA5159	
S16	CA5160 Lake Belton	acft	Priority	none	Monthly priority water use under CA5160	SUM6
S17		acft	System Order	none	Monthly system order water use under CA5160	SUM6
S18		acft	Total	[S16] + [S17]	Monthly total water use under CA5160	
S19	CA5161 Lake Stillhouse Hollow	acft	Priority	none	Monthly priority water use under CA5161	SUM7
S20		acft	System Order	none	Monthly system order water use under CA5161	SUM7
S21		acft	Total	[S19] + [S20]	Monthly total water use under CA5161	
S22	CA5162 Lake Georgetown	acft	Priority	none	Monthly priority water use under CA5162	SUM8
S23		acft	System Order	none	Monthly system order water use under CA5162	SUM8
S24		acft	Total	[S22] + [S23]	Monthly total water use under CA5162	
S25	CA5163 Lake Granger	acft	Priority	none	Monthly priority water use under CA5163	SUM9
S26		acft	System Order	none	Monthly system order water use under CA5163	SUM9
S27		acft	Total	[S25] + [S26]	Monthly total water use under CA5163	
S28	CA5164 Lake Somerville	acft	Priority	none	Monthly priority water use under CA5164	SUM10
S29		acft	System Order	none	Monthly system order water use under CA5164	SUM10
S30		acft	Total	[S28] + [S29]	Monthly total water use under CA5164	
S31	CA5165 Lake Limestone	acft	Priority	none	Monthly priority water use under CA5165	SUM11
S32		acft	System Order	none	Monthly system order water use under CA5165	SUM11
S33		acft	Total	[S31] + [S32]	Monthly total water use under CA5165	
S34	CA5166 Excess Flows	acft		none	Monthly water use under CA5166 Excess flows	
S35		acft	Total Use CA5155 to 5165	Sum of total use for CA5155 through 5165	Total monthly water use for CA5155 to 5165	
S36	P5851 SysOps	acft	Total		Total SysOps water usage	SUM13

#### H.1.7.4 Table SUM13 – System Operation Water Use by Reach

Table SUM13 summarizes System Operation water use by reach. Monthly diversions are listed by reach. All values in the table are either calculated automatically or

reference data from other portions of the Accounting Plan. No columns in table SUM13 require manual entry of values by BRA staff.

Row 6 of the spreadsheet includes the units for each column. Row 7 includes the reach name, while Row 8 specifies the source of diverted flow. Rows 9 through 20 contain monthly values, while row 21 lists annual totals. The following describes the columns in Table SUM13:

Column	Reach	Units	Description	Tables Referenced
L1		none	Numeric month	
L2		none	Month end date	INTRO4, SUM1
S1	Possum Kingdom	acft	SysOps water use	SUM1
S3	Possum Kingdom to Palo Pinto Gage	acft	SysOps water use	REACH1
S5	Palo Pinto Gage to Dennis Gage	acft	SysOps water use	REACH2
S7	Dennis Gage to Lake Granbury Headwaters	acft	SysOps water use	REACH2
S9	Lake Granbury	acft	SysOps water use	SUM2
S11	Lake Granbury to Glen Rose Gage	acft	SysOps water use	REACH3
S13	Glen Rose Gage to Lake Whitney Headwaters	acft	SysOps water use	REACH3
S15	Lake Whitney	acft	SysOps water use	SUM3
S17	Lake Whitney to Aquilla/Brazos Confluence	acft	SysOps water use	REACH5
S19	Lake Aquilla	acft	SysOps water use	SUM4
S21	Lake Aquilla to Aquilla Cr Gage	acft	SysOps water use	REACH4
S23	Aquilla Cr Gage to Aquilla/Brazos Confluence	acft	SysOps water use	REACH4
S25	Aquilla/Brazos Confluence to Highbank Gage	acft	SysOps water use	REACH6
S27	Lake Proctor	acft	SysOps water use	SUM5
S29	Lake Proctor to Gatesville Gage	acft	SysOps water use	REACH7, REACH8
S31	Gatesville Gage to Lake Belton Headwaters	acft	SysOps water use	REACH8
S33	Lake Belton	acft	SysOps water use	SUM6
S35	Lake Belton to Leon nr Belton Gage	acft	SysOps water use	REACH9
S37	Leon nr Belton Gage to Little River Gage	acft	SysOps water use	REACH9
S39	Lake Stillhouse Hollow	acft	SysOps water use	SUM7
S41	Stillhouse to Lampasas nr Belton Gage	acft	SysOps water use	REACH10
S43	Lampasas nr Belton Gage to Little River Gage	acft	SysOps water use	REACH10

Column	Reach	Units	Description	Tables Referenced
S45	Little River Gage to San Gabriel/Little Confluence	acft	SysOps water use	REACH11
S47	Lake Georgetown	acft	SysOps water use	SUM8
S49	Lake Georgetown to N San Gabriel Gage	acft	SysOps water use	REACH12
S51	N San Gabriel Gage to Lake Granger Headwaters	acft	SysOps water use	REACH12
S53	Lake Granger	acft	SysOps water use	SUM9
S55	Lake Granger to Laneport Gage	acft	SysOps water use	REACH13
S57	Laneport Gage to Little/San Gabriel Confluence	acft	SysOps water use	REACH13
S59	Little/San Gabriel Confluence to Cameron Gage	acft	SysOps water use	REACH14
S61	Cameron Gage to Brazos/Little Confluence	acft	SysOps water use	REACH14
S63	Highbank Gage to Brazos/Little Confluence	acft	SysOps water use	REACH6
S65	Brazos/Little Confluence to Bryan Gage	acft	SysOps water use	REACH15
S67	Bryan Gage to Brazos/Yegua Confluence	acft	SysOps water use	REACH15
S69	Lake Somerville	acft	SysOps water use	SUM10
S71	Lake Somerville to Yegua Cr Gage	acft	SysOps water use	REACH16
S73	Yegua Cr Gage to Brazos/Yegua Confluence	acft	SysOps water use	REACH16
S75	Brazos/Yegua Confluence to Brazos/Navasota Confluence	acft	SysOps water use	REACH17
S77	Lake Limestone	acft	SysOps water use	SUM11
S79	Lake Limestone to Easterly Gage	acft	SysOps water use	REACH18
S81	Easterly Gage to Brazos/Navasota Confluence	acft	SysOps water use	REACH18
S83	Brazos/Navasota Confluence to Hempstead Gage	acft	SysOps water use	REACH19
S85	Hempstead Gage to Richmond Gage	acft	SysOps water use	REACH20
S87	Richmond Gage to Gulf	acft	SysOps water use	REACH21
S89	Total P5851	acft	Total SysOps use	

#### *H.1.7.5 Table SUM14 – Environmental Flow Report*

The Environmental Flow Report is a seasonal summary of the number of days achieving base flow criteria, the number of HFP events per season, and whether the number of HFP events achieves the HFP criteria, reported on a seasonal basis. The winter seasons overlap years and only have partial results. Results are reported for all twelve measurement points.

Values are either imported from the instream flow file or are calculated within this worksheet. No values are entered by BRA staff.

Measurement points with one level of HFPs have the following columns:

	Column Label	Description
	Season	Name of season – Winter (partial), Spring or Summer
Gage Name	Climatic Condition	Climatic condition (Wet, Average or Dry) for the current season.
	Number of Days Meeting Base Flows	Number of days in each season (or part of season) that base flow criteria have been achieved.
	Number of Pulses	Number of pulse events at the end of each season
	Pulse Frequency Achieved?	TRUE if the number of pulse events exceeds the pulse frequency criteria. FALSE otherwise.

Measurement points with small and large pulses have the following columns:

	Column Label	Description
	Season	Name of season – Winter (partial), Spring or Summer
Gage Name	Climatic Condition	Climatic condition (Wet, Average or Dry) for the current season.
	Number of Days Meeting Base Flows	Number of days in each season (or part of season) that base flow criteria have been achieved.
	Number of Small Pulses	Number of small pulse events at the end of each season
	Small Pulse Frequency Achieved?	TRUE if the number of small pulse events exceeds the pulse frequency criteria. Includes any small pulses and subsequently become large pulses. FALSE otherwise.
	Number of Large Pulses	Number of large pulse events at the end of each season
	Large Pulse Frequency Achieved?	TRUE if the number of large pulse events exceeds the pulse frequency criteria. FALSE otherwise.

**H.1.7.6 Tables REP1 through REP52 – Surface Water Use Reports**

Tables REP1 through REP52 summarize the required data for the TCEQ forms for reporting of surface water use for the year by Certificate of Adjudication and use type. General identification information is given at the top of each tab, including the water right number, use type, and associated reservoir or permit identifier. The data table includes the month and monthly values for maximum diversion rate, diverted amount,

consumed amount, and return flow. When unspecified in the associated water right permit, the maximum diversion rate is marked with an asterisk. Both monthly consumed amount and return flow are left blank as they are not applicable in this case. Values for monthly diverted amount are automatically populated from references to tables SUM1 through SUM11.

*H.1.7.7 Table R1 SUM\_ROR – Summary of Run of River Diversions*

Table SUM\_ROR summarizes the monthly water diverted from the river by entities that have upstream subordination agreements with Brazos River Authority and currently operating facilities. These include monthly run-of-river diversions from Paluxy River into Wheeler’s Branch, Clear Fork into Lake Fort Phantom Hill, and California Creek into Lake Stamford. Other columns may be added as needed for future projects. The monthly data will be obtained from the project owners.

Column	Units	Column Label	Description
I1	none	Month	Numeric month
I2	none	End-of-Month	Month end date
R1	acre-feet	Run-of-River from Paluxy River into Wheeler’s Branch	These values reflect the monthly run-of-river diversions from Paluxy River into Wheeler’s Branch of Brazos River (12-5744).
R2	acre-feet	Run-of-River Diversions from Clear Fork into Lake Fort Phantom Hill	These values reflect the monthly run-of-river diversions from Clear Fork of Brazos River into Lake Phantom Hill. (12-4139).
R3	acre-feet	Run-of-River Diversions from California Creek into Lake Stamford	These values reflect the monthly run-of-river diversions from California Creek into Lake Stamford. These values are based on the contract agreement between City of Stamford and Brazos River Authority (12-4179).



## Appendix H-2

---

Brazos River Authority Accounting Plan, Executive  
Director's Approach to Return Flows



## **H.2. Brazos River Authority Accounting Plan, Executive Director's Approach to Return Flows**

### **H.2.1 Introduction**

The Brazos River Authority (BRA) Accounting Plan (Accounting Plan) includes reservoir accounting, return flow accounting, daily deliveries to customers by reach, compliance with environmental flow requirements in the Water Management Plan (WMP), and water rights reporting.

The Accounting Plan includes daily reservoir accounting for the eleven BRA System reservoirs: Possum Kingdom (Certificate of Adjudication (COA) No. 12-5155), Granbury (COA No. 12-5156), Whitney (COA No. 12-5157), Aquilla (COA No. 12-5158), Proctor (COA No. 12-5159), Belton (COA No. 12-5160), Stillhouse Hollow (COA No. 12-5161), Georgetown (COA No. 12-5162), Granger (COA No. 12-5163), Somerville (COA No. 5164), and Limestone (COA No. 12-5165). Reservoir accounting is described in Section H.2.4 below.

The Accounting Plan tracks return flows by source, availability, and diversion location on a daily basis. The Accounting Plan also tracks the use of return flows to satisfy diversions from reservoirs made under the BRA's existing water rights. Reporting of return flows occurs in the reservoir accounting file of the Accounting Plan described in described in Section H.2.4 below and the reach accounting file described in Section H.2.5 below.

Delivery accounting is organized by reach. The Accounting Plan divides the Brazos River basin from Possum Kingdom Lake to the Gulf of Mexico into the 40 reaches listed

**Table H.2.1 Reaches**

No	Reach Name	Accounting Plan Table(s)
1	Poosum Kingdom Lake	RES1
2	Poosum Kingdom Lake Dam to Palo Pinto gage	REACH1
3	Palo Pinto gage to Dennis gage	REACH2
4	Dennis gage to Lake Granbury Dam	REACH2 and RES2
5	Lake Granbury Dam to Glen Rose gage	REACH3
6	Glen Rose gage to Lake Whitney Dam	REACH3 and RES3
7	Lake Whitney Dam to Aquilla Creek/Brazos Rv confluence	REACH5
8	Lake Aquilla	RES4
9	Lake Aquilla Dam to Aquilla Creek gage	REACH4
10	Aquilla Creek gage to Aquilla Creek/Brazos Rv confluence	REACH4
11	Aquilla Creek/ Brazos confluence to Highbank gage	REACH6
12	Lake Proctor	RES5
13	Lake Proctor Dam to Leon Rv at Gatesville gage	REACH7 and REACH8
14	Leon Rv at Gatesville to Lake Belton Dam	REACH8 and RES6
15	Lake Belton Dam to Leon Rv nr Belton gage	REACH9
16	Leon Rv nr Belton gage to Little River gage	REACH9
17	Lake Stillhouse Hollow	RES7
18	Lake Stillhouse Hollow Dam to Lampasas Rv nr Belton gage	REACH10
19	Lampasas Rv nr Belton gage to Little River gage	REACH10
20	Little River gage to Little Rv/San Gabriel Rv confluence	REACH11
21	Lake Georgetown	RES8
22	Lake Georgetown Dam to N San Gabriel gage	REACH12
23	N San Gabriel gage to Lake Granger Dam	REACH12 and RES9
24	Lake Granger Dam to Laneport gage	REACH13
25	Laneport gage to Little Rv/San Gabriel confluence	REACH13
26	Little/San Gabriel confluence to Little Rv at Cameron gage	REACH14
27	Cameron gage to Brazos Rv/Little Rv confluence	REACH14
28	Highbank gage to Brazos Rv/Little Rv confluence	REACH6
29	Brazos Rv/Little Rv confluence to Bryan gage	REACH15
30	Bryan gage to Brazos Rv/Yegua Crk confluence	REACH15
31	Lake Somerville	RES10
32	Lake Somerville Dam to Yegua Crk gage	REACH16
33	Yegua Crk gage to Brazos Rv/Yegua Crk confluence	REACH16
34	Brazos Rv/Yegua Crk confluence to Brazos Rv/Navasota Rv confluence	REACH17
35	Lake Limestone	RES11
36	Lake Limestone Dam to Easterly gage	REACH18
37	Easterly gage to Brazos Rv/Navasota Rv confluence	REACH18
38	Brazos Rv/Navasota Rv confluence to Hempstead gage	REACH19
39	Hempstead gage to Richmond gage	REACH20
40	Richmond gage to Gulf of Mexico	REACH21

in Table H.2.1. Some reaches are reservoirs, and include the area from the headwaters of the normal pool of the reservoir to the dam. Reservoir reaches are included in the Reservoir File of the Accounting Plan described in Section H.2.4 below. Other reaches are stream segments bounded by a reservoir, stream gage or confluence. These reaches are included in the Reach File of the Accounting Plan described in Section H.2.5 below. The tables in the Reach File can include multiple reaches. The reach accounting file of the Accounting Plan tracks BRA water supply releases as they travel through these reaches, applying corrections for travel times and losses. The reach accounting also tracks the diversions of releases, unappropriated flows and return flows by reach. Tables H.2.2a through H.2.2g show the travel times and losses used in the Accounting Plan.

Table H.1.2a - Lake Possum Kingdom to Gulf of Mexico						
Location	BRA Incremental Loss (%)	BRA Cumulative Loss (%)	BRA Travel Time (days)	Total Delivery (%)	Incremental Delivery Factor	Incremental Travel Time (days)
Lk PK	0.000	0.000	0.000	100.00		
Palo Pinto Gage (Hwy 4)	0.520	0.520	0.510	99.48	0.995	0.5
Dennis	1.980	2.500	2.470	97.50	0.980	2.0
Lk Granbury	1.200	3.700	4.000	96.30	0.988	1.5
Brazos Rv at Glen Rose	0.840	4.540	5.700	95.46	0.991	1.7
Lk Whitney	1.860	6.400	10.000	93.60	0.981	4.3
Jct Brazos Rv - Aquilla Cr	0.450	6.850	10.560	93.15	0.995	0.6
Brazos Rv at Waco	0.300	7.150	11.000	92.85	0.997	0.4
Highbank	0.940	8.090	12.390	91.91	0.990	1.4
Little-Brazos	0.610	8.700	13.290	91.30	0.993	0.9
Brazos at Bryan	0.860	9.560	14.090	90.44	0.991	0.8
JCT Yegua-Brazos	1.060	10.620	15.080	89.38	0.988	1.0
JCT Brazos-Navasota	0.460	11.080	15.510	88.92	0.995	0.4
Hempstead	0.930	12.010	16.380	87.99	0.990	0.9
Richmond	2.820	14.830	19.000	85.17	0.968	2.6
Rosharon	0.980	15.810	19.920	84.19	0.988	0.9
Gulf	1.580	17.390	21.390	82.61	0.981	1.5
<b>Total</b>	<b>17.39</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>21.4</b>

Table H.1.2b - Lake Aquilla to Brazos Confluence						
Location	BRA Incremental Loss (%)	BRA Cumulative Loss (%)	BRA Travel Time (days)	Total Delivery (%)	Incremental Delivery Factor	Incremental Travel Time (days)
Lk Aquilla	0.000	0.000	0.000	100.00		
Aquilla Ck abv Aquilla	0.110	0.110	0.120	99.89	0.999	0.1
JCT Aquilla Ck-Brazos Rv	0.390	0.500	0.560	99.50	0.996	0.4
<b>Total</b>	<b>0.500</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>0.5</b>

Table H.1.2c - Lake Proctor to Little/Brazos Confluence						
Location	BRA Incremental Loss (%)	BRA Cumulative Loss (%)	BRA Travel Time (days)	Total Delivery (%)	Incremental Delivery Factor	Incremental Travel Time (days)
Lk Proctor	0.000	0.000	0.000	100.00		
Leon Rv nr Hasse	2.700	2.700	1.000	97.30	0.973	1.0
Leon Rv at Gatesville	45.800	48.500	4.300	51.50	0.529	3.3
Lake Belton	2.600	51.100	7.000	48.90	0.950	2.7
Leon Rv nr Belton	0.160	51.260	7.200	48.74	0.997	0.2
Little Rv nr Little Rv	0.890	52.150	8.100	47.85	0.982	0.9
Jct San Gabriel Rv - Little Rv	2.390	54.540	9.800	45.46	0.950	1.7
Little Rv at Cameron	0.500	55.040	10.200	44.96	0.989	0.4
Jct Little Rv - Brazos Rv	1.560	56.600	11.300	43.40	0.965	1.1
<b>Total</b>	<b>56.600</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>11.3</b>

Table H.1.2d - Lake Stillhouse Hollow to Little River Gage						
Location	BRA Incremental Loss (%)	BRA Cumulative Loss (%)	BRA Travel Time (days)	Total Delivery (%)	Incremental Delivery Factor	Incremental Travel Time (days)
Lk Stillhouse	0.000	0.000	0.000	100.00		
Lampassas R nr Belton	0.050	0.050	0.140	99.95	0.9995	0.1
Little Rv nr Little Rv	0.530	0.580	1.090	99.42	0.9947	1.0
<b>Total</b>	<b>0.580</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>1.1</b>

Table H.1.2e - Lake Georgetown to Little/San Gabriel Confluence						
Location	BRA Incremental Loss (%)	BRA Cumulative Loss (%)	BRA Travel Time (days)	Total Delivery (%)	Incremental Delivery Factor	Incremental Travel Time (days)
Lk Georgetown	0.000	0.000	0.000	100.00		
N San Gabriel nr Georgetown	0.020	0.020	0.030	99.98	0.9998	0.0
Lk Granger	0.780	0.800	1.000	99.20	0.9922	1.0
San Gabriel nr Laneport	0.130	0.930	1.130	99.07	0.9987	0.1
Jct San Gabriel - Little	0.670	1.600	1.810	98.40	0.9932	0.7
<b>Total</b>	<b>1.600</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>1.8</b>

Table H.1.2f - Lake Somerville to Brazos/Yegua Confluence						
Location	BRA Incremental Loss (%)	BRA Cumulative Loss (%)	BRA Travel Time (days)	Total Delivery (%)	Incremental Delivery Factor	Incremental Travel Time (days)
Lk Somerville	0.000	0.000	0.000	100.00		
Yegua nr Somerville	0.070	0.070	0.070	99.93	0.999	0.1
Jct Yegua-Brazos	1.030	1.100	1.080	98.90	0.990	1.0
<b>Total</b>	<b>1.100</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>1.1</b>

Table H.1.2g - Lake Limestone to Brazos/Navasota Confluence						
Location	BRA Incremental Loss (%)	BRA Cumulative Loss (%)	BRA Travel Time (days)	Total Delivery (%)	Incremental Delivery Factor	Incremental Travel Time (days)
Lk Limestone	0.000	0.000	0.000	100.00		
Nava at Easterly	0.880	0.880	1.210	99.12	0.991	1.2
JCT Navasota-Brazos	3.620	4.500	6.520	95.50	0.963	5.3
<b>Total</b>	<b>4.500</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>	<b>6.5</b>

Instream flow accounting tracks compliance with the environmental flow requirements from the WMP at twelve USGS stream gage locations: the Brazos River near South Bend (USGS 08088000), the Brazos River near Palo Pinto (USGS 08089000), the Brazos River near Glen Rose (USGS 08091000), the Brazos River at Waco (USGS 08096500), the Leon River at Gatesville (USGS 08100500), the Little River near Little River (USGS 08104500), the Navasota River near Easterly (USGS 08110500), the Little

River at Cameron (USGS 08106500), the Brazos River at SH 21 near Bryan (USGS 08108700), the Brazos River near Hempstead (USGS 08111500), the Brazos River at Richmond (USGS 08114000) and the Brazos River near Rosharon (USGS 08116650). The Instream Flow File of the Accounting Plan described in Section H.2.6 below determines seasonal climatic conditions (Wet, Average, or Dry), and classifies the flows at each gage as either base flows or high flow pulses (HFP or pulse). Flows are then compared to base flow and HFP criteria. Compliance with environmental flow requirements is tracked at the diversion points in the reservoir and Reach Files described in Sections H.2.4 and H.2.5 below, and summarized in the achievement report in the reporting file described in Section H.2.7 below.

Table H.2.3 is a summary of the BRA reservoir water rights included in this Accounting Plan. Other water rights in the Accounting Plan include the Excess Flows Permit (Certificate of Adjudication 12-5166) and the System Operation Permit (Permit 12-5851). The Accounting Plan also includes diversions made under the System Operation Order (System Order). The System Order was originally adopted July 23, 1964, and subsequently amended and incorporated into BRA’s reservoir water rights.

**H.2.2 Structure of Accounting Plan**

The Accounting Plan consists of five Microsoft Excel workbooks and associated documentation. The five workbooks are:

Reference.xlsb	Miscellaneous data used in other workbooks, including historical data, reservoir information, conversion factors, etc.
IFCalcs.xlsb	Instream flow calculations
Reservoirs.xlsb	Information on the operation of the eleven existing BRA System reservoirs (Allens Creek not included at this time)
Reaches.xlsb	Tracking of water supply releases and return flows
Summary.xlsb	Summary and water rights reporting

Table H.2.3 - Summary of Brazos River Authority Reservoir Water Rights							
Water Right ID	Reservoir Name	Authorized Storage (acft)	Priority Date	Priority Diversion (acft/yr)	Max Diversion Rate (cfs)	*System Order Diversions	
						Amount (acft/yr)	Type Use
COA 12-5155	Possum Kingdom	724,739	4/6/1938	230,750	Unspecified	175,000	Mun
						250,000	Ind
						250,000	Irr
						49,800	Min
						--	Hydro
COA 12-5156	Granbury	155,000	2/13/1964	64,712	Unspecified	40,000	Mun
						45,000	Ind
						14,500	Irr
						500	Min
COA 12-5157	Whitney	50,000	8/30/1982	18,336	5,000	25,000	Mun
						25,000	Ind
COA 12-5158	Aquilla	52,400	10/25/1976	13,896	2,100 releases through dam & 90 from reservoir perimeter	17,000	Mun
						18,200	Ind
						200	Min
COA 12-5159	Proctor	59,400	12/16/1963	19,658	Unspecified	18,000	Mun
						17,800	Ind
						18,000	Irr
						200	Min
COA 12-5160	Belton	457,600	12/16/1963	100,257	Unspecified	95,000	Mun
						150,000	Ind
						149,500	Irr
						500	Min
COA 12-5161	Stillhouse Hollow	235,700	12/16/1963	67,768	Unspecified	74,000	Mun
						74,000	Ind
						73,700	Irr
						300	Min
COA 12-5162	Georgetown	37,100	2/12/1968	13,610	Unspecified	16,500	Mun
						16,400	Ind
						4,100	Irr
						100	Min
COA 12-5163	Granger	65,500	2/15/1968	19,840	Unspecified	30,000	Mun
						29,800	Ind
						5,500	Irr
						200	Min
COA 12-5164	Somerville	160,110	12/16/1963	48,000	Unspecified	49,500	Mun
						50,000	Ind
						50,000	Irr
						500	Min
COA 12-5165	Limestone	225,400	5/6/1974 for 217,494 acft & 9/4/1979 for 7,906 acft	65,074	Unspecified	69,500	Mun
						70,000	Ind
						77,500	Irr
						500	Min

\*The total amount of water diverted or released from any one System reservoir for a particular purpose may exceed the authorization for that purpose under that reservoir's certificate of adjudication, but may not exceed the total authorized diversions for all purposes from that reservoir in any calendar year.

Abbreviations for type of use are as follows: Mun = Municipal, Ind = Industrial, Irr = Irrigation, Min = Mining

Each workbook has several tables that are discussed in detail below.

The Accounting Plan includes reports and calculations on both a daily and monthly basis. In general, monthly values are located at the top of each table and daily values are underneath. Colors and shading are used to help identify different categories of calculations and types of use. Columns with a label that has purple text are entered manually by BRA staff. Columns with a label that has orange text contain data that references a separate file, sheet or cell. Columns with a label with light blue text are calculated within the current table.

The Accounting Plan was developed using Microsoft Excel 2010. Macros must be enabled for the workbooks to calculate correctly. It is recommended that the workbooks remain in binary format (xlsb extension) to reduce file size.

### **H.2.3 Reference File Tables**

The reference file is the primary location for entry of historical data by BRA staff. It also includes other data such as area-capacity-elevation tables and other miscellaneous data used in other parts of the Accounting Plan.

#### *H.2.3.1 Table REF1 – Introduction and Table of Contents*

This table contains title information for the Accounting Plan. BRA staff will enter the year of the Accounting Plan. The spreadsheet will determine if the year is a leap year. The table also includes a Table of Contents for the Reference Files.

#### *H.2.3.2 Table REF2 – Average Monthly and Daily Return Flows in MGD*

Table REF2 contains monthly average and daily return flows. It is anticipated that for most of these return flows BRA staff will enter monthly average values in MGD. Daily discharge data can be entered as well. If daily return flows are not available, the

average flows are distributed to each day of the corresponding month. The daily data are passed on to other calculations in the reach and Reservoir Files of the Accounting Plan.

All of the return flows are entered in the Accounting Plan for BRA owned or operated facilities. For facilities not owned or operated by the BRA, only the portion of the return flows that originates from a BRA source is entered in the Accounting Plan.

Row 6 of the spreadsheet is the TPDES number for the discharge. The WAM control point for the discharge is in Row 7 of the spreadsheet. Row 8 of the spreadsheet shows the Accounting Plan table name where the return flow data are input to a reach or reservoir. Row 23 of the spreadsheet contains delivery factors for return flows showing what fraction reaches the Accounting Plan reaches in Table H.2.1. These delivery factors are derived from the TCEQ Brazos WAM.

The following describes the columns in Table REF2:

Column No	Monthly Label	Monthly Units	Formula	Monthly Description	Daily Label	Daily Units	Formula	Daily Description
L1			none	Month number				
L2	Name	none	none	Month end date	Date	none		
R1	Sportsman's World MUD WTP	mgd	none	Average daily return flows over each month	Sportsman's World MUD WTP	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R2	Double Diamond (The Cliffs WWTP)	mgd	none	Average daily return flows over each month	Double Diamond (The Cliffs WWTP)	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R3	City of Granbury (WWTP)	mgd	none	Average daily return flows over each month	City of Granbury (WWTP)	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R4	SWATS	mgd	none	Average daily return flows over each month	SWATS	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R5	Acton MUD (Decordova Bend WWTP)	mgd	none	Average daily return flows over each month	Acton MUD (Decordova Bend WWTP)	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R6	Acton MUD (Pecan Plantation WWTP)	mgd	none	Average daily return flows over each month	Acton MUD (Pecan Plantation WWTP)	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.

Column No	Monthly Label	Monthly Units	Formula	Monthly Description	Daily Label	Daily Units	Formula	Daily Description
R7	AES Wolf Hollow Power Plant	mgd	none	Average daily return flows over each month	AES Wolf Hollow Power Plant	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R8	Bosque County Power Plant	mgd	none	Average daily return flows over each month	Bosque County Power Plant	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R9	City of Hillsboro (WWTP)	mgd	none	Average daily return flows over each month	City of Hillsboro (WWTP)	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R10	City of McGregor (South WWTP)	mgd	none	Average daily return flows over each month	City of McGregor (South WWTP)	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R11	City of Marlin WWTP	mgd	none	Average daily return flows over each month	City of Marlin WWTP	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R12	City of DeLeon WWTP	mgd	none	Average daily return flows over each month	City of DeLeon WWTP	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R13	Upper Leon MWD WWTP	mgd	none	Average daily return flows over each month	Upper Leon MWD WWTP	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R14	City of Dublin WWTP	mgd	none	Average daily return flows over each month	City of Dublin WWTP	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R15	City of Comanche WWTP	mgd	none	Average daily return flows over each month	City of Comanche WWTP	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R16	City of Hamilton	mgd	none	Average daily return flows over each month	City of Hamilton	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R17	City of Copperas Cove (Northwest WWTP)	mgd	none	Average daily return flows over each month	City of Copperas Cove (Northwest WWTP)	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R18	City of Gatesville (Leon Plant WWTP)	mgd	none	Average daily return flows over each month	City of Gatesville (Leon Plant WWTP)	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R19	City of Gatesville (Stillhouse Branch)	mgd	none	Average daily return flows over each month	City of Gatesville (Stillhouse Branch)	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R20	City of Copperas Cove (Northeast WWTP)	mgd	none	Average daily return flows over each month	City of Copperas Cove (Northeast WWTP)	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R21	City of Moody WWTP	mgd	none	Average daily return flows over each month	City of Moody WWTP	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.

Column No	Monthly Label	Monthly Units	Formula	Monthly Description	Daily Label	Daily Units	Formula	Daily Description
R22	Bell County WCID #1 WWTP	mgd	none	Average daily return flows over each month	Bell County WCID #1 WWTP	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R23	City of Lampasas (Henderson WWTF)	mgd	none	Average daily return flows over each month	City of Lampasas (Henderson WWTF)	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R24	City of Copperas Cove (South WWTP)	mgd	none	Average daily return flows over each month	City of Copperas Cove (South WWTP)	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R25	City of Harker Heights WWTP	mgd	none	Average daily return flows over each month	City of Harker Heights WWTP	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R26	Bell County WCID #1 WWTP 2	mgd	none	Average daily return flows over each month	Bell County WCID #1 WWTP 2	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R27	Bell County WCID #1	mgd	none	Average daily return flows over each month	Bell County WCID #1	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R28	TBRSS (Temple Belton Regional WWTP)	mgd	none	Average daily return flows over each month	TBRSS (Temple Belton Regional WWTP)	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R29	Bell County WCID #2 (Academy WWTP)	mgd	none	Average daily return flows over each month	Bell County WCID #2 (Academy WWTP)	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R30	Bell County WCID #2 (Little River WWTP)	mgd	none	Average daily return flows over each month	Bell County WCID #2 (Little River WWTP)	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R31	Bell County WCID #3	mgd	none	Average daily return flows over each month	Bell County WCID #3	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R32	City of Georgetown (San Gabriel WWTP)	mgd	none	Average daily return flows over each month	City of Georgetown (San Gabriel WWTP)	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R33	City of Georgetown (Dove Springs WWTP)	mgd	none	Average daily return flows over each month	City of Georgetown (Dove Springs WWTP)	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R34	City of Georgetown (Pecan Branch WWTP)	mgd	none	Average daily return flows over each month	City of Georgetown (Pecan Branch WWTP)	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R35	BCRWSS West (Brushy Creek Regional WWTP)	mgd	none	Average daily return flows over each month	BCRWSS West (Brushy Creek Regional WWTP)	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R36	BCRWSS East (Brushy Creek Regional WWTP East)	mgd	none	Average daily return flows over each month	BCRWSS East (Brushy Creek Regional WWTP East)	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.

Column No	Monthly Label	Monthly Units	Formula	Monthly Description	Daily Label	Daily Units	Formula	Daily Description
R37	City of Taylor (Mustang Creek WWTP)	mgd	none	Average daily return flows over each month	City of Taylor (Mustang Creek WWTP)	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R38	City of Holland WWTP	mgd	none	Average daily return flows over each month	City of Holland WWTP	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R39	City of Rosebud WWTP	mgd	none	Average daily return flows over each month	City of Rosebud WWTP	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R40	City of Brenham WWTP	mgd	none	Average daily return flows over each month	City of Brenham WWTP	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.
R41	City of Hutto WWTP	mgd	none	Average daily return flows over each month	City of Hutto WWTP	mgd	Value for month in [L1]	Average daily return flows from monthly data. Daily values remain constant within each month.

### H.2.3.3 Table REF3 – Reach Diversions

Table REF3 contains the daily diversions by reach. All values are entered by BRA staff. Except for larger BRA customers, diversions are assumed to be aggregated at the downstream end of the reach. Each reach has five different columns that are summed together in the Reach File. Major customers have their own entry column. Row 5 of the REF3 spreadsheet contains the table name from the Reach File. Row 6 shows the reach name (see Table H.2.1 above). In some cases these reaches have been divided into sub-reaches because there is a gage or a major diversion in the reach. These sub-reaches are shown in Row 6. All values are assumed to be in acre-feet per day. BRA staff may change this to other units as long as the corresponding conversion factor in the reaches file is changed.

The following describes the columns in Table REF3:

Column	Reach Table	Reach	Sub-Reach	Units	Column Label	Description
L1				none	Month	Month number
L2				none	EOMonth	End-of-month date
L3				none	Date	Date
D1	REACH1	Possum Kingdom to Palo Pinto gage		acft	Div1	Daily diversion 1
D2				acft	Div2	Daily diversion 2

Column	Reach Table	Reach	Sub-Reach	Units	Column Label	Description		
D3				acft	Div3	Daily diversion 3		
D4				acft	Div4	Daily diversion 4		
D5				acft	Div5	Daily diversion 5		
D6			REACH2	Palo Pinto gage to Dennis gage		acft	Div1	Daily diversion 1
D7						acft	Div2	Daily diversion 2
D8		acft			Div3	Daily diversion 3		
D9		acft			Div4	Daily diversion 4		
D10		acft			Div5	Daily diversion 5		
D11	Dennis Gage to Lk Granbury			acft	Div1	Daily diversion 1		
D12				acft	Div2	Daily diversion 2		
D13				acft	Div3	Daily diversion 3		
D14				acft	Div4	Daily diversion 4		
D15				acft	Div5	Daily diversion 5		
D16	REACH3	Lk Granbury to Glen Rose Gage		acft	Div1	Daily diversion 1		
D17				acft	Div2	Daily diversion 2		
D18				acft	Div3	Daily diversion 3		
D19				acft	Div4	Daily diversion 4		
D20				acft	Div5	Daily diversion 5		
D21		Glen Rose Gage to Lake Whitney		acft	Div1	Daily diversion 1		
D22				acft	Div2	Daily diversion 2		
D23				acft	Div3	Daily diversion 3		
D24				acft	Div4	Daily diversion 4		
D25				acft	Div5	Daily diversion 5		
D26	REACH4	Lake Aquilla to Aquilla/Brazos Confluence	Above Gage	acft	Div1	Daily diversion 1		
D27				acft	Div2	Daily diversion 2		
D28				acft	Div3	Daily diversion 3		
D29				acft	Div4	Daily diversion 4		
D30				acft	Div5	Daily diversion 5		
D31			Below Gage	acft	Div1	Daily diversion 1		
D32				acft	Div2	Daily diversion 2		
D33				acft	Div3	Daily diversion 3		
D34				acft	Div4	Daily diversion 4		
D35				acft	Div5	Daily diversion 5		
D36	REACH5	Lk Whitney to Aquilla/Brazos Confluence	Above Gage	acft	Div1	Daily diversion 1		
D37				acft	Div2	Daily diversion 2		
D38				acft	Div3	Daily diversion 3		
D39				acft	Div4	Daily diversion 4		
D40				acft	Div5	Daily diversion 5		
D41			Below Gage	acft	Div1	Daily diversion 1		
D42				acft	Div2	Daily diversion 2		

Column	Reach Table	Reach	Sub-Reach	Units	Column Label	Description	
D43				acft	Div3	Daily diversion 3	
D44				acft	Div4	Daily diversion 4	
D45				acft	Div5	Daily diversion 5	
D46	REACH6	Aquilla/Brazos Confluence to Waco Gage		acft	Div1	Daily diversion 1	
D47				acft	Div2	Daily diversion 2	
D48				acft	Div3	Daily diversion 3	
D49				acft	Div4	Daily diversion 4	
D50				acft	Div5	Daily diversion 5	
D51		Waco Gage to Highbank Gage		acft	Div1	Daily diversion 1	
D52				acft	Div2	Daily diversion 2	
D53				acft	Div3	Daily diversion 3	
D54				acft	Div4	Daily diversion 4	
D55				acft	Div5	Daily diversion 5	
D56		Highbank Gage to Brazos/Little Confluence		acft	Div1	Daily diversion 1	
D57				acft	Div2	Daily diversion 2	
D58				acft	Div3	Daily diversion 3	
D59				acft	Div4	Daily diversion 4	
D60				acft	Div5	Daily diversion 5	
D61	REACH7	Lake Proctor to Leon at Gatesville Gage	Above Hasse Gage	acft	Div1	Daily diversion 1	
D62				acft	Div2	Daily diversion 2	
D63				acft	Div3	Daily diversion 3	
D64				acft	Div4	Daily diversion 4	
D65				acft	Div5	Daily diversion 5	
D66	REACH8			Below Hasse Gage	acft	Div1	Daily diversion 1
D67					acft	Div2	Daily diversion 2
D68					acft	Div3	Daily diversion 3
D69					acft	Div4	Daily diversion 4
D70					acft	Div5	Daily diversion 5
D71		Gatesville Gage to Lake Belton		acft	Div1	Daily diversion 1	
D72				acft	Div2	Daily diversion 2	
D73				acft	Div3	Daily diversion 3	
D74				acft	Div4	Daily diversion 4	
D75				acft	Div5	Daily diversion 5	
D76	REACH9	Lk Belton to Leon Belton Gage		acft	Div1	Daily diversion 1	
D77				acft	Div2	Daily diversion 2	
D78				acft	Div3	Daily diversion 3	
D79				acft	Div4	Daily diversion 4	
D80				acft	Div5	Daily diversion 5	
D81		City of Temple		acft		Daily City of Temple diversion	
D82		Leon R nr Belton Gage to		acft	Div1	Daily diversion 1	

Column	Reach Table	Reach	Sub-Reach	Units	Column Label	Description
D83		Little R at Little River Gage		acft	Div2	Daily diversion 2
D84				acft	Div3	Daily diversion 3
D85				acft	Div4	Daily diversion 4
D86				acft	Div5	Daily diversion 5
D87	REACH10	Stillhouse Hollow to Lampasas nr Belton Gage		acft	Div1	Daily diversion 1
D88				acft	Div2	Daily diversion 2
D89				acft	Div3	Daily diversion 3
D90				acft	Div4	Daily diversion 4
D91				acft	Div5	Daily diversion 5
D92		Lampasas nr Belton Gage to Little R at Little River Gage		acft	Div1	Daily diversion 1
D93				acft	Div2	Daily diversion 2
D94				acft	Div3	Daily diversion 3
D95				acft	Div4	Daily diversion 4
D96				acft	Div5	Daily diversion 5
D97	REACH11	Little R at Little R to Little/San Gabriel Confluence		acft	Div1	Daily diversion 1
D98				acft	Div2	Daily diversion 2
D99				acft	Div3	Daily diversion 3
D100				acft	Div4	Daily diversion 4
D101				acft	Div5	Daily diversion 5
D102	REACH12	Lake Georgetown to N Fk San Gabriel Gage		acft	Div1	Daily diversion 1
D103				acft	Div2	Daily diversion 2
D104				acft	Div3	Daily diversion 3
D105				acft	Div4	Daily diversion 4
D106				acft	Div5	Daily diversion 5
D107		N Fk San Gabriel Gage to Lake Granger		acft	Div1	Daily diversion 1
D108				acft	Div2	Daily diversion 2
D109				acft	Div3	Daily diversion 3
D110				acft	Div4	Daily diversion 4
D111				acft	Div5	Daily diversion 5
D112	REACH13	Lake Granger to Laneport Gage		acft	Div1	Daily diversion 1
D113				acft	Div2	Daily diversion 2
D114				acft	Div3	Daily diversion 3
D115				acft	Div4	Daily diversion 4
D116				acft	Div5	Daily diversion 5
D117		Laneport Gage to San Gabriel/Little Confluence		acft	Div1	Daily diversion 1
D118				acft	Div2	Daily diversion 2
D119				acft	Div3	Daily diversion 3
D120				acft	Div4	Daily diversion 4
D121				acft	Div5	Daily diversion 5
D122	REACH14	Little/San Gabriel	Confluence	acft	Div1	Daily diversion 1

Column	Reach Table	Reach	Sub-Reach	Units	Column Label	Description	
D123		Confluence to Cameron Gage	to Alcoa Diversion	acft	Div2	Daily diversion 2	
D124				acft	Div3	Daily diversion 3	
D125				acft	Div4	Daily diversion 4	
D126				acft	Div5	Daily diversion 5	
D127				acft	Alcoa	Daily Alcoa diversion	
D128			Alcoa Diversion to Cameron		acft	Div1	Daily diversion 1
D129					acft	Div2	Daily diversion 2
D130					acft	Div3	Daily diversion 3
D131					acft	Div4	Daily diversion 4
D132					acft	Div5	Daily diversion 5
D133			Cameron Gage to Little/Brazos Confluence		acft	Div1	Daily diversion 1
D134					acft	Div2	Daily diversion 2
D135					acft	Div3	Daily diversion 3
D136	acft	Div4			Daily diversion 4		
D137	acft	Div5			Daily diversion 5		
D138	REACH15	Brazos/Little Confluence to Bryan Gage	acft	Div1	Daily diversion 1		
D139			acft	Div2	Daily diversion 2		
D140			acft	Div3	Daily diversion 3		
D141			acft	Div4	Daily diversion 4		
D142			acft	Div5	Daily diversion 5		
D143		Bryan Gage to Brazos/Yegua Confluence		acft	Div1	Daily diversion 1	
D144				acft	Div2	Daily diversion 2	
D145				acft	Div3	Daily diversion 3	
D146				acft	Div4	Daily diversion 4	
D147				acft	Div5	Daily diversion 5	
D148	REACH16	Lake Somerville to Yegua Gage	acft	Div1	Daily diversion 1		
D149			acft	Div2	Daily diversion 2		
D150			acft	Div3	Daily diversion 3		
D151			acft	Div4	Daily diversion 4		
D152			acft	Div5	Daily diversion 5		
D153		Yegua Gage to Yegua/Brazos Confluence		acft	Div1	Daily diversion 1	
D154				acft	Div2	Daily diversion 2	
D155				acft	Div3	Daily diversion 3	
D156				acft	Div4	Daily diversion 4	
D157	acft	Div5	Daily diversion 5				
D158	REACH17	Brazos/Yegua Confluence to Brazos/Navasota Confluence	acft	Div1	Daily diversion 1		
D159			acft	Div2	Daily diversion 2		
D160			acft	Div3	Daily diversion 3		
D161			acft	Div4	Daily diversion 4		
D162			acft	Div5	Daily diversion 5		

Column	Reach Table	Reach	Sub-Reach	Units	Column Label	Description	
D163	REACH18	Lake Limestone to Easterly Gage		acft	Div1	Daily diversion 1	
D164				acft	Div2	Daily diversion 2	
D165				acft	Div3	Daily diversion 3	
D166				acft	Div4	Daily diversion 4	
D167				acft	Div5	Daily diversion 5	
D168		Easterly Gage to Navasota/Brazos Confluence		acft	TMPA	Daily TMPA diversion	
D169				acft	Div1	Daily diversion 1	
D170				acft	Div2	Daily diversion 2	
D171				acft	Div3	Daily diversion 3	
D172				acft	Div4	Daily diversion 4	
D173				acft	Div5	Daily diversion 5	
D174		REACH19	Brazos/Navasota Confluence to Hempstead Gage		acft	Div1	Daily diversion 1
D175					acft	Div2	Daily diversion 2
D176				acft	Div3	Daily diversion 3	
D177				acft	Div4	Daily diversion 4	
D178				acft	Div5	Daily diversion 5	
D179	REACH20	Hempstead to Richmond Gage	Hempstead to Canal A	acft	Div1	Daily diversion 1	
D180				acft	Div2	Daily diversion 2	
D181				acft	Div3	Daily diversion 3	
D182				acft	Div4	Daily diversion 4	
D183				acft	Div5	Daily diversion 5	
D184			Canal A	acft		Daily Canal A diversion	
D185			Canal A to NRG	acft	Div1	Daily diversion 1	
D186				acft	Div2	Daily diversion 2	
D187				acft	Div3	Daily diversion 3	
D188				acft	Div4	Daily diversion 4	
D189				acft	Div5	Daily diversion 5	
D190			NRG	acft		Daily NRG diversion	
D191	REACH21	Richmond Gage to Gulf	Richmond Gage to GCWA1	acft	Div1	Daily diversion 1	
D192				acft	Div2	Daily diversion 2	
D193				acft	Div3	Daily diversion 3	
D194				acft	Div4	Daily diversion 4	
D195				acft	Div5	Daily diversion 5	
D196			GCWA1	acft		Daily GCWA diversion	
D197			GCWA1 to GCWA2	acft	Div1	Daily diversion 1	
D198				acft	Div2	Daily diversion 2	
D199				acft	Div3	Daily diversion 3	
D200				acft	Div4	Daily diversion 4	
D201				acft	Div5	Daily diversion 5	
D202			GCWA2	acft		Daily GCWA diversion	

Column	Reach Table	Reach	Sub-Reach	Units	Column Label	Description
D203			Rosharon Gage to Dow Harris	acft	Div1	Daily diversion 1
D204				acft	Div2	Daily diversion 2
D205				acft	Div3	Daily diversion 3
D206				acft	Div4	Daily diversion 4
D207				acft	Div5	Daily diversion 5
D208			Dow Harris	acft		Daily Dow Harris diversion
D209			Dow Harris to Dow Brazoria	acft	Div1	Daily diversion 1
D210				acft	Div2	Daily diversion 2
D211				acft	Div3	Daily diversion 3
D212				acft	Div4	Daily diversion 4
D213				acft	Div5	Daily diversion 5
D214			Dow Brazoria	acft		Daily Dow Brazoria diversion

#### H.2.3.4 Table REF 4 – Reservoir Data

Table REF4 contains conservation elevation and total storage for the eleven BRA system reservoirs. Additional data regarding BRA’s authorized storage, conservation storage, hydropower storage (SWPA storage) and dead storage are included for Lake Whitney. These data are referenced in the instream flow and Reservoir Files.

The storage is calculated from elevation using the Excel user function INTERPOLATE. Macros must be enabled in order for this function to perform its calculations, and the workbooks must be saved as a macro-enabled file type (.xlsm or .xlsb).

The following is a description of the columns in Table REF4:

Column	Label	Units	Description
R1	Reservoir	none	Reservoir name
R2	Elevation	feet	Elevation at the top of the reservoir conservation pool
R3	Storage	acft	Total storage volume below the top of conservation pool. Calculated from Area-Capacity-Elevation table in Reference spreadsheet. Uses special INTERPOLATE function.
R4	Feature	None	Lake Whitney storage feature.

R5	Elevation	Feet	Elevation associated with Lake Whitney storage feature
R6	Storage	acft	Storage volume associated with Lake Whitney storage feature

### H.2.3.5 Table REF5 – Pan Factors

Table REF5 contains the pan factors used to convert pan evaporation measured at the BRA reservoirs to gross reservoir evaporation. These factors are used in the Reservoir File as part of the inflow calculation.

The following describes the columns in Table REF5.

Column	Label	Units	Description
F1	Month	None	Month
F2	Pan Factor	none	Monthly evaporation pan factors

### H.2.3.6 Table REF6 – Conversion Factors

Table REF7 has conversion factors used to change units from cfs to acft/day, MGD to cfs and MGD to acft/day. All workbooks use these factors.

### H.2.3.7 Table DATA1 – Basic Data for USGS Gages and Reservoirs

Table DATA1 is the entry point for historical gage flows used for environmental flow calculations. These data will be entered by BRA staff. The table also imports elevation data from the BASIC data tables in the reference file and calculates daily storage values, using the area-capacity data from the ACE tables. Historical monthly BRA storage in Lake Whitney is entered here by BRA staff.

The following describes the columns in Table DATA1:

Column	Label	Units	Description	Tables Referenced
L1	Month	none	Month of the year	
W1	BRA Beginning-of-Month Storage in Lake Whitney	acft	Beginning-of-Month historical BRA storage in Lake Whitney. Derived from other sources.	
L2	Date	none		
G1	SOUT2 USGS 08088000 Brazos River nr South Bend	cfs	Historical daily average streamflow at 08088000. Used in Table IF 1 of the instream flow file.	
G2	PLOT2 USGS 08089000 Brazos Rv nr Palo Pinto	cfs	Historical daily average streamflow at 08089000. Used in Table IF2 of the instream flow file and table REACH 1 of the reaches file.	
G3	GLRT2 USGS 08091000 Brazos Rv nr Glen Rose	cfs	Historical daily average streamflow at 08091000. Used in Table IF3 of the instream flow file and table REACH 3 of the reaches file.	
G4	WBAT2 USGS 08096500 Brazos River at Waco	cfs	Historical daily average streamflow at 08096500. Used in Table IF4 of the instream flow file.	
G5	USGS 08100500 Leon Rv at Gatesville	cfs	Historical daily average streamflow at 08100500. Used in Table IF 5 of the instream flow file and table REACH 8 of the reaches file.	
G6	LRIT2 USGS 08104500 Little Rv nr Little River	cfs	Historical daily average streamflow at 08104500. Used in Table IF6 of the instream flow file and table REACH 11 of the reaches file.	
G7	CMNT2 USGS 08106500 Little Rv nr Cameron	cfs	Historical daily average streamflow at 08106500. Used in table IF7 of the instream flow file and table REACH 14 of the reaches file.	
G8	BBZT2 USGS 08108700 Brazos Rv at SH 21 nr Bryan, TX	cfs	Historical daily average streamflow at 08108700. Used in table IF8 of the instream flow file and table REACH 15 of the reaches file.	
G9	EAST2 USGS 08110500 Navasota Rv nr Easterly	cfs	Historical daily average streamflow at 08110500. Used in table IF9 of the instream flow file and table REACH 18 of the reaches file.	
G10	HPDT2 USGS 08111500 Brazos Rv nr Hempstead, TX	cfs	Historical daily average streamflow at 08111500. Used in table IF10 of the instream flow file and table REACH 19 of the reaches file.	
G11	RMOT2 USGS 08114000 Brazos Rv at Richmond	cfs	Historical daily average streamflow at 08114000. Used in table IF11 of the instream flow file and table REACH 20 of the reaches file.	
G12	ROST2 USGS 08116650 Brazos Rv nr Rosharon	cfs	Historical daily average streamflow at 08116650. Used in table IF11 of the instream flow file and table REACH 21 of the reaches file.	
G13	DNNT2 USGS 08090800 Brazos Rv nr Dennis, TX	cfs	Historical daily average streamflow at 08090800. Used in table REACH 2 of the reaches file.	
G14	USGS 08099500 Leon Rv nr Hasse, TX	cfs	Historical daily average streamflow at 08099500. Used in table REACH 7 of the reaches file.	
G15	HPDT2 USGS 08098290 Brazos Rv nr Highbank	cfs	Historical daily average streamflow at 08098290. Used in table REACH 6 of the reaches file.	
G16	USGS 08110000 Yegua Ck nr Somerville	cfs	Historical daily average streamflow at 08110000. Used in table REACH 16 of the reaches file.	
G17	AQIT2 USGS 08093360 Aquilla Ck abv Aquilla	cfs	Historical daily average streamflow at 08093360. Used in table REACH 4 of the reaches file.	
G18	AQLT2 USGS 08093100 Brazos Rv nr Aquilla	cfs	Historical daily average streamflow at 08093100. Used in table REACH 5 of the reaches file.	
G19	BLET2 USGS 08102500 Leon Rv nr Belton	cfs	Historical daily average streamflow at 08102500. Used in Table REACH 9 of the reaches file.	
G20	USGS 08104100 Lampasas Rv nr Belton	cfs	Historical daily average streamflow at 08104100. Used in table REACH 10 of the reaches file.	
G21	GERT2 USGS 08104700 N Fk San Gabriel Rv nr Georgetown	cfs	Historical daily average streamflow at 08104700. Used in table REACH 12 of the reaches file.	

Column	Label	Units	Description	Tables Referenced
G22	GGRT2 USGS 08105700 San Gabriel Rv at Laneport	cfs	Historical daily average streamflow at 08105700. Used in table REACH 13 of the reaches file.	
E1	PSMT2 Possum Kingdom	feet	Historical reservoir elevation for Possum Kingdom	BASIC1
E2	GBYT2 Granbury	feet	Historical reservoir elevation for Granbury	BASIC2
E3	WTYT2 Whitney	feet	Historical reservoir elevation for Whitney	BASIC3
E4	ALAT2 Aquilla	feet	Historical reservoir elevation for Aquilla	BASIC4
E5	PCTT2 Proctor	feet	Historical reservoir elevation for Proctor	BASIC5
E6	BLNT2 Belton	feet	Historical reservoir elevation for Belton	BASIC6
E7	STIT2 Stillhouse	feet	Historical reservoir elevation for Stillhouse	BASIC7
E8	GGLT2 Georgetown	feet	Historical reservoir elevation for Georgetown	BASIC8
E9	GLKT2 Granger	feet	Historical reservoir elevation for Granger	BASIC9
E10	SOMT2 Somerville	feet	Historical reservoir elevation for Somerville	BASIC10
E11	LLST2 Limestone	feet	Historical reservoir elevation for Limestone	BASIC11
V1	PSMT2 Possum Kingdom	acft	Reservoir storage volume for Possum Kingdom. Calculated from Area-Capacity-Elevation table in Reference spreadsheet. Uses special INTERPOLATE function.	ACE1
V2	GBYT2 Granbury	acft	Reservoir storage volume for Lk Granbury. Calculated from Area-Capacity-Elevation table in Reference spreadsheet. Uses special INTERPOLATE function.	ACE2
V3	WTYT2 Whitney	acft	Reservoir storage volume for Lk Whitney. Calculated from Area-Capacity-Elevation table in Reference spreadsheet. Uses special INTERPOLATE function.	ACE3
V4	ALAT2 Aquilla	acft	Reservoir storage volume for Lk Aquilla. Calculated from Area-Capacity-Elevation table in Reference spreadsheet. Uses special INTERPOLATE function.	ACE4
V5	PCTT2 Proctor	acft	Reservoir storage volume for Lk Proctor. Calculated from Area-Capacity-Elevation table in Reference spreadsheet. Uses special INTERPOLATE function.	ACE5
V6	BLNT2 Belton	acft	Reservoir storage volume for Lk Belton. Calculated from Area-Capacity-Elevation table in Reference spreadsheet. Uses special INTERPOLATE function.	ACE6
V7	STIT2 Stillhouse	acft	Reservoir storage volume for Lk Stillhouse Hollow. Calculated from Area-Capacity-Elevation table in Reference spreadsheet. Uses special INTERPOLATE function.	ACE7
V8	GGLT2 Georgetown	acft	Reservoir storage volume for Lk Georgetown. Calculated from Area-Capacity-Elevation table in Reference spreadsheet. Uses special INTERPOLATE function.	ACE8
V9	GLKT2 Granger	acft	Reservoir storage volume for Lk Granger. Calculated from Area-Capacity-Elevation table in Reference spreadsheet. Uses special INTERPOLATE function.	ACE9

Column	Label	Units	Description	Tables Referenced
V10	SOMT2 Somerville	acft	Reservoir storage volume for Lk Somerville. Calculated from Area-Capacity-Elevation table in Reference spreadsheet. Uses special INTERPOLATE function.	ACE10
V11	LLST2 Limestone	acft	Reservoir storage volume for Lk Limestone. Calculated from Area-Capacity-Elevation table in Reference spreadsheet. Uses special INTERPOLATE function.	ACE11
V12	Total Storage	acft	Sum of columns [V1] through [V11]	

### H.2.3.8 Table DATA2 – Palmer Hydrological Drought Indices

Table DATA2 contains historical Palmer Hydrological Drought Indices (PHDI) for the last day of the previous season. These values are used in the instream flow file to determine the climatic condition for each season.

The following is a description of the columns in Table DATA2

Column	Units	Label	Description
PD1	none	Season	Name of season (Winter, Spring or Summer)
PD2	none	Date	Date of the end of the previous season
PD3	none	High Plains PHDI	PHDI for the High Plains region on the associated date
PD4	none	Low Rolling Plains PHDI	PHDI for the Low Rolling Plains region on the associated date
PD5	none	North Central PHDI	PHDI for the North Central region on the associated date
PD6	none	East Texas PHDI	PHDI for the East Texas region on the associated date
PD7	none	Edwards Plateau PHDI	PHDI for the Edwards Plateau region on the associated date
PD8	none	South Central PHDI	PHDI for the South Central region on the associated date
PD9	none	Upper Coast PHDI	PHDI for the Upper Coast region on the associated date

### H.2.3.9 Tables ACE1 through ACE11

Tables ACE1 through ACE11 are area-capacity-elevation tables for the eleven BRA system reservoirs. Information about the source of the data is included below the table title. These tables are used here in the reference file to calculate storage from elevations, in the Reservoir File to calculate surface areas, and at other locations in the Accounting Plan.

The following is a description of the columns in the ACE tables:

Column No	Label	Units	Description
R1	Elevation	feet	Elevation
R2	Area	acres	Reservoir water surface area corresponding to a particular elevation.
R3	Volume	acre-feet	Reservoir storage volume corresponding to a particular elevation.

### H.2.3.10 Tables BASIC1 through BASIC11

Tables BASIC1 through BASIC11 contain basic information used in the Reservoir File, as well as data that is passed on to reaches that are below reservoirs. BRA staff enter daily data for evaporation, rainfall, diversions directly from the reservoir, downstream releases (both total and portion dedicated for water supply), and reservoir elevation. The tables import information from the Instream Flow File regarding applicable instream flow criteria. The table also sums up return flows that are returned directly into the reservoir or into a tributary of the reservoir that is not one of the reaches in Table H.2.1. For return flows that are upstream of the reservoir, losses may be applied. The delivery factors used in the loss calculation are shown in Table REF2 Return Flows (described above) and are derived from the Brazos WAM.

Most of the tables have a standard layout. Tables for Lake Granbury (BASIC2), Lake Aquilla (BASIC4), Lake Proctor (BASIC5), Lake Stillhouse Hollow (BASIC7), Lake Granger (BASIC9), Lake Somerville (BASIC10) and Lake Limestone (BASIC11) all use the same layout. The following is a description of the columns for tables using the standard layout:

Column	Label	Units	Description
L1	Month	none	Month number for associated data value
L2	End of Month	none	End-of-month associated with date value
L3	Date	none	Date
F1	Evaporation	inches	Daily recorded evaporation. Entered by BRA staff.

Column	Label	Units	Description
F2	Rainfall	inches	Daily recorded rainfall. Entered by BRA staff.
F3	Lakeside Diversions	dsf	Daily lakeside diversions from the reservoir. Entered by BRA staff.
F4	Downstream Release	dsf	Daily downstream releases from the reservoir. Entered by BRA staff.
F5	Elevation	feet	Daily recorded reservoir water surface elevation. Entered by BRA staff.
F6	Water Supply Release	dsf	Daily water supply releases from the reservoir. Entered by BRA staff.
F7	Downstream Flows Exceed Criteria?	none	TRUE if flows at the downstream measurement point exceed the instream flow criteria. Otherwise, FALSE. Imported from the measurement point for each reservoir.
F8	Return Flows into Reservoir	MGD	Return flows to the reservoir reach. Sum of columns [RF1] through [RF10].
RF1	[Return Flow Name]	MGD	Return flows from Table REF1 that either flow directly into the reservoir or flow into a tributary to the reservoir that is not a BRA reach. Multiplied by the appropriate delivery factor from REF1 if applicable.
RF2	[Return Flow Name]	MGD	Return flows from Table REF1 that either flow directly into the reservoir or flow into a tributary to the reservoir that is not a BRA reach. Multiplied by the appropriate delivery factor from REF1 if applicable.
RF3	[Return Flow Name]	MGD	Return flows from Table REF1 that either flow directly into the reservoir or flow into a tributary to the reservoir that is not a BRA reach. Multiplied by the appropriate delivery factor from REF1 if applicable.
RF4	[Return Flow Name]	MGD	Return flows from Table REF1 that either flow directly into the reservoir or flow into a tributary to the reservoir that is not a BRA reach. Multiplied by the appropriate delivery factor from REF1 if applicable.
RF5	[Return Flow Name]	MGD	Return flows from Table REF1 that either flow directly into the reservoir or flow into a tributary to the reservoir that is not a BRA reach. Multiplied by the appropriate delivery factor from REF1 if applicable.
RF6	[Return Flow Name]	MGD	Return flows from Table REF1 that either flow directly into the reservoir or flow into a tributary to the reservoir that is not a BRA reach. Multiplied by the appropriate delivery factor from REF1 if applicable.
RF7	[Return Flow Name]	MGD	Return flows from Table REF1 that either flow directly into the reservoir or flow into a tributary to the reservoir that is not a BRA reach. Multiplied by the appropriate delivery factor from REF1 if applicable.
RF8	[Return Flow Name]	MGD	Return flows from Table REF1 that either flow directly into the reservoir or flow into a tributary to the reservoir that is not a BRA reach. Multiplied by the appropriate delivery factor from REF1 if applicable.
RF9	[Return Flow Name]	MGD	Return flows from Table REF1 that either flow directly into the reservoir or flow into a tributary to the reservoir that is not a BRA reach. Multiplied by the appropriate delivery factor from REF1 if applicable.
RF10	[Return Flow Name]	MGD	Return flows from Table REF1 that either flow directly into the reservoir or flow into a tributary to the reservoir that is not a BRA reach. Multiplied by the appropriate delivery factor from REF1 if applicable.

Possum Kingdom Lake (BASIC1) adds an additional column for the upstream environmental flow criteria, which apply to diversions or water supply releases from the reservoir.

Column	Label	Units	Description
L1	Month	none	Month number for associated data value
L2	End of Month	none	End-of-month associated with date value
L3	Date	none	Date
F1	Evaporation	inches	Daily recorded evaporation. Entered by BRA staff.
F2	Rainfall	inches	Daily recorded rainfall. Entered by BRA staff.
F3	Lakeside Diversions	dsf	Daily lakeside diversions from the reservoir. Entered by BRA staff.
F4	Downstream Release	dsf	Daily downstream releases from the reservoir. Entered by BRA staff.
F5	Elevation	feet	Daily recorded reservoir water surface elevation. Entered by BRA staff.
F6	Water Supply Release	dsf	Daily water supply releases from the reservoir. Entered by BRA staff.
F7	Upstream Flows Exceed Criteria?	none	TRUE if flows at the South Bend gage exceed the instream flow criteria plus diversions and water supply releases from PK. Otherwise, FALSE. Imported from the South Bend instream flow calculations.
F8	Downstream Flows Exceed Criteria?	none	TRUE if flows at the Palo Pinto gage exceed the instream flow criteria. Otherwise, FALSE. Imported from the measurement point for each reservoir.
F9	Return Flows into Reservoir	MGD	Return flows to the reservoir reach. Sum of columns [RF1] through [RF10].
RF1	[Return Flow Name]	MGD	Return flows from Table REF1 that either flow directly into the reservoir or flow into a tributary to the reservoir that is not a BRA reach. Multiplied by the appropriate delivery factor from REF1 if applicable.
RF2	[Return Flow Name]	MGD	Return flows from Table REF1 that either flow directly into the reservoir or flow into a tributary to the reservoir that is not a BRA reach. Multiplied by the appropriate delivery factor from REF1 if applicable.
RF3	[Return Flow Name]	MGD	Return flows from Table REF1 that either flow directly into the reservoir or flow into a tributary to the reservoir that is not a BRA reach. Multiplied by the appropriate delivery factor from REF1 if applicable.
RF4	[Return Flow Name]	MGD	Return flows from Table REF1 that either flow directly into the reservoir or flow into a tributary to the reservoir that is not a BRA reach. Multiplied by the appropriate delivery factor from REF1 if applicable.
RF5	[Return Flow Name]	MGD	Return flows from Table REF1 that either flow directly into the reservoir or flow into a tributary to the reservoir that is not a BRA reach. Multiplied by the appropriate delivery factor from REF1 if applicable.
RF6	[Return Flow Name]	MGD	Return flows from Table REF1 that either flow directly into the reservoir or flow into a tributary to the reservoir that is not a BRA reach. Multiplied by the appropriate delivery factor from REF1 if applicable.
RF7	[Return Flow Name]	MGD	Return flows from Table REF1 that either flow directly into the reservoir or flow into a tributary to the reservoir that is not a BRA reach. Multiplied by the appropriate delivery factor from REF1 if applicable.
RF8	[Return Flow Name]	MGD	Return flows from Table REF1 that either flow directly into the reservoir or flow into a tributary to the reservoir that is not a BRA reach. Multiplied by the appropriate delivery factor from REF1 if applicable.

Column	Label	Units	Description
RF9	[Return Flow Name]	MGD	Return flows from Table REF1 that either flow directly into the reservoir or flow into a tributary to the reservoir that is not a BRA reach. Multiplied by the appropriate delivery factor from REF1 if applicable.
RF10	[Return Flow Name]	MGD	Return flows from Table REF1 that either flow directly into the reservoir or flow into a tributary to the reservoir that is not a BRA reach. Multiplied by the appropriate delivery factor from REF1 if applicable.

Lake Whitney (BASIC3) has a column for hydropower releases plus a column for upstream environmental flow criteria.

Column	Label	Units	Description
L1	Month	None	Month number for associated data value
L2	End of Month	None	End-of-month associated with date value
L3	Date	None	Date
F1	Evaporation	Inches	Daily recorded evaporation. Entered by BRA staff.
F2	Rainfall	Inches	Daily recorded rainfall. Entered by BRA staff.
F3	Turbine release	dsf	Average daily hydropower release. Entered by BRA staff.
F4	Lakeside Diversions	Dsf	Daily lakeside diversions from the reservoir. Entered by BRA staff.
F5	Downstream Release	Dsf	Daily downstream releases from the reservoir. Entered by BRA staff.
F6	Elevation	Feet	Daily recorded reservoir water surface elevation. Entered by BRA staff.
F7	Water Supply Release	Dsf	Daily water supply releases from the reservoir. Entered by BRA staff.
F8	Upstream Flows Exceed Criteria?	None	TRUE if flows at the Glen Rose gage exceed the instream flow criteria plus diversions and water supply releases from Lake Whitney. Otherwise, FALSE. Imported from the South Bend instream flow calculations.
F9	Downstream Flows Exceed Criteria?	none	TRUE if flows at the Waco gage exceed the instream flow criteria. Otherwise, FALSE. Imported from the measurement point for each reservoir.
F9	Return Flows into Reservoir	MGD	Return flows to the reservoir reach. Sum of columns [RF1] through [RF10].
RF1	Not used	MGD	Not used
RF2	Not used	MGD	Not used
RF3	Not used	MGD	Not used
RF4	Not used	MGD	Not used
RF5	Not used	MGD	Not used
RF6	Not used	MGD	Not used
RF7	Not used	MGD	Not used
RF8	Not used	MGD	Not used
RF9	Not used	MGD	Not used
RF10	Not used	MGD	Not used

Lake Belton (BASIC6) adds a column for diversions under the Fort Hood right (COA 12-2936), which are used in the mass balance calculation for Lake Belton.

Column	Label	Units	Description
L1	Month	none	Month number for associated data value
L2	End of Month	none	End-of-month associated with date value
L3	Date	none	Date
F1	Evaporation	inches	Daily recorded evaporation. Entered by BRA staff.
F2	Rainfall	inches	Daily recorded rainfall. Entered by BRA staff.
F3	Lakeside Diversions	dsf	Daily lakeside diversions from the reservoir. Entered by BRA staff.
F4	Downstream Release	dsf	Daily downstream releases from the reservoir. Entered by BRA staff.
F5	Elevation	feet	Daily recorded reservoir water surface elevation. Entered by BRA staff.
F6	Water Supply Release	dsf	Daily water supply releases from the reservoir. Entered by BRA staff.
F7	Fort Hood Diversion	acft	Diversions from Lake Belton made under COA 12-2936. Entered by BRA staff. Used for Lake Belton water balance calculations (Table RES6 of Reservoir File).
F8	Downstream Flows Exceed Criteria?	none	TRUE if flows at the Little River gage exceed the instream flow criteria. Otherwise, FALSE. Imported from the measurement point for each reservoir.
F9	Return Flows into Reservoir	MGD	Return flows to the reservoir reach. Sum of columns [RF1] through [RF10].
RF1	City of Copperas Cove (Northwest WWTP)	MGD	Return flows from column [R17] of Table REF1, multiplied by the Brazos WAM delivery factor.
RF2	City of Copperas Cove (Northeast WWTP)	MGD	Return flows from column [R20] of Table REF1, multiplied by the Brazos WAM delivery factor.
RF3	City of Moody WWTP	MGD	Return flows from column [R21] of Table REF1, multiplied by the Brazos WAM delivery factor.
RF4	Bell County WCID #1 WWTP	MGD	Return flows from column [R22] of Table REF1, multiplied by the Brazos WAM delivery factor.
RF5	Not used	MGD	Not used
RF6	Not used	MGD	Not used
RF7	Not used	MGD	Not used
RF8	Not used	MGD	Not used
RF9	Not used	MGD	Not used
RF10	Not used	MGD	Not used

Lake Georgetown (BASIC8) adds a column for water pumped into the reservoir from Lake Stillhouse Hollow.

Column	Label	Units	Description
L1	Month	none	Month number for associated data value

Column	Label	Units	Description
L2	End of Month	none	End-of-month associated with date value
L3	Date	none	Date
F1	Evaporation	inches	Daily recorded evaporation. Entered by BRA staff.
F2	Rainfall	inches	Daily recorded rainfall. Entered by BRA staff.
F3	Lakeside Diversions	dsf	Daily lakeside diversions from the reservoir. Entered by BRA staff.
F4	Downstream Release	dsf	Daily downstream releases from the reservoir. Entered by BRA staff.
F5	Elevation	feet	Daily recorded reservoir water surface elevation. Entered by BRA staff.
F6	Water Supply Release	dsf	Daily water supply releases from the reservoir. Entered by BRA staff.
F7	Pumping from Stillhouse	dsf	Daily water pumped from Lake Stillhouse Hollow. Entered by BRA staff.
F8	Downstream Flows Exceed Criteria?	none	TRUE if flows at the Cameron gage exceed the instream flow criteria. Otherwise, FALSE. Imported from the measurement point for each reservoir.
F9	Return Flows into Reservoir	MGD	Return flows to the reservoir reach. Sum of columns [RF1] through [RF10].
RF1	Not used	MGD	Not used
RF2	Not used	MGD	Not used
RF3	Not used	MGD	Not used
RF4	Not used	MGD	Not used
RF5	Not used	MGD	Not used
RF6	Not used	MGD	Not used
RF7	Not used	MGD	Not used
RF8	Not used	MGD	Not used
RF9	Not used	MGD	Not used
RF10	Not used	MGD	Not used

*This space left blank intentionally*

## H.2.4 Reservoir File Tables

The Accounting Plan includes daily reservoir accounting for the eleven BRA System reservoirs: Possum Kingdom, Granbury, Whitney, Aquilla, Proctor, Belton, Stillhouse Hollow, Georgetown, Granger, Somerville, and Limestone. The worksheet for each reservoir includes inputs, inflow calculation, lakeside use accounting, downstream use accounting, storage accounting, and accounting for impoundment under the system operations permit. With the exception of Lakes Whitney and Belton, the format of the worksheets for the reservoirs is identical. The worksheets are described by section below, including descriptions of each column in the computation.

### H.2.4.1 Inputs

Columns I1 through I10 give basic data to be used in the computation. The inputs include the portion of lakeside and downstream use that is under the System Operation Permit. The inputs section is preceded by two columns that give the month and date. The columns for the date and the inputs are the same for all reservoirs and are as follows:

Column	Label	Units	Daily Description	Tables Referenced
L1	Month	none	Numeric monthly index (1-12)	
L2	Date	none	Current date from basic data	BASIC
I1	Total Lakeside Use	acre-feet	Total BRA lakeside use from basic data in the Reference spreadsheet.	BASIC
I2	Total Water Supply Release	acre-feet	Total BRA release from basic data in the Reference spreadsheet.	BASIC
I3	SysOps Lakeside Use	acre-feet	Portion of lakeside use of natural inflows and stored natural inflows that is under SysOps.	
I4	SysOps Downstream Use	acre-feet	Portion of downstream use of natural inflows and stored natural inflows released from this lake that is under SysOps.	
I5	SysOps Lakeside Return Flow Use	acre-feet	Portion of lakeside return flow use that is under SysOps.	
I6	SysOps Downstream Return Flow Use	acre-feet	Portion of downstream use of return flow released from this lake that is under SysOps.	

Column	Label	Units	Daily Description	Tables Referenced
I7	Use Check	none	Check to see if SysOps use less than or equal to total use.	
I8	Flows > Instream Flows During Month?	none	From IF Reference spreadsheet / basic data. If TRUE then flows at the applicable measurement point are greater than the calculated instream flow criteria from the instream flow file. Referenced through the BASIC tables in the reference file. For PK and Whitney, this is an upstream gage. For all other files, it is a downstream measurement point.	BASIC
I9	Upstream Water Supply Releases	acre-feet	BRA Water Supply Releases passed into reservoir from upstream reach. If no reach upstream, set to zero.	Upstream Reach Worksheet
I10	BRA Return Flows	acre-feet	BRA Return Flows passed into reservoir from upstream reach plus return flows directly into the reservoir from basic data in the Reference spreadsheet.	Upstream Reach Worksheet and BASIC

#### *H.2.4.2 Inflow Calculation*

Columns F1 through F13 give the computations of inflows to the reservoir. The total inflow is computed by a mass balance. Natural inflows available to BRA are determined by adjusting total inflows for upstream releases, return flows, and bypasses (releases that are not BRA water supply releases). Because of inconsistent data, daily reservoir inflows may be computed to be negative on some days. When this happens, the accounting plan assigns diversions to stored water and maintains the proper mass balance. Although the format is the same for all reservoirs, BRA is entitled to only 22.017 percent of the total inflow to Lake Whitney (because of the division of inflows between the hydropower and water supply pools). The columns for the inflow calculation are as follows:

Column	Label	Units	Daily Description	Tables Referenced
F1	End-of-Day Elevation	feet	End-of-day reservoir elevation from basic data in the Reference spreadsheet.	BASIC

F2	End-of-Day Reservoir Storage	acre-feet	End-of-day reservoir storage, calculated from basic gage data table in Reference spreadsheet. Uses special INTERPOLATE function.	ACE
<b>Column</b>	<b>Label</b>	<b>Units</b>	<b>Daily Description</b>	<b>Tables Referenced</b>
F3	Precipitation	inches	Daily precipitation from basic data in Reference spreadsheet.	BASIC
F4	Pan Evaporation	inches	Daily pan evaporation from basic data in Reference spreadsheet.	BASIC
F5	Pan Factor	none	Monthly pan factor from basic data in Reference spreadsheet.	REF
F6	Net Evaporation	feet	Daily net evaporation	
F7	End-of-Day Surface Area	acres	End-of-day surface area, calculated from Area-Capacity-Elevation table in Reference spreadsheet.	ACE
F8	Evaporation	acre-feet	Net evaporative loss. Calculated by multiplying net evaporation rate times previous day's surface area. Could be entered if calculated elsewhere.	
F9	Lakeside Diversion	acre-feet	Total diversion taken lakeside (includes non-BRA diversions, if any). Repeat of column [I1] for all reservoirs except Lake Belton. (For Lake Belton, U.S. Army diversions from Table BASIC6 in the reference spreadsheet are added.)	BASIC6 (Belton only)
F10	Total Outflow	acre-feet	Total of all releases from reservoir, including BRA Water Supply releases and other releases. From basic data in Reference spreadsheet.	BASIC
F11	Calculated Inflow	acre-feet	Calculated inflow (could be entered if calculated elsewhere)	
F12	Non-determinant Flows	acre-feet	Amount of outflow that is not a BRA water supply release. This is outflow that is not being used for anything else. Includes spills as well as other types of releases. This should be water that could not be considered part of a water supply release. So it if is picked up downstream under a reservoir's right it should be in the water supply release column. From basic data in Reference spreadsheet.	BASIC
F13	Available Natural Inflows	acre-feet	Total inflows less upstream BRA Water Supply Releases, BRA Return Flows, and bypasses.	

### H.2.4.3 Lakeside Use Accounting

Columns LU1 through LU17 give the accounting for lakeside use from the reservoir. The lakeside use accounting tracks use of upstream releases, return flows, natural inflows and stored water separately. It is identical for all reservoirs. The columns for the lakeside use accounting are as follows:

Column	Label	Units	Daily Description
LU1	Lakeside Use of Upstream Releases	acre-feet	Portion of Lakeside Demand met from Upstream BRA Water Supply Releases. Limited to positive flows. Use will be assigned to the source of the upstream release. This source will be used THIRD, if available, after use of natural flows and return flows under SysOps.
LU2	Lakeside Use from Upstream Release Override	none	A non-negative value overrides the previous column.
LU3	Lakeside Use BRA Return Flows under CAXXXX	acre-feet	Portion of Lakeside Demand met from Upstream BRA Return Flows, appropriated under the reservoir's water rights permit. This source is used FOURTH, after use of upstream releases and use under SysOps (if any).
LU4	Override of Lakeside Use BRA Return Flows under CAXXXX	none	A non-negative value overrides the previous column.
LU5	Lakeside Use Natural Inflow under CAXXXX	acre-feet	Portion of Lakeside Demand met from natural inflows, appropriated under reservoir's water rights permit. This source is used FIFTH, after return flow use and use of inflows under SysOps (if any). Use of inflows under SysOps is manually entered.
LU6	Lakeside Use BRA Return Flows under SysOps	acre-feet	Portion of Lakeside Demand met from BRA Return Flows appropriated under the System Operation Permit (P5851). If instream flow criteria are met and diversions are being made under SysOps (Column I5), then this source is used FIRST. Use is manually entered in column [I5].
LU7	Lakeside Use of Natural Inflows under SysOps	acre-feet	Portion of Lakeside Demand met from natural inflows appropriated under the System Operation Permit (P5851). If instream flow criteria are met and diversions are being made under SysOps (Column [I3]), then this source is used SECOND, after SysOps use of return flows. Use is manually entered in Column [I3].
LU8	Lakeside Use from	acre-	Remaining Lakeside Demand not met from inflows.

Column	Label	Units	Daily Description
	Storage	feet	
LU9	Lakeside Use from CAXXXX Storage	acre-feet	Portion of Lakeside Demand met from reservoir's permit storage account. This stored water is used LAST. Since this value is calculated last there is no override.
LU10	Lakeside Use from Upstream Release Storage	acre-feet	Portion of Lakeside Demand met from Upstream Release storage account. Formula causes this stored water to be used SECOND. Formula-based distribution can be manually overridden.
LU11	Upstream Release Storage Override	none	A non-negative value overrides the previous column.
LU12	Lakeside Use from SysOps Return Flow Storage	acre-feet	Portion of Lakeside Demand met from SysOps Return Flow storage account. Formula causes this stored water to be used FIRST. Formula-based distribution can be manually overridden.
LU13	Return Flow Storage Override	none	A non-negative value overrides the previous column.
LU14	Lakeside Diversion Check	none	If all Lakeside Demand met exactly then value will be zero. A positive value indicates that Lakeside demand is over-supplied. A negative value indicates an under-supply.
LU15	Remaining Upstream Release	acre-feet	Remaining upstream BRA Water Supply Release after meeting Lakeside Demands.
LU16	Remaining Return Flow	acre-feet	Remaining BRA Return Flows after meeting Lakeside Demands.
LU17	Remaining Natural Inflow	acre-feet	Remaining available natural inflow after meeting Lakeside Demands.

#### *H.2.4.4 Downstream Use Accounting*

Columns DS1 through DS13 give the accounting for downstream use of releases from the reservoir. The downstream use accounting tracks use of upstream releases, return flows, natural inflows and stored water separately. It is identical for all reservoirs. The columns for the downstream use accounting are as follows:

Column	Label	Units	Daily Description
DS1	Water Supply Release	acre-feet	Water supply release. Repeated from Column [I2]

DS2	Pass Through of Upstream Release	acre-feet	Portion of downstream BRA Water Supply Release to be met by passing through upstream BRA Water Supply Releases. Formula will cause this source to be used FIRST. Formula-based distribution can be overridden in next column.
DS3	Upstream Release Override	none	A non-negative value overrides the previous column.
DS4	Pass Through of Inflows to meet downstream demand	acre-feet	Portion of downstream BRA Water Supply Release to be met by passing natural inflows. Formula will cause this source to be used THIRD. Formula-based distribution can be overridden in next column.
<b>Column</b>	<b>Label</b>	<b>Units</b>	<b>Daily Description</b>
DS5	Inflow Pass Through Override	none	A non-negative value overrides the previous column.
DS6	Pass Through of Return Flows	acre-feet	Portion of downstream BRA Water Supply Release to be met by passing BRA Return Flows. Formula will cause this source to be used SECOND. Formula-based distribution can be overridden in next column.
DS7	Return Flow Pass Through Override	none	A non-negative value overrides the previous column.
DS8	Release from CAXXXX Storage	acre-feet	Portion of downstream BRA Water Supply Release to be met by releasing water from reservoir's base right storage account. Formula will cause this source to be used LAST. Since this formula is executed last, there is no override.
DS9	Release from Upstream Release Storage	acre-feet	Portion of downstream BRA Water Supply Release to be met by releasing water from Upstream Release Storage account (will be charged to upstream water right). Formula will cause this source to be used FOURTH. Formula-based distribution can be overridden in next column.
DS10	Upstream Release Storage Override	none	A non-negative value overrides the previous column.
DS11	Release from SysOps Return Flow Storage	acre-feet	Portion of downstream BRA Water Supply Release to be met by releasing water from BRA Return Flow Storage account. Formula will cause this source to be used FIFTH. Formula-based distribution can be overridden in next column.
DS12	Return Flow Storage Override	none	A non-negative value overrides the previous column.
DS13	Water Supply Release Check	none	A zero value means all BRA downstream water supply release has been met. A negative value indicates an under-supply. A positive value indicates an over-supply.

### H.2.4.5 Storage Accounting

Columns ST1 through ST22 give the accounting for storage in the reservoir. The storage accounting tracks storage of upstream releases, storage of return flows under the System Operation Permit and storage under the reservoir's existing water right separately. The storage accounting is different for Lake Whitney, as will be described below. The columns for storage accounting for all reservoirs but Whitney are as follows:

Column	Label	Units	Daily Description
ST1	Unused Inflows	acre-feet	Inflows that are not used for Lakeside Demand or Downstream Water Supply and are not stored in BRA storage (spills and inflows to flood storage).
ST2	Upstream Release to Storage	acre-feet	Upstream BRA Water Supply release going into Upstream Release storage account.
ST3	Inflows to CAXXXX Storage	acre-feet	Natural inflows going into reservoir's water right storage account. Set to zero if storage is full.
ST4	Return Flows to CAXXXX Storage	acre-feet	Remaining return flows assigned to reservoir's existing water right storage account. Will only occur if reservoir is less than full and not using all return flows under SysOps.
ST5	Return Flows to SysOps Return Flow Storage	acre-feet	Remaining return flows assigned to BRA SysOps Return Flow storage account. Will not occur if instream flows are not met.
ST6	Inflow check	none	Check to see if all available natural inflows have been distributed. A positive value indicates more inflows have been assigned than occurred. A negative value indicates that some of the inflow is unassigned.
ST7	Upstream Release Check	none	Check to see if all Upstream BRA Water Supply releases have been distributed.
ST8	Return Flow Check	none	Check to see if all BRA Return Flows have been distributed.
ST9	End-of-Day Conservation Storage	acre-feet	Calculated storage, limited to conservation storage.
ST10	End-of-Day CAXXXX Storage	acre-feet	Storage account for reservoir's existing water right. If reservoir is at conservation storage, this is the conservation storage less the other storage accounts. Otherwise calculated as the previous day's storage plus inflows into account less outflows and proportioned evaporation. Can be manually overridden.

Column	Label	Units	Daily Description
ST11	End-of-Day Upstream Release Storage	acre-feet	Storage account for Upstream BRA Water Supply releases. Calculated as previous day's storage plus inflows less outflows and proportioned evaporation. Can be manually overridden.
ST12	End-of-Day SysOps Return Flow Storage	acre-feet	Storage account for BRA Return Flows impounder under SysOps. Calculated as previous day's storage plus inflows less outflows and proportioned evaporation. Can be manually overridden.
ST13	Stor Check	none	Check to see if storage accounts add up to storage, limited to conservation storage.
ST14	CAXXXX Storage Override	acre-feet	A non-negative value overrides the reservoir's existing water right storage account calculated by formula.
ST15	Upstream Release Storage Override	acre-feet	A non-negative value overrides the Upstream Water Supply storage account calculated by formula.
ST16	SysOps Return Flow Storage Override	acre-feet	A non-negative value overrides the SysOps Return Flow storage account calculated by formula.
ST17	End-of-Day % CAXXXX Storage	none	% of total conservation storage in reservoir's existing water right storage account. Used for evaporation distribution in the next day.
ST18	End-of-Day % Upstream Release Storage	none	% of total conservation storage in Upstream Release storage account. Used for evaporation distribution in the next day.
ST19	End-of-Day % SysOps Return Flow Storage	none	% of total conservation storage in SysOps Return Flow storage account. Used for evaporation distribution in the next day.
ST20	CAXXXX Storage Evaploss	acre-feet	Portion of evaporative loss assigned to the current permit. Equal to total evaporative loss less portions assigned to the storage accounts for SysOps and Upstream Release.
ST21	Upstream Release Storage Evaploss	acre-feet	Portion of evaporative loss assigned to the Upstream Release storage account. Equal to the lesser of the previous day's percentage of upstream release storage under the account multiplied by total evaporation or the sum of prior day storage and current day releases to the account less lakeside and downstream use from the account.
ST22	SysOps Return Flow Storage Evaploss	acre-feet	Portion of evaporative loss assigned to the SysOps Return Flow storage account. Equal to the lesser of the previous day's percentage of return flow storage under SysOps multiplied by total evaporation or the sum of prior day storage and current day releases to the account less lakeside and downstream use from the account.

The Lake Whitney storage accounting is the same as the other reservoirs for Columns ST1 through ST9. It includes Columns ST10 through ST13 to apportion conservation storage between BRA storage and hydropower storage and to adjust the accounting monthly to match Corps of Engineers accounting. Columns ST14 through ST26 are the same as ST10 through ST22 for the other reservoirs. The columns for storage accounting for Lake Whitney are as follows:

Column	Label	Units	Daily Description
ST1	Unused Inflows	acre-feet	Inflows that are not used for Lakeside Demand or Downstream Water Supply and are not stored in BRA storage (spills and inflows to flood storage).
ST2	Upstream Release to Storage	acre-feet	Upstream BRA Water Supply release going into Upstream Release storage account.
ST3	Inflows to CA5157 Storage	acre-feet	Natural inflows going into reservoir's water right storage account. Set to zero if storage is full.
ST4	Return Flows to CA5157 Storage	acre-feet	Remaining return flows assigned to reservoir's existing water right storage account. Will only occur if reservoir is less than full and not using all return flows under SysOps.
ST5	Return Flows to SysOps Return Flow Storage	acre-feet	Remaining return flows assigned to BRA SysOps Return Flow storage account. Will not occur if instream flows are not met.
ST6	Inflow check	none	Check to see if all available natural inflows have been distributed. A positive value indicates more inflows have been assigned than occurred. A negative value indicates that some of the inflow is unassigned.
ST7	Upstream Release Check	none	Check to see if all Upstream BRA Water Supply releases have been distributed.
ST8	Return Flow Check	none	Check to see if all BRA Return Flows have been distributed.
ST9	End-of-Day Conservation Storage	acre-feet	Calculated storage, limited to conservation storage.
ST10	End-of-Day SWPA Storage	acre-feet	SWPA storage volume. Equal to end-of-day conservation storage less adjusted end-of-day BRA storage.

Column	Label	Units	Daily Description
ST11	Calculated End-of-Day BRA Storage	acre-feet	Portion of storage assigned to BRA. Calculated by adding the inflows and return flows and subtracting evaporative losses. This value is then added to storage or, if set, target end of day storage for the prior day. Prior day storage is limited to the BRA portion of conservation storage.
ST12	Adjusted End-of-Day BRA Storage	acre-feet	Total end of day storage in the BRA portion of Lake Whitney.
ST13	End-of-Day CA5157 Storage	acre-feet	Storage account for reservoir's existing water right. If reservoir is at conservation storage, this is the conservation storage less the other storage accounts. Otherwise calculated as the previous day's storage plus inflows into account less outflows and proportioned evaporation. Can be manually overridden.
ST14	End-of-Day Upstream Release Storage	acre-feet	Storage account for Upstream BRA Water Supply releases. Calculated as previous day's storage plus inflows less outflows and proportioned evaporation. Can be manually overridden.
ST15	End-of-Day SysOps Return Flow Storage	acre-feet	Storage account for BRA Return Flows impounder under SysOps. Calculated as previous day's storage plus inflows less outflows and proportioned evaporation. Can be manually overridden.
ST16	Stor Check	none	Check to see if storage accounts add up to storage, limited to conservation storage.
ST17	CA5157 Storage Override	acre-feet	A non-negative value overrides the reservoir's existing water right storage account calculated by formula.
ST18	Upstream Release Storage Override	acre-feet	A non-negative value overrides the Upstream Water Supply storage account calculated by formula.
ST19	SysOps Return Flow Storage Override	acre-feet	A non-negative value overrides the SysOps Return Flow storage account calculated by formula.
ST20	End-of-Day % CA5157 Storage	none	% of total conservation storage in reservoir's existing water right storage account. Used for evaporation distribution in the next day.
ST21	End-of-Day % Upstream Release Storage	none	% of total conservation storage in Upstream Release storage account. Used for evaporation distribution in the next day.
ST22	End-of-Day % SysOps Return Flow Storage	none	% of total conservation storage in SysOps Return Flow storage account. Used for evaporation distribution in the next day.
ST23	CA5157 Storage Evaploss	acre-feet	Portion of evaporative loss assigned to the current permit. Equal to total evaporative loss less portions assigned to the storage accounts for SysOps and Upstream Release.

Column	Label	Units	Daily Description
ST24	Upstream Release Storage Evaploss	acre-feet	Portion of evaporative loss assigned to the Upstream Release storage account. Equal to the lesser of the previous day's percentage of return flow storage under the account multiplied by total evaporation or the sum of prior day storage and current day releases to the account less lakeside and downstream use from the account.
ST25	SysOps Return Flow Storage Evaploss	acre-feet	Portion of evaporative loss assigned to the SysOps Return Flow storage account. Equal to the lesser of the previous day's percentage of return flow storage under SysOps multiplied by total evaporation or the sum of prior day storage and current day releases to the account less lakeside and downstream use from the account.

*H.2.4.6 Accounting for Impoundment under the System Operation Permit*

Columns SO1 through SO23 give the accounting for impoundment under the System Operation Permit. This part of the Accounting Plan tracks storage emptied under the System Operation Permit and the storage of water under the System Operation Permit. When water is impounded under the System Operation Permit, this part of the Accounting Plan tracks storage of pulse flows and the release of stored pulse flows from storage. Accounting for impoundment under the System Operation Permit is the same for all reservoirs, and the columns are as follows:

Column	Label	Units	Daily Description
SO1	Return Flows Used under SysOps	acre-feet	Return flows diverted under SysOps
SO2	Other Use Under SysOps	acre-feet	Other flows diverted under SysOps
SO3	End-of-Day Actual Empty Storage	acre-feet	Empty conservation storage
SO4	End-of-Day Storage Emptied by SysOps	acre-feet	Storage emptied by diversions under SysOps. Calculated in column SO12.

Column	Label	Units	Daily Description
SO5	End-of-Day Storage without SysOps	acre-feet	What storage would have been without SysOps diversions. Calculated as the storage emptied by SysOps plus current storage.
SO6	End-of-Day Actual Surface Area	acres	Actual surface area, as calculated in Column [F7]
SO7	End-of-Day Surface Area without SysOps	acres	Surface area if there were no SysOps diversions. Uses customer INTERPOLATE worksheet function on area-capacity-elevation tables in Reference spreadsheet.
SO8	Net Evaporation	feet	Net evaporation rate calculated in column [F6].
SO9	Actual Evaploss	acre-feet	Actual evaporative loss, as calculated in column [F8].
SO10	Evaploss without SysOps	acre-feet	What the evaporation would have been if there were no SysOps diversions.
SO11	Change in Evaploss due to SysOps	acre-feet	Change in evaporation due to SysOps diversions.
SO12	End-of-Day Empty Storage due to SysOps	acre-feet	Storage emptied by SysOps diversions. Calculated as the minimum of the current empty storage and (the previous day's empty storage less the change in evaporative loss plus diversions under SysOps).
SO13	Non-Release Inflow	acre-feet	Total inflow into reservoir less upstream water supply releases. Portion of inflow potentially subject to instream flows if appropriated under SysOps.
SO14	Impounded Water	acre-feet	Amount impounded under the storage accounts for the existing permit and SysOps. Assigned a value of zero if the net impoundment is negative.
SO15	Change in Storage Emptied by SysOps	acre-feet	Change in the amount of storage emptied by SysOps. Equal to the current day's empty storage due to SysOps less the prior day's empty storage due to SysOps.
SO16	Reservoir Outflow	acre-feet	Total outflow from reservoir. Repeated from Column F10.
SO17	Water Stored under SysOps	acre-feet	Water impounded under the system operation permit during the day. Equal to change in storage less change in evaporation due to SysOps with a minimum of zero.
SO18	Pulse Storage under SysOps	acre-feet	Manual entry of amount of a pulse that has been stored under SysOps
SO19	Cumulative Pulse Storage under SysOps	acre-feet	Cumulative amount of pulse flow stored under SysOps. Equal to the current day pulse storage under SysOps plus the cumulative pulse storage under SysOps for the prior day minus Pulse passage (the amount of stored pulse flows released).
SO20	Pulse Passage	acre-feet	Manual entry of amount of a pulse that has been passed.

Column	Label	Units	Daily Description
SO21	Cumulative Pulse Passage	acre-feet	Cumulative amount of flow passed in an ongoing pulse passage. The value in the column returns to zero if [SO20] is zero.
SO22	Impounding Under SysOps?	none	Indicates whether water is being impounded under SysOps. If col. [SO17] is greater than zero equal to TRUE. Otherwise FALSE.
SO23	Flows > Instream Flow Criteria?	none	For PK and Whitney, this refers to the downstream measurement point for the reservoir, which applies to passage of pulse flows. For other reservoirs, this is a repeat of column [18]. TRUE if flows at the measurement point exceed the instream flow criteria..
SO24	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

### H.2.5 Reach File Tables

The REACH tables track BRA reservoir releases and return flows as they travel through the reaches shows in Table H.2.1 above. The tables apply travel times and losses to flows as they travel downstream. Table H.2.2 above shows the travel times and losses applied in the Accounting Plan. The REACH tables also show diversions of reservoir releases, return flows and natural flows. At selected USGS stream gage locations, the BRA flows are compared to the actual historical flows. If the calculated flows are greater than the historical flows, the BRA flows are reduced.

The tracking of BRA flows and diversions is done on a daily or sub-daily (10<sup>th</sup> of a day) basis. Sub-daily calculations are done to facilitate the use of travel times that are less than one day. These calculations occur in the REACH tables.

Because of the lags associated with the travel times, data must be imported from the previous year's Accounting Plan. The reach tables each have 10 days from the previous year at the beginning of the daily data that are pasted by BRA staff in each REACH table.

The reconciliation with historical gage flows is done on a monthly basis. The travel times and losses are based on averages, so the historical timing and losses may be somewhat different, resulting in day-to-day discrepancies in flow volume. These small errors should cancel out on a monthly basis. If the monthly volume of BRA flows is greater than the monthly historical volume at the gage, the daily releases and return flows are multiplied by scaling factors so that the volume of the BRA flow is equal to the historical measured flow. BRA staff can select whether releases, return flows or both are reduced. These calculations occur in the READJ tables.

#### *H.2.5.1 Table INTRO2 Introduction*

This table contains year information from the reference file and a table of contents for the Reach File.

#### *H.2.5.2 Table REACH1 – Possum Kingdom to Palo Pinto*

Table REACH1 tracks flows from Possum Kingdom Dam to the Palo Pinto gage. BRA flow reconciliation occurs at the downstream gage.

Row 23 of the REACH1 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from return flows and/or the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows

typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH1:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flows > IF Criteria?	none	TRUE when flows at the Palo Pinto gage are greater than the instream flow criteria. Daily values imported from Table IF2 in the Instream Flow File.
U1	Total Outflows	dsf	Total Outflows from Lake Possum Kingdom. Daily values imported from Table BASIC1 of reference file. Not used for subsequent calculations.
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases from Possum Kingdom less return flows in column [U4]. Daily values imported from Table BASIC1 of reference file. Daily values divided by 10 for use in the sub-daily calculations.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2] and Passed BRA Return Flows [U4]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
U4	Passed BRA Return Flows	dsf	Return flows passed through the Possum Kingdom but not stored. Daily values imported from Table RES1 of the Reservoir File. Daily values divided by 10 for use in sub-daily calculations.
R-A1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Daily data imported from file REF2 of summary file. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table BASIC1 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U4] and applies delivery factor (row 24), then adds column [R-A1]. Daily and monthly values are sums of the sub-daily data.

Column	Daily Label	Units	Description
R-A5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-A6] and local run-of-river flow [R-A8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-A2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-A7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-A6]). Calculation may be overridden by a non-negative entry in column [R-A9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ( $[R-A3] - [R-A5]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses ( $[R-A4] - [R-A6]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses ( $[R-A10] + [R-A11]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	PLOT2 - Brazos River nr Palo Pinto	dsf	Historical daily average flows measured at gage. Imported from Table DATA1 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ1.
G-A3	Adjusted Water Supply Releases at PLOT2	dsf	BRA Water Supply Releases from upstream reach (column [R-A10]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.
G-A4	Return Flow Adjustment	dsf	Adjustment for conditions when gage flows are less than calculated BRA flows. Imported from column [A13] of Table READJ1.
G-A5	Adjusted Return Flow at PLOT2	dsf	BRA Return Flows from upstream reach (column [R-A11]) multiplied by adjustment factor (column [G-A4]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows.
G-A6	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

### H.2.5.3 Table READJ1 to READJ21

The READJ tables perform the adjustment calculations for situations when the monthly flow volume measured at the gage is less than the calculated BRA water supply releases and return flow. Calculations are performed on a monthly basis. The table calculates scale factors for the daily flow that are multiplied by the daily flow values in each month (a scale factor of 1.0 or 100% means no adjustment). The default is to reduce the return flows first. This default can be overridden by BRA staff in column [A15].

The following describes the columns in the READJ tables:

Column	Units	Label	Description
A1	none	Days	Number of days per month
A2	none	Month Number	Sequence number of month
A3	none	Month	Month of year
A4	acre-feet	BRA Water Supply Releases	Monthly BRA Water Supply Releases at gage. From monthly REACH table.
A5	acre-feet	BRA Return Flows	Monthly BRA Return Flows at gage. From monthly REACH table.
A6	acre-feet	BRA Total	Monthly Total BRA water at gage. From monthly REACH table.
A7	acre-feet	[Gage Name]	Monthly historical gage flows. From monthly REACH table.
A8	acre-feet	Discrepancy	Amount that total BRA water exceeds measured monthly flow. Maximum of [A6] - [A7] or zero. If positive, then BRA water is more than measured flow and will be adjusted. If zero no adjustment is needed.
A9	none	% Water Supply Releases	% of the total BRA water that is BRA Water Supply Releases. Column [A4] divided by [A6]
A10	acre-feet	Monthly Water Supply Adjustment	Monthly volume reduction needed so that the BRA Water Supply Releases match measured flows. Calculated as the difference between the Discrepancy (column [A8]) and the Monthly Return Flow Adjustment (column [A11]).
A11	acre-feet	Monthly Return Flow Adjustment	Monthly volume reduction needed so that the BRA Return Flows match the measured flows. Calculated as the minimum of the BRA Return Flows (column [A5]) and the Discrepancy (column [A8]). Calculation will be overridden if column [A14] if there is a value in that column.
A12	none	% Remaining Water Supply	Percent of water supply remaining after accounting for discrepancy. If [A4] is not zero, equal to $1 - [A10] / [A4]$ . Otherwise zero. This number is multiplied by the daily flows.
A13	none	% Remaining Return Flows	Percent of return flow remaining after accounting for discrepancy. If [A4] is not zero, equal to $1 - [A10] / [A5]$ . Otherwise zero. This number is multiplied by the daily return flows.

Column	Units	Label	Description
A14	acre-feet	Return Flow Adjustment Override	An entry in this column overrides the Monthly Return Flow Adjustment in column [A11]. Should be a non-negative value less than or equal to the BRA Return Flows in column [A4].
A15	none	Adjustment Check	Checks to see if the value in [A14] is less than or equal to [A6]. Also checks for an entry when no adjustment is needed. "ok" means entry in [A14] is valid. "problem" means [A14] is not valid.
A16	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

#### *H.2.5.4 Table REACH2 – Palo Pinto to Lk Granbury Headwaters*

Table REACH2 tracks flows from the Palo Pinto gage to the headwaters of Lake Granbury. BRA flow reconciliation occurs at the Dennis gage.

Row 23 of the REACH2 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from return flows and/or the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH2:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flows at the Palo Pinto gage are greater than the instream flow criteria plus downstream diversions. Daily values imported from Table IF2 of the Instream Flow File.
U1	Total Outflows	dsf	Total flow at Palo Pinto gage. Daily values imported from Table REACH1. Not used for subsequent calculations.
U2	BRA Water Supply Releases	dsf	BRA Water Supply flows at Palo Pinto gage. Daily values imported from Table REACH1. Daily values divided by 10 for use in the sub-daily calculations.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2] and Passed BRA Return Flows [U4]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
U4	Passed BRA Return Flows	dsf	Return flows at Palo Pinto gage. Daily values imported from Table REACH1. Daily values divided by 10 for use in sub-daily calculations.
R-A1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Set to zero in this reach. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U4] and applies delivery factor (row 24), then adds column [R-A1]. Daily and monthly values are sums of the sub-daily data.
R-A5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-A6] and local run-of-river flow [R-A8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-A2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-A7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.

Column	Daily Label	Units	Description
R-A8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-A6]). Calculation may be overridden by a non-negative entry in column [R-A9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses $([R-A3] - [R-A5])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses $([R-A4] - [R-A6])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses $([R-A10] + [R-A11])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	DNNT2 - Brazos River nr Dennis	dsf	Historical daily average flows measured at gage. Imported from Table REF4 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ2.
G-A3	Adjusted Water Supply Releases at DNNT2	dsf	BRA Water Supply Releases from upstream reach (column [R-A10]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.
G-A4	Return Flow Adjustment	dsf	Adjustment for conditions when gage flows are less than calculated BRA flows. Imported from column [A13] of Table READJ2.
G-A5	Adjusted Return Flow at DNNT2	dsf	BRA Return Flows from upstream reach (column [R-A11]) multiplied by adjustment factor (column [G-A4]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows.
R-B1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Set to zero in this reach. Daily values divided by 10 for use in sub-daily calculations.
R-B2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-B4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A5] and applies delivery factor (row 24), then adds column [R-B1]. Daily and monthly values are sums of the sub-daily data.

Column	Daily Label	Units	Description
R-B5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-B6] and local run-of-river flow [R-B8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-B6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-B2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-B7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-B6]). Calculation may be overridden by a non-negative entry in column [R-B9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses (([R-B3] - [R-B5])). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses (([R-B4] - [R-B6])). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses (([R-B10] + [R-B11])). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B13	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

### *H.2.5.5 Table REACH3 – Lake Granbury to Lake Whitney Headwaters*

Table REACH3 tracks flows from the Lake Granbury dam to the headwaters of Lake Whitney. BRA flow reconciliation occurs at the Glen Rose gage.

Row 23 of the REACH3 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in

rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from return flows and/or the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH3:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flows > IF Criteria?	none	If TRUE then flows at the Glen Rose gage are greater than the instream flow criteria. Daily values imported from Table IF3 of Instream Flow File.
U1	Total Outflows	dsf	Total Outflows from Lake Granbury. Daily values imported from Table BASIC2 of reference file. Not used for subsequent calculations.
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases from Lake Granbury less return flows in column [U4]. Daily values imported from Table BASIC2 of reference file. Daily values divided by 10 for use in the sub-daily calculations.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2] and Passed BRA Return Flows [U4]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
U4	Passed BRA Return Flows	dsf	Return flows passed through Lake Granbury but not stored. Daily values imported from Table RES2 of the Reservoir File. Daily values divided by 10 for use in sub-daily calculations.
R-A1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Imported from Table REF2 of the reference file. Daily values divided by 10 for use in sub-daily calculations.

Column	Daily Label	Units	Description
R-A2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U4] and applies delivery factor (row 24), then adds column [R-A1]. Daily and monthly values are sums of the sub-daily data.
R-A5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-A6] and local run-of-river flow [R-A8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-A2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-A7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-A6]). Calculation may be overridden by a non-negative entry in column [R-A9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses $([R-A3] - [R-A5])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses $([R-A4] - [R-A6])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses $([R-A10] + [R-A11])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	GLRT2 - Brazos River at Glen Rose	dsf	Historical daily average flows measured at gage. Imported from Table DATA1 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ3.

Column	Daily Label	Units	Description
G-A3	Adjusted Water Supply Releases at GLRT2	dsf	BRA Water Supply Releases from upstream reach (column [R-A10]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.
G-A4	Return Flow Adjustment	dsf	Adjustment for conditions when gage flows are less than calculated BRA flows. Imported from column [A13] of Table READJ3.
G-A5	Adjusted Return Flow at GLRT2	dsf	BRA Return Flows from upstream reach (column [R-A11]) multiplied by adjustment factor (column [G-A4]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows.
G-A6	Flows > IF Criteria?	none	If TRUE then flows at the Glen Rose gage are greater than the instream flow criteria plus downstream diversions. Daily values imported from Table IF3 of Instream Flow File.
R-B1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Set to zero in this reach. Daily values divided by 10 for use in sub-daily calculations.
R-B2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-B4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A5] and applies delivery factor (row 24), then adds column [R-B1]. Daily and monthly values are sums of the sub-daily data.
R-B5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-B6] and local run-of-river flow [R-B8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-B6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-B2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-B7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-B6]). Calculation may be overridden by a non-negative entry in column [R-B9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.

Column	Daily Label	Units	Description
R-B10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses $([R-B3] - [R-B5])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses $([R-B4] - [R-B6])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses $([R-B10] + [R-B11])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B13	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

#### *H.2.5.6 Table REACH4 – Lake Aquilla to Aquilla/Brazos Confluence*

Table REACH4 tracks flows from the Lake Aquilla dam to the confluence of Aquilla Creek and the Brazos River. BRA flow reconciliation occurs at the Aquilla Creek above Aquilla gage.

Row 23 of the REACH4 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from return flows and/or the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from

other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH4:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flows at the Waco gage are greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF4 of the Instream Flow File.
U1	Total Outflows	dsf	Total Outflows from Lake Aquilla. Daily values imported from Table BASIC4 of reference file. Not used for subsequent calculations.
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases from Lake Aquilla less return flows in column [U4]. Daily values imported from Table BASIC4 of reference file. Daily values divided by 10 for use in the sub-daily calculations.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2] and Passed BRA Return Flows [U4]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
U4	Passed BRA Return Flows	dsf	Return flows passed through Lake Aquilla but not stored. Daily values imported from Table RES4 of the Reservoir File. Daily values divided by 10 for use in sub-daily calculations.
R-A1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Set to zero for this reach. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U4] and applies delivery factor (row 24), then adds column [R-A1]. Daily and monthly values are sums of the sub-daily data.
R-A5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-A6] and local run-of-river flow [R-A8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.

Column	Daily Label	Units	Description
R-A6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-A2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-A7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-A6]). Calculation may be overridden by a non-negative entry in column [R-A9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses $([R-A3] - [R-A5])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses $([R-A4] - [R-A6])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses $([R-A10] + [R-A11])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	AQIT2 – Aquilla Creek above Aquilla	dsf	Historical daily average flows measured at gage. Imported from Table DATA1 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ4.
G-A3	Adjusted Water Supply Releases at AQIT2	dsf	BRA Water Supply Releases from upstream reach (column [R-A10]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.
G-A4	Return Flow Adjustment	dsf	Adjustment for conditions when gage flows are less than calculated BRA flows. Imported from column [A13] of Table READJ4.
G-A5	Adjusted Return Flow at AQIT2	dsf	BRA Return Flows from upstream reach (column [R-A11]) multiplied by adjustment factor (column [G-A4]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows.
R-B1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Set to zero in this reach. Daily values divided by 10 for use in sub-daily calculations.
R-B2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.

Column	Daily Label	Units	Description
R-B3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-B4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A5] and applies delivery factor (row 24), then adds column [R-B1]. Daily and monthly values are sums of the sub-daily data.
R-B5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-B6] and local run-of-river flow [R-B8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-B6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-B2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-B7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-B6]). Calculation may be overridden by a non-negative entry in column [R-B9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-B3] - [R-B5]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses ([R-B4] - [R-B6]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses ([R-B10] + [R-B11]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B13	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

*H.2.5.7 Table REACH5 – Lake Whitney to Aquilla/Brazos Confluence*

Table REACH5 tracks BRA flows from the Lake Whitney dam to the confluence of Aquilla Creek and the Brazos River. BRA flow reconciliation occurs at the Brazos River near Aquilla gage.

Row 23 of the REACH5 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from return flows and/or the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. *For this reach, the flag in column [R-A6] should be FALSE because the return flows originate from one of the diversions.* Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH5:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flows at the Waco gage are greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF4 of the Instream Flow File.

Column	Daily Label	Units	Description
U1	Total Outflows	dsf	Total Outflows from Lake Whitney. Daily values imported from Table BASIC3 of reference file. Not used for subsequent calculations.
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases from Lake Whitney less return flows in column [U4]. Daily values imported from Table BASIC3 of reference file. Daily values divided by 10 for use in the sub-daily calculations.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2] and Passed BRA Return Flows [U4]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
U4	Passed BRA Return Flows	dsf	Return flows passed through Lake Whitney but not stored. Daily values imported from Table RES3 of the Reservoir File. Daily values divided by 10 for use in sub-daily calculations.
R-A1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Imported from Table REF2 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U4] and applies delivery factor (row 24), then adds column [R-A1]. Daily and monthly values are sums of the sub-daily data.
R-A5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-A6] and local run-of-river flow [R-A8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-A2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-A7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-A6]). Calculation may be overridden by a non-negative entry in column [R-A9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.

Column	Daily Label	Units	Description
R-A9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses $([R-A3] - [R-A5])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses $([R-A4] - [R-A6])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses $([R-A10] + [R-A11])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	AQLT2 – Brazos River nr Aquilla	dsf	Historical daily average flows measured at gage. Imported from Table DATA1 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ5.
G-A3	Adjusted Water Supply Releases at AQLT2	dsf	BRA Water Supply Releases from upstream reach (column [R-A10]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.
G-A4	Return Flow Adjustment	dsf	Adjustment for conditions when gage flows are less than calculated BRA flows. Imported from column [A13] of Table READJ5.
G-A5	Adjusted Return Flow at AQLT2	dsf	BRA Return Flows from upstream reach (column [R-A11]) multiplied by adjustment factor (column [G-A4]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows.
R-B1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Set to zero in this reach. Daily values divided by 10 for use in sub-daily calculations.
R-B2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-B4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A5] and applies delivery factor (row 24), then adds column [R-B1]. Daily and monthly values are sums of the sub-daily data.
R-B5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-B6] and local run-of-river flow [R-B8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.

Column	Daily Label	Units	Description
R-B6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-B2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-B7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-B6]). Calculation may be overridden by a non-negative entry in column [R-B9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-B3] - [R-B5]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses ([R-B4] - [R-B6]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses ([R-B10] + [R-B11]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B13	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

#### *H.2.5.8 Table REACH6 – Aquilla/Brazos Confluence to Little/Brazos Confluence*

Table REACH6 tracks BRA flows from the confluence of Aquilla Creek and the Brazos River to the confluence of the Brazos River and the Little River. BRA flow reconciliation occurs at the Brazos River near Highbank gage.

Row 23 of the REACH6 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for

the diversion within the reach is from return flows and/or the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH6:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flows > IF Criteria?	none	If TRUE then flows at the Waco gage are greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF4 of the Instream Flow File.
U1	Total Outflows	dsf	Total flow at confluence. Not calculated so set to NA
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases at confluence. Sum of sub-daily values imported from Tables REACH4 and REACH5. Daily values and monthly values calculated by summing the sub-daily values.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2] and Passed BRA Return Flows [U4]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
U4	Passed BRA Return Flows	dsf	BRA Return flows at confluence. Sum of sub-daily values imported from Tables REACH4 and REACH5. Daily values and monthly values calculated by summing the sub-daily values.
R-A1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Imported from Table REF2 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.

Column	Daily Label	Units	Description
R-A3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U4] and applies delivery factor (row 24), then adds column [R-A1]. Daily and monthly values are sums of the sub-daily data.
R-A5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-A6] and local run-of-river flow [R-A8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-A2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-A7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-A6]). Calculation may be overridden by a non-negative entry in column [R-A9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses (([R-A3] - [R-A5])). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses (([R-A4] - [R-A6])). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses (([R-A10] + [R-A11])). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B0	Flows > Upstream IF Criteria?	none	TRUE if flows at the Waco gage are greater than the instream flow criteria plus diversions in the downstream reach. Imported from Table IF4 in the Instream Flow File.
R-B1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Imported from Table REF2 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.

Column	Daily Label	Units	Description
R-B3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [R-A10]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [R-A10] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-B4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [R-A11] and applies delivery factor (row 24), then adds column [R-B1]. Daily and monthly values are sums of the sub-daily data.
R-B5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-B6] and local run-of-river flow [R-B8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-B6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [R-B0] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-B2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-B7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [R-B0] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-B6]). Calculation may be overridden by a non-negative entry in column [R-B9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses $([R-B3] - [R-B5])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses $([R-B4] - [R-B6])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses $([R-B10] + [R-B11])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	HIBT2 – Brazos River nr Highbank	dsf	Historical daily average flows measured at gage. Imported from Table DATA1 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ6.
G-A3	Adjusted Water Supply Releases at HIBT2	dsf	BRA Water Supply Releases from upstream reach (column [R-B10]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.

Column	Daily Label	Units	Description
G-A4	Return Flow Adjustment	dsf	Adjustment for conditions when gage flows are less than calculated BRA flows. Imported from column [A13] of Table READJ6.
G-A5	Adjusted Return Flow at HIBT2	dsf	BRA Return Flows from upstream reach (column [R-B11]) multiplied by adjustment factor (column [G-A4]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows.
G-A6	Flows > Downstream IF Criteria	None	TRUE if flows at the Bryan gage are greater than the instream flow criteria. Imported from Table IF8 of the Instream Flow File.
R-C1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Set to zero in this reach. Daily values divided by 10 for use in sub-daily calculations.
R-C2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-C3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-C4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A5] and applies delivery factor (row 24), then adds column [R-C1]. Daily and monthly values are sums of the sub-daily data.
R-C5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-C6] and local run-of-river flow [R-C8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-C6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [G-A6] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-C2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-C7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-C7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-C8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [G-A6] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-C6]). Calculation may be overridden by a non-negative entry in column [R-C9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-C9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-C10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-C3] - [R-C5]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.

Column	Daily Label	Units	Description
R-C11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses ([R-C4] - [R-C6]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-C12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses ([R-C10] + [R-C11]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-C13	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

### *H.2.5.9 Table REACH7 – Lake Proctor to Hasse Gage*

Table REACH7 tracks BRA flows from the Lake Proctor dam to the Leon River near Hasse gage. BRA flow reconciliation occurs at the Hasse gage.

Row 23 of the REACH7 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from return flows and/or the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH7:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flow at the Gatesville gage is greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF5 of the Instream Flow File.
U1	Total Outflows	dsf	Total Outflows from Lake Proctor. Daily values imported from Table BASIC5 of reference file. Not used for subsequent calculations.
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases from Lake Proctor less return flows in column [U4]. Daily values imported from Table BASIC5 of reference file. Daily values divided by 10 for use in the sub-daily calculations.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2] and Passed BRA Return Flows [U4]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
U4	Passed BRA Return Flows	dsf	Return flows passed through Lake Proctor but not stored. Daily values imported from Table RES2 of the Reservoir File. Daily values divided by 10 for use in sub-daily calculations.
R-A1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Imported from Table REF2 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U4] and applies delivery factor (row 24), then adds column [R-A1]. Daily and monthly values are sums of the sub-daily data.
R-A5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-A6] and local run-of-river flow [R-A8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-A2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-A7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.

Column	Daily Label	Units	Description
R-A7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-A6]). Calculation may be overridden by a non-negative entry in column [R-A9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses (([R-A3] - [R-A5])). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses (([R-A4] - [R-A6])). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses (([R-A10] + [R-A11])). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	Leon R nr Hasse	dsf	Historical daily average flows measured at gage. Imported from Table REF4 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ7.
G-A3	Adjusted Water Supply Releases at Hasse	dsf	BRA Water Supply Releases from upstream reach (column [R-A10]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.
G-A4	Return Flow Adjustment	dsf	Adjustment for conditions when gage flows are less than calculated BRA flows. Imported from column [A13] of Table READJ7.
G-A5	Adjusted Return Flow at Hasse	dsf	BRA Return Flows from upstream reach (column [R-A11]) multiplied by adjustment factor (column [G-A4]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows.
G-A6	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

### H.2.5.10 Table REACH8 – Hasse Gage to Belton Headwaters

Table REACH8 tracks flows from the Leon River near Hasse gage to the headwaters of Lake Belton. BRA flow reconciliation occurs at the Leon River near Gatesville gage.

Row 23 of the REACH8 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from return flows and/or the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH8:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flow at the Gatesville gage is greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Tables COMP1 and IF5 of Instream Flow File.
U1	Total Outflows	dsf	Total flow at Hasse gage. Daily values imported from Table REACH7. Not used for subsequent calculations.
U2	BRA Water Supply Releases	dsf	BRA Water Supply flows at Hasse gage. Daily values imported from Table REACH7. Daily values divided by 10 for use in the sub-daily calculations.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2] and Passed BRA Return Flows [U4]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
U4	Passed BRA Return Flows	dsf	Return flows at Hasse gage. Daily values imported from Table REACH7. Daily values divided by 10 for use in sub-daily calculations.

Column	Daily Label	Units	Description
R-A1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Imported from Table REF2 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U4] and applies delivery factor (row 24), then adds column [R-A1]. Daily and monthly values are sums of the sub-daily data.
R-A5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-A6] and local run-of-river flow [R-A8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-A2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-A7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-A6]). Calculation may be overridden by a non-negative entry in column [R-A9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ( $[R-A3] - [R-A5]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses ( $[R-A4] - [R-A6]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses ( $[R-A10] + [R-A11]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	Leon R nr Gatesville	dsf	Historical daily average flows measured at gage. Imported from Table DATA1 of the reference file.

Column	Daily Label	Units	Description
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ8.
G-A3	Adjusted Water Supply Releases at Gatesville	dsf	BRA Water Supply Releases from upstream reach (column [R-A10]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.
G-A4	Return Flow Adjustment	dsf	Adjustment for conditions when gage flows are less than calculated BRA flows. Imported from column [A13] of Table READJ8.
G-A5	Adjusted Return Flow at Gatesville	dsf	BRA Return Flows from upstream reach (column [R-A11]) multiplied by adjustment factor (column [G-A4]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows.
G-A6	Flows > Downstream IF Criteria	none	TRUE if flows at the Gatesville gage, plus downstream reach diversions, are greater than the instream flow criteria. Imported from Table IF5 of the Instream Flow File.
R-B1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Imported from Table REF2 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-B4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A5] and applies d factor (row 24), then adds column [R-B1]. Daily and monthly values are sums of the sub-daily data.
R-B5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-B6] and local run-of-river flow [R-B8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-B6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [G-A6] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-B2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-B7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [G-A6] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-B6]). Calculation may be overridden by a non-negative entry in column [R-B9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.

Column	Daily Label	Units	Description
R-B9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-B3] - [R-B5]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses ([R-B4] - [R-B6]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses ([R-B10] + [R-B11]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B13	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

#### *H.2.5.11 Table REACH9 – Lake Belton to Little River Gage*

Table REACH9 tracks BRA flows from the Lake Belton dam to just upstream of the Little River near Little River gage. The Little River gage is just downstream of the confluence of the Leon and Lampasas Rivers. BRA flow reconciliation occurs at the Leon River near Belton gage.

Row 23 of the REACH9 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from return flows and/or the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows

typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH9:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flow at the Little River nr Little River gage is greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF6 of the Instream Flow File.
U1	Total Outflows	dsf	Total Outflows from Lake Belton. Daily values imported from Table BASIC6 of reference file. Not used for subsequent calculations.
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases from Lake Belton less return flows in column [U4]. Daily values imported from Table BASIC6 of reference file. Daily values divided by 10 for use in the sub-daily calculations.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2] and Passed BRA Return Flows [U4]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
U4	Passed BRA Return Flows	dsf	Return flows passed through Lake Belton but not stored. Daily values imported from Table RES6 of the Reservoir File. Daily values divided by 10 for use in sub-daily calculations.
R-A1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Set to zero in this reach. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U4] and applies delivery factor (row 24), then adds column [R-A1]. Daily and monthly values are sums of the sub-daily data.
R-A5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-A6] and local run-of-river flow [R-A8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.

Column	Daily Label	Units	Description
R-A6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-A2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-A7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-A6]). Calculation may be overridden by a non-negative entry in column [R-A9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses $([R-A3] - [R-A5])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses $([R-A4] - [R-A6])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses $([R-A10] + [R-A11])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	BLET2 – Leon nr Belton Gage	dsf	Historical daily average flows measured at gage. Imported from Table DATA1 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ9.
G-A3	Adjusted Water Supply Releases at BLET2	dsf	BRA Water Supply Releases from upstream reach (column [R-A10]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.
G-A4	Return Flow Adjustment	dsf	Adjustment for conditions when gage flows are less than calculated BRA flows. Imported from column [A13] of Table READJ9.
G-A5	Adjusted Return Flow at BLET2	dsf	BRA Return Flows from upstream reach (column [R-A11]) multiplied by adjustment factor (column [G-A4]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows.
R-B1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Imported from Table REF2 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.

Column	Daily Label	Units	Description
R-B3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-B4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A5] and applies delivery factor (row 24), then adds column [R-B1]. Daily and monthly values are sums of the sub-daily data.
R-B5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-B6] and local run-of-river flow [R-B8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-B6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-B2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-B7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-B6]). Calculation may be overridden by a non-negative entry in column [R-B9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-B3] - [R-B5]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses ([R-B4] - [R-B6]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses ([R-B10] + [R-B11]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B13	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

*H.2.5.12 Table REACH10 – Lake Stillhouse Hollow to Little River Gage*

Table REACH10 tracks BRA flows from the Lake Stillhouse Hollow dam to just upstream of the Little River near Little River gage. The Little River gage is just downstream of the confluence of the Leon and Lampasas Rivers. BRA flow reconciliation occurs at the Lampasas River near Belton gage.

Row 23 of the REACH10 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from return flows and/or the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH10:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flow at the Little River nr Little River gage is greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF6 of the Instream Flow File.
U1	Total Outflows	dsf	Total Outflows from Lake Stillhouse Hollow. Daily values imported from Table BASIC7 of reference file. Not used for subsequent calculations.

Column	Daily Label	Units	Description
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases from Lake Stillhouse Hollow less return flows in column [U4]. Daily values imported from Table BASIC7 of reference file. Daily values divided by 10 for use in the sub-daily calculations.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2] and Passed BRA Return Flows [U4]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
U4	Passed BRA Return Flows	dsf	Return flows passed through Lake Stillhouse Hollow but not stored. Daily values imported from Table RES7 of the Reservoir File. Daily values divided by 10 for use in sub-daily calculations.
R-A1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Set to zero in this reach. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U4] and applies delivery factor (row 24), then adds column [R-A1]. Daily and monthly values are sums of the sub-daily data.
R-A5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-A6] and local run-of-river flow [R-A8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-A2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-A7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-A6]). Calculation may be overridden by a non-negative entry in column [R-A9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.

Column	Daily Label	Units	Description
R-A10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses $([R-A3] - [R-A5])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses $([R-A4] - [R-A6])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses $([R-A10] + [R-A11])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	Lampasas River nr Belton	dsf	Historical daily average flows measured at gage. Imported from Table DATA1 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ10.
G-A3	Adjusted Water Supply Releases at Lampasas Gage	dsf	BRA Water Supply Releases from upstream reach (column [R-A10]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.
G-A4	Return Flow Adjustment	dsf	Adjustment for conditions when gage flows are less than calculated BRA flows. Imported from column [A13] of Table READJ10.
G-A5	Adjusted Return Flow at Lampasas Gage	dsf	BRA Return Flows from upstream reach (column [R-A11]) multiplied by adjustment factor (column [G-A4]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows.
R-B1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Set to zero in this reach. Daily values divided by 10 for use in sub-daily calculations.
R-B2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-B4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A5] and applies delivery factor (row 24), then adds column [R-B1]. Daily and monthly values are sums of the sub-daily data.
R-B5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-B6] and local run-of-river flow [R-B8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-B6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-B2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-B7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.

Column	Daily Label	Units	Description
R-B7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-B6]). Calculation may be overridden by a non-negative entry in column [R-B9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ( $[R-B3] - [R-B5]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses ( $[R-B4] - [R-B6]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses ( $[R-B10] + [R-B11]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B13	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

### H.2.5.13 Table REACH11 – Little River Gage to Little/San Gabriel Confluence

Table REACH11 tracks flows from just above the Little River near Little River gage to the confluence of the Little and San Gabriel Rivers. The Little River near Little River gage is just downstream of the confluence of the Leon and Lampasas Rivers, which then become the Little River. BRA flow reconciliation occurs at the Little River near Little River gage.

Row 23 of the REACH11 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from return flows and/or the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then

the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH11:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flow at the Cameron gage is greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF7 of Instream Flow File.
U1	Total Outflows	dsf	Not calculated. Set to NA.
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases just above gage. Sum of sub-daily values imported from Tables REACH9 and REACH10. Daily values and monthly values calculated by summing the sub-daily values.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2] and Passed BRA Return Flows [U4]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
U4	Passed BRA Return Flows	dsf	BRA Return flows just above gage. Sum of sub-daily values imported from Tables REACH9 and REACH10. Daily values and monthly values calculated by summing the sub-daily values.
U5	BRA total at LRIT	dsf	Total BRA flow just above gage. Sum of columns [U2] and [U4].
G-A1	LRIT2 – Little River at Little River	dsf	Historical daily average flows measured at gage. Imported from Table REF4 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ11.

Column	Daily Label	Units	Description
G-A3	Adjusted Water Supply Releases at LRIT	dsf	BRA Water Supply Releases from upstream reach (column [U2]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.
G-A4	Return Flow Adjustment	dsf	Adjustment for conditions when gage flows are less than calculated BRA flows. Imported from column [A13] of Table READJ11.
G-A5	Adjusted Return Flow at LRIT	dsf	BRA Return Flows from upstream reach (column [R-A11]) multiplied by adjustment factor (column [G-A4]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows.
R-A1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Imported from Table REF2 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A5] and applies delivery factor (row 24), then adds column [R-A1]. Daily and monthly values are sums of the sub-daily data.
R-A5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-A6] and local run-of-river flow [R-A8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-A2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-A7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-A6]). Calculation may be overridden by a non-negative entry in column [R-A9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.

Column	Daily Label	Units	Description
R-A10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses $([R-A3] - [R-A5])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses $([R-A4] - [R-A6])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses $([R-A10] + [R-A11])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A13	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

#### *H.2.5.14 Table REACH12 – Lake Georgetown to Granger Headwaters*

Table REACH12 tracks BRA flows from the Lake Georgetown dam to the Lake Granger headwaters. BRA flow reconciliation occurs at the North Fork of the San Gabriel near Georgetown gage.

Row 23 of the REACH13 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from return flows and/or the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from

other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH12:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flow at the Cameron gage is greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF7 and COMP1 of the Instream Flow File.
U1	Total Outflows	dsf	Total Outflows from Lake Georgetown. Daily values imported from Table BASIC8 of reference file. Not used for subsequent calculations.
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases from Lake Georgetown less return flows in column [U4]. Daily values imported from Table BASIC8 of reference file. Daily values divided by 10 for use in the sub-daily calculations.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2] and Passed BRA Return Flows [U4]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
U4	Passed BRA Return Flows	dsf	Return flows passed through Lake Georgetown but not stored. Daily values imported from Table RES8 of the Reservoir File. Daily values divided by 10 for use in sub-daily calculations.
R-A1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Set to zero in this reach. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U4] and applies delivery factor (row 24), then adds column [R-A1]. Daily and monthly values are sums of the sub-daily data.
R-A5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-A6] and local run-of-river flow [R-A8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.

Column	Daily Label	Units	Description
R-A6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-A2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-A7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-A6]). Calculation may be overridden by a non-negative entry in column [R-A9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses (([R-A3] - [R-A5])). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses (([R-A4] - [R-A6])). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses (([R-A10] + [R-A11])). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	GERT2 – N Fk San Gabriel nr Georgetown	dsf	Historical daily average flows measured at gage. Imported from Table DATA1 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ12.
G-A3	Adjusted Water Supply Releases at N Fork	dsf	BRA Water Supply Releases from upstream reach (column [R-A10]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.
G-A4	Return Flow Adjustment	dsf	Adjustment for conditions when gage flows are less than calculated BRA flows. Imported from column [A13] of Table READJ12.
G-A5	Adjusted Return Flow at N Fork	dsf	BRA Return Flows from upstream reach (column [R-A11]) multiplied by adjustment factor (column [G-A4]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows.
R-B1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Daily values imported from Table REF2 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.

Column	Daily Label	Units	Description
R-B3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-B4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A5] and applies delivery factor (row 24), then adds column [R-B1]. Daily and monthly values are sums of the sub-daily data.
R-B5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-B6] and local run-of-river flow [R-B8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-B6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-B2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-B7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-B6]). Calculation may be overridden by a non-negative entry in column [R-B9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-B3] - [R-B5]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses ([R-B4] - [R-B6]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses ([R-B10] + [R-B11]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B13	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

H.2.5.15 Table REACH13 – Lake Granger to San Gabriel/Little Confluence

Table REACH13 tracks BRA flows from the Lake Granger dam to the confluence of the San Gabriel and Little Rivers. BRA flow reconciliation occurs at the San Gabriel at Laneport gage.

Row 23 of the REACH13 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from return flows and/or the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH13:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flow at the Cameron gage is greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF7 of the Instream Flow File.
U1	Total Outflows	dsf	Total Outflows from Lake Granger. Daily values imported from Table BASIC9 of reference file. Not used for subsequent calculations.

Column	Daily Label	Units	Description
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases from Lake Granger less return flows in column [U4]. Daily values imported from Table BASIC9 of reference file. Daily values divided by 10 for use in the sub-daily calculations.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2] and Passed BRA Return Flows [U4]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
U4	Passed BRA Return Flows	dsf	Return flows passed through Lake Granger but not stored. Daily values imported from Table RES9 of the Reservoir File. Daily values divided by 10 for use in sub-daily calculations.
R-A1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Set to zero in this reach. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U4] and applies delivery factor (row 24), then adds column [R-A1]. Daily and monthly values are sums of the sub-daily data.
R-A5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-A6] and local run-of-river flow [R-A8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-A2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-A7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-A6]). Calculation may be overridden by a non-negative entry in column [R-A9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.

Column	Daily Label	Units	Description
R-A10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-A3] - [R-A5]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses ([R-A4] - [R-A6]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses ([R-A10] + [R-A11]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	GERT2 –San Gabriel at Laneport	dsf	Historical daily average flows measured at gage. Imported from Table DATA1 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ13.
G-A3	Adjusted Water Supply Releases at Laneport	dsf	BRA Water Supply Releases from upstream reach (column [R-A10]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.
G-A4	Return Flow Adjustment	dsf	Adjustment for conditions when gage flows are less than calculated BRA flows. Imported from column [A13] of Table READJ13.
G-A5	Adjusted Return Flow at Laneport	dsf	BRA Return Flows from upstream reach (column [R-A11]) multiplied by adjustment factor (column [G-A4]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows.
R-B1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Daily values imported from Table REF2 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-B4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A5] and applies delivery factor (row 24), then adds column [R-B1]. Daily and monthly values are sums of the sub-daily data.
R-B5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-B6] and local run-of-river flow [R-B8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-B6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-B2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-B7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.

Column	Daily Label	Units	Description
R-B7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-B6]). Calculation may be overridden by a non-negative entry in column [R-B9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ( $[R-B3] - [R-B5]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses ( $[R-B4] - [R-B6]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses ( $[R-B10] + [R-B11]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B13	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

### *H.2.5.16 Table REACH14 – San Gabriel/Little Confluence to Little/Brazos Confluence*

Table REACH14 tracks BRA flows from the confluence of the San Gabriel and Little Rivers to the confluence of the Little River and the Brazos River. BRA flow reconciliation occurs at the Little River near Cameron gage. The Alcoa diversion is included in column [R-A2].

Row 23 of the REACH14 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from return flows and/or the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then

the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH14:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flow at the Cameron gage is greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF7 of the Instream Flow File.
U1	Total Outflows	dsf	Total flow at confluence. Not calculated so set to NA
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases at confluence. Sum of sub-daily values imported from Tables REACH11 and REACH13. Daily values and monthly values calculated by summing the sub-daily values.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2] and Passed BRA Return Flows [U4]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
U4	Passed BRA Return Flows	dsf	BRA Return flows at confluence. Sum of sub-daily values imported from Tables REACH11 and REACH13. Daily values and monthly values calculated by summing the sub-daily values.
R-A1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Set to zero in this reach. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.

Column	Daily Label	Units	Description
R-A4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U4] and applies delivery factor (row 24), then adds column [R-A1]. Daily and monthly values are sums of the sub-daily data.
R-A5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-A6] and local run-of-river flow [R-A8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-A2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-A7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-A6]). Calculation may be overridden by a non-negative entry in column [R-A9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-A3] - [R-A5]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses ([R-A4] - [R-A6]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses ([R-A10] + [R-A11]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B1	Alcoa to Cameron Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Set to zero in this reach. Daily values divided by 10 for use in sub-daily calculations.
R-B2	Alcoa to Cameron Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B3	Alcoa Water Supply Release at Cameron	dsf	Upstream BRA Water Supply releases (column [R-A10]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [R-A10] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.

Column	Daily Label	Units	Description
R-B4	Passed BRA Return Flows at Cameron	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [R-A11] and applies delivery factor (row 24), then adds column [R-B1]. Daily and monthly values are sums of the sub-daily data.
R-B5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-B6] and local run-of-river flow [R-B8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-B6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-B2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-B7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-B6]). Calculation may be overridden by a non-negative entry in column [R-B9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B10	Remaining Water Supply Releases at Cameron	dsf	Remaining BRA Water Supply Release after diversions, lag and losses (([R-B3] - [R-B5])). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B11	Remaining Return Flows at Cameron	dsf	Remaining BRA Return Flows after diversions, lag and losses (([R-B4] - [R-B6])). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B12	BRA Total at Cameron	dsf	Total BRA water at end of reach after diversions, lag and losses (([R-B10] + [R-B11])). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	CMNT2 – Little River nr Cameron	dsf	Historical daily average flows measured at gage. Imported from Table DATA1 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ14.
G-A3	Adjusted Water Supply Releases at Cameron	dsf	BRA Water Supply Releases from upstream reach (column [R-B10]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.
G-A4	Return Flow Adjustment	dsf	Adjustment for conditions when gage flows are less than calculated BRA flows. Imported from column [A13] of Table READJ14.
G-A5	Adjusted Return Flow at Cameron	dsf	BRA Return Flows from upstream reach (column [R-B11]) multiplied by adjustment factor (column [G-A4]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows.

Column	Daily Label	Units	Description
G-A6	Flows > Downstream IF Criteria	none	TRUE if flows at the Cameron gage, plus downstream reach diversions, are greater than the instream flow criteria. Imported from Table IF7 of the Instream Flow File.
R-C1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Set to zero in this reach. Daily values divided by 10 for use in sub-daily calculations.
R-C2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-C3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-C4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A5] and applies delivery factor (row 24), then adds column [R-C1]. Daily and monthly values are sums of the sub-daily data.
R-C5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-C6] and local run-of-river flow [R-C8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-C6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [G-A6] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-C2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-C7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-C7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-C8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [G-A6] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-C6]). Calculation may be overridden by a non-negative entry in column [R-C9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-C9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-C10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ( $[R-C3] - [R-C5]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-C11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses ( $[R-C4] - [R-C6]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-C12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses ( $[R-C10] + [R-C11]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.

Column	Daily Label	Units	Description
R-C13	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

*H.2.5.17 Table REACH15 – Little/Brazos Confluence to Brazos/Yegua Confluence*

Table REACH15 tracks BRA flows from the confluence of the Little River and the Brazos River to the confluence of the Brazos River and Yegua Creek. BRA flow reconciliation occurs at the Brazos River at State Highway 21 near Bryan gage. This gage is very near the former Brazos River near Bryan gage.

Row 23 of the REACH15 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from return flows and/or the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH15:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria? (SH 21)	none	If TRUE then flow at the Bryan gage is greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF8 of the Instream Flow File.
U1	Total Outflows	dsf	Total flow at confluence. Not calculated so set to NA
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases at confluence. Sum of sub-daily values imported from Tables REACH6 and REACH14. Daily values and monthly values calculated by summing the sub-daily values.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2] and Passed BRA Return Flows [U4]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
U4	Passed BRA Return Flows	dsf	BRA Return flows at confluence. Sum of sub-daily values imported from Tables REACH6 and REACH14. Daily values and monthly values calculated by summing the sub-daily values.
R-A1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Imported from Table REF2 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U4] and applies delivery factor (row 24), then adds column [R-A1]. Daily and monthly values are sums of the sub-daily data.
R-A5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-A6] and local run-of-river flow [R-A8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-A2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-A7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.

Column	Daily Label	Units	Description
R-A8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-A6]). Calculation may be overridden by a non-negative entry in column [R-A9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses $([R-A3] - [R-A5])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses $([R-A4] - [R-A6])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses $([R-A10] + [R-A11])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	BBZT2 – Brazos River at SH 21 nr Bryan	dsf	Historical daily average flows measured at gage. Imported from Table REF4 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ15.
G-A3	Adjusted Water Supply Releases at BBZT	dsf	BRA Water Supply Releases from upstream reach (column [R-A10]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.
G-A4	Return Flow Adjustment	dsf	Adjustment for conditions when gage flows are less than calculated BRA flows. Imported from column [A13] of Table READJ15.
G-A5	Adjusted Return Flow at BBZT	dsf	BRA Return Flows from upstream reach (column [R-A11]) multiplied by adjustment factor (column [G-A4]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows.
G-A6	Flows > IF Criteria? (Hempstead)	none	TRUE if flows at the Hempstead gage, are greater than the instream flow criteria. Imported from Table IF10 of the Instream Flow File.
R-B1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Set to zero in this reach. Daily values divided by 10 for use in sub-daily calculations.
R-B2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.

Column	Daily Label	Units	Description
R-B4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A5] and applies delivery factor (row 24), then adds column [R-B1]. Daily and monthly values are sums of the sub-daily data.
R-B5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-B6] and local run-of-river flow [R-B8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-B6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [G-A6] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-B2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-B7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [G-A6] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-B6]). Calculation may be overridden by a non-negative entry in column [R-B9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-B3] - [R-B5]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses ([R-B4] - [R-B6]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses ([R-B10] + [R-B11]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B13	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

*H.2.5.18 Table REACH16 – Lake Somerville to Yegua/Brazos Confluence*

Table REACH16 tracks BRA flows from the Lake Somerville dam to the confluence of the Yegua Creek and the Brazos River. BRA flow reconciliation occurs at the Yegua Creek near Somerville gage.

Row 23 of the REACH16 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from return flows and/or the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH16:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flow at the Hempstead gage is greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF10 of the Instream Flow File.
U1	Total Outflows	dsf	Total Outflows from Lake Somerville. Daily values imported from Table BASIC10 of reference file. Not used for subsequent calculations.
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases from Lake Somerville less return flows in column [U4]. Daily values imported from Table BASIC10 of reference file. Daily values divided by 10 for use in the sub-daily calculations.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2] and Passed BRA Return Flows [U4]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
U4	Passed BRA Return Flows	dsf	Return flows passed through Lake Somerville but not stored. Daily values imported from Table RES10 of the Reservoir File. Daily values divided by 10 for use in sub-daily calculations.

Column	Daily Label	Units	Description
R-A1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Set to zero in this reach. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U4] and applies delivery factor (row 24), then adds column [R-A1]. Daily and monthly values are sums of the sub-daily data.
R-A5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-A6] and local run-of-river flow [R-A8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-A2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-A7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-A6]). Calculation may be overridden by a non-negative entry in column [R-A9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses $([R-A3] - [R-A5])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses $([R-A4] - [R-A6])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses $([R-A10] + [R-A11])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	Yegua Creek nr Somerville	dsf	Historical daily average flows measured at gage. Imported from Table DATA1 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ16.

Column	Daily Label	Units	Description
G-A3	Adjusted Water Supply Releases at YCSO	dsf	BRA Water Supply Releases from upstream reach (column [R-A10]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.
G-A4	Return Flow Adjustment	dsf	Adjustment for conditions when gage flows are less than calculated BRA flows. Imported from column [A13] of Table READJ16.
G-A5	Adjusted Return Flow at YCSO	dsf	BRA Return Flows from upstream reach (column [R-A11]) multiplied by adjustment factor (column [G-A4]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows.
R-B1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Set to zero in this reach. Daily values divided by 10 for use in sub-daily calculations.
R-B2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-B4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A5] and applies delivery factor (row 24), then adds column [R-B1]. Daily and monthly values are sums of the sub-daily data.
R-B5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-B6] and local run-of-river flow [R-B8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-B6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-B2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-B7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-B6]). Calculation may be overridden by a non-negative entry in column [R-B9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ( $[R-B3] - [R-B5]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.

Column	Daily Label	Units	Description
R-B11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses $([R-B4] - [R-B6])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses $([R-B10] + [R-B11])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B13	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

*H.2.5.19 Table REACH17 – Yegua/Brazos Confluence to Navasota/Brazos Confluence*

Table REACH17 tracks BRA flows from the confluence of the Yegua Creek and the Brazos River to the confluence of the Navasota and Brazos Rivers. There is no gage in the reach.

Row 23 of the REACH17 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from return flows and/or the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from

other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH17:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flow at the Hempstead gage is greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF10 of the Instream Flow File.
U1	Total Outflows	dsf	Total flow at confluence. Not calculated so set to NA
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases at confluence. Sum of sub-daily values imported from Tables REACH15 and REACH16. Daily values and monthly values calculated by summing the sub-daily values.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2] and Passed BRA Return Flows [U4]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
U4	Passed BRA Return Flows	dsf	BRA Return flows at confluence. Sum of sub-daily values imported from Tables REACH15 and REACH16. Daily values and monthly values calculated by summing the sub-daily values.
R-A1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Set to zero in this reach. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U4] and applies delivery factor (row 24), then adds column [R-A1]. Daily and monthly values are sums of the sub-daily data.
R-A5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-A6] and local run-of-river flow [R-A8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.

Column	Daily Label	Units	Description
R-A6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-A2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-A7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-A6]). Calculation may be overridden by a non-negative entry in column [R-A9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ( $[R-A3] - [R-A5]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses ( $[R-A4] - [R-A6]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses ( $[R-A10] + [R-A11]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A13	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

#### H.2.5.20 Table REACH18 – Lake Limestone to Navasota/Brazos Confluence

Table REACH18 tracks BRA flows from the Lake Limestone dam to the confluence of the Navasota and Brazos Rivers. BRA flow reconciliation occurs at the Navasota River near Easterly gage.

Row 23 of the REACH18 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for

the diversion within the reach is from return flows and/or the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH18:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flow at the Easterly gage is greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF9 of the Instream Flow File.
U1	Total Outflows	dsf	Total Outflows from Lake Limestone. Daily values imported from Table BASIC11 of reference file. Not used for subsequent calculations.
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases from Lake Limestone less return flows in column [U4]. Daily values imported from Table BASIC11 of reference file. Daily values divided by 10 for use in the sub-daily calculations.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2] and Passed BRA Return Flows [U4]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
U4	Passed BRA Return Flows	dsf	Return flows passed through Lake Limestone but not stored. Daily values imported from Table RES11 of the Reservoir File. Daily values divided by 10 for use in sub-daily calculations.
R-A1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Set to zero in this reach. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.

Column	Daily Label	Units	Description
R-A3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U4] and applies delivery factor (row 24), then adds column [R-A1]. Daily and monthly values are sums of the sub-daily data.
R-A5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-A6] and local run-of-river flow [R-A8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-A2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-A7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-A6]). Calculation may be overridden by a non-negative entry in column [R-A9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses (([R-A3] - [R-A5])). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses (([R-A4] - [R-A6])). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses (([R-A10] + [R-A11])). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	EAST2 – Navasota R nr Easterly	dsf	Historical daily average flows measured at gage. Imported from Table DATA1 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ18.
G-A3	Adjusted Water Supply Releases at EAST	dsf	BRA Water Supply Releases from upstream reach (column [R-A10]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.
G-A4	Return Flow Adjustment	dsf	Adjustment for conditions when gage flows are less than calculated BRA flows. Imported from column [A13] of Table READJ18.

Column	Daily Label	Units	Description
G-A5	Adjusted Return Flow at EAST	dsf	BRA Return Flows from upstream reach (column [R-A11]) multiplied by adjustment factor (column [G-A4]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows.
G-A6	Flows > Downstream IF Criteria	none	If TRUE then flows at the Easterly gage are greater than the instream flow criteria plus downstream reach diversions. Imported from Table IF9 of the instream flow file.
R-B1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Set to zero in this reach. Daily values divided by 10 for use in sub-daily calculations.
R-B2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-B4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A5] and applies delivery factor (row 24), then adds column [R-B1]. Daily and monthly values are sums of the sub-daily data.
R-B5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-B6] and local run-of-river flow [R-B8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-B6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [G-A6] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-B2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-B7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [G-A6] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-B6]). Calculation may be overridden by a non-negative entry in column [R-B9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-B3] - [R-B5]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses ([R-B4] - [R-B6]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.

Column	Daily Label	Units	Description
R-B12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses ([R-B10] + [R-B11]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B13	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

*H.2.5.21 Table REACH19 – Navasota/Brazos Confluence to Hempstead*

Table REACH19 tracks BRA flows from the confluence of the Navasota River and the Brazos River to the Hempstead gage. BRA flow reconciliation occurs at the Brazos River near Hempstead gage.

Row 23 of the REACH19 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from return flows and/or the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH19:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flow at the Hempstead gage is greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF10 of the Instream Flow File.
U1	Total Outflows	dsf	Total flow at confluence. Not calculated so set to NA
U2	BRA Water Supply Releases	dsf	BRA Water Supply releases at confluence. Sum of sub-daily values imported from Tables REACH17 and REACH18. Daily values and monthly values calculated by summing the sub-daily values.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2] and Passed BRA Return Flows [U4]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
U4	Passed BRA Return Flows	dsf	BRA Return flows at confluence. Sum of sub-daily values imported from Tables REACH17 and REACH18. Daily values and monthly values calculated by summing the sub-daily values.
R-A1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Imported from Table REF2 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U4] and applies delivery factor (row 24), then adds column [R-A1]. Daily and monthly values are sums of the sub-daily data.
R-A5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-A6] and local run-of-river flow [R-A8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-A2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-A7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.

Column	Daily Label	Units	Description
R-A8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-A6]). Calculation may be overridden by a non-negative entry in column [R-A9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-A3] - [R-A5]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses ([R-A4] - [R-A6]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses ([R-A10] + [R-A11]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	HPDT2 – Brazos River nr Hempstead	dsf	Historical daily average flows measured at gage. Imported from Table REF4 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ19.
G-A3	Adjusted Water Supply Releases at HPDT	dsf	BRA Water Supply Releases from upstream reach (column [R-A10]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.
G-A4	Return Flow Adjustment	dsf	Adjustment for conditions when gage flows are less than calculated BRA flows. Imported from column [A13] of Table READJ19.
G-A5	Adjusted Return Flow at HPDT	dsf	BRA Return Flows from upstream reach (column [R-A11]) multiplied by adjustment factor (column [G-A4]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows.
R-A6	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

### H.2.5.22 Table REACH20 – Hempstead to Richmond

Table REACH20 tracks flows from just below the Hempstead gage to the Richmond gage. BRA flow reconciliation occurs at the Richmond gage.

Row 23 of the REACH20 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This

value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from return flows and/or the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH20:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flow at the Richmond gage is greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF11 of Instream Flow File.
U1	Total Outflows	dsf	Total flow at Hempstead gage. Daily values imported from Table REACH19. Not used for subsequent calculations.
U2	BRA Water Supply Releases	dsf	BRA Water Supply flows at Hempstead gage. Daily values imported from Table REACH19. Daily values divided by 10 for use in the sub-daily calculations.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2] and Passed BRA Return Flows [U4]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
U4	Passed BRA Return Flows	dsf	Return flows at Hempstead gage. Daily values imported from Table REACH19. Daily values divided by 10 for use in sub-daily calculations.
R-A1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Set to zero in this reach. Daily values divided by 10 for use in sub-daily calculations.

Column	Daily Label	Units	Description
R-A2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-A4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U4] and applies delivery factor (row 24), then adds column [R-A1]. Daily and monthly values are sums of the sub-daily data.
R-A5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-A6] and local run-of-river flow [R-A8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-A2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-A7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-A6]). Calculation may be overridden by a non-negative entry in column [R-A9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses $([R-A3] - [R-A5])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses $([R-A4] - [R-A6])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses $([R-A10] + [R-A11])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B1	Canal A Diversions	dsf	Diversions at GCWA Canal A. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B2	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-B3] and local run-of-river flow [R-B5]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.

Column	Daily Label	Units	Description
R-B3	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-B2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-B4]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B4	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B5	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-B3]). Calculation may be overridden by a non-negative entry in column [R-B6]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B6	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B7	Remaining Water Supply Releases after Diversions	dsf	Remaining BRA Water Supply Release after diversion ( $[R-A10] - [R-B2]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B8	Remaining Return Flows after Diversions	dsf	Remaining BRA Return Flows after diversion ( $[R-A11] - [R-B3]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B9	BRA Total after Diversions	dsf	Total BRA water at end of reach after diversion ( $[R-B7] + [R-B8]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-C1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Set to zero in this reach. Daily values divided by 10 for use in sub-daily calculations.
R-C2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-C3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [R-B7]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [R-B7] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-C4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [R-B8] and applies delivery factor (row 24), then adds column [R-C1]. Daily and monthly values are sums of the sub-daily data.
R-C5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-C6] and local run-of-river flow [R-C8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-C6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-C2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-C7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.

Column	Daily Label	Units	Description
R-C7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-C8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-C6]). Calculation may be overridden by a non-negative entry in column [R-C9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-C9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-C10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-C3] - [R-C5]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-C11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses ([R-C4] - [R-C6]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-C12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses ([R-C10] + [R-C11]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-D1	NRG Diversions	dsf	Diversions at NRG/Richmond Irrigation diversion point. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-D2	Diversion under Excess Flows	dsf	NRG diversions using the Excess Flows Permit (COA 12-5166). Entered here by BRA staff.
R-D3	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-D4] and local run-of-river flow [R-D6]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-D4	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-D3]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-D5]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-D5	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-D6	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-D4]). Calculation may be overridden by a non-negative entry in column [R-D7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-D7	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-D8	Remaining Water Supply Releases after Diversions	dsf	Remaining BRA Water Supply Release after diversion ([R-C10] - [R-D3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.

Column	Daily Label	Units	Description
R-D9	Remaining Return Flows after Diversions	dsf	Remaining BRA Return Flows after diversion ( $[R-C11] - [R-D4]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-D10	BRA Total after Diversions	dsf	Total BRA water at end of reach after diversion ( $[R-D8] + [R-D9]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	RMOT2 – Brazos River at Richmond	dsf	Historical daily average flows measured at gage. Imported from Table DATA1 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ20.
G-A3	Adjusted Water Supply Releases at RMOT	dsf	BRA Water Supply Releases from upstream reach (column [R-D8]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.
G-A4	Return Flow Adjustment	dsf	Adjustment for conditions when gage flows are less than calculated BRA flows. Imported from column [A13] of Table READJ20.
G-A5	Adjusted Return Flow at RMOT	dsf	BRA Return Flows from upstream reach (column [R-D9]) multiplied by adjustment factor (column [G-A4]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows.
G-A6	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

### H.2.5.23 Table REACH21 – Richmond to Dow

Table REACH21 tracks flows from just below the Richmond gage to Dow Chemical’s diversion for Brazoria Reservoir, the lowest BRA delivery point. BRA flow reconciliation occurs at the Rosharon gage.

Row 23 of the REACH21 spreadsheet contains the lag or travel time associated with the reach. Row 24 contains the delivery rate used to apply losses within the reach. This value is multiplied by 10 and used to apply time delays in the sub-daily calculations in rows 412 to 4172. Row 25 contains logical flags that, if TRUE, signal if the default for the diversion within the reach is from return flows and/or the System Operation Permit. These flags are associated with minor run-of-river diversions within the reaches. These

diversions are aggregated. If the flag associated with return flows is set to TRUE, then the default for each day is to have this demand met from return flows. This can be overridden on specific days. If FALSE, then BRA staff manually assigns the diversion to return flows for each day. A similar flag is associated with diversion of run-of-the-river flows under the System Operation Permit. A TRUE value automatically assigns this diversion to these flows. This particular flag would only be TRUE for places where flows typically exceed the diversions. This default can be overridden on any day by BRA staff in the “override” columns. Row 26 contains the units for data that are imported from other tables in the Accounting Plan. Row 27 contains the conversion factor used to convert the imported data to day-second-feet (dsf).

The following is a description of the columns in REACH21:

Column	Daily Label	Units	Description
L1	Index	none	Month number
L2	Month	none	Month name
L3	Flow at Gage > IF Criteria?	none	If TRUE then flow at the Rosharon gage is greater than the instream flow criteria. If FALSE, then criteria not met. Daily values imported from Table IF12 of Instream Flow File.
U1	Total Outflows	dsf	Total flow at Richmond gage. Daily values imported from Table REACH20. Not used for subsequent calculations.
U2	BRA Water Supply Releases	dsf	BRA Water Supply flows at Richmond gage. Daily values imported from Table REACH20. Daily values divided by 10 for use in the sub-daily calculations.
U3	Other Outflows	dsf	Total Outflows [U1] less BRA Water Supply Releases [U2] and Passed BRA Return Flows [U4]. Other Outflows are releases from reservoirs that are not specifically dedicated to water supply. Examples include leakage, flows released during maintenance, hydropower, and inflows released for downstream senior water rights. These flows are not tracked downstream because the Accounting Plan only tracks water that has been released by BRA for downstream use. Not used for subsequent calculations.
U4	Passed BRA Return Flows	dsf	Return flows at Richmond gage. Daily values imported from Table REACH20. Daily values divided by 10 for use in sub-daily calculations.
R-A1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Set to zero in this reach. Daily values divided by 10 for use in sub-daily calculations.
R-A2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-A3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [U2]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U2] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.

Column	Daily Label	Units	Description
R-A4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [U4] and applies delivery factor (row 24), then adds column [R-A1]. Daily and monthly values are sums of the sub-daily data.
R-A5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-A6] and local run-of-river flow [R-A8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-A6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-A2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-A7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-A6]). Calculation may be overridden by a non-negative entry in column [R-A9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-A9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-A10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-A3] - [R-A5]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses ([R-A4] - [R-A6]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-A12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses ([R-A10] + [R-A11]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B1	GCWA Briscoe Diversions	dsf	Diversions at GCWA's Briscoe diversion point. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-B2	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-B3] and local run-of-river flow [R-B5]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-B3	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-B2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-B4]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B4	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.

Column	Daily Label	Units	Description
R-B5	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-B3]). Calculation may be overridden by a non-negative entry in column [R-B6]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-B6	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-B7	Remaining Water Supply Releases after Diversions	dsf	Remaining BRA Water Supply Release after diversion ( $[R-A10] - [R-B2]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B8	Remaining Return Flows after Diversions	dsf	Remaining BRA Return Flows after diversion ( $[R-A11] - [R-B3]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-B9	BRA Total after Diversions	dsf	Total BRA water at end of reach after diversion ( $[R-B7] + [R-B8]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-C1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Set to zero in this reach. Daily values divided by 10 for use in sub-daily calculations.
R-C2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-C3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [R-B7]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [R-B7] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-C4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [R-B8] and applies delivery factor (row 24), then adds column [R-C1]. Daily and monthly values are sums of the sub-daily data.
R-C5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-C6] and local run-of-river flow [R-C8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-C6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-C2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-C7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-C7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-C8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-C6]). Calculation may be overridden by a non-negative entry in column [R-C9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-C9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.

Column	Daily Label	Units	Description
R-C10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-C3] - [R-C5]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-C11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses ([R-C4] - [R-C6]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-C12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses ([R-C10] + [R-C11]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-D1	GCWA Juliff Diversions	dsf	Diversions at GCWA's Juliff diversion point. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-D2	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-D3] and local run-of-river flow [R-D5]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-D3	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [L3] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-D2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-D4]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-D4	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-D5	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [L3] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-D3]). Calculation may be overridden by a non-negative entry in column [R-D6]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-D6	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-D7	Remaining Water Supply Releases after Diversions	dsf	Remaining BRA Water Supply Release after diversion ([R-C10] - [R-D2]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-D8	Remaining Return Flows after Diversions	dsf	Remaining BRA Return Flows after diversion ([R-C11] - [R-D3]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-D9	BRA Total after Diversions	dsf	Total BRA water at end of reach after diversion ([R-D7] + [R-D8]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
G-A1	ROST2 – Brazos River nr Rosharon	dsf	Historical daily average flows measured at gage. Imported from Table DATA1 of the reference file.
G-A2	Water Supply Adjustment	dsf	Adjustment factor for conditions when gage flows are less than calculated BRA flows. Imported from column [A12] of Table READJ21.
G-A3	Adjusted Water Supply Releases at ROST	dsf	BRA Water Supply Releases from upstream reach (column [R-D7]) multiplied by adjustment factor (column [G-A2]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows. Calculations performed on a daily basis.

Column	Daily Label	Units	Description
G-A4	Return Flow Adjustment	dsf	Adjustment for conditions when gage flows are less than calculated BRA flows. Imported from column [A13] of Table READJ20.
G-A5	Adjusted Return Flow at ROST	dsf	BRA Return Flows from upstream reach (column [R-D8]) multiplied by adjustment factor (column [G-A4]). Adjustments are applied when the monthly total flow is less than the monthly BRA flows.
G-A6	Flows > downstream IF Criteria	none	If TRUE then flow at the Rosharon gage plus downstream diversions is greater than the instream flow criteria. Imported from Table IF12 of the Instream Flow File.
R-E1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Set to zero in this reach. Daily values divided by 10 for use in sub-daily calculations.
R-E2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-E3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [G-A3]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A3] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-E4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [G-A5] and applies delivery factor (row 24), then adds column [R-E1]. Daily and monthly values are sums of the sub-daily data.
R-E5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-E6] and local run-of-river flow [R-E8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-E6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [G-A6] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-E2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-E7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-E7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-E8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [G-A6] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-E6]). Calculation may be overridden by a non-negative entry in column [R-E9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-E9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-E10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses (([R-E3] - [R-E5])). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-E11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses (([R-E4] - [R-E6])). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.

Column	Daily Label	Units	Description
R-E12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses ( $[R-E10] + [R-E11]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-F1	Harris Diversions	dsf	Diversions at Dow's diversion for Harris Reservoir. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-F2	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-F3] and local run-of-river flow [R-F5]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-F3	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [G-A6] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-F2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-F4]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-F4	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-F5	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [G-A6] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-F3]). Calculation may be overridden by a non-negative entry in column [R-F6]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-F6	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-F7	Remaining Water Supply Releases after Diversions	dsf	Remaining BRA Water Supply Release after diversion ( $[R-E10] - [R-F2]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-F8	Remaining Return Flows after Diversions	dsf	Remaining BRA Return Flows after diversion ( $[R-E11] - [R-F3]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-F9	BRA Total after Diversions	dsf	Total BRA water at end of reach after diversion ( $[R-F7] + [R-F8]$ ). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-G1	Reach Return Flows	dsf	Return flows entering the reach. Already adjusted for percentage belonging to BRA, losses and travel times to reach. Set to zero in this reach. Daily values divided by 10 for use in sub-daily calculations.
R-G2	Reach Diversions	dsf	Aggregated diversions within the reach. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-G3	Lagged BRA Water Supply Releases	dsf	Upstream BRA Water Supply releases (column [R-F7]) routed to downstream end of reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [R-F7] and applies delivery factor (row 24). Daily and monthly values are sums of the sub-daily data.
R-G4	Lagged BRA Return Flows	dsf	Upstream BRA return flows routed to downstream end of reach (losses and lag applied) plus BRA return flows within reach. Calculation done on a sub-daily basis. Looks back LAG (row 410) number of timesteps in column [R-F8] and applies delivery factor (row 24), then adds column [R-G1]. Daily and monthly values are sums of the sub-daily data.

Column	Daily Label	Units	Description
R-G5	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-G6] and local run-of-river flow [R-G8]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-G6	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [G-A6] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-G2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-G7]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-G7	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-G8	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [G-A6] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-G6]). Calculation may be overridden by a non-negative entry in column [R-G9]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-G9	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-G10	Remaining Water Supply Releases at End of Reach	dsf	Remaining BRA Water Supply Release after diversions, lag and losses ([R-G3] - [R-G5]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-G11	Remaining Return Flows at End of Reach	dsf	Remaining BRA Return Flows after diversions, lag and losses ([R-G4] - [R-G6]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-G12	BRA Total at End of Reach	dsf	Total BRA water at end of reach after diversions, lag and losses ([R-G10] + [R-G11]). Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-H1	Brazoria Diversions	dsf	Diversions at Dow's diversion for Brazoria Reservoir. Daily values imported from Table REF3 of the reference file. Daily values divided by 10 for use in sub-daily calculations.
R-H2	Diversion of Upstream Water Supply Release	dsf	Diversion less diverted BRA Return Flows [R-H3] and local run-of-river flow [R-H5]. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily values.
R-H3	Return Flow Diversion under SysOps	dsf	If instream flows are met (column [G-A6] is TRUE) and return flows diversion flag is TRUE (row 25) then BRA Return Flows are used to meet the demand (column [R-H2]). Diversion of return flows occurs FIRST before use of natural flows or reservoir releases. Calculation may be overridden by a non-negative entry in column [R-H4]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-H4	Return Flow Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.
R-H5	Local Inflow Diverted Under SysOps	dsf	If instream flows are met (column [G-A6] is true) and local flow diversion flag is TRUE (row 25) then local flows are used to meet the demand. Diversion of local flows occurs SECOND after use of return flows (column [R-H3]). Calculation may be overridden by a non-negative entry in column [R-H6]. These diversions must be made under SysOps Permit. Calculation performed on a daily basis. Daily values divided by 10 for sub-daily use.
R-H6	Local Diversion Override	none	A non-negative entry overrides the previous column. Entered by BRA staff.

Column	Daily Label	Units	Description
R-H7	Remaining Water Supply Releases after Diversions	dsf	Remaining BRA Water Supply Release after diversion $([R-G10] - [R-H2])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-H8	Remaining Return Flows after Diversions	dsf	Remaining BRA Return Flows after diversion $([R-G11] - [R-H3])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-H9	BRA Total after Diversions	dsf	Total BRA water at end of reach after diversion $([R-H7] + [R-H8])$ . Calculations performed on a sub-daily basis. Daily and monthly values summed from sub-daily values.
R-H10	Comments	none	Placeholder column for recording details of any manual overrides added in this sheet while using the accounting plan.

## H.2.6 Instream Flow File Tables

The Instream Flow file compares historical gage flows to the environmental flow criteria in the WMP. The file determines climatic conditions (Wet, Average and Dry), identifies base flow and pulse flow days, compares base flows to the interim base flow conditions, and identifies and counts qualifying high flow pulses (HFPs). The instream flow calculations output a series of daily flows that represent the minimum environmental flow criteria on any given day. Diversions under the System Operation Permit should not affect these minimum flows. Based on these criteria, the instream flow calculations create logical flags for each instream flow measurement point that show whether or not flows are above the criteria. These flags are passed on to the reach and Reservoir Files. Table SUM14 in the summary file summarize achievement of the environmental flow criteria.

### H.2.6.1 Table INTRO3 Introduction

This table contains year information from the reference file and a table of contents for the Instream Flow File.

### H.2.6.2 Table CARRY1 Carry-Over Data

Table CARRY1 contains data that has been copied over from the previous year's Accounting Plan. These data set initial conditions for instream flow calculations. CARRY1 also has a table of data that can be copied to next year's Accounting Plan. The column numbers and labels reference the columns in the IF tables of the Instream Flow File. Data at the top is from the previous year's plan and is directly linked to the appropriate IF table. Data at the bottom is from this year's plan, imported from the December 31 row of each IF table. (The December 31 row varies depending on whether it is a leap year.)

*H.2.6.3 Table COND1 Climatic Conditions Calculations*

Table COND1 calculates the climatic condition based on the Palmer Hydrological Drought Indices (PHDI) at the beginning of each season. PHDI values are imported from the reference file and are weighted in accordance with TCEQ rules to determine the current climatic condition for the Upper, Middle and Lower Brazos Basins. Daily flags identifying climatic condition are assigned to each day of the year for use in other calculations.

Since seasons do not follow a calendar year, the climatic condition for the months of January and February must be imported from the previous year's Accounting Plan.

Columns [PD1] through [PD10] contain the seasonal climatic condition calculations. Columns [C1] through [C8] distribute the seasonal calculations by month and by day of the year.

The following is a description of the columns in Table COND1:

Column	Units	Column Label	Description
PD1		Season	Winter (from previous year), Spring, Summer, or Winter (current year).
PD2	none	Upper Basin PHDI	Calculated seasonal PHDI for the Upper Basin. Product of PHDI regional data from Reference file table DATA3 and regional weighting factors from Table DATA2_IF Data.
PD3	none	Middle Basin PHDI	Calculated seasonal PHDI for the Middle Basin. Product of PHDI regional data from Reference file table DATA3 and regional weighting factors from Table DATA2_IF Data.

Column	Units	Column Label	Description
PD4	none	Lower Basin PHDI	Calculated seasonal PHDI for the Lower Basin. Product of PHDI regional data from Reference file table DATA3 and regional weighting factors from Table DATA2_IF Data.
PD5	none	Upper Basin Climatic Condition	Code for current Upper Basin climatic condition, based on data in Table DATA2_IF Data.
PD6	none	Middle Basin Climatic Condition	Code for current Middle Basin climatic condition, based on data in Table DATA2_IF Data.
PD7	none	Lower Basin Climatic Condition	Code for current Lower Basin climatic condition, based on data in Table DATA2_IF Data.
PD8	none	Upper Basin Climatic Condition	Current Upper Basin climatic condition (Wet, Average, or Dry), based on data in Table DATA2_IF Data.
PD9	none	Middle Basin Climatic Condition	Current Middle Basin climatic condition (Wet, Average, or Dry), based on data in Table DATA2_IF Data.
PD10	none	Lower Basin Climatic Condition	Current Lower Basin climatic condition (Wet, Average, or Dry), based on data in Table DATA2_IF Data.

The following table distributes the seasonal codes calculated above to the individual month or day for later reference.

Column	Units	Column Label	Description
C1	none	Month Number	Month sequence number
C2	none	Start of Month or Data	First day of month (monthly data) or date (daily data)
C3	none	Upper Basin Climatic Condition Code	Code for current climatic condition (1 = Dry, 2 = Average, 3 = Wet) from previous table
C4	none	Upper Basin Climatic Condition	Current climatic condition (Dry, Average, or Wet) from previous table
C5	none	Middle Basin Climatic Condition Code	Code for current climatic condition (1 = Dry, 2 = Average, 3 = Wet) from previous table
C6	none	Middle Basin Climatic Condition	Current climatic condition (Dry, Average, or Wet) from previous table
C7	none	Lower Basin Climatic Condition Code	Code for current climatic condition (1 = Dry, 2 = Average, 3 = Wet) from previous table
C8	none	Lower Basin Climatic Condition	Current climatic condition (Dry, Average, or Wet) from previous table

#### *H.2.6.4 Chart FLOWC1 through FLOWC12*

These charts show the historical flow for the year at the twelve measurement points. There are two charts of the same data, one with a decimal scale for the flow axis and one with a logarithmic scale for the flow axis. BRA staff may adjust the minima and maxima of these axes as appropriate. Flow data are imported from column [M7] of the IF files. For measurement points with only one type of pulse, red dots indicate days that are classified as HFPs (based on column [M20] of the IF files being TRUE) and green dots indicate base flows (based on column [M20] of the IF files being false). Measurement points with large and small pulses have an x for each large pulse day,

based on column [M44] being TRUE. The seasonal subsistence flow criteria (column [M8], base flow criteria (column [M9]), small or single pulse flow trigger level (column [M12]) and, if applicable, large pulse flow trigger level (column [M36]) are shown on the charts for reference.

#### *H.2.6.5 Tables IF1 through IF12 – Instream Flow Calculations*

Tables IF1 through IF12 take historical flow data at the twelve measurement points and classify each day as either a base flow day or a HFP day. The spreadsheet groups HFP days into pulse events and identifies events that meet either the duration or and volume criteria. The spreadsheet counts the number of these events in a season. The IF tables generate flags which are TRUE when streamflows are greater than the instream flow criteria, as well as flags that identify when instream flow criteria have been fully met.

The calculations in the IF table occur on a daily basis. Monthly summaries are provided at the top of the table. These summaries are primarily for the convenience of BRA staff.

BRA staff will monitor these calculations closely. Because of the wide variation found in flow data, all automated methods used to separate flows into base flows and pulse flows occasionally produce less than desirable results. For example, reservoir releases often do not mimic natural pulse events, and are sometimes cyclical (for example hydropower releases or releases made for weekend recreation). For gages that are dominated by releases from reservoirs, the criteria used to identify a HFP do not always result in a reasonable flow classification. To deal with these occasions, the Accounting Plan allows BRA staff to override the classification of a day as a HFP or a base flow in column [M21] for single pulses or small pulses or [M45] for large pulses (if applicable). It is also difficult to automate the separation of HFP events that do not have a full day below the pulse flow trigger level between the events. To simplify the calculations, columns [M22] and [M46] of the spreadsheet allows BRA staff to manually separate

longer pulse flow events. The separation should occur when a new HFP occurs in response to a new rainfall event.

The following describes the monthly columns in the IF tables for measurement points with one pulse (South Bend, Waco, Gatesville, Little River, Cameron, Bryan, Easterly, Hempstead, Richmond and Rosharon):

Column	Units	Monthly Column Label	Description
M1	none	Month	Month sequence number.
M2	none	Days/Month	Number of days during the current month.
M3	none	Season	Name of season (Winter, Spring, or Summer). Winter months for the season beginning the previous year are labeled "Winter (previous)". Uses the month in column [M1] to find the corresponding row in column [S3] of Table DATA2_IF DATA.
M4	none	Season Code 2	Winter = 1, Spring = 2, Summer = 3. Uses the month in column [M1] to find the corresponding row in column [S5] of Table DATA2_IF DATA.
M5	none	Climatic Condition Code – (Upper or Lower) Basin	Dry = 1, Average = 2, Wet = 3. Imported from column [C3] or [C7] of Table COND1, depending on whether the gage is in the Upper, Middle or Lower Basin, respectively.
M6	none	Climatic Condition – (Upper or Lower) Basin	Dry, Average or Wet. Imported from column [C4] or [C8] of Table COND1, depending on whether the gage is in the Upper, Middle or Lower Basin, respectively.
M7	cfs	Average Flow	Monthly average of the historical flow from the daily portion of column [M7]. Averages the flows where column [M1] of the daily data matches the current month.
M8	cfs	Subsistence Flow Criteria	Subsistence Flow Criteria. Imported from row 7 of [I2], [I3] or [I4] of the associated CRI table.
M9	cfs	Base Flow Criteria	Base flow criteria for the current season and climatic condition. Imported from columns [I2], [I3] or [I4] of the associated CRI table.
M10	cfs	Base Criteria Series (Average)	Monthly average of the daily Base Criteria Series in daily column [M8] of this table. Averages the flows where column [M1] of the daily data matches the current month.
M11	none	Number of Days Meeting Base Series Criteria	Number of days in each month where base flow criteria met. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].
M12	cfs	Pulse Flow Trigger Criteria	This month's pulse flow trigger level for the current season and climatic condition. Imported from columns [K2], [K3] or [K4] of the associated CRI table. If there are no pulse flow criteria for the season, set to #N/A.
M13	days	Pulse Flow Duration Criteria	This month's pulse flow duration criteria for the current season and climatic condition. Imported from columns [D2], [D3] or [D4] of the associated CRI table. If there are no pulse flow duration criteria for the season, set to #N/A.
M14	ac-ft	Pulse Flow Volume Criteria	This month's pulse flow volume criteria for the current season and climatic condition. Imported from columns [P2], [P3] or [P4] of the associated CRI table. If there are no pulse volume criteria for the season, set to #N/A.
M15	none	Number of Pulses Criteria	The number of pulses for the current season and climatic condition. Imported from columns [C2], [C3] or [C4] of the associated CRI table. If there are no pulse criteria for the season, set to #N/A.
M16	days	Number of Days Flow > Pulse Trigger	Number of days that flows are above the pulse flow trigger criteria in column [M12]. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].
M17	days	Number of Initiate Pulse Days	Number of times in the current month that a new pulse was initiated. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].
M18	days	Number of Stop Pulse Days	Number of times in the current month that a pulse event met either the volume or duration criteria. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].

Column	Units	Monthly Column Label	Description
M19	days	Number of Calculated Pulse Days	Counts the number of times that the calculations defined a qualifying pulse event in the current month. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].
M20	days	Total Number of Pulse Days	Counts the total number of pulse events in the current month. Includes manual overrides from column [M21]. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].
M21	none	Count of B or P Override	Count of the number of times classification has been modified each month in daily column [M21].
M22	none	Count of Manual Counter Adjustment	Count of the number of times a manual adjustment has occurred during the current month in the daily column [M22].
M23	days	End of Month Pulse Counter	Shows how many pulses have occurred so far in the current month. Based on the end-of-month value in daily column [M23].
M24	days	Cumulative Days in Pulse	Count of the number of days that are identified as a pulse, based on the daily values in column [M24].
M25	days	Pulse Duration	Sum of the maximum number of days in a pulse event in the current month. Based on the end-of-event duration in daily column [M25] and having the end-of-pulse flag in daily column [M29] set to TRUE.
M26	dsf	Cumulative Volume	Total pulse volume in the current month in day-second-feet (dsf). Based on the end-of-pulse cumulative volume as defined in daily columns [M26] and [M29].
M27	acre-feet	Cumulative Volume	Same as column [M26] but converted to acre-feet.
M28	acre-feet	Event Volume	Total pulse volume in the current month based on the daily event volume in daily column [M28] and the end-of-event flag in daily column [M29].
M29	none	Count of End of Pulse	Number of times the end-of-pulse flag has been set in the current month.
M30	dsf	Average Flow	Average monthly gage flow. Repeat of column [M7].
M31	none	Count of Pulse Days	Count of the number of days the P flag is set in each month.
M32	none	Count of Qualifying Volume	Count of the number of times a pulse meets the volume criteria in the current month.
M33	none	Count of Meets Duration	Count of the number of times a pulse meets the duration criteria in the current month.
M34	none	Count of Qualifying Pulses	Count of the number of qualifying pulse events (meets either duration or volume criteria)
M35	none	Number of Pulses Current Season	Number of seasonal pulses as of the current month.
M36	none	Number of Pulses Criteria	Number of required pulses. Repeat of column [M15].
M37	days	Number of Days Base Criteria Met	Number of days the base flow criteria series is met or exceeded in the current month.
M38	days	Number of Days Pulse Target Met	Number of days that the number of pulse flow events has been met or exceeded in the current month.
M39	days	Number of Days IF Criteria Met	Number of days both the base flow and number of pulse flow events have been met in the current month.
M40	cfs	Average Base and Pulse Criteria Series	Monthly average of the daily base and pulse flow criteria series in daily column [M40].
M41	cfs	Average Base Only Criteria Series	Monthly average of the base flow criteria only, based on the daily flows in column [M41].
M42	cfs	20% of Pulse Trigger Criteria	20% of the pulse flow trigger level, based on current season and climatic conditions.
M43	cfs	Average Upstream Reach Diversion Rate	Average monthly diversion rate for BRA contract diversions in the reach upstream of the current measurement point.
M44	cfs	Average Downstream Reach Diversion Rates	Average monthly diversion rate for BRA contract diversions in the reach downstream of the current measurement point. Applicable only if the current measurement point is applied to downstream diversions.
M45	none	Flow > Criteria Series in Month	TRUE if the flow is greater than the instream flow criteria series at any time during the current month.
M46	none	Flow > Criteria Series + Downstream Reach Diversions in Month	TRUE if the flow is greater than the instream flow criteria series, plus the applicable downstream downstream diversions, during the current month.

Column	Units	Monthly Column Label	Description
M47	none	Flow > Base & Pulse Criteria Series in Month	TRUE if the flow is greater than the base and pulse criteria series at any time during the month.

The South Bend gage applies to diversions in Possum Kingdom. So Table IF1 includes the following:

Column	Units	Monthly Column Label	Description
M48	cfs	Average PK Diversion Rates	Average monthly diversion rate for lakeside diversions and downstream water supply releases made from Possum Kingdom.
M49	none	Flow > Base & Pulse Criteria + PK Diversions in Month	TRUE if the flow is greater than the base and pulse criteria, plus the PK diversions, at any time during the current month.

The following describes the daily columns at the measurement locations with one pulse level:

Column	Units	Daily Column Label	Description
M1	none	Month	Month sequence number.
M2	none	Date	Current date.
M3	none	Season	Name of season (Winter, Spring, or Summer). Winter months for the season beginning the previous year are labeled "Winter (previous)". Uses the month in column [M1] to find the corresponding row in column [S3] of Table DATA2_IF DATA.
M4	none	Season Code 2	Winter = 1, Spring = 2, Summer = 3. Uses the month in column [M1] to find the corresponding row in column [S5] of Table DATA2_IF DATA.
M5	none	Climatic Condition Code – (Upper or Lower) Basin	Dry = 1, Average = 2, Wet = 3. Imported from column [C3] or [C7] of daily Table COND1, depending on whether the gage is in the Upper, Middle or Lower Basin, respectively.
M6	none	Climatic Condition – (Upper or Lower) Basin	Dry, Average or Wet. Imported from column [C4] or [C8] of daily Table COND1, depending on whether the gage is in the Upper, Middle or Lower Basin, respectively.
M7	cfs	[Gage Name]	Daily average gage flows for the current year. Read from Table DATA1 in the Reference spreadsheet.
M8	cfs	Subsistence Flow Criteria	Subsistence Flow Criteria. Imported from row 7 of [I2], [I3] or [I4] of the associated CRI table.
M9	cfs	Base Flow Criteria	Base flow criteria for the current season and climatic condition. Imported from columns [I2], [I3] or [I4] of the associated CRI table.
M10	cfs	Base Criteria Series	Series of flows that define the minimum base flow environmental flow criteria, which vary by season, climatic condition and in some cases measured flow. If in Dry conditions and flows are below the Subsistence criteria, then the Subsistence criteria apply. If in Dry conditions and flows are between Subsistence and the Dry Base criteria, then the criteria are the Subsistence criteria plus 50% of the difference between the current measured streamflow and the Subsistence criteria. If in Dry conditions and flows are above the Dry criteria, then the Dry criteria apply. If in Average or Wet conditions, then the appropriate Average or Wet criteria apply. Subsistence, Dry, Average and Wet criteria are imported from columns [I2], [I3] and [I4] of the associated CRI table.
M11	none	Meets Base Criteria?	TURE is the flow in daily column [M7] is greater than the Base Criteria Series in column [M10]. FALSE otherwise.
M12	cfs	Pulse Flow Trigger Criteria	Current pulse flow trigger level for the current season and climatic condition. Imported from columns [K2], [K3] or [K4] of the associated CRI table. If there are no pulse flow criteria for the season, set to #N/A.

Column	Units	Daily Column Label	Description
M13	days	Pulse Flow Duration Criteria	Current pulse flow duration criteria for the current season and climatic condition. Imported from columns [D2], [D3] or [D4] of the associated CRI table. If there are no pulse flow duration criteria for the season, set to #N/A.
M14	ac-ft	Pulse Flow Volume Criteria	Current pulse flow volume criteria for the current season and climatic condition. Imported from columns [P2], [P3] or [P4] of the associated CRI table. If there are no pulse volume criteria for the season, set to #N/A.
M15	none	Number of Pulses Criteria	The number of pulses for the current season and climatic condition. Imported from columns [C2], [C3] or [C4] of the associated CRI table. If there are no pulse criteria for the season, set to #N/A.
M16	none	Flow > Pulse Trigger?	TRUE if flows in column [M7] are above the Pulse Flow Trigger criteria in column [M12]. FALSE otherwise. If there are no pulse criteria for the season (column [M12] is #N/A), set to FALSE.
M17	none	Initiate Pulse?	TRUE if today the flow is above the pulse flow trigger level (today's value for column [M16] is TRUE) and yesterday the flow was below the pulse flow trigger level (yesterday's value for column [M16] is FALSE). Otherwise FALSE.
M18	none	Stop Pulse?	TRUE if a pulse has qualified (met either volume or duration criteria) on the previous day. Checks if the cumulative days in pulse (column [M24]) are greater than or equal to the duration criteria (column [M13]) or the cumulative volume (column [M27]) is greater than or equal to the volume criteria (column [M14]). If there are no pulse criteria for the current season (column [M12] is #N/A) then set to FALSE. Otherwise FALSE.
M19	none	Is Pulse?	TRUE for every day that the calculations define as a qualifying pulse. TRUE if today is the first day above the pulse flow trigger level (column [M17] is TRUE), or yesterday this column was TRUE and the pulse flow criteria have not been met previously (column [M18] is FALSE). Otherwise FALSE.
M20	none	Is Pulse Day	TRUE if the calculations have identified today as a pulse day (column [M19] is TRUE) or the manual override in the next column has been set to a pulse (column [M21] is equal to "P") Set to FALSE if the manual override in the next column is set to base (column [M21] is equal to "B"), or if there are no pulse criteria for the season (column [M12] is #N/A). Otherwise FALSE.
M21	none	B or P Override	Manual override of Base or Pulse calculation. Entering a "B" forces the day to be a base flow day. Entering a "P" forces today to be a pulse flow day. If initiating a new pulse, the Manual Counter Adjustment in column [M22] may need to be set to 1 to increment the Pulse Counter in column [M23].
M22	none	Manual Counter Adjustment	A numerical entry in this column is added to the Pulse Counter in column [M23]. Used with B or P override in column [M21], or when a new distinct pulse is initiated the day after a preceding pulse qualifies.
M23	days	Pulse Counter	Assigns a number to each pulse, beginning with 1 for the first pulse of the year. TRUE if today is the first day of a pulse ([M19] is TRUE today and FALSE yesterday). Can be manually incremented or decremented in column [M22].
M24	days	Cumulative Days in Pulse	Increments by 1 for each day in a pulse. Set to 1 if [M22] is greater than zero. Set to zero during base flow days.
M25	days	Pulse Duration	Finds the maximum number of days in the current pulse event. Uses an Excel array formula that multiplies logical values (which are actually 0 or 1) that are TRUE for the current event by the Cumulative Days in the pulse in column [M24] and then finds the maximum.
M26	dsf	Cumulative Volume	Cumulative volume to date in current pulse event in dsf. Adds the flow in column [M7] to yesterday's volume during a pulse event.
M27	acre-feet	Cumulative Volume	Same as column [M26] but converted to acre-feet.
M28	acre-feet	Event Volume	Finds the maximum volume in the pulse event. Uses an Excel array formula that multiplies logical values (which are actually 0 or 1) that are TRUE for the current event by the Cumulative Volume in the pulse (column [M27]) and then finds the maximum.

Column	Units	Daily Column Label	Description
M29	none	End of Pulse?	Last day of a qualifying pulse event. TRUE if cumulative number of days (column [M24]) is equal to the duration of the event (column [M25]). Takes into account both calculated and manual override to define the last day of a qualifying pulse event.
M30	cfs	Gage Name	Repeat of historical flows from column [M7].
M31	none	Base Flow or Pulse	If today is a pulse day (column [M20] is TRUE), set to "P". If today is a base flow or subsistence day, set to "B" (column [M20] is FALSE).
M32	none	Qualifying Volume	Set to "Q" if the volume to date in a pulse is greater than or equal to the volume criteria (column [M20] is TRUE and column [M27] is greater than or equal to column [M14]). Otherwise set to "P" if today is a pulse day (only column [M20] is TRUE) or "B" if today is a base flow day (column [M20] is FALSE).
M33	none	Meets Duration?	Set to "Q" if the number of days to date in a pulse is greater than or equal to the duration criteria (column [M20] is TRUE and column [M24] is greater than or equal to column [M13]). Otherwise set to "P" if today is a pulse day (only column [M20] is TRUE) or "B" if today is a base flow day (column [M20] is FALSE).
M34	none	Qualifying Pulse?	TRUE if either the duration or volume criteria have been met for a pulse event (columns [M32] or [M33] is equal to "Q").
M35	none	Number of Pulses Current Season	Increments by 1 for each qualifying pulse in each season. On the first day of a season (column [M4] today is not equal to yesterday), sets the initial condition to zero. Otherwise, the initial condition is the number of pulses so far in the season from the previous day. Incremented by 1 if today is the first day of a qualifying pulse (column [M34] is TRUE today and FALSE yesterday). Otherwise value is not incremented.
M36	none	Number of Pulses Criteria	Number of required pulses. Identical to column [M15], except that if there are no pulse criteria for the season it is set to 0.
M37	none	Base Criteria Met?	TRUE if base or subsistence flow criteria met. Repeat of column [M11].
M38	none	Pulse Target Met?	TRUE if number of pulses per season has been met (column [M35] is greater than or equal to [M36]). Also TRUE if there are no pulse criteria for the season. Otherwise FALSE.
M39	none	IF Criteria Met?	TRUE if base flow criteria are met for the day and there has been the required number of pulse flows in the season (both [M37] and [M38] are TRUE). Otherwise FALSE.
M40	cfs	Base and Pulse Criteria Series	Defines an average daily flow series based on the currently applicable base and pulse criteria. Uses a user-defined function <i>setcriteria</i> to select the applicable flow level. This sets the value based on the following: <ul style="list-style-type: none"> <li>• If today is a base flow day (column [M20] is FALSE), then the value is set to the current base flow criteria in column [M10].</li> <li>• If today is a pulse day (column [M20] is TRUE) and the pulse flow frequency has not been met for the season (column [M38] is FALSE), then the value is set to the current pulse flow trigger level (column [M12]).</li> <li>• If today is a pulse day (column [M20] is TRUE, and either today is the first day that the seasonal pulse frequency has been met, or today is the beginning of a new season, then the value is set to the current pulse flow trigger level (column [M12]).</li> <li>• If today is a pulse day (column [M20] is TRUE) and either the seasonal pulse frequency has not been met or today is the first day of a new season, then the value is set to the current pulse flow trigger level (column [M12]).</li> <li>• If today is a pulse day (column [M20] is TRUE) and either the seasonal criteria has been met on the previous day or today is the first day of a new season (this can occur when there are no seasonal pulse criteria), the value is set to the base flow criteria.</li> <li>• Other combinations are unsupported and return an error message.</li> </ul>
M41	cfs	Base Only Criteria Series	Repeat of column [M10].
M42	cfs	20% of Pulse Trigger Criteria	20% of the pulse flow trigger level, based on current season and climatic conditions.
M43	cfs	Upstream Reach Diversion Rates	Total daily diversion rates for BRA contract diversions in the reach upstream of the current measurement point.

Column	Units	Daily Column Label	Description
M44	cfs	Downstream Reach Diversion Rates	Total daily diversion rates for BRA contract diversions in the reach downstream of the current measurement point. Applicable only if the current measurement point is applied to downstream diversions.
M45	cfs	Flow > Criteria Series	TRUE if the flow (column [M30]) is greater than the applicable instream flow criteria series. The applicable instream flow series depends on the diversion rate. If the diversion rate is greater than 20% of the pulse criteria (column [M42]) then the base only criteria in column [M41] apply. Otherwise, the base and pulse criteria in column [M40] apply. Used for run-of-the-river diversions in the applicable reach above the measurement point.
M46	cfs	Flow > Criteria Series + Downstream Reach Diversions	TRUE if the flow (column [M30]) is greater than the applicable instream flow criteria series, plus the applicable downstream diversions in column [M44]. The applicable instream flow series depends on the diversion rate. If the diversion rate is greater than 20% of the pulse criteria (column [M42]) then the base only criteria in column [M41] apply. Otherwise, the base and pulse criteria in column [M40] apply. Used for run-of-the-river diversions in the applicable reach below the measurement point (if any).
M47	cfs	Flow > Base & Pulse Criteria Series	TRUE if the flow (column [M30]) is greater than the base and pulse criteria series in column [M40]. Used for reservoir diversion and storage under the System Operation Permit.
M48	none	Comments	Place to record comments about base or pulse overrides, or any other observations about this year's calculations.

The South Bend gage applies to diversions in Possum Kingdom. So Table IF1 includes the following:

Column	Units	Daily Column Label	Description
M48	cfs	PK Diversions	Daily diversions and downstream water supply releases from Possum Kingdom. Imported from Table BASIC1 in the reference file.
M49	none	Flow > Base & Pulse Criteria + PK Diversions	TRUE if today's flow in column [M30] is greater than the base and pulse criteria in column [M40] plus the PK diversions in column [M48].

The Palo Pinto and Glen Rose gages have small and large pulses. The monthly table for these two gages includes the following columns:

Column	Units	Monthly Column Label	Description
M1	none	Month	Month sequence number.
M2	none	Days/Month	Number of days during the current month.
M3	none	Season	Name of season (Winter, Spring, or Summer). Winter months for the season beginning the previous year are labeled "Winter (previous)". Uses the month in column [M1] to find the corresponding row in column [S3] of Table DATA2_IF DATA.
M4	none	Season Code 2	Winter = 1, Spring = 2, Summer = 3. Uses the month in column [M1] to find the corresponding row in column [S5] of Table DATA2_IF DATA.
M5	none	Climatic Condition Code - Middle Basin	Dry = 1, Average = 2, Wet = 3. Imported from column [C5] of daily Table COND1.
M6	none	Climatic Condition - Middle Basin	Dry, Average or Wet. Imported from column [C6] of daily Table COND1.
M7	cfs	Average Flow	Monthly average of the historical flow from the daily portion of column [M7]. Averages the flows where column [M1] of the daily data matches the current month.
M8	cfs	Subsistence Flow Criteria	Subsistence Flow Criteria. Imported from row 7 of [I2], [I3] or [I4] of the associated CRI table.
M9	cfs	Base Flow Criteria	Base flow criteria for the current season and climatic condition. Imported from columns [I2], [I3] or [I4] of the associated CRI table.

Column	Units	Monthly Column Label	Description
M10	cfs	Base Criteria Series (Average)	Monthly average of the daily Base Criteria Series in daily column [M8] of this table. Averages the flows where column [M1] of the daily data matches the current month.
M11	none	Number of Days Meeting Base Series Criteria	Number of days in each month where base flow criteria met. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].
M12	cfs	Small Pulse Flow Trigger Criteria	Current small pulse flow trigger level for the current season and climatic condition. Imported from columns [K2], [K3] or [K4] of the associated CRI table. If there are no pulse flow criteria for the season, set to #N/A.
M13	days	Small Pulse Flow Duration Criteria	Current small pulse flow duration criteria for the current season and climatic condition. Imported from columns [D2], [D3] or [D4] of the associated CRI table. If there are no pulse flow duration criteria for the season, set to #N/A.
M14	ac-ft	Small Pulse Flow Volume Criteria	Current small pulse flow volume criteria for the current season and climatic condition. Imported from columns [P2], [P3] or [P4] of the associated CRI table. If there are no pulse volume criteria for the season, set to #N/A.
M15	none	Number of Small Pulses Criteria	The number of small pulses for the current season and climatic condition. Imported from columns [C2], [C3] or [C4] of the associated CRI table. If there are no pulse criteria for the season, set to #N/A.
M16	none	Number of Days Flow > Pulse Trigger	Number of days that flows are above the small pulse flow trigger criteria in column [M12]. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].
M17	none	Number of Initiate Pulse Days	Number of times in the current month that a new small pulse was initiated. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].
M18	none	Number of Stop Pulse Days	Number of times in the current month that a small pulse event met either the volume or duration criteria. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].
M19	none	Number of Calculated Small Pulse Days	Counts the number of times that the calculations defined a qualifying small pulse event in the current month. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].
M20	none	Total Number of Small Pulse Days	Counts the total number of pulse events in the current month. Includes manual overrides from column [M21]. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].
M21	none	Count of B or P Override	Count of the number of times small pulse classification has been modified each month in daily column [M21].
M22	none	Count of Manual Counter Adjustment	Count of the number of times a manual adjustment to small pulses has occurred during the current month in the daily column [M22].
M23	days	End of Month Small Pulse Counter	Shows how many small pulses have occurred so far in the current month. Based on the end-of-month value in daily column [M23]
M24	days	Cumulative Days in Small Pulse	Count of the number of days that are identified as a pulse, based on the daily values in column [M24].
M25	days	Small Pulse Duration	Sum of the maximum number of days in a small pulse event in the current month. Based on the end-of-event duration in daily column [M25] and having the end-of-pulse flag in daily column [M29] set to TRUE.
M26	dsf	Cumulative Small Pulse Volume	Total pulse volume in the current month in day-second-feet (dsf). Based on the end-of-pulse cumulative volume as defined in daily columns [M26] and [M29].
M27	acre-feet	Cumulative Small Pulse Volume	Same as column [M26] but converted to acre-feet.
M28	acre-feet	Small Pulse Event Volume	Total small pulse volume in the current month based on the daily event volume in daily column [M28] and the end-of-event flag in daily column [M29].
M29	none	End of Small Pulse?	Number of times the end-of-pulse flag has been set in the current month.
M30	cfs	Average Flow	Average monthly gage flow. Repeat of column [M7].
M31	none	Count of Pulse Days	Count of the number of days the P flag is set in each month.

Column	Units	Monthly Column Label	Description
M32	none	Count of Qualifying Volume	Count of the number of times a pulse meets the volume criteria in the current month.
M33	none	Count of Meets Duration	Count of the number of times a pulse meets the duration criteria in the current month.
M34	none	Count of Qualifying Pulses	Count of the number of qualifying pulse events (meets either duration or volume criteria)
M35	none	Number of Small Pulses Current Season	Number of seasonal small pulses as of the current month.
M36	cfs	Large Pulse Flow Trigger Criteria	This month's large pulse flow trigger level for the current season and climatic condition. Imported from columns [K6], [K7] or [K8] of the associated CRI table. If there are no pulse criteria for the season, set to #N/A.
M37	days	Large Pulse Flow Duration Criteria	This month's large pulse flow duration criteria for the current season and climatic condition. Imported from columns [D6], [D7] or [D8] of the associated CRI table. If there are no pulse criteria for the season, set to #N/A.
M38	ac-ft	Large Pulse Flow Volume Criteria	This month's large pulse flow volume criteria for the current season and climatic condition. Imported from columns [P6], [P7] or [P8] of the associated CRI table. If there are no pulse criteria for the season, set to #N/A.
M39	none	Number of Large Pulses Criteria	The number of large pulses for the current season and climatic condition. Imported from columns [C6], [C7] or [C8] of the associated CRI table. If there are no pulse criteria for the season, set to #N/A.
M40	none	Number of Days Flow > Pulse Trigger	Number of days that flows are above the large pulse flow trigger criteria in column [M36]. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].
M41	none	Number of Initiate Pulse Days	Number of times in the current month that a new large pulse was initiated. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].
M42	none	Number of Stop Pulse Days	Number of times in the current month that a pulse event met either the volume or duration criteria. Counts the number of days with a value of TRUE that also has the same month number found in column [M1]
M43	none	Number of Calculated Large Pulse Days	Counts the number of times that the calculations defined a qualifying large pulse event in the current month. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].
M44	none	Total Number of Large Pulse Days	Counts the total number of large pulse events in the current month. Includes manual overrides from column [M45]. Counts the number of days with a value of TRUE that also has the same month number found in column [M1].
M45	none	Count of B or P Override	Count of the number of times classification has been modified each month in daily column [M45].
M46	none	Count of Manual Counter Adjustment	Count of the number of times a manual adjustment has occurred during the current month in the daily column [M22].
M47	days	Previous Small Pulse Days	Monthly sum of the number of small pulse days that has occurred immediately before initiation of the current large pulse.
M48	dsf	Previous Small Pulse Volume	Monthly sum of the small pulse volume that has occurred immediately before initiation of the current large pulse.
M49	none	Count of Use Small Pulse Buildup	Counts the number of times in a month that the values in columns [M47] and [M48] have been added to a large pulse.
M50	days	End of Month Large Pulse Counter	Shows how many large pulses have occurred so far in the current month. Based on the end-of-month value in daily column [M50].
M51	days	Cumulative Days in Large Pulse	Count of the number of days that are identified as a pulse, based on the daily values in column [M51].
M52	days	Large Pulse Duration	Sum of the maximum number of days in a large pulse event in the current month. Based on the end-of-event duration in daily column [M52] and having the end-of-pulse flag in daily column [M56] set to TRUE.
M53	dsf	Cumulative Large Pulse Volume	Total large pulse volume in the current month in day-second-feet (dsf). Based on the end-of-pulse cumulative volume as defined in daily columns [M53] and [M56].
M54	acre-feet	Cumulative Large Pulse Volume	Same as column [M53] but converted to acre-feet.

Column	Units	Monthly Column Label	Description
M55	acre-feet	Large Pulse Event Volume	Total large pulse volume in the current month based on the daily event volume in daily column [M55] and the end-of-event flag in daily column [M56].
M56	none	End of Large Pulse?	Number of times the end-of-pulse flag has been set in the current month.
M57	cfs	Average Flow	Average monthly gage flow. Repeat of column [M7].
M58	none	Count of Pulse Days	Count of the number of days the P flag is set in each month for a large pulse.
M59	none	Count of Qualifying Volume	Count of the number of times a large pulse meets the volume criteria in the current month.
M60	none	Count of Meets Duration	Count of the number of times a large pulse meets the duration criteria in the current month
M61	none	Count of Qualifying Pulses	Count of the number of qualifying large pulse events (meets either duration or volume criteria)
M62	none	Number of Large Pulses Current Season	Number of seasonal large pulses as of the current month.
M63	none	Number of Small Pulses Current Season	Repeat of column [M35]
M64	none	Count of Pulse Days	Count of the number of days that were either a large or small pulse in the current month.
M65	none	Number of Small Pulses Criteria	Number of required small pulses. Identical to column [M15], except that if there are no pulse criteria for the season it is set to 0.
M66	none	Number of Large Pulses Criteria	Number of required large pulses. Identical to column [M39], except that if there are no pulse criteria for the season it is set to 0.
M67	none	Number of Days Base Criteria Met	Number of days the base flow criteria series is exceeded in the current month.
M68	none	Number of Days Small Pulse Target Met	Number of days that the number of small pulse flow events has been met/exceeded in the current month.
M69	none	Number of Days Large Pulse Target Met	Number of days that the number of large pulse flow events has been met/exceeded in the current month.
M70	none	Number of Days IF Criteria Met	Number of days both the base flow and number of large and small pulse flow events have both been met in the current month.
M71	cfs	Average Based and Pulse Criteria Series	Monthly average of the daily base and pulse flow criteria series in daily column [M71].
M72	cfs	Average Base Only Criteria Series	Monthly average of the base flow criteria only, based on the daily flows in column [M72].
M73	cfs	20% of Pulse Trigger Criteria	Monthly average of 20% of the daily pulse flow trigger level, based on current season, climatic conditions, and achievement of large pulse frequency.
M74	cfs	Average Upstream Reach Diversion Rate	Average monthly diversion rate for BRA contract diversions in the reach upstream of the current measurement point.
M75	cfs	Average Downstream Reach Diversion Rates	Average monthly diversion rate for BRA contract diversions in the reach downstream of the current measurement point. Applicable only if the current measurement point is applied to downstream diversions.
M76	cfs	Flow > Criteria Series in Month	TRUE if the flow is greater than the instream flow criteria series at any time during the current month.
M77	cfs	Flow > Criteria Series + Downstream Reach Diversions in Month	TRUE if the flow is greater than the instream flow criteria series, plus the applicable downstream downstream diversions, during the current month.
M78	cfs	Flow > Base & Pulse Criteria Series in Month	TRUE if the flow is greater than the base and pulse criteria series at any time during the month.

The Glen Rose measurement point includes two additional columns to account for downstream diversions at Lake Whitney:

Column	Units	Monthly Column Label	Description
M48	cfs	Average Lake Whitney Diversion Rates	Average monthly diversion rate for lakeside diversions and downstream water supply releases made from Lake Whitney.

M49	none	Flow > Base & Pulse Criteria + Reservoir Diversions in Month	TRUE if the flow is greater than the base and pulse criteria, plus the Lake Whitney diversions, at any time during the current month.
-----	------	--	---

The daily columns for Palo Pinto and Glen Rose are:

Column	Units	Daily Column Label	Description
M1	none	Month	Month sequence number.
M2	none	Date	Current date.
M3	none	Season	Name of season (Winter, Spring, or Summer). Winter months for the season beginning the previous year are labeled "Winter (previous)". Uses the month in column [M1] to find the corresponding row in column [S3] of Table DATA2_IF DATA.
M4	none	Season Code 2	Winter = 1, Spring = 2, Summer = 3. Uses the month in column [M1] to find the corresponding row in column [S5] of Table DATA2_IF DATA.
M5	none	Climatic Condition Code – (Upper, Middle or Lower) Basin	Dry = 1, Average = 2, Wet = 3. Imported from column [C3], [C5] or [C7] of daily Table COND1, depending on whether the gage is in the Upper, Middle or Lower Basin, respectively.
M6	none	Climatic Condition - Middle Basin	Dry, Average or Wet. Imported from column [C4], [C6] or [C8] of daily Table COND1, depending on whether the gage is in the Upper, Middle or Lower Basin, respectively.
M7	cfs	[Gage name]	Daily average gage flows for the current year. Read from Table DATA1 in the Reference spreadsheet.
M8	cfs	Subsistence Flow Criteria	Subsistence Flow Criteria. Imported from row 7 of [I2], [I3] or [I4] of the associated CRI table.
M9	cfs	Base Flow Criteria	Base flow criteria for the current season and climatic condition. Imported from columns [I2], [I3] or [I4] of the associated CRI table.
M10	cfs	Base Criteria Series	Series of flows that define the minimum base flow environmental flow criteria, which vary by season, climatic condition and in some cases measured flow. If in Dry conditions and flows are below the Subsistence criteria, then the Subsistence criteria apply. If in Dry conditions and flows are between Subsistence and the Dry Base criteria, then the criteria are the Subsistence criteria plus 50% of the difference between the current measured streamflow and the Subsistence criteria. If in Dry conditions and flows are above the Dry criteria, then the Dry criteria apply. If in Average or Wet conditions, then the appropriate Average or Wet criteria apply. Subsistence, Dry, Average and Wet criteria are imported from columns [I2], [I3] and [I4] of the associated CRI table.
M11	none	Meets Base Criteria?	TRUE is the flow in daily column [M7] is greater than the Base Criteria Series in column [M10]. FALSE otherwise.
M12	cfs	Small Pulse Flow Trigger Criteria	Current small pulse flow trigger level for the current season and climatic condition. Imported from columns [K2], [K3] or [K4] of the associated CRI table. If there are no pulse criteria for the season, set to #N/A.
M13	days	Small Pulse Flow Duration Criteria	Current small pulse flow duration criteria for the current season and climatic condition. Imported from columns [D2], [D3] or [D4] of the associated CRI table. If there are no pulse flow duration criteria for the season, set to #N/A.
M14	ac-ft	Small Pulse Flow Volume Criteria	Current small pulse flow volume criteria for the current season and climatic condition. Imported from columns [P2], [P3] or [P4] of the associated CRI table. If there are no pulse volume criteria for the season, set to #N/A.
M15	none	Number of Small Pulses Criteria	The number of small pulses for the current season and climatic condition. Imported from columns [C2], [C3] or [C4] of the associated CRI table. If there are no pulse criteria for the season, set to #N/A.
M16	none	Flow > Small Pulse Trigger?	TRUE if flows in column [M7] are above the Small Pulse Flow Trigger criteria in column [M12]. FALSE otherwise. If there are no pulse criteria for the season (column [M12] is #N/A), set to FALSE.
M17	none	Initiate Small Pulse?	TRUE if today the flow is above the small pulse flow trigger level (today's value for column [M16] is TRUE) and yesterday the flow was below the small pulse flow trigger level (yesterday's value for column [M16] is FALSE). Otherwise FALSE.

Column	Units	Daily Column Label	Description
M18	none	Stop Small Pulse?	TRUE if a small pulse has qualified (met either volume or duration criteria) on the previous day. Checks if the cumulative days in pulse (column [M24]) are greater than or equal to the duration criteria (column [M13]) or the cumulative volume (column [M27]) is greater than or equal to the volume criteria (column [M14]). If there are no small pulse criteria for the current season (column [M12] is #N/A) then set to FALSE. Otherwise FALSE.
M19	none	Is Small Pulse?	TRUE for every day that the calculations define as a qualifying small pulse. TRUE if today is the first day above the small pulse flow trigger level (column [M17] is TRUE), or yesterday's this column was TRUE and the small pulse flow criteria have not been met previously (column [M18] is FALSE). Otherwise FALSE.
M20	none	Is Small Pulse Day?	TRUE if the calculations have identified today as a small pulse day (column [M19] is TRUE) or the manual override in the next column has been set to a pulse (column [M21] is equal to "P") Set to FALSE if the manual override in the next column is set to base (column [M21] is equal to "B"), or if there are no small pulse criteria for the season (column [M12] is #N/A). Otherwise FALSE.
M21	none	B or P Override	Manual override of Base or Pulse calculation. Entering a "B" forces the day to be a base flow day. Entering a "P" forces today to be a small pulse flow day. If initiating a new small pulse, the Manual Counter Adjustment in column [M22] may need to be set to 1 to increment the Small Pulse Counter in column [M23].
M22	none	Manual Counter Adjustment	A numerical entry in this column is added to the Small Pulse Counter in column [M23]. Used with B or P override in column [M21], when a new distinct pulse is initiated the day after a preceding pulse qualifies, or when there are conflicts between small and large pulse calculations.
M23	days	Small Pulse Counter	Assigns a number to each small pulse, beginning with 1 for the first pulse of the year. TRUE if today is the first day of a small pulse ([M19] is TRUE today and FALSE yesterday). Can be manually incremented or decremented in column [M22].
M24	days	Cumulative Days in Small Pulse	Increments by 1 for each day in a small pulse. Set to 1 if [M22] is greater than zero. Set to zero during base flow days.
M25	days	Small Pulse Duration	Finds the maximum number of days in the current small pulse event. Uses an Excel array formula that multiplies logical values (which are actually 0 or 1) that are TRUE for the current event by the Cumulative Days in the pulse in column [M24] and then finds the maximum.
M26	dsf	Cumulative Small Pulse Volume	Cumulative volume to date in current small pulse event in dsf. Adds the flow in column [M7] to yesterday's volume during a pulse event.
M27	acre-feet	Cumulative Small Pulse Volume	Same as column [M26] but converted to acre-feet.
M28	acre-feet	Small Pulse Event Volume	Finds the maximum volume in the small pulse event. Uses an Excel array formula that multiplies logical values (which are actually 0 or 1) that are TRUE for the current event by the Cumulative Volume in the pulse (column [M27]) and then finds the maximum.
M29	none	End of Small Pulse?	Last day of a qualifying small pulse event. TRUE if cumulative number of days (column [M24]) is equal to the duration of the event (column [M25]). Takes into account both calculated and manual override to define the last day of a qualifying pulse event.
M30	cfs	[Gage name]	Repeat of historical flows from column [M7].
M31	none	Base Flow or Pulse	If today is a small pulse day (column [M20] is TRUE), set to "P". If today is a base flow or subsistence day, set to "B" (column [M20] is FALSE).
M32	none	Qualifying Volume	Set to "Q" if the volume to date in a small pulse is greater than or equal to the small pulse volume criteria (column [M20] is TRUE and column [M27] is greater than or equal to column [M14]). Otherwise set to "P" if today is a pulse day (only column [M20] is TRUE) or "B" if today is a base flow day (column [M20] is FALSE).
M33	none	Meets Duration?	Set to "Q" if the number of days to date in a small pulse is greater than or equal to the small pulse duration criteria (column [M20] is TRUE and column [M24] is greater than or equal to column [M13]). Otherwise set to "P" if today is a small pulse day (only column [M20] is TRUE) or "B" if today is a base flow day (column [M20] is FALSE).

Column	Units	Daily Column Label	Description
M34	none	Qualifying Pulse?	TRUE if either the duration or volume criteria have been met for a small pulse event (columns [M32] or [M33] is equal to "Q").
M35	none	Number of Small Pulses Current Season	Increments by 1 for each qualifying small pulse in each season. On the first day of a season (column [M4] today is not equal to yesterday), sets the initial condition to zero. Otherwise, the initial condition is the number of small pulses so far in the season from the previous day. Incremented by 1 if today is the first day of a qualifying pulse (column [M34] is TRUE today and FALSE yesterday). Otherwise value is not incremented.
M36	cfs	Large Pulse Flow Trigger Criteria	Current large pulse flow trigger level for the current season and climatic condition. Imported from columns [K6], [K7] or [K8] of the associated CRI table. If there are no pulse criteria for the season, set to #N/A.
M37	days	Large Pulse Flow Duration Criteria	Current large pulse flow duration criteria for the current season and climatic condition. Imported from columns [D6], [D7] or [D8] of the associated CRI table. If there are no pulse criteria for the season, set to #N/A.
M38	ac-ft	Large Pulse Flow Volume Criteria	Current large pulse flow volume criteria for the current season and climatic condition. Imported from columns [P6], [P7] or [P8] of the associated CRI table. If there are no pulse criteria for the season, set to #N/A.
M39	none	Number of Large Pulses Criteria	The number of large pulses for the current season and climatic condition. Imported from columns [C6], [C7] or [C8] of the associated CRI table. If there are no pulse criteria for the season, set to #N/A.
M40	none	Flow > Large Pulse Trigger?	TRUE if flows in column [M7] are above the Large Pulse Flow Trigger criteria in column [M36]. FALSE otherwise. If there are no pulse criteria for the season (column [M36] is #N/A), set to FALSE.
M41	none	Initiate Large Pulse?	TRUE if today the flow is above the large pulse flow trigger level (today's value for column [M40] is TRUE) and yesterday the flow was below the large pulse flow trigger level (yesterday's value for column [M40] is FALSE). Otherwise FALSE.
M42	none	Stop Large Pulse?	TRUE if a large pulse has qualified (met either volume or duration criteria) on the previous day. Checks if the cumulative days in pulse (column [M51]) are greater than or equal to the duration criteria (column [M37]) or the cumulative volume (column [M53]) is greater than or equal to the volume criteria (column [M38]). If there are no large pulse criteria for the current season (column [M36] is #N/A) then set to FALSE. Otherwise FALSE.
M43	none	Is Large Pulse?	TRUE for every day that the calculations define as a qualifying large pulse. TRUE if today is the first day above the large pulse flow trigger level (column [M40] is TRUE), or yesterday this column was TRUE and the large pulse flow criteria have not been met previously (column [M42] is FALSE). Otherwise FALSE.
M44	none	Is Large Pulse Day	TRUE if the calculations have identified today as a large pulse day (column [M43] is TRUE) or the manual override in the next column has been set to a pulse (column [M45] is equal to "P") Set to FALSE if the manual override in the next column is set to base (column [M45] is equal to "B"), or if there are no large pulse criteria for the season (column [M36] is #N/A). Otherwise FALSE.
M45	none	B or P Override	Manual override of Base or Pulse calculation. Entering a "B" forces the day to be a base flow day. Entering a "P" forces today to be a large pulse flow day. If initiating a new large pulse, the Manual Counter Adjustment in column [M46] may need to be set to 1 to increment the Large Pulse Counter in column [M50].
M46	none	Manual Counter Adjustment	A numerical entry in this column is added to the Large Pulse Counter in column [M50]. Used with B or P override in column [M45], when a new distinct pulse is initiated the day after a preceding pulse qualifies, or when there are conflicts between large and large pulse calculations.
M47	days	Previous Small Pulse Days	If today is the first day of a large pulse (column [M41] is TRUE), the value is the cumulative number of small pulse days on the previous day (column [M24]). Otherwise set to zero. Used to account for any previous days in a small pulse that may count toward the duration of a large pulse.

Column	Units	Daily Column Label	Description
M48	dsf	Previous Small Pulse Volume	If today is the first day of a large pulse (column [M41] is TRUE), the value is the cumulative small pulse volume on the previous day (column [M26]). Otherwise set to zero. Used to account for any previous volume in a small pulse that may count toward the duration of a large pulse.
M49	none	Use Small Pulse Buildup	An entry of any kind in this column indicates that the values in columns [M47] and [M48] will be used as part of the large pulse calculation. The default is not to use any previous small pulse flows as part of the large pulse calculation.
M50	days	Large Pulse Counter	Assigns a number to each pulse, beginning with 1 for the first large pulse of the year. TRUE if today is the first day of a pulse ([M43] is TRUE today and FALSE yesterday). Can be manually incremented or decremented in column [M46].
M51	days	Cumulative Days in Large Pulse	Increments by 1 for each day in a large pulse. Set to 1 if M46 is greater than zero. If column [M49] has an entry of any kind, the number of previous small pulse days (column [M47] is added to this value. Set to zero during base flow days.
M52	days	Large Pulse Duration	Finds the maximum number of days in the current large pulse event (including days from a small event, if used). Uses an Excel array formula that multiplies logical values (which are actually 0 or 1) that are TRUE for the current event by the Cumulative Days in the pulse in column [M24] and then finds the maximum.
M53	dsf	Cumulative Large Pulse Volume	Cumulative volume to date in current large pulse event in dsf. Adds the flow in column [M7] to yesterday's volume during a large pulse event. If any value is entered in column [M49], the previous small pulse volume in column [M48] is added.
M54	acre-feet	Cumulative Large Pulse Volume	Same as column [M53] but converted to acre-feet.
M55	acre-feet	Large Pulse Event Volume	Finds the maximum volume in the large pulse event. Uses an Excel array formula that multiplies logical values (which are actually 0 or 1) that are TRUE for the current event by the Cumulative Volume in the pulse (column [M54]) and then finds the maximum. Includes any volume added from the preceding small pulse.
M56	none	End of Large Pulse?	Last day of a qualifying pulse event. TRUE if cumulative number of days (column [M51]) is equal to the duration of the event (column [M52]). Takes into account both calculated and manual override to define the last day of a qualifying pulse event.
M57	cfs	[Gage name]	Repeat of historical flows from column [M7].
M58	none	Base Flow or Pulse	If today is a large pulse day (column [M44] is TRUE), set to "P". If today is a base flow or subsistence day, set to "B" (column [M44] is FALSE).
M59	none	Qualifying Volume	Set to "Q" if the volume to date in a large pulse is greater than or equal to the large pulse volume criteria (column [M44] is TRUE and column [M54] is greater than or equal to column [M38]). Otherwise set to "P" if today is a large pulse day (only column [M44] is TRUE) or "B" if today is a base flow day (column [M44] is FALSE).
M60	none	Meets Duration?	Set to "Q" if the number of days to date in a large pulse is greater than or equal to the large pulse duration criteria (column [M44] is TRUE and column [M51] is greater than or equal to column [M37]). Otherwise set to "P" if today is a pulse day (only column [M44] is TRUE) or "B" if today is a base flow day (column [M44] is FALSE).
M61	none	Qualifying Pulse?	TRUE if either the duration or volume criteria have been met for a pulse event (columns [M59] or [M60] is equal to "Q").
M62	none	Number of Large Pulses Current Season	Increments by 1 for each qualifying large pulse in each season. On the first day of a season (column [M4] today is not equal to yesterday), sets the initial condition to zero. Otherwise, the initial condition is the number of pulses so far in the season from the previous day. Incremented by 1 if today is the first day of a qualifying pulse (column [M61] is TRUE today and FALSE yesterday). Otherwise value is not incremented.
M63	none	Number of Small Pulses Current Season	Repeat of column [M35]
M64	none	Is a Pulse	TRUE if today is either a small pulse day ([M20] is TRUE) or a large pulse day ([M44] is TRUE).

Column	Units	Daily Column Label	Description
M65	none	Number of Small Pulses Criteria	Number of required small pulses. Identical to column [M15], except that if there are no pulse criteria for the season it is set to 0.
M66	none	Number of Large Pulses Criteria	Number of required large pulses. Identical to column [M39], except that if there are no pulse criteria for the season it is set to 0.
M67	none	Base Criteria Met?	TRUE if base or subsistence flow criteria met. Repeat of column [M11].
M68	none	Small Pulse Target Met?	TRUE if number of small pulses per season has been met (column [M35] is greater than or equal to [M65]). Also TRUE if there are no small pulse criteria for the season. Otherwise FALSE.
M69	none	Large Pulse Target Met?	TRUE if number of large pulses per season has been met (column [M62] is greater than or equal to [M66]). Also TRUE if there are no large pulse criteria for the season. Otherwise FALSE.
M70	none	IF Criteria Met?	TRUE if base flow criteria are met for the day and there has been the required number of small and large pulse flows in the season ([M67], [M68] and [M69] are all TRUE). Otherwise FALSE.
M71	cfs	Base and Pulse Criteria Series	<p>Defines an average daily flow series based on the currently applicable base and pulse criteria. Uses a user-defined function <i>setcriteria</i> to select the applicable flow level. If today is a large pulse day (column [M44] is TRUE), the large pulse criteria are used. Otherwise, small pulse criteria are used.</p> <p>The function sets the value based on the following:</p> <ul style="list-style-type: none"> <li>• If today is a base flow day (column [M20] or [M44] is FALSE), then the value is set to the current base flow criteria in column [M10].</li> <li>• If today is a pulse day (column [M20] or [M44] is TRUE) and the pulse flow frequency has not been met for the season (column [M68] or [M69] is FALSE), then the value is set to the current pulse flow trigger level (column [M12] or [M36]).</li> <li>• If today is a pulse day (column [M20] or [M44] is TRUE), and either today is the first day that the seasonal pulse frequency has been met, or today is the beginning of a new season, then the value is set to the current pulse flow trigger level (column [M12] or [M36]).</li> <li>• If today is a pulse day (column [M20] or [M44] is TRUE) and either the seasonal pulse frequency has not been met or today is the first day of a new season, then the value is set to the current pulse flow trigger level (column [M12] or column [M36]).</li> <li>• If today is a pulse day (column [M20] or [M44] is TRUE) and either the seasonal criteria has been met on the previous day or today is the first day of a new season (this can occur when there are no seasonal pulse criteria), the value is set to the base flow criteria.</li> </ul> <p>Other combinations are unsupported and return an error message.</p>
M72	cfs	Base Only Criteria Series	Repeat of column [M10].
M73	cfs	20% of Pulse Trigger Criteria	20% of the pulse flow trigger level, based on current season and climatic conditions. Uses the large pulse trigger level (column [M36]) until the large pulse frequency has been met (column [M69] is TRUE). Once the large pulse frequency has been met, the small pulse trigger level is used (column [M12]).
M74	cfs	Upstream Reach Diversion Rates	Total daily diversion rates for BRA contract diversions in the reach upstream of the current measurement point.
M75	cfs	Downstream Reach Diversion Rates	Total daily diversion rates for BRA contract diversions in the reach downstream of the current measurement point. Applicable only if the current measurement point is applied to downstream diversions.
M76	cfs	Flow > Criteria Series	TRUE if the flow (column [M57] is greater than the applicable instream flow criteria series. The applicable instream flow series depends on the diversion rate. If the diversion rate is greater than 20% of the pulse criteria (column [M73]) then the base only criteria in column [M72] apply. Otherwise, the base and pulse criteria in column [M71] apply. Used for run-of-the-river diversions in the applicable reach above the measurement point.

Column	Units	Daily Column Label	Description
M77	cfs	Flow > Criteria Series + Downstream Reach Diversions	TRUE if the flow (column [M57]) is greater than the applicable instream flow criteria series, plus the applicable downstream downstream diversions in column [M75]. The applicable instream flow series depends on the diversion rate. If the diversion rate is greater than 20% of the pulse criteria (column [M73]) then the base only criteria in column [M72] apply. Otherwise, the base and pulse criteria in column [M71] apply. Used for run-of-the-river diversions in the applicable reach below the measurement point (if any)
M78	cfs	Flow > Base & Pulse Criteria Series	TRUE if the flow (column [M57]) is greater than the base and pulse criteria series in column [M71]. Used for reservoir diversion and storage under the System Operation Permit.
M79	none	Comments	Place to record comments about base or pulse overrides, or any other observations about this year's calculations.

The Glen Rose Gage has two additional columns to account for downstream diversions from Lake Whitney:

Column	Units	Column Label	Description
M79	cfs	Lake Whitney Diversion Rate	Daily diversions and downstream water supply releases from Lake Whitney. Imported from Table BASIC3 in the reference file.
M80	cfs	Flow > Criteria Series + Reservoir Diversions	TRUE if today's flow in column [M57] is greater than the base and pulse criteria in column [M71] plus the Lake Whitney diversions in column [M79].

#### H.2.6.6 Tables CRI1 through CRI12

The CRI tables contain the instream flow criteria from the Water Management Plan.

The following is a description of the columns in the CRI tables:

Column	Label	Units	Description
I1	Hydrologic Condition	none	Hydrologic condition for each climatic level - subsistence, dry, average, or wet.
I2	Winter	cfs	Base and subsistence flow requirement for Winter by hydrologic condition.
I3	Spring	cfs	Base and subsistence flow requirement for Spring by hydrologic condition.
I4	Summer	cfs	Base and subsistence flow requirement for Summer by hydrologic condition.
P1	Hydrologic Condition	none	Hydrologic condition as determined by PDHI. Classified as dry, average, or wet.
P2	Winter	acre-feet	Pulse flow volume requirement for Winter by hydrologic condition.
P3	Spring	acre-feet	Pulse flow volume requirement for Spring by hydrologic condition.
P4	Summer	acre-feet	Pulse flow volume requirement for Summer by hydrologic condition.
P5	Hydrologic Condition	none	Hydrologic condition as determined by PDHI. Classified as dry, average, or wet.
P6	Winter	acre-feet	Large pulse flow volume requirement for Winter by hydrologic condition, if applicable.

Column	Label	Units	Description
P7	Spring	acre-feet	Large pulse flowvolume requirement for Spring by hydrologic condition, if applicable.
P8	Summer	acre-feet	Large pulse flow volume requirement for Summer by hydrologic condition, if applicable.
K1	Hydrologic Condition	none	Hydrologic condition as determined by PDHI. Classified as dry, average, or wet.
K2	Winter	cfs	Pulse flow trigger level for Winter by hydrologic condition.
K3	Spring	cfs	Pulse flow trigger level for Spring by hydrologic condition.
K4	Summer	cfs	Pulse flow trigger level requirement for Summer by hydrologic condition.
K5	Hydrologic Condition	none	Hydrologic condition as determined by PDHI. Classified as dry, average, or wet.
K6	Winter	cfs	Large pulse flow trigger level for Winter by hydrologic condition, if applicable.
K7	Spring	cfs	Large pulse flow trigger level for Spring by hydrologic condition, if applicable.
K8	Summer	cfs	Large pulse flow trigger level requirement for Summer by hydrologic condition, if applicable.
D1	Hydrologic Condition	none	Hydrologic condition as determined by PDHI. Classified as dry, average, or wet.
D2	Winter	days	Pulse duration requirement for Winter by hydrologic condition.
D3	Spring	days	Pulse duration requirement for Spring by hydrologic condition.
D4	Summer	days	Pulse duration requirement for Summer by hydrologic condition.
D5	Hydrologic Condition	none	Hydrologic condition as determined by PDHI. Classified as dry, average, or wet.
D6	Winter	days	Large pulse duration requirement for Winter by hydrologic condition, if applicable.
D7	Spring	days	Largepulse duration requirement for Spring by hydrologic condition, if applicable.
D8	Summer	days	Large pulse duration requirement for Summer by hydrologic condition, if applicable.
C1	Hydrologic Condition	none	Hydrologic condition as determined by PDHI. Classified as dry, average, or wet.
C2	Winter	none	Pulse count requirement for Winter by hydrologic condition.
C3	Spring	none	Pulse count requirement for Spring by hydrologic condition.
C4	Summer	none	Pulse count requirement for Summer by hydrologic condition.
C5	Hydrologic Condition	none	Hydrologic condition as determined by PDHI. Classified as dry, average, or wet.
C6	Winter	none	Large pulse count requirement for Winter by hydrologic condition, if applicable.
C7	Spring	none	Large pulse count requirement for Spring by hydrologic condition, if applicable.
C8	Summer	none	Large pulse count requirement for Summer by hydrologic condition, if applicable.

## **H.2.7 Summary File Tables**

The summary file contains several reporting and data summary components. Overall water use for each reservoir is summarized, with locations for entry of water use by water right and use type by BRA staff. Also included are System Operation diversion summaries, surface water usage reporting tables and summaries of instream flows.

### *H.2.7.1 Table INTRO4 – Introduction and Table of Contents*

This table contains title information for the accounting plan. BRA staff will enter the year of the Accounting Plan in the reference file. The spreadsheet will determine if the year is a leap year. The table also includes several unit conversion factors imported from the reference file and a Table of Contents for the summary workbook.

### *H.2.7.2 Tables SUM1 through SUM11 – Reservoir Water Use Summaries*

Tables SUM1 through SUM11 summarize the water use at each reservoir by priority use under the reservoir permit, System Order use, and System Operation use. Use under the reservoir permit and System Order is further categorized as municipal (mun), irrigation (irr), industrial (ind), and mining (min) use types. Additional fields are provided for entry of Storage Credit adjustments and the locations for System Order diversions. Storage Credit adjustments are the portion of water released from a BRA reservoir that would be charged under the customer's own water right. Columns shaded in yellow indicate locations for manual entry of values by BRA staff. Note that while a number of the yellow-shaded columns may currently contain formulas, these are intended solely to generate values for illustrative purposes; in actual use, these formulas would be replaced with manually entered values. Other columns either reference other files in the Accounting Plan or calculate results based on the values entered into the table by BRA staff.

Row 6 of the spreadsheet includes the units for each column, while Rows 7 and 8 list the column heading and use type. Rows 9 through 20 contain monthly values, while Row 21 lists annual totals.

All eleven tables follow a standard layout. However, not all water use types are applicable for all reservoirs. Irrigation and mining uses are not applicable to Lake Whitney, and irrigation use is not applicable at Lake Aquilla. The columns at these reservoirs associated with non-applicable use types are marked with crosshatching to indicate that no data entry is needed.

The following is a description of the columns for the standardized layout of the tables:

Column	Label	Use Type	Units	Formula	Description	Tables Referenced
L1	Month		none	none	Month number for associated data value	INTRO4
L2	End of Month		none	none	End-of-month associated with date value	
S1	BRA Lakeside Diversions		acft	none	BRA lakeside diversions from reservoir	RES
S2	BRA Downstream Water Supply Release		acft	none	BRA downstream water supply release from reservoir	RES
S3	Storage Credit Adjustments		acft	none	Storage credit adjustments from reservoir	
S4	Use of Upstream Releases		acft	none	Use of upstream releases from reservoir	RES
S5	Total Water Use		acft	[S1] + [S2] + [S3] + [S4]	Total water use from reservoir	
S6	Priority Water Use Under Permit		acft	[S5] - [S17] - [S18] - [S19]	Priority water use under the permit for reservoir	
S7	Type of Use Under Permit	Mun	acft	none	Municipal priority water use under reservoir permit	
S8		Irr	acft	none	Irrigation priority water use under reservoir permit	
S9		Ind	acft	none	Industrial priority water use under reservoir permit	
S10		Min	acft	none	Mining priority water use under reservoir permit	
S11	System Order Water Use Under Permit	Mun	acft	none	Municipal System Order water use under reservoir permit	
S12		Irr	acft	none	Irrigation System Order water use under reservoir permit	
S13		Ind	acft	none	Industrial System Order water use under reservoir permit	
S14		Min	acft	none	Mining System Order water use under reservoir permit	
S15	Location of System Order Diversion		acft	none	Location of System Order diversion	
S16	Total Use Under Permit		acft	[S6] + [S11] + [S12] + [S13] + [S14]	Total water use under reservoir permit	
S17	System Order Use Under Another Right		acft	none	Amount of System Order use recorded against another water right	

Column	Label	Use Type	Units	Formula	Description	Tables Referenced
S18	P5851 Water Use at Reservoir		acft	none	P5851 water use at reservoir	RES
S19	P5851 Return Flow Use at Reservoir		acft	none	P5851 return flow use at reservoir	RES

### H.2.7.3 Table SUM12 – Reservoir Water Use by Permit

Table SUM12 summarizes water use by reservoir and permit. Monthly diversions are listed by reservoir and permit, with further categorization of values as priority, System Order, and total diversions. Monthly diversion values are also listed for the Excess Flows permit (Certificate of Adjudication 5166) as well as System Operation. Diversions under System Operation are further categorized as originating from natural inflow, return flows, and total System Operation diversion. All values in the table are either calculated automatically or reference data from other portions of the Accounting Plan. No columns in table SUM12 require manual entry of values by BRA staff.

Row 6 of the spreadsheet includes the units for each column, while Rows 7 and 8 list the reservoir or permit and diversion category. Rows 9 through 20 contain monthly values, while Row 21 lists annual totals. The following describes the columns in Table SUM12:

Column	Reservoir / Permit	Units	Column Label	Formula	Description	Tables Referenced
L1		none	Month	none	Numeric month	
L2		none	End-of-Month	none	Month end date	INTRO4, SUM1
S1	CA5155 Possum Kingdom	acft	Priority	none	Monthly priority water use under CA5155	SUM1
S2		acft	System Order	none	Monthly system order water use under CA5155	SUM1
S3		acft	Total	[S1] + [S2]	Monthly total water use under CA5155	
S4	CA5156 Lake Granbury	acft	Priority	none	Monthly priority water use under CA5156	SUM2
S5		acft	System Order	none	Monthly system order water use under CA5156	SUM2
S6		acft	Total	[S4] + [S5]	Monthly total water use under CA5156	
S7	CA5157 Lake Whitney	acft	Priority	none	Monthly priority water use under CA5157	SUM3
S8		acft	System	none	Monthly system order water use	SUM3

Column	Reservoir / Permit	Units	Column Label	Formula	Description	Tables Referenced
			Order		under CA5157	
S9		acft	Total	[S7] + [S8]	Monthly total water use under CA5157	
S10	CA5158 Lake Aquilla	acft	Priority	none	Monthly priority water use under CA5158	SUM4
S11		acft	System Order	none	Monthly system order water use under CA5158	SUM4
S12		acft	Total	[S10] + [S11]	Monthly total water use under CA5158	
S13	CA5159 Lake Proctor	acft	Priority	none	Monthly priority water use under CA5159	SUM5
S14		acft	System Order	none	Monthly system order water use under CA5159	SUM5
S15		acft	Total	[S13] + [S14]	Monthly total water use under CA5159	
S16	CA5160 Lake Belton	acft	Priority	none	Monthly priority water use under CA5160	SUM6
S17		acft	System Order	none	Monthly system order water use under CA5160	SUM6
S18		acft	Total	[S16] + [S17]	Monthly total water use under CA5160	
S19	CA5161 Lake Stillhouse Hollow	acft	Priority	none	Monthly priority water use under CA5161	SUM7
S20		acft	System Order	none	Monthly system order water use under CA5161	SUM7
S21		acft	Total	[S19] + [S20]	Monthly total water use under CA5161	
S22	CA5162 Lake Georgetown	acft	Priority	none	Monthly priority water use under CA5162	SUM8
S23		acft	System Order	none	Monthly system order water use under CA5162	SUM8
S24		acft	Total	[S22] + [S23]	Monthly total water use under CA5162	
S25	CA5163 Lake Granger	acft	Priority	none	Monthly priority water use under CA5163	SUM9
S26		acft	System Order	none	Monthly system order water use under CA5163	SUM9
S27		acft	Total	[S25] + [S26]	Monthly total water use under CA5163	
S28	CA5164 Lake Somerville	acft	Priority	none	Monthly priority water use under CA5164	SUM10
S29		acft	System Order	none	Monthly system order water use under CA5164	SUM10
S30		acft	Total	[S28] + [S29]	Monthly total water use under CA5164	
S31	CA5165 Lake Limestone	acft	Priority	none	Monthly priority water use under CA5165	SUM11
S32		acft	System Order	none	Monthly system order water use under CA5165	SUM11
S33		acft	Total	[S31] + [S32]	Monthly total water use under CA5165	
S34	CA5166 Excess Flows	acft		none	Monthly water use under CA5166 Excess flows	
S35		acft	Total Use CA5155 to 5165	Sum of total use for CA5155 through 5165	Total monthly water use for CA5155 to 5165	

Column	Reservoir / Permit	Units	Column Label	Formula	Description	Tables Referenced
S36	P5851 SysOps	acft	Natural Flow	none	SysOps water usage from natural flows	SUM13
S37		acft	Return Flows	none	SysOps water usage from return flows	SUM13
S38		acft	Total	[S36] + [S37]	Total SysOps water usage	

#### H.2.7.4 Table SUM13 – System Operation Water Use by Reach

Table SUM13 summarizes System Operation water use by reach. Monthly diversions are listed by reach, with further categorization of values as originating from natural inflows or from return flows. All values in the table are either calculated automatically or reference data from other portions of the Accounting Plan. No columns in table SUM13 require manual entry of values by BRA staff.

Row 6 of the spreadsheet includes the units for each column. Row 7 includes the reach name, while Row 8 specifies the source of diverted flow. Rows 9 through 20 contain monthly values, while row 21 lists annual totals. The following describes the columns in Table SUM13:

Column	Reach	Units	Column Label	Formula	Description	Tables Referenced
L1		none	Month	none	Numeric month	
L2		none	End-of-Month	none	Month end date	INTRO4, SUM1
S1	Possum Kingdom	acft	SysOps	none	SysOps water use from local inflow	SUM1
S2		acft	Return Flow	none	SysOps water use from return flows	SUM1
S3	Possum Kingdom to Palo Pinto Gage	acft	SysOps	none	SysOps water use from local inflow	REACH1
S4		acft	Return Flow	none	SysOps water use from return flows	REACH1
S5	Palo Pinto Gage to Dennis Gage	acft	SysOps	none	SysOps water use from local inflow	REACH2
S6		acft	Return Flow	none	SysOps water use from return flows	REACH2
S7	Dennis Gage to Lake Granbury Headwaters	acft	SysOps	none	SysOps water use from local inflow	REACH2
S8		acft	Return Flow	none	SysOps water use from return flows	REACH2
S9	Lake Granbury	acft	SysOps	none	SysOps water use from local inflow	SUM2
S10		acft	Return Flow	none	SysOps water use from return flows	SUM2
S11	Lake Granbury to Glen Rose Gage	acft	SysOps	none	SysOps water use from local inflow	REACH3
S12		acft	Return Flow	none	SysOps water use from return flows	REACH3

Column	Reach	Units	Column Label	Formula	Description	Tables Referenced
S13	Glen Rose Gage to Lake Whitney Headwaters	acft	SysOps	none	SysOps water use from local inflow	REACH3
S14		acft	Return Flow	none	SysOps water use from return flows	REACH3
S15	Lake Whitney	acft	SysOps	none	SysOps water use from local inflow	SUM3
S16		acft	Return Flow	none	SysOps water use from return flows	SUM3
S17	Lake Whitney to Aquilla/Brazos Confluence	acft	SysOps	none	SysOps water use from local inflow	REACH5
S18		acft	Return Flow	none	SysOps water use from return flows	REACH5
S19	Lake Aquilla	acft	SysOps	none	SysOps water use from local inflow	SUM4
S20		acft	Return Flow	none	SysOps water use from return flows	SUM4
S21	Lake Aquilla to Aquilla Cr Gage	acft	SysOps	none	SysOps water use from local inflow	REACH4
S22		acft	Return Flow	none	SysOps water use from return flows	REACH4
S23	Aquilla Cr Gage to Aquilla/Brazos Confluence	acft	SysOps	none	SysOps water use from local inflow	REACH4
S24		acft	Return Flow	none	SysOps water use from return flows	REACH5
S25	Aquilla/Brazos Confluence to Highbank Gage	acft	SysOps	none	SysOps water use from local inflow	REACH6
S26		acft	Return Flow	none	SysOps water use from return flows	REACH6
S27	Lake Proctor	acft	SysOps	none	SysOps water use from local inflow	SUM5
S28		acft	Return Flow	none	SysOps water use from return flows	SUM5
S29	Lake Proctor to Gatesville Gage	acft	SysOps	none	SysOps water use from local inflow	REACH7, REACH8
S30		acft	Return Flow	none	SysOps water use from return flows	REACH7, REACH8
S31	Gatesville Gage to Lake Belton Headwaters	acft	SysOps	none	SysOps water use from local inflow	REACH8
S32		acft	Return Flow	none	SysOps water use from return flows	REACH8
S33	Lake Belton	acft	SysOps	none	SysOps water use from local inflow	SUM6
S34		acft	Return Flow	none	SysOps water use from return flows	SUM6
S35	Lake Belton to Leon nr Belton Gage	acft	SysOps	none	SysOps water use from local inflow	REACH9
S36		acft	Return Flow	none	SysOps water use from return flows	REACH9
S37	Leon nr Belton Gage to Little River Gage	acft	SysOps	none	SysOps water use from local inflow	REACH9
S38		acft	Return Flow	none	SysOps water use from return flows	REACH9
S39	Lake Stillhouse Hollow	acft	SysOps	none	SysOps water use from local inflow	SUM7
S40		acft	Return Flow	none	SysOps water use from return flows	SUM7
S41	Stillhouse to Lampasas nr Belton Gage	acft	SysOps	none	SysOps water use from local inflow	REACH10
S42		acft	Return Flow	none	SysOps water use from return flows	REACH10
S43	Lampasas nr Belton Gage to Little River Gage	acft	SysOps	none	SysOps water use from local inflow	REACH10
S44		acft	Return Flow	none	SysOps water use from return flows	REACH10
S45	Little River Gage to San Gabriel/Little Confluence	acft	SysOps	none	SysOps water use from local inflow	REACH11
S46		acft	Return Flow	none	SysOps water use from return flows	REACH11

Column	Reach	Units	Column Label	Formula	Description	Tables Referenced
S47	Lake Georgetown	acft	SysOps	none	SysOps water use from local inflow	SUM8
S48		acft	Return Flow	none	SysOps water use from return flows	SUM8
S49	Lake Georgetown to N San Gabriel Gage	acft	SysOps	none	SysOps water use from local inflow	REACH12
S50		acft	Return Flow	none	SysOps water use from return flows	REACH12
S51	N San Gabriel Gage to Lake Granger Headwaters	acft	SysOps	none	SysOps water use from local inflow	REACH12
S52		acft	Return Flow	none	SysOps water use from return flows	REACH12
S53	Lake Granger	acft	SysOps	none	SysOps water use from local inflow	SUM9
S54		acft	Return Flow	none	SysOps water use from return flows	SUM9
S55	Lake Granger to Laneport Gage	acft	SysOps	none	SysOps water use from local inflow	REACH13
S56		acft	Return Flow	none	SysOps water use from return flows	REACH13
S57	Laneport Gage to Little/San Gabriel Confluence	acft	SysOps	none	SysOps water use from local inflow	REACH13
S58		acft	Return Flow	none	SysOps water use from return flows	REACH13
S59	Little/San Gabriel Confluence to Cameron Gage	acft	SysOps	none	SysOps water use from local inflow	REACH14
S60		acft	Return Flow	none	SysOps water use from return flows	REACH14
S61	Cameron Gage to Brazos/Little Confluence	acft	SysOps	none	SysOps water use from local inflow	REACH14
S62		acft	Return Flow	none	SysOps water use from return flows	REACH14
S63	Highbank Gage to Brazos/Little Confluence	acft	SysOps	none	SysOps water use from local inflow	REACH6
S64		acft	Return Flow	none	SysOps water use from return flows	REACH6
S65	Brazos/Little Confluence to Bryan Gage	acft	SysOps	none	SysOps water use from local inflow	REACH15
S66		acft	Return Flow	none	SysOps water use from return flows	REACH15
S67	Bryan Gage to Brazos/Yegua Confluence	acft	SysOps	none	SysOps water use from local inflow	REACH15
S68		acft	Return Flow	none	SysOps water use from return flows	REACH15
S69	Lake Somerville	acft	SysOps	none	SysOps water use from local inflow	SUM10
S70		acft	Return Flow	none	SysOps water use from return flows	SUM10
S71	Lake Somerville to Yegua Cr Gage	acft	SysOps	none	SysOps water use from local inflow	REACH16
S72		acft	Return Flow	none	SysOps water use from return flows	REACH16
S73	Yegua Cr Gage to Brazos/Yegua Confluence	acft	SysOps	none	SysOps water use from local inflow	REACH16
S74		acft	Return Flow	none	SysOps water use from return flows	REACH16
S75	Brazos/Yegua Confluence to Brazos/Navasota Confluence	acft	SysOps	none	SysOps water use from local inflow	REACH17
S76		acft	Return Flow	none	SysOps water use from return flows	REACH17
S77	Lake Limestone	acft	SysOps	none	SysOps water use from local inflow	SUM11
S78		acft	Return Flow	none	SysOps water use from return flows	SUM11
S79	Lake Limestone to Easterly Gage	acft	SysOps	none	SysOps water use from local inflow	REACH18
S80		acft	Return Flow	none	SysOps water use from return flows	REACH18

Column	Reach	Units	Column Label	Formula	Description	Tables Referenced
S81	Easterly Gage to Brazos/Navasota Confluence	acft	SysOps	none	SysOps water use from local inflow	REACH18
S82		acft	Return Flow	none	SysOps water use from return flows	REACH18
S83	Brazos/Navasota Confluence to Hempstead Gage	acft	SysOps	none	SysOps water use from local inflow	REACH19
S84		acft	Return Flow	none	SysOps water use from return flows	REACH19
S85	Hempstead Gage to Richmond Gage	acft	SysOps	none	SysOps water use from local inflow	REACH20
S86		acft	Return Flow	none	SysOps water use from return flows	REACH20
S87	Richmond Gage to Gulf	acft	SysOps	none	SysOps water use from local inflow	REACH21
S88		acft	Return Flow	none	SysOps water use from return flows	REACH21
S89	Total P5851	acft	SysOps	Sum of non-return flow water use from entries above	Total SysOps use excluding use from return flows	
S90		acft	Return Flow	Sum of return flow water use from entries above	Total SysOps use from return flows	

### H.2.7.5 Table SUM14 – Environmental Flow Report

The Environmental Flow Report is a seasonal summary of the number of days achieving base flow criteria, the number of HFP events per season, and whether the number of HFP events achieves the HFP criteria, reported on a seasonal basis. The winter seasons overlap years and only have partial results. Results are reported for all twelve measurement points.

Values are either imported from the instream flow file or are calculated within this worksheet. No values are entered by BRA staff.

Measurement points with one level of HFPs have the following columns:

	Column Label	Description
	Season	Name of season – Winter (partial), Spring or Summer
Gage Name	Climatic Condition	Climatic condition (Wet, Average or Dry) for the current season.
	Number of Days Meeting Base Flows	Number of days in each season (or part of season) that base flow criteria have been achieved.

	Number of Pulses	Number of pulse events at the end of each season
	Pulse Frequency Achieved?	TRUE if the number of pulse events exceeds the pulse frequency criteria. FALSE otherwise.

Measurement points with small and large pulses have the following columns:

	Column Label	Description
	Season	Name of season – Winter (partial), Spring or Summer
Gage Name	Climatic Condition	Climatic condition (Wet, Average or Dry) for the current season.
	Number of Days Meeting Base Flows	Number of days in each season (or part of season) that base flow criteria have been achieved.
	Number of Small Pulses	Number of small pulse events at the end of each season
	Small Pulse Frequency Achieved?	TRUE if the number of small pulse events exceeds the pulse frequency criteria. Includes any small pulses and subsequently become large pulses. FALSE otherwise.
	Number of Large Pulses	Number of large pulse events at the end of each season
	Large Pulse Frequency Achieved?	TRUE if the number of large pulse events exceeds the pulse frequency criteria. FALSE otherwise.

#### **H.2.7.6 Tables REP1 through REP52 – Surface Water Use Reports**

Tables REP1 through REP52 summarize the required data for the TCEQ forms for reporting of surface water use for the year by Certificate of Adjudication and use type. General identification information is given at the top of each tab, including the water right number, use type, and associated reservoir or permit identifier. The data table includes the month and monthly values for maximum diversion rate, diverted amount, consumed amount, and return flow. When unspecified in the associated water right permit, the maximum diversion rate is marked with an asterisk. Both monthly consumed amount and return flow are left blank as they are not applicable in this case. Values for monthly diverted amount are automatically populated from references to tables SUM1 through SUM11.

#### **H.2.7.7 Table R1 SUM\_ROR – Summary of Run of River Diversions**

Table SUM\_ROR summarizes the monthly water diverted from the river by entities that have upstream subordination agreements with Brazos River Authority and currently

operating facilities. These include monthly run-of-river diversions from Paluxy River into Wheeler’s Branch, Clear Fork into Lake Fort Phantom Hill, and California Creek into Lake Stamford. Other columns may be added as needed for future projects. The monthly data will be obtained from the project owners.

Column	Units	Column Label	Description
I1	none	Month	Numeric month
I2	none	End-of-Month	Month end date
R1	acre-feet	Run-of-River from Paluxy River into Wheeler’s Branch	These values reflect the monthly run-of-river diversions from Paluxy River into Wheeler’s Branch of Brazos River (12-5744).
R2	acre-feet	Run-of-River Diversions from Clear Fork into Lake Fort Phantom Hill	These values reflect the monthly run-of-river diversions from Clear Fork of Brazos River into Lake Phantom Hill. (12-4139).
R3	acre-feet	Run-of-River Diversions from California Creek into Lake Stamford	These values reflect the monthly run-of-river diversions from California Creek into Lake Stamford. These values are based on the contract agreement between City of Stamford and Brazos River Authority (12-4179).