

Table 5.1. Summary of flows used in mass balance for 7Q10 conditions.

Reach	Flow (cfs) from:			Total Flow at Downstream End of Reach (cfs)	
	Upstream Reach	Specific Tributaries	Diffuse Inflow		Point Sources
Red River from OK-AR state line to Little River:					
Red River 11140106-025	1,146 (upstream end of model)	0	3.25	0	1,149.25
Red River 11140106-005	1,149.25	0	2.32	0	1,151.57
Red River 11140106-003	1,151.57	3.69 (Walnut Bayou)	0.58	0	1,155.84
Red River 11140106-001	1,155.84	0	5.29	87.264 (Domtar) + 1.702 (City of Ashdown)	1,250.10
Little River from Millwood Lake dam to Red River:					
Little River	130.15 (just upstream of SWEPCO)	0	0	3.342 (SWEPCO)	133.49
Red River from Little River to AR-LA state line:					
Red River 11140201-011	1,250.10 (Red River) + 133.49 (Little River)	0	1.40	0.077 (City of Fulton) + 0.650 (Tyson River Valley Animal Food)	1,385.72
Red River 11140201-007	1,385.72	1.24 (Bois D' Arc Creek)	1.29	0.116 (City of Garland) + 0.155 (Chieftain Sand)	1,388.52
Red River 11140201-005	1,388.52	0	2.97	0	1,391.49
Red River 11140201-004	1,391.49	1.372 (McKinney Bayou)	0.41	0.004 (Pollution Management) + 1.47 (N. Texarkana)	1,394.75
Red River 11140201-003	1,394.75	23.46 (Sulphur River)	0.33	0 (Int'l Paperpoint source discharge to Sulphur River in TX)	1,418.54

Table 5.2. Summary of flows used in mass balance for harmonic mean conditions.

Reach	Flow (cfs) from:				Total Flow at Downstream End of Reach (cfs)
	Upstream Reach	Specific Tributaries	Diffuse Inflow	Point Sources	
Red River from OK-AR state line to Little River:					
Red River 11140106-025	4,209.35 (upstream end of model)	0	11.95	0	4,221.30
Red River 11140106-005	4,221.30	0	8.50	0	4,229.80
Red River 11140106-003	4,229.80	13.56 (Walnut Bayou)	2.13	0	4,245.49
Red River 11140106-001	4,245.49	0	19.44	87.264 (Domtar) + 1.702 (City of Ashdown)	4,353.90
Little River from Millwood Lake dam to Red River:					
Little River	1,156.31 (just upstream of SWEPCO)	0	0	3.342 (SWEPCO)	1,159.65
Red River from Little River to AR-LA state line:					
Red River 11140201-011	4,353.90 (Red River) + 1,159.65 (Little River)	0	13.91	0.077 (City of Fulton) + 0.650 (Tyson River Valley Animal Food)	5,528.19
Red River 11140201-007	5,528.19	79.92 (Bois D'Arc Creek)	12.82	0.116 (City of Garland) + 0.155 (Chieftain Sand)	5,621.20
Red River 11140201-005	5,621.20	0	29.46	0	5,650.66
Red River 11140201-004	5,650.66	91.276* (McKinney Bayou)	4.09	0.004 (Pollution Management) + 1.47 (N. Texarkana)	5,747.50
Red River 11140201-003	5,747.50	728.88* (Sulphur River)	3.27	293.5 <u>(Int'l Paperpoint source discharge to Sulphur River in TX)</u>	6,773.15

* See Tables J.3 – J.5 for details concerning ambient flows for McKinney Bayou and Sulphur River.

Table 5.3. TDS concentrations for ambient inflow in mass balance.

Inflow	TDS Concentration (mg/L)	Data Source / Comment for TDS
Red River at OK-AR state line	891	90th percentile of ADEQ data at RED0025 (Red River south of Foreman)
Diffuse inflow to Red River between OK-AR state line and Little River	296.6	Same as 2012 TMDL – average of ADEQ data at RED0064 (Walnut Bayou near Foreman)
Walnut Bayou (tributary to Red River)	296.6	Same as 2012 TMDL – average of ADEQ data at RED0064 (Walnut Bayou near Foreman)
Little River upstream of SWEPCO	98	90th percentile of data collected by SWEPCO and FTN in Little River upstream of SWEPCO during October 2010 through October 2013
Diffuse inflow to Red River between Little River and AR-LA state line	183.5	Same as 2012 TMDL – average of ADEQ data at UWBDK02 (Bois D'Arc Creek)
Bois D'Arc Creek (tributary to Red River)	183.5	Same as 2012 TMDL – average of ADEQ data at UWBDK02 (Bois D'Arc Creek)
Headwater and diffuse inflow for McKinney Bayou (tributary to Red River)	296.6	Same as 2012 TMDL – average of ADEQ data at RED0064 (Walnut Bayou near Foreman)
Sulphur River (tributary to Red River) at TX-AR state line, <u>downstream of point source discharge in TX</u>	145.5 (<u>7Q10</u>) 500 (<u>harmonic mean</u>)	<u>7Q10 conditions (TX point source is not discharging):</u> Same as 2012 TMDL – average of Texas Commission on Environmental Quality (TCEQ) measurements from Sulphur River at Highway 59 bridge (TCEQ station 10212) <u>Harmonic mean (TX point source is discharging): Assumed to meet standards at TX-AR state line</u>
Diffuse inflow to Sulphur River	219	Same as 2012 TMDL – average of ADEQ data at RED0004A (Days Creek southeast of Texarkana)
Days Creek (tributary to Sulphur River)	219	Same as 2012 TMDL – average of ADEQ data at RED0004A (Days Creek southeast of Texarkana)

Table 5.4. TDS concentrations for point sources in mass balance.

Facility	Flow (MGD)	TDS Concentration (mg/L)	Data Source / Comment for TDS
Domtar	56.4	1,638	95th percentile of quarterly discharge monitoring report (DMR) data from 4 th quarter 2008 through 3rd quarter 2013
City of Ashdown	1.1	540	Same as 2012 TMDL
SWEPCO	2.16	1,620	Recent estimate by SWEPCO personnel of effluent TDS concentration based on an intake concentration of 98 mg/L (90th percentile of values in Little River upstream of SWEPCO) and full operation of the facility with cycling of cooling water as designed
City of Fulton	0.05	500	Same as 2012 TMDL
Tyson River Valley Animal Food	0.42	2,000	95th percentile of monthly effluent data from August 2008 through September 2013
City of Garland	0.075	500	Same as 2012 TMDL
Chieftain Sand	0.1	500	Same as 2012 TMDL
Pollution Management (discharges to McKinney Bayou)	0.003	480	Same as 2012 TMDL
North Texarkana WWTP (discharges to McKinney Bayou)	0.95	480	Same as 2012 TMDL
International Paper Texarkana (discharges to Sulphur River)	0 for 7Q10; 189.7 for harmonic mean	855	Maximum effluent concentration that will allow current TDS criterion to be maintained in Sulphur River in Arkansas with discharge at 100% of upstream flow

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FIGURE J.1 LA-QUAL SCHEMATIC DIAGRAM

For simulation of TDS in the Red River, McKinney Bayou, and Sulphur River

LA-QUAL reach numbers are shown in boxes. LA-QUAL reaches correspond to assessment reaches.

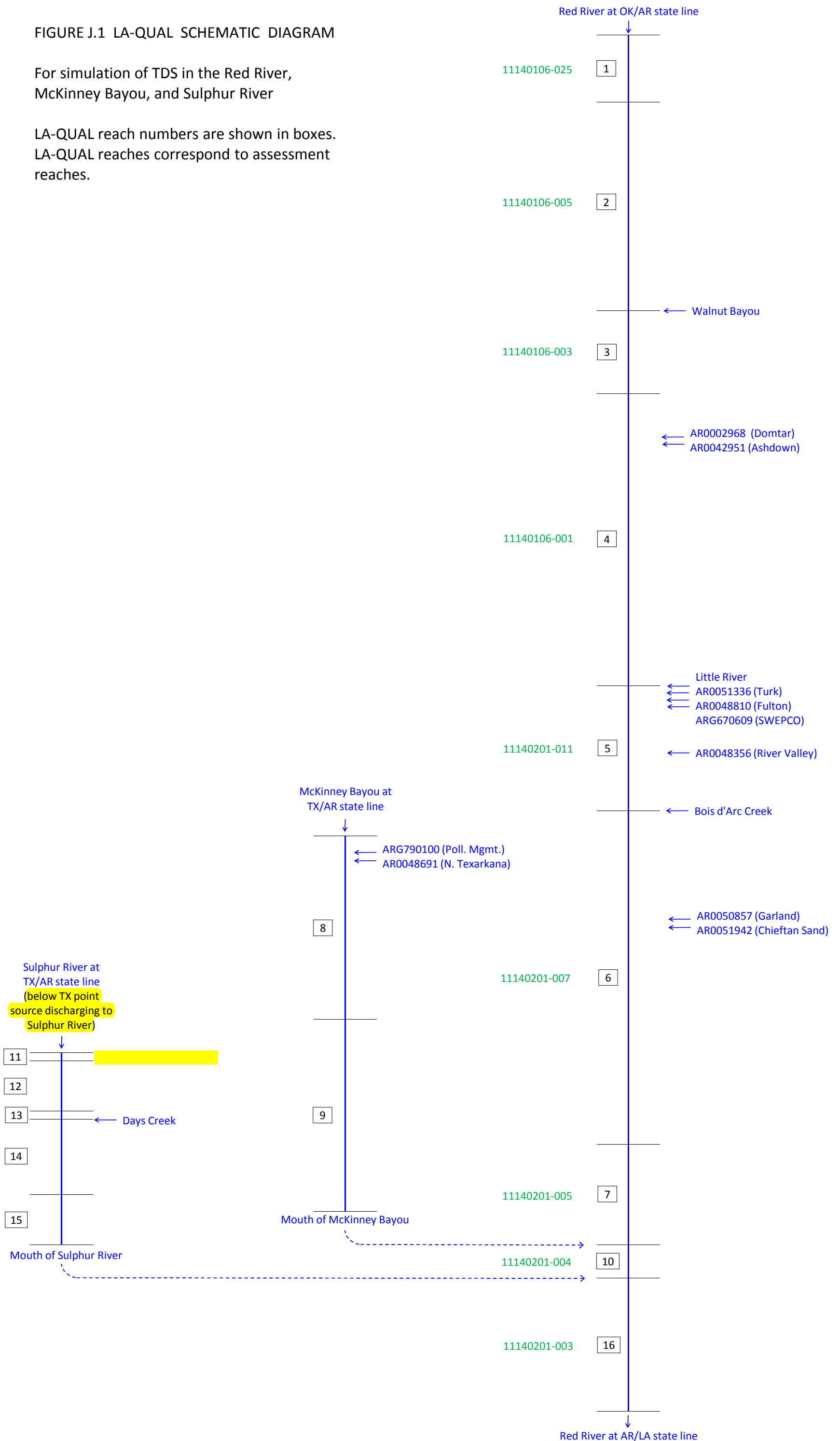


TABLE J.2 FLOW BALANCE FOR RED RIVER IN ARKANSAS -- 7Q10 CONDITIONS

General approach: Use historical conditions to estimate tributary flows and diffuse inflows so that total flows will match 7Q10 flows at USGS flow gages. Then use those ambient inflows with design flows for point sources to get critical conditions for the LA-QUAL model.

Ambient flow per unit area based on USGS flow gage for Red River at Index, AR (calculations in 2012 TMDL have been corrected here):

Published 7Q10 flow for Red River at Index =	1240 cfs	USGS 2008 low flow report
Avg. effl. flow from City of Ashdown = 0.77 MGD =	1.2 cfs	Apr 2008 - Mar 2013 avg from ECHO web site
Avg. effl. flow from Domtar Ashdown = 50.8 MGD =	78.6 cfs	Apr 2008 - Mar 2013 avg from ECHO web site
Ambient portion of 7Q10 flow at Index =	1160.2 cfs	7Q10 minus historical point source flows
Contributing drainage area at Index =	42,094 mi2	USGS drainage area book for Red River basin
Ambient 7Q10 flow per mi2 at Index =	0.02756 cfs/mi2	Ambient flow divided by drainage area

Ambient flow per unit area based on USGS flow gage for Red River at Spring Bank, AR (no change from 2012 TMDL):

Ambient 7Q10 flow per mi2 at Spring Bank =	0.02752 cfs/mi2	7Q10 flow calculated by FTN (1403 cfs) divided by contributing drainage area (50,973 mi2)
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Flows from different sources for each reach of the Red River reach:

Equations for columns E, I, K, & N: $E = D - C$ $I = (E - G) * \text{Flow per mi2 at Index or Spring Bank}$ $K = B + H + I + J$ $N = (\text{Flow at downstream end of prev. reach}) + H + I + M$

A Stream name and reach number	B Flow at upstream end of this reach of Red River (cfs)	C Contrib. drainage area at u/s end of reach (mi2)	D Contrib. drainage area at d/s end of reach (mi2)	E Drainage area entering this reach (mi2)	F Major trib entering this reach of Red R.?	G Drainage area of major trib (mi2)	H Ambient flow from major trib (cfs)	I Diffuse flow directly entering this reach of Red R. (cfs)	--- Historical conditions ---		--- "Design" conditions ---	
									J Historical flow for point sources entering this reach or trib. (cfs)	K Flow at downstream end of this reach of Red River (cfs)	M Design flow for point sources entering this reach or trib. (cfs)	N Flow at downstream end of this reach of Red River (cfs)
Red River 11140106-025	1146 41582 mi2 x flow per mi2 at Index gage	41,582	41,700	118	no	0	0	3.25	0	1149.25	0	1149.25
Red River 11140106-005	1149.25	41,700	41,784	84	no	0	0	2.32	0	1151.57	0	1151.57
Red River 11140106-003	1151.57	41,784	41,939	155	Walnut Bayou	134	3.69 134 mi2 x flow per mi2 at Index gage	0.58	0	1155.84	0	1155.84
Red River 11140106-001	1155.84	41,939	42,131	192	no	0	0	5.29	79.8 78.6 (Domtar) + 1.2 (City of Ashdown)	1240.93	88.97 87.264 (Domtar) + 1.702 (City of Ashdown)	1250.1
Red River 11140201-011	1240.93	42,131	46,421	4,290	Little River	4,239	130.15 Flow just upstream of Turk (value specified by ADEQ in comments on draft report)	1.40	0.39 0 (Turk started in 2012) + 0 (SWEPCO started in 2010) + 0.031 (City of Fulton) + 0.356 (River Valley Animal Foods)	1372.87	4.07 3.342 (Turk) + 0 (SWEPCO is void) + 0.077 (City of Fulton) + 0.650 (River Valley Animal Foods)	1385.72
Red River 11140201-007	1372.87	46,421	46,761	340	Bois D'Arc Creek	293	1.24 Bois D'Arc Creek flow at mouth in 2012 TMDL	1.29	0.002 0.002 (City of Garland) + 0 (Chieftain Sand didn't discharge)	1375.4	0.27 0.116 (City of Garland) + 0.155 (Chieftain Sand)	1388.52
Red River 11140201-005	1375.4	46,761	46,869	108	no	0	0	2.97	0	1378.37	0	1391.49
Red River 11140201-004	1378.37	46,869	47,224	355	McKinney Bayou	340	1.372 McKinney B. headwater + diffuse inflow in 2012 TMDL	0.41	1.474 0.004 (Pollution Mgmt.) + 1.47 (N. Texarkana)	1381.63	1.474 0.004 (Pollution Mgmt.) + 1.47 (N. Texarkana)	1394.75
Red River 11140201-003	1381.63	47,224	50,984	3,760	Sulphur River	3,748	23.46 Sulphur R. headwater + diffuse inflow + Days Creek inflow (from 2012 TMDL)	0.33	0 0 (for 7Q10, no discharge to Sulphur River from point source in TX)	1405.42	0 0 (for 7Q10, no discharge to Sulphur River from point source in TX)	1418.54

Check to make sure calculated flows are close to 7Q10 values at USGS flow gages:

Published 7Q10 flow at Index gage (within reach 11140106-001) =	1240 cfs (USGS 2008 report)
Calculated flow at downstream end of reach 11140106-001 =	1240.93 cfs (includes small diffuse inflow downstream of gage)
7Q10 flow for Spring Bank gage data (in reach 11140201-003) =	1403 cfs (calculated by FTN using 1997 - 2011 daily data)
Calculated flow at downstream end of reach 11140201-003 =	1405.42 cfs (includes small diffuse inflow downstream of gage)

Changes from flows used in 2012 TMDLs for dissolved minerals:

- * The headwater flow for the Red River was re-calculated. In the 2012 TMDL, the historical point source flow was inadvertently not subtracted from 7Q10 at the gage.
- * The flow per unit area for the Index gage was re-calculated using only the ambient portion of the published 7Q10 (this was related to the error in the previous bullet).
- * The Little River flow was corrected to be the value upstream of Turk. The 2012 TMDL used the Little River flow rate immediately downstream of Turk's discharge.
- * The design flows for Domtar and for Tyson River Valley Animal Foods were corrected. Both values were too high in the 2012 TMDL.

TABLE J.3 FLOW BALANCE FOR RED RIVER IN ARKANSAS -- HARMONIC MEAN CONDITIONS

Ambient flow per unit area based on USGS flow gage for Red River at Index, AR:

Harmonic mean flow for Red River at Index =	4,341 cfs	Calculated for 40 yrs (Oct 1973 - Sep 2013)
Avg. effl. flow from City of Ashdown = 0.77 MGD =	1.2 cfs	Apr 2008 - Mar 2013 avg from ECHO web site
Avg. effl. flow from Domtar Ashdown = 50.8 MGD =	78.6 cfs	Apr 2008 - Mar 2013 avg from ECHO web site
Ambient portion of harm. mean flow at Index =	4,261.2 cfs	Harmonic mean minus historical point source flows
Contributing drainage area at Index =	42,094 mi2	USGS drainage area book for Red River basin
Ambient harmonic mean flow per mi2 at Index =	0.10123 cfs/mi2	Ambient flow divided by drainage area

Ambient flow per unit area for inflows to Red River between Index gage and Spring Bank gage:

Harmonic mean flow for Red River at Spring Bank =	6,763 cfs	Median of Spring Bank flows when Index is near harmonic mean
Inflow between Index and Spring Bank gages =	2,422 cfs	Harmonic mean flow at Spring Bank minus harmonic mean flow at Index
Contributing drainage area at Spring Bank =	50,973 mi2	USGS drainage area book for Red River basin
Drainage area betw. Index and Spring Bank gages =	8,879 mi2	Drainage area at Spring Bank minus drainage area at Index
Harm. mean flow per mi2 betw. Index & Spring Bank =	0.27278 cfs/mi2	Inflow (2422) divided by drainage area (8879)

Flows from different sources for each reach of the Red River in Arkansas:

Equations for columns E, I, K, & N: E = D - C I = (E - G) * Flow per mi2 at Index or betw. gages K = B + H + I + J N = (Flow at downstream end of prev. reach) + H + I + M

A Stream name and reach number	B Flow at upstream end of this reach of Red River (cfs)	C Contrib. drainage area at u/s end of reach (mi2)	D Contrib. drainage area at d/s end of reach (mi2)	E Drainage area entering this reach (mi2)	F Major trib entering this reach of Red R.?	G Drainage area of major trib (mi2)	H Ambient flow from major trib (cfs)	I Diffuse flow directly entering this reach of Red R. (cfs)	--- Historical conditions ---		--- "Design" conditions ---	
									J Historical flow for point sources entering this reach or trib. (cfs)	K Flow at downstream end of this reach of Red River (cfs)	M Design flow for point sources entering this reach or trib. (cfs)	N Flow at downstream end of this reach of Red River (cfs)
Red River 11140106-025	4209.35 41582 mi2 x flow per mi2 at Index gage	41,582	41,700	118	no	0	0	11.95	0	4221.3	0	4221.3
Red River 11140106-005	4221.3	41,700	41,784	84	no	0	0	8.5	0	4229.8	0	4229.8
Red River 11140106-003	4229.8	41,784	41,939	155	Walnut Bayou	134	13.56 134 mi2 x flow per mi2 at Index gage	2.13	0	4245.49	0	4245.49
Red River 11140106-001	4245.49	41,939	42,131	192	no	0	0	19.44	79.8 78.6 (Domtar) + 1.2 (City of Ashdown)	4344.73	88.97 87.264 (Domtar) + 1.702 (City of Ashdown)	4353.9
Red River 11140201-011	4344.73	42,131	46,421	4,290	Little River	4,239	1156.31 4239 mi2 x flow per mi2 between Index & Spring Bank	13.91	0.39 0 (Turk started in 2012) + 0 (SWEPCO started in 2010) + 0.031 (City of Fulton) + 0.356 (River Valley Animal Foods)	5515.34	4.07 3.342 (Turk) + 0 (SWEPCO is void) + 0.077 (City of Fulton) + 0.650 (River Valley Animal Foods)	5528.19
Red River 11140201-007	5515.34	46,421	46,761	340	Bois D'Arc Creek	293	79.92 293 mi2 x flow per mi2 between Index & Spring Bank	12.82	0.002 0.002 (City of Garland) + 0 (Chieftain Sand didn't discharge)	5608.08	0.27 0.116 (City of Garland) + 0.155 (Chieftain Sand)	5621.20
Red River 11140201-005	5608.08	46,761	46,869	108	no	0	0	29.46	0	5637.54	0	5650.66
Red River 11140201-004	5637.54	46,869	47,224	355	McKinney Bayou	340	91.276 See footnote #1 below	4.09	1.474 0.004 (Pollution Mgmt.) + 1.47 (N. Texarkana)	5734.38	1.474 0.004 (Pollution Mgmt.) + 1.47 (N. Texarkana)	5747.50
Red River 11140201-003	5734.38	47,224	50,984	3,760	Sulphur River	3,748	728.88 See footnote #2 below	3.27	293.5 293.5 (Discharge to Sulphur River from point source in TX)	6760.03	293.5 293.5 (Discharge to Sulphur River from point source in TX)	6773.15

Notes: 1. Total flow at mouth of McKinney Bayou = 340 mi2 x 0.27278 cfs per mi2 = 92.75 cfs. This consists of 1.474 cfs of effluent and 91.276 cfs of ambient flow. The ambient flow includes 2.685 cfs of headwater inflow and 88.592 cfs of diffuse inflow. See Table J.4 for more details.

2. Total flow at mouth of Sulphur River = 3748 mi2 x 0.27278 cfs per mi2 = 1022.38 cfs. This consists of 293.5 cfs of effluent from TX point source and 728.88 cfs of ambient flow. The ambient flow includes 293.5 cfs upstream of TX point source, 241.87 cfs from Days Creek, and 193.51 cfs of diffuse inflow. See Table J.5 for more details.

Check to make sure calculated flows are close to harmonic mean values at USGS flow gages:

Harmonic mean flow at Index gage (within reach 11140106-001) =	4341 cfs (calculated using data for Oct 1973 - Sep 2013)
Calculated flow at downstream end of reach 11140106-001 =	4344.73 cfs (includes some diffuse inflow downstream of gage)
Harmonic mean flow at Spring Bank gage (in reach 11140201-003) =	6763 cfs (estimated by FTN for Oct 1973 - Sep 2013)
Calculated flow at downstream end of reach 11140201-003 =	6760.03 cfs

TABLE J.5 CALCULATIONS TO DIVIDE TOTAL FLOW FOR SULPHUR RIVER AMONG INDIVIDUAL REACHES IN LA-QUAL FOR HARMONIC MEAN FLOW CONDITIONS

Total flow at mouth of Sulphur River =	1022.38 cfs (from Red River flow balance on previous tab of this spreadsheet)
Release from Wright Patman Dam =	293.5 cfs (7-day avg rel. when Index is at harm. mean)
TX point source discharge to Sulphur R. =	293.5 cfs (effl. flow can be 100% of dam release in Jan.)
Point sources in Days Creek watershed =	18.95 cfs (sum of average flows for 6 discharges)
Ambient inflow to Sulphur River in AR =	416.43 cfs (flow at mouth minus dam release minus Days Creek pt. sources minus TX pt. source discharge to Sulphur R.)
Drainage area of Sulphur River at mouth =	3,748 mi ² (USGS drainage area book)
Drainage area of Sulphur R. at TX/AR state line =	3,479 mi ² (USGS drainage area book)
Drainage area for ambient inflow in AR =	269 mi ² (D.A. at mouth minus D.A. at state line)
Ambient inflow per mi ² for Sulphur River in AR =	1.55 cfs/mi ² (ambient inflow divided by D.A.)
Drainage area at d/s end of reach -008 =	3,480 mi ²
Incremental drainage area for reach -008 =	1 mi ²
Diffuse inflow along reach -008 =	1.55 cfs (incred. D.A. times inflow per mi ²)
Drainage area at d/s end of reach -006 =	3,542 mi ² (USGS drainage area book)
Incremental drainage area for reach -006 =	62 mi ²
Diffuse inflow along reach -006 =	95.98 cfs (incred. D.A. times inflow per mi ²)
Drainage area at d/s end of reach -004 =	3,563 mi ² (USGS drainage area book)
Incremental drainage area for reach -004 =	21 mi ²
Diffuse inflow along reach -004 =	32.51 cfs (incred. D.A. times inflow per mi ²)
Days Creek drainage area =	144 mi ² (USGS drainage area book)
Ambient inflow from Days Creek =	222.92 cfs (Days Creek D.A. times inflow per mi ²)
Total inflow from Days Creek =	241.87 cfs (ambient inflow + point source flows)
Drainage area at d/s end of reach -002 =	3,742 mi ² (USGS drainage area book)
Incremental drainage area for reach -002 =	35 mi ² (excluding Days Creek drainage area)
Diffuse inflow along reach -002 =	54.18 cfs (incred. D.A. times inflow per mi ²)
Drainage area at d/s end of reach -001 (mouth) =	3,748 mi ² (USGS drainage area book)
Incremental drainage area for reach -001 =	6 mi ²
Diffuse inflow along reach -001 =	9.29 cfs (incred. D.A. times inflow per mi ²)
Compare sum of inflows to the total inflow from Red River flow balance:	<p>293.5 cfs for flow upstream of TX pt. source discharge to Sulphur R.</p> <p>293.5 cfs for TX point source discharge to Sulphur River</p> <p>1.55 cfs for diffuse inflow along reach -008</p> <p>95.98 cfs for diffuse inflow along reach -006</p> <p>32.51 cfs for diffuse inflow along reach -004</p> <p>241.87 cfs for Days Creek</p> <p>54.18 cfs for diffuse inflow along reach -002</p> <p>9.29 cfs for diffuse inflow along reach -001</p> <hr/> <p>1022.38 cfs = sum of calculated inflows</p>

--> Acceptable flow balance (within 0.01 cfs)

LA-QUAL Version 9.08
 Louisiana Department of Environmental Quality

Input file is R:\projects\06510-0010-002\tech\Mineral UAA\Mass budget\RedRv_7Q10_proposed_criteria.txt
 Running in steady-state mode using LA defaults
 Output produced at ~~14-1510:33~~ on ~~07-2310/30~~/2014

\$\$\$ DATA TYPE 1 (TITLES AND CONTROL CARDS) \$\$\$

CARD TYPE	CONTROL TITLES			
TITLE01	LA-QUAL Model for Red River/McKinney/Sulphur			
TITLE02	Low Flow (7Q10); corrected flow balance; proposed crite			
CNTROL03	NO	METRIC UNITS		
ENDATA01				

\$\$\$ DATA TYPE 2 (MODEL OPTIONS) \$\$\$

CARD TYPE	MODEL OPTION				
MODOPT01	NO	TEMPERATURE			
MODOPT02	NO	SALINITY			
MODOPT03	YES	CONSERVATIVE	Chloride	mg/L	Cl
MODOPT04	YES	CONSERVATIVE	Sulfate	mg/L	SO4
MODOPT05	NO	DISSOLVED OXYGEN			
MODOPT06	NO	BOD2 BIOC			
MODOPT07	NO	NITROGEN			
MODOPT08	NO	PHOSPHORUS			
MODOPT09	NO	PHYTOPLANKTON			
MODOPT10	NO	PERIPHYTON			
MODOPT11	NO	COLIFORM			
MODOPT12	YES	NONCONSERVATIVE	Total Dissolved Solids	mg/L	TDS
ENDATA02					

\$\$\$ DATA TYPE 3 (PROGRAM CONSTANTS) \$\$\$

CARD TYPE	DESCRIPTION OF CONSTANT	VALUE
PROGRAM	HYDRAULIC CALCULATION METHOD =	2.00000 (widths and depths)
PROGRAM	MAXIMUM ITERATION LIMIT =	999.00000
ENDATA03		

\$\$\$ DATA TYPE 4 (TEMPERATURE CORRECTION CONSTANTS FOR RATE COEFFICIENTS) \$\$\$

CARD TYPE	RATE CODE	THETA VALUE
ENDATA04		

\$\$\$ CONSTANTS TYPE 5 (TEMPERATURE DATA) \$\$\$

CARD TYPE	JUNCTION ELEMENT	UPSTRM ELEMENT	RIVER KILOM	NAME
JUNCTION	1900	1452	119.50	McKinney Bayou to Red River
JUNCTION	2168	1939	115.50	Sulphur River to Red River
ENDATA23				

\$\$\$ DATA TYPE 24 (WASTELOAD DATA FOR FLOW, TEMPERATURE, SALINITY, AND CONSERVATIVES) \$\$\$

CARD TYPE	ELEMENT	RMILE	NAME	FLOW m ³ /s	FLOW cfs	FLOW MGD	TEMP deg C	SALIN ppt	Cl mg/L	SO4 mg/L
WSTLD-1	334	231.40	Walnut Bayou	0.10450	3.69000	2.385	30.00	0.00	44.400	34.900
WSTLD-1	485	216.30	AR0002968 - Domtar	2.47137	87.26400	56.409	30.00	0.00	210.000	591.000
WSTLD-1	486	216.20	AR0042951 - Ashdown	0.04820	1.70200	1.100	30.00	0.00	250.000	200.000
WSTLD-1	780	186.80	Little River	3.68592	130.14999	84.131	30.00	0.00	8.000	7.000
WSTLD-1	781	186.70	AR0051136 - Turk	0.09465	3.34200	2.160	30.00	0.00	250.000	200.000
WSTLD-1	788	186.00	AR0048810 - Fulton	0.00218	0.07700	0.050	30.00	0.00	250.000	200.000
WSTLD-1	789	185.90	ARG670609 - void	0.00000	0.00000	0.000	30.00	0.00	0.000	0.000
WSTLD-1	855	179.30	AR0048356 - Tyson RV	0.02192	0.77400	0.500	30.00	0.00	400.000	800.000
WSTLD-1	932	171.60	Bois d'Arc Creek	0.03515	1.24100	0.802	30.00	0.00	25.000	17.300
WSTLD-1	1059	158.90	AR0050857 - Garland	0.00329	0.11600	0.075	30.00	0.00	250.000	200.000
WSTLD-1	1070	157.80	AR0051942 - Chf Sand	0.00439	0.15500	0.100	30.00	0.00	250.000	200.000
WSTLD-1	1472	42.80	ARG790100 - Poll Mgt	0.00011	0.00400	0.003	30.00	0.00	180.000	60.000
WSTLD-1	1473	42.70	AR0048691 - N Texark	0.04163	1.47000	0.950	30.00	0.00	180.000	60.000
WSTLD-1	1941	22.70	TX0000167 - IP Tex	0.00000	0.00000	0.000	30.00	0.00	120.000	100.000
WSTLD-1	2020	14.80	Days Creek	0.29283	10.34000	6.684	30.00	0.00	39.500	33.800
ENDATA24										

\$\$\$ DATA TYPE 25 (WASTELOAD DATA FOR DO, BOD, AND NITROGEN) \$\$\$

CARD TYPE	ELEMENT	NAME	DO mg/L	BOD mg/L	% BOD RMVL	ORG-N mg/L	NH3-N mg/L	% NITRIF	NO3-N mg/L	BOD2 mg/L
ENDATA25										

\$\$\$ DATA TYPE 26 (WASTELOAD DATA FOR PHOSPHORUS, PHYTOPLANTON, COLIFORM, AND NONCONSERVATIVES) \$\$\$

CARD TYPE	ELEMENT	NAME	PO4-P mg/L	PHYTO CHL A µg/L	COLI #/100mL	TDS mg/L	ORG-P mg/L
WSTLD-3	334	Walnut Bayou	0.00	0.00	0.00	296.60	0.00
WSTLD-3	485	AR0002968 - Domtar	0.00	0.00	0.00	1638.00	0.00
WSTLD-3	486	AR0042951 - Ashdown	0.00	0.00	0.00	540.00	0.00
WSTLD-3	780	Little River	0.00	0.00	0.00	98.00	0.00
WSTLD-3	781	AR0051136 - Turk	0.00	0.00	0.00	1620.00	0.00
WSTLD-3	788	AR0048810 - Fulton	0.00	0.00	0.00	500.00	0.00
WSTLD-3	789	ARG670609 - void	0.00	0.00	0.00	0.00	0.00
WSTLD-3	855	AR0048356 - Tyson RV	0.00	0.00	0.00	2000.00	0.00
WSTLD-3	932	Bois d'Arc Creek	0.00	0.00	0.00	183.50	0.00

WSTLD-3	1059	AR0050857 - Garland	0.00	0.00	0.00	500.00	0.00
WSTLD-3	1070	AR0051942 - Chf Sand	0.00	0.00	0.00	500.00	0.00
WSTLD-3	1472	ARG790100 - Poll Mgt	0.00	0.00	0.00	480.00	0.00
WSTLD-3	1473	AR0048691 - N Texark	0.00	0.00	0.00	480.00	0.00
WSTLD-3	1941	TX0000167 - IP Tex	0.00	0.00	0.00	855.00	0.00
WSTLD-3	2020	Days Creek	0.00	0.00	0.00	219.00	0.00

ENDATA26

\$\$\$ DATA TYPE 27 (LOWER BOUNDARY CONDITIONS) \$\$\$

CARD TYPE	CONSTITUENT	CONCENTRATION
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ENDATA27

\$\$\$ DATA TYPE 28 (DAM DATA) \$\$\$

CARD TYPE	ELEMENT	NAME	EQN	"A"	"B"	"H"
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ENDATA28

\$\$\$ DATA TYPE 29 (SENSITIVITY ANALYSIS DATA) \$\$\$

CARD TYPE	PARAMETER	COL 1	COL 2	COL 3	COL 4	COL 5	COL 6	COL 7	COL 8
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ENDATA29

\$\$\$ DATA TYPE 30 (PLOT CONTROL CARDS) \$\$\$

```

PLOT1
RCH  1  2  3  4  5  6  7 10 16
PLOT2
RCH  8  9
PLOT3
RCH 11 12 13 14 15
ENDATA30
    
```

\$\$\$ DATA TYPE 31 (OVERLAY PLOT DATA) \$\$\$

```

OVERLAY1 OVERLAY_Red.ovl
OVERLAY2 OVERLAY_McKinney.ovl
OVERLAY3 OVERLAY_Sulphur.ovl
ENDATA31
    
```

```

.....NO ERRORS DETECTED IN INPUT DATA
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED
.....CONSTITUENT CALCULATIONS COMPLETED
    
```

.....GRAPHICS DATA FOR PLOT 1 WRITTEN TO UNIT 11

Revised October 30, 2014

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LA-QUAL Version 9.08
Louisiana Department of Environmental Quality

Input file is R:\projects\06510-0010-002\tech\Mineral UAA\Mass budget\RedRv_HarMean_proposed_criteria.txt
Running in steady-state mode using LA defaults
Output produced at ~~07+1311:45~~ on ~~01/0310/30~~/2014

\$\$\$ DATA TYPE 1 (TITLES AND CONTROL CARDS) \$\$\$

CARD TYPE	CONTROL TITLES
TITLE01	LA-QUAL Model for Red River/McKinney/Sulphur
TITLE02	Harmonic mean flow with proposed criteria in AR
CNTR0L03	NO METRIC UNITS
ENDATA01	

\$\$\$ DATA TYPE 2 (MODEL OPTIONS) \$\$\$

CARD TYPE	MODEL OPTION
MODOPT01	NO TEMPERATURE
MODOPT02	NO SALINITY
MODOPT03	YES CONSERVATIVE Chloride mg/L Cl
MODOPT04	YES CONSERVATIVE Sulfate mg/L SO4
MODOPT05	NO DISSOLVED OXYGEN
MODOPT06	NO BOD2 BIOC
MODOPT07	NO NITROGEN
MODOPT08	NO PHOSPHORUS
MODOPT09	NO PHYTOPLANKTON
MODOPT10	NO PERIPHYTON
MODOPT11	NO COLIFORM
MODOPT12	YES NONCONSERVATIVE Total Dissolved Solids mg/L TDS
ENDATA02	

\$\$\$ DATA TYPE 3 (PROGRAM CONSTANTS) \$\$\$

CARD TYPE	DESCRIPTION OF CONSTANT	VALUE
PROGRAM	HYDRAULIC CALCULATION METHOD	= 2.00000 (widths and depths)
PROGRAM	MAXIMUM ITERATION LIMIT	= 999.00000
ENDATA03		

\$\$\$ DATA TYPE 4 (TEMPERATURE CORRECTION CONSTANTS FOR RATE COEFFICIENTS) \$\$\$

CARD TYPE	RATE CODE	THETA VALUE
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ENDATA04

\$\$\$ CONSTANTS TYPE 5 (TEMPERATURE DATA) \$\$\$

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INCR-3							
INCR-3	4	RR	0.00	0.00	0.00	296.60	0.00
INCR-3	5	RR	0.00	0.00	0.00	183.50	0.00
INCR-3	6	RR	0.00	0.00	0.00	183.50	0.00
INCR-3	7	RR	0.00	0.00	0.00	183.50	0.00
INCR-3	8	MK	0.00	0.00	0.00	296.60	0.00
INCR-3	9	MK	0.00	0.00	0.00	296.60	0.00
INCR-3	10	RR	0.00	0.00	0.00	183.50	0.00
INCR-3	11	SR	0.00	0.00	0.00	219.00	0.00
INCR-3	12	SR	0.00	0.00	0.00	219.00	0.00
INCR-3	13	SR	0.00	0.00	0.00	219.00	0.00
INCR-3	14	SR	0.00	0.00	0.00	219.00	0.00
INCR-3	15	SR	0.00	0.00	0.00	219.00	0.00
INCR-3	16	RR	0.00	0.00	0.00	183.50	0.00

ENDATA18

\$\$\$ DATA TYPE 19 (NONPOINT SOURCE DATA) \$\$\$

CARD TYPE	REACH	ID	BOD1 lb/d	ORG-N lb/d	COLI #/day	TDS	DO lb/d	BOD2 lb/d	ORG-P lb/d
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ENDATA19

\$\$\$ DATA TYPE 20 (HEADWATER FOR FLOW, TEMPERATURE, SALINITY AND CONSERVATIVES) \$\$\$

CARD TYPE	ELEMENT	NAME	UNIT	FLOW m³/s	FLOW cfs	TEMP deg C	SALIN ppt	Cl mg/L	SO4 mg/L	HDW DISP EXCHG frac
HDWTR-1	1	Red River	0	119.21127	4209.35010	30.00	0.00	269.000	224.000	0.000
HDWTR-1	1453	McKinney Bayou	0	0.07604	2.68500	30.00	0.00	44.400	34.900	0.000
HDWTR-1	1940	Sulphur River	0	8.31209	293.50000	<u>16.62419</u>	<u>587.00000</u>	30.00	0.00	-13.700 <u>-19120.000</u>
				<u>100.000</u>	<u>0.000</u>					

ENDATA20

\$\$\$ DATA TYPE 21 (HEADWATER DATA FOR DO, BOD, AND NITROGEN) \$\$\$

CARD TYPE	ELEMENT	NAME	DO mg/L	BOD#1 mg/L	ORG-N mg/L	NH3-N mg/L	NO3-N mg/L	BOD2 mg/L
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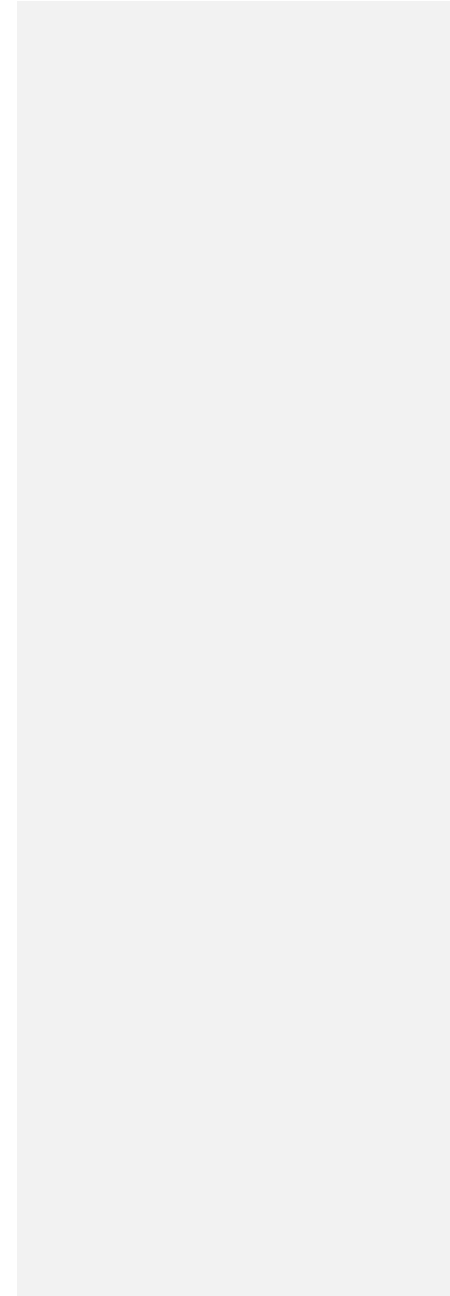
ENDATA21

\$\$\$ DATA TYPE 22 (HEADWATER DATA FOR PHOSPHORUS, PHYTOPLANKTON, COLIFORM, AND NONCONSERVATIVES) \$\$\$

CARD TYPE	ELEMENT	NAME	PHYTO PO4-P mg/L	CHL A µg/L	COLI #/100mL	TDS mg/L	ORG-P mg/L
HDWTR-3	1	Red River	0.00	0.00	0.00	891.00	0.00
HDWTR-3	1453	McKinney Bayou	0.00	0.00	0.00	296.60	0.00
HDWTR-3	1940	Sulphur River	0.00	0.00	0.00	145.50 <u>500.00</u>	0.00

ENDATA22

\$\$\$ DATA TYPE 23 (JUNCTION DATA) \$\$\$



CARD TYPE	JUNCTION ELEMENT	UPSTRM ELEMENT	RIVER KILOM	NAME
JUNCTION	1900	1452	119.50	McKinney Bayou to Red River
JUNCTION	2168	1939	115.50	Sulphur River to Red River
ENDATA23				

\$\$\$ DATA TYPE 24 (WASTELOAD DATA FOR FLOW, TEMPERATURE, SALINITY, AND CONSERVATIVES) \$\$\$

CARD TYPE	ELEMENT	RMILE	NAME	FLOW m ³ /s	FLOW cfs	FLOW MGD	TEMP deg C	SALIN ppt	Cl mg/L	SO4 mg/L
WSTLD-1	334	231.40	Walnut Bayou	0.38403	13.56000	8.765	30.00	0.00	44.400	34.900
WSTLD-1	485	216.30	AR0002968 - Domtar	2.47137	87.26400	56.409	30.00	0.00	210.000	591.000
WSTLD-1	486	216.20	AR0042951 - Ashdown	0.04820	1.70200	1.100	30.00	0.00	250.000	200.000
WSTLD-1	780	186.80	Little River	32.74738	1156.31006	747.453	30.00	0.00	8.000	7.000
WSTLD-1	781	186.70	AR0051136 - Turk	0.09465	3.34200	2.160	30.00	0.00	250.000	200.000
WSTLD-1	788	186.00	AR0048810 - Fulton	0.00218	0.07700	0.050	30.00	0.00	250.000	200.000
WSTLD-1	789	185.90	ARG670609 - void	0.00000	0.00000	0.000	30.00	0.00	0.000	0.000
WSTLD-1	855	179.30	AR0048356 - Tyson RV	0.02192	0.77400	0.500	30.00	0.00	400.000	800.000
WSTLD-1	932	171.60	Bois d'Arc Creek	2.26338	79.92000	51.661	30.00	0.00	25.000	17.300
WSTLD-1	1059	158.90	AR0050857 - Garland	0.00329	0.11600	0.075	30.00	0.00	250.000	200.000
WSTLD-1	1070	157.80	AR0051942 - Chf Sand	0.00439	0.15500	0.100	30.00	0.00	250.000	200.000
WSTLD-1	1472	42.80	ARG790100 - Poll Mgt	0.00011	0.00400	0.003	30.00	0.00	180.000	60.000
WSTLD-1	1473	42.70	AR0048691 - N Texark	0.04163	1.47000	0.950	30.00	0.00	180.000	60.000
WSTLD-1	1941	22.70	TX0000167 - IP Tex	8.31209	293.50000	189.722	30.00	0.00	120.000	180.000
WSTLD-1	2020	14.80	Days Creek	6.84990	241.87000	156.348	30.00	0.00	39.500	33.800
ENDATA24										

\$\$\$ DATA TYPE 25 (WASTELOAD DATA FOR DO, BOD, AND NITROGEN) \$\$\$

CARD TYPE	ELEMENT	NAME	DO mg/L	BOD mg/L	% BOD RMVL	ORG-N mg/L	NH3-N mg/L	% NITRIF	NO3-N mg/L	BOD2 mg/L
ENDATA25										

\$\$\$ DATA TYPE 26 (WASTELOAD DATA FOR PHOSPHORUS, PHYTOPLANTON, COLIFORM, AND NONCONSERVATIVES) \$\$\$

CARD TYPE	ELEMENT	NAME	PO4-P mg/L	PHYTO CHL A µg/L	COLI #/100mL	TDS mg/L	ORG-P mg/L
WSTLD-3	334	Walnut Bayou	0.00	0.00	0.00	296.60	0.00
WSTLD-3	485	AR0002968 - Domtar	0.00	0.00	0.00	1638.00	0.00
WSTLD-3	486	AR0042951 - Ashdown	0.00	0.00	0.00	540.00	0.00
WSTLD-3	780	Little River	0.00	0.00	0.00	98.00	0.00
WSTLD-3	781	AR0051136 - Turk	0.00	0.00	0.00	1620.00	0.00
WSTLD-3	788	AR0048810 - Fulton	0.00	0.00	0.00	500.00	0.00
WSTLD-3	789	ARG670609 - void	0.00	0.00	0.00	0.00	0.00
WSTLD-3	855	AR0048356 - Tyson RV	0.00	0.00	0.00	2000.00	0.00

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WSTLD-3	932	Bois d'Arc Creek	0.00	0.00	0.00	183.50	0.00
WSTLD-3	1059	AR0050857 - Garland	0.00	0.00	0.00	500.00	0.00
WSTLD-3	1070	AR0051942 - Chf Sand	0.00	0.00	0.00	500.00	0.00
WSTLD-3	1472	ARG790100 - Poll Mgt	0.00	0.00	0.00	480.00	0.00
WSTLD-3	1473	AR0048691 - N Texark	0.00	0.00	0.00	480.00	0.00
WSTLD-3	1941	TX0000167 - IP Tex	0.00	0.00	0.00	855.00	0.00
WSTLD-3	2020	Days Creek	0.00	0.00	0.00	219.00	0.00

ENDATA26

\$\$\$ DATA TYPE 27 (LOWER BOUNDARY CONDITIONS) \$\$\$

CARD TYPE	CONSTITUENT	CONCENTRATION
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ENDATA27

\$\$\$ DATA TYPE 28 (DAM DATA) \$\$\$

CARD TYPE	ELEMENT	NAME	EQN	"A"	"B"	"H"
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ENDATA28

\$\$\$ DATA TYPE 29 (SENSITIVITY ANALYSIS DATA) \$\$\$

CARD TYPE	PARAMETER	COL 1	COL 2	COL 3	COL 4	COL 5	COL 6	COL 7	COL 8
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ENDATA29

\$\$\$ DATA TYPE 30 (PLOT CONTROL CARDS) \$\$\$

PLOT1
RCH 1 2 3 4 5 6 7 10 16
PLOT2
RCH 8 9
PLOT3
RCH 11 12 13 14 15
ENDATA30

\$\$\$ DATA TYPE 31 (OVERLAY PLOT DATA) \$\$\$

OVERLAY1 OVERLAY_Red.ovl
OVERLAY2 OVERLAY_McKinney.ovl
OVERLAY3 OVERLAY_Sulphur.ovl
ENDATA31

.....NO ERRORS DETECTED IN INPUT DATA
.....HYDRAULIC CALCULATIONS COMPLETED
.....TRIDIAGONAL MATRIX TERMS INITIALIZED

RR	7	1383	207.15	207.14	207.13	207.12	207.12	207.11	207.10	207.09	207.08	207.08	
RR	7	1393	207.07	207.06	207.05	207.04	207.04	207.03	207.02	207.01	207.00	207.00	
RR	7	1403	206.99	206.98	206.97	206.96	206.96	206.95	206.94	206.93	206.93	206.92	
RR	7	1413	206.91	206.90	206.89	206.89	206.88	206.87	206.86	206.85	206.85	206.84	
RR	7	1423	206.83	206.82	206.81	206.81	206.80	206.79	206.78	206.77	206.77	206.76	
RR	7	1433	206.75	206.74	206.73	206.73	206.72	206.71	206.70	206.70	206.69	206.68	
RR	7	1443	206.67	206.66	206.66	206.65	206.64	206.63	206.62	206.62	206.61	206.60	
RR	10	1900	204.01	204.01	204.01	204.00	204.00	204.00	203.99	203.99	203.99	203.98	
RR	10	1910	203.98	203.98	203.97	203.97	203.97	203.96	203.96	203.96	203.96	203.95	
RR	10	1920	203.95	203.95	203.94	203.94	203.94	203.93	203.93	203.93	203.92	203.92	
RR	10	1930	203.92	203.91	203.91	203.91	203.90	203.90	203.90	203.89	203.89	203.89	
RR	16	2168	181.43	181.43	181.43	181.43	181.43	181.43	181.43	181.43	181.43	181.43 186.04	186.04
186.04	186.04	186.04	186.04	186.04	186.04	186.04	186.04	186.04	186.04	186.04	186.04	186.04	186.04
RR	16	2178	181.43	181.43	181.43	181.43	181.43	181.43	181.43	181.43	181.43	181.43 186.04	186.04
186.04	186.04	186.04	186.04	186.04	186.03	186.03	186.03	186.03	186.03	186.03	186.03	186.03	186.03
RR	16	2188	181.42	181.42	181.42	181.42	181.42	181.42	181.42	181.42	181.42	181.42 186.03	186.03
186.03	186.03	186.03	186.03	186.03	186.03	186.03	186.03	186.03	186.03	186.03	186.03	186.03	186.03
RR	16	2198	181.42	181.42	181.42	181.42	181.42	181.42	181.42	181.42	181.42	181.42 186.03	186.03
186.03	186.03	186.03	186.03	186.02	186.02	186.02	186.02	186.02	186.02	186.02	186.02	186.02	186.02
RR	16	2208	181.41	181.41	181.41	181.41	181.41	181.41	181.41	181.41	181.41	181.41 186.02	186.02
186.02	186.02	186.02	186.02	186.02	186.02	186.02	186.02	186.02	186.02	186.02	186.02	186.02	186.02
RR	16	2218	181.41	181.41	181.41	181.41	181.41	181.41	181.41	181.41	181.41	181.41 186.02	186.02
186.02	186.02	186.02	186.02	186.01	186.01	186.01	186.01	186.01	186.01	186.01	186.01	186.01	186.01
RR	16	2228	181.41	181.40	181.40	181.40	181.40	181.40	181.40	181.40	181.40	181.40 186.01	186.01
186.01	186.01	186.01	186.01	186.01	186.01	186.01	186.01	186.01	186.01	186.01	186.01	186.01	186.01
RR	16	2238	181.40	181.40	181.40	181.40	181.40	181.40	181.40	181.40	181.40	181.40 186.01	186.01
186.01	186.01	186.01	186.01	186.00	186.00	186.00	186.00	186.00	186.00	186.00	186.00	186.00	186.00
RR	16	2248	181.40	181.40	181.39	181.39	181.39	181.39	181.39	181.39	181.39	181.39 186.00	186.00
186.00	186.00	186.00	186.00	186.00	186.00	186.00	186.00	186.00	186.00	186.00	186.00	186.00	186.00
RR	16	2258	181.39	181.39	181.39	181.39	181.39	181.39	181.39	181.39	181.39	181.39 186.00	186.00
186.00	186.00	186.00	186.00	185.99	185.99	185.99	185.99	185.99	185.99	185.99	185.99	185.99	185.99
RR	16	2268	181.39	181.39	181.38	181.38	181.38	181.38	181.38	181.38	181.38	181.38 185.99	185.99
185.99	185.99	185.99	185.99	185.99	185.99	185.99	185.99	185.99	185.99	185.99	185.99	185.99	185.99
RR	16	2278	181.38	181.38	181.38	181.38	181.38	181.38	181.38	181.38	181.38	181.38 185.99	185.99
185.99	185.99	185.99	185.99	185.99	185.99	185.98	185.98	185.98	185.98	185.98	185.98	185.98	185.98
RR	16	2288	181.38	181.38	181.38	181.37	181.37	181.37	181.37	181.37	181.37	181.37 185.98	185.98
185.98	185.98	185.98	185.98	185.98	185.98	185.98	185.98	185.98	185.98	185.98	185.98	185.98	185.98
RR	16	2298	181.37	181.37	181.37	181.37	181.37	181.37	181.37	181.37	181.37	181.37 185.98	185.98
185.98	185.98	185.98	185.98	185.98	185.97	185.97	185.97	185.97	185.97	185.97	185.97	185.97	185.97
RR	16	2308	181.37	181.37	181.37	181.37	181.36	181.36	181.36	181.36	181.36	181.36 185.97	185.97
185.97	185.97	185.97	185.97	185.97	185.97	185.97	185.97	185.97	185.97	185.97	185.97	185.97	185.97
RR	16	2318	181.36	181.36	181.36	181.36	181.36 185.97	185.97	185.97	185.97	185.97	185.97	185.97
MK	8	1453	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.40	
MK	8	1463	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.40	44.48	
MK	8	1473	68.01	67.45	66.92	66.41	65.92	65.46	65.01	64.59	64.18	63.78	
MK	8	1483	63.41	63.04	62.69	62.36	62.03	61.72	61.42	61.12	60.84	60.57	
MK	8	1493	60.30	60.05	59.80	59.56	59.33	59.10	58.89	58.67	58.47	58.27	
MK	8	1503	58.07	57.88	57.70	57.52	57.35	57.18	57.01	56.85	56.69	56.54	
MK	8	1513	56.39	56.25	56.10	55.96	55.83	55.70	55.57	55.44	55.32	55.20	
MK	8	1523	55.08	54.96	54.85	54.74	54.63	54.52	54.42	54.32	54.22	54.12	

MK	8	1533	54.02	53.93	53.84	53.75	53.66	53.57	53.49	53.40	53.32	53.24
MK	8	1543	53.16	53.08	53.00	52.93	52.85	52.78	52.71	52.64	52.57	52.50
MK	8	1553	52.44	52.37	52.31	52.24	52.18	52.12	52.06	52.00	51.94	51.88
MK	8	1563	51.82	51.77	51.71	51.66	51.60	51.55	51.50	51.45	51.40	51.35
MK	8	1573	51.30	51.25	51.20	51.16	51.11	51.06	51.02	50.97	50.93	50.89
MK	8	1583	50.84	50.80	50.76	50.72	50.68	50.64	50.60	50.56	50.52	50.48
MK	8	1593	50.44	50.41	50.37	50.33	50.30	50.26	50.23	50.19	50.16	50.12
MK	8	1603	50.09	50.06	50.02	49.99	49.96	49.93	49.90	49.87	49.84	49.81
MK	8	1613	49.78	49.75	49.72	49.69	49.66	49.63	49.60	49.58	49.55	49.52
MK	8	1623	49.50	49.47	49.44	49.42	49.39	49.37	49.34	49.32	49.29	49.27
MK	8	1633	49.24	49.22	49.19	49.17	49.15	49.12	49.10	49.08	49.06	49.03
MK	8	1643	49.01	48.99	48.97	48.95	48.93	48.91	48.89	48.86	48.84	48.82
MK	8	1653	48.80	48.78	48.76	48.75	48.73	48.71	48.69	48.67	48.65	48.63
MK	8	1663	48.61	48.60	48.58	48.56	48.54	48.52				
MK	9	1669	48.51	48.49	48.48	48.46	48.44	48.43	48.41	48.40	48.38	48.37

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MK	9	1679	48.35	48.34	48.32	48.31	48.29	48.28	48.26	48.25	48.24	48.22			
MK	9	1689	48.21	48.19	48.18	48.17	48.15	48.14	48.13	48.11	48.10	48.09			
MK	9	1699	48.07	48.06	48.05	48.04	48.02	48.01	48.00	47.99	47.97	47.96			
MK	9	1709	47.95	47.94	47.92	47.91	47.90	47.89	47.88	47.87	47.85	47.84			
MK	9	1719	47.83	47.82	47.81	47.80	47.79	47.78	47.77	47.75	47.74	47.73			
MK	9	1729	47.72	47.71	47.70	47.69	47.68	47.67	47.66	47.65	47.64	47.63			
MK	9	1739	47.62	47.61	47.60	47.59	47.58	47.57	47.56	47.55	47.54	47.53			
MK	9	1749	47.52	47.51	47.50	47.50	47.49	47.48	47.47	47.46	47.45	47.44			
MK	9	1759	47.43	47.42	47.41	47.41	47.40	47.39	47.38	47.37	47.36	47.36			
MK	9	1769	47.35	47.34	47.33	47.32	47.31	47.31	47.30	47.29	47.28	47.27			
MK	9	1779	47.27	47.26	47.25	47.24	47.23	47.23	47.22	47.21	47.20	47.20			
MK	9	1789	47.19	47.18	47.17	47.17	47.16	47.15	47.14	47.14	47.13	47.12			
MK	9	1799	47.12	47.11	47.10	47.10	47.09	47.08	47.07	47.07	47.06	47.05			
MK	9	1809	47.05	47.04	47.03	47.03	47.02	47.01	47.01	47.00	46.99	46.99			
MK	9	1819	46.98	46.98	46.97	46.96	46.96	46.95	46.94	46.94	46.93	46.93			
MK	9	1829	46.92	46.91	46.91	46.90	46.90	46.89	46.88	46.88	46.87	46.87			
MK	9	1839	46.86	46.85	46.85	46.84	46.84	46.83	46.83	46.82	46.81	46.81			
MK	9	1849	46.80	46.80	46.79	46.79	46.78	46.78	46.77	46.76	46.76	46.75			
MK	9	1859	46.75	46.74	46.74	46.73	46.73	46.72	46.72	46.71	46.71	46.70			
MK	9	1869	46.70	46.69	46.69	46.68	46.68	46.67	46.67	46.66	46.66	46.65			
MK	9	1879	46.65	46.64	46.64	46.63	46.63	46.62	46.62	46.61	46.61	46.60			
MK	9	1889	46.60	46.60	46.59	46.59	46.58	46.58	46.57	46.57	46.56	46.56			
MK	9	1899	46.55												
SR	11	1940	13.72	66.83	66.82	66.81	66.80	66.80	66.79	66.78	119.97	119.95	119.92	119.89	
119.87	119.84	119.81	119.79												
SR	12	1948	66.71	66.64	66.57	66.51	66.44	66.37	66.31	66.24	66.18	66.11	119.59	119.39	
119.19	118.99	118.79	118.60	118.40	118.21	118.02	117.82								
SR	12	1958	66.05	65.98	65.92	65.85	65.79	65.73	65.66	65.60	65.54	65.47			
SR	12	1968	65.41	65.35	65.29	65.23	65.17	65.11	65.05	64.99	64.93	64.87			
SR	12	1978	64.81	64.75	64.69	64.117.63	64.58	64.52	64.46	64.40	64.35	64.29			
SR	12	1988	64.23	64.18	64.12	64.07	64.01	63.96	63.90	63.85	63.79	63.74			
SR	12	1998	63.68	63.63	63.58	63.52	63.47	63.42	63.37	63.31	63.26	63.21			
SR	12	2008	63.16	63.11	63.05	63.00	62.95								
SR	13	2013	62.80	62.64	62.49	62.33	62.18	62.04	61.89						
SR	14	2020	56.23	56.22	56.21	56.20	56.19	56.18	56.16	56.15	56.14	56.13			
SR	14	2030	56.12	56.11	56.10	56.09	56.08	56.07	56.117.44	117.25	117.06	56.04	56.03		
56.02															
SR	14	2040	56.01	56.00	55.99	55.98	55.97	55.96	55.95	55.94	55.93	55.92			
SR	14	2050	55.90	55.89	55.116.88	55.87	55.86	55.85	55.84	55.83	55.82	55.81	116.69	116.50	
116.32	116.13	115.95													
SR	14	2060	55.80	55.79	55.78	55.77	55.76	55.75	55.74	55.72	55.71	55.70			
SR	14	2070	55.69	55.68	55.67	55.66	55.65	55.64	55.63	55.62	55.61	55.60			
SR	14	2080	55.59	55.58	55.57	55.56	55.55	55.54	55.53	55.52	55.51	55.50			
SR	14	2090	55.49	55	SR	12	1968	115.77	115.59	115.41	115.23	115.05	114.87	114.69	114.52
114.34	114.17														
SR	12	1978	113.99	113.82	113.65	113.48	55.47	55.46	55.45	55.113.31	113.14	112.97	112.80		
112.63	112.47														
SR	12	1988	112.30	112.13	111.97	111.81	111.64	111.48	111.32	111.16	111.00	110.84			
SR	12	1998	110.68	110.52	110.36	110.21	110.05	109.90	109.74	109.59	109.44	55.43	55.42	55.41	
55.109.28															

SR	12	2008	109.13	108.98	108.83	108.68	108.53							
SR	13	2013	108.07	107.61	107.15	106.71	106.27	105.83	105.40					
SR	14	2100	55.39	55.38	55.37	55.36	55.35	2020	88.75	88.71	88.68	88.65	88.62	88.58
88.55		88.52	88.49	88.45										
SR	14	2030	88.42	88.39	88.36	88.32	88.29	88.26	88.23	88.20	88.16	88.13		
SR	14	2040	88.10	88.07	88.04	88.00	87.97	87.94	87.91	87.88	87.85	87.82		
SR	14	2050	87.78	87.75	87.72	87.69	87.66	87.63	87.60	87.56	87.53	87.50		
SR	14	2060	87.47	87.44	87.41	87.38	87.35	87.32	87.29	87.25	87.22	87.19		
SR	14	2070	87.16	87.13	87.10	87.07	87.04	87.01	86.98	86.95	86.92	86.89		
SR	14	2080	86.86	86.83	86.80	86.77	86.74	86.71	86.68	86.65	86.62	86.59		
SR	14	2090	86.56	86.53	86.50	86.47	86.44	86.41	86.38	86.35	86.32	86.29		
SR	14	2100	86.26	86.23	86.20	86.17	86.14							
SR	15	2105	55.34	55.34	55.34	55.34	55.34	55.33	55.33	55.33	55.33	55.32	86.14	86.13
86.12		86.12	86.11	86.10	86.10	86.09	86.08	86.08	86.08					
SR	15	2115	55.32	55.32	55.32	55.31	55.31	55.31	55.31	55.31	55.30	55.30	86.07	86.06
86.06		86.05	86.04	86.04	86.03	86.02	86.01	86.01						
SR	15	2125	55.30	55.30	55.29	55.29	55.29	55.29	55.28	55.28	55.28	55.28	86.00	85.99
85.99		85.98	85.97	85.97	85.96	85.95	85.95	85.94						
SR	15	2135	55.28	55.27	55.27	55.27	55.27	55.26	55.26	55.26	55.26	55.26	85.93	85.93
85.92		85.91	85.91	85.90	85.89	85.89	85.88	85.87						
SR	15	2145	55.25	55.25	55.25	55.25	55.24	55.24	55.24	55.24	55.23	55.23	85.87	85.86
85.85		85.85	85.84	85.83	85.83	85.82	85.81	85.81						
SR	15	2155	55.23	55.23	55.23	55.22	55.22	55.22	55.22	55.21	55.21	55.21	85.80	85.79
85.79		85.78	85.77	85.77	85.76	85.75	85.75	85.74						
SR	15	2165	55.21	55.21	55.20	85.73	85.73	85.72						

RR	7	1403	178.83	178.82	178.81	178.80	178.80	178.79	178.78	178.78	178.77	178.76
RR	7	1413	178.76	178.75	178.74	178.73	178.73	178.72	178.71	178.71	178.70	178.69
RR	7	1423	178.69	178.68	178.67	178.66	178.66	178.65	178.64	178.64	178.63	178.62
RR	7	1433	178.62	178.61	178.60	178.59	178.59	178.58	178.57	178.57	178.56	178.55
RR	7	1443	178.55	178.54	178.53	178.52	178.52	178.51	178.50	178.50	178.49	178.48
RR	10	1900	176.17	176.16	176.16	176.16	176.16	176.15	176.15	176.15	176.14	176.14
RR	10	1910	176.14	176.14	176.13	176.13	176.13	176.12	176.12	176.12	176.12	176.11
RR	10	1920	176.11	176.11	176.10	176.10	176.10	176.10	176.09	176.09	176.09	176.09
RR	10	1930	176.08	176.08	176.08	176.07	176.07	176.07	176.07	176.06	176.06	176.06
RR	16	2168	160.2731	160.2731	160.2731	160.2731	160.2731	160.2731	160.2731	160.2731	160.2731	160.2731
RR	16	2178	160.31	160.31	160.31	160.31	160.31	160.31	160.31	160.31	160.31	160.30
RR	16	2188	160.30	160.30	160.30	160.30	160.30	160.30	160.30	160.30	160.30	160.30
RR	16	2198	160.30	160.30	160.30	160.30	160.30	160.30	160.30	160.30	160.30	160.30
RR	16	2208	160.30	160.29	160.29	160.29	160.29	160.29	160.29	160.29	160.29	160.29
RR	16	2218	160.29	160.29	160.29	160.29	160.29	160.29	160.29	160.29	160.29	160.29
RR	16	2228	160.29	160.29	160.29	160.28	160.28	160.28	160.28	160.28	160.28	160.28
RR	16	2238	160.28	160.28	160.28	160.28	160.28	160.28	160.28	160.28	160.28	160.28
RR	16	2248	160.28	160.28	160.28	160.28	160.28	160.28	160.27	160.27	160.27	160.27
RR	16	2258	160.27	160.27	160.27	160.27	160.27	160.27	160.27	160.27	160.27	160.27
RR	16	2268	160.27	160.27	160.27	160.27	160.27	160.27	160.27	160.27	160.26	160.26
RR	16	2278	160.26	160.26	160.26	160.26	160.26	160.26	160.26	160.26	160.26	160.26
RR	16	2188	160.26	160.26	160.26	160.26	160.26	160.26	160.26	160.26	160.26	160.26
RR	16	2288	160.26	160.26	160.26	160.26	160.26	160.26	160.26	160.26	160.26	160.26
RR	16	2198	160.26	160.26	160.26	160.26	160.26	160.26	160.26	160.26	160.26	160.26
RR	16	2298	160.26	160.25	160.25	160.25	160.25	160.25	160.25	160.25	160.25	160.25
RR	16	2208	160.25	160.25	160.25	160.25	160.25	160.25	160.25	160.25	160.25	160.25
RR	16	2308	160.25	160.25	160.25	160.25	160.25	160.25	160.25	160.25	160.25	160.25
RR	16	2218	160.25	160.25	160.25	160.25	160.25	160.25	160.25	160.25	160.25	160.25
RR	16	2318	160.25	160.25	160.25	160.25	160.25	160.25	160.25	160.25	160.25	160.25
RR	16	2228	160.24	160.24	160.24	160.24	160.24	160.24	160.24	160.24	160.24	160.24
RR	16	2238	160.24	160.24	160.24	160.24	160.24	160.24	160.24	160.24	160.23	160.23
RR	16	2248	160.23	160.23	160.23	160.23	160.23	160.23	160.23	160.23	160.23	160.23
RR	16	2258	160.23	160.23	160.23	160.23	160.23	160.23	160.23	160.23	160.23	160.23
RR	16	2268	160.23	160.22	160.22	160.22	160.22	160.22	160.22	160.22	160.22	160.22
RR	16	2278	160.22	160.22	160.22	160.22	160.22	160.22	160.22	160.22	160.22	160.22
RR	16	2288	160.22	160.22	160.22	160.21	160.21	160.21	160.21	160.21	160.21	160.21
RR	16	2298	160.21	160.21	160.21	160.21	160.21	160.21	160.21	160.21	160.21	160.21
RR	16	2308	160.21	160.21	160.21	160.21	160.21	160.21	160.21	160.20	160.20	160.20
RR	16	2318	160.20	160.20	160.20	160.20	160.20	160.20	160.20	160.20	160.20	160.20
MK	8	1453	34.90	34.90	34.90	34.90	34.90	34.90	34.90	34.90	34.90	34.90
MK	8	1463	34.90	34.90	34.90	34.90	34.90	34.90	34.90	34.90	34.90	34.91
MK	8	1473	39.27	39.17	39.07	38.97	38.88	38.80	38.72	38.64	38.56	38.49
MK	8	1483	38.42	38.35	38.29	38.22	38.16	38.11	38.05	38.00	37.94	37.89
MK	8	1493	37.84	37.80	37.75	37.71	37.66	37.62	37.58	37.54	37.50	37.47
MK	8	1503	37.43	37.40	37.36	37.33	37.30	37.27	37.23	37.20	37.18	37.15
MK	8	1513	37.12	37.09	37.07	37.04	37.02	36.99	36.97	36.94	36.92	36.90
MK	8	1523	36.88	36.86	36.83	36.81	36.79	36.77	36.75	36.74	36.72	36.70
MK	8	1533	36.68	36.66	36.65	36.63	36.61	36.60	36.58	36.57	36.55	36.54
MK	8	1543	36.52	36.51	36.49	36.48	36.46	36.45	36.44	36.43	36.41	36.40
MK	8	1553	36.39	36.38	36.36	36.35	36.34	36.33	36.32	36.31	36.30	36.28

MK	8	1563	36.27	36.26	36.25	36.24	36.23	36.22	36.21	36.20	36.20	36.19
MK	8	1573	36.18	36.17	36.16	36.15	36.14	36.13	36.12	36.12	36.11	36.10
MK	8	1583	36.09	36.08	36.08	36.07	36.06	36.05	36.05	36.04	36.03	36.03
MK	8	1593	36.02	36.01	36.00	36.00	35.99	35.98	35.98	35.97	35.97	35.96
MK	8	1603	35.95	35.95	35.94	35.94	35.93	35.92	35.92	35.91	35.91	35.90
MK	8	1613	35.90	35.89	35.88	35.88	35.87	35.87	35.86	35.86	35.85	35.85
MK	8	1623	35.84	35.84	35.83	35.83	35.82	35.82	35.81	35.81	35.81	35.80
MK	8	1633	35.80	35.79	35.79	35.78	35.78	35.77	35.77	35.77	35.76	35.76
MK	8	1643	35.75	35.75	35.75	35.74	35.74	35.73	35.73	35.73	35.72	35.72
MK	8	1653	35.72	35.71	35.71	35.70	35.70	35.70	35.69	35.69	35.69	35.68
MK	8	1663	35.68	35.68	35.67	35.67	35.67	35.66				
MK	9	1669	35.66	35.66	35.65	35.65	35.65	35.65	35.64	35.64	35.64	35.63
MK	9	1679	35.63	35.63	35.63	35.62	35.62	35.62	35.62	35.61	35.61	35.61
MK	9	1689	35.60	35.60	35.60	35.60	35.59	35.59	35.59	35.59	35.58	35.58

MK	9	1699	35.58	35.58	35.58	35.57	35.57	35.57	35.57	35.56	35.56	35.56		
MK	9	1709	35.56	35.55	35.55	35.55	35.55	35.55	35.54	35.54	35.54	35.54		
MK	9	1719	35.54	35.53	35.53	35.53	35.53	35.52	35.52	35.52	35.52	35.52		
MK	9	1729	35.51	35.51	35.51	35.51	35.51	35.51	35.50	35.50	35.50	35.50		
MK	9	1739	35.50	35.49	35.49	35.49	35.49	35.49	35.49	35.48	35.48	35.48		
MK	9	1749	35.48	35.48	35.47	35.47	35.47	35.47	35.47	35.47	35.46	35.46		
MK	9	1759	35.46	35.46	35.46	35.46	35.45	35.45	35.45	35.45	35.45	35.45		
MK	9	1769	35.45	35.44	35.44	35.44	35.44	35.44	35.44	35.43	35.43	35.43		
MK	9	1779	35.43	35.43	35.43	35.43	35.42	35.42	35.42	35.42	35.42	35.42		
MK	9	1789	35.42	35.41	35.41	35.41	35.41	35.41	35.41	35.41	35.41	35.40		
MK	9	1799	35.40	35.40	35.40	35.40	35.40	35.40	35.39	35.39	35.39	35.39		
MK	9	1809	35.39	35.39	35.39	35.39	35.38	35.38	35.38	35.38	35.38	35.38		
MK	9	1819	35.38	35.38	35.38	35.37	35.37	35.37	35.37	35.37	35.37	35.37		
MK	9	1829	35.37	35.37	35.36	35.36	35.36	35.36	35.36	35.36	35.36	35.36		
MK	9	1839	35.36	35.35	35.35	35.35	35.35	35.35	35.35	35.35	35.35	35.35		
MK	9	1849	35.34	35.34	35.34	35.34	35.34	35.34	35.34	35.34	35.34	35.34		
MK	9	1859	35.33	35.33	35.33	35.33	35.33	35.33	35.33	35.33	35.33	35.33		
MK	9	1869	35.33	35.32	35.32	35.32	35.32	35.32	35.32	35.32	35.32	35.32		
MK	9	1879	35.32	35.31	35.31	35.31	35.31	35.31	35.31	35.31	35.31	35.31		
MK	9	1889	35.31	35.31	35.31	35.30	35.30	35.30	35.30	35.30	35.30	35.30		
MK	9	1899	35.30											
SR	11	1940	19.01	<u>99.4698</u>	<u>99.4396</u>	<u>99.4193</u>	<u>99.3991</u>	<u>99.3789</u>	<u>99.3587</u>	<u>99.3385</u>	<u>99.83</u>			
SR	12	1948	<u>99.1666</u>	<u>99.0050</u>	<u>99.33</u>	<u>99.17</u>	<u>99.01</u>	<u>98.8485</u>	<u>98.6869</u>	<u>98.5253</u>	<u>98.3637</u>	<u>98.20</u>		
			98.04	97.88	97.7221									
SR	12	1958	<u>98.05</u>	<u>97.90</u>	<u>97.74</u>	<u>97.5759</u>	<u>97.4143</u>	<u>97.2628</u>	<u>97.1012</u>	<u>96.9597</u>	<u>96.8082</u>	<u>96.65</u>		
			96.50	96.35	96.2067									
SR	12	1968	<u>96.05</u>	<u>95.90</u>	<u>95.52</u>	<u>96.37</u>	<u>96.22</u>	<u>96.08</u>	<u>95.93</u>	<u>95.78</u>	<u>95.64</u>	<u>95.49</u>	<u>95.35</u>	<u>95.20</u>
SR	12	1978	<u>95.06</u>	<u>94.92</u>	<u>94.78</u>	<u>94.64</u>	<u>94.50</u>	<u>94.36</u>	<u>94.22</u>	<u>94.08</u>	<u>93.94</u>	<u>93.80</u>		
SR	12	1988	<u>93.67</u>	<u>93.53</u>	<u>93.40</u>	<u>93.26</u>	<u>93.13</u>	<u>92.99</u>	<u>92.86</u>	<u>92.73</u>	<u>92.60</u>	<u>92.47</u>		
SR	12	1998	<u>92.34</u>	<u>92.21</u>	<u>92.08</u>	<u>91.95</u>	<u>91.82</u>	<u>91.69</u>	<u>91.56</u>	<u>91.44</u>	<u>91.31</u>	<u>91.19</u>		
SR	12	2008	<u>91.06</u>	<u>90.94</u>	<u>90.81</u>	<u>90.69</u>	<u>90.57</u>							
SR	13	2013	<u>90.19</u>	<u>89.81</u>	<u>89.44</u>	<u>89.07</u>	<u>88.71</u>	<u>88.35</u>	<u>87.99</u>					
SR	14	2020	<u>74.30</u>	<u>74.27</u>	<u>74.24</u>	<u>74.22</u>	<u>74.19</u>	<u>74.16</u>	<u>74.14</u>	<u>74.11</u>	<u>74.08</u>	<u>74.06</u>		
SR	14	2030	<u>74.03</u>	<u>74.00</u>	<u>73.98</u>	<u>73.95</u>	<u>73.92</u>	<u>73.90</u>	<u>73.87</u>	<u>73.85</u>	<u>73.82</u>	<u>73.79</u>		
SR	14	2040	<u>73.77</u>	<u>73.74</u>	<u>73.71</u>	<u>73.69</u>	<u>73.66</u>	<u>73.64</u>	<u>73.61</u>	<u>73.58</u>	<u>73.56</u>	<u>73.53</u>		
SR	14	2050	<u>73.51</u>	<u>73.48</u>	<u>73.45</u>	<u>73.43</u>	<u>73.40</u>	<u>73.38</u>	<u>73.35</u>	<u>73.33</u>	<u>73.30</u>	<u>73.27</u>		
SR	14	2060	<u>73.25</u>	<u>73.22</u>	<u>73.20</u>	<u>73.17</u>	<u>73.15</u>	<u>73.12</u>	<u>73.10</u>	<u>73.07</u>	<u>73.05</u>	<u>73.02</u>		
SR	14	2070	<u>73.00</u>	<u>72.97</u>	<u>72.95</u>	<u>72.92</u>	<u>72.90</u>	<u>72.87</u>	<u>72.85</u>	<u>72.82</u>	<u>72.80</u>	<u>72.77</u>		
SR	14	2080	<u>72.75</u>	<u>95.61</u>	<u>95.46</u>	<u>95.31</u>	<u>95.17</u>	<u>95.03</u>	<u>94.88</u>	<u>94.74</u>	<u>94.72</u>	<u>72.70</u>	<u>72.67</u>	<u>72.65</u>
			72.62	72.60	72.57	72.55	72.52							
SR	12	1978	<u>94.60</u>	<u>94.46</u>	<u>94.32</u>	<u>94.18</u>	<u>94.04</u>	<u>93.90</u>	<u>93.76</u>	<u>93.62</u>	<u>93.49</u>	<u>93.35</u>		
SR	12	1988	<u>93.22</u>	<u>93.08</u>	<u>92.95</u>	<u>92.81</u>	<u>92.68</u>	<u>92.55</u>	<u>92.42</u>	<u>92.28</u>	<u>92.15</u>	<u>92.02</u>		
SR	12	1998	<u>91.89</u>	<u>91.76</u>	<u>91.64</u>	<u>91.51</u>	<u>91.38</u>	<u>91.25</u>	<u>91.13</u>	<u>91.00</u>	<u>90.88</u>	<u>90.75</u>		
SR	12	2008	<u>90.63</u>	<u>90.51</u>	<u>90.38</u>	<u>90.26</u>	<u>90.14</u>							
SR	13	2013	<u>89.76</u>	<u>89.38</u>	<u>89.02</u>	<u>88.65</u>	<u>88.29</u>	<u>87.94</u>	<u>87.58</u>					
SR	14	2020	<u>73.99</u>	<u>73.97</u>	<u>73.94</u>	<u>73.91</u>	<u>73.89</u>	<u>73.86</u>	<u>73.83</u>	<u>73.81</u>	<u>73.78</u>	<u>73.75</u>		
SR	14	2030	<u>73.73</u>	<u>73.70</u>	<u>73.67</u>	<u>73.65</u>	<u>73.62</u>	<u>73.60</u>	<u>73.57</u>	<u>73.54</u>	<u>73.52</u>	<u>73.49</u>		
SR	14	2040	<u>73.46</u>	<u>73.44</u>	<u>73.41</u>	<u>73.39</u>	<u>73.36</u>	<u>73.34</u>	<u>73.31</u>	<u>73.28</u>	<u>73.26</u>	<u>73.23</u>		
SR	14	2050	<u>73.21</u>	<u>73.18</u>	<u>73.16</u>	<u>73.13</u>	<u>73.10</u>	<u>73.08</u>	<u>73.05</u>	<u>73.03</u>	<u>73.00</u>	<u>72.98</u>		
SR	14	2060	<u>72.95</u>	<u>72.93</u>	<u>72.90</u>	<u>72.88</u>	<u>72.85</u>	<u>72.83</u>	<u>72.80</u>	<u>72.77</u>	<u>72.75</u>	<u>72.72</u>		

SR	14	2070	72.70	72.67	72.65	72.62	72.60	72.58	72.55	72.53	2090	72.50	72.48	
SR	14	2080	47	72.45	72.43	72.42	72.40	72.38	72.35	72.33	72.30	72.28	72.25	72.23
SR	14	2090	72.21	72.18	72.16	72.13	72.11	72.08	72.06	72.04	72.01	71.99		
SR	14	2100	71.96	71.94	71.92	71.89	71.87	72.25	72.23	72.21	72.18	72.16		
SR	15	2105	72.15	72.15	72.14	72.13	72.13	72.12	72.12	72.11	72.11	72.11	72.10	
SR	15	2115	72.10	72.09	72.08	72.08	72.07	72.07	72.06	72.06	72.05	72.05		
SR	15	2125	72.04	72.03	72.03	72.02	72.02	72.01	72.01	72.00	72.00	71.99		
SR	15	2135	71.98	71.98	71.97	71.97	71.96	71.96	71.95	71.95	71.94	71.94		
SR	15	2145	71.93	71.92	71.92	71.91	71.91	71.90	71.90	71.89	71.89	71.88		
SR	15	2155	71.87	71.87	71.86	71.86	71.85	71.85	71.84	71.84	71.83	71.83	71.82	71.82
			71.81	71.82										
SR	15	2115	71.81	71.80	71.80	71.79	71.78	71.78	71.77	71.77	71.76	71.76		
SR	15	2125	71.75	71.75	71.74	71.73	71.73	71.72	71.72	71.71	71.71	71.71	71.70	
SR	15	2135	71.70	71.69	71.69	71.68	71.68	71.67	71.67	71.66	71.66	71.65	71.65	
SR	15	2145	71.64	71.64	71.63	71.63	71.62	71.61	71.61	71.60	71.60	71.59		
SR	15	2155	71.59	71.58	71.58	71.57	71.57	71.56	71.55	71.55	71.54	71.54		
SR	15	2165	71.53	71.53	71.53	71.52	71.52	71.52	71.51	71.51	71.51	71.51	71.50	

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RR	7	1403	718.97	718.95	718.92	718.90	718.88	718.85	718.83	718.81	718.78	718.76
RR	7	1413	718.74	718.71	718.69	718.67	718.64	718.62	718.60	718.57	718.55	718.53
RR	7	1423	718.50	718.48	718.46	718.43	718.41	718.39	718.36	718.34	718.32	718.29
RR	7	1433	718.27	718.25	718.22	718.20	718.18	718.15	718.13	718.11	718.08	718.06
RR	7	1443	718.04	718.02	717.99	717.97	717.95	717.92	717.90	717.88	717.85	717.83
RR	10	1900	711.06	711.05	711.05	711.04	711.03	711.02	711.01	711.00	710.99	710.98
RR	10	1910	710.97	710.96	710.95	710.94	710.93	710.92	710.91	710.90	710.90	710.89
RR	10	1920	710.88	710.87	710.86	710.85	710.84	710.83	710.82	710.81	710.80	710.79
RR	10	1930	710.78	710.77	710.76	710.75	710.74	710.74	710.73	710.72	710.71	710.70
RR	16	2168	660.8381	660.8380	660.8280	660.8280	660.8280	660.8280	660.8280	660.8280	660.8279	660.8179
RR	16	2178	660.81	660.81	660.81	660.81	660.81	660.81	660.81	660.80	660.80	660.80
RR	16	2188	660.80	660.80	660.79	660.79	660.79	660.79	660.79	660.79	660.79	660.78
RR	16	2198	660.78	660.78	660.78	660.78	660.78					
RR	16	2188	660.78	660.78	660.77	660.77	660.77	660.77	660.77	660.77	660.77	660.77
RR	16	2208	660.77	660.77	660.77	660.76	660.76	660.76	660.76	660.76	660.76	660.76
RR	16	2198	660.76	660.76	660.76	660.76	660.76	660.76	660.75	660.75	660.75	660.75
RR	16	2218	660.75	660.75	660.75	660.75	660.75	660.75	660.75	660.75	660.75	660.75
RR	16	2208	660.75	660.75	660.74	660.74	660.74	660.74	660.74	660.74	660.74	660.74
RR	16	2228	660.74	660.74	660.74	660.73	660.73	660.73	660.73	660.73	660.73	660.73
RR	16	2218	660.73	660.73	660.73	660.73	660.73	660.73	660.73	660.73	660.73	660.73
RR	16	2238	660.72	660.72	660.72	660.72	660.72	660.72	660.72	660.72	660.72	660.72
RR	16	2228	660.72	660.72	660.71	660.71	660.71	660.71	660.71	660.71	660.71	660.71
RR	16	2248	660.71	660.71	660.71	660.70	660.70	660.70	660.70	660.70	660.70	660.70
RR	16	2238	660.70	660.70	660.70	660.70	660.70	660.70	660.70	660.70	660.70	660.70
RR	16	2258	660.69	660.69	660.69	660.69	660.69	660.69	660.69	660.69	660.69	660.69
RR	16	2248	660.69	660.69	660.69	660.69	660.68	660.68	660.68	660.68	660.68	660.68
RR	16	2268	660.68	660.68	660.68	660.68	660.68	660.67	660.67	660.67	660.67	660.67
RR	16	2258	660.67	660.67	660.67	660.67	660.67	660.67	660.67	660.67	660.67	660.67
RR	16	2278	660.66	660.66	660.66	660.66	660.66	660.66	660.66	660.66	660.66	660.66
RR	16	2268	660.66	660.66	660.66	660.66	660.65	660.65	660.65	660.65	660.65	660.65
RR	16	2288	660.65	660.65	660.65	660.65	660.65	660.64	660.64	660.64	660.64	660.64
RR	16	2278	660.64	660.64	660.64	660.64	660.64	660.64	660.64	660.64	660.64	660.64
RR	16	2298	660.64	660.63	660.63	660.63	660.63	660.63	660.63	660.63	660.63	660.63
RR	16	2288	660.63	660.63	660.63	660.62	660.62	660.62	660.62	660.62	660.62	660.62
RR	16	2308	660.62	660.62	660.62	660.62	660.62	660.62	660.62	660.62	660.62	660.62
RR	16	2298	660.61	660.61	660.61	660.61	660.61	660.61	660.61	660.61	660.61	660.61
RR	16	2318	660.61	660.60	660.60	660.60	660.60	660.60	660.60	660.60	660.60	660.60
RR	16	2308	660.60	660.60	660.60	660.59	660.59	660.59	660.59	660.59	660.59	660.59
RR	16	2318	660.58	660.58	660.58	660.58	660.58	660.58	660.58	660.58	660.58	660.58
MK	8	1453	296.60	296.60	296.60	296.60	296.60	296.60	296.60	296.60	296.60	296.60
MK	8	1463	296.60	296.60	296.60	296.60	296.60	296.60	296.60	296.60	296.60	296.60
MK	8	1473	328.53	327.78	327.06	326.37	325.71	325.08	324.48	323.90	323.35	322.82
MK	8	1483	322.31	321.81	321.34	320.89	320.45	320.02	319.61	319.22	318.84	318.47
MK	8	1493	318.11	317.77	317.43	317.11	316.79	316.49	316.19	315.91	315.63	315.36
MK	8	1503	315.09	314.84	314.59	314.35	314.11	313.88	313.66	313.44	313.23	313.02
MK	8	1513	312.82	312.62	312.43	312.24	312.06	311.88	311.70	311.53	311.36	311.20
MK	8	1523	311.04	310.88	310.73	310.58	310.44	310.29	310.15	310.01	309.88	309.75
MK	8	1533	309.62	309.49	309.36	309.24	309.12	309.00	308.89	308.77	308.66	308.55
MK	8	1543	308.45	308.34	308.24	308.13	308.03	307.94	307.84	307.74	307.65	307.56
MK	8	1553	307.47	307.38	307.29	307.21	307.12	307.04	306.96	306.88	306.80	306.72

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MK	8	1563	306.64	306.57	306.49	306.42	306.34	306.27	306.20	306.13	306.06	306.00	
MK	8	1573	305.93	305.86	305.80	305.74	305.67	305.61	305.55	305.49	305.43	305.37	
MK	8	1583	305.31	305.26	305.20	305.14	305.09	305.03	304.98	304.93	304.88	304.82	
MK	8	1593	304.77	304.72	304.67	304.62	304.58	304.53	304.48	304.43	304.39	304.34	
MK	8	1603	304.30	304.25	304.21	304.16	304.12	304.08	304.04	303.99	303.95	303.91	
MK	8	1613	303.87	303.83	303.79	303.75	303.71	303.68	303.64	303.60	303.56	303.53	
MK	8	1623	303.49	303.46	303.42	303.38	303.35	303.32	303.28	303.25	303.21	303.18	
MK	8	1633	303.15	303.12	303.08	303.05	303.02	302.99	302.96	302.93	302.90	302.87	
MK	8	1643	302.84	302.81	302.78	302.75	302.72	302.69	302.67	302.64	302.61	302.58	
MK	8	1653	302.56	302.53	302.50	302.48	302.45	302.42	302.40	302.37	302.35	302.32	
MK	8	1663	302.30	302.27	302.25	302.23	302.20	302.18					
MK	9	1669	302.16	302.13	302.11	302.09	302.07	302.05	302.03	302.01	301.99	301.97	
MK	9	1679	301.95	301.93	301.91	301.89	301.87	301.85	301.83	301.81	301.79	301.77	
MK	9	1689	301.75	301.73	301.71	301.69	301.68	301.66	301.64	301.62	301.60	301.59	
MK	9	1699	301.57	301.55	301.53	301.52	301.50	301.48	301.47	301.45	301.43	301.42	
MK	9	1709	301.40	301.38	301.37	301.35	301.33	301.32	301.30	301.29	301.27	301.26	
MK	9	1719	301.24	301.23	301.21	301.20	301.18	301.17	301.15	301.14	301.12	301.11	
MK	9	1729	301.09	301.08	301.06	301.05	301.04	301.02	301.01	301.00	300.98	300.97	
MK	9	1739	300.95	300.94	300.93	300.91	300.90	300.89	300.88	300.86	300.85	300.84	
MK	9	1749	300.82	300.81	300.80	300.79	300.77	300.76	300.75	300.74	300.72	300.71	
MK	9	1759	300.70	300.69	300.68	300.67	300.65	300.64	300.63	300.62	300.61	300.60	
MK	9	1769	300.58	300.57	300.56	300.55	300.54	300.53	300.52	300.51	300.50	300.49	
MK	9	1779	300.47	300.46	300.45	300.44	300.43	300.42	300.41	300.40	300.39	300.38	
MK	9	1789	300.37	300.36	300.35	300.34	300.33	300.32	300.31	300.30	300.29	300.28	
MK	9	1799	300.27	300.26	300.25	300.24	300.23	300.23	300.22	300.21	300.20	300.19	
MK	9	1809	300.18	300.17	300.16	300.15	300.14	300.13	300.13	300.12	300.11	300.10	
MK	9	1819	300.09	300.08	300.07	300.06	300.06	300.05	300.04	300.03	300.02	300.01	
MK	9	1829	300.01	300.00	299.99	299.98	299.97	299.97	299.96	299.95	299.94	299.93	
MK	9	1839	299.93	299.92	299.91	299.90	299.89	299.89	299.88	299.87	299.86	299.86	
MK	9	1849	299.85	299.84	299.83	299.83	299.82	299.81	299.80	299.80	299.79	299.78	
MK	9	1859	299.78	299.77	299.76	299.75	299.75	299.74	299.73	299.73	299.72	299.71	
MK	9	1869	299.71	299.70	299.69	299.68	299.68	299.67	299.66	299.66	299.65	299.64	
MK	9	1879	299.64	299.63	299.63	299.62	299.61	299.61	299.60	299.59	299.59	299.58	
MK	9	1889	299.57	299.57	299.56	299.56	299.55	299.54	299.54	299.53	299.52	299.52	
MK	9	1899	299.51										
SR	11	1940	145.55	500.06	499.9791	499.8881	499.7972	499.6963	499.6054	499.5144	499.35	499.26	
SR	12	1948	498.81	498.1156	497.4186	497.17	496.72	496.0348	495.3579	495.10	494.6742	493.9975	
493.3207			492.6440										
SR	12	1958	491.9873	491.3107	490.6541	489.9975	489.3410	488.68	488.0344	487.3980	487.15	486.75	
496.1151			485.87										
SR	12	1968	485.4723	484.84	484.2160	483.5897	483.34	482.9572	482.33	481.71	481.10	480.481 .48	
480.86			480.25										
SR	12	1978	479.2704	478.66	478.0643	477.4683	477.23	476.8764	476.2704	475.68	475.0945	474.5187	
474.28			473.9370										
SR	12	1988	473.3512	472.77	472.1954	471.6297	471.0540	470.4983	470.26	469.9270	469.3614	468.8058	
468.2402													
SR	12	1998	467.69	467.1447	466.5992	466.0437	465.5082	465.28	464.9573	464.4120	463.8866	463.3412	
462.8159													
SR	12	2008	462.2806	461.7553	461.2201	460.70	460.1848	459.96					
SR	13	2013	458.5534	456.95	455.37	453.81	452.26	450.74	449.24455.16	453.60	452.06	450.54	449.04

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SR	14	2020	391.05	<u>390.9490</u>	<u>390.8379</u>	<u>390.7167</u>	<u>390.6056</u>	<u>390.4845</u>	<u>390.3733</u>	<u>390.2622</u>	<u>390.14</u>	390.0311	
<u>389.99</u>			<u>389.88</u>										
SR	14	2030	389.92	389.81	389.6977	<u>389.5865</u>	<u>389.4754</u>	<u>389.3643</u>	<u>389.2432</u>	<u>389.1320</u>	<u>389.0209</u>	<u>388.9198</u>	
<u>388.87</u>			<u>388.76</u>										
SR	14	2040	388.80	388.69	388.5865	<u>388.4654</u>	<u>388.3542</u>	<u>388.2431</u>	<u>388.1320</u>	<u>388.0209</u>	<u>387.9198</u>	<u>387.8087</u>	
<u>387.76</u>			<u>387.65</u>										
SR	14	2050	387.69	387.58	387.4754	<u>387.3643</u>	<u>387.2532</u>	<u>387.1421</u>	<u>387.0410</u>	<u>386.9399</u>	<u>386.8289</u>	<u>386.7178</u>	
<u>386.67</u>			<u>386.56</u>										
SR	14	2060	386.60	386.49	386.3845	<u>386.2834</u>	<u>386.1723</u>	<u>386.0613</u>	<u>386.02</u>	<u>385.9591</u>	<u>385.8480</u>	<u>385.7470</u>	
<u>385.6359</u>			<u>385.48</u>										
SR	14	2070	385.52	385.4237	<u>385.3127</u>	<u>385.2016</u>	<u>385.1005</u>	<u>384.9995</u>	<u>384.8884</u>	<u>384.7874</u>	<u>384.6763</u>	<u>384.5652</u>	
<u>384.42</u>													
SR	14	2080	384.46	384.3531	<u>384.2521</u>	<u>384.1410</u>	<u>384.0400</u>	<u>383.9389</u>	<u>383.8379</u>	<u>383.7268</u>	<u>383.6258</u>	<u>383.5147</u>	
<u>383.37</u>													
SR	14	2090	383.41	383.3026	<u>383.2016</u>	<u>383.1005</u>	<u>382.9995</u>	<u>382.8985</u>	<u>382.7974</u>	<u>382.6864</u>	<u>382.5854</u>	<u>382.4743</u>	
<u>382.33</u>													
SR	14	2100	382.37	382.2723	<u>382.1712</u>	<u>382.0602</u>	<u>381.9692</u>	<u>381.82</u>					
SR	15	2105	381.94	381.91	381.89	381.87	381.84	381.82	<u>381.79</u>	<u>381.77</u>	<u>381.7574</u>	<u>381.72</u>	<u>381.70</u>
<u>381.67</u>	<u>381.65</u>	<u>381.63</u>	<u>381.60</u>	<u>381.58</u>									
SR	15	2115	381.70	381.6856	<u>381.6553</u>	<u>381.6351</u>	<u>381.6148</u>	<u>381.5846</u>	<u>381.5644</u>	<u>381.5341</u>	<u>381.5139</u>	<u>381.4937</u>	
<u>381.34</u>													
SR	15	2125	381.46	381.44	381.42	381.39	381.37	381.35	381.32	<u>381.30</u>	<u>381.2827</u>	<u>381.25</u>	<u>381.23</u>
<u>381.20</u>	<u>381.18</u>	<u>381.15</u>	<u>381.13</u>	<u>381.11</u>									
SR	15	2135	381.23	381.21	381.18	381.16	381.13	381.11	381.09	<u>08</u>	<u>381.06</u>	<u>381.04</u>	<u>381.02</u>
SR	15	2145	01	<u>380.99</u>	<u>380.97</u>	<u>380.9594</u>	<u>380.92</u>	<u>380.90</u>	<u>380.8887</u>				
SR	15	2145		<u>380.85</u>	<u>380.83</u>	<u>380.8180</u>	<u>380.78</u>						
SR	15	2155		<u>380.76</u>	<u>380.7473</u>	<u>380.71</u>	<u>380.69</u>	<u>380.6766</u>	<u>380.64</u>				
SR	15	2155		<u>380.62</u>	<u>380.6059</u>	<u>380.57</u>	<u>380.55</u>	<u>380.52</u>	<u>380.50</u>	<u>380.48</u>	<u>380.45</u>	<u>380.43</u>	<u>380.41</u>
SR	15	2165	380.5338	380.5036	<u>380.4834</u>								

....EXECUTION COMPLETED