APPENDIX A –

Model Static Input Data and Run Code for the Yadkin-Pee Dee and Lumber River Basins

[from basecase run using current demands called "SimBase"]

Static data tables included are:

All Model Nodes
All Model Arcs
Reservoirs Nodes
Reservoir Rules
Reservoir SAE Data
Demand Patterns
Lookup Tables (WW Returns, Spillway Curves, etc.)
Independent Wastewater Return Patterns
Arc Minimum Flows
County Agricultural Data
Crop Irrigation Coefficients

OCL files included are:

main.ocl
udef_list.ocl
Agric_Calculation.ocl
Agric_Allocation.ocl
filter_inflows.ocl
kerr_scott_operations.ocl
WW_returns.ocl
sales_purchases.ocl
misc_operations.ocl
mainstem_operations.ocl
low_inflow_protocol.ocl
routing.ocl
WSRPs.ocl
compute_inflows.ocl

Model Nodes

Node #	Type	Inflow	Name	SubName
004	Junction	OCL	Yadkin R at Patterson Gage 02111000	USGS Gage
005	Demand	None	Blue Ridge Patterson Mill 0786-0001	Demand
007	Demand	None	Kerr Scott Basin Ag	Demand
009	Junction	None	Elk Ck Conf.	Junction
010	Reservoir	OCL	Kerr Scott Reservoir	Reservoir
011	Junction	None	Kerr Scott Spill	Junction
012	Junction	None	Kerr Scott Outflow	Junction
014	Junction	OCL	Elk Ck at Elkville Gage 02111180	USGS Gage
016	Reservoir	None	Kerr Scott to High Rock Time of Travel	Time of Travel Res
020	Junction	OCL	Wilkesboro Intake	Junction
022	Junction	None	Wilkesboro Total WD	Total Withdrawal
024	Junction	OCL	Reddies River at North Wilkesboro Gage 02111500	USGS Gage
025	Demand	None	Wilkesboro 01-97-025	Demand
030	Junction	None	North Wilkesboro Intake	Junction
032	Junction	None	North Wilkesboro Total WD	Total Withdrawal
035	Demand	None	North Wilkesboro 01-97-010	Demand
044	Junction	OCL	Yadkin R at Wilkesboro Gage 02112000	USGS Gage
045	Demand	None	Wilkes Co. Proposed Kerr Scott Intake	Demand
050	Junction	OCL	Louisiana Pacific Intake	Junction
055	Demand	None	Louisiana Pacific 0001-0001	Demand
060	Junction	None	Louisiana Pacific Discharge	Junction
064	Junction	OCL	Roaring R nr Roaring River Gage 02112120	USGS Gage
065	Demand	None	Duvaltex (fmrly True Textiles) Elkin 0705-0001	Demand
070	Junction	None	Roaring R Conf	Junction
072	Junction	None	Elkin Total WD	Total Withdrawal
075	Demand	None	Elkin 02-86-020	Demand
080	Junction	OCL	Elkin Intake - Big Elkin Ck	Junction
100	Junction	OCL	Jonesville Intake	Junction
104	Junction	OCL	Yadkin R at Elkin Gage 02112250	USGS Gage
112	Junction	None	Jonesville Total WD	Total Withdrawal
114	Junction	OCL	Mitchell R nr State Road Gage 02112360	USGS Gage
115	Demand	None	Jonesville 02-99-010	Demand
118	Junction	OCL	YVSA WWTP	WWTP Discharge
120	Junction	None	Jonesville Discharge	Junction
130	Junction	OCL	Fisher R - Dobson Intake	Junction
135	Demand	None	Dobson 02-86-030	Demand
140	Junction	None	Wayne Farms Discharge	Junction
143	Junction	Pattern	Wayne Farms WWTP NC0006548	WWTP Discharge
154	Junction	OCL	Fisher R nr Copeland Gage 02113000	USGS Gage
155	Junction	None	Fischer R Conf	Junction
163	Junction	Pattern	Boonville WWTP NC0020931	WWTP Discharge
165	Junction	None	Boonville Discharge	Junction
170	Reservoir	OCL	Allred Mill Reservoir	Reservoir
180	Reservoir	OCL	JK Boyd Reservoir	Reservoir
182	Junction	None	Mt. Airy Total WD	Total Withdrawal
185	Demand	None	Mt Airy 02-86-010	Demand
188	Junction	None	Mt Airy Discharge	Junction
190	Junction	OCL	Toms Creek - Pilot Mtn Intake	Junction
194	Junction	OCL	Ararat R at Ararat Gage 02113850	USGS Gage
205	Demand	None	Pilot Moutain 02-86-025	Demand
206	Junction	None	Pilot Mountain Discharge	Junction
210	Junction	None	Ararat R Conf	Junction
214	Junction	OCL	Little Yadkin R at Dalton Gage 02114450	USGS Gage
220	Junction	None	Little Yadkin Conf	Junction

Node #	Type	Inflow	Name	SubName
230	Junction	OCL	King Intake	Junction
250	Junction	OCL	South Yadkin R - Statesville Intake	Junction
251	Junction	OCL	Lookup Shoals	Junction
252	Junction	None	Statesville Total WD	Total Withdrawal
255	Demand	None	Statesville 01-49-010	Demand
257	Junction	None	Bleed from Catawba to Statesville IBT	Junction
273	Junction	Pattern	Tyson Farms WW NC0005126	WWTP Discharge
274	Junction	OCL	Hunting Ck nr Harmony Gage 02118500	USGS Gage
275	Junction	None	Hunting Ck -Tyson Disch	Junction
280	Junction	OCL	South Yakdin R - Mocksville Intake	Junction
284	Junction	OCL	South Yadkin R nr Mocksville Gage 02118000	USGS Gage
290	Junction	None	Hunting Ck Conf	Junction
292	Junction	None	Mocksville Total WD	Total Withdrawal
295	Demand	None	Mocksville 02-30-010	Demand
300	Junction	OCL	Davie Co Cooleemee Intake	Junction
313	Junction	Pattern	Cleveland WWTP NC0049867	WWTP Discharge
320	Junction	OCL	Second Ck - Kannapolis Intake	Junction
323	Junction	Pattern	Edge Water Treating (fmrly Durafiber) NC0004944	WWTP Discharge
324	Junction	OCL	Third Ck at Cleveland Gage 02120500	USGS Gage
328	Junction	None	Cleveland & Statesville Discharges	Junction
330	Junction	None	Third Ck Conf	Junction
334	Junction	OCL	Second Ck nr Barber Gage 02120780	USGS Gage
340	Junction	OCL	Winston-Salem Swann Dam Intake	Junction
344	Junction	OCL	Yadkin R at Enon Gage 02115360	USGS Gage
345	Demand	None	King 02-85-010	Demand
346	Junction	None	2nd Ck Conf	Junction
350	Reservoir	OCL	5-D Reservoir	Reservoir
354	Junction	OCL	Yadkinville Intake - South Deep Ck	Junction
355	Demand	None	Yadkinville 02-99-015	Demand
360	Junction	None	Yadkin Stem after Yadkinville	Junction
370	Junction	OCL	Davie Co Sparks Rd WTP	Junction
372	Junction	None	Davie Co Total WD	Total Withdrawal
373	Junction	Pattern	Bermuda Run WWTP NC0055158	WWTP Discharge
375	Demand	None	Davie County 02-30-015	Demand
380	Reservoir	OCL	Salem Lake	Reservoir
382	Junction	None	Winston-Salem Total WD	Total Withdrawal
386	Junction	OCL	Winston-Salem Idols Dam Intake	Junction
390	Junction	None	Winston-Salem Discharge	Junction
391	Junction	None	Greensboro IBT	Junction
394	Junction	OCL	Muddy Ck nr Muddy Ck Gage 02115860	USGS Gage
395	Demand	None	Winston-Salem 02-34-010	Demand
400	Junction	OCL	Davidson Water Intake	Junction
422	Junction	None	Davidson Total WD	Total Withdrawal
425	Demand	None	Davidson Water 02-29-025	Demand
434	Junction	OCL	Yadkin R at Yadkin College Gage 02116500	USGS Gage
435	Junction	OCL	High Point IBT	Junction
437	Junction	None	High Pt IBT bleed	Junction
440	Junction	None	Dutchman Ck Conf	Junction
450	Junction	OCL	Salisbuy Intake	Junction
462	Junction	None	Salisbury Total WD	Total Withdrawal
465	Demand	None	Salisbury 01-80-010	Demand
500	Junction	OCL	Duke Buck Steam Plant Intake	Junction
503	Junction	Pattern	Norfolk Southern WW NC0029246	WWTP Discharge
513	Junction	Pattern	PPG WWTP NC0004626	WWTP Discharge
525	Demand	None	Duke - Buck Station 0057-0021 (Net WD)	Demand

Node #	Type	Inflow	Name	SubName
552	Junction	None	Thomasville Total WD	Total Withdrawal
555	Demand	None	Thomasville 02-29-020	Demand
560	Reservoir	OCL	Thom-a-Lex Lake	Reservoir
562	Junction	None	Lexington Total WD	Total Withdrawal
565	Demand	None	Lexington 02-29-010	Demand
570	Reservoir	OCL	City Lake (Lexington)	Reservoir
573	Junction	Pattern	High Point Westside WWTP NC0024228	WWTP Discharge
574	Junction	OCL	Abbotts Ck at Lexington Gage 02121500	USGS Gage
577	Junction	None	Lexington WWTP	Junction
590	Reservoir	OCL	High Rock Reservoir	Reservoir
591	Junction	None	High Rock Spillway	Junction
597	Demand	None	High Rock Basin Ag.	Demand
600	Junction	None	High Rock Outflow	Junction
610	Reservoir	OCL	Tuckertown Reservoir	Reservoir
611	Junction	None	Tuckertown Spillway	Junction
615	Demand	None	Denton 02-29-030	Demand
617	Demand	None	Tuckertown Basin Ag	Demand
622	Junction	None	Albemarle Total WD	Total Withdrawal
625	Demand	None	Albemarle 01-84-010	Demand
630	Junction	None	Tuckerton Outflow	Junction
640	Reservoir	OCL	Narrows Reservoir	Reservoir
641	Junction	None	Narrows Spillway	Junction
647	Demand	None	Narrows Basin Ag	Demand
650	Junction	None	Narrows Outflow	Junction
653	Junction	Pattern	Badin Business Park WW NC0004308	WWTP Discharge
660	Reservoir	OCL	Falls Reservoir	Reservoir
661	Junction	None	Falls Spillway	Junction
663	Junction	Pattern	Greater Badin W&S WWTP NC0074756	WWTP Discharge
664	Junction	None	Falls Outflow	Junction
667	Demand	None	Falls Ag	Demand
670	Reservoir	OCL	Lake Lucas	Reservoir
676	Reservoir	OCL	Lake McCrary	Reservoir
680	Reservoir	OCL	Lake Bunch	Reservoir
685	Demand	None	Asheboro 02-76-010	Demand
686	Junction	None	Uwharrie R ds Asheboro	Junction
690	Reservoir	OCL	Lake Reese	Reservoir
694	Junction	OCL	Uwharrie R nr Eldorado Gage 02123500	USGS Gage
696	Junction	None	Uwaharrie Conf	Junction
700	Reservoir	OCL	Tillery Reservoir	Reservoir
701	Junction	None	Tillery Spillway	Junction
704	Junction	OCL	Little R nr Star Gage 02128000	USGS Gage
705	Demand	None	Montgomery 03-62-010	Demand
706	Junction	None	Troy and Biscoe Discharges	Junction
707	Demand	None	Tillery Basin Ag	Demand
710	Junction	None	Tillery Outflow	Junction
715	Demand	None	Norwood 01-84-015	Demand
720	Junction	None	Mont, Mt Gil WW Disharge	Junction
733	Junction	Pattern	Mt Gilead WWTP NC0021105	WWTP Discharge
753	Junction	Pattern	Mooresville Rocky R WWTP NC0046728	WWTP Discharge
755	Junction	OCL	Charlotte IBT	Junction
757	Junction	None	Bleed for Charlotte IBT	Junction
760	Reservoir	OCL	Kannapolis Lake	Reservoir
762	Junction	None	Rocky R at Mooresville Disch	Junction
763	Junction	Pattern	Charlotte Mallard Creek WWTP NC0030210	WWTP Discharge
764	Junction	OCL	Coddle Ck nr Davidson Gage 0212419274	USGS Gage

Node #	Type	Inflow	Name	SubName
770	Reservoir	OCL	Lake Howell	Reservoir
772	Junction	None	Kannapolis Total	Total Withdrawal
775	Demand	None	Kannapolis 01-80-065	Demand
780	Reservoir	OCL	Lake Fisher	Reservoir
782	Junction	None	Concord Total WD	Total Withdrawal
784	Junction	None	Bradfield Farms Discharge	Junction
785	Demand	None	Concord 01-13-010	Demand
790	Reservoir	OCL	Lake Concord	Reservoir
792	Junction	None	Rocky R - Coddle Ck Conf	Junction
794	Junction	OCL	Rocky R ab Irish Buffalo Cr Gage 0212433550	USGS Gage
798	Junction	OCL	WSACC Total WW	WWTP Discharge
810	Junction	None	Cold Water Creek	Junction
813	Junction	Pattern	Bradfield Farms WWTP NC0064734	WWTP Discharge
820	Reservoir	OCL	Black Run Ck Res.	Reservoir
821	Junction	None	WSACC Discharge	Junction
822	Junction	None	Mount Pleasant Total WD	Total Withdrawal
823	Junction	Pattern	Carolina Stalite Co WW NC0080586	WWTP Discharge
825	Demand	None	Mount Pleasant 01-13-020	Demand
826	Junction	OCL	Mount Pleasant - Dutch Buffalo Creek Intake	Junction
836	Junction	None	Albermarle WWTP Long Ck	Junction
840	Reservoir	OCL	Lake Monroe	Reservoir
842	Junction	None	Rocky R - Dutch Buffalo Ck Conf	Junction
844	Junction	None	WSACC WW Ret_Muddy Ck	Junction
845	Demand	None	Flowe Farms 0838-0001	Demand
846	Junction	OCL	Rocky R - Clear Ck Conf	Junction
850	Reservoir	OCL	Lake Lee	Reservoir
852	Junction	None	Monroe Total	Total Withdrawal
853	Junction	Pattern	AquaNC Country Wood WWTP NC0065684	WWTP Discharge
855	Demand	None	Monroe 01-90-010	Demand
856	Junction	OCL	Rich Ck - ATI Allvac Intake	Junction
857	Junction	None	Monroe WWTP	Junction
858	Junction	None	Rocky R - Goose Ck Conf	Junction
860	Reservoir	OCL	Lake Twitty	Reservoir
863	Junction	Pattern	Union Co. Crooked Ck WWTP NC0069841	WWTP Discharge
865	Junction	OCL	Union Co. IBT	Junction
866	Junction	None	Richardson Ck at Lake Twitty Outflow	Junction
867	Junction	None	Union County IBT Bleed	Junction
868	Junction	None	Rocky R - Crooked Creek Conf	Junction
870	Reservoir	OCL	Monroe Quarry	Reservoir
873	Junction	Pattern	Carolina WS - Hemby WWTP NC0035041	WWTP Discharge
874	Junction	OCL	Big Bear Cr nr Richfield Gage 02125000	USGS Gage
875	Demand	None	ATI Allvac Demand 0338-0001	Demand
876	Junction	OCL	Big Bear Ck - Long Ck Conf	Junction
880	Junction	None	Rocky R - Big Bear Ck Conf	Junction
883	Junction	Pattern	Union Co. Proposed WRF	WWTP Discharge
885	Demand	None	Hedrick Aquadale Quarry 0356-0003	Demand
890	Junction	None	Rocky R - Richardson Ck Conf.	Junction
893	Junction	Pattern	Stanly Co West Stanly WWTP NC0043532	WWTP Discharge
894	Junction	OCL	Rocky River at Norwood Gage 02126000	USGS Gage
896	Junction	None	Norwood WW Disharge	Junction
900	Junction	None	Rocky R Conf	Junction
903	Junction	Pattern	Troy WWTP NC0028916	WWTP Discharge
904	Junction	OCL	Brown Ck nr Polkton Gage 02127000	USGS Gage
907	Junction	None	Brown Ck Conf	Junction
908	Junction	None	Little R Conf	Junction

Node #	Type	Inflow	Name	SubName
910	Junction	None	Big Mtn Creek Conf	Junction
913	Junction	Pattern	Biscoe WWTP NC0021504	WWTP Discharge
915	Demand	None	Hedrick Norman Sand Co Demand 0356-0004	Demand
920	Reservoir	OCL	Blewett Falls Reservoir	Reservoir
921	Junction	None	Blewett Falls Spillway	Junction
922	Junction	None	Richmond Co. Total WD	Total Withdrawal
925	Demand	None	Richmond Co. 03-77-109	Demand
927	Demand	None	Blewett Falls Basin Ag	Demand
930	Junction	None	Blewett Falls Outflow	Junction
934	Junction	OCL	Pee Dee R nr Rockingham Gage 02129000	USGS Gage
935	Demand	None	Duke - Smith Energy Complex (Net WD)	Demand
945	Demand	None	Hedrick G&S Mine 0420-0003	Demand
950	Reservoir	OCL	Roberdel Lake	Reservoir
952	Junction	None	Rockingham Total WD	Total Withdrawal
955	Demand	None	Rockingham 03-77-015	Demand
960	Junction	OCL	City Pond Intake	Junction
963	Junction	Pattern	Burlington Ind WW NC0043320	WWTP Discharge
968	Junction	OCL	Anson Co. Regional WWTP	WWTP Discharge
969	Junction	None	Rockingham WWTP	Junction
971	Junction	None	Hitchcock Ck Conf	Junction
972	Junction	None	Anson Total WD	Total Withdrawal
974	Junction	None	Jones Creek Conf	Junction
975	Demand	None	Anson Co. 03-04-010	Demand
980	Reservoir	OCL	Hamlet Water Lake	Reservoir
982	Junction	None	Hamlet Total	Total Withdrawal
984	Junction	OCL	Pee Dee R at State Line (Marks Creek)	Junction
985	Demand	None	Hamlet 03-77-010	Demand
987	Demand	None	Pee Dee Basin at State Line Ag	Demand
988	Junction	None	Hamlet Discharge	Junction
990	Reservoir	None	Time of Travel to Peedee gage	Time of Travel Res
994	Junction	OCL	Pee Dee R at Peedee Gage 02131000	USGS Gage
999	Junction	None	Terminal	Junction
1005	Demand	None	APAC Candor Sand Plant 0865-0001	Demand
1014	Junction	OCL	Drowning Ck nr Hoffman Gage 02133500	USGS Gage
1025	Demand	None	Southern Pines 03-63-010	Demand
1028	Junction	OCL	Moore County WPCF WWTP	WWTP Discharge
1030	Junction	None	Drowning Ck ds MCPU WW	Junction
1040	Junction	None	McCain WW Disch	Junction
1050	Junction	OCL	Cascades Wagram Intake	Junction
1055	Demand	None	Cascades Wagram Plant 0095-0001	Demand
1093	Junction	Pattern	Laurinburg-Maxton Airport WWTP NC0044725	WWTP Discharge
1104	Junction	OCL	Lumber R nr Maxton Gage 02133624	USGS Gage
1107	Demand	None	Lumber Maxton Ag	Demand
1113	Junction	Pattern	Robeson Co Maxton WTP NC0048577	WWTP Discharge
1123	Junction	Pattern	Pembroke WWTP NC0027103	WWTP Discharge
1126	Junction	None	Pembroke Discharge	Junction
1143	Junction	Pattern	Red Springs WWTP NC0025577	WWTP Discharge
1200	Junction	OCL	Covia Marston Facility Intake	Junction
1204	Junction	OCL	Big Shoe Heel Ck nr Laurinburg Gage 02132320	USGS Gage
1205	Demand	None	Covia Marston Facility 0194-0004	Demand
1210	Junction	OCL	Gum Swamp Ck at State Line	Junction
1213	Junction	Pattern	Laurinburg Leith Ck WWTP NC0020656	WWTP Discharge
1217	Demand	None	Gum Swamp SL Ag	Demand
1223	Junction	Pattern	Plinkington Inc WWTP NC0049514	WWTP Discharge
1233	Junction	Pattern	Maxton WWTP NC0027120	WWTP Discharge

Node #	Type	Inflow	Name	SubName
1240	Junction	None	Big Shoe Ck ds Maxton	Junction
1243	Junction	Pattern	Rowland WWTP NC0069612	WWTP Discharge
1250	Junction	OCL	Big Shoe Heel Ck at State Line	Junction
1257	Demand	None	Big Shoe Heel Basin Ag at State Line Ag	Demand
1260	Junction	None	Rowland Discharge	Junction
1300	Junction	OCL	Lumberton Intake	Junction
1304	Junction	OCL	Lumberton R at Lumberton Gage 02134170	USGS Gage
1315	Demand	None	Lumberton 03-78-010	Demand
1320	Junction	OCL	Lumberton WW Disch	Junction
1323	Junction	Pattern	Lumberton Energy Holdings LLC NC0004618	WWTP Discharge
1325	Demand	None	Duke Weatherspoon Plant 0033-0010	Demand
1330	Junction	None	Duke Weatherspoon Discharge	Junction
1403	Junction	Pattern	Parkton WWTP NC0026921	WWTP Discharge
1413	Junction	Pattern	St Pauls WWTP NC0020095	WWTP Discharge
1433	Junction	Pattern	Bladenboro WWTP NC0026352	WWTP Discharge
1434	Junction	OCL	Big Swamp nr Tarheel Gage 02134480	USGS Gage
1504	Junction	OCL	Lumber R at Boardman Gage 02134500	USGS Gage
1507	Demand	None	Lumber Boardman Gage Ag	Demand
1523	Junction	Pattern	Fairmont Regional WWTP NC0086550	WWTP Discharge
1600	Junction	OCL	Lumber R at State Line	Junction
1610	Junction	None	Fairmont Discharge	Junction
1694	Junction	OCL	Little Pee Dee R at Galivants Ferry Gage 02135000	USGS Gage
1699	Junction	None	Little Pee Dee Terminal	Junction
1703	Junction	Pattern	Clarkton WWTP NC0021610	WWTP Discharge
1713	Junction	Pattern	Whiteville WRF NC0021920	WWTP Discharge
1723	Junction	Pattern	Chadbourne WWTP NC0021865	WWTP Discharge
1730	Reservoir	OCL	Lake Waccamaw	Reservoir
1743	Junction	Pattern	Lake Waccamaw WWTP NC0021881	WWTP Discharge
1750	Junction	None	White Marsh - Waccamaw Conf.	Junction
1754	Junction	OCL	Waccamaw R at Freeland Gage 02109500	USGS Gage
1757	Demand	None	Waccamaw R Freeland Gage Ag	Demand
1763	Junction	Pattern	Tabor City WWTP NC0026000	WWTP Discharge
1766	Junction	None	Tabor City Discharge	Junction
1770	Junction	OCL	Waccamaw R at State Line	Junction
1773	Junction	Pattern	Carolina Shores WWTP NC0044873	WWTP Discharge
1774	Junction	OCL	Waccamaw R nr Longs Gage 02110500	USGS Gage
1799	Junction	None	Waccamaw Terminal	Junction

Model Arcs

U/S Node	D/S Node	Name	Min Flow	Max Flow	Type
004	005	Blue Ridge WD	None	None	Surface Water WD
004	009	4>9	None	None	Normal Arc
005	009	Blue Ridge WWTP NC0006254	None	None	WWTP Discharge
009	010	9>10	None	None	Normal Arc
010	007	Kerr Scott Basin Ag WD	None	None	Surface Water WD
010	011	KS Spill 1	None	None	Normal Arc
010	012	Kerr Scott Turbine Discharge	OCL	OCL	Normal Arc
010	045	Wilkes Co. Proposed Kerr Scott WD	None	None	Surface Water WD
011	012	KS Spill 2	None	None	Normal Arc
012	016	12>20	None	None	Normal Arc
014	009	14>9	None	None	Normal Arc
016	020	090>100	None	None	Normal Arc

U/S Node	D/S Node	Name	Min Flow	Max Flow	Type
020	022	Wilkesboro WD	None	None	Surface Water WD
020	044	20>44	None	None	Normal Arc
022	025	Wilkesboro Demand	None	None	WD to Demand Node
022	035	Wilkesboro>N. Wilkesboro Emer IC	None	None	Emergency Interconnect
024	030	24>30	None	None	Normal Arc
025	050	Wilkesboro WWTP NC0021717	None	None	WWTP Discharge
030	032	North Wilkesboro WD	None	None	Surface Water WD
030	044	30>44	None	None	Normal Arc
032	025	North Wilkesboro>Wilkesboro Emer IC	None	None	Emergency Interconnect
032	035	North Wilkesboro Demand	None	None	WD to Demand Node
035	050	North Wilkesboro WWTP NC0020761	None	None	WWTP Discharge
044	050	44>50	None	None	Normal Arc
050	055	Louisiana Pacific WD	None	None	Surface Water WD
050	060	50>60	None	None	Normal Arc
055	060	Louisiana Pacific WWTP NC000526	None	None	WWTP Discharge
060	070	60>70	None	None	Normal Arc
064	070	64>70	None	None	Normal Arc
065	120	Duvaltex (fmrly TrueText) WWTP NC0005312	None	None	WWTP Discharge
070	100	70>090	None	None	Normal Arc
072	075	Elkin Demand	None	None	WD to Demand Node
072	115	Elkin>Jonesville Emer IC	None	None	Emergency Interconnect
075	118	Elkin WW to YVSA	None	None	WWTP Discharge
080	072	Elkin WD	None	None	Surface Water WD
080	104	70>114	None	None	Normal Arc
100	104	100>114	None	None	Normal Arc
100	112	Jonesville WD	None	None	Surface Water WD
104	065	Duvaltext (fmrly True Textiles) WD	None	None	Surface Water WD
104	072	Elkin Emergency WD	None	None	Surface Water WD
104	120	104>120	None	None	Normal Arc
112	075	Jonesville>Elkin Emer IC	None	None	Emergency Interconnect
112	115	Jonesville Demand	None	None	WD to Demand Node
114	120	114>120	None	None	Normal Arc
115	118	Jonesville WW to YVSA	None	None	WWTP Discharge
118	120	YVSA WWTP NC0020567	None	None	WWTP Discharge
120	155	120>155	None	None	Normal Arc
130	135	Dobson WD	None	None	Surface Water WD
130	140	130>140	None	None	Normal Arc
135	154	Dobson WWTP NC0021326	None	None	WWTP Discharge
140	154	140>154	None	None	Normal Arc
143	140	Wayne Farms WWTP	None	None	WWTP Discharge
154	155	154>155	None	None	Normal Arc
155	165	155>165	None	None	Normal Arc
163	165	Boonville WWTP	None	None	WWTP Discharge
165	210	165>210	None	None	Normal Arc
170	182	Mt. Airy S.L. Spencer WD	None	None	Surface Water WD
170	188	Allred Mill Res. Outflow	None	None	Normal Arc
180	182	Mt. Airy F.G. Dogget WD	None	None	Surface Water WD
180	188	J.K. Boyd Res. Outflow	None	None	Normal Arc
182	135	MtAiry>Dobson IC	None	OCL	Regular Interconnect
182	185	Mt Airy Demand	None	None	WD to Demand Node
185	188	Mt Airy WWTP NC0021121	None	None	WWTP Discharge

U/S Node	D/S Node	Name	Min Flow	Max Flow	Type
188	194	188>194	None	None	Normal Arc
190	205	Pilot Mountain WD	None	None	Surface Water WD
190	206	190>206	None	None	Normal Arc
194	206	194>206	None	None	Normal Arc
205	190	Pilot Mt WTP NC0068365	None	None	WTP Process Discharge
205	206	Pilot Mt WWTP NC0026646	None	None	WWTP Discharge
206	210	206>210	None	None	Normal Arc
210	220	210>220	None	None	Normal Arc
214	220	214>220	None	None	Normal Arc
220	230	220>340	None	None	Normal Arc
230	340	340>341	None	None	Normal Arc
230	345	King WD	None	None	Surface Water WD
250	252	Statesville WD	None	Pattern	Surface Water WD
250	284	250>284	None	None	Normal Arc
251	255	Catawba IBT to Statesville	None	None	Surface Water WD
251	257	Bleed for Statesville IBT	None	None	Normal Arc
252	255	Statesville Demand	None	None	WD to Demand Node
252	465	Statesville>Salisbury Emer IC	None	None	Emergency Interconnect
255	324	Statesville Third Ck WWTP NC0020591	None	None	WWTP Discharge
255	328	Statesville Fourth Ck WWTP NC0031836	None	None	WWTP Discharge
273	275	Tyson Poultry WWTP	None	None	WWTP Discharge
274	275	274>275	None	None	Normal Arc
275	280	275>276	None	None	Normal Arc
280	290	276>290	None	None	Normal Arc
280	292	Mocksville WD	None	None	Surface Water WD
284	290	284>290	None	None	Normal Arc
290	300	290>300	None	None	Normal Arc
292	295	Mocksville Demand	None	None	WD to Demand Node
292	375	Mocksville>DavieCo Emer IC	None	None	Emergency Interconnect
295	280	Mocksville WTP NC0089290	None	None	WTP Process Discharge
295	440	Mocksville Dutch Ck WWTP NC0021491	None	None	WWTP Discharge
300	330	300>330	None	None	Normal Arc
300	372	Davie Co Cooleemee WD	None	None	Surface Water WD
313	328	Cleveland WWTP	None	None	WWTP Discharge
320	334	325>334	None	None	Normal Arc
320	760	Kannapolis Back Ck WD	None	OCL	Surface Water WD
323	334	Edge Water Treating (fmrly Durafiber) WW	None	None	WWTP Discharge
324	328	324>328	None	None	Normal Arc
328	330	320>330	None	None	Normal Arc
330	346	330>346	None	None	Normal Arc
334	346	334>346	None	None	Normal Arc
340	344	341>344	None	None	Normal Arc
340	382	Winston-Salem P.W. Swann WD	None	None	Surface Water WD
344	360	344>360	None	None	Normal Arc
345	230	King WTP NC0088897	None	None	WTP Process Discharge
346	450	346>450	None	None	Normal Arc
350	354	5-D Reservoir outflow	None	None	Normal Arc
354	355	Yadkinville WD	None	None	Surface Water WD
354	360	354>360	None	None	Normal Arc
355	360	Yadkinville WWTP NC0020338	None	None	WWTP Discharge
360	370	360>365	None	None	Normal Arc

U/S Node	D/S Node	Name	Min Flow	Max Flow	Type
370	372	Davie Co Sparks Rd WD	None	None	Surface Water WD
370	386	365>385	None	None	Normal Arc
372	295	Davie Co >Mocks Emer IC	None	None	Emergency Interconnect
372	375	Davie Co Demand	None	None	WD to Demand Node
373	386	Bermuda Run WWTP	None	None	WWTP Discharge
375	330	Davie Co WWTP NC0024872	None	None	WWTP Discharge
375	370	Davie Co Sparks Rd WTP NC0084212	None	None	WTP Process Discharge
380	382	Winston-Salem R.A. Thomas WD	None	None	Surface Water WD
380	394	Salem Lake Outflow	OCL	None	Normal Arc
382	345	Winston-Salem>King Emer IC	None	None	Emergency Interconnect
382	391	Winston-Salem>Greensboro IBT IC	None	OCL	Regular Interconnect
382	395	Winston-Salem Demand	None	None	WD to Demand Node
382	425	Winston-Salem>Davidson Water Emer IC	None	None	Emergency Interconnect
386	382	Winston-Salem R.W. Neilson WD	None	None	Surface Water WD
386	390	385>390	None	None	Normal Arc
390	400	390>400	None	None	Normal Arc
394	390	394>390	None	None	Normal Arc
395	340	Swann WTP Return	None	None	WTP Process Discharge
395	380	Winston-Salem R.A. Thomas WTP NC0079821	None	None	WTP Process Discharge
395	386	Winston-Salem R.W. Neilson WTP NC0086011	None	None	WTP Process Discharge
395	390	Winston-Salem Muddy Ck WWTP NC0050342	None	None	WWTP Discharge
395	394	Winston-Salem Archie E WWTP NC0037834	None	None	WWTP Discharge
400	422	Davidson Water WD	None	None	Surface Water WD
400	434	400>434	None	None	Normal Arc
422	395	Davidson Water>Winston-Salem Emer IC	None	None	Emergency Interconnect
422	425	Davidson Water Demand	None	None	WD to Demand Node
422	435	Davidson Water>High Point IBT IC	None	OCL	Regular Interconnect
422	555	Davidson Water-Thomasville Emer IC	None	None	Emergency Interconnect
422	565	Davidson Water-Lexington Emer IC	None	None	Emergency Interconnect
425	400	Davidson Water WTP NC0084425	None	None	WTP Process Discharge
434	440	434>440	None	None	Normal Arc
435	425	High Point>Davidson Water IBT Emer IC	None	None	Emergency Interconnect
435	437	Bleed for High Pt IBT	None	None	Normal Arc
440	450	440>450	None	None	Normal Arc
450	462	Salisbury WD	None	None	Surface Water WD
450	500	450>500	None	None	Normal Arc
462	255	Salisbury>Statesville Emer IC	None	None	Emergency Interconnect
462	465	Salisbury Demand	None	None	WD to Demand Node
462	775	Salisbury>Kannapolis Emer IC	None	None	Emergency Interconnect
465	500	Salisbury WWTP NC0023884	None	None	WWTP Discharge
500	525	Duke Buck WD	None	None	Surface Water WD
500	590	500>590	None	None	Normal Arc

U/S Node	D/S Node	Name	Min Flow	Max Flow	Type
503	590	Norfolk Southern WWTP	None	None	WWTP Discharge
513	590	PPG WWTP	None	None	WWTP Discharge
552	425	Thomasville>DavidsonWater Emer IC	None	None	Emergency Interconnect
552	435	Thomasville>High Point IBT Emer IC	None	None	Emergency Interconnect
552	555	Thomasville Demand	None	None	WD to Demand Node
555	560	Thomasville WTP NC0088200	None	None	WTP Process Discharge
555	574	Thomasville WWTP NC0024112	None	None	WWTP Discharge
560	552	Thomasville WD	None	None	Surface Water WD
560	562	Lexington Thom-a-Lex WD	None	None	Surface Water WD
560	574	560>574	None	None	Normal Arc
562	425	Lexington>DavidsonW Emer IC	None	None	Emergency Interconnect
562	565	Lexington Demand	None	None	WD to Demand Node
565	574	Lexington WTP NC0028037	None	None	WTP Process Discharge
565	577	Lexington WWTP NC0055786	None	None	WWTP Discharge
570	562	Lexington City Lake WD	None	None	Surface Water WD
570	574	City Lake (Lexington) Outflow	None	None	Normal Arc
573	560	High Point WWTP	None	None	WWTP Discharge
574	577	574>577	None	None	Normal Arc
577	590	577>590	None	None	Normal Arc
590	591	High Rock Spill 1	None	None	Normal Arc
590	597	High Rock Basin Ag WD	None	None	Surface Water WD
590	600	High Rock Turbine Discharge	OCL	Pattern	Normal Arc
591	600	High Rock Spill 2	None	None	Normal Arc
600	610	600>610	None	None	Normal Arc
610	611	Tuckertown Spill 1	None	None	Normal Arc
610	615	Denton WD	None	None	Surface Water WD
610	617	Tuckertown Basin Ag WD	None	None	Surface Water WD
610	622	Albemarle Jack F Neel WD	None	None	Surface Water WD
610	630	Tuckertown Turbine Discharge	None	Pattern	Normal Arc
611	630	Tuckertown Spill 2	None	None	Normal Arc
615	610	Denton WWTP NC0026689	None	None	WWTP Discharge
622	625	Albemarle Demand	None	None	WD to Demand Node
622	785	Albermarle>Concord IC	None	OCL	Regular Interconnect
625	610	Albemarle Tuckertown WTP NC0075701	None	None	WTP Process Discharge
625	836	Albemarle WWTP NC0024244	None	None	WWTP Discharge
630	640	630>640	None	None	Normal Arc
640	622	Albemarle US 52 HWY WD	None	None	Surface Water WD
640	641	Narrows Spill 1	None	None	Normal Arc
640	647	Narrows Basin Ag WD	None	None	Surface Water WD
640	650	Narrows Turbine Discharge	None	Pattern	Normal Arc
641	650	Narrows Spill 2	None	None	Normal Arc
650	660	650>660	None	None	Normal Arc
653	640	Badin Business Park WWTP	None	None	WWTP Discharge
660	661	Falls Spill 1	None	None	Normal Arc
660	664	Falls Turbine Discharge	OCL	Pattern	Normal Arc
660	667	Falls Ag Withdrawal	None	None	Surface Water WD
661	664	Falls Spill 2	None	None	Normal Arc
663	700	663>660	None	None	Normal Arc
664	696	664>696	None	None	Normal Arc
670	685	Asheboro Lake Lucas WD	None	None	Surface Water WD

U/S Node	D/S Node	Name	Min Flow	Max Flow	Type
670	686	Lake Lucas Outflow	Pattern	None	Normal Arc
676	680	Lake McCrary Outflow	None	None	Normal Arc
680	685	Asheboro Lake Bunch WD	None	None	Surface Water WD
680	686	Lake Bunch Outflow	None	None	Normal Arc
686	694	686>694	None	None	Normal Arc
690	685	Asheboro Lake Reese WD	None	None	Surface Water WD
690	686	Lake Reese Outflow	Pattern	None	Normal Arc
694	696	688>694	None	None	Normal Arc
696	700	694>700	None	None	Normal Arc
700	701	Tillery Spill 1	None	None	Normal Arc
700	705	Montgomery WD	None	None	Surface Water WD
700	707	Tillery Basin Ag WD	None	None	Surface Water WD
700	710	Tillery Turbine Discharge	OCL	Pattern	Normal Arc
700	715	Norwood WD	None	None	Surface Water WD
700	865	Union Co. Future IBT WD	None	OCL	Surface Water WD
701	710	Tillery Spill 2	None	None	Normal Arc
704	706	704>706	None	None	Normal Arc
706	908	706>902	None	None	Normal Arc
710	720	710>720	None	None	Normal Arc
715	896	Norwood WWTP NC0021628	None	None	WWTP Discharge
720	900	720>900	None	None	Normal Arc
733	720	Mt Gilead WWTP	None	None	WWTP Discharge
753	762	Mooresville WWTP	None	None	WWTP Discharge
755	757	Bleed for Charlotte IBT	None	None	Normal Arc
755	785	Charlotte>Concord IBT IC	None	OCL	Regular Interconnect
760	772	Kannapolis - Kann. Lake WD	None	None	Surface Water WD
760	821	Kannapolis Lake Outflow	None	None	Normal Arc
762	792	762>790	None	None	Normal Arc
763	792	Charlotte Mallard Ck WWTP	None	None	WWTP Discharge
764	770	764>770	None	None	Normal Arc
770	772	Kannapolis Lake Howell WD	None	OCL	Surface Water WD
770	782	Concord Lake Howell WD	None	OCL	Surface Water WD
770	784	Lake Howell Outflow	None	None	Normal Arc
772	775	Kannapolis Demand	None	None	WD to Demand Node
772	785	Kannapolis>Concord IC	None	OCL	Regular Interconnect
775	798	Kannapolis WW to WSACC	None	None	WWTP Discharge
775	821	Kannapolis WTP NC0006220	None	None	WTP Process Discharge
780	782	Concord Hillgrove WD (Lake Fisher)	None	None	Surface Water WD
780	810	Lake Fischer Outflow	None	None	Normal Arc
782	755	Concord>Charlotte IBT IC	None	OCL	Regular Interconnect
782	775	Concord>Kannapolis IC	None	OCL	Regular Interconnect
782	785	Concord Demand	None	None	WD to Demand Node
782	825	Concord>MtPleasant Emer IC	None	None	Emergency Interconnect
784	792	784>790	OCL	None	Normal Arc
785	784	Concord Coddle Ck WTP NC0083119	None	None	WTP Process Discharge
785	798	Concord WW to WSACC	None	None	WWTP Discharge
790	782	Concord Hillgrove WD (Lake Concord)	None	None	Surface Water WD
790	810	Lake Concord Outflow	None	None	Normal Arc
792	794	790>794	None	None	Normal Arc
794	821	794>822	None	None	Normal Arc
798	821	WSACC Rocky River WWTP NC0036269	None	None	WWTP Discharge
798	844	WSACC Muddy Ck WW	None	Pattern	WWTP Discharge

U/S Node	D/S Node	Name	Min Flow	Max Flow	Type
810	821	810>822	None	None	Normal Arc
813	821	Bradfield Farms WWTP	None	None	WWTP Discharge
820	826	Black Run Ck Res. Outflow	Pattern	None	Normal Arc
821	842	822>842	None	None	Normal Arc
822	785	Mount Pleasant>Concord Emer IC	None	None	Emergency Interconnect
822	825	Mount Pleasant Demand	None	None	WD to Demand Node
823	836	Carolina Stalite WWTP - Long Creek	None	None	WWTP Discharge
825	798	Mount Pleasant WW to WSACC	None	None	WWTP Discharge
826	822	Mount Pleasant Dutch Buffalo Ck WD	None	None	Surface Water WD
826	842	826>842	None	None	Normal Arc
836	876	Long Creek	None	None	Normal Arc
840	850	Lake Monroe Outflow	None	None	Normal Arc
842	844	842>844	None	None	Normal Arc
844	846	842>846	None	None	Normal Arc
846	845	Flowe Farms WD	None	None	Surface Water WD
846	858	846>852	None	None	Normal Arc
850	856	Lake Lee Outflow	None	None	Normal Arc
850	860	Lake Lee to Lake Twitty	None	None	Normal Arc
852	855	Monroe Demand	None	None	WD to Demand Node
852	865	Monroe>UnionCo Emer IC	None	None	Emergency Interconnect
853	858	AquaNC WWTP	None	None	WWTP Discharge
855	857	Monroe WWTP NC0024333	None	None	WWTP Discharge
855	860	Monroe WTP NC0080381	None	None	WTP Process Discharge
856	857	851>857	None	None	Normal Arc
856	875	Teledyne Allvac WD	None	None	Surface Water WD
857	866	857>866	None	None	Normal Arc
858	868	852>868	None	None	Normal Arc
860	852	Monroe Lake Twitty WD	None	None	Surface Water WD
860	866	Lake Twitty Outflow	None	None	Normal Arc
863	868	Union Co Crooked Ck WWTP	None	None	WWTP Discharge
865	855	UnionCo>Monroe IBT IC	None	OCL	Regular Interconnect
865	867	Union Co IBT- for bleed	None	None	Normal Arc
866	890	866>890	None	None	Normal Arc
868	880	868>880	None	None	Normal Arc
870	852	Monroe Quarry WD	None	None	Surface Water WD
870	860	Monroe Quarry outflow	None	None	Normal Arc
873	858	Carolina WS - Hemby WWTP	None	None	WWTP Discharge
874	876	874>879	None	None	Normal Arc
875	857	ATI Allvac WWTP NC0045993	None	None	WWTP Discharge
876	880	879>880	None	None	Normal Arc
876	885	Hendrick Aquadal Quarry WD	None	None	Surface Water WD
880	890	880>890	None	None	Normal Arc
883	868	Union Co. Proposed WRF	None	None	WWTP Discharge
885	880	Hendrick Aquadale Quarry WW NC0028169	None	None	WWTP Discharge
890	894	890>894	None	None	Normal Arc
893	876	Oakboro WWTP	None	None	WWTP Discharge
894	896	894>896	None	None	Normal Arc
896	900	896>900	None	None	Normal Arc
900	907	900>902	None	None	Normal Arc
903	706	Troy WWTP	None	None	WWTP Discharge
904	907	904>907	None	None	Normal Arc
907	908	907>908	None	None	Normal Arc

U/S Node	D/S Node	Name	Min Flow	Max Flow	Type
908	910	902>910	None	None	Normal Arc
910	915	Hedrick NS WD	None	None	Surface Water WD
910	920	910>920	None	None	Normal Arc
913	706	Biscoe WWTP	None	None	WWTP Discharge
920	921	Blewett Spill 1	None	None	Normal Arc
920	922	Richmond WD	None	None	Surface Water WD
920	927	Blewett Basin Ag WD	None	None	Surface Water WD
920	930	Blewett Turbine Discharge	OCL	Pattern	Normal Arc
920	935	Duke Smith WD	None	None	Surface Water WD
920	972	Anson WD	None	None	Surface Water WD
921	930	Blewett Spill 2	None	None	Normal Arc
922	925	Richmond Co WD	None	None	WD to Demand Node
922	955	RichmondCo>Rockingham IC	None	OCL	Regular Interconnect
922	985	RichmondCo>Hamlet Emer IC	None	None	Emergency Interconnect
930	934	930>934	None	None	Normal Arc
930	945	BV G&S WD	None	None	Surface Water WD
934	971	934>972	None	None	Normal Arc
950	952	Rockingham Roberdel Lake WD	None	None	Surface Water WD
950	969	Roberdel Lake Outflow	None	None	Normal Arc
952	925	Rockingham>RichmondCo Emer IC	None	None	Emergency Interconnect
952	955	Rockingham Demand	None	None	WD to Demand Node
952	985	Rock>Ham Emer IC	None	None	Emergency Interconnect
955	969	Rockingham WWTP NC0020427	None	None	WWTP Discharge
960	952	Rockingham City Pond WD	None	None	Surface Water WD
960	969	960>962	None	None	Normal Arc
963	971	Burlington Ind WWTP	None	None	WWTP Discharge
968	974	Anson Co. Regional WWTP NC0041408	None	None	WWTP Discharge
969	971	962>972	None	None	Normal Arc
971	974	972>974	None	None	Normal Arc
972	865	AnsonCo>UnionCo IC	None	OCL	Regular Interconnect
972	925	Anson>Richmond IC	None	OCL	Regular Interconnect
972	975	Anson Demand	None	None	WD to Demand Node
974	984	974>984	None	None	Normal Arc
975	934	Anson Co. WTP NC0074390	None	None	WTP Process Discharge
975	968	AnsonCo WW to AnsonCo Regional WWTP	None	None	WWTP Discharge
980	982	Hamlet WD	None	None	Surface Water WD
980	988	Water Lake Outflow	None	None	Normal Arc
982	925	Hamlet>Richmond Co Emer IC	None	None	Emergency Interconnect
982	955	Hamlet>Rockingham Emer IC	None	None	Emergency Interconnect
982	985	Hamlet Demand	None	None	WD to Demand Node
984	987	Pee Dee Basin Ag at State Line WD	None	None	Surface Water WD
984	990	984>990	None	None	Normal Arc
985	988	Hamlet WWTP NC0047562	None	None	WWTP Discharge
988	984	983>984	None	None	Normal Arc
990	994	990>994	None	None	Normal Arc
994	999	994>999	None	None	Normal Arc
1014	1005	Candor Sand Plant WD	None	None	Surface Water WD
1014	1025	Southern Pines WD	None	None	Surface Water WD
1014	1030	1014>1030	None	None	Normal Arc
1025	1028	Southern Pines WW to MCPU	None	None	WWTP Discharge

U/S Node	D/S Node	Name	Min Flow	Max Flow	Type
1025	1030	Southern Pines WTP WW NC0049778	None	None	WTP Process Discharge
1028	1030	Moore County WPCF NC0037508	None	None	WWTP Discharge
1030	1040	1030>1040	None	None	Normal Arc
1040	1050	1040>1050	None	None	Normal Arc
1050	1055	Cascades - Wagram WD	None	None	Surface Water WD
1050	1104	1050>1104	None	None	Normal Arc
1093	1104	Laurinburg Industrial WWTP	None	None	WWTP Discharge
1104	1107	Lumber Maxton Gage Ag WD	None	None	Surface Water WD
1104	1126	1104>1126	None	None	Normal Arc
1113	1104	Robeson Co Maxton WTP	None	None	WTP Process Discharge
1123	1126	Pembroke WWTP	None	None	WWTP Discharge
1126	1300	1126>1140	None	None	Normal Arc
1143	1300	Red Springs WWTP	None	None	WWTP Discharge
1200	1205	Covia Marston WD	None	None	Surface Water WD
1200	1210	1200>1210	None	None	Normal Arc
1204	1240	1204>1240	None	None	Normal Arc
1210	1217	Gum Swamp Basin Ag at State Line WD	None	None	Surface Water WD
1210	1694	1210>1694	None	None	Normal Arc
1213	1240	Laurinburg Leith Ck WWTP	None	None	WWTP Discharge
1223	1240	Plinkington WWTP	None	None	WWTP Discharge
1233	1240	Maxton WWTP	None	None	WWTP Discharge
1240	1250	1240>1250	None	None	Normal Arc
1243	1260	Rowland WWTP	None	None	WWTP Discharge
1250	1257	Big Shoe Heel Basin Ag at State Line WD	None	None	Surface Water WD
1250	1260	1250>1260	None	None	Normal Arc
1260	1694	1260>1694	None	None	Normal Arc
1300	1304	1300>1304	None	None	Normal Arc
1300	1315	Lumberton WD	None	None	Surface Water WD
1304	1320	1304>1320	None	None	Normal Arc
1315	1320	Lumberton WWTP NC0024571	None	None	WWTP Discharge
1320	1325	Duke Weatherspoon WD	None	None	Surface Water WD
1320	1330	1320>1330	None	None	Normal Arc
1323	1330	Lumberton Energy Holdings WW	None	None	WWTP Discharge
1325	1330	Duke Weatherspoon WW NC0005363	None	None	WWTP Discharge
1330	1504	1330>1504	None	None	Normal Arc
1403	1434	Parkton WWTP	None	None	WWTP Discharge
1413	1434	St Pauls WWTP	None	None	WWTP Discharge
1433	1504	Bladenboro WWTP	None	None	WWTP Discharge
1434	1504	1434>1504	None	None	Normal Arc
1504	1507	Lumber Boardman Gage Ag WD	None	None	Surface Water WD
1504	1600	1504>1600	None	None	Normal Arc
1523	1610	Fairmont Regional WWTP	None	None	WWTP Discharge
1600	1610	1600>1610	None	None	Normal Arc
1610	1694	1610>1694	None	None	Normal Arc
1694	1699	1694>1699	None	None	Normal Arc
1703	1750	Clarkton WWTP	None	None	WWTP Discharge
1713	1750	Whiteville WRF	None	None	WWTP Discharge
1723	1750	Chadbourne WWTP	None	None	WWTP Discharge
1730	1750	Lake Waccamaw Outflow	None	None	Normal Arc
1743	1750	Lake Waccamaw WWTP	None	None	WWTP Discharge
1750	1754	1750>1754	None	None	Normal Arc
1754	1757	Waccamaw Freeland Gage Ag WD	None	None	Surface Water WD
1754	1766	1754>1766	None	None	Normal Arc

U/S Node	D/S Node	Name	Min Flow	Max Flow	Type
1763	1766	Tabor City WWTP	None	None	WWTP Discharge
1766	1770	1766>1770	None	None	Normal Arc
1770	1774	1770>1774	None	None	Normal Arc
1773	1770	Carolina Shores WWTP	None	None	WWTP Discharge
1774	1799	1774>1799	None	None	Normal Arc

Reservoir Nodes

Node Number	Name	Dead Storage	Dead Stor Units	Lower Rule	Upper Rule	Max Storage	Max Stor Units
010	Kerr Scott Reservoir	1000.0	feet	Pattern	Pattern	1105.2	feet
016	Kerr Scott to HR ToT	0.0	af	None	None	1000.0	kaf
170	Allred Mill Reservoir	0.0	MG	None	None	50.0	MG
180	JK Boyd Reservoir	0.0	MG	None	None	300.0	MG
350	5-D Reservoir	0.0	MG	None	None	660.0	MG
380	Salem Lake	0.0	MG	None	None	1045.0	MG
560	Thom-a-Lex Lake	0.0	MG	None	None	1980.0	MG
570	City Lake (Lexington)	0.0	MG	None	None	100.0	MG
590	High Rock Reservoir	599.9	feet	Pattern	Pattern	623.9	feet
610	Tuckertown Reservoir	550.0	feet	Pattern	Pattern	564.7	feet
640	Narrows Reservoir	486.8	feet	Pattern	Pattern	509.8	feet
660	Falls Reservoir	322.8	feet	Pattern	Pattern	332.8	feet
670	Lake Lucas	0.0	MG	None	None	1250.0	MG
676	Lake McCrary	0.0	MG	None	None	40.0	MG
680	Lake Bunch	0.0	MG	None	None	110.0	MG
690	Lake Reese	0.0	MG	None	None	2400.0	MG
700	Tillery Reservoir	259.0	feet	Pattern	Pattern	279.0	feet
760	Kannapolis Lake	700.0	feet	Pattern	Pattern	726.0	feet
770	Lake Howell	615.0	feet	Pattern	Pattern	650.0	feet
780	Lake Fisher	620.0	feet	Pattern	Pattern	646.0	feet
790	Lake Concord	641.0	feet	Pattern	Pattern	658.0	feet
820	Black Run Ck Res.	585.0	feet	Pattern	Pattern	608.0	feet
840	Lake Monroe	510.0	FT	None	None	540.0	FT
850	Lake Lee	510.0	FT	Pattern	Pattern	520.0	FT
860	Lake Twitty	540.0	FT	Pattern	Pattern	576.5	FT
870	Monroe Quarry	0.0	MG	None	None	80.0	MG
920	Blewett Falls Reservoir	168.0	feet	Pattern	Pattern	182.3	feet
950	Roberdel Lake	0.0	MG	None	None	300.0	MG
980	Hamlet Water Lake	0.0	MG	None	None	192.0	MG
990	Tot to PeeDee Gage	0.0	af	None	None	1000.0	kaf
1730	Lake Waccamaw	0.0	MG	None	None	27000.0	MG

Reservoir Rules

Node Number	Name	Units	Month	Day	Upper Rule	Lower Rule
010	Kerr Scott Reservoir	feet	1	1	1030.00	1000.00
010	Kerr Scott Reservoir	feet	12	31	1030.00	1000.00
590	High Rock Reservoir	feet	1	1	623.90	613.90
590	High Rock Reservoir	feet	12	31	623.90	613.90
590	High Rock Reservoir	feet	3	1	623.90	613.90
590	High Rock Reservoir	feet	4	1	623.90	619.90
590	High Rock Reservoir	feet	10	31	623.90	619.90
590	High Rock Reservoir	feet	12	1	623.90	613.90
610	Tuckertown Reservoir	feet	1	1	564.70	563.70
610	Tuckertown Reservoir	feet	12	31	564.70	563.70
640	Narrows Reservoir	feet	1	1	509.80	507.80
640	Narrows Reservoir	feet	12	31	509.80	507.80
660	Falls Reservoir	feet	1	1	332.80	331.80
660	Falls Reservoir	feet	12	31	332.80	331.80
700	Tillery Reservoir	feet	1	1	278.20	277.20
700	Tillery Reservoir	feet	12	31	278.20	277.20
760	Kannapolis Lake	feet	1	1	726.00	712.00
760	Kannapolis Lake	feet	12	31	726.00	712.00
770	Lake Howell	feet	1	1	650.00	630.00
770	Lake Howell	feet	12	31	650.00	630.00
780	Lake Fisher	feet	1	1	646.00	629.00
780	Lake Fisher	feet	12	31	646.00	629.00
790	Lake Concord	feet	1	1	658.00	641.00
790	Lake Concord	feet	12	31	658.00	641.00
820	Black Run Ck Res.	feet	1	1	608.00	585.00
820	Black Run Ck Res.	feet	12	31	608.00	585.00
850	Lake Lee	FT	1	1	520.00	518.00
850	Lake Lee	FT	12	31	520.00	518.00
860	Lake Twitty	FT	1	1	576.50	575.50
860	Lake Twitty	FT	12	31	576.50	575.50
920	Blewett Falls Reservoir	feet	1	1	178.10	175.10
920	Blewett Falls Reservoir	feet	12	31	178.10	175.10

Reservoir SAE Data

Node Number	Name	Elevation	Elevation Units	Storage	Storage Units	Area	Area Units
010	Kerr Scott Reservoir	1000	feet	6958	af	684	acre
010	Kerr Scott Reservoir	1030	feet	36639	af	1312	acre
010	Kerr Scott Reservoir	1075	feet	145532	af	3932	acre
010	Kerr Scott Reservoir	1102.5	feet	306000	af	7240	acre
170	Allred Mill Reservoir	0	feet	0	MG	0	acre
170	Allred Mill Reservoir	1000	feet	50	MG	4	acre
180	JK Boyd Reservoir	0	feet	0	MG	0	acre
180	JK Boyd Reservoir	1030	feet	300	MG	65	acre
350	5-D Reservoir	0	feet	0	MG	0	acre
350	5-D Reservoir	1000	feet	660	MG	100	acre
380	Salem Lake	0	feet	0	MG	0	acre
380	Salem Lake	795.6	feet	1045	MG	365	acre
560	Thom-a-Lex Lake	0	feet	0	MG	0	acre
560	Thom-a-Lex Lake	500	feet	1980	MG	650	acre
570	City Lake (Lexington)	0	feet	0	MG	0	acre
570	City Lake (Lexington)	500	feet	100	MG	10	acre
590	High Rock Reservoir	588.9	feet	9871	af	413	acre
590	High Rock Reservoir	593.9	feet	20500	af	1056	acre
590	High Rock Reservoir	598.9	feet	31910	af	2282	acre
590	High Rock Reservoir	600.9	feet	41093	af	3160	acre
590	High Rock Reservoir	602.9	feet	50276	af	4142	acre
590	High Rock Reservoir	603.9	feet	54867	af	4591	acre
590	High Rock Reservoir	604.9	feet	61341	af	4998	acre
590	High Rock Reservoir	606.9	feet	74288	af	5757	acre
590	High Rock Reservoir	608.9	feet	87236	af	6474	acre
590	High Rock Reservoir	609.9	feet	95469	af	6806	acre
590	High Rock Reservoir	610.9	feet	103703	af	7100	acre
590	High Rock Reservoir	611.9	feet	111936	af	7368	acre
590	High Rock Reservoir	612.9	feet	120170	af	7624	acre
590	High Rock Reservoir	613.9	feet	128403	af	7879	acre
590	High Rock Reservoir	614.9	feet	137975	af	8146	acre
590	High Rock Reservoir	615.4	feet	142761	af	8287	acre
590	High Rock Reservoir	615.9	feet	147547	af	8436	acre
590	High Rock Reservoir	616.4	feet	152333	af	8594	acre
590	High Rock Reservoir	616.9	feet	157118	af	8762	acre
590	High Rock Reservoir	617.4	feet	161904	af	8943	acre
590	High Rock Reservoir	617.9	feet	166690	af	9137	acre
590	High Rock Reservoir	618.4	feet	171476	af	9346	acre
590	High Rock Reservoir	618.9	feet	176262	af	9572	acre

Node Number	Name	Elevation	Elevation Units	Storage	Storage Units	Area	Area Units
590	High Rock Reservoir	619.4	feet	182422	af	9818	acre
590	High Rock Reservoir	619.9	feet	188581	af	10083	acre
590	High Rock Reservoir	620.4	feet	194741	af	10363	acre
590	High Rock Reservoir	620.9	feet	200900	af	10652	acre
590	High Rock Reservoir	621.4	feet	207060	af	10946	acre
590	High Rock Reservoir	621.9	feet	213219	af	11239	acre
590	High Rock Reservoir	622.4	feet	219379	af	11528	acre
590	High Rock Reservoir	622.9	feet	225538	af	11808	acre
590	High Rock Reservoir	623.4	feet	231698	af	12072	acre
590	High Rock Reservoir	623.9	feet	237857	af	12318	acre
590	High Rock Reservoir	624.3	feet	243688	af	12503	acre
590	High Rock Reservoir	630	feet	326780	af	14578	acre
610	Tuckertown Reservoir	566.7	feet	47809	af	2569	acre
610	Tuckertown Reservoir	567.2	feet	49221	af	2612	acre
610	Tuckertown Reservoir	567.7	feet	50632	af	2653	acre
610	Tuckertown Reservoir	568.2	feet	52044	af	2693	acre
610	Tuckertown Reservoir	568.7	feet	53455	af	2731	acre
610	Tuckertown Reservoir	570	feet	57123.6	af	2822	acre
610	Tuckertown Reservoir	509.7	feet	0	af	0	acre
610	Tuckertown Reservoir	518.7	feet	554	af	62	acre
610	Tuckertown Reservoir	528.7	feet	2651	af	210	acre
610	Tuckertown Reservoir	538.7	feet	6966	af	432	acre
610	Tuckertown Reservoir	543.7	feet	10155	af	638	acre
610	Tuckertown Reservoir	548.7	feet	14565	af	882	acre
610	Tuckertown Reservoir	553.7	feet	20739	af	1235	acre
610	Tuckertown Reservoir	558.7	feet	29003	af	1653	acre
610	Tuckertown Reservoir	560.7	feet	33315	af	1886	acre
610	Tuckertown Reservoir	561.2	feet	34393	af	1951	acre
610	Tuckertown Reservoir	561.7	feet	35471	af	2016	acre
610	Tuckertown Reservoir	562.2	feet	36549	af	2082	acre
610	Tuckertown Reservoir	562.7	feet	37627	af	2146	acre
610	Tuckertown Reservoir	563.2	feet	38705	af	2209	acre
610	Tuckertown Reservoir	563.7	feet	39783	af	2270	acre
610	Tuckertown Reservoir	564.2	feet	40973	af	2327	acre
610	Tuckertown Reservoir	564.7	feet	42163	af	2380	acre
610	Tuckertown Reservoir	565.2	feet	43575	af	2430	acre
610	Tuckertown Reservoir	565.7	feet	44986	af	2478	acre
610	Tuckertown Reservoir	566.2	feet	46398	af	2524	acre
640	Narrows Reservoir	473.7	feet	0	af	0	acre
640	Narrows Reservoir	474.7	feet	2598	af	1498	acre

Node Number	Name	Elevation	Elevation Units	Storage	Storage Units	Area	Area Units
640	Narrows Reservoir	475.7	feet	5058	af	2460	acre
640	Narrows Reservoir	476.7	feet	7835	af	2758	acre
640	Narrows Reservoir	477.7	feet	10612	af	2777	acre
640	Narrows Reservoir	478.7	feet	13190	af	2895	acre
640	Narrows Reservoir	479.7	feet	16264	af	2988	acre
640	Narrows Reservoir	480.7	feet	19339	af	3075	acre
640	Narrows Reservoir	481.7	feet	22711	af	3158	acre
640	Narrows Reservoir	482.7	feet	25884	af	3233	acre
640	Narrows Reservoir	483.7	feet	29415	af	3303	acre
640	Narrows Reservoir	484.7	feet	32787	af	3372	acre
640	Narrows Reservoir	485.7	feet	36198	af	3438	acre
640	Narrows Reservoir	486.7	feet	39769	af	3501	acre
640	Narrows Reservoir	487.7	feet	43339	af	3570	acre
640	Narrows Reservoir	488.7	feet	46949	af	3635	acre
640	Narrows Reservoir	489.7	feet	50678	af	3729	acre
640	Narrows Reservoir	490.7	feet	54565	af	3887	acre
640	Narrows Reservoir	491.7	feet	58413	af	4015	acre
640	Narrows Reservoir	492.7	feet	62340	af	4111	acre
640	Narrows Reservoir	493.7	feet	66268	af	4185	acre
640	Narrows Reservoir	494.7	feet	70314	af	4246	acre
640	Narrows Reservoir	495.7	feet	74281	af	4302	acre
640	Narrows Reservoir	496.7	feet	78645	af	4364	acre
640	Narrows Reservoir	497.7	feet	83143	af	4429	acre
640	Narrows Reservoir	498.7	feet	87420	af	4488	acre
640	Narrows Reservoir	499.7	feet	91696	af	4542	acre
640	Narrows Reservoir	500.7	feet	96472	af	4593	acre
640	Narrows Reservoir	501.7	feet	101248	af	4641	acre
640	Narrows Reservoir	502.7	feet	106025	af	4687	acre
640	Narrows Reservoir	503.7	feet	110801	af	4732	acre
640	Narrows Reservoir	504.7	feet	115577	af	4776	acre
640	Narrows Reservoir	505.7	feet	120821	af	4819	acre
640	Narrows Reservoir	506.7	feet	126065	af	4861	acre
640	Narrows Reservoir	507.7	feet	131310	af	4901	acre
640	Narrows Reservoir	508.7	feet	136554	af	4939	acre
640	Narrows Reservoir	509.7	feet	141798	af	4975	acre
640	Narrows Reservoir	509.8	feet	142314	af	4979	acre
640	Narrows Reservoir	520	feet	194946	af	5244	acre
660	Falls Reservoir	318.8	feet	0	af	0	acre
660	Falls Reservoir	319.3	feet	79	af	158	acre
660	Falls Reservoir	319.8	feet	157	af	159	acre

Node Number	Name	Elevation	Elevation Units	Storage	Storage Units	Area	Area Units
660	Falls Reservoir	320.3	feet	235	af	159	acre
660	Falls Reservoir	320.8	feet	313	af	160	acre
660	Falls Reservoir	321.3	feet	395	af	161	acre
660	Falls Reservoir	321.8	feet	476	af	161	acre
660	Falls Reservoir	322.3	feet	558	af	162	acre
660	Falls Reservoir	322.8	feet	639	af	163	acre
660	Falls Reservoir	323.3	feet	721	af	163	acre
660	Falls Reservoir	323.8	feet	803	af	164	acre
660	Falls Reservoir	324.3	feet	888	af	170	acre
660	Falls Reservoir	324.8	feet	972	af	171	acre
660	Falls Reservoir	325.3	feet	1056	af	172	acre
660	Falls Reservoir	325.8	feet	1140	af	173	acre
660	Falls Reservoir	326.3	feet	1230	af	174	acre
660	Falls Reservoir	326.8	feet	1319	af	174	acre
660	Falls Reservoir	327.3	feet	1409	af	175	acre
660	Falls Reservoir	327.8	feet	1498	af	176	acre
660	Falls Reservoir	328.3	feet	1587	af	177	acre
660	Falls Reservoir	328.8	feet	1676	af	178	acre
660	Falls Reservoir	329.3	feet	1770	af	179	acre
660	Falls Reservoir	329.8	feet	1864	af	179	acre
660	Falls Reservoir	330.3	feet	1954	af	180	acre
660	Falls Reservoir	330.8	feet	2043	af	186	acre
660	Falls Reservoir	331.3	feet	2142	af	192	acre
660	Falls Reservoir	331.8	feet	2241	af	198	acre
660	Falls Reservoir	332.3	feet	2341	af	198	acre
660	Falls Reservoir	332.8	feet	2440	af	198	acre
660	Falls Reservoir	342	feet	4261.6	af	198	acre
670	Lake Lucas	0	feet	0	MG	0	acre
670	Lake Lucas	500	feet	1250	MG	236	acre
676	Lake McCrary	0	feet	0	MG	0	acre
676	Lake McCrary	600	feet	40	MG	10	acre
680	Lake Bunch	0	feet	0	MG	0	acre
680	Lake Bunch	583	feet	110	MG	25	acre
690	Lake Reese	0	feet	0	MG	0	acre
690	Lake Reese	440	feet	2400	MG	600	acre
700	Tillery Reservoir	198.2	feet	0	af	0	acre
700	Tillery Reservoir	210.2	feet	25.82	af	2	acre
700	Tillery Reservoir	215.2	feet	314.79	af	58	acre
700	Tillery Reservoir	220.2	feet	1127.02	af	162	acre
700	Tillery Reservoir	225.2	feet	2680.73	af	311	acre

Node Number	Name	Elevation	Elevation Units	Storage	Storage Units	Area	Area Units
700	Tillery Reservoir	230.2	feet	5415.6	af	547	acre
700	Tillery Reservoir	235.2	feet	9916.98	af	900	acre
700	Tillery Reservoir	240.2	feet	16405.2	af	1298	acre
700	Tillery Reservoir	245.2	feet	24829.9	af	1685	acre
700	Tillery Reservoir	250.2	feet	35104.4	af	2055	acre
700	Tillery Reservoir	255.2	feet	47335.9	af	2446	acre
700	Tillery Reservoir	260.2	feet	61679.5	af	2869	acre
700	Tillery Reservoir	265.2	feet	78180.9	af	3300	acre
700	Tillery Reservoir	270.2	feet	96863	af	3736	acre
700	Tillery Reservoir	275.2	feet	117978	af	4223	acre
700	Tillery Reservoir	280.2	feet	144079	af	5220	acre
760	Kannapolis Lake	700	feet	0	af	0	acre
760	Kannapolis Lake	710	feet	798	af	30	acre
760	Kannapolis Lake	711	feet	890	af	60	acre
760	Kannapolis Lake	712	feet	951	af	90	acre
760	Kannapolis Lake	714	feet	1228	af	120	acre
760	Kannapolis Lake	716	feet	1535	af	150	acre
760	Kannapolis Lake	718	feet	1903	af	180	acre
760	Kannapolis Lake	720	feet	2394	af	210	acre
760	Kannapolis Lake	725	feet	3621	af	240	acre
760	Kannapolis Lake	726	feet	3838	af	270	acre
770	Lake Howell	615	feet	0	af	0	acre
770	Lake Howell	620	feet	384	af	185	acre
770	Lake Howell	625	feet	1228	af	370	acre
770	Lake Howell	630	feet	3069	af	555	acre
770	Lake Howell	635	feet	5524	af	740	acre
770	Lake Howell	640	feet	9207	af	925	acre
770	Lake Howell	645	feet	13811	af	1110	acre
770	Lake Howell	650	feet	19323	af	1286	acre
780	Lake Fisher	620	feet	0	af	0	acre
780	Lake Fisher	625	feet	123	af	33	acre
780	Lake Fisher	629	feet	250	af	66	acre
780	Lake Fisher	630	feet	307	af	99	acre
780	Lake Fisher	635	feet	737	af	132	acre
780	Lake Fisher	640	feet	1381	af	165	acre
780	Lake Fisher	645	feet	2455	af	198	acre
780	Lake Fisher	646	feet	2550	af	230	acre
790	Lake Concord	641	feet	0	af	0	acre
790	Lake Concord	647	feet	61	af	17	acre
790	Lake Concord	650	feet	147	af	34	acre

Node Number	Name	Elevation	Elevation Units	Storage	Storage Units	Area	Area Units
790	Lake Concord	652	feet	221	af	51	acre
790	Lake Concord	654	feet	307	af	68	acre
790	Lake Concord	658	feet	552	af	84	acre
820	Black Run Ck Res.	585	feet	0	af	0	acre
820	Black Run Ck Res.	590	feet	61	af	16	acre
820	Black Run Ck Res.	595	feet	123	af	32	acre
820	Black Run Ck Res.	600	feet	246	af	48	acre
820	Black Run Ck Res.	605	feet	430	af	64	acre
820	Black Run Ck Res.	608	feet	545	af	80	acre
840	Lake Monroe	510	feet	0	MG	0	acre
840	Lake Monroe	512	feet	4	MG	13	acre
840	Lake Monroe	514	feet	8	MG	26	acre
840	Lake Monroe	516	feet	12	MG	39	acre
840	Lake Monroe	518	feet	20	MG	52	acre
840	Lake Monroe	520	feet	30	MG	65	acre
840	Lake Monroe	522	feet	42	MG	78	acre
840	Lake Monroe	524	feet	57	MG	91	acre
840	Lake Monroe	526	feet	77	MG	104	acre
840	Lake Monroe	528	feet	99	MG	117	acre
840	Lake Monroe	530	feet	126	MG	130	acre
840	Lake Monroe	532	feet	157	MG	143	acre
840	Lake Monroe	534	feet	193	MG	156	acre
840	Lake Monroe	536	feet	233	MG	169	acre
840	Lake Monroe	538	feet	279	MG	182	acre
840	Lake Monroe	540	feet	331	MG	195	acre
850	Lake Lee	505	feet	0	MG	0	acre
850	Lake Lee	510	feet	35	MG	20	acre
850	Lake Lee	511	feet	38	MG	40	acre
850	Lake Lee	512	feet	43	MG	60	acre
850	Lake Lee	513	feet	48	MG	80	acre
850	Lake Lee	514	feet	53	MG	100	acre
850	Lake Lee	515	feet	58	MG	120	acre
850	Lake Lee	516	feet	64	MG	140	acre
850	Lake Lee	517	feet	70	MG	160	acre
850	Lake Lee	518	feet	76	MG	180	acre
850	Lake Lee	519	feet	83	MG	200	acre
850	Lake Lee	520	feet	91	MG	220	acre
860	Lake Twitty	538	feet	0	MG	0	acre
860	Lake Twitty	540	feet	15	MG	29	acre
860	Lake Twitty	545	feet	73	MG	58	acre

Node Number	Name	Elevation	Elevation Units	Storage	Storage Units	Area	Area Units
860	Lake Twitty	550	feet	161	MG	87	acre
860	Lake Twitty	555	feet	302	MG	116	acre
860	Lake Twitty	559	feet	451	MG	145	acre
860	Lake Twitty	561	feet	536	MG	174	acre
860	Lake Twitty	563	feet	639	MG	203	acre
860	Lake Twitty	565	feet	742	MG	232	acre
860	Lake Twitty	567	feet	845	MG	261	acre
860	Lake Twitty	569	feet	949	MG	290	acre
860	Lake Twitty	571	feet	1079	MG	319	acre
860	Lake Twitty	573	feet	1216	MG	348	acre
860	Lake Twitty	575	feet	1362	MG	377	acre
860	Lake Twitty	576.5	feet	1476	MG	406	acre
870	Monroe Quarry	0	feet	0	MG	0	acre
870	Monroe Quarry	500	feet	80	MG	2	acre
920	Blewett Falls Reservoir	135.2	feet	0	af	0	acre
920	Blewett Falls Reservoir	139.1	feet	128	af	33	acre
920	Blewett Falls Reservoir	149.1	feet	2294	af	217	acre
920	Blewett Falls Reservoir	159.1	feet	7591	af	530	acre
920	Blewett Falls Reservoir	168.1	feet	10190	af	1006	acre
920	Blewett Falls Reservoir	169.1	feet	11348	af	1158	acre
920	Blewett Falls Reservoir	170.1	feet	12688	af	1340	acre
920	Blewett Falls Reservoir	171.1	feet	14218	af	1530	acre
920	Blewett Falls Reservoir	172.1	feet	15946	af	1728	acre
920	Blewett Falls Reservoir	173.1	feet	17880	af	1934	acre
920	Blewett Falls Reservoir	174.1	feet	20026	af	2146	acre
920	Blewett Falls Reservoir	175.1	feet	22393	af	2367	acre
920	Blewett Falls Reservoir	176.1	feet	24988	af	2595	acre
920	Blewett Falls Reservoir	177.1	feet	27819	af	2831	acre
920	Blewett Falls Reservoir	178.1	feet	30893	af	3074	acre
920	Blewett Falls Reservoir	179.1	feet	34218	af	3325	acre
920	Blewett Falls Reservoir	180.1	feet	37802	af	3584	acre
920	Blewett Falls Reservoir	182	feet	45478	af	4040	acre
920	Blewett Falls Reservoir	184	feet	54527	af	4525	acre
920	Blewett Falls Reservoir	186	feet	64776	af	5125	acre
920	Blewett Falls Reservoir	188	feet	76252	af	5738	acre

Node Number	Name	Elevation	Elevation Units	Storage	Storage Units	Area	Area Units
920	Blewett Falls Reservoir	190	feet	88946	af	6347	acre
920	Blewett Falls Reservoir	192	feet	104655	af	7855	acre
920	Blewett Falls Reservoir	194	feet	123085	af	9215	acre
920	Blewett Falls Reservoir	196	feet	144420	af	10668	acre
920	Blewett Falls Reservoir	198	feet	168484	af	12032	acre
920	Blewett Falls Reservoir	200	feet	195232	af	13374	acre
920	Blewett Falls Reservoir	202	feet	224853	af	14811	acre
920	Blewett Falls Reservoir	204	feet	257213	af	16180	acre
920	Blewett Falls Reservoir	206	feet	292560	af	17674	acre
950	Roberdel Lake	0	feet	0	MG	0	acre
950	Roberdel Lake	200	feet	300	MG	80	acre
980	Hamlet Water Lake	0	feet	0	MG	0	acre
980	Hamlet Water Lake	200	feet	192	MG	20	acre
1730	Lake Waccamaw	35.5	feet	0	af	0	acre
1730	Lake Waccamaw	43	feet	72000	af	8938	acre

Demand Patterns

Node Number	Name	Units	Factor	Month	Day	Demand
0005	Blue Ridge Patterson Mill 0786-0001	mgd	0.23	1	1	1.05
0005	Blue Ridge Patterson Mill 0786-0001	mgd	0.23	1	31	1.05
0005	Blue Ridge Patterson Mill 0786-0001	mgd	0.23	2	1	1.03
0005	Blue Ridge Patterson Mill 0786-0001	mgd	0.23	2	29	1.03
0005	Blue Ridge Patterson Mill 0786-0001	mgd	0.23	3	1	0.98
0005	Blue Ridge Patterson Mill 0786-0001	mgd	0.23	3	31	0.98
0005	Blue Ridge Patterson Mill 0786-0001	mgd	0.23	4	1	1.01
0005	Blue Ridge Patterson Mill 0786-0001	mgd	0.23	4	30	1.01
0005	Blue Ridge Patterson Mill 0786-0001	mgd	0.23	5	1	1.03
0005	Blue Ridge Patterson Mill 0786-0001	mgd	0.23	5	31	1.03
0005	Blue Ridge Patterson Mill 0786-0001	mgd	0.23	6	1	1.05
0005	Blue Ridge Patterson Mill 0786-0001	mgd	0.23	6	30	1.05
0005	Blue Ridge Patterson Mill 0786-0001	mgd	0.23	7	1	0.94
0005	Blue Ridge Patterson Mill 0786-0001	mgd	0.23	7	31	0.94
0005	Blue Ridge Patterson Mill 0786-0001	mgd	0.23	8	1	1.02
0005	Blue Ridge Patterson Mill 0786-0001	mgd	0.23	8	31	1.02
0005	Blue Ridge Patterson Mill 0786-0001	mgd	0.23	9	1	1.03
0005	Blue Ridge Patterson Mill 0786-0001	mgd	0.23	9	30	1.03
0005	Blue Ridge Patterson Mill 0786-0001	mgd	0.23	10	1	1.00
0005	Blue Ridge Patterson Mill 0786-0001	mgd	0.23	10	31	1.00
0005	Blue Ridge Patterson Mill 0786-0001	mgd	0.23	11	1	0.96
0005	Blue Ridge Patterson Mill 0786-0001	mgd	0.23	11	30	0.96
0005	Blue Ridge Patterson Mill 0786-0001	mgd	0.23	12	1	0.91
0005	Blue Ridge Patterson Mill 0786-0001	mgd	0.23	12	31	0.91
0025	Wilkesboro 01-97-025	mgd	4.61	6	30	1.06
0025	Wilkesboro 01-97-025	mgd	4.61	7	1	1.04
0025	Wilkesboro 01-97-025	mgd	4.61	7	31	1.04
0025	Wilkesboro 01-97-025	mgd	4.61	8	1	1.08
0025	Wilkesboro 01-97-025	mgd	4.61	8	31	1.08
0025	Wilkesboro 01-97-025	mgd	4.61	9	1	1.06
0025	Wilkesboro 01-97-025	mgd	4.61	9	30	1.06
0025	Wilkesboro 01-97-025	mgd	4.61	10	1	1.02
0025	Wilkesboro 01-97-025	mgd	4.61	10	31	1.02
0025	Wilkesboro 01-97-025	mgd	4.61	11	1	0.97
0025	Wilkesboro 01-97-025	mgd	4.61	11	30	0.97
0025	Wilkesboro 01-97-025	mgd	4.61	12	1	0.89
0025	Wilkesboro 01-97-025	mgd	4.61	12	31	0.89
0025	Wilkesboro 01-97-025	mgd	4.61	1	1	0.96
0025	Wilkesboro 01-97-025	mgd	4.61	1	31	0.96

Node Number	Name	Units	Factor	Month	Day	Demand
0025	Wilkesboro 01-97-025	mgd	4.61	2	1	0.96
0025	Wilkesboro 01-97-025	mgd	4.61	2	29	0.96
0025	Wilkesboro 01-97-025	mgd	4.61	3	1	0.98
0025	Wilkesboro 01-97-025	mgd	4.61	3	31	0.98
0025	Wilkesboro 01-97-025	mgd	4.61	4	1	0.96
0025	Wilkesboro 01-97-025	mgd	4.61	4	30	0.96
0025	Wilkesboro 01-97-025	mgd	4.61	5	1	1.02
0025	Wilkesboro 01-97-025	mgd	4.61	5	31	1.02
0025	Wilkesboro 01-97-025	mgd	4.61	6	1	1.06
0035	North Wilkesboro 01-97-010	mgd	2.68	1	1	0.98
0035	North Wilkesboro 01-97-010	mgd	2.68	1	31	0.98
0035	North Wilkesboro 01-97-010	mgd	2.68	2	1	0.94
0035	North Wilkesboro 01-97-010	mgd	2.68	2	29	0.94
0035	North Wilkesboro 01-97-010	mgd	2.68	3	1	0.94
0035	North Wilkesboro 01-97-010	mgd	2.68	3	31	0.94
0035	North Wilkesboro 01-97-010	mgd	2.68	4	1	0.94
0035	North Wilkesboro 01-97-010	mgd	2.68	4	30	0.94
0035	North Wilkesboro 01-97-010	mgd	2.68	5	1	1.02
0035	North Wilkesboro 01-97-010	mgd	2.68	5	31	1.02
0035	North Wilkesboro 01-97-010	mgd	2.68	6	1	1.03
0035	North Wilkesboro 01-97-010	mgd	2.68	6	30	1.03
0035	North Wilkesboro 01-97-010	mgd	2.68	7	1	1.08
0035	North Wilkesboro 01-97-010	mgd	2.68	7	31	1.08
0035	North Wilkesboro 01-97-010	mgd	2.68	8	1	1.07
0035	North Wilkesboro 01-97-010	mgd	2.68	8	31	1.07
0035	North Wilkesboro 01-97-010	mgd	2.68	9	1	1.05
0035	North Wilkesboro 01-97-010	mgd	2.68	9	30	1.05
0035	North Wilkesboro 01-97-010	mgd	2.68	10	1	1.01
0035	North Wilkesboro 01-97-010	mgd	2.68	10	31	1.01
0035	North Wilkesboro 01-97-010	mgd	2.68	11	1	0.97
0035	North Wilkesboro 01-97-010	mgd	2.68	11	30	0.97
0035	North Wilkesboro 01-97-010	mgd	2.68	12	1	0.97
0035	North Wilkesboro 01-97-010	mgd	2.68	12	31	0.97
0045	Wilkes Co. Proposed Kerr Scott Intake	MGD	0	1	1	0.00
0045	Wilkes Co. Proposed Kerr Scott Intake	MGD	0	12	31	0.00
0055	Louisiana Pacific 0001-0001	mgd	2.35	1	1	1.09
0055	Louisiana Pacific 0001-0001	mgd	2.35	1	31	1.09
0055	Louisiana Pacific 0001-0001	mgd	2.35	2	1	1.10
0055	Louisiana Pacific 0001-0001	mgd	2.35	2	29	1.10
0055	Louisiana Pacific 0001-0001	mgd	2.35	3	1	1.00

Node Number	Name	Units	Factor	Month	Day	Demand
0055	Louisiana Pacific 0001-0001	mgd	2.35	3	31	1.00
0055	Louisiana Pacific 0001-0001	mgd	2.35	4	1	0.97
0055	Louisiana Pacific 0001-0001	mgd	2.35	4	30	0.97
0055	Louisiana Pacific 0001-0001	mgd	2.35	5	1	1.14
0055	Louisiana Pacific 0001-0001	mgd	2.35	5	31	1.14
0055	Louisiana Pacific 0001-0001	mgd	2.35	6	1	1.07
0055	Louisiana Pacific 0001-0001	mgd	2.35	6	30	1.07
0055	Louisiana Pacific 0001-0001	mgd	2.35	7	1	0.99
0055	Louisiana Pacific 0001-0001	mgd	2.35	7	31	0.99
0055	Louisiana Pacific 0001-0001	mgd	2.35	8	1	1.13
0055	Louisiana Pacific 0001-0001	mgd	2.35	8	31	1.13
0055	Louisiana Pacific 0001-0001	mgd	2.35	9	1	1.05
0055	Louisiana Pacific 0001-0001	mgd	2.35	9	30	1.05
0055	Louisiana Pacific 0001-0001	mgd	2.35	10	1	0.94
0055	Louisiana Pacific 0001-0001	mgd	2.35	10	31	0.94
0055	Louisiana Pacific 0001-0001	mgd	2.35	11	1	0.84
0055	Louisiana Pacific 0001-0001	mgd	2.35	11	30	0.84
0055	Louisiana Pacific 0001-0001	mgd	2.35	12	1	0.68
0055	Louisiana Pacific 0001-0001	mgd	2.35	12	31	0.68
0065	Duvaltex (fmrly True Textiles) Elkin 0705-0001	mgd	0.08	1	1	1.19
0065	Duvaltex (fmrly True Textiles) Elkin 0705-0001	mgd	0.08	1	31	1.19
0065	Duvaltex (fmrly True Textiles) Elkin 0705-0001	mgd	0.08	2	1	1.02
0065	Duvaltex (fmrly True Textiles) Elkin 0705-0001	mgd	0.08	2	29	1.02
0065	Duvaltex (fmrly True Textiles) Elkin 0705-0001	mgd	0.08	3	1	1.01
0065	Duvaltex (fmrly True Textiles) Elkin 0705-0001	mgd	0.08	3	31	1.01
0065	Duvaltex (fmrly True Textiles) Elkin 0705-0001	mgd	0.08	4	1	0.91
0065	Duvaltex (fmrly True Textiles) Elkin 0705-0001	mgd	0.08	4	30	0.91
0065	Duvaltex (fmrly True Textiles) Elkin 0705-0001	mgd	0.08	5	1	0.88
0065	Duvaltex (fmrly True Textiles) Elkin 0705-0001	mgd	0.08	5	31	0.88
0065	Duvaltex (fmrly True Textiles) Elkin 0705-0001	mgd	0.08	6	1	0.96
0065	Duvaltex (fmrly True Textiles) Elkin 0705-0001	mgd	0.08	6	30	0.96
0065	Duvaltex (fmrly True Textiles) Elkin 0705-0001	mgd	0.08	7	1	1.01
0065	Duvaltex (fmrly True Textiles) Elkin 0705-0001	mgd	0.08	7	31	1.01
0065	Duvaltex (fmrly True Textiles) Elkin 0705-0001	mgd	0.08	8	1	1.05
0065	Duvaltex (fmrly True Textiles) Elkin 0705-0001	mgd	0.08	8	31	1.05
0065	Duvaltex (fmrly True Textiles) Elkin 0705-0001	mgd	0.08	9	1	1.01

Node Number	Name	Units	Factor	Month	Day	Demand
0065	Duvaltex (fmrly True Textiles) Elkin 0705-0001	mgd	0.08	9	30	1.01
0065	Duvaltex (fmrly True Textiles) Elkin 0705-0001	mgd	0.08	10	1	1.05
0065	Duvaltex (fmrly True Textiles) Elkin 0705-0001	mgd	0.08	10	31	1.05
0065	Duvaltex (fmrly True Textiles) Elkin 0705-0001	mgd	0.08	11	1	0.97
0065	Duvaltex (fmrly True Textiles) Elkin 0705-0001	mgd	0.08	11	30	0.97
0065	Duvaltex (fmrly True Textiles) Elkin 0705-0001	mgd	0.08	12	1	0.93
0065	Duvaltex (fmrly True Textiles) Elkin 0705-0001	mgd	0.08	12	31	0.93
0075	Elkin 02-86-020	mgd	0.85	1	1	1.00
0075	Elkin 02-86-020	mgd	0.85	1	31	1.00
0075	Elkin 02-86-020	mgd	0.85	2	1	0.94
0075	Elkin 02-86-020	mgd	0.85	2	29	0.94
0075	Elkin 02-86-020	mgd	0.85	3	1	0.96
0075	Elkin 02-86-020	mgd	0.85	3	31	0.96
0075	Elkin 02-86-020	mgd	0.85	4	1	0.97
0075	Elkin 02-86-020	mgd	0.85	4	30	0.97
0075	Elkin 02-86-020	mgd	0.85	5	1	1.04
0075	Elkin 02-86-020	mgd	0.85	5	31	1.04
0075	Elkin 02-86-020	mgd	0.85	6	1	1.04
0075	Elkin 02-86-020	mgd	0.85	6	30	1.04
0075	Elkin 02-86-020	mgd	0.85	7	1	1.01
0075	Elkin 02-86-020	mgd	0.85	7	31	1.01
0075	Elkin 02-86-020	mgd	0.85	8	1	1.01
0075	Elkin 02-86-020	mgd	0.85	8	31	1.01
0075	Elkin 02-86-020	mgd	0.85	9	1	1.03
0075	Elkin 02-86-020	mgd	0.85	9	30	1.03
0075	Elkin 02-86-020	mgd	0.85	10	1	1.00
0075	Elkin 02-86-020	mgd	0.85	10	31	1.00
0075	Elkin 02-86-020	mgd	0.85	11	1	1.00
0075	Elkin 02-86-020	mgd	0.85	11	30	1.00
0075	Elkin 02-86-020	mgd	0.85	12	1	1.00
0075	Elkin 02-86-020	mgd	0.85	12	31	1.00
0115	Jonesville 02-99-010	mgd	0.49	1	1	1.00
0115	Jonesville 02-99-010	mgd	0.49	1	31	1.00
0115	Jonesville 02-99-010	mgd	0.49	2	1	0.97
0115	Jonesville 02-99-010	mgd	0.49	2	29	0.97
0115	Jonesville 02-99-010	mgd	0.49	3	1	0.99
0115	Jonesville 02-99-010	mgd	0.49	3	31	0.99
0115	Jonesville 02-99-010	mgd	0.49	4	1	0.90

Node Number	Name	Units	Factor	Month	Day	Demand
0115	Jonesville 02-99-010	mgd	0.49	4	30	0.90
0115	Jonesville 02-99-010	mgd	0.49	5	1	0.96
0115	Jonesville 02-99-010	mgd	0.49	5	31	0.96
0115	Jonesville 02-99-010	mgd	0.49	6	1	0.95
0115	Jonesville 02-99-010	mgd	0.49	6	30	0.95
0115	Jonesville 02-99-010	mgd	0.49	7	1	1.05
0115	Jonesville 02-99-010	mgd	0.49	7	31	1.05
0115	Jonesville 02-99-010	mgd	0.49	8	1	1.00
0115	Jonesville 02-99-010	mgd	0.49	8	31	1.00
0115	Jonesville 02-99-010	mgd	0.49	9	1	1.05
0115	Jonesville 02-99-010	mgd	0.49	9	30	1.05
0115	Jonesville 02-99-010	mgd	0.49	10	1	1.06
0115	Jonesville 02-99-010	mgd	0.49	10	31	1.06
0115	Jonesville 02-99-010	mgd	0.49	11	1	1.07
0115	Jonesville 02-99-010	mgd	0.49	11	30	1.07
0115	Jonesville 02-99-010	mgd	0.49	12	1	1.00
0115	Jonesville 02-99-010	mgd	0.49	12	31	1.00
0135	Dobson 02-86-030	MGD	0.97	1	1	1.02
0135	Dobson 02-86-030	MGD	0.97	1	31	1.02
0135	Dobson 02-86-030	MGD	0.97	2	1	1.02
0135	Dobson 02-86-030	MGD	0.97	2	29	1.02
0135	Dobson 02-86-030	MGD	0.97	3	1	1.00
0135	Dobson 02-86-030	MGD	0.97	3	31	1.00
0135	Dobson 02-86-030	MGD	0.97	4	1	0.98
0135	Dobson 02-86-030	MGD	0.97	4	30	0.98
0135	Dobson 02-86-030	MGD	0.97	5	1	0.96
0135	Dobson 02-86-030	MGD	0.97	5	31	0.96
0135	Dobson 02-86-030	MGD	0.97	6	1	1.03
0135	Dobson 02-86-030	MGD	0.97	6	30	1.03
0135	Dobson 02-86-030	MGD	0.97	7	1	1.01
0135	Dobson 02-86-030	MGD	0.97	7	31	1.01
0135	Dobson 02-86-030	MGD	0.97	8	1	0.99
0135	Dobson 02-86-030	MGD	0.97	8	31	0.99
0135	Dobson 02-86-030	MGD	0.97	9	1	1.00
0135	Dobson 02-86-030	MGD	0.97	9	30	1.00
0135	Dobson 02-86-030	MGD	0.97	10	1	1.06
0135	Dobson 02-86-030	MGD	0.97	10	31	1.06
0135	Dobson 02-86-030	MGD	0.97	11	1	0.95
0135	Dobson 02-86-030	MGD	0.97	11	30	0.95
0135	Dobson 02-86-030	MGD	0.97	12	1	0.98

Node Number	Name	Units	Factor	Month	Day	Demand
0135	Dobson 02-86-030	MGD	0.97	12	31	0.98
0185	Mt Airy 02-86-010	MGD	2.02	1	1	1.02
0185	Mt Airy 02-86-010	MGD	2.02	1	31	1.02
0185	Mt Airy 02-86-010	MGD	2.02	2	1	1.01
0185	Mt Airy 02-86-010	MGD	2.02	2	29	1.01
0185	Mt Airy 02-86-010	MGD	2.02	3	1	0.99
0185	Mt Airy 02-86-010	MGD	2.02	3	31	0.99
0185	Mt Airy 02-86-010	MGD	2.02	4	1	0.97
0185	Mt Airy 02-86-010	MGD	2.02	4	30	0.97
0185	Mt Airy 02-86-010	MGD	2.02	5	1	1.03
0185	Mt Airy 02-86-010	MGD	2.02	5	31	1.03
0185	Mt Airy 02-86-010	MGD	2.02	6	1	1.01
0185	Mt Airy 02-86-010	MGD	2.02	6	30	1.01
0185	Mt Airy 02-86-010	MGD	2.02	7	1	1.02
0185	Mt Airy 02-86-010	MGD	2.02	7	31	1.02
0185	Mt Airy 02-86-010	MGD	2.02	8	1	1.02
0185	Mt Airy 02-86-010	MGD	2.02	8	31	1.02
0185	Mt Airy 02-86-010	MGD	2.02	9	1	0.99
0185	Mt Airy 02-86-010	MGD	2.02	9	30	0.99
0185	Mt Airy 02-86-010	MGD	2.02	10	1	0.99
0185	Mt Airy 02-86-010	MGD	2.02	10	31	0.99
0185	Mt Airy 02-86-010	MGD	2.02	11	1	0.99
0185	Mt Airy 02-86-010	MGD	2.02	11	30	0.99
0185	Mt Airy 02-86-010	MGD	2.02	12	1	0.96
0185	Mt Airy 02-86-010	MGD	2.02	12	31	0.96
0205	Pilot Moutain 02-86-025	mgd	0.3	1	1	1.00
0205	Pilot Moutain 02-86-025	mgd	0.3	1	31	1.00
0205	Pilot Moutain 02-86-025	mgd	0.3	2	1	1.02
0205	Pilot Moutain 02-86-025	mgd	0.3	2	29	1.02
0205	Pilot Moutain 02-86-025	mgd	0.3	3	1	0.95
0205	Pilot Moutain 02-86-025	mgd	0.3	3	31	0.95
0205	Pilot Moutain 02-86-025	mgd	0.3	4	1	0.92
0205	Pilot Moutain 02-86-025	mgd	0.3	4	30	0.92
0205	Pilot Moutain 02-86-025	mgd	0.3	5	1	1.02
0205	Pilot Moutain 02-86-025	mgd	0.3	5	31	1.02
0205	Pilot Moutain 02-86-025	mgd	0.3	6	1	1.07
0205	Pilot Moutain 02-86-025	mgd	0.3	6	30	1.07
0205	Pilot Moutain 02-86-025	mgd	0.3	7	1	1.02
0205	Pilot Moutain 02-86-025	mgd	0.3	7	31	1.02
0205	Pilot Moutain 02-86-025	mgd	0.3	8	1	0.99

Node Number	Name	Units	Factor	Month	Day	Demand
0205	Pilot Moutain 02-86-025	mgd	0.3	8	31	0.99
0205	Pilot Moutain 02-86-025	mgd	0.3	9	1	1.00
0205	Pilot Moutain 02-86-025	mgd	0.3	9	30	1.00
0205	Pilot Moutain 02-86-025	mgd	0.3	10	1	1.03
0205	Pilot Moutain 02-86-025	mgd	0.3	10	31	1.03
0205	Pilot Moutain 02-86-025	mgd	0.3	11	1	1.03
0205	Pilot Moutain 02-86-025	mgd	0.3	11	30	1.03
0205	Pilot Moutain 02-86-025	mgd	0.3	12	1	0.96
0205	Pilot Moutain 02-86-025	mgd	0.3	12	31	0.96
0255	Statesville 01-49-010	MGD	3.14	1	1	1.00
0255	Statesville 01-49-010	MGD	3.14	1	31	1.00
0255	Statesville 01-49-010	MGD	3.14	2	1	0.92
0255	Statesville 01-49-010	MGD	3.14	2	29	0.92
0255	Statesville 01-49-010	MGD	3.14	3	1	0.94
0255	Statesville 01-49-010	MGD	3.14	3	31	0.94
0255	Statesville 01-49-010	MGD	3.14	4	1	0.96
0255	Statesville 01-49-010	MGD	3.14	4	30	0.96
0255	Statesville 01-49-010	MGD	3.14	5	1	1.00
0255	Statesville 01-49-010	MGD	3.14	5	31	1.00
0255	Statesville 01-49-010	MGD	3.14	6	1	1.05
0255	Statesville 01-49-010	MGD	3.14	6	30	1.05
0255	Statesville 01-49-010	MGD	3.14	7	1	1.08
0255	Statesville 01-49-010	MGD	3.14	7	31	1.08
0255	Statesville 01-49-010	MGD	3.14	8	1	1.04
0255	Statesville 01-49-010	MGD	3.14	8	31	1.04
0255	Statesville 01-49-010	MGD	3.14	9	1	1.07
0255	Statesville 01-49-010	MGD	3.14	9	30	1.07
0255	Statesville 01-49-010	MGD	3.14	10	1	1.05
0255	Statesville 01-49-010	MGD	3.14	10	31	1.05
0255	Statesville 01-49-010	MGD	3.14	11	1	0.99
0255	Statesville 01-49-010	MGD	3.14	11	30	0.99
0255	Statesville 01-49-010	MGD	3.14	12	1	0.89
0255	Statesville 01-49-010	MGD	3.14	12	31	0.89
0295	Mocksville 02-30-010	mgd	0.88	1	1	0.93
0295	Mocksville 02-30-010	mgd	0.88	1	31	0.93
0295	Mocksville 02-30-010	mgd	0.88	2	1	0.91
0295	Mocksville 02-30-010	mgd	0.88	2	29	0.91
0295	Mocksville 02-30-010	mgd	0.88	3	1	0.91
0295	Mocksville 02-30-010	mgd	0.88	3	31	0.91
0295	Mocksville 02-30-010	mgd	0.88	4	1	0.96

Node Number	Name	Units	Factor	Month	Day	Demand
0295	Mocksville 02-30-010	mgd	0.88	4	30	0.96
0295	Mocksville 02-30-010	mgd	0.88	5	1	1.02
0295	Mocksville 02-30-010	mgd	0.88	5	31	1.02
0295	Mocksville 02-30-010	mgd	0.88	6	1	1.07
0295	Mocksville 02-30-010	mgd	0.88	6	30	1.07
0295	Mocksville 02-30-010	mgd	0.88	7	1	1.12
0295	Mocksville 02-30-010	mgd	0.88	7	31	1.12
0295	Mocksville 02-30-010	mgd	0.88	8	1	1.08
0295	Mocksville 02-30-010	mgd	0.88	8	31	1.08
0295	Mocksville 02-30-010	mgd	0.88	9	1	1.06
0295	Mocksville 02-30-010	mgd	0.88	9	30	1.06
0295	Mocksville 02-30-010	mgd	0.88	10	1	1.03
0295	Mocksville 02-30-010	mgd	0.88	10	31	1.03
0295	Mocksville 02-30-010	mgd	0.88	11	1	0.97
0295	Mocksville 02-30-010	mgd	0.88	11	30	0.97
0295	Mocksville 02-30-010	mgd	0.88	12	1	0.94
0295	Mocksville 02-30-010	mgd	0.88	12	31	0.94
0345	King 02-85-010	mgd	1.59	1	1	0.96
0345	King 02-85-010	mgd	1.59	1	31	0.96
0345	King 02-85-010	mgd	1.59	2	1	0.94
0345	King 02-85-010	mgd	1.59	2	29	0.94
0345	King 02-85-010	mgd	1.59	3	1	0.93
0345	King 02-85-010	mgd	1.59	3	31	0.93
0345	King 02-85-010	mgd	1.59	4	1	0.97
0345	King 02-85-010	mgd	1.59	4	30	0.97
0345	King 02-85-010	mgd	1.59	5	1	1.03
0345	King 02-85-010	mgd	1.59	5	31	1.03
0345	King 02-85-010	mgd	1.59	6	1	1.07
0345	King 02-85-010	mgd	1.59	6	30	1.07
0345	King 02-85-010	mgd	1.59	7	1	1.09
0345	King 02-85-010	mgd	1.59	7	31	1.09
0345	King 02-85-010	mgd	1.59	8	1	1.05
0345	King 02-85-010	mgd	1.59	8	31	1.05
0345	King 02-85-010	mgd	1.59	9	1	1.11
0345	King 02-85-010	mgd	1.59	9	30	1.11
0345	King 02-85-010	mgd	1.59	10	1	1.00
0345	King 02-85-010	mgd	1.59	10	31	1.00
0345	King 02-85-010	mgd	1.59	11	1	0.94
0345	King 02-85-010	mgd	1.59	11	30	0.94
0345	King 02-85-010	mgd	1.59	12	1	0.91

Node Number	Name	Units	Factor	Month	Day	Demand
0345	King 02-85-010	mgd	1.59	12	31	0.91
0355	Yadkinville 02-99-015	mgd	0.82	1	1	0.89
0355	Yadkinville 02-99-015	mgd	0.82	1	31	0.89
0355	Yadkinville 02-99-015	mgd	0.82	2	1	0.89
0355	Yadkinville 02-99-015	mgd	0.82	2	29	0.89
0355	Yadkinville 02-99-015	mgd	0.82	3	1	0.89
0355	Yadkinville 02-99-015	mgd	0.82	3	31	0.89
0355	Yadkinville 02-99-015	mgd	0.82	4	1	0.93
0355	Yadkinville 02-99-015	mgd	0.82	4	30	0.93
0355	Yadkinville 02-99-015	mgd	0.82	5	1	1.02
0355	Yadkinville 02-99-015	mgd	0.82	5	31	1.02
0355	Yadkinville 02-99-015	mgd	0.82	6	1	1.09
0355	Yadkinville 02-99-015	mgd	0.82	6	30	1.09
0355	Yadkinville 02-99-015	mgd	0.82	7	1	1.14
0355	Yadkinville 02-99-015	mgd	0.82	7	31	1.14
0355	Yadkinville 02-99-015	mgd	0.82	8	1	1.14
0355	Yadkinville 02-99-015	mgd	0.82	8	31	1.14
0355	Yadkinville 02-99-015	mgd	0.82	9	1	1.12
0355	Yadkinville 02-99-015	mgd	0.82	9	30	1.12
0355	Yadkinville 02-99-015	mgd	0.82	10	1	1.05
0355	Yadkinville 02-99-015	mgd	0.82	10	31	1.05
0355	Yadkinville 02-99-015	mgd	0.82	11	1	0.96
0355	Yadkinville 02-99-015	mgd	0.82	11	30	0.96
0355	Yadkinville 02-99-015	mgd	0.82	12	1	0.88
0355	Yadkinville 02-99-015	mgd	0.82	12	31	0.88
0375	Davie County 02-30-015	mgd	2.93	1	1	0.88
0375	Davie County 02-30-015	mgd	2.93	1	31	0.88
0375	Davie County 02-30-015	mgd	2.93	2	1	0.86
0375	Davie County 02-30-015	mgd	2.93	2	29	0.86
0375	Davie County 02-30-015	mgd	2.93	3	1	0.79
0375	Davie County 02-30-015	mgd	2.93	3	31	0.79
0375	Davie County 02-30-015	mgd	2.93	4	1	0.87
0375	Davie County 02-30-015	mgd	2.93	4	30	0.87
0375	Davie County 02-30-015	mgd	2.93	5	1	1.02
0375	Davie County 02-30-015	mgd	2.93	5	31	1.02
0375	Davie County 02-30-015	mgd	2.93	6	1	1.13
0375	Davie County 02-30-015	mgd	2.93	6	30	1.13
0375	Davie County 02-30-015	mgd	2.93	7	1	1.19
0375	Davie County 02-30-015	mgd	2.93	7	31	1.19
0375	Davie County 02-30-015	mgd	2.93	8	1	1.21

Node Number	Name	Units	Factor	Month	Day	Demand
0375	Davie County 02-30-015	mgd	2.93	8	31	1.21
0375	Davie County 02-30-015	mgd	2.93	9	1	1.15
0375	Davie County 02-30-015	mgd	2.93	9	30	1.15
0375	Davie County 02-30-015	mgd	2.93	10	1	1.08
0375	Davie County 02-30-015	mgd	2.93	10	31	1.08
0375	Davie County 02-30-015	mgd	2.93	11	1	0.94
0375	Davie County 02-30-015	mgd	2.93	11	30	0.94
0375	Davie County 02-30-015	mgd	2.93	12	1	0.89
0375	Davie County 02-30-015	mgd	2.93	12	31	0.89
0395	Winston-Salem 02-34-010	mgd	37.83	1	1	0.95
0395	Winston-Salem 02-34-010	mgd	37.83	1	31	0.95
0395	Winston-Salem 02-34-010	mgd	37.83	2	1	0.94
0395	Winston-Salem 02-34-010	mgd	37.83	2	29	0.94
0395	Winston-Salem 02-34-010	mgd	37.83	3	1	0.93
0395	Winston-Salem 02-34-010	mgd	37.83	3	31	0.93
0395	Winston-Salem 02-34-010	mgd	37.83	4	1	0.96
0395	Winston-Salem 02-34-010	mgd	37.83	4	30	0.96
0395	Winston-Salem 02-34-010	mgd	37.83	5	1	1.02
0395	Winston-Salem 02-34-010	mgd	37.83	5	31	1.02
0395	Winston-Salem 02-34-010	mgd	37.83	6	1	1.07
0395	Winston-Salem 02-34-010	mgd	37.83	6	30	1.07
0395	Winston-Salem 02-34-010	mgd	37.83	7	1	1.12
0395	Winston-Salem 02-34-010	mgd	37.83	7	31	1.12
0395	Winston-Salem 02-34-010	mgd	37.83	8	1	1.07
0395	Winston-Salem 02-34-010	mgd	37.83	8	31	1.07
0395	Winston-Salem 02-34-010	mgd	37.83	9	1	1.08
0395	Winston-Salem 02-34-010	mgd	37.83	9	30	1.08
0395	Winston-Salem 02-34-010	mgd	37.83	10	1	1.03
0395	Winston-Salem 02-34-010	mgd	37.83	10	31	1.03
0395	Winston-Salem 02-34-010	mgd	37.83	11	1	0.95
0395	Winston-Salem 02-34-010	mgd	37.83	11	30	0.95
0395	Winston-Salem 02-34-010	mgd	37.83	12	1	0.89
0395	Winston-Salem 02-34-010	mgd	37.83	12	31	0.89
0425	Davidson Water 02-29-025	mgd	10.16	1	1	0.91
0425	Davidson Water 02-29-025	mgd	10.16	1	31	0.91
0425	Davidson Water 02-29-025	mgd	10.16	2	1	0.90
0425	Davidson Water 02-29-025	mgd	10.16	2	29	0.90
0425	Davidson Water 02-29-025	mgd	10.16	3	1	0.90
0425	Davidson Water 02-29-025	mgd	10.16	3	31	0.90
0425	Davidson Water 02-29-025	mgd	10.16	4	1	0.93

Node Number	Name	Units	Factor	Month	Day	Demand
0425	Davidson Water 02-29-025	mgd	10.16	4	30	0.93
0425	Davidson Water 02-29-025	mgd	10.16	5	1	1.05
0425	Davidson Water 02-29-025	mgd	10.16	5	31	1.05
0425	Davidson Water 02-29-025	mgd	10.16	6	1	1.22
0425	Davidson Water 02-29-025	mgd	10.16	6	30	1.22
0425	Davidson Water 02-29-025	mgd	10.16	7	1	1.14
0425	Davidson Water 02-29-025	mgd	10.16	7	31	1.14
0425	Davidson Water 02-29-025	mgd	10.16	8	1	1.08
0425	Davidson Water 02-29-025	mgd	10.16	8	31	1.08
0425	Davidson Water 02-29-025	mgd	10.16	9	1	1.07
0425	Davidson Water 02-29-025	mgd	10.16	9	30	1.07
0425	Davidson Water 02-29-025	mgd	10.16	10	1	1.00
0425	Davidson Water 02-29-025	mgd	10.16	10	31	1.00
0425	Davidson Water 02-29-025	mgd	10.16	11	1	0.92
0425	Davidson Water 02-29-025	mgd	10.16	11	30	0.92
0425	Davidson Water 02-29-025	mgd	10.16	12	1	0.88
0425	Davidson Water 02-29-025	mgd	10.16	12	31	0.88
0465	Salisbury 01-80-010	mgd	9.3	1	1	0.95
0465	Salisbury 01-80-010	mgd	9.3	1	31	0.95
0465	Salisbury 01-80-010	mgd	9.3	2	1	0.95
0465	Salisbury 01-80-010	mgd	9.3	2	29	0.95
0465	Salisbury 01-80-010	mgd	9.3	3	1	0.94
0465	Salisbury 01-80-010	mgd	9.3	3	31	0.94
0465	Salisbury 01-80-010	mgd	9.3	4	1	0.90
0465	Salisbury 01-80-010	mgd	9.3	4	30	0.90
0465	Salisbury 01-80-010	mgd	9.3	5	1	1.06
0465	Salisbury 01-80-010	mgd	9.3	5	31	1.06
0465	Salisbury 01-80-010	mgd	9.3	6	1	1.12
0465	Salisbury 01-80-010	mgd	9.3	6	30	1.12
0465	Salisbury 01-80-010	mgd	9.3	7	1	1.18
0465	Salisbury 01-80-010	mgd	9.3	7	31	1.18
0465	Salisbury 01-80-010	mgd	9.3	8	1	1.15
0465	Salisbury 01-80-010	mgd	9.3	8	31	1.15
0465	Salisbury 01-80-010	mgd	9.3	9	1	1.09
0465	Salisbury 01-80-010	mgd	9.3	9	30	1.09
0465	Salisbury 01-80-010	mgd	9.3	10	1	0.95
0465	Salisbury 01-80-010	mgd	9.3	10	31	0.95
0465	Salisbury 01-80-010	mgd	9.3	11	1	0.81
0465	Salisbury 01-80-010	mgd	9.3	11	30	0.81
0465	Salisbury 01-80-010	mgd	9.3	12	1	0.90

Node Number	Name	Units	Factor	Month	Day	Demand
0465	Salisbury 01-80-010	mgd	9.3	12	31	0.90
0525	Duke - Buck Station 0057-0021 (Net WD)	mgd	2.59	1	1	0.79
0525	Duke - Buck Station 0057-0021 (Net WD)	mgd	2.59	1	31	0.79
0525	Duke - Buck Station 0057-0021 (Net WD)	mgd	2.59	2	1	0.76
0525	Duke - Buck Station 0057-0021 (Net WD)	mgd	2.59	2	29	0.76
0525	Duke - Buck Station 0057-0021 (Net WD)	mgd	2.59	3	1	0.86
0525	Duke - Buck Station 0057-0021 (Net WD)	mgd	2.59	3	31	0.86
0525	Duke - Buck Station 0057-0021 (Net WD)	mgd	2.59	4	1	0.91
0525	Duke - Buck Station 0057-0021 (Net WD)	mgd	2.59	4	30	0.91
0525	Duke - Buck Station 0057-0021 (Net WD)	mgd	2.59	5	1	1.12
0525	Duke - Buck Station 0057-0021 (Net WD)	mgd	2.59	5	31	1.12
0525	Duke - Buck Station 0057-0021 (Net WD)	mgd	2.59	6	1	1.22
0525	Duke - Buck Station 0057-0021 (Net WD)	mgd	2.59	6	30	1.22
0525	Duke - Buck Station 0057-0021 (Net WD)	mgd	2.59	7	1	1.22
0525	Duke - Buck Station 0057-0021 (Net WD)	mgd	2.59	7	31	1.22
0525	Duke - Buck Station 0057-0021 (Net WD)	mgd	2.59	8	1	1.24
0525	Duke - Buck Station 0057-0021 (Net WD)	mgd	2.59	8	31	1.24
0525	Duke - Buck Station 0057-0021 (Net WD)	mgd	2.59	9	1	1.21
0525	Duke - Buck Station 0057-0021 (Net WD)	mgd	2.59	9	30	1.21
0525	Duke - Buck Station 0057-0021 (Net WD)	mgd	2.59	10	1	0.91
0525	Duke - Buck Station 0057-0021 (Net WD)	mgd	2.59	10	31	0.91
0525	Duke - Buck Station 0057-0021 (Net WD)	mgd	2.59	11	1	0.83
0525	Duke - Buck Station 0057-0021 (Net WD)	mgd	2.59	11	30	0.83
0525	Duke - Buck Station 0057-0021 (Net WD)	mgd	2.59	12	1	0.94
0525	Duke - Buck Station 0057-0021 (Net WD)	mgd	2.59	12	31	0.94
0555	Thomasville 02-29-020	mgd	2.65	1	1	0.97
0555	Thomasville 02-29-020	mgd	2.65	1	31	0.97
0555	Thomasville 02-29-020	mgd	2.65	2	1	0.95
0555	Thomasville 02-29-020	mgd	2.65	2	29	0.95
0555	Thomasville 02-29-020	mgd	2.65	3	1	0.94
0555	Thomasville 02-29-020	mgd	2.65	3	31	0.94
0555	Thomasville 02-29-020	mgd	2.65	4	1	0.94
0555	Thomasville 02-29-020	mgd	2.65	4	30	0.94
0555	Thomasville 02-29-020	mgd	2.65	5	1	1.06
0555	Thomasville 02-29-020	mgd	2.65	5	31	1.06
0555	Thomasville 02-29-020	mgd	2.65	6	1	1.09
0555	Thomasville 02-29-020	mgd	2.65	6	30	1.09
0555	Thomasville 02-29-020	mgd	2.65	7	1	1.07
0555	Thomasville 02-29-020	mgd	2.65	7	31	1.07
0555	Thomasville 02-29-020	mgd	2.65	8	1	1.02

Node Number	Name	Units	Factor	Month	Day	Demand
0555	Thomasville 02-29-020	mgd	2.65	8	31	1.02
0555	Thomasville 02-29-020	mgd	2.65	9	1	1.04
0555	Thomasville 02-29-020	mgd	2.65	9	30	1.04
0555	Thomasville 02-29-020	mgd	2.65	10	1	1.01
0555	Thomasville 02-29-020	mgd	2.65	10	31	1.01
0555	Thomasville 02-29-020	mgd	2.65	11	1	0.97
0555	Thomasville 02-29-020	mgd	2.65	11	30	0.97
0555	Thomasville 02-29-020	mgd	2.65	12	1	0.95
0555	Thomasville 02-29-020	mgd	2.65	12	31	0.95
0565	Lexington 02-29-010	mgd	2.89	1	1	0.93
0565	Lexington 02-29-010	mgd	2.89	1	31	0.93
0565	Lexington 02-29-010	mgd	2.89	2	1	0.88
0565	Lexington 02-29-010	mgd	2.89	2	29	0.88
0565	Lexington 02-29-010	mgd	2.89	3	1	0.91
0565	Lexington 02-29-010	mgd	2.89	3	31	0.91
0565	Lexington 02-29-010	mgd	2.89	4	1	0.94
0565	Lexington 02-29-010	mgd	2.89	4	30	0.94
0565	Lexington 02-29-010	mgd	2.89	5	1	1.01
0565	Lexington 02-29-010	mgd	2.89	5	31	1.01
0565	Lexington 02-29-010	mgd	2.89	6	1	1.05
0565	Lexington 02-29-010	mgd	2.89	6	30	1.05
0565	Lexington 02-29-010	mgd	2.89	7	1	1.16
0565	Lexington 02-29-010	mgd	2.89	7	31	1.16
0565	Lexington 02-29-010	mgd	2.89	8	1	1.12
0565	Lexington 02-29-010	mgd	2.89	8	31	1.12
0565	Lexington 02-29-010	mgd	2.89	9	1	1.08
0565	Lexington 02-29-010	mgd	2.89	9	30	1.08
0565	Lexington 02-29-010	mgd	2.89	10	1	1.02
0565	Lexington 02-29-010	mgd	2.89	10	31	1.02
0565	Lexington 02-29-010	mgd	2.89	11	1	0.98
0565	Lexington 02-29-010	mgd	2.89	11	30	0.98
0565	Lexington 02-29-010	mgd	2.89	12	1	0.92
0565	Lexington 02-29-010	mgd	2.89	12	31	0.92
0615	Denton 02-29-030	mgd	1.26	1	1	0.97
0615	Denton 02-29-030	mgd	1.26	1	31	0.97
0615	Denton 02-29-030	mgd	1.26	2	1	0.98
0615	Denton 02-29-030	mgd	1.26	2	29	0.98
0615	Denton 02-29-030	mgd	1.26	3	1	0.95
0615	Denton 02-29-030	mgd	1.26	3	31	0.95
0615	Denton 02-29-030	mgd	1.26	4	1	0.90

Node Number	Name	Units	Factor	Month	Day	Demand
0615	Denton 02-29-030	mgd	1.26	4	30	0.90
0615	Denton 02-29-030	mgd	1.26	5	1	1.08
0615	Denton 02-29-030	mgd	1.26	5	31	1.08
0615	Denton 02-29-030	mgd	1.26	6	1	1.05
0615	Denton 02-29-030	mgd	1.26	6	30	1.05
0615	Denton 02-29-030	mgd	1.26	7	1	1.13
0615	Denton 02-29-030	mgd	1.26	7	31	1.13
0615	Denton 02-29-030	mgd	1.26	8	1	1.14
0615	Denton 02-29-030	mgd	1.26	8	31	1.14
0615	Denton 02-29-030	mgd	1.26	9	1	0.99
0615	Denton 02-29-030	mgd	1.26	9	30	0.99
0615	Denton 02-29-030	mgd	1.26	10	1	0.93
0615	Denton 02-29-030	mgd	1.26	10	31	0.93
0615	Denton 02-29-030	mgd	1.26	11	1	0.95
0615	Denton 02-29-030	mgd	1.26	11	30	0.95
0615	Denton 02-29-030	mgd	1.26	12	1	0.91
0615	Denton 02-29-030	mgd	1.26	12	31	0.91
0625	Albemarle 01-84-010	mgd	4.73	1	1	0.96
0625	Albemarle 01-84-010	mgd	4.73	1	31	0.96
0625	Albemarle 01-84-010	mgd	4.73	2	1	0.97
0625	Albemarle 01-84-010	mgd	4.73	2	29	0.97
0625	Albemarle 01-84-010	mgd	4.73	3	1	0.92
0625	Albemarle 01-84-010	mgd	4.73	3	31	0.92
0625	Albemarle 01-84-010	mgd	4.73	4	1	0.92
0625	Albemarle 01-84-010	mgd	4.73	4	30	0.92
0625	Albemarle 01-84-010	mgd	4.73	5	1	1.02
0625	Albemarle 01-84-010	mgd	4.73	5	31	1.02
0625	Albemarle 01-84-010	mgd	4.73	6	1	1.06
0625	Albemarle 01-84-010	mgd	4.73	6	30	1.06
0625	Albemarle 01-84-010	mgd	4.73	7	1	1.05
0625	Albemarle 01-84-010	mgd	4.73	7	31	1.05
0625	Albemarle 01-84-010	mgd	4.73	8	1	1.03
0625	Albemarle 01-84-010	mgd	4.73	8	31	1.03
0625	Albemarle 01-84-010	mgd	4.73	9	1	1.02
0625	Albemarle 01-84-010	mgd	4.73	9	30	1.02
0625	Albemarle 01-84-010	mgd	4.73	10	1	1.04
0625	Albemarle 01-84-010	mgd	4.73	10	31	1.04
0625	Albemarle 01-84-010	mgd	4.73	11	1	1.04
0625	Albemarle 01-84-010	mgd	4.73	11	30	1.04
0625	Albemarle 01-84-010	mgd	4.73	12	1	0.97

Node Number	Name	Units	Factor	Month	Day	Demand
0625	Albemarle 01-84-010	mgd	4.73	12	31	0.97
0685	Asheboro 02-76-010	mgd	4.72	1	1	0.95
0685	Asheboro 02-76-010	mgd	4.72	1	31	0.95
0685	Asheboro 02-76-010	mgd	4.72	2	1	0.92
0685	Asheboro 02-76-010	mgd	4.72	2	29	0.92
0685	Asheboro 02-76-010	mgd	4.72	3	1	0.93
0685	Asheboro 02-76-010	mgd	4.72	3	31	0.93
0685	Asheboro 02-76-010	mgd	4.72	4	1	0.94
0685	Asheboro 02-76-010	mgd	4.72	4	30	0.94
0685	Asheboro 02-76-010	mgd	4.72	5	1	0.99
0685	Asheboro 02-76-010	mgd	4.72	5	31	0.99
0685	Asheboro 02-76-010	mgd	4.72	6	1	1.07
0685	Asheboro 02-76-010	mgd	4.72	6	30	1.07
0685	Asheboro 02-76-010	mgd	4.72	7	1	1.09
0685	Asheboro 02-76-010	mgd	4.72	7	31	1.09
0685	Asheboro 02-76-010	mgd	4.72	8	1	1.08
0685	Asheboro 02-76-010	mgd	4.72	8	31	1.08
0685	Asheboro 02-76-010	mgd	4.72	9	1	1.06
0685	Asheboro 02-76-010	mgd	4.72	9	30	1.06
0685	Asheboro 02-76-010	mgd	4.72	10	1	1.03
0685	Asheboro 02-76-010	mgd	4.72	10	31	1.03
0685	Asheboro 02-76-010	mgd	4.72	11	1	0.98
0685	Asheboro 02-76-010	mgd	4.72	11	30	0.98
0685	Asheboro 02-76-010	mgd	4.72	12	1	0.96
0685	Asheboro 02-76-010	mgd	4.72	12	31	0.96
0705	Montgomery 03-62-010	mgd	2.57	1	1	1.00
0705	Montgomery 03-62-010	mgd	2.57	1	31	1.00
0705	Montgomery 03-62-010	mgd	2.57	2	1	0.95
0705	Montgomery 03-62-010	mgd	2.57	2	29	0.95
0705	Montgomery 03-62-010	mgd	2.57	3	1	0.93
0705	Montgomery 03-62-010	mgd	2.57	3	31	0.93
0705	Montgomery 03-62-010	mgd	2.57	4	1	0.94
0705	Montgomery 03-62-010	mgd	2.57	4	30	0.94
0705	Montgomery 03-62-010	mgd	2.57	5	1	1.02
0705	Montgomery 03-62-010	mgd	2.57	5	31	1.02
0705	Montgomery 03-62-010	mgd	2.57	6	1	1.07
0705	Montgomery 03-62-010	mgd	2.57	6	30	1.07
0705	Montgomery 03-62-010	mgd	2.57	7	1	1.08
0705	Montgomery 03-62-010	mgd	2.57	7	31	1.08
0705	Montgomery 03-62-010	mgd	2.57	8	1	1.07

Node Number	Name	Units	Factor	Month	Day	Demand
0705	Montgomery 03-62-010	mgd	2.57	8	31	1.07
0705	Montgomery 03-62-010	mgd	2.57	9	1	1.05
0705	Montgomery 03-62-010	mgd	2.57	9	30	1.05
0705	Montgomery 03-62-010	mgd	2.57	10	1	1.00
0705	Montgomery 03-62-010	mgd	2.57	10	31	1.00
0705	Montgomery 03-62-010	mgd	2.57	11	1	0.96
0705	Montgomery 03-62-010	mgd	2.57	11	30	0.96
0705	Montgomery 03-62-010	mgd	2.57	12	1	0.93
0705	Montgomery 03-62-010	mgd	2.57	12	31	0.93
0715	Norwood 01-84-015	mgd	0.55	1	1	0.95
0715	Norwood 01-84-015	mgd	0.55	1	31	0.95
0715	Norwood 01-84-015	mgd	0.55	2	1	0.94
0715	Norwood 01-84-015	mgd	0.55	2	29	0.94
0715	Norwood 01-84-015	mgd	0.55	3	1	0.90
0715	Norwood 01-84-015	mgd	0.55	3	31	0.90
0715	Norwood 01-84-015	mgd	0.55	4	1	0.93
0715	Norwood 01-84-015	mgd	0.55	4	30	0.93
0715	Norwood 01-84-015	mgd	0.55	5	1	1.02
0715	Norwood 01-84-015	mgd	0.55	5	31	1.02
0715	Norwood 01-84-015	mgd	0.55	6	1	1.07
0715	Norwood 01-84-015	mgd	0.55	6	30	1.07
0715	Norwood 01-84-015	mgd	0.55	7	1	1.07
0715	Norwood 01-84-015	mgd	0.55	7	31	1.07
0715	Norwood 01-84-015	mgd	0.55	8	1	1.09
0715	Norwood 01-84-015	mgd	0.55	8	31	1.09
0715	Norwood 01-84-015	mgd	0.55	9	1	1.05
0715	Norwood 01-84-015	mgd	0.55	9	30	1.05
0715	Norwood 01-84-015	mgd	0.55	10	1	1.01
0715	Norwood 01-84-015	mgd	0.55	10	31	1.01
0715	Norwood 01-84-015	mgd	0.55	11	1	0.99
0715	Norwood 01-84-015	mgd	0.55	11	30	0.99
0715	Norwood 01-84-015	mgd	0.55	12	1	0.97
0715	Norwood 01-84-015	mgd	0.55	12	31	0.97
0775	Kannapolis 01-80-065	mgd	4.95	1	1	0.92
0775	Kannapolis 01-80-065	mgd	4.95	1	31	0.92
0775	Kannapolis 01-80-065	mgd	4.95	2	1	0.91
0775	Kannapolis 01-80-065	mgd	4.95	2	29	0.91
0775	Kannapolis 01-80-065	mgd	4.95	3	1	0.90
0775	Kannapolis 01-80-065	mgd	4.95	3	31	0.90
0775	Kannapolis 01-80-065	mgd	4.95	4	1	0.94

Node Number	Name	Units	Factor	Month	Day	Demand
0775	Kannapolis 01-80-065	mgd	4.95	4	30	0.94
0775	Kannapolis 01-80-065	mgd	4.95	5	1	1.04
0775	Kannapolis 01-80-065	mgd	4.95	5	31	1.04
0775	Kannapolis 01-80-065	mgd	4.95	6	1	1.06
0775	Kannapolis 01-80-065	mgd	4.95	6	30	1.06
0775	Kannapolis 01-80-065	mgd	4.95	7	1	1.08
0775	Kannapolis 01-80-065	mgd	4.95	7	31	1.08
0775	Kannapolis 01-80-065	mgd	4.95	8	1	1.09
0775	Kannapolis 01-80-065	mgd	4.95	8	31	1.09
0775	Kannapolis 01-80-065	mgd	4.95	9	1	1.06
0775	Kannapolis 01-80-065	mgd	4.95	9	30	1.06
0775	Kannapolis 01-80-065	mgd	4.95	10	1	1.06
0775	Kannapolis 01-80-065	mgd	4.95	10	31	1.06
0775	Kannapolis 01-80-065	mgd	4.95	11	1	1.00
0775	Kannapolis 01-80-065	mgd	4.95	11	30	1.00
0775	Kannapolis 01-80-065	mgd	4.95	12	1	0.94
0775	Kannapolis 01-80-065	mgd	4.95	12	31	0.94
0785	Concord 01-13-010	mgd	11.93	1	1	0.88
0785	Concord 01-13-010	mgd	11.93	1	31	0.88
0785	Concord 01-13-010	mgd	11.93	2	1	0.90
0785	Concord 01-13-010	mgd	11.93	2	29	0.90
0785	Concord 01-13-010	mgd	11.93	3	1	0.88
0785	Concord 01-13-010	mgd	11.93	3	31	0.88
0785	Concord 01-13-010	mgd	11.93	4	1	0.94
0785	Concord 01-13-010	mgd	11.93	4	30	0.94
0785	Concord 01-13-010	mgd	11.93	5	1	1.07
0785	Concord 01-13-010	mgd	11.93	5	31	1.07
0785	Concord 01-13-010	mgd	11.93	6	1	1.10
0785	Concord 01-13-010	mgd	11.93	6	30	1.10
0785	Concord 01-13-010	mgd	11.93	7	1	1.09
0785	Concord 01-13-010	mgd	11.93	7	31	1.09
0785	Concord 01-13-010	mgd	11.93	8	1	1.11
0785	Concord 01-13-010	mgd	11.93	8	31	1.11
0785	Concord 01-13-010	mgd	11.93	9	1	1.07
0785	Concord 01-13-010	mgd	11.93	9	30	1.07
0785	Concord 01-13-010	mgd	11.93	10	1	1.06
0785	Concord 01-13-010	mgd	11.93	10	31	1.06
0785	Concord 01-13-010	mgd	11.93	11	1	0.99
0785	Concord 01-13-010	mgd	11.93	11	30	0.99
0785	Concord 01-13-010	mgd	11.93	12	1	0.90

Node Number	Name	Units	Factor	Month	Day	Demand
0785	Concord 01-13-010	mgd	11.93	12	31	0.90
0825	Mount Pleasant 01-13-020	mgd	0.24	1	1	0.89
0825	Mount Pleasant 01-13-020	mgd	0.24	1	31	0.89
0825	Mount Pleasant 01-13-020	mgd	0.24	2	1	0.95
0825	Mount Pleasant 01-13-020	mgd	0.24	2	29	0.95
0825	Mount Pleasant 01-13-020	mgd	0.24	3	1	0.95
0825	Mount Pleasant 01-13-020	mgd	0.24	3	31	0.95
0825	Mount Pleasant 01-13-020	mgd	0.24	4	1	0.98
0825	Mount Pleasant 01-13-020	mgd	0.24	4	30	0.98
0825	Mount Pleasant 01-13-020	mgd	0.24	5	1	1.10
0825	Mount Pleasant 01-13-020	mgd	0.24	5	31	1.10
0825	Mount Pleasant 01-13-020	mgd	0.24	6	1	1.11
0825	Mount Pleasant 01-13-020	mgd	0.24	6	30	1.11
0825	Mount Pleasant 01-13-020	mgd	0.24	7	1	1.02
0825	Mount Pleasant 01-13-020	mgd	0.24	7	31	1.02
0825	Mount Pleasant 01-13-020	mgd	0.24	8	1	1.06
0825	Mount Pleasant 01-13-020	mgd	0.24	8	31	1.06
0825	Mount Pleasant 01-13-020	mgd	0.24	9	1	1.10
0825	Mount Pleasant 01-13-020	mgd	0.24	9	30	1.10
0825	Mount Pleasant 01-13-020	mgd	0.24	10	1	1.07
0825	Mount Pleasant 01-13-020	mgd	0.24	10	31	1.07
0825	Mount Pleasant 01-13-020	mgd	0.24	11	1	0.96
0825	Mount Pleasant 01-13-020	mgd	0.24	11	30	0.96
0825	Mount Pleasant 01-13-020	mgd	0.24	12	1	0.94
0825	Mount Pleasant 01-13-020	mgd	0.24	12	31	0.94
0845	Flowe Farms 0838-0001	mgd	0.18	1	1	0.00
0845	Flowe Farms 0838-0001	mgd	0.18	1	31	0.00
0845	Flowe Farms 0838-0001	mgd	0.18	2	1	0.00
0845	Flowe Farms 0838-0001	mgd	0.18	2	29	0.00
0845	Flowe Farms 0838-0001	mgd	0.18	3	1	0.00
0845	Flowe Farms 0838-0001	mgd	0.18	3	31	0.00
0845	Flowe Farms 0838-0001	mgd	0.18	4	1	0.00
0845	Flowe Farms 0838-0001	mgd	0.18	4	30	0.00
0845	Flowe Farms 0838-0001	mgd	0.18	5	1	0.73
0845	Flowe Farms 0838-0001	mgd	0.18	5	31	0.73
0845	Flowe Farms 0838-0001	mgd	0.18	6	1	3.45
0845	Flowe Farms 0838-0001	mgd	0.18	6	30	3.45
0845	Flowe Farms 0838-0001	mgd	0.18	7	1	3.52
0845	Flowe Farms 0838-0001	mgd	0.18	7	31	3.52
0845	Flowe Farms 0838-0001	mgd	0.18	8	1	3.07

Node Number	Name	Units	Factor	Month	Day	Demand
0845	Flowe Farms 0838-0001	mgd	0.18	8	31	3.07
0845	Flowe Farms 0838-0001	mgd	0.18	9	1	1.22
0845	Flowe Farms 0838-0001	mgd	0.18	9	30	1.22
0845	Flowe Farms 0838-0001	mgd	0.18	10	1	0.00
0845	Flowe Farms 0838-0001	mgd	0.18	10	31	0.00
0845	Flowe Farms 0838-0001	mgd	0.18	11	1	0.00
0845	Flowe Farms 0838-0001	mgd	0.18	11	30	0.00
0845	Flowe Farms 0838-0001	mgd	0.18	12	1	0.00
0845	Flowe Farms 0838-0001	mgd	0.18	12	31	0.00
0855	Monroe 01-90-010	mgd	6.61	1	1	0.93
0855	Monroe 01-90-010	mgd	6.61	1	31	0.93
0855	Monroe 01-90-010	mgd	6.61	2	1	0.92
0855	Monroe 01-90-010	mgd	6.61	2	29	0.92
0855	Monroe 01-90-010	mgd	6.61	3	1	0.95
0855	Monroe 01-90-010	mgd	6.61	3	31	0.95
0855	Monroe 01-90-010	mgd	6.61	4	1	0.95
0855	Monroe 01-90-010	mgd	6.61	4	30	0.95
0855	Monroe 01-90-010	mgd	6.61	5	1	1.01
0855	Monroe 01-90-010	mgd	6.61	5	31	1.01
0855	Monroe 01-90-010	mgd	6.61	6	1	1.07
0855	Monroe 01-90-010	mgd	6.61	6	30	1.07
0855	Monroe 01-90-010	mgd	6.61	7	1	1.10
0855	Monroe 01-90-010	mgd	6.61	7	31	1.10
0855	Monroe 01-90-010	mgd	6.61	8	1	1.11
0855	Monroe 01-90-010	mgd	6.61	8	31	1.11
0855	Monroe 01-90-010	mgd	6.61	9	1	1.07
0855	Monroe 01-90-010	mgd	6.61	9	30	1.07
0855	Monroe 01-90-010	mgd	6.61	10	1	1.03
0855	Monroe 01-90-010	mgd	6.61	10	31	1.03
0855	Monroe 01-90-010	mgd	6.61	11	1	0.97
0855	Monroe 01-90-010	mgd	6.61	11	30	0.97
0855	Monroe 01-90-010	mgd	6.61	12	1	0.88
0855	Monroe 01-90-010	mgd	6.61	12	31	0.88
0875	ATI Allvac Demand 0338-0001	MGD	0	1	1	1.00
0875	ATI Allvac Demand 0338-0001	MGD	0	1	31	1.00
0875	ATI Allvac Demand 0338-0001	MGD	0	2	1	1.00
0875	ATI Allvac Demand 0338-0001	MGD	0	2	29	1.00
0875	ATI Allvac Demand 0338-0001	MGD	0	3	1	1.00
0875	ATI Allvac Demand 0338-0001	MGD	0	3	31	1.00
0875	ATI Allvac Demand 0338-0001	MGD	0	4	1	1.00

Node Number	Name	Units	Factor	Month	Day	Demand
0875	ATI Allvac Demand 0338-0001	MGD	0	4	30	1.00
0875	ATI Allvac Demand 0338-0001	MGD	0	5	1	1.00
0875	ATI Allvac Demand 0338-0001	MGD	0	5	31	1.00
0875	ATI Allvac Demand 0338-0001	MGD	0	6	1	1.00
0875	ATI Allvac Demand 0338-0001	MGD	0	6	30	1.00
0875	ATI Allvac Demand 0338-0001	MGD	0	7	1	1.00
0875	ATI Allvac Demand 0338-0001	MGD	0	7	31	1.00
0875	ATI Allvac Demand 0338-0001	MGD	0	8	1	1.00
0875	ATI Allvac Demand 0338-0001	MGD	0	8	31	1.00
0875	ATI Allvac Demand 0338-0001	MGD	0	9	1	1.00
0875	ATI Allvac Demand 0338-0001	MGD	0	9	30	1.00
0875	ATI Allvac Demand 0338-0001	MGD	0	10	1	1.00
0875	ATI Allvac Demand 0338-0001	MGD	0	10	31	1.00
0875	ATI Allvac Demand 0338-0001	MGD	0	11	1	1.00
0875	ATI Allvac Demand 0338-0001	MGD	0	11	30	1.00
0875	ATI Allvac Demand 0338-0001	MGD	0	12	1	1.00
0875	ATI Allvac Demand 0338-0001	MGD	0	12	31	1.00
0885	Hedrick Aquadale Quarry 0356-0003	mgd	0.28	1	1	0.98
0885	Hedrick Aquadale Quarry 0356-0003	mgd	0.28	1	31	0.98
0885	Hedrick Aquadale Quarry 0356-0003	mgd	0.28	2	1	1.09
0885	Hedrick Aquadale Quarry 0356-0003	mgd	0.28	2	29	1.09
0885	Hedrick Aquadale Quarry 0356-0003	mgd	0.28	3	1	0.98
0885	Hedrick Aquadale Quarry 0356-0003	mgd	0.28	3	31	0.98
0885	Hedrick Aquadale Quarry 0356-0003	mgd	0.28	4	1	1.01
0885	Hedrick Aquadale Quarry 0356-0003	mgd	0.28	4	30	1.01
0885	Hedrick Aquadale Quarry 0356-0003	mgd	0.28	5	1	0.98
0885	Hedrick Aquadale Quarry 0356-0003	mgd	0.28	5	31	0.98
0885	Hedrick Aquadale Quarry 0356-0003	mgd	0.28	6	1	1.01
0885	Hedrick Aquadale Quarry 0356-0003	mgd	0.28	6	30	1.01
0885	Hedrick Aquadale Quarry 0356-0003	mgd	0.28	7	1	0.98
0885	Hedrick Aquadale Quarry 0356-0003	mgd	0.28	7	31	0.98
0885	Hedrick Aquadale Quarry 0356-0003	mgd	0.28	8	1	0.98
0885	Hedrick Aquadale Quarry 0356-0003	mgd	0.28	8	31	0.98
0885	Hedrick Aquadale Quarry 0356-0003	mgd	0.28	9	1	1.01
0885	Hedrick Aquadale Quarry 0356-0003	mgd	0.28	9	30	1.01
0885	Hedrick Aquadale Quarry 0356-0003	mgd	0.28	10	1	0.98
0885	Hedrick Aquadale Quarry 0356-0003	mgd	0.28	10	31	0.98
0885	Hedrick Aquadale Quarry 0356-0003	mgd	0.28	11	1	1.01
0885	Hedrick Aquadale Quarry 0356-0003	mgd	0.28	11	30	1.01
0885	Hedrick Aquadale Quarry 0356-0003	mgd	0.28	12	1	0.98

Node Number	Name	Units	Factor	Month	Day	Demand
0885	Hedrick Aquadale Quarry 0356-0003	mgd	0.28	12	31	0.98
0915	Hedrick Norman Sand Co Demand 0356-0004	mgd	0.3	1	1	0.98
0915	Hedrick Norman Sand Co Demand 0356-0004	mgd	0.3	1	31	0.98
0915	Hedrick Norman Sand Co Demand 0356-0004	mgd	0.3	2	1	1.09
0915	Hedrick Norman Sand Co Demand 0356-0004	mgd	0.3	2	29	1.09
0915	Hedrick Norman Sand Co Demand 0356-0004	mgd	0.3	3	1	0.98
0915	Hedrick Norman Sand Co Demand 0356-0004	mgd	0.3	3	31	0.98
0915	Hedrick Norman Sand Co Demand 0356-0004	mgd	0.3	4	1	1.01
0915	Hedrick Norman Sand Co Demand 0356-0004	mgd	0.3	4	30	1.01
0915	Hedrick Norman Sand Co Demand 0356-0004	mgd	0.3	5	1	0.98
0915	Hedrick Norman Sand Co Demand 0356-0004	mgd	0.3	5	31	0.98
0915	Hedrick Norman Sand Co Demand 0356-0004	mgd	0.3	6	1	1.01
0915	Hedrick Norman Sand Co Demand 0356-0004	mgd	0.3	6	30	1.01
0915	Hedrick Norman Sand Co Demand 0356-0004	mgd	0.3	7	1	0.98
0915	Hedrick Norman Sand Co Demand 0356-0004	mgd	0.3	7	31	0.98
0915	Hedrick Norman Sand Co Demand 0356-0004	mgd	0.3	8	1	0.98
0915	Hedrick Norman Sand Co Demand 0356-0004	mgd	0.3	8	31	0.98
0915	Hedrick Norman Sand Co Demand 0356-0004	mgd	0.3	9	1	1.01
0915	Hedrick Norman Sand Co Demand 0356-0004	mgd	0.3	9	30	1.01
0915	Hedrick Norman Sand Co Demand 0356-0004	mgd	0.3	10	1	0.98
0915	Hedrick Norman Sand Co Demand 0356-0004	mgd	0.3	10	31	0.98
0915	Hedrick Norman Sand Co Demand 0356-0004	mgd	0.3	11	1	1.01
0915	Hedrick Norman Sand Co Demand 0356-0004	mgd	0.3	11	30	1.01
0915	Hedrick Norman Sand Co Demand 0356-0004	mgd	0.3	12	1	0.98
0915	Hedrick Norman Sand Co Demand 0356-0004	mgd	0.3	12	31	0.98
0925	Richmond Co. 03-77-109	mgd	4.14	1	1	0.98
0925	Richmond Co. 03-77-109	mgd	4.14	1	31	0.98
0925	Richmond Co. 03-77-109	mgd	4.14	2	1	0.93
0925	Richmond Co. 03-77-109	mgd	4.14	2	29	0.93
0925	Richmond Co. 03-77-109	mgd	4.14	3	1	0.89
0925	Richmond Co. 03-77-109	mgd	4.14	3	31	0.89
0925	Richmond Co. 03-77-109	mgd	4.14	4	1	0.90
0925	Richmond Co. 03-77-109	mgd	4.14	4	30	0.90
0925	Richmond Co. 03-77-109	mgd	4.14	5	1	1.02
0925	Richmond Co. 03-77-109	mgd	4.14	5	31	1.02
0925	Richmond Co. 03-77-109	mgd	4.14	6	1	1.13
0925	Richmond Co. 03-77-109	mgd	4.14	6	30	1.13
0925	Richmond Co. 03-77-109	mgd	4.14	7	1	1.15
0925	Richmond Co. 03-77-109	mgd	4.14	7	31	1.15
0925	Richmond Co. 03-77-109	mgd	4.14	8	1	1.15

Node Number	Name	Units	Factor	Month	Day	Demand
0925	Richmond Co. 03-77-109	mgd	4.14	8	31	1.15
0925	Richmond Co. 03-77-109	mgd	4.14	9	1	1.07
0925	Richmond Co. 03-77-109	mgd	4.14	9	30	1.07
0925	Richmond Co. 03-77-109	mgd	4.14	10	1	0.99
0925	Richmond Co. 03-77-109	mgd	4.14	10	31	0.99
0925	Richmond Co. 03-77-109	mgd	4.14	11	1	0.91
0925	Richmond Co. 03-77-109	mgd	4.14	11	30	0.91
0925	Richmond Co. 03-77-109	mgd	4.14	12	1	0.90
0925	Richmond Co. 03-77-109	mgd	4.14	12	31	0.90
0935	Duke - Smith Energy Complex (Net WD)	MGD	4.18	1	1	0.90
0935	Duke - Smith Energy Complex (Net WD)	MGD	4.18	1	31	0.90
0935	Duke - Smith Energy Complex (Net WD)	MGD	4.18	2	1	1.11
0935	Duke - Smith Energy Complex (Net WD)	MGD	4.18	2	29	1.11
0935	Duke - Smith Energy Complex (Net WD)	MGD	4.18	3	1	1.13
0935	Duke - Smith Energy Complex (Net WD)	MGD	4.18	3	31	1.13
0935	Duke - Smith Energy Complex (Net WD)	MGD	4.18	4	1	0.97
0935	Duke - Smith Energy Complex (Net WD)	MGD	4.18	4	30	0.97
0935	Duke - Smith Energy Complex (Net WD)	MGD	4.18	5	1	0.97
0935	Duke - Smith Energy Complex (Net WD)	MGD	4.18	5	31	0.97
0935	Duke - Smith Energy Complex (Net WD)	MGD	4.18	6	1	1.07
0935	Duke - Smith Energy Complex (Net WD)	MGD	4.18	6	30	1.07
0935	Duke - Smith Energy Complex (Net WD)	MGD	4.18	7	1	1.29
0935	Duke - Smith Energy Complex (Net WD)	MGD	4.18	7	31	1.29
0935	Duke - Smith Energy Complex (Net WD)	MGD	4.18	8	1	1.27
0935	Duke - Smith Energy Complex (Net WD)	MGD	4.18	8	31	1.27
0935	Duke - Smith Energy Complex (Net WD)	MGD	4.18	9	1	1.00
0935	Duke - Smith Energy Complex (Net WD)	MGD	4.18	9	30	1.00
0935	Duke - Smith Energy Complex (Net WD)	MGD	4.18	10	1	0.65
0935	Duke - Smith Energy Complex (Net WD)	MGD	4.18	10	31	0.65
0935	Duke - Smith Energy Complex (Net WD)	MGD	4.18	11	1	0.67
0935	Duke - Smith Energy Complex (Net WD)	MGD	4.18	11	30	0.67
0935	Duke - Smith Energy Complex (Net WD)	MGD	4.18	12	1	0.97
0935	Duke - Smith Energy Complex (Net WD)	MGD	4.18	12	31	0.97
0945	Hedrick G&S Mine 0420-0003	mgd	1.79	1	1	0.98
0945	Hedrick G&S Mine 0420-0003	mgd	1.79	1	31	0.98
0945	Hedrick G&S Mine 0420-0003	mgd	1.79	2	1	1.09
0945	Hedrick G&S Mine 0420-0003	mgd	1.79	2	29	1.09
0945	Hedrick G&S Mine 0420-0003	mgd	1.79	3	1	0.98
0945	Hedrick G&S Mine 0420-0003	mgd	1.79	3	31	0.98
0945	Hedrick G&S Mine 0420-0003	mgd	1.79	4	1	1.01

Node Number	Name	Units	Factor	Month	Day	Demand
0945	Hedrick G&S Mine 0420-0003	mgd	1.79	4	30	1.01
0945	Hedrick G&S Mine 0420-0003	mgd	1.79	5	1	0.98
0945	Hedrick G&S Mine 0420-0003	mgd	1.79	5	31	0.98
0945	Hedrick G&S Mine 0420-0003	mgd	1.79	6	1	1.01
0945	Hedrick G&S Mine 0420-0003	mgd	1.79	6	30	1.01
0945	Hedrick G&S Mine 0420-0003	mgd	1.79	7	1	0.98
0945	Hedrick G&S Mine 0420-0003	mgd	1.79	7	31	0.98
0945	Hedrick G&S Mine 0420-0003	mgd	1.79	8	1	0.98
0945	Hedrick G&S Mine 0420-0003	mgd	1.79	8	31	0.98
0945	Hedrick G&S Mine 0420-0003	mgd	1.79	9	1	1.01
0945	Hedrick G&S Mine 0420-0003	mgd	1.79	9	30	1.01
0945	Hedrick G&S Mine 0420-0003	mgd	1.79	10	1	0.98
0945	Hedrick G&S Mine 0420-0003	mgd	1.79	10	31	0.98
0945	Hedrick G&S Mine 0420-0003	mgd	1.79	11	1	1.01
0945	Hedrick G&S Mine 0420-0003	mgd	1.79	11	30	1.01
0945	Hedrick G&S Mine 0420-0003	mgd	1.79	12	1	0.98
0945	Hedrick G&S Mine 0420-0003	mgd	1.79	12	31	0.98
0955	Rockingham 03-77-015	mgd	3.25	1	1	0.97
0955	Rockingham 03-77-015	mgd	3.25	1	31	0.97
0955	Rockingham 03-77-015	mgd	3.25	2	1	0.96
0955	Rockingham 03-77-015	mgd	3.25	2	29	0.96
0955	Rockingham 03-77-015	mgd	3.25	3	1	0.98
0955	Rockingham 03-77-015	mgd	3.25	3	31	0.98
0955	Rockingham 03-77-015	mgd	3.25	4	1	0.97
0955	Rockingham 03-77-015	mgd	3.25	4	30	0.97
0955	Rockingham 03-77-015	mgd	3.25	5	1	1.01
0955	Rockingham 03-77-015	mgd	3.25	5	31	1.01
0955	Rockingham 03-77-015	mgd	3.25	6	1	1.05
0955	Rockingham 03-77-015	mgd	3.25	6	30	1.05
0955	Rockingham 03-77-015	mgd	3.25	7	1	1.05
0955	Rockingham 03-77-015	mgd	3.25	7	31	1.05
0955	Rockingham 03-77-015	mgd	3.25	8	1	1.05
0955	Rockingham 03-77-015	mgd	3.25	8	31	1.05
0955	Rockingham 03-77-015	mgd	3.25	9	1	1.01
0955	Rockingham 03-77-015	mgd	3.25	9	30	1.01
0955	Rockingham 03-77-015	mgd	3.25	10	1	1.01
0955	Rockingham 03-77-015	mgd	3.25	10	31	1.01
0955	Rockingham 03-77-015	mgd	3.25	11	1	0.98
0955	Rockingham 03-77-015	mgd	3.25	11	30	0.98
0955	Rockingham 03-77-015	mgd	3.25	12	1	0.97

Node Number	Name	Units	Factor	Month	Day	Demand
0955	Rockingham 03-77-015	mgd	3.25	12	31	0.97
0975	Anson Co. 03-04-010	MGD	4.84	1	1	0.85
0975	Anson Co. 03-04-010	MGD	4.84	1	31	0.85
0975	Anson Co. 03-04-010	MGD	4.84	2	1	0.83
0975	Anson Co. 03-04-010	MGD	4.84	2	29	0.83
0975	Anson Co. 03-04-010	MGD	4.84	3	1	0.82
0975	Anson Co. 03-04-010	MGD	4.84	3	31	0.82
0975	Anson Co. 03-04-010	MGD	4.84	4	1	0.92
0975	Anson Co. 03-04-010	MGD	4.84	4	30	0.92
0975	Anson Co. 03-04-010	MGD	4.84	5	1	1.04
0975	Anson Co. 03-04-010	MGD	4.84	5	31	1.04
0975	Anson Co. 03-04-010	MGD	4.84	6	1	1.20
0975	Anson Co. 03-04-010	MGD	4.84	6	30	1.20
0975	Anson Co. 03-04-010	MGD	4.84	7	1	1.27
0975	Anson Co. 03-04-010	MGD	4.84	7	31	1.27
0975	Anson Co. 03-04-010	MGD	4.84	8	1	1.15
0975	Anson Co. 03-04-010	MGD	4.84	8	31	1.15
0975	Anson Co. 03-04-010	MGD	4.84	9	1	1.13
0975	Anson Co. 03-04-010	MGD	4.84	9	30	1.13
0975	Anson Co. 03-04-010	MGD	4.84	10	1	1.02
0975	Anson Co. 03-04-010	MGD	4.84	10	31	1.02
0975	Anson Co. 03-04-010	MGD	4.84	11	1	0.92
0975	Anson Co. 03-04-010	MGD	4.84	11	30	0.92
0975	Anson Co. 03-04-010	MGD	4.84	12	1	0.85
0975	Anson Co. 03-04-010	MGD	4.84	12	31	0.85
0985	Hamlet 03-77-010	mgd	1.07	1	1	1.01
0985	Hamlet 03-77-010	mgd	1.07	1	31	1.01
0985	Hamlet 03-77-010	mgd	1.07	2	1	0.94
0985	Hamlet 03-77-010	mgd	1.07	2	29	0.94
0985	Hamlet 03-77-010	mgd	1.07	3	1	0.92
0985	Hamlet 03-77-010	mgd	1.07	3	31	0.92
0985	Hamlet 03-77-010	mgd	1.07	4	1	0.97
0985	Hamlet 03-77-010	mgd	1.07	4	30	0.97
0985	Hamlet 03-77-010	mgd	1.07	5	1	1.06
0985	Hamlet 03-77-010	mgd	1.07	5	31	1.06
0985	Hamlet 03-77-010	mgd	1.07	6	1	1.11
0985	Hamlet 03-77-010	mgd	1.07	6	30	1.11
0985	Hamlet 03-77-010	mgd	1.07	7	1	1.11
0985	Hamlet 03-77-010	mgd	1.07	7	31	1.11
0985	Hamlet 03-77-010	mgd	1.07	8	1	1.10

Node Number	Name	Units	Factor	Month	Day	Demand
0985	Hamlet 03-77-010	mgd	1.07	8	31	1.10
0985	Hamlet 03-77-010	mgd	1.07	9	1	1.07
0985	Hamlet 03-77-010	mgd	1.07	9	30	1.07
0985	Hamlet 03-77-010	mgd	1.07	10	1	0.93
0985	Hamlet 03-77-010	mgd	1.07	10	31	0.93
0985	Hamlet 03-77-010	mgd	1.07	11	1	0.89
0985	Hamlet 03-77-010	mgd	1.07	11	30	0.89
0985	Hamlet 03-77-010	mgd	1.07	12	1	0.91
0985	Hamlet 03-77-010	mgd	1.07	12	31	0.91
1005	APAC Candor Sand Plant 0865-0001	mgd	0.39	1	1	0.82
1005	APAC Candor Sand Plant 0865-0001	mgd	0.39	1	31	0.82
1005	APAC Candor Sand Plant 0865-0001	mgd	0.39	2	1	0.91
1005	APAC Candor Sand Plant 0865-0001	mgd	0.39	2	29	0.91
1005	APAC Candor Sand Plant 0865-0001	mgd	0.39	3	1	0.82
1005	APAC Candor Sand Plant 0865-0001	mgd	0.39	3	31	0.82
1005	APAC Candor Sand Plant 0865-0001	mgd	0.39	4	1	1.06
1005	APAC Candor Sand Plant 0865-0001	mgd	0.39	4	30	1.06
1005	APAC Candor Sand Plant 0865-0001	mgd	0.39	5	1	1.15
1005	APAC Candor Sand Plant 0865-0001	mgd	0.39	5	31	1.15
1005	APAC Candor Sand Plant 0865-0001	mgd	0.39	6	1	1.19
1005	APAC Candor Sand Plant 0865-0001	mgd	0.39	6	30	1.19
1005	APAC Candor Sand Plant 0865-0001	mgd	0.39	7	1	1.03
1005	APAC Candor Sand Plant 0865-0001	mgd	0.39	7	31	1.03
1005	APAC Candor Sand Plant 0865-0001	mgd	0.39	8	1	1.03
1005	APAC Candor Sand Plant 0865-0001	mgd	0.39	8	31	1.03
1005	APAC Candor Sand Plant 0865-0001	mgd	0.39	9	1	1.06
1005	APAC Candor Sand Plant 0865-0001	mgd	0.39	9	30	1.06
1005	APAC Candor Sand Plant 0865-0001	mgd	0.39	10	1	1.03
1005	APAC Candor Sand Plant 0865-0001	mgd	0.39	10	31	1.03
1005	APAC Candor Sand Plant 0865-0001	mgd	0.39	11	1	1.06
1005	APAC Candor Sand Plant 0865-0001	mgd	0.39	11	30	1.06
1005	APAC Candor Sand Plant 0865-0001	mgd	0.39	12	1	0.82
1005	APAC Candor Sand Plant 0865-0001	mgd	0.39	12	31	0.82
1025	Southern Pines 03-63-010	mgd	3.59	1	1	0.77
1025	Southern Pines 03-63-010	mgd	3.59	1	31	0.77
1025	Southern Pines 03-63-010	mgd	3.59	2	1	0.71
1025	Southern Pines 03-63-010	mgd	3.59	2	29	0.71
1025	Southern Pines 03-63-010	mgd	3.59	3	1	0.83
1025	Southern Pines 03-63-010	mgd	3.59	3	31	0.83
1025	Southern Pines 03-63-010	mgd	3.59	4	1	0.95

Node Number	Name	Units	Factor	Month	Day	Demand
1025	Southern Pines 03-63-010	mgd	3.59	4	30	0.95
1025	Southern Pines 03-63-010	mgd	3.59	5	1	1.15
1025	Southern Pines 03-63-010	mgd	3.59	5	31	1.15
1025	Southern Pines 03-63-010	mgd	3.59	6	1	1.21
1025	Southern Pines 03-63-010	mgd	3.59	6	30	1.21
1025	Southern Pines 03-63-010	mgd	3.59	7	1	1.19
1025	Southern Pines 03-63-010	mgd	3.59	7	31	1.19
1025	Southern Pines 03-63-010	mgd	3.59	8	1	1.20
1025	Southern Pines 03-63-010	mgd	3.59	8	31	1.20
1025	Southern Pines 03-63-010	mgd	3.59	9	1	1.20
1025	Southern Pines 03-63-010	mgd	3.59	9	30	1.20
1025	Southern Pines 03-63-010	mgd	3.59	10	1	1.06
1025	Southern Pines 03-63-010	mgd	3.59	10	31	1.06
1025	Southern Pines 03-63-010	mgd	3.59	11	1	0.94
1025	Southern Pines 03-63-010	mgd	3.59	11	30	0.94
1025	Southern Pines 03-63-010	mgd	3.59	12	1	0.78
1025	Southern Pines 03-63-010	mgd	3.59	12	31	0.78
1055	Cascades Wagram Plant 0095-0001	mgd	0.01	1	1	1.35
1055	Cascades Wagram Plant 0095-0001	mgd	0.01	1	31	1.35
1055	Cascades Wagram Plant 0095-0001	mgd	0.01	2	1	3.29
1055	Cascades Wagram Plant 0095-0001	mgd	0.01	2	29	3.29
1055	Cascades Wagram Plant 0095-0001	mgd	0.01	3	1	0.85
1055	Cascades Wagram Plant 0095-0001	mgd	0.01	3	31	0.85
1055	Cascades Wagram Plant 0095-0001	mgd	0.01	4	1	2.18
1055	Cascades Wagram Plant 0095-0001	mgd	0.01	4	30	2.18
1055	Cascades Wagram Plant 0095-0001	mgd	0.01	5	1	0.56
1055	Cascades Wagram Plant 0095-0001	mgd	0.01	5	31	0.56
1055	Cascades Wagram Plant 0095-0001	mgd	0.01	6	1	1.13
1055	Cascades Wagram Plant 0095-0001	mgd	0.01	6	30	1.13
1055	Cascades Wagram Plant 0095-0001	mgd	0.01	7	1	0.55
1055	Cascades Wagram Plant 0095-0001	mgd	0.01	7	31	0.55
1055	Cascades Wagram Plant 0095-0001	mgd	0.01	8	1	0.16
1055	Cascades Wagram Plant 0095-0001	mgd	0.01	8	31	0.16
1055	Cascades Wagram Plant 0095-0001	mgd	0.01	9	1	0.75
1055	Cascades Wagram Plant 0095-0001	mgd	0.01	9	30	0.75
1055	Cascades Wagram Plant 0095-0001	mgd	0.01	10	1	0.38
1055	Cascades Wagram Plant 0095-0001	mgd	0.01	10	31	0.38
1055	Cascades Wagram Plant 0095-0001	mgd	0.01	11	1	0.69
1055	Cascades Wagram Plant 0095-0001	mgd	0.01	11	30	0.69
1055	Cascades Wagram Plant 0095-0001	mgd	0.01	12	1	0.12

Node Number	Name	Units	Factor	Month	Day	Demand
1055	Cascades Wagram Plant 0095-0001	mgd	0.01	12	31	0.12
1205	Covia Marston Facility 0194-0004	mgd	1.55	1	1	0.76
1205	Covia Marston Facility 0194-0004	mgd	1.55	1	31	0.76
1205	Covia Marston Facility 0194-0004	mgd	1.55	2	1	0.81
1205	Covia Marston Facility 0194-0004	mgd	1.55	2	29	0.81
1205	Covia Marston Facility 0194-0004	mgd	1.55	3	1	0.64
1205	Covia Marston Facility 0194-0004	mgd	1.55	3	31	0.64
1205	Covia Marston Facility 0194-0004	mgd	1.55	4	1	0.96
1205	Covia Marston Facility 0194-0004	mgd	1.55	4	30	0.96
1205	Covia Marston Facility 0194-0004	mgd	1.55	5	1	0.98
1205	Covia Marston Facility 0194-0004	mgd	1.55	5	31	0.98
1205	Covia Marston Facility 0194-0004	mgd	1.55	6	1	1.03
1205	Covia Marston Facility 0194-0004	mgd	1.55	6	30	1.03
1205	Covia Marston Facility 0194-0004	mgd	1.55	7	1	1.23
1205	Covia Marston Facility 0194-0004	mgd	1.55	7	31	1.23
1205	Covia Marston Facility 0194-0004	mgd	1.55	8	1	1.11
1205	Covia Marston Facility 0194-0004	mgd	1.55	8	31	1.11
1205	Covia Marston Facility 0194-0004	mgd	1.55	9	1	1.17
1205	Covia Marston Facility 0194-0004	mgd	1.55	9	30	1.17
1205	Covia Marston Facility 0194-0004	mgd	1.55	10	1	1.01
1205	Covia Marston Facility 0194-0004	mgd	1.55	10	31	1.01
1205	Covia Marston Facility 0194-0004	mgd	1.55	11	1	1.18
1205	Covia Marston Facility 0194-0004	mgd	1.55	11	30	1.18
1205	Covia Marston Facility 0194-0004	mgd	1.55	12	1	1.14
1205	Covia Marston Facility 0194-0004	mgd	1.55	12	31	1.14
1315	Lumberton 03-78-010	mgd	4.92	1	1	0.99
1315	Lumberton 03-78-010	mgd	4.92	1	31	0.99
1315	Lumberton 03-78-010	mgd	4.92	2	1	0.93
1315	Lumberton 03-78-010	mgd	4.92	2	29	0.93
1315	Lumberton 03-78-010	mgd	4.92	3	1	0.90
1315	Lumberton 03-78-010	mgd	4.92	3	31	0.90
1315	Lumberton 03-78-010	mgd	4.92	4	1	0.90
1315	Lumberton 03-78-010	mgd	4.92	4	30	0.90
1315	Lumberton 03-78-010	mgd	4.92	5	1	0.97
1315	Lumberton 03-78-010	mgd	4.92	5	31	0.97
1315	Lumberton 03-78-010	mgd	4.92	6	1	1.04
1315	Lumberton 03-78-010	mgd	4.92	6	30	1.04
1315	Lumberton 03-78-010	mgd	4.92	7	1	1.09
1315	Lumberton 03-78-010	mgd	4.92	7	31	1.09
1315	Lumberton 03-78-010	mgd	4.92	8	1	1.10

Node Number	Name	Units	Factor	Month	Day	Demand
1315	Lumberton 03-78-010	mgd	4.92	8	31	1.10
1315	Lumberton 03-78-010	mgd	4.92	9	1	1.07
1315	Lumberton 03-78-010	mgd	4.92	9	30	1.07
1315	Lumberton 03-78-010	mgd	4.92	10	1	1.00
1315	Lumberton 03-78-010	mgd	4.92	10	31	1.00
1315	Lumberton 03-78-010	mgd	4.92	11	1	1.03
1315	Lumberton 03-78-010	mgd	4.92	11	30	1.03
1315	Lumberton 03-78-010	mgd	4.92	12	1	0.97
1315	Lumberton 03-78-010	mgd	4.92	12	31	0.97
1325	Duke Weatherspoon Plant 0033-0010	mgd	0.09	1	1	0.39
1325	Duke Weatherspoon Plant 0033-0010	mgd	0.09	1	31	0.39
1325	Duke Weatherspoon Plant 0033-0010	mgd	0.09	2	1	0.35
1325	Duke Weatherspoon Plant 0033-0010	mgd	0.09	2	29	0.35
1325	Duke Weatherspoon Plant 0033-0010	mgd	0.09	3	1	0.00
1325	Duke Weatherspoon Plant 0033-0010	mgd	0.09	3	31	0.00
1325	Duke Weatherspoon Plant 0033-0010	mgd	0.09	4	1	0.20
1325	Duke Weatherspoon Plant 0033-0010	mgd	0.09	4	30	0.20
1325	Duke Weatherspoon Plant 0033-0010	mgd	0.09	5	1	0.78
1325	Duke Weatherspoon Plant 0033-0010	mgd	0.09	5	31	0.78
1325	Duke Weatherspoon Plant 0033-0010	mgd	0.09	6	1	1.15
1325	Duke Weatherspoon Plant 0033-0010	mgd	0.09	6	30	1.15
1325	Duke Weatherspoon Plant 0033-0010	mgd	0.09	7	1	0.76
1325	Duke Weatherspoon Plant 0033-0010	mgd	0.09	7	31	0.76
1325	Duke Weatherspoon Plant 0033-0010	mgd	0.09	8	1	0.66
1325	Duke Weatherspoon Plant 0033-0010	mgd	0.09	8	31	0.66
1325	Duke Weatherspoon Plant 0033-0010	mgd	0.09	9	1	3.22
1325	Duke Weatherspoon Plant 0033-0010	mgd	0.09	9	30	3.22
1325	Duke Weatherspoon Plant 0033-0010	mgd	0.09	10	1	2.81
1325	Duke Weatherspoon Plant 0033-0010	mgd	0.09	10	31	2.81
1325	Duke Weatherspoon Plant 0033-0010	mgd	0.09	11	1	1.09
1325	Duke Weatherspoon Plant 0033-0010	mgd	0.09	11	30	1.09
1325	Duke Weatherspoon Plant 0033-0010	mgd	0.09	12	1	0.60
1325	Duke Weatherspoon Plant 0033-0010	mgd	0.09	12	31	0.60

Wastewater Return Lookup Tables

Name	Interp	Independent	Dependent
Albemarle_Return	Lower	1	1.66
Albemarle_Return	Lower	2	1.59
Albemarle_Return	Lower	3	1.56
Albemarle_Return	Lower	4	1.51
Albemarle_Return	Lower	5	1
Albemarle_Return	Lower	6	0.87
Albemarle_Return	Lower	7	0.78
Albemarle_Return	Lower	8	0.93
Albemarle_Return	Lower	9	0.93
Albemarle_Return	Lower	10	1.01
Albemarle_Return	Lower	11	1.24
Albemarle_Return	Lower	12	1.58
Albemarle_TT_WTP_Return	Lower	1	0.02
Albemarle_TT_WTP_Return	Lower	2	0.02
Albemarle_TT_WTP_Return	Lower	3	0.02
Albemarle_TT_WTP_Return	Lower	4	0.02
Albemarle_TT_WTP_Return	Lower	5	0.01
Albemarle_TT_WTP_Return	Lower	6	0.02
Albemarle_TT_WTP_Return	Lower	7	0.02
Albemarle_TT_WTP_Return	Lower	8	0.02
Albemarle_TT_WTP_Return	Lower	9	0.02
Albemarle_TT_WTP_Return	Lower	10	0.03
Albemarle_TT_WTP_Return	Lower	11	0.03
Albemarle_TT_WTP_Return	Lower	12	0.03
AnsonCounty_Return	Lower	1	0.35
AnsonCounty_Return	Lower	2	0.33
AnsonCounty_Return	Lower	3	0.36
AnsonCounty_Return	Lower	4	0.26
AnsonCounty_Return	Lower	5	0.26
AnsonCounty_Return	Lower	6	0.22
AnsonCounty_Return	Lower	7	0.18
AnsonCounty_Return	Lower	8	0.19
AnsonCounty_Return	Lower	9	0.21
AnsonCounty_Return	Lower	10	0.13
AnsonCounty_Return	Lower	11	0.22
AnsonCounty_Return	Lower	12	0.12
AnsonCounty_WTP_Return	Lower	1	0.06
AnsonCounty_WTP_Return	Lower	2	0.06
AnsonCounty_WTP_Return	Lower	3	0.06
AnsonCounty_WTP_Return	Lower	4	0.07
AnsonCounty_WTP_Return	Lower	5	0.05
AnsonCounty_WTP_Return	Lower	6	0.05
AnsonCounty_WTP_Return	Lower	7	0.05
AnsonCounty_WTP_Return	Lower	8	0.05
AnsonCounty_WTP_Return	Lower	9	0.05
AnsonCounty_WTP_Return	Lower	10	0.06
AnsonCounty_WTP_Return	Lower	11	0.06
AnsonCounty_WTP_Return	Lower	12	0.06
ATI_Allvac_Return	Lower	1	0.12
ATI_Allvac_Return	Lower	2	0.09
ATI_Allvac_Return	Lower	3	0.09
ATI_Allvac_Return	Lower	4	0.09
ATI_Allvac_Return	Lower	5	0.07

Name	Interp	Independent	Dependent
ATI_Allvac_Return	Lower	6	0.07
ATI_Allvac_Return	Lower	7	0.08
ATI_Allvac_Return	Lower	8	0.08
ATI_Allvac_Return	Lower	9	0.07
ATI_Allvac_Return	Lower	10	0.11
ATI_Allvac_Return	Lower	11	0.1
ATI_Allvac_Return	Lower	12	0.15
BlueRidge_Return	Lower	1	0.89
BlueRidge_Return	Lower	2	0.92
BlueRidge_Return	Lower	3	0.91
BlueRidge_Return	Lower	4	1.02
BlueRidge_Return	Lower	5	0.93
BlueRidge_Return	Lower	6	0.92
BlueRidge_Return	Lower	7	1.04
BlueRidge_Return	Lower	8	0.97
BlueRidge_Return	Lower	9	0.96
BlueRidge_Return	Lower	10	0.99
BlueRidge_Return	Lower	11	0.97
BlueRidge_Return	Lower	12	1.01
Concord_Return	Lower	1	0.91
Concord_Return	Lower	2	0.82
Concord_Return	Lower	3	0.88
Concord_Return	Lower	4	0.8
Concord_Return	Lower	5	0.64
Concord_Return	Lower	6	0.59
Concord_Return	Lower	7	0.54
Concord_Return	Lower	8	0.55
Concord_Return	Lower	9	0.54
Concord_Return	Lower	10	0.56
Concord_Return	Lower	11	0.65
Concord_Return	Lower	12	0.79
Concord_WTP_Return	Lower	1	0.06
Concord_WTP_Return	Lower	2	0.07
Concord_WTP_Return	Lower	3	0.06
Concord_WTP_Return	Lower	4	0.06
Concord_WTP_Return	Lower	5	0.05
Concord_WTP_Return	Lower	6	0.05
Concord_WTP_Return	Lower	7	0.05
Concord_WTP_Return	Lower	8	0.05
Concord_WTP_Return	Lower	9	0.05
Concord_WTP_Return	Lower	10	0.06
Concord_WTP_Return	Lower	11	0.06
Concord_WTP_Return	Lower	12	0.07
DavidsonWater_WTP_Return	Lower	1	0.06
DavidsonWater_WTP_Return	Lower	2	0.06
DavidsonWater_WTP_Return	Lower	3	0.06
DavidsonWater_WTP_Return	Lower	4	0.06
DavidsonWater_WTP_Return	Lower	5	0.05
DavidsonWater_WTP_Return	Lower	6	0.04
DavidsonWater_WTP_Return	Lower	7	0.04
DavidsonWater_WTP_Return	Lower	8	0.04
DavidsonWater_WTP_Return	Lower	9	0.04
DavidsonWater_WTP_Return	Lower	10	0.05
DavidsonWater_WTP_Return	Lower	11	0.05
DavidsonWater_WTP_Return	Lower	12	0.06
DavieCounty_Return	Lower	1	0.21

Name	Interp	Independent	Dependent
DavieCounty_Return	Lower	2	0.25
DavieCounty_Return	Lower	3	0.2
DavieCounty_Return	Lower	4	0.22
DavieCounty_Return	Lower	5	0.17
DavieCounty_Return	Lower	6	0.13
DavieCounty_Return	Lower	7	0.12
DavieCounty_Return	Lower	8	0.13
DavieCounty_Return	Lower	9	0.13
DavieCounty_Return	Lower	10	0.17
DavieCounty_Return	Lower	11	0.2
DavieCounty_Return	Lower	12	0.24
DavieCounty_WTP_Return	Lower	1	0.48
DavieCounty_WTP_Return	Lower	2	0.46
DavieCounty_WTP_Return	Lower	3	0.47
DavieCounty_WTP_Return	Lower	4	0.46
DavieCounty_WTP_Return	Lower	5	0.43
DavieCounty_WTP_Return	Lower	6	0.43
DavieCounty_WTP_Return	Lower	7	0.42
DavieCounty_WTP_Return	Lower	8	0.47
DavieCounty_WTP_Return	Lower	9	0.45
DavieCounty_WTP_Return	Lower	10	0.47
DavieCounty_WTP_Return	Lower	11	0.48
DavieCounty_WTP_Return	Lower	12	0.45
Denton_Return	Lower	1	0.51
Denton_Return	Lower	2	0.49
Denton_Return	Lower	3	0.45
Denton_Return	Lower	4	0.44
Denton_Return	Lower	5	0.31
Denton_Return	Lower	6	0.27
Denton_Return	Lower	7	0.24
Denton_Return	Lower	8	0.28
Denton_Return	Lower	9	0.32
Denton_Return	Lower	10	0.36
Denton_Return	Lower	11	0.44
Denton_Return	Lower	12	0.54
Dobson_Return	Lower	1	0.19
Dobson_Return	Lower	2	0.21
Dobson_Return	Lower	3	0.19
Dobson_Return	Lower	4	0.22
Dobson_Return	Lower	5	0.22
Dobson_Return	Lower	6	0.19
Dobson_Return	Lower	7	0.18
Dobson_Return	Lower	8	0.2
Dobson_Return	Lower	9	0.19
Dobson_Return	Lower	10	0.19
Dobson_Return	Lower	11	0.21
Dobson_Return	Lower	12	0.22
Duke_BuckStation_Return	Lower	1	0
Duke_BuckStation_Return	Lower	2	0
Duke_BuckStation_Return	Lower	3	0
Duke_BuckStation_Return	Lower	4	0
Duke_BuckStation_Return	Lower	5	0
Duke_BuckStation_Return	Lower	6	0
Duke_BuckStation_Return	Lower	7	0
Duke_BuckStation_Return	Lower	8	0
Duke_BuckStation_Return	Lower	9	0

Name	Interp	Independent	Dependent
Duke_BuckStation_Return	Lower	10	0
Duke_BuckStation_Return	Lower	11	0
Duke_BuckStation_Return	Lower	12	0
Duke_SmithStation_Return	Lower	1	0
Duke_SmithStation_Return	Lower	2	0
Duke_SmithStation_Return	Lower	3	0
Duke_SmithStation_Return	Lower	4	0
Duke_SmithStation_Return	Lower	5	0
Duke_SmithStation_Return	Lower	6	0
Duke_SmithStation_Return	Lower	7	0
Duke_SmithStation_Return	Lower	8	0
Duke_SmithStation_Return	Lower	9	0
Duke_SmithStation_Return	Lower	10	0
Duke_SmithStation_Return	Lower	11	0
Duke_SmithStation_Return	Lower	12	0
Duke_Weatherspoon_Return	Lower	1	0
Duke_Weatherspoon_Return	Lower	2	0
Duke_Weatherspoon_Return	Lower	3	0
Duke_Weatherspoon_Return	Lower	4	425
Duke_Weatherspoon_Return	Lower	5	20
Duke_Weatherspoon_Return	Lower	6	0
Duke_Weatherspoon_Return	Lower	7	0
Duke_Weatherspoon_Return	Lower	8	0
Duke_Weatherspoon_Return	Lower	9	25
Duke_Weatherspoon_Return	Lower	10	55
Duke_Weatherspoon_Return	Lower	11	0
Duke_Weatherspoon_Return	Lower	12	0
Duvaltex_Return	Lower	1	0.61
Duvaltex_Return	Lower	2	0.56
Duvaltex_Return	Lower	3	0.43
Duvaltex_Return	Lower	4	0.6
Duvaltex_Return	Lower	5	0.53
Duvaltex_Return	Lower	6	0.62
Duvaltex_Return	Lower	7	0.49
Duvaltex_Return	Lower	8	0.63
Duvaltex_Return	Lower	9	0.54
Duvaltex_Return	Lower	10	0.59
Duvaltex_Return	Lower	11	0.63
Duvaltex_Return	Lower	12	0.63
Elkin_Return	Lower	1	0.8
Elkin_Return	Lower	2	0.92
Elkin_Return	Lower	3	0.74
Elkin_Return	Lower	4	0.86
Elkin_Return	Lower	5	0.77
Elkin_Return	Lower	6	0.73
Elkin_Return	Lower	7	0.63
Elkin_Return	Lower	8	0.67
Elkin_Return	Lower	9	0.62
Elkin_Return	Lower	10	0.7
Elkin_Return	Lower	11	0.71
Elkin_Return	Lower	12	0.84
Hamlet_Return	Lower	1	0.73
Hamlet_Return	Lower	2	0.73
Hamlet_Return	Lower	3	0.77
Hamlet_Return	Lower	4	0.66
Hamlet_Return	Lower	5	0.53

Name	Interp	Independent	Dependent
Hamlet_Return	Lower	6	0.48
Hamlet_Return	Lower	7	0.5
Hamlet_Return	Lower	8	0.51
Hamlet_Return	Lower	9	0.58
Hamlet_Return	Lower	10	0.72
Hamlet_Return	Lower	11	0.8
Hamlet_Return	Lower	12	0.84
Hendrick_Aquadale_Quarry_Return	Lower	1	0.96
Hendrick_Aquadale_Quarry_Return	Lower	2	1.06
Hendrick_Aquadale_Quarry_Return	Lower	3	1.02
Hendrick_Aquadale_Quarry_Return	Lower	4	0.88
Hendrick_Aquadale_Quarry_Return	Lower	5	0.87
Hendrick_Aquadale_Quarry_Return	Lower	6	0.86
Hendrick_Aquadale_Quarry_Return	Lower	7	0.79
Hendrick_Aquadale_Quarry_Return	Lower	8	0.77
Hendrick_Aquadale_Quarry_Return	Lower	9	0.82
Hendrick_Aquadale_Quarry_Return	Lower	10	0.86
Hendrick_Aquadale_Quarry_Return	Lower	11	0.89
Hendrick_Aquadale_Quarry_Return	Lower	12	0.94
Jonesville_Return	Lower	1	0.27
Jonesville_Return	Lower	2	0.3
Jonesville_Return	Lower	3	0.3
Jonesville_Return	Lower	4	0.38
Jonesville_Return	Lower	5	0.42
Jonesville_Return	Lower	6	0.29
Jonesville_Return	Lower	7	0.3
Jonesville_Return	Lower	8	0.4
Jonesville_Return	Lower	9	0.4
Jonesville_Return	Lower	10	0.4
Jonesville_Return	Lower	11	0.39
Jonesville_Return	Lower	12	0.38
Kannapolis_Return	Lower	1	0.92
Kannapolis_Return	Lower	2	0.95
Kannapolis_Return	Lower	3	0.86
Kannapolis_Return	Lower	4	0.85
Kannapolis_Return	Lower	5	0.76
Kannapolis_Return	Lower	6	0.72
Kannapolis_Return	Lower	7	0.73
Kannapolis_Return	Lower	8	0.78
Kannapolis_Return	Lower	9	0.84
Kannapolis_Return	Lower	10	0.83
Kannapolis_Return	Lower	11	0.93
Kannapolis_Return	Lower	12	1.1
Kannapolis_WTP_Return	Lower	1	0.06
Kannapolis_WTP_Return	Lower	2	0.06
Kannapolis_WTP_Return	Lower	3	0.08
Kannapolis_WTP_Return	Lower	4	0.07
Kannapolis_WTP_Return	Lower	5	0.06
Kannapolis_WTP_Return	Lower	6	0.06
Kannapolis_WTP_Return	Lower	7	0.06
Kannapolis_WTP_Return	Lower	8	0.06
Kannapolis_WTP_Return	Lower	9	0.06
Kannapolis_WTP_Return	Lower	10	0.07
Kannapolis_WTP_Return	Lower	11	0.06
Kannapolis_WTP_Return	Lower	12	0.06
King_WTP_Return	Lower	1	0.06

Name	Interp	Independent	Dependent
King_WTP_Return	Lower	2	0.06
King_WTP_Return	Lower	3	0.07
King_WTP_Return	Lower	4	0.06
King_WTP_Return	Lower	5	0.04
King_WTP_Return	Lower	6	0.05
King_WTP_Return	Lower	7	0.05
King_WTP_Return	Lower	8	0.06
King_WTP_Return	Lower	9	0.06
King_WTP_Return	Lower	10	0.05
King_WTP_Return	Lower	11	0.06
King_WTP_Return	Lower	12	0.06
Lexington_Return	Lower	1	1.28
Lexington_Return	Lower	2	1.31
Lexington_Return	Lower	3	1.19
Lexington_Return	Lower	4	1.13
Lexington_Return	Lower	5	0.86
Lexington_Return	Lower	6	0.81
Lexington_Return	Lower	7	0.62
Lexington_Return	Lower	8	0.77
Lexington_Return	Lower	9	0.78
Lexington_Return	Lower	10	0.95
Lexington_Return	Lower	11	1.09
Lexington_Return	Lower	12	1.44
Lexington_WTP_Return	Lower	1	0.07
Lexington_WTP_Return	Lower	2	0.09
Lexington_WTP_Return	Lower	3	0.07
Lexington_WTP_Return	Lower	4	0.08
Lexington_WTP_Return	Lower	5	0.07
Lexington_WTP_Return	Lower	6	0.08
Lexington_WTP_Return	Lower	7	0.06
Lexington_WTP_Return	Lower	8	0.07
Lexington_WTP_Return	Lower	9	0.06
Lexington_WTP_Return	Lower	10	0.08
Lexington_WTP_Return	Lower	11	0.08
Lexington_WTP_Return	Lower	12	0.1
LouisPacific_Return	Lower	1	0.62
LouisPacific_Return	Lower	2	0.63
LouisPacific_Return	Lower	3	0.54
LouisPacific_Return	Lower	4	0.68
LouisPacific_Return	Lower	5	0.64
LouisPacific_Return	Lower	6	0.53
LouisPacific_Return	Lower	7	0.56
LouisPacific_Return	Lower	8	0.63
LouisPacific_Return	Lower	9	0.55
LouisPacific_Return	Lower	10	0.48
LouisPacific_Return	Lower	11	0.59
LouisPacific_Return	Lower	12	0.53
Lumberton_Return	Lower	1	1.62
Lumberton_Return	Lower	2	1.68
Lumberton_Return	Lower	3	1.61
Lumberton_Return	Lower	4	1.63
Lumberton_Return	Lower	5	1.29
Lumberton_Return	Lower	6	1.16
Lumberton_Return	Lower	7	1.13
Lumberton_Return	Lower	8	1.16
Lumberton_Return	Lower	9	1.42

Name	Interp	Independent	Dependent
Lumberton_Return	Lower	10	1.52
Lumberton_Return	Lower	11	1.43
Lumberton_Return	Lower	12	1.74
Mocksville_Return	Lower	1	0.59
Mocksville_Return	Lower	2	0.68
Mocksville_Return	Lower	3	0.55
Mocksville_Return	Lower	4	0.58
Mocksville_Return	Lower	5	0.51
Mocksville_Return	Lower	6	0.41
Mocksville_Return	Lower	7	0.37
Mocksville_Return	Lower	8	0.43
Mocksville_Return	Lower	9	0.46
Mocksville_Return	Lower	10	0.5
Mocksville_Return	Lower	11	0.58
Mocksville_Return	Lower	12	0.65
Mocksville_WTP_Return	Lower	1	0.28
Mocksville_WTP_Return	Lower	2	0.3
Mocksville_WTP_Return	Lower	3	0.28
Mocksville_WTP_Return	Lower	4	0.21
Mocksville_WTP_Return	Lower	5	0.2
Mocksville_WTP_Return	Lower	6	0.18
Mocksville_WTP_Return	Lower	7	0.17
Mocksville_WTP_Return	Lower	8	0.18
Mocksville_WTP_Return	Lower	9	0.18
Mocksville_WTP_Return	Lower	10	0.19
Mocksville_WTP_Return	Lower	11	0.23
Mocksville_WTP_Return	Lower	12	0.27
Monroe_Return	Lower	1	1.38
Monroe_Return	Lower	2	1.29
Monroe_Return	Lower	3	1.2
Monroe_Return	Lower	4	1.16
Monroe_Return	Lower	5	0.91
Monroe_Return	Lower	6	0.8
Monroe_Return	Lower	7	0.7
Monroe_Return	Lower	8	0.76
Monroe_Return	Lower	9	0.8
Monroe_Return	Lower	10	0.92
Monroe_Return	Lower	11	1.12
Monroe_Return	Lower	12	1.45
Monroe_WTP_Return	Lower	1	0.12
Monroe_WTP_Return	Lower	2	0.1
Monroe_WTP_Return	Lower	3	0.13
Monroe_WTP_Return	Lower	4	0.14
Monroe_WTP_Return	Lower	5	0.12
Monroe_WTP_Return	Lower	6	0.11
Monroe_WTP_Return	Lower	7	0.11
Monroe_WTP_Return	Lower	8	0.11
Monroe_WTP_Return	Lower	9	0.11
Monroe_WTP_Return	Lower	10	0.11
Monroe_WTP_Return	Lower	11	0.12
Monroe_WTP_Return	Lower	12	0.12
Mt_Airy_Return	Lower	1	0.71
Mt_Airy_Return	Lower	2	0.82
Mt_Airy_Return	Lower	3	0.71
Mt_Airy_Return	Lower	4	0.85
Mt_Airy_Return	Lower	5	0.8

Name	Interp	Independent	Dependent
Mt_Airy_Return	Lower	6	0.63
Mt_Airy_Return	Lower	7	0.57
Mt_Airy_Return	Lower	8	0.7
Mt_Airy_Return	Lower	9	0.61
Mt_Airy_Return	Lower	10	0.69
Mt_Airy_Return	Lower	11	0.68
Mt_Airy_Return	Lower	12	0.82
Mt_Pleasant_Return	Lower	1	1.08
Mt_Pleasant_Return	Lower	2	0.75
Mt_Pleasant_Return	Lower	3	0.91
Mt_Pleasant_Return	Lower	4	0.87
Mt_Pleasant_Return	Lower	5	0.64
Mt_Pleasant_Return	Lower	6	0.58
Mt_Pleasant_Return	Lower	7	0.74
Mt_Pleasant_Return	Lower	8	0.78
Mt_Pleasant_Return	Lower	9	0.65
Mt_Pleasant_Return	Lower	10	0.77
Mt_Pleasant_Return	Lower	11	0.76
Mt_Pleasant_Return	Lower	12	1.21
North_Wilkesboro_Return	Lower	1	0.43
North_Wilkesboro_Return	Lower	2	0.46
North_Wilkesboro_Return	Lower	3	0.41
North_Wilkesboro_Return	Lower	4	0.45
North_Wilkesboro_Return	Lower	5	0.39
North_Wilkesboro_Return	Lower	6	0.36
North_Wilkesboro_Return	Lower	7	0.34
North_Wilkesboro_Return	Lower	8	0.37
North_Wilkesboro_Return	Lower	9	0.38
North_Wilkesboro_Return	Lower	10	0.42
North_Wilkesboro_Return	Lower	11	0.44
North_Wilkesboro_Return	Lower	12	0.48
Norwood_Return	Lower	1	0.85
Norwood_Return	Lower	2	0.89
Norwood_Return	Lower	3	0.84
Norwood_Return	Lower	4	0.84
Norwood_Return	Lower	5	0.64
Norwood_Return	Lower	6	0.59
Norwood_Return	Lower	7	0.53
Norwood_Return	Lower	8	0.56
Norwood_Return	Lower	9	0.58
Norwood_Return	Lower	10	0.62
Norwood_Return	Lower	11	0.74
Norwood_Return	Lower	12	0.9
PilotMt_Return	Lower	1	0.47
PilotMt_Return	Lower	2	0.48
PilotMt_Return	Lower	3	0.44
PilotMt_Return	Lower	4	0.5
PilotMt_Return	Lower	5	0.48
PilotMt_Return	Lower	6	0.43
PilotMt_Return	Lower	7	0.4
PilotMt_Return	Lower	8	0.47
PilotMt_Return	Lower	9	0.42
PilotMt_Return	Lower	10	0.46
PilotMt_Return	Lower	11	0.53
PilotMt_Return	Lower	12	0.62
PilotMt_WTP_Return	Lower	1	0.41

Name	Interp	Independent	Dependent
PilotMt_WTP_Return	Lower	2	0.37
PilotMt_WTP_Return	Lower	3	0.37
PilotMt_WTP_Return	Lower	4	0.43
PilotMt_WTP_Return	Lower	5	0.42
PilotMt_WTP_Return	Lower	6	0.37
PilotMt_WTP_Return	Lower	7	0.38
PilotMt_WTP_Return	Lower	8	0.39
PilotMt_WTP_Return	Lower	9	0.42
PilotMt_WTP_Return	Lower	10	0.39
PilotMt_WTP_Return	Lower	11	0.37
PilotMt_WTP_Return	Lower	12	0.35
Rockingham_Return	Lower	1	1.5
Rockingham_Return	Lower	2	1.36
Rockingham_Return	Lower	3	1.3
Rockingham_Return	Lower	4	1.25
Rockingham_Return	Lower	5	1.03
Rockingham_Return	Lower	6	0.93
Rockingham_Return	Lower	7	0.9
Rockingham_Return	Lower	8	0.92
Rockingham_Return	Lower	9	0.94
Rockingham_Return	Lower	10	1.26
Rockingham_Return	Lower	11	1.39
Rockingham_Return	Lower	12	1.51
Salisbury_Return	Lower	1	1.09
Salisbury_Return	Lower	2	1.07
Salisbury_Return	Lower	3	1.06
Salisbury_Return	Lower	4	1.13
Salisbury_Return	Lower	5	0.88
Salisbury_Return	Lower	6	0.76
Salisbury_Return	Lower	7	0.62
Salisbury_Return	Lower	8	0.68
Salisbury_Return	Lower	9	0.73
Salisbury_Return	Lower	10	0.9
Salisbury_Return	Lower	11	1.16
Salisbury_Return	Lower	12	1.19
SouthernPines_Return	Lower	1	0.47
SouthernPines_Return	Lower	2	0.51
SouthernPines_Return	Lower	3	0.6
SouthernPines_Return	Lower	4	0.54
SouthernPines_Return	Lower	5	0.43
SouthernPines_Return	Lower	6	0.41
SouthernPines_Return	Lower	7	0.46
SouthernPines_Return	Lower	8	0.43
SouthernPines_Return	Lower	9	0.48
SouthernPines_Return	Lower	10	0.59
SouthernPines_Return	Lower	11	0.62
SouthernPines_Return	Lower	12	0.75
SouthernPines_WTP_Return	Lower	1	0.08
SouthernPines_WTP_Return	Lower	2	0.07
SouthernPines_WTP_Return	Lower	3	0.06
SouthernPines_WTP_Return	Lower	4	0.06
SouthernPines_WTP_Return	Lower	5	0.05
SouthernPines_WTP_Return	Lower	6	0.05
SouthernPines_WTP_Return	Lower	7	0.05
SouthernPines_WTP_Return	Lower	8	0.06
SouthernPines_WTP_Return	Lower	9	0.07

Name	Interp	Independent	Dependent
SouthernPines_WTP_Return	Lower	10	0.06
SouthernPines_WTP_Return	Lower	11	0.07
SouthernPines_WTP_Return	Lower	12	0.07
Statesville_3rdCreek_Return	Lower	1	0.31
Statesville_3rdCreek_Return	Lower	2	0.33
Statesville_3rdCreek_Return	Lower	3	0.3
Statesville_3rdCreek_Return	Lower	4	0.36
Statesville_3rdCreek_Return	Lower	5	0.28
Statesville_3rdCreek_Return	Lower	6	0.27
Statesville_3rdCreek_Return	Lower	7	0.21
Statesville_3rdCreek_Return	Lower	8	0.26
Statesville_3rdCreek_Return	Lower	9	0.23
Statesville_3rdCreek_Return	Lower	10	0.26
Statesville_3rdCreek_Return	Lower	11	0.31
Statesville_3rdCreek_Return	Lower	12	0.38
Statesville_4thCreek_Return	Lower	1	0.83
Statesville_4thCreek_Return	Lower	2	0.89
Statesville_4thCreek_Return	Lower	3	0.85
Statesville_4thCreek_Return	Lower	4	0.92
Statesville_4thCreek_Return	Lower	5	0.9
Statesville_4thCreek_Return	Lower	6	0.77
Statesville_4thCreek_Return	Lower	7	0.73
Statesville_4thCreek_Return	Lower	8	0.82
Statesville_4thCreek_Return	Lower	9	0.71
Statesville_4thCreek_Return	Lower	10	0.78
Statesville_4thCreek_Return	Lower	11	0.85
Statesville_4thCreek_Return	Lower	12	1.04
Thomasville_Return	Lower	1	1.19
Thomasville_Return	Lower	2	1.22
Thomasville_Return	Lower	3	1.26
Thomasville_Return	Lower	4	1.22
Thomasville_Return	Lower	5	0.97
Thomasville_Return	Lower	6	0.87
Thomasville_Return	Lower	7	0.78
Thomasville_Return	Lower	8	0.96
Thomasville_Return	Lower	9	0.86
Thomasville_Return	Lower	10	0.9
Thomasville_Return	Lower	11	1.08
Thomasville_Return	Lower	12	1.25
Thomasville_WTP_Return	Lower	1	0.09
Thomasville_WTP_Return	Lower	2	0.09
Thomasville_WTP_Return	Lower	3	0.07
Thomasville_WTP_Return	Lower	4	0.08
Thomasville_WTP_Return	Lower	5	0.09
Thomasville_WTP_Return	Lower	6	0.07
Thomasville_WTP_Return	Lower	7	0.05
Thomasville_WTP_Return	Lower	8	0.06
Thomasville_WTP_Return	Lower	9	0.06
Thomasville_WTP_Return	Lower	10	0.06
Thomasville_WTP_Return	Lower	11	0.08
Thomasville_WTP_Return	Lower	12	0.09
Wilkesboro_Return	Lower	1	0.88
Wilkesboro_Return	Lower	2	0.86
Wilkesboro_Return	Lower	3	0.85
Wilkesboro_Return	Lower	4	0.92
Wilkesboro_Return	Lower	5	0.87

Name	Interp	Independent	Dependent
Wilkesboro_Return	Lower	6	0.88
Wilkesboro_Return	Lower	7	0.89
Wilkesboro_Return	Lower	8	0.86
Wilkesboro_Return	Lower	9	0.82
Wilkesboro_Return	Lower	10	0.86
Wilkesboro_Return	Lower	11	0.85
Wilkesboro_Return	Lower	12	0.93
WS_ArchieEast_Return	Lower	1	0.49
WS_ArchieEast_Return	Lower	2	0.52
WS_ArchieEast_Return	Lower	3	0.5
WS_ArchieEast_Return	Lower	4	0.5
WS_ArchieEast_Return	Lower	5	0.46
WS_ArchieEast_Return	Lower	6	0.41
WS_ArchieEast_Return	Lower	7	0.36
WS_ArchieEast_Return	Lower	8	0.42
WS_ArchieEast_Return	Lower	9	0.4
WS_ArchieEast_Return	Lower	10	0.44
WS_ArchieEast_Return	Lower	11	0.5
WS_ArchieEast_Return	Lower	12	0.56
WS_MudCreek_Return	Lower	1	0.45
WS_MudCreek_Return	Lower	2	0.47
WS_MudCreek_Return	Lower	3	0.44
WS_MudCreek_Return	Lower	4	0.45
WS_MudCreek_Return	Lower	5	0.41
WS_MudCreek_Return	Lower	6	0.37
WS_MudCreek_Return	Lower	7	0.34
WS_MudCreek_Return	Lower	8	0.36
WS_MudCreek_Return	Lower	9	0.35
WS_MudCreek_Return	Lower	10	0.38
WS_MudCreek_Return	Lower	11	0.43
WS_MudCreek_Return	Lower	12	0.5
WS_Neilson_WTP_Return	Lower	1	0
WS_Neilson_WTP_Return	Lower	2	0
WS_Neilson_WTP_Return	Lower	3	0
WS_Neilson_WTP_Return	Lower	4	0
WS_Neilson_WTP_Return	Lower	5	0
WS_Neilson_WTP_Return	Lower	6	0
WS_Neilson_WTP_Return	Lower	7	0
WS_Neilson_WTP_Return	Lower	8	0
WS_Neilson_WTP_Return	Lower	9	0
WS_Neilson_WTP_Return	Lower	10	0
WS_Neilson_WTP_Return	Lower	11	0
WS_Neilson_WTP_Return	Lower	12	0
WS_Swann_WTP_Return	Lower	1	0.012
WS_Swann_WTP_Return	Lower	2	0.012
WS_Swann_WTP_Return	Lower	3	0.012
WS_Swann_WTP_Return	Lower	4	0.012
WS_Swann_WTP_Return	Lower	5	0.012
WS_Swann_WTP_Return	Lower	6	0.012
WS_Swann_WTP_Return	Lower	7	0.012
WS_Swann_WTP_Return	Lower	8	0.012
WS_Swann_WTP_Return	Lower	9	0.012
WS_Swann_WTP_Return	Lower	10	0.012
WS_Swann_WTP_Return	Lower	11	0.012
WS_Swann_WTP_Return	Lower	12	0.012
WS_Thomas_WTP_Return	Lower	1	0.006

Name	Interp	Independent	Dependent
WS_Thomas_WTP_Return	Lower	2	0.006
WS_Thomas_WTP_Return	Lower	3	0.006
WS_Thomas_WTP_Return	Lower	4	0.006
WS_Thomas_WTP_Return	Lower	5	0.006
WS_Thomas_WTP_Return	Lower	6	0
WS_Thomas_WTP_Return	Lower	7	0
WS_Thomas_WTP_Return	Lower	8	0.006
WS_Thomas_WTP_Return	Lower	9	0.006
WS_Thomas_WTP_Return	Lower	10	0.006
WS_Thomas_WTP_Return	Lower	11	0.006
WS_Thomas_WTP_Return	Lower	12	0.006
Yadkinville_Return	Lower	1	1.02
Yadkinville_Return	Lower	2	1.06
Yadkinville_Return	Lower	3	1.04
Yadkinville_Return	Lower	4	1.05
Yadkinville_Return	Lower	5	1
Yadkinville_Return	Lower	6	0.88
Yadkinville_Return	Lower	7	0.82
Yadkinville_Return	Lower	8	0.86
Yadkinville_Return	Lower	9	0.83
Yadkinville_Return	Lower	10	0.87
Yadkinville_Return	Lower	11	0.96
Yadkinville_Return	Lower	12	1.12

Spillway Lookup Tables

Name	Interp	Independent	Dependent
Blew_Spill	Interp	174.08	0
Blew_Spill	Interp	176.08	13000
Blew_Spill	Interp	177.08	25000
Blew_Spill	Interp	178.08	37000
Blew_Spill	Interp	180.08	70000
Blew_Spill	Interp	181.38	100000
Blew_Spill	Interp	182.08	120000
Blew_Spill	Interp	183.48	150000
Blew_Spill	Interp	185.38	200000
Blew_Spill	Interp	186.08	220000
Blew_Spill	Interp	187.58	270000
Blew_Spill	Interp	188.38	300000
Blew_Spill	Interp	189.08	323000
Blew_Spill	Interp	190.08	360000
Blew_Spill	Interp	191.08	395000
Blew_Spill	Interp	192.58	450000
Blew_Spill	Interp	193.68	500000
Blew_Spill	Interp	194.68	550000
Blew_Spill	Interp	195.58	600000
Blew_Spill	Interp	196.58	650000
Blew_Spill	Interp	197.58	700000
Blew_Spill	Interp	198.58	750000
Blew_Spill	Interp	199.08	775000
Blew_Spill_with_Boards	Interp	176.08	0
Blew_Spill_with_Boards	Interp	178.08	75
Blew_Spill_with_Boards	Interp	179.08	5130
Blew_Spill_with_Boards	Interp	180.08	13130
Blew_Spill_with_Boards	Interp	180.58	20130
Blew_Spill_with_Boards	Interp	181.28	30130
Blew_Spill_with_Boards	Interp	182.09	40130
Fa_Spill	Interp	299.11	0
Fa_Spill	Interp	300.68	3331.44
Fa_Spill	Interp	302.63	9219.39
Fa_Spill	Interp	305.18	18475.8
Fa_Spill	Interp	307.72	28575.3
Fa_Spill	Interp	309.88	41207.2
Fa_Spill	Interp	312.22	55524
Fa_Spill	Interp	314.96	74896.9
Fa_Spill	Interp	318.29	98481.4
Fa_Spill	Interp	321.82	130496
Fa_Spill	Interp	324.16	154088
Fa_Spill	Interp	326.51	180209
Fa_Spill	Interp	329.06	213074
Fa_Spill	Interp	332.19	249308
Fa_Spill	Interp	334.15	281334
Fa_Spill	Interp	336.69	315042
Fa_Spill	Interp	338.26	340326
Fa_Spill	Interp	340.61	369819
Fa_Spill	Interp	342.56	401002
HighRock_Spill	Interp	594.38	0
HighRock_Spill	Interp	595.33	3026.17
HighRock_Spill	Interp	597.04	7014.48
HighRock_Spill	Interp	598.18	11991.2
HighRock_Spill	Interp	599.9	20946.4
HighRock_Spill	Interp	601.42	30893.3

Name	Interp	Independent	Dependent
HighRock_Spill	Interp	603.13	40841.8
HighRock_Spill	Interp	604.65	52775.5
HighRock_Spill	Interp	605.99	63714.1
HighRock_Spill	Interp	607.51	78627.9
HighRock_Spill	Interp	609.79	98515.1
HighRock_Spill	Interp	611.51	116411
HighRock_Spill	Interp	614.17	146235
HighRock_Spill	Interp	616.45	173076
HighRock_Spill	Interp	618.36	197927
HighRock_Spill	Interp	621.02	231724
HighRock_Spill	Interp	622.54	257565
HighRock_Spill	Interp	625.02	296328
HighRock_Spill	Interp	627.11	330121
HighRock_Spill	Interp	629.2	367887
HighRock_Spill	Interp	630.92	399690
HighRock_Spill	Interp	632.82	435468
HighRock_Spill	Interp	634.53	469258
HighRock_Spill	Interp	637	511994
KerrScott_Spill	Interp	1075	0
KerrScott_Spill	Interp	1105.2	199300
Na_Spill	Interp	482.2	58.17
Na_Spill	Interp	483.49	2659.27
Na_Spill	Interp	485.15	5263.36
Na_Spill	Interp	486.99	11323.2
Na_Spill	Interp	489.02	19975.1
Na_Spill	Interp	490.5	26031.9
Na_Spill	Interp	491.97	32952.3
Na_Spill	Interp	493.45	40736.2
Na_Spill	Interp	495.11	49385.2
Na_Spill	Interp	496.4	58894.8
Na_Spill	Interp	497.88	69269.4
Na_Spill	Interp	499.17	78778.9
Na_Spill	Interp	500.28	90877.6
Na_Spill	Interp	501.38	104703
Na_Spill	Interp	502.86	125441
Na_Spill	Interp	504.15	147904
Na_Spill	Interp	505.63	172959
Na_Spill	Interp	507.1	198877
Na_Spill	Interp	508.39	220477
Na_Spill	Interp	509.87	250713
Na_Spill	Interp	511.35	280086
Na_Spill	Interp	512.27	306000
Na_Spill	Interp	513.38	331915
Na_Spill	Interp	514.85	361288
Na_Spill	Interp	515.96	386340
Na_Spill	Interp	516.51	399298
Na_Spill	Interp	517.99	404491
Na_Spill	Interp	520.57	440782
Till_Spill	Interp	254.17	0
Till_Spill	Interp	258.67	18000
Till_Spill	Interp	262.67	50000
Till_Spill	Interp	264.67	70000
Till_Spill	Interp	267.67	103000
Till_Spill	Interp	270.67	145000
Till_Spill	Interp	274.67	208000
Till_Spill	Interp	277.17	250000

Name	Interp	Independent	Dependent
Till_Spill	Interp	280.17	300000
Till_Spill	Interp	282.67	350000
Till_Spill	Interp	284.67	380000
Till_Spill	Interp	286.67	440000
Till_Spill	Interp	288.67	495000
Till_Spill	Interp	290.17	540000
Till_Spill	Interp	290.67	560000
Till_Spill	Interp	291.67	600000
Till_Spill	Interp	293.67	680000
TT_Spill	Interp	527.11	0
TT_Spill	Interp	529.2	4145.94
TT_Spill	Interp	530.86	9121.06
TT_Spill	Interp	532.32	15754.6
TT_Spill	Interp	534.2	24046.4
TT_Spill	Interp	535.86	33167.5
TT_Spill	Interp	537.31	43946.9
TT_Spill	Interp	539.81	61359.9
TT_Spill	Interp	542.71	84577.1
TT_Spill	Interp	545.62	110282
TT_Spill	Interp	549.14	143449
TT_Spill	Interp	552.25	178275
TT_Spill	Interp	554.94	208126
TT_Spill	Interp	557.42	239635
TT_Spill	Interp	559.69	274461
TT_Spill	Interp	561.75	305970
TT_Spill	Interp	564.22	346600

Independent Wastewater Return Patterns

Node Number	Name	units	factor	Month	Day	Inflow
143	Wayne Farms WWTP NC0006548	mgd	0.45	1	1	0.91
143	Wayne Farms WWTP NC0006548	mgd	0.45	1	31	0.91
143	Wayne Farms WWTP NC0006548	mgd	0.45	2	1	0.9
143	Wayne Farms WWTP NC0006548	mgd	0.45	2	29	0.9
143	Wayne Farms WWTP NC0006548	mgd	0.45	3	1	0.87
143	Wayne Farms WWTP NC0006548	mgd	0.45	3	31	0.87
143	Wayne Farms WWTP NC0006548	mgd	0.45	4	1	1.02
143	Wayne Farms WWTP NC0006548	mgd	0.45	4	30	1.02
143	Wayne Farms WWTP NC0006548	mgd	0.45	5	1	1.08
143	Wayne Farms WWTP NC0006548	mgd	0.45	5	31	1.08
143	Wayne Farms WWTP NC0006548	mgd	0.45	6	1	1.16
143	Wayne Farms WWTP NC0006548	mgd	0.45	6	30	1.16
143	Wayne Farms WWTP NC0006548	mgd	0.45	7	1	1.04
143	Wayne Farms WWTP NC0006548	mgd	0.45	7	31	1.04
143	Wayne Farms WWTP NC0006548	mgd	0.45	8	1	1.04
143	Wayne Farms WWTP NC0006548	mgd	0.45	8	31	1.04
143	Wayne Farms WWTP NC0006548	mgd	0.45	9	1	1.01
143	Wayne Farms WWTP NC0006548	mgd	0.45	9	30	1.01
143	Wayne Farms WWTP NC0006548	mgd	0.45	10	1	1.02
143	Wayne Farms WWTP NC0006548	mgd	0.45	10	31	1.02
143	Wayne Farms WWTP NC0006548	mgd	0.45	11	1	0.97
143	Wayne Farms WWTP NC0006548	mgd	0.45	11	30	0.97
143	Wayne Farms WWTP NC0006548	mgd	0.45	12	1	0.97
143	Wayne Farms WWTP NC0006548	mgd	0.45	12	31	0.97
163	Boonville WWTP NC0020931	mgd	0.12	1	31	1.04
163	Boonville WWTP NC0020931	mgd	0.12	2	1	1.04
163	Boonville WWTP NC0020931	mgd	0.12	2	29	1.06
163	Boonville WWTP NC0020931	mgd	0.12	3	1	1.06
163	Boonville WWTP NC0020931	mgd	0.12	3	31	0.89
163	Boonville WWTP NC0020931	mgd	0.12	4	1	0.89
163	Boonville WWTP NC0020931	mgd	0.12	4	30	1
163	Boonville WWTP NC0020931	mgd	0.12	5	1	1
163	Boonville WWTP NC0020931	mgd	0.12	5	31	1.02
163	Boonville WWTP NC0020931	mgd	0.12	6	1	1.02
163	Boonville WWTP NC0020931	mgd	0.12	6	30	0.95
163	Boonville WWTP NC0020931	mgd	0.12	7	1	0.95
163	Boonville WWTP NC0020931	mgd	0.12	7	31	0.89
163	Boonville WWTP NC0020931	mgd	0.12	8	1	0.89
163	Boonville WWTP NC0020931	mgd	0.12	8	31	1
163	Boonville WWTP NC0020931	mgd	0.12	9	1	1
163	Boonville WWTP NC0020931	mgd	0.12	9	30	0.91
163	Boonville WWTP NC0020931	mgd	0.12	10	1	0.91
163	Boonville WWTP NC0020931	mgd	0.12	10	31	1.01
163	Boonville WWTP NC0020931	mgd	0.12	11	1	1.01
163	Boonville WWTP NC0020931	mgd	0.12	11	30	1.08
163	Boonville WWTP NC0020931	mgd	0.12	12	1	1.08
163	Boonville WWTP NC0020931	mgd	0.12	12	31	1.14
163	Boonville WWTP NC0020931	mgd	0.12	1	1	1.14
273	Tyson Farms WW NC0005126	mgd	0.18	1	1	1.1
273	Tyson Farms WW NC0005126	mgd	0.18	1	31	1.1
273	Tyson Farms WW NC0005126	mgd	0.18	2	1	1.17
273	Tyson Farms WW NC0005126	mgd	0.18	2	29	1.17
273	Tyson Farms WW NC0005126	mgd	0.18	3	1	0.96
273	Tyson Farms WW NC0005126	mgd	0.18	3	31	0.96

Node Number	Name	units	factor	Month	Day	Inflow
273	Tyson Farms WW NC0005126	mgd	0.18	4	1	0.95
273	Tyson Farms WW NC0005126	mgd	0.18	4	30	0.95
273	Tyson Farms WW NC0005126	mgd	0.18	5	1	0.97
273	Tyson Farms WW NC0005126	mgd	0.18	5	31	0.97
273	Tyson Farms WW NC0005126	mgd	0.18	6	1	0.92
273	Tyson Farms WW NC0005126	mgd	0.18	6	30	0.92
273	Tyson Farms WW NC0005126	mgd	0.18	7	1	0.92
273	Tyson Farms WW NC0005126	mgd	0.18	7	31	0.92
273	Tyson Farms WW NC0005126	mgd	0.18	8	1	0.89
273	Tyson Farms WW NC0005126	mgd	0.18	8	31	0.89
273	Tyson Farms WW NC0005126	mgd	0.18	9	1	0.99
273	Tyson Farms WW NC0005126	mgd	0.18	9	30	0.99
273	Tyson Farms WW NC0005126	mgd	0.18	10	1	0.95
273	Tyson Farms WW NC0005126	mgd	0.18	10	31	0.95
273	Tyson Farms WW NC0005126	mgd	0.18	11	1	1.09
273	Tyson Farms WW NC0005126	mgd	0.18	11	30	1.09
273	Tyson Farms WW NC0005126	mgd	0.18	12	1	1.09
273	Tyson Farms WW NC0005126	mgd	0.18	12	31	1.09
313	Cleveland WWTP NC0049867	mgd	0.13	1	1	0.93
313	Cleveland WWTP NC0049867	mgd	0.13	1	31	0.93
313	Cleveland WWTP NC0049867	mgd	0.13	2	1	0.98
313	Cleveland WWTP NC0049867	mgd	0.13	2	29	0.98
313	Cleveland WWTP NC0049867	mgd	0.13	3	1	0.89
313	Cleveland WWTP NC0049867	mgd	0.13	3	31	0.89
313	Cleveland WWTP NC0049867	mgd	0.13	4	1	0.96
313	Cleveland WWTP NC0049867	mgd	0.13	4	30	0.96
313	Cleveland WWTP NC0049867	mgd	0.13	5	1	1.03
313	Cleveland WWTP NC0049867	mgd	0.13	5	31	1.03
313	Cleveland WWTP NC0049867	mgd	0.13	6	1	1.06
313	Cleveland WWTP NC0049867	mgd	0.13	6	30	1.06
313	Cleveland WWTP NC0049867	mgd	0.13	7	1	1.15
313	Cleveland WWTP NC0049867	mgd	0.13	7	31	1.15
313	Cleveland WWTP NC0049867	mgd	0.13	8	1	1.17
313	Cleveland WWTP NC0049867	mgd	0.13	8	31	1.17
313	Cleveland WWTP NC0049867	mgd	0.13	9	1	1.07
313	Cleveland WWTP NC0049867	mgd	0.13	9	30	1.07
313	Cleveland WWTP NC0049867	mgd	0.13	10	1	0.96
313	Cleveland WWTP NC0049867	mgd	0.13	10	31	0.96
313	Cleveland WWTP NC0049867	mgd	0.13	11	1	0.91
313	Cleveland WWTP NC0049867	mgd	0.13	11	30	0.91
313	Cleveland WWTP NC0049867	mgd	0.13	12	1	0.91
313	Cleveland WWTP NC0049867	mgd	0.13	12	31	0.91
323	Edge Water Treating (fmrly Durafiber) NC0004944	mgd	0.4	1	1	1.09
323	Edge Water Treating (fmrly Durafiber) NC0004944	mgd	0.4	1	31	1.09
323	Edge Water Treating (fmrly Durafiber) NC0004944	mgd	0.4	2	1	0.95
323	Edge Water Treating (fmrly Durafiber) NC0004944	mgd	0.4	2	29	0.95
323	Edge Water Treating (fmrly Durafiber) NC0004944	mgd	0.4	3	1	0.93
323	Edge Water Treating (fmrly Durafiber) NC0004944	mgd	0.4	3	31	0.93
323	Edge Water Treating (fmrly Durafiber) NC0004944	mgd	0.4	4	1	0.91

Node Number	Name	units	factor	Month	Day	Inflow
323	Edge Water Treating (fmrly Durafiber) NC0004944	mgd	0.4	4	30	0.91
323	Edge Water Treating (fmrly Durafiber) NC0004944	mgd	0.4	5	1	1.14
323	Edge Water Treating (fmrly Durafiber) NC0004944	mgd	0.4	5	31	1.14
323	Edge Water Treating (fmrly Durafiber) NC0004944	mgd	0.4	6	1	0.92
323	Edge Water Treating (fmrly Durafiber) NC0004944	mgd	0.4	6	30	0.92
323	Edge Water Treating (fmrly Durafiber) NC0004944	mgd	0.4	7	1	1.11
323	Edge Water Treating (fmrly Durafiber) NC0004944	mgd	0.4	7	31	1.11
323	Edge Water Treating (fmrly Durafiber) NC0004944	mgd	0.4	8	1	1.03
323	Edge Water Treating (fmrly Durafiber) NC0004944	mgd	0.4	8	31	1.03
323	Edge Water Treating (fmrly Durafiber) NC0004944	mgd	0.4	9	1	1.18
323	Edge Water Treating (fmrly Durafiber) NC0004944	mgd	0.4	9	30	1.18
323	Edge Water Treating (fmrly Durafiber) NC0004944	mgd	0.4	10	1	0.97
323	Edge Water Treating (fmrly Durafiber) NC0004944	mgd	0.4	10	31	0.97
323	Edge Water Treating (fmrly Durafiber) NC0004944	mgd	0.4	11	1	0.81
323	Edge Water Treating (fmrly Durafiber) NC0004944	mgd	0.4	11	30	0.81
323	Edge Water Treating (fmrly Durafiber) NC0004944	mgd	0.4	12	1	0.96
323	Edge Water Treating (fmrly Durafiber) NC0004944	mgd	0.4	12	31	0.96
373	Bermuda Run WWTP NC0055158	mgd	0.13	1	1	1.05
373	Bermuda Run WWTP NC0055158	mgd	0.13	1	31	1.05
373	Bermuda Run WWTP NC0055158	mgd	0.13	2	1	1.05
373	Bermuda Run WWTP NC0055158	mgd	0.13	2	29	1.05
373	Bermuda Run WWTP NC0055158	mgd	0.13	3	1	1
373	Bermuda Run WWTP NC0055158	mgd	0.13	3	31	1
373	Bermuda Run WWTP NC0055158	mgd	0.13	4	1	1.04
373	Bermuda Run WWTP NC0055158	mgd	0.13	4	30	1.04
373	Bermuda Run WWTP NC0055158	mgd	0.13	5	1	1.07
373	Bermuda Run WWTP NC0055158	mgd	0.13	5	31	1.07
373	Bermuda Run WWTP NC0055158	mgd	0.13	6	1	0.97
373	Bermuda Run WWTP NC0055158	mgd	0.13	6	30	0.97
373	Bermuda Run WWTP NC0055158	mgd	0.13	7	1	0.93
373	Bermuda Run WWTP NC0055158	mgd	0.13	7	31	0.93
373	Bermuda Run WWTP NC0055158	mgd	0.13	8	1	0.95
373	Bermuda Run WWTP NC0055158	mgd	0.13	8	31	0.95
373	Bermuda Run WWTP NC0055158	mgd	0.13	9	1	0.89
373	Bermuda Run WWTP NC0055158	mgd	0.13	9	30	0.89
373	Bermuda Run WWTP NC0055158	mgd	0.13	10	1	0.91
373	Bermuda Run WWTP NC0055158	mgd	0.13	10	31	0.91
373	Bermuda Run WWTP NC0055158	mgd	0.13	11	1	0.99
373	Bermuda Run WWTP NC0055158	mgd	0.13	11	30	0.99
373	Bermuda Run WWTP NC0055158	mgd	0.13	12	1	1.13

Node Number	Name	units	factor	Month	Day	Inflow
373	Bermuda Run WWTP NC0055158	mgd	0.13	12	31	1.13
503	Norfolk Southern WW NC0029246	mgd	0.22	1	1	1.05
503	Norfolk Southern WW NC0029246	mgd	0.22	1	31	1.05
503	Norfolk Southern WW NC0029246	mgd	0.22	2	1	1.03
503	Norfolk Southern WW NC0029246	mgd	0.22	2	29	1.03
503	Norfolk Southern WW NC0029246	mgd	0.22	3	1	0.58
503	Norfolk Southern WW NC0029246	mgd	0.22	3	31	0.58
503	Norfolk Southern WW NC0029246	mgd	0.22	4	1	0.99
503	Norfolk Southern WW NC0029246	mgd	0.22	4	30	0.99
503	Norfolk Southern WW NC0029246	mgd	0.22	5	1	0.89
503	Norfolk Southern WW NC0029246	mgd	0.22	5	31	0.89
503	Norfolk Southern WW NC0029246	mgd	0.22	6	1	1.22
503	Norfolk Southern WW NC0029246	mgd	0.22	6	30	1.22
503	Norfolk Southern WW NC0029246	mgd	0.22	7	1	0.95
503	Norfolk Southern WW NC0029246	mgd	0.22	7	31	0.95
503	Norfolk Southern WW NC0029246	mgd	0.22	8	1	1.19
503	Norfolk Southern WW NC0029246	mgd	0.22	8	31	1.19
503	Norfolk Southern WW NC0029246	mgd	0.22	9	1	1.02
503	Norfolk Southern WW NC0029246	mgd	0.22	9	30	1.02
503	Norfolk Southern WW NC0029246	mgd	0.22	10	1	1.12
503	Norfolk Southern WW NC0029246	mgd	0.22	10	31	1.12
503	Norfolk Southern WW NC0029246	mgd	0.22	11	1	0.89
503	Norfolk Southern WW NC0029246	mgd	0.22	11	30	0.89
503	Norfolk Southern WW NC0029246	mgd	0.22	12	1	1.07
503	Norfolk Southern WW NC0029246	mgd	0.22	12	31	1.07
513	PPG WWTP NC0004626	mgd	0.49	1	1	1.06
513	PPG WWTP NC0004626	mgd	0.49	1	31	1.06
513	PPG WWTP NC0004626	mgd	0.49	2	1	1.07
513	PPG WWTP NC0004626	mgd	0.49	2	29	1.07
513	PPG WWTP NC0004626	mgd	0.49	3	1	1.03
513	PPG WWTP NC0004626	mgd	0.49	3	31	1.03
513	PPG WWTP NC0004626	mgd	0.49	4	1	1.01
513	PPG WWTP NC0004626	mgd	0.49	4	30	1.01
513	PPG WWTP NC0004626	mgd	0.49	5	1	1.01
513	PPG WWTP NC0004626	mgd	0.49	5	31	1.01
513	PPG WWTP NC0004626	mgd	0.49	6	1	1
513	PPG WWTP NC0004626	mgd	0.49	6	30	1
513	PPG WWTP NC0004626	mgd	0.49	7	1	1.04
513	PPG WWTP NC0004626	mgd	0.49	7	31	1.04
513	PPG WWTP NC0004626	mgd	0.49	8	1	0.98
513	PPG WWTP NC0004626	mgd	0.49	8	31	0.98
513	PPG WWTP NC0004626	mgd	0.49	9	1	0.93
513	PPG WWTP NC0004626	mgd	0.49	9	30	0.93
513	PPG WWTP NC0004626	mgd	0.49	10	1	0.92
513	PPG WWTP NC0004626	mgd	0.49	10	31	0.92
513	PPG WWTP NC0004626	mgd	0.49	11	1	0.97
513	PPG WWTP NC0004626	mgd	0.49	11	30	0.97
513	PPG WWTP NC0004626	mgd	0.49	12	1	0.97
513	PPG WWTP NC0004626	mgd	0.49	12	31	0.97
573	High Point Westside WWTP NC0024228	mgd	3.02	1	1	1.14
573	High Point Westside WWTP NC0024228	mgd	3.02	1	31	1.14
573	High Point Westside WWTP NC0024228	mgd	3.02	2	1	1.12
573	High Point Westside WWTP NC0024228	mgd	3.02	2	29	1.12
573	High Point Westside WWTP NC0024228	mgd	3.02	3	1	1.09
573	High Point Westside WWTP NC0024228	mgd	3.02	3	31	1.09

Node Number	Name	units	factor	Month	Day	Inflow
573	High Point Westside WWTP NC0024228	mgd	3.02	4	1	1.09
573	High Point Westside WWTP NC0024228	mgd	3.02	4	30	1.09
573	High Point Westside WWTP NC0024228	mgd	3.02	5	1	0.95
573	High Point Westside WWTP NC0024228	mgd	3.02	5	31	0.95
573	High Point Westside WWTP NC0024228	mgd	3.02	6	1	0.89
573	High Point Westside WWTP NC0024228	mgd	3.02	6	30	0.89
573	High Point Westside WWTP NC0024228	mgd	3.02	7	1	0.83
573	High Point Westside WWTP NC0024228	mgd	3.02	7	31	0.83
573	High Point Westside WWTP NC0024228	mgd	3.02	8	1	0.91
573	High Point Westside WWTP NC0024228	mgd	3.02	8	31	0.91
573	High Point Westside WWTP NC0024228	mgd	3.02	9	1	0.86
573	High Point Westside WWTP NC0024228	mgd	3.02	9	30	0.86
573	High Point Westside WWTP NC0024228	mgd	3.02	10	1	0.94
573	High Point Westside WWTP NC0024228	mgd	3.02	10	31	0.94
573	High Point Westside WWTP NC0024228	mgd	3.02	11	1	1.03
573	High Point Westside WWTP NC0024228	mgd	3.02	11	30	1.03
573	High Point Westside WWTP NC0024228	mgd	3.02	12	1	1.16
573	High Point Westside WWTP NC0024228	mgd	3.02	12	31	1.16
653	Badin Business Park WW NC0004308	MGD	0.2	1	1	0.18
653	Badin Business Park WW NC0004308	MGD	0.2	1	31	0.18
653	Badin Business Park WW NC0004308	MGD	0.2	2	1	0.16
653	Badin Business Park WW NC0004308	MGD	0.2	2	29	0.16
653	Badin Business Park WW NC0004308	MGD	0.2	3	1	7.17
653	Badin Business Park WW NC0004308	MGD	0.2	3	31	7.17
653	Badin Business Park WW NC0004308	MGD	0.2	4	1	0.15
653	Badin Business Park WW NC0004308	MGD	0.2	4	30	0.15
653	Badin Business Park WW NC0004308	MGD	0.2	5	1	0.09
653	Badin Business Park WW NC0004308	MGD	0.2	5	31	0.09
653	Badin Business Park WW NC0004308	MGD	0.2	6	1	0.09
653	Badin Business Park WW NC0004308	MGD	0.2	6	30	0.09
653	Badin Business Park WW NC0004308	MGD	0.2	7	1	0.1
653	Badin Business Park WW NC0004308	MGD	0.2	7	31	0.1
653	Badin Business Park WW NC0004308	MGD	0.2	8	1	0.08
653	Badin Business Park WW NC0004308	MGD	0.2	8	31	0.08
653	Badin Business Park WW NC0004308	MGD	0.2	9	1	0.07
653	Badin Business Park WW NC0004308	MGD	0.2	9	30	0.07
653	Badin Business Park WW NC0004308	MGD	0.2	10	1	3.61
653	Badin Business Park WW NC0004308	MGD	0.2	10	31	3.61
653	Badin Business Park WW NC0004308	MGD	0.2	11	1	0.16
653	Badin Business Park WW NC0004308	MGD	0.2	11	30	0.16
653	Badin Business Park WW NC0004308	MGD	0.2	12	1	0.14
653	Badin Business Park WW NC0004308	MGD	0.2	12	31	0.14
663	Greater Badin W&S WWTP NC0074756	mgd	0.38	1	1	1.37
663	Greater Badin W&S WWTP NC0074756	mgd	0.38	1	31	1.37
663	Greater Badin W&S WWTP NC0074756	mgd	0.38	2	1	1.36
663	Greater Badin W&S WWTP NC0074756	mgd	0.38	2	29	1.36
663	Greater Badin W&S WWTP NC0074756	mgd	0.38	3	1	1.25
663	Greater Badin W&S WWTP NC0074756	mgd	0.38	3	31	1.25
663	Greater Badin W&S WWTP NC0074756	mgd	0.38	4	1	1.13
663	Greater Badin W&S WWTP NC0074756	mgd	0.38	4	30	1.13
663	Greater Badin W&S WWTP NC0074756	mgd	0.38	5	1	0.74
663	Greater Badin W&S WWTP NC0074756	mgd	0.38	5	31	0.74
663	Greater Badin W&S WWTP NC0074756	mgd	0.38	6	1	0.63
663	Greater Badin W&S WWTP NC0074756	mgd	0.38	6	30	0.63
663	Greater Badin W&S WWTP NC0074756	mgd	0.38	7	1	0.61

Node Number	Name	units	factor	Month	Day	Inflow
663	Greater Badin W&S WWTP NC0074756	mgd	0.38	7	31	0.61
663	Greater Badin W&S WWTP NC0074756	mgd	0.38	8	1	0.65
663	Greater Badin W&S WWTP NC0074756	mgd	0.38	8	31	0.65
663	Greater Badin W&S WWTP NC0074756	mgd	0.38	9	1	0.61
663	Greater Badin W&S WWTP NC0074756	mgd	0.38	9	30	0.61
663	Greater Badin W&S WWTP NC0074756	mgd	0.38	10	1	0.83
663	Greater Badin W&S WWTP NC0074756	mgd	0.38	10	31	0.83
663	Greater Badin W&S WWTP NC0074756	mgd	0.38	11	1	1.25
663	Greater Badin W&S WWTP NC0074756	mgd	0.38	11	30	1.25
663	Greater Badin W&S WWTP NC0074756	mgd	0.38	12	1	1.57
663	Greater Badin W&S WWTP NC0074756	mgd	0.38	12	31	1.57
733	Mt Gilead WWTP NC0021105	mgd	0.3	1	1	1.35
733	Mt Gilead WWTP NC0021105	mgd	0.3	1	31	1.35
733	Mt Gilead WWTP NC0021105	mgd	0.3	2	1	1.54
733	Mt Gilead WWTP NC0021105	mgd	0.3	2	29	1.54
733	Mt Gilead WWTP NC0021105	mgd	0.3	3	1	1.39
733	Mt Gilead WWTP NC0021105	mgd	0.3	3	31	1.39
733	Mt Gilead WWTP NC0021105	mgd	0.3	4	1	1.17
733	Mt Gilead WWTP NC0021105	mgd	0.3	4	30	1.17
733	Mt Gilead WWTP NC0021105	mgd	0.3	5	1	1.06
733	Mt Gilead WWTP NC0021105	mgd	0.3	5	31	1.06
733	Mt Gilead WWTP NC0021105	mgd	0.3	6	1	0.81
733	Mt Gilead WWTP NC0021105	mgd	0.3	6	30	0.81
733	Mt Gilead WWTP NC0021105	mgd	0.3	7	1	0.48
733	Mt Gilead WWTP NC0021105	mgd	0.3	7	31	0.48
733	Mt Gilead WWTP NC0021105	mgd	0.3	8	1	0.59
733	Mt Gilead WWTP NC0021105	mgd	0.3	8	31	0.59
733	Mt Gilead WWTP NC0021105	mgd	0.3	9	1	0.73
733	Mt Gilead WWTP NC0021105	mgd	0.3	9	30	0.73
733	Mt Gilead WWTP NC0021105	mgd	0.3	10	1	0.73
733	Mt Gilead WWTP NC0021105	mgd	0.3	10	31	0.73
733	Mt Gilead WWTP NC0021105	mgd	0.3	11	1	0.9
733	Mt Gilead WWTP NC0021105	mgd	0.3	11	30	0.9
733	Mt Gilead WWTP NC0021105	mgd	0.3	12	1	1.23
733	Mt Gilead WWTP NC0021105	mgd	0.3	12	31	1.23
753	Mooresville Rocky R WWTP NC0046728	mgd	4.35	1	1	1
753	Mooresville Rocky R WWTP NC0046728	mgd	4.35	1	31	1
753	Mooresville Rocky R WWTP NC0046728	mgd	4.35	2	1	1.02
753	Mooresville Rocky R WWTP NC0046728	mgd	4.35	2	29	1.02
753	Mooresville Rocky R WWTP NC0046728	mgd	4.35	3	1	1
753	Mooresville Rocky R WWTP NC0046728	mgd	4.35	3	31	1
753	Mooresville Rocky R WWTP NC0046728	mgd	4.35	4	1	1.03
753	Mooresville Rocky R WWTP NC0046728	mgd	4.35	4	30	1.03
753	Mooresville Rocky R WWTP NC0046728	mgd	4.35	5	1	1
753	Mooresville Rocky R WWTP NC0046728	mgd	4.35	5	31	1
753	Mooresville Rocky R WWTP NC0046728	mgd	4.35	6	1	0.98
753	Mooresville Rocky R WWTP NC0046728	mgd	4.35	6	30	0.98
753	Mooresville Rocky R WWTP NC0046728	mgd	4.35	7	1	0.96
753	Mooresville Rocky R WWTP NC0046728	mgd	4.35	7	31	0.96
753	Mooresville Rocky R WWTP NC0046728	mgd	4.35	8	1	0.98
753	Mooresville Rocky R WWTP NC0046728	mgd	4.35	8	31	0.98
753	Mooresville Rocky R WWTP NC0046728	mgd	4.35	9	1	0.98
753	Mooresville Rocky R WWTP NC0046728	mgd	4.35	9	30	0.98
753	Mooresville Rocky R WWTP NC0046728	mgd	4.35	10	1	1
753	Mooresville Rocky R WWTP NC0046728	mgd	4.35	10	31	1

Node Number	Name	units	factor	Month	Day	Inflow
753	Mooresville Rocky R WWTP NC0046728	mgd	4.35	11	1	1.01
753	Mooresville Rocky R WWTP NC0046728	mgd	4.35	11	30	1.01
753	Mooresville Rocky R WWTP NC0046728	mgd	4.35	12	1	1.04
753	Mooresville Rocky R WWTP NC0046728	mgd	4.35	12	31	1.04
763	Charlotte Mallard Creek WWTP NC0030210	mgd	9.23	1	1	1.08
763	Charlotte Mallard Creek WWTP NC0030210	mgd	9.23	1	31	1.08
763	Charlotte Mallard Creek WWTP NC0030210	mgd	9.23	2	1	1.08
763	Charlotte Mallard Creek WWTP NC0030210	mgd	9.23	2	29	1.08
763	Charlotte Mallard Creek WWTP NC0030210	mgd	9.23	3	1	1.02
763	Charlotte Mallard Creek WWTP NC0030210	mgd	9.23	3	31	1.02
763	Charlotte Mallard Creek WWTP NC0030210	mgd	9.23	4	1	1.03
763	Charlotte Mallard Creek WWTP NC0030210	mgd	9.23	4	30	1.03
763	Charlotte Mallard Creek WWTP NC0030210	mgd	9.23	5	1	0.96
763	Charlotte Mallard Creek WWTP NC0030210	mgd	9.23	5	31	0.96
763	Charlotte Mallard Creek WWTP NC0030210	mgd	9.23	6	1	0.91
763	Charlotte Mallard Creek WWTP NC0030210	mgd	9.23	6	30	0.91
763	Charlotte Mallard Creek WWTP NC0030210	mgd	9.23	7	1	0.9
763	Charlotte Mallard Creek WWTP NC0030210	mgd	9.23	7	31	0.9
763	Charlotte Mallard Creek WWTP NC0030210	mgd	9.23	8	1	0.95
763	Charlotte Mallard Creek WWTP NC0030210	mgd	9.23	8	31	0.95
763	Charlotte Mallard Creek WWTP NC0030210	mgd	9.23	9	1	0.96
763	Charlotte Mallard Creek WWTP NC0030210	mgd	9.23	9	30	0.96
763	Charlotte Mallard Creek WWTP NC0030210	mgd	9.23	10	1	0.98
763	Charlotte Mallard Creek WWTP NC0030210	mgd	9.23	10	31	0.98
763	Charlotte Mallard Creek WWTP NC0030210	mgd	9.23	11	1	1.04
763	Charlotte Mallard Creek WWTP NC0030210	mgd	9.23	11	30	1.04
763	Charlotte Mallard Creek WWTP NC0030210	mgd	9.23	12	1	1.09
763	Charlotte Mallard Creek WWTP NC0030210	mgd	9.23	12	31	1.09
813	Bradfield Farms WWTP NC0064734	mgd	0.27	1	1	1.02
813	Bradfield Farms WWTP NC0064734	mgd	0.27	1	31	1.02
813	Bradfield Farms WWTP NC0064734	mgd	0.27	2	1	1
813	Bradfield Farms WWTP NC0064734	mgd	0.27	2	29	1
813	Bradfield Farms WWTP NC0064734	mgd	0.27	3	1	0.95
813	Bradfield Farms WWTP NC0064734	mgd	0.27	3	31	0.95
813	Bradfield Farms WWTP NC0064734	mgd	0.27	4	1	0.97
813	Bradfield Farms WWTP NC0064734	mgd	0.27	4	30	0.97
813	Bradfield Farms WWTP NC0064734	mgd	0.27	5	1	0.95
813	Bradfield Farms WWTP NC0064734	mgd	0.27	5	31	0.95
813	Bradfield Farms WWTP NC0064734	mgd	0.27	6	1	0.97
813	Bradfield Farms WWTP NC0064734	mgd	0.27	6	30	0.97
813	Bradfield Farms WWTP NC0064734	mgd	0.27	7	1	1
813	Bradfield Farms WWTP NC0064734	mgd	0.27	7	31	1
813	Bradfield Farms WWTP NC0064734	mgd	0.27	8	1	1.02
813	Bradfield Farms WWTP NC0064734	mgd	0.27	8	31	1.02
813	Bradfield Farms WWTP NC0064734	mgd	0.27	9	1	1
813	Bradfield Farms WWTP NC0064734	mgd	0.27	9	30	1
813	Bradfield Farms WWTP NC0064734	mgd	0.27	10	1	0.98
813	Bradfield Farms WWTP NC0064734	mgd	0.27	10	31	0.98
813	Bradfield Farms WWTP NC0064734	mgd	0.27	11	1	1.05
813	Bradfield Farms WWTP NC0064734	mgd	0.27	11	30	1.05
813	Bradfield Farms WWTP NC0064734	mgd	0.27	12	1	1.1
813	Bradfield Farms WWTP NC0064734	mgd	0.27	12	31	1.1
823	Carolina Stalite Co WW NC0080586	MGD	0.16	1	1	1.15
823	Carolina Stalite Co WW NC0080586	MGD	0.16	1	31	1.15
823	Carolina Stalite Co WW NC0080586	MGD	0.16	2	1	1.24

Node Number	Name	units	factor	Month	Day	Inflow
823	Carolina Stalite Co WW NC0080586	MGD	0.16	2	29	1.24
823	Carolina Stalite Co WW NC0080586	MGD	0.16	3	1	1.12
823	Carolina Stalite Co WW NC0080586	MGD	0.16	3	31	1.12
823	Carolina Stalite Co WW NC0080586	MGD	0.16	4	1	1.38
823	Carolina Stalite Co WW NC0080586	MGD	0.16	4	30	1.38
823	Carolina Stalite Co WW NC0080586	MGD	0.16	5	1	1.1
823	Carolina Stalite Co WW NC0080586	MGD	0.16	5	31	1.1
823	Carolina Stalite Co WW NC0080586	MGD	0.16	6	1	0.71
823	Carolina Stalite Co WW NC0080586	MGD	0.16	6	30	0.71
823	Carolina Stalite Co WW NC0080586	MGD	0.16	7	1	0.65
823	Carolina Stalite Co WW NC0080586	MGD	0.16	7	31	0.65
823	Carolina Stalite Co WW NC0080586	MGD	0.16	8	1	0.76
823	Carolina Stalite Co WW NC0080586	MGD	0.16	8	31	0.76
823	Carolina Stalite Co WW NC0080586	MGD	0.16	9	1	0.78
823	Carolina Stalite Co WW NC0080586	MGD	0.16	9	30	0.78
823	Carolina Stalite Co WW NC0080586	MGD	0.16	10	1	0.94
823	Carolina Stalite Co WW NC0080586	MGD	0.16	10	31	0.94
823	Carolina Stalite Co WW NC0080586	MGD	0.16	11	1	1.15
823	Carolina Stalite Co WW NC0080586	MGD	0.16	11	30	1.15
823	Carolina Stalite Co WW NC0080586	MGD	0.16	12	1	1.18
823	Carolina Stalite Co WW NC0080586	MGD	0.16	12	31	1.18
853	AquaNC Country Wood WWTP NC0065684	mgd	0.35	1	1	1.51
853	AquaNC Country Wood WWTP NC0065684	mgd	0.35	1	31	1.51
853	AquaNC Country Wood WWTP NC0065684	mgd	0.35	2	1	1.59
853	AquaNC Country Wood WWTP NC0065684	mgd	0.35	2	29	1.59
853	AquaNC Country Wood WWTP NC0065684	mgd	0.35	3	1	1.19
853	AquaNC Country Wood WWTP NC0065684	mgd	0.35	3	31	1.19
853	AquaNC Country Wood WWTP NC0065684	mgd	0.35	4	1	0.88
853	AquaNC Country Wood WWTP NC0065684	mgd	0.35	4	30	0.88
853	AquaNC Country Wood WWTP NC0065684	mgd	0.35	5	1	0.81
853	AquaNC Country Wood WWTP NC0065684	mgd	0.35	5	31	0.81
853	AquaNC Country Wood WWTP NC0065684	mgd	0.35	6	1	0.81
853	AquaNC Country Wood WWTP NC0065684	mgd	0.35	6	30	0.81
853	AquaNC Country Wood WWTP NC0065684	mgd	0.35	7	1	0.74
853	AquaNC Country Wood WWTP NC0065684	mgd	0.35	7	31	0.74
853	AquaNC Country Wood WWTP NC0065684	mgd	0.35	8	1	0.8
853	AquaNC Country Wood WWTP NC0065684	mgd	0.35	8	31	0.8
853	AquaNC Country Wood WWTP NC0065684	mgd	0.35	9	1	0.8
853	AquaNC Country Wood WWTP NC0065684	mgd	0.35	9	30	0.8
853	AquaNC Country Wood WWTP NC0065684	mgd	0.35	10	1	0.85
853	AquaNC Country Wood WWTP NC0065684	mgd	0.35	10	31	0.85
853	AquaNC Country Wood WWTP NC0065684	mgd	0.35	11	1	0.95
853	AquaNC Country Wood WWTP NC0065684	mgd	0.35	11	30	0.95
853	AquaNC Country Wood WWTP NC0065684	mgd	0.35	12	1	1.08
853	AquaNC Country Wood WWTP NC0065684	mgd	0.35	12	31	1.08
863	Union Co. Crooked Ck WWTP NC0069841	mgd	1.13	1	1	1.19
863	Union Co. Crooked Ck WWTP NC0069841	mgd	1.13	1	31	1.19
863	Union Co. Crooked Ck WWTP NC0069841	mgd	1.13	2	1	1.09
863	Union Co. Crooked Ck WWTP NC0069841	mgd	1.13	2	29	1.09
863	Union Co. Crooked Ck WWTP NC0069841	mgd	1.13	3	1	1.06
863	Union Co. Crooked Ck WWTP NC0069841	mgd	1.13	3	31	1.06
863	Union Co. Crooked Ck WWTP NC0069841	mgd	1.13	4	1	1.08
863	Union Co. Crooked Ck WWTP NC0069841	mgd	1.13	4	30	1.08
863	Union Co. Crooked Ck WWTP NC0069841	mgd	1.13	5	1	0.99
863	Union Co. Crooked Ck WWTP NC0069841	mgd	1.13	5	31	0.99

Node Number	Name	units	factor	Month	Day	Inflow
863	Union Co. Crooked Ck WWTP NC0069841	mgd	1.13	6	1	0.96
863	Union Co. Crooked Ck WWTP NC0069841	mgd	1.13	6	30	0.96
863	Union Co. Crooked Ck WWTP NC0069841	mgd	1.13	7	1	0.86
863	Union Co. Crooked Ck WWTP NC0069841	mgd	1.13	7	31	0.86
863	Union Co. Crooked Ck WWTP NC0069841	mgd	1.13	8	1	0.89
863	Union Co. Crooked Ck WWTP NC0069841	mgd	1.13	8	31	0.89
863	Union Co. Crooked Ck WWTP NC0069841	mgd	1.13	9	1	0.9
863	Union Co. Crooked Ck WWTP NC0069841	mgd	1.13	9	30	0.9
863	Union Co. Crooked Ck WWTP NC0069841	mgd	1.13	10	1	0.95
863	Union Co. Crooked Ck WWTP NC0069841	mgd	1.13	10	31	0.95
863	Union Co. Crooked Ck WWTP NC0069841	mgd	1.13	11	1	1.06
863	Union Co. Crooked Ck WWTP NC0069841	mgd	1.13	11	30	1.06
863	Union Co. Crooked Ck WWTP NC0069841	mgd	1.13	12	1	0.96
863	Union Co. Crooked Ck WWTP NC0069841	mgd	1.13	12	31	0.96
873	Carolina WS - Hemby WWTP NC0035041	mgd	0.12	1	1	1.19
873	Carolina WS - Hemby WWTP NC0035041	mgd	0.12	1	31	1.19
873	Carolina WS - Hemby WWTP NC0035041	mgd	0.12	2	1	1.09
873	Carolina WS - Hemby WWTP NC0035041	mgd	0.12	2	29	1.09
873	Carolina WS - Hemby WWTP NC0035041	mgd	0.12	3	1	1
873	Carolina WS - Hemby WWTP NC0035041	mgd	0.12	3	31	1
873	Carolina WS - Hemby WWTP NC0035041	mgd	0.12	4	1	1.08
873	Carolina WS - Hemby WWTP NC0035041	mgd	0.12	4	30	1.08
873	Carolina WS - Hemby WWTP NC0035041	mgd	0.12	5	1	0.92
873	Carolina WS - Hemby WWTP NC0035041	mgd	0.12	5	31	0.92
873	Carolina WS - Hemby WWTP NC0035041	mgd	0.12	6	1	0.86
873	Carolina WS - Hemby WWTP NC0035041	mgd	0.12	6	30	0.86
873	Carolina WS - Hemby WWTP NC0035041	mgd	0.12	7	1	0.81
873	Carolina WS - Hemby WWTP NC0035041	mgd	0.12	7	31	0.81
873	Carolina WS - Hemby WWTP NC0035041	mgd	0.12	8	1	0.82
873	Carolina WS - Hemby WWTP NC0035041	mgd	0.12	8	31	0.82
873	Carolina WS - Hemby WWTP NC0035041	mgd	0.12	9	1	0.97
873	Carolina WS - Hemby WWTP NC0035041	mgd	0.12	9	30	0.97
873	Carolina WS - Hemby WWTP NC0035041	mgd	0.12	10	1	0.92
873	Carolina WS - Hemby WWTP NC0035041	mgd	0.12	10	31	0.92
873	Carolina WS - Hemby WWTP NC0035041	mgd	0.12	11	1	1.12
873	Carolina WS - Hemby WWTP NC0035041	mgd	0.12	11	30	1.12
873	Carolina WS - Hemby WWTP NC0035041	mgd	0.12	12	1	1.24
873	Carolina WS - Hemby WWTP NC0035041	mgd	0.12	12	31	1.24
883	Union Co. Proposed WRF	MGD	0	1	1	0
883	Union Co. Proposed WRF	MGD	0	12	31	0
893	Stanly Co West Stanly WWTP NC0043532	mgd	0.52	1	1	1.24
893	Stanly Co West Stanly WWTP NC0043532	mgd	0.52	1	31	1.24
893	Stanly Co West Stanly WWTP NC0043532	mgd	0.52	2	1	1.18
893	Stanly Co West Stanly WWTP NC0043532	mgd	0.52	2	29	1.18
893	Stanly Co West Stanly WWTP NC0043532	mgd	0.52	3	1	1.05
893	Stanly Co West Stanly WWTP NC0043532	mgd	0.52	3	31	1.05
893	Stanly Co West Stanly WWTP NC0043532	mgd	0.52	4	1	1.01
893	Stanly Co West Stanly WWTP NC0043532	mgd	0.52	4	30	1.01
893	Stanly Co West Stanly WWTP NC0043532	mgd	0.52	5	1	0.84
893	Stanly Co West Stanly WWTP NC0043532	mgd	0.52	5	31	0.84
893	Stanly Co West Stanly WWTP NC0043532	mgd	0.52	6	1	0.72
893	Stanly Co West Stanly WWTP NC0043532	mgd	0.52	6	30	0.72
893	Stanly Co West Stanly WWTP NC0043532	mgd	0.52	7	1	0.71
893	Stanly Co West Stanly WWTP NC0043532	mgd	0.52	7	31	0.71
893	Stanly Co West Stanly WWTP NC0043532	mgd	0.52	8	1	0.8

Node Number	Name	units	factor	Month	Day	Inflow
893	Stanly Co West Stanly WWTP NC0043532	mgd	0.52	8	31	0.8
893	Stanly Co West Stanly WWTP NC0043532	mgd	0.52	9	1	0.86
893	Stanly Co West Stanly WWTP NC0043532	mgd	0.52	9	30	0.86
893	Stanly Co West Stanly WWTP NC0043532	mgd	0.52	10	1	1.07
893	Stanly Co West Stanly WWTP NC0043532	mgd	0.52	10	31	1.07
893	Stanly Co West Stanly WWTP NC0043532	mgd	0.52	11	1	1.17
893	Stanly Co West Stanly WWTP NC0043532	mgd	0.52	11	30	1.17
893	Stanly Co West Stanly WWTP NC0043532	mgd	0.52	12	1	1.34
893	Stanly Co West Stanly WWTP NC0043532	mgd	0.52	12	31	1.34
903	Troy WWTP NC0028916	mgd	0.54	1	1	1.19
903	Troy WWTP NC0028916	mgd	0.54	1	31	1.19
903	Troy WWTP NC0028916	mgd	0.54	2	1	1.14
903	Troy WWTP NC0028916	mgd	0.54	2	29	1.14
903	Troy WWTP NC0028916	mgd	0.54	3	1	1.1
903	Troy WWTP NC0028916	mgd	0.54	3	31	1.1
903	Troy WWTP NC0028916	mgd	0.54	4	1	1.05
903	Troy WWTP NC0028916	mgd	0.54	4	30	1.05
903	Troy WWTP NC0028916	mgd	0.54	5	1	0.95
903	Troy WWTP NC0028916	mgd	0.54	5	31	0.95
903	Troy WWTP NC0028916	mgd	0.54	6	1	0.86
903	Troy WWTP NC0028916	mgd	0.54	6	30	0.86
903	Troy WWTP NC0028916	mgd	0.54	7	1	0.91
903	Troy WWTP NC0028916	mgd	0.54	7	31	0.91
903	Troy WWTP NC0028916	mgd	0.54	8	1	0.85
903	Troy WWTP NC0028916	mgd	0.54	8	31	0.85
903	Troy WWTP NC0028916	mgd	0.54	9	1	0.93
903	Troy WWTP NC0028916	mgd	0.54	9	30	0.93
903	Troy WWTP NC0028916	mgd	0.54	10	1	0.89
903	Troy WWTP NC0028916	mgd	0.54	10	31	0.89
903	Troy WWTP NC0028916	mgd	0.54	11	1	1
903	Troy WWTP NC0028916	mgd	0.54	11	30	1
903	Troy WWTP NC0028916	mgd	0.54	12	1	1.13
903	Troy WWTP NC0028916	mgd	0.54	12	31	1.13
913	Biscoe WWTP NC0021504	mgd	0.28	1	1	1.12
913	Biscoe WWTP NC0021504	mgd	0.28	1	31	1.12
913	Biscoe WWTP NC0021504	mgd	0.28	2	1	1.17
913	Biscoe WWTP NC0021504	mgd	0.28	2	29	1.17
913	Biscoe WWTP NC0021504	mgd	0.28	3	1	1.14
913	Biscoe WWTP NC0021504	mgd	0.28	3	31	1.14
913	Biscoe WWTP NC0021504	mgd	0.28	4	1	1.09
913	Biscoe WWTP NC0021504	mgd	0.28	4	30	1.09
913	Biscoe WWTP NC0021504	mgd	0.28	5	1	1
913	Biscoe WWTP NC0021504	mgd	0.28	5	31	1
913	Biscoe WWTP NC0021504	mgd	0.28	6	1	0.82
913	Biscoe WWTP NC0021504	mgd	0.28	6	30	0.82
913	Biscoe WWTP NC0021504	mgd	0.28	7	1	0.84
913	Biscoe WWTP NC0021504	mgd	0.28	7	31	0.84
913	Biscoe WWTP NC0021504	mgd	0.28	8	1	0.9
913	Biscoe WWTP NC0021504	mgd	0.28	8	31	0.9
913	Biscoe WWTP NC0021504	mgd	0.28	9	1	0.94
913	Biscoe WWTP NC0021504	mgd	0.28	9	30	0.94
913	Biscoe WWTP NC0021504	mgd	0.28	10	1	0.91
913	Biscoe WWTP NC0021504	mgd	0.28	10	31	0.91
913	Biscoe WWTP NC0021504	mgd	0.28	11	1	0.96
913	Biscoe WWTP NC0021504	mgd	0.28	11	30	0.96

Node Number	Name	units	factor	Month	Day	Inflow
913	Biscoe WWTP NC0021504	mgd	0.28	12	1	1.1
913	Biscoe WWTP NC0021504	mgd	0.28	12	31	1.1
963	Burlington Ind WW NC0043320	mgd	0.17	1	1	0.91
963	Burlington Ind WW NC0043320	mgd	0.17	1	31	0.91
963	Burlington Ind WW NC0043320	mgd	0.17	2	1	1.02
963	Burlington Ind WW NC0043320	mgd	0.17	2	29	1.02
963	Burlington Ind WW NC0043320	mgd	0.17	3	1	1.16
963	Burlington Ind WW NC0043320	mgd	0.17	3	31	1.16
963	Burlington Ind WW NC0043320	mgd	0.17	4	1	1.11
963	Burlington Ind WW NC0043320	mgd	0.17	4	30	1.11
963	Burlington Ind WW NC0043320	mgd	0.17	5	1	1.03
963	Burlington Ind WW NC0043320	mgd	0.17	5	31	1.03
963	Burlington Ind WW NC0043320	mgd	0.17	6	1	0.97
963	Burlington Ind WW NC0043320	mgd	0.17	6	30	0.97
963	Burlington Ind WW NC0043320	mgd	0.17	7	1	1.04
963	Burlington Ind WW NC0043320	mgd	0.17	7	31	1.04
963	Burlington Ind WW NC0043320	mgd	0.17	8	1	1.06
963	Burlington Ind WW NC0043320	mgd	0.17	8	31	1.06
963	Burlington Ind WW NC0043320	mgd	0.17	9	1	1.02
963	Burlington Ind WW NC0043320	mgd	0.17	9	30	1.02
963	Burlington Ind WW NC0043320	mgd	0.17	10	1	0.95
963	Burlington Ind WW NC0043320	mgd	0.17	10	31	0.95
963	Burlington Ind WW NC0043320	mgd	0.17	11	1	0.9
963	Burlington Ind WW NC0043320	mgd	0.17	11	30	0.9
963	Burlington Ind WW NC0043320	mgd	0.17	12	1	0.84
963	Burlington Ind WW NC0043320	mgd	0.17	12	31	0.84
1093	Laurinburg-Maxton Airport WWTP NC0044725	mgd	1.19	1	1	0.82
1093	Laurinburg-Maxton Airport WWTP NC0044725	mgd	1.19	1	31	0.82
1093	Laurinburg-Maxton Airport WWTP NC0044725	mgd	1.19	2	1	0.78
1093	Laurinburg-Maxton Airport WWTP NC0044725	mgd	1.19	2	29	0.78
1093	Laurinburg-Maxton Airport WWTP NC0044725	mgd	1.19	3	1	0.74
1093	Laurinburg-Maxton Airport WWTP NC0044725	mgd	1.19	3	31	0.74
1093	Laurinburg-Maxton Airport WWTP NC0044725	mgd	1.19	4	1	0.73
1093	Laurinburg-Maxton Airport WWTP NC0044725	mgd	1.19	4	30	0.73
1093	Laurinburg-Maxton Airport WWTP NC0044725	mgd	1.19	5	1	0.6
1093	Laurinburg-Maxton Airport WWTP NC0044725	mgd	1.19	5	31	0.6
1093	Laurinburg-Maxton Airport WWTP NC0044725	mgd	1.19	6	1	0.63
1093	Laurinburg-Maxton Airport WWTP NC0044725	mgd	1.19	6	30	0.63
1093	Laurinburg-Maxton Airport WWTP NC0044725	mgd	1.19	7	1	0.58
1093	Laurinburg-Maxton Airport WWTP NC0044725	mgd	1.19	7	31	0.58
1093	Laurinburg-Maxton Airport WWTP NC0044725	mgd	1.19	8	1	0.58
1093	Laurinburg-Maxton Airport WWTP NC0044725	mgd	1.19	8	31	0.58
1093	Laurinburg-Maxton Airport WWTP NC0044725	mgd	1.19	9	1	0.64
1093	Laurinburg-Maxton Airport WWTP NC0044725	mgd	1.19	9	30	0.64
1093	Laurinburg-Maxton Airport WWTP NC0044725	mgd	1.19	10	1	0.85
1093	Laurinburg-Maxton Airport WWTP NC0044725	mgd	1.19	10	31	0.85
1093	Laurinburg-Maxton Airport WWTP NC0044725	mgd	1.19	11	1	4.03
1093	Laurinburg-Maxton Airport WWTP NC0044725	mgd	1.19	11	30	4.03
1093	Laurinburg-Maxton Airport WWTP NC0044725	mgd	1.19	12	1	1.01
1093	Laurinburg-Maxton Airport WWTP NC0044725	mgd	1.19	12	31	1.01
1113	Robeson Co Maxton WTP NC0048577	mgd	0.08	1	1	0.92
1113	Robeson Co Maxton WTP NC0048577	mgd	0.08	1	31	0.92
1113	Robeson Co Maxton WTP NC0048577	mgd	0.08	2	1	1.04
1113	Robeson Co Maxton WTP NC0048577	mgd	0.08	2	29	1.04
1113	Robeson Co Maxton WTP NC0048577	mgd	0.08	3	1	1.74

Node Number	Name	units	factor	Month	Day	Inflow
1113	Robeson Co Maxton WTP NC0048577	mgd	0.08	3	31	1.74
1113	Robeson Co Maxton WTP NC0048577	mgd	0.08	4	1	1.4
1113	Robeson Co Maxton WTP NC0048577	mgd	0.08	4	30	1.4
1113	Robeson Co Maxton WTP NC0048577	mgd	0.08	5	1	0.9
1113	Robeson Co Maxton WTP NC0048577	mgd	0.08	5	31	0.9
1113	Robeson Co Maxton WTP NC0048577	mgd	0.08	6	1	0.96
1113	Robeson Co Maxton WTP NC0048577	mgd	0.08	6	30	0.96
1113	Robeson Co Maxton WTP NC0048577	mgd	0.08	7	1	1.09
1113	Robeson Co Maxton WTP NC0048577	mgd	0.08	7	31	1.09
1113	Robeson Co Maxton WTP NC0048577	mgd	0.08	8	1	1.01
1113	Robeson Co Maxton WTP NC0048577	mgd	0.08	8	31	1.01
1113	Robeson Co Maxton WTP NC0048577	mgd	0.08	9	1	1.1
1113	Robeson Co Maxton WTP NC0048577	mgd	0.08	9	30	1.1
1113	Robeson Co Maxton WTP NC0048577	mgd	0.08	10	1	0.52
1113	Robeson Co Maxton WTP NC0048577	mgd	0.08	10	31	0.52
1113	Robeson Co Maxton WTP NC0048577	mgd	0.08	11	1	0.76
1113	Robeson Co Maxton WTP NC0048577	mgd	0.08	11	30	0.76
1113	Robeson Co Maxton WTP NC0048577	mgd	0.08	12	1	0.55
1113	Robeson Co Maxton WTP NC0048577	mgd	0.08	12	31	0.55
1123	Pembroke WWTP NC0027103	mgd	0.86	1	1	1.15
1123	Pembroke WWTP NC0027103	mgd	0.86	1	31	1.15
1123	Pembroke WWTP NC0027103	mgd	0.86	2	1	1.27
1123	Pembroke WWTP NC0027103	mgd	0.86	2	29	1.27
1123	Pembroke WWTP NC0027103	mgd	0.86	3	1	1.1
1123	Pembroke WWTP NC0027103	mgd	0.86	3	31	1.1
1123	Pembroke WWTP NC0027103	mgd	0.86	4	1	1.03
1123	Pembroke WWTP NC0027103	mgd	0.86	4	30	1.03
1123	Pembroke WWTP NC0027103	mgd	0.86	5	1	0.84
1123	Pembroke WWTP NC0027103	mgd	0.86	5	31	0.84
1123	Pembroke WWTP NC0027103	mgd	0.86	6	1	0.75
1123	Pembroke WWTP NC0027103	mgd	0.86	6	30	0.75
1123	Pembroke WWTP NC0027103	mgd	0.86	7	1	0.68
1123	Pembroke WWTP NC0027103	mgd	0.86	7	31	0.68
1123	Pembroke WWTP NC0027103	mgd	0.86	8	1	0.75
1123	Pembroke WWTP NC0027103	mgd	0.86	8	31	0.75
1123	Pembroke WWTP NC0027103	mgd	0.86	9	1	1.04
1123	Pembroke WWTP NC0027103	mgd	0.86	9	30	1.04
1123	Pembroke WWTP NC0027103	mgd	0.86	10	1	1.05
1123	Pembroke WWTP NC0027103	mgd	0.86	10	31	1.05
1123	Pembroke WWTP NC0027103	mgd	0.86	11	1	1.08
1123	Pembroke WWTP NC0027103	mgd	0.86	11	30	1.08
1123	Pembroke WWTP NC0027103	mgd	0.86	12	1	1.26
1123	Pembroke WWTP NC0027103	mgd	0.86	12	31	1.26
1143	Red Springs WWTP NC0025577	mgd	6.98	1	1	0.21
1143	Red Springs WWTP NC0025577	mgd	6.98	1	31	0.21
1143	Red Springs WWTP NC0025577	mgd	6.98	2	1	0.19
1143	Red Springs WWTP NC0025577	mgd	6.98	2	29	0.19
1143	Red Springs WWTP NC0025577	mgd	6.98	3	1	0.18
1143	Red Springs WWTP NC0025577	mgd	6.98	3	31	0.18
1143	Red Springs WWTP NC0025577	mgd	6.98	4	1	10.51
1143	Red Springs WWTP NC0025577	mgd	6.98	4	30	10.51
1143	Red Springs WWTP NC0025577	mgd	6.98	5	1	0.11
1143	Red Springs WWTP NC0025577	mgd	6.98	5	31	0.11
1143	Red Springs WWTP NC0025577	mgd	6.98	6	1	0.1
1143	Red Springs WWTP NC0025577	mgd	6.98	6	30	0.1

Node Number	Name	units	factor	Month	Day	Inflow
1143	Red Springs WWTP NC0025577	mgd	6.98	7	1	0.09
1143	Red Springs WWTP NC0025577	mgd	6.98	7	31	0.09
1143	Red Springs WWTP NC0025577	mgd	6.98	8	1	0.08
1143	Red Springs WWTP NC0025577	mgd	6.98	8	31	0.08
1143	Red Springs WWTP NC0025577	mgd	6.98	9	1	0.1
1143	Red Springs WWTP NC0025577	mgd	6.98	9	30	0.1
1143	Red Springs WWTP NC0025577	mgd	6.98	10	1	0.13
1143	Red Springs WWTP NC0025577	mgd	6.98	10	31	0.13
1143	Red Springs WWTP NC0025577	mgd	6.98	11	1	0.13
1143	Red Springs WWTP NC0025577	mgd	6.98	11	30	0.13
1143	Red Springs WWTP NC0025577	mgd	6.98	12	1	0.17
1143	Red Springs WWTP NC0025577	mgd	6.98	12	31	0.17
1213	Laurinburg Leith Ck WWTP NC0020656	mgd	2.57	1	1	1.39
1213	Laurinburg Leith Ck WWTP NC0020656	mgd	2.57	1	31	1.39
1213	Laurinburg Leith Ck WWTP NC0020656	mgd	2.57	2	1	1.25
1213	Laurinburg Leith Ck WWTP NC0020656	mgd	2.57	2	29	1.25
1213	Laurinburg Leith Ck WWTP NC0020656	mgd	2.57	3	1	1.18
1213	Laurinburg Leith Ck WWTP NC0020656	mgd	2.57	3	31	1.18
1213	Laurinburg Leith Ck WWTP NC0020656	mgd	2.57	4	1	1.16
1213	Laurinburg Leith Ck WWTP NC0020656	mgd	2.57	4	30	1.16
1213	Laurinburg Leith Ck WWTP NC0020656	mgd	2.57	5	1	0.92
1213	Laurinburg Leith Ck WWTP NC0020656	mgd	2.57	5	31	0.92
1213	Laurinburg Leith Ck WWTP NC0020656	mgd	2.57	6	1	0.81
1213	Laurinburg Leith Ck WWTP NC0020656	mgd	2.57	6	30	0.81
1213	Laurinburg Leith Ck WWTP NC0020656	mgd	2.57	7	1	0.71
1213	Laurinburg Leith Ck WWTP NC0020656	mgd	2.57	7	31	0.71
1213	Laurinburg Leith Ck WWTP NC0020656	mgd	2.57	8	1	0.73
1213	Laurinburg Leith Ck WWTP NC0020656	mgd	2.57	8	31	0.73
1213	Laurinburg Leith Ck WWTP NC0020656	mgd	2.57	9	1	0.85
1213	Laurinburg Leith Ck WWTP NC0020656	mgd	2.57	9	30	0.85
1213	Laurinburg Leith Ck WWTP NC0020656	mgd	2.57	10	1	0.88
1213	Laurinburg Leith Ck WWTP NC0020656	mgd	2.57	10	31	0.88
1213	Laurinburg Leith Ck WWTP NC0020656	mgd	2.57	11	1	0.93
1213	Laurinburg Leith Ck WWTP NC0020656	mgd	2.57	11	30	0.93
1213	Laurinburg Leith Ck WWTP NC0020656	mgd	2.57	12	1	1.18
1213	Laurinburg Leith Ck WWTP NC0020656	mgd	2.57	12	31	1.18
1223	Plinkington Inc WWTP NC0049514	mgd	0.32	1	1	0.43
1223	Plinkington Inc WWTP NC0049514	mgd	0.32	1	31	0.43
1223	Plinkington Inc WWTP NC0049514	mgd	0.32	2	1	0.55
1223	Plinkington Inc WWTP NC0049514	mgd	0.32	2	29	0.55
1223	Plinkington Inc WWTP NC0049514	mgd	0.32	3	1	0.75
1223	Plinkington Inc WWTP NC0049514	mgd	0.32	3	31	0.75
1223	Plinkington Inc WWTP NC0049514	mgd	0.32	4	1	0.47
1223	Plinkington Inc WWTP NC0049514	mgd	0.32	4	30	0.47
1223	Plinkington Inc WWTP NC0049514	mgd	0.32	5	1	0.55
1223	Plinkington Inc WWTP NC0049514	mgd	0.32	5	31	0.55
1223	Plinkington Inc WWTP NC0049514	mgd	0.32	6	1	0.56
1223	Plinkington Inc WWTP NC0049514	mgd	0.32	6	30	0.56
1223	Plinkington Inc WWTP NC0049514	mgd	0.32	7	1	0.3
1223	Plinkington Inc WWTP NC0049514	mgd	0.32	7	31	0.3
1223	Plinkington Inc WWTP NC0049514	mgd	0.32	8	1	1
1223	Plinkington Inc WWTP NC0049514	mgd	0.32	8	31	1
1223	Plinkington Inc WWTP NC0049514	mgd	0.32	9	1	1.87
1223	Plinkington Inc WWTP NC0049514	mgd	0.32	9	30	1.87
1223	Plinkington Inc WWTP NC0049514	mgd	0.32	10	1	2.56

Node Number	Name	units	factor	Month	Day	Inflow
1223	Plinkington Inc WWTP NC0049514	mgd	0.32	10	31	2.56
1223	Plinkington Inc WWTP NC0049514	mgd	0.32	11	1	1.04
1223	Plinkington Inc WWTP NC0049514	mgd	0.32	11	30	1.04
1223	Plinkington Inc WWTP NC0049514	mgd	0.32	12	1	1.94
1223	Plinkington Inc WWTP NC0049514	mgd	0.32	12	31	1.94
1233	Maxton WWTP NC0027120	mgd	0.31	1	1	1.4
1233	Maxton WWTP NC0027120	mgd	0.31	1	31	1.4
1233	Maxton WWTP NC0027120	mgd	0.31	2	1	1.28
1233	Maxton WWTP NC0027120	mgd	0.31	2	29	1.28
1233	Maxton WWTP NC0027120	mgd	0.31	3	1	1.27
1233	Maxton WWTP NC0027120	mgd	0.31	3	31	1.27
1233	Maxton WWTP NC0027120	mgd	0.31	4	1	1.04
1233	Maxton WWTP NC0027120	mgd	0.31	4	30	1.04
1233	Maxton WWTP NC0027120	mgd	0.31	5	1	0.85
1233	Maxton WWTP NC0027120	mgd	0.31	5	31	0.85
1233	Maxton WWTP NC0027120	mgd	0.31	6	1	0.77
1233	Maxton WWTP NC0027120	mgd	0.31	6	30	0.77
1233	Maxton WWTP NC0027120	mgd	0.31	7	1	0.68
1233	Maxton WWTP NC0027120	mgd	0.31	7	31	0.68
1233	Maxton WWTP NC0027120	mgd	0.31	8	1	0.6
1233	Maxton WWTP NC0027120	mgd	0.31	8	31	0.6
1233	Maxton WWTP NC0027120	mgd	0.31	9	1	0.77
1233	Maxton WWTP NC0027120	mgd	0.31	9	30	0.77
1233	Maxton WWTP NC0027120	mgd	0.31	10	1	1.07
1233	Maxton WWTP NC0027120	mgd	0.31	10	31	1.07
1233	Maxton WWTP NC0027120	mgd	0.31	11	1	1.02
1233	Maxton WWTP NC0027120	mgd	0.31	11	30	1.02
1233	Maxton WWTP NC0027120	mgd	0.31	12	1	1.26
1233	Maxton WWTP NC0027120	mgd	0.31	12	31	1.26
1243	Rowland WWTP NC0069612	mgd	0.33	1	1	1.27
1243	Rowland WWTP NC0069612	mgd	0.33	1	31	1.27
1243	Rowland WWTP NC0069612	mgd	0.33	2	1	1.22
1243	Rowland WWTP NC0069612	mgd	0.33	2	29	1.22
1243	Rowland WWTP NC0069612	mgd	0.33	3	1	1.01
1243	Rowland WWTP NC0069612	mgd	0.33	3	31	1.01
1243	Rowland WWTP NC0069612	mgd	0.33	4	1	0.78
1243	Rowland WWTP NC0069612	mgd	0.33	4	30	0.78
1243	Rowland WWTP NC0069612	mgd	0.33	5	1	0.59
1243	Rowland WWTP NC0069612	mgd	0.33	5	31	0.59
1243	Rowland WWTP NC0069612	mgd	0.33	6	1	0.65
1243	Rowland WWTP NC0069612	mgd	0.33	6	30	0.65
1243	Rowland WWTP NC0069612	mgd	0.33	7	1	0.63
1243	Rowland WWTP NC0069612	mgd	0.33	7	31	0.63
1243	Rowland WWTP NC0069612	mgd	0.33	8	1	0.37
1243	Rowland WWTP NC0069612	mgd	0.33	8	31	0.37
1243	Rowland WWTP NC0069612	mgd	0.33	9	1	0.72
1243	Rowland WWTP NC0069612	mgd	0.33	9	30	0.72
1243	Rowland WWTP NC0069612	mgd	0.33	10	1	0.81
1243	Rowland WWTP NC0069612	mgd	0.33	10	31	0.81
1243	Rowland WWTP NC0069612	mgd	0.33	11	1	2.8
1243	Rowland WWTP NC0069612	mgd	0.33	11	30	2.8
1243	Rowland WWTP NC0069612	mgd	0.33	12	1	1.16
1243	Rowland WWTP NC0069612	mgd	0.33	12	31	1.16
1323	Lumberton Energy Holdings LLC NC0004618	mgd	0.29	1	1	0.84
1323	Lumberton Energy Holdings LLC NC0004618	mgd	0.29	1	31	0.84

Node Number	Name	units	factor	Month	Day	Inflow
1323	Lumberton Energy Holdings LLC NC0004618	mgd	0.29	2	1	1.09
1323	Lumberton Energy Holdings LLC NC0004618	mgd	0.29	2	29	1.09
1323	Lumberton Energy Holdings LLC NC0004618	mgd	0.29	3	1	1.12
1323	Lumberton Energy Holdings LLC NC0004618	mgd	0.29	3	31	1.12
1323	Lumberton Energy Holdings LLC NC0004618	mgd	0.29	4	1	1.22
1323	Lumberton Energy Holdings LLC NC0004618	mgd	0.29	4	30	1.22
1323	Lumberton Energy Holdings LLC NC0004618	mgd	0.29	5	1	1.05
1323	Lumberton Energy Holdings LLC NC0004618	mgd	0.29	5	31	1.05
1323	Lumberton Energy Holdings LLC NC0004618	mgd	0.29	6	1	1.23
1323	Lumberton Energy Holdings LLC NC0004618	mgd	0.29	6	30	1.23
1323	Lumberton Energy Holdings LLC NC0004618	mgd	0.29	7	1	0.77
1323	Lumberton Energy Holdings LLC NC0004618	mgd	0.29	7	31	0.77
1323	Lumberton Energy Holdings LLC NC0004618	mgd	0.29	8	1	0.88
1323	Lumberton Energy Holdings LLC NC0004618	mgd	0.29	8	31	0.88
1323	Lumberton Energy Holdings LLC NC0004618	mgd	0.29	9	1	0.96
1323	Lumberton Energy Holdings LLC NC0004618	mgd	0.29	9	30	0.96
1323	Lumberton Energy Holdings LLC NC0004618	mgd	0.29	10	1	1.01
1323	Lumberton Energy Holdings LLC NC0004618	mgd	0.29	10	31	1.01
1323	Lumberton Energy Holdings LLC NC0004618	mgd	0.29	11	1	0.9
1323	Lumberton Energy Holdings LLC NC0004618	mgd	0.29	11	30	0.9
1323	Lumberton Energy Holdings LLC NC0004618	mgd	0.29	12	1	0.94
1323	Lumberton Energy Holdings LLC NC0004618	mgd	0.29	12	31	0.94
1403	Parkton WWTP NC0026921	mgd	0.14	1	1	1.64
1403	Parkton WWTP NC0026921	mgd	0.14	1	31	1.64
1403	Parkton WWTP NC0026921	mgd	0.14	2	1	1.49
1403	Parkton WWTP NC0026921	mgd	0.14	2	29	1.49
1403	Parkton WWTP NC0026921	mgd	0.14	3	1	1.39
1403	Parkton WWTP NC0026921	mgd	0.14	3	31	1.39
1403	Parkton WWTP NC0026921	mgd	0.14	4	1	1.12
1403	Parkton WWTP NC0026921	mgd	0.14	4	30	1.12
1403	Parkton WWTP NC0026921	mgd	0.14	5	1	0.89
1403	Parkton WWTP NC0026921	mgd	0.14	5	31	0.89
1403	Parkton WWTP NC0026921	mgd	0.14	6	1	0.59
1403	Parkton WWTP NC0026921	mgd	0.14	6	30	0.59
1403	Parkton WWTP NC0026921	mgd	0.14	7	1	0.42
1403	Parkton WWTP NC0026921	mgd	0.14	7	31	0.42
1403	Parkton WWTP NC0026921	mgd	0.14	8	1	0.45
1403	Parkton WWTP NC0026921	mgd	0.14	8	31	0.45
1403	Parkton WWTP NC0026921	mgd	0.14	9	1	0.52
1403	Parkton WWTP NC0026921	mgd	0.14	9	30	0.52
1403	Parkton WWTP NC0026921	mgd	0.14	10	1	0.99
1403	Parkton WWTP NC0026921	mgd	0.14	10	31	0.99
1403	Parkton WWTP NC0026921	mgd	0.14	11	1	1.04
1403	Parkton WWTP NC0026921	mgd	0.14	11	30	1.04
1403	Parkton WWTP NC0026921	mgd	0.14	12	1	1.45
1403	Parkton WWTP NC0026921	mgd	0.14	12	31	1.45
1413	St Pauls WWTP NC0020095	mgd	0.43	1	1	1.3
1413	St Pauls WWTP NC0020095	mgd	0.43	1	31	1.3
1413	St Pauls WWTP NC0020095	mgd	0.43	2	1	1.17
1413	St Pauls WWTP NC0020095	mgd	0.43	2	29	1.17
1413	St Pauls WWTP NC0020095	mgd	0.43	3	1	1.1
1413	St Pauls WWTP NC0020095	mgd	0.43	3	31	1.1
1413	St Pauls WWTP NC0020095	mgd	0.43	4	1	0.96
1413	St Pauls WWTP NC0020095	mgd	0.43	4	30	0.96
1413	St Pauls WWTP NC0020095	mgd	0.43	5	1	0.91

Node Number	Name	units	factor	Month	Day	Inflow
1413	St Pauls WWTP NC0020095	mgd	0.43	5	31	0.91
1413	St Pauls WWTP NC0020095	mgd	0.43	6	1	0.84
1413	St Pauls WWTP NC0020095	mgd	0.43	6	30	0.84
1413	St Pauls WWTP NC0020095	mgd	0.43	7	1	0.82
1413	St Pauls WWTP NC0020095	mgd	0.43	7	31	0.82
1413	St Pauls WWTP NC0020095	mgd	0.43	8	1	0.7
1413	St Pauls WWTP NC0020095	mgd	0.43	8	31	0.7
1413	St Pauls WWTP NC0020095	mgd	0.43	9	1	0.9
1413	St Pauls WWTP NC0020095	mgd	0.43	9	30	0.9
1413	St Pauls WWTP NC0020095	mgd	0.43	10	1	1.14
1413	St Pauls WWTP NC0020095	mgd	0.43	10	31	1.14
1413	St Pauls WWTP NC0020095	mgd	0.43	11	1	0.96
1413	St Pauls WWTP NC0020095	mgd	0.43	11	30	0.96
1413	St Pauls WWTP NC0020095	mgd	0.43	12	1	1.18
1413	St Pauls WWTP NC0020095	mgd	0.43	12	31	1.18
1433	Bladenboro WWTP NC0026352	mgd	0.29	1	1	1.23
1433	Bladenboro WWTP NC0026352	mgd	0.29	1	31	1.23
1433	Bladenboro WWTP NC0026352	mgd	0.29	2	1	1.32
1433	Bladenboro WWTP NC0026352	mgd	0.29	2	29	1.32
1433	Bladenboro WWTP NC0026352	mgd	0.29	3	1	1.17
1433	Bladenboro WWTP NC0026352	mgd	0.29	3	31	1.17
1433	Bladenboro WWTP NC0026352	mgd	0.29	4	1	1.12
1433	Bladenboro WWTP NC0026352	mgd	0.29	4	30	1.12
1433	Bladenboro WWTP NC0026352	mgd	0.29	5	1	0.89
1433	Bladenboro WWTP NC0026352	mgd	0.29	5	31	0.89
1433	Bladenboro WWTP NC0026352	mgd	0.29	6	1	0.74
1433	Bladenboro WWTP NC0026352	mgd	0.29	6	30	0.74
1433	Bladenboro WWTP NC0026352	mgd	0.29	7	1	0.74
1433	Bladenboro WWTP NC0026352	mgd	0.29	7	31	0.74
1433	Bladenboro WWTP NC0026352	mgd	0.29	8	1	0.69
1433	Bladenboro WWTP NC0026352	mgd	0.29	8	31	0.69
1433	Bladenboro WWTP NC0026352	mgd	0.29	9	1	1
1433	Bladenboro WWTP NC0026352	mgd	0.29	9	30	1
1433	Bladenboro WWTP NC0026352	mgd	0.29	10	1	1.12
1433	Bladenboro WWTP NC0026352	mgd	0.29	10	31	1.12
1433	Bladenboro WWTP NC0026352	mgd	0.29	11	1	0.87
1433	Bladenboro WWTP NC0026352	mgd	0.29	11	30	0.87
1433	Bladenboro WWTP NC0026352	mgd	0.29	12	1	1.13
1433	Bladenboro WWTP NC0026352	mgd	0.29	12	31	1.13
1523	Fairmont Regional WWTP NC0086550	mgd	1.15	1	1	1.35
1523	Fairmont Regional WWTP NC0086550	mgd	1.15	1	31	1.35
1523	Fairmont Regional WWTP NC0086550	mgd	1.15	2	1	1.32
1523	Fairmont Regional WWTP NC0086550	mgd	1.15	2	29	1.32
1523	Fairmont Regional WWTP NC0086550	mgd	1.15	3	1	1.23
1523	Fairmont Regional WWTP NC0086550	mgd	1.15	3	31	1.23
1523	Fairmont Regional WWTP NC0086550	mgd	1.15	4	1	1.19
1523	Fairmont Regional WWTP NC0086550	mgd	1.15	4	30	1.19
1523	Fairmont Regional WWTP NC0086550	mgd	1.15	5	1	0.92
1523	Fairmont Regional WWTP NC0086550	mgd	1.15	5	31	0.92
1523	Fairmont Regional WWTP NC0086550	mgd	1.15	6	1	0.85
1523	Fairmont Regional WWTP NC0086550	mgd	1.15	6	30	0.85
1523	Fairmont Regional WWTP NC0086550	mgd	1.15	7	1	0.88
1523	Fairmont Regional WWTP NC0086550	mgd	1.15	7	31	0.88
1523	Fairmont Regional WWTP NC0086550	mgd	1.15	8	1	0.65
1523	Fairmont Regional WWTP NC0086550	mgd	1.15	8	31	0.65

Node Number	Name	units	factor	Month	Day	Inflow
1523	Fairmont Regional WWTP NC0086550	mgd	1.15	9	1	0.74
1523	Fairmont Regional WWTP NC0086550	mgd	1.15	9	30	0.74
1523	Fairmont Regional WWTP NC0086550	mgd	1.15	10	1	0.84
1523	Fairmont Regional WWTP NC0086550	mgd	1.15	10	31	0.84
1523	Fairmont Regional WWTP NC0086550	mgd	1.15	11	1	0.88
1523	Fairmont Regional WWTP NC0086550	mgd	1.15	11	30	0.88
1523	Fairmont Regional WWTP NC0086550	mgd	1.15	12	1	1.16
1523	Fairmont Regional WWTP NC0086550	mgd	1.15	12	31	1.16
1703	Clarkton WWTP NC0021610	mgd	0.14	1	1	1.12
1703	Clarkton WWTP NC0021610	mgd	0.14	1	31	1.12
1703	Clarkton WWTP NC0021610	mgd	0.14	2	1	1.34
1703	Clarkton WWTP NC0021610	mgd	0.14	2	29	1.34
1703	Clarkton WWTP NC0021610	mgd	0.14	3	1	1.17
1703	Clarkton WWTP NC0021610	mgd	0.14	3	31	1.17
1703	Clarkton WWTP NC0021610	mgd	0.14	4	1	1.13
1703	Clarkton WWTP NC0021610	mgd	0.14	4	30	1.13
1703	Clarkton WWTP NC0021610	mgd	0.14	5	1	0.9
1703	Clarkton WWTP NC0021610	mgd	0.14	5	31	0.9
1703	Clarkton WWTP NC0021610	mgd	0.14	6	1	1.01
1703	Clarkton WWTP NC0021610	mgd	0.14	6	30	1.01
1703	Clarkton WWTP NC0021610	mgd	0.14	7	1	0.78
1703	Clarkton WWTP NC0021610	mgd	0.14	7	31	0.78
1703	Clarkton WWTP NC0021610	mgd	0.14	8	1	0.8
1703	Clarkton WWTP NC0021610	mgd	0.14	8	31	0.8
1703	Clarkton WWTP NC0021610	mgd	0.14	9	1	1.1
1703	Clarkton WWTP NC0021610	mgd	0.14	9	30	1.1
1703	Clarkton WWTP NC0021610	mgd	0.14	10	1	0.83
1703	Clarkton WWTP NC0021610	mgd	0.14	10	31	0.83
1703	Clarkton WWTP NC0021610	mgd	0.14	11	1	0.84
1703	Clarkton WWTP NC0021610	mgd	0.14	11	30	0.84
1703	Clarkton WWTP NC0021610	mgd	0.14	12	1	0.98
1703	Clarkton WWTP NC0021610	mgd	0.14	12	31	0.98
1713	Whiteville WRF NC0021920	mgd	1.33	1	1	1.22
1713	Whiteville WRF NC0021920	mgd	1.33	1	31	1.22
1713	Whiteville WRF NC0021920	mgd	1.33	2	1	1.19
1713	Whiteville WRF NC0021920	mgd	1.33	2	29	1.19
1713	Whiteville WRF NC0021920	mgd	1.33	3	1	1.16
1713	Whiteville WRF NC0021920	mgd	1.33	3	31	1.16
1713	Whiteville WRF NC0021920	mgd	1.33	4	1	1.08
1713	Whiteville WRF NC0021920	mgd	1.33	4	30	1.08
1713	Whiteville WRF NC0021920	mgd	1.33	5	1	0.83
1713	Whiteville WRF NC0021920	mgd	1.33	5	31	0.83
1713	Whiteville WRF NC0021920	mgd	1.33	6	1	0.78
1713	Whiteville WRF NC0021920	mgd	1.33	6	30	0.78
1713	Whiteville WRF NC0021920	mgd	1.33	7	1	0.77
1713	Whiteville WRF NC0021920	mgd	1.33	7	31	0.77
1713	Whiteville WRF NC0021920	mgd	1.33	8	1	0.9
1713	Whiteville WRF NC0021920	mgd	1.33	8	31	0.9
1713	Whiteville WRF NC0021920	mgd	1.33	9	1	0.91
1713	Whiteville WRF NC0021920	mgd	1.33	9	30	0.91
1713	Whiteville WRF NC0021920	mgd	1.33	10	1	0.96
1713	Whiteville WRF NC0021920	mgd	1.33	10	31	0.96
1713	Whiteville WRF NC0021920	mgd	1.33	11	1	0.93
1713	Whiteville WRF NC0021920	mgd	1.33	11	30	0.93
1713	Whiteville WRF NC0021920	mgd	1.33	12	1	1.26

Node Number	Name	units	factor	Month	Day	Inflow
1713	Whiteville WRF NC0021920	mgd	1.33	12	31	1.26
1723	Chadbourne WWTP NC0021865	mgd	0.31	1	1	1.33
1723	Chadbourne WWTP NC0021865	mgd	0.31	1	31	1.33
1723	Chadbourne WWTP NC0021865	mgd	0.31	2	1	1.32
1723	Chadbourne WWTP NC0021865	mgd	0.31	2	29	1.32
1723	Chadbourne WWTP NC0021865	mgd	0.31	3	1	1.15
1723	Chadbourne WWTP NC0021865	mgd	0.31	3	31	1.15
1723	Chadbourne WWTP NC0021865	mgd	0.31	4	1	1.08
1723	Chadbourne WWTP NC0021865	mgd	0.31	4	30	1.08
1723	Chadbourne WWTP NC0021865	mgd	0.31	5	1	0.83
1723	Chadbourne WWTP NC0021865	mgd	0.31	5	31	0.83
1723	Chadbourne WWTP NC0021865	mgd	0.31	6	1	0.83
1723	Chadbourne WWTP NC0021865	mgd	0.31	6	30	0.83
1723	Chadbourne WWTP NC0021865	mgd	0.31	7	1	0.53
1723	Chadbourne WWTP NC0021865	mgd	0.31	7	31	0.53
1723	Chadbourne WWTP NC0021865	mgd	0.31	8	1	0.75
1723	Chadbourne WWTP NC0021865	mgd	0.31	8	31	0.75
1723	Chadbourne WWTP NC0021865	mgd	0.31	9	1	0.95
1723	Chadbourne WWTP NC0021865	mgd	0.31	9	30	0.95
1723	Chadbourne WWTP NC0021865	mgd	0.31	10	1	1.17
1723	Chadbourne WWTP NC0021865	mgd	0.31	10	31	1.17
1723	Chadbourne WWTP NC0021865	mgd	0.31	11	1	0.91
1723	Chadbourne WWTP NC0021865	mgd	0.31	11	30	0.91
1723	Chadbourne WWTP NC0021865	mgd	0.31	12	1	1.14
1723	Chadbourne WWTP NC0021865	mgd	0.31	12	31	1.14
1743	Lake Waccamaw WWTP NC0021881	mgd	0.24	1	1	1.28
1743	Lake Waccamaw WWTP NC0021881	mgd	0.24	1	31	1.28
1743	Lake Waccamaw WWTP NC0021881	mgd	0.24	2	1	1.22
1743	Lake Waccamaw WWTP NC0021881	mgd	0.24	2	29	1.22
1743	Lake Waccamaw WWTP NC0021881	mgd	0.24	3	1	1.07
1743	Lake Waccamaw WWTP NC0021881	mgd	0.24	3	31	1.07
1743	Lake Waccamaw WWTP NC0021881	mgd	0.24	4	1	1.01
1743	Lake Waccamaw WWTP NC0021881	mgd	0.24	4	30	1.01
1743	Lake Waccamaw WWTP NC0021881	mgd	0.24	5	1	0.94
1743	Lake Waccamaw WWTP NC0021881	mgd	0.24	5	31	0.94
1743	Lake Waccamaw WWTP NC0021881	mgd	0.24	6	1	0.85
1743	Lake Waccamaw WWTP NC0021881	mgd	0.24	6	30	0.85
1743	Lake Waccamaw WWTP NC0021881	mgd	0.24	7	1	0.86
1743	Lake Waccamaw WWTP NC0021881	mgd	0.24	7	31	0.86
1743	Lake Waccamaw WWTP NC0021881	mgd	0.24	8	1	0.93
1743	Lake Waccamaw WWTP NC0021881	mgd	0.24	8	31	0.93
1743	Lake Waccamaw WWTP NC0021881	mgd	0.24	9	1	1.02
1743	Lake Waccamaw WWTP NC0021881	mgd	0.24	9	30	1.02
1743	Lake Waccamaw WWTP NC0021881	mgd	0.24	10	1	0.88
1743	Lake Waccamaw WWTP NC0021881	mgd	0.24	10	31	0.88
1743	Lake Waccamaw WWTP NC0021881	mgd	0.24	11	1	0.86
1743	Lake Waccamaw WWTP NC0021881	mgd	0.24	11	30	0.86
1743	Lake Waccamaw WWTP NC0021881	mgd	0.24	12	1	1.09
1743	Lake Waccamaw WWTP NC0021881	mgd	0.24	12	31	1.09
1763	Tabor City WWTP NC0026000	mgd	0.45	1	1	1.28
1763	Tabor City WWTP NC0026000	mgd	0.45	1	31	1.28
1763	Tabor City WWTP NC0026000	mgd	0.45	2	1	1.23
1763	Tabor City WWTP NC0026000	mgd	0.45	2	29	1.23
1763	Tabor City WWTP NC0026000	mgd	0.45	3	1	1.04
1763	Tabor City WWTP NC0026000	mgd	0.45	3	31	1.04

Node Number	Name	units	factor	Month	Day	Inflow
1763	Tabor City WWTP NC0026000	mgd	0.45	4	1	1.01
1763	Tabor City WWTP NC0026000	mgd	0.45	4	30	1.01
1763	Tabor City WWTP NC0026000	mgd	0.45	5	1	0.79
1763	Tabor City WWTP NC0026000	mgd	0.45	5	31	0.79
1763	Tabor City WWTP NC0026000	mgd	0.45	6	1	0.82
1763	Tabor City WWTP NC0026000	mgd	0.45	6	30	0.82
1763	Tabor City WWTP NC0026000	mgd	0.45	7	1	0.66
1763	Tabor City WWTP NC0026000	mgd	0.45	7	31	0.66
1763	Tabor City WWTP NC0026000	mgd	0.45	8	1	0.81
1763	Tabor City WWTP NC0026000	mgd	0.45	8	31	0.81
1763	Tabor City WWTP NC0026000	mgd	0.45	9	1	1.05
1763	Tabor City WWTP NC0026000	mgd	0.45	9	30	1.05
1763	Tabor City WWTP NC0026000	mgd	0.45	10	1	1.08
1763	Tabor City WWTP NC0026000	mgd	0.45	10	31	1.08
1763	Tabor City WWTP NC0026000	mgd	0.45	11	1	0.99
1763	Tabor City WWTP NC0026000	mgd	0.45	11	30	0.99
1763	Tabor City WWTP NC0026000	mgd	0.45	12	1	1.24
1763	Tabor City WWTP NC0026000	mgd	0.45	12	31	1.24
1773	Carolina Shores WWTP NC0044873	mgd	0.33	1	1	0.9
1773	Carolina Shores WWTP NC0044873	mgd	0.33	1	31	0.9
1773	Carolina Shores WWTP NC0044873	mgd	0.33	2	1	0.94
1773	Carolina Shores WWTP NC0044873	mgd	0.33	2	29	0.94
1773	Carolina Shores WWTP NC0044873	mgd	0.33	3	1	0.94
1773	Carolina Shores WWTP NC0044873	mgd	0.33	3	31	0.94
1773	Carolina Shores WWTP NC0044873	mgd	0.33	4	1	0.93
1773	Carolina Shores WWTP NC0044873	mgd	0.33	4	30	0.93
1773	Carolina Shores WWTP NC0044873	mgd	0.33	5	1	1.01
1773	Carolina Shores WWTP NC0044873	mgd	0.33	5	31	1.01
1773	Carolina Shores WWTP NC0044873	mgd	0.33	6	1	1.08
1773	Carolina Shores WWTP NC0044873	mgd	0.33	6	30	1.08
1773	Carolina Shores WWTP NC0044873	mgd	0.33	7	1	1.06
1773	Carolina Shores WWTP NC0044873	mgd	0.33	7	31	1.06
1773	Carolina Shores WWTP NC0044873	mgd	0.33	8	1	0.97
1773	Carolina Shores WWTP NC0044873	mgd	0.33	8	31	0.97
1773	Carolina Shores WWTP NC0044873	mgd	0.33	9	1	1.04
1773	Carolina Shores WWTP NC0044873	mgd	0.33	9	30	1.04
1773	Carolina Shores WWTP NC0044873	mgd	0.33	10	1	1.09
1773	Carolina Shores WWTP NC0044873	mgd	0.33	10	31	1.09
1773	Carolina Shores WWTP NC0044873	mgd	0.33	11	1	1.05
1773	Carolina Shores WWTP NC0044873	mgd	0.33	11	30	1.05
1773	Carolina Shores WWTP NC0044873	mgd	0.33	12	1	0.97
1773	Carolina Shores WWTP NC0044873	mgd	0.33	12	31	0.97

Arc Minimum Flows

U/S Number	D/S Number	Name	Units	Month	Day	Min Flow
670	686	Lake Lucas Outflow	CFS	1	1	6
670	686	Lake Lucas Outflow	CFS	12	31	6
690	686	Lake Reese Outflow	CFS	1	1	0.5
690	686	Lake Reese Outflow	CFS	12	31	0.5
820	826	Black Run Ck Res. Outflow	CFS	1	1	0.2
820	826	Black Run Ck Res. Outflow	CFS	12	31	0.2

Arc Maximum Flows

U/S Number	D/S Number		Units	Month	Day	Max Flow
250	252	Statesville WD	MGD	1	1	0
250	252	Statesville WD	MGD	12	31	0
590	600	High Rock Turbine Discharge	CFS	1	1	8500
590	600	High Rock Turbine Discharge	CFS	12	31	8500
610	630	Tuckertown Turbine Discharge	CFS	1	1	9400
610	630	Tuckertown Turbine Discharge	CFS	12	31	9400
640	650	Narrows Turbine Discharge	CFS	1	1	9500
640	650	Narrows Turbine Discharge	CFS	12	31	9500
660	664	Falls Turbine Discharge	CFS	1	1	8400
660	664	Falls Turbine Discharge	CFS	12	31	8400
700	710	Tillery Turbine Discharge	CFS	1	1	18000
700	710	Tillery Turbine Discharge	CFS	12	31	18000
798	844	WSACC Muddy Ck WW	MGD	1	1	0
798	844	WSACC Muddy Ck WW	MGD	12	31	0
920	930	Blewett Turbine Discharge	CFS	1	1	9200
920	930	Blewett Turbine Discharge	CFS	12	31	9200

County Agricultural Data

Crop	Units	Alexander	Alleghany	Anson	Ashe	Bladen	Brunswick
IrrTobacco	acres	186	143	0	0	0	0
Turf	acres	0	0	0	0	2059	0
Golf	acres	135	380	72	150	70	2160
ContNurs	acres	0	0	0	9	0	0
FieldNurs	acres	239	144	129	42	53	110
IrrCotton	acres	0	0	0	0	0	0
IrrEarlySoy	acres	0	0	0	0	11	0
IrrLateSoy	acres	0	0	0	0	11	0
IrrCorn	acres	0	0	0	0	387	24
IrrVeg	acres	16	19	0	5	13	304
IrrPas&Hay	acres	117	190	765	0	350	180
IrrPeanut	acres	0	0	0	0	0	0
IrrBlueberry	acres	3	0	0	0	2751	0
IrrStrawberry	acres	3	0	0	0	0	0
IrrFruit	acres	14	0	0	3	102	12
Beef Cattle	animals	10572	10420	3226	10360	197	1016
Dairy Cows	animals	664	608	35	52	5	80
Horses	animals	416	175	40	365	8	538
Pigs	animals	55	95	19726	240	35651	61094
Chickens	animals	3804310	685	3296832	898	185793	1633
Turkeys	animals	18	180	189332	13	18490	72
Other Animals	animals	295	205	85	1264	15	269

Crop	Units	Cabarrus	Caldwell	Columbus	Cumberland	Davidson	Davie
IrrTobacco	acres	0	0	105	320	38	63
Turf	acres	0	0	0	0	155	0
Golf	acres	285	342	105	544	342	266
ContNurs	acres	0	0	0	0	0	0
FieldNurs	acres	147	1510	32	40	131	25
IrrCotton	acres	0	0	0	0	0	0
IrrEarlySoy	acres	0	0	25	98	0	0
IrrLateSoy	acres	0	0	25	98	0	0
IrrCorn	acres	19	0	1408	500	0	0
IrrVeg	acres	146	0	5	400	48	18
IrrPas&Hay	acres	280	0	560	240	0	0
IrrPeanut	acres	0	0	0	0	0	0
IrrBlueberry	acres	0	0	0	0	0	0
IrrStrawberry	acres	0	0	0	0	0	0
IrrFruit	acres	0	0	0	24	0	34
Beef Cattle	animals	6326	3502	263	290	4376	3347
Dairy Cows	animals	324	38	5	10	588	183
Horses	animals	481	322	11	37	556	216
Pigs	animals	2750	65	11516	10304	96	20
Chickens	animals	412133	1084191	22109	47096	360895	111688
Turkeys	animals	10	30	1	24269	16	4
Other Animals	animals	562	299	15	84	552	234

Crop	Units	Forsyth	Guilford	Hoke	Iredell	Mecklenburg	Montgomery
IrrTobacco	acres	190	533	0	0	0	0
Turf	acres	0	135	0	0	0	0
Golf	acres	950	1494	105	486	1703	173
ContNurs	acres	0	0	0	0	0	0
FieldNurs	acres	85	300	0	599	229	195
IrrCotton	acres	0	0	0	0	0	0
IrrEarlySoy	acres	0	27	0	0	0	45
IrrLateSoy	acres	0	27	0	0	0	45
IrrCorn	acres	0	9	602	0	173	8
IrrVeg	acres	39	139	0	42	19	66
IrrPas&Hay	acres	0	45	0	45	30	113
IrrPeanut	acres	0	0	0	0	0	0
IrrBlueberry	acres	0	0	0	0	0	0
IrrStrawberry	acres	0	0	0	0	0	0
IrrFruit	acres	0	9	0	25	0	60
Beef Cattle	animals	2558	7937	231	8393	263	4508
Dairy Cows	animals	7	1017	20	2692	15	70
Horses	animals	475	1073	69	241	70	142
Pigs	animals	106	3568	16666	24	3	10500
Chickens	animals	1486	258485	151746	372819	192	3582241
Turkeys	animals	7	41	13780	13	3	11
Other Animals	animals	907	1415	94	332	49	277

Crop	Units	Stanly	Stokes	Surry	Union	Watauga	Wilkes
IrrTobacco	acres	0	162	284	0	0	0
Turf	acres	0	0	0	0	0	0
Golf	acres	8	171	430	391	320	261
ContNurs	acres	0	0	0	0	0	0
FieldNurs	acres	0	12	3114	150	21	8
IrrCotton	acres	0	0	0	0	0	0
IrrEarlySoy	acres	0	0	20	0	0	0
IrrLateSoy	acres	0	0	20	0	0	0
IrrCorn	acres	40	36	300	0	0	0
IrrVeg	acres	0	28	64	4	5	11
IrrPas&Hay	acres	13	14	15	110	200	36
IrrPeanut	acres	0	0	0	0	0	0
IrrBlueberry	acres	0	0	0	1	0	0
IrrStrawberry	acres	0	0	0	2	0	0
IrrFruit	acres	1	0	180	3	0	18
Beef Cattle	animals	9306	7558	16643	4847	12125	14452
Dairy Cows	animals	241	65	95	25	95	716
Horses	animals	307	348	541	275	397	348
Pigs	animals	2275	98	13000	5000	63	28
Chickens	animals	1039943	541169	4587907	2384157	2845	5926243
Turkeys	animals	270813	26	10	687749	14	7
Other Animals	animals	861	917	1414	516	889	626

Crop	Units	Yadkin	Carroll_VA	Grayson_VA	Patrick_VA	Chesterfield_SC	Marlboro_SC
IrrTobacco	acres	0	0	0	0	0	0
Turf	acres	0	0	0	0	0	0
Golf	acres	0	342	110	154	300	80
ContNurs	acres	0	0	0	0	0	0
FieldNurs	acres	0	0	0	0	0	0
IrrCotton	acres	0	0	0	0	0	186
IrrEarlySoy	acres	0	0	0	0	0	0
IrrLateSoy	acres	0	0	0	0	0	0
IrrCorn	acres	0	0	0	0	0	863
IrrVeg	acres	0	0	0	0	0	0
IrrPas&Hay	acres	0	0	0	0	0	0
IrrPeanut	acres	0	0	0	0	0	0
IrrBlueberry	acres	0	0	0	0	0	0
IrrStrawberry	acres	0	0	0	0	0	0
IrrFruit	acres	0	0	0	0	0	0
Beef Cattle	animals	7907	31831	23270	11712	0	0
Dairy Cows	animals	500	577	993	90	0	0
Horses	animals	379	867	757	331	0	0
Pigs	animals	150	61	106	123	0	0
Chickens	animals	1752985	1750	1383	1663	0	0
Turkeys	animals	43	34	6	180	0	0
Other Animals	animals	372	1167	3216	645	0	0

Crop Irrigation Coefficients

Name	Month	Day	Value
IrrCoef_Beef	1	1	12
IrrCoef_Beef	12	31	12
IrrCoef_Blueberry	1	1	0
IrrCoef_Blueberry	2	29	0
IrrCoef_Blueberry	3	1	1
IrrCoef_Blueberry	4	14	1
IrrCoef_Blueberry	4	15	0.178571429
IrrCoef_Blueberry	9	30	0.178571429
IrrCoef_Blueberry	10	1	0
IrrCoef_Blueberry	12	31	0
IrrCoef_Chicken	1	1	9
IrrCoef_Chicken	12	31	9
IrrCoef_ContNurs	1	1	0.2
IrrCoef_ContNurs	3	31	0.2
IrrCoef_ContNurs	4	1	0.5
IrrCoef_ContNurs	6	11	0.5
IrrCoef_ContNurs	6	12	0.75
IrrCoef_ContNurs	9	11	0.75
IrrCoef_ContNurs	9	12	0.5
IrrCoef_ContNurs	10	30	0.5
IrrCoef_ContNurs	10	31	0.2
IrrCoef_ContNurs	12	31	0.2
IrrCoef_Corn	1	1	0
IrrCoef_Corn	4	19	0
IrrCoef_Corn	4	20	0.001818182
IrrCoef_Corn	4	21	0.003636364
IrrCoef_Corn	4	22	0.005454545
IrrCoef_Corn	4	23	0.007272727
IrrCoef_Corn	4	24	0.009090909
IrrCoef_Corn	4	25	0.010909091
IrrCoef_Corn	4	26	0.012727273
IrrCoef_Corn	4	27	0.014545455
IrrCoef_Corn	4	28	0.016363636
IrrCoef_Corn	4	29	0.018181818
IrrCoef_Corn	4	30	0.02
IrrCoef_Corn	5	1	0.0219
IrrCoef_Corn	5	2	0.0238
IrrCoef_Corn	5	3	0.0257
IrrCoef_Corn	5	4	0.0276
IrrCoef_Corn	5	5	0.0295
IrrCoef_Corn	5	6	0.0314
IrrCoef_Corn	5	7	0.0333
IrrCoef_Corn	5	8	0.0352
IrrCoef_Corn	5	9	0.0371
IrrCoef_Corn	5	10	0.039
IrrCoef_Corn	5	11	0.0407
IrrCoef_Corn	5	12	0.0424
IrrCoef_Corn	5	13	0.0441
IrrCoef_Corn	5	14	0.0458
IrrCoef_Corn	5	15	0.0475
IrrCoef_Corn	5	16	0.0492
IrrCoef_Corn	5	17	0.0509
IrrCoef_Corn	5	18	0.0526
IrrCoef_Corn	5	19	0.0543
IrrCoef_Corn	5	20	0.056

Name	Month	Day	Value
IrrCoef_Corn	5	21	0.0578
IrrCoef_Corn	5	22	0.0596
IrrCoef_Corn	5	23	0.0614
IrrCoef_Corn	5	24	0.0632
IrrCoef_Corn	5	25	0.065
IrrCoef_Corn	5	26	0.0668
IrrCoef_Corn	5	27	0.0686
IrrCoef_Corn	5	28	0.0704
IrrCoef_Corn	5	29	0.0722
IrrCoef_Corn	5	30	0.074
IrrCoef_Corn	5	31	0.0766
IrrCoef_Corn	6	1	0.0792
IrrCoef_Corn	6	2	0.0818
IrrCoef_Corn	6	3	0.0844
IrrCoef_Corn	6	4	0.087
IrrCoef_Corn	6	5	0.0896
IrrCoef_Corn	6	6	0.0922
IrrCoef_Corn	6	7	0.0948
IrrCoef_Corn	6	8	0.0974
IrrCoef_Corn	6	9	0.1
IrrCoef_Corn	6	10	0.103
IrrCoef_Corn	6	11	0.106
IrrCoef_Corn	6	12	0.109
IrrCoef_Corn	6	13	0.112
IrrCoef_Corn	6	14	0.115
IrrCoef_Corn	6	15	0.1205
IrrCoef_Corn	6	16	0.126
IrrCoef_Corn	6	17	0.1315
IrrCoef_Corn	6	18	0.137
IrrCoef_Corn	6	19	0.1425
IrrCoef_Corn	6	20	0.15075
IrrCoef_Corn	6	21	0.159
IrrCoef_Corn	6	22	0.16725
IrrCoef_Corn	6	23	0.1755
IrrCoef_Corn	6	24	0.18375
IrrCoef_Corn	6	25	0.192
IrrCoef_Corn	6	26	0.20025
IrrCoef_Corn	6	27	0.2085
IrrCoef_Corn	6	28	0.21675
IrrCoef_Corn	6	29	0.225
IrrCoef_Corn	6	30	0.229
IrrCoef_Corn	7	1	0.233
IrrCoef_Corn	7	2	0.237
IrrCoef_Corn	7	3	0.241
IrrCoef_Corn	7	4	0.245
IrrCoef_Corn	7	5	0.247
IrrCoef_Corn	7	6	0.249
IrrCoef_Corn	7	7	0.251
IrrCoef_Corn	7	8	0.253
IrrCoef_Corn	7	9	0.255
IrrCoef_Corn	7	10	0.2565
IrrCoef_Corn	7	11	0.258
IrrCoef_Corn	7	12	0.2595
IrrCoef_Corn	7	13	0.261
IrrCoef_Corn	7	14	0.2625

Name	Month	Day	Value
IrrCoef_Corn	7	15	0.261
IrrCoef_Corn	7	16	0.2595
IrrCoef_Corn	7	17	0.258
IrrCoef_Corn	7	18	0.2565
IrrCoef_Corn	7	19	0.255
IrrCoef_Corn	7	20	0.25325
IrrCoef_Corn	7	21	0.2515
IrrCoef_Corn	7	22	0.24975
IrrCoef_Corn	7	23	0.248
IrrCoef_Corn	7	24	0.24625
IrrCoef_Corn	7	25	0.2445
IrrCoef_Corn	7	26	0.24275
IrrCoef_Corn	7	27	0.241
IrrCoef_Corn	7	28	0.23925
IrrCoef_Corn	7	29	0.2375
IrrCoef_Corn	7	30	0.234
IrrCoef_Corn	7	31	0.2305
IrrCoef_Corn	8	1	0.227
IrrCoef_Corn	8	2	0.2235
IrrCoef_Corn	8	3	0.22
IrrCoef_Corn	8	4	0.2165
IrrCoef_Corn	8	5	0.213
IrrCoef_Corn	8	6	0.2095
IrrCoef_Corn	8	7	0.206
IrrCoef_Corn	8	8	0.2025
IrrCoef_Corn	8	9	0.1985
IrrCoef_Corn	8	10	0.1945
IrrCoef_Corn	8	11	0.1905
IrrCoef_Corn	8	12	0.1865
IrrCoef_Corn	8	13	0.1825
IrrCoef_Corn	8	14	0.1785
IrrCoef_Corn	8	15	0.1745
IrrCoef_Corn	8	16	0.1705
IrrCoef_Corn	8	17	0.1665
IrrCoef_Corn	8	18	0.1625
IrrCoef_Corn	8	19	0.15875
IrrCoef_Corn	8	20	0.155
IrrCoef_Corn	8	21	0.15125
IrrCoef_Corn	8	22	0.1475
IrrCoef_Corn	8	23	0.14375
IrrCoef_Corn	8	24	0.14
IrrCoef_Corn	8	25	0.13625
IrrCoef_Corn	8	26	0.1325
IrrCoef_Corn	8	27	0.12875
IrrCoef_Corn	8	28	0.125
IrrCoef_Corn	8	29	0.1215
IrrCoef_Corn	8	30	0.118
IrrCoef_Corn	8	31	0.1145
IrrCoef_Corn	9	1	0.111
IrrCoef_Corn	9	2	0.1075
IrrCoef_Corn	9	3	0.104
IrrCoef_Corn	9	4	0.1005
IrrCoef_Corn	9	5	0.097
IrrCoef_Corn	9	6	0.0935
IrrCoef_Corn	9	7	0.09
IrrCoef_Corn	9	8	0.088

Name	Month	Day	Value
IrrCoef_Corn	9	9	0.086
IrrCoef_Corn	9	10	0.084
IrrCoef_Corn	9	11	0.082
IrrCoef_Corn	9	12	0.08
IrrCoef_Corn	9	13	0.078
IrrCoef_Corn	9	14	0.076
IrrCoef_Corn	9	15	0.074
IrrCoef_Corn	9	16	0.072
IrrCoef_Corn	9	17	0.07
IrrCoef_Corn	9	18	0.069
IrrCoef_Corn	9	19	0.068
IrrCoef_Corn	9	20	0.067
IrrCoef_Corn	9	21	0.066
IrrCoef_Corn	9	22	0.065
IrrCoef_Corn	9	23	0.064
IrrCoef_Corn	9	24	0.063
IrrCoef_Corn	9	25	0.062
IrrCoef_Corn	9	26	0.061
IrrCoef_Corn	9	27	0.06
IrrCoef_Corn	9	28	0.059166667
IrrCoef_Corn	9	29	0.058333333
IrrCoef_Corn	9	30	0.0575
IrrCoef_Corn	10	1	0.056666667
IrrCoef_Corn	10	2	0.055833333
IrrCoef_Corn	10	3	0.055
IrrCoef_Corn	10	4	0.054166667
IrrCoef_Corn	10	5	0.053333333
IrrCoef_Corn	10	6	0.0525
IrrCoef_Corn	10	7	0.051666667
IrrCoef_Corn	10	8	0.050833333
IrrCoef_Corn	10	9	0.05
IrrCoef_Corn	10	10	0
IrrCoef_Corn	12	31	0
IrrCoef_Cotton	1	1	0
IrrCoef_Cotton	5	19	0
IrrCoef_Cotton	5	20	0.001
IrrCoef_Cotton	5	21	0.002
IrrCoef_Cotton	5	22	0.003
IrrCoef_Cotton	5	23	0.004
IrrCoef_Cotton	5	24	0.005
IrrCoef_Cotton	5	25	0.006
IrrCoef_Cotton	5	26	0.007
IrrCoef_Cotton	5	27	0.008
IrrCoef_Cotton	5	28	0.009
IrrCoef_Cotton	5	29	0.01
IrrCoef_Cotton	5	30	0.0114
IrrCoef_Cotton	5	31	0.0128
IrrCoef_Cotton	6	1	0.0142
IrrCoef_Cotton	6	2	0.0156
IrrCoef_Cotton	6	3	0.017
IrrCoef_Cotton	6	4	0.0184
IrrCoef_Cotton	6	5	0.0198
IrrCoef_Cotton	6	6	0.0212
IrrCoef_Cotton	6	7	0.0226
IrrCoef_Cotton	6	8	0.024
IrrCoef_Cotton	6	9	0.0256

Name	Month	Day	Value
IrrCoef_Cotton	6	10	0.0272
IrrCoef_Cotton	6	11	0.0288
IrrCoef_Cotton	6	12	0.0304
IrrCoef_Cotton	6	13	0.032
IrrCoef_Cotton	6	14	0.0336
IrrCoef_Cotton	6	15	0.0352
IrrCoef_Cotton	6	16	0.0368
IrrCoef_Cotton	6	17	0.0384
IrrCoef_Cotton	6	18	0.04
IrrCoef_Cotton	6	19	0.0417
IrrCoef_Cotton	6	20	0.0434
IrrCoef_Cotton	6	21	0.0451
IrrCoef_Cotton	6	22	0.0468
IrrCoef_Cotton	6	23	0.0485
IrrCoef_Cotton	6	24	0.0502
IrrCoef_Cotton	6	25	0.0519
IrrCoef_Cotton	6	26	0.0536
IrrCoef_Cotton	6	27	0.0553
IrrCoef_Cotton	6	28	0.057
IrrCoef_Cotton	6	29	0.0587
IrrCoef_Cotton	6	30	0.0604
IrrCoef_Cotton	7	1	0.0621
IrrCoef_Cotton	7	2	0.0638
IrrCoef_Cotton	7	3	0.0655
IrrCoef_Cotton	7	4	0.0672
IrrCoef_Cotton	7	5	0.0689
IrrCoef_Cotton	7	6	0.0706
IrrCoef_Cotton	7	7	0.0723
IrrCoef_Cotton	7	8	0.074
IrrCoef_Cotton	7	9	0.0764
IrrCoef_Cotton	7	10	0.0788
IrrCoef_Cotton	7	11	0.0812
IrrCoef_Cotton	7	12	0.0836
IrrCoef_Cotton	7	13	0.086
IrrCoef_Cotton	7	14	0.0884
IrrCoef_Cotton	7	15	0.0908
IrrCoef_Cotton	7	16	0.0932
IrrCoef_Cotton	7	17	0.0956
IrrCoef_Cotton	7	18	0.098
IrrCoef_Cotton	7	19	0.1009
IrrCoef_Cotton	7	20	0.1038
IrrCoef_Cotton	7	21	0.1067
IrrCoef_Cotton	7	22	0.1096
IrrCoef_Cotton	7	23	0.1125
IrrCoef_Cotton	7	24	0.1175
IrrCoef_Cotton	7	25	0.1225
IrrCoef_Cotton	7	26	0.1275
IrrCoef_Cotton	7	27	0.1325
IrrCoef_Cotton	7	28	0.1375
IrrCoef_Cotton	7	29	0.145
IrrCoef_Cotton	7	30	0.1525
IrrCoef_Cotton	7	31	0.16
IrrCoef_Cotton	8	1	0.1675
IrrCoef_Cotton	8	2	0.175
IrrCoef_Cotton	8	3	0.1825
IrrCoef_Cotton	8	4	0.19

Name	Month	Day	Value
IrrCoef_Cotton	8	5	0.1975
IrrCoef_Cotton	8	6	0.205
IrrCoef_Cotton	8	7	0.2125
IrrCoef_Cotton	8	8	0.2175
IrrCoef_Cotton	8	9	0.2225
IrrCoef_Cotton	8	10	0.2275
IrrCoef_Cotton	8	11	0.2325
IrrCoef_Cotton	8	12	0.2375
IrrCoef_Cotton	8	13	0.24
IrrCoef_Cotton	8	14	0.2425
IrrCoef_Cotton	8	15	0.245
IrrCoef_Cotton	8	16	0.2475
IrrCoef_Cotton	8	17	0.25
IrrCoef_Cotton	8	18	0.25
IrrCoef_Cotton	8	19	0.25
IrrCoef_Cotton	8	20	0.25
IrrCoef_Cotton	8	21	0.25
IrrCoef_Cotton	8	22	0.25
IrrCoef_Cotton	8	23	0.25
IrrCoef_Cotton	8	24	0.25
IrrCoef_Cotton	8	25	0.25
IrrCoef_Cotton	8	26	0.25
IrrCoef_Cotton	8	27	0.25
IrrCoef_Cotton	8	28	0.2485
IrrCoef_Cotton	8	29	0.247
IrrCoef_Cotton	8	30	0.2455
IrrCoef_Cotton	8	31	0.244
IrrCoef_Cotton	9	1	0.2425
IrrCoef_Cotton	9	2	0.241
IrrCoef_Cotton	9	3	0.2395
IrrCoef_Cotton	9	4	0.238
IrrCoef_Cotton	9	5	0.2365
IrrCoef_Cotton	9	6	0.235
IrrCoef_Cotton	9	7	0.232
IrrCoef_Cotton	9	8	0.229
IrrCoef_Cotton	9	9	0.226
IrrCoef_Cotton	9	10	0.223
IrrCoef_Cotton	9	11	0.22
IrrCoef_Cotton	9	12	0.217
IrrCoef_Cotton	9	13	0.214
IrrCoef_Cotton	9	14	0.211
IrrCoef_Cotton	9	15	0.208
IrrCoef_Cotton	9	16	0.205
IrrCoef_Cotton	9	17	0.202
IrrCoef_Cotton	9	18	0.199
IrrCoef_Cotton	9	19	0.196
IrrCoef_Cotton	9	20	0.193
IrrCoef_Cotton	9	21	0.19
IrrCoef_Cotton	9	22	0.187
IrrCoef_Cotton	9	23	0.184
IrrCoef_Cotton	9	24	0.181
IrrCoef_Cotton	9	25	0.178
IrrCoef_Cotton	9	26	0.175
IrrCoef_Cotton	9	27	0.1725
IrrCoef_Cotton	9	28	0.17
IrrCoef_Cotton	9	29	0.1675

Name	Month	Day	Value
IrrCoef_Cotton	9	30	0.165
IrrCoef_Cotton	10	1	0.1625
IrrCoef_Cotton	10	2	0.16
IrrCoef_Cotton	10	3	0.1575
IrrCoef_Cotton	10	4	0.155
IrrCoef_Cotton	10	5	0.1525
IrrCoef_Cotton	10	6	0.15
IrrCoef_Cotton	10	7	0.1475
IrrCoef_Cotton	10	8	0.145
IrrCoef_Cotton	10	9	0.1425
IrrCoef_Cotton	10	10	0.14
IrrCoef_Cotton	10	11	0.1375
IrrCoef_Cotton	10	12	0.135
IrrCoef_Cotton	10	13	0.1325
IrrCoef_Cotton	10	14	0.13
IrrCoef_Cotton	10	15	0.1275
IrrCoef_Cotton	10	16	0.125
IrrCoef_Cotton	10	17	0.12275
IrrCoef_Cotton	10	18	0.1205
IrrCoef_Cotton	10	19	0.11825
IrrCoef_Cotton	10	20	0.116
IrrCoef_Cotton	10	21	0.11375
IrrCoef_Cotton	10	22	0.1115
IrrCoef_Cotton	10	23	0.10925
IrrCoef_Cotton	10	24	0.107
IrrCoef_Cotton	10	25	0.10475
IrrCoef_Cotton	10	26	0.1025
IrrCoef_Cotton	10	27	0
IrrCoef_Cotton	12	31	0
IrrCoef_Dairy	1	1	40
IrrCoef_Dairy	12	31	40
IrrCoef_EarlySoy	1	1	0
IrrCoef_EarlySoy	5	14	0
IrrCoef_EarlySoy	5	15	0.001
IrrCoef_EarlySoy	5	16	0.002
IrrCoef_EarlySoy	5	17	0.003
IrrCoef_EarlySoy	5	18	0.004
IrrCoef_EarlySoy	5	19	0.005
IrrCoef_EarlySoy	5	20	0.006
IrrCoef_EarlySoy	5	21	0.007
IrrCoef_EarlySoy	5	22	0.008
IrrCoef_EarlySoy	5	23	0.009
IrrCoef_EarlySoy	5	24	0.01
IrrCoef_EarlySoy	5	25	0.012
IrrCoef_EarlySoy	5	26	0.014
IrrCoef_EarlySoy	5	27	0.016
IrrCoef_EarlySoy	5	28	0.018
IrrCoef_EarlySoy	5	29	0.02
IrrCoef_EarlySoy	5	30	0.022
IrrCoef_EarlySoy	5	31	0.024
IrrCoef_EarlySoy	6	1	0.026
IrrCoef_EarlySoy	6	2	0.028
IrrCoef_EarlySoy	6	3	0.03
IrrCoef_EarlySoy	6	4	0.032
IrrCoef_EarlySoy	6	5	0.034
IrrCoef_EarlySoy	6	6	0.036

Name	Month	Day	Value
IrrCoef_EarlySoy	6	7	0.038
IrrCoef_EarlySoy	6	8	0.04
IrrCoef_EarlySoy	6	9	0.042
IrrCoef_EarlySoy	6	10	0.044
IrrCoef_EarlySoy	6	11	0.046
IrrCoef_EarlySoy	6	12	0.048
IrrCoef_EarlySoy	6	13	0.05
IrrCoef_EarlySoy	6	14	0.0525
IrrCoef_EarlySoy	6	15	0.055
IrrCoef_EarlySoy	6	16	0.0575
IrrCoef_EarlySoy	6	17	0.06
IrrCoef_EarlySoy	6	18	0.0625
IrrCoef_EarlySoy	6	19	0.065
IrrCoef_EarlySoy	6	20	0.0675
IrrCoef_EarlySoy	6	21	0.07
IrrCoef_EarlySoy	6	22	0.0725
IrrCoef_EarlySoy	6	23	0.075
IrrCoef_EarlySoy	6	24	0.0785
IrrCoef_EarlySoy	6	25	0.082
IrrCoef_EarlySoy	6	26	0.0855
IrrCoef_EarlySoy	6	27	0.089
IrrCoef_EarlySoy	6	28	0.0925
IrrCoef_EarlySoy	6	29	0.096
IrrCoef_EarlySoy	6	30	0.0995
IrrCoef_EarlySoy	7	1	0.103
IrrCoef_EarlySoy	7	2	0.1065
IrrCoef_EarlySoy	7	3	0.11
IrrCoef_EarlySoy	7	4	0.115
IrrCoef_EarlySoy	7	5	0.12
IrrCoef_EarlySoy	7	6	0.125
IrrCoef_EarlySoy	7	7	0.13
IrrCoef_EarlySoy	7	8	0.135
IrrCoef_EarlySoy	7	9	0.14
IrrCoef_EarlySoy	7	10	0.145
IrrCoef_EarlySoy	7	11	0.15
IrrCoef_EarlySoy	7	12	0.155
IrrCoef_EarlySoy	7	13	0.16
IrrCoef_EarlySoy	7	14	0.16425
IrrCoef_EarlySoy	7	15	0.1685
IrrCoef_EarlySoy	7	16	0.17275
IrrCoef_EarlySoy	7	17	0.177
IrrCoef_EarlySoy	7	18	0.18125
IrrCoef_EarlySoy	7	19	0.1855
IrrCoef_EarlySoy	7	20	0.18975
IrrCoef_EarlySoy	7	21	0.194
IrrCoef_EarlySoy	7	22	0.19825
IrrCoef_EarlySoy	7	23	0.2025
IrrCoef_EarlySoy	7	24	0.206
IrrCoef_EarlySoy	7	25	0.2095
IrrCoef_EarlySoy	7	26	0.213
IrrCoef_EarlySoy	7	27	0.2165
IrrCoef_EarlySoy	7	28	0.22
IrrCoef_EarlySoy	7	29	0.2235
IrrCoef_EarlySoy	7	30	0.227
IrrCoef_EarlySoy	7	31	0.2305
IrrCoef_EarlySoy	8	1	0.234

Name	Month	Day	Value
IrrCoef_EarlySoy	8	2	0.2375
IrrCoef_EarlySoy	8	3	0.239
IrrCoef_EarlySoy	8	4	0.2405
IrrCoef_EarlySoy	8	5	0.242
IrrCoef_EarlySoy	8	6	0.2435
IrrCoef_EarlySoy	8	7	0.245
IrrCoef_EarlySoy	8	8	0.2465
IrrCoef_EarlySoy	8	9	0.248
IrrCoef_EarlySoy	8	10	0.2495
IrrCoef_EarlySoy	8	11	0.251
IrrCoef_EarlySoy	8	12	0.2525
IrrCoef_EarlySoy	8	13	0.252
IrrCoef_EarlySoy	8	14	0.2515
IrrCoef_EarlySoy	8	15	0.251
IrrCoef_EarlySoy	8	16	0.2505
IrrCoef_EarlySoy	8	17	0.25
IrrCoef_EarlySoy	8	18	0.2495
IrrCoef_EarlySoy	8	19	0.249
IrrCoef_EarlySoy	8	20	0.2485
IrrCoef_EarlySoy	8	21	0.248
IrrCoef_EarlySoy	8	22	0.244
IrrCoef_EarlySoy	8	23	0.24
IrrCoef_EarlySoy	8	24	0.236
IrrCoef_EarlySoy	8	25	0.232
IrrCoef_EarlySoy	8	26	0.228
IrrCoef_EarlySoy	8	27	0.224
IrrCoef_EarlySoy	8	28	0.22
IrrCoef_EarlySoy	8	29	0.216
IrrCoef_EarlySoy	8	30	0.212
IrrCoef_EarlySoy	8	31	0.208
IrrCoef_EarlySoy	9	1	0.201
IrrCoef_EarlySoy	9	2	0.193
IrrCoef_EarlySoy	9	3	0.185
IrrCoef_EarlySoy	9	4	0.177
IrrCoef_EarlySoy	9	5	0.169
IrrCoef_EarlySoy	9	6	0.161
IrrCoef_EarlySoy	9	7	0.153
IrrCoef_EarlySoy	9	8	0.145
IrrCoef_EarlySoy	9	9	0.137
IrrCoef_EarlySoy	9	10	0.129
IrrCoef_EarlySoy	9	11	0.121
IrrCoef_EarlySoy	9	12	0.113
IrrCoef_EarlySoy	9	13	0.105
IrrCoef_EarlySoy	9	14	0.097
IrrCoef_EarlySoy	9	15	0.089
IrrCoef_EarlySoy	9	16	0.081
IrrCoef_EarlySoy	9	17	0.073
IrrCoef_EarlySoy	9	18	0.068
IrrCoef_EarlySoy	9	19	0.063
IrrCoef_EarlySoy	9	20	0.058
IrrCoef_EarlySoy	9	21	0.053
IrrCoef_EarlySoy	9	22	0.048
IrrCoef_EarlySoy	9	23	0.043
IrrCoef_EarlySoy	9	24	0.038
IrrCoef_EarlySoy	9	25	0.033
IrrCoef_EarlySoy	9	26	0.028

Name	Month	Day	Value
IrrCoef_EarlySoy	9	27	0.0255
IrrCoef_EarlySoy	9	28	0.023
IrrCoef_EarlySoy	9	29	0.0205
IrrCoef_EarlySoy	9	30	0.018
IrrCoef_EarlySoy	10	1	0.0155
IrrCoef_EarlySoy	10	2	0.013
IrrCoef_EarlySoy	10	3	0.0105
IrrCoef_EarlySoy	10	4	0.009
IrrCoef_EarlySoy	10	5	0.0075
IrrCoef_EarlySoy	10	6	0.006
IrrCoef_EarlySoy	10	7	0.0045
IrrCoef_EarlySoy	10	8	0.003
IrrCoef_EarlySoy	10	9	0.0015
IrrCoef_EarlySoy	10	10	-1.47018E-16
IrrCoef_EarlySoy	10	11	0
IrrCoef_EarlySoy	12	31	0
IrrCoef_FieldNurs	1	1	0
IrrCoef_FieldNurs	4	28	0
IrrCoef_FieldNurs	4	29	0.178571429
IrrCoef_FieldNurs	10	13	0.178571429
IrrCoef_FieldNurs	10	14	0
IrrCoef_FieldNurs	12	31	0
IrrCoef_Fruit	1	1	0
IrrCoef_Fruit	2	29	0
IrrCoef_Fruit	3	1	1.214285714
IrrCoef_Fruit	4	14	1.214285714
IrrCoef_Fruit	4	15	0.178571429
IrrCoef_Fruit	8	30	0.178571429
IrrCoef_Fruit	8	31	0
IrrCoef_Fruit	12	31	0
IrrCoef_Golf	1	1	0.0062
IrrCoef_Golf	3	31	0.0062
IrrCoef_Golf	4	1	0.081428571
IrrCoef_Golf	10	31	0.081428571
IrrCoef_Golf	11	1	0.0062
IrrCoef_Golf	12	31	0.0062
IrrCoef_Horse	1	1	12
IrrCoef_Horse	12	31	12
IrrCoef_LateSoy	8	16	0.103
IrrCoef_LateSoy	8	17	0.1065
IrrCoef_LateSoy	8	18	0.11
IrrCoef_LateSoy	8	19	0.115
IrrCoef_LateSoy	8	20	0.12
IrrCoef_LateSoy	8	21	0.125
IrrCoef_LateSoy	8	22	0.13
IrrCoef_LateSoy	8	23	0.135
IrrCoef_LateSoy	8	24	0.14
IrrCoef_LateSoy	8	25	0.145
IrrCoef_LateSoy	8	26	0.15
IrrCoef_LateSoy	8	27	0.155
IrrCoef_LateSoy	8	28	0.16
IrrCoef_LateSoy	8	29	0.16425
IrrCoef_LateSoy	8	30	0.1685
IrrCoef_LateSoy	8	31	0.17275
IrrCoef_LateSoy	9	1	0.177

Name	Month	Day	Value
IrrCoef_LateSoy	9	2	0.18125
IrrCoef_LateSoy	9	3	0.1855
IrrCoef_LateSoy	9	4	0.18975
IrrCoef_LateSoy	9	5	0.194
IrrCoef_LateSoy	9	6	0.19825
IrrCoef_LateSoy	9	7	0.2025
IrrCoef_LateSoy	9	8	0.206
IrrCoef_LateSoy	9	9	0.2095
IrrCoef_LateSoy	9	10	0.213
IrrCoef_LateSoy	9	11	0.2165
IrrCoef_LateSoy	9	12	0.22
IrrCoef_LateSoy	9	13	0.2235
IrrCoef_LateSoy	9	14	0.227
IrrCoef_LateSoy	9	15	0.2305
IrrCoef_LateSoy	9	16	0.234
IrrCoef_LateSoy	9	17	0.2375
IrrCoef_LateSoy	9	18	0.239
IrrCoef_LateSoy	9	19	0.2405
IrrCoef_LateSoy	9	20	0.242
IrrCoef_LateSoy	9	21	0.2435
IrrCoef_LateSoy	9	22	0.245
IrrCoef_LateSoy	9	23	0.2465
IrrCoef_LateSoy	9	24	0.248
IrrCoef_LateSoy	9	25	0.2495
IrrCoef_LateSoy	9	26	0.251
IrrCoef_LateSoy	9	27	0.2525
IrrCoef_LateSoy	9	28	0.252
IrrCoef_LateSoy	9	29	0.2515
IrrCoef_LateSoy	9	30	0.251
IrrCoef_LateSoy	10	1	0.2505
IrrCoef_LateSoy	10	2	0.25
IrrCoef_LateSoy	10	3	0.2495
IrrCoef_LateSoy	10	4	0.249
IrrCoef_LateSoy	10	5	0.2485
IrrCoef_LateSoy	10	6	0.248
IrrCoef_LateSoy	10	7	0.2475
IrrCoef_LateSoy	10	8	0.24375
IrrCoef_LateSoy	10	9	0.24
IrrCoef_LateSoy	10	10	0.23625
IrrCoef_LateSoy	10	11	0.2325
IrrCoef_LateSoy	10	12	0.22875
IrrCoef_LateSoy	10	13	0.225
IrrCoef_LateSoy	10	14	0.22125
IrrCoef_LateSoy	10	15	0.2175
IrrCoef_LateSoy	10	16	0.21375
IrrCoef_LateSoy	10	17	0.21
IrrCoef_LateSoy	10	18	0.204
IrrCoef_LateSoy	10	19	0.198
IrrCoef_LateSoy	10	20	0.192
IrrCoef_LateSoy	10	21	0.186
IrrCoef_LateSoy	10	22	0.18
IrrCoef_LateSoy	10	23	0.174
IrrCoef_LateSoy	10	24	0.168
IrrCoef_LateSoy	10	25	0.162
IrrCoef_LateSoy	10	26	0.156
IrrCoef_LateSoy	10	27	0.15

Name	Month	Day	Value
IrrCoef_LateSoy	10	28	0.144
IrrCoef_LateSoy	10	29	0.138
IrrCoef_LateSoy	10	30	0.132
IrrCoef_LateSoy	10	31	0.126
IrrCoef_LateSoy	11	1	0.12
IrrCoef_LateSoy	11	2	0.114
IrrCoef_LateSoy	11	3	0.108
IrrCoef_LateSoy	11	4	0.102
IrrCoef_LateSoy	11	5	0.096
IrrCoef_LateSoy	11	6	0.09
IrrCoef_LateSoy	11	7	0.0869
IrrCoef_LateSoy	11	8	0.0838
IrrCoef_LateSoy	11	9	0.0807
IrrCoef_LateSoy	11	10	0.0776
IrrCoef_LateSoy	11	11	0.0745
IrrCoef_LateSoy	11	12	0.0714
IrrCoef_LateSoy	11	13	0.0683
IrrCoef_LateSoy	11	14	0.0652
IrrCoef_LateSoy	11	15	0.0621
IrrCoef_LateSoy	11	16	0.059
IrrCoef_LateSoy	11	17	0.0565
IrrCoef_LateSoy	11	18	0.054
IrrCoef_LateSoy	11	19	0.0515
IrrCoef_LateSoy	11	20	0.049
IrrCoef_LateSoy	11	21	0.0465
IrrCoef_LateSoy	11	22	0.044
IrrCoef_LateSoy	11	23	0.0415
IrrCoef_LateSoy	11	24	0.039
IrrCoef_LateSoy	11	25	0.0365
IrrCoef_LateSoy	11	26	0.034
IrrCoef_LateSoy	11	27	0.0325
IrrCoef_LateSoy	11	28	0.031
IrrCoef_LateSoy	11	29	0.0295
IrrCoef_LateSoy	11	30	0.028
IrrCoef_LateSoy	12	1	0.0265
IrrCoef_LateSoy	12	2	0.025
IrrCoef_LateSoy	12	3	0.0235
IrrCoef_LateSoy	12	4	0.022
IrrCoef_LateSoy	12	5	0.0205
IrrCoef_LateSoy	12	6	0.019
IrrCoef_LateSoy	12	7	0
IrrCoef_LateSoy	12	31	0
IrrCoef_LateSoy	1	1	0
IrrCoef_LateSoy	6	29	0
IrrCoef_LateSoy	6	30	0.001
IrrCoef_LateSoy	7	1	0.002
IrrCoef_LateSoy	7	2	0.003
IrrCoef_LateSoy	7	3	0.004
IrrCoef_LateSoy	7	4	0.005
IrrCoef_LateSoy	7	5	0.006
IrrCoef_LateSoy	7	6	0.007
IrrCoef_LateSoy	7	7	0.008
IrrCoef_LateSoy	7	8	0.009
IrrCoef_LateSoy	7	9	0.01
IrrCoef_LateSoy	7	10	0.012
IrrCoef_LateSoy	7	11	0.014

Name	Month	Day	Value
IrrCoef_LateSoy	7	12	0.016
IrrCoef_LateSoy	7	13	0.018
IrrCoef_LateSoy	7	14	0.02
IrrCoef_LateSoy	7	15	0.022
IrrCoef_LateSoy	7	16	0.024
IrrCoef_LateSoy	7	17	0.026
IrrCoef_LateSoy	7	18	0.028
IrrCoef_LateSoy	7	19	0.03
IrrCoef_LateSoy	7	20	0.032
IrrCoef_LateSoy	7	21	0.034
IrrCoef_LateSoy	7	22	0.036
IrrCoef_LateSoy	7	23	0.038
IrrCoef_LateSoy	7	24	0.04
IrrCoef_LateSoy	7	25	0.042
IrrCoef_LateSoy	7	26	0.044
IrrCoef_LateSoy	7	27	0.046
IrrCoef_LateSoy	7	28	0.048
IrrCoef_LateSoy	7	29	0.05
IrrCoef_LateSoy	7	30	0.0525
IrrCoef_LateSoy	7	31	0.055
IrrCoef_LateSoy	8	1	0.0575
IrrCoef_LateSoy	8	2	0.06
IrrCoef_LateSoy	8	3	0.0625
IrrCoef_LateSoy	8	4	0.065
IrrCoef_LateSoy	8	5	0.0675
IrrCoef_LateSoy	8	6	0.07
IrrCoef_LateSoy	8	7	0.0725
IrrCoef_LateSoy	8	8	0.075
IrrCoef_LateSoy	8	9	0.0785
IrrCoef_LateSoy	8	10	0.082
IrrCoef_LateSoy	8	11	0.0855
IrrCoef_LateSoy	8	12	0.089
IrrCoef_LateSoy	8	13	0.0925
IrrCoef_LateSoy	8	14	0.096
IrrCoef_LateSoy	8	15	0.0995
IrrCoef_OtherAnimal	1	1	2
IrrCoef_OtherAnimal	12	31	2
IrrCoef_PastHay	1	1	0
IrrCoef_PastHay	5	13	0
IrrCoef_PastHay	5	14	0.142857143
IrrCoef_PastHay	10	13	0.142857143
IrrCoef_PastHay	10	14	0
IrrCoef_PastHay	12	31	0
IrrCoef_Peanut	1	1	0
IrrCoef_Peanut	5	19	0
IrrCoef_Peanut	5	20	0.00014
IrrCoef_Peanut	5	21	0.00028
IrrCoef_Peanut	5	22	0.00042
IrrCoef_Peanut	5	23	0.00056
IrrCoef_Peanut	5	24	0.0007
IrrCoef_Peanut	5	25	0.00084
IrrCoef_Peanut	5	26	0.00098
IrrCoef_Peanut	5	27	0.00112
IrrCoef_Peanut	5	28	0.00126
IrrCoef_Peanut	5	29	0.0014
IrrCoef_Peanut	5	30	0.0028

Name	Month	Day	Value
IrrCoef_Peanut	5	31	0.0042
IrrCoef_Peanut	6	1	0.0056
IrrCoef_Peanut	6	2	0.007
IrrCoef_Peanut	6	3	0.0084
IrrCoef_Peanut	6	4	0.0098
IrrCoef_Peanut	6	5	0.0112
IrrCoef_Peanut	6	6	0.0126
IrrCoef_Peanut	6	7	0.014
IrrCoef_Peanut	6	8	0.0158
IrrCoef_Peanut	6	9	0.0176
IrrCoef_Peanut	6	10	0.0194
IrrCoef_Peanut	6	11	0.0212
IrrCoef_Peanut	6	12	0.023
IrrCoef_Peanut	6	13	0.0248
IrrCoef_Peanut	6	14	0.0266
IrrCoef_Peanut	6	15	0.0284
IrrCoef_Peanut	6	16	0.0302
IrrCoef_Peanut	6	17	0.032
IrrCoef_Peanut	6	18	0.0338
IrrCoef_Peanut	6	19	0.0356
IrrCoef_Peanut	6	20	0.0374
IrrCoef_Peanut	6	21	0.0392
IrrCoef_Peanut	6	22	0.041
IrrCoef_Peanut	6	23	0.0428
IrrCoef_Peanut	6	24	0.0446
IrrCoef_Peanut	6	25	0.0464
IrrCoef_Peanut	6	26	0.0482
IrrCoef_Peanut	6	27	0.05
IrrCoef_Peanut	6	28	0.0526
IrrCoef_Peanut	6	29	0.0552
IrrCoef_Peanut	6	30	0.0578
IrrCoef_Peanut	7	1	0.0604
IrrCoef_Peanut	7	2	0.063
IrrCoef_Peanut	7	3	0.0656
IrrCoef_Peanut	7	4	0.0682
IrrCoef_Peanut	7	5	0.0708
IrrCoef_Peanut	7	6	0.0734
IrrCoef_Peanut	7	7	0.076
IrrCoef_Peanut	7	8	0.07915
IrrCoef_Peanut	7	9	0.0823
IrrCoef_Peanut	7	10	0.08545
IrrCoef_Peanut	7	11	0.0886
IrrCoef_Peanut	7	12	0.09175
IrrCoef_Peanut	7	13	0.0949
IrrCoef_Peanut	7	14	0.09805
IrrCoef_Peanut	7	15	0.1012
IrrCoef_Peanut	7	16	0.10435
IrrCoef_Peanut	7	17	0.1075
IrrCoef_Peanut	7	18	0.113
IrrCoef_Peanut	7	19	0.1185
IrrCoef_Peanut	7	20	0.124
IrrCoef_Peanut	7	21	0.1295
IrrCoef_Peanut	7	22	0.135
IrrCoef_Peanut	7	23	0.1405
IrrCoef_Peanut	7	24	0.146
IrrCoef_Peanut	7	25	0.1515

Name	Month	Day	Value
IrrCoef_Peanut	7	26	0.157
IrrCoef_Peanut	7	27	0.1625
IrrCoef_Peanut	7	28	0.168
IrrCoef_Peanut	7	29	0.1735
IrrCoef_Peanut	7	30	0.179
IrrCoef_Peanut	7	31	0.1845
IrrCoef_Peanut	8	1	0.19
IrrCoef_Peanut	8	2	0.1955
IrrCoef_Peanut	8	3	0.201
IrrCoef_Peanut	8	4	0.2065
IrrCoef_Peanut	8	5	0.212
IrrCoef_Peanut	8	6	0.2175
IrrCoef_Peanut	8	7	0.22
IrrCoef_Peanut	8	8	0.2225
IrrCoef_Peanut	8	9	0.225
IrrCoef_Peanut	8	10	0.2275
IrrCoef_Peanut	8	11	0.23
IrrCoef_Peanut	8	12	0.2325
IrrCoef_Peanut	8	13	0.235
IrrCoef_Peanut	8	14	0.2375
IrrCoef_Peanut	8	15	0.24
IrrCoef_Peanut	8	16	0.2425
IrrCoef_Peanut	8	17	0.243
IrrCoef_Peanut	8	18	0.2435
IrrCoef_Peanut	8	19	0.244
IrrCoef_Peanut	8	20	0.2445
IrrCoef_Peanut	8	21	0.245
IrrCoef_Peanut	8	22	0.2455
IrrCoef_Peanut	8	23	0.246
IrrCoef_Peanut	8	24	0.2465
IrrCoef_Peanut	8	25	0.247
IrrCoef_Peanut	8	26	0.2475
IrrCoef_Peanut	8	27	0.247
IrrCoef_Peanut	8	28	0.2465
IrrCoef_Peanut	8	29	0.246
IrrCoef_Peanut	8	30	0.2455
IrrCoef_Peanut	8	31	0.245
IrrCoef_Peanut	9	1	0.2445
IrrCoef_Peanut	9	2	0.244
IrrCoef_Peanut	9	3	0.2435
IrrCoef_Peanut	9	4	0.243
IrrCoef_Peanut	9	5	0.2425
IrrCoef_Peanut	9	6	0.24075
IrrCoef_Peanut	9	7	0.239
IrrCoef_Peanut	9	8	0.23725
IrrCoef_Peanut	9	9	0.2355
IrrCoef_Peanut	9	10	0.23375
IrrCoef_Peanut	9	11	0.232
IrrCoef_Peanut	9	12	0.23025
IrrCoef_Peanut	9	13	0.2285
IrrCoef_Peanut	9	14	0.22675
IrrCoef_Peanut	9	15	0.225
IrrCoef_Peanut	9	16	0.22275
IrrCoef_Peanut	9	17	0.2205
IrrCoef_Peanut	9	18	0.21825
IrrCoef_Peanut	9	19	0.216

Name	Month	Day	Value
IrrCoef_Peanut	9	20	0.21375
IrrCoef_Peanut	9	21	0.2115
IrrCoef_Peanut	9	22	0.20925
IrrCoef_Peanut	9	23	0.207
IrrCoef_Peanut	9	24	0.20475
IrrCoef_Peanut	9	25	0.2025
IrrCoef_Peanut	9	26	0.19975
IrrCoef_Peanut	9	27	0.197
IrrCoef_Peanut	9	28	0.19425
IrrCoef_Peanut	9	29	0.1915
IrrCoef_Peanut	9	30	0.18875
IrrCoef_Peanut	10	1	0.186
IrrCoef_Peanut	10	2	0.18325
IrrCoef_Peanut	10	3	0.1805
IrrCoef_Peanut	10	4	0.17775
IrrCoef_Peanut	10	5	0.175
IrrCoef_Peanut	10	6	0.1725
IrrCoef_Peanut	10	7	0.17
IrrCoef_Peanut	10	8	0.1675
IrrCoef_Peanut	10	9	0.165
IrrCoef_Peanut	10	10	0.1625
IrrCoef_Peanut	10	11	0.16
IrrCoef_Peanut	10	12	0.1575
IrrCoef_Peanut	10	13	0.155
IrrCoef_Peanut	10	14	0.1525
IrrCoef_Peanut	10	15	0.15
IrrCoef_Peanut	10	16	0.14775
IrrCoef_Peanut	10	17	0.1455
IrrCoef_Peanut	10	18	0.14325
IrrCoef_Peanut	10	19	0.141
IrrCoef_Peanut	10	20	0.13875
IrrCoef_Peanut	10	21	0.1365
IrrCoef_Peanut	10	22	0.13425
IrrCoef_Peanut	10	23	0.132
IrrCoef_Peanut	10	24	0.12975
IrrCoef_Peanut	10	25	0.1275
IrrCoef_Peanut	10	26	0.126
IrrCoef_Peanut	10	27	0.1245
IrrCoef_Peanut	10	28	0.123
IrrCoef_Peanut	10	29	0.1215
IrrCoef_Peanut	10	30	0.12
IrrCoef_Peanut	10	31	0.1185
IrrCoef_Peanut	11	1	0.117
IrrCoef_Peanut	11	2	0.1155
IrrCoef_Peanut	11	3	0.114
IrrCoef_Peanut	11	4	0.1125
IrrCoef_Peanut	11	5	0.110416667
IrrCoef_Peanut	11	6	0.108333333
IrrCoef_Peanut	11	7	0.10625
IrrCoef_Peanut	11	8	0.104166667
IrrCoef_Peanut	11	9	0.102083333
IrrCoef_Peanut	11	10	0.1
IrrCoef_Peanut	11	11	0
IrrCoef_Peanut	12	31	0
IrrCoef_Pig	1	1	4
IrrCoef_Pig	12	31	4

Name	Month	Day	Value
IrrCoef_Strawberry	1	1	0
IrrCoef_Strawberry	2	29	0
IrrCoef_Strawberry	3	1	1
IrrCoef_Strawberry	3	30	1
IrrCoef_Strawberry	3	31	0.178571429
IrrCoef_Strawberry	5	30	0.178571429
IrrCoef_Strawberry	5	31	0
IrrCoef_Strawberry	9	13	0
IrrCoef_Strawberry	9	14	0.178571429
IrrCoef_Strawberry	9	30	0.178571429
IrrCoef_Strawberry	10	1	0.14286
IrrCoef_Strawberry	11	15	0.14286
IrrCoef_Strawberry	11	16	0
IrrCoef_Strawberry	12	31	0
IrrCoef_Tobacco	1	1	0
IrrCoef_Tobacco	5	13	0
IrrCoef_Tobacco	5	14	0.06
IrrCoef_Tobacco	6	3	0.06
IrrCoef_Tobacco	6	4	0.062
IrrCoef_Tobacco	6	5	0.064
IrrCoef_Tobacco	6	6	0.066
IrrCoef_Tobacco	6	7	0.0675
IrrCoef_Tobacco	6	8	0.069
IrrCoef_Tobacco	6	9	0.0705
IrrCoef_Tobacco	6	10	0.072
IrrCoef_Tobacco	6	11	0.074
IrrCoef_Tobacco	6	12	0.076
IrrCoef_Tobacco	6	13	0.078
IrrCoef_Tobacco	6	14	0.08
IrrCoef_Tobacco	6	15	0.083333333
IrrCoef_Tobacco	6	16	0.086666667
IrrCoef_Tobacco	6	17	0.09
IrrCoef_Tobacco	6	18	0.0933
IrrCoef_Tobacco	6	19	0.0967
IrrCoef_Tobacco	6	20	0.1
IrrCoef_Tobacco	6	21	0.10625
IrrCoef_Tobacco	6	22	0.1125
IrrCoef_Tobacco	6	23	0.11875
IrrCoef_Tobacco	6	24	0.125
IrrCoef_Tobacco	6	25	0.133333333
IrrCoef_Tobacco	6	26	0.141666667
IrrCoef_Tobacco	6	27	0.15
IrrCoef_Tobacco	6	28	0.155625
IrrCoef_Tobacco	6	29	0.16125
IrrCoef_Tobacco	6	30	0.166875
IrrCoef_Tobacco	7	1	0.1725
IrrCoef_Tobacco	7	2	0.18
IrrCoef_Tobacco	7	3	0.1875
IrrCoef_Tobacco	7	4	0.195
IrrCoef_Tobacco	7	5	0.200625
IrrCoef_Tobacco	7	6	0.20625
IrrCoef_Tobacco	7	7	0.211875
IrrCoef_Tobacco	7	8	0.2175
IrrCoef_Tobacco	7	9	0.2225
IrrCoef_Tobacco	7	10	0.2275
IrrCoef_Tobacco	7	11	0.2325

Name	Month	Day	Value
IrrCoef_Tobacco	7	12	0.234
IrrCoef_Tobacco	7	13	0.2355
IrrCoef_Tobacco	7	14	0.237
IrrCoef_Tobacco	7	15	0.2385
IrrCoef_Tobacco	7	16	0.24
IrrCoef_Tobacco	7	17	0.241666667
IrrCoef_Tobacco	7	18	0.243333333
IrrCoef_Tobacco	7	19	0.245
IrrCoef_Tobacco	7	20	0.24375
IrrCoef_Tobacco	7	21	0.2425
IrrCoef_Tobacco	7	22	0.24125
IrrCoef_Tobacco	7	23	0.24
IrrCoef_Tobacco	7	24	0.235
IrrCoef_Tobacco	7	25	0.23
IrrCoef_Tobacco	7	26	0.225
IrrCoef_Tobacco	7	27	0.219375
IrrCoef_Tobacco	7	28	0.21375
IrrCoef_Tobacco	7	29	0.208125
IrrCoef_Tobacco	7	30	0.2025
IrrCoef_Tobacco	7	31	0.193333333
IrrCoef_Tobacco	8	1	0.184166667
IrrCoef_Tobacco	8	2	0.175
IrrCoef_Tobacco	8	3	0.17
IrrCoef_Tobacco	8	4	0.165
IrrCoef_Tobacco	8	5	0.16
IrrCoef_Tobacco	8	6	0.155
IrrCoef_Tobacco	8	7	0.1475
IrrCoef_Tobacco	8	8	0.14
IrrCoef_Tobacco	8	9	0.1325
IrrCoef_Tobacco	8	10	0.12875
IrrCoef_Tobacco	8	11	0.125
IrrCoef_Tobacco	8	12	0.12125
IrrCoef_Tobacco	8	13	0.1175
IrrCoef_Tobacco	8	14	0.113333333
IrrCoef_Tobacco	8	15	0.109166667
IrrCoef_Tobacco	8	16	0.105
IrrCoef_Tobacco	8	17	0.10125
IrrCoef_Tobacco	8	18	0.0975
IrrCoef_Tobacco	8	19	0.09375
IrrCoef_Tobacco	8	20	0.09
IrrCoef_Tobacco	8	21	0.089
IrrCoef_Tobacco	8	22	0.088
IrrCoef_Tobacco	8	23	0.087
IrrCoef_Tobacco	8	24	0.086
IrrCoef_Tobacco	8	25	0.085
IrrCoef_Tobacco	8	26	0.084
IrrCoef_Tobacco	8	27	0.083
IrrCoef_Tobacco	8	28	0.082
IrrCoef_Tobacco	8	29	0.081
IrrCoef_Tobacco	8	30	0.08
IrrCoef_Tobacco	8	31	0
IrrCoef_Tobacco	12	31	0
IrrCoef_Turf	1	1	0
IrrCoef_Turf	4	26	0
IrrCoef_Turf	4	27	0.178571429
IrrCoef_Turf	9	29	0.178571429

Name	Month	Day	Value
IrrCoef_Turf	10	1	0
IrrCoef_Turf	12	31	0
IrrCoef_Turkey	1	1	9
IrrCoef_Turkey	12	31	9
IrrCoef_Veg	1	1	0
IrrCoef_Veg	4	13	0

Name	Month	Day	Value
IrrCoef_Veg	4	14	0.178571429
IrrCoef_Veg	8	31	0.178571429
IrrCoef_Veg	9	1	0.142857143
IrrCoef_Veg	10	13	0.142857143
IrrCoef_Veg	10	14	0
IrrCoef_Veg	12	31	0

OCL Files

```
/*  MAIN.OCL  */

:MODULE: DLL  AgricDem = modules\AgricDem.DLL // InitParam "DEBUG"

:Include: ocl\udef_list.ocl

:Commands:

// For both basins

:Include: ocl\Agric_Calculation.ocl
:Include: ocl\Agric_Allocation.ocl
:Include: ocl\filter_inflows.ocl
:Include: ocl\kerr_scott_operations.ocl
:Include: ocl\WW_returns.ocl
:Include: ocl\sales_purchases.ocl
:Include: ocl\misc_operations.ocl
:Include: ocl\mainstem_operations.ocl
:Include: ocl\low_inflow_protocol.ocl
:Include: ocl\routing.ocl
:Include: ocl\WSRPs.ocl

// :Include: ocl\compute_inflows.ocl      // This file is not normally
needed.  It is used to allocate comprehensive inflows to the inflow
nodes up front.
                                                                    // See
the OCL file for details. Do not use the filter_inflows.ocl file above
when doing the compute_inflows run.


/*  Now solve the LP.  We set values of udefs after the solve so we
have today's values
    of state variables. */

Solve :{priority : 1 }

// Note that this model is not set up for detailed hydro operations, in
which we could allocate the daily flow to peak/off peak periods during
the weekday and weekend that is more realistic of how the proejcts are
operated, hold the water
// rather than drop down to a normal target elevation so as to be able
to generate more in the peak periods of each day, or alternatively,
switch to an hourly timestep and bring in price forecasts and inflow
forecasts over the coming week
// (like the Dominion operations in the Roanoke River Basin using
OASIS).  For the purposes of the model, focused mostly on planning,
assume operations are to a "guide curve" (or lower rule in this model)
that represents the normal lower
// end of the operating pool for hydro production. The model will keep
the level at the target with water passing through the turbine arc.
Levels will drop below the target if inflow is inadequate to meet the
minimum release.
// Conversely, levels will exceed the target if inflow > the turbine
capacity or if facilities like Tillery do not typically generate on the
weekends.
// Detailed power operations would be solved as decision variables for
flow through the turbine arcs.  For simplicity, these can be determined
after the model solve is done.
```

```
// Calculate energy production for each mainstem facility.  For
simplicity, to get a representative estimate of energy, assume fixed
net head (HW - TW) and fixed turbine and generator efficiency.
// Refinements include adding a HW/TW rating curve and turbine and
generator efficiency curves.  Typical efficiency appears to be about
80% (85% for turbine x 95% for generator).
// Use normal net heads from the license documents for HR through
Blewett of 55, 53.5, 174.5, 54, 70, and 47 feet, respectively. [See
Mainstem_Operations.ocl for more detail].
// For Tillery, set energy to zero on the weekends since the minimum
release will be met from leakage and sluice gate flow.

// The unit acft*ft is converted to MWh by 0.00102.

// Since post-solve, do not put _ in udef name to help distinguish
udefs from those that are pre-solve.  */

Set  :  Gen_HR   {  value  :  flow0590.0600 * 55     * 0.8 * 0.00102 }
Set  :  Gen_TT   {  value  :  flow0610.0630 * 53.5   * 0.8 * 0.00102 }
Set  :  Gen_Na   {  value  :  flow0640.0650 * 174.5  * 0.8 * 0.00102 }
Set  :  Gen_Fa   {  value  :  flow0660.0664 * 54     * 0.8 * 0.00102 }

Set  :  Gen_Till
            {  condition  :  _WeekDay = 0
               value      :  0

               condition  :  default
               value      :  flow0700.0710 * 70  * 0.8 * 0.00102
            }

Set  :  Gen_Blew {  value  :  flow0920.0930 * 47  * 0.8 * 0.00102 }

// Calculate the revenue by using the 2014 value in the Duke License
document of $70/MWh, or the value of alternative energy based on peak
and off-peak prices and factoring in value of dependable capacity.
[See Mainstem_Operations.ocl for more detail].
// Note this value has dropped dramatically in recent years due to the
low cost of alternative sources like natural gas.

:For:
{[Plant] = {HR, TT, Na, Fa, Till, Blew}
}

Set :  Revenue_[Plant] {  value  :  Gen_[Plant] * 70 }

:Next:

:End:
```

```
/* User-defined variables */
:UDEF:

// For reservoir balancing (for High Rock and Narrows)
Udef: _StorRatio_HR_Na        decision{ 0, unbounded}

// For hydropower.  For calculating generation and revenue, and also
for limiting generation at Tillery to weekdays only.
Udef :  _DayofWeek
Udef :  _WeekDay  init {1}


:For: {[Plant] = {HR, TT, Na, Fa, Till, Blew} }
      Udef :  Gen_[plant]
      Udef :  Revenue_[plant]
:Next:


// Resetting of Blewett flashboards (if used)
Udef :   _Blew_Board_Trip
Udef :   _Blew_Trip_Count

// For the in-lake spawning
Udef :  _Apr1_Elev_Till    init { 278.2 }
Udef :  _Apr15_Elev_HR     init { 623.9 }
Udef :  _Apr15_Elev_TT     init { 564.7 }
Udef :  _Apr15_Elev_Na     init { 509.8 }
Udef :  _Apr15_Elev_Fa     init { 332.8 }


/* Udefs for inflow filtering */
:For:
{   [node] = { 0004, 0010, 0014, 0020, 0024, 0044, 0050, 0064, 0080,
0100, 0104, 0114, 0130, 0154, 0170, 0180, 0190, 0194, 0214, 0230, 0250,
0274, 0280, 0284,
                     0300, 0320, 0324, 0334, 0340, 0344, 0350, 0354,
0370, 0380, 0386, 0394, 0400, 0434, 0450, 0500, 0560, 0570, 0574, 0590,
0610, 0640, 0660,
                     0670, 0676, 0680, 0690, 0694, 0700, 0704, 0760,
0764, 0770, 0780, 0790, 0794, 0820, 0826, 0840, 0846, 0850, 0856, 0860,
0870, 0874, 0876,
                     0894, 0904, 0920, 0934, 0950, 0960, 0980, 0984,
0994, 1014, 1050, 1104, 1200, 1204, 1210, 1250, 1300, 1304, 1320, 1434,
1504, 1600, 1694, 1730, 1754, 1770, 1774 }
}
    Udef : _TempInf[node]
    Udef : _InfDeficit[node]  init{0}
:Next:

/*  For the agricultural demand computations */

// FOR:NEXT loop to declare udefs
:FOR: { [county] = { 01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12,
13, 14, 15, 16, 17, 18, 19, 20, 21,
            22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36
} }

      Udef : dem[county]

:NEXT:
```

```
// For the LIP and WSRPs


// For the LIP
Udef :  _YPDLIP_gageflow
Udef :  _Gage_flow_3month
Udef :  _USDM_3month



:For:  { [level] = { 0, 1, 2, 3, 4  }  }
      Udef :  _YPDLIP_Trig_[level]_On  init {0}
:Next:

Udef :  _YPDLIP_Trig_Level  init {-1}


:For: {  [entity]  = { WSACC, Alb, Denton, Norwood, Montgom, Davidson,
Lexington, Davie, Elkin, King, Mocks, Salis, Wilkes, WS, Monroe,
Asheboro, Mt_Airy  }  }
      Udef :  _[Entity]_Trig_Level   init {0}
      Udef :  _[entity]_Dem_Red_Pct
    Udef :  _[entity]_Consvn_Demand

      :For:  { [level] = {1, 2, 3, 4} }
            Udef :  _[entity]_Dem_Red_[level]_Pct   init {0}
            Udef :  _[entity]_Trig_[level]_Count    init {0}
            Udef :  _[entity]_Ph_[level]_event      init {0}
      :Next:

:Next:

:For:
{
[entity] = { Kann, Concord, MtPleas }
}

Udef :  _[entity]_Consvn_Demand

:Next:


// ---------------------------------

// FOR USE IN OUTPUT TABLES

:substitute: [level_num] = "1, 2, 3, 4"  // for drought trigger and
level determination

// Turbine (although Kerr Scott may not have turbines) and spill arcs
on the main-stem reservoirs.  Spill nodes end in 1.  E.g., 11 for Kerr
Scott, 591 for High Rock, ...



// Natural inflows in both basins (all end in an even number).  About
80 in the Yadkin Pee Dee, 20 in the Lumber.
```

```
:substitute: [InflowNd_YadkinPeeDee] = "0004, 0010, 0014, 0020, 0024,
0044, 0050, 0064, 0080, 0100, 0104, 0114, 0130, 0154, 0170, 0180, 0190,
0194, 0214, 0230, 0250, 0274, 0280, 0284,
                                                    0300, 0320,
0324, 0334, 0340, 0344, 0350, 0354, 0370, 0380, 0386, 0394, 0400, 0434,
0450, 0500, 0560, 0570, 0574, 0590, 0610, 0640, 0660,
                                                    0670, 0676,
0680, 0690, 0694, 0700, 0704, 0760, 0764, 0770, 0780, 0790, 0794, 0820,
0826, 0840, 0846, 0850, 0856, 0860, 0870, 0874, 0876,
                                                    0894, 0904,
0920, 0934, 0950, 0960, 0980, 0984, 0994"

:substitute: [InflowNd_Lumber] = "1014, 1050, 1104, 1200, 1204, 1210,
1250, 1300, 1304, 1320, 1434, 1504, 1600, 1694, 1730, 1754, 1770, 1774"

// Gage locations (all end in 4).  Note some of the natural inflow
locations may end in 4 as well, even if they are not gages.  About 30
in the Yadkin Pee Dee, 10 in the Lumber.
:substitute: [USGS_GageNd_YadkinPeeDee] = "0004, 014, 024, 0044, 0064,
0104, 0114, 0154, 0194, 0214, 0274, 0284, 0324, 0334, 0344, 0394, 0434,
0574, 0694, 0704, 0764, 0794, 0874, 0894, 0904, 0934, 0994"
:substitute: [USGS_GageNd_Lumber] = "1014, 1104, 1204, 1304, 1434,
1504, 1694, 1754, 1774"

// Reservoir nodes (all end in 0).  Includes any travel time
reservoirs.
// About 30 in the Yadkin Pee Dee (not including 2 for travel time), 1
in the Lumber.
:substitute: [ResNd_YadkinPeeDee] = "0010, 0016, 0170, 0180, 0350,
0380, 0560, 0570, 0590, 0610, 0640, 0660, 0670, 0676, 0680, 0690, 0700,
0760, 0770, 0780, 0790, 0820, 0840, 0850, 0860, 0870, 0920, 0950, 0980,
0990"
:substitute: [ResNd_Lumber] = "1730"


// For municipal and industrial demands (all end in 5).  About 40 in
the Yadkin Pee Dee, 5 in the Lumber.
:substitute: [DemandNd_YadkinPeeDee] = "0005, 0025, 0035, 0055, 0065,
0075, 0115, 0135, 0185, 0205, 0255, 0295, 0345, 0355, 0375, 0395, 0425,
0465, 0525, 0555, 0565,
                                                    0615, 0625,
0685, 0705, 0715, 0775, 0785, 0825, 0845, 0855, 0875, 0885, 0915, 0925,
0935, 0945, 0955, 0975, 0985"

:substitute: [DemandNd_Lumber] = "1005, 1025, 1055, 1205, 1315, 1325"

//  For WW returns linked to demands. About 35 in the Yadkin Pee Dee, 5
in the Lumber.

//  Note that upstream node number here will always end in 5 since it
is coming from a demand node.  WW-only returns below only use a 3.
//  Note also there are three regional WW plants in the Yadkin (YVSA
with node 118, WSACC with node 798, and Anson County with node 968),
one in the Lumber (Moore County, with node 1028), all of which receive
//  WW from the arcs upstream (see list below) associated with the
demand nodes (e.g., YVSA are arcs 0075.0118 and 0115.0118).  These
regional WW nodes end in _8.
```

```
//  Note no return from the 0685 node (Asheboro) since that goes into
the Cape Fear.  Other nodes (mostly industrial) have no WW return > 0.1
mgd which is the cutoff for the model
//  These are nodes 0845, 0905, 0915, 0925, and 0945 in the Yadkin Pee
Dee, and nodes 1005, 1145, and 1205 in the Lumber.  All other demand
nodes have an associated WW return.
:substitute: [Linked_WWTP_RetArc_YadkinPeeDee] = "0005.0009, 0025.0050,
0035.0050, 0055.0060, 0065.0120, 0075.0118, 0115.0118, 0135.0154,
0185.0188, 0205.0206, 0255.0324,

0255.0328, 0295.0440, 0355.0360, 0375.0330, 0395.0390, 0395.0394,
0465.0500, 0555.0574, 0565.0577, 0615.0610,

0625.0836, 0715.0896, 0775.0798, 0785.0798, 0825.0798, 0855.0857,
0875.0857, 0885.0880, 0955.0969,

0975.0968, 0985.0988"



:substitute: [Linked_WWTP_RetArc_Lumber] = "1025.1028, 1315.1320,
1325.1330"


// For WW returns that are WTP returns, not WWTP.  Note that upstream
node number here will always end in 5 since it is coming from a demand
node.  About 15 in the Yadkin-Pee Dee, 1 in the Lumber.
// Only one of them (in the Lumber, node 1113) is not tied to a demand
node, so is treated as a WW independent return.
:substitute: [Linked_WTP_RetArc_YadkinPeeDee] = "0205.0190, 0295.0280,
0345.0230, 0375.0370, 0395.0340, 0395.0380, 0395.0386, 0425.0400,
0555.0560, 0565.0574, 0625.0610, 0775.0821, 0785.0784, 0855.0860,
0975.0934"
:substitute: [Linked_WTP_RetArc_Lumber]       = "1025.1030"


//  For independent WW returns (all end in 3).  About 25 in the Yadkin
Pee Dee, 20 in the Lumber.  Note this does not include the four
regional WW plants (nodes 118, 798, 968, and 1028)
//  that have been assigned an inflow to account for any WW that is not
captured in the upstream returns from the associated demand nodes (i.e,
the WW returns linked to demand nodes).
:substitute: [Indep_WW_RetNd_YadkinPeeDee] = "0143, 0163, 0273, 0313,
0323, 0373, 0503, 0513, 0573, 0653, 0663, 0733, 0753, 0763, 0813, 0823,
0853, 0863, 0873, 0883, 0893, 0903, 0913, 0963"
:substitute: [Indep_WW_RetNd_Lumber] =       "1093, 1113, 1123, 1143,
1213, 1223, 1233, 1243, 1323, 1403, 1413, 1433, 1523, 1703, 1713, 1723,
1743, 1763, 1773"


//  For interconnections.  About 15 regular and 30 emergency in the
Yadkin Pee Dee, none in the Lumber (since those would be connected with
systems that are GW).
:substitute: [RegInterconnect_YadkinPeeDee] =   "0182.0135, 0382.0391,
0422.0435, 0622.0785, 0755.0785, 0772.0785, 0782.0755,

0782.0775, 0865.0855, 0922.0955, 0972.0865, 0972.0925"
```

```
:substitute: [EmergInterconnect_YadkinPeeDee] = "0022.0035, 0032.0025,
0072.0115, 0112.0075, 0252.0465, 0292.0375, 0372.0295, 0382.0345,
0382.0425, 0422.0395,

0422.0555, 0422.0565, 0435.0425, 0462.0255, 0462.0775, 0552.0425,
0552.0435, 0562.0425, 0782.0825, 0822.0785,

0852.0865, 0922.0985, 0952.0925, 0952.0985, 0982.0925, 0982.0955"

//  For agricultural demand (all end in 7),  About 10 in the Yadkin Pee
Dee (one for each subbasin), 5 in the Lumber.
:substitute: [AgricNd_YadkinPeeDee] = "0007, 0597, 0617, 0647, 0667,
0707, 0927, 0987"
:substitute: [AgricNd_Lumber] = "1107, 1217, 1257, 1507, 1757"

// For total withdrawal nodes, in which water can be directed through
any interconnections and to the demand node.  These nodes all end in 2.
// About 25 in the Yadkin Pee Dee, none in the Lumber.
:substitute:  [WithdrawNd_YadkinPeeDee] = "0022, 0032, 0072, 0112,
0182, 0252, 0292, 0372, 0382, 0422, 0462, 0552, 0562, 0622, 0772, 0782,
0822,
                                                                0852,
0922, 0952, 0962, 0972, 0982"

:substitute:  [WithdrawArc_YadkinPeeDee] = "0020.0022, 0030.0032,
0080.0072, 0104.0072, 0100.0112, 0170.0182, 0180.0182, 0250.0252,
0280.0292, 0370.0372, 0300.0372, 0340.0382, 0386.0382, 0380.0382,

      0400.0422, 0450.0462, 0560.0552, 0560.0562, 0570.0562, 0610.0622,
0640.0622, 0320.0772, 0760.0772, 0770.0772, 0770.0782, 0780.0782,
0790.0782, 0826.0822,

      0870.0852, 0860.0852, 0920.0922, 0950.0952, 0960.0952, 0920.0972,
0980.0982"



// Let's break out withdrawals and returns in the Yadkin-Pee Dee only,
both public and industrial, so we can provide a comparison with HDR's
Water Use Projections study that quantified baseline numbers.
// [This analysis could be done, however, when looking at future year
scenarios and comparing to HDR's projections.]
// Note HDR assigns a net withdrawal to thermal, meaning returns are
embedded in the demand.  We removed discharge arcs for the two Yadkin
Pee plants, showing only the demand nodes.
// Ag may differ since ours uses the detailed methodology (crop acreage
and livestock counts x water use requirements) and HDR uses USGS
summaries.  USGS picked the highest of the water use years to be
conservative.
// This may differ from 2015, which is the most recent study year to
the year HDR assumes is baseline (2017).
// For M&I, HDR uses 2017 for the baseline.  We are using an average of
2015-19 in the baseline run, so there may be some small differences.

// To easily identify placement, Ag demand is at the end of the
substitute list.
// For returns, WW linked to demand nodes are first in the list, WTP
returns are second in the list, WW independent returns are third.
```

```
// This analysis is complicated by the sales and purchases that impact the withdrawals that HDR is quantifying, and the different uses of this model vs. the HDR report.  HDR is interested in SW withdrawals by entity
// and how much is withdrawn in each subbasin.  We are interested in tracking water withdrawals and how much goes to the user and how much is transferred between users.  So we have three components as shown on the schematic:
// a demand node, a withdrawal node, and a sale/purchase arc.

// Let's take two entities as an example:  Dobson and Mt. Airy.  Dobson buys water from Mt. Airy.  The Local Water Supply Plans report "WD + Purchases", so to get the WD,
// we need to subtract the purchase (purchase is assumed to be only from other entitities in the basin that use SW).
// To start, read in the water users (demand nodes) that are not impacted by sales and purchases.  In this case, "demand" node amount for the model = the WD amount and will be used for comparison to HDR's numbers.
// For those users that are, add them to the output tables (like HighRock_Subbasin_Summary_Mthly.1v) and calculate the WD.

// WW discharges are easy.  There are no purchases and WDs, so we can track in the For:Next loops below.

// In the output files, those WDs with regular interconnections are tracked as max_flows to compare target and computed flows in those arcs.  If not enough water is there to go around, the target may not be met.  We want to show both --
// the target compared to HDR; the computed to see when there are competing needs.  For emergency interconnections, no tracking as max_flow.  Just flow__, but shouldn't matter about potential disconnect because they are set to zero.
// For WW, we show only the arcs, so the computed flow may not match the target, which again would affect the HDR comparison on returns.  So just note the times the WD is not matched; as that will affect the WW return tied to WD.
// Won't affect the WW-only returns since those are treated as inflows.

// *** Will need to run this with drought plans turned off so that WDs are not impacted.

:substitute: [KS_Subbasin_Demand] = "0005, 0045, 0007"  // Node 0045 is the proposed Wilkes County intake that would draw water from Kerr Scott
:substitute: [KS_Subbasin_Return] = "0005.0009"

// Demand nodes in the HR subbasin with interconnections are not shown: 0025, 0035, 0075, 0115, 0135, 0185, 0255, 0295, 0345, 0375, 0395, 0425, 0465, 0555, 0565
:substitute: [HR_Subbasin_Demand] = "0055, 0065, 0205, 0355, 0525, 0597"
:substitute: [HR_Subbasin_WW_IndepReturn] = "0143, 0163, 0273, 0313, 0323, 0373, 0503, 0513, 0573"
:substitute: [HR_Subbasin_WW_LinkedReturn] = "0025.0050, 0035.0050, 0055.0060, 0065.0120, 0075.0118, 0115.0118, 0135.0154, 0185.0188, 0205.0206, 0255.0324,
                                                                                                                                    0255.0328, 0295.0440, 0355.0360, 0375.0330, 0395.0390, 0395.0394, 0465.0500, 0555.0574, 0565.0577,
                                                                                                                                    0205.0190, 0295.0280, 0345.0230, 0375.0370, 0395.0340, 0395.0380, 0395.0386,
```

```
0425.0400, 0555.0560, 0565.0574"            // 1st row is WWTP returns,
2nd row is WTP returns


:substitute: [TT_Subbasin_Demand] = "0615, 0617"    // Does not include
Albemarle which has interconnections
:substitute: [TT_Subbasin_Return] = "0615.0610, 0625.0610"

:substitute: [NA_Subbasin_Demand] = "0647"  // Does not include
Albemarle which has interconnections
:substitute: [NA_Subbasin_Return] = "0653"

:substitute: [FA_Subbasin_Demand] = "0667"

:substitute: [Till_Subbasin_Demand] = "0685, 0705, 0707, 0715"  // Does
not include the future IBT arc from Tillery to Union County
(0700.0865).  In the output tables, however.
:substitute: [Till_Subbasin_IndepReturn] = "0663"

:substitute: [Blew_Subbasin_Demand] = "0845, 0875, 0885, 0915, 0935,
0927"  // not included are those with interconnections (0775, 0785,
0825, 0855, 0925, 0975)
:substitute: [Blew_Subbasin_WW_IndepReturn] = "0733, 0753, 0763, 0813,
0823, 0853, 0863, 0873, 0883, 0893, 0903, 0913"  //WW Independent
:substitute: [Blew_Subbasin_WW_LinkedReturn] = "0625.0836, 0715.0896,
0775.0798, 0785.0798, 0825.0798, 0855.0857, 0875.0857, 0885.0880,
                                                    0775.0821,
0785.0784, 0855.0860"  // 1st row is WWTP returns, 2nd row is WTP
returns


:substitute: [DS_Blew_Subbasin_Demand] = "0945, 0987"  // not included
are those with interconnections (0955, 0985 )
:substitute: [DS_Blew_Subbasin_WW_IndepReturn] = "0963" // WW
Independent
:substitute: [DS_Blew_Subbasin_WW_LinkedReturn] = "0975.0934,
0975.0968, 0985.0988, 0955.0969" // WW dependent, with WTP returns
```

```
/*  File is Agric_Calculation.ocl. */

// 24 counties in NC are in the Yadkin/Pee Dee Basin.  3 VA counties
and 2 SC counties are also in the YPD.  7 counties (all in NC) are in
the Lumber.

// The counties are labeled in the Edit Agricultural Data dialog box in
the GUI.  The dialog box prompts the user to enter acres and livestock
counts.  These are based on surface water use, not groundwater use.
// In other words, the number of acres irrigated with surface water and
the count of livestock supplied with surface water.  The numbers are
based on 2017 data (the most recent census year) and are derived from
// each county, first by irrigated acres and livestock count (SW and
GW), then drilled down to that amount being provided with SW.  USGS
water use reports provide the breakdown by county.

/* County ordering is alphabetic, not by the basin, for all counties in
NC.  Counties in VA and SC which reach into the basin are at the end of
the list.
            Alexander, Alleghany, Anson, Ashe, Bladen, Brunswick,
Cabarrus, Caldwell, Columbus, Cumberland, Davidson, Davie, Forsyth,
Guilford, Hoke, Iredell, Mecklenburg, Montgomery, Moore
            Randolph, Richmond, Robeson, Rowan, Scotland, Stanly,
Stokes, Surry, Union, Watauga, Wilkes, Yadkin, Carroll_VA, Grayson_VA,
Patrick_VA, Chesterfield_SC, Marlboro_SC
*/


// For simplicity, use one precip record for all locations since
irrigation use is relatively small and using records with different
stations have minimal impact on that use.

:For:
{   [cty] = {01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14,
15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32,
33, 34, 35, 36 }
}

RUN_MODULE: AgricDem
    {
      Input:  { abs_period,
                [cty],                                    // County number
                timesers(Yadkin_PeeDee/precip),      // Precip in the
Yadkin Pee Dee Basin in inches ...

                pattern(IrrCoef_Tobacco),             // Water Use
Coefficients for Tobacco, etc.
                pattern(IrrCoef_Turf),
                        pattern(IrrCoef_Golf),
                pattern(IrrCoef_ContNurs),
                pattern(IrrCoef_FieldNurs),
                pattern(IrrCoef_Cotton),
                pattern(IrrCoef_EarlySoy),
                pattern(IrrCoef_LateSoy),
                pattern(IrrCoef_Corn),
                pattern(IrrCoef_Veg),
                pattern(IrrCoef_PastHay),
                pattern(IrrCoef_Peanut),
                pattern(IrrCoef_Blueberry),
                pattern(IrrCoef_Strawberry),
                pattern(IrrCoef_Fruit),
                pattern(IrrCoef_Beef),
                pattern(IrrCoef_Dairy),
```

```
                pattern(IrrCoef_Horse),
                pattern(IrrCoef_Pig),
                pattern(IrrCoef_Chicken),
                pattern(IrrCoef_Turkey),
                pattern(IrrCoef_OtherAnimal)
              }

    Output: { dem[cty] }
  }
:Next:

/*  The results are in mgd.  Now convert these to acre feet for use in
the
agric_allocation.ocl file  */


:For:
{   [cty] = {01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14,
15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32,
33, 34, 35, 36}
}

Set  :  dem[cty]  {  value  :  convert_units {dem[cty], mgd, af }  }

:Next:
```

```
/*  File is Agric_Allocation.ocl. */

/* This file allocates the agricultural demands to the basin node based
on area adjustment of the total county area.  Assumes unless noted that
the distribution county-wide is representative of the basin.

The county demand is represented by "dem__" that varies by number.
These numbers are established in the companion Agric_Calculation.ocl
file.


The counties are ordered as follows with their numbering:
Alexander, Alleghany, Anson, Ashe, Bladen, Brunswick, Cabarrus,
Caldwell, Columbus, Cumberland, Davidson, Davie, Forsyth, Guilford,
Hoke, Iredell, Mecklenburg, Montgomery, Moore
  01,             02,   03,   04,    05,  06,       07,            08,
     09,   10,         11,   12,   13,   14,     15,       16,
17,               18,         19,
Randolph, Richmond, Robeson, Rowan, Scotland, Stanly, Stokes, Surry,
Union, Watauga, Wilkes, Yadkin,  Carroll_VA,  Grayson_VA,  Patrick_VA,
Chesterfield_SC,  Marlboro_SC
 20,      21,       22,           23,    24,         25,     26,
27,    28,     29,      30,     31,      32,         33,          34,
35,               36
 */


// Note the percentages represent the amount of land area in the
subbasin.  The percentages are multiplied by the county demand.  The
percentages are consistent with those from HDR as
// used in its 2019 Water Projections Study (even though Ag use by
county uses the USGS reports for simplicity [the highest demand for all
water use years is assumed for its baseline of 2017).
// HDR study report shows the relative percent of each county in the
basin relative to the total of all the counties.  That is not needed
here.

// Kerr Scott subbasin:  Caldwell County is in the subbasin.  County =
475 sq.mi.  Amount in subbasin is 117 sq.mi, or 24.6%.  So multiply
Caldwell County Ag demand by this percentage.
// There are three other counties:  Ashe (0.15%), Watauga (17.0%), and
Wilkes (25.5%).  So of these counties, Caldwell makes up a large
percentage of the counties
// (24.6% / (24.6% + 0.15% + 17.6% + 25.5%) = 24.6% / 68%, or 36%).
Wilkes makes up 25.5%/68% = 38% of the counties, and the other two
would bring the total percent to 100% of the counties.

Set  Demand_KerrScott_Ag :  demand0007    { value :  dem04 * 0.0015 +
dem08 * 0.246 + dem29 * 0.17 + dem30 * 0.255  }

Set  Demand_HighRock_Ag  :  demand0597    {  value : dem01 * 0.32 +
dem02 * 0.095 + dem04 * 0.007 + dem07 * 0.002 + dem11 * 0.78 + dem12 *
1.0 + dem13 * 0.76 +  dem14 * 0.013 + dem16 * 0.72 + dem20 * .002 +

       dem23 * 0.8  + dem26 * 0.15  + dem27 * 0.97  + dem30 * 0.74  +
dem31 * 1.0  + dem32 * .15 + dem33 * 0.003 + dem34 * 0.1  }

Set  Demand_TT_Ag        :  demand0617    {  value : dem07 * 0.001 +
dem11 * 0.12  + dem18 * 0.002 + dem23 * 0.066 + dem25 * 0.048 }
Set  Demand_Na_Ag        :  demand0647    {  value : dem11 * 0.028 +
dem18 * 0.047 + dem20 * 0.004 + dem25 * 0.003 }
```

```
Set  Demand_Fa_Ag        :  demand0667    {  value : dem18 * 0.004 +
dem25 * 0.006 }
Set  Demand_Till_Ag      :  demand0707    {  value : dem11 * 0.07  +
dem18 * 0.2 + dem20 * 0.36 + dem25 * 0.18 }
Set  Demand_Blew_Ag      :  demand0927    {  value : dem03 * 0.6   +
dem07 * 1.0 + dem16 * 0.05 + dem17 * 0.26 + dem18 * 0.63 + dem20 * 0.08
+ dem21 * 0.25 + dem23 * 0.13 + dem25 * 0.73 + dem28 * 0.7 + dem35 *
0.01 }
Set  Demand_DS_Blewett_Ag : demand0987    {  value : dem03 * 0.4   +
dem21 * 0.55 + dem28 * 0.0015 + dem24 * 0.01 + dem35 * 0.0004 + dem36 *
0.001   }

// Ag is allocated to two tributaries in the Little Pee Dee.  First
calculate Ag demand in the subbasin, then allocate based on drainage
area
// to each node (off of node 1210 with DA = 127 sq.mi and node 1250
with DA = 157 sq.mi ).
Set  Demand_LittlePeeDee_Ag_1:  demand1217    {  value : ( dem09 *
0.009 + dem21 * 0.07 + dem22 * 0.1 + dem24 * 0.79 ) * 127 / (127 + 157)
}
Set  Demand_LittlePeeDee_Ag_2:  demand1257    {  value : ( dem09 *
0.009 + dem21 * 0.07 + dem22 * 0.1 + dem24 * 0.79 ) * 157 / (127 + 157)
}

// Allocate to two nodes on the Lumber River.  At the state line (node
1600), DA = 1370 sq.mi.  This does not account for drainage area from a
tributary.
// The gages upstream where the Ag is allocated are Boardman (node
1504) with DA = 1228 sq.mi and Maxton upstream (node 1104) with DA =
365 sq.mi.  So for simplicity, allocate 365 of the total 1228, or about
30% of the Ag
// demand to the upstream node, the other 70% to the downstream node.
Some of the Ag would be allocated to the tributary and downstream of
the Boardman gage, but we have not put an Ag node down there (state
line),
// so allocate it all to these two nodes.
// Also, Moore County demand is mostly from golf (Pinehurst area).  20%
of the county is in the basin, but all of the golf demand is in the
basins.  So the relative fraction at today's levels of golf vs. (crop
and livestock + golf)
// is about 50% of annual average demand (not representative in the
winter since no golf demand, but winter demand is typically small to
start with in this county based on % SW irrigation for livestock).
// So do adjustment on back end here by multiplying dem19 (Moore County
demand which is inclusive [crop + livestock + golf]) x 0.5 x 0.21
(county percentage) to estimate amount for non-golf assigned to basin,
// plus another dem19 x 0.5 for the golf (at 100% of the basin).  Note
if user puts in future golf that is greatly different as a percentage
of demand, this formula would be adjusted here.

Set  Demand_Lumber_Ag_1:  demand1107    {  value : ( dem05 * 0.15 +
dem09 * 0.18 + dem10 * 0.02 + dem15 * 0.43 + dem18 * 0.054 + dem19 *
0.21 * 0.5 + dem19 * 0.5 + dem21 * 0.12 + dem22 * 0.89 + dem24 * 0.2 )
* 365 / 1228   }
Set  Demand_Lumber_Ag_2:  demand1507    {  value : ( dem05 * 0.15 +
dem09 * 0.18 + dem10 * 0.02 + dem15 * 0.43 + dem18 * 0.054 + dem19 *
0.21 * 0.5 + dem19 * 0.5 + dem21 * 0.12 + dem22 * 0.89 + dem24 * 0.2 )
* (1228 - 365) / 1228  }
```

```
// Finally, the Waccamaw. Allocate all the demand to the Freeland gage, even though about a third of the drainage area in the subbasin is below it.
Set Demand_Waccamaw : demand1757 { value : dem05 * 0.16 + dem06 * 0.26 + dem09 * 0.71 }
```

```
/*  FILTER_INFLOWS.OCL  */


// To avoid infeasibility when reading in the provisional inflows
(post-Sept 30, 2019), which may be negative because of back-calculation
and/or time of travel or imperfect estimates
// of impairment, provide inflow filtering.  Inflows as part of the
comprehensive (finalized) inflow development approach already were
filtered in the Compute_Inflows run.


:For:
{ [node] = { [InflowNd_YadkinPeeDee] } }

    Set : _TempInf[node] { Value : timesers([node]/inflow) }
    Set : inflow[node] { Value : max{0, _TempInf[node] -
_InfDeficit[node](-1) } }
    Set : _InfDeficit[node] { Value : max{0, _InfDeficit[node](-1) -
_TempInf[node] } }

:Next:


:For:
{ [node] = { [InflowNd_Lumber] } }

    Set : _TempInf[node] { Value : timesers([node]/inflow) }
    Set : inflow[node] { Value : max{0, _TempInf[node] -
_InfDeficit[node](-1) } }
    Set : _InfDeficit[node] { Value : max{0, _InfDeficit[node](-1) -
_TempInf[node] } }

:Next:
```

```
/*  File is Kerr_Scott_Operations.OCL, which has the coding to handle
the Kerr Scott releases. */

/*  Under normal conditions, inflow = outflow and reservoir level =
1030 feet above mean sea level (msl).  Water supply pool is between
1000 and 1030 feet.  33,000 af of storage per Water Control Plan
    This storage is to be used for Wilkes and Winston-Salem per 1960
contract.  The releases for this are in part or fully driven by the
minimum releases. Additional supply for W-S is coded at the end of the
file.

      Note the inflows in the comprehensive inflow dataset (through
Sept. 2019) were back-calculated using the original SAE curve when it
was built.  For the simulation run, it is using the 2012 SAE curve,
which shows about a 10% reduction in storage at
      elevation 1030 feet.  Provisional inflows starting Oct. 2019 are
based on the 2012 curve.

Table 7-1 from Water Control Plan from 1993
(http://epec.saw.usace.army.mil/SWCPLAN_excerpt_Jun1993.pdf).  So
historic operations changed after 1993.

       Low Flow Operation Plan
    Minimum Flow and Stage at Wilkesboro, NC

 KS Elevation          Flow    Stage*
 (Ft., msl)          (cfs)    (ft)
 1029.00 and above    400     2.11
 1028.00 - 1028.99    350     2.01
 1027.00 - 1027.99    300     1.90
 1026.00 - 1026.99    250     1.78
 1024.00 - 1025.99    200     1.66
 1023.00 - 1023.99    150     1.53
 1000.00 - 1022.99    **       **

    For elevation 1030 to 1075 ft,
    (a) Q = 125 cfs if Wilkesboro gage d/s of dam is or forecasted to
be > 12 feet (estimated to be 9700 cfs); or
    (b) Q = 5400 cfs, or (c) Q = 9700 cfs - uncontrolled drainage flow,
whichever is less, when the Wilkesboro gage is or forecasted to be < 12
feet.

    The 5400 cfs is the channel capacity d/s of the dam.
    For elevation > 1075 ft, Q = full capacity of the outlet works
    For low flow conditions, elevation from 1000 to 1030 ft, see the
Corps' Water Control Plan
    for detail.  Flow should never be less than 125 cfs.
*/

// Use the long-term gage record for Wilkesboro as a means of setting
the max release.  The record goes back to pre-1930.  Use the unimpaired
gage from our inflow development.

// Since we are using a daily timestep, ignore hourly ramping of flood
releases per the plan, in 500 cfs increments, both going in and coming
out of flood control.

// Set min flow from the reservoir.  Since storage weight is higher
than all of weights at downstream reservoirs, no extra water will be
released above the minimum.  To prevent bouncing between 125 cfs and
400 cfs at around elevation 1030 feet,
// set minimum flow as a default to 400 cfs.

Set : min_flow0010.0012
```

```
{   condition : elevation0010 < 1023
    value     : convert_units{ 125 , cfs , af }

    condition : elevation0010 < 1024
    value     : convert_units{ 150 , cfs , af }

    condition : elevation0010 < 1026
    value     : convert_units{ 200 , cfs , af }

    condition : elevation0010 < 1027
    value     : convert_units{ 250 , cfs , af }

    condition : elevation0010 < 1028
    value     : convert_units{ 300 , cfs , af }

    condition : elevation0010 < 1029
    value     : convert_units{ 350 , cfs , af }

    condition : default
    value     : convert_units{ 400 , cfs , af }
}

/*  Model will release up to 5400 cfs through the minimum release arc
if elevation exceeds 1030 feet since there is a penalty (negative
weight, from the reservoir weight table) for keeping water above the
upper rule of 1030 feet.
    At elevations below 1075, these releases go through the conduit, so
set a max flow on this arc.  Flow above 1075 would go through the spill
arc, subject to the spill rating curve below.

      Max flow is calculated by factoring in the gage flow at
Wilkesboro and calculating the gain from the dam to the gage, which we
can approximate by taking the difference between historic gage flow,
the Reddies River gage, and simulated releases from the previous day.
      The gain (when added to the outflow) may differ from historic,
partly because the inflows were developed through unimpairment, partly
because of routing.  However, for provisional inflow updates, this will
be accurate.
      Nonetheless, an approximation is only required.  Differences in
flood release will be mitigated over several days through storing of
water.
*/

Set :  max_flow0010.0012
{    condition  :  elevation0010 > 1030
            {  condition  :   timesers(wilkesboro/gage_flow) <
convert_units{ 9700 , cfs , af }
               value      :   min { convert_units {5400, cfs, af},
convert_units{ 9700 , cfs , af } - (timesers(wilkesboro/gage_flow) -
inflow0024 - flow0010.0012 - flow0010.0011) }

               condition  :  default
               value      :  convert_units {125, cfs, af}
            }

       condition  :  default
       value      :  convert_units{ 5400 , cfs , af }   // release will
not exceed the min release under normal conditions since there is no
benefit to releasing more than the minimum.  However, if at BOD
elevation below 1030 and a large inflow
```

```
        // comes in that day, we want the model to release more than
the minimum so that we get back to 1030 feet that day and avoid going
into the flood pool.
}


// Compute spill
Target KerrScott_Spill : dflow0010.0011
{   Condition : default
    priority  : 1
    penalty+  : 3000  // high penalty of exceeding the value so that no
water is spilled to help meet downstream needs, like replenishing
storage at High Rock.
    penalty-  : 3000
    value     : max { 0, min { lookup { KerrScott_Spill, elevation0010
}, storage0010 - elev_to_stor {0010, 1075}  } }       // ignoring net
evap and inflow for today may lead to an excess release that will self-
correct the next day.
}

                                                  // However, usually the spill
rating curve will limit the discharge. Spill occurs above 1075 feet.


// Winston-Salem has an operating policy to call for additional
releases from Kerr Scott.  Per its LWSP, withdrawals from its Yadkin
intakes (Idols and Swann) are limited to 50 mgd (on a 30-day running
average) when
// the flow at Idols Dam (assumed upstream) drops below 554 cfs.
Taking more water than that requires additional releases from Kerr
Scott out of its conservation pool. So put in a target for the
withdrawal from Kerr Scott.
// At 2017 demand, with the simulated allocation from its different
sources, WD from the Yadkin averages about 38mgd, with a monthly max of
43 mgd.

Target W-S_Release : dflow0010.0012
{   Condition : ( flow0370.0386 + inflow0386 ) < convert_units {554,
cfs, af}
    priority  : 1
    penalty+  : 3000
    penalty-  : 3000
    value     : min_flow0010.0012 + max {0, flow0340.0382 +
flow0386.0382 - convert_units {50, mgd, af} }   // use yesterday's
withdrawal for W-S from the Yadkin as the estimate for the additional
amount above 50 mgd (if any) to release for W-S.


                  // Ignore 30-day running average for now.
}
```

```
/*  File is WW_Returns.ocl. */

// Below is the coding for WW returns that are dependent on the demand
nodes.  They use monthly OCL lookups and return flows are a fraction of
the monthly demands.
// There are two types of WW returns -- WWTP and WTP.  WWTP returns are
a function of the entity demand, which in this case is the sum of the
"withdrawals and purchases" less any "sales" in the database.
// Sales are excluded since these do not get accounted for in the
wastewater flow.  WTP returns are a function of "withdrawals +
purchases" - "purchases", or just withdrawals that would be treated at
the WTP.
// PUrchased water is excluded since this water is assumed to have been
treated by the seller,

// Note that WW independent returns are handled as inflows (see inflow
pattern under the Node tab for the monthly patterns).

// Start with the Yadkin-Pee Dee.  Ignore regional plants until the
end.

// All WW values in the lookup tables are expressed as fractions.

:For:

{
[arc] =    { [Linked_WWTP_RetArc_YadkinPeeDee] }    // see udef list
for the arc numbers
[entity] = { BlueRidge, Wilkesboro, North_Wilkesboro, LouisPacific,
Duvaltex, Elkin, Jonesville, Dobson, Mt_Airy, PilotMt,
Statesville_3rdCreek, Statesville_4thCreek, Mocksville, Yadkinville,
DavieCounty,
                  WS_MudCreek, WS_ArchieEast, Salisbury, Thomasville,
Lexington, Denton, Albemarle, Norwood, Kannapolis, Concord,
Mt_Pleasant, Monroe, ATI_Allvac,
                  Hendrick_Aquadale_Quarry, Rockingham, AnsonCounty,
Hamlet}
[nd]  =     { 0005,      0025,         0035,             0055,
0065,    0075,    0115,      0135,  0185,     0205,          0255,
0255,          0295,       0355,       0375,
                    0395,          0395,         0465,         0555,
0565,       0615,     0625,     0715,     0775,      0785,     0825,
0855,      0875,
                              0885,             0955,        0975,
0985   }
}

Constraint  :     { dflow[arc] = lookup {[entity]_Return, month}  *
ddelivery[nd] }

:NEXT:


// Then the Lumber

:For:
{
[arc] =    { [Linked_WWTP_RetArc_Lumber] }    // see udef list for the
arc numbers
[entity] = { SouthernPines, Lumberton, Duke_Weatherspoon }
[nd]  =     { 1025,         1315,       1325}
}
```

```
Constraint     :     { dflow[arc] = lookup {[entity]_Return, month}  *
ddelivery[nd] }

:NEXT:


// Here are the WTP discharges.  There is one in the Lumber (node 1113)
that is treated independently (not tied to a demand node), so it gets
an OCL inflow

:For:

{
[arc] =     {  [Linked_WTP_RetArc_YadkinPeeDee]  }
[entity] = { PilotMt, Mocksville, King, DavieCounty, WS_Swann,
WS_Thomas, WS_Neilson, DavidsonWater, Thomasville, Lexington,
Albemarle_TT, Kannapolis, Concord, Monroe,  AnsonCounty }
[nd]  =     { 0205,          0295,       0345,    0375,         0395,
0395,        0395,       0425,           0555,        0565,      0625,
0775,       0785,     0855,       0975        }
}

Constraint     :     { dflow[arc] = lookup {[entity]_WTP_Return, month}
* ddelivery[nd] }

:Next:

// Then the Lumber

:For:

{
[arc] = {  [Linked_WTP_RetArc_Lumber] }
[entity] = { SouthernPines}
[nd]  = { 1025}
}

Constraint     :     { dflow[arc] = lookup {[entity]_WTP_Return, month}
* ddelivery[nd] }

:NEXT:


// For the regional plants, allocation of WW into the regional node is
based on a monthly fraction of the individual entity demand.
// However, some of the regional plants may be treating more water than
from just the entities in the model.  To ensure we capture the right
amount going back into the river,
// assign the WW deficit as an inflow to that WW node.  This amount is
determined from NPDES.  Allow it to increase if the demand multiplier
is used to all
// for future year evaluations.  If the demand multiplier is not
adjusted, but individual demand is, the deficit needs to be adjusted
here.

// For this example, Moore County Regional WW is 3.6 mgd higher on
average than the Southern Pines WW.
// Also Anson County regional is treating WW for Wadesboro, but is not
captured in Anson County's
```

```
:For:
{
[entity] = { YVSA, WSACC, Anson_Cty, Moore_Cty }
[WW_nd]  = { 0118, 0798, 0968, 1028 }
[amt] = { 0, 5.5, 0.92, 3.6}
}

Set : inflow[WW_nd]  { value : convert_units {[amt], mgd, af}  *
[Demand_Multiplier]  }

:Next:
```

```
/*  File is Sales_Purchases.OCL, which has the coding to handle the
sales and purchases through regular or emergency interconnections.

      Note only transfers of 0.1 mgd or more are considered when
including interconnections, and only to entities that are in the basin
and withdrawing surface water.
      Exceptions are made for those with IBTs that pull or transfer
water from or into the basin.

    The model uses withdrawal nodes that include sales (on the
schematic legend, "total withdrawals including sales").  These
represent the total surface water withdrawal. The withdrawal is
determined from state databases which
      report the entity's "withdrawals and purchases".  By subtracting
the "purchases" which are also reported, we have an estimate of the
withdrawals.  These withdrawals can be used to meet local demand but
also meet the sales to other systems.
      For almost all the systems in these basins, the withdrawal is
from surface water.  Some have groundwater, like Lumberton, which would
be included, so those are removed from the withdrawal amounts to get
the surface water portion.
      However, only Lumberton has a GW withdrawal > 0.1 mgd threshold.

    The arc from the river to the total withdrawal node is equal to the
withdrawals determined above.  From there is the sale of water to the
neighboring system, represented by an arc from the withdrawal node
      to the purchaser's demand node, plus the transfer of water to
meet the local demand for the entity.  The demand node for both the
purchaser and the seller represents the " demand + purchases" on the
schematic legend.

      5-year averages on the most recent data from 2015 to 2019 is used
to determine demand and purchases (annual averages and, as described
below, for demands, monthly patterns).
      Note industrial entities are missing 2019 data since the data
compilation started before these data were available.

      The "purchases" and "sales" in the database are not broken out
monthly.  Instead, what is shown is # of days purchased or sold in the
year x the purchase or sales amount.
      This amount is averaged over 365 days to compute an annual
average and is subtracted uniformly from each month's "withdrawal and
purchases" to compute withdrawals and demands.
      So it is assumed the monthly variation in "demand" is not due to
the purchases.  If the entity provided information that the purchase
was only for certain months, we would adjust
      the monthly estimates.

      Note the handling of this is different from the hindcasting used
to unimpair the streamflows.  That simply focuses on surface water
withdrawals, with purchases removed from the historic "withdrawals and
purchases".


      Let's use Mt. Airy and Dobson as examples.  Mt. Airy withdrawal
from either of its reservoirs includes a sale to Dobson.  So we handle
this by assigning the "demand" to
    Mt. Airy (equal to the local demand + any purchases) using an
annual avg with monthly pattern and a target on the arc from the
withdrawal node to the recipient demand node, in this case the local
      demand node for Dobson (equal to local demand + purchases)

Here's the code for setting a target
Target Dobson_Sales : dflow0182.0135     (Sale of water to Dobson)
```

```
{   condition :  default   // regular interconnection where Dobson is
buying 0.2 mgd from Mt. Airy based on 2015 to 2019 data (note Dobson
has no data available for 2019).  Assumed to be fixed throughout the
year.  Otherwise
                                        // we'd put a condition that it
occurs in only certain months or when storage < __ as part of a drought
plan, for example.
    priority  : 1
    penalty+  : 100000
    penalty-  : 100000
    Value     : convert_units {0.2, mgd, af}  // Acre feet is the
default unit for this model
}

 The Mt. Airy withdrawal to node 182 (note all withdrawal nodes end in
2) will include this amount, plus the amount to the "demand" node (185)
that represents "withdrawals and purchases" less "purchases" and less
"sales".
 In this case, Mt. Airy does not purchase water.  The Mt. Airy demand
pattern is net of any sales.

*/

// Let's do a For:Next loop on all interconnections.  Let's start with
REGULAR, of which there are about 15. Let's use substitutes here so
that user-defined numbers propagate to the Mics_Operations.ocl file.


// Summaries from LWSPs from 2019 as appropriate.

// Sales (in mgd):

:substitute:  [Airy_Dobson] = 0.2     // Mt. Airy sale to Dobson:  0.20
mgd
:substitute:  [WS_Greens] = 0.3                  // Winston-Salem to
Greensboro IBT:  now a regular connection, 2019 was 0.3 mgd annual
average (contract amt. is 3 mgd with expiration in 2030).
:substitute:  [David_HP] = 0              // Davidson Water to High Point
IBT: now a regular connection, 2019 was 0.
:substitute:  [Alb_Concord] = 2.8         // Albemarle to Concord:
2.82 mgd   (however handle as a user-defined substitute later)
:substitute:  [Charl_Concord] = 0         // Charlotte Water to
Concord:  0 mgd.  In other years, it has not been used more than 0.02
mgd on any day.
:substitute:  [Kann_Concord] = 0.17       // Kannapolis to Concord:
0.17 mgd

:substitute:  [Total_Sale_to_Concord] = 2.97          // The sum of the
three sales above to Concord.  This is needed in the
Misc_Operations.ocl file.

:substitute:  [Concord_Charl] = 0         // Concord to Charlotte
Water:   0 mgd
:substitute:  [Concord_Kann] = 1.3        // Concord to Kannapolis:
1.3 mgd with two contracts listed, one with contract amount of 1.5 mgd,
the other 2 mgd.  Contracts expire in different years.
:substitute:  [Union_Monroe] = 0.17       // Union County to Monroe:
0.17 mgd
:substitute:  [Rich_Rock] = 0.43          // Richmond County to
Rockingham:  0.43 mgd
:substitute:  [Anson_Union] = 2.1         // Anson County to Union
County IBT:  2.1 mgd
```

```
:substitute:  [Anson_Rich] = 0.71          // Anson County to Richmond
County:  0.71 mgd



// In the misc.ocl file, we assign a fractional amount from each source
to define the relative contribution toward meeting the required
withdrawal.

:For:
{
[arc] =    { [RegInterconnect_YadkinPeeDee] }    // see udef list for
the arc numbers.
[transfer] =  {  Airy_Dobson,   WS_Greens,  David_HP,   Alb_Concord,
Charl_Concord  ,  Kann_Concord,   Concord_Charl,   Concord_Kann,
Union_Monroe,    Rich_Rock,   Anson_Union,    Anson_Rich  }    // First
entity is the seller, second is the purchaser
[amt]  =      { [Airy_Dobson], [WS_Greens],[David_HP], [Alb_Concord],
[Charl_Concord],  [Kann_Concord], [Concord_Charl], [Concord_Kann],
[Union_Monroe], [Rich_Rock], [Anson_Union], [Anson_Rich]  }    //
amount in mgd
}

Target Sales_Regular_[transfer] : dflow[arc]
{   condition : default
    priority  : 1
    penalty+  : 1000
    penalty-  : 1000
    value     : convert_units {[amt], mgd, af}
}

// To compare to HDR's WD estimates in each subbasin, also add a
max_flow that can be referenced in the output tables.  As a state
variable, it reads in the desired amount.
// The actual amount depends on competing needs; if the desired amount
is not fully met, we would not get the right comparison with HDR
numbers for their baseline (year 2017) in estimating future water use.
// Max flow will also limit the flow that can go through the
interconnection, although a high penalty for going over the target
could achieve the same result.

Set :  max_flow[arc] {  value  :  convert_units {[amt], mgd, af} }

:Next:


// Now the EMERGENCY, of which there are nearly 30.  All emergency
purchases in 2019 were 0.  No substitutes here since there are so many
and are rarely used.
:For:
{
[arc] =    { [EmergInterconnect_YadkinPeeDee] }    // see udef list for
the arc numbers.
[transfer] =  { Wilk_NWilk, NWilk_Wilk, Elkin_Jones, Jones_Elkin,
State_Salis, Mock_Davie, Davie_Mocks, W-S_King, W-S_David, David_W-S,
David_Thomas, David_Lex, HighPt_David, Salis_State, Salis_Kann,
Thomas_David, Thomas_HighPt, Lex_David,
                      Conc_MtPleas, MtPleas_Conc, Monroe_Union,
Rich_Hamlet, Rock_Rich, Rock_Hamlet, Hamlet_Rich, Hamlet_Rock  }   //
First entity is the seller, second is the purchaser
```

```
[amt]  =        {   0,              0,           0  ,            0  ,
0,             0,          0,            0,          0,          0,
0,           0,             0,           0,            0,             0,
0,             0,
                                0,             0,           0,            0,
0,          0,              0,           0           }    // amount in mgd
}

Target Sales_Emerg_[transfer] : dflow[arc]
{    condition :  default
     priority   : 1
     penalty+   : 1000
     penalty-   : 1000
     Value      : convert_units {[amt], mgd, af}
}

// No need to set a max flow since emergency interconnections are
rarely if ever used and won't affect the comparison with HDR WD numbers
which are based on regular interconnections. A high penalty for going
over target will
// ensure a cap on the flow in the arc.

:Next:


// There are four IBTs above that are transferring water into the
Yadkin-Pee Dee; they are treated as nodes with inflows since the source
operations are outside the basin and are not modeled.
// To ensure transfers are not limited by inflow, set inflows
artificially high.  Bleed arcs are added for the surplus inflow.
// The sources (nodes) are Lookup Shoals in the Catawba (node 251),
High Point in the Cape Fear (node 435), Charlotte (Charlotte Water) in
the Catawba (node 755), and Union County in the Catawba (node 865).

:For:
{
[nd] = { 0251, 0435, 0755, 0865 }
}

Set :  inflow[nd]  {  value :  1000  }

:Next:
```

```
//  File is Misc_Operations.ocl, which has the coding to handle the
smaller reservoir systems.

// No max flows are placed on the WTP arcs to reflect WTP capacity.  It
is assumed that the plants are capable of meeting the demands
introduced in the water.  However, withdrawal
// limits may capture some of the production constraints.  But mostly
the limits below reflect the operating preferences from a water supply
reliability/water quality standpoint.

/* Start with WSACC, which provides regional WW treatment for Concord,
Kannapolis, Harrisburg, Mt. Pleasant, Midland, and Charlotte Water. It
operates many of the water sources for these utilities.

Concord's permitted raw water withdrawal from Lake Howell is 14.6 mgd
(from the LWSP), but its "usable volume is limited to 12.1 mgd" based
on safe yield.
Kannapolis lists in its LWSP that its "usable volume is limited to 2.6
mgd by agreement between WSACC and Kannapolis" for Lake Howell, so
assume this is based on the difference between
14.6 total from Howell and 12.1 limit for Concord (in this case, it
would be 2.5, so use this).  The yield factors in a minimum release
from Howell (assumed fixed in the yield run based on prior reports),
but which can vary depending on storage (see WSRPs.ocl for more
detail).

So limit the max flows on the withdrawal arcs from Lake Howell for each
entity to the safe yield limitation.

Concord is in the Rocky River Basin.  Concord has regular IBT
interconnection with Charlotte Water (formerly Charlotte-Mecklenburg
Utilities (CMUD), with name change in 2015).  It was an emergency, but
LWSP shows it to
be regular.   Concord also has a regular connections with Albemarle
which constitutes an IBT.  These two transfers are the IBT certificate
the cities (Concord, not sure about Kannapolis?) received to transfer
to the Rocky River basin
a maximum of 10 mgd on a daily basis from the Catawba River basin and a
maximum of 10 mgd from the Yadkin River basin.

As for Charlotte Water, this utility has its own 33 mgd max daily IBT
described on DEQ's site as follows:  The transfer is based on water
withdrawals from Lake Norman and
Mountain Island Lake in the source basin (Catawba River Basin).  The
transfer of the water to the receiving basin (Rocky River Basin) is via
consumptive use in eastern Mecklenburg County and
existing discharges at Mallard Creek WWTP and WSACC's Rocky River
Regional WWTP.  The IBT certification occurred in 2002.

During drought plan implementation, Lake Howell withdrawals for Concord
and Kannapolis are to be reduced.  It is assumed that demand would be
reduced by the same amount.
Do this adjustment in the WSRP.ocl file.
*/

// Assign max flows on the arcs for Concord and Kannapolis (from the
Coddle Creek WTP) to enforce the Lake Howell WD agreement.  Also 2nd
Creek intake sends water over to Kannapolis Lake, another IBT
(grandfathered) of up to 6 mgd.
:For:
{
[arc] =      {    0320.0760,                0770.0772,
0770.0782  }
```

```
[source] =   {    2ndCrk_to_KannLake,  Howell_to_Kann,
Howell_to_Concord  }
[amt] =      {     6,                        2.5   ,              12.1
}
}

Set : max_flow[arc] {  value  :  convert_units {[amt], mgd, af  }  }

:Next:


// Let's assign withdrawal fractions by withdrawal source using 2019
historic data from state databases ("Surface Water Sources") which are
annual averages assumed to be evenly applied by month,
// historic data directly from utilities, or operating rules from
utilities or reports or WSRPs.  Note it can vary from year to year
based on LWSPs.  For Albemarle, which can get water from TT or Narrows,
// I went with a split that favored more production from Narrows since
this better matches HDR's numbers in its estimate of baseline (year
2017) water use (closer to 2015-19 averages).

// Let's break out first for regular interconnections for which
substitutes were created in the Sales_Purchases.ocl file to allow user
to change the amounts and let them propagate to here.
// Since there are many more emergency interconnections, and since they
are rarely if ever used, these will generally not be factored in when
setting the withdrawal fractions
// (as noted below, a few are if they represent the only
interconnection, like for Davie County sale to Mocksville).

// An example is Kannapolis.  Its withdrawal from its three raw water
supplies (Lake Howell, Kannapolis Lake, and 2nd Creek) accounts for
what Kannapolis buys and sells.  We factor in the regular transactions,
// but we'll ignore the emergency purchase from Salisbury when
determining what the supply fractions should be from the lakes and 2nd
Creek.  The emergency purchase is set as a target in the
Sales_Purchases.ocl
// file, so it will be made, but the supply fraction will stay the same
from the other sources.  That may cause the supplies to be curtailed so
as not to exceed the demand....
// The user could simply add the sales/purchases amount for the
emergency connection to the For:Next Loop list below and bring it into
the new WD fraction calculation.

// Note for Thom-a-Lex and City Lake WDs, there is no interconnection,
so set these to zero in the [sales_amt] list.
// The Davie County to Mocksville transfer is an emergency, so put in
as zero here.
// There is no interconnection with Asheboro modeled, so set transfer
to zero.
// There are two regular sales arcs for Concord:  one to Kannapolis,
the other to Charlotte.  As of now, the Concord to Charlotte transfer
is 0, so ignore.
// There is no regular sale from Monroe to Union County, so set to 0.
// For purchase amounts, most entities in this list can be set to zero
since they are emergency and are currently set at 0.
// Concord has regular purchases from three sources (Albemarle,
Kannapolis, and Charlotte), so use the summed purchase as user-defined
in Misc_Operations.ocl file.

// Based on simulation, the fraction from Howell to meet Concord's
demand has been increased from the original (0.7) to 0.95.  Concord
```

```
reduced to 0.05.  Done to prevent Concord from emptying.  Fisher
fraction remains at 0.
// Also, for Asheboro, put more of the production on Reese (was 0.45
for a fraction), now set to 0.9, and reduce Lucas accordingly.  Bunch
used only as backup, so fraction set to 0 (but will be overridden as
needed to meet demand)


:For:
{
[arc] =      {      0170.0182,   0180.0182,  0340.0382,  0380.0382,
0386.0382,         0560.0562,    0570.0562,  0320.0760, 0300.0372,
0370.0372,  0680.0685, 0670.0685,  0690.0685,  0610.0622, 0640.0622 ,
                              0770.0772,   0780.0782,  0790.0782,
0760.0772,     0770.0782,      0860.0852,   0870.0852,  0950.0952,
0960.0952 }
[source] =   {     AllredMill,   JK_Boyd,    Swann,      Salem,
Idols ,           Thom-a-Lex,    Lexington,  2ndCrk_Kann,  Cool,
Sparks,    Bunch,      Lucas,     Reese,       TT ,        Na,
                           Howell_Kann,  Fisher,     Concord,    Kann,
         Howell_Concord,       Twitty,        Quarry,     Roberdel,
CityPond }
[nd] =       {     0185,          0185,      0395,       0395,
0395,             0565,         0565,         0775,       0375,
0375,      0685,      0685,      0685,         0625,       0625,
                           0775,          0785,      0785,       0775,
         0785,                 0855,         0855 ,        0955,
0955         }
[fraction] = {     0.10,          0.90,      0.30,       0,
0.70,             1.0,          0,            0,          0.55,
0.45,      0,         0.10,      0.90,        0.45 ,       0.55,
                           0.7,           0,         0.05 ,       0.3,
         0.95 ,              1.0 ,         0,                0,
1.0    }
[sales_amt]  = { [Airy_Dobson],[Airy_Dobson],[WS_Greens],[WS_Greens],
[WS_Greens],       0,           0,         [Kann_Concord],  0,
0,        0,           0,          0,     [Alb_Concord], [Alb_Concord],
                 [Kann_Concord],
[Concord_Kann],[Concord_Kann],[Kann_Concord],[Concord_Kann],     0,
0,               0,          0     }
[purchase_amt] = {    0,           0,         0,         0,
0,             0,            0,         [Concord_Kann],    0,        0,
0,         0,          0,          0,          0,
                  [Concord_Kann],
                           [Total_Sale_to_Concord],

[Total_Sale_to_Concord],

[Concord_Kann], [Total_Sale_to_Concord],
[Union_Monroe],[Union_Monroe],[Rich_Rock],[Rich_Rock]
}

}

Target WD_[source] : dflow[arc]  // for simplicity, assign the fraction
to the entity demand.  Account for the sales and purchases. WD = local
demand + sales - purchases.
{   condition :  default
    priority  : 1
    penalty+  : 1000
```

```
    penalty-   : 1000
    Value      : [fraction] * ( demand[nd] + convert_units {([sales_amt]
- [purchase_amt]), mgd, af} )
}

:Next:

// The only IBT that is modeled as a withdrawal from the basin (not
into the basin) is the Union County IBT from Tillery.  IBT certificate
was issued in 2017.  The Union County Yadkin WTP plant is expected to
be completed in 2023 per the LWSP,
// Since it is not shown as a demand node (Union County is not in the
Yadkin-Pee Dee, assign a target flow to this junction node.  Note it is
subject to the Yadkin LIP, so total demand will need to be reduced by
the stated reductions in the LIP
// (see WSRP.ocl).  However, it is not clear if the withdrawal from the
Yadkin would change; it is possible that the reduced demand could be
met by reducing withdrawal from Catawba supply.  Adding conditions
depending on drought stage can always be done below.

Target IBT_to_UnionCounty : dflow0700.0865
{   condition :  default
    priority   : 1
    penalty+   : 1000
    penalty-   : 1000
    Value      : 0
}

// This is for the Duke Energy power plants (Buck and Smith in the YPD,
Weatherspoon in the Lumber).
// Buck was once a coal-fired steam station (operational in 1926 and
retired in 2013). Now it is a natural gas powered combined cycle
station.
// Smith (Smith Energy Complex), operational in 2000, is a combined
cycle station.  Weatherspoon, operational in the early 1950s, was coal-
fired, with those units retired in 2011.  Now oil and natural gas
fired.

// Buck and Smith plants are treated as net withdrawals in the model to
be consistent with HDR's handling in the YPD Water Use Projections
report.
// Smith, operational in 2000, purchases water from Richmond County,
both raw and finished.  Finished water purchases according to HDR in
its report are reflected in Richmond County's LWSP data.
// Raw water (which is more significant) is not.  HDR current use, both
annual average and monthly pattern, uses 2012 data, so we've done the
same.

// The net demand is essentially a net evaporative amount (equal to the
increased net evap on the lake due to the thermal discharge).  We are
using the same approach as other Duke plants in other
// OASIS models like the Roanoke River.

// The Weatherspoon plant has a small WD and discharge, so we decided
to keep them since they won't skew the accounting.
```

```
//  File is Mainstem_Operations.ocl, which has the coding to handle the
operations from the Yadkin Projects (High Rock down to Falls) and the
Yadkin-Pee Dee Projects (Tillery and Blewett Falls).

// The details are defined in the 50-year FERC licenses for the 212.5
MW Yadkin Hydro Project (Cube) [FERC Project No. 2197, or P-2197]
// and the 108.6 MW Yadkin-Pee Dee Hydro Project (Duke Energy) [P-2206]
as well as in the drought plans of utilities bound by it because of
withdrawals from the reservoirs (including IBTs) like Concord and
Kannapolis.

// Effective date of the licenses were delayed in part to ownership
issues and in part to certification for the Section 401 provision in
the Federal Water Pollution Control Act
// For the Yadkin Project, the original 50-year license expired in
March 2008.  APGI (Alcoa Power Generating Inc), now Cube Carolinas,
filed an application for a new license in April 2006.  The Relicensing
Settlement Agreement (RSA) went into effect Feb 2007
// and was meant to provide the operational guidelines until the new
license was issued.  It was expected that FERC would approve the
settlement agreement and issue a new license without modification.
Annual licenses were granted untile the 50-year license
// was granted.

// For the Yadkin projects, the details below are mostly from the RSA
under Proposed License Articles - Project Operations (PO), supplemented
as needed by the new license requirements which will be controlling.
// The new 38-year license was issued in September 2016 (so it ends at
the same time as the Duke Energy license).  These articles from the RSA
include PO-1 on Reservoir Operations, PO-2 on Instream Flows, PO-3 on
elevation and flow monitoring,
// and PO-4 on the LIP.

// For the Yadkin-Pee Dee projects, Carolina Power and Light (Progress)
filed for a new license in April 2006.  The original 50-year license
expired in March 2008.  A Comprehensive Settlement Agreement (CSA) was
filed in June 2007
// leaving out the issue of fish passage which ended up requiring an
EIS.  In March 2013, Progress changed name to Duke Energy Progress, or
Duke Energy.  A new 40 year license was issued to Duke Energy in April
2015.

// Yadkin Project

// Alcoa operated its Yadkin Project in accordance with a 1968
headwater benefits agreement with the licensee of the Yadkin - Pee Dee
Project (then Progress).  According to the 1968 agreement, Alcoa Power
regulated weekly average
// releases from Falls to provide a flow not less than 1,500 cfs during
the 10-week period preceding the recreation season (May 15 through
September 15); 1,610 cfs from May 14 to Jul 29; and 1400 cfs from July
30 to Sep 16.
// APGI operated to 7 to 8 High Rock elevation-based curves that
included this HW benefit.  This included normal seasonal drawdown of up
to 13 feet in the winter months, 5 feet in the summer.

// Current license document from 2016 has the following information
(plus supplemental from the RSA as well as other documents like HDR
Model Logic and Verification as part of its modeling for the Duke
Energy projects):

// The Yadkin projects are located back-to-back over a 38 mile stretch,
and about 130 miles downstream of Kerr Scott.
```

// High Rock has three vertical Francis turbines, each operating under a net head of about 55 feet. (Total) installed capacity = 32.9 MW. Upgrades as part of the new 2016 license will result in improved efficiency and capacity. New capacity = 40.3 MW.
// The Tuckertown powerhouse has three Kaplan turbines, each operating under a net head of about 53.5 feet. Installed capacity = 38.0 MW. With upgrades as part of new license, capacity reduced to 28.6 MW.
// Narrows has four vertical Francis turbines, each operating under a net head of about 174.5 feet. Installed capacity = 110.4 MW. With upgrades as part of new license, capacity increased to 110.7 MW.
// Falls powerhouse contains one vertical Francis turbine and two propeller-type turbine units, all operating under a net head of about 54 feet. Installed capacity = 31.1 MW. With upgrades as part of new license, capacity decreased to 30.9 MW.
// Total capacity now 210 MW instead of 212 MW.

// High Rock is a peaking facility (store and release mode) whereas the others are mostly run-of-river with little reregulation. Normal operating minimums at Tucketown, Narrows, and Falls have been about 1 to 2 feet below full.

// The 2016 License document states that TT, Na, and Fa shall operate to 3, 5, and 4 feet normal drawdowns, respectively. From April 15 to May 15, Cube will maintain a drawdown of no more than 1 foot from April 15 levels for these projects and High Rock.
// Put in as targets for elevation. For High Rock, normal drawdown would follow a seasonal pattern: 10 feet from Dec 1 to end of Feb, and 4 feet from Apr 1 to Oct 30, with transitions in the other months. This is the NME that is referred to
// in the Low Inflow Protocol.

// The review of historical data from 2000 to present suggests that High Rock operates in the broadest range (so leave the seasonal lower rule as is, partly because the LIP is based on it) and
// the others are kept mostly full. So for Tuckertown, use 1 foot down for the lower rule; Narrows, two feet down; and Falls, one foot down.

// The license states that Alcoa, or APGI (now Cube) shall coordinate with Duke on spawning flows downstream of Blewett between Feb 1 and May 15. The duration of these flows is to be determined by the spawning "Group", so this is not modeled since it is not
// known year to year when the event will take place, During this time, outflow from the project would not match inflow; flows would not drop below required minimums; and NMEs (lower rules) would not be violated.

// Critical minimums as specified in the RSA (regarding the Low Inflow Protocol) are as follows. These are not consistent with the WSRPs for those that draw from the lakes, so critical does not appear to be correct, perhaps preferred minimum.
// Note all elevations referenced in this models are based on NVGD 29 consistent with the USGS datum. For these reservoirs, the elevations reported by the power company are more than 30 feet higher (referred to as the Yadkin datum)
// than the USGS datum. As an example, High Rock is shown to be 655 feet normal pool using power-company datum vs. 623.9 feet using USGS datum.

// Set dead storage to these minimums, adjusted for information from the WSRPs as needed.

```
//          High Rock  - 599.9 (24 feet below full pool):   Hydro
production
//          Tuckertown - 560.7 (4 feet below full pool):    Water
supply    [Denton notes in its LWSP trigger levels starting at 4.5 feet
down for trigger 1 and 12.5 feet down for trigger 4 and a few feet
lower for trigger 5]
//          Narrows    - 486.8 (23 feet below full pool):   Water
supply      [Albemarle notes in its LWSP trigger levels starting at 4
feet down for trigger 1 and 10 feet down for trigger 4 and even lower
for trigger 5]
//          Falls          - 322.8 (10 feet below full pool):   Hydro
production

// Max storage is clear.  Historically, the max elevation for 20 years
of data show the max never exceeded the normal full pool.  Reason is
that spill capacity is significant, so spillway in the past 20 years
// has been able to evacuate all inflow and thus avoiding increase in
lake level above normal pool.
// Put in flood zones here (D zones), but the weighting will not be
important since the model will dump the water (even if it exceeds the
spillway capacity curves) to keep below max storage, in this case
normal pool.
// Should flood storage be desired, simply raise the maximum storage
level in the model.

// According to the 2016 License, FERC staff write that the average
generation for the Yadkin Project is 856,000 MWh a year.  Multiplying
by the alternative power cost of about $63/MWh (2016 estimate), which
includes the
// value of energy (peak and off-peak) plus a value for dependable
capacity, yields a yalue for the project's power at $55M in 2016
dollars.  The annual project cost is about $38M, so the value of the
project is about $17 M,
// or nearly $20/MWh. In other words, the project costs $20/MWh less
than the likely cost of alternative power.  Also, the License document
states:  "In considering public interest factors, the Commission takes
into account that
// hydroelectric projects offer unique operational benefits to the
electric utility system (ancillary service benefits). These benefits
include the ability to help maintain the stability of a power system,
// such as by quickly adjusting power output to respond to rapid
changes in system load; and to respond rapidly to a major utility
system or regional blackout by providing a source of power to help
restart
// fossil-fuel based generating stations and put them back on line.

// Yadkin-Pee Dee Project

// Per details from the 2015 License document, Tillery is a peaking
facility with daily generation during weekdays and load-following
during the peak demand hours.  Typically no generation occurs on
weekends, so put a target
// on the turbine arc so that releases are no higher than the minimum.
A target will ensure generation occurs to avoid spill.  See the Low
Inflow Protocol.ocl file for setting releases.

// Tillery has three Francis turbines and one fixed-blade propeller
turbine, each operating under a net head of about 70 feet.  [There is
also an auxiliary turbine for running a house generator]. Installed
capacity = 84 MW.
// Blewett has six generating units, each under a net head of about 47
feet.  Each generator is driven by two hydraulic turbines, each of
which has two runners.  Installed capacity = 24.6 MW.
```

// At Tillery, maximum turbine hydraulic capacity is about 18,000 cfs. The license allows drawdown of 22 feet from the normal pool elevation of 278.2 feet but limits daily drawdowns to 4 feet normally.
// Since it is load following, releases can vary throughout the day. A continous minimum release of 40 cfs has historically been required, although typically it releases
// more than that (70 to 80 cfs). This is met from leakage through the spillway radial gates and/or trash gate.

// Drawdown limits per new license: One of them is the Apr 15 to May 15 spawning period. This is handled the same way as the Yadkin projects, as targets, but basing drawdown level relative to April 1, not 15.
// From Dec 15 to Mar 1, limit drawdown to 3 feet, unless storage is needed to meet electricity demand, in which case drawdown can reach 5 feet. For simplicity, since we don't know what electricity demand is, assume drawdown (lower rule) is 5 feet.
// In the remaining months, Duke would limit drawdown to 2.5 feet on weekdays and 1.5 feet on weekends and holidays. Again, for simplicity, assume 2.5 feet to be conservative (in terms of remaining storage) for all days during this period.
// Note the penalty for releasing more then the minimum on weekends (turbine releases set as a target) will allow for elevations to normally recover on the weekends.

// Duke Energy Carolina's Tillery impoundment extends 16 miles to the tailwater of Falls. Blewett is 19 river miles downstream of Tillery, and 15 miles upstream of the state line.

// Blewett is normally operated once a day in a block mode of either 3 units (3,600 cfs) or six units (7,200 cfs), depending on inflow. At flows above 7,400 cfs (which the license states, unclear as to why that is different from 7,200 cfs),
// Blewett operates run of river. Flows exceeding 7,400 cfs are stated to occur 40% of the time. In block mode, flows into the Pee Dee change only once or twice daily. Flows up to 9,200 cfs can pass through
// the turbines (presumably 7200 cfs as stated above is peak efficiency), the rest being spill. Blewett generates about the same time as Tillery so as to avoid unnecssary spilling. The license allows Blewett to draw down 17 feet from the normal pool
// elevation of 179.0 feet. Due to concern with intakes, however, drawdown is limited to 11 feet. Under normal operation, when inflow is less than 7400 cfs, daily drawdown is proposed to be 6 feet with typical ranges from 2 to 4 feet.
// Use 6 feet down as the lower rule. In-lake spawning rules apply for Apr 15 to May 2015 in which drawdown will be limited to 2 feet from normal pool (April 1 elevation is not mentioned).
// A continous minimum release of 150 cfs has historically been required, although flows as measured at the Rockingham gage typically are above 250 cfs. The minimum releases changed significantly with the new permit as described elsewhere.

// The review of historical data suggests that Tillery is normally operated within a foot of normal pool, so use 277.2 as the lower rule throughout the year. Website https://lakes.duke-energy.com shows normal range
// of 2.5 feet. Set Blewett to 3 feet since that historically happens more than a 6 foot range. 6 feet is shown on the website. Normal operating level is 178.

// Set dead storage to the following minimums, adjusted for information from the WSRPs as needed.

```
// Critical minimums as specified in the RSA (regarding the Low Inflow
Protocol) are as follows:
//    Tillery    - 268.2 (10 feet below full pool):   Water supply
[Montgomery County and Norwood state in their WSRPs trigger levels
starting at 6 feet down for trigger 1 and 17 feet down for trigger 4
and a few feet lower for trigger 5]
//          Blewett    - 168.0 (10.1 feet below full pool): Water
supply/hydro production

// Max storage is clear.  In reviewing the historical data since 2000,
it appears that only Blewett was allowed to rise signficantly above
normal pool, to a pretty consistent maximum of about 182 feet.  There
is an outlier at 183.3.
// For Tillery, use 278.8 feet; for Blewett, use 182.3 feet (which is a
few feet above the tripping level of the flashboards).

// Average generation for the Yadkin-Pee Dee Projet is 370,000 MWh a
year.  Multiplying by the alternative power cost of about $70/MWh,
which includes the value of energy (peak and off-peak) plus a value for
dependable capacity, yields
// a yalue for the project's power at $25M in 2014 dollars.  The annual
project cost is about $7.5M, so the value of the project is about
$17.5M, or nearly $50/MWh.

// According to the HDR report on Model Logic and Verification, leakage
contributes to the minimum release.  No leakage arc is needed in this
model as this is not water lost from the system.  Leakage occurs
through the turbine wicket gates
// during periods of no generation.  HDR assumed that the Yadkin
Projects averages 10 cfs per unit, so that would mean 30 cfs at all
projects but Narrows, where it would be 40 cfs.  For Tillery,
assumption is also 10 cfs per unit,
// so a total of 40 cfs.  For Blewett, 21 cfs per unit, so a total of
126 cfs.  With the old minimum release requirements (40 cfs at Tillery
and 150 cfs at Blewett), most of this could be met from this leakage,
although the license document for Duke
// states above that it is met through leakage in the spillway radial
gates and/or trash gate.  With the much higher minimum release
requirements (at least 330 cfs at Tillery and 1200 cfs or more at
Blewett), leakage won't be a significant contributor
// to the minimum release.

// This model does a post-solve on energy production as described in
the main_ocl file.  Ignore leakage in the calculation.  This leakage
doesn't affect the outflow from the projects, but would reduce
generation on the weekends in which less flow is needed through the
operating turbine(s)
// because of the leakage through the other non-operating turbines.
The license document states that Tillery can meet its minimum release
through an existing sluice gate.  Minimum capacity of the turbines at
Tillery is about 2000 cfs, so on the weekends,
// when Tillery is not expected to generate, this minimum flow would
pass through the sluice gate.  In this case, energy production will be
set to zero in the post-solve on the weekends for Tillery.
// Most of the Blewett minimum release would be provided through one of
the six turbines, so there would be generation associated with the
minimum flow.

// In general, the reservoirs shall operate at or above the Normal
Minimum Elevation (NME) unless needed to maintain minimum flows or as
provided under the Low Inflow Protocol (see the ocl file). Under the
LIP, minimum flows at High Rock, Falls,
// and Blewett become target flows, to neither be exceeded or be below.
The NMEs are set as lower rules.  To ensure that storage is used
```

```
between upper rule (normal pond) and lower rule for generation, put in
targets for each reservoir on releases.
// Otherwise, the weighting on the C zone (between upper and lower
rule) would encourage storing water in the zone if the minimum releases
have been met.  This is desirable for reservoirs whose only purpose is
water supply, but here we want to exploit
// the storage in the normal operating range for hydropower.  As
detailed in main.ocl in the post-solve discusstion of hydro production,
assume for simplicity that the reservoir will normally be brought down
to the NME each day unless inflow exceeds
// turbine capacity.

// In reviewing the historical data, it appears that most reservoirs
are minimally drawn down with the exception of High Rock.  Narrows has
been drawn down proportionally to High Rock after a few feet down, and
is captured in the model since it is required
// in the LIP.

// The Yadkin Project provides a minimum outflow from Falls that the
Yadkin-Pee Dee Project can use to help meet their minimum outflows.
Generation and flows exceeding the minimum are not coordinated -- each
system generates for peaking as it sees fit --
// unless the LIP kicks in.

// Place max flows as a pattern on all turbine arcs, and then targets
on the turbine arcs as needed to reflect normal and LIP operations
(they are coded in the Low Inflow Protocol.ocl).
// Max turbine flows for the Cube projects based on modeling during
Alcoa relicensing are 9600 cfs for High Rock (although HDR in its
report only shows up to 6400 cfs based on sum
// of three turbine curves), 9400 cfs for TT, 10000 cfs for Na
(although HDR shows only 8600 cfs based on sum of each turbine curve),
8400 cfs for Falls, 18000 cfs for Tillery, and 9200 cfs for Blewett.
Targets for High Rock and Tillery
// are set in the Low_Inflow_Protocol.ocl file.  To resolve discrepancy
for HR and TT, data from Cube from 2010 to 2015 and 2015 to present
showed a max turbine flow for High Rock of about 8500 cfs and 9500 cfs
for Narrows, so use these values.

// Minimum flow adjustments in the new license are summarized in
Low_Inflow_Protocol.ocl where it shows the normal condition and
subsequently-reduced requirements during drought.

// Set targets on elevation during the spawning season from April 15 to
May 15 to ehance fish spawning in the lake.
// For all Yadkin projects (called reservoir stabilization in the
license), it is based on the April 15 elevation, and is stated in the
license that elevations shall not be drawn more than 1 foot below that
elevation.
// However, Cube shows this in its summary presentations as a +/- 1
foot range, not just a -1 allowance.  So treat as a target range.
// For Tillery, it is based on the April 1 elevation.  For Blewett, it
ignores April elevations and is based on normal pool. For Tillery and
Blewett, license states that the operating band shall not be more than
__ feet from this elevation.
// LIP operations for all are assumed to override this as needed.
License for the YPD projects states that Blewett can override the
spawning lake level stabilization as needed to meet the minimum flow.

// Since we are driving the lakes down to the lower rule, simply
penalize the model for dropping below the minimum elevation during the
spawning period.  A penalty for going above the band should not be
needed.
```

```
:For:

{ [nd]    =  { 0590, 0610, 0640, 0660 }
  [res]   =  { HR,   TT,    Na,   Fa  }
}

Set :  _Apr15_Elev_[res]
{   condition  :  month = 4 and day = 15
      value      :  elevation[nd]           // read in April 15
beginning of day (BOD) elevation

      condition  :  default
      value      :  _Apr15_Elev_[res](-1)
}

Target [nd]_storage :  dstorage[nd]
{     Condition : julian >= 106 and julian <= 136 and storage[nd] >=
lower_rule[nd] // from Apr 15 to May 15, limit Yadkin Project reservoir
drawdown to 1 foot from April 15 value.

                                                    // Add in another
condition about being above the lower rule so we can apply a high
penalty.  Without that condition, the high penalty would interfere

                                                    // with making
minimum releases.
    priority  : 1
    penalty+  : 0
    penalty-  : 150
    value     : elev_to_stor {[nd], _Apr15_Elev_[res]  - 1}

      Condition : default   // drawdown will normally be limited to the
lower rule
    priority  : 1
    penalty+  : 0
    penalty-  : 0
    value     : lower_rule[nd]
}

:Next:

// Tillery

Set :  _Apr1_Elev_Till
{   condition  :  month = 4 and day = 1
      value      :  elevation0700         // read in April 1 BOD
elevation

      condition  :  default
      value      :  _Apr1_Elev_Till(-1)
}

Target Till_storage :  dstorage0700
{     Condition : julian >= 106 and julian <= 136  and storage0700 >=
lower_rule0700 // from Apr 15 to May 15, limit Tillery drawdown to 1.5
foot from April 1 value. Since the assumed normal operating band is
just 1 foot,

                                                    // adding the
condition about being above the lower rule will effectively render this
```

```
provision for spawning at Tillery moot.  Blewett will be impacted
however.
    priority  : 1
    penalty+  : 0
    penalty-  : 150
    value     : elev_to_stor {0700, _Apr1_Elev_Till - 1.5}

      Condition : default
    priority  : 1
    penalty+  : 0
    penalty-  : 0
    value     : lower_rule0700
}

// Blewett
Target Blew_storage :  dstorage0920
{     Condition : julian >= 106 and julian <= 136  and storage0920 >=
lower_rule0920 // from Apr 15 to May 15, for Blewett, limit drawdown to
2 feet from normal pool. Assumed normal operating range is 3 feet.
    priority  : 1
    penalty+  : 0
    penalty-  : 150
    value     : elev_to_stor {0920, stor_to_elev {0920, upper_rule0920}
- 2 }

      Condition : default
    priority  : 1
    penalty+  : 0
    penalty-  : 0
    value     : lower_rule0920
}

// The following is for handling of spill where spill is a function of
rating curves in the lookup tables.  Those flows are in cfs.  These are
from the HDR Model Logic and Verification Report based on the
// the Progress Energy 2003 Initial Consultation Document for the
Yadkin-Pee Dee Project (and likewise, Initial Consultation Document of
APGI in 2002).

// Blewett Falls would have been handled differently in the past.
Blewett has flashboards whose bottom is at 174.1 feet and top is at
178.1 feet, which is the assumed normal operating level.
// These 4 foot high flashboards trip when the pool rises to 180.1
feet, so four feet of storage is lost until the boards are reinstalled
(equal to 10,687 acre feet between 178.1 and 174.1 feet,
// or about a third of the total storage below 178.1 feet (30,893 acre
feet)).  Since this is a significant amount of storage, this tripping
should be considered.

// According to the HDR modeling report for these facilities, it is
assumed that two weeks are required to reinstall the boards.  So could
put in a condition here as to when they are available and when they are
not,
// and that will determine which spill rating curve to use.  When the
boards are in place, the spill elevation is 176.1 feet.  The rating
curve shows 0 cfs at 176.1 feet and 75 cfs at 178.1 feet, so there
appears to be spill when
// below full pool of 178.1 feet.  This appears to be because, based on
the Progress Energy consultation report, there is a concrete spillway
with crest elevation of 176.1 feet.
```

```
// However, according to Ed Bruce at Duke, pneumatic controls make
reinstallation of the flashboards much quicker, so for this simulation,
assume they are in place at all times and the spill rating curve will
reflect that.

// Note that leakage through the flashboards is estimated by HDR in its
Model Logic and Verification report to be 75 cfs.  Assume this leakage
is treated the same way as wicket gate leakage; that this is factored
in to the releases, so no
// special adjustment is made.

// Compute spill for all projects except Blewett
:For:
{
[nd]          =   {     0590,        0610,     0640,     0660,     0700
}
[DS_spill_nd] =   {     0591,        0611,     0641,     0661,     0701
}
[res]               =   {        HighRock,      TT,       Na,       Fa,
Till         }
}

// Compute spill
Target [res]_Spill : dflow[nd].[DS_spill_nd]
{    Condition : default
     priority  : 1
     penalty+  : 10
     penalty-  : 0
     value     : max { 0, min { convert_units {lookup { [res]_Spill,
elevation[nd] }, cfs, af }, storage[nd] - upper_rule[nd]  } }
}

:Next:

// Falls deserves special attention since it has limited storage.  The
equation above limits the discharge to effectively the amount above the
upper rule, which is very small at Falls compared to the spill
capacity.
// Since it is penalized for releasing more than the target, spill will
be not enough to bring it back to the upper rule.  It will be enough to
prevent it from going above max stor, but we want to get back to upper
rule quickly
// and take advantage of the large spill capacity.

// Ignore projected elevation; the spill rating curves show significant
spill capacity, so the volume to bring back to the
// upper rule will be limiting.  To make the upper rule volume more
accurate, and avoid cases of going up max storage more often than in
reality,
// add in today's inflow to the calculation.
// Only issue is inflow[nd] is the local inflow, and ignores all of the
upstream inflow like at High Rock, so would have to do outside
// a For:Next loop (i.e., each spill target would need its own
calculation).  So instead, also add yesterday's inflow (flow__.__).
// The penalty for going below is 0, so even if we overestimate the
amount to get back to the upper rule on the declining limb, the
// model will release less than this so we don't go below the upper
rule.

// Overwrite what was done for Falls.  Ignore net evap since small on
this lake.
```

```
Target Fa_Spill : dflow0660.0661
{    Condition : default
     priority  : 1
     penalty+  : 1000
     penalty-  : 0
     value     : max { 0, min { convert_units {lookup { Fa_Spill,
elevation0660 }, cfs, af }, storage0660 + inflow0660 + flow0650.0660 -
upper_rule0660 } }
}

// For Blewett, rating curve based on flashboards in place.

// Compute spill for Blewett
Target Blew_Spill : dflow0920.0921
{    Condition : default
     priority  : 1
     penalty+  : 5
     penalty-  : 0
     value     : max { 0, min { convert_units {lookup {
Blew_Spill_With_Boards, elevation0920}, cfs, af} , storage0920 +
flow0910.0920 + inflow0920 - upper_rule0920} }    // ignore the turbine
flow since spill is so small with this rating curve.


}
```

```
// File is the OCL file for the Low Inflow Proocol, or LIP.

// The Low Inflow Protocol was agreed to in February 2007.
// The YPD Drought Management Advisory Group (DMAG) is tasked to
implement this and must review its effectiveness every 5 years over the
license period , including the trigger component using 3-month moving
average inflow
// (and the historic averages that they are relative to), proportional
drawdown of reservoirs, and use of regional vs. national drought
monitor (national is used here).
// The group includes the power companies, state agencies in NC and SC,
federal Fish and Wildlife, lake associations, and users that withdraw
more than 1 mgd from the impoundments.
// In the WSRP.ocl file, we code the drought plans for Denton,
Albemarle, and Montgomery County since these users take more than 1
mgd.  Norwood currently does not, so plan is set to be inactive.
// Others impacted by LIP are those with interbasin transfers relying
on the Yadkin, which in this case is WSACC for its supply from
Tuckertown and Tillery through Albemarle.

// Set the weekday and weekends since we will need this to help set
generation at Tillery.
Set : _DayOfWeek
    {   condition : weekday{year, month, day} <= 1
        value     : 2

        condition : weekday{year, month, day} >= 7
        value     : 1

        condition : default
        value     : weekday{year, month, day} + 1
    }

Set : _WeekDay
    {   condition : _DayOfWeek >= 3
        value     : 1

        condition : default
        value     : 0
    }

// Although this is a separate file from the Water Shortage Response
Plans (WSRPs), use the Drought Plans constant to turn this and the
WSRPs on or off.

:If: {[Drought_Plans_On] = 1} // First check if drought plan variable
is on


// Include time series of gage flow for 4 gages as well as time series
of drought declarations

// The LIP can be simulated for the last 20 years in which we have the
drought monitor (as a time series).  So the coding remains the same,
and to allow for a full period of record run back to 1930,
// put in -1 dummy values for the drought monitor pre-2000 so that does
not cause the LIP to kick in.  The drought monitor has a huge role in
the activation of the LIP, so it is useful to leave in, but
// just note that pre-2000 and post-2000 LIP results can be misleading.
Also, for the forecast runs in PA, the drought monitor should be turned
off so all traces are equal (and this can be done by setting drought
plans to 0).
```

```
// The calculation for the LIP is based on end-of-month estimates of
the highest value of the monitor in the area draining to Blewett, with
these values averaged over 3 months to get a moving average.

// For the gage flows, we need to have filled-in flows for two of the
four gages since they did not have complete records.  Yadkin College
and Norwood are the two that have full records; for the others,
// use "filled-in".  The Yadkin College and Norwood flows are
regulated.  The filled-in flows will be unregulated when the gage
didn't exist, and regulated when the gage flows did exist.
// The DMAG is required to assess the long-term gage average and
consider updating based on additional years of data since it was
developed in 2007.

// The LIP must sequence through each step of the plan, one trigger at
a time. There are 5 stages, so 5 triggers, for the LIP, ranging from
Stage 0 (Trigger 0) to Stage 4 (Trigger 4). Stage -1 is normal.
// The setting of stages and triggers where -1 is normal appears to be
due with how the drought monitor works, with -1 representing normal.
// NDMC characterizes drought monitor levels as follows:  None (white
shading on maps, D0 = abnormally dry, D1 = moderate drought, D2 =
severe drought, D3 = extreme drought, D4 = exceptional drought

// Calculate the total gage flow of the 4 gages (Yadkin_College + South
Yadkin at Mocksville + Abbotts_Creek + Rocky River at Norwood gage)
Set : _YPDLIP_gageflow { value : timesers(Yadkin_College/gage_flow) +
timesers(Mocksville/filled_in_gage_flow) +
timesers(Abbotts_Creek/filled_in_gage_flow) +
timesers(Norwood/gage_flow)  }

// Calculate the preceding three month moving (or rolling) average gage
flow as specified in LIP.  This will be compared to the historical
averages at the beginning of each month.
// For all but Abbotts Creek, which only started in 1988, the average
is based on data from 1974 through 2003.  This is provided as an OCL
pattern table.

Set: _Gage_flow_3month
{     condition:   abs_period < 90
      value    :   _YPDLIP_gageflow

      condition: default
      value    : accumulate{_YPDLIP_gageflow,-90,-1} / 90
}

// The drought monitor timeseries was pre-processed (manipulated) up
front and put into DSS, although it could be coded here. The
"manipulated" timeseries uses the maximum for each day of the monitor
readings for each of the
// HUC units draining to Blewett.  DSS record called
"USDM_Manipulated/Yadkin".  This differs slightly from Cube's when it
started putting in the estimates post-LIP implementation (2007), so use
Cube's which will include the
// "manipulated" series from 2000 to 2007.

Set :  _USDM_3month
{   condition  :  day = 1   // for first day of run, if starting on
first day of the month, will default to zero for the value.  Use end of
last month's value.  Determine on day = 1 since end of month day varies
by month.
      value  :  timesers(USDM_3_MO_FROM_CUBE/Yadkin)(-1)
```

```
      condition  :  default     // fix at this value for the rest of
the next month
      value       : _USDM_3month(-1)
}

// This section determines conditions for turning on and off the
triggers.  These decisions only happen on the first day of the month.

// The license references the Normal Minimum Elevation (NME) for the
developments, which is treated as a lower rule in this model.  In other
words, the model
// will not draw the reservoirs below this level unless needed to
maintain min flows.

// Note that once the LIP kicks in, the minimum flows at Falls and
Blewett become targets, essentially flows not to be lower or higher, so
as to preserve ecological needs downstream while limiting drawdown.
High Rock
// is imposed with a maximum flow equal to the Falls target.  High Rock
could release less, but can't exceed the target at Falls.

// Note each stage must be acted upon within 7 days of going to the
next stage ("implementation").  Leave out a waiting period here.  No
waiting period for "recovery" if conditions are met.

Set: _YPDLIP_Trig_0_On
{ condition  :  day = 1

      // To decide whether trigger is to be turned off
  { condition: _YPDLIP_Trig_0_On(-1) = 1
      {     // condition 3 in the LIP:  lift if lake has refilled to
its NME for two consecutive weeks.  Can only use Min function with 9
arguments at a time, so do two Mins.
            condition  :  min { elevation0590(-14), elevation0590(-13),
elevation0590(-12), elevation0590(-11), elevation0590(-10),
elevation0590(-9), elevation0590(-8), elevation0590(-7),
                              min { elevation0590(-6),
elevation0590(-5),  elevation0590(-4),  elevation0590(-3),
elevation0590(-2),  elevation0590(-1) } }  > stor_to_elev{0590,
lower_rule0590}
            value      :  0

            // condition 2:  lift if lake has refilled to 2.5 feet
above the NME
            condition  :  elevation0590 >= ( stor_to_elev{0590,
lower_rule0590} + 2.5 )
            value      :  0

            // condition 1:  ALL three conditions for going into this
stage in the first place are met.  Note not all had to be met to go
into the stage.
            condition  :  elevation0590 >=  stor_to_elev{0590,
lower_rule0590} and _Gage_flow_3month >= 0.48 * lookup
{LIP_hist_inflow_cfs, month} and _USDM_3month < 0
            value      : 0

            condition  : default
            value      : 1
      }

      // To decide whether trigger is to be turned on
```

```
      condition:   elevation0590 < ( stor_to_elev{0590, lower_rule0590}
- 0.5 ) or
                     ( elevation0590 <   stor_to_elev{0590,
lower_rule0590} and _Gage_flow_3month < 0.48 * lookup
{LIP_hist_inflow_cfs, month} ) or
                     ( elevation0590 <   stor_to_elev{0590,
lower_rule0590} and _USDM_3month >= 0 )
      value    : 1

      condition:  default
      value    :  0
 }

  condition: default
  value: _YPDLIP_Trig_0_On(-1)
}

Set: _YPDLIP_Trig_1_On
{ condition  :  day = 1

      // To decide whether trigger is to be turned off.   Conditions 3
and 2 remain the same.  Condition 1 is trigger specific.
  { condition: _YPDLIP_Trig_1_On(-1) = 1
      {     condition  :  min { elevation0590(-14), elevation0590(-13),
elevation0590(-12), elevation0590(-11), elevation0590(-10),
elevation0590(-9), elevation0590(-8), elevation0590(-7),
                                min { elevation0590(-6),
elevation0590(-5),  elevation0590(-4),  elevation0590(-3),
elevation0590(-2), elevation0590(-1) } }  > stor_to_elev{0590,
lower_rule0590}
            value      :  0

            condition  :  elevation0590 >= ( stor_to_elev{0590,
lower_rule0590} + 2.5 )
            value      :  0

            condition  :  elevation0590 >=  ( stor_to_elev{0590,
lower_rule0590} - 1 ) and _Gage_flow_3month >= 0.41 * lookup
{LIP_hist_inflow_cfs, month} and _USDM_3month < 1
            value      :  0

            condition  : default
            value      : 1
      }

      // To decide whether trigger is to be turned on.  Note that this
and subsequent triggers can't turn on unless we had already been in the
prior trigger
      condition: _YPDLIP_Trig_0_On(-1) = 1 and ( elevation0590 < (
stor_to_elev{0590, lower_rule0590} - 1)  and _Gage_flow_3month < 0.41 *
lookup {LIP_hist_inflow_cfs, month} or _USDM_3month >= 1 )
      value    : 1

      condition:  default
      value    :  0
 }

  condition: default
  value: _YPDLIP_Trig_1_On(-1)
```

```
}



Set: _YPDLIP_Trig_2_On
{ condition  :  day = 1

      // To decide whether trigger is to be turned off.   Conditions 3
and 2 remain the same.  Condition 1 is trigger specific.
  { condition: _YPDLIP_Trig_2_On(-1) = 1
      {     condition  :  min { elevation0590(-14), elevation0590(-13),
elevation0590(-12), elevation0590(-11), elevation0590(-10),
elevation0590(-9), elevation0590(-8), elevation0590(-7),
                                 min { elevation0590(-6),
elevation0590(-5),  elevation0590(-4),  elevation0590(-3),
elevation0590(-2),  elevation0590(-1) } }  > stor_to_elev{0590,
lower_rule0590}
            value      :  0

            condition  :  elevation0590 >= ( stor_to_elev{0590,
lower_rule0590} + 2.5 )
            value      :  0

            condition  :  elevation0590 >=  ( stor_to_elev{0590,
lower_rule0590} - 2 ) and _Gage_flow_3month >= 0.35 * lookup
{LIP_hist_inflow_cfs, month} and _USDM_3month < 2
            value      : 0

            condition  : default
            value      : 1
      }

      // To decide whether trigger is to be turned on.
      condition: _YPDLIP_Trig_1_On(-1) = 1 and ( elevation0590 < (
stor_to_elev{0590, lower_rule0590} - 2)  and _Gage_flow_3month < 0.35 *
lookup {LIP_hist_inflow_cfs, month} or _USDM_3month >= 2 )
      value    : 1

      condition:  default
      value    :  0
 }

  condition: default
  value: _YPDLIP_Trig_2_On(-1)
}

Set: _YPDLIP_Trig_3_On
{ condition  :  day = 1

      // To decide whether trigger is to be turned off.   Conditions 3
and 2 remain the same.  Condition 1 is trigger specific.
  { condition: _YPDLIP_Trig_3_On(-1) = 1
      {     condition  :  min { elevation0590(-14), elevation0590(-13),
elevation0590(-12), elevation0590(-11), elevation0590(-10),
elevation0590(-9), elevation0590(-8), elevation0590(-7),
                                 min { elevation0590(-6),
elevation0590(-5),  elevation0590(-4),  elevation0590(-3),
elevation0590(-2),  elevation0590(-1) } }  > stor_to_elev{0590,
lower_rule0590}
```

```
            value      :  0

            condition  :  elevation0590 >= ( stor_to_elev{0590,
lower_rule0590} + 2.5 )
            value      :  0

            condition  :  elevation0590 >=  ( stor_to_elev{0590,
lower_rule0590} - 3 ) and _Gage_flow_3month >= 0.30 * lookup
{LIP_hist_inflow_cfs, month} and _USDM_3month < 3
            value      : 0

            condition  : default
            value      : 1
      }

      // To decide whether trigger is to be turned on.
      condition: _YPDLIP_Trig_2_On(-1) = 1 and ( elevation0590 < (
stor_to_elev{0590, lower_rule0590} - 3)  and _Gage_flow_3month < 0.30 *
lookup {LIP_hist_inflow_cfs, month} or _USDM_3month >= 3 )
      value    : 1

      condition:  default
      value    :  0
 }

  condition: default
  value: _YPDLIP_Trig_3_On(-1)
}



Set: _YPDLIP_Trig_4_On
{ condition  :  day = 1

      // To decide whether trigger is to be turned off.   Conditions 3
and 2 remain the same.  Condition 1 is trigger specific.
  { condition: _YPDLIP_Trig_4_On(-1) = 1
      {     condition  :  min { elevation0590(-14), elevation0590(-13),
elevation0590(-12), elevation0590(-11), elevation0590(-10),
elevation0590(-9), elevation0590(-8), elevation0590(-7),
                                min { elevation0590(-6),
elevation0590(-5),  elevation0590(-4),  elevation0590(-3),
elevation0590(-2),  elevation0590(-1) } }  > stor_to_elev{0590,
lower_rule0590}
            value      :  0

            condition  :  elevation0590 >= ( stor_to_elev{0590,
lower_rule0590} + 2.5 )
            value      :  0

            condition  : elevation0590 >= (599.9 + 0.5 * (
stor_to_elev{0590, lower_rule0590} - 599.9 ) ) and _Gage_flow_3month >=
0.30 * lookup {LIP_hist_inflow_cfs, month} and _USDM_3month < 4
            value      : 0

            condition  : default
            value      : 1
      }
```

```
      // To decide whether trigger is to be turned on.  <1/2 of (NME
minus critical reservoir water elevation [see below] of 599.9 feet,
which is 24 feet below full pool.
      condition: _YPDLIP_Trig_3_On(-1) = 1 and ( elevation0590 < (599.9
+ 0.5 * ( stor_to_elev{0590, lower_rule0590} - 599.9 ) )  and
_Gage_flow_3month < 0.30 * lookup {LIP_hist_inflow_cfs, month} or
_USDM_3month >= 4 )
      value    : 1

      condition:  default
      value    :  0
 }

  condition: default
  value: _YPDLIP_Trig_4_On(-1)
}


Set: _YPDLIP_Trig_Level
{     condition: _YPDLIP_Trig_4_On = 1
      value: 4

      condition: _YPDLIP_Trig_3_On = 1
      value: 3

      condition: _YPDLIP_Trig_2_On = 1
      value: 2

      condition: _YPDLIP_Trig_1_On = 1
      value: 1

      condition: _YPDLIP_Trig_0_On = 1
      value: 0

      condition: default
      value: -1
}


:else:

Set: _YPDLIP_Trig_Level
{     condition: default
      value: -1
}

:endif:


// Falls:  as long as High Rock is above its NME, even when the LIP is
active, the license requires the Falls minimum flow to be met on a
weekly average basis, with release no lower than -5% on a DAILY basis,
so Falls cannot
// drop below 5% of the minimum on any given day.  When High Rock is
below its NME, Falls daily compliance is now + or - 5%, meaning no
peaking would be allowed.  For the modeling, since there is very little
flexibility on Falls releases,
// (i.e., Falls must be at least within 5% of the minimum on the low
end), assume that the minimum flows are met on a daily basis. Also,
```

```
when High Rock is at it NME, even if the LIP hasn't kicked in, assume
no peaking from High Rock.

// The license states that flow from High Rock must be within +25% of
the applicable maximum flow to be compliant; the maximum flow kicks in
with the LIP.  We will meet targets exactly with the modeling.
// The license states that flow monitoring shall be at High Rock for
High Rock flow compliance and Narrows for Falls compliance.

// High Rock is only allowed to draw down below its NME when Narrows
has reached its NME.  Also, when in LIP stages 1 through 4, High Rock
and Narrows shall be drawn down proportionally as needed to meet the
minimum flows,
// such that "the difference between the respective drawdowns below the
NMEs is one foot."  In other words, High Rock should be drawn down 1
foot more than Narrows below its NMEs, which makes sense given the much
larger amount
// of storage in High Rock (237 kaf in High Rock at normal pool vs. 142
kaf at Narrows). One foot in High Rock is about 12kaf, 5 kaf in
Narrows, or about 2 to 1.

// Use a Minimax command to draw them down proportionally when below
their lower rules.

Constraint BalanceHighRock : { d_StorRatio_HR_Na > Dstorage0590 /
lower_rule0590  }
Constraint BalanceNarrows  : { d_StorRatio_HR_Na > Dstorage0640 /
lower_rule0640  }

Minimax : d_StorRatio_HR_Na
{   priority  : 1
    penalty   : 125000    // Weight placed on a fractional storage, not
a unit of water.  125,000 pts per 128kaf (10 feet down at HR) or 188kaf
(4 feet down at HR -- its seasonal rule curve --so a range of 1 point
per acre foot (default unit for model) to near 0.5 point per af.
    tolerance : .02
}

// The following are flow targets, essentially a min and a max.

// High Rock has no minimum flow requirements normally but follows the
Falls requirements when the LIP is active.

Set Falls_Min_Rel : min_flow0660.0664
{     condition : _YPDLIP_Trig_Level >= 3  // 770 cfs is the "critical"
minimum flow below which ecological damage could occur.  Measured on a
daily average basis.  Note stage 4 actions could be more drastic if
agreed to by the Parties.
      value     : convert_units {770, cfs, af}

      condition : _YPDLIP_Trig_Level = 2
            {  condition  :  julian >=  32 and julian <= 136     //
from Feb 1 to May 15
               value      :  convert_units {1080, cfs, af}

               condition  :  julian >=  137 and julian <= 152    //
from May 16 to May 31
               value      :  convert_units {950, cfs, af}

               condition  :  default
        // from June through January
```

```
            value      :  convert_units {830, cfs, af}
         }

      condition : _YPDLIP_Trig_Level = 1
         {  condition  :  julian >=  32 and julian <= 136
            value      :  convert_units {1450, cfs, af}

            condition  :  julian >=  137 and julian <= 152
            value      :  convert_units {1170, cfs, af}

            condition  :  default

            value      :  convert_units {900, cfs, af}
         }

      condition: default    // for stage -1 (i.e., normal) and stage 0
         {  condition  :  julian >=  32 and julian <= 136
            value      :  convert_units {2000, cfs, af}

            condition  :  julian >=  137 and julian <= 152
            value      :  convert_units {1500, cfs, af}

            condition  :  default

            value      :  convert_units {1000, cfs, af}
         }
}

// Put in a target for the Falls release to ensure that it uses the
water between the upper and lower rule for hydro generation under
normal conditions.  When the LIP trigger is on, restrict release to the
minimum flow set above
// unless spill would otherwise occur,
Target Falls_Release : dflow0660.0664
{
    Condition : default    // otherwise, release up to turbine capacity
    priority  : 1
    penalty+  : 0          // no need to set penalty for exceeding the
max flow since max_flow is treated as a constraint
    penalty-  : 80
    value     : max_flow0660.0664
}

// Assigning a flow target for Tuckertown is not needed since it has no
minimum flow requirement and will essentially pass what comes in from
High Rock as a run of river to avoid spill.  Ditto Narrows under most
conditions, except the LIP where
// proportional drawdown applies.

// Blewett:  set the minimum release.  Compliance shall be based on +-
5% of the minimum desired flow, with a true-up at the end of the month
to ensure average is met. Spawning flows are not included since they
are not prescribed.  They depend on
// recommendations each season from the spawning taskforce as to timing
and duration.

Set Blew_Min_Rel :  min_flow0920.0930
{     condition : _YPDLIP_Trig_Level >= 3  // 925 cfs is the "critical"
minimum flow below which ecological damage could occur.  Measured on a
continuous basis.  Compliance is met if flows are between 900 and 950
cfs at the Rockingham gage.
```

```
                                                                  // Stage 4
actions could be more severe if agreed to by the Parties.
      value     : convert_units {925, cfs, af}

      condition : _YPDLIP_Trig_Level = 2
            {  condition  :  julian >=  32 and julian <= 136     //
from Feb 1 to May 15
               value      :  convert_units {1300, cfs, af}

               condition  :  julian >=  137 and julian <= 152    //
from May 16 to May 31
               value      :  convert_units {1150, cfs, af}

               condition  :  default
        // from June through January
               value      :  convert_units {1000, cfs, af}
            }

      condition : _YPDLIP_Trig_Level = 1
            {  condition  :  julian >=  32 and julian <= 136
               value      :  convert_units {1750, cfs, af}

               condition  :  julian >=  137 and julian <= 152
               value      :  convert_units {1400, cfs, af}

               condition  :  default

               value      :  convert_units {1080, cfs, af}
            }

      condition: default    // for stage -1 (i.e., normal) and stage 0
            {  condition  :  julian >=  32 and julian <= 136
               value      :  convert_units {2400, cfs, af}

               condition  :  julian >=  137 and julian <= 152
               value      :  convert_units {1800, cfs, af}

               condition  :  default

               value      :  convert_units {1200, cfs, af}
            }
}

// Handle Blewett flow target the same way as Falls and High Rock
above.

Target Blewett_Release : dflow0920.0930
{
    Condition : default
    priority  : 1
    penalty+  : 0
    penalty-  : 15
    value     : max_flow0920.0930
}


// Tillery min release.  Previous license required a continuous minimum
of 40 cfs, although it is typically about 70 to 80 cfs.  New license
now provides
```

```
// for a continuous minimum release of 330 cfs (as measured by a new
gage downstream at Highway 731 [#0212378405]) and to enhance spawning
for American shad, a minimum of 725 cfs for 8 weeks starting around
mid-March.
// In addition, in coordination with the state agencies, to promote
recreation downstream, Duke Energy will release up to 1950 acre feet a
year, over four days, either spring, fall, or both, above the regular
minimum flow.
// Assume this water is released in late May and early September as
part of Memorial Day and Labor Day weekends.
Set Till_Min_Rel :  min_flow0700.0710
{    condition  :  julian >= 75 and julian <= 136  // for 8 weeks from
mid-March to mid-May
       value      :  convert_units {725, cfs, af}

       condition  :  julian = 151 or julian = 152 or julian = 245 or
julian = 246
       value      :  convert_units {575, cfs, af}   // assume 4 days of
releases, two at end of May and two at beginning of September.  1950
af/yr over 4 days = 245 cfs.  Add this to the 330 cfs normal
requirement.

       condition  :  default
       value      :  convert_units {330, cfs, af}
}

// Handle Tillery flow target the same way as the others except add
condition for the weekends in which generation does not normally occur
(but assumed would to avoid spill), so set value equal to the min flow,
// but in the energy generation calculation post-solve (main.ocl), set
generation to zero on the weekends.  So add a negative weight on the
spill arc of 75 that would be higher than the penalty here of 70.

// Add to this a condition if Tillery is at or below its lower_rule,
and we are not in a LIP condition, limit the release to match the
Blewett min flow; otherwise, the releases could be larger than what
they would be in
// reality and could cause excessive drawdown.

Target Tillery_Release : dflow0700.0710
{    Condition : _WeekDay = 0
     priority  : 1
     penalty+  : 5
     penalty-  : 0    // min release arc weight already set
     value     : min_flow0700.0710

     Condition : default
     priority  : 1
     penalty+  : 0
     penalty-  : 25
     value     : max_flow0700.0710
}
```

```
//  This is the routing.ocl file.

//  Nodes 0012 and 0984 are reservoirs used for channel storage.  The
flow into these nodes is unrouted; the release from them is routed.
The storage in the nodes makes up the difference.

//  Kerr Scott to High Rock.  Releases from Kerr Scott can take a day
to show up at Yadkin College and down to High Rock.  No need to route
tributary inflows since we are using a lot of tributary gages down to
High Rock.

//  Note that for the first day of the simulation, the routed flows
need to be realistic, so estimate.  Ignore the local demands.


Target Routed_KerrScott : dflow0016.0020
{    Condition : abs_period <= 1
     priority  : 1
     penalty+  : 10000
     penalty-  : 10000
     value     : max { min_flow0010.0012  , min { convert_units {5400,
cfs, af} , ( storage0010 - upper_rule0010 )  }  }   // ignoring net
evap and inflow for today may lead to an excess release that will self-
correct the next day.


                                    //  Ignore the spill rating curves
since run is not likely to start above the spillway crest of 1075 feet.
     // otherwise, release will be yesterday's flow
       Condition : default
     priority  : 1
     penalty+  : 10000
     penalty-  : 10000
     value     : flow0012.0016(-1)
}


// Assume 2 day lag time for flows from the state line down to the Pee
Dee at Pee Dee gage.  To get realistic starting flows for the first two
days of when the simulation begins,
// just use the starting gage flow for Rockingham (regulated) at node
0934.  Ignore local inflows between there and the state line.

Target Routed_PeeDee : dflow0990.0994
{    condition : abs_period <= 2
     priority  : 1
     penalty+  : 10
     penalty-  : 10
     value     : timesers(Rockingham/gage_flow)

       condition : default
     priority  : 1
     penalty+  : 10
     penalty-  : 10
     value     : flow0984.0990(-2)
}
```

```
/* File is WSRPs.ocl.  Computes trigger levels and demand reductions
for each utility */

:If: {[Drought_Plans_On] = 1} // First check if drought plan setting is
on (see constants table)

// For simplicity, since sale agreements are not detailed, it is
assumed that reductions in demand apply only to the seller, not the
purchaser.  So if say Mt. Airy is in stage 2 of its drought plan,
// the sale to Dobson will not get curtailed.  Also, emergency
interconnections are included in this model, often invoked during
drought, and those are currently set to zero since operating protocols
are not known.

// The exception is purchases involving IBTs.  WSACC would need to
reduce its consumption based on the LIP for the basin, and that is
reflected in the drought plan for WSACC.  That would reduce the sales
through Albemarle to WSACC.
// Union County when it begins its IBT from Tillery would be subject to
the LIP demand reductions as well.


// WSACC

// The triggers below are based on Lake Howell storage and inflows to
the lake based on the B&V Safe Yield Study.
// Since Concord and Kannapolis both have IBTs to pull water from the
Catawba (via Charlotte Water) and the Yadkin (via Albemarle), they are
also subject to the LIPs for each basin.
// It is not clear which one prevails.  We cannot capture the LIP for
the Catawba since it is not being modeled. The LIP for the Yadkin is
modeled in the Low_Inflow_Protocol.ocl file.
// Mt. Pleasant does not have IBTs, and its WSRP is simply the B&V
report.  However, all these systems are connected, so assume that when
one system goes in (due to Lake Howell or LIP), all go in.

// In the LIP, stage 1 is the first trigger.  Target WS reduction is
5%.  Stage 2 = 10%; stage 3 = 20%; stage 4 = not defined (group will
decide), so leave at 20%.  To match the triggers for the rest of the
system
// shown further below, use 25% for stage 4.

:For:

{ [entity] = { WSACC  } }

Set : _[entity]_Trig_Level
{   condition  :  elevation0770 <= pattern(wsrp_WSACC_Stage_4) or
_YPDLIP_Trig_Level = 4
      value      :  4

      condition  :  elevation0770 <= pattern(wsrp_WSACC_Stage_3) or
_YPDLIP_Trig_Level = 3
      value      :  3

      condition  :  elevation0770 <= 645.5  or _YPDLIP_Trig_Level = 2
// elevation threshold for this stage is fixed year-round (equivalent
to 70% usable storage)
      value      :  2
```

```
      // One trigger is tied to the inflow to Howell.  If below the 75%
percentile for that month, even if above 70% usable storage, activate
the first trigger.
      // Here the inflow is the sum of the inflow at the gage
(inflow0764) and the local inflow (which is just a drainage area
adjustment of the gage).
      // Note the 0.75 x mean inflow is based on Black and Veatch study
period of record to the reservoir, and this inflow may differ from
ours.
      // Drainage area for Howell is 47 sq.mi vs. 23 at the gage, or a
ratio of 2.0.  Looks like from WSACC operational reports that their
estimate of Howell inflow = 1.5 x gage flow.
      // Until we understand how they compute their inflow (staff
indicated in email they account for some additional sources...), leave
at 2.0 ratio and therefore leave period of record inflows we developed
as
      // a timeseries as is.  Again, leave the 75th percentile lake
inflows using B&V numbers as is.  Also assume for now that it is the
monthly average flow WSACC is looking at, or else the drought trigger
turns on all the time,
      // and if there is a demand reduction associated with it, that
would be unrealistic.  In this case, if flow trigger is met, keep it on
until the flow condition is no longer met. After testing, the flow
trigger still turns on a lot,
      // so the demand reduction associated with this trigger has been
set to 0.

      condition  :  ( accumulate {inflow0764, -30, -1} + accumulate
{inflow0770, -30, -1} ) / 30  <  convert_units{ lookup
{Mean_Inflow_x0.75_LakeHowell_cfs, month}, cfs, af}
            {  condition  :  abs_period > 30 and day = 1  // turn on
trigger on first day of month if flow condition is met.
               value      :  1

               condition  :  default
               value      :  _[entity]_Trig_Level(-1)
            }

      condition  :  default
      value      :  0
}

:Next:

:For:

{
  [entity]  = { WSACC, WSACC, WSACC, WSACC  }
  [level]   = {  1,      2,   3,       4    }
  [red_pct] = {  5,     10,   20,     25    }  // these are total (not
incremental) reductions by stage as a percentage.  Note plan refers to
reductions in lake withdrawals; it is assumed that demand is reduced by
the same amount;
                                                                    //
otherwise, the other sources (Lakes Fisher and Concord) would end up
increasing production and system storage would not be preserved.  The
plan shows a 10% reduction in the first stage;
                                                                    //
however, the flow trigger above to put it in stage 1 results in
frequent activation, so set reduction to 5 (consistent with LIP).
                                                                    //
Note there is a min release from Howell, and that is cut back in stage
```

```
1, so it is fair to say that the pain should be shared with water
supply.
}

//  This section sets/resets the counters used to maintain the proper
spacing of conservation stages.
//  Assumes that once trigger comes on, it will stay on until the
trigger condition is no longer met.  No waiting period for either going
in or out of the triggers.
Set : _[entity]_Trig_[level]_Count
{
      condition  :  _[entity]_Trig_[level]_Count(-1) > 0
            {  condition :   _[entity]_Trig_Level >= [level]
               value     :   _[entity]_Trig_[level]_Count(-1) + 1

               condition :  default
               Value     :  0
            }

      condition  :  _[entity]_Trig_Level = [level]
      Value      :  1

      condition  :  default
      value      :  0
}

//  Turn on the event counter whenever duration exceeds 4 days
Set : _[entity]_Ph_[level]_event
{
      Condition :  _[entity]_Trig_[level]_Count = 5 and
_[entity]_Trig_[level]_Count(-1) = 4
      Value     :  _[entity]_Ph_[level]_event(-1) + 1

      Condition :  default
      Value     : _[entity]_Ph_[level]_event(-1)
}

//  This section determines the demand reduction depending upon which
level of conservation is in place.
Set : _[entity]_Dem_Red_[level]_Pct
{
      Condition : _[entity]_Trig_Level = [level]
      Value     : [red_pct]

      Condition : default
      Value     : 0
}

:Next:


:For:
{
  [entity]  = { WSACC  }
}

Set :  _[entity]_Dem_Red_Pct
{   condition :  _[entity]_Trig_Level = 4
      value     :  _[entity]_Dem_Red_4_Pct

      condition :  _[entity]_Trig_Level = 3
```

```
        value      :  _[entity]_Dem_Red_3_Pct

        condition  :  _[entity]_Trig_Level = 2
        value      :  _[entity]_Dem_Red_2_Pct

        condition  :  _[entity]_Trig_Level = 1
        value      :  _[entity]_Dem_Red_1_Pct

        condition  :  default
        value      :  0
}

:Next:

//  The withdrawals from Lake Howell (to Concord and Kannapolis) are to
be reduced by the drought plan reductions, which are stated in the
plan.  We assumed the demand reductions would complement the withdrawal
reductions
//  so that the other sources do not increase withdrawals to offset the
loss from Howell.  Overwrite the target in the Misc_Operations.ocl file
that is read in first.
Target : dflow0770.0782  // from Howell to Concord
{    condition :  default
     priority  : 1
     penalty+  : 1000
     penalty-  : 1000
     Value     : flow0770.0782 *  (1 - _WSACC_Dem_Red_Pct / 100)

}

Target : dflow0770.0772  // from Howell to Kannapolis
{    condition :  default
     priority  : 1
     penalty+  : 1000
     penalty-  : 1000
     Value     : flow0770.0772 *  (1 - _WSACC_Dem_Red_Pct / 100)

}

// Min release from Lake Howell gets reduced depending on the drought
trigger.  Note the WTP discharge can be used to help meet the min flow
(up to 1 cfs).

Set :  min_flow0784.0792
{  condition  :  _WSACC_Trig_Level >= 2
   value      :  convert_units {2, cfs, af}

   condition  :  _WSACC_Trig_Level = 1
   value      :  convert_units {3, cfs, af}

   condition  :  default
   value      :  convert_units {6, cfs, af}
}


:For:

// The drought plan applies to the three entities that are served by
WSACC.
{
```

```
  [entity]  = { Kann, Concord, MtPleas  }
  [node]    = { 0775,   0785,   0825    }
}

Set : _[entity]_Consvn_Demand  {  value :  Demand[node]  *  ( 1 -
_WSACC_Dem_Red_Pct / 100 ) }

//  Constrain the water supply release to implement the desired
conservation */
Constraint  :  {        ddelivery[node]<= _[entity]_Consvn_Demand }

:Next:


// NOW THE OTHERS, with triggers set up front and rest calculated at
the end to reduce code.

// Anson County

// Plan shows 5 triggers (with 5, 10, 30, 55, and 60% demand
reduction); just use 4 with same demand restrictions as with others.
This plan can't be easily modeled since is tied to stage in the Pee Dee
River (roughly 130 feet or below).
// Also, like a number of the plans, the triggers are tied to amount of
treatment capacity they are using.  In other words, if at 80% of
capacity, cut back the demand by __.  We are not modeling that.  It is
assumed that
// if demands reach that level, then additional supply will be needed.

// For the others, let's group the hydropower lake withdrawals in one
place.   Start with unique triggers for each system.  All users using
more than 1 mgd are bound by the LIP, so of the four that are included
here,
// Alemarle, Denton, and Montgomery County would be impacted.
[Interestingly, the WSRPs for each utility do not mention the LIP, and
they only show their own storage-based triggers.
// Norwood would not since 2017 annual average was only 0.55 mgd.  For
now, limit triggers to 4 for simplicity and for consistency with other
plans, like LIP (and
// so we can do For:Next loops).  5th trigger if shown is reserved for
extreme conditions.  Also, some plans have waiting periods for going in
and out.  Ignore for now as crossing the thresholds (for flow and
elevation) will likely be limiting.

// Albemarle:  Albemarle pulls water from Tuckertown and Narrows.  WSRP
for 2018 based on Narrows storage (at one time, it may have included
High Rock storage).  Note normal operating range for Narrows is 2 feet.

Set : _Alb_Trig_Level
{
      condition  :  ( elevation0640 < stor_to_elev {0640,
upper_rule0640} - 10 )  or _YPDLIP_Trig_Level = 4
      value      :  4

      condition  :  ( elevation0640 < stor_to_elev {0640,
upper_rule0640} - 8 ) or _YPDLIP_Trig_Level = 3
      value      :  3

      condition  :  ( elevation0640 < stor_to_elev {0640,
upper_rule0640} - 6 ) or _YPDLIP_Trig_Level = 2
      value      :  2
```

```
      condition  :  ( elevation0640 < stor_to_elev {0640,
upper_rule0640} - 4 ) or  _YPDLIP_Trig_Level = 1

      value      :  1

      condition  :  default
      value      :  0
}

// Denton pulls from Tuckertown.
Set : _Denton_Trig_Level
{
      condition  :  ( elevation0610 < stor_to_elev {0610,
upper_rule0610} - 12.5 ) or _YPDLIP_Trig_Level = 4
      value      :  4

      condition  :  ( elevation0610 < stor_to_elev {0610,
upper_rule0610} - 8.5 ) or _YPDLIP_Trig_Level = 3
      value      :  3

      condition  :  ( elevation0610 < stor_to_elev {0610,
upper_rule0610} - 6.5 ) or _YPDLIP_Trig_Level = 2
      value      :  2

      condition  :  ( elevation0610 < stor_to_elev {0610,
upper_rule0610} - 4.5 ) or _YPDLIP_Trig_Level = 1
      value      :  1

      condition  :  default
      value      :  0
}

// Since Norwood uses less than 1 mgd, it is not bound by the LIP.
Set : _Norwood_Trig_Level
{
      condition  :  ( elevation0700 < stor_to_elev {0700,
upper_rule0700} - 17.6 )
      value      :  4

      condition  :  ( elevation0700 < stor_to_elev {0700,
upper_rule0700} - 13.2 )
      value      :  3

      condition  :  ( elevation0700 < stor_to_elev {0700,
upper_rule0700} - 9.2 )
      value      :  2

      condition  :  ( elevation0700 < stor_to_elev {0700,
upper_rule0700} - 5 )
      value      :  1

      condition  :  default
      value      :  0
}

// Montgomery County pulls from Tillery.
Set : _Montgom_Trig_Level
```

```
{
      condition  :  ( elevation0700 < stor_to_elev {0700,
upper_rule0700} - 17 ) or _YPDLIP_Trig_Level = 4
      value      :  4

      condition  :  ( elevation0700 < stor_to_elev {0700,
upper_rule0700} - 12 ) or _YPDLIP_Trig_Level = 3
      value      :  3

      condition  :  ( elevation0700 < stor_to_elev {0700,
upper_rule0700} - 9 ) or _YPDLIP_Trig_Level = 2
      value      :  2

      condition  :  ( elevation0700 < stor_to_elev {0700,
upper_rule0700} - 6 ) or _YPDLIP_Trig_Level = 1
      value      :  1

      condition  :  default
      value      :  0
}

// Now the others in the basin

Set : _Davidson_Trig_Level
{   // ignore the 2-week waiting period for each level of restrictions.
Not likely to occur given the flow increments between stages, but could
add later if needed.  Plan shows triggers lifted when flow condition is
met.
      condition  :  abs_period < 7   // for first week of the
simulation, use the previous day's, which is initialized to zero in the
udef_list for now
      value      :  _Davidson_Trig_Level(-1)

      condition  :  ( accumulate {flow0390.0400, -7, -1} + accumulate
{inflow0400, -7, -1} ) / 7 < convert_units {250, cfs, af}
      value      :  4

      condition  :  ( accumulate {flow0390.0400, -7, -1} + accumulate
{inflow0400, -7, -1} ) / 7 < convert_units {300, cfs, af}
      value      :  3

      condition  :  ( accumulate {flow0390.0400, -7, -1} + accumulate
{inflow0400, -7, -1} ) / 7 < convert_units {350, cfs, af}
      value      :  2

      condition  :  ( accumulate {flow0390.0400, -7, -1} + accumulate
{inflow0400, -7, -1} ) / 7 < convert_units {400, cfs, af}
      value      :  1

      condition  :  default
      value      :  0
}

Set : _Lexington_Trig_Level   // Base this on Thom-a-Lex drawdown
{
      condition  :  ( elevation0560 < stor_to_elev {0560, max_stor0560}
- 6.5 ) or _YPDLIP_Trig_Level = 4
      value      :  4
```

```
      condition  :  ( elevation0560 < stor_to_elev {0560, max_stor0560}
- 5.6 ) or _YPDLIP_Trig_Level = 3
      value      :  3

      condition  :  ( elevation0560 < stor_to_elev {0560, max_stor0560}
- 3.8 ) or _YPDLIP_Trig_Level = 2
      value      :  2

      condition  :  ( elevation0560 < stor_to_elev {0560, max_stor0560}
- 2.8) or _YPDLIP_Trig_Level = 1
      value      :  1

      condition  :  default
      value      :  0
}

// Davie County's plan uses the drought monitor and the demand as a
percent of the streamflow.  Ignore the former since that can't be
modeled for the period of record.
// The demand for Davie County is split from two supplies:  South
Yadkin and the Yadkin.  Assume the trigger is hit based on whichever
flow is limiting, which will likely be the South Yadkin.

Set : _Davie_Trig_Level
{
      condition  :  abs_period < 7
      value      :  _Davie_Trig_Level(-1)

      condition  :  accumulate {demand0375, -7, -1} / 7 > 0.75 * min
{flow0300.0330, flow0360.0370}
      value      :  4

      condition  :  accumulate {demand0375, -7, -1} / 7 > 0.50 * min
{flow0300.0330, flow0360.0370}
      value      :  3

      condition  :  accumulate {demand0375, -7, -1} / 7 > 0.50 * min
{flow0300.0330, flow0360.0370}
      value      :  2

      condition  :  accumulate {demand0375, -7, -1} / 7 > 0.25 * min
{flow0300.0330, flow0360.0370}
      value      :  1

      condition  :  default
      value      :  0
}

Set : _Elkin_Trig_Level  // Tied to flows in Big Elkin Creek, for which
we have an estimate of inflow based on drainage area allocation of the
Elkin mainstem gain.
{
      condition  :  abs_period < 7
      value      :  _Elkin_Trig_Level(-1)

      condition  :  accumulate {inflow0080, -7, -1} / 7 < convert_units
{1.22, cfs, af}
      value      :  4
```

```
      condition  :  accumulate {inflow0080, -7, -1} / 7 < convert_units
{1.67, cfs, af}
      value      :  3

      condition  :  accumulate {inflow0080, -7, -1} / 7 < convert_units
{2.34, cfs, af}
      value      :  2

      condition  :  accumulate {inflow0080, -7, -1} / 7 < convert_units
{3.34, cfs, af}
      value      :  1

      condition  :  default
      value      :  0
}

Set : _King_Trig_Level  // Tied to flows at Enon gage location.  No
fourth trigger, so for consistency, assume same as the third.
{
      condition  :  abs_period < 7
      value      :  _King_Trig_Level(-1)

      condition  :  accumulate {flow0344.0360, -7, -1} / 7 <
convert_units {350, cfs, af}
      value      :  4

      condition  :  accumulate {flow0344.0360, -7, -1} / 7 <
convert_units {350, cfs, af}
      value      :  3

      condition  :  accumulate {flow0344.0360, -7, -1} / 7 <
convert_units {600, cfs, af}
      value      :  2

      condition  :  accumulate {flow0344.0360, -7, -1} / 7 <
convert_units {1000, cfs, af}
      value      :  1

      condition  :  default
      value      :  0
}

Set : _Mocks_Trig_Level  // Tied to demand relative to Hunting Creek
inflow.
{
      condition  :  abs_period < 7
      value      :  _Mocks_Trig_Level(-1)

      condition  :  accumulate {demand0295, -7, -1} / 7  > 0.75 * (
flow0275.0280 + inflow0280 )
      value      :  4

      condition  :  accumulate {demand0295, -7, -1} / 7  > 0.5 * (
flow0275.0280 + inflow0280 )
      value      :  3
```

```
      condition  :  accumulate {demand0295, -7, -1} / 7  > 0.5 * (
flow0275.0280 + inflow0280 )
      value      :  2

      condition  :  accumulate {demand0295, -7, -1} / 7  > 0.25 * (
flow0275.0280 + inflow0280 )
      value      :  1

      condition  :  default
      value      :  0
}

Set : _Salis_Trig_Level  // Tied to Yadkin College streamflow and
drought monitor and % of WTP capacity.  Do streamflow only.
{
      condition  :  abs_period < 7
      value      :  _Salis_Trig_Level(-1)

      condition  :  accumulate {flow0434.0440, -7, -1} / 7 <
convert_units {150, cfs, af}
      value      :  4

      condition  :  accumulate {flow0434.0440, -7, -1} / 7 <
convert_units {200, cfs, af}
      value      :  3

      condition  :  accumulate {flow0434.0440, -7, -1} / 7 <
convert_units {250, cfs, af}
      value      :  2

      condition  :  accumulate {flow0434.0440, -7, -1} / 7 <
convert_units {350, cfs, af}
      value      :  1

      condition  :  default
      value      :  0
}

Set : _Wilkes_Trig_Level  // Tied to Kerr Scott lake level and flow at
the Wilkesboro gage location, along with drought monitor and % of WTP
capacity. Note for simplicity we are using a 7-day average, even if
plan reduces it by a few days depending on the trigger.
{
      condition  :  accumulate {flow0020.0044, -7, -1} / 7 <
convert_units {125, cfs, af} and elevation0010 < 1015
      value      :  4

      condition  :  accumulate {flow0020.0044, -7, -1} / 7 <
convert_units {175, cfs, af} and elevation0010 < 1019
      value      :  3

      condition  :  accumulate {flow0020.0044, -7, -1} / 7 <
convert_units {200, cfs, af} and elevation0010 < 1023
      value      :  2

      condition  :  accumulate {flow0020.0044, -7, -1} / 7 <
convert_units {554, cfs, af} and elevation0010 < 1027
      value      :  1
```

```
      condition  :  default
      value      :  0
}

Set : _WS_Trig_Level  // Similar to Wilkesboro, but using Enon gage
location.
{
      condition  :  ( accumulate {flow0230.0340, -7, -1} + accumulate
{inflow0340, -7, -1} ) / 7 < convert_units {125, cfs, af}and
elevation0010 < 1015
      value      :  4

      condition  :  ( accumulate {flow0230.0340, -7, -1} + accumulate
{inflow0340, -7, -1} ) / 7 < convert_units {175, cfs, af} and
elevation0010 < 1019
      value      :  3

      condition  :  ( accumulate {flow0230.0340, -7, -1} + accumulate
{inflow0340, -7, -1} ) / 7 < convert_units {200, cfs, af}and
elevation0010 < 1023
      value      :  2

      condition  :  ( accumulate {flow0230.0340, -7, -1} + accumulate
{inflow0340, -7, -1} ) / 7 < convert_units {554, cfs, af} and
elevation0010 < 1027
      value      :  1

      condition  :  default
      value      :  0
}

// There is a minimum release from Salem Lake that gets reduced
depending on the drought trigger.  Later demand reductions are read in
(their plan shows 0% for the first trigger, even though we are
standardizing to 5% based on all of the other systems)
Set :  min_flow0380.0394
{  condition  :  _WS_Trig_Level >= 2
   value      :  convert_units {1.10, cfs, af}

   condition  :  _WS_Trig_Level = 1
   value      :  convert_units {1.33, cfs, af}

   condition  :  default
   value      :  convert_units {1.55, cfs, af}
}



Set : _Monroe_Trig_Level  // Operator reports show triggers are tied to
days of supply remaining based on total storage, incl. the quarry.
However, from this total storage, they deduct a 5% loss in storage due
to evap, then
                                          // deduct another 150 MG for
inaccessible storage below the intakes.  Note Monroe reduces its annual
usable storage by about 0.5% a year for sedimentation depending on the
reservoir, so the SAE curve
                                          // needs to correspond roughly to
the year of the scnenario being evaluated.
```

```
                                        // Ignore the fourth and fifth
stage so we can be consistent with the four triggers for other systems
(that go in the For:Next loops). These are their "stage 3" and "stage
5", using DSR of 100 and 50 days, respect.
                                        // Assume triggers are based on
unrestricted demand. A refinement would be to base it on conservation
demand depending on what trigger has already been hit.
{
      condition  :  ( storage0840 + storage0850 + storage0860 +
storage0870 - 0.05 * (storage0840 + storage0850 + storage0860 +
storage0870) - convert_units {150, MG, af} )/ demand0855 < 75
      value      :  4

      condition  :  ( storage0840 + storage0850 + storage0860 +
storage0870 - 0.05 * (storage0840 + storage0850 + storage0860 +
storage0870) - convert_units {150, MG, af} )/ demand0855 < 130
      value      :  3

      condition  :  ( storage0840 + storage0850 + storage0860 +
storage0870 - 0.05 * (storage0840 + storage0850 + storage0860 +
storage0870) - convert_units {150, MG, af} )/ demand0855 < 160
      value      :  2

      condition  :  ( storage0840 + storage0850 + storage0860 +
storage0870 - 0.05 * (storage0840 + storage0850 + storage0860 +
storage0870) - convert_units {150, MG, af} )/ demand0855 < 180
      value      :  1

      condition  :  default
      value      :  0
}

Set : _Asheboro_Trig_Level  // Tied to days of supply remaining (usable
storage) based on lakes Lucas and Reese.  Assume all storage is usable.
Again, assume DSR is based on unrestricted demand.
{
      condition  :  (storage0670 + storage0690) / demand0685 < 100
      value      :  4

      condition  :  (storage0670 + storage0690) / demand0685 < 125
      value      :  3

      condition  :  (storage0670 + storage0690) / demand0685 < 150
      value      :  2

      condition  :  (storage0670 + storage0690) / demand0685 < 190
      value      :  1

      condition  :  default
      value      :  0
}

Set : _Mt_Airy_Trig_Level  // WSRP indicates triggers are tied to
elevation through weir in Stewarts Creek dam, with max elev of 1030
feet.  LWSP indicates this is the JK Boyd reservoir since it is fed by
Stewarts Creek.
                                        // A fifth trigger uses a
slightly lower elevation.  Ignore.
{
      condition  :  elevation0180 < 1028.58
```

```
      value      :  4

      condition  :  elevation0180 < 1028.75
      value      :  3

      condition  :  elevation0180 < 1028.92
      value      :  2

      condition  :  elevation0180 < 1029.5
      value      :  1

      condition  :  default
      value      :  0
}

:For:

{
  [entity]  = { Alb, Denton, Norwood, Montgom, Davidson, Lexington,
Davie, Elkin, King, Mocks, Salis, Wilkes, WS, Monroe, Asheboro, Mt_Airy
}
}

:For:
{
  [level]   = {  1,  2,   3,   4    }
  [red_pct] = {  5,  10,  20,  25   }  // these are consistent with LIP
(Except stage 4 in LIP is not prescribed, so use 25% to be consistent
with other plans).  They have a 5th trigger, but we'll ignore that
since it is drastic.
}

Set : _[entity]_Trig_[level]_Count
{
      condition  :  _[entity]_Trig_[level]_Count(-1) > 0
            {  condition :   _[entity]_Trig_Level >= [level]
               value     :   _[entity]_Trig_[level]_Count(-1) + 1

               condition :  default
               Value     :  0
            }

      condition  :  _[entity]_Trig_Level = [level]
      Value      :  1

      condition  :  default
      value      :  0
}

Set : _[entity]_Ph_[level]_event
{
      Condition :  _[entity]_Trig_[level]_Count = 5 and
_[entity]_Trig_[level]_Count(-1) = 4
      Value     :  _[entity]_Ph_[level]_event(-1) + 1

      Condition :  default
      Value     : _[entity]_Ph_[level]_event(-1)
}

Set : _[entity]_Dem_Red_[level]_Pct
```

```
{
      Condition : _[entity]_Trig_Level = [level]
      Value     : [red_pct]

      Condition : default
      Value     : 0
}

:Next:

:Next:

:For:
{
  [entity]  = { Alb, Denton, Norwood, Montgom, Davidson, Lexington,
Davie, Elkin, King, Mocks, Salis, Wilkes, WS, Monroe, Asheboro, Mt_Airy
}
}

Set :  _[entity]_Dem_Red_Pct
{   condition :  _[entity]_Trig_Level = 4
      value     :  _[entity]_Dem_Red_4_Pct

      condition :  _[entity]_Trig_Level = 3
      value     :  _[entity]_Dem_Red_3_Pct

      condition :  _[entity]_Trig_Level = 2
      value     :  _[entity]_Dem_Red_2_Pct

      condition :  _[entity]_Trig_Level = 1
      value     :  _[entity]_Dem_Red_1_Pct

      condition :  default
      value     :  0
}

:Next:

//  The Albemarle withdrawals from either TT or Narrows to supply
Concord would presumably be scaled back by the demand reduction.
Target : dflow0610.0622  // from TT to Concord
{   condition :  default
    priority  : 1
    penalty+  : 1000
    penalty-  : 1000
    Value     : flow0610.0622 *  (1 - _Alb_Dem_Red_Pct / 100)

}

Target : dflow0640.0622  // from Narrows to Concord
{   condition :  default
    priority  : 1
    penalty+  : 1000
    penalty-  : 1000
    Value     : flow0640.0622 *  (1 - _Alb_Dem_Red_Pct / 100)

}

:For:
```

```
{
  [entity]  = { Alb, Denton, Norwood, Montgom, Davidson, Lexington,
Davie, Elkin, King, Mocks, Salis, Wilkes, WS, Monroe, Asheboro, Mt_Airy
}
  [node]    = { 0625,  0615,  0715,    0705 ,   0425,      0565,
0375,  0075,  0345, 0295,  0465,  0025,  0395, 0855 ,  0685,    0185
}
}

Set : _[entity]_Consvn_Demand  {  value :  Demand[node]  *  ( 1 -
_[entity]_Dem_Red_Pct / 100 ) }

Constraint  :  {        ddelivery[node]<= _[entity]_Consvn_Demand }

:Next:


:else:

// Do nothing if not using drought plans

// Since there is a min release from Lake Howell that would otherwise
get reduced depending on the drought trigger, assume the normal amount.
Same with Salem Lake for Winston-Salem.

Set :  min_flow0784.0792   {   value   :  convert_units {6, cfs, af}
}
Set :  min_flow0380.0394   {   value   :  convert_units {1.55, cfs, af}
}



:endif:
```

```
/*  COMPUTE_INFLOWS.OCL  */

// This is not used in the simulation runs.  It would have been used in
setting up the simulation runs to get the comprehensive inflows
assigned to the nodes.  Provisional inflows are assigned in the
update_record process (
// (in the basedata directory) along with another OCL file for inflow
filtering since provisional inflows will have negatives.

// This file reads in the inflow development flows and gains and
assigns them to the inflow nodes in the model.  These are unimpaired
flows removed for effects of known water withdrawals, WW discharges,
and reservoir storage changes.
// These are written to the output.dss file for that run.  Copy the
records called [node]/inflows to the basedata.dss file.  Rename to show
cfs and per-aver instead of AF (default unit for this model) and PER-
CUM, although this can be left as is.
// Some of the inflows may be unrelated to natural inflows, like those
set for WW or IBTs that are identified by purple arrows, so delete
those first.  [Note we typically put the inflows in the basedata in
terms of cfs for comparison in DSS with gage records.
// After that, overwrite the flows with the _Temp_Inflows that are in
the run's output.dss file (but user should write them to a .1v file
first to put into cfs).  The _Temp_Inflows preserves the negative
inflowsin the original inflows.
// At the end of this file, it is noted that the inflows are filtered
(called "inflow") so that the compute_inflows run does not go
infeasible.  Then check separately the sum of the _Temp_Inflows at each
gage
// matches the unimpaired flow for that gage for the month.


// The compute inflow run refers to a All_Gages_Disaggregated DSS file
in which flows and gains are written in as "flows" (/FLOWS)", even
though many are calculated as gains.  They are pointed out accordingly
below.  Those with flows are gages used in the
// inflow development and were scaled as needed as part of the gains.
Note these are all disaggregated to daily using reference gages, but
the monthly flow will match the unimpaired gage flow.

// Start with gages that are used as inflow locations in the model.
These do not need any drainage area adjustment as the flows (or gains)
are already a product of the Fillin inflow development. The ones that
are added to the DSS input file
// from the Fillin process are the gages that are not used in the
inflow development.  These are:  Muddy Creek, Abbotts Creek, Third
Creek, Second Creek, Coddle Creek, Irish Buffalo Creek, Brown Creek,
and Little River.
// Again, flows are disgaggregated to daily using reference gages, but
monthly values will match the unimpaired gage flow.
// Note not all these gages are active:  like Fisher River, Cooleemee,
Muddy Creek, ....  All gages of course being used in the model are
unimpaired if the data exist.

:For:
{
[name] =     {    Patterson, Elkville,     NorthWilkesboro, Wilkesboro,
Roaring,  Elkin,    Mitchell,   Fisher,     Ararat,     Dalton,
Hunting,   Mocksville, Third,     Second,
                        Enon,      Muddy,        YadkinCollege,
Abbotts,       HighRock, Eldorado, Little,     Coddle,     IrishBuff,
BigBear,  Norwood,   Brown,      Rockingham, PeeDee,    Drowning,
Maxton,    Laurinburg,
```

```
                    Lumberton, BigSwamp,     Boardman,
LittlePeeDee,  Freeland, Longs  }
[nd]   =     {    0004,       0014,        0024,             0044,
0064,     0104,     0114,       0154,       0194,        0214,
0274,     0284,        0324,      0334,
                  0344,       0394,        0434,           0574,
0590,     0694,     0704,       0764,       0794,        0874,
0894,     0904,        0934,      0994,      1014,       1104,
1204,
                     1304,       1434,        1504,           1694,
1754,     1774  }
[gage_num] = {    02111000,   02111180,    02111500,        02112000,
02112120, 02112250, 02112360,   02113000,   02113850,    02114450,
02118500, 02118000,    02120500,  02120780,
                         02115360,   02115860,    02116500,
02121500,      02122500, 02123500, 02128000,   0212419274, 0212433550,
02125000, 02126000, 02127000,    02129000,  02131000,  02133500,
02133624,  02132320,
                         02134170,   02134480,    02134500,
02135000,      02109500, 02110500  }
}

Set :  inflow[nd]  {  value : timesers(USGS_[gage_num]/flow)}

:Next:

// Also write in the gain for Kerr Scott which has a different path
identifier (not USGS)
Set :  inflow0010  {  value  :  timesers(USACE_01/flow)}


// to avoid infeasibility, add inflow to upstream node


// Now assign inflows to other inflow nodes (mostly intakes) in each
gaged reach based on drainage area adjustment using the incremental
drainage area associated with the gage.

// Kerr Scott inflows and upstream gage flows are already assigned
above.

// Next is the Wilkesboro gain, which = Wilkesboro flow - North
Wilkesboro flow - KerrScott flow.  Incremental drainage area = 504 -
89.2 - 367 = 47.8.
:For:
{
[name]  =  { Wilkesboro        }
[nd]    =  { 0020              }
[da]    =  { 15                }  // 382 sq.mi is the total drainage
area as provided by DWR from StreamStats for the intake.  Incremental
area from upstream flow location (Kerr Scott) = 382 - 367 = 15.
}

Set : inflow[nd]   {   value :  timesers(USGS_02112000/flow) / 47.8 *
[da] }    // we need to read in the DSS record again since it is in a
for:next loop and would otherwise get written over if assigned as an
inflow (here inflow0044)

// Now need to overwrite the initial Wilkesboro gain by reducing the
amount by the inflow to the Wilkesboro intake
```

```
Set : inflow0044   {   value : inflow0044 - inflow[nd] }

:Next:

// Next is the Elkin gain, which = Elkin flow - Roaring River flow -
Wilkesboro flow.  Incremental drainage area = 866 - 128 - 504 = 234.

:For:
{
[name]  =  { LouisPacific, Elkin, Jonesville  }
[nd]    =  { 0050,         0080,   0100       }
[da]    =  { 103 ,         34,     95         }       // Represents the
incremental drainage area from the upstream inflow node.  They are as
follows:  Louisiana Pacific intake = 607 sq.mi.  Incremental area below
upstream location (Wilkesboro

        // gage) = 607 - 504 = 103.  Elkin intake on Big Elkin Creek =
34 (no incremental since no upstream inflow node).

// Jonesville intake = 830.  Incremental = 830 - upstream node
(Louisiana Pacific) - Roaring River = 830 - 607 - 128 = 95.
}

Set : inflow[nd]   {   value :  timesers(USGS_02112250/flow) / 234  *
[da] }

// Now need to overwrite the initial Elkin gain by reducing the amount
by the inflows to the upstream nodes.
Set : inflow0104   {   value : inflow0104 - inflow[nd] }

:Next:

//  Next is the Fisher River flow.  Upstream is the intake inflow for
node 0130 (Dobson).  Drainage area of gage = 128.  Drainage area of
intake = 60.
:For:
{
[name]  =  { Dobson        }
[nd]    =  { 0130          }
[da]    =  { 60            }
}

Set : inflow[nd]   {   value :  timesers(USGS_02113000/flow) / 128  *
[da] }

// Now need to overwrite the initial Fisher River flow by reducing the
amount by the inflow to the upstream nodes.
Set : inflow0154   {   value : inflow0154 - inflow[nd] }

:Next:

//  Next is the Ararat flow.  Upstream is the inflow for two
reservoirs.  Drainage area of gage = 231.
:For:
{
[name]  =  { AllredMill, Boyd          }
[nd]    =  { 0170,       0180          }
[da]    =  { 30,         66            }   // Represents total drainage
area to each reservoir; no upstream inflow nodes.
}
```

```
Set : inflow[nd]   {   value :  timesers(USGS_02113850/flow) / 231  *
[da] }

// Now need to overwrite the initial Ararat River flow by reducing the
amount by the inflow to the upstream nodes.
Set : inflow0194   {   value : inflow0194 - inflow[nd] }

:Next:

// Next is the Enon gain, which = Enon flow - Elkin flow - Mitchell
River flow - Fisher River flow - Little Yadkin River flow - Ararat
River flow .  Incremental drainage area = 1694 - 866 - 78.8 - 128 -
42.8 - 231 =  347.4

:For:
{
[name]  =  { PilotMt, King,  WS_Swann   }
[nd]    =  { 0190,    0230,     0340    }
[da]    =  { 29 ,     274.4,     30     }        // Represents the
incremental drainage area from the upstream inflow node.  They are as
follows:   Pilot Mt intake (on tributary, and most upstream node), so
no incremental area.  DA = 29.

// King intake = 1650, so incremental from upstream node = King - Elkin
- Mitchell - Fisher - Little Yadkin - Ararat - Pilot Mt = 1650 - 866 -
78.8 - 128 - 42.8 - 231 - 29 = 274.4.

// Winston-Salem Swann intake = 1680, so incremental area = Swann -
King = 1680 - 1650 = 30.
}

Set : inflow[nd]   {   value :  timesers(USGS_02115360/flow)  / 347.4
* [da] }

// Now need to overwrite the initial Enon gain by reducing the amount
by the inflows to the upstream nodes.
Set : inflow0344  {   value : inflow0344 - inflow[nd] }

:Next:


// Next is the Muddy Creek inflow, with an intake upstream.  DA = 186
at gage, 26.4 for Salem Lake (node 0380).
:For:
{
[name]  =  { Salem   }
[nd]    =  { 0380    }
[da]    =  { 26.4    }

}

Set : inflow[nd]   {   value :  timesers(USGS_02115860/flow) / 186  *
[da] }

// Now need to overwrite the initial Muddy Creek flow by reducing the
amount by the inflows to the upstream nodes.
Set : inflow0394  {   value : inflow0394 - inflow[nd] }

:Next:
```

```
// Next is the Yadkin College gain, which = YC flow - Enon flow - Muddy
Creek flow.  Incremental drainage area = 2280 - 1694 - 186 = 400.
// Since Muddy Creek (node 0394) was not written into the Fillin files,
need to subtract that out on the back end in the inflow calculation
below. Muddy Creek must refer to the DSS record path; otherwise, if
using inflow0394,
// it was computed as a gain immediately above.

// We first need to subtract the Muddy Creek flow from the inflow0434
that was read at the beginning of this file since that only is the gain
from Enon to Yadkin College.
Set :  inflow0434 {  value  :  inflow0434 -
timesers(USGS_02115860/flow) }

:For:
{
[name]  =  { 5-D_Res, Yadkinville, Davie,  WS_Idols, Davidson   }
[nd]    =  { 0350,    0354,        0370,   0386,     0400       }
[da]    =  { 25,      28.2,        162.8,  50,       134        }   //
Represents the incremental drainage area from the upstream inflow node.
They are as follows:   5-D reservoir (no upstream inflow) = 25.

                                  // Yadkinville intake incremental =
Yadkinville - 5-D = 53.2 - 25 = 28.2.  Davie incremental = Davie County
- Enon - Yadkinville = 1910 - 1694 - 53.2 = 162.8.

                                  // Winston-Salem Idols intake incremental
= Idols - Davie County = 1960 - 1910 = 50.  Davidson intake incremental
= Davidson - Idols - Muddy Creek = 2280 - 1960 - 186 = 134.
}
                                  // Based on what DWR provided, Davidson
intake is the same drainage area as the YC gage.

Set : inflow[nd]   {   value : ( timesers(USGS_02116500/flow) -
timesers(USGS_02115860/flow) ) / 400  * [da] }

// Now need to overwrite the updated YC gain by reducing the amount by
the inflows to the upstream nodes.
Set : inflow0434   {   value : inflow0434 - inflow[nd] }

:Next:


// Next is the High Rock gain, which = HR flow - Abbotts Creek flow -
Yadkin College flow - Second Creek flow - Third Creek flow - Mocksville
flow - Hunting Creek flow.  Incremental drainage area = 4000 - 174 -
2280 - 118 - 87.4 - 306 - 155 = 879.6
// Since Abbott (node 0574), Second Creek (node 0334), Third Creek
(node 0324), and Hunting Creek (node (node 0274) were not written into
the Fillin files (in order to extend the gain), need to subtract them
out on the back end
// in the inflow calculation below.  These were already written in
earlier as inflows.  Not using Cooleemee gage as mentioned later since
Mocksville gage is upstream and has much longer record.

// However, since Abbotts Creek is downstream of Salisbury and Buck,
leave Abbotts Creek in the gain until after.  Otherwise, we could get
many more negative inflows at Salisbury and Buck.  Instead, allocate
them to High Rock,
// which can handle the negatives with storage.
```

```
Set : inflow0590   {   value : inflow0590 - inflow0334 - inflow0324 -
inflow0274 }


// We'll set the inflows upstream of these nodes after the High Rock
gain section.

:For:
{
[name]  =  { Mocksville, DavieCounty, Salisbury, Buck    }
[nd]    =  { 0280,        0300,        0450,      0500   }
[da]    =  {   45,         57,         311.6,     90     } //
Represents the incremental drainage area from the upstream inflow node.
They are as follows:

                // Mocksville intake = Mocksville intake- Hunting Creek
gage = 200 - 155 = 45.

                // Davie County intake on the South Yadkin = Davie
County - Mocksville intake - Mocksville gage = 563 - 200 - 306 = 57.

                // Salisbury intake = Salisbury - Yadkin College - Davie
County intake - Second Creek - Third Creek  = 3360 - 2280 - 563 - 118 -
87.4 = 311.6

                // Buck steam station for Duke incremental = Buck -
Salisbury = 3450 (assumed!) - 3360 = 90.
}

Set : inflow[nd]   {   value : ( timesers(USGS_02122500/flow) -
inflow0334 - inflow0324 - inflow0274 ) / ( 879.6 - 174 )  * [da] }

// Now need to overwrite the initial HR gain by reducing the amount by
the inflows to the upstream nodes.
Set : inflow0590   {   value : inflow0590 - inflow[nd] }

:Next:

// Finally reset the High Rock inflow to account for Abbotts Creek
(full unimpaired gage flow)
Set : inflow0590   {   value : inflow0590 - inflow0574 }



// Next is the South Yadkin at Mocksville flow, with an inflow to the
Statesville intake upstream. Gage DA = 306, intake DA = 117.

:For:
{
[name]  =  { Statesville   }
[nd]    =  { 0250          }
[da]    =  { 117           }
}

Set : inflow[nd]   {   value :  timesers(USGS_02118000/flow) / 306  *
[da] }

// Now need to overwrite the initial Mocksville gain by reducing the
amount by the inflows to the upstream nodes.
Set : inflow0284  {   value : inflow0284 - inflow[nd] }
```

```
:Next:

// Next is Second Creek, with one intake upstream.  Gage DA = 118,
intake = 59.  Prior SY modeling by other consultants had shown DA of
55.6.

:For:
{
[name]   =  { Kannapolis_2ndCreek    }
[nd]     =  { 0320                   }
[da]     =  { 59                     }
}

Set : inflow[nd]   {   value :  timesers(USGS_02120780/flow) / 118  *
[da] }

// Now need to overwrite the initial 2nd Creek gain by reducing the
amount by the inflows to the upstream nodes.
Set : inflow0334  {   value : inflow0334 - inflow[nd] }

:Next:

// Next is Abbotts Creek, with two inflow nodes upstream.  No
incremental DA needed since no inflow nodes upstream of the two.  Gage
DA = 174, Thom-a-Lex reservoir DA = 70, City Lake = 7.3

:For:
{
[name]   =  { ThomaLex, CityLake   }
[nd]     =  { 0560,     0570        }
[da]     =  { 70 ,      7.3         }
}

Set : inflow[nd]   {   value :  timesers(USGS_02121500/flow) /  174 *
[da] }

// Now need to overwrite the initial Abbotts Creek gain by reducing the
amount by the inflows to the upstream nodes.
Set : inflow0574  {   value : inflow0574 - inflow[nd] }

:Next:

// Next is Coddle Creek (as always, filled-in).  This gage is used for
inflows to the reservoirs for WSACC, plus the Dutch Buffalo Creek
intake for Mt. Pleasant
// Gage DA = 22.7.  It was already assigned an inflow at the beginning
of this file as a flow (inflow0764).

:For:
{
[name]   =  { Howell, Kannapolis, Concord, Fisher, BlackRun,  MtPleasant
}
[nd]     =  { 0770,    0760,      0790,    0780,   0820,      0826
}
```

```
[da]    =  { 24.9,    10.5,      4.7,     18.9,    6.1,       37.4
}       // Except for Howell and MtPleasant, total DA to each point
since no inflow nodes upstream.  Note prior SY modeling by other
consultants had used 6.7 for Black run.

                                                        // So use that instead
of the 6.1 estimated by DWR from StreamStats.  Incremental from there
to Dutch Buffalo Creek intake = 43.5 at intake - 6.1 = 37.4.

                                                        // For Howell,
incremental area = Howell - Coddle Creek gage = 47.6 - 22.7 = 24.9
}

Set : inflow[nd]   {   value : inflow0764 / 22.7 * [da] }

:Next:


// Next is Irish Buffalo Creek, which was written in as an inflow at
the top of the file (representing flow, not a gain).  The upstream
inflow is Coddle inflow + Howell inflow, so the gain is simply the
difference in flows.

Set : inflow0794   {   value : inflow0794 -  (inflow0764 + inflow0770)
}

// Next is Monroe and an industrial intake in that watershed.  Use the
Brown Creek gage (node 0904) since this has a 40 year record, was
filled in with other gages in the basin, and was used in prior SY
studies.
// This gage is used for inflows to the reservoirs for WSACC.  Coddle
Creek was not used in the inflow development for computing gains
downstream.
// Gage DA = 110.

:For:
{
[name]  =  { Monroe,  Lee,       Allvac,  Twitty, Quarry   }
[nd]    =  { 0840,    0850,      0856,    0860,   0870     }
[da]    =  { 9.6,     41.8,      3.1,     35,     0.2      }     //
Incremental DA is as follows:  Monroe = 9.6 (headwater), Lee = Lee -
Monroe = 51.4 - 9.6 = 41.8, Allvac = Allvac - Lee = 54.5 - 51.4 = 3.1,

                      // Twitty = Twitty = 35; Quarry = quarry = 0.2.
Note prior SY modeling by Hazen in late 90s showed 10.3 for Monroe.
}

Set : inflow[nd]   {   value : inflow0904 / 110 * [da] }

:Next:


// Next is Norwood gain.  Gain = Norwood flow - Richfield flow.  Irish
Buffalo Creek flow was left out in the inflow development since it has
a short and limiting record.
// Incremental DA = 1372 - 55.6 = 1316.4.  The only inflow nodes in
this reach not accounted for above are two withdrawals.

// Gain and incremental area are reduced by the assignment of inflows
upstream (WSACC and Monroe).  So gain = Norwood flow - Richfield flow -
Buffalo Creek flow - total Monroe area flow - total WSACC flows (except
Howell).
```

```
// Remaining drainage area = 1372 - 55.6 - 278 - (9.6 + 41.8 + 3.1 + 35
+ 0.2) - (10.5 + 4.7 + 18.9 + 6.1 + 37.4) = 858.9

// First overwrite gain initially written at beginning of file for the
flows that we are to remove.  Irish Buffalo Creek flow must be
asssigned the DSS pathname or else they will read in as gains because
of the
// inflow calculations above.
Set : inflow0894   {   value :  timesers(USGS_02126000/flow) -
timesers(USGS_0212433550/flow) - (inflow0840 + inflow0850 + inflow0856
+ inflow0860 + inflow0870) - (inflow0760 + inflow0790 + inflow0780 +
inflow0820 + inflow0826)  }

:For:
{
[name]  =  { FloweFarms, Aquadale  }
[nd]    =  { 0846,       0876      }
[da]    =  { 191.3,      145.4     }   // Incremental DA is as follows:
FloweFarms = FloweFarms - Irish Buffalo Creek - total WSACC (except
Howell) = 553 - 278 - 77.6 = 197.4.  Aquadale = Aquadale - Richfield =
201 - 55.6 = 145.4.
}

Set : inflow[nd]   {   value : ( timesers(USGS_02126000/flow) -
timesers(USGS_0212433550/flow) - (inflow0840 + inflow0850 + inflow0856
+ inflow0860 + inflow0870) - (inflow0760 + inflow0790 + inflow0780 +
inflow0820 + inflow0826) ) / 858.9 * [da] }

// Now need to overwrite the initial Norwood gain by reducing the
amount by the inflows to the upstream nodes.
Set : inflow0894  {   value : inflow0894 - inflow[nd] }

:Next:

// Next are the inflows to Asheboro's system based on the Eldorado
gage.  DA = 342.   Inflow was assigned at the outset of file (node
0764).

:For:
{
[name]  =  { Lucas, McCrary, Bunch,  Reese    }
[nd]    =  { 0670,  0676,    0680,   0690     }
[da]    =  { 15.8,  2.5,     0.1,    103      }    //  Only Bunch is an
incremental area; the others have no other inflow nodes upstream.
Bunch = Bunch - McCrary = 2.5 - 2.5 = 0.  Assume it is 0.1.
}

Set : inflow[nd]   {   value : inflow0694 / 342 * [da] }

// Now need to overwrite the initial Eldorado flow and convert it to a
gain to adjust for the inflow at the upstream nodes.
Set : inflow0694  {   value : inflow0694 - inflow[nd] }

:Next:

// Next is the Rockingham gain, which = Rockingham flow - Norwood flow
- High Rock flow.  Eldoradeo, Brown Creek, and Little River weren't
used in the inflow development
// due to the short records but are factored in on the back end here.
Incremental DA = 6863 - 1372 - 342 - 4000 - 110 - 106 = 933.
```

```
// There was one inflow node that is on a tributary with a demand (a
quarry).  To avoid shortages day-to-day, which will happen since there
is limited drainage area there (9 square miles), we can model the
quarry as a reservoir.
// However, for simplicity, plumb the intake arc to the mainstem, so no
inflow assignment is needed.

// Set Rockingham gain
Set : inflow0934   {   value :  timesers(USGS_02129000/flow) -
timesers(USGS_02127000/flow)  - timesers(USGS_02128000/flow) -
timesers(USGS_02123500/flow)   }

:For:
{
[name]  =  { TT,   Na,   Fa,   Till,  Blew }
[nd]    =  { 0610, 0640, 0660, 0700,  0920 }
[da]    =  { 120,   60,  10,   68,    642  }                  // DA values
are as follows (incremental unless noted), all based on USGS numbers.
}
          // TT = TT - High Rock = 4120 - 4000 = 120.  Na = Na - TT =
4180 - 4120 = 60.  Fa = Fa - Na = 4190 - 4180 = 10.  Till = Till - Fa -
Eldorado = 4600 - 4190 - 342 = 68.

                  // Blewett = Blewett - Norwood - Tillery - Brown Creek -
Little River = 6830 - 1372 - 4600 - 110 - 106 = 642

                  // Note incremental drainage area between Rockingham
gage and Blewett = 6863 - 6830 = 33, but that is accounted for in the
gain (inflow0934).

Set : inflow[nd]   {   value : ( timesers(USGS_02129000/flow) -
timesers(USGS_02127000/flow)  - timesers(USGS_02128000/flow) -
timesers(USGS_02123500/flow) ) / 933   * [da] }

// Now need to overwrite the initial Rockingham gain to adjust for the
inflow at the upstream nodes.
Set : inflow0934 {   value : inflow0934 - inflow[nd] }

:Next:

// Next are the gains down to the Pee Dee at Pee Dee gage.  Incremental
DA = Pee Dee - Rockingham = 8830 - 6863 = 1967.
// Use the Brown Creek gage (filled-in) [DA = 110] for estimating local
inflows in the reach downstream of the Rockingham gage; otherwise, we
would be basing inflow on a drainage area adjustment
// of a huge gain. So reduce incremental DA by this amount...

:For:
{
[name]  =  { Roberdel, CityPond,  Hamlet, StateLine }
[nd]    =  { 0950,     0960,      0980,   0984   }
[da]    =  { 90.8,     10.7,      2.9,    223.8  }          // All
total drainage areas since no upstream nodes except for node at the
state line:
}
                  // Incremental DA (unless noted):  Roberdel = 90.8,
City Pond intake = 10.7, Hamlet = 2.9,

                  // State line = State line - Rockingham - Others in
this list = 7200 - 6863 - (90.8 + 10.7 + 2.9) = 232.6
Set : inflow[nd]   {   value : inflow0904 / 110 * [da] }
```

```
// Now need to overwrite the initial Pee Dee gain to adjust for the
inflow at the upstream nodes.
Set : inflow0994 {   value :  inflow0994 - inflow[nd] }

:Next:


// ********  LUMBER

// There was one inflow node that is on a tributary with a demand (a
quarry).  To avoid shortages day-to-day, which will happen since there
is limited drainage area there (9 square miles), we can model the
quarry as a reservoir.
// However, for simplicity, plumb the intake arc to the mainstem, so no
inflow assignment is needed.

// Start with Drowning Creek.  DA = 183.  Gage flow to the node 1014
was read in at the beginning.

// Next is Maxton gage.  Maxton is being read in as a gain for the
inflow development.  Incremental DA = Maxton - Drowning Creek = 365 -
183 = 182.
:For:
{
[name]  =  { Cascades    }
[nd]    =  { 1050        }
[da]    =  { 170         }   // Incremental DA = Cascades - Drowning
Creek = 353 - 183 = 170.
}

Set : inflow[nd]   {   value :  timesers(USGS_02133624/flow) / 182  *
[da] }

// Now need to overwrite the initial flow and convert to gain based on
upstream inflow and gage
Set : inflow1104 {   value : inflow1104 - inflow[nd] }

:Next:


// Next is Lumberton gage.  Maxton is being read in as a gain for the
inflow development.  Incremental DA = Lumberton - Maxton =  708 - 365
= 343.
:For:
{
[name]  =  { Lumberton_Intake    }
[nd]    =  { 1300        }
[da]    =  { 311        }   // Incremental DA = Lumberton intake -
Maxton = 676 - 365  = 311.
}

Set : inflow[nd]   {   value :  timesers(USGS_02134170/flow) / 343  *
[da] }

// Now need to overwrite the initial flow and convert to gain based on
upstream inflow and gage
Set : inflow1304 {   value : inflow1304 - inflow[nd] }

:Next:

// Next is Boardman gain.  Incremental DA = Boardman - Lumberton - Big
Swamp = 1228 - 708 - 229 = 291.
```

```
:For:
{
[name]   =  { Weatherspoon   }
[nd]     =  { 1320         }
[da]     =  { 13         }   // Incremental DA = Weatherspoon - Lumberton
gage = 721 - 708 = 13.
}

Set : inflow[nd]   {   value :  timesers(USGS_02134500/flow) / 291  *
[da] }

// Now need to overwrite the initial flow and convert to gain based on
upstream inflow and gage
Set : inflow1504 {   value : inflow1504 - inflow[nd] }

:Next:


// Next is Little Pee Dee gain.  Read in as a gain = Little Pee Dee -
Boardman - Laurinburg, with DA = Little Pee Dee - Boardman - Laurinburg
= 2790 - 1228 - 88.3 = 1473.7.
// Since there are a number of inflow nodes far upstream on some
tributaries where negative inflows (set to zero in the Sim run) could
mean a withdrawal is not met,
// assign inflow to those nodes first and subtract them and the
drainage area from the gain.  Use Laurinburg gage (node 1204) as the
estimate of inflow with drainage area adjustment.
// There is only one inflow node of concern.

Set : inflow1200   {   value :  inflow1204 / 88.3  * 10 }    // Covia
Marston facility with intake DA = 10

// First overwrite gain initially written at beginning of file for the
flow that we are to remove.
Set : inflow1694   {   value :  timesers(USGS_02135000/flow) -
inflow1200 }

:For:
{
[name]   =  { Gun_Swamp, BigShoeCrk, Lumber_StateLine   }
[nd]     =  { 1210,      1250,       1600               }
[da]     =  { 117,       68.7,       142                }   //
Incremental DA:  Gun Swamp = Gun Swamp - Covia = 127 - 10 = 117

          // Big Shoe Creek = Big Shoe Creek - Laurinburg = 157 - 88.3 =
68.7

                 // Lumber at State Line = Lumber at State Line -
Boardman = 1370 - 1228 = 142.
}

Set : inflow[nd]   {   value :  ( timesers(USGS_02135000/flow) -
inflow1200 ) / (1473.7 - 10) * [da] }

// Now need to overwrite the initial flow and convert to gain based on
upstream inflow and gage
Set : inflow1694 {   value : inflow1694 - inflow[nd] }

:Next:
```

```
// Last reach is Waccamaw River.  First compute inflow to Lake
Wacammaw.  DA of gage downstream at Freeland = 680, DA of lake = 16.7.
Freeland gage read in at beginning of this file.

Set :  inflow1730  {  value  :  inflow1754 * 16.7 / 680}

// Compute gain

Set :  inflow1754 {  value  :  inflow1754 - inflow1730}

// Last is Longs gain.  Incremental DA = Longs - Freeland = 1110 - 680
= 430
:For:
{
[name]  =  { Wacc_State_Line   }
[nd]    =  { 1770       }
[da]    =  { 370       }   // Incremental DA = State Line - Freeland =
1050 - 680 = 370
}

Set : inflow[nd]   {   value :  timesers(USGS_02110500/flow) / 430  *
[da] }

// Now need to overwrite the initial flow and convert to gain based on
upstream inflow and gage
Set : inflow1774 {   value : inflow1774 - inflow[nd] }

:Next:



// TO AVOID INFEASIBILITY, WHICH WILL OCCUR IF NEGATIVE INFLOWS ARE
READ IN, DO INFLOW FILTERING HERE.  THE UNFILTERED FLOWS WILL GO INTO
THE BASEDATA.DSS FILE.


:For:
{ [node] = { [InflowNd_YadkinPeeDee] } }

    Set : _TempInf[node] { Value : inflow[node] }
    Set : inflow[node] { Value : max{0, _TempInf[node] -
_InfDeficit[node](-1) } }
    Set : _InfDeficit[node] { Value : max{0, _InfDeficit[node](-1) -
_TempInf[node] } }

:Next:


:For:
{ [node] = { [InflowNd_Lumber] } }

    Set : _TempInf[node] { Value : inflow[node] }
    Set : inflow[node] { Value : max{0, _TempInf[node] -
_InfDeficit[node](-1) } }
    Set : _InfDeficit[node] { Value : max{0, _InfDeficit[node](-1) -
_TempInf[node] } }

:Next:
```