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Appendix E

Surface Water Analysis for City of Guelph Long Term Water Supply Plan by GRCA

Grand River Conservation Authority

Technical Memorandum

Title: Surface Water Analysis for City of Guelph Long Term Water Supply Plan

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Purpose:
The purpose of this memo is to update the surface water taking analysis previously completed in 2005 and updated in 2014 that included surface water taking alternatives from the Guelph Reservoir on the Speed River and the Eramosa Intake on the Eramosa River (also referred to as the Arkell Taking). The updated analysis, described in this memo, covers the period from 1951 to 2019.

This memo includes the results of 19 scenarios for takings from the Guelph Reservoir, an analysis of the Eramosa Intake under its current Permit to Take Water (PTTW) and a potential Aquifer Storage Recovery system (ASR) for the Eramosa Intake. The environmental flow needs assessment included in previous versions of this memo was not updated. Please refer to the 2014 memo for the most recent environmental flow needs assessment.

Guelph Reservoir Analysis:

Methods

A sensitivity analysis was completed to analyze the impacts of takings on: the reliability of filling Guelph Dam reservoir, water elevations in the reservoir and on downstream low flow targets. A total of 19 scenarios where analyzed to investigate differences in taking from both the reservoir and the Eramosa Intake. Scenarios included different rates for a base taking from the reservoir, different rates for an ASR taking from the reservoir and three scenarios for takings at the Eramosa Intake.

Methods and assumptions used are detailed in the following points:

- The period of record analyzed included 1951 to 2019, including 7 additional years compared to the 2014 analysis.
- Discharge from the dam was set as the greater of the following:
    i. Minimum required discharge (0.57 m^3/s) or inflow

ii. The hydro turbine discharge at the given lake elevation

iii. The required downstream discharge to meet the downstream low flow target at the Edinburgh Road gauge. Flow target is 1.7 m^3/s from June 1st to September 30th and 1.1 m3/s from September 30th to May 30th.

iv. The uncontrolled slot discharge plus the turbine discharge

v. The turbine discharge, uncontrolled slot discharge and any required flood discharge required to stabilize levels in Guelph Dam.

- If the reservoir storage exceeds 95% of the upper rule curve storage, it is assumed 50% of the inflow is available for a municipal taking up to a maximum taking of 0.5 or 1 m^3/s depending on the scenario.

- It is assumed there is an upper limit to the size of plant the City would consider to process intermittent takings. For the purposes of this analysis the upper limit was set at 1.0 m^3/s.

- Discharge to meet downstream flow targets was not constrained while water was available in the reservoir.

- The hydro turbine is operated as long as the lake level is above the minimum lake elevation required to allow the turbine to operate, 342.1 m.

- If after all the above conditions were met and the Guelph Lake elevation is above the lower operating range of the rule curve, the municipal base taking is applied for each scenario.

- The Eramosa above Guelph gauge record dates starts in 1962. The Edinburgh Road gauge record dates back to 1950. The Eramosa daily flows prior to 1962 were estimated from the Edinburgh Road daily flows. An empirical relationship was created between the Eramosa gauge and Edinburgh Road gauge using the 1962 to 1975 period of record prior to Guelph Dam coming into operation. This empirical relationship was used to estimate the 1951 to 1962 daily flows at the Eramosa gauge above Guelph.

- To account for the impacts of the Eramosa Intake water taking, three different local flow time series were created. Local flow time series account for inputs of water between the dam and the gauge station and include discharge from the Eramosa River.

    a. existing Eramosa water taking

    b. abandoning the Eramosa water taking

    c. maximizing the Eramosa water taking

- A naturalized Eramosa River flow time series was created where the effects of the Eramosa River taking was removed from the flow series. The Eramosa Above Guelph gauge station daily flow data was modified to add the Eramosa Intake taking of 100 L/s back onto the Eramosa gauge station flow series. Where observed taking records were available these were used to determine dates when the 100 L/s should be added back onto the flow record, for other periods the taking rules in the permit to take water were assumed, essentially if the stream flow exceeded 0.42 m^3/s at the above Guelph gauge station between May 1st and November 1st the flow was added back onto the daily flow record.

- To create the existing water taking time series, 100 L/s was removed based on the rules in the Permit to Take Water.

- To create the abandoned water taking time series, the difference between the naturalized flow series and the existing flows series was used to adjust the local daily flow time series.

- To create the maximize the Water taking time series, the naturalized Eramosa Above Guelph flow series was used along with the permit to take water conditions for the Arkell surface water taking to create a daily flow series that assumed the Arkell surface water taking is maximize to the limits indicated in the existing permit to take water. This assumes there are no infrastructure constraints and the taking can occur to the limits of the PTTW. The difference between the maximized flow series and the naturalized flow series was used to create the adjusted local daily flow series used to simulate maximizing the Arkell surface water taking.

Scenarios

In all, a total of 19 taking scenarios were simulated (Table 1). Five scenarios were simulated for Guelph Dam combined with three scenarios for the Eramosa Intake. This accounted for the first fifteen scenarios. The final four scenarios analyzed different municipal base takings and stepped ASR takings.

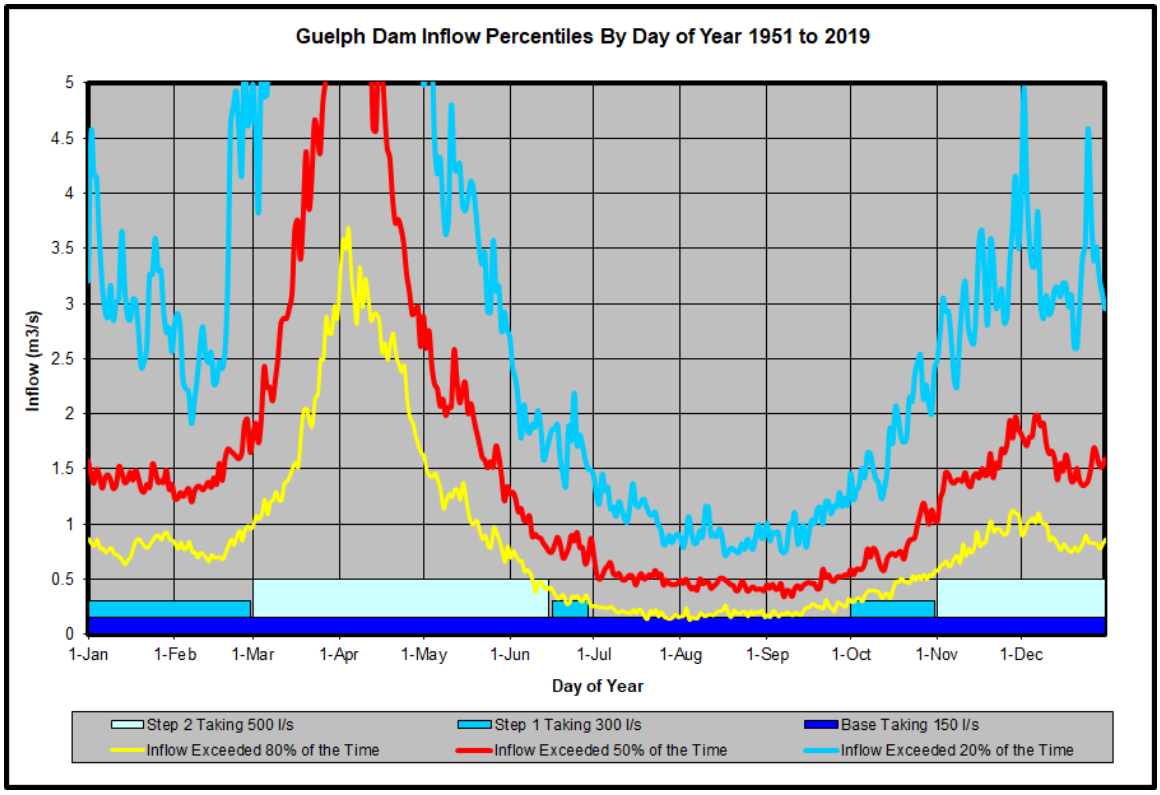
To develop the ASR taking scenario, inflow data for the Guelph Reservoir was analyzed. The stream inflow to Guelph Dam varies within the year and across years. Figure 1 presents a chart illustrating the daily inflow probability into Guelph Dam for the 1950 to 2019 period. This chart illustrates the inflow probability and the periods of the year when takings of 500 L/s and 300 L/s would most likely be available. A 500 L/s taking is most likely available in the March through May period and the November and December period. A 300 L/s taking is most likely available in the January through July and October through December period of the year. During the summer period only the base taking is feasibly available. The availability of taking will vary depending on the watershed conditions and may not be available in some years.

Table 1 Guelph Dam Municipal Base and ASR Taking Scenario Summary

Scenario	Guelph Dam			Eramosa
	Base Municipal Taking (L/s)	ASR Taking (L/s)	ASR Step 1 Taking (L/s)	Taking Assumption
Scenario 1	150	1000	n/a	Existing
Scenario 2	150	500	n/a	Existing
Scenario 3	200	500	n/a	Existing
Scenario 4	250	500	n/a	Existing
Scenario 5	300	500	n/a	Existing
Scenario 6	150	1000	n/a	Abandon
Scenario 7	150	500	n/a	Abandon
Scenario 8	200	500	n/a	Abandon
Scenario 9	250	500	n/a	Abandon
Scenario 10	300	500	n/a	Abandon
Scenario 11	150	1000	n/a	Maximized
Scenario 12	150	500	n/a	Maximized
Scenario 13	200	500	n/a	Maximized
Scenario 14	250	500	n/a	Maximized
Scenario 15	300	500	n/a	Maximized
Scenario 16	150	500	300	Maximized
Scenario 17	200	500	300	Maximized
Scenario 18	250	500	300	Maximized
Scenario 19	300	500	300	Maximized

Based on observations of stream flows, rules were set up for the reservoir yield model to represent a two staged taking. First the 500 L/s taking was assumed to occur any month of the year provided the storage in Guelph Dam equaled or exceeded 95% of the upper rule curve storage. This ensured there was ample water to meet downstream low flow augmentation requirements and provided flexibility to accommodate an ASR taking. Next an additional 300 L/s taking was assumed to occur if the storage in Guelph Dam equaled or exceeded 50% of the upper rule curve storage. The 300 L/s taking was not allowed to occur between July 1st and September 1st but allowed during other periods of the year provided the storage requirements were met. The 150 L/s taking was assumed to occur if storage in Guelph Dam exceeded the lower rule curve storage

Figure 1 Chart Illustrating Stepped Surface Water Takings from Guelph Dam



Results

Detailed results of the scenarios are given on the following pages. Table 2 gives the reliability of the base municipal taking given by: a) total number of days taking is not available, b) maximum number of days base taking is not available in a given year or month, c) reliability of the taking based on time, and d) reliability of the taking based on occurrence. Table 3 gives the reliability of the ASR taking in addition to the base municipal taking given by the base taking being exceeded: a) average number of days, b) minimum number of days, c) reliability based on time, and d) reliability based on occurrence. Table 4 gives the reliability of the full ASR taking being available given by: a) average number of days, b) minimum number of days, c) reliability based on time, and d) reliability based on occurrence.

Reliability based on time is calculated by taking the total number of days with an occurrence and dividing it by the total number of days in the period of record. Reliability based on occurrence is calculated by taking the total number of years with one occurrence and dividing by the total number of years in the period of record.

Based on information presented in Tables 2 to 4. A base municipal taking of 0.15 m^3/s and a stepped ASR taking of 0.3 m^3/s and 0.5 m^3/s appears to be the most

realistic taking option (Scenario 16). This scenario assumes the Eramosa Intake taking is maximized and that downstream low flow targets upstream of the Guelph sewage treatment plant are achieved 100% of the time. A summary of reliabilities for Scenario 16 is given in Table 5.

Detailed tables showing the reliability of Scenario 16 by year and month are given in Tables 6, 7 and 8. The ASR takings reliability closely follows the inflow reliability. The reliability of a 500 L/s taking being available is highest during the months of March, April and May. Note the reliability of a 300 L/s taking assumes a 300 L/s or greater taking being available. Therefore during the summer months of July and August when a 300 L/s taking was not considered, reliabilities reflect the fact that a 500 L/s taking was sometimes available.

Detailed results of all 19 scenarios by year and month are given in Appendices A, B and C. Appendix A includes the reliability summaries for the base municipal taking. Appendix B includes the reliability of exceeding the base municipal taking or the reliability that water is available for an ASR. Appendix C gives the reliability summaries for the maximum ASR taking available.

Table 2 Reliability of base municipal taking for various scenarios 1951 to 2019 simulation

Scenario	Guelph Dam			Eramosa	Total Number of Days Base Taking Not Available												
	Base Municipal Taking (L/s)	ASR Taking (L/s)	ASR Step 1 Taking (L/s)	Taking Assumption	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Scenario 1	150	1000	n/a	Existing	55	1	0	4	32	8	8	27	10	5	53	75	278
Scenario 2	150	500	n/a	Existing	55	0	0	4	31	7	5	16	3	1	46	71	239
Scenario 3	200	500	n/a	Existing	56	29	2	6	32	23	16	40	35	42	99	90	470
Scenario 4	250	500	n/a	Existing	56	48	14	11	33	32	29	60	85	78	112	97	655
Scenario 5	300	500	n/a	Existing	67	70	23	13	36	42	37	84	151	111	117	103	854
Scenario 6	150	1000	n/a	Abandon	55	1	0	3	32	1	8	27	7	1	42	65	242
Scenario 7	150	500	n/a	Abandon	55	0	0	3	31	1	5	16	3	0	34	55	203
Scenario 8	200	500	n/a	Abandon	56	29	2	6	32	18	16	40	22	30	85	90	426
Scenario 9	250	500	n/a	Abandon	56	48	10	10	33	32	29	56	60	63	111	98	606
Scenario 10	300	500	n/a	Abandon	67	68	23	13	36	42	36	76	137	98	116	101	813
Scenario 11	150	1000	n/a	Maximized	55	29	4	4	32	9	13	44	28	52	77	81	428
Scenario 12	150	500	n/a	Maximized	55	29	4	3	31	9	7	33	23	44	75	79	392
Scenario 13	200	500	n/a	Maximized	56	37	5	9	32	23	22	57	61	83	109	97	591
Scenario 14	250	500	n/a	Maximized	57	50	15	12	34	37	33	79	135	111	119	112	794
Scenario 15	300	500	n/a	Maximized	72	76	24	14	37	45	46	118	195	124	119	112	982
Scenario 16	150	500	300	Maximized	55	29	5	8	32	19	10	45	30	59	84	82	458
Scenario 17	200	500	300	Maximized	56	43	5	9	33	28	24	64	73	88	113	103	639
Scenario 18	250	500	300	Maximized	60	50	17	12	34	38	35	83	145	112	119	112	817
Scenario 19	300	500	300	Maximized	72	76	24	14	37	45	46	118	195	124	119	112	982

Scenario	Guelph Dam			Eramosa	Maximum Number of Days Base Taking Not Available in Given Year or Month												
	Base Municipal Taking (L/s)	ASR Taking (L/s)	ASR Step 1 Taking (L/s)	Taking Assumption	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Scenario 1	150	1000	n/a	Existing	31	1	0	4	31	8	8	15	7	5	27	31	67
Scenario 2	150	500	n/a	Existing	31	0	0	4	31	7	5	8	3	1	27	31	66
Scenario 3	200	500	n/a	Existing	31	25	2	5	31	23	10	21	13	18	29	31	96
Scenario 4	250	500	n/a	Existing	31	29	10	7	31	28	15	29	25	27	30	31	118
Scenario 5	300	500	n/a	Existing	31	29	18	8	31	29	17	31	30	31	30	31	135
Scenario 6	150	1000	n/a	Abandon	31	1	0	3	31	1	8	15	7	1	27	29	59
Scenario 7	150	500	n/a	Abandon	31	0	0	3	31	1	5	8	3	0	24	27	59
Scenario 8	200	500	n/a	Abandon	31	25	2	5	31	18	10	21	11	17	29	31	80
Scenario 9	250	500	n/a	Abandon	31	29	6	6	31	28	15	29	23	26	29	31	107
Scenario 10	300	500	n/a	Abandon	31	29	18	8	31	29	17	31	30	31	30	31	124
Scenario 11	150	1000	n/a	Maximized	31	29	4	3	31	9	8	26	15	29	28	31	81
Scenario 12	150	500	n/a	Maximized	31	29	4	3	31	9	5	24	12	26	28	31	73
Scenario 13	200	500	n/a	Maximized	31	29	5	5	31	23	12	28	24	31	30	31	104
Scenario 14	250	500	n/a	Maximized	31	29	10	7	31	29	19	31	30	31	30	31	120
Scenario 15	300	500	n/a	Maximized	31	29	18	8	31	30	22	31	30	31	30	31	137
Scenario 16	150	500	300	Maximized	31	29	5	5	31	19	8	25	16	31	29	31	90
Scenario 17	200	500	300	Maximized	31	29	5	5	31	28	12	28	26	31	30	31	113
Scenario 18	250	500	300	Maximized	31	29	11	7	31	29	18	31	30	31	30	31	123
Scenario 19	300	500	300	Maximized	31	29	18	8	31	30	22	31	30	31	30	31	137

Scenario	Guelph Dam			Eramosa	Reliability Based On Time Of Municipal Taking Being Available												
	Base Municipal Taking (L/s)	ASR Taking (L/s)	ASR Step 1 Taking (L/s)	Taking Assumption	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Scenario 1	150	1000	n/a	Existing	97%	100%	100%	100%	99%	100%	100%	99%	100%	100%	97%	96%	99%
Scenario 2	150	500	n/a	Existing	97%	100%	100%	100%	99%	100%	100%	99%	100%	100%	98%	97%	99%
Scenario 3	200	500	n/a	Existing	97%	99%	100%	100%	99%	99%	99%	98%	98%	98%	95%	96%	98%
Scenario 4	250	500	n/a	Existing	97%	98%	99%	99%	98%	98%	99%	97%	96%	96%	95%	95%	97%
Scenario 5	300	500	n/a	Existing	97%	96%	99%	99%	98%	98%	98%	96%	93%	95%	94%	95%	97%
Scenario 6	150	1000	n/a	Abandon	97%	100%	100%	100%	99%	100%	100%	99%	100%	100%	98%	97%	99%
Scenario 7	150	500	n/a	Abandon	97%	100%	100%	100%	99%	100%	100%	99%	100%	100%	98%	97%	99%
Scenario 8	200	500	n/a	Abandon	97%	99%	100%	100%	99%	99%	99%	98%	99%	99%	96%	96%	98%
Scenario 9	250	500	n/a	Abandon	97%	98%	100%	100%	98%	98%	99%	97%	97%	97%	95%	95%	98%
Scenario 10	300	500	n/a	Abandon	97%	97%	99%	99%	98%	98%	98%	96%	93%	95%	94%	95%	97%
Scenario 11	150	1000	n/a	Maximized	97%	99%	100%	100%	99%	100%	99%	98%	99%	98%	96%	96%	98%
Scenario 12	150	500	n/a	Maximized	97%	99%	100%	100%	99%	100%	100%	98%	99%	98%	96%	96%	98%
Scenario 13	200	500	n/a	Maximized	97%	98%	100%	100%	99%	99%	99%	97%	97%	96%	95%	95%	98%
Scenario 14	250	500	n/a	Maximized	97%	97%	99%	99%	98%	98%	98%	96%	93%	95%	94%	95%	97%
Scenario 15	300	500	n/a	Maximized	97%	96%	99%	99%	98%	98%	98%	94%	91%	94%	94%	95%	96%
Scenario 16	150	500	300	Maximized	97%	99%	100%	100%	99%	99%	100%	98%	99%	97%	96%	96%	98%
Scenario 17	200	500	300	Maximized	97%	98%	100%	100%	98%	99%	99%	97%	96%	96%	95%	95%	97%
Scenario 18	250	500	300	Maximized	97%	97%	99%	99%	98%	98%	98%	96%	93%	95%	94%	95%	97%
Scenario 19	300	500	300	Maximized	97%	96%	99%	99%	98%	98%	98%	94%	91%	94%	94%	95%	96%

Scenario	Guelph Dam			Eramosa	Reliability Based On Occurance Of Municipal Taking Being Available												
	Base Municipal Taking (L/s)	ASR Taking (L/s)	ASR Step 1 Taking (L/s)	Taking Assumption	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Scenario 1	150	1000	n/a	Existing	97%	99%	100%	99%	97%	99%	99%	97%	97%	99%	96%	94%	88%
Scenario 2	150	500	n/a	Existing	97%	100%	100%	99%	99%	99%	99%	97%	99%	99%	96%	94%	88%
Scenario 3	200	500	n/a	Existing	97%	97%	99%	97%	97%	99%	97%	97%	94%	96%	94%	94%	87%
Scenario 4	250	500	n/a	Existing	97%	97%	97%	97%	96%	97%	97%	94%	91%	94%	94%	94%	84%
Scenario 5	300	500	n/a	Existing	96%	96%	97%	97%	96%	97%	96%	91%	90%	93%	94%	94%	83%
Scenario 6	150	1000	n/a	Abandon	97%	99%	100%	99%	97%	99%	99%	97%	99%	99%	97%	94%	88%
Scenario 7	150	500	n/a	Abandon	97%	100%	100%	99%	99%	99%	99%	97%	99%	100%	97%	94%	88%
Scenario 8	200	500	n/a	Abandon	97%	97%	99%	97%	97%	99%	97%	97%	94%	97%	94%	94%	87%
Scenario 9	250	500	n/a	Abandon	97%	97%	97%	97%	96%	97%	97%	96%	93%	94%	94%	94%	84%
Scenario 10	300	500	n/a	Abandon	96%	96%	97%	97%	96%	97%	96%	93%	90%	93%	94%	94%	83%
Scenario 11	150	1000	n/a	Maximized	97%	99%	99%	97%	97%	99%	97%	96%	96%	97%	94%	94%	88%
Scenario 12	150	500	n/a	Maximized	97%	99%	99%	99%	99%	99%	97%	97%	96%	97%	96%	94%	88%
Scenario 13	200	500	n/a	Maximized	97%	97%	99%	97%	97%	99%	97%	96%	93%	94%	94%	94%	86%
Scenario 14	250	500	n/a	Maximized	96%	97%	97%	97%	96%	97%	97%	93%	88%	93%	94%	94%	83%
Scenario 15	300	500	n/a	Maximized	96%	96%	97%	97%	96%	97%	94%	90%	87%	90%	94%	94%	81%
Scenario 16	150	500	300	Maximized	97%	99%	99%	97%	97%	99%	97%	96%	96%	96%	94%	94%	88%
Scenario 17	200	500	300	Maximized	97%	97%	99%	97%	96%	99%	97%	96%	91%	94%	94%	94%	84%
Scenario 18	250	500	300	Maximized	96%	97%	97%	97%	96%	97%	96%	91%	88%	93%	94%	94%	83%
Scenario 19	300	500	300	Maximized	96%	96%	97%	97%	96%	97%	94%	90%	87%	90%	94%	94%	81%

less than 95% reliability

Table 3 Reliability of some ASR taking in addition to base taking for various scenarios 1951 to 2019 simulation

Scenario	Guelph Dam			Eramosa Taking Assumption	Average Number of Days Base Taking Is Exceeded												
	Base Municipal Taking (L/s)	ASR Taking (L/s)	ASR Step 1 Taking (L/s)		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Scenario 1	150	1000	n/a	Existing	19	16	20	27	20	7	3	2	5	10	12	19	160
Scenario 2	150	500	n/a	Existing	22	19	22	28	24	10	4	3	6	11	14	22	186
Scenario 3	200	500	n/a	Existing	22	19	22	28	24	10	4	3	6	11	13	20	181
Scenario 4	250	500	n/a	Existing	21	19	22	27	24	10	4	2	5	10	12	19	176
Scenario 5	300	500	n/a	Existing	20	19	21	27	24	10	4	2	5	9	12	18	172
Scenario 6	150	1000	n/a	Abandon	19	16	20	27	20	7	3	2	5	10	13	19	161
Scenario 7	150	500	n/a	Abandon	22	19	22	28	24	10	4	3	6	11	14	22	187
Scenario 8	200	500	n/a	Abandon	22	19	22	28	24	10	4	3	6	11	13	21	182
Scenario 9	250	500	n/a	Abandon	21	19	22	27	24	10	4	2	5	10	12	20	177
Scenario 10	300	500	n/a	Abandon	20	19	22	27	24	10	4	2	5	9	12	19	172
Scenario 11	150	1000	n/a	Maximized	19	16	20	27	20	7	3	2	5	10	12	19	160
Scenario 12	150	500	n/a	Maximized	22	19	22	28	24	10	4	3	6	11	14	21	185
Scenario 13	200	500	n/a	Maximized	22	19	22	28	24	10	4	3	6	10	13	20	180
Scenario 14	250	500	n/a	Maximized	21	19	22	27	24	10	4	2	5	10	12	19	176
Scenario 15	300	500	n/a	Maximized	20	19	21	27	24	10	4	2	5	9	12	18	171
Scenario 16	150	500	300	Maximized	28	26	29	29	28	24	4	3	18	22	24	27	260
Scenario 17	200	500	300	Maximized	28	25	29	29	28	24	4	3	17	20	23	27	255
Scenario 18	250	500	300	Maximized	27	25	29	29	28	24	4	2	16	18	22	26	250
Scenario 19	300	500	300	Maximized	20	19	21	27	24	10	4	2	5	9	12	18	171

Scenario	Guelph Dam			Eramosa Taking Assumption	Minimum Number of Days Base Taking Is Exceeded												
	Base Municipal Taking (L/s)	ASR Taking (L/s)	ASR Step 1 Taking (L/s)		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Scenario 1	150	1000	n/a	Existing	0	0	0	0	0	0	0	0	0	0	0	0	2
Scenario 2	150	500	n/a	Existing	0	0	0	0	0	0	0	0	0	0	0	0	5
Scenario 3	200	500	n/a	Existing	0	0	0	0	0	0	0	0	0	0	0	0	0
Scenario 4	250	500	n/a	Existing	0	0	0	0	0	0	0	0	0	0	0	0	0
Scenario 5	300	500	n/a	Existing	0	0	0	0	0	0	0	0	0	0	0	0	0
Scenario 6	150	1000	n/a	Abandon	0	0	0	0	0	0	0	0	0	0	0	0	2
Scenario 7	150	500	n/a	Abandon	0	0	0	0	0	0	0	0	0	0	0	0	5
Scenario 8	200	500	n/a	Abandon	0	0	0	0	0	0	0	0	0	0	0	0	0
Scenario 9	250	500	n/a	Abandon	0	0	0	0	0	0	0	0	0	0	0	0	0
Scenario 10	300	500	n/a	Abandon	0	0	0	0	0	0	0	0	0	0	0	0	0
Scenario 11	150	1000	n/a	Maximized	0	0	0	0	0	0	0	0	0	0	0	0	0
Scenario 12	150	500	n/a	Maximized	0	0	0	0	0	0	0	0	0	0	0	0	1
Scenario 13	200	500	n/a	Maximized	0	0	0	0	0	0	0	0	0	0	0	0	0
Scenario 14	250	500	n/a	Maximized	0	0	0	0	0	0	0	0	0	0	0	0	0
Scenario 15	300	500	n/a	Maximized	0	0	0	0	0	0	0	0	0	0	0	0	0
Scenario 16	150	500	300	Maximized	0	0	0	0	0	0	0	0	0	0	0	0	86
Scenario 17	200	500	300	Maximized	0	0	0	0	0	0	0	0	0	0	0	0	73
Scenario 18	250	500	300	Maximized	0	0	0	0	0	0	0	0	0	0	0	0	65
Scenario 19	300	500	300	Maximized	0	0	0	0	0	0	0	0	0	0	0	0	0

Scenario	Guelph Dam			Eramosa Taking Assumption	Reliability Based On Time Of Municipal Base Taking Being Exceeded												
	Base Municipal Taking (L/s)	ASR Taking (L/s)	ASR Step 1 Taking (L/s)		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Scenario 1	150	1000	n/a	Existing	60%	57%	65%	89%	65%	24%	9%	7%	18%	31%	42%	61%	44%
Scenario 2	150	500	n/a	Existing	72%	69%	72%	92%	79%	34%	13%	9%	20%	37%	47%	70%	51%
Scenario 3	200	500	n/a	Existing	70%	68%	72%	92%	78%	34%	12%	8%	18%	34%	44%	66%	50%
Scenario 4	250	500	n/a	Existing	68%	67%	70%	91%	78%	33%	12%	8%	18%	31%	41%	63%	48%
Scenario 5	300	500	n/a	Existing	66%	66%	69%	91%	78%	32%	12%	7%	17%	29%	39%	60%	47%
Scenario 6	150	1000	n/a	Abandon	60%	57%	65%	89%	65%	24%	9%	7%	18%	31%	42%	61%	44%
Scenario 7	150	500	n/a	Abandon	72%	69%	72%	92%	79%	34%	13%	9%	20%	37%	47%	70%	51%
Scenario 8	200	500	n/a	Abandon	70%	68%	72%	92%	78%	34%	12%	8%	19%	35%	44%	66%	50%
Scenario 9	250	500	n/a	Abandon	69%	67%	70%	91%	78%	33%	12%	8%	18%	32%	41%	63%	48%
Scenario 10	300	500	n/a	Abandon	66%	66%	69%	91%	78%	32%	12%	7%	17%	29%	39%	60%	47%
Scenario 11	150	1000	n/a	Maximized	60%	57%	65%	89%	65%	24%	9%	7%	18%	31%	41%	60%	44%
Scenario 12	150	500	n/a	Maximized	72%	69%	72%	92%	79%	34%	13%	9%	20%	36%	46%	69%	51%
Scenario 13	200	500	n/a	Maximized	70%	68%	71%	92%	78%	34%	12%	8%	18%	33%	43%	65%	49%
Scenario 14	250	500	n/a	Maximized	68%	67%	70%	91%	78%	33%	12%	8%	18%	31%	40%	62%	48%
Scenario 15	300	500	n/a	Maximized	65%	66%	69%	91%	78%	32%	12%	7%	17%	28%	39%	59%	47%
Scenario 16	150	500	300	Maximized	89%	91%	94%	97%	91%	80%	12%	9%	60%	69%	79%	86%	71%
Scenario 17	200	500	300	Maximized	89%	90%	93%	97%	91%	79%	12%	8%	56%	64%	76%	86%	70%
Scenario 18	250	500	300	Maximized	88%	90%	92%	97%	90%	79%	12%	8%	52%	59%	73%	84%	69%
Scenario 19	300	500	300	Maximized	65%	66%	69%	91%	78%	32%	12%	7%	17%	28%	39%	59%	47%

Scenario	Guelph Dam			Eramosa Taking Assumption	Reliability Based On Occurance Of Municipal Base Taking Being Exceeded												
	Base Municipal Taking (L/s)	ASR Taking (L/s)	ASR Step 1 Taking (L/s)		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Scenario 1	150	1000	n/a	Existing	83%	80%	93%	97%	94%	61%	28%	16%	26%	43%	62%	77%	100%
Scenario 2	150	500	n/a	Existing	84%	81%	94%	97%	96%	72%	33%	17%	28%	45%	64%	77%	100%
Scenario 3	200	500	n/a	Existing	83%	81%	94%	97%	94%	71%	32%	16%	25%	42%	62%	75%	99%
Scenario 4	250	500	n/a	Existing	80%	80%	94%	97%	94%	70%	30%	16%	23%	39%	51%	72%	99%
Scenario 5	300	500	n/a	Existing	77%	78%	93%	97%	94%	68%	29%	13%	22%	39%	48%	71%	99%
Scenario 6	150	1000	n/a	Abandon	83%	80%	93%	97%	94%	61%	28%	16%	28%	43%	62%	78%	100%
Scenario 7	150	500	n/a	Abandon	84%	81%	94%	97%	96%	72%	33%	17%	28%	46%	64%	78%	100%
Scenario 8	200	500	n/a	Abandon	83%	81%	94%	97%	94%	71%	32%	16%	26%	42%	62%	75%	99%
Scenario 9	250	500	n/a	Abandon	81%	80%	94%	97%	94%	70%	30%	16%	23%	39%	52%	74%	99%
Scenario 10	300	500	n/a	Abandon	77%	78%	93%	97%	94%	68%	29%	13%	23%	39%	48%	71%	99%
Scenario 11	150	1000	n/a	Maximized	83%	80%	93%	97%	93%	61%	28%	16%	28%	43%	62%	77%	99%
Scenario 12	150	500	n/a	Maximized	84%	81%	94%	97%	96%	72%	33%	17%	28%	45%	62%	77%	100%
Scenario 13	200	500	n/a	Maximized	83%	81%	94%	97%	94%	71%	32%	16%	25%	41%	57%	75%	99%
Scenario 14	250	500	n/a	Maximized	80%	80%	93%	97%	94%	70%	30%	16%	23%	39%	51%	72%	99%
Scenario 15	300	500	n/a	Maximized	77%	78%	93%	97%	94%	68%	29%	13%	22%	39%	48%	70%	99%
Scenario 16	150	500	300	Maximized	91%	93%	99%	99%	97%	90%	30%	17%	65%	77%	90%	88%	100%
Scenario 17	200	500	300	Maximized	91%	93%	99%	99%	97%	90%	29%	16%	62%	72%	87%	88%	100%
Scenario 18	250	500	300	Maximized	90%	93%	99%	99%	97%	88%	29%	14%	58%	65%	86%	88%	100%
Scenario 19	300	500	300	Maximized	77%	78%	93%	97%	94%	68%	29%	13%	22%	39%	48%	70%	99%

less than 95% reliability

Table 4 Reliability of full ASR and base taking for various scenarios 1951 to 2019 simulation

Scenario	Guelph Dam			Eramosa	Average Number of Days ASR Taking Is Available												
	Base Municipal Taking (L/s)	ASR Taking (L/s)	ASR Step 1 Taking (L/s)	Taking Assumption	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Scenario 1	150	1000	n/a	Existing	19	16	20	27	20	7	3	2	5	10	12	19	160
Scenario 2	150	500	n/a	Existing	22	19	22	28	24	10	4	3	6	11	14	22	186
Scenario 3	200	500	n/a	Existing	22	19	22	28	24	10	4	3	6	11	13	20	181
Scenario 4	250	500	n/a	Existing	21	19	22	27	24	10	4	2	5	10	12	19	176
Scenario 5	300	500	n/a	Existing	20	19	21	27	24	10	4	2	5	9	12	18	172
Scenario 6	150	1000	n/a	Abandon	19	16	20	27	20	7	3	2	5	10	13	19	161
Scenario 7	150	500	n/a	Abandon	22	19	22	28	24	10	4	3	6	11	14	22	187
Scenario 8	200	500	n/a	Abandon	22	19	22	28	24	10	4	3	6	11	13	21	182
Scenario 9	250	500	n/a	Abandon	21	19	22	27	24	10	4	2	5	10	12	20	177
Scenario 10	300	500	n/a	Abandon	20	19	22	27	24	10	4	2	5	9	12	19	172
Scenario 11	150	1000	n/a	Maximized	19	16	20	27	20	7	3	2	5	10	12	19	160
Scenario 12	150	500	n/a	Maximized	22	19	22	28	24	10	4	3	6	11	14	21	185
Scenario 13	200	500	n/a	Maximized	22	19	22	28	24	10	4	3	6	10	13	20	180
Scenario 14	250	500	n/a	Maximized	21	19	22	27	24	10	4	2	5	10	12	19	176
Scenario 15	300	500	n/a	Maximized	20	19	21	27	24	10	4	2	5	9	12	18	171
Scenario 16	150	500	300	Maximized	21	19	22	27	24	10	4	3	6	10	12	20	177
Scenario 17	200	500	300	Maximized	21	19	22	27	24	10	4	3	5	10	12	19	175
Scenario 18	250	500	300	Maximized	21	19	22	27	24	10	4	2	5	9	12	19	173
Scenario 19	300	500	300	Maximized	20	19	21	27	24	10	4	2	5	9	12	18	171

Scenario	Guelph Dam			Eramosa	Minimum Number of Days ASR Taking Is Available												
	Base Municipal Taking (L/s)	ASR Taking (L/s)	ASR Step 1 Taking (L/s)	Taking Assumption	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Scenario 1	150	1000	n/a	Existing	0	0	0	0	0	0	0	0	0	0	0	0	2
Scenario 2	150	500	n/a	Existing	0	0	0	0	0	0	0	0	0	0	0	0	5
Scenario 3	200	500	n/a	Existing	0	0	0	0	0	0	0	0	0	0	0	0	0
Scenario 4	250	500	n/a	Existing	0	0	0	0	0	0	0	0	0	0	0	0	0
Scenario 5	300	500	n/a	Existing	0	0	0	0	0	0	0	0	0	0	0	0	0
Scenario 6	150	1000	n/a	Abandon	0	0	0	0	0	0	0	0	0	0	0	0	2
Scenario 7	150	500	n/a	Abandon	0	0	0	0	0	0	0	0	0	0	0	0	5
Scenario 8	200	500	n/a	Abandon	0	0	0	0	0	0	0	0	0	0	0	0	0
Scenario 9	250	500	n/a	Abandon	0	0	0	0	0	0	0	0	0	0	0	0	0
Scenario 10	300	500	n/a	Abandon	0	0	0	0	0	0	0	0	0	0	0	0	0
Scenario 11	150	1000	n/a	Maximized	0	0	0	0	0	0	0	0	0	0	0	0	0
Scenario 12	150	500	n/a	Maximized	0	0	0	0	0	0	0	0	0	0	0	0	1
Scenario 13	200	500	n/a	Maximized	0	0	0	0	0	0	0	0	0	0	0	0	0
Scenario 14	250	500	n/a	Maximized	0	0	0	0	0	0	0	0	0	0	0	0	0
Scenario 15	300	500	n/a	Maximized	0	0	0	0	0	0	0	0	0	0	0	0	0
Scenario 16	150	500	300	Maximized	0	0	0	0	0	0	0	0	0	0	0	0	0
Scenario 17	200	500	300	Maximized	0	0	0	0	0	0	0	0	0	0	0	0	0
Scenario 18	250	500	300	Maximized	0	0	0	0	0	0	0	0	0	0	0	0	0
Scenario 19	300	500	300	Maximized	0	0	0	0	0	0	0	0	0	0	0	0	0

Scenario	Guelph Dam			Eramosa	Reliability Based On Time Of Municipal ASR Taking Being Available												
	Base Municipal Taking (L/s)	ASR Taking (L/s)	ASR Step 1 Taking (L/s)	Taking Assumption	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Scenario 1	150	1000	n/a	Existing	60%	57%	65%	89%	65%	24%	9%	7%	18%	31%	42%	61%	44%
Scenario 2	150	500	n/a	Existing	72%	69%	72%	92%	79%	34%	13%	9%	20%	37%	47%	70%	51%
Scenario 3	200	500	n/a	Existing	70%	68%	72%	92%	78%	34%	12%	8%	18%	34%	44%	66%	50%
Scenario 4	250	500	n/a	Existing	68%	67%	70%	91%	78%	33%	12%	8%	18%	31%	41%	63%	48%
Scenario 5	300	500	n/a	Existing	66%	66%	69%	91%	78%	32%	12%	7%	17%	29%	39%	60%	47%
Scenario 6	150	1000	n/a	Abandon	60%	57%	65%	89%	65%	24%	9%	7%	18%	31%	42%	61%	44%
Scenario 7	150	500	n/a	Abandon	72%	69%	72%	92%	79%	34%	13%	9%	20%	37%	47%	70%	51%
Scenario 8	200	500	n/a	Abandon	70%	68%	72%	92%	78%	34%	12%	8%	19%	35%	44%	66%	50%
Scenario 9	250	500	n/a	Abandon	69%	67%	70%	91%	78%	33%	12%	8%	18%	32%	41%	63%	48%
Scenario 10	300	500	n/a	Abandon	66%	66%	69%	91%	78%	32%	12%	7%	17%	29%	39%	60%	47%
Scenario 11	150	1000	n/a	Maximized	60%	57%	65%	89%	65%	24%	9%	7%	18%	31%	41%	60%	44%
Scenario 12	150	500	n/a	Maximized	72%	69%	72%	92%	79%	34%	13%	9%	20%	36%	46%	69%	51%
Scenario 13	200	500	n/a	Maximized	70%	68%	71%	92%	78%	34%	12%	8%	18%	33%	43%	65%	49%
Scenario 14	250	500	n/a	Maximized	68%	67%	70%	91%	78%	33%	12%	8%	18%	31%	40%	62%	48%
Scenario 15	300	500	n/a	Maximized	65%	66%	69%	91%	78%	32%	12%	7%	17%	28%	39%	59%	47%
Scenario 16	150	500	300	Maximized	69%	67%	70%	91%	78%	33%	12%	9%	18%	32%	41%	63%	49%
Scenario 17	200	500	300	Maximized	68%	67%	70%	91%	78%	33%	12%	8%	18%	31%	40%	62%	48%
Scenario 18	250	500	300	Maximized	66%	66%	69%	91%	78%	32%	12%	8%	17%	30%	39%	60%	47%
Scenario 19	300	500	300	Maximized	65%	66%	69%	91%	78%	32%	12%	7%	17%	28%	39%	59%	47%

Scenario	Guelph Dam			Eramosa	Reliability Based On Occurance Of Municipal ASR Taking Being Available												
	Base Municipal Taking (L/s)	ASR Taking (L/s)	ASR Step 1 Taking (L/s)	Taking Assumption	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Scenario 1	150	1000	n/a	Existing	83%	80%	93%	97%	94%	61%	28%	16%	26%	43%	62%	77%	100%
Scenario 2	150	500	n/a	Existing	84%	81%	94%	97%	96%	72%	33%	17%	28%	45%	64%	77%	100%
Scenario 3	200	500	n/a	Existing	83%	81%	94%	97%	94%	71%	32%	16%	25%	42%	62%	75%	99%
Scenario 4	250	500	n/a	Existing	80%	80%	94%	97%	94%	70%	30%	16%	23%	39%	51%	72%	99%
Scenario 5	300	500	n/a	Existing	77%	78%	93%	97%	94%	68%	29%	13%	22%	39%	48%	71%	99%
Scenario 6	150	1000	n/a	Abandon	83%	80%	93%	97%	94%	61%	28%	16%	28%	43%	62%	78%	100%
Scenario 7	150	500	n/a	Abandon	84%	81%	94%	97%	96%	72%	33%	17%	28%	46%	64%	78%	100%
Scenario 8	200	500	n/a	Abandon	83%	81%	94%	97%	94%	71%	32%	16%	26%	42%	62%	75%	99%
Scenario 9	250	500	n/a	Abandon	81%	80%	94%	97%	94%	70%	30%	16%	23%	39%	52%	74%	99%
Scenario 10	300	500	n/a	Abandon	77%	78%	93%	97%	94%	68%	29%	13%	23%	39%	48%	71%	99%
Scenario 11	150	1000	n/a	Maximized	83%	80%	93%	97%	93%	61%	28%	16%	28%	43%	62%	77%	99%
Scenario 12	150	500	n/a	Maximized	84%	81%	94%	97%	96%	72%	33%	17%	28%	45%	62%	77%	100%
Scenario 13	200	500	n/a	Maximized	83%	81%	94%	97%	94%	71%	32%	16%	25%	41%	57%	75%	99%
Scenario 14	250	500	n/a	Maximized	80%	80%	93%	97%	94%	70%	30%	16%	23%	39%	51%	72%	99%
Scenario 15	300	500	n/a	Maximized	77%	78%	93%	97%	94%	68%	29%	13%	22%	39%	48%	70%	99%
Scenario 16	150	500	300	Maximized	80%	80%	94%	97%	94%	70%	30%	17%	25%	39%	54%	74%	99%
Scenario 17	200	500	300	Maximized	80%	80%	94%	97%	94%	70%	29%	16%	23%	39%	51%	74%	99%
Scenario 18	250	500	300	Maximized	78%	78%	93%	97%	94%	68%	29%	14%	23%	39%	48%	71%	99%
Scenario 19	300	500	300	Maximized	77%	78%	93%	97%	94%	68%	29%	13%	22%	39%	48%	70%	99%

less than 95% reliability

Table 5 Reliability of a Step ASR Taking from Guelph Dam 1951 to 2019

Scenario 16 Recommnded Stepped Taking Scenario													
Description	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual**
500 L/s per second taking													
Total Number of Occurrances (days)	1,467	1,308	1,505	1,891	1,666	674	264	182	381	692	854	1,358	12,242
Total Days Period of Record	2,139	1,949	2,139	2,070	2,139	2,070	2,139	2,139	2,070	2,139	2,070	2,139	25,202
Reliability Based on Time	69%	67%	70%	91%	78%	33%	12%	9%	18%	32%	41%	63%	49%
Reliability Based on Occurrance	80%	80%	94%	97%	94%	70%	30%	17%	25%	39%	54%	74%	99%
300 L/s per second or greater taking													
Total Number of Occurrances (days)	1,910	1,773	2,003	2,011	1,954	1,651	264	182	1,234	1,485	1,640	1,843	17,950
Total Days Period of Record	2,139	1,949	2,139	2,070	2,139	2,070	2,139	2,139	2,070	2,139	2,070	2,139	25,202
Reliability Based on Time	89%	91%	94%	97%	91%	80%	12%	9%	60%	69%	79%	86%	71%
Reliability Based on Occurrance	91%	93%	99%	99%	97%	90%	30%	17%	65%	77%	90%	88%	100%
150 L/s per second or greater taking													
Total Number of Occurrances (days)	2,084	1,920	2,134	2,062	2,107	2,051	2,129	2,094	2,040	2,080	1,986	2,057	24,744
Total Days Period of Record	2,139	2,139	2,139	2,139	2,139	2,139	2,139	2,139	2,139	2,139	2,139	2,139	25,668
Reliability Based on Time	97%	90%	100%	96%	99%	96%	100%	98%	95%	97%	93%	96%	96%
Reliability Based on Occurrance	99%	99%	100%	100%	99%	100%	100%	100%	100%	99%	100%	99%	100%

Table 6 Reliability of 500 L/s ASR Taking from Guelph Dam 1951 to 2019

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	31	6					17	31	205
1952	31	29	30	30	18	6							144
1953		7	31	10	31	24	15		24	20			162
1954		6	31	30	20					16	30	22	155
1955	25		24	30	17						5	31	132
1956	22		20	28	31	13	22	8	30	26	9	31	240
1957	21	28	31	30	31	9	10				15	31	206
1958	26		3	29									58
1959			3	30	31	3						26	93
1960	31	29	5	28	31	28							152
1961		2	16	30	22	16							86
1962				28	10								38
1963			4	30	31	1							66
1964													
1965	21	28	26	23	27						27	31	183
1966	31	23	31	30	31	10						22	178
1967	19	28	8	30	27	20	28	3	30	31	30	31	285
1968	31	29	26	30	29			8	30	31	30	31	275
1969	31	28	18	30	31	8							146
1970				19	31	4				15	30	31	130
1971	31	28	31	30	17	7	1	3	30	22		15	215
1972	31	29	1	18	28	20	18			9	30	31	215
1973	31	28	31	30	31	15						5	171
1974	31	28	31	30	31	20							171
1975			15	30	25							25	95
1976	18	29	31	30	31	10	18	4	15	31	30	26	273
1977			21	30	9				3	31	30	31	155
1978	31	28	14	30	31								134
1979			26	30	31	3						16	106
1980	31	11	12	30	31	11				24	30	31	211
1981	16	20	24	30	18				1	31	30	28	198
1982	17		7	29	12	30	5		4	29	30	31	194
1983	31	28	31	30	31	15						19	185
1984	20	17	31	30	27	11						16	152
1985	31	10	31	30	14	1		2	30	31	30	31	241
1986	31	28	27	30	24	20	15	14	30	31	30	31	311
1987	31	28	31	30	4						1	31	156
1988	31	29	29	30	23						12	31	185
1989	31	22	13	30	31	27	2				3	13	172
1990	14	28	31	30	25	1				20	30	31	210
1991	31	28	31	30	25	5							150
1992	18	20	31	24	24	7	12	30	30	31	30	31	288
1993	31	28	7	30	17	22	3			30	30	31	229
1994	2	6	15	30	31	9							93
1995	16	24	24	15	31	17				26	30	31	214
1996	30	29	31	30	31	30	4		20	31	30	31	297
1997	31	28	31	30	31	2							153
1998	24	28	31	29									112
1999												24	24
2000	29	4	31	30	28	25	21	25	14	23	2	22	254
2001		27	31	30	9	12						31	140
2002	31	28	31	30	31	6							157
2003			4	30	31	22					26	31	144
2004	31	29	31	30	31	21						29	202
2005	31	28	14	30	25							31	159
2006	31	28	31	30	28	5				26	30	31	240
2007	31	18	9	30	28								116
2008	22	29	31	30	28		6	26	30	31	30	31	294
2009	31	28	31	30	30	10				24	30	31	245
2010	20	6	19	24	17	13	6			10	24	26	165
2011	27	10	31	30	31	29	6				30	31	225
2012	31	29	31	5	10							10	116
2013	31	28	29	30	31	30	21	28	30	31	30	31	350
2014	31	28	31	30	31	11	22	31	30	31	30	31	337
2015	31	28	10	30	12	21	21				11	31	195
2016	31	29	31	30	30								151
2017	18	28	31	30	31	21	8				5	7	179
2018	19	28	19	22	29							21	138
2019	31	28	22	30	31	17					7	25	191
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**350**
Average	**21**	**19**	**22**	**27**	**24**	**10**	**4**	**3**	**6**	**10**	**12**	**20**	**177**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Number of Occurrances (days)	1467	1308	1505	1891	1666	674	264	182	381	692	854	1358	12242
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	69%	67%	70%	91%	78%	33%	12%	9%	18%	32%	41%	63%	49%
Reliability Based on Occurrance	80%	80%	94%	97%	94%	70%	30%	17%	25%	39%	54%	74%	99%

Table 7 Reliability of 300 L/s ASR Taking from Guelph Dam 1951 to 2019

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	31	30			30	31	30	31	303
1952	31	29	31	30	31	30			29	31	19	31	292
1953	31	28	31	30	31	30	15		30	31	30	28	315
1954		21	31	30	31	1				17	30	31	192
1955	31	28	31	30	27	15					20	31	213
1956	31	29	31	30	31	30	22	8	30	31	30	31	334
1957	31	28	31	30	31	30	10		30	31	30	31	313
1958	31	28	31	30									120
1959			12	30	31	20				6	30	31	160
1960	31	29	31	30	31	30			30	21	6		239
1961		5	31	30	31	30			30	31	30	31	249
1962	31		3	30	22						19	31	136
1963	31	28	12	30	31	23							155
1964					23	11			30	31	19	7	121
1965	31	28	31	30	31	20			7	31	30	31	270
1966	31	28	31	30	31	30				13	20	31	245
1967	31	28	31	30	31	30	28	3	30	31	30	31	334
1968	31	29	31	30	31	30		8	30	31	30	31	312
1969	31	28	31	30	31	30			30	31	30	31	303
1970	31	28	23	30	31	30			30	31	30	31	295
1971	31	28	31	30	31	30	1	3	30	31	30	31	307
1972	31	29	31	30	31	30	18		30	31	30	31	322
1973	31	28	31	30	31	30			24	27	30	31	293
1974	31	28	31	30	31	30			30	25	10	16	262
1975	19	23	31	30	31	30			30	31	30	31	286
1976	31	29	31	30	31	30	18	4	30	31	30	31	326
1977	31	28	31	30	15				15	31	30	31	242
1978	31	28	31	30	31	18				27	15	31	242
1979	31	28	31	30	31	27					7	31	216
1980	31	29	31	30	31	30			30	31	30	31	304
1981	31	28	31	30	31	3			27	31	30	31	273
1982	31	28	31	30	26	30	5		30	31	30	31	303
1983	31	28	31	30	31	30			22	31	30	31	295
1984	31	29	31	30	31	30			18	31	29	31	291
1985	31	28	31	30	29	28		2	30	31	30	31	301
1986	31	28	31	30	31	30	15	14	30	31	30	31	332
1987	31	28	31	30	7					25	30	31	213
1988	31	29	31	30	31	8				6	30	31	227
1989	31	28	31	30	31	30	2				16	31	230
1990	31	28	31	30	31	30			30	31	30	31	303
1991	31	28	31	30	31	21					4	31	207
1992	31	29	31	30	31	30	12	30	30	31	30	31	346
1993	31	28	31	30	31	30	3		30	31	30	31	306
1994	31	28	31	30	31	30							181
1995	18	28	31	30	31	30			30	31	30	31	290
1996	31	29	31	30	31	30	4		30	31	30	31	308
1997	31	28	31	30	31	30					29	31	241
1998	31	28	31	30	10								130
1999			21	10							24	31	86
2000	31	29	31	30	31	30	21	25	30	31	30	31	350
2001	31	28	31	30	22	30				11	30	31	244
2002	31	28	31	30	31	30							181
2003			10	30	31	30			10	31	30	31	203
2004	31	29	31	30	31	30			30	31	30	31	304
2005	31	28	31	30	31	30			2	20	17	31	251
2006	31	28	31	30	31	28			30	31	30	31	301
2007	31	28	31	30	31	15							166
2008	23	29	31	30	31	30	6	26	30	31	30	31	328
2009	31	28	31	30	31	30			30	31	30	31	303
2010	31	28	31	29	27	30	6		30	31	30	31	304
2011	31	28	31	30	31	30	6		30	31	30	31	309
2012	31	29	31	22	18						28	31	190
2013	31	28	31	30	31	30	21	28	30	31	30	31	352
2014	31	28	31	30	31	30	22	31	30	31	30	31	356
2015	31	28	31	30	23	30	21		30	31	30	31	316
2016	31	29	31	30	31	19							171
2017	21	28	31	30	31	30	8		30	31	30	31	301
2018	31	28	31	30	31	14					8	31	204
2019	31	28	31	30	31	30				16	30	25	252
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**356**
Average	**28**	**26**	**29**	**29**	**28**	**24**	**4**	**3**	**18**	**22**	**24**	**27**	**260**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**86**
Total Number of Occurrances (days)	1910	1773	2003	2011	1954	1651	264	182	1234	1485	1640	1843	17950
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	89%	91%	94%	97%	91%	80%	12%	9%	60%	69%	79%	86%	71%
Reliability Based on Occurrance	91%	93%	99%	99%	97%	90%	30%	17%	65%	77%	90%	88%	100%

Table 8 Reliability of 150 L/s ASR Taking from Guelph Dam 1951 to 2019

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	31	30	31	31	30	31	30	31	365
1952	31	29	31	30	31	30	31	31	30	31	30	31	366
1953	31	28	31	30	31	30	31	31	30	31	30	31	365
1954	31	28	31	30	31	30	31	31	30	31	30	31	365
1955	31	28	31	30	31	30	31	31	30	31	30	31	365
1956	31	29	31	30	31	30	31	31	30	31	30	31	366
1957	31	28	31	30	31	30	31	31	30	31	30	31	365
1958	31	28	31	30	31	30	29	6	30	31	30	31	338
1959	31	28	31	30	31	30	31	31	30	31	30	31	365
1960	31	29	31	30	31	30	31	31	30	31	30	31	366
1961	31	28	31	30	31	30	31	31	30	31	30	31	365
1962	31	28	31	30	31	30	31	31	30	31	30	31	365
1963	31	28	31	30	31	30	31	31	30	29	1		303
1964			26	27	31	30	31	31	30	31	30	31	298
1965	31	28	31	30	31	30	31	31	30	31	30	31	365
1966	31	28	31	30	31	30	31	31	30	31	30	31	365
1967	31	28	31	30	31	30	31	31	30	31	30	31	365
1968	31	29	31	30	31	30	31	31	30	31	30	31	366
1969	31	28	31	30	31	30	31	31	30	31	30	31	365
1970	31	28	31	30	31	30	31	31	30	31	30	31	365
1971	31	28	31	30	31	30	31	31	30	31	30	31	365
1972	31	29	31	30	31	30	31	31	30	31	30	31	366
1973	31	28	31	30	31	30	31	31	30	31	30	31	365
1974	31	28	31	30	31	30	31	31	30	31	30	31	365
1975	31	28	31	30	31	30	31	31	30	31	30	31	365
1976	31	29	31	30	31	30	31	31	30	31	30	31	366
1977	31	28	31	30	31	30	31	31	30	31	30	31	365
1978	31	28	31	30	31	30	31	31	30	31	30	31	365
1979	31	28	31	30	31	30	31	31	30	31	30	31	365
1980	31	29	31	30	31	30	31	31	30	31	30	31	366
1981	31	28	31	30	31	30	31	31	30	31	30	31	365
1982	31	28	31	30	31	30	31	31	30	31	30	31	365
1983	31	28	31	30	31	30	31	31	30	31	30	31	365
1984	31	29	31	30	31	30	31	31	30	31	30	31	366
1985	31	28	31	30	31	30	31	31	30	31	30	31	365
1986	31	28	31	30	31	30	31	31	30	31	30	31	365
1987	31	28	31	30	31	30	31	31	30	31	30	31	365
1988	31	29	31	30	31	30	31	31	30	31	30	31	366
1989	31	28	31	30	31	30	31	31	30	31	30	31	365
1990	31	28	31	30	31	30	31	31	30	31	30	31	365
1991	31	28	31	30	31	30	31	31	30	31	30	31	365
1992	31	29	31	30	31	30	31	31	30	31	30	31	366
1993	31	28	31	30	31	30	31	31	30	31	30	31	365
1994	31	28	31	30	31	30	31	31	30	31	30	31	365
1995	31	28	31	30	31	30	31	31	30	31	30	31	365
1996	31	29	31	30	31	30	31	31	30	31	30	31	366
1997	31	28	31	30	31	30	31	31	30	31	30	31	365
1998	31	28	31	30	31	30	31	31	30	31	28	6	338
1999	7	28	31	25		11	31	31	30	31	30	31	286
2000	31	29	31	30	31	30	31	31	30	31	30	31	366
2001	31	28	31	30	31	30	31	31	30	31	30	31	365
2002	31	28	31	30	31	30	31	31	30	31	30	31	365
2003	31	28	31	30	31	30	31	31	30	31	30	31	365
2004	31	29	31	30	31	30	31	31	30	31	30	31	366
2005	31	28	31	30	31	30	31	31	30	31	30	31	365
2006	31	28	31	30	31	30	31	31	30	31	30	31	365
2007	31	28	31	30	31	30	31	31	14	5	2	25	289
2008	31	29	31	30	31	30	31	31	30	31	30	31	366
2009	31	28	31	30	31	30	31	31	30	31	30	31	365
2010	31	28	31	30	31	30	31	31	30	31	30	31	365
2011	31	28	31	30	31	30	31	31	30	31	30	31	365
2012	31	29	31	30	30	30	23	18	23	31	30	31	337
2013	31	28	31	30	31	30	31	31	30	31	30	31	365
2014	31	28	31	30	31	30	31	31	30	31	30	31	365
2015	31	28	31	30	31	30	31	31	30	31	30	31	365
2016	31	29	31	30	31	30	31	24	23		5	11	276
2017	31	28	31	30	31	30	31	31	30	31	30	31	365
2018	31	28	31	30	31	30	31	31	30	31	30	31	365
2019	31	28	31	30	31	30	31	31	30	31	30	31	365
Max	**31**	**29**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**366**
Average	**34**	**31**	**34**	**33**	**34**	**33**	**34**	**34**	**33**	**34**	**32**	**33**	**399**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Number of Occurrances (days)	2084	1920	2134	2062	2107	2051	2129	2094	2040	2080	1986	2057	24744
Total Days Period of Record	2139	2139	2139	2139	2139	2139	2139	2139	2139	2139	2139	2139	25668
Reliability Based on Time	97%	90%	100%	96%	99%	96%	100%	98%	95%	97%	93%	96%	96%
Reliability Based on Occurrance	99%	99%	100%	100%	99%	100%	100%	100%	100%	99%	100%	99%	100%

Eramosa River Intake:

Existing PTTW Reliabilities

The existing Permit to Take Water (6126-B64J83) was issued in 2018 and is set to expire in 2028. It allows for a stepped taking over the April to November period as long as the flow at Eramosa flow gauge stays at or above 0.43 m^3/s and the flow at the Edinburgh Rd gauge stays above 0.85m^3/s. The conditions on the most recent PTTW have not changed from past permits for this site. Since Guelph Dam is operated to maintain flows well above 0.85m^3/s at the Edinburgh gauge this permit condition was not included in the analysis. Table 9 gives the permitted flow rates and the required flow rates needed for each of the takings through the year. Currently, the City is limited by infrastructure to a taking of 100 L/s.

Table 9 Eramosa Intake Permit to Take Water Conditions

Time Frame of Permitted Taking	Permitted Daily Rate (m^3/s)	Eramosa River Flow Condition (m^3/s)	Required Eramosa Flow for Given Taking (m^3/s)
April 15 to May 31	0.368	> 0.42	0.788
June 1 to June 30	0.261	> 0.42	0.681
July 1 to July 15	0.211	> 0.42	0.631
July 16 to Aug. 31	0.158	> 0.42	0.578
Sept. 1 to Nov. 31	0.105	> 0.42	0.525

Figure 2 illustrates the flow reliability of the existing permit to take water at the site of the Eramosa Intake. The permitted taking associated with this permit varies throughout the period of April 15th thru Dec 1st as illustrated by the blue line in the lower portion of the chart. Reliability of river flow equaling or exceeding the permitted taking is illustrated by the reliability lines at the top of the chart by day of year for the period 1962 to 2019. This chart illustrates the probability on any given day of the flow exceeding the indicated value and does not take into consideration the seasonal variation in permitted takings.

Figure 2: Flow Reliability – Existing Permit to Take Water

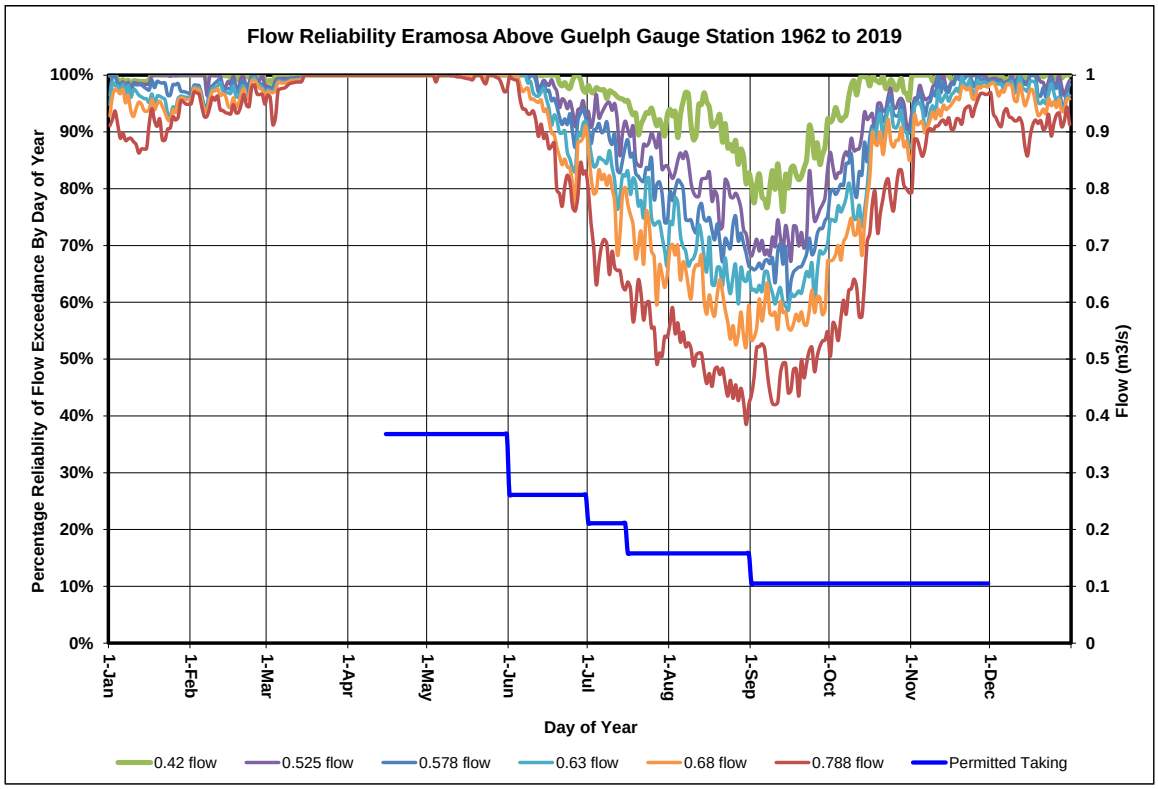


Table 10 summarizes the number of days in a given month and year the river flow exceeds the required flow to support the given taking. A breakdown by year is given in Tables in Appendix D.

Although the results show a high reliability of flow being available to support increasing the existing surface water taking at Arkell to the takings permitted in the current permit to take water, there are a number of years when drought conditions could affect higher taking rates for an extended period. The July to October period can be especially dry. In 2016, 2012, 2007, 1999 and 1998 there were only had a handful of days when flows were high enough for the maximum taking.

Table 10 Summary of Eramosa River at Watson Road Related to Eramosa Intake PTTW 1962 - 2019

Description	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Apr to Nov
Naturalized Flows Exceeding 0.42m^3/s													
Total Number of Occurrences (days)	1786	1630	1795	1740	1798	1734	1714	1675	1534	1755	1735	1785	13685
Total Number of Occurrences (years)	0	0	0	0	0	0	1	0	0	0	0	0	0
Reliability based on Time	99%	100%	100%	100%	100%	100%	95%	93%	88%	98%	100%	99%	97%
Reliability based on Occurrences	100%	100%	100%	100%	100%	100%	98%	100%	100%	100%	100%	100%	100%
Naturalized Flows Exceeding 0.525m^3/s													
Total Number of Occurrences (days)	1780	1625	1783	1740	1798	1697	1643	1505	1323	1655	1715	1769	13076
Total Number of Occurrences (years)	0	0	0	0	0	0	1	0	3	0	0	0	0
Reliability based on Time	99%	99%	99%	100%	100%	98%	91%	84%	76%	92%	99%	98%	92%
Reliability based on Occurrences	100%	100%	100%	100%	100%	100%	98%	100%	95%	100%	100%	100%	100%
Naturalized Flows Exceeding 0.578m^3/s													
Total Number of Occurrences (days)	1755	1610	1781	1740	1797	1679	1584	1411	1254	1595	1696	1752	12756
Total Number of Occurrences (years)	0	0	0	0	0	0	1	0	3	0	0	0	0
Reliability based on Time	98%	98%	99%	100%	100%	96%	88%	78%	72%	89%	97%	97%	90%
Reliability based on Occurrences	100%	100%	100%	100%	100%	100%	98%	100%	95%	100%	100%	100%	100%
Naturalized Flows Exceeding 0.631m^3/s													
Total Number of Occurrences (days)	1723	1581	1780	1740	1796	1661	1514	1324	1184	1532	1664	1737	12415
Total Number of Occurrences (years)	0	0	0	0	0	0	2	2	5	0	0	0	0
Reliability based on Time	96%	97%	99%	100%	100%	95%	84%	74%	68%	85%	96%	97%	88%
Reliability based on Occurrences	100%	100%	100%	100%	100%	100%	96%	96%	91%	100%	100%	100%	100%
Naturalized Flows Exceeding 0.681m^3/s													
Total Number of Occurrences (days)	1698	1570	1780	1740	1794	1635	1433	1218	1105	1481	1637	1713	12043
Total Number of Occurrences (years)	0	0	0	0	0	0	2	2	5	0	0	0	0
Reliability based on Time	94%	96%	99%	100%	100%	94%	80%	68%	64%	82%	94%	95%	85%
Reliability based on Occurrences	100%	100%	100%	100%	100%	100%	96%	96%	91%	100%	100%	100%	100%
Naturalized Flows Exceeding 0.788m^3/s													
Total Number of Occurrences (days)	1622	1547	1769	1740	1781	1564	1226	993	910	1305	1586	1642	11105
Total Number of Occurrences (years)	0	0	0	0	0	0	3	4	7	1	0	0	0
Reliability based on Time	90%	94%	98%	100%	99%	90%	68%	55%	52%	73%	91%	91%	78%
Reliability based on Occurrences	100%	100%	100%	100%	100%	100%	95%	93%	88%	98%	100%	100%	100%

Potential Eramosa ASR

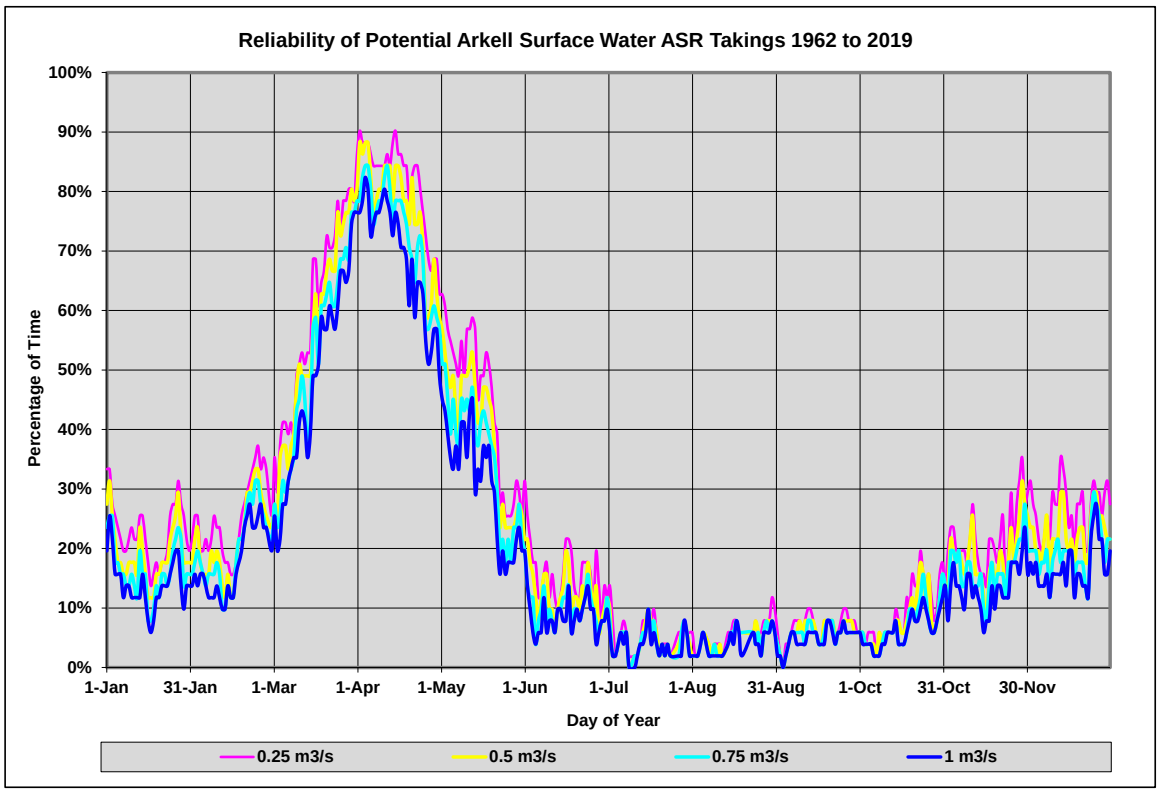
The last analysis looks at the potential for the Eramosa River to handle additional water taking for an ASR. It was assumed that taking for an ASR would be confined to periods when stream flow exceeded the mean annual flow of 2.48 m^3/s, in other words flows greater than 2.5m^3/s. To ensure minimal impact to river flows, takings would be scaled to match increasing flows.

The ASR taking would be further restricted to the following scaled increases:

Between	2.5 and 2.75 m^3/s	no ASR taking
Between	2.75 and 3.0 m^3/s	a taking of 0.25 m^3/s is assumed
Between	3.00 and 3.25 m^3/s	a taking of 0.50 m^3/s is assumed
Between	3.25 and 3.5 m^3/s	a taking of 0.75 m^3/s is assumed
Above	3.5 m^3/s	a taking of 1 m^3/s is assumed

A percentile assessment was used to show the reliability of takings for an ASR over time. The results are given in Figure 3. Other than the spring period, there is limited potential for an increased ASR taking beyond the existing PTTW.

Figure 3 Potential ASR Taking Reliability Statistics



Reference to Previous Technical Memo

February 25, 2014 Memo D. Boyd GRCA to Patty Quackenbush AECOM

October 31st, 2005 Memo D. Boyd GRCA to Patty Quackenbush Earth Tec

Appendix A – Base Municipal Taking Reliability Summaries for Various Scenarios

Scenario #1

Municipal Taking	0.15 m^3/s	Eramosa Intake	Existing (0.1 m^3/s)
ASR Taking	1.0 m^3/s	ASR Step Taking	none

Scenario 1 Number of Days Base Municipal Taking is not Available													
Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951													
1952													
1953													
1954													
1955													
1956													
1957													
1958								15					15
1959													
1960													
1961													
1962													
1963												29	29
1964	31	1											32
1965													
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980													
1981													
1982													
1983													
1984													
1985													
1986													
1987													
1988													
1989													
1990													
1991													
1992													
1993													
1994													
1995													
1996													
1997													
1998											11	31	42
1999	24			4	31	8							67
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007									3	5	27	3	38
2008													
2009													
2010													
2011													
2012					1		8	12	7				28
2013													
2014													
2015													
2016											15	12	27
2017													
2018													
2019													
Max	**31**	**1**	**0**	**4**	**31**	**8**	**8**	**15**	**7**	**5**	**27**	**31**	**67**
Total Number of Occurrances (days)	55	1	0	4	32	8	8	27	10	5	53	75	278
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	97%	100%	100%	100%	99%	100%	100%	99%	100%	100%	97%	96%	99%
Reliability Based on Occurrance	97%	99%	100%	99%	97%	99%	99%	97%	97%	99%	96%	94%	88%

Scenario #2

Municipal Taking	0.15 m^3/s	Eramosa Intake	Existing (0.1 m^3/s)
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 2 Number of Days Base Municipal Taking is not Available													
Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951													
1952													
1953													
1954													
1955													
1956													
1957													
1958								8					8
1959													
1960													
1961													
1962													
1963												27	27
1964	31												31
1965													
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980													
1981													
1982													
1983													
1984													
1985													
1986													
1987													
1988													
1989													
1990													
1991													
1992													
1993													
1994													
1995													
1996													
1997													
1998											9	31	40
1999	24			4	31	7							66
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007										1	27	3	31
2008													
2009													
2010													
2011													
2012							5	8	3				16
2013													
2014													
2015													
2016											10	10	20
2017													
2018													
2019													
Max	**31**	**0**	**0**	**4**	**31**	**7**	**5**	**8**	**3**	**1**	**27**	**31**	**66**
Total Number of Occurrances (days)	55	0	0	4	31	7	5	16	3	1	46	71	239
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	97%	100%	100%	100%	99%	100%	100%	99%	100%	100%	98%	97%	99%
Reliability Based on Occurrance	97%	100%	100%	99%	99%	99%	99%	97%	99%	99%	96%	94%	88%

Scenario #3

Municipal Taking	0.2 m^3/s	Eramosa Intake	Existing (0.1 m^3/s)
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 3 Number of Days Base Municipal Taking is not Available

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951													
1952													
1953													
1954													
1955													
1956													
1957													
1958							6	21					27
1959													
1960													
1961		4											4
1962													
1963											20	31	51
1964	31	25	2	1	1								60
1965													
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980													
1981													
1982													
1983													
1984													
1985													
1986													
1987													
1988													
1989													
1990													
1991													
1992													
1993													
1994													
1995													
1996													
1997													
1998										7	29	31	67
1999	25			5	31	23			12				96
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007									13	17	29	9	68
2008													
2009													
2010													
2011													
2012							10	19	8				37
2013													
2014													
2015													
2016									2	18	21	19	60
2017													
2018													
2019													
Max	**31**	**25**	**2**	**5**	**31**	**23**	**10**	**21**	**13**	**18**	**29**	**31**	**96**
Total Number of Occurrances (days)	56	29	2	6	32	23	16	40	35	42	99	90	470
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	97%	99%	100%	100%	99%	99%	99%	98%	98%	98%	95%	96%	98%
Reliability Based on Occurrance	97%	97%	99%	97%	97%	99%	97%	97%	94%	96%	94%	94%	87%

Scenario #4

Municipal Taking	0.25 m^3/s	Eramosa Intake	Existing (0.1 m^3/s)
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 4 Number of Days Base Municipal Taking is not Available

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951													
1952													
1953													
1954													
1955													
1956													
1957													
1958						4	15	21					40
1959													
1960													
1961		19											19
1962									2				2
1963										5	29	31	65
1964	31	29	4	4	1								69
1965													
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980													
1981													
1982													
1983													
1984													
1985													
1986													
1987													
1988													
1989													
1990													
1991													
1992													
1993													
1994													
1995													
1996													
1997													
1998									17	20	30	31	98
1999	25			7	31	28		4	23				118
2000													
2001													
2002													
2003			10										10
2004													
2005													
2006													
2007									25	27	29	13	94
2008													
2009													
2010													
2011													
2012					1		14	29	9				53
2013													
2014													
2015													
2016								6	9	26	24	22	87
2017													
2018													
2019													
Max	**31**	**29**	**10**	**7**	**31**	**28**	**15**	**29**	**25**	**27**	**30**	**31**	**118**
Total Number of Occurrances (days)	56	48	14	11	33	32	29	60	85	78	112	97	655
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	97%	98%	99%	99%	98%	98%	99%	97%	96%	96%	95%	95%	97%
Reliability Based on Occurrance	97%	97%	97%	97%	96%	97%	97%	94%	91%	94%	94%	94%	84%

Scenario #5

Municipal Taking	0.3 m^3/s	Eramosa Intake	Existing (0.1 m^3/s)
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 5 Number of Days Base Municipal Taking is not Available													
Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951													
1952													
1953													
1954													
1955									15	3			18
1956													
1957													
1958						13	17	21					51
1959													
1960													
1961	11	22											33
1962									22				22
1963										21	30	31	82
1964	31	29	5	5	3								73
1965													
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980													
1981													
1982													
1983													
1984													
1985													
1986													
1987													
1988													
1989													
1990													
1991													
1992													
1993													
1994													
1995													
1996													
1997													
1998							3	6	23	26	30	31	119
1999	25			8	31	29		12	30				135
2000													
2001													
2002													
2003		19	18										37
2004													
2005													
2006													
2007								2	30	31	30	18	111
2008													
2009													
2010													
2011													
2012					2		17	31	16				66
2013													
2014													
2015													
2016								12	15	30	27	23	107
2017													
2018													
2019													
Max	**31**	**29**	**18**	**8**	**31**	**29**	**17**	**31**	**30**	**31**	**30**	**31**	**135**
Total Number of Occurrances (days)	67	70	23	13	36	42	37	84	151	111	117	103	854
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	97%	96%	99%	99%	98%	98%	98%	96%	93%	95%	94%	95%	97%
Reliability Based on Occurrance	96%	96%	97%	97%	96%	97%	96%	91%	90%	93%	94%	94%	83%

Scenario #6

Municipal Taking	0.15 m^3/s	Eramosa Intake	Abandon
ASR Taking	1.0 m^3/s	ASR Step Taking	none

Scenario 6 Number of Days Base Municipal Taking is not Available

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951													
1952													
1953													
1954													
1955													
1956													
1957													
1958								15					15
1959													
1960													
1961													
1962													
1963												29	29
1964	31	1											32
1965													
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980													
1981													
1982													
1983													
1984													
1985													
1986													
1987													
1988													
1989													
1990													
1991													
1992													
1993													
1994													
1995													
1996													
1997													
1998												21	21
1999	24			3	31	1							59
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007										1	27	3	31
2008													
2009													
2010													
2011													
2012					1		8	12	7				28
2013													
2014													
2015													
2016											15	12	27
2017													
2018													
2019													
Max	**31**	**1**	**0**	**3**	**31**	**1**	**8**	**15**	**7**	**1**	**27**	**29**	**59**
Total Number of Occurrances (days)	55	1	0	3	32	1	8	27	7	1	42	65	242
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	97%	100%	100%	100%	99%	100%	100%	99%	100%	100%	98%	97%	99%
Reliability Based on Occurrance	97%	99%	100%	99%	97%	99%	99%	97%	99%	99%	97%	94%	88%

Scenario #7

Municipal Taking	0.15 m^3/s	Eramosa Intake	Abandon
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 7 Number of Days Base Municipal Taking is not Available													
Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951													
1952													
1953													
1954													
1955													
1956													
1957													
1958								8					8
1959													
1960													
1961													
1962													
1963												27	27
1964	31												31
1965													
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980													
1981													
1982													
1983													
1984													
1985													
1986													
1987													
1988													
1989													
1990													
1991													
1992													
1993													
1994													
1995													
1996													
1997													
1998												17	17
1999	24			3	31	1							59
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007											24	1	25
2008													
2009													
2010													
2011													
2012							5	8	3				16
2013													
2014													
2015													
2016											10	10	20
2017													
2018													
2019													
Max	**31**	**0**	**0**	**3**	**31**	**1**	**5**	**8**	**3**	**0**	**24**	**27**	**59**
Total Number of Occurrances (days)	55	0	0	3	31	1	5	16	3	0	34	55	203
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	97%	100%	100%	100%	99%	100%	100%	99%	100%	100%	98%	97%	99%
Reliability Based on Occurrance	97%	100%	100%	99%	99%	99%	99%	97%	99%	100%	97%	94%	88%

Scenario #8

Municipal Taking	0.2 m^3/s	Eramosa Intake	Abandon
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 8 Number of Days Base Municipal Taking is not Available													
Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951													
1952													
1953													
1954													
1955													
1956													
1957													
1958							6	21					27
1959													
1960													
1961		4											4
1962													
1963											20	31	51
1964	31	25	2	1	1								60
1965													
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980													
1981													
1982													
1983													
1984													
1985													
1986													
1987													
1988													
1989													
1990													
1991													
1992													
1993													
1994													
1995													
1996													
1997													
1998											15	31	46
1999	25			5	31	18			1				80
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007									11	13	29	9	62
2008													
2009													
2010													
2011													
2012							10	19	8				37
2013													
2014													
2015													
2016									2	17	21	19	59
2017													
2018													
2019													
Max	**31**	**25**	**2**	**5**	**31**	**18**	**10**	**21**	**11**	**17**	**29**	**31**	**80**
Total Number of Occurrances (days)	56	29	2	6	32	18	16	40	22	30	85	90	426
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	97%	99%	100%	100%	99%	99%	99%	98%	99%	99%	96%	96%	98%
Reliability Based on Occurrance	97%	97%	99%	97%	97%	99%	97%	97%	94%	97%	94%	94%	87%

Scenario #9

Municipal Taking	0.25 m^3/s	Eramosa Intake	Abandon
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 9 Number of Days Base Municipal Taking is not Available

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951													
1952													
1953													
1954													
1955													
1956													
1957													
1958						4	15	21					40
1959													
1960													
1961		19											19
1962									2				2
1963										5	29	31	65
1964	31	29	4	4	1								69
1965													
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980													
1981													
1982													
1983													
1984													
1985													
1986													
1987													
1988													
1989													
1990													
1991													
1992													
1993													
1994													
1995													
1996													
1997													
1998										9	29	31	69
1999	25			6	31	28			17				107
2000													
2001													
2002													
2003			6										6
2004													
2005													
2006													
2007									23	23	29	14	89
2008													
2009													
2010													
2011													
2012					1		14	29	9				53
2013													
2014													
2015													
2016								6	9	26	24	22	87
2017													
2018													
2019													
Max	**31**	**29**	**6**	**6**	**31**	**28**	**15**	**29**	**23**	**26**	**29**	**31**	**107**
Total Number of Occurrances (days)	56	48	10	10	33	32	29	56	60	63	111	98	606
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	97%	98%	100%	100%	98%	98%	99%	97%	97%	97%	95%	95%	98%
Reliability Based on Occurrance	97%	97%	97%	97%	96%	97%	97%	96%	93%	94%	94%	94%	84%

Scenario #10

Municipal Taking	0.3 m^3/s	Eramosa Intake	Abandon
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 10 Number of Days Base Municipal Taking is not Available

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951													
1952													
1953													
1954													
1955									15	3			18
1956													
1957													
1958						13	17	21					51
1959													
1960													
1961	11	22											33
1962									22				22
1963										21	30	31	82
1964	31	29	5	5	3								73
1965													
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980													
1981													
1982													
1983													
1984													
1985													
1986													
1987													
1988													
1989													
1990													
1991													
1992													
1993													
1994													
1995													
1996													
1997													
1998							2	6	14	13	29	31	95
1999	25			8	31	29		6	25				124
2000													
2001													
2002													
2003		17	18										35
2004													
2005													
2006													
2007									30	31	30	16	107
2008													
2009													
2010													
2011													
2012					2		17	31	16				66
2013													
2014													
2015													
2016								12	15	30	27	23	107
2017													
2018													
2019													
Max	**31**	**29**	**18**	**8**	**31**	**29**	**17**	**31**	**30**	**31**	**30**	**31**	**124**
Total Number of Occurrances (days)	67	68	23	13	36	42	36	76	137	98	116	101	813
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	97%	97%	99%	99%	98%	98%	98%	96%	93%	95%	94%	95%	97%
Reliability Based on Occurrance	96%	96%	97%	97%	96%	97%	96%	93%	90%	93%	94%	94%	83%

Scenario #11

Municipal Taking	0.15 m^3/s	Eramosa Intake	Maximize
ASR Taking	1.0 m^3/s	ASR Step Taking	none

Scenario 11 Number of Days Base Municipal Taking is not Available

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951													
1952													
1953													
1954													
1955													
1956													
1957													
1958							5	26					31
1959													
1960													
1961													
1962													
1963											25	31	56
1964	31	29	4	1									65
1965													
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980													
1981													
1982													
1983													
1984													
1985													
1986													
1987													
1988													
1989													
1990													
1991													
1992													
1993													
1994													
1995													
1996													
1997													
1998											2	25	27
1999	24			3	31	9							67
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007									15	23	28	5	71
2008													
2009													
2010													
2011													
2012					1		8	14	7				30
2013													
2014													
2015													
2016								4	6	29	22	20	81
2017													
2018													
2012													
Max	**31**	**29**	**4**	**3**	**31**	**9**	**8**	**26**	**15**	**29**	**28**	**31**	**81**
Total Number of Occurrances (days)	55	29	4	4	32	9	13	44	28	52	77	81	428
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	97%	99%	100%	100%	99%	100%	99%	98%	99%	98%	96%	96%	98%
Reliability Based on Occurrance	97%	99%	99%	97%	97%	99%	97%	96%	96%	97%	94%	94%	88%

Scenario #12

Municipal Taking	0.15 m^3/s	Eramosa Intake	Maximize
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 12 Number of Days Base Municipal Taking is not Available													
Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951													
1952													
1953													
1954													
1955													
1956													
1957													
1958							2	24					26
1959													
1960													
1961													
1962													
1963											25	31	56
1964	31	29	4										64
1965													
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980													
1981													
1982													
1983													
1984													
1985													
1986													
1987													
1988													
1989													
1990													
1991													
1992													
1993													
1994													
1995													
1996													
1997													
1998												24	24
1999	24			3	31	9							67
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007									12	18	28	4	62
2008													
2009													
2010													
2011													
2012							5	9	6				20
2013													
2014													
2015													
2016									5	26	22	20	73
2017													
2018													
2019													
Max	**31**	**29**	**4**	**3**	**31**	**9**	**5**	**24**	**12**	**26**	**28**	**31**	**73**
Total Number of Occurrances (days)	55	29	4	3	31	9	7	33	23	44	75	79	392
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	97%	99%	100%	100%	99%	100%	100%	98%	99%	98%	96%	96%	98%
Reliability Based on Occurrance	97%	99%	99%	99%	99%	99%	97%	97%	96%	97%	96%	94%	88%

Scenario #13

Municipal Taking	0.2 m^3/s	Eramosa Intake	Maximize
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 13 Number of Days Base Municipal Taking is not Available													
Date	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
1951													
1952													
1953													
1954													
1955									4	5			9
1956													
1957													
1958							12	28					40
1959													
1960													
1961		8											8
1962													
1963										16	30	31	77
1964	31	29	5	4	1								70
1965													
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980													
1981													
1982													
1983													
1984													
1985													
1986													
1987													
1988													
1989													
1990													
1991													
1992													
1993													
1994													
1995													
1996													
1997													
1998											20	31	51
1999	25			5	31	23			12				96
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007									24	31	29	12	96
2008													
2009													
2010													
2011													
2012							10	21	9				40
2013													
2014													
2015													
2016								8	12	31	30	23	104
2017													
2018													
2019													
Max	**31**	**29**	**5**	**5**	**31**	**23**	**12**	**28**	**24**	**31**	**30**	**31**	**104**
Total Number of Occurrances (days)	56	37	5	9	32	23	22	57	61	83	109	97	591
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	97%	98%	100%	100%	99%	99%	99%	97%	97%	96%	95%	95%	98%
Reliability Based on Occurrance	97%	97%	99%	97%	97%	99%	97%	96%	93%	94%	94%	94%	86%

Scenario #14

Municipal Taking	0.25 m^3/s	Eramosa Intake	Maximize
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 14 Number of Days Base Municipal Taking is not Available

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951													
1952													
1953													
1954													
1955									23	6			29
1956													
1957													
1958						8	19	28					55
1959													
1960													
1961	1	21											22
1962									22				22
1963									3	30	30	31	94
1964	31	29	5	5	2								72
1965													
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980													
1981													
1982													
1983													
1984													
1985													
1986													
1987													
1988													
1989													
1990													
1991													
1992													
1993													
1994													
1995													
1996													
1997													
1998									6	13	29	31	79
1999	25			7	31	29		4	24				120
2000													
2001													
2002													
2003			10										10
2004													
2005													
2006													
2007								1	30	31	30	23	115
2008													
2009													
2010													
2011													
2012					1		14	31	11				57
2013													
2014													
2015													
2016								15	16	31	30	27	119
2017													
2018													
2019													
Max	**31**	**29**	**10**	**7**	**31**	**29**	**19**	**31**	**30**	**31**	**30**	**31**	**120**
Total Number of Occurrances (days)	57	50	15	12	34	37	33	79	135	111	119	112	794
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	97%	97%	99%	99%	98%	98%	98%	96%	93%	95%	94%	95%	97%
Reliability Based on Occurrance	96%	97%	97%	97%	96%	97%	97%	93%	88%	93%	94%	94%	83%

Scenario #15

Municipal Taking	0.3 m^3/s	Eramosa Intake	Maximize
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 15 Number of Days Base Municipal Taking is not Available

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951													
1952													
1953													
1954													
1955								12	28	6			46
1956													
1957													
1958						15	22	28					65
1959													
1960													
1961	16	22											38
1962									30	6			36
1963									16	31	30	31	108
1964	31	29	6	6	4								76
1965													
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980													
1981													
1982													
1983													
1984													
1985													
1986													
1987													
1988													
1989													
1990													
1991													
1992													
1993													
1994													
1995													
1996													
1997													
1998							2	6	17	18	29	31	103
1999	25			8	31	30		12	30	1			137
2000													
2001													
2002													
2003		25	18										43
2004													
2005													
2006													
2007								13	30	31	30	23	127
2008													
2009													
2010													
2011													
2012					2		17	31	18				68
2013													
2014													
2015													
2016							5	16	23	31	30	27	132
2017													
2018									3				3
2019													
Max	**31**	**29**	**18**	**8**	**31**	**30**	**22**	**31**	**30**	**31**	**30**	**31**	**137**
Total Number of Occurrances (days)	72	76	24	14	37	45	46	118	195	124	119	112	982
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	97%	96%	99%	99%	98%	98%	98%	94%	91%	94%	94%	95%	96%
Reliability Based on Occurrance	96%	96%	97%	97%	96%	97%	94%	90%	87%	90%	94%	94%	81%

Scenario #16

Municipal Taking	0.15 m^3/s	Eramosa Intake	Maximize
ASR Taking	0.5 m^3/s	ASR Step Taking	0.3 m^3/s

Scenario 16 Number of Days Base Municipal Taking is not Available

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951													
1952													
1953													
1954													
1955													
1956													
1957													
1958							2	25					27
1959													
1960													
1961													
1962													
1963										2	29	31	62
1964	31	29	5	3									68
1965													
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980													
1981													
1982													
1983													
1984													
1985													
1986													
1987													
1988													
1989													
1990													
1991													
1992													
1993													
1994													
1995													
1996													
1997													
1998											2	25	27
1999	24			5	31	19							79
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007									16	26	28	6	76
2008													
2009													
2010													
2011													
2012					1		8	13	7				29
2013													
2014													
2015													
2016								7	7	31	25	20	90
2017													
2018													
2019													
Max	**31**	**29**	**5**	**5**	**31**	**19**	**8**	**25**	**16**	**31**	**29**	**31**	**90**
Total Number of Occurrances (days)	55	29	5	8	32	19	10	45	30	59	84	82	458
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	97%	99%	100%	100%	99%	99%	100%	98%	99%	97%	96%	96%	98%
Reliability Based on Occurrance	97%	99%	99%	97%	97%	99%	97%	96%	96%	96%	94%	94%	88%

Scenario #17

Municipal Taking	0.2 m^3/s	Eramosa Intake	Maximize
ASR Taking	0.5 m^3/s	ASR Step Taking	0.3 m^3/s

Scenario 17 Number of Days Base Municipal Taking is not Available													
Date	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
1951													
1952													
1953													
1954													
1955									9	6			15
1956													
1957													
1958							12	28					40
1959													
1960													
1961		14											14
1962									2				2
1963										20	30	31	81
1964	31	29	5	4	1								70
1965													
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980													
1981													
1982													
1983													
1984													
1985													
1986													
1987													
1988													
1989													
1990													
1991													
1992													
1993													
1994													
1995													
1996													
1997													
1998											23	31	54
1999	25			5	31	28			13				102
2000													
2001													
2002													
2003													
2004													
2005													
2006													
2007									26	31	30	15	102
2008													
2009													
2010													
2011													
2012					1		12	24	9				46
2013													
2014													
2015													
2016								12	14	31	30	26	113
2017													
2018													
2019													
Max	**31**	**29**	**5**	**5**	**31**	**28**	**12**	**28**	**26**	**31**	**30**	**31**	**113**
Total Number of Occurrances (days)	56	43	5	9	33	28	24	64	73	88	113	103	639
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	97%	98%	100%	100%	98%	99%	99%	97%	96%	96%	95%	95%	97%
Reliability Based on Occurrance	97%	97%	99%	97%	96%	99%	97%	96%	91%	94%	94%	94%	84%

Scenario #18

Municipal Taking	0.25 m^3/s	Eramosa Intake	Maximize
ASR Taking	0.5 m^3/s	ASR Step Taking	0.3 m^3/s

Scenario 18 Number of Days Base Municipal Taking is not Available

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951													
1952													
1953													
1954													
1955								1	26	6			33
1956													
1957													
1958						9	18	28					55
1959													
1960													
1961	4	21											25
1962									22				22
1963									5	31	30	31	97
1964	31	29	6	5	2								73
1965													
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980													
1981													
1982													
1983													
1984													
1985													
1986													
1987													
1988													
1989													
1990													
1991													
1992													
1993													
1994													
1995													
1996													
1997													
1998									7	13	29	31	80
1999	25			7	31	29		5	24				121
2000													
2001													
2002													
2003			11										11
2004													
2005													
2006													
2007								3	30	31	30	23	117
2008													
2009													
2010													
2011													
2012					1		15	31	13				60
2013													
2014													
2015													
2016							2	15	18	31	30	27	123
2017													
2018													
2019													
Max	**31**	**29**	**11**	**7**	**31**	**29**	**18**	**31**	**30**	**31**	**30**	**31**	**123**
Total Number of Occurrances (days)	60	50	17	12	34	38	35	83	145	112	119	112	817
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	97%	97%	99%	99%	98%	98%	98%	96%	93%	95%	94%	95%	97%
Reliability Based on Occurrance	96%	97%	97%	97%	96%	97%	96%	91%	88%	93%	94%	94%	83%

Scenario #19

Municipal Taking	0.3 m^3/s	Eramosa Intake	Maximize
ASR Taking	0.5 m^3/s	ASR Step Taking	0.3 m^3/s

Scenario 19 Number of Days Base Municipal Taking is not Available

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951													
1952													
1953													
1954													
1955								12	28	6			46
1956													
1957													
1958						15	22	28					65
1959													
1960													
1961	16	22											38
1962									30	6			36
1963									16	31	30	31	108
1964	31	29	6	6	4								76
1965													
1966													
1967													
1968													
1969													
1970													
1971													
1972													
1973													
1974													
1975													
1976													
1977													
1978													
1979													
1980													
1981													
1982													
1983													
1984													
1985													
1986													
1987													
1988													
1989													
1990													
1991													
1992													
1993													
1994													
1995													
1996													
1997													
1998							2	6	17	18	29	31	103
1999	25			8	31	30		12	30	1			137
2000													
2001													
2002													
2003		25	18										43
2004													
2005													
2006													
2007								13	30	31	30	23	127
2008													
2009													
2010													
2011													
2012					2		17	31	18				68
2013													
2014													
2015													
2016							5	16	23	31	30	27	132
2017													
2018									3				3
2019													
Max	**31**	**29**	**18**	**8**	**31**	**30**	**22**	**31**	**30**	**31**	**30**	**31**	**137**
Total Number of Occurrances (days)	72	76	24	14	37	45	46	118	195	124	119	112	982
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	97%	96%	99%	99%	98%	98%	98%	94%	91%	94%	94%	95%	96%
Reliability Based on Occurrance	96%	96%	97%	97%	96%	97%	94%	90%	87%	90%	94%	94%	81%

Appendix B – Reliability of Available Taking Exceeding Base Municipal Taking

Scenario #1

Municipal Taking	0.15 m^3/s	Eramosa Intake	Existing (0.1 m^3/s)
ASR Taking	1.0 m^3/s	ASR Step Taking	none

Scenario 1 Number of Days Allowable Taking Exceeds Base Municipal Taking													
Date	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
1951	31	28	31	30	19	2				9	18	27	195
1952	31	29	25	30	13	3							131
1953	9	8	31	8	28	20	12		13	8			137
1954		7	31	30	15					16	30	7	136
1955	21		27	30	9						12	26	125
1956	3		18	28	31	7	14	8	30	20	9	30	198
1957	15	28	31	30	27	6	8				20	30	195
1958	17		4	25									46
1959			3	30	26						11	26	96
1960	30	26	2	28	31	21							138
1961		3	13	27	18	15							76
1962				30	1							8	39
1963			5	29	22								56
1964					2								2
1965	20	21	19	23	22					8	29	31	173
1966	24	18	31	30	23	8						23	157
1967	7	24	3	30	21	20	21	2	20	30	30	31	239
1968	15	29	19	25	14			8	30	30	22	31	223
1969	22	28	14	30	31						10	4	139
1970				21	23					18	30	31	123
1971	26	19	11	29	13	6	2	3	30	10		17	166
1972	24	12		18	24	16	10			17	30	26	177
1973	31	25	27	30	28	11					3	17	172
1974	20	28	29	28	31	11							147
1975		2	21	27	18	1				3	8	21	101
1976	8	23	31	30	31	7	13		16	31	28	13	231
1977			21	30	4				4	31	30	31	151
1978	31	24	7	30	26								118
1979	6		27	30	25							17	105
1980	31	2	12	30	27	4				23	13	28	170
1981	9	16	18	26	7				6	31	30	19	162
1982	7		8	30	6	30	2		5	22	29	31	170
1983	31	28	31	30	31	13						25	189
1984	15	17	31	30	16	5						21	135
1985	24	5	31	30	7	1		2	30	30	30	31	221
1986	31	22	20	30	20	17	11	12	30	31	29	31	284
1987	31	22	30	29							2	31	145
1988	25	29	23	30	15						14	21	157
1989	31	15	12	30	29	23					3	6	149
1990	14	28	31	30	16					21	30	31	201
1991	31	28	31	30	19	2							141
1992	17	18	25	20	21	6	9	27	30	31	30	31	265
1993	31	23	3	30	13	19	1		2	25	17	24	188
1994		7	14	30	31	6							88
1995	16	13	24	14	30	15				20	30	31	193
1996	19	29	31	30	31	25	2		20	31	30	31	279
1997	31	28	31	30	27								147
1998	25	11	31	26									93
1999												25	25
2000	21	4	31	18	24	20	13	15	12	12	3	12	185
2001	4	28	31	30	5	5					3	31	137
2002	24	28	31	30	28	4							145
2003			4	30	31	20					27	31	143
2004	28	9	29	30	31	14						31	172
2005	31	25	7	30	20						1	29	143
2006	31	28	31	30	23	1				28	30	31	233
2007	31	6	12	30	20								99
2008	22	29	31	30	25		6	26	28	31	27	31	286
2009	31	28	31	30	27	7				25	19	31	229
2010	12		19	20	14	9	5			15	13	18	125
2011	19	10	31	30	31	26					30	31	208
2012	31	29	31	3	6							13	113
2013	27	28	25	30	29	27	16	19	29	31	30	31	322
2014	31	28	29	30	31	4	20	21	29	31	30	31	315
2015	30	7	10	30	7	21	18				21	31	175
2016	31	29	31	30	24								145
2017	18	28	31	30	31	17	7				10	6	178
2018	19	28	16	19	26							24	132
2019	29	24	17	30	31	8					10	29	178
Max	**31**	**29**	**31**	**30**	**31**	**30**	**21**	**27**	**30**	**31**	**30**	**31**	**322**
Average	**19**	**16**	**20**	**27**	**20**	**7**	**3**	**2**	**5**	**10**	**12**	**19**	**160**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**
Total Number of Occurrances (days)	1280	1119	1396	1841	1386	503	190	143	364	669	861	1305	11057
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	60%	57%	65%	89%	65%	24%	9%	7%	18%	31%	42%	61%	44%
Reliability Based on Occurrance	83%	80%	93%	97%	94%	61%	28%	16%	26%	43%	62%	77%	100%

Scenario #2

Municipal Taking	0.15 m^3/s	Eramosa Intake	Existing (0.1 m^3/s)
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 2 Number of Days Allowable Taking Exceeds Base Municipal Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	31	6	1			15	22	31	226
1952	31	29	30	30	22	6							148
1953	13	13	31	11	31	24	15		26	20			184
1954		7	31	30	20					16	30	23	157
1955	25		31	30	17	1					12	31	147
1956	22		25	30	31	13	23	8	30	26	9	31	248
1957	21	28	31	30	31	9	10				22	31	213
1958	28		4	29									61
1959			3	30	31	3					14	31	112
1960	31	29	5	28	31	28							152
1961		3	20	30	22	16							91
1962				30	10							19	59
1963			5	30	31	1							67
1964					5								5
1965	23	28	26	23	27					8	30	31	196
1966	31	23	31	30	31	11						23	180
1967	19	28	8	30	27	20	28	3	30	31	30	31	285
1968	31	29	26	30	29			8	30	31	30	31	275
1969	31	28	18	30	31	8					10	20	176
1970				21	31	4				26	30	31	143
1971	31	28	31	30	17	14	3	3	30	23		19	229
1972	31	29	1	18	28	20	18			24	30	31	230
1973	31	28	31	30	31	15					4	30	200
1974	31	28	31	30	31	22	1						174
1975		2	24	30	25	3				8	18	31	141
1976	24	29	31	30	31	13	18	4	18	31	30	26	285
1977			21	30	9				4	31	30	31	156
1978	31	28	14	30	31								134
1979	15		27	30	31	3						21	127
1980	31	13	12	30	31	11				28	30	31	217
1981	18	22	24	30	18				7	31	30	28	208
1982	20		8	30	13	30	5		5	29	30	31	201
1983	31	28	31	30	31	15						26	192
1984	20	20	31	30	28	13						21	163
1985	31	11	31	30	14	4		2	30	31	30	31	245
1986	31	28	27	30	24	20	15	14	30	31	30	31	311
1987	31	28	31	30	4						2	31	157
1988	31	29	29	30	24						15	31	189
1989	31	22	15	30	31	27	2				3	15	176
1990	14	28	31	30	26	1				21	30	31	212
1991	31	28	31	30	26	5							151
1992	27	29	31	24	24	9	13	31	30	31	30	31	310
1993	31	28	7	30	22	22	3		3	31	30	31	238
1994	2	8	19	30	31	9							99
1995	16	24	24	16	31	17			3	31	30	31	223
1996	30	29	31	30	31	30	4		21	31	30	31	298
1997	31	28	31	30	31	2							153
1998	25	28	31	29									113
1999												25	25
2000	29	5	31	30	28	25	21	25	20	22	9	31	276
2001	11	28	31	30	10	15					4	31	160
2002	31	28	31	30	31	9							160
2003			5	30	31	22					27	31	146
2004	31	29	31	30	31	21					1	31	205
2005	31	28	14	30	25						1	31	160
2006	31	28	31	30	28	5				28	30	31	242
2007	31	18	14	30	28								121
2008	22	29	31	30	28		8	28	30	31	30	31	298
2009	31	28	31	30	30	10				29	30	31	250
2010	21	8	19	24	19	18	6			24	30	26	195
2011	27	11	31	30	31	29	6			1	30	31	227
2012	31	29	31	5	11							13	120
2013	31	28	30	30	31	30	21	28	30	31	30	31	351
2014	31	28	31	30	31	14	22	31	30	31	30	31	340
2015	31	28	11	30	12	22	21				30	31	216
2016	31	29	31	30	30								151
2017	18	28	31	30	31	22	8				10	21	199
2018	19	28	19	25	29							27	147
2019	31	28	23	30	31	17					10	25	195
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**351**
Average	**22**	**19**	**22**	**28**	**24**	**10**	**4**	**3**	**6**	**11**	**14**	**22**	**186**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**
Total Number of Occurrances (days)	1532	1342	1549	1903	1689	714	272	185	407	782	973	1493	12841
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	72%	69%	72%	92%	79%	34%	13%	9%	20%	37%	47%	70%	51%
Reliability Based on Occurrance	84%	81%	94%	97%	96%	72%	33%	17%	28%	45%	64%	77%	100%

Scenario #3

Municipal Taking	0.2 m^3/s	Eramosa Intake	Existing (0.1 m^3/s)
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 3 Number of Days Allowable Taking Exceeds Base Municipal Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	31	6				6	18	31	212
1952	31	29	30	30	21	6							147
1953	5	8	31	10	31	24	15		20	20			164
1954		7	31	30	20					16	30	23	157
1955	25		30	30	17	1					7	31	141
1956	22		25	30	31	13	23	8	30	26	9	31	248
1957	21	28	31	30	31	9	10				16	31	207
1958	27		4	29									60
1959			2	30	31	3					6	31	103
1960	31	29	5	28	31	28							152
1961		2	15	30	22	16							85
1962				29	10								39
1963			5	30	31	1							67
1964													
1965	22	28	26	23	27					6	30	31	193
1966	31	23	31	30	31	11						23	180
1967	19	28	8	30	27	20	28	2	30	31	30	31	284
1968	31	29	26	30	29			8	30	31	30	31	275
1969	31	28	18	30	31	8					8	9	163
1970				21	31	4				21	30	31	138
1971	31	28	31	30	17	13	2	3	30	23		17	225
1972	31	29	1	18	28	20	17			18	30	31	223
1973	31	28	31	30	31	15					1	25	192
1974	31	28	31	30	31	21	1						173
1975		1	20	30	25						9	31	116
1976	23	29	31	30	31	12	18		15	31	30	26	276
1977			21	30	9				3	31	30	31	155
1978	31	28	14	30	31								134
1979			27	30	31	3						10	101
1980	31	11	12	30	31	11				26	30	31	213
1981	17	21	24	30	18				1	31	30	28	200
1982	19		8	30	13	30	5		4	29	30	31	199
1983	31	28	31	30	31	15						20	186
1984	20	18	31	30	28	12						19	158
1985	31	11	31	30	14	4		2	30	31	30	31	245
1986	31	28	27	30	24	20	15	14	30	31	30	31	311
1987	31	28	31	30	4						1	31	156
1988	31	29	29	30	24						11	31	185
1989	31	22	14	30	31	27	2				1	6	164
1990	14	28	31	30	25	1				20	30	31	210
1991	31	28	31	30	26	5							151
1992	20	23	31	24	24	9	12	30	30	31	30	31	295
1993	31	28	7	30	21	22	3			31	30	31	234
1994	2	7	18	30	31	9							97
1995	16	24	24	15	31	17				26	30	31	214
1996	30	29	31	30	31	30	4		19	31	30	31	296
1997	31	28	31	30	31	2							153
1998	25	28	31	29									113
1999												24	24
2000	29	4	31	30	28	25	21	24	19	23	5	30	269
2001	8	28	31	30	10	13					1	31	152
2002	31	28	31	30	31	8							159
2003			3	30	31	22					26	31	143
2004	31	29	31	30	31	21						30	203
2005	31	28	14	30	25						1	31	160
2006	31	28	31	30	28	5				27	30	31	241
2007	31	18	13	30	28								120
2008	22	29	31	30	28		7	27	30	31	30	31	296
2009	31	28	31	30	30	10				25	30	31	246
2010	21	7	19	24	17	17	6			18	28	26	183
2011	27	11	31	30	31	29	6				30	31	226
2012	31	29	31	5	11							11	118
2013	31	28	29	30	31	30	21	28	30	31	30	31	350
2014	31	28	31	30	31	13	22	31	30	31	30	31	339
2015	31	28	11	30	12	21	21				21	31	206
2016	31	29	31	30	30								151
2017	18	28	31	30	31	21	8				8	15	190
2018	19	28	19	24	29							18	137
2019	31	28	23	30	31	17					8	25	193
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**350**
Average	**22**	**19**	**22**	**28**	**24**	**10**	**4**	**3**	**6**	**11**	**13**	**20**	**181**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Number of Occurrances (days)	1494	1321	1532	1899	1679	700	267	177	381	733	905	1408	12496
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	70%	68%	72%	92%	78%	34%	12%	8%	18%	34%	44%	66%	50%
Reliability Based on Occurrance	83%	81%	94%	97%	94%	71%	32%	16%	25%	42%	62%	75%	99%

Scenario #4

Municipal Taking	0.25 m^3/s	Eramosa Intake	Existing (0.1 m^3/s)
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 4 Number of Days Allowable Taking Exceeds Base Municipal Taking													
Date	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
1951	31	28	31	30	31	6					17	31	205
1952	31	29	30	30	19	6							145
1953		7	31	10	31	24	15		12	19			149
1954		6	31	30	20					16	30	23	156
1955	25		29	30	17						2	31	134
1956	22		22	29	31	13	23	7	30	26	9	31	243
1957	21	28	31	30	31	9	10				16	31	207
1958	27		3	29									59
1959			1	30	31	3						25	90
1960	31	29	5	28	31	28							152
1961		1	7	30	22	16							76
1962				25	10								35
1963			4	30	31	1							66
1964													
1965	20	22	26	23	27						26	31	175
1966	31	23	31	30	31	10						22	178
1967	19	28	8	30	27	20	28	1	30	31	30	31	283
1968	31	29	26	30	29			8	30	31	30	31	275
1969	31	28	18	30	31	8							146
1970				20	31	4				13	30	31	129
1971	31	28	31	30	17	9	1	2	30	22		16	217
1972	31	29	1	18	28	20	17			10	30	31	215
1973	31	28	31	30	31	15						14	180
1974	31	28	31	30	31	21							172
1975			12	30	25							26	93
1976	22	29	31	30	31	12	18		14	31	30	26	274
1977			21	30	9				2	31	30	31	154
1978	31	28	14	30	31								134
1979			26	30	31	3						8	98
1980	31	11	12	30	31	11				18	30	31	205
1981	17	21	24	30	18					30	30	28	198
1982	18		7	30	12	30	5		3	29	30	31	195
1983	31	28	31	30	31	15						19	185
1984	20	17	31	30	28	11						18	155
1985	31	10	31	30	14	1		1	30	31	30	31	240
1986	31	28	27	30	24	20	15	13	30	31	30	31	310
1987	31	28	31	30	4							31	155
1988	31	29	29	30	24						9	31	183
1989	31	22	14	30	31	27	2						157
1990	13	28	31	30	25	1				19	30	31	208
1991	31	28	31	30	25	5							150
1992		18	31	24	24	8	12	29	30	31	30	31	268
1993	31	28	7	30	19	22	3			26	30	31	227
1994	2	7	17	30	31	9							96
1995	16	24	24	15	31	17				21	30	31	209
1996	30	29	31	30	31	30	4		18	31	30	31	295
1997	31	28	31	30	31	2							153
1998	24	28	31	29									112
1999												23	23
2000	29	4	31	30	28	25	20	23	16	23	2	28	259
2001	5	28	31	30	9	11						31	145
2002	31	28	31	30	31	8							159
2003			2	30	31	22					26	31	142
2004	31	29	31	30	31	21						29	202
2005	31	28	14	30	25							31	159
2006	31	28	31	30	28	5				26	30	31	240
2007	31	18	12	30	28								119
2008	22	29	31	30	28		5	26	30	31	30	31	293
2009	31	28	31	30	30	10				23	30	31	244
2010	20	7	19	24	17	14	6			7	25	26	165
2011	27	10	31	30	31	29	6				30	31	225
2012	31	29	31	5	10							9	115
2013	31	28	29	30	31	30	21	28	30	31	30	31	350
2014	31	28	31	30	31	12	22	31	30	31	30	31	338
2015	31	28	11	30	12	21	21				12	31	197
2016	31	29	31	30	30								151
2017	18	28	31	30	31	21	8				6	9	182
2018	19	28	19	23	29							10	128
2019	31	28	22	30	31	17					4	25	188
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**350**
Average	**21**	**19**	**22**	**27**	**24**	**10**	**4**	**2**	**5**	**10**	**12**	**19**	**176**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Number of Occurrances (days)	1459	1303	1503	1892	1671	683	262	169	365	669	844	1345	12165
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	68%	67%	70%	91%	78%	33%	12%	8%	18%	31%	41%	63%	48%
Reliability Based on Occurrance	80%	80%	94%	97%	94%	70%	30%	16%	23%	39%	51%	72%	99%

Scenario #5

Municipal Taking	0.3 m^3/s	Eramosa Intake	Existing (0.1 m^3/s)
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 5 Number of Days Allowable Taking Exceeds Base Municipal Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	31	6					17	31	205
1952	31	29	30	30	18	6							144
1953		7	31	10	31	24	15		4	18			140
1954		6	31	30	20					16	30	22	155
1955	25		24	30	16							28	123
1956	22		20	28	31	13	22	5	30	26	9	31	237
1957	21	28	31	30	31	9	10				15	31	206
1958	26		3	29									58
1959				30	31	3						22	86
1960	31	29	5	28	31	28							152
1961			4	30	22	16							72
1962				23	10								33
1963			4	30	31	1							66
1964													
1965		19	26	23	27						17	31	143
1966	31	23	31	30	31	10						21	177
1967	19	28	8	30	27	20	28		30	31	30	31	282
1968	31	29	26	30	29			8	30	31	30	31	275
1969	31	28	18	30	31	8							146
1970				19	31	4				1	30	31	116
1971	31	28	31	30	17	7		1	30	23		15	213
1972	31	29	1	18	28	20	17			7	30	31	212
1973	31	28	31	30	31	15						1	167
1974	24	28	31	30	31	20							164
1975			10	30	25							17	82
1976	12	29	31	30	31	10	18		13	31	30	26	261
1977			21	30	9					31	30	31	152
1978	31	28	14	30	31								134
1979			26	30	31	3						8	98
1980	31	11	12	30	31	11				7	30	31	194
1981	16	20	24	30	18					28	30	28	194
1982	17		7	29	12	30	5		1	29	30	31	191
1983	31	28	31	30	31	15						17	183
1984	20	17	31	30	27	11						13	149
1985	31	10	31	30	14				29	31	30	31	237
1986	31	28	27	30	24	20	15	12	30	31	30	31	309
1987	31	28	31	30	4							29	153
1988	31	29	29	30	23						4	25	171
1989	31	22	13	30	31	27	2						156
1990	12	28	31	30	25	1				18	30	31	206
1991	31	28	31	30	25	5							150
1992		8	31	24	24	7	11	29	30	31	30	31	256
1993	31	28	7	30	17	22	3			20	30	31	219
1994	2	6	15	30	31	9							93
1995	15	24	24	15	31	17				2	30	31	189
1996	30	29	31	30	31	30	4		17	31	30	31	294
1997	31	28	31	30	31	2							153
1998	23	28	31	29									111
1999												22	22
2000	29	4	31	30	28	25	19	21	14	23	2	22	248
2001		27	31	30	9	8						30	135
2002	31	28	31	30	31	6							157
2003			2	30	31	22					25	31	141
2004	31	29	31	30	31	21						27	200
2005	31	28	14	30	25							31	159
2006	31	28	31	30	28	5				25	30	31	239
2007	31	18	9	30	28								116
2008	22	29	31	30	28		1	26	30	31	30	31	289
2009	31	28	31	30	30	10				22	30	31	243
2010	20	6	19	24	17	13	6			4	17	26	152
2011	27	10	31	30	31	29	6				30	31	225
2012	31	29	31	5	8							6	110
2013	25	28	29	30	31	30	21	27	30	31	30	31	343
2014	31	28	31	30	31	11	22	31	30	31	30	31	337
2015	31	28	10	30	12	21	21				7	31	191
2016	31	29	31	30	30								151
2017	18	28	31	30	31	21	8						167
2018	18	28	19	22	29							9	125
2019	31	28	22	30	31	17					2	25	186
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**343**
Average	**20**	**19**	**21**	**27**	**24**	**10**	**4**	**2**	**5**	**9**	**12**	**18**	**172**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Number of Occurrances (days)	1404	1285	1483	1886	1663	669	254	160	348	610	805	1276	11843
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	66%	66%	69%	91%	78%	32%	12%	7%	17%	29%	39%	60%	47%
Reliability Based on Occurrance	77%	78%	93%	97%	94%	68%	29%	13%	22%	39%	48%	71%	99%

Scenario #6

Municipal Taking	0.15 m^3/s	Eramosa Intake	Abandon
ASR Taking	1.0 m^3/s	ASR Step Taking	none

Scenario 6 Number of Days Allowable Taking Exceeds Base Municipal Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	19	2				9	18	27	195
1952	31	29	25	30	13	3							131
1953	9	8	31	8	28	20	12		13	8			137
1954		7	31	30	15					16	30	7	136
1955	21		27	30	9						12	26	125
1956	3		18	28	31	7	14	8	30	20	9	30	198
1957	15	28	31	30	27	6	8				20	30	195
1958	17		4	25									46
1959			3	30	26						11	26	96
1960	30	26	2	28	31	21							138
1961		3	13	27	18	15							76
1962				30	1							8	39
1963			5	29	22								56
1964					2								2
1965	20	21	19	23	22					8	29	31	173
1966	24	18	31	30	23	8						23	157
1967	7	24	3	30	21	20	21	2	20	30	30	31	239
1968	15	29	19	25	14			8	30	30	22	31	223
1969	22	28	14	30	31						10	4	139
1970				21	23					18	30	31	123
1971	26	19	11	29	13	6	2	3	30	10		17	166
1972	24	12		18	24	16	10			17	30	26	177
1973	31	25	27	30	28	11					3	17	172
1974	20	28	29	28	31	11							147
1975		2	21	27	18	1				4	9	20	102
1976	8	24	31	30	31	7	13		16	31	28	13	232
1977			21	30	4				4	31	30	31	151
1978	31	24	7	30	26								118
1979	7		27	30	25							17	106
1980	31	2	12	30	27	4				23	13	28	170
1981	9	16	18	26	7				6	31	30	19	162
1982	7		8	30	6	30	2		5	22	29	31	170
1983	31	28	31	30	31	13						25	189
1984	15	17	31	30	16	5						22	136
1985	24	5	31	30	7	1		2	30	30	30	31	221
1986	31	22	20	30	20	17	11	12	30	31	29	31	284
1987	31	22	30	29							2	31	145
1988	25	29	23	30	15						16	21	159
1989	31	15	12	30	29	23					6	8	154
1990	14	28	31	30	16					22	30	31	202
1991	31	28	31	30	19	2						1	142
1992	18	18	25	20	21	6	9	27	30	31	30	31	266
1993	31	23	3	30	13	19	1		2	26	16	24	188
1994		7	14	30	31	6							88
1995	16	13	24	14	30	15			4	20	30	31	197
1996	19	29	31	30	31	25	2		20	31	30	31	279
1997	31	28	31	30	27								147
1998	25	11	31	26									93
1999												25	25
2000	21	4	31	18	24	20	13	15	12	12	3	12	185
2001	4	28	31	30	5	5					3	31	137
2002	24	28	31	30	28	4							145
2003			5	30	31	20					27	31	144
2004	28	9	29	30	31	14						31	172
2005	31	25	7	30	20						1	29	143
2006	31	28	31	30	23	1				28	30	31	233
2007	31	6	12	30	20								99
2008	22	29	31	30	25		6	26	28	31	27	31	286
2009	31	28	31	30	27	7				25	19	31	229
2010	12		19	20	14	9	5			15	13	18	125
2011	19	10	31	30	31	26					30	31	208
2012	31	29	31	3	6							13	113
2013	27	28	25	30	29	27	16	19	29	31	30	31	322
2014	31	28	29	30	31	4	20	21	29	31	30	31	315
2015	30	7	10	30	7	21	18				23	31	177
2016	31	29	31	30	24								145
2017	18	28	31	30	31	17	7				10	6	178
2018	19	28	16	19	26							26	134
2019	29	24	17	30	31	8					10	29	178
Max	**31**	**29**	**31**	**30**	**31**	**30**	**21**	**27**	**30**	**31**	**30**	**31**	**322**
Average	**19**	**16**	**20**	**27**	**20**	**7**	**3**	**2**	**5**	**10**	**13**	**19**	**161**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**
Total Number of Occurrances (days)	1282	1120	1397	1841	1386	503	190	143	368	672	868	1310	11080
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	60%	57%	65%	89%	65%	24%	9%	7%	18%	31%	42%	61%	44%
Reliability Based on Occurrance	83%	80%	93%	97%	94%	61%	28%	16%	28%	43%	62%	78%	100%

Scenario #7

Municipal Taking	0.15 m^3/s	Eramosa Intake	Abandon
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 7 Number of Days Allowable Taking Exceeds Base Municipal Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	31	6	1			15	22	31	226
1952	31	29	30	30	22	6							148
1953	13	13	31	11	31	24	15		26	20			184
1954		7	31	30	20					16	30	23	157
1955	25		31	30	17	1					12	31	147
1956	22		25	30	31	13	23	8	30	26	9	31	248
1957	21	28	31	30	31	9	10				22	31	213
1958	28		4	29									61
1959			3	30	31	3					14	31	112
1960	31	29	5	28	31	28							152
1961		3	20	30	22	16							91
1962				30	10							19	59
1963			5	30	31	1							67
1964					5								5
1965	23	28	26	23	27					8	30	31	196
1966	31	23	31	30	31	11						23	180
1967	19	28	8	30	27	20	28	3	30	31	30	31	285
1968	31	29	26	30	29			8	30	31	30	31	275
1969	31	28	18	30	31	8					10	20	176
1970				21	31	4				26	30	31	143
1971	31	28	31	30	17	14	3	3	30	23		19	229
1972	31	29	1	18	28	20	18			24	30	31	230
1973	31	28	31	30	31	15					4	30	200
1974	31	28	31	30	31	22	1						174
1975		3	25	30	25	3				11	18	31	146
1976	24	29	31	30	31	13	18	4	18	31	30	26	285
1977			21	30	9				4	31	30	31	156
1978	31	28	14	30	31								134
1979	17		27	30	31	3						21	129
1980	31	13	12	30	31	11				28	30	31	217
1981	18	22	24	30	18				7	31	30	28	208
1982	20		8	30	13	30	5		5	29	30	31	201
1983	31	28	31	30	31	15						27	193
1984	20	20	31	30	28	13						23	165
1985	31	11	31	30	14	4		2	30	31	30	31	245
1986	31	28	27	30	24	20	15	14	30	31	30	31	311
1987	31	28	31	30	4						2	31	157
1988	31	29	29	30	24						17	31	191
1989	31	22	15	30	31	27	2				9	17	184
1990	15	28	31	30	26	1				22	30	31	214
1991	31	28	31	30	26	5						2	153
1992	30	29	31	24	24	9	13	31	30	31	30	31	313
1993	31	28	7	30	22	22	3		3	31	30	31	238
1994	2	8	19	30	31	9							99
1995	17	24	24	16	31	17			13	31	30	31	234
1996	30	29	31	30	31	30	4		21	31	30	31	298
1997	31	28	31	30	31	2							153
1998	25	28	31	29									113
1999												25	25
2000	29	5	31	30	28	25	21	25	20	22	9	31	276
2001	11	28	31	30	10	15					4	31	160
2002	31	28	31	30	31	9							160
2003			5	30	31	22					28	31	147
2004	31	29	31	30	31	21					1	31	205
2005	31	28	14	30	25						1	31	160
2006	31	28	31	30	28	5				28	30	31	242
2007	31	18	14	30	28								121
2008	22	29	31	30	28		8	28	30	31	30	31	298
2009	31	28	31	30	30	10				29	30	31	250
2010	21	8	19	24	19	18	6			24	30	26	195
2011	27	11	31	30	31	29	6			1	30	31	227
2012	31	29	31	5	11							13	120
2013	31	28	30	30	31	30	21	28	30	31	30	31	351
2014	31	28	31	30	31	14	22	31	30	31	30	31	340
2015	31	28	11	30	12	22	21			2	30	31	218
2016	31	29	31	30	30								151
2017	18	28	31	30	31	22	8				10	21	199
2018	19	28	19	25	29							27	147
2019	31	28	23	30	31	17					10	25	195
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**351**
Average	**22**	**19**	**22**	**28**	**24**	**10**	**4**	**3**	**6**	**11**	**14**	**22**	**187**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**
Total Number of Occurrances (days)	1539	1343	1550	1903	1689	714	272	185	417	788	982	1500	12882
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	72%	69%	72%	92%	79%	34%	13%	9%	20%	37%	47%	70%	51%
Reliability Based on Occurrance	84%	81%	94%	97%	96%	72%	33%	17%	28%	46%	64%	78%	100%

Scenario #8

Municipal Taking	0.2 m^3/s	Eramosa Intake	Abandon
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 8 Number of Days Allowable Taking Exceeds Base Municipal Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	31	6				6	18	31	212
1952	31	29	30	30	21	6							147
1953	5	8	31	10	31	24	15		20	20			164
1954		7	31	30	20					16	30	23	157
1955	25		30	30	17	1					7	31	141
1956	22		25	30	31	13	23	8	30	26	9	31	248
1957	21	28	31	30	31	9	10				16	31	207
1958	27		4	29									60
1959			2	30	31	3					6	31	103
1960	31	29	5	28	31	28							152
1961		2	15	30	22	16							85
1962				29	10								39
1963			5	30	31	1							67
1964													
1965	22	28	26	23	27					6	30	31	193
1966	31	23	31	30	31	11						23	180
1967	19	28	8	30	27	20	28	2	30	31	30	31	284
1968	31	29	26	30	29			8	30	31	30	31	275
1969	31	28	18	30	31	8					8	9	163
1970				21	31	4				21	30	31	138
1971	31	28	31	30	17	13	2	3	30	23		17	225
1972	31	29	1	18	28	20	17			18	30	31	223
1973	31	28	31	30	31	15					1	25	192
1974	31	28	31	30	31	21	1						173
1975		1	21	30	25						12	31	120
1976	23	29	31	30	31	12	18		15	31	30	26	276
1977			21	30	9				3	31	30	31	155
1978	31	28	14	30	31								134
1979			27	30	31	3						10	101
1980	31	11	12	30	31	11				26	30	31	213
1981	17	21	24	30	18				2	31	30	28	201
1982	19		8	30	13	30	5		4	29	30	31	199
1983	31	28	31	30	31	15						20	186
1984	20	18	31	30	28	12						19	158
1985	31	11	31	30	14	4		2	30	31	30	31	245
1986	31	28	27	30	24	20	15	14	30	31	30	31	311
1987	31	28	31	30	4						2	31	157
1988	31	29	29	30	24						14	31	188
1989	31	22	14	30	31	27	2				3	14	174
1990	14	28	31	30	25	1				21	30	31	211
1991	31	28	31	30	26	5							151
1992	24	25	31	24	24	9	12	30	30	31	30	31	301
1993	31	28	7	30	21	22	3		1	31	30	31	235
1994	2	7	18	30	31	9							97
1995	16	24	24	15	31	17				30	30	31	218
1996	30	29	31	30	31	30	4		19	31	30	31	296
1997	31	28	31	30	31	2							153
1998	25	28	31	29									113
1999												24	24
2000	29	4	31	30	28	25	21	24	19	23	5	30	269
2001	8	28	31	30	10	13					1	31	152
2002	31	28	31	30	31	8							159
2003			3	30	31	22					27	31	144
2004	31	29	31	30	31	21						30	203
2005	31	28	14	30	25						1	31	160
2006	31	28	31	30	28	5				27	30	31	241
2007	31	18	13	30	28								120
2008	22	29	31	30	28		7	27	30	31	30	31	296
2009	31	28	31	30	30	10				25	30	31	246
2010	21	7	19	24	17	17	6			18	28	26	183
2011	27	11	31	30	31	29	6				30	31	226
2012	31	29	31	5	11							11	118
2013	31	28	29	30	31	30	21	28	30	31	30	31	350
2014	31	28	31	30	31	13	22	31	30	31	30	31	339
2015	31	28	11	30	12	21	21				25	31	210
2016	31	29	31	30	30								151
2017	18	28	31	30	31	21	8				8	15	190
2018	19	28	19	24	29							23	142
2019	31	28	23	30	31	17					8	25	193
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**350**
Average	**22**	**19**	**22**	**28**	**24**	**10**	**4**	**3**	**6**	**11**	**13**	**21**	**182**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Number of Occurrances (days)	1498	1323	1533	1899	1679	700	267	177	383	738	919	1421	12537
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	70%	68%	72%	92%	78%	34%	12%	8%	19%	35%	44%	66%	50%
Reliability Based on Occurrance	83%	81%	94%	97%	94%	71%	32%	16%	26%	42%	62%	75%	99%

Scenario #9

Municipal Taking	0.25 m^3/s	Eramosa Intake	Abandon
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 9 Number of Days Allowable Taking Exceeds Base Municipal Taking													
Date	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
1951	31	28	31	30	31	6					17	31	205
1952	31	29	30	30	19	6							145
1953		7	31	10	31	24	15		12	19			149
1954		6	31	30	20					16	30	23	156
1955	25		29	30	17						2	31	134
1956	22		22	29	31	13	23	7	30	26	9	31	243
1957	21	28	31	30	31	9	10				16	31	207
1958	27		3	29									59
1959			1	30	31	3						25	90
1960	31	29	5	28	31	28							152
1961		1	7	30	22	16							76
1962				25	10								35
1963			4	30	31	1							66
1964													
1965	20	22	26	23	27						26	31	175
1966	31	23	31	30	31	10						22	178
1967	19	28	8	30	27	20	28	1	30	31	30	31	283
1968	31	29	26	30	29			8	30	31	30	31	275
1969	31	28	18	30	31	8							146
1970				20	31	4				13	30	31	129
1971	31	28	31	30	17	9	1	2	30	22		16	217
1972	31	29	1	18	28	20	17			10	30	31	215
1973	31	28	31	30	31	15						14	180
1974	31	28	31	30	31	21							172
1975			16	30	25							28	99
1976	22	29	31	30	31	12	18		14	31	30	26	274
1977			21	30	9				2	31	30	31	154
1978	31	28	14	30	31								134
1979			26	30	31	3						8	98
1980	31	11	12	30	31	11				19	30	31	206
1981	17	21	24	30	18					31	30	28	199
1982	18		7	30	12	30	5		3	29	30	31	195
1983	31	28	31	30	31	15						19	185
1984	20	17	31	30	28	11						18	155
1985	31	10	31	30	14	1		1	30	31	30	31	240
1986	31	28	27	30	24	20	15	13	30	31	30	31	310
1987	31	28	31	30	4							31	155
1988	31	29	29	30	24						11	31	185
1989	31	22	14	30	31	27	2				1	5	163
1990	14	28	31	30	25	1				20	30	31	210
1991	31	28	31	30	25	5							150
1992	8	19	31	24	24	8	12	29	30	31	30	31	277
1993	31	28	7	30	19	22	3			27	30	31	228
1994	2	7	17	30	31	9							96
1995	16	24	24	15	31	17				26	30	31	214
1996	30	29	31	30	31	30	4		18	31	30	31	295
1997	31	28	31	30	31	2							153
1998	24	28	31	29									112
1999												23	23
2000	29	4	31	30	28	25	20	23	16	23	2	28	259
2001	5	28	31	30	9	11						31	145
2002	31	28	31	30	31	8							159
2003			2	30	31	22					26	31	142
2004	31	29	31	30	31	21						29	202
2005	31	28	14	30	25							31	159
2006	31	28	31	30	28	5				26	30	31	240
2007	31	18	12	30	28								119
2008	22	29	31	30	28		5	26	30	31	30	31	293
2009	31	28	31	30	30	10				23	30	31	244
2010	20	7	19	24	17	14	6			7	25	26	165
2011	27	10	31	30	31	29	6				30	31	225
2012	31	29	31	5	10							9	115
2013	31	28	29	30	31	30	21	28	30	31	30	31	350
2014	31	28	31	30	31	12	22	31	30	31	30	31	338
2015	31	28	11	30	12	21	21				15	31	200
2016	31	29	31	30	30								151
2017	18	28	31	30	31	21	8				6	9	182
2018	19	28	19	23	29							11	129
2019	31	28	22	30	31	17					4	25	188
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**350**
Average	**21**	**19**	**22**	**27**	**24**	**10**	**4**	**2**	**5**	**10**	**12**	**20**	**177**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Number of Occurrances (days)	1468	1304	1507	1892	1671	683	262	169	365	678	850	1353	12202
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	69%	67%	70%	91%	78%	33%	12%	8%	18%	32%	41%	63%	48%
Reliability Based on Occurrance	81%	80%	94%	97%	94%	70%	30%	16%	23%	39%	52%	74%	99%

Scenario #10

Municipal Taking	0.3 m^3/s	Eramosa Intake	Abandon
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 10 Number of Days Allowable Taking Exceeds Base Municipal Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	31	6					17	31	205
1952	31	29	30	30	18	6							144
1953		7	31	10	31	24	15		4	18			140
1954		6	31	30	20					16	30	22	155
1955	25		24	30	16							28	123
1956	22		20	28	31	13	22	5	30	26	9	31	237
1957	21	28	31	30	31	9	10				15	31	206
1958	26		3	29									58
1959				30	31	3						22	86
1960	31	29	5	28	31	28							152
1961			4	30	22	16							72
1962				23	10								33
1963			4	30	31	1							66
1964													
1965		19	26	23	27						17	31	143
1966	31	23	31	30	31	10						21	177
1967	19	28	8	30	27	20	28		30	31	30	31	282
1968	31	29	26	30	29			8	30	31	30	31	275
1969	31	28	18	30	31	8							146
1970				19	31	4				1	30	31	116
1971	31	28	31	30	17	7		1	30	23		15	213
1972	31	29	1	18	28	20	17			7	30	31	212
1973	31	28	31	30	31	15						1	167
1974	24	28	31	30	31	20							164
1975			11	30	25							17	83
1976	14	29	31	30	31	10	18		13	31	30	26	263
1977			21	30	9				1	31	30	31	153
1978	31	28	14	30	31								134
1979			26	30	31	3						8	98
1980	31	11	12	30	31	11				7	30	31	194
1981	16	20	24	30	18					28	30	28	194
1982	17		7	29	12	30	5		1	29	30	31	191
1983	31	28	31	30	31	15						17	183
1984	20	17	31	30	27	11						13	149
1985	31	10	31	30	14				29	31	30	31	237
1986	31	28	27	30	24	20	15	12	30	31	30	31	309
1987	31	28	31	30	4							30	154
1988	31	29	29	30	23						9	31	182
1989	31	22	13	30	31	27	2						156
1990	13	28	31	30	25	1				19	30	31	208
1991	31	28	31	30	25	5							150
1992		10	31	24	24	7	11	29	30	31	30	31	258
1993	31	28	7	30	17	22	3			21	30	31	220
1994	2	6	15	30	31	9							93
1995	15	24	24	15	31	17				16	30	31	203
1996	30	29	31	30	31	30	4		17	31	30	31	294
1997	31	28	31	30	31	2							153
1998	24	28	31	29									112
1999												22	22
2000	29	4	31	30	28	25	19	21	14	23	2	22	248
2001		27	31	30	9	8						30	135
2002	31	28	31	30	31	6							157
2003			2	30	31	22					25	31	141
2004	31	29	31	30	31	21						27	200
2005	31	28	14	30	25							31	159
2006	31	28	31	30	28	5				25	30	31	239
2007	31	18	9	30	28								116
2008	22	29	31	30	28		1	26	30	31	30	31	289
2009	31	28	31	30	30	10				22	30	31	243
2010	20	6	19	24	17	13	6			4	17	26	152
2011	27	10	31	30	31	29	6				30	31	225
2012	31	29	31	5	8							6	110
2013	25	28	29	30	31	30	21	27	30	31	30	31	343
2014	31	28	31	30	31	11	22	31	30	31	30	31	337
2015	31	28	10	30	12	21	21				9	31	193
2016	31	29	31	30	30								151
2017	18	28	31	30	31	21	8						167
2018	18	28	19	22	29							9	125
2019	31	28	22	30	31	17					2	25	186
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**343**
Average	**20**	**19**	**22**	**27**	**24**	**10**	**4**	**2**	**5**	**9**	**12**	**19**	**172**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Number of Occurrances (days)	1408	1287	1484	1886	1663	669	254	160	349	626	812	1283	11881
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	66%	66%	69%	91%	78%	32%	12%	7%	17%	29%	39%	60%	47%
Reliability Based on Occurrance	77%	78%	93%	97%	94%	68%	29%	13%	23%	39%	48%	71%	99%

Scenario #11

Municipal Taking	0.15 m^3/s	Eramosa Intake	Maximize
ASR Taking	1.0 m^3/s	ASR Step Taking	none

Scenario 11 Number of Days Allowable Taking Exceeds Base Municipal Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	19	2				6	18	27	192
1952	31	29	25	30	13	3							131
1953	8	8	31	8	28	20	12		13	8			136
1954		7	31	30	15					16	30	7	136
1955	21		27	30	9						7	25	119
1956	3		18	28	31	7	14	8	30	20	9	30	198
1957	15	28	31	30	27	6	8				19	30	194
1958	17		4	25									46
1959			3	30	26						6	26	91
1960	29	26	2	28	31	21							137
1961		3	12	27	18	15							75
1962				30	1							3	34
1963			5	29	22								56
1964													
1965	20	21	19	23	22					6	27	31	169
1966	24	18	31	30	23	8						23	157
1967	7	24	3	30	21	20	21	2	19	30	30	31	238
1968	15	29	19	25	14			8	30	30	22	31	223
1969	22	28	14	30	31						10	4	139
1970				21	23					18	30	31	123
1971	26	19	11	29	13	6	2	3	30	10		17	166
1972	24	12		18	24	16	10			15	30	26	175
1973	31	25	27	30	28	11					2	15	169
1974	20	28	29	28	31	11							147
1975		2	20	27	18	1				3	8	20	99
1976	8	24	31	30	31	7	13		16	31	28	13	232
1977			21	30	4				4	31	30	31	151
1978	31	24	7	30	26								118
1979	6		27	30	25							17	105
1980	31	2	12	30	27	4				23	13	28	170
1981	9	16	18	26	7				5	31	30	19	161
1982	7		8	30	6	30	2		5	22	29	31	170
1983	31	28	31	30	31	13						25	189
1984	15	17	31	30	16	5						20	134
1985	24	5	31	30	7	1		2	30	30	30	31	221
1986	31	22	20	30	20	17	11	12	30	31	29	31	284
1987	31	22	30	29							2	31	145
1988	25	29	23	30	15						14	21	157
1989	31	15	12	30	29	23					3	6	149
1990	14	28	31	30	16					21	30	31	201
1991	31	28	31	30	19	2							141
1992	17	17	25	20	21	6	9	27	30	31	30	31	264
1993	31	23	3	30	13	19	1		2	25	16	24	187
1994		7	14	30	31	6							88
1995	16	13	24	14	30	15			1	20	30	31	194
1996	19	29	31	30	31	25	2		20	31	30	31	279
1997	31	28	31	30	27								147
1998	25	11	31	26									93
1999												25	25
2000	21	4	31	18	24	20	13	15	12	12	3	12	185
2001	4	28	31	30	5	5					1	31	135
2002	24	28	31	30	28	4							145
2003			5	30	31	20					27	31	144
2004	28	9	29	30	31	14						31	172
2005	31	25	7	30	20						1	29	143
2006	31	28	31	30	23	1				28	30	31	233
2007	31	6	12	30	20								99
2008	22	29	31	30	25		6	26	28	31	27	31	286
2009	31	28	31	30	27	7				24	19	31	228
2010	12		19	20	14	9	5			14	13	18	124
2011	19	10	31	30	31	26					30	31	208
2012	31	29	31	3	6							13	113
2013	26	28	25	30	29	27	16	19	29	31	30	31	321
2014	31	28	29	30	31	4	19	18	29	31	30	31	311
2015	30	7	10	30	7	21	18				21	31	175
2016	31	29	31	30	24								145
2017	18	28	31	30	31	17	7				10	6	178
2018	19	28	16	19	26							22	130
2019	29	24	17	30	31	8					10	29	178
Max	**31**	**29**	**31**	**30**	**31**	**30**	**21**	**27**	**30**	**31**	**30**	**31**	**321**
Average	**19**	**16**	**20**	**27**	**20**	**7**	**3**	**2**	**5**	**10**	**12**	**19**	**160**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Number of Occurrances (days)	1277	1119	1395	1841	1384	503	189	140	363	660	844	1293	11008
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	60%	57%	65%	89%	65%	24%	9%	7%	18%	31%	41%	60%	44%
Reliability Based on Occurrance	83%	80%	93%	97%	93%	61%	28%	16%	28%	43%	62%	77%	99%

Scenario #12

Municipal Taking	0.15 m^3/s	Eramosa Intake	Maximize
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 12 Number of Days Allowable Taking Exceeds Base Municipal Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	31	6	1			10	20	31	219
1952	31	29	30	30	22	6							148
1953	11	12	31	11	31	24	15		26	20			181
1954		7	31	30	20					16	30	23	157
1955	25		31	30	17	1					8	31	143
1956	22		25	30	31	13	23	8	30	26	9	31	248
1957	21	28	31	30	31	9	10				21	31	212
1958	28		4	29									61
1959			3	30	31	3					7	31	105
1960	31	29	5	28	31	28							152
1961		3	19	30	22	16							90
1962				30	10							7	47
1963			5	30	31	1							67
1964					1								1
1965	23	28	26	23	27					7	30	31	195
1966	31	23	31	30	31	11						23	180
1967	19	28	8	30	27	20	28	3	30	31	30	31	285
1968	31	29	26	30	29			8	30	31	30	31	275
1969	31	28	18	30	31	8					10	20	176
1970				21	31	4				26	30	31	143
1971	31	28	31	30	17	14	3	3	30	23		19	229
1972	31	29	1	18	28	20	18			20	30	31	226
1973	31	28	31	30	31	15					2	29	197
1974	31	28	31	30	31	22	1						174
1975		2	24	30	25	3				7	17	31	139
1976	24	29	31	30	31	13	18	4	18	31	30	26	285
1977			21	30	9				4	31	30	31	156
1978	31	28	14	30	31								134
1979	14		27	30	31	3						21	126
1980	31	13	12	30	31	11				28	30	31	217
1981	18	22	24	30	18				6	31	30	28	207
1982	20		8	30	13	30	5		5	29	30	31	201
1983	31	28	31	30	31	15						26	192
1984	20	20	31	30	28	13						20	162
1985	31	11	31	30	14	4		2	30	31	30	31	245
1986	31	28	27	30	24	20	15	14	30	31	30	31	311
1987	31	28	31	30	4						2	31	157
1988	31	29	29	30	24						15	31	189
1989	31	22	15	30	31	27	2				3	15	176
1990	15	28	31	30	26	1				21	30	31	213
1991	31	28	31	30	26	5							151
1992	27	29	31	24	24	9	13	31	30	31	30	31	310
1993	31	28	7	30	22	22	3		3	31	30	31	238
1994	2	8	19	30	31	9							99
1995	16	24	24	16	31	17			6	30	30	31	225
1996	30	29	31	30	31	30	4		21	31	30	31	298
1997	31	28	31	30	31	2							153
1998	25	28	31	29									113
1999												25	25
2000	29	5	31	30	28	25	21	25	20	22	9	31	276
2001	11	28	31	30	10	15					1	31	157
2002	31	28	31	30	31	9							160
2003			5	30	31	22					27	31	146
2004	31	29	31	30	31	21						31	204
2005	31	28	14	30	25						1	31	160
2006	31	28	31	30	28	5				28	30	31	242
2007	31	18	14	30	28								121
2008	22	29	31	30	28		8	28	30	31	30	31	298
2009	31	28	31	30	30	10				28	30	31	249
2010	21	8	19	24	19	18	6			23	29	26	193
2011	27	11	31	30	31	29	6			1	30	31	227
2012	31	29	31	5	11							13	120
2013	31	28	30	30	31	30	21	28	30	31	30	31	351
2014	31	28	31	30	31	14	22	31	30	31	30	31	340
2015	31	28	11	30	12	22	21				30	31	216
2016	31	29	31	30	30								151
2017	18	28	31	30	31	22	8				10	21	199
2018	19	28	19	25	29							26	146
2019	31	28	23	30	31	17					10	25	195
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**351**
Average	**22**	**19**	**22**	**28**	**24**	**10**	**4**	**3**	**6**	**11**	**14**	**21**	**185**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
Total Number of Occurrances (days)	1530	1341	1548	1903	1685	714	272	185	409	768	951	1478	12784
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	72%	69%	72%	92%	79%	34%	13%	9%	20%	36%	46%	69%	51%
Reliability Based on Occurrance	84%	81%	94%	97%	96%	72%	33%	17%	28%	45%	62%	77%	100%

Scenario #13

Municipal Taking	0.2 m^3/s	Eramosa Intake	Maximize
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 13 Number of Days Allowable Taking Exceeds Base Municipal Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	31	6					18	31	206
1952	31	29	30	30	21	6							147
1953	1	8	31	10	31	24	15		20	20			160
1954		7	31	30	20					16	30	23	157
1955	25		30	30	17	1					4	31	138
1956	22		25	30	31	13	23	8	30	26	9	31	248
1957	21	28	31	30	31	9	10				16	31	207
1958	27		4	29									60
1959			2	30	31	3						26	92
1960	31	29	5	28	31	28							152
1961		2	13	30	22	16							83
1962				29	10								39
1963			5	30	31	1							67
1964													
1965	22	28	26	23	27					1	30	31	188
1966	31	23	31	30	31	11						22	179
1967	19	28	8	30	27	20	28	2	30	31	30	31	284
1968	31	29	26	30	29			8	30	31	30	31	275
1969	31	28	18	30	31	8					7	9	162
1970				21	31	4				20	30	31	137
1971	31	28	31	30	17	13	2	3	30	23		17	225
1972	31	29	1	18	28	20	17			15	30	31	220
1973	31	28	31	30	31	15						21	187
1974	31	28	31	30	31	21	1						173
1975		1	19	30	25						9	31	115
1976	23	29	31	30	31	12	18		15	31	30	26	276
1977			21	30	9				3	31	30	31	155
1978	31	28	14	30	31								134
1979			27	30	31	3						10	101
1980	31	11	12	30	31	11				26	30	31	213
1981	17	21	24	30	18				1	31	30	28	200
1982	19		8	30	13	30	5		4	29	30	31	199
1983	31	28	31	30	31	15						20	186
1984	20	18	31	30	28	12						19	158
1985	31	11	31	30	14	4		2	30	31	30	31	245
1986	31	28	27	30	24	20	15	14	30	31	30	31	311
1987	31	28	31	30	4						1	31	156
1988	31	29	29	30	24						11	31	185
1989	31	22	14	30	31	27	2				1	7	165
1990	14	28	31	30	25	1				20	30	31	210
1991	31	28	31	30	26	5							151
1992	19	23	31	24	24	9	12	30	30	31	30	31	294
1993	31	28	7	30	21	22	3			31	30	31	234
1994	2	7	18	30	31	9							97
1995	16	24	24	15	31	17				26	30	31	214
1996	30	29	31	30	31	30	4		19	31	30	31	296
1997	31	28	31	30	31	2							153
1998	24	28	31	29									112
1999												24	24
2000	29	4	31	30	28	25	21	24	19	23	5	30	269
2001	8	28	31	30	10	13						31	151
2002	31	28	31	30	31	8							159
2003			3	30	31	22					26	31	143
2004	31	29	31	30	31	21						29	202
2005	31	28	14	30	25							31	159
2006	31	28	31	30	28	5				27	30	31	241
2007	31	18	13	30	28								120
2008	22	29	31	30	28		7	27	30	31	30	31	296
2009	31	28	31	30	30	10				25	30	31	246
2010	21	7	19	24	17	17	6			15	28	26	180
2011	27	11	31	30	31	29	6				30	31	226
2012	31	29	31	5	11							11	118
2013	31	28	29	30	31	30	21	28	30	31	30	31	350
2014	31	28	31	30	31	13	22	31	30	31	30	31	339
2015	31	28	11	30	12	21	21				20	31	205
2016	31	29	31	30	30								151
2017	18	28	31	30	31	21	8				8	15	190
2018	19	28	19	24	29							15	134
2019	31	28	23	30	31	17					8	25	193
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**350**
Average	**22**	**19**	**22**	**28**	**24**	**10**	**4**	**3**	**6**	**10**	**13**	**20**	**180**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Number of Occurrances (days)	1488	1321	1529	1899	1679	700	267	177	381	715	891	1395	12442
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	70%	68%	71%	92%	78%	34%	12%	8%	18%	33%	43%	65%	49%
Reliability Based on Occurrance	83%	81%	94%	97%	94%	71%	32%	16%	25%	41%	57%	75%	99%

Scenario #14

Municipal Taking	0.25 m^3/s	Eramosa Intake	Maximize
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 14 Number of Days Allowable Taking Exceeds Base Municipal Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	31	6					17	31	205
1952	31	29	30	30	19	6							145
1953		7	31	10	31	24	15		12	19			149
1954		6	31	30	20					16	30	23	156
1955	25		29	30	17						1	31	133
1956	22		22	29	31	13	23	7	30	26	9	31	243
1957	21	28	31	30	31	9	10				15	31	206
1958	27		3	29									59
1959				30	31	3						23	87
1960	31	29	5	28	31	28							152
1961		1	6	30	22	16							75
1962				25	10								35
1963			4	30	31	1							66
1964													
1965	16	21	26	23	27						20	31	164
1966	31	23	31	30	31	10						22	178
1967	19	28	8	30	27	20	28	1	30	31	30	31	283
1968	31	29	26	30	29			8	30	31	30	31	275
1969	31	28	18	30	31	8							146
1970				20	31	4				10	30	31	126
1971	31	28	31	30	17	9	1	2	30	22		16	217
1972	31	29	1	18	28	20	17			8	30	31	213
1973	31	28	31	30	31	15						4	170
1974	31	28	31	30	31	21							172
1975			11	30	25							26	92
1976	22	29	31	30	31	12	18		14	31	30	26	274
1977			21	30	9				1	31	30	31	153
1978	31	28	14	30	31								134
1979			26	30	31	3						8	98
1980	31	11	12	30	31	11				18	30	31	205
1981	17	21	24	30	18					30	30	28	198
1982	18		7	30	12	30	5		3	29	30	31	195
1983	31	28	31	30	31	15						19	185
1984	20	17	31	30	28	11						16	153
1985	31	10	31	30	14	1		1	30	31	30	31	240
1986	31	28	27	30	24	20	15	13	30	31	30	31	310
1987	31	28	31	30	4							31	155
1988	31	29	29	30	24						9	31	183
1989	31	22	14	30	31	27	2						157
1990	13	28	31	30	25	1				19	30	31	208
1991	31	28	31	30	25	5							150
1992		16	31	24	24	8	12	29	30	31	30	31	266
1993	31	28	7	30	19	22	3			26	30	31	227
1994	2	7	17	30	31	9							96
1995	16	24	24	15	31	17				23	30	31	211
1996	30	29	31	30	31	30	4		18	31	30	31	295
1997	31	28	31	30	31	2							153
1998	24	28	31	29									112
1999												22	22
2000	29	4	31	30	28	25	20	23	16	23	2	28	259
2001	5	28	31	30	9	11						31	145
2002	31	28	31	30	31	8							159
2003			2	30	31	22					25	31	141
2004	31	29	31	30	31	21						29	202
2005	31	28	14	30	25							31	159
2006	31	28	31	30	28	5				26	30	31	240
2007	31	18	12	30	28								119
2008	22	29	31	30	28		5	26	30	31	30	31	293
2009	31	28	31	30	30	10				22	30	31	243
2010	20	7	19	24	17	14	6			6	22	26	161
2011	27	10	31	30	31	29	6				30	31	225
2012	31	29	31	5	10							9	115
2013	31	28	29	30	31	30	21	28	30	31	30	31	350
2014	31	28	31	30	31	12	22	31	30	31	30	31	338
2015	31	28	11	30	12	21	21				11	31	196
2016	31	29	31	30	30								151
2017	18	28	31	30	31	21	8				5	9	181
2018	19	28	19	23	29							10	128
2019	31	28	22	30	31	17					4	25	188
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**350**
Average	**21**	**19**	**22**	**27**	**24**	**10**	**4**	**2**	**5**	**10**	**12**	**19**	**176**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Number of Occurrances (days)	1455	1300	1500	1892	1671	683	262	169	364	664	830	1330	12120
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	68%	67%	70%	91%	78%	33%	12%	8%	18%	31%	40%	62%	48%
Reliability Based on Occurrance	80%	80%	93%	97%	94%	70%	30%	16%	23%	39%	51%	72%	99%

Scenario #15

Municipal Taking	0.3 m^3/s	Eramosa Intake	Maximize
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 15 Number of Days Allowable Taking Exceeds Base Municipal Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	31	6					17	31	205
1952	31	29	30	30	18	6							144
1953		6	31	10	31	24	15		4	18			139
1954		6	31	30	20					16	30	22	155
1955	25		24	30	16							28	123
1956	21		20	28	31	13	22	5	30	26	9	31	236
1957	21	28	31	30	31	9	10				14	31	205
1958	26		3	29									58
1959				30	31	3						15	79
1960	31	29	5	28	31	28							152
1961			4	30	22	16							72
1962				23	10								33
1963			4	30	31	1							66
1964													
1965		19	26	23	27						14	31	140
1966	31	23	31	30	31	10						21	177
1967	19	28	8	30	27	20	28		30	31	30	31	282
1968	31	29	26	30	29			8	30	31	30	31	275
1969	31	28	18	30	31	8							146
1970				19	31	4				1	30	31	116
1971	31	28	31	30	17	7		1	30	23		15	213
1972	31	29	1	18	28	20	17			7	30	31	212
1973	31	28	31	30	31	15							166
1974	14	28	31	30	31	20							154
1975			10	30	25							17	82
1976	11	29	31	30	31	10	18		13	31	30	26	260
1977			21	30	9					31	30	31	152
1978	31	28	14	30	31								134
1979			26	30	31	3						8	98
1980	31	11	12	30	31	11				7	30	31	194
1981	16	20	24	30	18					27	30	28	193
1982	17		7	29	12	30	5		1	29	30	31	191
1983	31	28	31	30	31	15						17	183
1984	20	17	31	30	27	11						13	149
1985	31	10	31	30	14				29	31	30	31	237
1986	31	28	27	30	24	20	15	12	30	31	30	31	309
1987	31	28	31	30	4							29	153
1988	31	29	29	30	23						4	25	171
1989	31	22	13	30	31	27	2						156
1990	12	28	31	30	25	1				18	30	31	206
1991	31	28	31	30	25	5							150
1992		8	31	24	24	7	11	29	30	31	30	31	256
1993	31	28	7	30	17	22	3			19	30	31	218
1994	2	6	15	30	31	9							93
1995	15	24	24	15	31	17				5	30	31	192
1996	30	29	31	30	31	30	4		17	31	30	31	294
1997	31	28	31	30	31	2							153
1998	23	28	31	29									111
1999												22	22
2000	29	4	31	30	28	25	19	21	14	23	2	22	248
2001		27	31	30	9	8						29	134
2002	31	28	31	30	31	6							157
2003			2	30	31	22					24	31	140
2004	31	29	31	30	31	21						26	199
2005	31	28	14	30	25							30	158
2006	31	28	31	30	28	5				25	30	31	239
2007	31	18	9	30	28								116
2008	22	29	31	30	28		1	26	30	31	30	31	289
2009	31	28	31	30	30	10				21	30	31	242
2010	20	6	19	24	17	13	6			3	15	26	149
2011	27	10	31	30	31	29	6				30	31	225
2012	31	29	31	5	8							4	108
2013	25	28	29	30	31	30	21	27	30	31	30	31	343
2014	31	28	31	30	31	11	22	31	30	31	30	31	337
2015	31	28	10	30	12	21	21				6	31	190
2016	31	29	31	30	30								151
2017	17	28	31	30	31	21	8						166
2018	18	28	19	22	29							8	124
2019	31	28	22	30	31	17					2	25	186
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**343**
Average	**20**	**19**	**21**	**27**	**24**	**10**	**4**	**2**	**5**	**9**	**12**	**18**	**171**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Number of Occurrances (days)	1391	1284	1483	1886	1663	669	254	160	348	609	797	1262	11806
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	65%	66%	69%	91%	78%	32%	12%	7%	17%	28%	39%	59%	47%
Reliability Based on Occurrance	77%	78%	93%	97%	94%	68%	29%	13%	22%	39%	48%	70%	99%

Scenario #16

Municipal Taking	0.15 m^3/s	Eramosa Intake	Maximize
ASR Taking	0.5 m^3/s	ASR Step Taking	0.3 m^3/s

Scenario 16 Number of Days Allowable Taking Exceeds Base Municipal Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	31	30			30	31	30	31	303
1952	31	29	31	30	31	30			29	31	19	31	292
1953	31	28	31	30	31	30	15		30	31	30	28	315
1954		21	31	30	31	1				17	30	31	192
1955	31	28	31	30	27	15					20	31	213
1956	31	29	31	30	31	30	22	8	30	31	30	31	334
1957	31	28	31	30	31	30	10		30	31	30	31	313
1958	31	28	31	30									120
1959			12	30	31	20				6	30	31	160
1960	31	29	31	30	31	30			30	21	6		239
1961		5	31	30	31	30			30	31	30	31	249
1962	31		3	30	22						19	31	136
1963	31	28	12	30	31	23							155
1964					23	11			30	31	19	7	121
1965	31	28	31	30	31	20			7	31	30	31	270
1966	31	28	31	30	31	30				13	20	31	245
1967	31	28	31	30	31	30	28	3	30	31	30	31	334
1968	31	29	31	30	31	30		8	30	31	30	31	312
1969	31	28	31	30	31	30			30	31	30	31	303
1970	31	28	23	30	31	30			30	31	30	31	295
1971	31	28	31	30	31	30	1	3	30	31	30	31	307
1972	31	29	31	30	31	30	18		30	31	30	31	322
1973	31	28	31	30	31	30			24	27	30	31	293
1974	31	28	31	30	31	30			30	25	10	16	262
1975	19	23	31	30	31	30			30	31	30	31	286
1976	31	29	31	30	31	30	18	4	30	31	30	31	326
1977	31	28	31	30	15				15	31	30	31	242
1978	31	28	31	30	31	18				27	15	31	242
1979	31	28	31	30	31	27					7	31	216
1980	31	29	31	30	31	30			30	31	30	31	304
1981	31	28	31	30	31	3			27	31	30	31	273
1982	31	28	31	30	26	30	5		30	31	30	31	303
1983	31	28	31	30	31	30			22	31	30	31	295
1984	31	29	31	30	31	30			18	31	29	31	291
1985	31	28	31	30	29	28		2	30	31	30	31	301
1986	31	28	31	30	31	30	15	14	30	31	30	31	332
1987	31	28	31	30	7					25	30	31	213
1988	31	29	31	30	31	8				6	30	31	227
1989	31	28	31	30	31	30	2				16	31	230
1990	31	28	31	30	31	30			30	31	30	31	303
1991	31	28	31	30	31	21					4	31	207
1992	31	29	31	30	31	30	12	30	30	31	30	31	346
1993	31	28	31	30	31	30	3		30	31	30	31	306
1994	31	28	31	30	31	30							181
1995	18	28	31	30	31	30			30	31	30	31	290
1996	31	29	31	30	31	30	4		30	31	30	31	308
1997	31	28	31	30	31	30					29	31	241
1998	31	28	31	30	10								130
1999			21	10							24	31	86
2000	31	29	31	30	31	30	21	25	30	31	30	31	350
2001	31	28	31	30	22	30				11	30	31	244
2002	31	28	31	30	31	30							181
2003			10	30	31	30			10	31	30	31	203
2004	31	29	31	30	31	30			30	31	30	31	304
2005	31	28	31	30	31	30			2	20	17	31	251
2006	31	28	31	30	31	28			30	31	30	31	301
2007	31	28	31	30	31	15							166
2008	23	29	31	30	31	30	6	26	30	31	30	31	328
2009	31	28	31	30	31	30			30	31	30	31	303
2010	31	28	31	29	27	30	6		30	31	30	31	304
2011	31	28	31	30	31	30	6		30	31	30	31	309
2012	31	29	31	22	18						28	31	190
2013	31	28	31	30	31	30	21	28	30	31	30	31	352
2014	31	28	31	30	31	30	22	31	30	31	30	31	356
2015	31	28	31	30	23	30	21		30	31	30	31	316
2016	31	29	31	30	31	19							171
2017	21	28	31	30	31	30	8		30	31	30	31	301
2018	31	28	31	30	31	14					8	31	204
2019	31	28	31	30	31	30				16	30	25	252
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**356**
Average	**28**	**26**	**29**	**29**	**28**	**24**	**4**	**3**	**18**	**22**	**24**	**27**	**260**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**86**
Total Number of Occurrances (days)	1910	1773	2003	2011	1954	1651	264	182	1234	1485	1640	1843	17950
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	89%	91%	94%	97%	91%	80%	12%	9%	60%	69%	79%	86%	71%
Reliability Based on Occurrance	91%	93%	99%	99%	97%	90%	30%	17%	65%	77%	90%	88%	100%

Scenario #17

Municipal Taking	0.2 m^3/s	Eramosa Intake	Maximize
ASR Taking	0.5 m^3/s	ASR Step Taking	0.3 m^3/s

Scenario 17 Number of Days Allowable Taking Exceeds Base Municipal Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	31	30			30	31	30	31	303
1952	31	29	31	30	31	30			24	31	14	31	282
1953	31	28	31	30	31	30	15		30	31	30	28	315
1954		16	31	30	31	1				16	30	31	186
1955	31	28	31	30	27	15					18	31	211
1956	31	29	31	30	31	30	22	8	30	31	30	31	334
1957	31	28	31	30	31	30	10		30	31	30	31	313
1958	31	28	31	30									120
1959			10	30	31	20					26	31	148
1960	31	29	31	30	31	30			30	18			230
1961		4	31	30	31	30			30	31	30	31	248
1962	28		3	30	22						18	31	132
1963	31	28	9	30	31	23							152
1964					17	5			30	31	13	6	102
1965	31	28	31	30	31	20				28	30	31	260
1966	31	28	31	30	31	30					15	31	227
1967	31	28	31	30	31	30	28	2	30	31	30	31	333
1968	31	29	31	30	31	30		8	30	31	30	31	312
1969	31	28	31	30	31	30			30	31	30	31	303
1970	31	28	20	30	31	30			30	31	30	31	292
1971	31	28	31	30	31	30		3	30	31	30	31	306
1972	31	29	31	30	31	30	17		30	31	30	31	321
1973	31	28	31	30	31	30			11	22	30	31	275
1974	31	28	31	30	31	30			16	22	9	10	238
1975	14	15	31	30	31	30			30	31	30	31	273
1976	31	29	31	30	31	30	18		30	31	30	31	322
1977	31	28	31	30	15				13	31	30	31	240
1978	31	28	31	30	31	18				13	7	31	220
1979	31	28	31	30	31	27					6	31	215
1980	31	29	31	30	31	30			30	31	30	31	304
1981	31	28	31	30	31	3			27	31	30	31	273
1982	31	28	31	30	26	30	5		30	31	30	31	303
1983	31	28	31	30	31	30			13	31	30	31	286
1984	31	29	31	30	31	30			11	25	26	31	275
1985	31	28	31	30	29	28		1	30	31	30	31	300
1986	31	28	31	30	31	30	15	14	30	31	30	31	332
1987	31	28	31	30	7					7	30	31	195
1988	31	29	31	30	31	8					25	31	216
1989	31	28	31	30	31	30	2				15	31	229
1990	31	28	31	30	31	30			17	31	30	31	290
1991	31	28	31	30	31	21						31	203
1992	31	29	31	30	31	30	12	30	30	31	30	31	346
1993	31	28	31	30	31	30	3		30	31	30	31	306
1994	31	28	31	30	31	30							181
1995	17	28	31	30	31	30			30	31	30	31	289
1996	31	29	31	30	31	30	4		30	31	30	31	308
1997	31	28	31	30	31	30					28	31	240
1998	30	28	31	30	9								128
1999			10	9							23	31	73
2000	31	29	31	30	31	30	21	24	30	31	30	31	349
2001	31	28	31	30	22	30				5	30	31	238
2002	31	28	31	30	31	30							181
2003			9	30	31	30			5	31	30	31	197
2004	31	29	31	30	31	30			30	31	30	31	304
2005	31	28	31	30	31	30				4	14	31	230
2006	31	28	31	30	31	28			30	31	30	31	301
2007	31	28	31	30	31	15							166
2008	23	29	31	30	31	30	5	26	30	31	30	31	327
2009	31	28	31	30	31	30			30	31	30	31	303
2010	31	28	31	29	27	30	6		30	31	30	31	304
2011	31	28	31	30	31	30	6		30	31	30	31	309
2012	31	29	31	22	18						27	31	189
2013	31	28	31	30	31	30	21	28	30	31	30	31	352
2014	31	28	31	30	31	30	22	31	30	31	30	31	356
2015	31	28	31	30	23	30	21		30	31	30	31	316
2016	31	29	31	30	31	19							171
2017	20	28	31	30	31	30	8		30	31	30	31	300
2018	31	28	31	30	31	14					3	31	199
2019	31	28	31	30	31	30				4	30	25	240
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**356**
Average	**28**	**25**	**29**	**29**	**28**	**24**	**4**	**3**	**17**	**20**	**23**	**27**	**255**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**73**
Total Number of Occurrances (days)	1899	1759	1983	2010	1947	1645	261	175	1157	1373	1577	1836	17622
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	89%	90%	93%	97%	91%	79%	12%	8%	56%	64%	76%	86%	70%
Reliability Based on Occurrance	91%	93%	99%	99%	97%	90%	29%	16%	62%	72%	87%	88%	100%

Scenario #18

Municipal Taking	0.25 m^3/s	Eramosa Intake	Maximize
ASR Taking	0.5 m^3/s	ASR Step Taking	0.3 m^3/s

Scenario 18 Number of Days Allowable Taking Exceeds Base Municipal Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	31	30			30	31	30	31	303
1952	31	29	31	30	31	30			12	31	9	31	265
1953	31	28	31	30	31	30	15		30	31	30	26	313
1954		13	31	30	31	1				16	30	31	183
1955	31	28	31	30	27	15					18	31	211
1956	31	29	31	30	31	30	22	7	30	31	30	31	333
1957	31	28	31	30	31	30	10		30	31	30	31	313
1958	31	28	31	30									120
1959			8	30	31	20					23	31	143
1960	31	29	31	30	31	30			30	13			225
1961		4	31	30	31	30			30	31	30	31	248
1962	26		3	30	22						17	31	129
1963	31	28	8	30	31	23							151
1964					3				30	31	6	6	76
1965	31	28	31	30	31	20				22	30	31	254
1966	31	28	31	30	31	30					1	31	213
1967	31	28	31	30	31	30	28	1	30	31	30	31	332
1968	31	29	31	30	31	30		8	30	31	30	31	312
1969	31	28	31	30	31	30			30	31	30	31	303
1970	31	28	18	30	31	30			30	31	30	31	290
1971	31	28	31	30	31	30		2	30	31	30	31	305
1972	31	29	31	30	31	30	17		30	31	30	31	321
1973	31	28	31	30	31	30					30	31	242
1974	31	28	31	30	31	30				3	7	4	195
1975		5	31	30	31	30			30	31	30	31	249
1976	31	29	31	30	31	30	18		30	31	30	31	322
1977	31	28	31	30	15				10	31	30	31	237
1978	31	28	31	30	31	18						27	196
1979	31	28	31	30	31	27					5	31	214
1980	31	29	31	30	31	30			30	31	30	31	304
1981	31	28	31	30	31	3			27	31	30	31	273
1982	31	28	31	30	26	30	5		30	31	30	31	303
1983	31	28	31	30	31	30			9	31	30	31	282
1984	31	29	31	30	31	30					25	31	238
1985	31	28	31	30	29	28			30	31	30	31	299
1986	31	28	31	30	31	30	15	13	30	31	30	31	331
1987	31	28	31	30	7					4	30	31	192
1988	31	29	31	30	31	8					21	31	212
1989	31	28	31	30	31	30	2				15	31	229
1990	31	28	31	30	31	30			9	31	30	31	282
1991	31	28	31	30	31	21						24	196
1992	31	29	31	30	31	30	11	29	30	31	30	31	344
1993	31	28	31	30	31	30	3		30	31	30	31	306
1994	31	28	31	30	31	30							181
1995	17	28	31	30	31	30			30	31	30	31	289
1996	31	29	31	30	31	30	4		30	31	30	31	308
1997	31	28	31	30	31	30					8	18	207
1998	27	28	31	30	8								124
1999			6	7							21	31	65
2000	31	29	31	30	31	30	20	23	30	31	30	31	347
2001	31	28	31	30	22	30					29	31	232
2002	31	28	31	30	31	30							181
2003			9	30	31	30			1	31	30	31	193
2004	31	29	31	30	31	30			30	31	30	31	304
2005	31	28	31	30	31	30					13	31	225
2006	31	28	31	30	31	28			28	31	30	31	299
2007	31	28	31	30	31	15							166
2008	23	29	31	30	31	30	4	26	30	31	30	31	326
2009	31	28	31	30	31	30			30	31	30	31	303
2010	31	28	31	29	27	30	6		30	31	30	31	304
2011	31	28	31	30	31	30	6		30	31	30	31	309
2012	31	29	31	22	17						23	31	184
2013	31	28	31	30	31	30	21	28	30	31	30	31	352
2014	31	28	31	30	31	30	22	31	30	31	30	31	356
2015	31	28	31	30	23	30	21		30	31	30	31	316
2016	31	29	31	30	31	19							171
2017	20	28	31	30	31	30	8		30	31	30	31	300
2018	31	28	31	30	31	14					1	31	197
2019	31	28	31	30	31	30				1	30	25	237
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**356**
Average	**27**	**25**	**29**	**29**	**28**	**24**	**4**	**2**	**16**	**18**	**22**	**26**	**250**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**65**
Total Number of Occurrances (days)	1880	1746	1974	2008	1931	1640	258	168	1086	1268	1502	1804	17265
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	88%	90%	92%	97%	90%	79%	12%	8%	52%	59%	73%	84%	69%
Reliability Based on Occurrance	90%	93%	99%	99%	97%	88%	29%	14%	58%	65%	86%	88%	100%

Scenario #19

Municipal Taking	0.3 m^3/s	Eramosa Intake	Maximize
ASR Taking	0.5 m^3/s	ASR Step Taking	0.3 m^3/s

Scenario 19 Number of Days Allowable Taking Exceeds Base Municipal Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	31	6					17	31	205
1952	31	29	30	30	18	6							144
1953		6	31	10	31	24	15		4	18			139
1954		6	31	30	20					16	30	22	155
1955	25		24	30	16							28	123
1956	21		20	28	31	13	22	5	30	26	9	31	236
1957	21	28	31	30	31	9	10				14	31	205
1958	26		3	29									58
1959				30	31	3						15	79
1960	31	29	5	28	31	28							152
1961			4	30	22	16							72
1962				23	10								33
1963			4	30	31	1							66
1964													
1965		19	26	23	27						14	31	140
1966	31	23	31	30	31	10						21	177
1967	19	28	8	30	27	20	28		30	31	30	31	282
1968	31	29	26	30	29			8	30	31	30	31	275
1969	31	28	18	30	31	8							146
1970				19	31	4				1	30	31	116
1971	31	28	31	30	17	7		1	30	23		15	213
1972	31	29	1	18	28	20	17			7	30	31	212
1973	31	28	31	30	31	15							166
1974	14	28	31	30	31	20							154
1975			10	30	25							17	82
1976	11	29	31	30	31	10	18		13	31	30	26	260
1977			21	30	9					31	30	31	152
1978	31	28	14	30	31								134
1979			26	30	31	3						8	98
1980	31	11	12	30	31	11				7	30	31	194
1981	16	20	24	30	18					27	30	28	193
1982	17		7	29	12	30	5		1	29	30	31	191
1983	31	28	31	30	31	15						17	183
1984	20	17	31	30	27	11						13	149
1985	31	10	31	30	14				29	31	30	31	237
1986	31	28	27	30	24	20	15	12	30	31	30	31	309
1987	31	28	31	30	4							29	153
1988	31	29	29	30	23						4	25	171
1989	31	22	13	30	31	27	2						156
1990	12	28	31	30	25	1				18	30	31	206
1991	31	28	31	30	25	5							150
1992		8	31	24	24	7	11	29	30	31	30	31	256
1993	31	28	7	30	17	22	3			19	30	31	218
1994	2	6	15	30	31	9							93
1995	15	24	24	15	31	17				5	30	31	192
1996	30	29	31	30	31	30	4		17	31	30	31	294
1997	31	28	31	30	31	2							153
1998	23	28	31	29									111
1999												22	22
2000	29	4	31	30	28	25	19	21	14	23	2	22	248
2001		27	31	30	9	8						29	134
2002	31	28	31	30	31	6							157
2003			2	30	31	22					24	31	140
2004	31	29	31	30	31	21						26	199
2005	31	28	14	30	25							30	158
2006	31	28	31	30	28	5				25	30	31	239
2007	31	18	9	30	28								116
2008	22	29	31	30	28		1	26	30	31	30	31	289
2009	31	28	31	30	30	10				21	30	31	242
2010	20	6	19	24	17	13	6			3	15	26	149
2011	27	10	31	30	31	29	6				30	31	225
2012	31	29	31	5	8							4	108
2013	25	28	29	30	31	30	21	27	30	31	30	31	343
2014	31	28	31	30	31	11	22	31	30	31	30	31	337
2015	31	28	10	30	12	21	21				6	31	190
2016	31	29	31	30	30								151
2017	17	28	31	30	31	21	8						166
2018	18	28	19	22	29							8	124
2019	31	28	22	30	31	17					2	25	186
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**343**
Average	**20**	**19**	**21**	**27**	**24**	**10**	**4**	**2**	**5**	**9**	**12**	**18**	**171**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Number of Occurrances (days)	1391	1284	1483	1886	1663	669	254	160	348	609	797	1262	11806
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	65%	66%	69%	91%	78%	32%	12%	7%	17%	28%	39%	59%	47%
Reliability Based on Occurrance	77%	78%	93%	97%	94%	68%	29%	13%	22%	39%	48%	70%	99%

Appendix C Reliability of Available Base Municipal and ASR Taking Equaling Assumed Maximum ASR Taking

Scenario #1

Municipal Taking	0.15 m^3/s	Eramosa Intake	Existing (0.1 m^3/s)
ASR Taking	1.0 m^3/s	ASR Step Taking	none

Scenario 1 Number of Days Allowable Taking Equals Maximum ASR Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	19	2				9	18	27	195
1952	31	29	25	30	13	3							131
1953	9	8	31	8	28	20	12		13	8			137
1954		7	31	30	15					16	30	7	136
1955	21		27	30	9						12	26	125
1956	3		18	28	31	7	14	8	30	20	9	30	198
1957	15	28	31	30	27	6	8				20	30	195
1958	17		4	25									46
1959			3	30	26						11	26	96
1960	30	26	2	28	31	21							138
1961		3	13	27	18	15							76
1962				30	1							8	39
1963			5	29	22								56
1964					2								2
1965	20	21	19	23	22					8	29	31	173
1966	24	18	31	30	23	8						23	157
1967	7	24	3	30	21	20	21	2	20	30	30	31	239
1968	15	29	19	25	14			8	30	30	22	31	223
1969	22	28	14	30	31						10	4	139
1970				21	23					18	30	31	123
1971	26	19	11	29	13	6	2	3	30	10		17	166
1972	24	12		18	24	16	10			17	30	26	177
1973	31	25	27	30	28	11					3	17	172
1974	20	28	29	28	31	11							147
1975		2	21	27	18	1				3	8	21	101
1976	8	23	31	30	31	7	13		16	31	28	13	231
1977			21	30	4				4	31	30	31	151
1978	31	24	7	30	26								118
1979	6		27	30	25							17	105
1980	31	2	12	30	27	4				23	13	28	170
1981	9	16	18	26	7				6	31	30	19	162
1982	7		8	30	6	30	2		5	22	29	31	170
1983	31	28	31	30	31	13						25	189
1984	15	17	31	30	16	5						21	135
1985	24	5	31	30	7	1		2	30	30	30	31	221
1986	31	22	20	30	20	17	11	12	30	31	29	31	284
1987	31	22	30	29							2	31	145
1988	25	29	23	30	15						14	21	157
1989	31	15	12	30	29	23					3	6	149
1990	14	28	31	30	16					21	30	31	201
1991	31	28	31	30	19	2							141
1992	17	18	25	20	21	6	9	27	30	31	30	31	265
1993	31	23	3	30	13	19	1		2	25	17	24	188
1994		7	14	30	31	6							88
1995	16	13	24	14	30	15				20	30	31	193
1996	19	29	31	30	31	25	2		20	31	30	31	279
1997	31	28	31	30	27								147
1998	25	11	31	26									93
1999												25	25
2000	21	4	31	18	24	20	13	15	12	12	3	12	185
2001	4	28	31	30	5	5					3	31	137
2002	24	28	31	30	28	4							145
2003			4	30	31	20					27	31	143
2004	28	9	29	30	31	14						31	172
2005	31	25	7	30	20						1	29	143
2006	31	28	31	30	23	1				28	30	31	233
2007	31	6	12	30	20								99
2008	22	29	31	30	25		6	26	28	31	27	31	286
2009	31	28	31	30	27	7				25	19	31	229
2010	12		19	20	14	9	5			15	13	18	125
2011	19	10	31	30	31	26					30	31	208
2012	31	29	31	3	6							13	113
2013	27	28	25	30	29	27	16	19	29	31	30	31	322
2014	31	28	29	30	31	4	20	21	29	31	30	31	315
2015	30	7	10	30	7	21	18				21	31	175
2016	31	29	31	30	24								145
2017	18	28	31	30	31	17	7				10	6	178
2018	19	28	16	19	26							24	132
2019	29	24	17	30	31	8					10	29	178
Max	**31**	**29**	**31**	**30**	**31**	**30**	**21**	**27**	**30**	**31**	**30**	**31**	**322**
Average	**19**	**16**	**20**	**27**	**20**	**7**	**3**	**2**	**5**	**10**	**12**	**19**	**160**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**
Total Number of Occurrances (days)	1280	1119	1396	1841	1386	503	190	143	364	669	861	1305	11057
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	60%	57%	65%	89%	65%	24%	9%	7%	18%	31%	42%	61%	44%
Reliability Based on Occurrance	83%	80%	93%	97%	94%	61%	28%	16%	26%	43%	62%	77%	100%

Scenario #2

Municipal Taking	0.15 m^3/s	Eramosa Intake	Existing (0.1 m^3/s)
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 2 Number of Days Allowable Taking Equals Maximum ASR Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	31	6	1			15	22	31	226
1952	31	29	30	30	22	6							148
1953	13	13	31	11	31	24	15		26	20			184
1954		7	31	30	20					16	30	23	157
1955	25		31	30	17	1					12	31	147
1956	22		25	30	31	13	23	8	30	26	9	31	248
1957	21	28	31	30	31	9	10				22	31	213
1958	28		4	29									61
1959			3	30	31	3					14	31	112
1960	31	29	5	28	31	28							152
1961		3	20	30	22	16							91
1962				30	10							19	59
1963			5	30	31	1							67
1964					5								5
1965	23	28	26	23	27					8	30	31	196
1966	31	23	31	30	31	11						23	180
1967	19	28	8	30	27	20	28	3	30	31	30	31	285
1968	31	29	26	30	29			8	30	31	30	31	275
1969	31	28	18	30	31	8					10	20	176
1970				21	31	4				26	30	31	143
1971	31	28	31	30	17	14	3	3	30	23		19	229
1972	31	29	1	18	28	20	18			24	30	31	230
1973	31	28	31	30	31	15					4	30	200
1974	31	28	31	30	31	22	1						174
1975		2	24	30	25	3				8	18	31	141
1976	24	29	31	30	31	13	18	4	18	31	30	26	285
1977			21	30	9				4	31	30	31	156
1978	31	28	14	30	31								134
1979	15		27	30	31	3						21	127
1980	31	13	12	30	31	11				28	30	31	217
1981	18	22	24	30	18				7	31	30	28	208
1982	20		8	30	13	30	5		5	29	30	31	201
1983	31	28	31	30	31	15						26	192
1984	20	20	31	30	28	13						21	163
1985	31	11	31	30	14	4		2	30	31	30	31	245
1986	31	28	27	30	24	20	15	14	30	31	30	31	311
1987	31	28	31	30	4						2	31	157
1988	31	29	29	30	24						15	31	189
1989	31	22	15	30	31	27	2				3	15	176
1990	14	28	31	30	26	1				21	30	31	212
1991	31	28	31	30	26	5							151
1992	27	29	31	24	24	9	13	31	30	31	30	31	310
1993	31	28	7	30	22	22	3		3	31	30	31	238
1994	2	8	19	30	31	9							99
1995	16	24	24	16	31	17			3	31	30	31	223
1996	30	29	31	30	31	30	4		21	31	30	31	298
1997	31	28	31	30	31	2							153
1998	25	28	31	29									113
1999												25	25
2000	29	5	31	30	28	25	21	25	20	22	9	31	276
2001	11	28	31	30	10	15					4	31	160
2002	31	28	31	30	31	9							160
2003			5	30	31	22					27	31	146
2004	31	29	31	30	31	21					1	31	205
2005	31	28	14	30	25						1	31	160
2006	31	28	31	30	28	5				28	30	31	242
2007	31	18	14	30	28								121
2008	22	29	31	30	28		8	28	30	31	30	31	298
2009	31	28	31	30	30	10				29	30	31	250
2010	21	8	19	24	19	18	6			24	30	26	195
2011	27	11	31	30	31	29	6			1	30	31	227
2012	31	29	31	5	11							13	120
2013	31	28	30	30	31	30	21	28	30	31	30	31	351
2014	31	28	31	30	31	14	22	31	30	31	30	31	340
2015	31	28	11	30	12	22	21				30	31	216
2016	31	29	31	30	30								151
2017	18	28	31	30	31	22	8				10	21	199
2018	19	28	19	25	29							27	147
2019	31	28	23	30	31	17					10	25	195
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**351**
Average	**22**	**19**	**22**	**28**	**24**	**10**	**4**	**3**	**6**	**11**	**14**	**22**	**186**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**
Total Number of Occurrances (days)	1532	1342	1549	1903	1689	714	272	185	407	782	973	1493	12841
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	72%	69%	72%	92%	79%	34%	13%	9%	20%	37%	47%	70%	51%
Reliability Based on Occurrance	84%	81%	94%	97%	96%	72%	33%	17%	28%	45%	64%	77%	100%

Scenario #3

Municipal Taking	0.2 m^3/s	Eramosa Intake	Existing (0.1 m^3/s)
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 3 Number of Days Allowable Taking Equals Maximum ASR Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	31	6				6	18	31	212
1952	31	29	30	30	21	6							147
1953	5	8	31	10	31	24	15		20	20			164
1954		7	31	30	20					16	30	23	157
1955	25		30	30	17	1					7	31	141
1956	22		25	30	31	13	23	8	30	26	9	31	248
1957	21	28	31	30	31	9	10				16	31	207
1958	27		4	29									60
1959			2	30	31	3					6	31	103
1960	31	29	5	28	31	28							152
1961		2	15	30	22	16							85
1962				29	10								39
1963			5	30	31	1							67
1964													
1965	22	28	26	23	27					6	30	31	193
1966	31	23	31	30	31	11						23	180
1967	19	28	8	30	27	20	28	2	30	31	30	31	284
1968	31	29	26	30	29			8	30	31	30	31	275
1969	31	28	18	30	31	8					8	9	163
1970				21	31	4				21	30	31	138
1971	31	28	31	30	17	13	2	3	30	23		17	225
1972	31	29	1	18	28	20	17			18	30	31	223
1973	31	28	31	30	31	15					1	25	192
1974	31	28	31	30	31	21	1						173
1975		1	20	30	25						9	31	116
1976	23	29	31	30	31	12	18		15	31	30	26	276
1977			21	30	9				3	31	30	31	155
1978	31	28	14	30	31								134
1979			27	30	31	3						10	101
1980	31	11	12	30	31	11				26	30	31	213
1981	17	21	24	30	18				1	31	30	28	200
1982	19		8	30	13	30	5		4	29	30	31	199
1983	31	28	31	30	31	15						20	186
1984	20	18	31	30	28	12						19	158
1985	31	11	31	30	14	4		2	30	31	30	31	245
1986	31	28	27	30	24	20	15	14	30	31	30	31	311
1987	31	28	31	30	4						1	31	156
1988	31	29	29	30	24						11	31	185
1989	31	22	14	30	31	27	2				1	6	164
1990	14	28	31	30	25	1				20	30	31	210
1991	31	28	31	30	26	5							151
1992	20	23	31	24	24	9	12	30	30	31	30	31	295
1993	31	28	7	30	21	22	3			31	30	31	234
1994	2	7	18	30	31	9							97
1995	16	24	24	15	31	17				26	30	31	214
1996	30	29	31	30	31	30	4		19	31	30	31	296
1997	31	28	31	30	31	2							153
1998	25	28	31	29									113
1999												24	24
2000	29	4	31	30	28	25	21	24	19	23	5	30	269
2001	8	28	31	30	10	13					1	31	152
2002	31	28	31	30	31	8							159
2003			3	30	31	22					26	31	143
2004	31	29	31	30	31	21						30	203
2005	31	28	14	30	25						1	31	160
2006	31	28	31	30	28	5				27	30	31	241
2007	31	18	13	30	28								120
2008	22	29	31	30	28		7	27	30	31	30	31	296
2009	31	28	31	30	30	10				25	30	31	246
2010	21	7	19	24	17	17	6			18	28	26	183
2011	27	11	31	30	31	29	6				30	31	226
2012	31	29	31	5	11							11	118
2013	31	28	29	30	31	30	21	28	30	31	30	31	350
2014	31	28	31	30	31	13	22	31	30	31	30	31	339
2015	31	28	11	30	12	21	21				21	31	206
2016	31	29	31	30	30								151
2017	18	28	31	30	31	21	8				8	15	190
2018	19	28	19	24	29							18	137
2019	31	28	23	30	31	17					8	25	193
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**350**
Average	**22**	**19**	**22**	**28**	**24**	**10**	**4**	**3**	**6**	**11**	**13**	**20**	**181**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Number of Occurrances (days)	1494	1321	1532	1899	1679	700	267	177	381	733	905	1408	12496
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	70%	68%	72%	92%	78%	34%	12%	8%	18%	34%	44%	66%	50%
Reliability Based on Occurrance	83%	81%	94%	97%	94%	71%	32%	16%	25%	42%	62%	75%	99%

Scenario #4

Municipal Taking	0.25 m^3/s	Eramosa Intake	Existing (0.1 m^3/s)
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 4 Number of Days Allowable Taking Equals Maximum ASR Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	31	6					17	31	205
1952	31	29	30	30	19	6							145
1953		7	31	10	31	24	15		12	19			149
1954		6	31	30	20					16	30	23	156
1955	25		29	30	17						2	31	134
1956	22		22	29	31	13	23	7	30	26	9	31	243
1957	21	28	31	30	31	9	10				16	31	207
1958	27		3	29									59
1959			1	30	31	3						25	90
1960	31	29	5	28	31	28							152
1961		1	7	30	22	16							76
1962				25	10								35
1963			4	30	31	1							66
1964													
1965	20	22	26	23	27						26	31	175
1966	31	23	31	30	31	10						22	178
1967	19	28	8	30	27	20	28	1	30	31	30	31	283
1968	31	29	26	30	29			8	30	31	30	31	275
1969	31	28	18	30	31	8							146
1970				20	31	4				13	30	31	129
1971	31	28	31	30	17	9	1	2	30	22		16	217
1972	31	29	1	18	28	20	17			10	30	31	215
1973	31	28	31	30	31	15						14	180
1974	31	28	31	30	31	21							172
1975			12	30	25							26	93
1976	22	29	31	30	31	12	18		14	31	30	26	274
1977			21	30	9				2	31	30	31	154
1978	31	28	14	30	31								134
1979			26	30	31	3						8	98
1980	31	11	12	30	31	11				18	30	31	205
1981	17	21	24	30	18					30	30	28	198
1982	18		7	30	12	30	5		3	29	30	31	195
1983	31	28	31	30	31	15						19	185
1984	20	17	31	30	28	11						18	155
1985	31	10	31	30	14	1		1	30	31	30	31	240
1986	31	28	27	30	24	20	15	13	30	31	30	31	310
1987	31	28	31	30	4							31	155
1988	31	29	29	30	24						9	31	183
1989	31	22	14	30	31	27	2						157
1990	13	28	31	30	25	1				19	30	31	208
1991	31	28	31	30	25	5							150
1992		18	31	24	24	8	12	29	30	31	30	31	268
1993	31	28	7	30	19	22	3			26	30	31	227
1994	2	7	17	30	31	9							96
1995	16	24	24	15	31	17				21	30	31	209
1996	30	29	31	30	31	30	4		18	31	30	31	295
1997	31	28	31	30	31	2							153
1998	24	28	31	29									112
1999												23	23
2000	29	4	31	30	28	25	20	23	16	23	2	28	259
2001	5	28	31	30	9	11						31	145
2002	31	28	31	30	31	8							159
2003			2	30	31	22					26	31	142
2004	31	29	31	30	31	21						29	202
2005	31	28	14	30	25							31	159
2006	31	28	31	30	28	5				26	30	31	240
2007	31	18	12	30	28								119
2008	22	29	31	30	28		5	26	30	31	30	31	293
2009	31	28	31	30	30	10				23	30	31	244
2010	20	7	19	24	17	14	6			7	25	26	165
2011	27	10	31	30	31	29	6				30	31	225
2012	31	29	31	5	10							9	115
2013	31	28	29	30	31	30	21	28	30	31	30	31	350
2014	31	28	31	30	31	12	22	31	30	31	30	31	338
2015	31	28	11	30	12	21	21				12	31	197
2016	31	29	31	30	30								151
2017	18	28	31	30	31	21	8				6	9	182
2018	19	28	19	23	29							10	128
2019	31	28	22	30	31	17					4	25	188
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**350**
Average	**21**	**19**	**22**	**27**	**24**	**10**	**4**	**2**	**5**	**10**	**12**	**19**	**176**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Number of Occurrances (days)	1459	1303	1503	1892	1671	683	262	169	365	669	844	1345	12165
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	68%	67%	70%	91%	78%	33%	12%	8%	18%	31%	41%	63%	48%
Reliability Based on Occurrance	80%	80%	94%	97%	94%	70%	30%	16%	23%	39%	51%	72%	99%

Scenario #5

Municipal Taking	0.3 m^3/s	Eramosa Intake	Existing (0.1 m^3/s)
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 5 Number of Days Allowable Taking Equals Maximum ASR Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	31	6					17	31	205
1952	31	29	30	30	18	6							144
1953		7	31	10	31	24	15		4	18			140
1954		6	31	30	20					16	30	22	155
1955	25		24	30	16							28	123
1956	22		20	28	31	13	22	5	30	26	9	31	237
1957	21	28	31	30	31	9	10				15	31	206
1958	26		3	29									58
1959				30	31	3						22	86
1960	31	29	5	28	31	28							152
1961			4	30	22	16							72
1962				23	10								33
1963			4	30	31	1							66
1964													
1965		19	26	23	27						17	31	143
1966	31	23	31	30	31	10						21	177
1967	19	28	8	30	27	20	28		30	31	30	31	282
1968	31	29	26	30	29			8	30	31	30	31	275
1969	31	28	18	30	31	8							146
1970				19	31	4				1	30	31	116
1971	31	28	31	30	17	7		1	30	23		15	213
1972	31	29	1	18	28	20	17			7	30	31	212
1973	31	28	31	30	31	15						1	167
1974	24	28	31	30	31	20							164
1975			10	30	25							17	82
1976	12	29	31	30	31	10	18		13	31	30	26	261
1977			21	30	9					31	30	31	152
1978	31	28	14	30	31								134
1979			26	30	31	3						8	98
1980	31	11	12	30	31	11				7	30	31	194
1981	16	20	24	30	18					28	30	28	194
1982	17		7	29	12	30	5		1	29	30	31	191
1983	31	28	31	30	31	15						17	183
1984	20	17	31	30	27	11						13	149
1985	31	10	31	30	14				29	31	30	31	237
1986	31	28	27	30	24	20	15	12	30	31	30	31	309
1987	31	28	31	30	4							29	153
1988	31	29	29	30	23						4	25	171
1989	31	22	13	30	31	27	2						156
1990	12	28	31	30	25	1				18	30	31	206
1991	31	28	31	30	25	5							150
1992		8	31	24	24	7	11	29	30	31	30	31	256
1993	31	28	7	30	17	22	3			20	30	31	219
1994	2	6	15	30	31	9							93
1995	15	24	24	15	31	17				2	30	31	189
1996	30	29	31	30	31	30	4		17	31	30	31	294
1997	31	28	31	30	31	2							153
1998	23	28	31	29									111
1999												22	22
2000	29	4	31	30	28	25	19	21	14	23	2	22	248
2001		27	31	30	9	8						30	135
2002	31	28	31	30	31	6							157
2003			2	30	31	22					25	31	141
2004	31	29	31	30	31	21						27	200
2005	31	28	14	30	25							31	159
2006	31	28	31	30	28	5				25	30	31	239
2007	31	18	9	30	28								116
2008	22	29	31	30	28		1	26	30	31	30	31	289
2009	31	28	31	30	30	10				22	30	31	243
2010	20	6	19	24	17	13	6			4	17	26	152
2011	27	10	31	30	31	29	6				30	31	225
2012	31	29	31	5	8							6	110
2013	25	28	29	30	31	30	21	27	30	31	30	31	343
2014	31	28	31	30	31	11	22	31	30	31	30	31	337
2015	31	28	10	30	12	21	21				7	31	191
2016	31	29	31	30	30								151
2017	18	28	31	30	31	21	8						167
2018	18	28	19	22	29							9	125
2019	31	28	22	30	31	17					2	25	186
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**343**
Average	**20**	**19**	**21**	**27**	**24**	**10**	**4**	**2**	**5**	**9**	**12**	**18**	**172**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Number of Occurrances (days)	1404	1285	1483	1886	1663	669	254	160	348	610	805	1276	11843
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	66%	66%	69%	91%	78%	32%	12%	7%	17%	29%	39%	60%	47%
Reliability Based on Occurrance	77%	78%	93%	97%	94%	68%	29%	13%	22%	39%	48%	71%	99%

Scenario #6

Municipal Taking	0.15 m^3/s	Eramosa Intake	Abandon
ASR Taking	1.0 m^3/s	ASR Step Taking	none

Scenario 6 Number of Days Allowable Taking Equals Maximum ASR Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	19	2				9	18	27	195
1952	31	29	25	30	13	3							131
1953	9	8	31	8	28	20	12		13	8			137
1954		7	31	30	15					16	30	7	136
1955	21		27	30	9						12	26	125
1956	3		18	28	31	7	14	8	30	20	9	30	198
1957	15	28	31	30	27	6	8				20	30	195
1958	17		4	25									46
1959			3	30	26						11	26	96
1960	30	26	2	28	31	21							138
1961		3	13	27	18	15							76
1962				30	1							8	39
1963			5	29	22								56
1964					2								2
1965	20	21	19	23	22					8	29	31	173
1966	24	18	31	30	23	8						23	157
1967	7	24	3	30	21	20	21	2	20	30	30	31	239
1968	15	29	19	25	14			8	30	30	22	31	223
1969	22	28	14	30	31						10	4	139
1970				21	23					18	30	31	123
1971	26	19	11	29	13	6	2	3	30	10		17	166
1972	24	12		18	24	16	10			17	30	26	177
1973	31	25	27	30	28	11					3	17	172
1974	20	28	29	28	31	11							147
1975		2	21	27	18	1				4	9	20	102
1976	8	24	31	30	31	7	13		16	31	28	13	232
1977			21	30	4				4	31	30	31	151
1978	31	24	7	30	26								118
1979	7		27	30	25							17	106
1980	31	2	12	30	27	4				23	13	28	170
1981	9	16	18	26	7				6	31	30	19	162
1982	7		8	30	6	30	2		5	22	29	31	170
1983	31	28	31	30	31	13						25	189
1984	15	17	31	30	16	5						22	136
1985	24	5	31	30	7	1		2	30	30	30	31	221
1986	31	22	20	30	20	17	11	12	30	31	29	31	284
1987	31	22	30	29							2	31	145
1988	25	29	23	30	15						16	21	159
1989	31	15	12	30	29	23					6	8	154
1990	14	28	31	30	16					22	30	31	202
1991	31	28	31	30	19	2						1	142
1992	18	18	25	20	21	6	9	27	30	31	30	31	266
1993	31	23	3	30	13	19	1		2	26	16	24	188
1994		7	14	30	31	6							88
1995	16	13	24	14	30	15			4	20	30	31	197
1996	19	29	31	30	31	25	2		20	31	30	31	279
1997	31	28	31	30	27								147
1998	25	11	31	26									93
1999												25	25
2000	21	4	31	18	24	20	13	15	12	12	3	12	185
2001	4	28	31	30	5	5					3	31	137
2002	24	28	31	30	28	4							145
2003			5	30	31	20					27	31	144
2004	28	9	29	30	31	14						31	172
2005	31	25	7	30	20						1	29	143
2006	31	28	31	30	23	1				28	30	31	233
2007	31	6	12	30	20								99
2008	22	29	31	30	25		6	26	28	31	27	31	286
2009	31	28	31	30	27	7				25	19	31	229
2010	12		19	20	14	9	5			15	13	18	125
2011	19	10	31	30	31	26					30	31	208
2012	31	29	31	3	6							13	113
2013	27	28	25	30	29	27	16	19	29	31	30	31	322
2014	31	28	29	30	31	4	20	21	29	31	30	31	315
2015	30	7	10	30	7	21	18				23	31	177
2016	31	29	31	30	24								145
2017	18	28	31	30	31	17	7				10	6	178
2018	19	28	16	19	26							26	134
2019	29	24	17	30	31	8					10	29	178
Max	**31**	**29**	**31**	**30**	**31**	**30**	**21**	**27**	**30**	**31**	**30**	**31**	**322**
Average	**19**	**16**	**20**	**27**	**20**	**7**	**3**	**2**	**5**	**10**	**13**	**19**	**161**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**
Total Number of Occurrances (days)	1282	1120	1397	1841	1386	503	190	143	368	672	868	1310	11080
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	60%	57%	65%	89%	65%	24%	9%	7%	18%	31%	42%	61%	44%
Reliability Based on Occurrance	83%	80%	93%	97%	94%	61%	28%	16%	28%	43%	62%	78%	100%

Scenario #7

Municipal Taking	0.15 m^3/s	Eramosa Intake	Abandon
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 7 Number of Days Allowable Taking Equals Maximum ASR Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	31	6	1			15	22	31	226
1952	31	29	30	30	22	6							148
1953	13	13	31	11	31	24	15		26	20			184
1954		7	31	30	20					16	30	23	157
1955	25		31	30	17	1					12	31	147
1956	22		25	30	31	13	23	8	30	26	9	31	248
1957	21	28	31	30	31	9	10				22	31	213
1958	28		4	29									61
1959			3	30	31	3					14	31	112
1960	31	29	5	28	31	28							152
1961		3	20	30	22	16							91
1962				30	10							19	59
1963			5	30	31	1							67
1964					5								5
1965	23	28	26	23	27					8	30	31	196
1966	31	23	31	30	31	11						23	180
1967	19	28	8	30	27	20	28	3	30	31	30	31	285
1968	31	29	26	30	29			8	30	31	30	31	275
1969	31	28	18	30	31	8					10	20	176
1970				21	31	4				26	30	31	143
1971	31	28	31	30	17	14	3	3	30	23		19	229
1972	31	29	1	18	28	20	18			24	30	31	230
1973	31	28	31	30	31	15					4	30	200
1974	31	28	31	30	31	22	1						174
1975		3	25	30	25	3				11	18	31	146
1976	24	29	31	30	31	13	18	4	18	31	30	26	285
1977			21	30	9				4	31	30	31	156
1978	31	28	14	30	31								134
1979	17		27	30	31	3						21	129
1980	31	13	12	30	31	11				28	30	31	217
1981	18	22	24	30	18				7	31	30	28	208
1982	20		8	30	13	30	5		5	29	30	31	201
1983	31	28	31	30	31	15						27	193
1984	20	20	31	30	28	13						23	165
1985	31	11	31	30	14	4		2	30	31	30	31	245
1986	31	28	27	30	24	20	15	14	30	31	30	31	311
1987	31	28	31	30	4						2	31	157
1988	31	29	29	30	24						17	31	191
1989	31	22	15	30	31	27	2				9	17	184
1990	15	28	31	30	26	1				22	30	31	214
1991	31	28	31	30	26	5						2	153
1992	30	29	31	24	24	9	13	31	30	31	30	31	313
1993	31	28	7	30	22	22	3		3	31	30	31	238
1994	2	8	19	30	31	9							99
1995	17	24	24	16	31	17			13	31	30	31	234
1996	30	29	31	30	31	30	4		21	31	30	31	298
1997	31	28	31	30	31	2							153
1998	25	28	31	29									113
1999												25	25
2000	29	5	31	30	28	25	21	25	20	22	9	31	276
2001	11	28	31	30	10	15					4	31	160
2002	31	28	31	30	31	9							160
2003			5	30	31	22					28	31	147
2004	31	29	31	30	31	21					1	31	205
2005	31	28	14	30	25						1	31	160
2006	31	28	31	30	28	5				28	30	31	242
2007	31	18	14	30	28								121
2008	22	29	31	30	28		8	28	30	31	30	31	298
2009	31	28	31	30	30	10				29	30	31	250
2010	21	8	19	24	19	18	6			24	30	26	195
2011	27	11	31	30	31	29	6			1	30	31	227
2012	31	29	31	5	11							13	120
2013	31	28	30	30	31	30	21	28	30	31	30	31	351
2014	31	28	31	30	31	14	22	31	30	31	30	31	340
2015	31	28	11	30	12	22	21			2	30	31	218
2016	31	29	31	30	30								151
2017	18	28	31	30	31	22	8				10	21	199
2018	19	28	19	25	29							27	147
2019	31	28	23	30	31	17					10	25	195
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**351**
Average	**22**	**19**	**22**	**28**	**24**	**10**	**4**	**3**	**6**	**11**	**14**	**22**	**187**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**
Total Number of Occurrances (days)	1539	1343	1550	1903	1689	714	272	185	417	788	982	1500	12882
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	72%	69%	72%	92%	79%	34%	13%	9%	20%	37%	47%	70%	51%
Reliability Based on Occurrance	84%	81%	94%	97%	96%	72%	33%	17%	28%	46%	64%	78%	100%

Scenario #8

Municipal Taking	0.2 m^3/s	Eramosa Intake	Abandon
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 8 Number of Days Allowable Taking Equals Maximum ASR Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	31	6				6	18	31	212
1952	31	29	30	30	21	6							147
1953	5	8	31	10	31	24	15		20	20			164
1954		7	31	30	20					16	30	23	157
1955	25		30	30	17	1					7	31	141
1956	22		25	30	31	13	23	8	30	26	9	31	248
1957	21	28	31	30	31	9	10				16	31	207
1958	27		4	29									60
1959			2	30	31	3					6	31	103
1960	31	29	5	28	31	28							152
1961		2	15	30	22	16							85
1962				29	10								39
1963			5	30	31	1							67
1964													
1965	22	28	26	23	27					6	30	31	193
1966	31	23	31	30	31	11						23	180
1967	19	28	8	30	27	20	28	2	30	31	30	31	284
1968	31	29	26	30	29			8	30	31	30	31	275
1969	31	28	18	30	31	8					8	9	163
1970				21	31	4				21	30	31	138
1971	31	28	31	30	17	13	2	3	30	23		17	225
1972	31	29	1	18	28	20	17			18	30	31	223
1973	31	28	31	30	31	15					1	25	192
1974	31	28	31	30	31	21	1						173
1975		1	21	30	25						12	31	120
1976	23	29	31	30	31	12	18		15	31	30	26	276
1977			21	30	9				3	31	30	31	155
1978	31	28	14	30	31								134
1979			27	30	31	3						10	101
1980	31	11	12	30	31	11				26	30	31	213
1981	17	21	24	30	18				2	31	30	28	201
1982	19		8	30	13	30	5		4	29	30	31	199
1983	31	28	31	30	31	15						20	186
1984	20	18	31	30	28	12						19	158
1985	31	11	31	30	14	4		2	30	31	30	31	245
1986	31	28	27	30	24	20	15	14	30	31	30	31	311
1987	31	28	31	30	4						2	31	157
1988	31	29	29	30	24						14	31	188
1989	31	22	14	30	31	27	2				3	14	174
1990	14	28	31	30	25	1				21	30	31	211
1991	31	28	31	30	26	5							151
1992	24	25	31	24	24	9	12	30	30	31	30	31	301
1993	31	28	7	30	21	22	3		1	31	30	31	235
1994	2	7	18	30	31	9							97
1995	16	24	24	15	31	17				30	30	31	218
1996	30	29	31	30	31	30	4		19	31	30	31	296
1997	31	28	31	30	31	2							153
1998	25	28	31	29									113
1999												24	24
2000	29	4	31	30	28	25	21	24	19	23	5	30	269
2001	8	28	31	30	10	13					1	31	152
2002	31	28	31	30	31	8							159
2003			3	30	31	22					27	31	144
2004	31	29	31	30	31	21						30	203
2005	31	28	14	30	25						1	31	160
2006	31	28	31	30	28	5				27	30	31	241
2007	31	18	13	30	28								120
2008	22	29	31	30	28		7	27	30	31	30	31	296
2009	31	28	31	30	30	10				25	30	31	246
2010	21	7	19	24	17	17	6			18	28	26	183
2011	27	11	31	30	31	29	6				30	31	226
2012	31	29	31	5	11							11	118
2013	31	28	29	30	31	30	21	28	30	31	30	31	350
2014	31	28	31	30	31	13	22	31	30	31	30	31	339
2015	31	28	11	30	12	21	21				25	31	210
2016	31	29	31	30	30								151
2017	18	28	31	30	31	21	8				8	15	190
2018	19	28	19	24	29							23	142
2019	31	28	23	30	31	17					8	25	193
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**350**
Average	**22**	**19**	**22**	**28**	**24**	**10**	**4**	**3**	**6**	**11**	**13**	**21**	**182**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Number of Occurrances (days)	1498	1323	1533	1899	1679	700	267	177	383	738	919	1421	12537
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	70%	68%	72%	92%	78%	34%	12%	8%	19%	35%	44%	66%	50%
Reliability Based on Occurrance	83%	81%	94%	97%	94%	71%	32%	16%	26%	42%	62%	75%	99%

Scenario #9

Municipal Taking	0.25 m^3/s	Eramosa Intake	Abandon
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 9 Number of Days Allowable Taking Equals Maximum ASR Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	31	6					17	31	205
1952	31	29	30	30	19	6							145
1953		7	31	10	31	24	15		12	19			149
1954		6	31	30	20					16	30	23	156
1955	25		29	30	17						2	31	134
1956	22		22	29	31	13	23	7	30	26	9	31	243
1957	21	28	31	30	31	9	10				16	31	207
1958	27		3	29									59
1959			1	30	31	3						25	90
1960	31	29	5	28	31	28							152
1961		1	7	30	22	16							76
1962				25	10								35
1963			4	30	31	1							66
1964													
1965	20	22	26	23	27						26	31	175
1966	31	23	31	30	31	10						22	178
1967	19	28	8	30	27	20	28	1	30	31	30	31	283
1968	31	29	26	30	29			8	30	31	30	31	275
1969	31	28	18	30	31	8							146
1970				20	31	4				13	30	31	129
1971	31	28	31	30	17	9	1	2	30	22		16	217
1972	31	29	1	18	28	20	17			10	30	31	215
1973	31	28	31	30	31	15						14	180
1974	31	28	31	30	31	21							172
1975			16	30	25							28	99
1976	22	29	31	30	31	12	18		14	31	30	26	274
1977			21	30	9				2	31	30	31	154
1978	31	28	14	30	31								134
1979			26	30	31	3						8	98
1980	31	11	12	30	31	11				19	30	31	206
1981	17	21	24	30	18					31	30	28	199
1982	18		7	30	12	30	5		3	29	30	31	195
1983	31	28	31	30	31	15						19	185
1984	20	17	31	30	28	11						18	155
1985	31	10	31	30	14	1		1	30	31	30	31	240
1986	31	28	27	30	24	20	15	13	30	31	30	31	310
1987	31	28	31	30	4							31	155
1988	31	29	29	30	24						11	31	185
1989	31	22	14	30	31	27	2				1	5	163
1990	14	28	31	30	25	1				20	30	31	210
1991	31	28	31	30	25	5							150
1992	8	19	31	24	24	8	12	29	30	31	30	31	277
1993	31	28	7	30	19	22	3			27	30	31	228
1994	2	7	17	30	31	9							96
1995	16	24	24	15	31	17				26	30	31	214
1996	30	29	31	30	31	30	4		18	31	30	31	295
1997	31	28	31	30	31	2							153
1998	24	28	31	29									112
1999												23	23
2000	29	4	31	30	28	25	20	23	16	23	2	28	259
2001	5	28	31	30	9	11						31	145
2002	31	28	31	30	31	8							159
2003			2	30	31	22					26	31	142
2004	31	29	31	30	31	21						29	202
2005	31	28	14	30	25							31	159
2006	31	28	31	30	28	5				26	30	31	240
2007	31	18	12	30	28								119
2008	22	29	31	30	28		5	26	30	31	30	31	293
2009	31	28	31	30	30	10				23	30	31	244
2010	20	7	19	24	17	14	6			7	25	26	165
2011	27	10	31	30	31	29	6				30	31	225
2012	31	29	31	5	10							9	115
2013	31	28	29	30	31	30	21	28	30	31	30	31	350
2014	31	28	31	30	31	12	22	31	30	31	30	31	338
2015	31	28	11	30	12	21	21				15	31	200
2016	31	29	31	30	30								151
2017	18	28	31	30	31	21	8				6	9	182
2018	19	28	19	23	29							11	129
2019	31	28	22	30	31	17					4	25	188
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**350**
Average	**21**	**19**	**22**	**27**	**24**	**10**	**4**	**2**	**5**	**10**	**12**	**20**	**177**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Number of Occurrances (days)	1468	1304	1507	1892	1671	683	262	169	365	678	850	1353	12202
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	69%	67%	70%	91%	78%	33%	12%	8%	18%	32%	41%	63%	48%
Reliability Based on Occurrance	81%	80%	94%	97%	94%	70%	30%	16%	23%	39%	52%	74%	99%

Scenario #10

Municipal Taking	0.3 m^3/s	Eramosa Intake	Abandon
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 10 Number of Days Allowable Taking Equals Maximum ASR Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	31	6					17	31	205
1952	31	29	30	30	18	6							144
1953		7	31	10	31	24	15		4	18			140
1954		6	31	30	20					16	30	22	155
1955	25		24	30	16							28	123
1956	22		20	28	31	13	22	5	30	26	9	31	237
1957	21	28	31	30	31	9	10				15	31	206
1958	26		3	29									58
1959				30	31	3						22	86
1960	31	29	5	28	31	28							152
1961			4	30	22	16							72
1962				23	10								33
1963			4	30	31	1							66
1964													
1965		19	26	23	27						17	31	143
1966	31	23	31	30	31	10						21	177
1967	19	28	8	30	27	20	28		30	31	30	31	282
1968	31	29	26	30	29			8	30	31	30	31	275
1969	31	28	18	30	31	8							146
1970				19	31	4				1	30	31	116
1971	31	28	31	30	17	7		1	30	23		15	213
1972	31	29	1	18	28	20	17			7	30	31	212
1973	31	28	31	30	31	15						1	167
1974	24	28	31	30	31	20							164
1975			11	30	25							17	83
1976	14	29	31	30	31	10	18		13	31	30	26	263
1977			21	30	9				1	31	30	31	153
1978	31	28	14	30	31								134
1979			26	30	31	3						8	98
1980	31	11	12	30	31	11				7	30	31	194
1981	16	20	24	30	18					28	30	28	194
1982	17		7	29	12	30	5		1	29	30	31	191
1983	31	28	31	30	31	15						17	183
1984	20	17	31	30	27	11						13	149
1985	31	10	31	30	14				29	31	30	31	237
1986	31	28	27	30	24	20	15	12	30	31	30	31	309
1987	31	28	31	30	4							30	154
1988	31	29	29	30	23						9	31	182
1989	31	22	13	30	31	27	2						156
1990	13	28	31	30	25	1				19	30	31	208
1991	31	28	31	30	25	5							150
1992		10	31	24	24	7	11	29	30	31	30	31	258
1993	31	28	7	30	17	22	3			21	30	31	220
1994	2	6	15	30	31	9							93
1995	15	24	24	15	31	17				16	30	31	203
1996	30	29	31	30	31	30	4		17	31	30	31	294
1997	31	28	31	30	31	2							153
1998	24	28	31	29									112
1999												22	22
2000	29	4	31	30	28	25	19	21	14	23	2	22	248
2001		27	31	30	9	8						30	135
2002	31	28	31	30	31	6							157
2003			2	30	31	22					25	31	141
2004	31	29	31	30	31	21						27	200
2005	31	28	14	30	25							31	159
2006	31	28	31	30	28	5				25	30	31	239
2007	31	18	9	30	28								116
2008	22	29	31	30	28		1	26	30	31	30	31	289
2009	31	28	31	30	30	10				22	30	31	243
2010	20	6	19	24	17	13	6			4	17	26	152
2011	27	10	31	30	31	29	6				30	31	225
2012	31	29	31	5	8							6	110
2013	25	28	29	30	31	30	21	27	30	31	30	31	343
2014	31	28	31	30	31	11	22	31	30	31	30	31	337
2015	31	28	10	30	12	21	21				9	31	193
2016	31	29	31	30	30								151
2017	18	28	31	30	31	21	8						167
2018	18	28	19	22	29							9	125
2019	31	28	22	30	31	17					2	25	186
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**343**
Average	**20**	**19**	**22**	**27**	**24**	**10**	**4**	**2**	**5**	**9**	**12**	**19**	**172**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Number of Occurrances (days)	1408	1287	1484	1886	1663	669	254	160	349	626	812	1283	11881
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	66%	66%	69%	91%	78%	32%	12%	7%	17%	29%	39%	60%	47%
Reliability Based on Occurrance	77%	78%	93%	97%	94%	68%	29%	13%	23%	39%	48%	71%	99%

Scenario #11

Municipal Taking	0.15 m^3/s	Eramosa Intake	Maximize
ASR Taking	1.0 m^3/s	ASR Step Taking	none

Scenario 11 Number of Days Allowable Taking Equals Maximum ASR Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	19	2				6	18	27	192
1952	31	29	25	30	13	3							131
1953	8	8	31	8	28	20	12		13	8			136
1954		7	31	30	15					16	30	7	136
1955	21		27	30	9						7	25	119
1956	3		18	28	31	7	14	8	30	20	9	30	198
1957	15	28	31	30	27	6	8				19	30	194
1958	17		4	25									46
1959			3	30	26						6	26	91
1960	29	26	2	28	31	21							137
1961		3	12	27	18	15							75
1962				30	1							3	34
1963			5	29	22								56
1964													
1965	20	21	19	23	22					6	27	31	169
1966	24	18	31	30	23	8						23	157
1967	7	24	3	30	21	20	21	2	19	30	30	31	238
1968	15	29	19	25	14			8	30	30	22	31	223
1969	22	28	14	30	31						10	4	139
1970				21	23					18	30	31	123
1971	26	19	11	29	13	6	2	3	30	10		17	166
1972	24	12		18	24	16	10			15	30	26	175
1973	31	25	27	30	28	11					2	15	169
1974	20	28	29	28	31	11							147
1975		2	20	27	18	1				3	8	20	99
1976	8	24	31	30	31	7	13		16	31	28	13	232
1977			21	30	4				4	31	30	31	151
1978	31	24	7	30	26								118
1979	6		27	30	25							17	105
1980	31	2	12	30	27	4				23	13	28	170
1981	9	16	18	26	7				5	31	30	19	161
1982	7		8	30	6	30	2		5	22	29	31	170
1983	31	28	31	30	31	13						25	189
1984	15	17	31	30	16	5						20	134
1985	24	5	31	30	7	1		2	30	30	30	31	221
1986	31	22	20	30	20	17	11	12	30	31	29	31	284
1987	31	22	30	29							2	31	145
1988	25	29	23	30	15						14	21	157
1989	31	15	12	30	29	23					3	6	149
1990	14	28	31	30	16					21	30	31	201
1991	31	28	31	30	19	2							141
1992	17	17	25	20	21	6	9	27	30	31	30	31	264
1993	31	23	3	30	13	19	1		2	25	16	24	187
1994		7	14	30	31	6							88
1995	16	13	24	14	30	15			1	20	30	31	194
1996	19	29	31	30	31	25	2		20	31	30	31	279
1997	31	28	31	30	27								147
1998	25	11	31	26									93
1999												25	25
2000	21	4	31	18	24	20	13	15	12	12	3	12	185
2001	4	28	31	30	5	5					1	31	135
2002	24	28	31	30	28	4							145
2003			5	30	31	20					27	31	144
2004	28	9	29	30	31	14						31	172
2005	31	25	7	30	20						1	29	143
2006	31	28	31	30	23	1				28	30	31	233
2007	31	6	12	30	20								99
2008	22	29	31	30	25		6	26	28	31	27	31	286
2009	31	28	31	30	27	7				24	19	31	228
2010	12		19	20	14	9	5			14	13	18	124
2011	19	10	31	30	31	26					30	31	208
2012	31	29	31	3	6							13	113
2013	26	28	25	30	29	27	16	19	29	31	30	31	321
2014	31	28	29	30	31	4	19	18	29	31	30	31	311
2015	30	7	10	30	7	21	18				21	31	175
2016	31	29	31	30	24								145
2017	18	28	31	30	31	17	7				10	6	178
2018	19	28	16	19	26							22	130
2019	29	24	17	30	31	8					10	29	178
Max	**31**	**29**	**31**	**30**	**31**	**30**	**21**	**27**	**30**	**31**	**30**	**31**	**321**
Average	**19**	**16**	**20**	**27**	**20**	**7**	**3**	**2**	**5**	**10**	**12**	**19**	**160**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Number of Occurrances (days)	1277	1119	1395	1841	1384	503	189	140	363	660	844	1293	11008
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	60%	57%	65%	89%	65%	24%	9%	7%	18%	31%	41%	60%	44%
Reliability Based on Occurrance	83%	80%	93%	97%	93%	61%	28%	16%	28%	43%	62%	77%	99%

Scenario #12

Municipal Taking	0.15 m^3/s	Eramosa Intake	Maximize
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 12 Number of Days Allowable Taking Equals Maximum ASR Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	31	6	1			10	20	31	219
1952	31	29	30	30	22	6							148
1953	11	12	31	11	31	24	15		26	20			181
1954		7	31	30	20					16	30	23	157
1955	25		31	30	17	1					8	31	143
1956	22		25	30	31	13	23	8	30	26	9	31	248
1957	21	28	31	30	31	9	10				21	31	212
1958	28		4	29									61
1959			3	30	31	3					7	31	105
1960	31	29	5	28	31	28							152
1961		3	19	30	22	16							90
1962				30	10							7	47
1963			5	30	31	1							67
1964					1								1
1965	23	28	26	23	27					7	30	31	195
1966	31	23	31	30	31	11						23	180
1967	19	28	8	30	27	20	28	3	30	31	30	31	285
1968	31	29	26	30	29			8	30	31	30	31	275
1969	31	28	18	30	31	8					10	20	176
1970				21	31	4				26	30	31	143
1971	31	28	31	30	17	14	3	3	30	23		19	229
1972	31	29	1	18	28	20	18			20	30	31	226
1973	31	28	31	30	31	15					2	29	197
1974	31	28	31	30	31	22	1						174
1975		2	24	30	25	3				7	17	31	139
1976	24	29	31	30	31	13	18	4	18	31	30	26	285
1977			21	30	9				4	31	30	31	156
1978	31	28	14	30	31								134
1979	14		27	30	31	3						21	126
1980	31	13	12	30	31	11				28	30	31	217
1981	18	22	24	30	18				6	31	30	28	207
1982	20		8	30	13	30	5		5	29	30	31	201
1983	31	28	31	30	31	15						26	192
1984	20	20	31	30	28	13						20	162
1985	31	11	31	30	14	4		2	30	31	30	31	245
1986	31	28	27	30	24	20	15	14	30	31	30	31	311
1987	31	28	31	30	4						2	31	157
1988	31	29	29	30	24						15	31	189
1989	31	22	15	30	31	27	2				3	15	176
1990	15	28	31	30	26	1				21	30	31	213
1991	31	28	31	30	26	5							151
1992	27	29	31	24	24	9	13	31	30	31	30	31	310
1993	31	28	7	30	22	22	3		3	31	30	31	238
1994	2	8	19	30	31	9							99
1995	16	24	24	16	31	17			6	30	30	31	225
1996	30	29	31	30	31	30	4		21	31	30	31	298
1997	31	28	31	30	31	2							153
1998	25	28	31	29									113
1999												25	25
2000	29	5	31	30	28	25	21	25	20	22	9	31	276
2001	11	28	31	30	10	15					1	31	157
2002	31	28	31	30	31	9							160
2003			5	30	31	22					27	31	146
2004	31	29	31	30	31	21						31	204
2005	31	28	14	30	25						1	31	160
2006	31	28	31	30	28	5				28	30	31	242
2007	31	18	14	30	28								121
2008	22	29	31	30	28		8	28	30	31	30	31	298
2009	31	28	31	30	30	10				28	30	31	249
2010	21	8	19	24	19	18	6			23	29	26	193
2011	27	11	31	30	31	29	6			1	30	31	227
2012	31	29	31	5	11							13	120
2013	31	28	30	30	31	30	21	28	30	31	30	31	351
2014	31	28	31	30	31	14	22	31	30	31	30	31	340
2015	31	28	11	30	12	22	21				30	31	216
2016	31	29	31	30	30								151
2017	18	28	31	30	31	22	8				10	21	199
2018	19	28	19	25	29							26	146
2019	31	28	23	30	31	17					10	25	195
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**351**
Average	**22**	**19**	**22**	**28**	**24**	**10**	**4**	**3**	**6**	**11**	**14**	**21**	**185**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
Total Number of Occurrances (days)	1530	1341	1548	1903	1685	714	272	185	409	768	951	1478	12784
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	72%	69%	72%	92%	79%	34%	13%	9%	20%	36%	46%	69%	51%
Reliability Based on Occurrance	84%	81%	94%	97%	96%	72%	33%	17%	28%	45%	62%	77%	100%

Scenario #13

Municipal Taking	0.2 m^3/s	Eramosa Intake	Maximize
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 13 Number of Days Allowable Taking Equals Maximum ASR Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	31	6					18	31	206
1952	31	29	30	30	21	6							147
1953	1	8	31	10	31	24	15		20	20			160
1954		7	31	30	20					16	30	23	157
1955	25		30	30	17	1					4	31	138
1956	22		25	30	31	13	23	8	30	26	9	31	248
1957	21	28	31	30	31	9	10				16	31	207
1958	27		4	29									60
1959			2	30	31	3						26	92
1960	31	29	5	28	31	28							152
1961		2	13	30	22	16							83
1962				29	10								39
1963			5	30	31	1							67
1964													
1965	22	28	26	23	27					1	30	31	188
1966	31	23	31	30	31	11						22	179
1967	19	28	8	30	27	20	28	2	30	31	30	31	284
1968	31	29	26	30	29			8	30	31	30	31	275
1969	31	28	18	30	31	8					7	9	162
1970				21	31	4				20	30	31	137
1971	31	28	31	30	17	13	2	3	30	23		17	225
1972	31	29	1	18	28	20	17			15	30	31	220
1973	31	28	31	30	31	15						21	187
1974	31	28	31	30	31	21	1						173
1975		1	19	30	25						9	31	115
1976	23	29	31	30	31	12	18		15	31	30	26	276
1977			21	30	9				3	31	30	31	155
1978	31	28	14	30	31								134
1979			27	30	31	3						10	101
1980	31	11	12	30	31	11				26	30	31	213
1981	17	21	24	30	18				1	31	30	28	200
1982	19		8	30	13	30	5		4	29	30	31	199
1983	31	28	31	30	31	15						20	186
1984	20	18	31	30	28	12						19	158
1985	31	11	31	30	14	4		2	30	31	30	31	245
1986	31	28	27	30	24	20	15	14	30	31	30	31	311
1987	31	28	31	30	4						1	31	156
1988	31	29	29	30	24						11	31	185
1989	31	22	14	30	31	27	2				1	7	165
1990	14	28	31	30	25	1				20	30	31	210
1991	31	28	31	30	26	5							151
1992	19	23	31	24	24	9	12	30	30	31	30	31	294
1993	31	28	7	30	21	22	3			31	30	31	234
1994	2	7	18	30	31	9							97
1995	16	24	24	15	31	17				26	30	31	214
1996	30	29	31	30	31	30	4		19	31	30	31	296
1997	31	28	31	30	31	2							153
1998	24	28	31	29									112
1999												24	24
2000	29	4	31	30	28	25	21	24	19	23	5	30	269
2001	8	28	31	30	10	13						31	151
2002	31	28	31	30	31	8							159
2003			3	30	31	22					26	31	143
2004	31	29	31	30	31	21						29	202
2005	31	28	14	30	25							31	159
2006	31	28	31	30	28	5				27	30	31	241
2007	31	18	13	30	28								120
2008	22	29	31	30	28		7	27	30	31	30	31	296
2009	31	28	31	30	30	10				25	30	31	246
2010	21	7	19	24	17	17	6			15	28	26	180
2011	27	11	31	30	31	29	6				30	31	226
2012	31	29	31	5	11							11	118
2013	31	28	29	30	31	30	21	28	30	31	30	31	350
2014	31	28	31	30	31	13	22	31	30	31	30	31	339
2015	31	28	11	30	12	21	21				20	31	205
2016	31	29	31	30	30								151
2017	18	28	31	30	31	21	8				8	15	190
2018	19	28	19	24	29							15	134
2019	31	28	23	30	31	17					8	25	193
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**350**
Average	**22**	**19**	**22**	**28**	**24**	**10**	**4**	**3**	**6**	**10**	**13**	**20**	**180**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Number of Occurrances (days)	1488	1321	1529	1899	1679	700	267	177	381	715	891	1395	12442
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	70%	68%	71%	92%	78%	34%	12%	8%	18%	33%	43%	65%	49%
Reliability Based on Occurrance	83%	81%	94%	97%	94%	71%	32%	16%	25%	41%	57%	75%	99%

Scenario #14

Municipal Taking	0.25 m^3/s	Eramosa Intake	Maximize
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 14 Number of Days Allowable Taking Equals Maximum ASR Taking													
Date	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
1951	31	28	31	30	31	6					17	31	205
1952	31	29	30	30	19	6							145
1953		7	31	10	31	24	15		12	19			149
1954		6	31	30	20					16	30	23	156
1955	25		29	30	17						1	31	133
1956	22		22	29	31	13	23	7	30	26	9	31	243
1957	21	28	31	30	31	9	10				15	31	206
1958	27		3	29									59
1959				30	31	3						23	87
1960	31	29	5	28	31	28							152
1961		1	6	30	22	16							75
1962				25	10								35
1963			4	30	31	1							66
1964													
1965	16	21	26	23	27						20	31	164
1966	31	23	31	30	31	10						22	178
1967	19	28	8	30	27	20	28	1	30	31	30	31	283
1968	31	29	26	30	29			8	30	31	30	31	275
1969	31	28	18	30	31	8							146
1970				20	31	4				10	30	31	126
1971	31	28	31	30	17	9	1	2	30	22		16	217
1972	31	29	1	18	28	20	17			8	30	31	213
1973	31	28	31	30	31	15						4	170
1974	31	28	31	30	31	21							172
1975			11	30	25							26	92
1976	22	29	31	30	31	12	18		14	31	30	26	274
1977			21	30	9				1	31	30	31	153
1978	31	28	14	30	31								134
1979			26	30	31	3						8	98
1980	31	11	12	30	31	11				18	30	31	205
1981	17	21	24	30	18					30	30	28	198
1982	18		7	30	12	30	5		3	29	30	31	195
1983	31	28	31	30	31	15						19	185
1984	20	17	31	30	28	11						16	153
1985	31	10	31	30	14	1		1	30	31	30	31	240
1986	31	28	27	30	24	20	15	13	30	31	30	31	310
1987	31	28	31	30	4							31	155
1988	31	29	29	30	24						9	31	183
1989	31	22	14	30	31	27	2						157
1990	13	28	31	30	25	1				19	30	31	208
1991	31	28	31	30	25	5							150
1992		16	31	24	24	8	12	29	30	31	30	31	266
1993	31	28	7	30	19	22	3			26	30	31	227
1994	2	7	17	30	31	9							96
1995	16	24	24	15	31	17				23	30	31	211
1996	30	29	31	30	31	30	4		18	31	30	31	295
1997	31	28	31	30	31	2							153
1998	24	28	31	29									112
1999												22	22
2000	29	4	31	30	28	25	20	23	16	23	2	28	259
2001	5	28	31	30	9	11						31	145
2002	31	28	31	30	31	8							159
2003			2	30	31	22					25	31	141
2004	31	29	31	30	31	21						29	202
2005	31	28	14	30	25							31	159
2006	31	28	31	30	28	5				26	30	31	240
2007	31	18	12	30	28								119
2008	22	29	31	30	28		5	26	30	31	30	31	293
2009	31	28	31	30	30	10				22	30	31	243
2010	20	7	19	24	17	14	6			6	22	26	161
2011	27	10	31	30	31	29	6				30	31	225
2012	31	29	31	5	10							9	115
2013	31	28	29	30	31	30	21	28	30	31	30	31	350
2014	31	28	31	30	31	12	22	31	30	31	30	31	338
2015	31	28	11	30	12	21	21				11	31	196
2016	31	29	31	30	30								151
2017	18	28	31	30	31	21	8				5	9	181
2018	19	28	19	23	29							10	128
2019	31	28	22	30	31	17					4	25	188
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**350**
Average	**21**	**19**	**22**	**27**	**24**	**10**	**4**	**2**	**5**	**10**	**12**	**19**	**176**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Number of Occurrances (days)	1455	1300	1500	1892	1671	683	262	169	364	664	830	1330	12120
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	68%	67%	70%	91%	78%	33%	12%	8%	18%	31%	40%	62%	48%
Reliability Based on Occurrance	80%	80%	93%	97%	94%	70%	30%	16%	23%	39%	51%	72%	99%

Scenario #15

Municipal Taking	0.3 m^3/s	Eramosa Intake	Maximize
ASR Taking	0.5 m^3/s	ASR Step Taking	none

Scenario 15 Number of Days Allowable Taking Equals Maximum ASR Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	31	6					17	31	205
1952	31	29	30	30	18	6							144
1953		6	31	10	31	24	15		4	18			139
1954		6	31	30	20					16	30	22	155
1955	25		24	30	16							28	123
1956	21		20	28	31	13	22	5	30	26	9	31	236
1957	21	28	31	30	31	9	10				14	31	205
1958	26		3	29									58
1959				30	31	3						15	79
1960	31	29	5	28	31	28							152
1961			4	30	22	16							72
1962				23	10								33
1963			4	30	31	1							66
1964													
1965		19	26	23	27						14	31	140
1966	31	23	31	30	31	10						21	177
1967	19	28	8	30	27	20	28		30	31	30	31	282
1968	31	29	26	30	29			8	30	31	30	31	275
1969	31	28	18	30	31	8							146
1970				19	31	4				1	30	31	116
1971	31	28	31	30	17	7		1	30	23		15	213
1972	31	29	1	18	28	20	17			7	30	31	212
1973	31	28	31	30	31	15							166
1974	14	28	31	30	31	20							154
1975			10	30	25							17	82
1976	11	29	31	30	31	10	18		13	31	30	26	260
1977			21	30	9					31	30	31	152
1978	31	28	14	30	31								134
1979			26	30	31	3						8	98
1980	31	11	12	30	31	11				7	30	31	194
1981	16	20	24	30	18					27	30	28	193
1982	17		7	29	12	30	5		1	29	30	31	191
1983	31	28	31	30	31	15						17	183
1984	20	17	31	30	27	11						13	149
1985	31	10	31	30	14				29	31	30	31	237
1986	31	28	27	30	24	20	15	12	30	31	30	31	309
1987	31	28	31	30	4							29	153
1988	31	29	29	30	23						4	25	171
1989	31	22	13	30	31	27	2						156
1990	12	28	31	30	25	1				18	30	31	206
1991	31	28	31	30	25	5							150
1992		8	31	24	24	7	11	29	30	31	30	31	256
1993	31	28	7	30	17	22	3			19	30	31	218
1994	2	6	15	30	31	9							93
1995	15	24	24	15	31	17				5	30	31	192
1996	30	29	31	30	31	30	4		17	31	30	31	294
1997	31	28	31	30	31	2							153
1998	23	28	31	29									111
1999												22	22
2000	29	4	31	30	28	25	19	21	14	23	2	22	248
2001		27	31	30	9	8						29	134
2002	31	28	31	30	31	6							157
2003			2	30	31	22					24	31	140
2004	31	29	31	30	31	21						26	199
2005	31	28	14	30	25							30	158
2006	31	28	31	30	28	5				25	30	31	239
2007	31	18	9	30	28								116
2008	22	29	31	30	28		1	26	30	31	30	31	289
2009	31	28	31	30	30	10				21	30	31	242
2010	20	6	19	24	17	13	6			3	15	26	149
2011	27	10	31	30	31	29	6				30	31	225
2012	31	29	31	5	8							4	108
2013	25	28	29	30	31	30	21	27	30	31	30	31	343
2014	31	28	31	30	31	11	22	31	30	31	30	31	337
2015	31	28	10	30	12	21	21				6	31	190
2016	31	29	31	30	30								151
2017	17	28	31	30	31	21	8						166
2018	18	28	19	22	29							8	124
2019	31	28	22	30	31	17					2	25	186
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**343**
Average	**20**	**19**	**21**	**27**	**24**	**10**	**4**	**2**	**5**	**9**	**12**	**18**	**171**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Number of Occurrances (days)	1391	1284	1483	1886	1663	669	254	160	348	609	797	1262	11806
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	65%	66%	69%	91%	78%	32%	12%	7%	17%	28%	39%	59%	47%
Reliability Based on Occurrance	77%	78%	93%	97%	94%	68%	29%	13%	22%	39%	48%	70%	99%

Scenario #16

Municipal Taking	0.15 m^3/s	Eramosa Intake	Maximize
ASR Taking	0.5 m^3/s	ASR Step Taking	0.3 m^3/s

Scenario 16 Number of Days Allowable Taking Equals Maximum ASR Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	31	6					17	31	205
1952	31	29	30	30	18	6							144
1953		7	31	10	31	24	15		24	20			162
1954		6	31	30	20					16	30	22	155
1955	25		24	30	17						5	31	132
1956	22		20	28	31	13	22	8	30	26	9	31	240
1957	21	28	31	30	31	9	10				15	31	206
1958	26		3	29									58
1959			3	30	31	3						26	93
1960	31	29	5	28	31	28							152
1961		2	16	30	22	16							86
1962				28	10								38
1963			4	30	31	1							66
1964													
1965	21	28	26	23	27						27	31	183
1966	31	23	31	30	31	10						22	178
1967	19	28	8	30	27	20	28	3	30	31	30	31	285
1968	31	29	26	30	29			8	30	31	30	31	275
1969	31	28	18	30	31	8							146
1970				19	31	4				15	30	31	130
1971	31	28	31	30	17	7	1	3	30	22		15	215
1972	31	29	1	18	28	20	18			9	30	31	215
1973	31	28	31	30	31	15						5	171
1974	31	28	31	30	31	20							171
1975			15	30	25							25	95
1976	18	29	31	30	31	10	18	4	15	31	30	26	273
1977			21	30	9				3	31	30	31	155
1978	31	28	14	30	31								134
1979			26	30	31	3						16	106
1980	31	11	12	30	31	11				24	30	31	211
1981	16	20	24	30	18				1	31	30	28	198
1982	17		7	29	12	30	5		4	29	30	31	194
1983	31	28	31	30	31	15						19	185
1984	20	17	31	30	27	11						16	152
1985	31	10	31	30	14	1		2	30	31	30	31	241
1986	31	28	27	30	24	20	15	14	30	31	30	31	311
1987	31	28	31	30	4						1	31	156
1988	31	29	29	30	23						12	31	185
1989	31	22	13	30	31	27	2				3	13	172
1990	14	28	31	30	25	1				20	30	31	210
1991	31	28	31	30	25	5							150
1992	18	20	31	24	24	7	12	30	30	31	30	31	288
1993	31	28	7	30	17	22	3			30	30	31	229
1994	2	6	15	30	31	9							93
1995	16	24	24	15	31	17				26	30	31	214
1996	30	29	31	30	31	30	4		20	31	30	31	297
1997	31	28	31	30	31	2							153
1998	24	28	31	29									112
1999												24	24
2000	29	4	31	30	28	25	21	25	14	23	2	22	254
2001		27	31	30	9	12						31	140
2002	31	28	31	30	31	6							157
2003			4	30	31	22					26	31	144
2004	31	29	31	30	31	21						29	202
2005	31	28	14	30	25							31	159
2006	31	28	31	30	28	5				26	30	31	240
2007	31	18	9	30	28								116
2008	22	29	31	30	28		6	26	30	31	30	31	294
2009	31	28	31	30	30	10				24	30	31	245
2010	20	6	19	24	17	13	6			10	24	26	165
2011	27	10	31	30	31	29	6				30	31	225
2012	31	29	31	5	10							10	116
2013	31	28	29	30	31	30	21	28	30	31	30	31	350
2014	31	28	31	30	31	11	22	31	30	31	30	31	337
2015	31	28	10	30	12	21	21				11	31	195
2016	31	29	31	30	30								151
2017	18	28	31	30	31	21	8				5	7	179
2018	19	28	19	22	29							21	138
2019	31	28	22	30	31	17					7	25	191
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**350**
Average	**21**	**19**	**22**	**27**	**24**	**10**	**4**	**3**	**6**	**10**	**12**	**20**	**177**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Number of Occurrances (days)	1467	1308	1505	1891	1666	674	264	182	381	692	854	1358	12242
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	69%	67%	70%	91%	78%	33%	12%	9%	18%	32%	41%	63%	49%
Reliability Based on Occurrance	80%	80%	94%	97%	94%	70%	30%	17%	25%	39%	54%	74%	99%

Scenario #17

Municipal Taking	0.2 m^3/s	Eramosa Intake	Maximize
ASR Taking	0.5 m^3/s	ASR Step Taking	0.3 m^3/s

Scenario 17 Number of Days Allowable Taking Equals Maximum ASR Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	31	6					17	31	205
1952	31	29	30	30	18	6							144
1953		7	31	10	31	24	15		16	20			154
1954		6	31	30	20					16	30	22	155
1955	25		24	30	17						2	31	129
1956	22		20	28	31	13	22	8	30	26	9	31	240
1957	21	28	31	30	31	9	10				15	31	206
1958	26		3	29									58
1959			2	30	31	3						25	91
1960	31	29	5	28	31	28							152
1961		2	9	30	22	16							79
1962				25	10								35
1963			4	30	31	1							66
1964													
1965	20	20	26	23	27						21	31	168
1966	31	23	31	30	31	10						22	178
1967	19	28	8	30	27	20	28	2	30	31	30	31	284
1968	31	29	26	30	29			8	30	31	30	31	275
1969	31	28	18	30	31	8							146
1970				19	31	4				9	30	31	124
1971	31	28	31	30	17	7		3	30	23		15	215
1972	31	29	1	18	28	20	17			8	30	31	213
1973	31	28	31	30	31	15						2	168
1974	31	28	31	30	31	20							171
1975			14	30	25							23	92
1976	16	29	31	30	31	10	18		14	31	30	26	266
1977			21	30	9				2	31	30	31	154
1978	31	28	14	30	31								134
1979			26	30	31	3						8	98
1980	31	11	12	30	31	11				17	30	31	204
1981	16	20	24	30	18					31	30	28	197
1982	17		7	29	12	30	5		3	29	30	31	193
1983	31	28	31	30	31	15						19	185
1984	20	17	31	30	27	11						16	152
1985	31	10	31	30	14	1		1	30	31	30	31	240
1986	31	28	27	30	24	20	15	14	30	31	30	31	311
1987	31	28	31	30	4							31	155
1988	31	29	29	30	23						10	31	183
1989	31	22	13	30	31	27	2					4	160
1990	14	28	31	30	25	1				19	30	31	209
1991	31	28	31	30	25	5							150
1992	4	17	31	24	24	7	12	30	30	31	30	31	271
1993	31	28	7	30	17	22	3			27	30	31	226
1994	2	6	15	30	31	9							93
1995	16	24	24	15	31	17				25	30	31	213
1996	30	29	31	30	31	30	4		19	31	30	31	296
1997	31	28	31	30	31	2							153
1998	24	28	31	29									112
1999												23	23
2000	29	4	31	30	28	25	21	24	14	23	2	22	253
2001		27	31	30	9	11						31	139
2002	31	28	31	30	31	6							157
2003			2	30	31	22					26	31	142
2004	31	29	31	30	31	21						28	201
2005	31	28	14	30	25							31	159
2006	31	28	31	30	28	5				26	30	31	240
2007	31	18	9	30	28								116
2008	22	29	31	30	28		5	26	30	31	30	31	293
2009	31	28	31	30	30	10				22	30	31	243
2010	20	6	19	24	17	13	6			6	20	26	157
2011	27	10	31	30	31	29	6				30	31	225
2012	31	29	31	5	10							9	115
2013	31	28	29	30	31	30	21	28	30	31	30	31	350
2014	31	28	31	30	31	11	22	31	30	31	30	31	337
2015	31	28	10	30	12	21	21				10	31	194
2016	31	29	31	30	30								151
2017	18	28	31	30	31	21	8				2	3	172
2018	19	28	19	22	29							11	128
2019	31	28	22	30	31	17					6	25	190
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**350**
Average	**21**	**19**	**22**	**27**	**24**	**10**	**4**	**3**	**5**	**10**	**12**	**19**	**175**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Number of Occurrances (days)	1450	1297	1494	1888	1666	673	261	175	368	668	830	1318	12088
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	68%	67%	70%	91%	78%	33%	12%	8%	18%	31%	40%	62%	48%
Reliability Based on Occurrance	80%	80%	94%	97%	94%	70%	29%	16%	23%	39%	51%	74%	99%

Scenario #18

Municipal Taking	0.25 m^3/s	Eramosa Intake	Maximize
ASR Taking	0.5 m^3/s	ASR Step Taking	0.3 m^3/s

Scenario 18 Number of Days Allowable Taking Equals Maximum ASR Taking													
Date	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
1951	31	28	31	30	31	6					17	31	205
1952	31	29	30	30	18	6							144
1953		7	31	10	31	24	15		10	19			147
1954		6	31	30	20					16	30	22	155
1955	25		24	30	17							30	126
1956	22		20	28	31	13	22	7	30	26	9	31	239
1957	21	28	31	30	31	9	10				15	31	206
1958	26		3	29									58
1959				30	31	3						22	86
1960	31	29	5	28	31	28							152
1961			5	30	22	16							73
1962				24	10								34
1963			4	30	31	1							66
1964													
1965	2	20	26	23	27						16	31	145
1966	31	23	31	30	31	10						21	177
1967	19	28	8	30	27	20	28	1	30	31	30	31	283
1968	31	29	26	30	29			8	30	31	30	31	275
1969	31	28	18	30	31	8							146
1970				19	31	4				5	30	31	120
1971	31	28	31	30	17	7		2	30	23		15	214
1972	31	29	1	18	28	20	17			7	30	31	212
1973	31	28	31	30	31	15						1	167
1974	28	28	31	30	31	20							168
1975			11	30	25							17	83
1976	15	29	31	30	31	10	18		14	31	30	26	265
1977			21	30	9				1	31	30	31	153
1978	31	28	14	30	31								134
1979			26	30	31	3						8	98
1980	31	11	12	30	31	11				11	30	31	198
1981	16	20	24	30	18					29	30	28	195
1982	17		7	29	12	30	5		2	29	30	31	192
1983	31	28	31	30	31	15						18	184
1984	20	17	31	30	27	11						13	149
1985	31	10	31	30	14				30	31	30	31	238
1986	31	28	27	30	24	20	15	13	30	31	30	31	310
1987	31	28	31	30	4							30	154
1988	31	29	29	30	23						9	31	182
1989	31	22	13	30	31	27	2						156
1990	13	28	31	30	25	1				19	30	31	208
1991	31	28	31	30	25	5							150
1992		11	31	24	24	7	11	29	30	31	30	31	259
1993	31	28	7	30	17	22	3			23	30	31	222
1994	2	6	15	30	31	9							93
1995	16	24	24	15	31	17				16	30	31	204
1996	30	29	31	30	31	30	4		18	31	30	31	295
1997	31	28	31	30	31	2							153
1998	24	28	31	29									112
1999												22	22
2000	29	4	31	30	28	25	20	23	14	23	2	22	251
2001		27	31	30	9	9						30	136
2002	31	28	31	30	31	6							157
2003			2	30	31	22					25	31	141
2004	31	29	31	30	31	21						27	200
2005	31	28	14	30	25							31	159
2006	31	28	31	30	28	5				26	30	31	240
2007	31	18	9	30	28								116
2008	22	29	31	30	28		4	26	30	31	30	31	292
2009	31	28	31	30	30	10				22	30	31	243
2010	20	6	19	24	17	13	6			5	17	26	153
2011	27	10	31	30	31	29	6				30	31	225
2012	31	29	31	5	9							7	112
2013	29	28	29	30	31	30	21	28	30	31	30	31	348
2014	31	28	31	30	31	11	22	31	30	31	30	31	337
2015	31	28	10	30	12	21	21				8	31	192
2016	31	29	31	30	30								151
2017	18	28	31	30	31	21	8						167
2018	19	28	19	22	29							10	127
2019	31	28	22	30	31	17					3	25	187
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**348**
Average	**21**	**19**	**22**	**27**	**24**	**10**	**4**	**2**	**5**	**9**	**12**	**19**	**173**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Number of Occurrances (days)	1421	1289	1485	1887	1665	670	258	168	359	640	811	1288	11941
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	66%	66%	69%	91%	78%	32%	12%	8%	17%	30%	39%	60%	47%
Reliability Based on Occurrance	78%	78%	93%	97%	94%	68%	29%	14%	23%	39%	48%	71%	99%

Scenario #19

Municipal Taking	0.3 m^3/s	Eramosa Intake	Maximize
ASR Taking	0.5 m^3/s	ASR Step Taking	0.3 m^3/s

Scenario 19 Number of Days Allowable Taking Equals Maximum ASR Taking

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1951	31	28	31	30	31	6					17	31	205
1952	31	29	30	30	18	6							144
1953		6	31	10	31	24	15		4	18			139
1954		6	31	30	20					16	30	22	155
1955	25		24	30	16							28	123
1956	21		20	28	31	13	22	5	30	26	9	31	236
1957	21	28	31	30	31	9	10				14	31	205
1958	26		3	29									58
1959				30	31	3						15	79
1960	31	29	5	28	31	28							152
1961			4	30	22	16							72
1962				23	10								33
1963			4	30	31	1							66
1964													
1965		19	26	23	27						14	31	140
1966	31	23	31	30	31	10						21	177
1967	19	28	8	30	27	20	28		30	31	30	31	282
1968	31	29	26	30	29			8	30	31	30	31	275
1969	31	28	18	30	31	8							146
1970				19	31	4				1	30	31	116
1971	31	28	31	30	17	7		1	30	23		15	213
1972	31	29	1	18	28	20	17			7	30	31	212
1973	31	28	31	30	31	15							166
1974	14	28	31	30	31	20							154
1975			10	30	25							17	82
1976	11	29	31	30	31	10	18		13	31	30	26	260
1977			21	30	9					31	30	31	152
1978	31	28	14	30	31								134
1979			26	30	31	3						8	98
1980	31	11	12	30	31	11				7	30	31	194
1981	16	20	24	30	18					27	30	28	193
1982	17		7	29	12	30	5		1	29	30	31	191
1983	31	28	31	30	31	15						17	183
1984	20	17	31	30	27	11						13	149
1985	31	10	31	30	14				29	31	30	31	237
1986	31	28	27	30	24	20	15	12	30	31	30	31	309
1987	31	28	31	30	4							29	153
1988	31	29	29	30	23						4	25	171
1989	31	22	13	30	31	27	2						156
1990	12	28	31	30	25	1				18	30	31	206
1991	31	28	31	30	25	5							150
1992		8	31	24	24	7	11	29	30	31	30	31	256
1993	31	28	7	30	17	22	3			19	30	31	218
1994	2	6	15	30	31	9							93
1995	15	24	24	15	31	17				5	30	31	192
1996	30	29	31	30	31	30	4		17	31	30	31	294
1997	31	28	31	30	31	2							153
1998	23	28	31	29									111
1999												22	22
2000	29	4	31	30	28	25	19	21	14	23	2	22	248
2001		27	31	30	9	8						29	134
2002	31	28	31	30	31	6							157
2003			2	30	31	22					24	31	140
2004	31	29	31	30	31	21						26	199
2005	31	28	14	30	25							30	158
2006	31	28	31	30	28	5				25	30	31	239
2007	31	18	9	30	28								116
2008	22	29	31	30	28		1	26	30	31	30	31	289
2009	31	28	31	30	30	10				21	30	31	242
2010	20	6	19	24	17	13	6			3	15	26	149
2011	27	10	31	30	31	29	6				30	31	225
2012	31	29	31	5	8							4	108
2013	25	28	29	30	31	30	21	27	30	31	30	31	343
2014	31	28	31	30	31	11	22	31	30	31	30	31	337
2015	31	28	10	30	12	21	21				6	31	190
2016	31	29	31	30	30								151
2017	17	28	31	30	31	21	8						166
2018	18	28	19	22	29							8	124
2019	31	28	22	30	31	17					2	25	186
Max	**31**	**29**	**31**	**30**	**31**	**30**	**28**	**31**	**30**	**31**	**30**	**31**	**343**
Average	**20**	**19**	**21**	**27**	**24**	**10**	**4**	**2**	**5**	**9**	**12**	**18**	**171**
Min	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Number of Occurrances (days)	1391	1284	1483	1886	1663	669	254	160	348	609	797	1262	11806
Total Days Period of Record	2139	1949	2139	2070	2139	2070	2139	2139	2070	2139	2070	2139	25202
Reliability Based on Time	65%	66%	69%	91%	78%	32%	12%	7%	17%	28%	39%	59%	47%
Reliability Based on Occurrance	77%	78%	93%	97%	94%	68%	29%	13%	22%	39%	48%	70%	99%

Appendix D – Reliability of Eramosa Intake taking over Period of Record

Minimum flow rate required for any taking under PTTW condition 3.4 condition 2

Eramosa Above Guelph Days Flow Exceeds 0.42 (m^3/s)													Apr to Nov
Year	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
1962	31	28	31	30	31	30	23	18	22	31	30	31	215
1963	31	28	31	30	31	28	31	20	22	19	25	18	206
1964	31	22	28	30	31	28	20	27	16	28	30	31	210
1965	31	27	31	30	31	30	31	31	30	31	30	31	244
1966	31	28	31	30	31	30	29	29	15	19	30	31	213
1967	31	28	31	30	31	30	31	31	30	31	30	31	244
1968	31	29	31	30	31	30	31	31	30	31	30	31	244
1969	31	28	31	30	31	30	31	31	10	22	30	31	215
1970	31	28	31	30	31	30	31	31	30	31	30	31	244
1971	31	28	31	30	31	30	31	31	30	31	30	31	244
1972	31	29	31	30	31	30	31	31	30	31	30	31	244
1973	31	28	31	30	31	30	31	30	13	31	30	31	226
1974	31	28	31	30	31	30	31	31	30	31	30	31	244
1975	31	28	31	30	31	30	31	31	30	31	30	31	244
1976	31	29	31	30	31	30	31	31	30	31	30	31	244
1977	31	28	31	30	31	30	31	31	30	31	30	31	244
1978	31	28	31	30	31	30	31	31	30	31	30	31	244
1979	31	28	31	30	31	30	31	31	30	31	30	31	244
1980	31	29	31	30	31	30	31	31	30	31	30	31	244
1981	31	28	31	30	31	30	31	31	30	31	30	31	244
1982	31	28	31	30	31	30	31	31	30	31	30	31	244
1983	31	28	31	30	31	30	31	31	30	31	30	31	244
1984	31	29	31	30	31	30	31	31	30	31	30	31	244
1985	31	28	31	30	31	30	31	31	30	31	30	31	244
1986	31	28	31	30	31	30	31	31	30	31	30	31	244
1987	31	28	31	30	31	30	31	31	30	31	30	31	244
1988	31	29	31	30	31	30	23	31	29	31	30	31	235
1989	31	28	31	30	31	30	31	31	30	31	30	31	244
1990	31	28	31	30	31	30	31	31	30	31	30	31	244
1991	31	28	31	30	31	30	31	31	30	31	30	31	244
1992	31	29	31	30	31	30	31	31	30	31	30	31	244
1993	31	28	31	30	31	30	31	31	30	31	30	31	244
1994	31	28	31	30	31	30	31	24	24	31	30	31	231
1995	31	28	31	30	31	30	31	31	27	27	30	31	237
1996	31	29	31	30	31	30	31	31	30	31	30	31	244
1997	31	28	31	30	31	30	31	31	30	31	30	31	244
1998	31	28	31	30	31	30	31	16	6	31	30	31	205
1999	19	28	31	30	31	28	15	7	11	30	30	31	182
2000	31	29	31	30	31	30	31	31	30	31	30	31	244
2001	31	28	31	30	31	30	31	16	10	30	30	31	208
2002	31	28	31	30	31	30	31	31	18	31	30	31	232
2003	31	28	31	30	31	30	31	31	13	31	30	31	227
2004	31	29	31	30	31	30	31	31	30	31	30	31	244
2005	31	28	31	30	31	30	31	31	30	31	30	31	244
2006	31	28	31	30	31	30	31	31	30	31	30	31	244
2007	31	28	31	30	31	30	31	31	27	30	30	31	240
2008	31	29	31	30	31	30	31	31	30	31	30	31	244
2009	31	28	31	30	31	30	31	31	30	31	30	31	244
2010	31	28	31	30	31	30	31	31	30	31	30	31	244
2011	31	28	31	30	31	30	31	31	30	31	30	31	244
2012	31	29	31	30	31	30	0	12	20	31	30	31	184
2013	31	28	31	30	31	30	31	31	30	31	30	31	244
2014	31	28	31	30	31	30	31	31	30	31	30	31	244
2015	31	28	31	30	31	30	31	31	30	31	30	31	244
2016	31	29	31	30	31	30	23	19	21	31	30	31	215
2017	31	28	31	30	31	30	31	31	30	31	30	31	244
2018	31	28	31	30	31	30	31	31	30	31	30	31	244
2019	31	28	31	30	31	30	31	31	30	31	30	31	244
Max	31	29	31	30	31	30	31	31	30	31	30	31	244
Average	31	28	31	30	31	30	30	29	26	30	30	31	236
Min	19	22	28	30	31	28	0	7	6	19	25	18	182
Total Number of Occurrances (days)	1786	1630	1795	1740	1798	1734	1714	1675	1534	1755	1735	1785	13685
Total Days Period of Record	1798	1639	1798	1740	1798	1740	1798	1798	1740	1798	1740	1798	14152
Reliability Based on Time	99%	99%	100%	100%	100%	100%	95%	93%	88%	98%	100%	99%	97%
Reliability Based on Occurrance	100%	100%	100%	100%	100%	100%	98%	100%	100%	100%	100%	100%	100%

Flow rate corresponding for permitted taking rate from Sept 1 to Nov 31

Eramosa Above Guelph Days Flow Exceeds 0.525(m^3/s)													Apr to Nov
Year	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
1962	31	28	31	30	31	30	16	11	12	31	30	31	191
1963	31	28	31	30	31	22	30	15	10	13	14	12	165
1964	29	17	28	30	31	27	15	24	15	19	26	27	187
1965	31	27	31	30	31	17	29	31	30	31	30	31	229
1966	31	28	31	30	31	28	16	13	3	10	30	31	161
1967	31	28	31	30	31	30	31	31	27	31	30	31	241
1968	31	29	31	30	31	30	31	31	30	31	30	31	244
1969	31	28	31	30	31	30	27	23	0	17	30	31	188
1970	31	28	31	30	31	30	31	26	30	31	30	31	239
1971	31	28	31	30	31	30	31	29	30	31	30	31	242
1972	31	29	31	30	31	30	31	31	29	31	30	31	243
1973	31	28	31	30	31	30	31	27	9	31	30	31	219
1974	31	28	31	30	31	30	31	31	30	31	30	31	244
1975	31	28	31	30	31	30	31	29	30	31	30	31	242
1976	31	29	31	30	31	30	31	31	30	31	30	31	244
1977	31	28	31	30	31	30	27	31	30	31	30	31	240
1978	31	28	31	30	31	30	31	31	30	31	30	31	244
1979	31	28	31	30	31	30	31	31	30	31	30	31	244
1980	31	29	31	30	31	30	31	31	30	31	30	31	244
1981	31	28	31	30	31	30	31	31	30	31	30	31	244
1982	31	28	31	30	31	30	31	31	30	31	30	31	244
1983	31	28	31	30	31	30	31	31	30	31	30	31	244
1984	31	29	31	30	31	30	31	31	30	31	30	31	244
1985	31	28	31	30	31	30	31	31	30	31	30	31	244
1986	31	28	31	30	31	30	31	31	30	31	30	31	244
1987	31	28	31	30	31	30	31	31	30	31	30	31	244
1988	31	29	31	30	31	25	13	17	27	31	30	31	204
1989	31	28	31	30	31	30	28	16	6	22	30	28	193
1990	31	28	31	30	31	30	31	31	30	31	30	31	244
1991	31	28	31	30	31	30	31	28	19	31	30	31	230
1992	31	29	31	30	31	30	31	31	30	31	30	31	244
1993	31	28	31	30	31	30	31	31	30	31	30	31	244
1994	28	28	31	30	31	30	28	17	8	31	30	31	205
1995	31	28	31	30	31	30	31	29	7	27	30	31	215
1996	31	29	31	30	31	30	31	31	30	31	30	31	244
1997	31	28	31	30	31	30	31	28	30	31	30	31	241
1998	31	28	31	30	31	30	23	9	0	20	30	31	173
1999	18	28	31	30	31	23	12	3	8	28	29	28	164
2000	31	29	31	30	31	30	31	31	30	31	30	31	244
2001	31	28	31	30	31	30	31	8	9	28	30	31	197
2002	31	28	31	30	31	30	31	14	14	30	30	31	210
2003	31	28	19	30	31	30	31	20	12	30	30	31	214
2004	31	29	31	30	31	30	31	31	30	31	30	31	244
2005	31	28	31	30	31	30	31	20	29	31	30	31	232
2006	31	28	31	30	31	30	31	31	29	31	30	31	243
2007	31	28	31	30	31	30	31	22	0	8	26	31	178
2008	31	29	31	30	31	30	31	31	30	31	30	31	244
2009	31	28	31	30	31	30	31	31	30	31	30	31	244
2010	31	28	31	30	31	30	31	31	30	31	30	31	244
2011	31	28	31	30	31	30	31	31	30	31	30	31	244
2012	31	29	31	30	31	25	0	7	7	18	30	31	148
2013	31	28	31	30	31	30	31	31	30	31	30	31	244
2014	31	28	31	30	31	30	31	31	30	31	30	31	244
2015	31	28	31	30	31	30	31	31	27	31	30	31	241
2016	31	29	31	30	31	30	15	16	6	21	30	31	179
2017	31	28	31	30	31	30	31	31	22	31	30	31	236
2018	31	28	31	30	31	30	31	31	28	31	30	31	242
2019	31	28	31	30	31	30	31	31	30	31	30	31	244
Max	31	29	31	30	31	30	31	31	30	31	30	31	244
Average	31	28	31	30	31	29	28	26	23	29	30	31	225
Min	18	17	19	30	31	17	0	3	0	8	14	12	148
Total Number of Occurrances (days)	1780	1625	1783	1740	1798	1697	1643	1505	1323	1655	1715	1769	13076
Total Days Period of Record	1798	1639	1798	1740	1798	1740	1798	1798	1740	1798	1740	1798	14152
Reliability Based on Time	99%	99%	99%	100%	100%	98%	91%	84%	76%	92%	99%	98%	92%
Reliability Based on Occurrance	100%	100%	100%	100%	100%	100%	98%	100%	95%	100%	100%	100%	100%

Flow rate corresponding for permitted taking rate from July 16 to Aug 31

Eramosa Above Guelph Days Flow Exceeds 0.578(m^3/s)													Apr to Nov
Year	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
1962	31	28	31	30	31	30	9	11	11	31	30	31	183
1963	31	28	31	30	30	22	26	15	8	9	10	9	150
1964	24	12	28	30	31	26	11	22	11	17	22	25	170
1965	31	26	31	30	31	15	27	30	30	31	30	31	224
1966	31	28	31	30	31	26	6	9	2	9	29	31	142
1967	31	28	31	30	31	30	31	31	25	31	30	31	239
1968	31	29	31	30	31	30	28	31	30	31	30	31	241
1969	31	28	31	30	31	30	25	22	0	14	30	31	182
1970	31	28	31	30	31	30	31	23	30	31	30	31	236
1971	31	28	31	30	31	30	31	24	30	31	30	31	237
1972	31	29	31	30	31	30	31	30	26	31	30	31	239
1973	31	28	31	30	31	30	31	25	9	31	30	31	217
1974	31	28	31	30	31	30	31	31	30	31	30	31	244
1975	31	28	31	30	31	30	30	25	30	31	30	31	237
1976	31	29	31	30	31	30	31	31	30	31	30	31	244
1977	24	19	31	30	31	30	27	31	30	31	30	31	240
1978	31	28	31	30	31	30	31	29	30	31	30	31	242
1979	31	28	31	30	31	30	31	31	30	31	30	31	244
1980	31	29	31	30	31	30	31	31	30	31	30	31	244
1981	31	28	31	30	31	30	31	31	30	31	30	31	244
1982	31	28	31	30	31	30	31	31	30	31	30	31	244
1983	31	28	31	30	31	30	31	31	30	31	30	31	244
1984	31	29	31	30	31	30	31	31	30	31	30	31	244
1985	31	28	31	30	31	30	31	31	30	31	30	31	244
1986	31	28	31	30	31	30	31	31	30	31	30	31	244
1987	31	28	31	30	31	30	31	31	30	31	30	31	244
1988	31	29	31	30	31	22	12	13	22	31	30	31	191
1989	31	28	31	30	31	30	23	11	2	22	30	18	179
1990	29	28	31	30	31	30	31	29	26	31	30	31	238
1991	31	28	31	30	31	30	31	26	18	31	29	31	226
1992	31	29	31	30	31	30	31	31	30	31	30	31	244
1993	31	28	31	30	31	30	31	31	30	31	30	31	244
1994	18	28	31	30	31	30	26	15	4	28	30	31	194
1995	31	28	31	30	31	30	31	27	2	26	30	31	207
1996	31	29	31	30	31	30	31	31	30	31	30	31	244
1997	31	28	31	30	31	30	31	21	30	31	30	31	234
1998	31	28	31	30	31	30	20	8	0	9	23	30	151
1999	18	28	31	30	31	18	11	1	7	25	29	27	152
2000	30	29	31	30	31	30	31	31	30	31	30	31	244
2001	31	28	31	30	31	30	30	2	9	27	30	31	189
2002	31	28	31	30	31	30	31	5	12	23	30	31	192
2003	31	28	17	30	31	30	29	16	12	26	30	31	204
2004	31	29	31	30	31	30	31	31	23	27	30	31	233
2005	31	28	31	30	31	30	29	14	27	31	30	31	222
2006	31	28	31	30	31	30	31	24	28	31	30	31	235
2007	31	28	31	30	31	30	29	17	0	6	24	31	167
2008	31	29	31	30	31	30	31	31	30	31	30	31	244
2009	31	28	31	30	31	30	31	31	30	31	30	31	244
2010	31	28	31	30	31	30	31	31	30	31	30	31	244
2011	31	28	31	30	31	30	31	31	30	31	30	31	244
2012	31	29	31	30	31	20	0	6	4	18	30	31	139
2013	31	28	31	30	31	30	31	31	30	31	30	31	244
2014	31	28	31	30	31	30	31	31	30	31	30	31	244
2015	31	28	31	30	31	30	31	31	23	25	30	31	231
2016	31	29	31	30	31	30	8	16	4	19	30	31	168
2017	31	28	31	30	31	30	31	31	19	25	30	31	227
2018	31	28	31	30	31	30	31	27	20	31	30	31	230
2019	31	28	31	30	31	30	31	31	30	31	30	31	244
Max	31	29	31	30	31	30	31	31	30	31	30	31	244
Average	30	28	31	30	31	29	27	24	22	28	29	30	220
Min	18	12	17	30	30	15	0	1	0	6	10	9	139
Total Number of Occurrances (days)	1755	1610	1781	1740	1797	1679	1584	1411	1254	1595	1696	1752	12756
Total Days Period of Record	1798	1639	1798	1740	1798	1740	1798	1798	1740	1798	1740	1798	14152
Reliability Based on Time	98%	98%	99%	100%	100%	96%	88%	78%	72%	89%	97%	97%	90%
Reliability Based on Occurrance	100%	100%	100%	100%	100%	100%	98%	100%	95%	100%	100%	100%	100%

Flow rate corresponding for permitted taking rate from July 1 to July 15

Eramosa Above Guelph Days Flow Exceeds 0.631(m^3/s)													Apr to Nov
Year	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
1962	31	28	31	30	31	30	6	10	10	30	30	31	177
1963	31	28	31	30	30	21	26	14	7	7	9	9	144
1964	23	12	27	30	30	25	10	20	9	15	15	23	154
1965	31	25	31	30	31	13	26	29	29	31	30	31	219
1966	31	28	31	30	31	24	0	5	2	7	28	31	127
1967	31	28	31	30	31	30	31	31	19	31	30	31	233
1968	31	29	31	30	31	30	27	25	30	31	30	31	234
1969	31	28	31	30	31	30	22	17	0	14	29	31	173
1970	31	28	31	30	31	30	31	20	30	31	30	31	233
1971	31	28	31	30	31	30	29	21	30	26	30	31	227
1972	31	29	31	30	31	30	31	28	24	30	30	31	234
1973	31	28	31	30	31	30	30	21	9	27	30	31	208
1974	31	28	31	30	31	30	31	28	27	31	30	31	238
1975	31	28	31	30	31	30	28	22	30	31	30	31	232
1976	31	29	31	30	31	30	31	31	30	31	30	31	244
1977	11	12	31	30	31	30	26	31	30	31	30	31	239
1978	31	28	31	30	31	30	31	28	30	31	30	31	241
1979	31	28	31	30	31	30	31	31	30	31	30	31	244
1980	31	29	31	30	31	30	31	31	30	31	30	31	244
1981	31	28	31	30	31	30	31	31	30	31	30	31	244
1982	31	28	31	30	31	30	31	31	30	31	30	31	244
1983	31	28	31	30	31	30	31	31	30	31	30	31	244
1984	31	29	31	30	31	30	31	28	30	31	30	31	241
1985	31	28	31	30	31	30	31	31	30	31	30	31	244
1986	31	28	31	30	31	30	31	31	30	31	30	31	244
1987	31	28	31	30	31	30	31	27	23	31	30	31	233
1988	31	29	31	30	31	18	12	12	21	31	30	31	185
1989	31	28	31	30	31	30	16	8	0	21	29	11	165
1990	28	28	31	30	31	30	31	27	18	31	30	31	228
1991	31	28	31	30	31	30	31	24	13	31	29	31	219
1992	31	29	31	30	31	30	30	31	30	31	30	31	243
1993	31	28	31	30	31	30	31	31	30	31	30	31	244
1994	12	28	31	30	31	30	22	12	4	17	30	31	176
1995	31	28	31	30	31	30	30	25	0	26	30	31	202
1996	31	29	31	30	31	30	31	31	30	31	30	31	244
1997	31	28	31	30	31	30	31	21	30	29	30	31	232
1998	30	28	31	30	31	30	17	8	0	3	14	25	133
1999	18	28	31	30	31	16	11	0	5	21	29	26	143
2000	30	8	31	30	31	30	31	31	30	30	29	31	242
2001	31	28	31	30	31	30	24	0	9	26	30	31	180
2002	31	28	31	30	31	30	31	3	10	19	30	31	184
2003	21	28	17	30	31	30	28	15	11	24	30	31	199
2004	31	29	31	30	31	30	31	29	20	21	30	31	222
2005	31	28	31	30	31	30	25	11	25	31	30	31	213
2006	31	28	31	30	31	30	29	18	28	31	30	31	227
2007	31	28	31	30	31	29	17	10	0	5	16	31	138
2008	31	29	31	30	31	30	31	31	30	31	30	31	244
2009	31	28	31	30	31	30	31	31	30	31	30	31	244
2010	31	28	31	30	31	30	31	31	30	31	30	31	244
2011	31	28	31	30	31	30	31	31	30	31	30	31	244
2012	31	29	31	30	31	19	0	6	3	18	30	31	137
2013	31	28	31	30	31	30	31	31	30	31	30	31	244
2014	31	28	31	30	31	30	31	31	30	31	30	31	244
2015	31	28	31	30	31	30	31	31	18	24	30	31	225
2016	31	29	31	30	31	26	3	14	4	14	27	31	149
2017	31	28	31	30	31	30	31	31	15	24	30	31	222
2018	31	28	31	30	31	30	28	25	14	31	30	31	219
2019	31	28	31	30	31	30	31	31	27	31	30	31	241
Max	31	29	31	30	31	30	31	31	30	31	30	31	244
Average	30	27	31	30	31	29	26	23	20	26	29	30	214
Min	11	8	17	30	30	13	0	0	0	3	9	9	127
Total Number of Occurrances (days)	1723	1581	1780	1740	1796	1661	1514	1324	1184	1532	1664	1737	12415
Total Days Period of Record	1798	1639	1798	1740	1798	1740	1798	1798	1740	1798	1740	1798	14152
Reliability Based on Time	96%	96%	99%	100%	100%	95%	84%	74%	68%	85%	96%	97%	88%
Reliability Based on Occurrance	100%	100%	100%	100%	100%	100%	97%	97%	91%	100%	100%	100%	100%

Flow rate corresponding for permitted taking rate from June 1 to June 30

Eramosa Above Guelph Days Flow Exceeds 0.681(m^3/s)													Apr to Nov
Year	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
1962	31	28	31	30	31	30	5	9	6	29	30	31	170
1963	31	28	31	30	30	19	22	11	6	5	7	7	130
1964	22	11	27	30	30	25	10	20	8	11	11	19	145
1965	31	25	31	30	31	9	26	21	21	31	30	31	199
1966	31	28	31	30	31	22	0	3	1	6	27	31	120
1967	31	28	31	30	31	30	31	31	19	31	30	31	233
1968	31	29	31	30	31	30	25	23	30	31	30	31	230
1969	31	28	31	30	31	30	20	15	0	13	29	31	168
1970	31	28	31	30	31	28	30	19	30	31	30	31	229
1971	31	28	31	30	31	30	29	16	30	20	30	31	216
1972	31	29	31	30	31	30	31	24	20	28	30	31	224
1973	31	28	31	30	31	30	24	19	8	26	30	31	198
1974	31	28	31	30	31	30	30	26	20	31	30	31	228
1975	31	28	31	30	31	30	26	16	30	31	30	31	224
1976	31	29	31	30	31	30	31	31	30	31	30	31	244
1977	9	6	31	30	31	30	23	31	30	31	30	31	236
1978	31	28	31	30	31	30	31	22	28	31	30	31	233
1979	31	28	31	30	31	30	31	31	29	31	30	31	243
1980	31	29	31	30	31	30	31	31	30	31	30	31	244
1981	31	28	31	30	31	30	30	31	30	31	30	31	243
1982	31	28	31	30	31	30	31	31	30	31	30	31	244
1983	31	28	31	30	31	30	31	31	30	31	30	31	244
1984	31	29	31	30	31	30	28	22	30	31	30	31	232
1985	31	28	31	30	31	30	31	30	30	31	30	31	243
1986	31	28	31	30	31	30	31	31	30	31	30	31	244
1987	31	28	31	30	31	28	31	20	19	31	30	31	220
1988	31	29	31	30	31	17	10	9	16	30	30	31	173
1989	31	28	31	30	31	30	12	6	0	21	29	8	159
1990	27	28	31	30	31	30	29	23	15	31	30	31	219
1991	31	28	31	30	31	30	30	24	12	28	28	31	213
1992	31	29	31	30	31	30	30	31	30	31	30	31	243
1993	31	28	31	30	31	30	31	30	30	31	30	31	243
1994	10	28	31	30	31	28	19	7	4	10	30	31	159
1995	27	28	31	30	31	29	27	24	0	25	30	31	196
1996	31	29	31	30	31	30	31	31	30	31	30	31	244
1997	31	28	31	30	31	30	31	21	27	28	30	31	228
1998	28	28	31	30	31	30	13	6	0	2	8	23	120
1999	17	28	31	30	29	14	9	0	5	21	29	25	137
2000	25	6	31	30	31	30	31	31	30	26	24	31	233
2001	31	28	31	30	31	30	16	0	9	26	30	31	172
2002	31	28	31	30	31	30	26	2	7	15	30	31	171
2003	14	26	17	30	31	29	25	12	11	21	30	31	189
2004	31	29	31	30	31	30	31	27	19	18	30	31	216
2005	31	28	31	30	31	30	20	8	20	31	30	31	200
2006	31	28	31	30	31	30	28	15	27	31	30	31	222
2007	31	28	31	30	31	29	11	2	0	2	13	31	118
2008	31	29	31	30	31	30	31	31	30	31	30	31	244
2009	31	28	31	30	31	30	31	31	30	31	30	31	244
2010	31	28	31	30	31	30	31	29	28	31	30	31	240
2011	31	28	31	30	31	30	31	31	30	31	30	31	244
2012	31	29	31	30	31	17	0	5	2	18	30	31	133
2013	31	28	31	30	31	30	31	31	30	31	30	31	244
2014	31	28	31	30	31	30	31	30	30	31	30	31	243
2015	31	28	31	30	31	30	31	30	11	23	30	31	216
2016	31	29	31	30	31	21	2	13	4	13	22	19	136
2017	31	28	31	30	31	30	31	31	14	24	30	31	221
2018	31	28	31	30	31	30	23	21	9	31	30	31	205
2019	31	28	31	30	31	30	31	31	20	31	30	31	234
Max	31	29	31	30	31	30	31	31	30	31	30	31	244
Average	29	27	31	30	31	28	25	21	19	26	28	30	208
Min	9	6	17	30	29	9	0	0	0	2	7	7	118
Total Number of Occurrances (days)	1698	1570	1780	1740	1794	1635	1433	1218	1105	1481	1637	1713	12043
Total Days Period of Record	1798	1639	1798	1740	1798	1740	1798	1798	1740	1798	1740	1798	14152
Reliability Based on Time	94%	96%	99%	100%	100%	94%	80%	68%	64%	82%	94%	95%	85%
Reliability Based on Occurrance	100%	100%	100%	100%	100%	100%	97%	97%	91%	100%	100%	100%	100%

Flow rate corresponding for permitted taking rate from Apr 15 to May 31

Eramosa Above Guelph Days Flow Exceeds 0.788(m^3/s)													Apr to Nov
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1962	31	21	31	30	31	29	4	8	5	24	30	27	161
1963	31	28	31	30	30	18	11	8	4	0	6	3	107
1964	18	10	27	30	29	22	10	18	6	7	6	15	128
1965	27	25	29	30	31	7	18	10	16	31	30	31	173
1966	31	28	31	30	31	20	0	0	0	2	24	29	107
1967	26	28	31	30	31	30	31	27	15	29	30	31	223
1968	31	29	31	30	31	28	19	21	30	31	30	31	220
1969	31	28	31	30	31	30	17	13	0	9	29	31	159
1970	10	26	31	30	31	21	23	12	29	31	30	31	207
1971	31	28	31	30	31	30	21	13	21	15	26	31	187
1972	31	29	31	30	31	30	28	12	14	23	30	31	198
1973	31	28	31	30	31	30	13	10	4	15	30	31	163
1974	31	28	31	30	31	30	27	16	7	26	30	31	197
1975	31	28	31	30	31	30	14	14	30	31	30	31	210
1976	31	29	31	30	31	30	31	29	30	31	30	31	242
1977	4	5	31	30	31	27	19	29	29	31	30	31	226
1978	31	28	31	30	31	30	18	10	23	31	30	31	203
1979	31	28	31	30	31	30	31	31	27	31	30	31	241
1980	31	29	29	30	31	30	31	24	30	31	30	31	237
1981	31	22	31	30	31	30	24	31	30	31	30	31	237
1982	31	28	31	30	31	30	31	31	30	31	30	31	244
1983	31	28	31	30	31	30	29	31	30	28	30	31	239
1984	31	29	31	30	31	30	24	10	29	27	30	31	211
1985	31	28	31	30	31	30	31	20	30	31	30	31	233
1986	31	28	31	30	31	30	31	31	30	31	30	31	244
1987	31	28	31	30	31	25	28	15	11	24	30	31	194
1988	26	29	31	30	31	11	7	4	13	28	30	31	154
1989	31	28	24	30	31	30	6	2	0	11	27	4	137
1990	20	28	31	30	31	29	23	17	6	31	30	31	197
1991	31	28	31	30	31	27	21	19	4	26	19	31	177
1992	31	29	31	30	31	30	26	31	30	31	30	31	239
1993	31	28	31	30	31	30	31	25	23	31	30	31	231
1994	6	28	31	30	31	26	16	5	1	4	24	29	137
1995	20	28	31	30	31	24	19	21	0	24	30	31	179
1996	31	29	31	30	31	30	31	23	30	31	30	31	236
1997	31	28	31	30	31	30	23	18	16	15	30	25	193
1998	28	28	31	30	31	26	12	6	0	2	4	10	111
1999	16	28	31	30	23	10	7	0	5	12	29	23	116
2000	18	6	31	30	31	30	31	31	23	8	21	31	205
2001	31	28	31	30	31	29	11	0	7	26	30	31	164
2002	31	28	31	30	31	30	19	1	4	13	29	18	157
2003	10	20	17	30	31	25	15	5	10	18	30	31	164
2004	31	29	31	30	31	30	31	25	16	15	30	31	208
2005	31	28	31	30	31	26	5	7	13	23	30	31	165
2006	31	28	31	30	31	27	26	13	21	31	30	31	209
2007	31	28	31	30	31	24	8	0	0	1	10	28	104
2008	31	29	31	30	31	30	31	31	30	31	30	31	244
2009	31	28	31	30	31	30	31	31	19	31	30	31	233
2010	31	28	31	30	31	30	31	25	24	31	30	31	232
2011	31	28	31	30	31	30	31	28	22	27	30	31	229
2012	31	29	31	30	25	15	0	4	0	17	30	31	121
2013	31	28	31	30	31	30	31	31	30	31	30	31	244
2014	31	28	31	30	31	30	31	24	29	31	30	31	236
2015	31	28	31	30	31	30	29	25	1	18	30	31	194
2016	31	29	31	30	31	18	0	9	3	6	12	15	109
2017	31	28	31	30	31	30	31	25	8	21	30	21	206
2018	29	28	31	30	31	30	17	14	2	21	30	31	175
2019	31	28	31	30	31	30	31	19	10	27	30	31	208
Max	31	29	31	30	31	30	31	31	30	31	30	31	244
Average	28	27	31	30	31	27	21	17	16	23	27	28	191
Min	4	5	17	30	23	7	0	0	0	0	4	3	104
Total Number of Occurrances (days)	1622	1547	1769	1740	1781	1564	1226	993	910	1305	1586	1642	11105
Total Days Period of Record	1798	1639	1798	1740	1798	1740	1798	1798	1740	1798	1740	1798	14152
Reliability Based on Time	90%	94%	98%	100%	99%	90%	68%	55%	52%	73%	91%	91%	78%
Reliability Based on Occurrance	100%	100%	100%	100%	100%	100%	95%	93%	88%	98%	100%	100%	100%