Appendix A

Workgroup Information Roll-Up: Flows & Loadings Workgroup

Memorandum

Date: September 19, 2005

To: Steering Workgroup and Full Group

From: Spokane River Dissolved Oxygen TMDL Collaboration-Flows and Loadings Workgroup

RE: Flows and Loadings

Attached are the projected Flows and Loadings for the wastewater agencies and private industries that discharge treated effluent into the Spokane River. The data is presented as a Summary Table and as individual sheets for each discharger.

Flow Projections

The flow projections have been presented to the workgroup by each discharger. The flows do not include the potential effects of future conservation measures, with the exception of Inland Empire Paper Company. The paper mill has done some pilot testing of in-mill conservation, and has included a reduction in daily flows of about 1.5 million gallons of effluent.

The flows presented for each discharger do not include flow contributions that may come to them from other municipal agencies listed in the Summary Table. For example, all of the existing and future flows for Airway Heights and Spokane County are listed separately from the flows that are attributed to the City of Spokane Sewer Service Areas.

The per capita residential flows for the municipal dischargers range from about 74 gallons per capita per day (gpcd) up to about 80 gpcd. These per capita flows are consistent with average flows from other municipal wastewater agencies in the United States. No projection was made in the attached data to reflect the potential reductions on flow from in-home conservation measures that may be included during the TMDL implementation.

It is anticipated that the Reuse and Conservation Workgroup will address opportunities for in-home water conservation, and may quantify the potential reductions in wastewater flows that can be achieved.

The City of Spokane has a Combined Sewer Overflow (CSO) program underway that will reduce combined discharges into the river. In the past, reductions in combined discharge have been achieved by separating the stormwater system from the wastewater system and discharging the resultant stormwater to the river. Such opportunities are fewer now as the remaining combined sewer system is largely in highly developed areas and with a base of basalt. In addition the regulatory requirements for discharge of stormwater are nearing the point where such flows may also have to be treated before discharge. Future combined sewer overflow reductions are anticipated to largely be accomplished by providing capacity in the wastewater system to handle the increased flow. This will result in some increase in flow

at the treatment plant but is not expected to be significant compared to the current average flow.

The City of Spokane also has an infiltration and inflow reduction program which is reducing flows from high groundwater and high river level events. These reductions, as anticipated, have been included in the flow projections provided by the City.

The flow projections for the City of Spokane reflect future changing conditions in infiltration, inflow, and CSO's. Therefore, the trends for the City's flow do not follow a traditional growth pattern as seen for the other municipal dischargers. However, the flow projections are based on a projected population increase of 1.3 % annually over the planning period, which appears very reasonable.

It is also worthy to note that Kaiser Aluminum flows include a separate column which reflects the ground water that flows through their pump and treat remediation system. This effluent includes only the amount of phosphorus that exists in the groundwater. This flow should not be included as a point source contributor of phosphorus since this phosphorus would enter the Spokane River through ground water recharge in any event.

Note: Per communication with Bruce Rawls, annual growth information applied to projected flows is available for the City of Spokane (1.3%), Spokane County (1.8%- not including 10,000 + septic tanks yet to connect, I/I increases, and commercial growth), and the City of Coeur d'Alene (3.16%). Growth rates for other dischargers were not available from the Workgroup at the time of this communication.

Potential Benefits of Water Conservation

There has been extensive discussion in the Flows and Loadings Workgroup as well as the Reuse/Conservation Workgroup regarding the potential benefits of reducing influent flows through in-home water conservation.

It is generally believed that reducing influent flows will increase the concentration of phosphorus in the influent, but may not affect the concentration of phosphorus in the effluent of those plants that use effluent filtration. Most of the municipal plants are within the range of 5-8 mg/L of influent phosphorus.

However, if the volume of effluent discharged from the plants is reduced through conservation, and the concentration of phosphorus in the effluent remains stable, then the total volume of phosphorus into the Spokane River will be reduced by the same proportion as the flow reduction. i.e., a 10 % reduction in total flows through a treatment plant could result in a 10 % reduction in pounds of phosphorus discharged into the Spokane River.

It is also generally believed that a reduction of influent flows will save money in operational costs, but not capital costs. The savings in operational costs could occur in lower energy consumption, and lower chemical consumption. Since most treatment processes are designed for peak hydraulic flows, it was felt that minimal savings would occur on capital costs.

Attachments: TMDL Flows and Loadings-2028 Summary Sheet
Data Sheet-City of Spokane
Data Sheet-Spokane County
Data Sheet-City of Coeur D'Alene

Data Sheet-City of Post Falls
Data Sheet-Hayden Area Sewer Board
Data Sheet-Liberty Lake Water and Sewer District
Data Sheet-City of Airway Heights
Data Sheet-Inland Empire Paper Company
Data Sheet-Kaiser Aluminum

TMDL Flows and Loadings-Year 2028

Summary Sheet

19-Sep-05 --Revised

PROJECTED FLOW DATA-April through October

YEAR	Airway Heights Average Daily Flow, MGD	City of Spokane Average Daily Flow, MGD	Spokane County Average Daily Flow, MGD	Inland Empire Paper Average Daily Flow, MGD	Kaiser Aluminum Groundwater Remed. Average Daily Flow, MGD	Kaiser Aluminum Process Water Average Daily Flow, MGD	LLSD Average Daily Flow, MGD	Post Falls Average Daily Flow, MGD	HARSB Average Daily Flow, MGD	Coeur D'Alene Average Daily Flow, MGD	TOTAL PROJECTED FLOWS, MGD
2004	0.31	29	7.20	5.04	20.00	0.14	0.70	2.13	1.10	3.32	69
2008	0.54	33	8.40	3.50	20.00	0.14	1.15	3.20	1.45	3.70	75
2013		40	10.40	3.50	20.00	0.14	1.35	3.70	1.89	4.70	85
2018		37	14.56	3.50	20.00	0.14	1.42	4.30	2.33	5.30	89
2023		37	15.77	3.50	20.00	0.14	1.47	5.00	2.77	6.00	92
2028		38	17.34	3.50	20.00	0.14	1.49	5.70	3.20	7.00	96

Assumptions: Airway Heights new treatment plant on line in year 2010

Spokane County Regional treatment plant on line at end of year 2012 w/ 8 MGD capacity; after which County flows exceeding 8 MGD will be treated at the City of Spokane Plant.

The projected flows do not account for future flow conservation measures, nor for potential reduction in per capita flows from CSO reductio

Projected P loading to the Spokane River in pounds per day

P Concent., ug/L 10

Year	Airway Heights	Spokane	Spokane County	Inland Empire Paper	Kaiser Aluminum Groundwater Remed.	Kaiser Aluminum Process Water	LLSD	Post Falls	HARSB	Coeur D'Alene	Total lbs/day
2004		2.43	0.60	0.42	Aquifer Background	0.01	0.06	0.18	0.09	0.28	4.07
2008		2.75	0.70	0.29	Aquifer Background	0.01	0.10	0.27	0.12	0.31	4.55
2013	Out of River	3.30	0.87	0.29	Aquifer Background	0.01	0.11	0.31	0.16	0.39	5.44
2018	Out of River	3.12	1.21	0.29	Aquifer Background	0.01	0.12	0.36	0.19	0.44	5.74
2023	Out of River	3.10	1.31	0.29	Aquifer Background	0.01	0.12	0.42	0.23	0.50	5.99
2028	Out of River	3.14	1.44	0.29	Aquifer Background	0.01	0.12	0.47	0.27	0.58	6.34

Note: All P concentration values unattenuate

Projected P loading to the Spokane River in pounds per day

P Concent., ug/L 30

Year	Airway Heights	Spokane	Spokane County	Inland Empire Paper	Kaiser Aluminum Groundwater Remed.	Kaiser Aluminum Process Water	LLSD	Post Falls	HARSB	Coeur D'Alene	Total lbs/day
2004		7.30	1.80	1.26	Aquifer Background	0.03	0.17	0.53	0.27	0.83	12.20
2008		8.26	2.10	0.87	Aquifer Background	0.03	0.29	0.80	0.36	0.92	13.64
2013	Out of River	9.90	2.60	0.87	Aquifer Background	0.03	0.34	0.92	0.47	1.17	16.31
2018	Out of River	9.35	3.64	0.87	Aquifer Background	0.03	0.35	1.07	0.58	1.32	17.23
2023	Out of River	9.30	3.94	0.87	Aquifer Background	0.03	0.37	1.25	0.69	1.50	17.96
2028	Out of River	9.42	0.06	0.87	Aquifer Background	0.03	0.37	1.42	0.80	1.75	14.73

Note: All P concentration values unattenuate

Projected P loading to the Spokane River in pounds per day

P Concent., ug/L 50

Year	Airway Heights	Spokane	Spokane County	Inland Empire Paper	Kaiser Aluminum Groundwater Remed.	Kaiser Aluminum Process Water	LLSD	Post Falls	HARSB	Coeur D'Alene	Total lbs/day
2004		12.16	3.00	2.10	Aquifer Background	0.06	0.29	0.89	0.46	1.38	20.34
2008		13.77	3.50	1.46	Aquifer Background	0.06	0.48	1.33	0.60	1.54	22.74
2013	Out of River	16.49	4.33	1.46	Aquifer Background	0.06	0.56	1.54	0.79	1.96	27.19
2018	Out of River	15.58	6.06	1.46	Aquifer Background	0.06	0.59	1.79	0.97	2.21	28.72
2023	Out of River	15.49	6.57	1.46	Aquifer Background	0.06	0.61	2.08	1.15	2.50	29.93
2028	Out of River	15.70	7.22	1.46	Aquifer Background	0.06	0.62	2.37	1.33	2.92	31.68

Note: All P concentration values unattenuate

Projected P loading to the Spokane River in pounds per day

P Concent., ug/L 70

Year	Airway Heights	Spokane	Spokane County	Inland Empire Paper	Kaiser Aluminum Groundwater Remed.	Kaiser Aluminum Process Water	LLSD	Post Falls	HARSB	Coeur D'Alene	Total lbs/day
2004		17.03	4.20	2.94	Aquifer Background	0.08	0.41	1.24	0.64	1.94	28.47
2008		19.28	4.90	2.04	Aquifer Background	0.08	0.67	1.87	0.85	2.16	31.84
2013	Out of River	23.09	6.06	2.04	Aquifer Background	0.08	0.79	2.16	1.10	2.74	38.06
2018	Out of River	21.81	8.49	2.04	Aquifer Background	0.08	0.83	2.51	1.36	3.09	40.20
2023	Out of River	21.69	9.19	2.04	Aquifer Background	0.08	0.86	2.92	1.62	3.50	41.90
2028	Out of River	21.98	10.11	2.04	Aquifer Background	0.08	0.87	3.32	1.87	4.08	44.35

Note: All P concentration values unattenuate

Projected P loading to the Spokane River in pounds per day

P Concent., ug/L 100

Year	Airway Heights	Spokane	Spokane County	Inland Empire Paper	Kaiser Aluminum Groundwater Remed.	Kaiser Aluminum Process Water	LLSD	Post Falls	HARSB	Coeur D'Alene	Total lbs/day
2004		24.32	6.00	4.20	Aquifer Background	0.12	0.58	1.77	0.92	2.76	40.67
2008		27.54	7.00	2.92	Aquifer Background	0.12	0.96	2.67	1.21	3.08	45.48
2013	Out of River	32.99	8.66	2.92	Aquifer Background	0.12	1.12	3.08	1.57	3.92	54.38
2018	Out of River	31.15	12.13	2.92	Aquifer Background	0.12	1.18	3.58	1.94	4.41	57.43
2023	Out of River	30.99	13.14	2.92	Aquifer Background	0.12	1.22	4.17	2.31	5.00	59.85
2028	Out of River	31.40	14.44	2.92	Aquifer Background	0.12	1.24	4.75	2.67	5.83	63.36

Note: All P concentration values unattenuate

ASSUMPTIONS:

1. Airway Heights will construct a new plant in their City limits by year 2010, with no discharge into the Spokane River
2. Spokane County will construct a new plant in the Spokane Valley by year 2012, with a new discharge into the Spokane River, 8 mgd average daily flow capacity.
3. City of Spokane RPWRF will treat Airway Heights and Spokane County flows other than those diverted to new treatment plants.
4. Inland Empire Paper Company flows are based on a water conservation program that will reduce flows by year 2008.
5. No other dischargers' flows have been adjusted to reflect conservation programs that may be implemented in the future.
6. Kaiser Aluminum Ground Water Remediation flows are assumed to continue into the Spokane River, but only contain background phosphorus that would enter the River as recharge if not in the pump and treat
7. Flow projections for Hayden Area Regional Sewer Board do not reflect seasonal discharge of effluent to a land disposal site.

Data for Spokane River DO TMDL Implementation Strategy
Flows and Loadings Workgroup
11-Sep-05 --Revised

Wastewater Agency: City of Spokane, including Airway Heights & Spokane County service area flows as projected by each to come to Spokane.

YEAR 2004 FLOW DATA (includes Airway Heights and Spokane County)

Month	Avg Daily Flow MGD	Influent P mg/L	Effluent P mg/L	Influent BOD mg/L	Effluent BOD mg/L	Influent NH3 mg/L	Effluent NH3 mg/L	Inf NO2&3 mg/L	Eff NO2&3 mg/L	(1) Spokane County Service Area To RPWRF MGD	(1) Airway Hts MGD	(2) City of Spokane Service Area MGD	RPWRF Total Flows MGD
April	35.91	5.8	1.15	185	9	18.75	0.19	0.86	23.57	6.95	0.45	28.51	35.91
May	39.08	5.74	0.44	178	7	18.42	0.21	1.85	26.07	5.75	0.45	32.88	39.08
June	37.79	5.49	0.58	196	9	18.78	0.26	0.02	22.61	7.62	0.47	29.70	37.79
July	35.62	5.31	0.63	191	10	17.29	0.22	0.59	21.25	8.26	0.62	26.73	35.62
August	38.13	5.58	0.49	199	8	17.8	0.2	0.44	17.39	6.75	0.68	30.71	38.13
September	36.82	5.51	0.4	220	7	19.58	0.21	0.83	18.28	9.49	0.54	26.79	36.82
October	36.80	5.78	0.87	198	8	20.77	0.15	0.24	17.46	7.27	0.47	29.07	36.80
Average	37.16	5.60	0.65	195	8	18.77	0.21	0.69	20.95	7.44	0.53	29.20	37.16

PROJECTED FLOW DATA-April through October (City of Spokane Service Area)

YEAR	Average Daily Flow, MGD	Influent P mg/l	Influent BOD mg/L	Influent NH3 mg/L							
2008	33	5.3	174	17					8.40	0.54	33	42
2013	40	5.7	188	18					2.4	0	40	42
2018	37	5.7	188	18					6.6	0	37	44
2023	37	5.9	194	19					7.8	0	37	45
2028	38	5.9	194	19					9.3	0	38	47

The projected average flows are from the separate detailed sheet for City of Spokane and incorporate anticipated changes with the Airway Hts treatment plant (2010) and new regional treatment plant (2012) coming on line.
Projected flows for the City areas do not include the anticipated increase in flows from CSO remediation
Flows to the City of Spokane's regional treatment plant are projected to grow at 1.3 % per year with adjustments for anticipated inflow & infiltration reductions.

(1) County and Airway Heights flows in 2004 are as reported to the City. Projections are as projected by the entities on separate sheets included here.
(2) The term 'City of Spokane Service Area' is used loosly here and includes, for example, Fairchild AFB flows. It does not include flows from Airway Heights or Spokane County.

Data for Spokane River DO TMDL Implementation Strategy

Flows and Loadings Workgroup

11-Sep-05 --Revised

Wastewater Agency: Spokane County Total Flows (New Plant + RPWRF)

YEAR 2004 FLOW DATA

Month	Avg Daily Flow MGD	Influent P mg/L	Effluent P mg/L	Influent BOD mg/L	Effluent BOD mg/L	Influent NH3 mg/L	Effluent NH3 mg/L
April	6.95						
May	6.98						
June	7.39						
July	7.54						
August	7.17						
September	7.13						
October	7.27						
Average	7.20						

PROJECTED FLOW DATA-April through October

YEAR	Average Daily Flow, MGD	Influent P mg/l		Influent BOD mg/L		Influent NH3 mg/L	Flows to City Plant, MGD
2008	8.4						8.4
2013	10.4						2.4
2018	14.6						6.6
2023	15.8						7.8
2028	17.3						9.3

Year 2008 and 2013 adjusted to reflect lagging STEP flows, which will catch up by 2015

Revised Flow Estimates for TMDL purposes 1-Sep-05

Year	Sewered Population	Residential Flow, mgd @ 76gpcd	Apr-Oct I/I, mgd	Com./Ind. Flow, mgd	Total Flow, mgd	Flow to City RPWRF mgd	Flow to New Plant mgd	Per CWMP Flow, mgd
1999	58,318	4.432	0.000	1.248	5.680	5.680		5.680
2005	84,343	6.410	0.100	1.657	8.167	8.100		10.400
2015	150,070	11.405	0.200	2.226	13.832	5.832	8.000	18.800
2025	170,542	12.961	0.300	2.992	16.253	8.253	8.000	21.900
2028	176,261	13.396	0.330	3.609	17.335	9.335	8.000	21.275
2030	180,074	13.686	0.350	4.021	18.057	6.057	12.000	23.000
Column	1	2	3	4	5	6	7	8

1. Population is per the 2001 CWMP, and was generated to be consistent with GMA projections being done in 2000.
2. Residential per capita flows set at 76 gpcd rather than 90 gpcd that was used in the Basis of Planning Report and CWMP.
3. I/I estimates are based on intuition.
4. Commercial and Industrial flows are computed for 2005, and then inflated at 3 % per year.
5. Total flow is based on the assumptions in columns 1-4, but is projected higher than actual for 2005 due to septic tanks not connected yet.
   When septic tank connection policy resumes as mandatory, the flow increases will escalate until 2015 when it is anticipated to complete.
6. Flow to the RPWRF is based on total flows minus the flow diverted to the new 8 mgd regional plant, starting in year 2012.
7. Flow to the new plant is based on capacity at the plant, and assumes that all available flow in the valley will be diverted.
8. CWMP flow projections are based on assumptions made in 2000 in the Basis of Planning Report, and now appear very conservative.

Data for Spokane River DO TMDL Implementation Strategy

Flows and Loadings Workgroup

16-Jun-05

Wastewater Agency: City of Coeur d'Alene, Idaho

Note: BOD is the CBOD times 1.2 as used by the EPA.

YEAR 2004 FLOW DATA

	Avg Daily Flow	Influent P	Effluent P	Influent BOD	Effluent BOD	Influent NH3	Effluent NH3
Month	MGD	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
April	3.33	7.24	1.6	246.8	4.6	27.78	10.3
May	3.28	7.47	0.75	249.2	3.5	28.53	9.85
June	3.41	7.37	0.87	247.8	3.7	28.22	7
July	3.36	7.57	0.95	266.8	3.5	27.76	7.38
August	3.45	7.04	0.89	244.4	4.1	28.17	8.37
September	3.26	7.38	0.8	239.3	3.7	28.88	8.05
October	3.14	6.79	2	231.6	5.3	28.9	8.28
Average	3.32	7.27	1.12	246.56	4.06	28.32	8.46

PROJECTED FLOW DATA-April through October

YEAR	Average Daily Flow, MGD	Influent P mg/l		Influent BOD mg/L		Influent NH3 mg/L	
2008	3.7	7.3		250		29	
2013	4.7	7.3		255		31	
2018	5.3	7.3		260		33	
2023	6	7.3		265		35	
2028	7	7.3		270		37	

Note: Basis for flows are from our 9/01 facility plan by HDR Engineering. The above assumes the low density development that we have historically undergone.

Data for Spokane River DO TMDL Implementation Strategy
Flows and Loadings Workgroup
22-Jun-05

Wastewater Agency: Post Falls

YEAR 2004 FLOW DATA

Month	Avg Daily Flow MGD	Influent P mg/L	Effluent P mg/L	Influent BOD mg/L	Effluent BOD mg/L	Influent NH3 mg/L	Effluent NH3 mg/L
April	2.1	7.8	0.4	269	7	37	0.09
May	2.1	7.3	2.2	246	8	31	0.21
June	2.1	7.9	1.5	271	7	32	0.09
July	2.0	7.5	1.4	254	8	36	1.4
August	2.1	8.0	0.3	242	4	30	0.09
September	2.2	7.5	0.6	242	4	30	1.3
October	2.2	7.1	0.4	256	4	31	0.1
Average	2.13	7.58	0.97	254	6	32	0.47

PROJECTED FLOW DATA-April through October

YEAR	Average Daily Flow, MGD	Influent P mg/l	Influent BOD mg/L	Influent NH3 mg/L
2008	3.2			
2013	3.7			
2018	4.3			
2023	5.0			
2028	5.7			

Data for Spokane River DO TMDL Implementation Strategy
Flows and Loadings Workgroup
29-Aug-05

Wastewater Agency:

YEAR 2004 FLOW DATA

Month	Avg Daily Flow MGD	Influent P mg/L	Effluent P mg/L	Influent BOD mg/L	Effluent BOD mg/L	Influent NH3 mg/L	Effluent NH3 mg/L
April							
May							
June							
July							
August							
September							
October							
Average	**1.1**	**8**	**0.38**				

PROJECTED FLOW DATA-April through October

YEAR	Average Daily Flow, MGD	Influent P mg/l		Influent BOD mg/L		Influent NH3 mg/L	
2008	1.45						
2013	1.89						
2018	2.33						
2023	2.77						
2028	3.2						

Data provided by Jim Kimball

Data for Spokane River DO TMDL Implementation Strategy

Flows and Loadings Workgroup

16-Jun-05

Wastewater Agency: Liberty Lake Wastewater Treatment Facility

YEAR 2004 FLOW DATA

	Avg Daily Flow	Influent P	Effluent P	Influent BOD	Effluent BOD	Influent NH3	Effluent NH3
Month	**MGD**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
April	0.726	7.78	5.57	199	6.6	*	4.69
May	0.715	6.99	4.35	252	3.7		0.34
June	0.708	6.85	4.21	234	2.4		0.26
July	0.663	8.84	4.5	307	2.8		0.18
August	0.683	11.22	5.21	327	3.3		0.14
September	0.69	8.24	5.08	337	3.8		0.41
October	0.697	9.59	3.9	392	5.5		0.07
Average	0.697	8.5	4.69	293	4.01		0.87

PROJECTED FLOW DATA-April through October

	Average Daily	Influent P		Influent BOD		Influent NH3
YEAR	**Flow, MGD**	**mg/l**	**#/day**	**mg/L**	**#/day**	**mg/L**
2008	1.15	5.9	56	264	2532	*
2013	1.35	5.9	66	264	2972	
2018	1.42	5.9	70	264	3126	
2023	1.47	5.9	72	264	3236	
(2025)2028	1.49	5.9	73	264	3281	

*No Influent NH3 data available

Information from Final Facilities Plan as prepared by Century West Engineering Corporation

Data for Spokane River DO TMDL Implementation Strategy							
Flows and Loadings Workgroup							
16-Jun-05							
Wastewater Agency: Airway Heights							
YEAR 2004 FLOW DATA							
	Avg Daily Flow	**Influent P**	**Effluent P**	**Influent BOD**	**Effluent BOD**	**Influent NH3**	**Effluent NH3**
Month	**MGD**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
April							
May							
June							
July							
August							
September							
October							
Average	0.31						
PROJECTED FLOW DATA-April through October							
	Average Daily	**Influent P**		**Influent BOD**		**Influent NH3**	
YEAR	**Flow, MGD**	**mg/l**		**mg/L**		**mg/L**	
2008	0.54						
2013	0.80						
2018	1.00						
2023	1.15						
2028	1.25						

Data for Spokane River DO TMDL Implementation Strategy

Flows and Loadings Workgroup

16-Jun-05

Wastewater Agency: Inland Empire Paper Co.

YEAR 2004 FLOW DATA

Month	Avg Daily Flow MGD	Influent P mg/L	Effluent P mg/L	Influent BOD mg/L	Effluent BOD mg/L	Influent NH3 mg/L	Effluent NH3 mg/L
April	4.732	4.06	0.49	475	11		0.01
May	4.817	3.48	0.41	515	13		0.01
June	4.963	2.25	0.39	494	13		0.01
July	4.852	2.53	0.55	523	15		0.01
August	5.348	2.27	0.38	476	14		0.01
September	5.379	3.24	0.4	488	12		0.01
October	5.189	2.25	0.34	594	8		0.01
Average	5.04	2.87	0.42	509	12		0.01

PROJECTED FLOW DATA-April through October

YEAR	Average Daily Flow, MGD	Influent P mg/l		Influent BOD mg/L		Influent NH3 mg/L	
2008	3.5	3		600			
2013	3.5	3		600			
2018	3.5	3		600			
2023	3.5	3		600			
2028	3.5	3		600			

Aqua ammonia is added to the aeration basin at a dosage such that there is a .01 mg/l residual in the 2nd effluent

Data for Spokane River DO TMDL Implementation Strategy

Flows and Loadings Workgroup

16-Jun-05

Wastewater Agency: Kaiser Aluminum Trentwood

YEAR 2002 FLOW DATA--Process Water

Month	Avg Daily Flow MGD	Influent P mg/L	Effluent P mg/L	Influent BOD mg/L	Effluent BOD mg/L	Influent NH3 mg/L	Effluent NH3 mg/L
April							
May							
June							
July							
August							
September							
October							
Average	0.14		0.3				

PROJECTED FLOW DATA-April through October--Process Water

YEAR	Average Daily Flow, MGD	Influent P mg/l		Influent BOD mg/L		Influent NH3 mg/L	
2008	0.14						
2013	0.14						
2018	0.14						
2023	0.14						
2028	0.14						

YEAR 2004 FLOW DATA--Groundwater Remediation

Month	Avg Daily Flow MGD	Influent P mg/L	Effluent P mg/L	Influent BOD mg/L	Effluent BOD mg/L	Influent NH3 mg/L	Effluent NH3 mg/L
April							
May							
June							
July							
August							
September							
October							
Average	20	(1)	(1)				

PROJECTED FLOW DATA-April through October--Groundwater Remediation

YEAR	Average Daily Flow, MGD	Influent P mg/l		Influent BOD mg/L		Influent NH3 mg/L	
2008	20						
2013	20						
2018	20						
2023	20						
2028	20						

(1) Influent and effluent P for Groundwater Remediation assumed equal to aquifer background