EPCOR Water Services Inc.
Gold Bar Wastewater Treatment Plant

2009
Wastewater Treatment Annual Report

SUBMITTED TO:

The City of Edmonton
Asset Management and Public Works
Drainage Services

As per requirements of

APPROVAL TO OPERATE NO. 639-02-07

March - 2010

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2009 Overview

Transition

2009 was a year of transition for the Gold Bar Wastewater Treatment Plant (WWTP). As of April 1, 2009 the Gold Bar WWTP was transferred from the City of Edmonton to EPCOR Water Services Inc. (EPCOR). EPCOR became the owner and operator of the Gold Bar WWTP land and assets, including the sludge and supernatant pipelines and Clover Bar Biosolids Recycling Facility (CBBRF) supernatant pumphouse. The ownership of the Clover Bar lagoons and biosolids inventory remained with the City of Edmonton, with EPCOR retaining the operations and maintenance oversight of the lagoons on behalf of the City of Edmonton. EPCOR operates the Gold Bar WWTP under the City of Edmonton – Drainage Services Approval to Operate No. 639-02-07.

Effluent Compliance

For 2009, all monthly limits for Approval to Operate 639-02-07 discharge parameters were met (Table 1, Appendix A - 2009 Monthly Plant Performance Reports). A total of 92,887 million litres, or megaliters (ML), of wastewater was conveyed to the Gold Bar WWTP and received primary treatment during 2009, with 0.3 ML of untreated wastewater bypassed to the North Saskatchewan River. Secondary treatment was provided to 91,492 ML (98.50%) of the influent flow to the Plant, with 3,361 ML of Reclaimed Water provided to industrial customers. A summary of Reclaimed Water quality in 2009 is provided in Table 2 entitled “2009 Reclaimed Water Quality”. In addition to routine final effluent quality monitoring, three final effluent samples were submitted for acute and chronic toxicity testing for 2009, with all results showing no toxic effects (Table 3). All analytical data included in the report were handled by the Gold Bar Wastewater Laboratory and performed using ISO/IEC 17025:2005 accredited methods. Gold Bar Wastewater Laboratory is accredited to ISO/IEC 17025:2005 by the Canadian Association for Laboratory Accreditation (CALA) for those analyses as listed in the scope of accreditation (http://www.cala.ca/scopes/3161.pdf). Chronic and acute toxicity bioassays where conducted by contract laboratories accredited to perform these tests (http://palcan.scc.ca/specs/pdf/114_e.pdf). The 2009 Gold Bar Wastewater Laboratory Proficiency Testing results are summarized in Table 4.

Process Challenges – Digester Transitions

The majority of the process issues and consequent environmental incidences at the Gold Bar WWTP were related to the anaerobic digester operation with unplanned biogas releases to the Gold Bar Industrial Area air shed in 2009 (Table 5). After extensive operational data analyses and discussions with process experts in digester and fermenter design and operation, it was concluded that highly variable volatile solids loading to the anaerobic digesters led to significant foam accumulation within the headspace of the digesters. Procedural and design modifications with respect to Blend Tank and Fermenter start-up and biogas utilization systems drew most of Gold Bar's focus into the latter half of 2009 and continuing forward into 2010. In the period of time the Fermenters were in operation (August and September), positive impacts on the Biological Phosphorus Removal process were observed. 2009 proved to be the best year in terms of total phosphorus removal since the full implementation of Biological Nutrient Removal in 2005 with final effluent total phosphorus concentration averaging 0.51 milligram per litre as phosphorus (mg/L as P). During Fermenter operation, total phosphorus final effluent concentrations were observed at less than 0.3 mg/L as P. For the year, aluminum sulfate (alum) consumption for final effluent phosphorus control was reduced by 29% in comparison with 2008. Table 6 summarizes the Gold Bar WWTP monthly chemical usage for 2009.

Operational Activity Summary

The following section entitled "Operations Activity Summary" provides an outline of the monthly operational activities and issues for at the Gold Bar Wastewater Treatment Plant and its facilities. Table 7 outlines issues with the autosamplers for both the Total Bypass and Final Effluent Combined composite samples. Table 8 lists the name and position of Alberta Environment Certified Wastewater Treatment Operators for the Gold Bar WWTP. Major maintenance activities associated with the completion of the 2009 Major Work Program are summarized in Table 9. As part of the Annual Report requirement the 2009 Completed Capital Projects and 2010 Capital Program are included in Table 10.

Operational Activity Summary[1]

January 2009:

- One (1) secondary bypass event greater than two (2) hours in duration was recorded and sampled for in the month. Mild ambient air temperatures led to a snow melt on January 29, 2009 and a secondary bypass event. Autosampler issues prevented composite sample collected. This was reported as an Administrative Non-Compliance (Ref # 234151).
- Digester 6 was prepared to be put back into service after cleaning and rehabilitation activities (new heat exchanger, bubble gun mixer replacement) that commenced in second quarter of 2008.
- Ten (10) out of eleven (11) bioreactors were in service for winter operation. All bioreactors were operated in summer mode; the bioreactor cell three (3) swing-zone was operated as an anoxic cell for all bioreactors.

February 2009:

- No secondary bypass events.
- Digester 6 was put back into service.

March 2009:

- Eight (8) secondary bypass events greater than two (2) hours in duration were recorded and sampled for in the month.
- For the spring runoff period (March 4th to April 16th), all eleven (11) bioreactors/clarifiers were in-service.
- GE/Zenon conducted 15 ML/day performance test on membrane treatment plant. Recycled Water flow exceeded 15 ML/day for a seven (7) period.
- March 17th - Digester 5 planned biogas release (Ref # 211637); taken out of service for cleaning and rehabilitation work.

April 2009:

- April 1st – Gold Bar WWTP transferred to EPCOR Waters Services Inc.
- Seven (7) secondary bypass events greater than two (2) hours in duration were recorded and sampled for in the month.
- April 12/13th – Supernatant leak in Hermitage Park (Ref # 212346); minimal impact to solids and liquid handlings processes at Gold Bar WWTP and Clover Bar Biosolids Recycling Facility.
- April 17th - Ten (10) out of eleven (11) bioreactors in-service (summer mode).
- April 28th – Short term upset of Biological Nutrient Removal (BNR) processes. Expanded sampling and testing did not reveal direct cause of BNR upset. Normal removal efficiencies of discharge parameters were restored in less than twenty-four (24) hours. Mechanical and process control systems were functioning normally at time of onset of upset conditions.

[1] As per Approval to Operate No.639-02-07 requirement Section 5.1.3 (g).

May 2009

- Two (2) secondary bypass events greater than two (2) hours in duration were recorded and sampled for in the month.
- An outage of the Distributed Control System (DSC) occurred for 2.5 hours without incident.
- Ten (10) out of eleven (11) bioreactors in-service (summer mode).
- Commencement of biosolids to farmland application program (NutriGold)

June 2009

- One (1) secondary bypass event greater than two (2) hours in duration was recorded and sampled for in the month.
- June 4th - Nine (9) out of eleven (11) bioreactors in-service (summer mode).
- June 11th – Blend Tanks and Fermenter 1 and 2 put into Operation.
- June 18th – Potable water line rupture interrupting utility water supply to primaries, and east and west scrubbers. No sustained impacts or incidents from water interruption.
- Enhanced Primary Treatment (EPT) tanks 9 through 12 available for service as conventional primary tanks with no chemical addition.

July 2009

- Six (6) secondary bypass events greater than two (2) hours in duration were recorded and sampled for in the month.
- Two (2) secondary bypass events less than two (2) hours in durations were recorded for the month (July 6th and July 26th).
- July 10th - Digester 4 - unplanned release of biogas (Ref # 216848). Foam carry through into biogas utilization system resulted in Digesters 1 through 4 venting biogas to atmosphere.
- July 14th/15th – Digester 4 – planned release of biogas in preparation for maintenance (Ref # 217077/217088).
- July 18th – Power outage at both Hardisty and Kennedale feeder substations. Loss of ultraviolet disinfection system on final outfall (Ref # 217281).
- July 29th – Ultraviolet disinfection interruption (Ref # 217614)
- Nine (9) out of eleven (11) bioreactors in-service (summer mode).

August 2009

- Five (5) secondary bypass events greater than two (2) hours in duration were recorded and sampled for in the month. Grab sample for *E.coli* testing was not collected on August 6th (Ref # 220803).
- Aug 2nd – Fermenter 1 and 2 taken out of service due to digester foaming issues.
- Aug 5th – planned UV disinfection system outage due to power feed switch-over (Ref # 217664).
- Aug 5th – planned UV disinfection system outage due to power feed switch-over (Ref # 217700).
- Aug 7th – planned UV disinfection system outage due to power feed switch-over (Ref # 217710).

- Aug 18th – planned UV disinfection system outage due to power feed switch-over (Ref # 218754).
- Aug 19th – planned UV disinfection system outage due to power feed switch-over (Ref # 218296).
- Aug 19th – as a result of planned power shutdown for power feed switch-over, unknown quantity of biogas released. (Ref # 217888).
- Aug 26th – premature Plant Bypass prior to reaching rated primary treatment capacity of 910 ML/day (Ref # 218649).
- Aug 28th – Fermenter 1 and 2 put back into operation.
- Nine (9) out of eleven (11) bioreactors in-service (summer mode).

September 2009

- Two (2) secondary bypass events greater than two (2) hours in duration were recorded and sampled for in the month. An autosampler issue on September 6th prevented the collection of a composite sample. This was reported as an Administrative Non-Compliance (Ref # 234151).
- Sept 15th - Digester 4 - unplanned release of biogas (Ref # 219483). Foam carry through into biogas utilization system resulted in Digesters 1 through 4 venting biogas to atmosphere.
- Sept 24th – Digester 1 through 4 and 6 (Digester 5 out of service) – unplanned release of biogas (Ref # 219667)
- Sept 25th - Digester 4 - unplanned release of biogas (Ref # 220316).
- Sept 25th – Blend Tanks and Fermenter 1 and 2 taken out of service.
- Sept 28th – Digester 6 – planned release of biogas for visual inspection of foam in headspace (Ref # 220060)
- Sept 30th – Digester 3 – planned release of biogas for maintenance activity (Ref # 220065).
- Nine (9) out of eleven (11) bioreactors in-service (summer mode).

October 2009

- Two (2) secondary bypass events greater than two (2) hours in duration were recorded and sampled for in the month.
- October 1st – planned release of biogas due to maintenance activities in Gas Room #1 (Ref # 220065)
- October 6th – Digester 5 put into service.
- October 6th – Final Effluent composite sample not collected due to autosampler issues. This was reported as an Administrative Non-Compliance (Ref # 220194).
- October 8th – Digester 5 – unplanned release of biogas due to low operating level (Ref # 220481).
- October 17th – Digester 5 – unplanned release of biogas due to foam in digester headspace (Ref # 220841).
- Nine (9) out of eleven (11) bioreactors in-service (summer mode).
- Operations and Maintenance contract with membrane supplier expired. EPCOR personnel assumed Operations and Maintenance activities.
- Completion of 2009 NutriGold Program (Total dry tonnage: 10,691).

November 2009:

- No secondary bypass events.
- Nine (9) out of eleven (11) bioreactors in-service (summer mode).

December 2009:

- No secondary bypass events.
- December 13th – Digester 5 – unplanned release of biogas due to foam in digester headspace. Foam carry-through into biogas utilization system resulted in Digester 6 venting biogas to atmosphere (Ref # 222577).
- Challenges maintaining 12 ML/day demand for Reclaimed Water due to issues with chemical cleaning effectiveness.
- Ten (10) out of eleven (11) bioreactors in-service (summer mode).

TABLE 1. 2009 Plant Performance. Summary of the Gold Bar Wastewater Treatment Plant performance from January 1 to De required under sections 5.1.3 (a) and 5.1.3 (b) of the Approval to Operate No. 639-02-07. All analytical data in the table were developed on 24-hou using autosamplers at the sampling location specified in Table 5-1 of the Approval to Operate No. 639-02-07. The 24-hour composite samples were retained in locked refrigerators until the la following morning. The discreet samples for Escherichia coli (E. coli) determinations were collected at random times each day. All conditions and limits specified in the Table 5.1 of the Approv met in 2009.

Month		VOLUME (ML)		FLOW (ML/day)			pH	BOD_5/$CBOD_5$ (mg/L)		TSS (mg/L)		TP (mg P/L)		NH_3-N (mg N/L)		C
		PBP	SBP	Raw	FEC	MPW	FEC	TBP	FEC	TBP	FEC	TBP	FEC	TBP	FEC	T x
January	Avg	0.00	0.58	244 97	235.37	9 01	7.28	ns	3.6	ns	4.7	ns	0.64	ns	1.65	2
	Min	0.00	0.00	224.40	215.40	7.10	7.08	ns	3.1	ns	3.6	ns	0.38	ns	0.21	2
	Max	0.00	16.80	278.10	278.10	10.40	7.57	ns	6.3	ns	6.9	ns	1.00	ns	3.85	2
February	Avg	0.00	0.00	241 83	234.16	7 67	7.31	0	3.3	0	4.5	0.0	0.69	0.0	3.20	0
	Min	0.00	0.00	233 00	224.90	6 60	7.14	0	2.4	0	2.9	0.0	0.36	0.0	0.66	0
	Max	0.00	0.00	249 90	243.10	8 90	7.62	0	4.3	0	6.7	0.0	1.36	0.0	5.19	0
March	Avg	0.00	8.11	268 32	251.36	8 85	7.29	286	3.8	357	5.7	9.4	0.61	29.7	3.70	4
	Min	0.00	0.00	230 50	221.50	7.10	7.08	167	3.2	128	3.5	7.0	0.35	23.7	1.71	2
	Max	0.00	48.10	326 20	275.00	10.00	7.63	644	6.7	716	15 0	21 0	1.35	32 6	6.68	5
April	Avg	0.00	13.92	278 30	256.86	7 51	7.26	183	3.4	224	5.1	6.4	0.80	25 3	2.57	1
	Min	0.00	0.00	244.40	238.60	4 80	7.07	113	2.1	134	3.3	3.4	0.17	10 9	0.21	0
	Max	0.00	203.60	518 30	306.50	9 20	7.67	262	4.9	350	11 0	8.7	4.49	37 9	18.50	3
May	Avg	0.00	0.98	250 05	241.12	7 95	7.31	207	3.7	211	5.0	7.9	0.84	33 2	1.08	2
	Min	0.00	0.00	230 90	222.20	3.10	7.12	200	2.3	170	3.2	7.7	0.29	32.1	0.18	1
	Max	0.00	23.00	281 20	266.50	10.20	7.81	213	6.3	252	8.3	8.1	2.47	34 3	2.44	3
June	Avg	0.00	1.08	255.78	246.39	8 31	7.40	177	3.5	278	4.9	4.8	0.49	15 8	1.14	2
	Min	0.00	0.00	238 30	228.40	5 90	7.22	177	2.0	278	2.5	4.8	0.20	15 8	0.05	2
	Max	0.00	32.40	301.70	282.20	11.40	7.59	177	5.5	278	13 0	4.8	1.48	15 8	3.56	2
July	Avg	0.00	14.17	276.11	252.38	9 56	7.48	130	3.2	129	4.9	5.6	0.49	19 8	1.67	1
	Min	0.00	0.00	237.70	228.00	2.74	7.26	76	2.2	92	2.2	4.2	0.18	10 8	0.13	0
	Max	0.00	220.80	481 30	299.50	11.50	7.85	209	5.4	172	30 0	7.9	2.93	29 2	3.23	2
August	Avg	0.00	4.18	255 84	240.46	11.19	7.46	165	2.8	193	4.5	6.4	0.28	16.1	1.56	1
	Min	0.00	0.00	232 30	221.50	9 60	7.29	94	5.1	150	2.0	5.5	0.16	12 3	0.49	0
	Max	0.30	38.10	321.79	276.20	12.40	7.67	220	2.0	256	19 0	7.5	0.80	21 8	3.76	2
September	Avg	0.00	1.02	251 68	240.63	10.03	7.44	129	3.1	78	4.1	6.7	0.29	28 5	0.59	1
	Min	0.00	0.00	225.40	216.00	9 20	7.24	129	5.1	78	1.9	6.7	0.18	28 5	0.14	3
	Max	0.00	26.60	293 20	269.10	10.70	7.62	129	2.0	78	7.6	6.7	1.23	28 5	1.97	4
October	Avg	0.00	1.48	243.19	242.17	10.54	7.36	287	3.2	414	4.8	9.9	0.34	21 6	1.59	1
	Min	0.00	0.00	234 20	223.53	8 82	7.06	217	2.0	336	2.2	8.3	0.19	20 5	0.29	1
	Max	0.00	21.90	298.40	276.80	11.50	7.58	356	6.3	492	17 0	11 5	1.00	22 6	4.62	2
November	Avg	0.00	0.00	242 33	231.99	10.34	7.42	0	3.2	0	4.8	0.0	0.31	0.0	1.95	0
	Min	0.00	0.00	229 50	219.60	7 90	7.22	0	2.1	0	2.6	0.0	0.04	0.0	0.73	0
	Max	0.00	0.00	254.70	245.20	11.40	7.70	0	4.7	0	14 0	0.0	0.90	0.0	3.31	0
December	Avg	0.00	0.00	233 56	224.17	9 39	7.41	0	3.4	0	5.0	0.0	0.34	0.0	2.01	0
	Min	0.00	0.00	207 60	198.60	8 02	7.24	0	2.0	0	2.0	0.0	0.20	0.0	0.20	0
	Max	0.00	0.00	242 90	232.60	11.00	7.57	0	6.8	0	12 0	0.0	1.20	0.0	5.70	0
Annual Volume (ML)		0.30	1,395	92,887	88,131	3,361										Total Dige
2009	Avg	0.00	3.79	253 50	241.42	9 20	7.37	142	3.3	171	4.8	5.19	0.51	17 3	1.89	1
2008	Avg	1.95	34.50	259 20	249.00	3 68	7.39	193	4.1	187	5.9	6.72	0.64	22 8	1.24	2

PBP – Plant Bypass

TBP – Total Bypass Plant (including plant and secondary)
SBP – Secondary Bypass Plant

FEC – Final Effluent, Combined

BOD_5 – 5-day Biological Oxygen Demand
$CBOD_5$ – 5-day Inhibited BOD

TSS – Total Suspended Solids
TP – Total Phosphorus

NH_3-N – Ammonia as nitrogen

MPW – Membrane Proc Water
ns – No sample

Table 2. 2009 Reclaimed Water Quality. Summary of data developed on the ultrafiltered final effluent (i.e. reclaimed water) December 31, 2009 as required under section 3.1.3 (h) and 5.1.3 (c) of the Approval to Operate No. 639-02-07. All paramete were developed on daily 24-hour composite samples of the recycled water. The *E. coli* testing was conducted on discrete sa basis.

Month		FLOW (ML)	Total Alkalinity (mg CaCO3/L)	Ammonia (mg N/L)	Biochemical Oxygen Demand (mg/L)	Chemical Oxygen Demand (mg/L)	Chloride (mg Cl-/L)	Conductivity (mS/cm)	*E. Coli* (Counts/100mL)	pH (pH)	Total Suspended Solids (mg/L)	Dissolved Organic Carbon (mg/L)
January	Avg	9.01	131	2.17	0.6	25	111	956	13	7.87	< 0.3	8.16
	Max	10.40	146	4.65	1.2	33	275	1430	145	8.02	0.7	8.44
	Min	7.10	121	0.118	0.0	20	65	772	< 1	7.65	< 0.3	7.93
February	Avg	7.67	147	5.71	< 2.0	19	85	871	76	7.88	< 0.3	7.91
	Max	8.90	168	9.42	< 2.0	20	122	1010	980	8.11	0.5	8.42
	Min	6.60	140	0.697	0.0	16	65	798	< 1	7.73	< 0.3	7.46
March	Avg	8.85	140	4.31	< 2.0	19	132	980	1	7.89	0.3	7.66
	Max	10.00	161	12.8	< 2.0	20	290	1460	10	8.09	2.6	8.24
	Min	7.10	116	0.969	< 2.0	17	67	798	< 1	7.65	< 0.3	6.70
April	Avg	7.51	134	2.67	2.2	20	85	848	11	7.88	0.3	7.73
	Max	9.20	186	14.4	10.9	27	127	919	100	8.04	3.3	8.74
	Min	4.80	113	0.1	0.0	16	65	729	< 1	7.66	< 0.3	6.80
May	Avg	7.95	136	1.27	< 2.0	19	66	840	9	7.97	< 0.3	8.35
	Max	10.20	145	3.31	< 2.0	22	72	884	41	8.10	0.7	8.84
	Min	3.10	132	0.093	< 2.0	16	60	792	< 1	7.80	< 0.3	7.80
June	Avg	8.31	156	1.78	< 2.0	22	65	861	6	8.05	0.3	8.26
	Max	11.40	191	6.07	< 2.0	24	83	913	90	8.49	2.9	9.23
	Min	5.90	132	0.060	< 2.0	20	57	757	< 1	7.96	< 0.3	7.34
July	Avg	9.56	143	0.995	< 2.0	21	66	847	1	7.98	< 0.3	8.20
	Max	11.50	154	2.35	< 2.0	30	94	940	12	8.15	0.9	9.20
	Min	2.74	128	0.023	< 2.0	17	53	733	< 1	7.86	< 0.3	7.05
August	Avg	11.19	155	1.78	< 2.0	23	63	801	28	7.99	< 0.3	6.77
	Max	12.40	162	12.1	< 2.0	31	69	847	410	8.21	0.6	7.12
	Min	9.60	150	0.092	< 2.0	13	56	729	< 1	7.78	< 0.3	6.54
September	Avg	10.03	130	0.705	< 2.0	13	65	783	43	7.92	< 0.3	7.73
	Max	10.70	151	4.89	< 2.0	19	78	845	1100	8.03	0.7	8.09
	Min	9.20	115	0.083	< 2.0	< 4	60	738	< 1	7.64	< 0.3	7.21
October	Avg	10.54	135	1.39	< 2.0	22	70	776	2	7.90	< 0.3	7.48
	Max	11.50	144	4.76	< 2.0	24	149	1020	31	8.02	1.2	7.82
	Min	8.82	115	0.60	< 2.0	20	58	730	< 1	7.65	< 0.3	7.15
November	Avg	10.34	137	1.58	< 2.0	21	72	794	10	7.37	< 0.3	6.87
	Max	11.40	150	3.07	< 2.0	26	121	949	160	8.05	1.4	7.28
	Min	7.90	125	0.162	< 2.0	< 4	65	796	< 1	7.85	< 0.3	6.48
December	Avg	9.39	148	2.23	< 2.0	12	82	841	6	7.96	< 0.3	6.99
	Max	11.00	164	9.30	< 2.0	15	104	904	60	8.07	0.4	7.25
	Min	8.02	124	0.162	0.0	15	65	796	< 1	7.85	< 0.3	6.48
Annual Summary	Avg	9.20	141	2.22	< 2.0	19	80	850	17	7.89	< 0.3	7.67
	Max	12.40	191	14.4	10.9	33	290	1460	1100	8.49	3.3	9.23
	Min	2.74	113	0.023	< 2.0	< 4	53	729	< 1	7.64	< 0.3	6.48

Notes:

1) Average calculated as a weighted average with the results at detection as included in he average as one-half the detection limits
2) NTU – Nephelometric turbidity units
3) CFU/100mL – Colony forming units per 100 mL of sample
4) ML – Megaliters (1,000,000 liters)

Table 3. 2009 Effluent Toxicity. Summary of chronic and acute toxicity testing as outlined in the sections 3.1.3 (g) and 5.1.3 (c) of the Approval to Operate No. 639-02-07. Both acute and chronic toxicity testing were carried out by contract laboratories in accordance with the Environment Canada Biological Tests Methods (Environment Canada 1990 and 1992). The acute testing included 48-hour *Rainbow Trout* static toxicity, 48-hour static toxicity using *Daphnia magnia* and 15-minute Microtox tests using luminescence bacteria. Seven-day *Ceriodaphnia dubia*, *Fathead minnows* survival and reproductive impairment tests were used to determine chronic toxicity. The three samples tested in 2009 appeared to be non-toxic to all organisms used for the acute and chronic testing. The samples were collected on March 25th, September 30th and December 1st, 2009).

Type of Analysis	Acute	Chronic
Microtox	All LC_{50} @ 48 hours > 100% (Non-toxic)	
Daphnia magna	All LC_{50} @ 48 hours > 100% (Non-toxic)	
Rainbow Trout	All LC_{50} @ 48 hours > 100% (Non-toxic)	
Ceriodaphnia dubia		Survival: All LC_{50} @ 7 days >100% Growth: All IC_{50} @ 7 days >100%
Fathead minnows		Survival: All LC_{50} @ 7 days >100% Growth: All IC_{50} @ 7 days >100%
Number of Sample	3	3

Table 4. 2009 Summary Of Gold Bar Wastewater Laboratory Proficiency Testing. Summary of quality assurance data as required under sections 3.1.3 (k) and 5.1.3 (c) of the Approval to Operate No. 639-02-07, and includes the Laboratory z-scores achieved from analyzing proficiency testing (PT) samples for constituents required by the Approval to Operate No. 639-02-07. The 2009 PT samples were provided by the Canadian Association for Laboratory Accreditation (CALA) and Clinical Microbiology Proficiency Testing (CMPT). A PT scores greater than or equal to 70 or z-scores less than equal to 3.000 are considered acceptable. The PT data indicates that the instruments and the methodology used by the Laboratory were under control during the testing.

Study	Date	BOD		C-BOD		TSS		NH_3-N		TP		*E. Coli*	
	mm/yy	PT Score	Avg. Z-Score	PT Score	Avg. Z-Score	PT Score	Avg. Z-Score	PT Score	Avg. Z-Score	PT Score	Avg. Z-Score	PT Score	Avg. Z-Score
CALA	03/09	89	0.737	87	0.866	88	0.811	96	0.274	91	0.627	90[1]	0.696
CMPT	04/09											12/12[1]	---
CMPT	07/09											12/12[1]	---
CALA	10/09	83[H]	1.141	85[H]	1.019	95	0.344	94	0.418	85	0.995	88[1]/95[2]	0.784/0.365
CMPT	11/09											12/12[2]	-0.555

PT Score > 70 acceptable.

VH – Very high bias, H – High bias, L – Low bias, A – Acceptable, Q – Questionable, U – Unsatisfactory

CALA – Canadian Association for Laboratory Accreditation
CMPT – Clinical Microbiology Proficiency Testing

BOD – 5-day Biological Oxygen Demand, C-BOD - 5-day Carbonaceous Biological Oxygen Demand, TSS – Total Suspended Solids, NH_3-N – Ammonia as Nitrogen, TP – Total Phosphorous.

Notes: [1] Sample analyzed using IDEXX (Quanti-tray) method
[2] Sample analyzed using membrane filtration (mENDO) method.

Table 5. Environmental Release Reports & Administrative Non-Compliances. Summary of environmental incidents as required under sections 5.1.3 (e) of the Approval to Operate No. 639-02-07 for 2009.

Administrative Non-Compliance

Incident Number	Date	Incident Description	Incident Status	AENV Ref. No.
Intelex No. 00354	Aug 6/09	Secondary bypass grab sample for *E.coli* testing was not collected by Operations on August 6, 2009 bypass event. Bypass commenced at 07:06 hrs and ended at 11:56 hrs. Senior Manager, Operations was not made aware of missed sample until verifying August Monthly report from Laboratory.	• Administrative notification process reviewed. • Extenuating circumstances: Plant was dealing with planned power outage at time of bypass event which may have distracted shift foreman from collecting secondary bypass grab sample.	220803
Intelex No. 00356	Oct 6/09	There was no sample collected for FEC because nozzle on the distributor arm was blocked by the handle of carboy and the sample chamber lid was not fastened securely so there was no vacuum created. Carboy was incorrectly placed into the fried with the handle in an upright position blocking sampler nozzle from rotating into the correct position. This was corrected however the sampler lid was not secured so the sampler was unable to create a vacuum to draw the sample.	• Instruct maintenance to perform a manual sample to ensure that there is a seal • Recommend maintenance to create a written procedure/checklist to insure changes are completely correctly	220194
ESS 00041	Jan 29/09 Sept 6/09	Secondary bypass composite sample not collected due to autosampler failure. Failure mechanism unknown as autosampler diagnostics indicated no mechanical or programming issues. Sample tube likely plugged, or autosampler ineffective under low bypass flow conditions.	• Update communication and reporting protocols to avoid late reporting • Update procedures to frequently observe sampler performance during bypass events • Investigate online monitoring or alarms for autosampler failure conditions • Implement manual sampling program when autosampler fails	234151

Environmental Incidents

Incident Number	Date	Incident Description	Incident Status	AENV Ref. No.
Intelex No. 03073	Mar 17/09	An estimated 500 m^3 of biogas was released for about 7.5 hrs as a result of a planned maintenance activity – Digester 5 drained, cleaned and maintenance work performed.	• Release occurred throughout the day with activities finishing around 1630 hr.	211637
Intelex No. 03244	Apr 12 to 13/09	An estimated 1.15 ML of supernatant being returned form the Clover Bar lagoons back to the Gold Bar WWTP was spilled in Hermitage Park due to a pipe break.	• The spill was naturally contained (due to the topography) and was subsequently vacuumed up and sent to the Gold Bar WWTP • A remediation plan was developed with Thurber Engineering and was executed. The affected area was re-opened in mid-June.	212346

Environmental Incidents				
Incident Number	**Date**	**Incident Description**	**Incident Status**	**AENV Ref. No.**
Intelex No. 03594	July 10/09	The dome pressure in Digester 4 exceeded the limit of the pressure relief valve and about 1,550 m^3 of biogas was vented to atmosphere. Subsequent to this release, biogas flow from digesters 1 to 3 became obstructed and could not be sent to the waste gas flare system. Dome pressures in these digesters then reached critical levels causing relief valves to open and vent biogas to atmosphere. It was determined that the obstruction was caused by debris from Digester 4 entering the gas system which eventually plugged the sediment traps.	• Digester 4 was temporarily taken out of service in order to determine what caused the pressure spikes and release of biogas. • A formal investigation using the new Incident Management Process was conducted. • Recommendations from the investigation are in the process of being prioritized and implemented.	216848
Intelex No. 03809	July 14/09	Planned release of 2,000 m^3 of biogas. Digester 4 was taken out of service to be prepared for maintenance. The planned purging of the headspace of Digester 4 was carried out. This is a follow-up to AENV Ref No. 216848	• Release was resumed on July 15/09	217077
Intelex No. 03812	July 15/09	This is a continuation of release from July 14/09 (AENV Ref. No. 217077)	• Completed, no further issues	217088
Intelex No. 03813	July 18/09	About 35 ML of partially treated wastewater was released. During a severe thunderstorm, both feeds to the plant were disrupted and therefore the UV disinfection of the wastewater was temporarily shutdown.	• No issues	217281
Intelex No. 03588	July 29/09	About 19 ML of partially treated sewage was released. Visual confirmation of flow through UV channel #1 to the final outfall, however the two (2) banks of UV lamps in Channel # 1 were not in operations due to being in “remote-off” status.	• Several operational and maintenance procedures/tasks were carried out to prevent a similar release.	217614
Intelex No. 03581	Aug 5/09	About 0.15 ML of partially treated sewage released. Planned power shutdown due to changing power feed to the plant.	• Completed, no further issues	217664
Intelex No. 03582	Aug 6/09	About 0.06 ML of partially treated sewage released. Planned power shutdown due to changing power feed to the plant.	• Completed, no further issues	217700
Intelex No. 03583	Aug 7/09	About 1.50 ML of partially treated sewage released. Planned power shutdown due to changing power feed to the plant.	• Completed, no further issues	217710
Intelex No. 03584	Aug 18/09	About 1.6 ML of partially treated sewage released. Planned power shutdown due to changing power feed to the plant.	• Completed, no further issues	218754
Intelex No 03585	Aug 19/09	The planned power shutdown due to changing power feed to the plant. All biogas compressors were shutdown. Lead flares to burn all gas produced from all digesters during shutdown. An unknown quantity of biogas was released	• Several operations and maintenance procedures were carried out to prevent similar releases.	217888
Intelex No. 03586	Aug 19/09	The planned power shutdown due to changing power feed to the plant. Preventative Maintenance schedule completed on main feed to the plant. Switched back to the main feed. About 1.1 ML of partially treated sewage released	• Completed, no further issues	218296

Environmental Incidents				
Incident Number	**Date**	**Incident Description**	**Incident Status**	**AENV Ref. No.**
Intelex No. 03587	Aug 26/09	About 0.3 ML of diluted and untreated sewage released. Thunderstorms and rain contributed to wet weather conditions which increased the flow to the plant due to combined sewers. More primary clarifiers were put in service to handle incoming flows. Early warning system for high flows to plant (ANN model) was offline at time of incident.	• Procedures updated to include steps taken to put additional primary settling tanks into service at time of 60-minute prediction of plant influent flow from ANN model to ensure primary treatment rated capacity of 910 ML/day is met.	218649
Intelex No. 03589	Sept 15/09	The pressure in Digester 4 exceeded the limit of the pressure relief valve and biogas was vented to the atmosphere. Subsequent to this release, the biogas system from Digesters 1 to 3 became obstructed and also vented to atmosphere. About 60 m^3 of biogas was released.	• Digester 4 will continue to be operated 8 to 12 inches below overflow until Digester 5 is fully operational	218483
Intelex No. 03591	Sept 24/09	Uncontrolled release of about 1,200 m^3 of biogas from Digester 1 to 4 and 6 as a result of the pressures exceeded the limits of their respective pressure relief valves. A second release occurred later in the day due conflicting maintenance schedules to have resulted from a failure in the work management system during response to the 1st event.	• A number of tasks and steps to be carried out to prevent similar future releases. These tasks are still ongoing. • Updated work management systems under development.	219667
Intelex No. 03590	Sept 25/09	Uncontrolled release of about 27 m^3 of biogas through the dome pressure relief valve of Digester 4. The release due to suspected build-up of foam in the digester headspace.	• Foam accumulation in all digesters is being monitored closely and all digesters are being operated below overflow level	220316
Intelex No. 03592	Sept 28/09	Controlled release of about 1,500 m^3 of biogas from Digester 6. Digester 6 was purged with nitrogen gas to allow the inspection and cleaning of level (radar) instrumentation as well as perform a visual confirmation of foam/liquid level in digester headspace relative to the liquid level in overflow tubes	• Completed, no further issues	220060
Intelex No. 03593	Sept 30/09	Controlled release of about 1,500 m^3 of biogas from Digester 3. The headspace of Digester 3 was purged with nitrogen gas as to allow the replacement of a non-functioning 3-way valve	• Completed, no further issues	220065
Intelex No. (Not available due to system transition issues)	Oct 1/09	Controlled release of less than 10 m^3 of biogas due to the planned flushing activities in Digester Square No. 2 – Gas Compressor Room. Sediment traps and flare biogas header were flushed with final effluent.	• This was a planned release of less than 1 Hour duration. Completed with no further issues	220398
Intelex No. 03595	Oct 8/09	The digester levels were maintained lower than normal operation due to foaming conditions. Foam in overflow tube resulted in improper level reading causing the liquid level in the digester to go lower than the bottom of the overflow tube causing approximately 1,100 m^3 of biogas to escape over a duration of about 30 minutes.	• An investigation of the release determined that the liquid level operating range of Digester 5 was smaller than that of Digesters 1-4 or 6. This may have been a contributing factor to the loss of its gas seal and subsequent release of biogas. • The liquid level operating range has now been increased and is similar to that of the other digesters. Operations staff is also logging digester liquid levels several times per shift in order to provide additional shift turnover information	220481

Environmental Incidents				
Incident Number	**Date**	**Incident Description**	**Incident Status**	**AENV Ref. No.**
Intelex No. 03596	Oct 17/09	Foam/liquid level in the Digester 5 increased during a manual fill cycle. Foam carried over to the biogas system. Liquid that filled the sediment traps and flare header restricted the flow of biogas in the Digester square No. 2 – gas room. The dome pressure in Digester 5 exceeded 16 inch water column which resulted in the release of approximately 12 m^3 of biogas over a 15 minute duration.	• Digester operating liquid level has been reduced to minimize the risk of foam carry over into the biogas utilization system. • Planned modifications to sediment trap drains will be implemented to prevent plugging. • The control philosophy and Management of Change for automatic fill/drain of digesters is under review. The intent is to provide automatic fill/drain operations that will not be dependant on overflowing digesters (as currently programmed). • Programming changes implemented in Q1 2010.	220841
Intelex No. 03597	Dec 13/09	Foam from Digesters 5 & 6 entered into the gas collection system, plugging the line causing the pressure in the digesters to increase. The pressure relief valve opened and approximately 1,630 m^3 of biogas was released	• Controlling the feed rates and the levels in the digesters. Automated digester feeding trials were carried out. • Programming changes implemented in Q1 2010.	222577

Table 6. 2009 Summary of Monthly/Annual Chemical Usage at the Gold Bar WWTP.

Chemical Name	Alum	Caustic Soda (Bagged)	Caustic Soda (Liquid)		Citric Acid	Hydrogen Peroxide	Liquid Nitrogen	Polymer	Sodium Bisulfite	Sodium H
Chemical Formula	$Al_2(SO4)_3$•$14H_2O$	NaOH	NaOH		$C_6H_8O_7$	H_2O_2	N_2	Zetag 8180	$NaHSO_3$	N
Chemical Supplier	Marsulex	ClearTech Industries Inc.	ClearTech Industries Inc.		ClearTech Industries Inc.	US Peroxide LLC	Air Liquide Canada Inc.	C BA Specialty Chemicals	ClearTech Industries Inc.	ClearTech Industries Inc.
Purpose Used/ Dosage point	Phosphate trimming in secondary effluent / Mixed liquor channel to secondary clarifier	Chemical cleaning of sludge lines	Odour Control - pH adjustment / Odour Control Facilties	Membrane cleaning - pH adjustment / Membrane tanks	Chemical cleaning of ultrafiltration membranes - reverses inorganic fouling / Membrane tanks	Odour Control - oxidizes H_2S / Plant Influent Channels 1 and 2	Purging of biogas system / Digester Headspace and biogas piping	Flocculating agent for Waste Activated Sludge (WAS) / Dissolved Air Flotation Thickening Facility	Chlorine neutralizing agent for ultrafiltration membrane cleaning / Membrane tanks	East Scrubber: Odour Control - oxidizes of H_2S / Odour Control Facilities
Concentration Used	48.5%	50% NaOH - diluted with H_2O and heated	50%		50%	50% by Weight	100%	0 25% to 0.35% (introduced as solution)	38 to 44%	1
Feed Rate	Used when effluent phosphate concentration >0 5 mg/L P	Applied Sparingly as required	Intermittent	Intermittent		Continuous Feed	Continuous Feed	Continuous Feed		Intermittent
Minimum	8 mg/L					500 kg/day	N/A			Function of Sulphide Loading
Maximum	100 mg/L					2000 kg/day	As controlled by feed equipment			Controlled by PID loop and PLC controlled
Months	**Total Used litres**	**Total Used kg**	**Total Used** Scrubbers **litres**	**Total Used** Membrane **litres**	**Total Used litres**	**Total Used kg**	**Total Used sm3**	**Total Used kg**	**Total Used litres**	**Total Used** Scrubbers **litres**
January	247,591	16	0	176	426	1,830	550	2,040	217	0
February	223,481	0	2,387	232	75	268	0	1,135	205	191
March	240,891	0	592	203	433	71	1,467	2,036	190	8,819
April	266,912	0	0	154	53	587	0	3,027	229	7,596
May	256,679	24	0	3	44	4,299	0	1,357	24	4,655
June	87,153	0	1,110	116	45	4,098	0	2,428	64	17,599
July	72,963	0	2,368	8	0	8,251	5,299	1,707	171	6,988
August	66,052	0	1,998	21	153	3,591	0	1,400	209	8,111
September	83,856	0	7,864	213	225	4,549	1,400	2,800	233	6,904
October	113,588	0	592	356	140	3,991	0	2,548	587	6,785
November	62,186	0	148	10	286	13,804	0	692	423	2,812
December	44,442	0	296	8	0	0	0	1,820	393	5,534
2009 - Annual Total	**1,765,794**	**40**	**17,355**	**1,500**	**1,880**	**45,339**	**8,716**	**22,990**	**2,945**	**75,994**

Table 7. 2009 List of Certified Wastewater Treatment Operators for the Gold Bar Wastewater Treatment Plant.

Name	Title	WWT Certification Level
Corkery,Vince M	Director, Wastewater Treatment Plant Edmonton	IV
Heise,Geoffry R	Senior Manager, Operations	II
Grossell,Ken M	Manager, Operations	IV
Schneider,Brian P	WWTP Operator Foreman	IV
Kerr,David A	WWTP Operator Foreman	IV
Graham,Thomas A	Acting WWTP Operator Foreman	IV
Jones,Kira I	Acting WWTP Lead Operator	III
Kwan,Tom	Acting WWTP Lead Operator	IV
Ropchan,Ross M	Acting WWTP Lead Operator	II
Paszkiewicz,Marek	WWTP Lead Operator - Utility Crew Foreman	III
Feltmate,Colleen J	WWTP Lead Operator - Training Foreman	III
Rindero,Billy J	WWTP Operator	III
Blatz,Kevin M	WWTP Operator	III
Barrett,Jeremy L	WWTP Operator	III
Li,Bing BL	WWTP Operator	III
Burton,Morley	WWTP Operator	II
Budden,Curt W	WWTP Operator	II
Mota,Ricardo L	WWTP Operator	II
Dawson,Terena M	WWTP Operator	II
Mann,Kelly	WWTP Operator	II
Gurney,Roger S	WWTP Operator	II
Marcinek,David A	WWTP Operator	II
Espinosa,Diego F	WWTP Operator	I
Ketchum, Glen	WWTP Operator	I
Holman,Kenneth E	WWTP Operator	II - Restricted
Resler,Kenny A	WWTP Operator	I - Restricted
Hillaby,Greg	WWTP Operator	I - Restricted
Atkinson,Mike W	WWTP Operator	In-Training

Table 8. 2009 Sampler Non-Conformance Summary.

Collection Date	Collected By	Sampling Site	Sampling Issue	Action Taken
28-Jan	BN	BYPASS	Very low flow, 16.8 ML, no sample collected.	Tested samplers and they were able to pull sample from container, BS and GC felt low turbulent flow with some debris may have caused problem but felt samplers okay. Non-conformance not filled out, "NS" entered for all results.
19-Jul	JF	BYPASS	Power outage caused fridge to warm up, sample temperature 11.3°C.	Report sample results as estimated, called BS to let him know, non-conformance report submitted.
16-Jul	KG	FEC	Excessive sample leaked out of cracked carboy; therefore, sample was no longer representative.	Report sample results as estimated, replaced carboy and submitted non-compliance report.
1-Aug	VY	BYPASS	Refrigerator not working sample stored at temperature > 10°C.	E/I informed, fridge replaced. Non-conformance written up and results reported as estimated.
6-Aug	Operations	BYPASS	No grab sample for *E. coli* testing.	Operations to fill out nonconformance report.
6-Sept	Unknown	BYPASS	No sample collected; likely due to low flow conditions.	Was not filled out as Non-Conformance; review of reporting procedures.
6-Oct	CM	FEC	Carboy was not aligned properly from 12:00 am until 8:00 am. Sometime shortly before 8:00am hoses were replaced but the wing nuts were not tightened on chamber. Sampler was unable to create vacuum so no sample was drawn.	Results were reported as “NS”. Nonconformance report filed.

Abbreviations

BN – Brittney Nelson
BS – Brad Salter
CM – Colleen McKenna
E/I – Electrical/Instrumentation group
GC – Gary Corlett
JF – Juliet Fung
KG – Karen Gauthier
NS – No Sample
VY – Victoria “Vicky” Younie

Table 9. Summary of 2009 Major Work Program, not including Engineering Projects. "FL3" and "FL4" refer to Asset Management Functional Location Level 3 and 4, respectively.

FL3	FL4	Task Name	Work Group	%Work Completed	Duration	Start	Finish
		JANUARY					
WAS	DAF01	WAS Tank 1 Clean And Inspect	Ops	100%	2 days	26-Jan-09	27-Jan-09
WAS	DAF02	WAS Tank 2 Clean And Inspect	Ops	100%	2 days	28-Jan-09	29-Jan-09
		FEBRUARY					
WAS	DAF03	WAS Tank 3 Clean And Inspect	Ops	100%	2 days	23-Feb-09	24-Feb-09
WAS	DAF04	WAS Tank 4 Clean And Inspect	Ops	100%	2 days	25-Feb-09	26-Feb-09
PCS		Back Up Server Rack	Maint/TS	100%	1 day	26-Feb-09	26-Feb-09
DIG	DIG05	Digester 5 Cleaning	Ops	100%	66 days	27-Feb-09	29-May-09
PTR	GRIT6	Grit Tank 6 Clean	Ops	100%	20 days	02-Mar-09	27-Mar-09
		MARCH					
PTR	SCRS3	Screen 7 Clean	Ops	100%	1 day	10-Mar-09	10-Mar-09
PTR	SCRS3	Screen 7 Inspection	Maint	100%	1 day	11-Mar-09	11-Mar-09
PTR	SCRS3	Screen 8 Clean	Ops	100%	1 day	12-Mar-09	12-Mar-09
PTR	SCRS3	Screen 8 Inspection	Maint	100%	1 day	13-Mar-09	13-Mar-09
WAS	DAF05	WAS Tank 5 Clean And Inspect	Ops	100%	2 days	16-Mar-09	17-Mar-09
WAS	DAF06	WAS Tank 6 Clean And Inspect	Ops	100%	2 days	18-Mar-09	19-Mar-09
PTR	GRIT6	Grit Tank 6 Inspection	Maint	100%	5 days	23-Mar-09	27-Mar-09
		APRIL					
PTR	GRIT7	Grit Tank 7 Clean	Ops	100%	22 days	01-Apr-09	30-Apr-09
PTR	SCRS2	Screens 4,5,6 Wash Press	C-CREW	99%	20 days	01-Apr-09	28-Apr-09
PRI	PRI07	Primary 7 Clean	Ops	100%	4 days	06-Apr-09	09-Apr-09
PRI	PRI07	Primary 7 Inspection	Maint	100%	4 days	09-Apr-09	14-Apr-09
CBF	BPIPE	Lagoon Lines Acid Clean	Ops	100%	3 days	14-Apr-09	16-Apr-09
CBF	SUPPS	Pump House Valve Replacement 2nd Floor	Maint	100%	4 days	14-Apr-09	17-Apr-09
DIG	DIG05	Digester 5 Inspect 3-Way PRVs	Maint	100%	3 days	21-Apr-09	23-Apr-09
SEC	BIO01	Recycle Pump Modification	Maint	60%	10 days	21-Apr-09	04-May-09
SEC	SCL08	Secondary Clarifier 8 Clean	Ops	100%	5 days	27-Apr-09	01-May-09
PTR	GRIT7	Grit Tank # 7 Inspect	Maint	100%	3 days	29-Apr-09	01-May-09
		MAY					
PTR	GRIT5	Grit Tank 5 Clean	Ops	100%	20 days	04-May-09	29-May-09
PRI	PRI06	Primary 6 Clean	Ops	100%	2 days	04-May-09	05-May-09
DIG	DIG05	Digester Install Radar Level Indicator	Maint/TS	100%	2 days	04-May-09	05-May-09
SEC	SCL08	Secondary Clarifier 8 Install Loop Chain -CAPITAL PROJECT	Maint	100%	30 days	04-May-09	12-Jun-09
SEC	BIO08	Secondary Bio 8 Clean	Ops	100%	5 days	04-May-09	08-May-09
UTL	SUB02	SUB 2 Maintenance	Maint	100%	15 days	04-May-09	22-May-09
CBF	SUPPS	Pump House Acid Cleaning	Ops	100%	3 days	04-May-09	06-May-09
PRI	PRI06	Primary 6 Install Loop Chain -- CAPITAL PROJECT	Maint	100%	21 days	05-May-09	02-Jun-09
SEC	BIO08	Secondary Bio 8 Inspection	Maint	100%	4 days	05-May-09	08-May-09
SEC	BIO08	Secondary Bio 8 Move Cell 3 Mixer	Maint/ Elec	100%	1 day	05-May-09	05-May-09
SEC	BIO08	Secondary Bio 8 Fermenter Supernatant Feed Line	Maint	100%	2 days	06-May-09	07-May-09
PTR	GRIT1	Grit Tank 1 Clean	Ops	100%	2 days	11-May-09	12-May-09
PTR	SCRS1	Screen 1 Clean	Ops	100%	1 day	11-May-09	11-May-09
DIG	DIGO5	Inspect Digester # 5	Maint	100%	5 days	11-May-09	15-May-09
SEC	CHANL	Replace Actuators on Butterfly Gates 2 & 3	Maint/TS	0%	5 days	11-May-09	15-May-09
PTR	SCRS1	Screen 1 Inspection	Maint	100%	1 day	12-May-09	12-May-09
PTR	GRIT2	Grit Tank 2 Clean	Ops	100%	2 days	13-May-09	14-May-09
PTR	SCRS1	Screen 2 Clean	Ops	100%	1 day	13-May-09	13-May-09
PTR	SCRS1	Screen 2 Inspection	Maint	100%	1 day	14-May-09	14-May-09
PTR	GRIT3	Grit Tank 3 Clean	Ops	100%	2 days	19-May-09	20-May-09
PTR	SCRS1	Screen 3 Clean	Ops	100%	1 day	19-May-09	19-May-09
DIG	DIG05	Digester 5 Install New Mag Tube For Sludge	C-Crew	100%	3 days	19-May-09	21-May-09
SSP	DISTS	Install Safety Davit - Distribution	Maint	100%	2 days	19-May-09	20-May-09
PTR	SCRS1	Screen 3 Inspect	Maint	100%	1 day	20-May-09	20-May-09
PTR	GRIT5	Grit Tank 5 Inspection	Maint	100%	5 days	25-May-09	29-May-09
		JUNE					
PRI	PRI01	Primary 1 Clean	Ops	100%	1 day	01-Jun-09	01-Jun-09
PRI	PRI01	Primary 1 Plastic Chain Install	Maint	100%	19 days	02-Jun-09	26-Jun-09
UTL	HTWAT	Expansion Joint Installation	Maint	0%	1 day	09-Jun-09	09-Jun-09
UTL	HTWAT	Hot Water Pump not pumping	Maint/Elec	100%	2 days	09-Jun-09	10-Jun-09
SEC	SCL09	Secondary Clarifier 9 Clean	Ops	100%	2 days	15-Jun-09	16-Jun-09
SEC	SCL09	Secondary Clarifier 9 Inspect	Maint	100%	4 days	16-Jun-09	19-Jun-09
SEC	BIO09	Secondary Bio 9 Clean	Ops	100%	3 days	17-Jun-09	19-Jun-09
SEC	BIO09	Secondary Bio 9 Inspect	Maint	100%	4 days	19-Jun-09	24-Jun-09
SEC	SCL10	Secondary Clarifier 10 Clean	Ops	100%	2 days	23-Jun-09	24-Jun-09
SEC	SCL10	Secondary Clarifier 10 Inspect	Maint	100%	3 days	25-Jun-09	29-Jun-09
SEC	BIO10	Secondary Bio 10 Clean	Ops	100%	3 days	25-Jun-09	29-Jun-09
PRI	PRI02	Primary 2 Clean	Ops	100%	1 day	29-Jun-09	29-Jun-09
SEC	SCL11	Secondary Clarifier 11 Clean	Ops	100%	2 days	29-Jun-09	30-Jun-09
SEC	SCL11	Secondary Clarifier 11 Slide Gates	Maint	20%	1 day	29-Jun-09	29-Jun-09
SEC	BIO10	Secondary Bio 10 Inspection	Maint	100%	4 days	30-Jun-09	03-Jul-09
SEC	SCL11	Secondary Clarifier 11 Inspect	Maint	100%	4 days	30-Jun-09	03-Jul-09

Table 9. Continued - Summary of 2009 Major Work Program, not including Engineering Projects. "FL3" and "FL4" refer to Functional Location Level 3 and 4, respectively.

FL3	FL4	Task Name	Work Group	%Work Completed	Duration	Start	Finish
		JULY					
PRI	PRI02	Primary 2 Plastic Chain Install	Maint	100%	23 days	01-Jul-09	31-Jul-09
SEC	BIO11	Secondary Bio 11 Inspect	Maint	100%	5 days	07-Jul-09	13-Jul-09
SEC	SCL04	Secondary Clarifier 4 Clean	Ops	100%	2 days	08-Jul-09	09-Jul-09
SEC	SCL04	Secondary Clarifier 4 Install Loop Chain - CAPITAL PROJECT	Maint	100%	30 days	13-Jul-09	21-Aug-09
PTR	GRIT4	Grit Tank 4 Clean	Ops	100%	19 days	13-Jul-09	06-Aug-09
PTR	CHANL	Clean Grit Tanks 4 & 5 Effluent Channel	Ops	100%	2 days	30-Jul-09	31-Jul-09
PTR	GRIT4	Grit Tank 4 Inspection	Maint	100%	5 days	31-Jul-09	06-Aug-09
		AUGUST		0%	0 days	03-Aug-09	03-Aug-09
UTL	NAIR	Digester Square 2 Air Lines	Maint	0%	5 days	10-Aug-09	14-Aug-09
PTR	GRIT6	Grit Tank 6 Clean	Ops	100%	10 days	14-Aug-09	27-Aug-09
PRI	PRI08	Primary 8 Clean	Ops	100%	2 days	17-Aug-09	18-Aug-09
PRI	PRI08	Primary 8 Inspection	Maint	100%	4 days	18-Aug-09	21-Aug-09
PTR	GRIT6	Grit Tank 6 Inspection	Maint	100%	5 days	21-Aug-09	27-Aug-09
SEC	SCL01	Secondary Clarifier 1 Clean	Ops	100%	2 days	24-Aug-09	25-Aug-09
SEC	SCL01	Secondary Clarifier 1 Inspect	Maint	100%	4 days	25-Aug-09	28-Aug-09
SEC	BIO01	Secondary Bio 1 Clean	Ops	100%	2 days	26-Aug-09	27-Aug-09
SEC	BIO01	Secondary Bio 1 Inspect	Maint	100%	5 days	26-Aug-09	01-Sep-09
PTR	GRIT7	Grit Tank 7 Clean	Ops	100%	10 days	28-Aug-09	10-Sep-09
PRI	PRI03	Primary 3 Clean	Ops	100%	2 days	31-Aug-09	01-Sep-09
		SEPTEMBER					
PRI	PRI03	Primary 3 Inspection	Maint	100%	4 days	01-Sep-09	04-Sep-09
PTR	SCRS3	Screen 7 Clean	Ops	100%	2 days	02-Sep-09	03-Sep-09
PTR	SCRS3	Screen 7 Inspection	Maint	100%	2 days	02-Sep-09	03-Sep-09
SEC	SCL02	Secondary Clarifier 2 Clean	Ops	100%	2 days	03-Sep-09	04-Sep-09
PTR	GRIT7	Grit Tank 7 Inspection	Maint	100%	5 days	04-Sep-09	10-Sep-09
SEC	SCL02	Secondary Clarifier 2 Inspect	Maint	100%	2 days	04-Sep-09	07-Sep-09
PTR	SCRS3	Screen 8 Clean	Ops	100%	2 days	08-Sep-09	09-Sep-09
PTR	SCRS3	Screen 8 Inspection	Maint	100%	2 days	08-Sep-09	09-Sep-09
PRI	PRI03	Primary 3 Motor Drive Replacement (Pumps)	Maint	100%	4 days	08-Sep-09	11-Sep-09
PRI	PRI04	Primary 4 Clean	Ops	100%	2 days	10-Sep-09	11-Sep-09
PTR	AIRS2	Replacement of 3 Cord Blowers	C- Crew	10%	40 days	14-Sep-09	06-Nov-09
PRI	PRI04	Primary 4 Inspection	Maint	100%	5 days	14-Sep-09	18-Sep-09
SEC		Secondary 6, 7, 8 Separation Gates	Maint	0%	5 days	15-Sep-09	21-Sep-09
PRI	PRI04	Primary 4 Motor Drive Replacement (Pumps)	Maint	100%	5 days	21-Sep-09	25-Sep-09
PRI	PRI05	Primary 5 Clean	Ops	100%	3 days	21-Sep-09	23-Sep-09
PRI	PRI05	Primary 5 Inspection	Maint	100%	5 days	24-Sep-09	30-Sep-09
		OCTOBER					
BLD	MAINT	Maintenance Building Eye Wash Station	C-CREW	0%	3 days	05-Oct-09	07-Oct-09
PTR	GRIT1	Grit Tank 1 Clean	Ops	100%	2 days	08-Oct-09	09-Oct-09
PTR	SCRS1	Screen 1 Clean	Ops	100%	1 day	08-Oct-09	08-Oct-09
PTR	SCRS1	Screen 1 Inspect	Maint	100%	1 day	09-Oct-09	09-Oct-09
PTR	GRIT2	Grit Tank 2 Clean	Ops	100%	2 days	13-Oct-09	14-Oct-09
PTR	SCRS1	Screen 2 Clean	Ops	100%	1 day	13-Oct-09	13-Oct-09
PTR	SCRS1	Screen 2 Inspect	Maint	100%	1 day	14-Oct-09	14-Oct-09
PTR	GRIT3	Grit Tank 3 Clean	Ops	100%	2 days	15-Oct-09	16-Oct-09
PTR	SCRS1	Screen 3 Clean	Ops	100%	1 day	15-Oct-09	15-Oct-09
PTR	SCRS1	Screen 3 Inspect	Maint	100%	1 day	16-Oct-09	16-Oct-09
		NOVEMBER					
PRI	PRI09	Primary 9 Clean	Ops	0%	4 days	02-Nov-09	05-Nov-09
PRI	PRI09	Primary 9 Inspection	Maint	0%	4 days	04-Nov-09	09-Nov-09
PRI	PRI10	Primary 10 Clean	Ops	0%	4 days	10-Nov-09	13-Nov-09
PRI	PRI10	Primary 10 Inspection	Maint	0%	4 days	12-Nov-09	17-Nov-09

Table 9. Continued - Summary of 2009 Major Work Program, not including Engineering Projects. "FL3" and "FL4" refer to Functional Location Level 3 and 4, respectively.

FL3	FL4	Task Name	Work Group	%Work Completed	Duration	Start	Finish
		DECEMBER					
		Tasks to be completed sometime in 2009					
PCS	PLCSY	Migration for Auxiliary Control Room	Maint. / TS	10%	23 days	01-Jan-09	02-Feb-09
PCS		Early Warning System for Plant Inflow	TS	100%	30 days	01-Jan-09	11-Feb-09
PCS	DLTAV	Delta V Graphics Upgrade	Maint./ TS	95%	23 days	01-Jan-09	02-Feb-09
PCS	DLTAV	Boiler 1, 2, 5 on Delta V	Maint./ TS	90%	20 days	01-Jan-09	28-Jan-09
DIS	SCRNS	Screen Wash (200A)	Ops	100%	1 day	01-Jan-09	01-Jan-09
DIS	SCRNS	Screen Inspection (200A)	Maint	100%	1 day	01-Jan-09	01-Jan-09
DIS	SCRNS	Screen Wash (200B)	Ops	100%	1 day	01-Jan-09	01-Jan-09
DIS	SCRNS	Screen Inspection (200B)	Maint	100%	1 day	01-Jan-09	01-Jan-09
DIS		Replace UV Lamps in one channel	Elec	100%	1 day?	01-Jan-10	01-Jan-10
ODR		PM'S for all Scrubber Tanks	Plan	30%	1 day?	01-Jan-09	01-Jan-09
SSP	SQ1TP	Square 1 Replace Transfer Pump	C-Crew	0%	10 days	01-Jan-09	14-Jan-09
PCS		Enterprise Historian Software Upgrade	TS	0%	30 days	01-Jan-09	11-Feb-09
PCS	DLTAV	Migrating I / O to Delta V	Maint./ TS	0%	93 days	01-Jan-09	11-May-09
SEC	ALUMS	Replace Alum Carrier Water Pump Motors	C- Crew	0%	3 days	01-Jan-09	05-Jan-09
DIG	DIG01	Digester 1 Radar Replacement	Maint/ Elec	0%	2 days	01-Jan-09	02-Jan-09
SSP	MAND2	Install Safety Davit - D2 Manhole	Maint	0%	2 days	01-Jan-09	02-Jan-09
PRI	PRI06	Primary 6 Motor Drive Replacement (Pump)	Maint	0%	5 days	11-May-09	15-May-09
PTR	CHANL	Primary 5-6 Influent Channel Inspection	Ops	0%	3 days	19-May-09	21-May-09
PTR	CHANL	Primary 1-4 Influent Channel Inspection	Ops	0%	3 days	03-Jun-09	05-Jun-09
PTR	CHANL	Primary 7-8 Influent Channel Inspection	Ops	0%	3 days	08-Jun-09	10-Jun-09
SEC	UPIPE	Modify/Repair Drain Lines And Wash Lines (Air)	Maint	0%	5 days	15-Jun-09	19-Jun-09
UTL	HTWAT	Hot Water System Flushing	Maint/Ops	0%	10 days	06-Jul-09	17-Jul-09
PRI	PRI08	Primary 8 Motor Drive Replacement (Pump)	Maint/Elec	0%	3 days	24-Aug-09	26-Aug-09
SEC	SCL03	Secondary Clarifier 3 Clean	Ops	100%	2 days	09-Sep-09	10-Sep-09
SEC	SCL03	Secondary Clarifier 3 Inspect	Maint	100%	2 days	11-Sep-09	14-Sep-09
SEC	SCL05	Secondary Clarifier 5 Clean	Ops	0%	2 days	15-Sep-09	16-Sep-09
SEC	SCL05	Secondary Clarifier 5 Inspect	Maint	0%	3 days	17-Sep-09	21-Sep-09
SEC	SCL06	Secondary Clarifier 6 Clean	Ops	100%	2 days	22-Sep-09	23-Sep-09
SEC	SCL06	Secondary Clarifier 6 Inspect	Maint	100%	3 days	24-Sep-09	28-Sep-09
PRI	PRI05	Primary 5 Motor Drive Replacement (Pumps)	Maint	10%	3 days	28-Sep-09	30-Sep-09
SEC	SCL07	Secondary Clarifier 7 Clean	Ops	100%	2 days	29-Sep-09	30-Sep-09
SEC	SCL07	Secondary Clarifier 7 Inspection	Maint	100%	3 days	01-Oct-09	05-Oct-09
WAS		Replace Radar In Subnatant Tank	Maint	0%	3 days	07-Apr-09	09-Apr-09
SEC	BIO11	Secondary Bio 11 Clean	Ops	0%	2 days	03-Jul-09	06-Jul-09
SEC		Secondary 9, 10, 11 Slide Gate Cover Plates	Maint	0%	5 days	21-Sep-09	25-Sep-09
PRI	PRI11	Primary 11 Clean	Ops	0%	4 days	18-Nov-09	23-Nov-09
PRI	PRI11	Primary 11 Inspection	Maint	0%	4 days	24-Nov-09	27-Nov-09
PRI	PRI12	Primary 12 Clean	Ops	0%	4 days	30-Nov-09	03-Dec-09
PRI	PRI12	Primary 12 Inspection	Maint	0%	4 days	02-Dec-09	07-Dec-09
PRI	PRI07	Primary 7 Motor Drive Replacement (Pump)	Maint/Elec	0%	3 days	14-Apr-09	16-Apr-09

Table 10. Summary of 2009 Completed Projects and 2010 Planned Major Capital and Rehabilitation Projects. Reported as per A section 5.1.3 (f).

2010 Major Capital Project	Status
Digester 7 & 8	Construction 70%, commissioning to start in September 2010
Sludge Line Twinning	Construction Complete, commissioning in progress
Enhanced Primary Treatment Project	Outfall sampling station and chemical systems commissioning complete, EPT perfromance test to continue in 2010
Primary Sludge Fermenters	Commissioing of two Fermenters complete. Commissioing to continue in 2010
Grit 4 & 5 and Screens Upgrades	Design in 2010-2011
Boiler House and Heating System Expansion	Design to be completion and construction start in 2010
Lagoon Supernatant Treatment Facility	Re-zoning of Clover Bar Lagoons site in 2010 and design in 2011
Plant perimeter fence and security upgrades	Completed in 2009
2009 Completed Rehabilitation Projects	
WWTP Rehabilitation	
Digester Overflow Hopper Covers	
00.11.Strathcona Forcemain Flowmeter Replacement	
Caustic System Modifications	
Sludge Loading Facility at CBF	
Boiler House Building Drainage	
East/West Chemical Scrubber Fill Station Relocation	
Digester Sq. #2 Gas Mixing Compressor	
Screen 4-6 Wash Press	
DIG 5 Shutdown and Upgrades	
East Scrubber Building Drainage	
Secondary Clarifier 6 Gear Drive Replacement	
Misc DeltaV Upgrades and PLC Converisons	
Odour Scubber Upgrades	
WWTP Elec Rehabilitation	
Blower #1 Motor Feed Cables	
Auxiliary Control Room Electrical Upgrades	
WAS Pump Variable Frequency Drives	
2009 Flght & Chain Replacement Program	
Secondary Clarifier 4 & 8	
Primary Clarfier 1, 2 & 6	
2010 Planned Rehabilitation Projects	
Mechanical Rehabilitation	
Primary 5-8 Scum Pumping Renewel	
Square 1 Sludge Transfer Pump	
High Pressure Biogas Flow Meter	
CBF Supernatant Pumphouse Piping Upgrades	
Primary Influent/Effluent Channel Isolation Gates	
Biogas Chiller Replacement	
Secondary 7/8 Clarifer Gear Drive Replacement	
Digester Square Sediment Trap Upgrades	
Screen 7-8 Wash Press	
Electrical/Instrumentation Rehabilitation	
Lab Transformer Replacement	
Secondary Area Lighting Renewal	
Process Control System Hardware Upgrades	
Digester 1-6 Auto Sequencing Platform Conversion	
Site/Building Rehabilitation	
Misc Structural Safety/jAccess projects	
DAF Tank Fall Arrest System	
Eyewash Station Upgrades	
Ventilation System in Sample Buildings	
2010 Flight and Chain Replacement Program	
Primary Clarifier 7/8	
Scum Gallery 1-3	

Appendix A – 2009 Monthly Plant Performance Reports

GOLD BAR WASTEWATER TREATMENT PLANT
PLANT PERFORMANCE REPORT
Jan 2009

Digested Sludge: Total Monthly Volume (ML)	71.25

Volume of Flow (ML)			pH	TSS (mg/L)		BOD (mg/L)		TP (mg/L)		NH3-N (mg/L)		E. Coli	
						BOD5	CBOD5					MPN/100mL	
RAW	SEF	MPW	SEF	TBP	SEF	TBP	SEF	TBP	SEF	TBP	SEF	TBPx10^6	SEF
224.40	215.40	9.00	7.41		3.7		3.3		0.38		2.69		4
232.10	222.40	9.70	7.57		4.4		3.5		0.38		2.51		10
233.50	223.70	9.80	7.23		3.9		3.6		0.44		3.39		10
238.80	229.60	9.20	7.29		4.9		3.4		0.58		3.56		11
249.80	240.70	9.10	7.45		4.6		3.5		0.81		3.85		3
237.90	228.80	9.10	7.31		4.8		3.6		0.72		3.18		4
228.90	219.20	9.70	7.22		4.4		3.7		0.62		2.92		9
242.20	233.10	9.10	7.35		4.3		3.8		0.62		3.15		5
238.00	229.00	9.00	7.39		5.0		3.6		0.50		2.79		5
240.40	231.70	8.70	7.31		4.0		3.1		0.53		1.50		3
240.90	232.30	8.60	7.27		6.1		6.3		0.74		1.73		8
243.20	234.50	8.70	7.23		3.9		* 3.9		0.97		1.27		3
235.70	227.20	8.50	7.30		4.2		3.4		0.73		0.21		10
238.20	229.40	8.80	7.49		4.8		3.5		1.00		0.69		13
245.70	237.00	8.70	7.30		4.6		3.5		0.88		0.47		3
257.70	249.10	8.60	7.19		4.6		3.7		0.81		0.33		5
258.70	250.30	8.40	7.42		4.8		3.9		0.54		0.65		5
261.80	252.60	9.20	7.15		5.3		3.9		0.60		0.91		1
253.20	244.10	9.10	7.08		5.5		3.5		0.87		0.49		20
239.30	229.80	9.50	7.20		5.1		3.4		0.65		0.27		16
244.80	235.30	9.50	7.12		5.1		3.9		0.52		0.62		12
242.50	232.50	10.00	7.19		5.0		3.7		0.54		0.78		5
243.50	233.40	10.10	7.22		5.1		3.4		0.55		1.13		10
241.40	231.00	10.40	7.33		6.9		5.0		0.67		2.20		10
243.50	233.50	10.00	7.14		5.2		3.7		0.84		2.58		7
247.10	237.20	9.90	7.12		3.6		4.5		0.84		1.26		6
244.20	234.20	10.00	7.27		4.9		4.0		0.56		0.77		3
249.70	242.40	7.30	7.29		4.8		4.3		0.51		1.49		20
269.30	245.20	7.30	7.22	ns	4.4	ns	3.8	ns	0.59	ns	1.44	2.6	26
278.10	269.60	7.30	7.23		3.9		4.0		0.50		0.48		8
249.50	242.40	7.10	7.37		4.9		3.8		0.51		1.83		4
244.97	235.37	9.01	7.28		4.7		3.8		0.64		1.65		
7,594.00	7,296.60	279.40										2.6	7

the quality assurance associated with the result

RAW = Plant Influent (Untreated Wastewater)
SEF = Secondary Effluent (Treated Wastewater)
TBP = Total Bypass (PRIM Bypass + SEC Bypass)
MPW = Membrane Product Water (Effluent re-use water)
MPN = Most Probable Number
E= Estimated Value
ns = No Sample
nr = No Result
ws = Wrong Sample

GOLD BAR WASTEWATER TREATMENT PLANT
PLANT PERFORMANCE REPORT
Feb 2009

Digested Sludge: Total Monthly Volume (ML)	70.50

olume of Flow (ML)			pH	TSS (mg/L)		BOD (mg/L)		TP (mg/L)		NH3-N (mg/L)		E. Coli	
						BOD5	CBOD5					MPN/100mL	
RAW	SEF	MPW	SEF	TBP	SEF	TBP	SEF	TBP	SEF	TBP	SEF	TBPx10^6	SEF
244.90	237.70	7.20	7.27		4.4		3.8		0.84		2.36		17
245.40	238.40	7.00	7.41		5.5		3.3		1.36		1.55		16
241.90	234.90	7.00	7.24		2.9		3.4		0.94		0.80		20
248.60	241.80	6.80	7.28		4.0		3.2		0.51		1.85		15
249.90	243.10	6.80	7.24		4.5		3.2		0.55		2.69		28
244.60	238.00	6.60	7.44		5.8		3.6		0.61		3.12		E 17
242.20	235.60	6.60	7.29		3.9		3.7		0.68		3.72		17
243.90	237.30	6.60	7.31		5.1		* 3.5		0.83		4.06		12
245.00	237.80	7.20	7.43		4.9		* 3.0		0.83		3.00		10
241.30	234.10	7.20	7.22		4.4		4.0		0.54		1.32		12
243.30	235.70	7.60	7.30		4.3		3.6		0.47		2.44		16
243.51	235.50	8.10	7.30		5.0		3.5		0.47		4.56		22
245.40	237.30	8.10	7.30		4.3		3.0		0.45		4.84		16
236.50	228.50	8.00	7.29		3.8		2.6		0.54		5.19		15
233.00	224.90	8.10	7.29		3.3		* 2.8		0.74		4.80		105
239.60	231.40	8.20	7.21		5.3		3.1		0.96		3.08		16
245.50	237.10	8.40	7.14		4.4		3.0		0.76		4.17		36
242.70	234.40	8.30	7.24		3.6		3.0		0.92		3.69		20
241.60	233.50	8.10	7.43		4.6		3.4		0.70		4.31		79
241.10	233.10	8.00	7.27		5.4		3.4		0.75		4.52		29
240.30	232.70	7.60	7.21		4.0		2.9		0.77		4.47		5
240.90	233.20	7.70	7.14		4.8		3.3		0.75		4.22		23
240.40	232.50	7.90	7.25		3.4		3.1		0.98		2.80		62
235.30	227.30	8.00	7.62		3.6		2.4		0.60		0.66		9
235.20	227.20	8.00	7.28		3.3		3.1		0.36		0.76		33
237.90	229.70	8.20	7.45		5.0		2.8		0.44		2.46		59
241.70	233.10	8.60	7.40		6.7		4.0		0.46		4.13		60
239.50	230.60	8.90	7.45		5.2		4.3		0.41		4.01		11
241.83	234.16	7.67	7.31		4.5		3.3		0.69		3.20		
													21
6771.11	6556.40	214.80											

he quality assurance associated with the result

RAW = Plant Influent (Untreated Wastewater)
SEF = Secondary Effluent (Treated Wastewater)
TBP = Total Bypass (PRIM Bypass + SEC Bypass)
MPW = Membrane Product Water (Effluent re-use water)
MPN = Most Probable Number
E= Estimated Value
ns = No Sample
nr = No Result
ws = Wrong Sample

GOLD BAR WASTEWATER TREATMENT PLANT
PLANT PERFORMANCE REPORT
Mar 2009

Digested Sludge: Total Monthly Volume (ML)	82.34

Volume of Flow (ML)			pH	TSS (mg/L)		BOD (mg/L)		TP (mg/L)		NH3-N (mg/L)		E. Coli	
						BOD5	CBOD5					MPN/100mL	
RAW	SEF	MPW	SEF	TBP	SEF	TBP	SEF	TBP	SEF	TBP	SEF	TBPx10^6	SEF
244.00	235.50	8.50	7.31		5.2		3.5		0.52		5.82		42
247.30	239.10	8.20	7.35		5.6		4.4		0.63		5.22		38
240.10	231.30	8.80	7.35		3.6		4.4		0.55		3.72		687
259.70	250.80	8.90	7.44		4.3		3.9		0.53		3.23		9
242.80	234.50	8.30	7.47		3.5		3.7		0.73		3.37		44
246.80	239.70	7.10	7.30		4.2		6.1		0.58		3.23		276
242.10	232.50	9.60	7.37		3.9		3.6		0.36		2.75		5
230.50	221.50	9.00	7.36		4.0		3.9		0.38		3.15		10
245.80	236.10	9.70	7.22		6.3		* 3.7		0.40		4.02		50
243.70	234.20	9.50	7.23		5.1		3.0		0.57		3.33		131
250.00	240.60	9.40	7.17		4.1		3.4		0.40		3.09		4
255.00	245.90	9.10	7.30		3.5		3.2		0.40		2.69		28
278.80	269.60	9.20	7.63		5.6		* 3.9		0.42		2.80		11
271.30	242.10	9.40	7.26	716	4.0	644	3.7	21.0	0.35	30.2	2.74	4.7	26
260.80	251.80	9.00	7.24		5.0		3.6		0.38		3.46		18
259.80	250.50	9.30	7.38		4.7		4.2		0.43		5.82		63
257.60	247.90	9.70	7.34		4.0		3.3		0.48		4.79		36
258.50	248.50	10.00	7.37		4.3		3.2		0.51		3.27		71
278.80	254.00	9.80	7.33	452	4.1	286	3.2	9.3	0.45	32.2	2.63	4.6	36
277.70	268.80	8.90	7.21		13.0		4.8		0.74		3.27		68
288.80	251.80	9.00	7.25	440	4.3	326	3.8	8.5	0.55	32.6	4.23	5.7	17
273.50	264.50	9.00	7.23		5.1		4.2		0.55		3.84		11
280.20	271.00	9.20	7.31		7.6		4.1		0.81		6.68		117
262.60	255.50	7.10	7.27		4.8		3.4		0.76		4.08		308
269.50	261.40	8.10	7.16		5.0		3.3		0.71		4.55		154
272.60	265.50	7.10	7.25		15.0		6.7		1.35		4.63		238
305.30	266.20	9.00	7.14	328	6.2	194	3.2	7.0	0.74	29.0	3.75	2.9	51
316.50	259.50	8.90	7.26	128	4.0	* 229	* 2.7	7.4	0.48	29.9	1.71	4.3	15
326.20	272.70	8.70	7.08	308	13.0	224	5.1	7.5	0.84	28.0	2.40	4.6	17
318.10	274.20	8.40	7.18	300	7.5	220	4.1	7.0	1.02	23.7	3.59	2.2	291
313.40	275.00	8.40	7.20	180	5.9	167	3.5	7.2	1.16	32.1	2.81	5.3	125
268.32	251.36	8.85	7.29	357	5.7	286	3.8	9.4	0.61	29.7	3.70	4.1	44
8,317.80	7,792.20	274.30											

the quality assurance associated with the result

RAW = Plant Influent (Untreated Wastewater)
SEF = Secondary Effluent (Treated Wastewater)
TBP = Total Bypass (PRIM Bypass + SEC Bypass)
MPW = Membrane Product Water (Effluent re-use water)
MPN = Most Probable Number
E= Estimated Value
ns = No Sample
nr = No Result
ws = Wrong Sample

GOLD BAR WASTEWATER TREATMENT PLANT
PLANT PERFORMANCE REPORT
Apr 2009

Digested Sludge: Total Monthly Volume (ML)	77.05

Volume of Flow (ML)			pH	TSS (mg/L)		BOD (mg/L)		TP (mg/L)		NH3-N (mg/L)		E. Coli	
						BOD5	CBOD5					CFU/100mL	
RAW	SEF	MPW	SEF	TBP	SEF	TBP	SEF	TBP	SEF	TBP	SEF	TBPx10^6	SEF
306.90	266.20	8.30	7.23	270	5.2	176	3.7	7.3	1.68	33.3	2.74	2.9	42
282.30	269.30	8.40	7.15	218	11.0	210	4.6	7.7	1.44	34.3	2.83		28
278.80	270.30	8.50	7.36		6.0		3.4		0.93		2.97		7
285.00	252.20	8.90	7.36	186	5.8	196	4.0	7.1	0.80	31.7	2.60	0.81	2
301.60	251.10	8.70	7.11	200	5.9	189	2.8	7.5	0.78	31.6	1.59	2.5	7
309.30	273.70	8.50	7.07	208	5.3	262	4.1	8.7	1.20	29.3	2.07	2.8	12
287.40	278.80	8.50	7.18		5.0		3.8		1.19		2.49		12
283.60	275.50	8.10	7.16		4.0		3.5		1.22		3.25		34
271.80	264.00	7.80	7.18		4.2		3.1		1.20		2.65		8
297.30	254.80	7.60	7.35	350	4.2	190	3.2	6.0	0.65	18.8	1.72	0.6	1
302.10	272.60	7.70	7.15	308	4.3	138	3.2	4.3	0.49	13.5	0.98		13
253.30	245.60	7.70	7.28		4.3		2.9		0.46		1.19		4
278.00	252.40	7.70	7.10	182	4.5	124	3.2	3.6	0.50	10.9	0.69	0.39	1
518.30	306.50	8.20	7.14	184	5.0	113	3.1	3.4	0.42	11.6	0.21		11
295.10	285.30	8.20	7.12		6.4		3.4		0.17		0.69		200
267.70	259.80	7.90	7.28		5.8		3.4		0.45		0.96		6
259.30	251.40	7.90	7.31		3.7		3.4		0.35		0.76		7
250.40	242.90	7.50	7.67		3.3		3.3		0.30		0.80		1
253.40	245.70	7.70	7.36		4.8		4.3		0.37		1.50		7
257.20	249.50	7.70	7.38		5.0		* 4.9		0.30		1.21		8
250.70	243.50	7.20	7.18		4.9		3.8		0.35		1.81		40
249.40	242.60	6.80	7.52		5.8		3.1		0.42		1.69		80
252.20	246.50	5.70	7.27		5.0		2.9		0.41		2.43		80
255.00	249.90	5.10	7.33		4.4		2.8		0.46		2.34		63
245.50	239.40	6.10	7.07		3.4		2.1		0.69		2.03		16
258.50	243.00	7.50	7.13	134	7.2	230	3.1	8.6	0.67	37.9	2.26	3.2	320
263.40	254.20	9.20	7.18		4.5		2.7		0.80		1.77		180
244.40	238.60	5.80	7.55		5.9		3.2		4.49		18.50		1400
245.70	240.90	4.80	7.37		4.7		3.3		0.75		8.87		90
245.30	239.70	5.60	7.24		3.7		2.5		0.22		1.62		80
278.30	256.86	7.51	7.26	224	5.1	183	3.4	6.4	0.80	25.3	2.57		
												1.4	19
8,348.90	7,705.90	225.30											

the quality assurance associated with the result

RAW = Plant Influent (Untreated Wastewater)
SEF = Secondary Effluent (Treated Wastewater)
TBP = Total Bypass (PRIM Bypass + SEC Bypass)
MPW = Membrane Product Water (Effluent re-use water)
MPN = Most Probable Number
E= Estimated Value
ns = No Sample
nr = No Result
ws = Wrong Sample

GOLD BAR WASTEWATER TREATMENT PLANT
PLANT PERFORMANCE REPORT
May 2009

Digested Sludge: Total Monthly Volume (ML)	74.14

Volume of Flow (ML)			pH	TSS (mg/L)		BOD (mg/L)		TP (mg/L)		NH3-N (mg/L)		E. Coli	
						BOD5	CBOD5					MPN/100mL	
RAW	SEF	MPW	SEF	TBP	SEF	TBP	SEF	TBP	SEF	TBP	SEF	TBPx10^6	SEF
247.60	244.50	3.10	7.19		4.0		* 3.3		0.29		1.58		12
245.30	240.30	5.00	7.28		3.9		4.1		0.44		1.82		100
246.90	240.90	6.00	7.12		4.6		4.0		0.79		2.12		52
255.00	249.00	6.00	7.23		4.0		3.3		0.89		1.61		15
246.00	239.80	6.20	7.19		5.5		2.7		0.61		0.87		17
280.10	249.20	7.90	7.30	252	4.1	200	3.4	8.1	0.50	32.1	0.60	3.3	56
255.40	245.40	8.50	7.23		4.2		2.7		0.55		1.25		200
254.60	246.00	8.60	7.37		3.2		3.3		0.35		0.33		40
243.90	235.30	8.60	7.31		4.6		3.3		0.44		0.97		6
242.90	234.20	8.70	7.20		3.7		3.3		0.78		1.46		13
251.80	243.00	8.80	7.34		4.3		3.4		0.85		1.14		8
255.70	246.10	9.60	7.28		4.4		3.8		0.79		0.57		42
250.80	240.60	10.20	7.23		4.9		4.6		0.61		0.81		22
247.70	238.60	9.10	7.33		5.8		6.3		0.62		0.99		25
248.40	239.90	8.50	7.35		4.7		4.0		0.61		1.14		32
230.90	222.20	8.70	7.49		5.3		4.7		0.93		1.58		1
231.50	223.10	8.40	7.61		6.9		4.5		1.03		1.16		4
243.60	234.30	9.30	7.31		6.7		3.8		2.19		2.44		3
281.20	266.50	8.90	7.25	170	5.8	213	3.9	7.7	1.65	34.3	1.68	1.2	120
244.60	235.80	8.80	7.39		5.2		3.5		0.68		0.29		9
267.10	257.60	9.50	7.24		5.6		6.2		0.58		1.13		13
250.60	241.00	9.60	7.61		5.4		4.2		0.61		1.12		4
239.20	229.70	9.50	7.24		5.7		4.7		0.91		1.32		13
234.10	224.70	9.40	7.30		4.6		4.3		2.47		1.88		11
254.70	245.50	9.20	7.22		5.0		3.4		2.26		0.99		60
249.20	241.70	7.50	7.44		5.2		3.0		0.84		0.05		24
253.00	246.00	7.00	7.42		5.7		2.9		0.31		0.18		7
253.20	246.60	6.60	7.29		4.4		3.8		0.45		0.82		15
255.90	249.60	6.30	7.29		8.3		2.3		0.62		0.65		6
246.70	239.80	6.90	7.30		4.7		2.3		0.73		0.60		1
243.80	237.90	5.90	7.24		4.4		2.3		0.65		0.23		8
250.05	241.12	7.95	7.31	211	5.0	207	3.7	7.9	0.84	33.2	1.08		
												2.0	15
7,751.40	7,474.80	246.30											

the quality assurance associated with the result

RAW = Plant Influent (Untreated Wastewater)
SEF = Secondary Effluent (Treated Wastewater)
TBP = Total Bypass (PRIM Bypass + SEC Bypass)
MPW = Membrane Product Water (Effluent re-use water)
MPN = Most Probable Number
E= Estimated Value
ns = No Sample
nr = No Result
ws = Wrong Sample

GOLD BAR WASTEWATER TREATMENT PLANT
PLANT PERFORMANCE REPORT
Jun 2009

Digested Sludge: Total Monthly Volume (ML)	75.80

e of Flow (ML)			pH	TSS (mg/L)		BOD (mg/L)		TP (mg/L)		NH3-N (mg/L)		E. Coli	
						BOD5	CBOD5					MPN/100mL	
AW	SEF	MPW	SEF	TBP	SEF	TBP	SEF	TBP	SEF	TBP	SEF	TBPx10^6	SEF
251.00	245.10	5.90	7.42		4.5		2.6		0.45		0.12		6
250.80	244.70	6.10	7.29		4.0		< 2.0		0.34		0.07		34
251.70	245.80	5.90	7.36		4.0		2.6		0.53		0.39		18
254.30	248.30	6.00	7.28		4.8		2.3		0.53		0.22		<1
274.50	268.20	6.30	7.42		6.7		* 2.7		0.88		1.30		16
249.60	243.30	6.30	7.22		4.8		* 2.8		0.96		2.22		43
243.50	237.00	6.50	7.28		4.0		2.5		1.48		3.56		13
254.20	246.50	7.70	7.35		4.9		3.1		1.45		2.60		9
249.50	240.30	9.20	7.41		5.8		* 3.5		0.55		0.70		25
245.60	237.30	8.30	7.43		6.4		3.7		0.59		0.99		27
251.40	243.80	7.60	7.40		11.0		5.1		0.83		2.00		11
255.00	247.20	7.80	7.38		13.0		5.5		0.88		2.32		20
246.80	239.20	7.60	7.39		5.9		3.9		0.40		2.06		13
248.60	240.90	7.70	7.42		3.7		* 4.9		0.43		2.02		4
260.30	252.60	7.70	7.34		4.1		4.4		0.34		1.51		20
270.30	262.50	7.80	7.39		5.9		4.3		0.36		0.66		14
259.00	251.30	7.70	7.44		3.4		* 3.8		0.25		0.05		18
262.00	254.30	7.70	7.52		3.5		3.4		0.25		0.07		34
254.50	243.40	11.10	7.59		2.8		3.1		0.22		0.07		18
248.50	237.40	11.10	7.50		3.3		3.0		0.22		0.15		3
301.70	257.90	11.40	7.35	278	4.8	177	3.4	4.8	0.46	15.8	0.40	2.5	4
292.00	282.20	9.80	7.35		3.9		3.0		0.24		0.24		6
255.00	246.40	8.60	7.41		3.3		4.9		0.20		0.47		18
255.90	247.50	8.40	7.30		3.8		4.2		0.22		1.13		34
253.90	244.90	9.00	7.46		4.4		4.3		0.22		0.87		10
250.80	240.80	10.00	7.49		4.9		3.1		0.23		0.97		8
238.30	228.40	9.90	7.45		3.8		3.1		0.20		1.39		<1
243.40	232.60	10.80	7.49		3.7		3.5		0.22		1.49		2
251.00	240.40	10.60	7.44		2.5		3.4		0.60		1.75		10
250.40	241.60	8.80	7.47		3.3		2.7		0.27		1.34		2
255.78	246.39	8.31	7.40	278	4.9	177	3.5	4.8	0.49	15.8	1.14		
												2.5	12
7673.50	7,391.80	249.30											

ality assurance associated with the result

RAW = Plant Influent (Untreated Wastewater)
SEF = Secondary Effluent (Treated Wastewater)
TBP = Total Bypass (PRIM Bypass + SEC Bypass)
MPW = Membrane Product Water (Effluent re-use water)
MPN = Most Probable Number
E= Estimated Value
ns = No Sample
nr = No Result
ws = Wrong Sample

GOLD BAR WASTEWATER TREATMENT PLANT
PLANT PERFORMANCE REPORT
Jul 2009

Digested Sludge: Total Monthly Volume (ML)	68.53

olume of Flow (ML)			pH	TSS (mg/L)		BOD (mg/L)		TP (mg/L)		NH3-N (mg/L)		E. Coli		
						BOD5	CBOD5					MPN/100mL		
RAW	FEC	MPW	FEC	TBP	FEC	TBP	FEC	TBP	FEC	TBP	FEC	TBPx10^6	FEC	
241.70	231.90	9.80	7.49		3.2		3.0		0.30		1.69		6	
262.00	243.50	9.50	7.69	130	8.4	209	3.6	7.9	0.56	29.2	1.92		9	
278.30	253.00	10.10	7.35	118	4.2	184	3.4	6.5	0.28	22.6	1.47	0.77	11	
237.70	228.00	9.70	7.45		3.3		* 4.2		0.29		1.53		57	
242.60	233.10	9.50	7.35		3.6		4.0		0.55		1.83		30	
289.50	274.60	10.00	7.45		4.0		3.8		0.45		1.70		200	secondary bypass <2 hours
481.30	250.00	10.50	7.37	172	4.0	84	2.8	4.2	0.53	14.2	1.53	0.60	2	
350.70	273.20	9.80	7.31	110	3.7	99	2.5	5.2	0.27	19.7	1.68		8	
318.10	268.40	10.70	7.28	92	11.0	* 76	* 2.6	5.4	0.47	22.9	0.98	1.1	22	
277.60	267.00	10.60	7.26		4.8		* 3.0		1.02		3.15		37	
295.90	267.60	10.10	7.31	136	4.1	155	2.5	6.2	0.42	23.8	3.23	2.2	2	
244.98	234.90	10.08	7.56		2.8		2.5		0.32		1.42		9	
253.80	244.10	9.70	7.40		3.2		2.3		0.34		1.77		11	
249.70	239.00	10.70	7.45		2.6		3.5		0.21		1.88		3	
258.30	248.40	9.90	7.40		3.2		3.4		0.26		2.22		4	
265.30	255.00	10.30	7.73		5.0		3.9		E 0.40		E 2.91		20	
257.80	247.00	10.80	7.56		4.2		5.4		0.27		1.92		18	
255.30	244.00	9.60	7.52		4.4		3.9		0.31		1.78		<1	
250.08	235.95	2.74	7.40	162	6.1	* 109	4.6	E 5.2	2.93	E 15.0	2.77	1.3	5,300	Power Outage
261.30	254.00	7.30	7.45		2.8		2.9		0.18		1.87		30	
261.10	254.10	7.00	7.83		3.5		2.7		0.28		1.72		13	
256.10	249.20	6.90	7.42		2.7		2.9		0.47		0.98		10	
263.60	255.70	7.90	7.67		3.3		2.3		0.62		1.05		<1	
265.40	257.20	8.20	7.50		2.4		* 2.4		0.94		1.48		19	
255.70	245.40	10.30	7.47		2.2		* 2.5		0.40		1.52		7	
284.90	271.10	10.10	7.48		2.8		2.7		0.19		0.96		22	secondary bypass <2 hours
267.20	257.20	10.00	7.52		3.4		3.2		0.22		1.19		<1	
358.80	299.50	11.50	7.46	108	30.0	122	5.4	4.4	1.11	10.8	0.13	1.3	480	
260.00	249.40	10.60	7.53		3.4		3.0		0.22		1.19		17	
259.10	248.20	10.90	7.51		4.0		2.2		0.24		1.02		10	
255.60	244.10	11.50	7.85		5.0		2.8		0.20		1.16		5	
276.11	252.38	9.56	7.48	129	4.9	130	3.2	5.6	0.49	19.8	1.67			
8559.46	7823.75	296.32										1.1	17	

ne quality assurance associated with the result

RAW = Plant Influent (Untreated Wastewater)
FEC = Final Effluents Combined
TBP = Total Bypass (PRIM Bypass + SEC Bypass)
MPW = Membrane Product Water (Effluent re-use water)
MPN = Most Probable Number
E= Estimated Value
ns = No Sample
nr = No Result
ws = Wrong Sample

GOLD BAR WASTEWATER TREATMENT PLANT
PLANT PERFORMANCE REPORT
Aug 2009

Digested Sludge: Total Monthly Volume (ML)	77.10

e of Flow (ML)			pH	TSS (mg/L)		BOD (mg/L)		TP (mg/L)		NH3-N (mg/L)		E. Coli	
						BOD5	CBOD5					MPN/100mL	
RAW	FEC	MPW	FEC	TBP	FEC	TBP	FEC	TBP	FEC	TBP	FEC	TBPx10^6	FEC
300.90	269.80	11.70	7.62	150	6.1	170	2.6	7.5	0.32	21.8	1.08	0.6	1
242.60	231.80	10.80	7.51		3.3		2.3		0.20		1.95		7
238.99	227.31	11.68	7.39		3.3		2.5		0.20		3.27		14
248.71	237.44	11.27	7.43		3.2		2.1		0.21		2.82		5
246.84	235.36	11.48	7.42		3.8		2.7		0.43		3.31		28
298.80	260.50	12.20	7.44	160	2.5	94	2.2	5.8	0.23	13.6	1.72	ns	45
252.20	239.80	12.40	7.66		3.9		3.0		0.42		2.00		12
243.10	231.00	12.10	7.31		2.6		2.5		0.23		1.30		1
237.50	226.30	11.20	7.44		2.9		3.0		0.16		1.33		20
252.40	241.00	11.40	7.52		2.8		2.6		0.17		1.23		1
247.00	235.60	11.40	7.50		2.5		2.5		0.19		0.69		29
247.50	236.90	10.60	7.67		2.7		* 2.0		0.17		0.57		5
235.63	225.33	10.30	7.53		3.2		2.7		0.18		0.56		3
250.80	238.60	12.20	7.41		3.0		< 2.0		0.20		0.65		<1
237.90	226.40	11.50	7.38		3.0		2.2		0.18		0.58		2
235.43	223.70	11.73	7.47		2.9		2.3		0.18		0.93		1
250.20	238.70	11.50	7.41		2.9		* 3.5		0.20		1.04		6
256.40	233.80	11.40	7.43	256	2.5	220	2.3	6.6	0.23	17.3	0.59	2.9	1
241.60	229.10	11.20	7.37		2.3		* 2.9		0.23		0.58		12
247.50	236.80	10.70	7.51		3.0		2.2		0.27		0.49		110
242.60	231.90	10.70	7.53		2.3		* 3.1		0.20		1.00		50
232.30	221.50	10.80	7.55		2.0		2.3		0.20		1.10		6
306.10	276.20	11.00	7.42	152	3.2	158	2.9	5.5	0.21	15.6	1.21	1.9	3
259.50	248.20	11.30	7.33		4.1		3.2		0.26		1.61		18
258.30	247.20	11.10	7.46		3.0		2.2		0.20		1.63		4
276.10	250.30	10.90	7.44	248	19.0	182	5.2	6.4	0.80	12.3	1.72		19
321.79	272.45	11.24	7.29		17.0		5.0		0.71		1.57	1.4	10
255.20	244.20	11.00	7.57		15.0		5.1		0.73		1.47		26
248.80	238.40	10.40	7.49		3.5		2.8		0.26		3.02		18
255.30	245.20	10.10	7.31		2.7		3.1		0.23		3.48		<1
263.08	253.48	9.60	7.38		4.5		2.8		0.31		3.76		2
255.84	240.46	11.19	7.46	193	4.5	165	2.8	6.4	0.28	16.1	1.56		
7,931.07	7,454.27	346.90										1.5	7

nation about the quality assurance associated with the result

RAW = Plant Influent (Untreated Wastewater)
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res)

GOLD BAR WASTEWATER TREATMENT PLANT
PLANT PERFORMANCE REPORT
Sep 2009

Digested Sludge: Total Monthly Volume (ML)	66.83

Volume of Flow (ML)				pH	TSS (mg/L)		BOD (mg/L)		TP (mg/L)		NH3-N (mg/L)		E. Coli	
							BOD5	CBOD5					Counts/100mL	
C	RAW	FEC	MPW	FEC	TBP	FEC	TBP	FEC	TBP	FEC	TBP	FEC	TBPx10^6	FEC
0.00	261.70	252.10	9.60	7.59		4.4		3.8		0.20		1.97		4
0.00	261.70	252.10	9.60	7.54		1.9		2.8		0.22		0.57		2
0.00	263.90	254.30	9.60	7.34		2.5		2.3		0.20		0.29		16
6.60	293.20	256.90	9.70	7.42	78	2.6	129	2.8	6.7	0.23	28.5	0.21	3.5	4
0.00	249.40	240.00	9.40	7.31		2.5		2.6		0.18		0.53		8
4.00	252.10	238.50	9.60	7.45	ns	2.7	ns	2.2	ns	1.23	ns	0.64	4.1	3
0.00	245.50	236.10	9.40	7.42		3.8		2.4		0.26		0.86		5
0.00	279.50	269.10	10.40	7.62		3.0		2.3		0.21		0.71		2
0.00	250.40	240.10	10.30	7.36		3.0		3.3		0.26		0.46		20
0.00	247.60	238.00	9.60	7.24		3.1		2.5		0.28		0.40		28
0.00	250.50	240.60	9.90	7.41		7.6		3.0		0.30		0.40		7
0.00	225.40	216.00	9.40	7.40		3.9		2.5		0.31		0.60		25
0.00	234.93	225.33	9.60	7.47		4.5		3.2		0.31		0.70		<1
0.00	248.30	238.28	10.02	7.46		4.9		3.8		0.49		0.42		<1
0.00	250.70	240.40	10.30	7.62		3.6		3.1		0.37		0.18		7
0.00	259.10	248.50	10.60	7.43		4.3		2.0		0.44		1.06		19
0.00	248.34	238.14	10.20	7.45		3.3		4.0		0.77		0.70		14
0.00	255.70	245.40	10.30	7.37		5.5		3.2		0.29		0.82		4
0.00	247.50	237.20	10.30	7.48		3.9		3.7		0.25		0.75		2
0.00	246.50	236.10	10.40	7.51		3.6		3.4		0.28		1.23		2
0.00	256.90	246.20	10.70	7.40		5.4		4.8		0.30		0.89		2
0.00	247.80	237.30	10.50	7.40		3.3		3.4		0.35		0.42		6
0.00	244.00	233.50	10.50	7.41		4.0		2.7		0.35		0.28		30
0.00	247.90	237.30	10.60	7.44		4.2		2.4		0.27		0.34		7
0.00	247.50	238.30	9.20	7.46		7.2		3.9		0.32		0.33		1
0.00	245.90	235.80	10.10	7.38		6.0		4.4		0.50		0.45		3
0.00	246.30	236.30	10.00	7.26		5.0		3.0		0.34		0.95		3
0.00	252.10	242.40	9.70	7.41		6.2		5.1		0.39		0.33		6
0.00	245.50	234.90	10.60	7.34		3.6		3.1		0.31		0.20		1
0.00	244.50	233.80	10.70	7.41		2.6		2.5		0.20		0.14		2
	251.68	240.63	10.03	7.44	78	4.1		3.1	6.7	0.29	28.5	0.59		
													1.0	5
0.60	7,550.37	7,218.95	300.82											

ory for information about the quality assurance associated with the result

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,000,000 Litres)

GOLD BAR WASTEWATER TREATMENT PLANT
PLANT PERFORMANCE REPORT
Oct 2009

Digested Sludge: Total Monthly Volume (ML)	79.88

Volume of Flow (ML)			pH	TSS (mg/L)		BOD (mg/L)		TP (mg/L)		NH3-N (mg/L)		E. Coli	
						BOD5	CBOD5					Counts/100mL	
RAW	FEC	MPW	FEC	TBP	FEC	TBP	FEC	TBP	FEC	TBP	FEC	TBPx10^6	FEC
246.60	236.20	10.40	7.40		2.9		2.8		0.22		0.48		< 1
248.80	238.30	10.50	7.36		2.5		* 2.0		0.22		0.29		3
244.30	234.00	10.30	7.38		2.8		2.9		0.20		0.54		7
259.80	249.40	10.40	7.24		2.8		2.9		0.21		0.71		< 1
250.00	239.70	10.30	7.32		3.5		2.3		0.26		0.48		10
270.90	260.70	10.20	ns		ns		ns		ns		ns		< 1
250.00	239.80	10.20	7.41		6.6		4.2		0.39		0.38		6
251.40	240.30	11.10	7.47		3.8		2.9		0.33		E 0.94		< 1
248.50	237.80	10.70	7.42		3.8		2.8		0.33		0.65		38
241.20	230.90	10.30	7.34		3.5		2.7		0.33		1.09		2
234.20	223.60	10.60	7.50		3.8		3.3		0.39		1.37		4
244.10	233.90	10.20	7.43		5.1		3.2		0.46		2.48		7
248.00	237.40	10.60	7.37		4.4		3.2		0.44		1.26		22
252.70	241.80	10.90	7.21		4.8		3.2		0.26		0.91		1
265.00	254.50	10.50	7.29		4.4		4.3		0.29		1.46		4
244.40	233.10	11.30	7.37		3.0		* 3.0		0.23		1.41		15
235.03	223.53	11.50	7.29		3.3		* 3.3		0.25		1.66		9
298.40	265.40	11.10	7.21	492	17.0	* 356	* 6.3	11.5	1.00	22.6	2.31	2.9	4
274.00	249.00	10.10	7.46	336	3.9	217	4.4	8.3	0.40	20.5	3.98	1.5	13
282.82	265.00	8.82	7.29 *	336	9.0	* 217	4.4	* 8.3	0.50	* 20.5	2.80	* 1.5	4
242.44	231.82	10.62	7.06		3.8		2.9		0.19		2.20		2
264.30	253.20	11.10	7.58		6.0		3.8		0.34		1.54		3
243.36	232.30	11.06	7.09		3.9		2.9		0.23		1.85		16
240.20	230.00	10.20	7.40		3.8		2.8		0.22		1.38		< 1
242.30	231.60	10.70	7.42		3.1		2.8		0.50		1.10		1
250.05	239.40	10.65	7.32		4.3		3.0		0.23		1.68		< 1
262.00	251.20	10.80	7.38		3.0		2.2		0.19		2.36		9
252.00	241.60	10.40	7.32		2.2		2.1		0.22		4.62		1
237.70	227.20	10.50	7.51		2.8		3.0		0.23		1.79		2
287.00	276.80	10.20	7.48		16.0		5.1		0.80		2.19		2
268.20	257.70	10.50	7.47		3.0		* 2.5		0.27		1.86		11
243.19	242.17	10.54	7.36	414	4.8	287	3.2	9.9	0.34	21.6	1.59		
7,879.70	7,507.15	326.75										1.9	4

or information about the quality assurance associated with the result

RAW = Plant Influent (Untreated Wastewater)
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MPN = Most Probable Number
E= Estimated Value
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,000 Litres)

GOLD BAR WASTEWATER TREATMENT PLANT
PLANT PERFORMANCE REPORT
Nov 2009

Digested Sludge: Total Monthly Volume (ML)	67.07

ne of Flow (ML)			pH	TSS (mg/L)		BOD (mg/L)		TP (mg/L)		NH3-N (mg/L)		E. Coli	
						BOD5	CBOD5					Counts/100mL	
RAW	FEC	MPW	FEC	TBP	FEC	TBP	FEC	TBP	FEC	TBP	FEC	TBPx10^6	FEC
252.40	241.50	10.90	7.25		2.6		2.7		0.20		2.82		2
252.37	241.44	10.93	7.42		6.0		* 3.5		0.37		2.46		2
238.79	230.70	8.09	7.35		14.0		4.7		0.49		1.84		3
240.10	231.90	8.20	7.60		5.7		4.4		0.46		1.73		< 1
240.90	232.80	8.10	7.36		6.7		3.5		0.38		1.52		11
244.40	236.50	7.90	7.47		6.1		3.7		< 0.04		1.93		3
242.50	232.70	9.80	7.36		6.7		3.5		0.30		1.71		14
249.10	238.50	10.60	7.40		6.0		3.8		0.30		1.78		24
235.90	225.00	10.90	7.62		5.2		2.9		0.86		1.25		5
235.30	224.70	10.60	7.51		4.1		2.9		0.26		1.84		5
236.40	225.70	10.70	7.29		4.4		2.9		0.49		3.01		13
243.36	232.60	10.76	7.41		3.5		2.5		0.24		3.31		8
245.43	234.70	10.73	7.59		3.8		2.6		0.26		2.60		7
238.10	227.10	11.00	7.34		4.1		3.0		0.27		2.73		3
238.90	228.00	10.90	7.45		3.8		3.4		0.26		2.75		15
242.59	232.14	10.45	7.30		3.0		2.5		0.22		2.59		13
237.67	226.87	10.80	7.35		3.8		4.0		0.24		1.00		9
243.20	232.50	10.70	7.37		2.6		2.3		0.23		0.73		2
245.90	234.60	11.30	7.51		3.3		2.5		0.25		0.96		3
241.90	230.80	11.10	7.27		3.2		2.8		0.23		0.82		4
251.40	240.50	10.90	7.41		3.3		2.1		0.26		1.64		3
239.70	228.70	11.00	7.46		3.9		2.9		0.24		2.12		1
244.10	233.30	10.80	7.52		4.0		2.8		0.38		1.77		4
239.30	229.00	10.30	7.22		4.5		3.2		0.21		0.92		7
237.40	226.80	10.60	7.47		4.4		2.9		0.27		1.74		5
250.90	239.50	11.40	7.33		6.2		3.9		0.31		1.82		7
240.30	229.40	10.90	7.45		5.0		3.1		0.27		1.78		4
229.50	219.60	9.90	7.27		5.2		2.8		0.29		2.58		4
237.30	227.00	10.30	7.70		4.8		3.5		0.27		2.66		7
254.70	245.20	9.50	7.43		4.8		3.3		0.51		1.94		7
242.33	231.99	10.34	7.42		4.8		3.2		0.31		1.95		5
7,269.81	6,959.75	310.06											

mation about the quality assurance associated with the result

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itres)

ation about the quality assurance associated with the result

) RAW = Plant Influent (Untreated Wastewater)

GOLD BAR WASTEWATER TREATMENT PLANT
PLANT PERFORMANCE REPORT
Dec 2009

Digested Sludge: Total Monthly Volume (ML)	74.10

Volume of Flow (ML)			pH	TSS (mg/L)		BOD (mg/L)		TP (mg/L)		NH3-N (mg/L)		E. Coli	
						BOD5	CBOD5					Counts/100mL	
RAW	FEC	MPW	FEC	TBP	FEC	TBP	FEC	TBP	FEC	TBP	FEC	TBPx10^6	FEC
242.58	232.38	10.20	7.35		5.8		3.5		0.51		1.72		5
239.10	228.80	10.30	7.27		8.8		6.0		1.21		2.46		38
242.90	232.60	10.30	7.36		12.0		6.8		0.83		4.73		21
232.52	222.12	10.40	7.53		7.8		4.7		0.41		4.16		31
231.40	220.90	10.50	7.53		4.9		4.0		0.32		2.81		4
236.90	226.10	10.80	7.24		5.7		4.4		0.32		3.58		4
239.00	228.70	10.30	7.55		4.1		3.2		0.32		4.37		3
234.74	223.74	11.00	7.47		5.9		3.8		0.32		3.63		10
234.10	223.60	10.50	7.57		12.0		5.8		0.68		4.87		140
236.00	226.80	9.20	7.36		4.2		3.6		0.27		1.10		11
235.81	227.79	8.02	7.36		4.1		3.5		0.24		2.50		1
235.60	226.80	8.70	7.38		4.4		3.4		0.43		3.35		4
235.08	227.00	8.08	7.29		5.1		3.8		0.31		3.70		30
238.00	229.10	8.90	7.35		5.6		* 3.2		0.35		3.21		22
238.20	229.40	8.80	7.39		6.8		3.8		0.30		5.67		23
235.30	226.30	9.00	7.29		4.1		3.5		0.50		1.96		5
237.10	228.30	8.80	7.44		5.2		3.4		0.25		0.43		9
240.40	231.80	8.60	7.54		4.4		2.6		0.22		0.28		1
235.34	226.60	8.74	7.55		4.4		2.5		0.23		0.40		2
232.60	223.50	9.10	7.42		3.9		2.5		0.21		0.59		2
235.10	225.70	9.40	7.51		4.3		2.9		0.23		0.41		7
234.10	225.00	9.10	7.50		4.0		3.1		0.22		0.25		8
236.30	227.20	9.10	7.43		3.8		2.9		0.20		0.25		8
237.60	228.40	9.20	7.25		3.2		< 2.0		0.18		0.33		3
207.60	198.60	9.00	7.49		3.2		2.3		0.18		0.54		51
209.00	199.80	9.20	7.39		2.0		< 2.0		0.18		0.93		50
219.10	210.00	9.10	7.42		2.6		2.2		0.18		1.07		60
227.00	217.70	9.30	7.37		3.1		2.3		0.19		1.01		10
234.20	225.20	9.00	7.36		3.0		2.3		0.26		0.63		8
231.96	222.66	9.30	7.40		2.7		* 3.0		0.22		0.65		38
235.80	226.60	9.20	7.37		3.5		2.3		0.22		0.87		64
233.56	224.17	9.39	7.41		5.0		3.4		0.34		2.01		10
7,240.33	6,949.19	291.14											

information about the quality assurance associated with the result

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000 Litres)