las vegas wash coordination committee

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Las Vegas Wash Mainstream Water Quality Report,

2003-2007

SOUTHERN NEVADA WATER AUTHORITY

Las Vegas Wash Coordination Committee

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Resource Monitoring Water Quality Team

Prepared for:

Las Vegas Wash Coordination Committee
Research and Environmental Monitoring Study Team

Prepared by:

Roslyn Ryan
Southern Nevada Water Authority
Environmental Monitoring and Management Division
100 City Parkway, Suite 700
Las Vegas, Nevada 89106

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1.0 INTRODUCTION

The Las Vegas Wash (Wash) is the channel through which water in the Las Vegas Valley drains. Decades ago, before urban development, the Wash's flow consisted mainly of shallow groundwater disgharge and stormwater. These flows enabled vast wetlands, more than 2,000 acres, to develop around the Wash. As the years past and urban development exploded, the flows to the Wash increased exponentially due to two new inflows; urban runoff and wastewater effluent discharge. This increased volume of water caused massive headcutting and erosion of the Wash, scouring away plants and cutting off the water supply to the wetlands. By the 1990's, less than 200 acres of wetlands remained. The erosion of the Wash's banks also caused massive sediment loads to be deposited in the Las Vegas Bay of Lake Mead. Community concerns about water quality surfaced and the health of the Wash and its ecosystem became a public concern.

While many organizations had an interest in the well being of the Wash, no single agency was responsible for managing it. In 1997, a citizen's advisory committee made recommendations to manage and protect the Wash, and from these recommendations the Las Veagas Wash Coordination Committee (LVWCC) was formed. The LVWCC includes representatives from over two dozen local, state, and federal agencies, environmental groups, business owners, and concerned citizens. The committee had two main goals; develop a long-term management plan for the Wash and oversee the implementation of that plan. The LVWCC developed a comprehensive adaptive management plan (CAMP) for the Wash. One part of that plan is the mainstream water quality monitoring program, ongoing since August 2000, which is used to evaluate the baseline conditions of the Wash, to demonstrate water quality variations over time, to quantify the effects of increased wetland vegetation on water quality, and to provide a long-term data history that can be used to make watershed-based decisions and evaluate the success of these management actions. This report details the results for the Mainstream Wash Water Quality Monitoring Program from January 2003 to December 2007. Results from sampling events prior to January 2003 can be found in the "Las Vegas Wash Monitoring and Characterization Study: Results for Water Quality in the Wash and Tributaries" report published in January 2004 (Zhou et al. 2004). Annual summaries of activities and data collected can be found the Las Vegas Wash Coordination Committee's (LVWCC) Year End Reports (LVWCC 2002–2008) and at lvwash.org.

2.0 METHODS

2.1 Sampling sites

Water samples were collected monthly from eight sampling locations on the mainstream Wash and were analyzed for major ions, metals (including selenium), the nutrients nitrogen (N) and phosphorus (P), bacteria (EC, FC, FS), and perchlorate. Field parameters, including temperature, pH, dissolved oxygen (DO), and specific conductance (SC), were measured at each site during each sampling event.

Eight locations were sampled from 2003–2007 on the mainstream Wash (Table 1; Figure 1). The original sample sites (2000-2006) were re-evaluated in 2006 due to the completion of additional erosion control structures (ECS). Sampling location changes were made beginning in 2007 to incorporate locations both up and downstream of the new structures (Table 2; Figure 1). Site LW10.75, is the location considered to be the beginning of the mainstream Wash. It is the

only sampling location site that is upstream of any waste water treatment effluent. Site LW10.75 is comprised of the combined flows from the Las Vegas Creek, Flamingo Wash, and Sloan Channel tributaries. For this reason, the water quality at this site can vary greatly from the rest of the mainstream Wash sampling sites.

Site Name	Location Description
LW10.75*	Above City of Las Vegas Waste Water Pollution Control Facility
LW6.05	Upstream of the Pabco Road Erosion Control Structure
LW5.9*	Downstream of the Pabco Road Erosion Control Structure
LW5.5*	Upstream of the Historic Lateral Erosion Control Structure
LW5.3	Downstream of the Historic Lateral Erosion Control Structure
LW3.85	Upstream of the Demonstration Weir
LW3.75	Downstream of the Demonstration Weir
LW0.8*	Downstream of Lake Las Vegas

Table 1: 2003-2006 sampling locations.

Site Name	Location Description
LW10.75*	Above City of Las Vegas Waste Water Pollution Control Facility
LW8.85	Upstream of the Duck Creek (new site)
LW6.85	Upstream of the PabcoWeir (new Site)
LW5.9*	Downstream of the Pabco Road Erosion Control Structure
LW5.5*	Upstream of the Historic Lateral Erosion Control Structure
LW4.95	Upstream of the Demonstration Weir (new site)
LW3.1	Downstream of the Demonstration Weir (new site)
LW0.8*	Downstream of Lake Las Vegas

Table 2: 2007 sampling locations.
*** Locations sampled from 2003-2007**

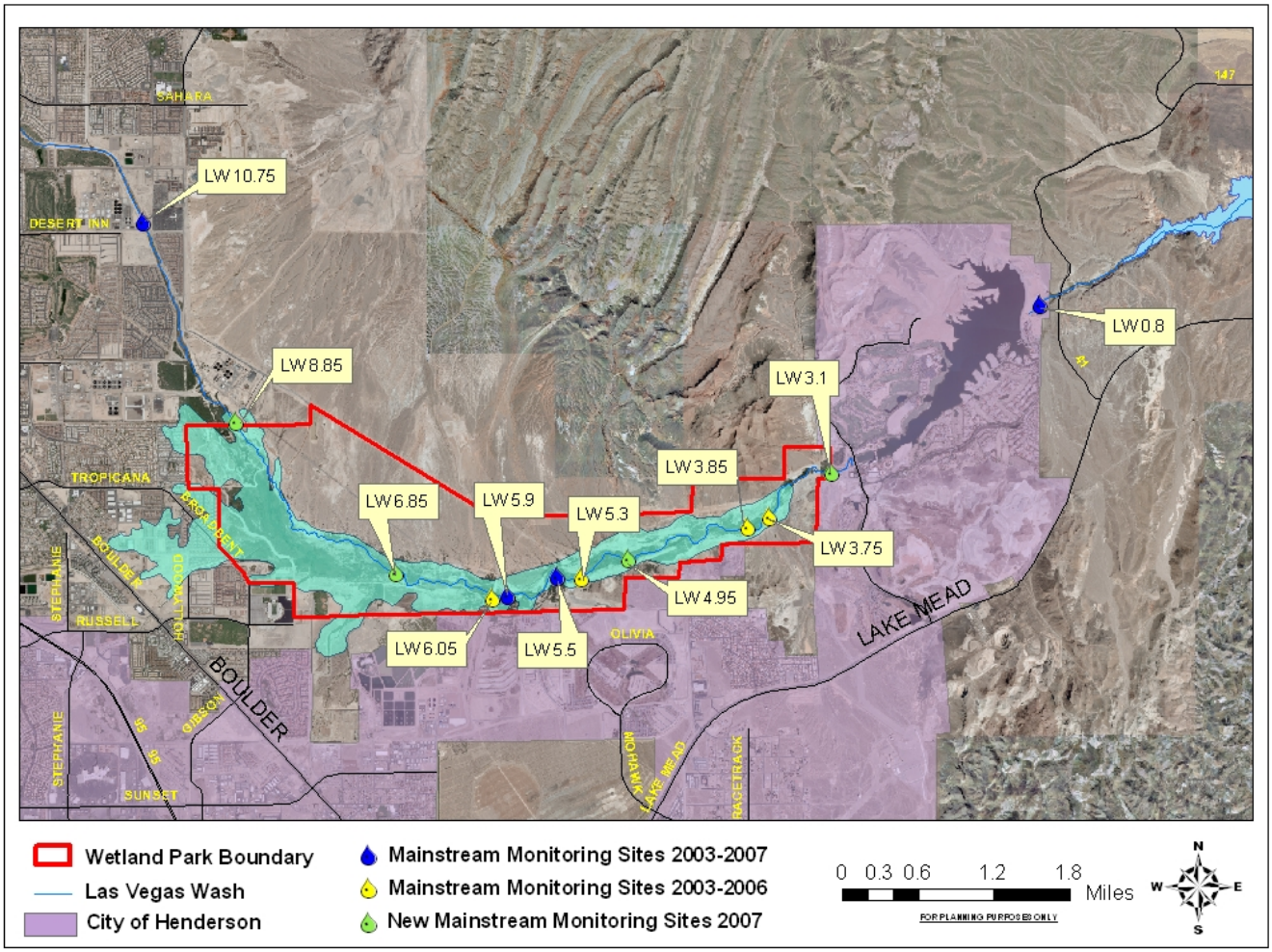


Figure 1 - Map showing sampling locations for the Mainstream water quality monitoring program.

2.2 Parameters

Field measurements, including water temperature, DO, pH, and SC were collected at every site. Water samples were also collected and analyzed for major cations and anions, metals, nutrients (N and P), bacteria, and perchlorate. Methods were described for each analytical group and the laboratories that performed the analyses are listed below (Table 3). A complete list of the individual parameters analyzed in the mainstream Wash program was compiled (Appendix A).

Analyses	Description	Analytical Laboratory
Metals	17 metals obtained from ICP-MS instrumentation with special emphasis on selenium, arsenic, mercury, and copper	MWL (2003-2005), WECK (2006-present)
Major ions	Standard water chemistry analysis (cations and anions)	MWL (2003-2005), WECK (2006-present)
Perchlorate	At least one sample from each location.	SNWS
Nutrients	Filtered and unfiltered samples for analyses of organic and inorganic nitrogen and phosphorus (phosphorus, total and orth-phosphorus; nitrogen, total kjeldahl (TKN), ammonia, nitrate and nitrite)	Clark County Water Reclamation District (1/2003-4/2003), NEL (5/003-2005), WECK (2006-present)
Bacteriological	Samples of water for analyses of bacterial counts of fecal coliforms and *E.coli*	SNWS
General	Hydrolab® multi parameter water quality probe	SNWA Resource Monitoring Staff

Table 3. Methods and analytical laboratories.

2.3 Sampling frequency and duration

Water samples were collected and analyzed from eight mainstream Wash sites on a monthly basis between January 2003 and December 2007 (Table 4).

2003	2004	2005	2006	2007
1/22/2003	1/21/2004	1/26/2005	1/25/2006	1/17/2007
2/19/2003	2/25/2004	2/28/2005	2/22/2006	2/21/2007
3/26/2003	3/24/2004	3/30/2005	3/22/2006	3/21/2007
4/23/2003	4/28/2004	4/19/2005	4/26/2006	4/25/2007
5/28/2003	5/26/2004	5/25/2005	5/17/2006	5/23/2007
6/25/2003	6/23/2004	6/22/2005	6/21/2006	6/20/2007
7/23/2003	7/21/2004	7/27/2005	7/27/2006	7/16/2007
8/27/2003	8/25/2004	8/24/2005	8/23/2006	8/22/2007
9/24/2003	9/22/2004	9/21/2005	9/19/2006	9/19/2007
10/22/2003	10/28/2004	10/26/2005	10/17/2006	10/17/2007
11/19/2003	11/17/2004	11/30/2005	11/14/2006	11/19/2007
12/23/2003	12/22/2004	12/28/2005	12/13/2006	12/19/2007

Table 4: Sample dates for Mainstream Water Quality Sampling Program.

2.4 Sample collection and analyses

Sampling methodology was identical at each location for each sampling event. Field staff used a field notebook to record the following information at all sample locations for each sample event:

- Sampling date
- Sampling time
- Weather condition (e.g.., sunny, windy, cold, hot)
- Air temperature
- Description of any and all factors that might influence the data set from each site

At each site, a multi-parameter probe (Hydrolab Corporation Model Surveyor® 4) was used to measure field water quality parameters, including water temperature, DO concentration, pH value, and SC. The Hydrolab multi-parameter probe was calibrated using standard solutions (pH = 10, pH = 7, and SC = 5000 μS/cm or 2500 μS/cm) supplied by Southern Nevada Water System (SNWS). Field measurements at each site were entered into the SNWS Laboratory Information Management Software (LIMS) database.

Where possible, samples were collected in the middle of the main channel with a precleaned, large-mouth, 4-L plastic container. The large container allowed the sampling crew to collect a sufficient quantity of water for the numerous analyses conducted by different laboratories. This large sample was then divided into the individual sample bottles for each analyses group. The original sample was shaken before each aliquot was dispensed, which provided for a homogenous sample and prevented particle matter from settling.

Sample bottles not containing preservatives were rinsed three times with sample water before final sample collection. All samples were labeled specifying site and location, analysis requested, and date and time sampled. Sample bottles for metals and cations-anions were prepared and delivered for use in the field Montgomery Watson Laboratories (MWL) in Pasadena, California (2003–2005) and by Weck Laboratories (Weck) in Monrovia, California (2006–2007). Sample bottles for perchlorate and bacteria were prepared and prelabeled by the SNWS Laboratory Support Services personnel. Labels for perchlorate and bacteria were generated by the SNWS LIMS database. If needed, preservatives were added by MWL, Weck, or SNWS. Sample bottles and labels for nutrient analysis were provided by Clark County Water Reclamation District (Jan–Apr 2003), Nevada Environmental Laboratories (NEL; Apr 2003–2005), and by Weck (2006–present). After collection, all samples except bacteria were maintained in a cooler of ice at 4 ºC. Bacteria samples were kept in a separate cooler of freezer packs to prevent the contamination by ice water. Samples were distributed immediately after the sampling event to designated laboratories for analysis. All samples were accompanied by chain of custody record.

3.0 RESULTS AND DISCUSSION

3.1 Field measurements

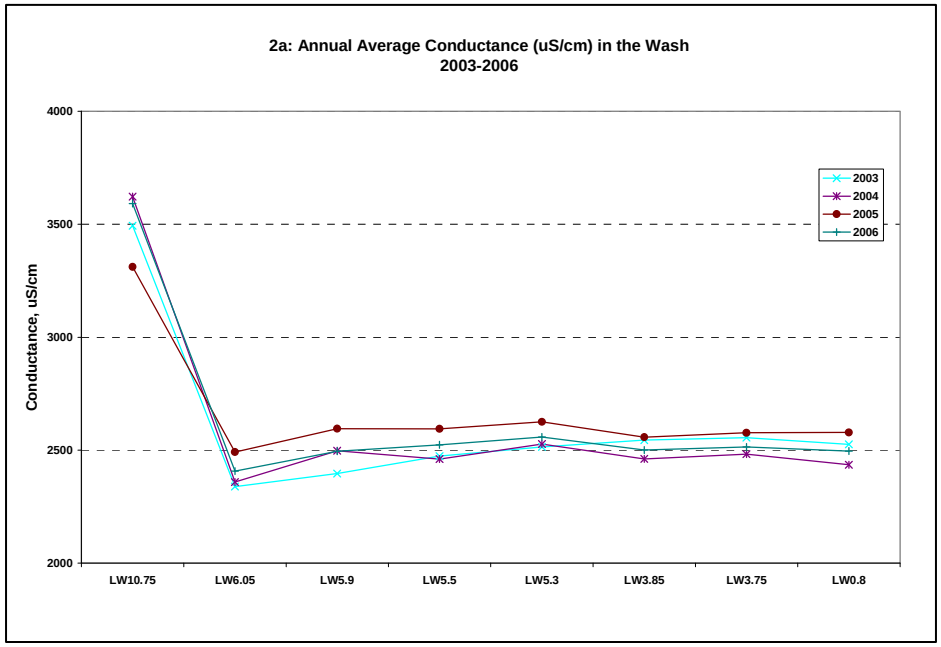
Monthly sampling information and field measurements were compiled (Appendix B), and average annual field measurements were calculated, compiled (Table 5) and are graphically displayed (Figure 2a–h).

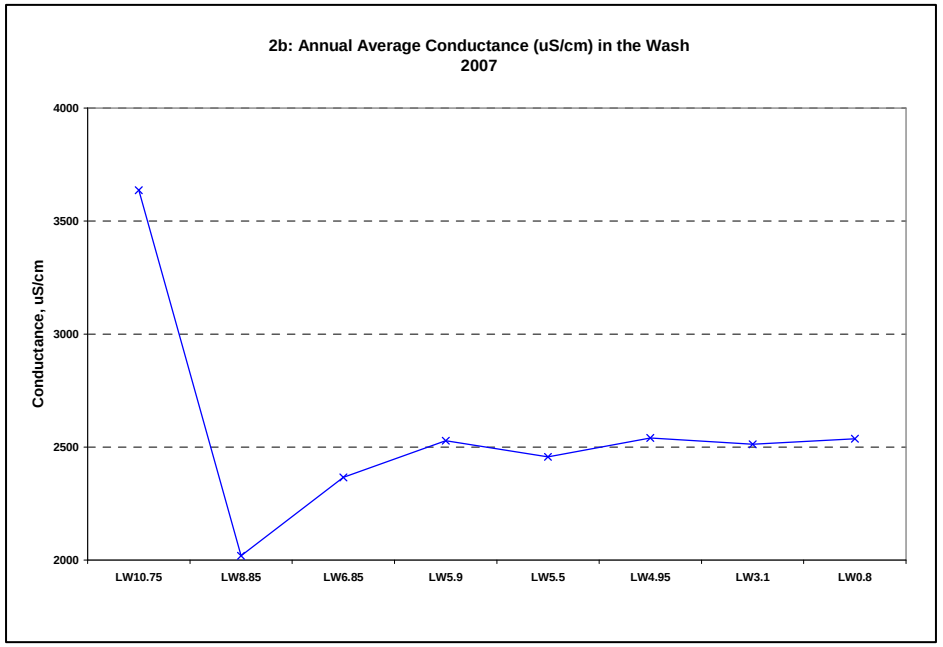
2003					2004				
Site	EC µS/cm	DO mg/L	pH	Temp. ^{0}C	Site	EC µS/cm	DO mg/L	pH	Temp. ^{0}C
LW10.75	3494	10.55	8.32	23.18	LW10.75	3623	10.29	8.29	21.70
LW6.05	2339	7.84	7.76	24.50	LW6.05	2359	8.02	7.81	23.94
LW5.9	2396	8.04	7.66	24.36	LW5.9	2498	7.70	7.63	23.92
LW5.5	2474	8.52	7.80	23.72	LW5.5	2461	8.06	7.78	23.31
LW5.3	2514	7.04	7.75	23.35	LW5.3	2527	7.63	7.86	22.84
LW3.85	2545	7.65	7.80	22.16	LW3.85	2462	7.61	7.88	22.11
LW3.75	2555	7.78	7.83	22.63	LW3.75	2483	7.27	7.88	22.08
LW0.8	2526	8.52	7.93	22.40	LW0.8	2436	8.57	8.10	21.78

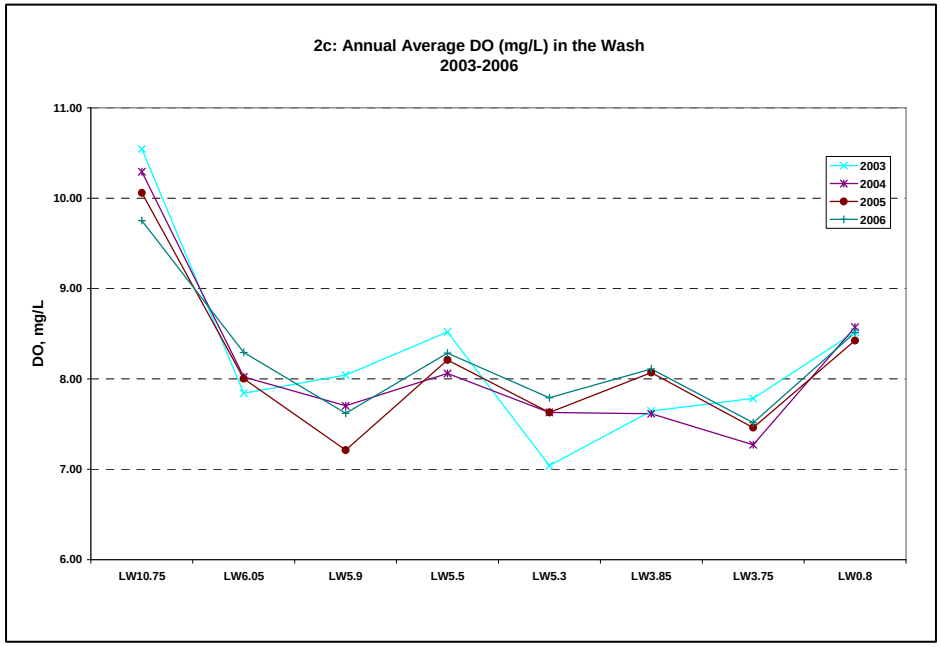
2005					2006				
Site	EC µS/cm	DO mg/L	pH	Temp. ^{0}C	Site	EC µS/cm	DO mg/L	pH	Temp. ^{0}C
LW10.75	3311	10.06	8.22	21.10	LW10.75	3592	9.75	8.22	20.74
LW6.05	2492	8.00	7.82	23.57	LW6.05	2407	8.29	7.96	23.61
LW5.9	2595	7.21	7.58	23.59	LW5.9	2496	7.62	7.61	23.83
LW5.5	2594	8.21	7.78	23.07	LW5.5	2524	8.29	7.79	23.36
LW5.3	2625	7.63	7.82	22.72	LW5.3	2558	7.79	7.85	23.03
LW3.85	2558	8.07	7.96	22.06	LW3.85	2501	8.11	7.98	22.33
LW3.75	2577	7.46	7.94	22.05	LW3.75	2514	7.51	7.98	22.32
LW0.8	2579	8.43	8.07	21.53	LW0.8	2497	8.51	8.10	21.96

2007				
Site	EC µS/cm	DO mg/L	pH	Temp. ^{0}C
LW10.75	3636	10.94	8.08	16.53
LW8.85	2018	8.00	7.25	25.08
LW6.85	2366	8.60	7.83	23.93
LW5.9	2528	7.62	7.59	24.17
LW5.5	2457	7.99	7.83	24.11
LW4.95	2540	7.73	7.90	23.84
LW3.1	2512	8.29	8.18	23.43
LW0.8	2536	8.05	8.22	23.44

Table 5: Average field measurements from the Las Vegas Wash mainstream sites.







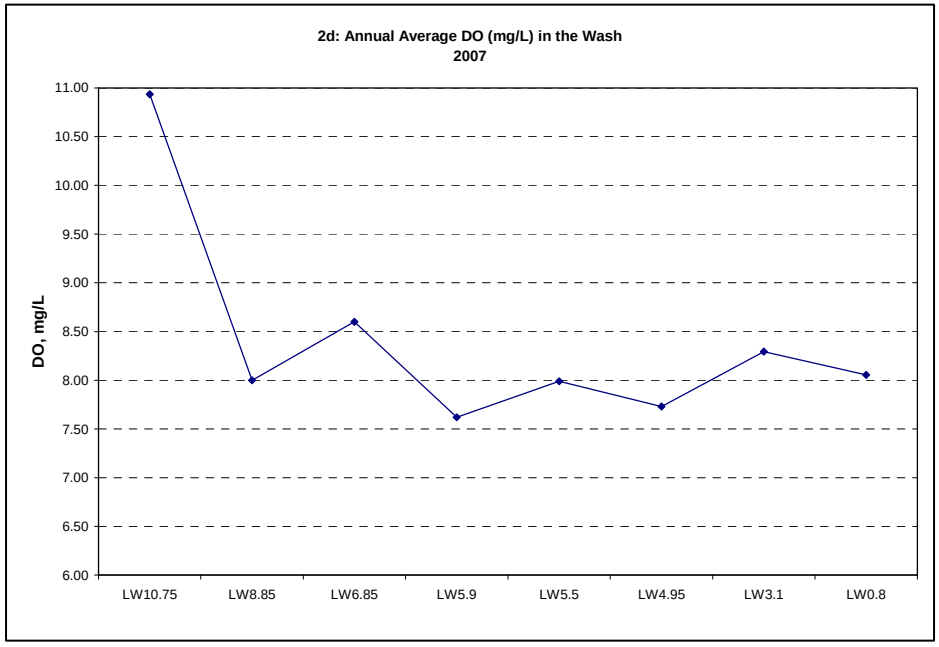
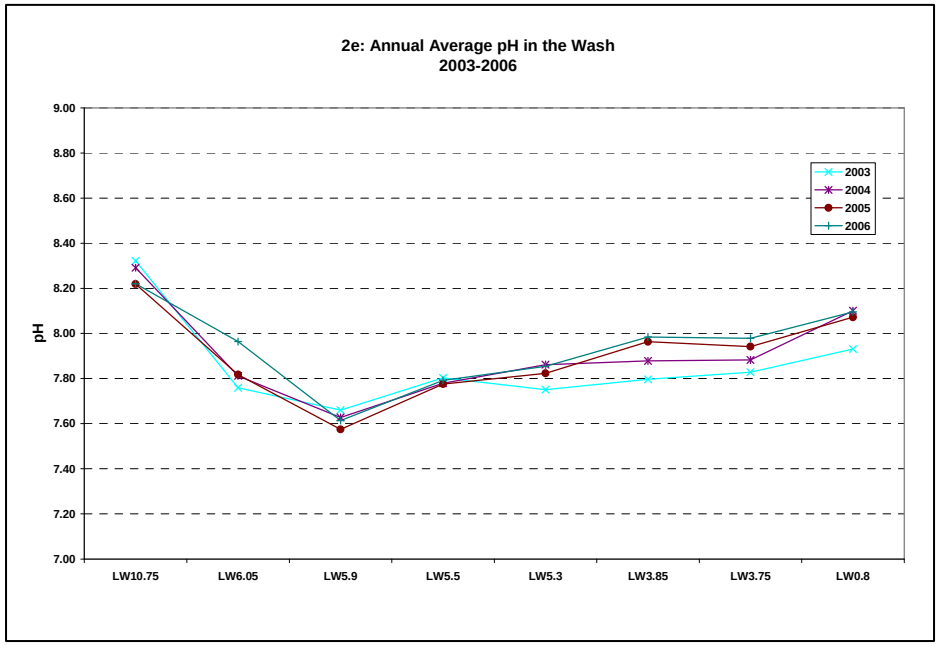
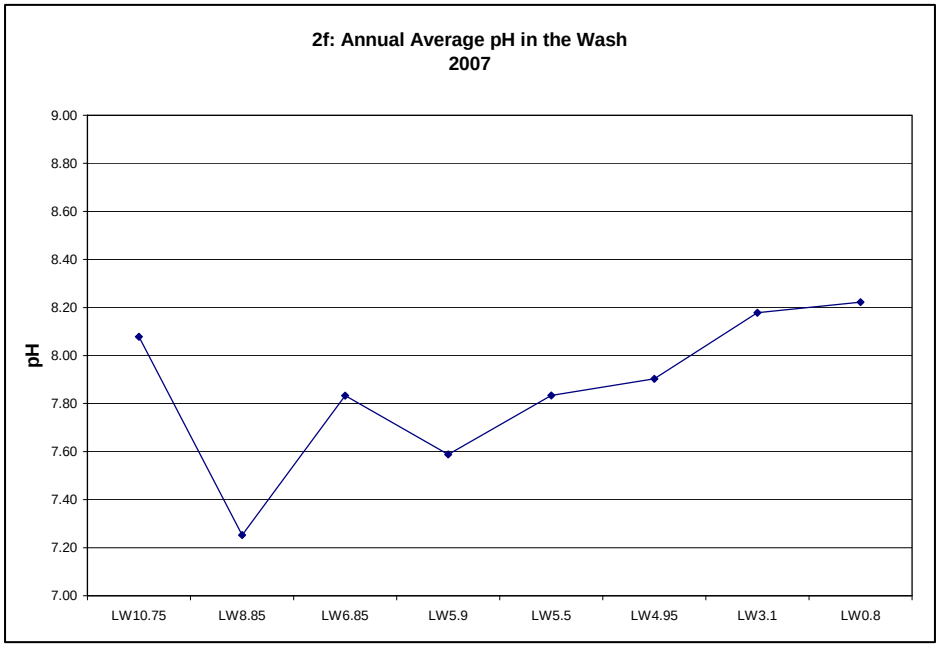
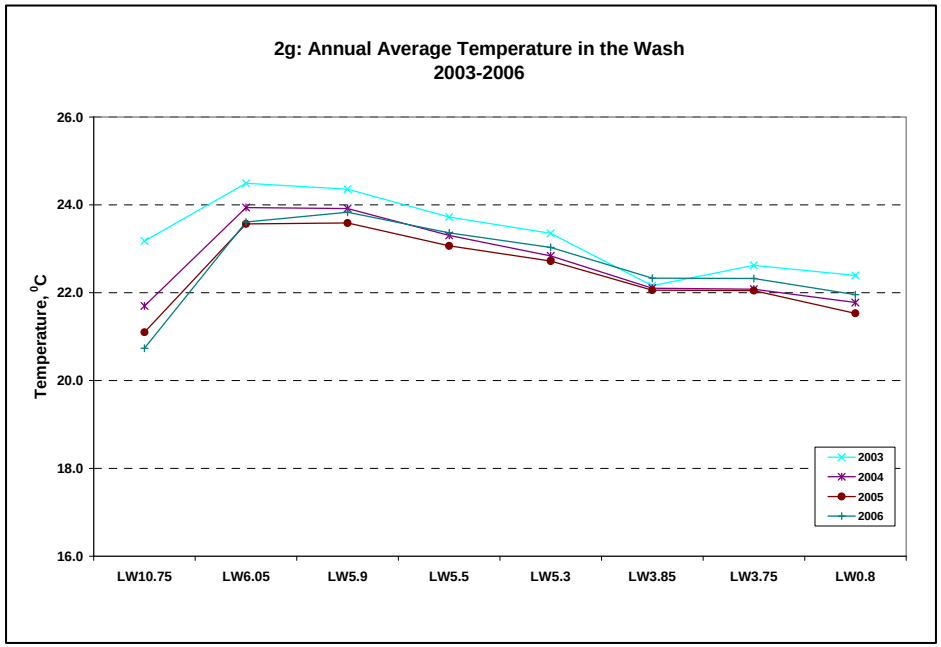


Figure 2 a-d: Annual average conductance and dissolved oxygen (DO) for the mainstream Wash 2003-2007.







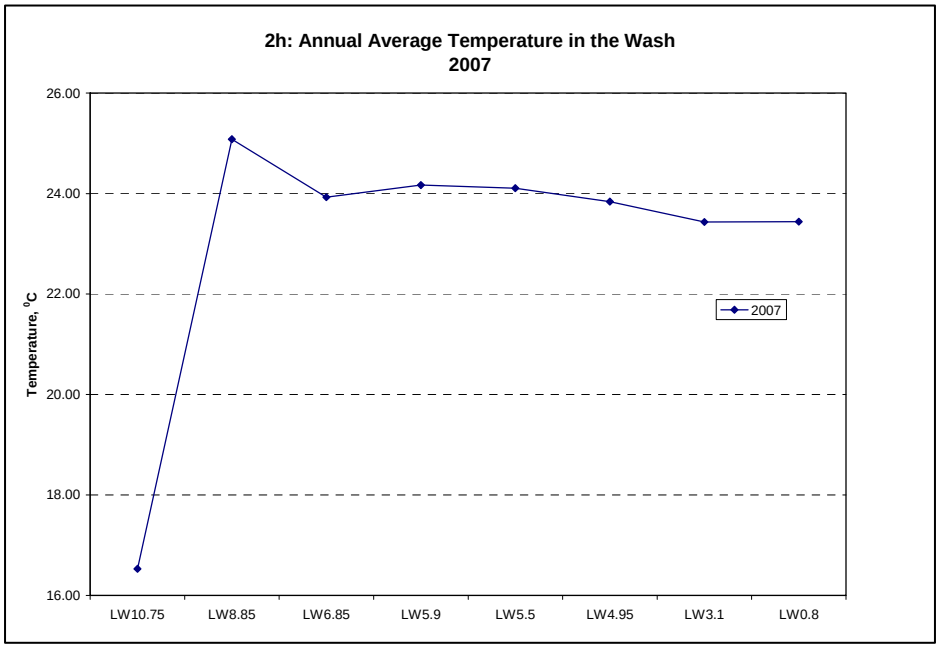


Figure 2 e-h: Annual average pH and temperature for the mainstream Wash 2003-2007.

Among the eight sample locations, LW10.75 is upstream from all three wastewater discharges and represents urban runoff from the Las Vegas Valley. Average conductance data has remained consistent over the last five years. At site LW10.75, the average conductance value is around 3500 μS/cm, whereas the average values for the remainder of the sites are near or below 2500 μS/cm. Treated wastewater effluent clearly provides significant dilution to higher conductivities from the urban run-off fed tributaries.

The pH values from 2003–2006 ranged from 7.58 at LW 5.9 to 8.32 at LW10.75. From 2003–2006, LW10.75 had the highest pH values. From that site, pH values decreased as water moved downstream to LW5.9 and then gradually increased again as the water moved toward site LW0.8 just upstream from where the Wash enters Lake Mead. Data from the 2007 sampling locations showed a drop in pH from 8.08 at LW10.75 to 7.25 at LW8.85, and then increased back to 7.83 at LW6.85. From this site, pH values follow the trend from 2003–2006 as the water flows downstream.

Annual average temperature has slowly decreased at LW10.75 from a high of 23.2 ºC in 2003 to a low of 16.5 ºC in 2007. Average temperatures at the remaining mainstream sites have stayed consistent and range from 22 to 25 ºC. DO was highest at LW10.75 (from 9.75 to 10.94 mg/L) while the rest of the Wash remained in the 7–9 mg/L range.

3.2 Major ion chemistry

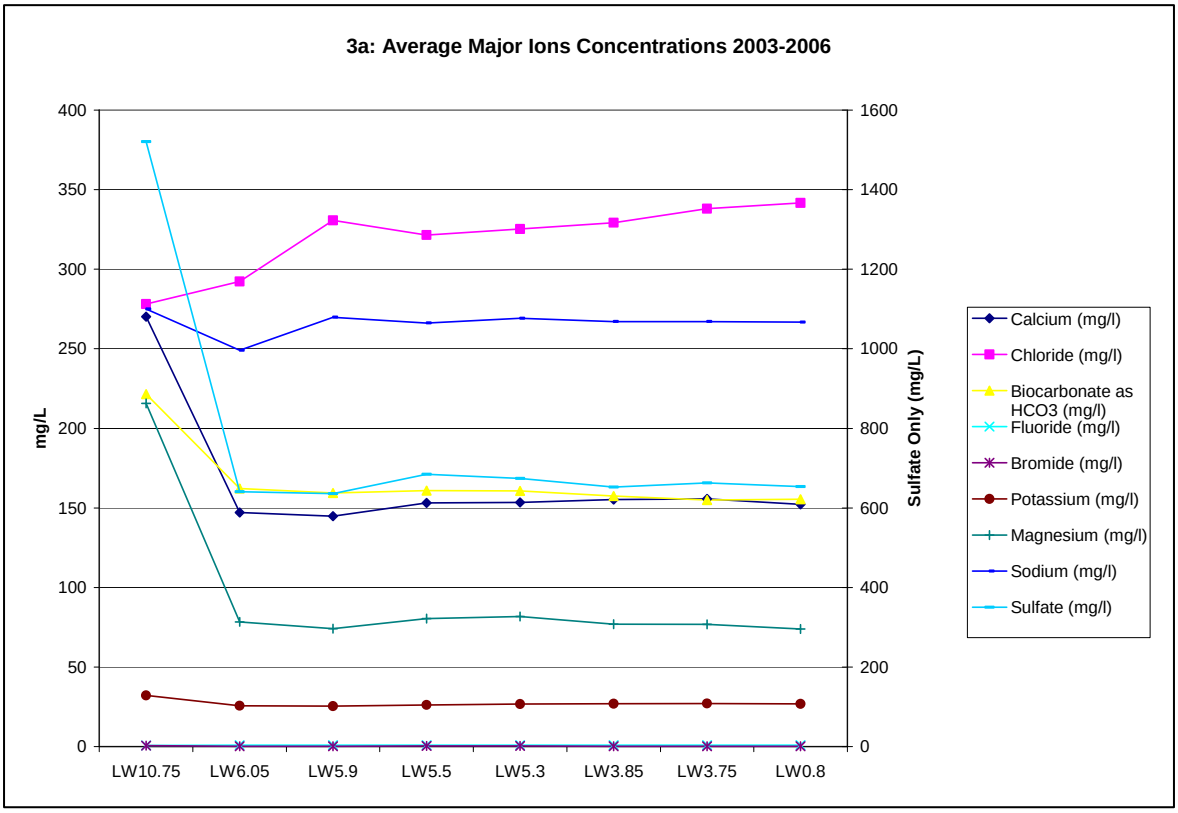
Monthly major ion (cation and anion) data from the eight sample sites, total dissolved solid (TDS), and total suspended solid (TSS) data (Appendix B2), and average monthly major ions calculations (Table 6) were recorded and are displayed graphically (Figure 3).

Calcium (Ca^{+2}), sodium (Na^{+}) and magnesium (Mg^{+2}) were the dominant cations at all sampling locations. Sulfate (SO_4^{-2}), chloride (Cl^{-}) and bicarbonate (HCO_3^{-}) were the dominant anions. The highest concentrations of calcium, magnesium, sodium, potassium, bicarbonate, sulfate, and consequently TDS, occurred at LW10.75. This sampling site consists entirely of urban run-off. In general, the average concentrations of the major ions at LW10.75 were two-to-three times higher than the concentrations at other sample sites in the Wash (Figure 4).

TDS concentration in the Wash is important to monitor because it contributes to the salinity of Lake Mead and eventually the Colorado River. In 2003, the Bureau of Reclamation (BOR) reported that annual TDS loads entering Lake Mead from the Wash had increased 2.5 times since 1984 (Roline and Sartoris 2004). The high TDS concentrations in surface run-off water (LW10.75) is diluted by effluent from the three wastewater treatment facilities, resulting in a dramatic decrease in concentrations of most major ions below site LW6.05. An exception to this is chloride, which enters the water cycle from the recharging of household water softener units prevalent throughout the valley. Brine from residential water softener makes its way to the wastewater treatment plants and passes through unchanged. Chloride was slightly higher from upstream to downstream, most likely resulting from residential water softener use. Concentrations of TDS also increase between sites LW8.85 and LW5.9 as well as between sites LW5.5 and 3.1 due to discharges from shallow groundwater, which enters the Wash via Duck Creek, and two groundwater seeps, Kerr-McGee Seep (LWC6.3) and GCS5 seep (LWC3.7). These increases were also noted by BOR in 2003 (Roline and Sartoris 2004).

Sample Site	Year	Calcium (mg/l)	Potassium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Chloride (mg/l)	Biocarbonate as HCO3 (mg/l)	Fluoride (mg/l)	Bromide (mg/l)	Sulfate (mg/l)	Total Suspended Solids (mgL)	Total Dissolved Solids (mg/l)
LW10.75	2003	275	31	205	256	276	234	0.64	0.68	1564	191	2966
LW6.05	2003	133	23	71	224	288	158	0.98	0.34	625	20	1600
LW5.9	2003	134	23	70	247	331	159	0.92	0.32	623	20	1652
LW5.5	2003	143	24	77	243	321	159	0.98	0.35	682	35	1708
LW5.3	2003	145	25	78	248	306	159	1.00	0.35	637	20	1743
LW3.85	2003	149	25	75	250	344	157	0.99	0.24	685	25	1750
LW3.75	2003	148	25	75	249	347	157	0.99	0.35	685	19	1749
LW0.8	2003	147	25	72	251	346	153	0.98	0.36	663	33	1716
LW10.75	2004	258	33	228	286	273	221	0.79	0.77	1627	13	3105
LW6.05	2004	148	25	78	246	297	153	1.01	0.32	639	30	1629
LW5.9	2004	140	24	70	263	328	152	0.90	0.30	600	22	1621
LW5.5	2004	151	25	77	262	320	154	0.99	0.32	663	26	1695
LW5.3	2004	157	26	81	265	326	155	1.00	0.33	673	38	1751
LW3.85	2004	155	26	76	266	329	152	1.00	0.30	633	43	1679
LW3.75	2004	158	26	76	264	331	151	0.99	0.31	638	47	1703
LW0.8	2004	153	26	73	262	362	150	0.98	0.24	673	26	1665
LW10.75	2005	267	30	203	250	245	222	0.68	0.67	1349	169	2652
LW6.05	2005	155	26	84	257	288	167	0.95	0.33	662	17	1725
LW5.9	2005	156	26	81	273	332	163	0.91	0.32	688	19	1758
LW5.5	2005	163	27	87	267	321	165	0.95	0.33	724	22	1781
LW5.3	2005	165	27	87	270	320	165	0.94	0.33	728	16	1814
LW3.85	2005	162	27	82	268	305	162	0.93	0.31	662	16	1749
LW3.75	2005	162	28	81	267	328	152	0.94	0.30	686	20	1758
LW0.8	2005	159	27	78	263	317	158	0.93	0.30	660	23	1702
LW10.75	2006	282	36	228	308	318	209	0.76	0.70	1542	10	2800
LW6.05	2006	153	29	81	269	298	172	0.92	0.30	637	24	1683
LW5.9	2006	149	29	76	296	332	163	0.84	0.30	633	19	1700
LW5.5	2006	156	30	81	294	324	165	0.90	0.31	669	9	1700
LW5.3	2006	147	30	81	294	349	164	0.91	0.30	660	14	1742
LW3.85	2006	155	30	75	285	338	159	0.90	0.28	630	10	1683
LW3.75	2006	155	30	75	288	347	160	0.89	0.28	642	12	1692
LW0.8	2006	151	30	73	291	343	161	0.90	0.27	618	13	1675
LW10.75	2007	259	34	222	305	313	249	0.65	0.84	1670	7	2850
LW8.85	2007	117	26	58	226	252	160	0.80	0.21	510	4	1360
LW6.85	2007	143	28	76	249	291	168	0.85	0.28	667	5	1650
LW5.9	2007	148	28	75	281	352	169	0.80	0.29	677	5	1740
LW5.5	2007	149	28	77	268	323	168	0.84	0.29	682	5	1730
LW4.95	2007	156	29	78	277	339	168	0.84	0.30	706	6	1720
LW3.1	2007	150	30	73	274	357	166	0.82	0.28	693	6	1770
LW0.8	2007	152	30	73	276	342	154	0.84	0.29	680	9	1730

Table 6: Average major cation and anion data from the Las Vegas Wash mainstream sites.



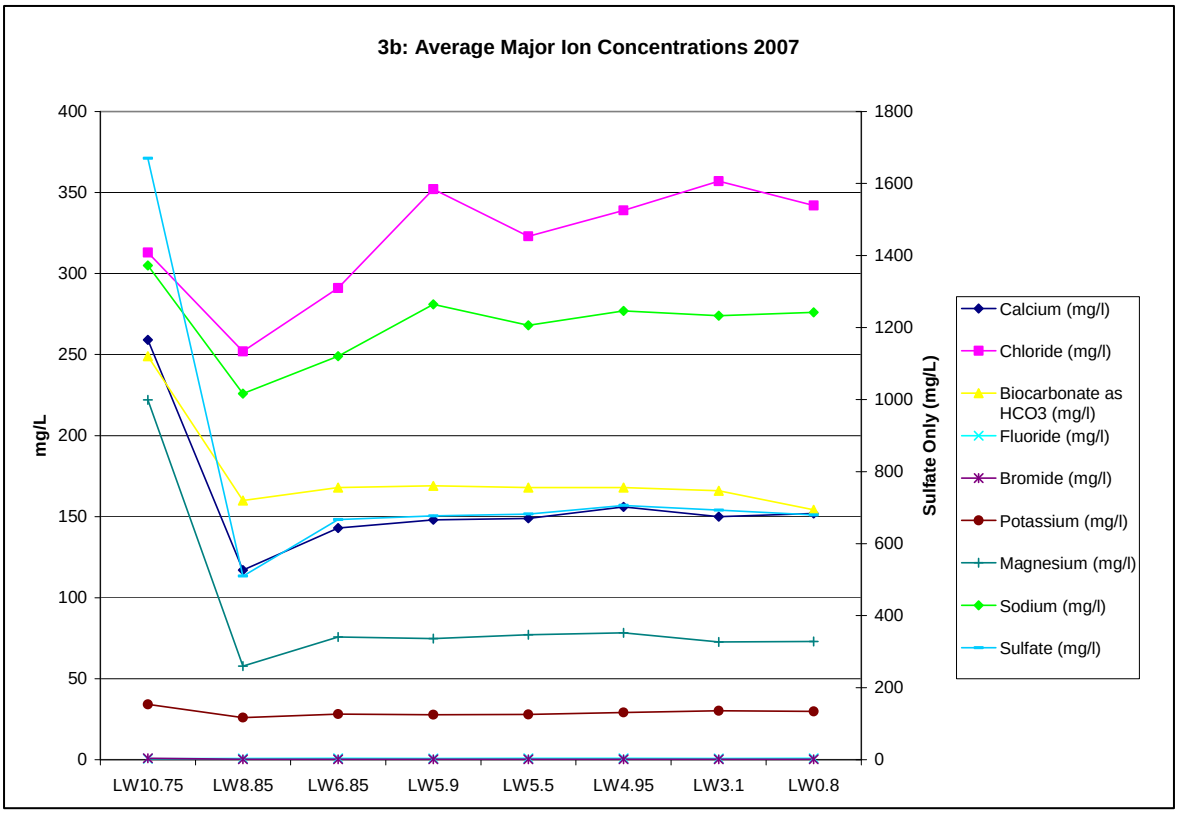
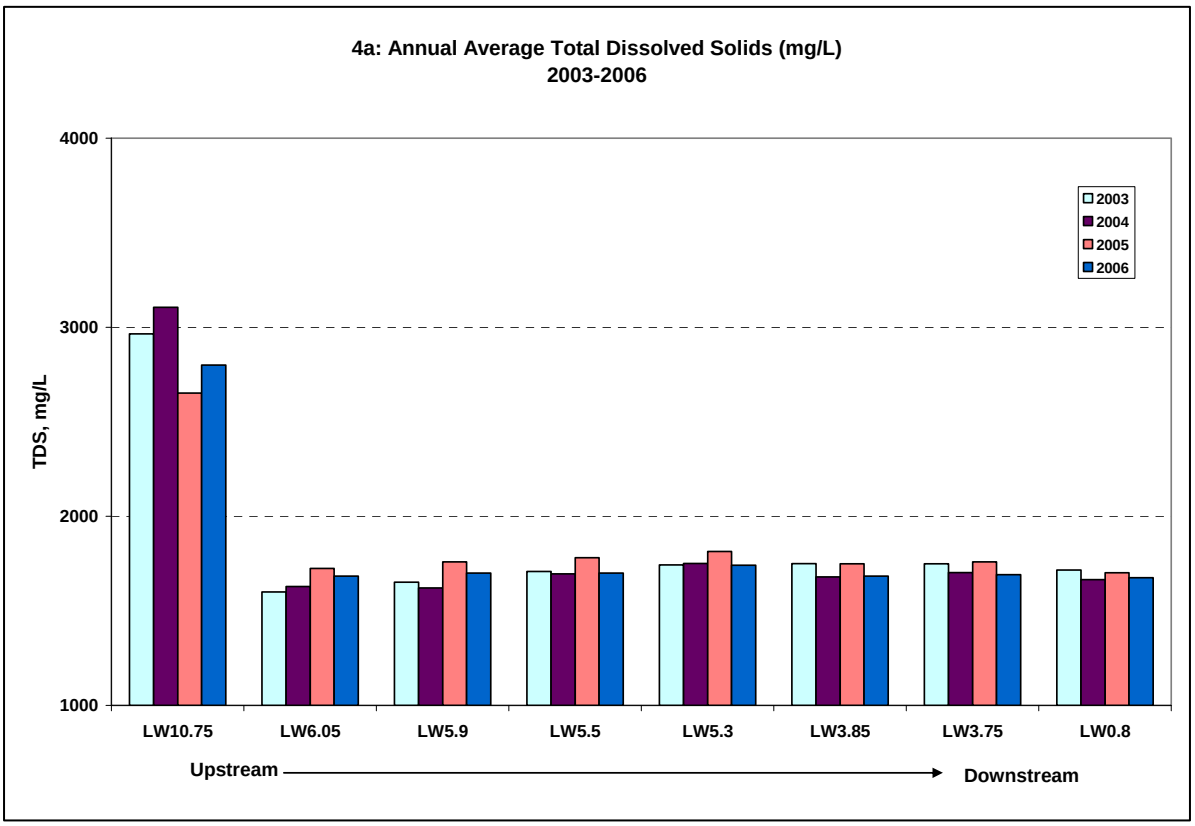


Figure 3a and b: Average major cations and anions in the Las Vegas Wash mainstream sites.



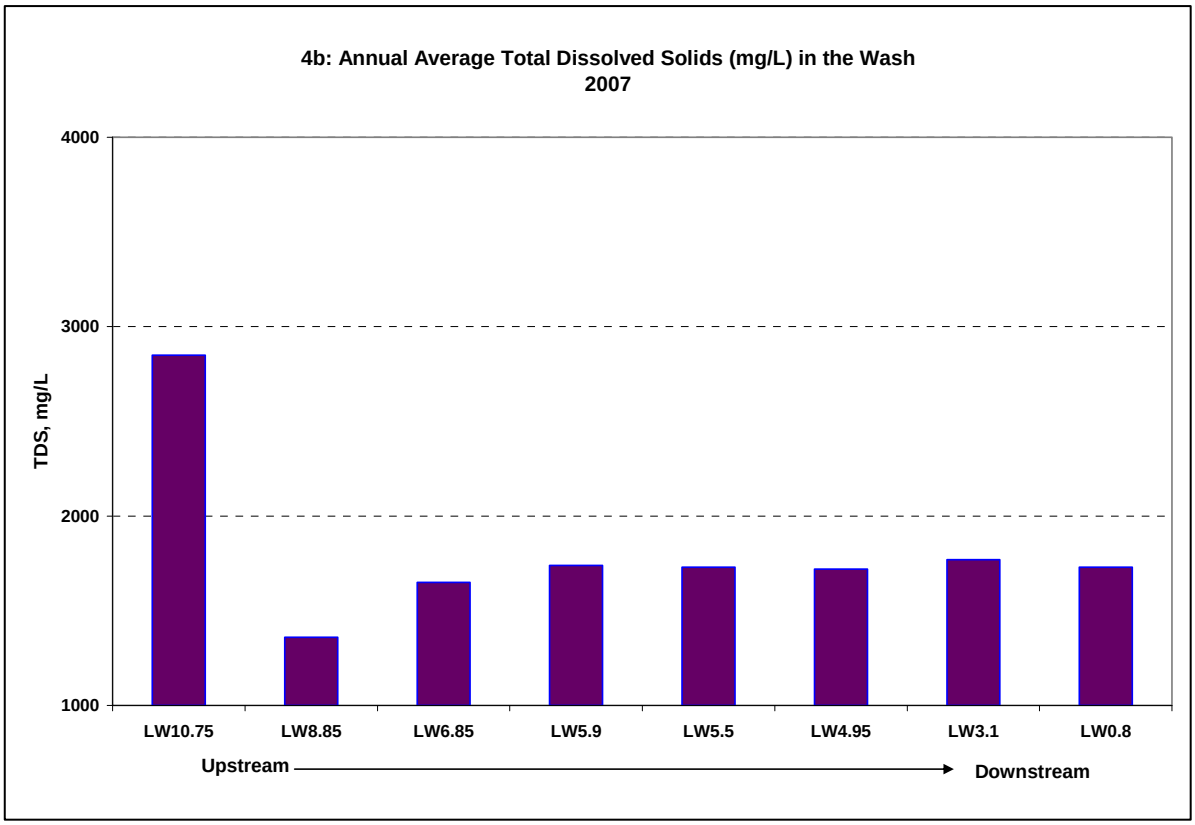


Figure 4: Average total dissolved solids (TDS) in the Las Vegas Wash mainstream sites.

The highest average TSS concentration was found at LW10.75 (191 mg/L in 2003). The average TSS values of the other locations in the Wash ranged from 4 to 47 mg/L. The lower TSS values in the mainstream Wash were due to both the construction of ECS and bank stabilization. The ECS reduce flow velocity and result in the deposition of a significant amount of TSS. Stabilizing the banks decreases the amount of solids picked up by the Wash as it moves downstream. The average TSS concentrations in 2003 and 2007, at the only four sites that were sampled both years, are shown in the graph below (Figure 5). The ECS and bank stabilization have helped significantly reduce TSS concentrations.

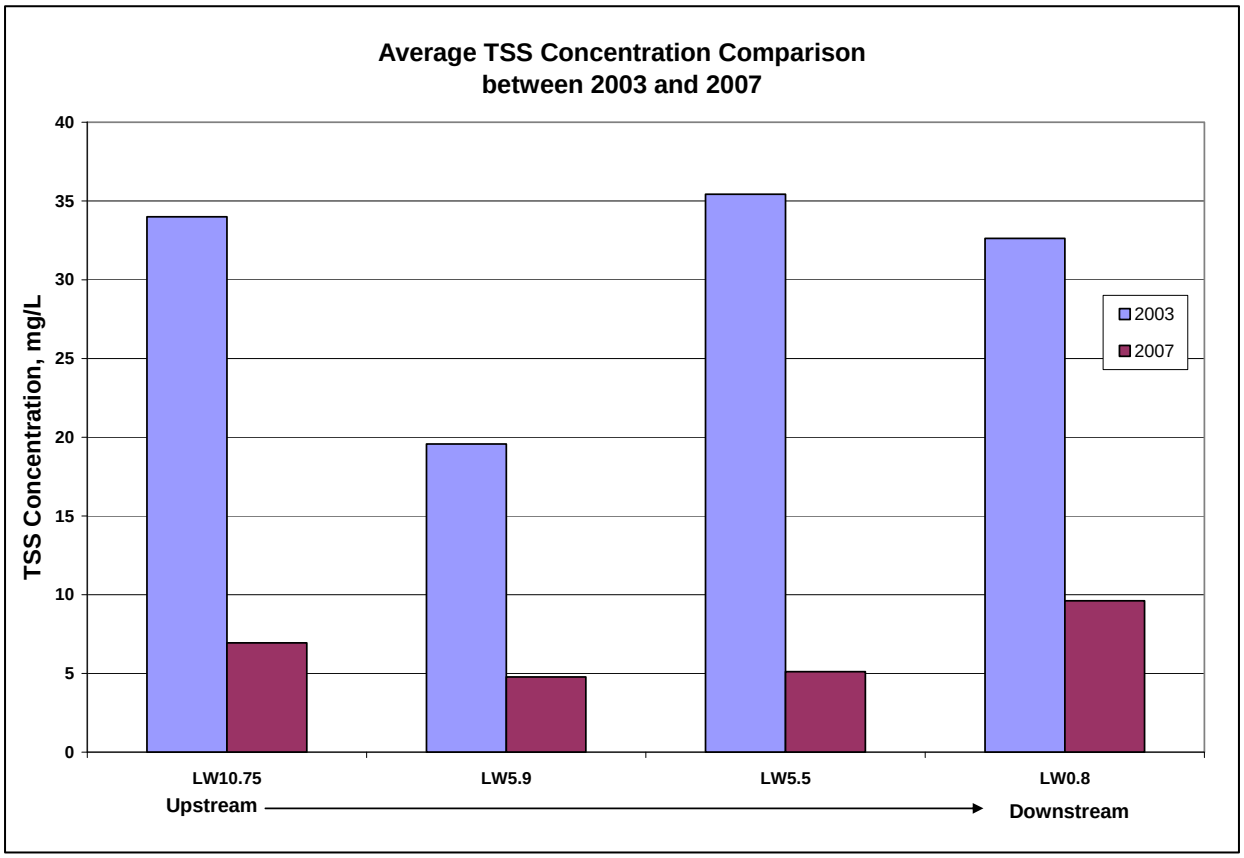


Figure 5: Average total suspended solids (TSS) at selected sites in 2003 and 2007.

3.3 Nutrients

Monthly nutrient data, including ammonia (NH_4^+-N), nitrite (NO_2-N), nitrate (NO_3^-N), nitrate plus nitrite (NO_3^- + NO_2-N), total Kjeldahl nitrogen (TKN), orthophosphate (PO^4-P), and total phosphate (TP-P), from eight sample sites were recorded (Appendix B3). Average nutrient concentrations were summarized (Table 7) and average plant nutrient concentrations from the eight sample sites in the mainstream Wash were plotted (Figure 6).

Sample Site	Year	NH_4 mg N/L	NO_3 mg N/L	NO_2 mg N/L	NO_3+NO_2 mg N/L	TKN mg N/L	OrthoPO_4 mg P/L	Total P Mg P/L
LW10.75	2003	0.10	3.61	0.05	3.70	1.72	0.020	0.389
LW6.05	2003	0.23	13.22	0.05	13.53	0.92	0.122	0.418
LW5.9	2003	0.18	11.44	0.05	11.53	1.28	0.171	0.458
LW5.5	2003	0.18	12.82	0.05	12.94	1.08	0.132	0.458
LW5.3	2003	0.19	13.03	0.05	13.16	0.97	0.138	0.428
LW3.85	2003	0.14	14.20	0.05	14.22	0.90	0.134	0.430
LW3.75	2003	0.18	12.91	0.05	13.11	0.75	0.125	0.416
LW0.8	2003	0.24	14.68	0.05	14.68	0.71	0.120	0.425
LW10.75	2004	0.14	4.10	0.25	4.07	0.48	0.010	0.044
LW6.05	2004	0.14	13.73	0.25	13.75	0.75	0.104	0.155
LW5.9	2004	0.22	12.08	0.24	12.08	0.89	0.114	0.160
LW5.5	2004	0.15	13.42	0.24	13.42	0.84	0.107	0.151
LW5.3	2004	0.16	13.45	0.23	13.42	0.84	0.106	0.141
LW3.85	2004	0.15	14.50	0.25	14.50	0.81	0.111	0.152
LW3.75	2004	0.16	14.27	0.25	14.33	0.76	0.109	0.149
LW0.8	2004	0.13	14.64	0.25	14.67	0.74	0.114	0.148
LW10.75	2005	0.11	3.77	0.01	3.77	1.05	0.029	0.120
LW6.05	2005	0.10	11.28	0.01	11.28	1.21	0.053	0.087
LW5.9	2005	0.15	11.08	0.01	11.08	1.12	0.056	0.093
LW5.5	2005	0.10	11.63	0.01	11.72	1.16	0.056	0.088
LW5.3	2005	0.10	11.92	0.01	11.92	1.18	0.059	0.085
LW3.85	2005	0.12	12.37	0.01	12.37	1.05	0.058	0.082
LW3.75	2005	0.10	12.38	0.01	12.63	1.04	0.055	0.078
LW0.8	2005	0.10	12.99	0.01	13.24	1.04	0.056	0.077
LW10.75	2006	0.05	4.26	0.07	4.28	0.58	0.005	0.020
LW6.05	2006	0.06	14.67	0.05	14.67	0.34	0.066	0.117
LW5.9	2006	0.12	12.97	0.06	12.97	0.65	0.088	0.157
LW5.5	2006	0.18	17.75	0.06	13.58	0.49	0.079	0.132
LW5.3	2006	0.20	18.58	0.06	14.33	0.49	0.074	0.178
LW3.85	2006	0.14	14.92	0.06	14.92	0.36	0.074	0.115
LW3.75	2006	0.14	18.92	0.06	14.50	0.30	0.075	0.110
LW0.8	2006	0.11	15.33	0.06	15.33	0.41	0.072	0.110
LW10.75	2007	0.03	5.27	0.05	5.28	0.69	0.006	0.013
LW8.85	2007	0.06	15.33	0.17	15.33	0.08	0.081	0.128
LW6.85	2007	0.05	14.33	0.17	14.33	0.11	0.091	0.126
LW5.9	2007	0.11	13.58	0.17	13.58	0.25	0.100	0.146
LW5.5	2007	0.07	14.33	0.17	14.33	0.18	0.093	0.131
LW4.95	2007	0.05	14.42	0.17	14.50	0.27	0.090	0.131
LW3.1	2007	0.05	14.67	0.17	14.67	0.19*	0.088	0.124
LW0.8	2007	0.05	13.55	0.17	13.56	0.14*	0.091	0.136

*Data point excluded for averaging purposes

Table 7: Average nutrient data from the Las Vegas Wash mainstream sites.

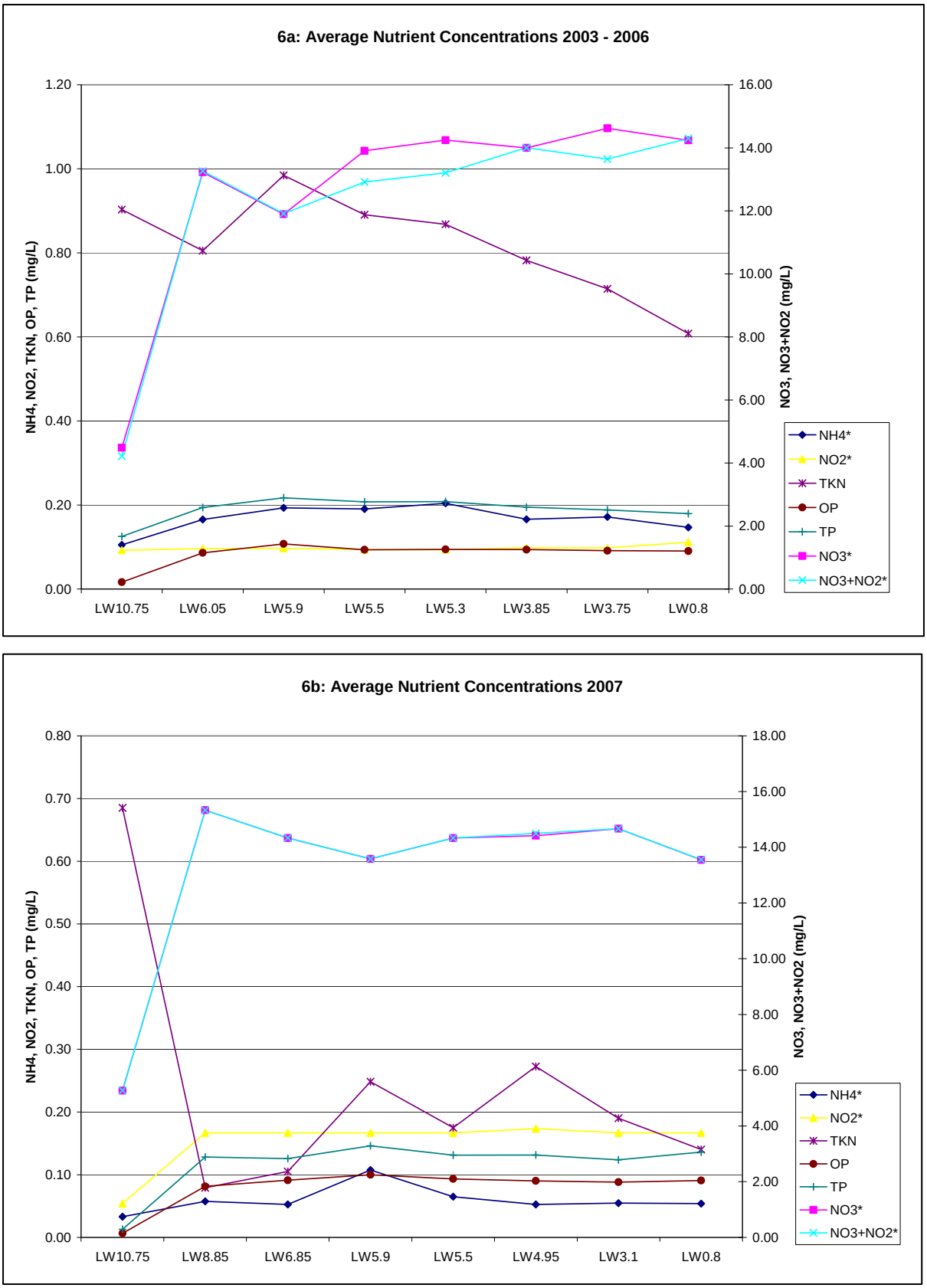


Figure 6: Average nutrient concentrations from the Las Vegas Wash mainstream sites.

For the purposes of the following discussion, two TKN data points were removed from the averages. TKN values of 3.00 mg/L and 2.40 mg/L were measured on October 17, 2007, at sites LW3.1 and LW0.8, respectively. Both values were three standard deviations from the mean for each site. Construction and channel stabilization work was being conducted upstream of these sites, which commonly causes vegetation to break off and be transported downstream. The samples most likely contained plant debris, therefore elevating the TKN values. The TKN value for site LW4.95, which is upstream of these two sites, was only 0.21 mg/L on that day.

Ammonia removal by the wastewater treatment plants has resulted in a dramatic decrease in ammonia concentrations over the past decade and, consequently, has greatly reduced the risk of unionized ammonia toxicity in the Wash and the Las Vegas Bay of Lake Mead (Roline and Sartoris 2004). The removal of ammonia has increased the nitrate concentrations in the Wash. More than 90% of the concentration of the nitrogen in the Wash is in the form of nitrate (NO_3-N). Very little of the nitrogen contribution is organic nitrogen from biological material (Figure 7). There is very little change in the average nitrogen concentration proceeding downstream, indicating that nitrogen is not the limiting nutrient in the Wash mainstream.

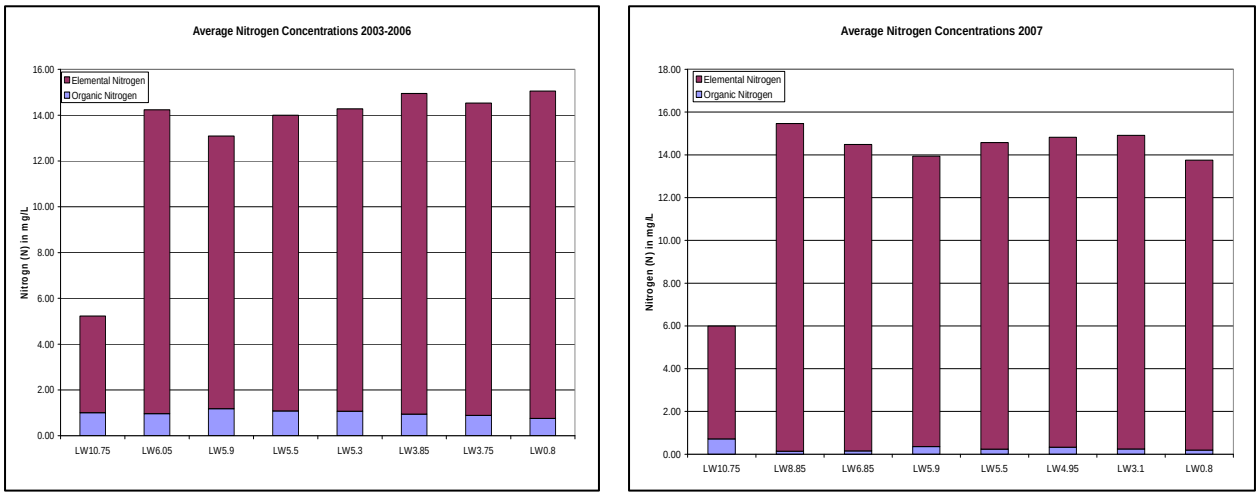


Figure 7: Average nitrogen concentrations from the Las Vegas Wash mainstream sites.

With the exception of LW10.75, approximately 47% of the phosphorus concentration is soluble orthophosphate (PO_4-P) at the eight Wash sites (Figure 8). Orthophosphate makes up 12% of the phosphorus concentration at LW10.75. Site LW10.75 is not influenced by wastewater treatment plant effluent. These data indicate that a larger portion of the total phosphorus concentration is dissolved phosphorus in the wastewater treatment plant effluent than the urban runoff. Soluble orthophosphate (PO_4-P) concentrations have been substantially reduced at most of the sampling sites during the last five years due to the voluntary removal of phosphorus by the three wastewater treatment facilities during the winter (Figure 9).

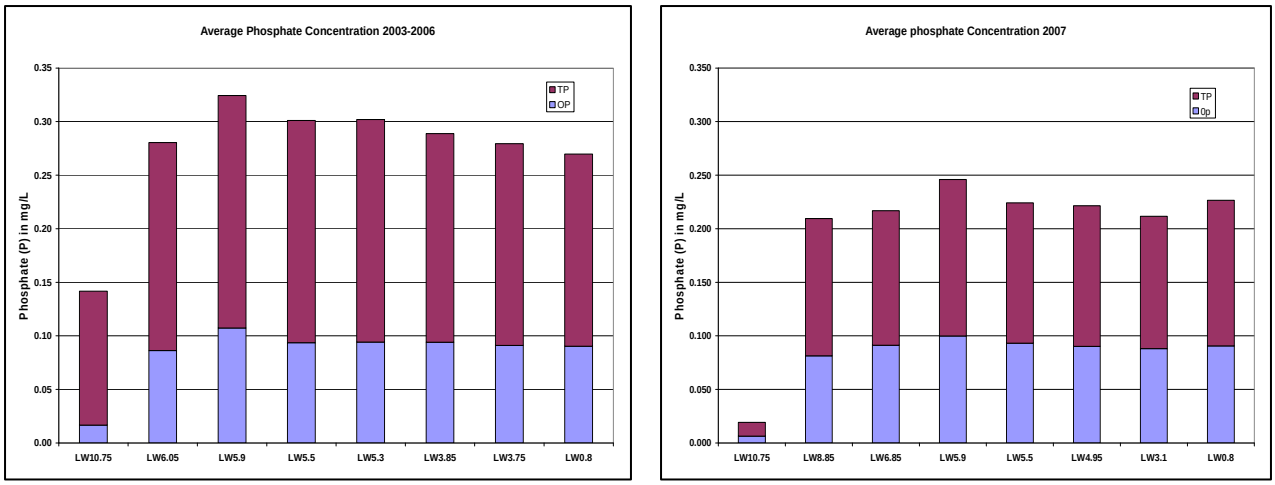


Figure 8: Average phosphate concentrations from the Las Vegas Wash mainstream sites.

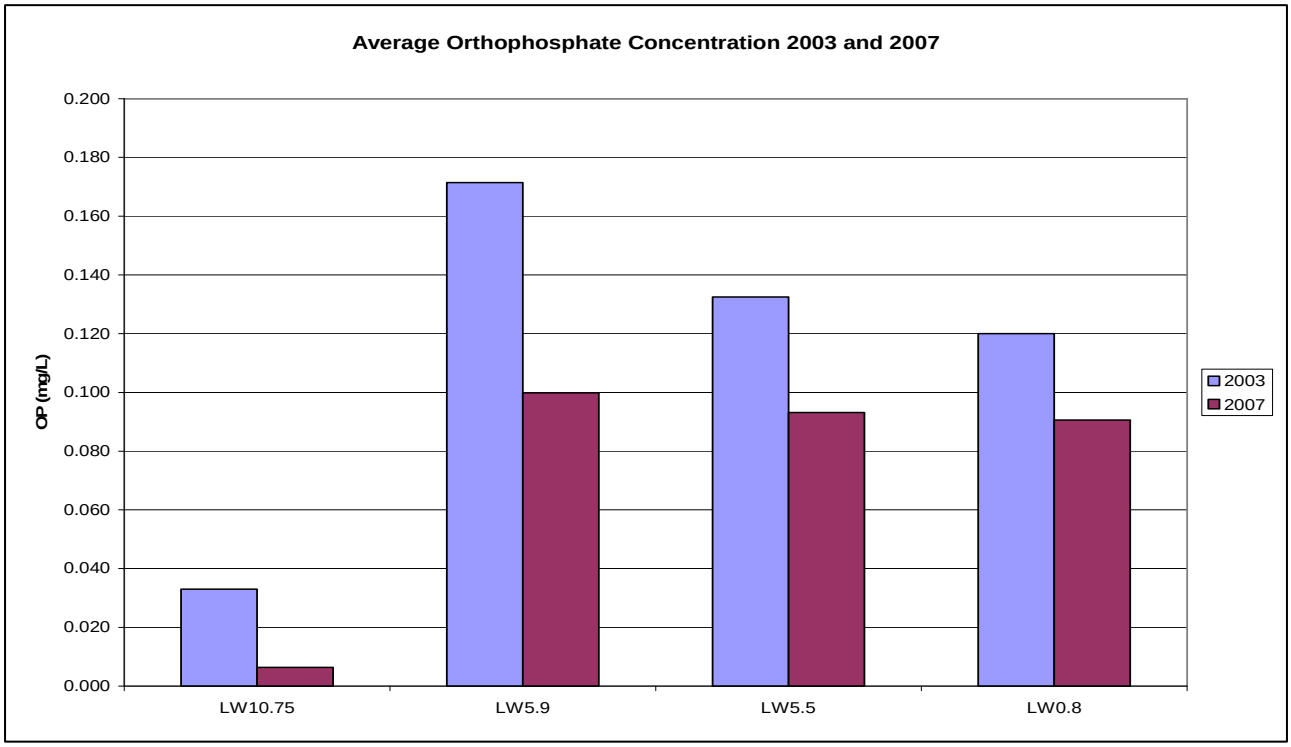


Figure 9: Average orthophosphate levels at selected sites in 2003 and 2007.

Nitrogen and phosphorus increase from LW10.75 to LW5.9 due to the discharge from the wastewater treatment plants. Nitrogen and phosphorus decrease overall from LW 5.9 to LW0.8. The phosphorus reduction can be attributed to the decline in TSS in the Wash facilitated by the construction of ECS, which slow the flow of the water allowing particles to settle out. The decrease in ammonia nitrogen and TKN (organic nitrogen plus ammonia nitrogen) from LW6.05 to LW0.8 may be attributed to the volatilization of these gaseous forms into the atmosphere as the water flows down the Wash (Hem 1992). Annual average phosphorus levels have decreased from 2003–2007 due to voluntary removal of phosphorus by the wastewater treatment plants and the wetlands systems that have formed behind the erosion control structures. Percent reduction

rates for OP, TP and TKN from site LW5.9 to site LW0.8 were computed and are shown in the graph below (Figure 10).

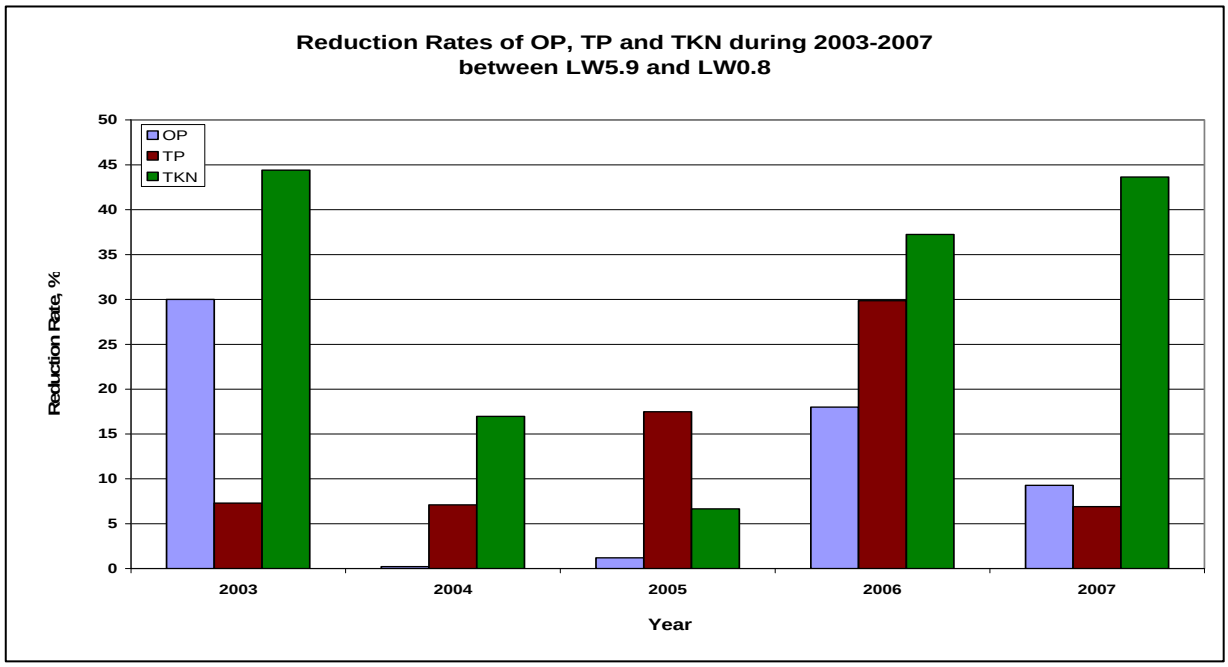


Figure 10: Percent reduction rate of OP, TP and TKN from site LW5.9 to site LW0.8.

Phosphorus concentrations were consistent with expectations when the dominant flow in a stream is wastewater treatment plant effluent. TP concentrations were higher than PO_4-P concentrations, and the concentration of PO_4-P increased after the discharge point of the treated wastewater into the Wash. All nutrients (nitrogen and phosphate) species increased from LW10.75 to LW5.9, primarily due to the discharge of treated wastewater from the three wastewater treatment plants between the two sites. For example, average concentrations of ammonia nitrogen, nitrate as N, nitrite as N, nitrate plus nitrite as N, TKN, orthophosphate as P, and total phosphate increased 96%, 165%, 3%, 184%, 9%, 659%, and 85%, respectively, from LW10.75 to LW5.9.

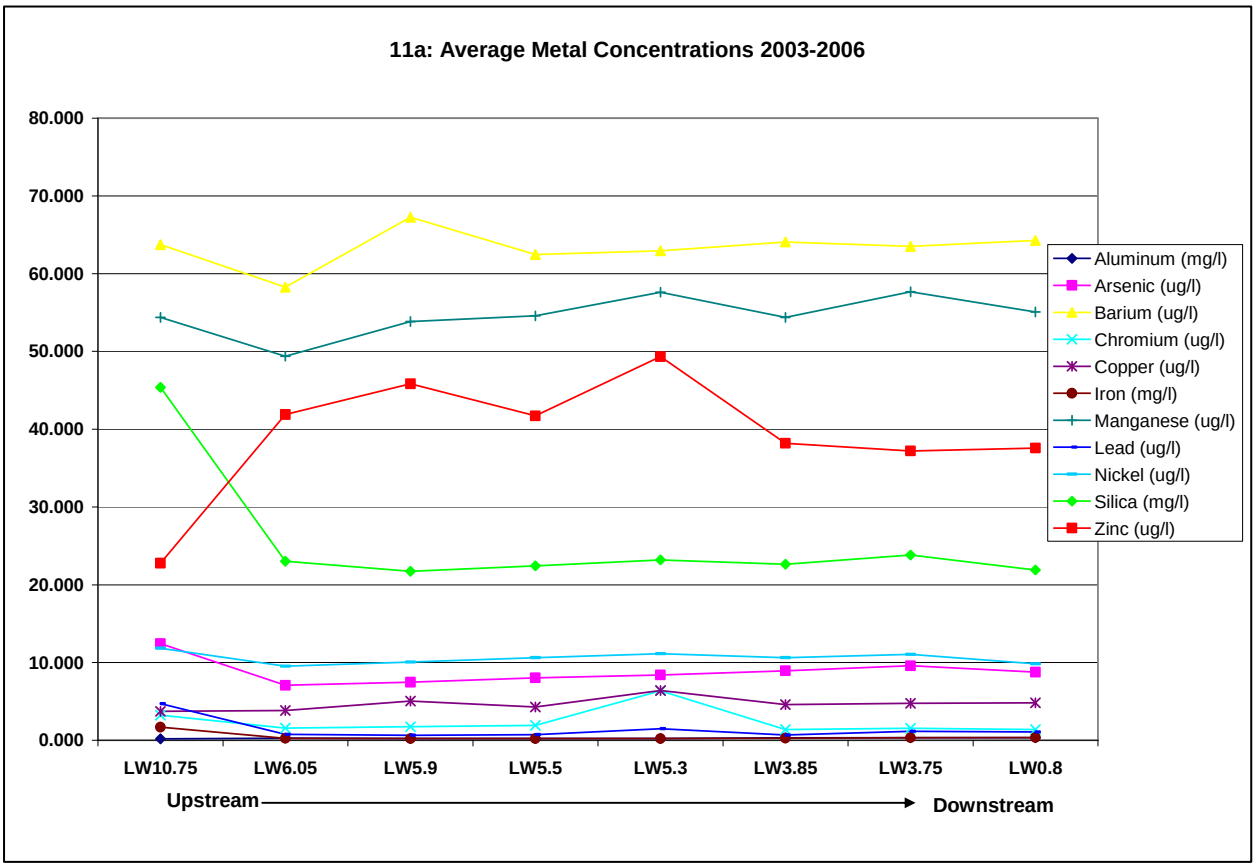
3.4 Metals

Monthly metal data from the eight sample sites in the Wash between January 2003 and December 2007 included analysis of 17 different metals (Appendix B4). Average concentrations of the 12 common metals at the eight sampling locations (Table 8; Figure 11) show that silver, beryllium, cadmium, mercury and thallium for most sampling events were below the detection limit. Aluminum (Al), iron (Fe), manganese (Mn) and Silica (Si) had a wide average concentration range for all sites.

Sample Site	Year	Aluminum (mg/l)	Arsenic (µg/l)	Barium (µg/l)	Chromium (µg/l)	Copper (µg/l)	Iron (mg/l)	Manganese (µg/l)	Lead (µg/l)	Nickel (µg/l)	Selenium (µg/l)	Silica (mg/l)	Zinc (µg/l)
LW10.75	2003	0.199	11.61	72.75	5.66	4.46	3.57	91.80	12.25	13.72	13.19	41.09	44.5
LW6.05	2003	0.257	6.72	46.67	2.07	4.51	0.29	50.25	0.81	8.85	3.20	23.91	46.2
LW5.9	2003	0.237	9.22	54.25	2.31	5.28	0.29	49.08	0.98	9.04	3.24	22.00	44.7
LW5.5	2003	0.280	8.74	50.42	1.72	5.13	0.34	55.08	0.97	9.05	3.53	21.45	39.8
LW5.3	2003	0.242	9.12	48.75	1.72	6.43	0.27	55.92	1.00	9.45	3.57	23.03	44.2
LW3.85	2003	0.359	9.89	51.75	1.83	6.00	0.28	63.58	0.75	10.06	3.30	22.27	36.9
LW3.75	2003	0.317	10.75	50.25	2.13	6.00	0.29	63.67	0.85	10.16	3.29	24.00	35.9
LW0.8	2003	0.401	9.88	54.17	1.69	5.39	0.47	66.75	1.95	9.75	3.02	22.55	37.3
LW10.75	2004	0.126	14.86	42.33	2.83	3.40	0.07	18.68	ND	12.00	12.69	49.96	29.7
LW6.05	2004	0.443	7.60	53.83	2.10	3.80	0.41	48.36	ND	11.55	2.99	23.83	45.5
LW5.9	2004	0.301	6.61	69.08	2.05	6.10	0.24	54.75	0.59	12.50	2.98	23.00	52.3
LW5.5	2004	0.245	7.74	62.50	3.10	ND	0.24	55.00	ND	15.00	3.12	24.42	46.1
LW5.3	2004	0.281	8.29	63.75	21.00	11.05	0.26	59.58	3.40	16.00	3.25	25.17	74.1
LW3.85	2004	0.521	8.93	69.08	ND	ND	0.50	61.25	ND	13.00	2.84	25.67	43.5
LW3.75	2004	0.709	9.57	70.50	ND	4.60	0.66	68.75	2.50	14.00	2.83	27.83	44.6
LW0.8	2004	0.493	8.84	66.00	1.20	4.90	0.45	56.50	0.83	11.30	3.99	24.25	41.5
LW10.75	2005	0.384	12.14	93.91	2.84	4.43	2.95	87.78	1.20	12.19	11.42	43.17	9.5
LW6.05	2005	0.185	7.24	71.58	1.53	3.89	0.18	52.25	0.72	9.86	3.74	22.92	41.0
LW5.9	2005	0.151	7.36	76.92	1.85	4.58	0.18	56.75	0.57	10.38	3.81	22.25	45.2
LW5.5	2005	0.189	8.31	73.00	2.12	4.03	0.19	57.92	0.84	10.18	3.81	23.17	41.3
LW5.3	2005	0.196	8.68	73.58	2.06	4.33	0.20	61.50	1.10	10.75	3.89	23.75	41.1
LW3.85	2005	0.217	8.76	73.67	1.62	4.12	0.22	51.17	0.94	10.78	3.48	22.33	37.9
LW3.75	2005	0.227	9.54	72.50	1.80	4.58	0.25	53.17	0.98	10.97	3.46	23.17	35.4
LW0.8	2005	0.286	8.33	74.42	1.88	4.92	0.34	53.58	0.96	9.90	3.30	21.58	38.7
LW10.75	2006	0.131	11.16	45.92	1.62	2.55	0.20	19.20	0.68	9.50	12.65	47.33	7.5
LW6.05	2006	0.192	6.76	61.00	0.64	3.11	0.17	46.67	0.72	7.81	3.38	21.42	34.9
LW5.9	2006	0.195	6.67	68.75	0.79	4.24	0.19	54.75	0.46	8.32	3.26	19.67	41.3
LW5.5	2006	0.150	7.33	63.92	0.70	3.70	0.17	50.25	0.39	8.27	3.45	20.75	39.8
LW5.3	2006	0.174	7.56	65.67	0.71	3.80	0.16	53.42	0.50	8.38	3.38	20.83	38.0
LW3.85	2006	0.144	8.13	61.83	0.73	3.69	0.13	41.50	0.30	8.69	3.00	20.25	34.4
LW3.75	2006	0.144	8.46	60.75	0.76	3.88	0.13	45.17	0.31	9.08	3.11	20.33	32.9
LW0.8	2006	0.181	8.06	62.50	0.76	4.03	0.17	43.50	0.59	8.43	2.99	19.25	32.8
LW10.75	2007	0.032	10.74	35.89	1.32	1.79	0.03	7.43	0.13	1.11	14.56	41.33	4.5
LW8.85	2007	0.130	2.46	59.67	0.41	3.14	0.08	32.00	0.10	2.24	2.76	16.38	36.9
LW6.85	2007	0.152	6.36	57.11	0.48	2.94	0.10	35.67	0.11	2.66	3.73	20.33	34.0
LW5.9	2007	0.141	7.16	62.44	0.73	3.76	0.12	56.33	0.13	3.71	3.68	21.22	34.7
LW5.5	2007	0.144	7.17	59.44	0.56	3.22	0.10	46.56	0.28	3.31	3.72	21.75	33.4
LW4.95	2007	0.146	8.33	60.22	0.66	3.27	0.10	44.44	0.11	3.66	3.76	22.11	31.7
LW3.1	2007	0.140	9.37	57.00	0.71	3.32	0.10	37.78	0.24	4.10	3.34	20.78	29.0
LW0.8	2007	0.157	9.68	57.67	0.71	3.34	0.11	40.33	0.28	4.10	3.31	21.00	28.9

*ND: Not Detected

Table 8: Average metal data from the Las Vegas Wash mainstream sites.



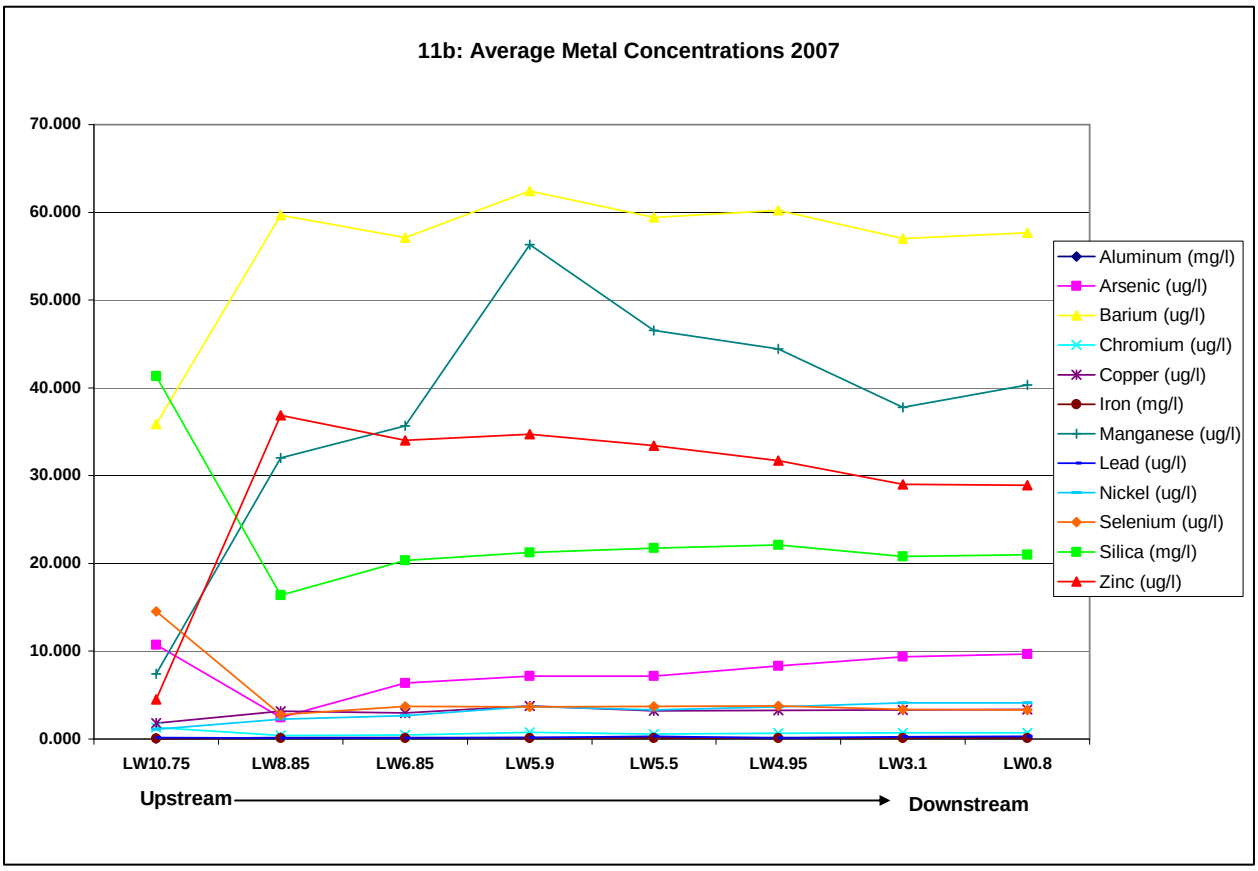


Figure 11: Average metal concentrations from the Las Vegas Wash mainstream sites.

Overall, heavy metal concentrations were fairly consistent during the sampling period from all sampling locations. Aluminum, manganese, and iron were the dominant metals with average concentrations ranging from 40 to 700 ug/L. The other trace metals including arsenic, barium, chromium, copper, lead, zinc, and iron all had average concentrations below the maximum contamination level (MCL) for both the primary and secondary standards under the Safe Drinking Water Act.

3.5 Selenium

The construction of the ECS and the increased development of wetlands have raised concerns over selenium that accumulates in wetlands. Due to the potential negative impact of elevated selenium levels on the environmental resources in the vicinity of the Wash and in the Clark County Wetlands Park, selenium is included in the metals analysis at each of the eight mainstream sites (Table 8). Wastewater flows enter the Wash below LW10.75 where the flow is comprised entirely of urban runoff containing high concentrations of selenium, with a five-year average of 12.90 ug/L (Figure 12). At all the sites below LW10.75, roughly 85% of the flow is made up of treated wastewater. The highest annual average value for selenium for these sites was 3.89 ug/L.

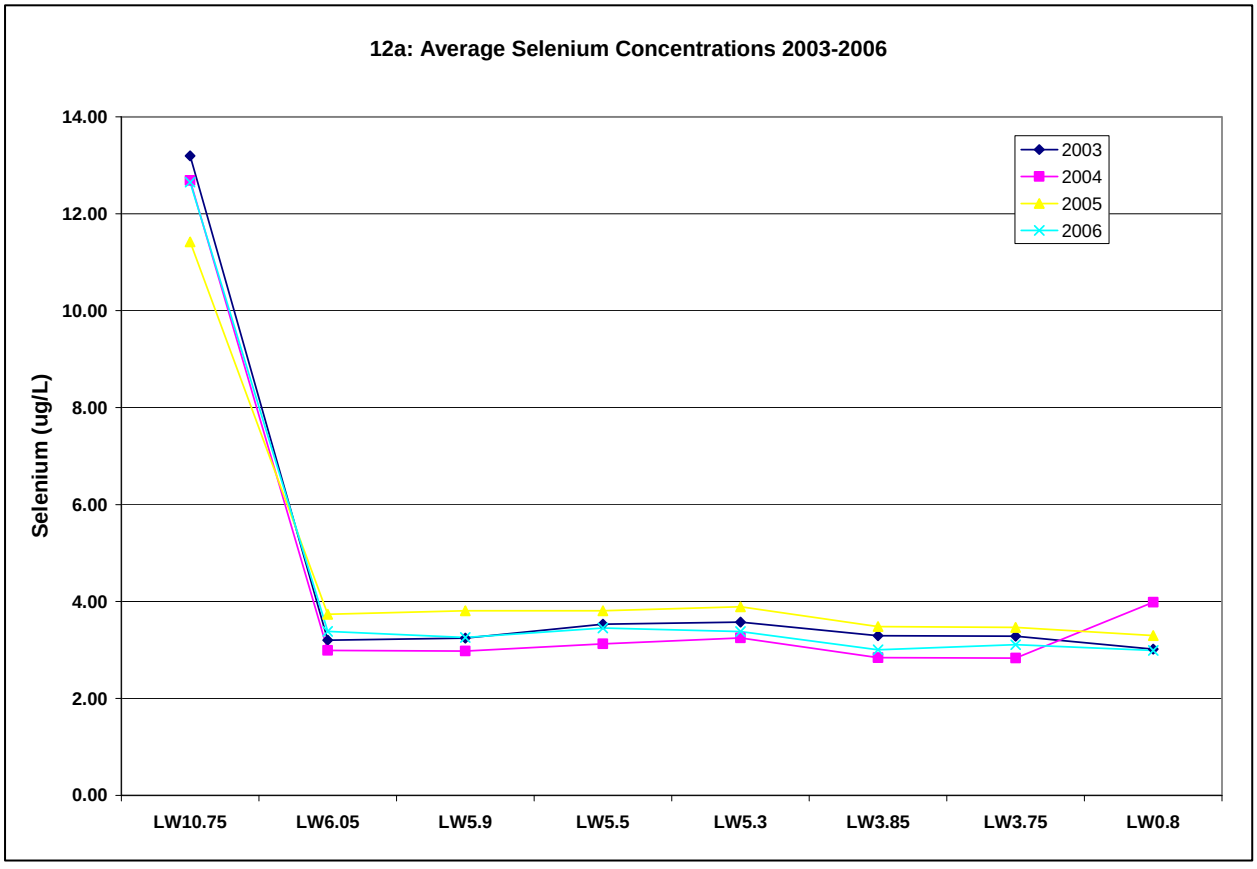


Figure 12a: Average annual selenium concentrations from the Las Vegas Wash mainstream sites 2003-2006.

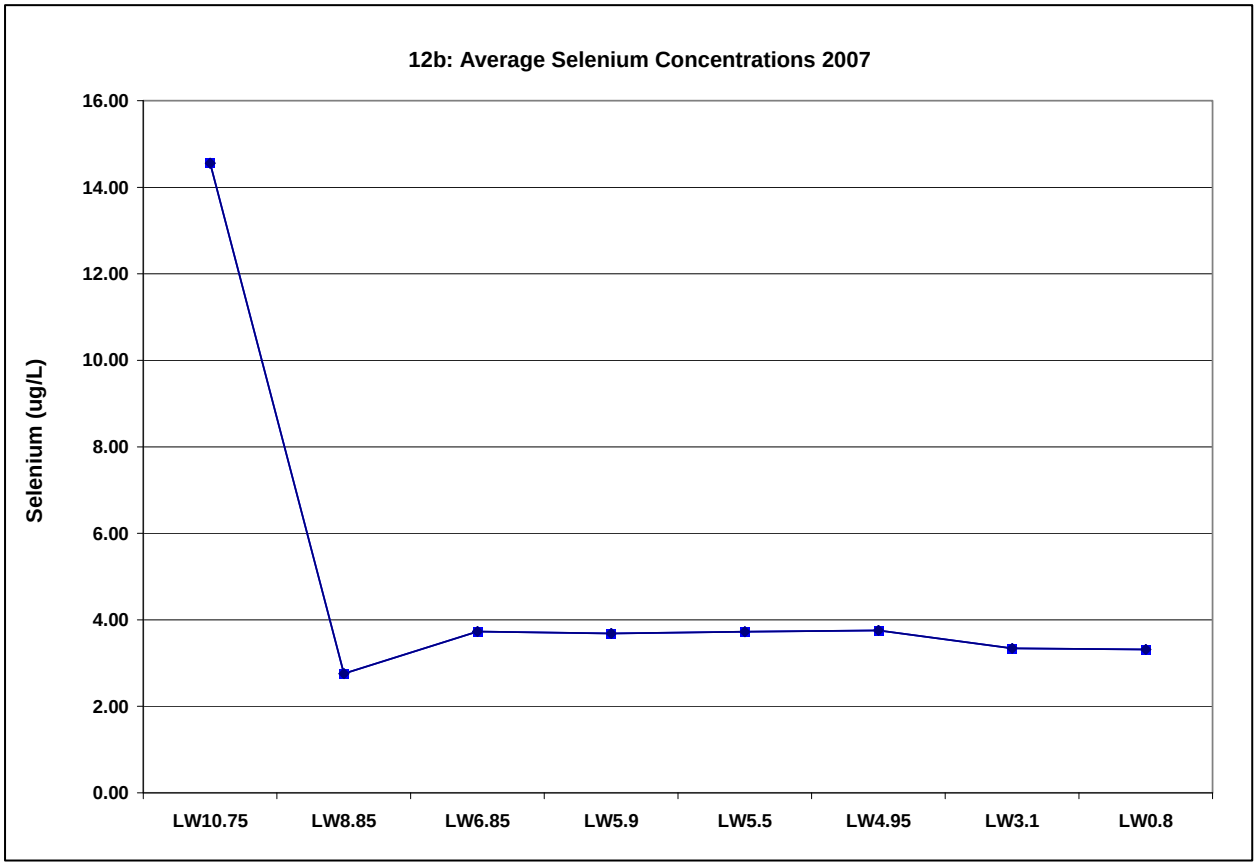
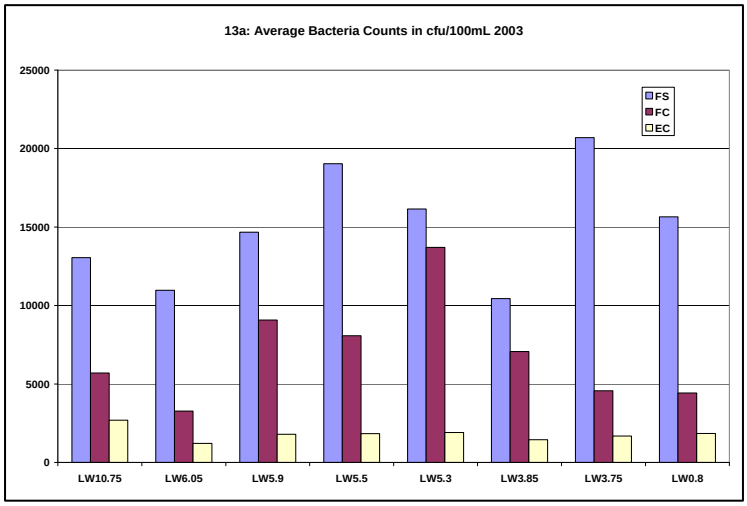
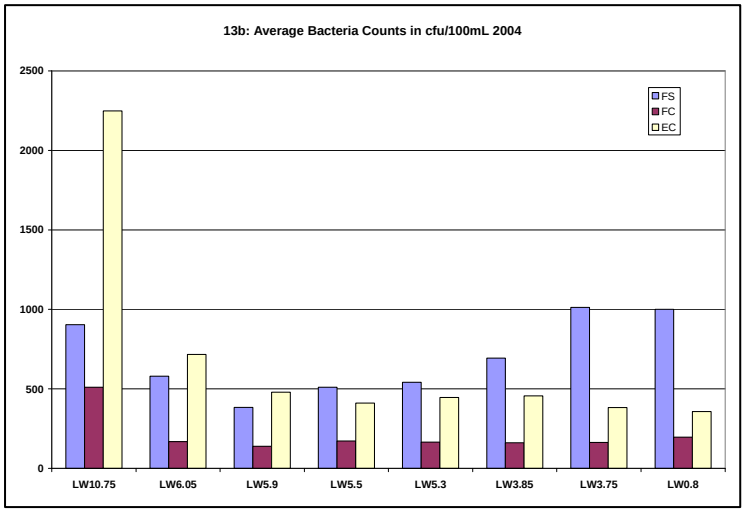


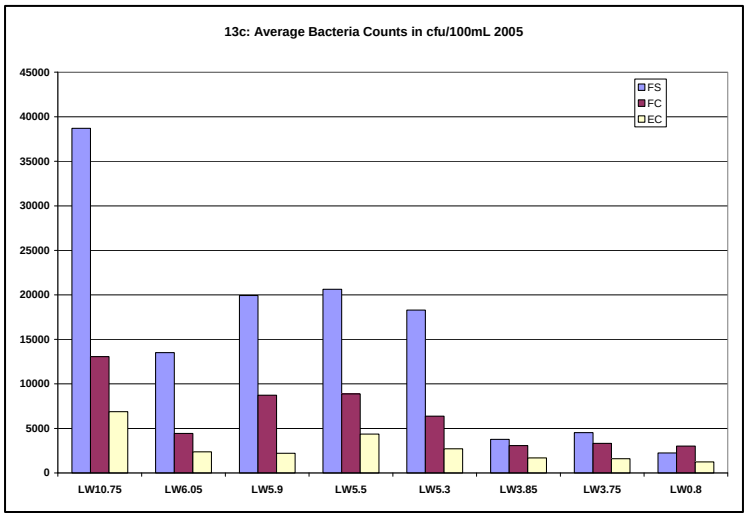
Figure 12b: Average annual selenium concentrations from the Las Vegas Wash mainstream sites 2007.

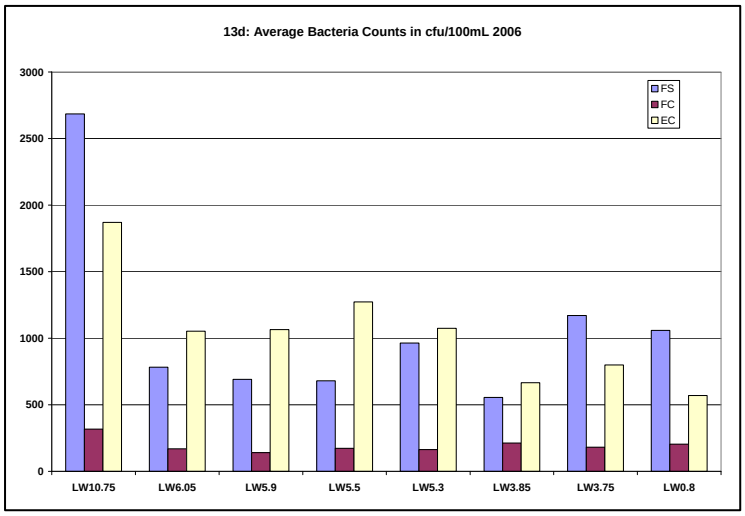
3.6 Bacteria

Fecal coliforms, *Escherichia coli* and fecal streptococci were analyzed at each of the eight mainstream sites. Samples were analyzed using membrane filtration, and three replicate samples were performed to provide for analytical validity. Monthly data for fecal coliforms, *E. coli*, and fecal streptococci from the eight locations (Appendix B1) were reported as average colony-forming units (cfu) per 100 mililiters (mL). Subsequently, the *average* of the average concentrations of fecal coliforms, *E. coli,* and fecal streptococci was then calculated (Figure 13a–e). Bacterial concentrations tended to be higher at site LW10.75. Once the treated effluent from the wastewater treatment plants hit the Wash, bacterial concentrations decreased. Overall, bacterial concentrations were greater during the warmer months of summer and early fall, and decreased during the cooler seasons of winter and early spring.









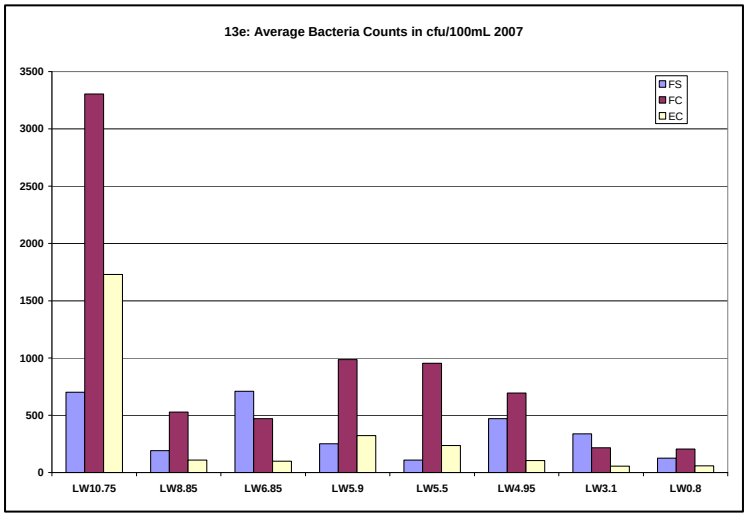


Figure 13: Average bacteria concentrations from the Las Vegas Wash mainstream sites.

3.7 Perchlorate

In 1998 the perchlorate levels in the Wash became a significant environmental concern. Perchlorate enters the Wash via a shallow groundwater plume originating in the vicinity of an industrial complex (Kerr-McGee) approximately two miles southwest of the Wash. Perchlorate was manufactured by Kerr-McGee from the 1940s through the 1990s and by American Pacific from 1958 to 1988. Treatment to remove perchlorate from the shallow groundwater began in 1998.

To monitor the concentration of perchlorate entering Lake Mead, this parameter was added to the comprehensive monitoring plan for the Wash. Monitoring for perchlorate was performed at the eight Wash mainstream sample sites. Due to remediation efforts, the perchlorate levels have dropped significantly over the last five years (Table 9). The average perchlorate concentrations were measured at the mainstream Wash sites from 2003 to 2007 (Figure 14). Sites LW6.05, LW5.3, LW3.85, and LW3.75 were sampled from 2003 to 2006. Sites LW8.85, LW6.85, LW4.95, and LW3.1 were sampled starting in 2007. All other sites were sampled all five years from 2003 to 2007. Monthly perchlorate data from the mainstream sampling sites are presented in Appendix B1.

Site	Perchlorate µg/L 2003	Perchlorate µg/L 2007	% Decrease 2003- 2007
LW10.75	10	10	0
LW5.9	122	49	60
LW5.5	111	38	66
LW0.8	299	92	69

Table 9: Average annual perchlorate data and percent decrease in concentration from 2003 and 2007 from four Las Vegas Wash mainstream sites.

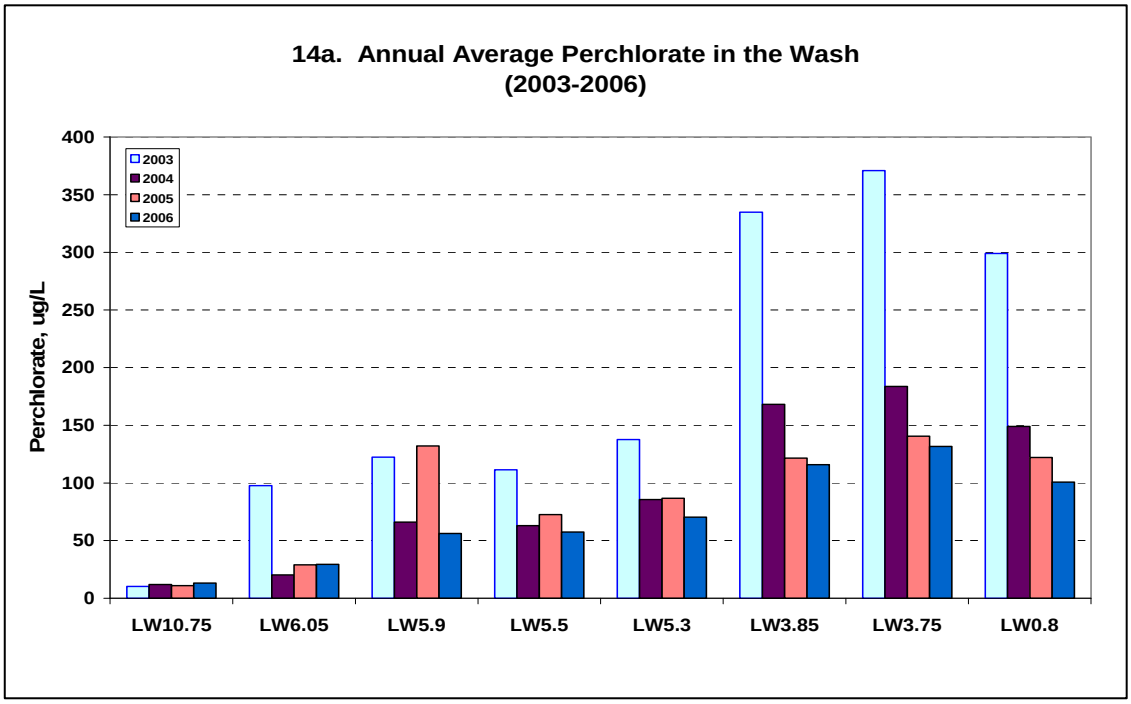


Figure 14a: Average perchlorate concentrations in the Las Vegas Wash mainstream sites from 2003 to 2006.

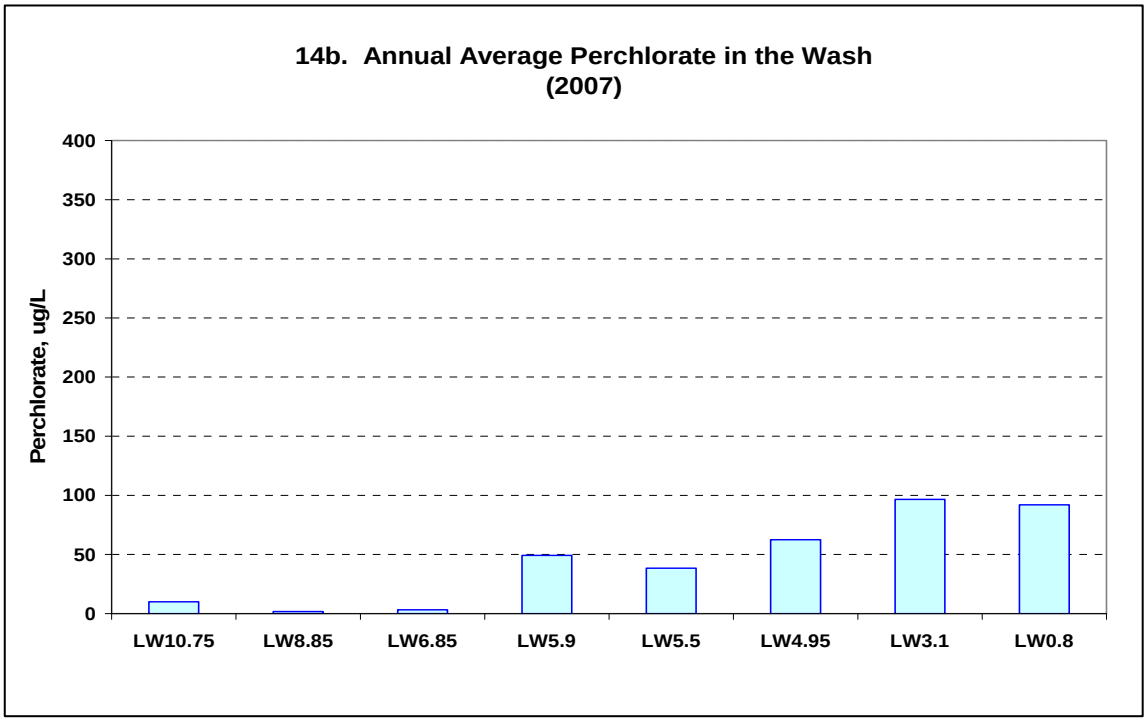


Figure 14b: Average perchlorate concentrations in the Las Vegas Wash mainstream sites in 2007.

Average perchlorate concentrations in the mainstream Wash sites ranged from 2.0 µg/L at site LW8.85 to 371 µg/L at site LW3.75 (Figures 14a and b). Generally, urban run-off has a relatively low perchlorate concentration (i.e., site LW10.75). Perchlorate concentrations were greatly elevated around sites LW6.05, LW 3.85, and LW 3.75 due to shallow groundwater discharges from the high-perchlorate-concentration plumes through Kerr-McGee Seep (LWC6.3) and GCS5 Seep (LWC3.7), respectively (Figure 15); however, perchlorate concentrations have declined due to the remediation activities currently underway.

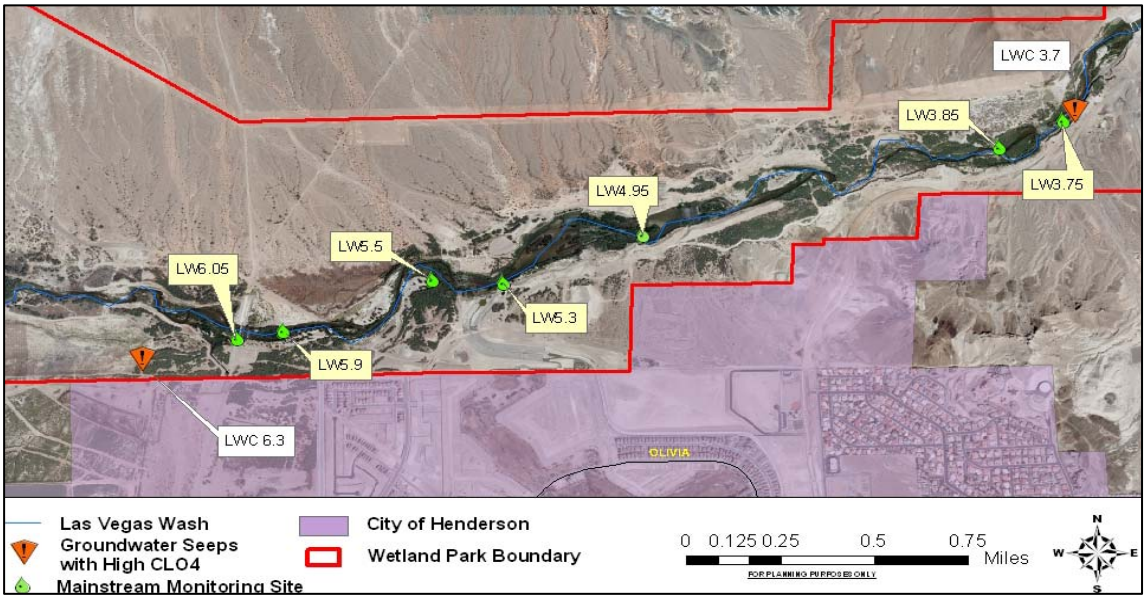


Figure 15: Location of seeps and nearby sampling sites.

4.0 CONCLUSIONS

Water quality in the mainstream Wash is mainly determinated by the water quality of the treated effluent from three wastewater treatment facilities. Effluent discharges dramatically dilute most water quality parameters, such as TDS, major ions, and some trace metals (including selenium) from urban runoff; however, effluent discharge increases nutrients, including nitrogen and phosphorus (TP and PO_4-P), downstream of LW10.75 as a result of the wastewater treatment process. Year-round voluntary removal of nutrients by the wastewater treatment plants greatly reduces the levels of ammonia and phosphorus entering the Wash. The wetlands also play an important role in reducing nutrient levels by taking up nitrogen and phosphorus from the system and allowing TSS to settle out of the water column.

Progress has been made in several areas of the Wash management program since 2003, and the improvements in water quality have become more evident since that time. Construction of ECS and bank stabilization activities continue to move forward. At the start of 2003, seven of the 22 planned weirs had been completed, and water quality changes were already being observed. Eleven of the 22 weirs have now been completed, and the wetlands that form behind them are becoming more developed and mature.

The water quality data from the mainstream sampling program indicates that the wetland systems created by the ECS are playing a positive role in improving water quality. A significant amount of sediment has been trapped in the Wash wetlands before entering Lake Mead. TSS in the Wash has been reduced by an average of 78% due to bank stabiliations, erosion control structures and the development of wetlands (Figure 5).

Generally, concentrations of bacteria, including fecal coliform, *E. coli,* and fecal streptococci, vary greatly over time at all Wash sites, with no consistent source of bacteria. The shallow groundwater discharges, in particular the Kerr-McGee Seep (LWC 6.3), are the major sources of perchlorate contamination in the Wash; however, remediation efforts have dramatically reduced the average perchlorate concentrations in the Wash. At site LW0.8 perchlorate has been reduced by approximately 80% since 2000, from 454 μg/L (Zhou et al. 2004) to 92 μg/L in 2007.

The Las Vegas Wash Mainstream Water Quality Monitoring Program has helped establish baseline information on water quality, quantify the water quality effects of urban runoff from the Las Vegas Valley, and determine the impacts of the wetland systems developed behind the ECS on water quality in the Wash. In 2006, water quality improvements in the mainstream Wash, were noted by both the state and the U.S, Environmental Protection Agency (EPA). The Wash was removed from the Nevada Division of Environmental Protection 303(d) list, a list approved by the EPA that tracks impaired water bodies (LVWCC 2006). The EPA also featured the Wash as a "Success Story" on its web site, chronicling the past eight years of improvements implemented by the LVWCC (LVWCC 2007).

5.0 REFERENCES

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Appendix A

Individual Parameters to be Analyzed for the Water Quality Monitoring Programs in the Mainstream Las Vegas Wash.

A1. Metals Group

A2. Cation-Anion Group, TSS, and TDS

A3. Nutrient Group

A4. Bacteriological Group

A1. Heavy Metals Group

Aluminum
Antimony
Arsenic
Barium
Beryllium
Cadmium
Copper
Chromium
Iron
Lead
Manganese
Mercury
Nickel
Selenium
Silver
Thallium
Zinc

A2. Cation-Anion Group

Sodium
Potassium
Calcium
Magnesium
Bicarbonate
Chloride
Fluoride
Sulfate
Chlorate
Bromide
Silica (SiO_2)
Total Dissolved Solids (TDS)
Total suspended Solids (TSS)
Total Organic Carbon (TOC)
Perchlorate (ClO4)

A3. Nutrient Group

Nitrate Nitrogen (NO_3-N)
Nitrite Nitrogen (NO_2-N)
Total Kjeldahl Nitrogen (TKN)
Ammonia Nitrogen (NH_3-N)
Total Phosphorus (TP)
Ortho-Phosphate (PO_4-P)

A4. Bacteriological Group

Fecal Streptococci
Fecal coliforms
E. coli

Appendix B

Monthly Water Quality Data from Eight Sample Sites in the Mainstream Las Vegas Wash

B1. Monthly Field Measurement, Perchlorate, and Bacteria Data from the Las Vegas Wash Mainstream Sites

B2. Monthly Major Cation, Anion, TSS, and TDS Data from the Las Vegas Wash Mainstream Sites

B3. Monthly Nutrient Data from the Las Vegas Wash Mainstream Sites

B4. Monthly Heavy Metal Data from the Las Vegas Wash Mainstream Sites

Appendix A. Individual Parameters Analyzed for the Mainstream Las Vegas Wash.

A1. Heavy Metals Group

Aluminum
Antimony
Arsenic
Barium
Beryllium
Cadmium
Copper
Chromium
Iron
Lead
Manganese
Mercury
Nickel
Selenium
Silver
Thallium
Zinc

A2. Cation-Anion Group

Sodium
Potassium
Calcium
Magnesium
Bicarbonate
Chloride
Fluoride
Sulfate
Chlorate
Bromide
Silica (SiO2)
Total Dissolved Solids (TDS)
Total suspended Solids (TSS)
Total Organic Carbon (TOC)
Perchlorate (ClO4)

A3. Nutrient Group

Nitrate Nitrogen (NO3-N)
Nitrite Nitrogen (NO2-N)
Total Kjeldahl Nitrogen (TKN)
Ammonia Nitrogen (NH3-N)
Total Phosphorus (TP)
Ortho-Phosphate (PO_4-P)

A4. Bacteriological Group

Fecal Streptococci
Fecal coliforms
E. coli

Appendix IIa. Monthly Field Measurement, Perchlorate, and Bacteria Data from the Las Vegas Wash Mainstream Sites									
Site Location	**Sample Date**	**Conductance us/cm**	**DO mg/l**	**PH Units**	**Temp Deg.C**	**CLO4 ug/l**	**Ave # FC /100 mL**	**Ave # E. coli /100 mL**	**Average FS /100 mL**
LW10.75	1/22/2003	3778	13.58	8.26	13.00	14.9	52	<80	NA
	2/19/2003	3846	8.26	7.91	16.05	9.9	>400	>533	NA
	3/26/2003	4137	14.00	8.28	23.42	15.2	216	142	NA
	4/23/2003	3718	10.13	8.73	21.06	12.9	204	52	NA
	5/28/2003	3850	7.38	8.27	32.57	< 4	220	<400	NA
	6/25/2003	3403	7.91	8.34	30.18	6.7	140	<100	NA
	7/23/2003	3441	12.17	8.42	30.03	8.0	>2000	<2000	3900
	8/27/2003	1577	7.86	8.21	29.68	6.5	122000	22000	6900
	9/24/2003	3446	8.42	8.34	29.09	7.9	1167	<667	<400
	10/22/2003	3671	9.57	8.15	23.31	9.2	4500	N/A	700
	11/19/2003	3527	13.43	8.24	16.22	9.0	667	<100	500
	12/23/2003	3534	13.84	8.71	13.51	11.0	1267	620	NA
LW6.05	1/22/2003	2989	8.69	7.51	17.81	140.0	20	50	NA
	2/19/2003	2363	8.37	7.53	20.54	53.6	330	213	NA
	3/26/2003	2494	8.18	7.59	23.19	45.4	115	88	NA
	4/23/2003	2473	8.27	8.22	22.08	63.3	204	68	NA
	5/28/2003	2552	8.07	7.88	27.64	20.2	<400	<400	NA
	6/25/2003	2113	8.13	7.97	27.15	18.6	140	<100	NA
	7/23/2003	2226	6.68	7.79	29.10	26.8	5900	<2000	4500
	8/27/2003	1856	6.69	7.62	28.40	16.0	100000	19091	2867
	9/24/2003	2092	7.19	7.71	28.28	9.5	733	<333	<400
	10/22/2003	2249	7.78	7.77	26.42	<40	833	N/A	400
	11/19/2003	2294	7.94	7.74	23.40	660.0	1433	125	400
	12/23/2003	2363	8.11	7.78	19.94	21.0	<400	<400	NA
LW5.9	1/22/2003	2669	7.94	7.06	19.53	611.0	70	40	NA
	2/19/2003	2465	8.82	7.44	19.77	186.6	75	<133	NA
	3/26/2003	2528	8.74	7.55	22.72	99.8	132	72	NA
	4/23/2003	2321	8.60	7.89	22.20	69.4	<80	<80	NA
	5/28/2003	2691	8.42	7.90	27.63	67.5	<400	<400	NA
	6/25/2003	2293	8.51	8.10	26.52	61.2	115	<100	NA
	7/23/2003	2335	7.30	7.86	28.40	65.1	4800	1200	4100
	8/27/2003	1994	6.88	7.70	27.83	61.0	110000	35000	4900
	9/24/2003	2264	7.45	7.70	27.77	50.0	1333	<333	440
	10/22/2003	2410	7.95	7.64	26.30	45.0	833	N/A	1083
	11/19/2003	2387	7.92	7.57	23.41	52.0	<667	<100	740
	12/23/2003	2400	7.97	7.51	20.20	100.0	<400	<400	NA
LW5.5	1/22/2003	2910	9.11	7.51	17.72	340.0	40	55	NA
	2/19/2003	2723	8.61	7.68	18.84	208.3	75	<133	NA
	3/26/2003	2615	8.90	7.64	22.28	119.9	280	187	NA
	4/23/2003	2647	9.53	8.09	20.96	130.5	100	<80	NA
	5/28/2003	2723	8.90	8.03	27.04	80.1	<400	<400	NA
	6/25/2003	2229	11.16	8.07	26.54	75.3	105	<100	NA
	7/23/2003	2312	6.97	7.82	28.41	87.3	5900	<2000	4100
	8/27/2003	1861	6.65	7.66	27.67	62.0	181000	24000	5400
	9/24/2003	2246	7.44	7.80	27.50	43.0	1233	<333	500
	10/22/2003	2441	8.35	7.84	25.51	61.0	750	N/A	683
	11/19/2003	2483	8.22	7.77	22.60	63.0	833	<100	780
	12/23/2003	2495	8.38	7.73	19.62	66.0	<400	<400	NA
*NA = Not Analyzed, ND = Non Detect									

Appendix IIa. Monthly Field Measurement, Perchlorate, and Bacteria Data from the Las Vegas Wash Mainstream Sites									
Site Location	**Sample Date**	**Conductance us/cm**	**DO mg/l**	**PH Units**	**Temp Deg.C**	**CLO4 ug/l**	**Ave # FC /100 mL**	**Ave # E. coli /100 mL**	**Average FS /100 mL**
LW5.3	1/22/2003	2900	9.14	7.65	17.23	387.0	46	36	NA
	2/19/2003	2642	8.19	7.71	18.93	232.2	230	<133	NA
	3/26/2003	2793	8.72	7.70	21.74	181.7	88	68	NA
	4/23/2003	2637	7.91	8.18	20.54	155.0	84	<80	NA
	5/28/2003	2896	5.35	8.05	27.65	119.8	<400	<400	NA
	6/25/2003	2216	4.43	7.70	25.75	83.4	115	<100	NA
	7/23/2003	2270	5.79	7.79	28.31	84.1	8900	<2000	4800
	8/27/2003	1909	6.10	7.68	27.49	56.0	149000	41000	4100
	9/24/2003	2364	6.32	7.83	26.76	86.0	1000	<333	<400
	10/22/2003	2515	7.14	7.09	24.74	89.0	800	N/A	733
	11/19/2003	2516	7.42	7.82	21.83	79.0	1200	<100	880
	12/23/2003	2515	7.97	7.81	19.27	98.0	<400	<400	NA
LW3.85	1/22/2003	2889	8.35	7.52	17.10	764.0	82	80	NA
	2/19/2003	2804	8.16	7.65	18.17	572.9	150	<133	NA
	3/26/2003	2852	8.73	7.81	21.07	398.1	60	<80	NA
	4/23/2003	2687	8.03	8.17	19.83	304.4	100	<80	NA
	5/28/2003	2804	8.18	7.92	25.62	373.6	<400	<400	NA
	6/25/2003	2322	8.62	8.02	24.77	263.4	210	<100	NA
	7/23/2003	2218	6.27	7.75	22.15	202.8	7400	<2000	2400
	8/27/2003	2112	5.98	7.64	27.50	200.0	94000	21000	3000
	9/24/2003	2385	6.81	7.76	26.15	280.0	950	<333	<400
	10/22/2003	2474	7.02	7.77	23.83	220.0	533	N/A	667
	11/19/2003	2489	7.66	7.76	21.15	210.0	900	130	680
	12/23/2003	2498	7.94	7.79	18.59	230.0	<400	<400	NA
LW3.75	1/22/2003	2864	8.17	7.47	17.54	818.0	78	52	NA
	2/19/2003	2764	8.64	7.50	18.09	617.3	325	<133	NA
	3/26/2003	2834	8.28	7.78	20.74	422.6	120	120	NA
	4/23/2003	2737	8.35	8.26	20.01	368.9	64	48	NA
	5/28/2003	2794	7.60	7.95	25.30	432.4	<400	<400	NA
	6/25/2003	2342	7.67	8.02	24.58	291.6	170	<100	NA
	7/23/2003	2245	6.86	7.85	27.98	250.2	9100	<20000	2800
	8/27/2003	2153	6.77	7.74	27.35	200.0	194000	22500	3400
	9/24/2003	2413	6.92	7.80	26.00	320.0	1233	<333	<400
	10/22/2003	2510	7.84	7.87	24.00	260.0	700	N/A	683
	11/19/2003	2498	8.00	7.84	21.17	220.0	1133	115	960
	12/23/2003	2507	8.31	7.86	18.74	250.0	<400	<400	NA
LW0.8	1/22/2003	2697	9.40	7.51	17.57	630.0	73	60	NA
	2/19/2003	2649	9.29	7.73	17.77	469.9	200	<133	NA
	3/26/2003	2779	9.14	7.75	19.98	359.8	150	48	NA
	4/23/2003	2645	8.98	8.16	19.68	301.6	156	<80	NA
	5/28/2003	2725	8.19	8.02	24.84	354.0	<400	<400	NA
	6/25/2003	2275	8.44	8.10	24.19	238.9	125	85	NA
	7/23/2003	2207	7.28	8.01	28.10	202.9	8700	<20000	2400
	8/27/2003	2293	7.39	7.91	27.47	190.0	144000	17500	3750
	9/24/2003	2441	7.79	8.02	25.93	240.0	1500	<333	<400
	10/22/2003	2520	8.37	7.99	23.84	210.0	533	N/A	650
	11/19/2003	2531	8.83	7.98	20.95	190.0	1100	<100	1140
	12/23/2003	2545	9.13	7.99	18.42	200.0	<400	<400	NA
*NA = Not Analyzed, ND = Non Detect									

Appendix IIa. Monthly Field Measurement, Perchlorate, and Bacteria Data from the Las Vegas Wash Mainstream Sites									
Site Location	**Sample Date**	**Conductance us/cm**	**DO mg/l**	**PH Units**	**Temp Deg.C**	**CLO4 ug/l**	**Ave # FC /100 mL**	**Ave # E. coli /100 mL**	**Average FS /100 mL**
LW10.75	1/21/2004	3545	10.81	8.77	14.90	6.5	<400	<400	620
	2/25/2004	3494	9.98	8.50	18.98	5.1	NA	NA	NA
	3/24/2004	3717	10.26	8.36	24.97	16.0	<200	<10	2140
	4/28/2004	3755	9.33	8.28	25.38	15.0	135	<100	460
	5/26/2004	3718	8.47	8.10	26.00	13.0	233	73	510
	6/23/2004	3642	8.60	8.21	29.59	11.0	<100	<100	260
	7/21/2004	3544	12.32	8.45	32.11	10.0	570	310	14000
	8/25/2004	3689	10.30	8.32	28.59	12.0	1040	<100	1700
	9/22/2004	3711	10.66	8.20	19.37	16.0	510	80	270
	10/27/2004	3689	8.30	7.89	13.73	13.0	2300	589	NA
	11/17/2004	3360	14.39	8.51	18.89	13.0	1540	1500	280
	12/22/2004	3606	10.09	7.91	7.86	13.0	228	198	NA
LW6.05	1/21/2004	2352	9.19	7.91	19.25	19.0	<400	<400	500
	2/25/2004	2300	8.58	7.67	20.38	19.0	NA	NA	NA
	3/24/2004	2345	8.23	7.75	23.95	18.0	<100	<100	210
	4/28/2004	2393	8.79	7.98	24.15	23.0	120	<100	<133
	5/26/2004	2478	8.42	7.98	25.16	25.0	100	<50	490
	6/23/2004	2278	7.83	8.05	28.18	23.0	<100	<100	427
	7/21/2004	2241	6.81	7.94	29.11	14.0	1800	148	920
	8/25/2004	2049	7.61	7.61	28.93	12.0	450	105	487
	9/22/2004	2356	7.78	7.84	24.50	31.0	640	120	1980
	10/27/2004	2482	7.32	7.61	22.75	23.0	440	140	NA
	11/17/2004	2379	7.79	7.75	22.66	15.0	507	329	<200
	12/22/2004	2653	7.91	7.65	18.26	33.0	88	82	NA
LW5.9	1/21/2004	2407	8.95	7.53	19.21	71.0	<400	<400	460
	2/25/2004	2466	8.18	7.65	20.23	92.0	NA	NA	NA
	3/24/2004	2427	8.11	7.50	23.42	62.0	<100	<100	<200
	4/28/2004	2422	8.13	7.75	23.69	79.0	<100	<100	153
	5/26/2004	2533	8.14	7.84	24.79	91.0	84	<50	550
	6/23/2004	2364	7.73	8.00	27.49	70.0	120	120	400
	7/21/2004	2273	7.05	7.90	28.59	35.0	830	176	1240
	8/25/2004	2199	7.42	7.91	28.41	34.0	570	110	480
	9/22/2004	2452	7.60	7.50	25.41	71.0	460	<50	310
	10/27/2004	2518	6.84	7.37	23.54	71.0	<400	83	NA
	11/17/2004	2446	7.10	7.29	22.99	51.0	240	206	240
	12/22/2004	3464	7.19	7.29	19.23	120.0	<40	68	NA
LW5.5	1/21/2004	2463	9.05	7.79	18.62	58.0	<400	<400	520
	2/25/2004	2356	8.51	7.74	20.53	53.0	NA	NA	NA
	3/24/2004	2466	8.69	7.76	23.19	52.0	115	<100	250
	4/28/2004	2535	8.45	7.19	23.44	94.0	<100	<100	135
	5/26/2004	2525	8.40	7.97	23.43	82.0	113	<50	238
	6/23/2004	2404	7.93	8.05	27.15	63.0	183	183	420
	7/21/2004	2382	7.08	7.92	28.30	58.0	1110	210	840
	8/25/2004	2295	7.40	8.00	27.83	40.0	740	150	500
	9/22/2004	2417	7.73	7.79	24.51	90.0	680	82	460
	10/27/2004	2512	7.68	7.75	22.51	60.0	680	129	NA
	11/17/2004	2542	7.62	7.72	21.95	43.0	460	280	333
	12/22/2004	2631	8.18	7.67	18.20	65.0	88	86	NA
*NA = Not Analyzed, ND = Non Detect									

Appendix IIa. Monthly Field Measurement, Perchlorate, and Bacteria Data from the Las Vegas Wash Mainstream Sites									
Site Location	**Sample Date**	**Conductance us/cm**	**DO mg/l**	**PH Units**	**Temp Deg.C**	**CLO4 ug/l**	**Ave # FC /100 mL**	**Ave # E. coli /100 mL**	**Average FS /100 mL**
LW5.3	1/21/2004	2510	8.11	7.83	18.07	75.0	<400	<400	<400
	2/25/2004	2471	8.43	7.80	19.49	64.0	NA	NA	NA
	3/24/2004	2576	8.19	7.85	22.76	73.0	<100	<100	250
	4/28/2004	2580	7.73	7.75	22.95	110.0	130	<100	140
	5/26/2004	2586	7.87	7.96	23.65	140.0	91	50	225
	6/23/2004	2509	7.14	8.04	26.68	110.0	237	237	533
	7/21/2004	2447	6.33	7.95	27.78	92.0	1500	200	1180
	8/25/2004	2411	6.87	8.01	27.27	63.0	710	145	533
	9/22/2004	2418	7.54	7.79	23.93	87.0	740	82	427
	10/27/2004	2512	7.53	7.74	22.26	62.0	540	138	NA
	11/17/2004	2648	7.78	7.77	21.48	65.0	380	303	280
	12/22/2004	2655	8.02	7.85	17.75	66.0	94	<40	NA
LW3.85	1/21/2004	2505	8.61	7.84	17.40	190.0	<400	<400	<400
	2/25/2004	2600	7.67	7.78	18.08	210.0	NA	NA	NA
	3/24/2004	2581	8.60	7.95	22.05	200.0	<100	<100	<200
	4/28/2004	2449	8.10	7.92	22.70	190.0	<100	<100	312
	5/26/2004	2401	7.57	7.87	23.47	150.0	<50	<50	750
	6/23/2004	2337	7.16	7.97	26.24	150.0	<100	<100	620
	7/21/2004	2294	6.50	7.88	27.32	140.0	1400	200	480
	8/25/2004	2406	7.37	7.99	26.23	170.0	430	120	250
	9/22/2004	2259	6.79	7.82	23.18	170.0	687	83	427
	10/27/2004	2523	7.46	7.83	20.96	140.0	740	213	NA
	11/17/2004	2542	7.47	7.82	20.80	140.0	210	186	350
	12/22/2004	2641	8.07	7.87	16.83	190.0	46	94	Na
LW3.75	1/21/2004	2527	8.69	7.89	17.56	200.0	<400	<400	<400
	2/25/2004	2622	8.78	7.80	18.31	240.0	NA	NA	NA
	3/24/2004	2596	7.87	7.88	21.84	220.0	<100	<100	<200
	4/28/2004	2459	7.48	7.89	22.57	200.0	<100	<100	236
	5/26/2004	2438	6.89	7.86	23.40	170.0	<50	<50	540
	6/23/2004	2396	5.79	7.91	25.71	160.0	<100	<100	620
	7/21/2004	2271	6.10	7.84	26.99	140.0	1900	220	390
	8/25/2004	2402	4.98	7.97	25.87	180.0	550	<100	280
	9/22/2004	2283	7.27	7.86	23.23	180.0	1100	88	413
	10/27/2004	2563	7.30	7.90	21.26	160.0	500	184	NA
	11/17/2004	2570	7.79	7.86	20.95	170.0	<200	160	200
	12/22/2004	2666	8.31	7.93	17.28	210.0	108	46	NA
LW0.8	1/21/2004	2561	9.46	8.00	17.26	180.0	<400	<400	<400
	2/25/2004	2611	9.21	8.00	17.81	200.0	NA	NA	NA
	3/24/2004	2533	8.74	8.00	21.45	180.0	<100	<100	<200
	4/28/2004	2406	8.39	8.05	22.35	150.0	110	<100	204
	5/26/2004	2384	8.17	8.05	23.30	140.0	<50	<50	420
	6/23/2004	2315	7.75	8.19	25.81	140.0	<100	<100	587
	7/21/2004	2243	7.55	8.19	26.85	120.0	2500	310	380
	8/25/2004	2321	8.01	8.16	25.78	140.0	1030	<100	420
	9/22/2004	2233	8.35	8.07	22.79	130.0	1340	88	220
	10/27/2004	2518	8.75	8.18	20.83	140.0	700	191	NA
	11/17/2004	2459	8.94	8.08	20.54	120.0	327	<100	270
	12/22/2004	2644	9.55	8.24	16.57	210.0	88	80	NA
*NA = Not Analyzed, ND = Non Detect									

Appendix IIa. Monthly Field Measurement, Perchlorate, and Bacteria Data from the Las Vegas Wash Mainstream Sites									
Site Location	**Sample Date**	**Conductance us/cm**	**DO mg/l**	**PH Units**	**Temp Deg.C**	**CLO4 ug/l**	**Ave # FC /100 mL**	**Ave # E. coli /100 mL**	**Average FS /100 mL**
LW10.75	1/26/2005	945.7	8.62	8.18	14.26	15.0	12000	7200	10000
	2/28/2005	3502	10.12	8.38	18.87	11.0	<100	<100	<100
	3/30/2005	3618	13.71	8.54	18.85	12.0	<400	<20	<400
	4/19/2005	3779	12.34	8.46	18.68	12.0	<20	<20	46
	5/25/2005	3717	6.45	7.69	19.79	8.1	348	134	580
	6/22/2005	3853	8.64	8.14	28.20	9.7	4800	178	318
	7/27/2005	2463	11.77	8.31	31.18	9.6	13600	244	344
	8/24/2005	3568	9.66	8.30	29.43	12.0	2290	232	1240
	9/21/2005	2718	8.01	7.86	25.30	12.0	305000	82000	37500
	10/26/2005	1866	8.29	8.01	20.68	5.3	9300	1460	5000
	11/30/2005	3735	10.75	8.35	15.28	12.0	600	<286	<400
	12/28/2005	3607	12.35	8.41	12.69	12.0	380	<200	<200
LW6.05	1/26/2005	2561	3.45	7.91	20.40	32.0	132	124	<200
	2/28/2005	2526	8.18	7.82	21.47	35.0	<100	<100	<100
	3/30/2005	2646	12.85	8.02	20.76	27.0	97	<40	110
	4/19/2005	2761	9.60	7.99	20.95	42.0	33	33	200
	5/25/2005	2684	6.86	7.43	24.55	42.0	168	52	610
	6/22/2005	2491	9.01	7.95	27.30	22.0	106	69	1180
	7/27/2005	2502	7.13	7.67	28.80	24.0	TNTC	512	836
	8/24/2005	2387	7.35	7.78	28.37	21.0	1080	76	1220
	9/21/2005	2292	7.03	7.47	26.59	24.0	125000	38000	15900
	10/26/2005	2046	7.76	7.81	23.39	19.0	7400	940	2700
	11/30/2005	2460	8.47	7.99	20.73	26.0	420	<286	640
	12/28/2005	2546	8.34	7.97	19.52	34.0	620	220	420
LW5.9	1/26/2005	2567	7.94	7.58	20.39	72.0	105	54	220
	2/28/2005	2603	7.27	7.48	21.27	200.0	<100	<40	125
	3/30/2005	2787	9.01	7.68	20.43	140.0	120	<40	<100
	4/19/2005	2861	8.04	7.69	20.84	180.0	30	21	210
	5/25/2005	2793	7.01	7.47	24.57	160.0	98	56	715
	6/22/2005	2704	6.95	7.78	26.92	140.0	488	94	1180
	7/27/2005	2580	6.64	7.44	29.01	130.0	TNTC	16800	1004
	8/24/2005	2482	6.44	7.65	28.42	120.0	1020	72	1020
	9/21/2005	2350	6.49	7.39	26.78	110.0	190000	52000	16200
	10/26/2005	2220	6.62	7.40	24.17	72.0	6400	851	2600
	11/30/2005	2625	7.26	7.91	20.24	52.0	460	<286	480
	12/28/2005	2572	6.86	7.43	19.99	210.0	460	<200	540
LW5.5	1/26/2005	2697	8.20	7.80	20.04	64.0	148	106	<200
	2/28/2005	2613	8.21	7.77	20.75	65.0	<100	<100	<100
	3/30/2005	2872	10.57	7.97	20.06	76.0	<40	<40	<100
	4/19/2005	2833	9.19	7.89	20.23	100.0	22	23	200
	5/25/2005	2722	8.05	7.64	24.61	88.0	92	54	615
	6/22/2005	2649	8.19	7.91	26.64	71.0	142	95	1260
	7/27/2005	2568	7.18	7.62	28.59	70.0	TNTC	28880	1200
	8/24/2005	2493	7.38	7.81	28.06	66.0	1250	102	1500
	9/21/2005	2337	7.02	7.55	26.23	61.0	155000	41000	25500
	10/26/2005	2080	7.76	7.71	22.47	42.0	7900	789	3900
	11/30/2005	2673	8.64	8.00	19.69	57.0	<400	<286	<400
	12/28/2005	2594	8.13	7.64	19.44	110.0	520	<200	760
*NA = Not Analyzed, ND = Non Detect									

Appendix IIa. Monthly Field Measurement, Perchlorate, and Bacteria Data from the Las Vegas Wash Mainstream Sites									
Site Location	**Sample Date**	**Conductance us/cm**	**DO mg/l**	**PH Units**	**Temp Deg.C**	**CLO4 ug/l**	**Ave # FC /100 mL**	**Ave # E. coli /100 mL**	**Average FS /100 mL**
LW5.3	1/26/2005	2761	7.84	7.78	19.79	88.0	108	110	220
	2/28/2005	2778	8.04	7.85	20.18	88.0	<100	<100	120
	3/30/2005	2820	8.98	7.94	19.88	96.0	<40	<40	<100
	4/19/2005	2835	8.13	7.84	19.61	130.0	<20	<20	190
	5/25/2005	2719	7.68	7.77	24.57	96.0	140	74	575
	6/22/2005	2682	7.50	7.94	26.46	88.0	362	94	1220
	7/27/2005	2582	6.92	7.73	28.29	80.0	TNTC	22400	1080
	8/24/2005	2517	6.75	7.86	27.73	77.0	1000	104	1420
	9/21/2005	2389	6.46	7.56	25.95	70.0	135000	33000	18900
	10/26/2005	2091	7.30	7.81	21.84	56.0	8700	1006	4800
	11/30/2005	2717	7.93	8.04	19.22	80.0	400	357	680
	12/28/2005	2613	8.01	7.76	19.12	91.0	560	240	700
LW3.85	1/26/2005	2686	8.03	7.93	19.42	150.0	200	205	<200
	2/28/2005	2823	8.08	8.06	19.57	150.0	<133	<133	<100
	3/30/2005	2704	11.00	8.27	19.07	14.0	<80	<80	<100
	4/19/2005	2725	8.53	7.95	18.46	160.0	<20	<20	90
	5/25/2005	2657	8.74	8.07	24.35	150.0	142	104	230
	6/22/2005	2577	7.60	8.01	25.93	140.0	194	44	1020
	7/27/2005	2491	6.90	7.84	27.77	110.0	TNTC	15200	656
	8/24/2005	2424	6.39	7.92	26.99	120.0	720	84	1260
	9/21/2005	2412	6.44	7.68	25.07	110.0	16700	4670	5400
	10/26/2005	2030	8.21	7.93	21.26	94.0	8000	1126	4700
	11/30/2005	2603	8.22	7.97	18.48	130.0	<400	<286	<400
	12/28/2005	2558	8.69	7.93	18.35	130.0	520	<200	280
LW3.75	1/26/2005	2692	7.86	7.89	19.48	180.0	220	225	<200
	2/28/2005	2832	7.62	8.02	19.61	180.0	<200	<133	105
	3/30/2005	2702	8.99	8.20	19.00	17.0	<80	<80	<100
	4/19/2005	2724	7.50	7.89	18.66	179.0	<20	<20	80
	5/25/2005	2702	7.42	8.11	24.33	160.0	80	88	200
	6/22/2005	2598	7.11	7.99	25.72	150.0	260	37	330
	7/27/2005	2506	6.47	7.84	27.37	130.0	TNTC	16000	744
	8/24/2005	2450	6.70	7.97	26.79	150.0	220	58	1600
	9/21/2005	2466	6.48	7.70	25.08	120.0	22450	5890	5650
	10/26/2005	2052	7.52	7.94	21.21	110.0	8200	1027	4300
	11/30/2005	2628	7.63	8.01	18.80	150.0	<400	<286	2628
	12/28/2005	2573	8.24	7.74	18.52	160.0	280	<200	360
LW0.8	1/26/2005	2662	9.09	8.05	19.43	140.0	380	260	<200
	2/28/2005	2688	9.54	8.11	18.00	140.0	<200	<200	320
	3/30/2005	2664	9.55	8.09	18.14	130.0	<80	<80	<100
	4/19/2005	2666	9.35	8.06	18.15	150.0	29	<20	110
	5/25/2005	2670	8.64	8.25	24.59	150.0	376	118	290
	6/22/2005	2476	8.19	8.14	25.50	110.0	50	48	304
	7/27/2005	2442	7.72	8.10	27.29	100.0	TNTC	17600	1020
	8/24/2005	2411	7.37	8.17	26.28	120.0	1090	450	1520
	9/21/2005	2422	7.77	7.97	25.04	110.0	6950	1880	4950
	10/26/2005	2082	8.23	8.04	20.74	86.0	8800	811	3300
	11/30/2005	2942	7.61	8.00	17.57	110.0	<400	<286	420
	12/28/2005	2821	8.04	7.88	17.64	120.0	360	<200	270
*NA = Not Analyzed, ND = Non Detect									

Appendix IIa. Monthly Field Measurement, Perchlorate, and Bacteria Data from the Las Vegas Wash Mainstream Sites									
Site Location	**Sample Date**	**Conductance us/cm**	**DO mg/l**	**PH Units**	**Temp Deg.C**	**CLO4 ug/l**	**Ave # FC /100 mL**	**Ave # E. coli /100 mL**	**Average FS /100 mL**
LW10.75	1/25/2006	3714	11.22	8.33	12.56	14.0	<200	<80	1760
	2/22/2006	3764	11.28	8.27	14.80	14.0	<200	<80	840
	3/22/2006	2394	8.88	8.12	18.88	19.0	2110	1420	1620
	4/26/2006	3645	9.31	8.20	23.36	9.5	<100	<100	2000
	5/17/2006	3665	9.49	8.16	25.96	9.1	450	114	1440
	6/21/2006	3798	8.49	8.08	22.53	5.5	2020	340	3800
	7/27/2006	3803	9.92	8.35	27.65	<4	6000	273	2800
	8/23/2006	3933	8.32	8.20	30.57	11.0	<1000	155	1750
	9/19/2006	3733	9.18	8.23	24.09	11.0	827	125	2700
	10/17/2006	3477	8.73	8.18	19.55	13.0	4700	260	660
	11/14/2006	3731	10.91	8.23	16.76	13.0	<1000	98	1200
	12/13/2006	3447	11.30	8.30	12.13	25.0	<200	70	<286
LW6.05	1/25/2006	2436	8.19	7.92	18.84	28.0	353	148	1000
	2/22/2006	2418	9.17	8.05	19.26	28.0	<200	124	660
	3/22/2006	2363	8.59	7.90	19.50	32.0	910	409	960
	4/26/2006	2493	9.15	8.02	23.05	23.0	105	<100	700
	5/17/2006	2517	9.27	8.02	25.64	32.0	144	56	1010
	6/21/2006	2432	8.19	8.01	26.78	32.0	440	88	1267
	7/27/2006	2331	7.40	7.99	28.85	22.0	526	197	2200
	8/23/2006	2357	7.48	8.02	28.85	28.0	<1000	140	1200
	9/19/2006	2242	7.76	7.98	26.38	22.0	483	<100	1100
	10/17/2006	2407	7.48	7.85	24.54	27.0	3300	260	1020
	11/14/2006	2456	8.47	7.91	21.90	32.0	<1000	<67	460
	12/13/2006	2437	8.37	7.90	19.74	47.0	<200	105	<200
LW5.9	1/25/2006	2492	7.80	7.64	18.80	45.0	487	164	1240
	2/22/2006	2536	8.33	7.70	19.25	70.0	<200	<80	460
	3/22/2006	2536	7.48	7.42	19.97	76.0	740	329	800
	4/26/2006	2572	8.37	7.50	23.08	51.0	<100	<100	760
	5/17/2006	2690	8.42	7.72	25.72	64.0	138	<40	680
	6/21/2006	2505	7.77	7.80	27.05	44.0	220	81	1333
	7/27/2006	2358	7.19	8.00	28.70	47.0	782	130	2400
	8/23/2006	2613	7.07	7.69	28.60	54.0	<1000	105	1450
	9/19/2006	2343	7.05	7.47	26.69	40.0	773	<100	980
	10/17/2006	2397	7.32	7.74	24.50	51.0	1700	153	1120
	11/14/2006	2415	7.24	7.42	22.81	69.0	<1000	67	500
	12/13/2006	2491	7.39	7.27	20.84	64.0	<200	98	<200
LW5.5	1/25/2006	2558	8.23	7.72	18.13	46.0	310	140	1020
	2/22/2006	2562	9.12	7.81	18.74	62.0	210	<80	580
	3/22/2006	2464	8.50	7.65	19.35	65.0	1010	457	1240
	4/26/2006	2619	9.31	7.80	22.66	61.0	<100	<100	800
	5/17/2006	2658	8.99	7.82	25.50	66.0	158	42	820
	6/21/2006	2485	8.50	7.94	27.27	51.0	290	71	1500
	7/27/2006	2399	7.65	8.01	28.71	48.0	1000	140	2800
	8/23/2006	2525	7.29	7.87	28.44	54.0	<1000	<100	1550
	9/19/2006	2364	7.63	7.78	25.96	45.0	633	<100	1360
	10/17/2006	2547	7.95	7.85	23.99	52.0	1833	207	1060
	11/14/2006	2559	8.20	7.64	21.92	65.0	<1000	<67	<400
	12/13/2006	2546	8.07	7.62	19.69	75.0	<200	160	<200
*NA = Not Analyzed, ND = Non Detect									

Appendix IIa. Monthly Field Measurement, Perchlorate, and Bacteria Data from the Las Vegas Wash Mainstream Sites									
Site Location	**Sample Date**	**Conductance us/cm**	**DO mg/l**	**PH Units**	**Temp Deg.C**	**CLO4 ug/l**	**Ave # FC /100 mL**	**Ave # E. coli /100 mL**	**Average FS /100 mL**
LW5.3	1/25/2006	2593	7.79	7.79	17.64	68.0	527	229	1100
	2/22/2006	2567	8.44	7.83	18.19	71.0	<200	<80	460
	3/22/2006	2480	7.99	7.55	18.99	74.0	970	480	1400
	4/26/2006	2724	8.72	7.98	22.08	74.0	<100	<100	920
	5/17/2006	2659	9.12	7.94	25.22	70.0	122	42	710
	6/21/2006	2499	8.00	8.10	27.52	54.0	237	49	967
	7/27/2006	2388	7.12	8.04	28.52	62.0	494	110	945
	8/23/2006	2541	6.63	7.89	28.28	61.0	<1000	100	1200
	9/19/2006	2464	7.34	7.90	25.18	62.0	700	<100	2100
	10/17/2006	2616	7.17	7.82	23.64	70.0	3700	263	940
	11/14/2006	2575	7.66	7.66	21.84	79.0	<50	77	<400
	12/13/2006	2594	7.52	7.75	19.31	100.0	<200	123	<200
LW3.85	1/25/2006	2532	8.29	7.93	16.78	120.0	427	243	780
	2/22/2006	2500	8.83	7.99	17.08	110.0	200	136	<400
	3/22/2006	2381	8.51	7.95	18.27	100.0	630	423	640
	4/26/2006	2555	9.23	8.09	21.50	110.0	<100	<100	560
	5/17/2006	2537	8.99	8.06	24.64	100.0	88	<40	570
	6/21/2006	2561	8.26	8.29	27.51	120.0	132	<20	338
	7/27/2006	2356	7.26	7.97	27.90	110.0	773	<100	917
	8/23/2006	2477	7.04	7.99	27.65	100.0	<1000	<100	<1000
	9/19/2006	2426	7.67	7.96	24.16	100.0	457	<100	480
	10/17/2006	2582	7.48	7.90	23.00	120.0	1733	260	1040
	11/14/2006	2523	7.58	7.80	20.99	110.0	<50	73	<400
	12/13/2006	2579	8.18	7.88	18.50	190.0	<200	137	<200
LW3.75	1/25/2006	2555	7.43	7.91	16.94	140.0	340	206	600
	2/22/2006	2541	7.43	7.96	17.30	130.0	<200	128	500
	3/22/2006	2403	7.79	7.92	18.30	130.0	850	503	580
	4/26/2006	2566	8.22	8.07	21.35	130.0	<100	<100	700
	5/17/2006	2542	8.18	8.03	24.41	120.0	116	<40	450
	6/21/2006	2592	7.31	8.29	27.56	130.0	144	24	682
	7/27/2006	2378	6.50	7.97	27.62	130.0	3200	<100	2000
	8/23/2006	2472	6.98	8.01	27.46	110.0	<1000	100	1050
	9/19/2006	2411	7.54	7.96	24.33	110.0	449	<100	447
	10/17/2006	2574	7.27	7.92	23.01	140.0	3100	240	980
	11/14/2006	2530	7.67	7.82	21.00	110.0	<1000	80	<400
	12/13/2006	2604	7.85	7.88	18.60	200.0	<200	170	<200
LW0.8	1/25/2006	2509	9.02	8.02	16.48	110.0	370	254	450
	2/22/2006	2475	9.20	8.01	16.83	100.0	250	144	440
	3/22/2006	2331	9.35	8.03	17.59	96.0	750	511	1060
	4/26/2006	2640	9.37	8.12	20.93	100.0	<100	<100	440
	5/17/2006	2586	8.65	8.15	24.07	91.0	134	<40	380
	6/21/2006	2642	7.70	8.41	27.73	130.0	152	20	425
	7/27/2006	2438	7.15	8.03	27.18	100.0	3200	<20	560
	8/23/2006	2468	7.66	8.20	27.33	93.0	<1000	<100	<1000
	9/19/2006	2380	8.16	8.03	23.73	92.0	417	<100	580
	10/17/2006	2503	8.53	8.12	22.86	97.0	3200	273	860
	11/14/2006	2455	8.62	8.00	20.70	100.0	<1000	116	500
	12/13/2006	2531	8.76	8.03	18.05	100.0	<200	112	<200
*NA = Not Analyzed, ND = Non Detect									

Appendix IIa. Monthly Field Measurement, Perchlorate, and Bacteria Data from the Las Vegas Wash Mainstream Sites									
Site Location	**Sample Date**	**Conductance us/cm**	**DO mg/l**	**PH Units**	**Temp Deg.C**	**CLO4 ug/l**	**Ave # FC /100 mL**	**Ave # E. coli /100 mL**	**Average FS /100 mL**
LW10.75	1/17/2007	3580	13.87	8.10	3.72	11.0	27	50	25
	2/21/2007	3526	13.75	8.01	12.30	NA	27	50	50
	3/21/2007	3750	7.64	8.14	12.92	11.0	490	50	33
	4/25/2007	3670	9.38	8.31	17.38	11.0	3	176	59
	5/23/2007	3747	11.09	8.24	16.36	9.8	25	800	100
	6/20/2007	3709	9.07	8.07	21.31	9.2	7	5800	2000
	7/16/2007	3469	11.68	8.14	26.42	8.7	91	3100	613
	8/22/2007	3723	11.66	8.13	23.38	9.9	79	20500	13700
	9/19/2007	3705	10.57	8.23	19.01	10.0	5300	4400	2060
	10/17/2007	3494	9.83	7.35	14.20	10.0	1100	1300	334
	11/19/2007	3627	11.75	8.14	14.81	9.5	560	140	50
	12/19/2007	3629	17.73	7.75	10.27	11.0	<1000	270	<400
LW8.85	1/17/2007	2019	8.53	7.53	19.40	3.8	93	50	25
	2/21/2007	1990	7.43	6.94	21.29	NA	27	50	50
	3/21/2007	2094	5.22	7.24	22.17	1.0	320	50	33
	4/25/2007	2063	9.94	7.14	24.05	2.2	110	40	20
	5/23/2007	2044	7.85	7.31	24.55	1.6	67	100	100
	6/20/2007	1984	7.02	7.28	27.53	1.5	17	260	81
	7/16/2007	1998	15.09	7.10	29.40	1.7	840	1190	139
	8/22/2007	2007	6.51	7.26	28.94	1.6	13	3300	623
	9/19/2007	1943	6.77	7.41	28.18	1.3	9	460	50
	10/17/2007	2079	6.36	7.25	25.41	1.4	200	200	25
	11/17/2007	1982	7.28	7.32	24.98	1.4	420	110	50
	12/19/2007	2102	10.70	7.21	21.71	2.5	<1000	<200	<400
LW6.85	1/17/2007	2285	8.95	7.81	18.09	5.8	810	80	85
	2/21/2007	2377	8.88	7.54	20.07	4.5	370	100	40
	3/21/2007	2510	6.34	7.87	21.06	4.5	507	160	160
	4/25/2007	2471	6.68	7.89	22.87	5.2	2200	91	20
	5/23/2007	2443	9.37	7.90	23.22	4.2	1120	200	100
	6/20/2007	2327	8.41	7.89	26.64	3.0	1600	660	382
	7/16/2007	2322	14.25	7.79	28.71	3.4	2950	667	80
	8/22/2007	2292	7.94	7.87	28.15	3.0	1633	4700	184
	9/19/2007	2278	7.91	7.99	26.66	3.5	933	860	102
	10/17/2007	2437	7.83	7.77	23.97	3.7	500	620	106
	11/19/2007	2282	8.04	7.84	23.77	3.2	710	470	100
	12/19/2007	2465	12.58	7.84	20.26	4.1	<1000	<200	230
LW5.9	1/17/2007	2379	8.84	7.50	17.94	41.0	68	120	60
	2/21/2007	2357	8.12	7.00	20.56	NA	59	105	50
	3/21/2007	2689	6.23	7.79	21.24	67.0	67	125	110
	4/25/2007	2620	6.75	7.83	23.06	85.0	69	104	20
	5/23/2007	2740	9.17	7.61	23.44	62.0	61	300	100
	6/20/2007	2650	8.20	7.66	26.60	58.0	46	323	119
	7/16/2007	2521	6.76	7.75	28.79	41.0	94	5200	1927
	8/22/2007	2447	7.82	7.77	28.26	28.0	1400	2500	334
	9/19/2007	2497	7.44	7.64	26.92	30.0	40	1000	334
	10/17/2007	2546	7.03	7.39	24.60	49.0	334	680	397
	11/19/2007	2359	7.45	7.53	24.42	32.0	530	390	110
	12/19/2007	2708	11.09	7.32	21.68	37.0	<400	<200	<400
*NA = Not Analyzed, ND = Non Detect									

Appendix IIa. Monthly Field Measurement, Perchlorate, and Bacteria Data from the Las Vegas Wash Mainstream Sites									
Site Location	**Sample Date**	**Conductance us/cm**	**DO mg/l**	**PH Units**	**Temp Deg.C**	**CLO4 ug/l**	**Ave # FC /100 mL**	**Ave # E. coli /100 mL**	**Average FS /100 mL**
LW5.5	1/17/2007	2370	8.97	7.83	17.78	37.0	56	50	25
	2/21/2007	2386	8.84	7.50	20.45	NA	66	50	50
	3/21/2007	2605	6.71	8.02	21.20	45.0	62	110	33
	4/25/2007	2568	7.10	7.98	23.24	57.0	124	78	20
	5/23/2007	2462	9.78	7.86	24.18	35.0	69	100	100
	6/20/2007	2563	8.49	7.80	26.74	56.0	41	380	120
	7/16/2007	2488	6.85	7.82	28.94	42.0	43	4933	1487
	8/22/2007	2405	8.02	7.87	28.37	32.0	13	2400	200
	9/19/2007	2386	7.67	7.91	26.63	22.0	9	1000	200
	10/17/2007	2467	7.49	7.77	23.84	35.0	18	864	200
	11/19/2007	2322	7.96	7.81	23.81	22.0	690	530	170
	12/19/2007	2579	12.08	7.74	20.42	33.0	<1000	<200	<400
LW4.95	1/17/2007	2497	8.79	8.01	17.19	64.0	480	165	80
	2/21/2007	2471	8.61	7.69	20.10	55.0	340	70	50
	3/21/2007	2724	6.45	8.10	21.03	80.0	350	50	25
	4/25/2007	2682	6.73	8.06	23.24	85.0	420	83	20
	5/23/2007	2623	9.76	8.09	23.86	61.0	1080	160	40
	6/20/2007	2535	8.34	7.92	26.81	78.0	500	110	37
	7/16/2007	2510	6.86	7.83	28.95	62.0	640	4400	298
	8/22/2007	2478	7.67	7.92	28.15	56.0	440	1000	100
	9/19/2007	2489	7.40	7.93	26.07	49.0	220	600	140
	10/17/2007	2507	6.81	7.49	23.62	62.0	200	693	177
	11/19/2007	2429	7.62	7.89	23.20	35.0	510	310	190
	12/19/2007	2585	11.77	7.88	20.04	51.0	<400	<200	<200
LW3.1	1/17/2007	2551	9.30	8.33	16.51	110.0	160	100	97
	2/21/2007	2564	8.89	7.92	19.68	98.0	293	50	60
	3/21/2007	2665	6.74	8.35	20.82	110.0	400	50	30
	4/25/2007	2601	7.10	8.30	23.13	130.0	500	42	20
	5/23/2007	2524	10.58	8.38	23.48	95.0	520	20	25
	6/20/2007	2449	9.22	8.21	26.17	98.0	200	60	22
	7/16/2007	2405	6.67	8.10	28.69	84.0	360	145	31
	8/22/2007	2471	8.65	8.16	27.85	88.0	350	890	46
	9/19/2007	2447	8.09	8.08	25.60	90.0	393	350	43
	10/17/2007	2455	7.82	7.99	23.08	82.0	160	400	107
	11/19/2007	2504	8.16	8.14	22.75	77.0	378	276	138
	12/19/2007	2530	12.78	8.11	19.66	78.0	<400	<100	<80
LW0.8	1/17/2007	2561	9.18	8.04	16.59	100.0	18	110	63
	2/21/2007	2577	8.81	8.05	19.86	NA	58	50	50
	3/21/2007	2694	6.26	8.33	20.90	110.0	360	50	33
	4/25/2007	2613	6.61	8.32	23.22	130.0	12	66	20
	5/23/2007	2541	9.87	8.46	23.59	89.0	99	100	100
	6/20/2007	2479	8.85	8.31	26.05	92.0	7	50	22
	7/16/2007	2424	6.74	8.20	28.71	79.0	7	50	26
	8/22/2007	2489	8.26	8.25	27.93	93.0	31	343	50
	9/19/2007	2459	8.23	8.26	25.61	79.0	390	720	39
	10/17/2007	2535	7.51	8.05	22.67	76.0	12	480	123
	11/19/2007	2529	8.28	8.17	22.72	71.0	392	242	116
	12/19/2007	2574	12.65	8.16	19.53	74.0	<400	115	<400
*NA = Not Analyzed, ND = Non Detect									

Appendix IIb. Monthly Major Cation, Anion, TSS and TDS Data from the Las Vegas Wash Mainstream Sites													
Site Location	Sample Date	Calcium (mg/l)	Chloride (mg/l)	Biocarbonate as HCO3 (mg/l)	Conductance (umho/cm)	Fluoride (mg/l)	Bromide (mg/l)	Potassium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Sulfate (mg/l)	Total Suspended Solids (mg/l)	Total Dissolved Solids (mg/l)
LW10.75	1/22/2003	270	290	265	3590	0.71	0.79	31	210	270	1700	ND	3260
	2/19/2003	610	310	281	3750	0.76	0.70	40	270	290	1800	2150	3320
	3/26/2003	260	320	206	3920	0.66	0.74	34	220	270	1900	75	3400
	4/23/2003	250	280	255	3620	0.65	0.72	30	210	250	1600	10	3080
	5/28/2003	210	270	269	3600	0.89	0.81	29	260	280	1700	ND	3070
	6/25/2003	250	300	237	3420	0.60	0.70	30	190	250	1600	11	3130
	7/23/2003	240	310	197	3500	0.53	0.76	29	190	260	1600	ND	3020
	8/27/2003	100	86	151	1330	0.44	0.22	11	57	77	470	40	960
	9/24/2003	260	320	222	3580	0.60	0.38	31	190	270	1600	ND	3090
	10/22/2003	290	300	240	3690	0.66	0.82	33	240	290	1700	ND	3150
	11/19/2003	280	240	257	3530	0.61	0.78	34	210	270	1500	ND	3050
	12/23/2003	280	290	225	3590	0.56	0.78	35	210	290	1600	ND	3060
LW6.05	1/22/2003	150	370	155	2640	0.97	0.30	26	81	280	740	ND	1900
	2/19/2003	130	230	164	2300	1.00	0.31	22	71	230	510	29	1620
	3/26/2003	140	290	152	2390	0.98	0.30	25	79	230	670	11	1650
	4/23/2003	140	330	157	2430	0.98	0.30	23	75	220	730	31	1630
	5/28/2003	140	310	171	2340	0.99	0.40	24	79	230	700	18	1620
	6/25/2003	120	270	157	2130	0.95	0.33	21	43	200	580	12	1540
	7/23/2003	120	290	160	2300	1.00	0.60	22	70	210	630	16	1710
	8/27/2003	110	220	155	1850	0.80	0.31	18	57	160	490	43	1250
	9/24/2003	120	270	159	2130	0.99	0.31	21	66	200	580	12	1510
	10/22/2003	140	300	153	2280	1.10	0.34	25	75	240	640	12	1570
	11/19/2003	140	280	156	2330	1.00	0.29	25	76	240	610	20	1570
	12/23/2003	140	290	151	2380	0.99	0.28	25	76	250	620	ND	1630
LW5.9	1/22/2003	170	400	161	2890	1.10	0.35	28	95	310	830	ND	2100
	2/19/2003	140	350	157	2430	0.92	0.27	23	71	260	680	16	1710
	3/26/2003	140	320	155	2450	0.97	0.33	24	75	230	700	24	1680
	4/23/2003	110	360	160	2370	0.72	0.26	20	54	240	560	ND	1520
	5/28/2003	140	350	170	2460	0.91	0.35	23	74	260	630	10	1680
	6/25/2003	130	310	160	2290	0.89	0.33	19	69	240	560	ND	1680
	7/23/2003	120	320	164	2410	0.95	0.57	20	69	220	630	12	1770
	8/27/2003	120	230	157	1920	0.79	0.26	17	59	170	500	47	1310
	9/24/2003	130	310	162	2280	0.93	0.30	22	67	230	590	14	1570
	10/22/2003	140	350	151	2420	0.98	0.31	25	71	260	650	ND	1610
	11/19/2003	130	330	164	2410	0.98	0.26	26	66	270	560	14	1580
	12/23/2003	140	340	150	2410	0.86	0.21	25	66	270	590	ND	1610
*NA = Not Analyzed, ND = Non Detect													

Appendix IIb. Monthly Major Cation, Anion, TSS and TDS Data from the Las Vegas Wash Mainstream Sites													
Site Location	Sample Date	Calcium (mg/l)	Chloride (mg/l)	Biocarbonate as HCO3 (mg/l)	Conductance (umho/cm)	Fluoride (mg/l)	Bromide (mg/l)	Potassium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Sulfate (mg/l)	Total Suspended Solids (mg/l)	Total Dissolved Solids (mg/l)
LW5.5	1/22/2003	160	390	158	2770	1.00	0.35	27	86	290	780	ND	1990
	2/19/2003	160	360	166	2660	1.00	0.32	25	89	280	830	18	1890
	3/26/2003	140	310	163	2470	0.97	0.32	25	81	230	700	34	1710
	4/23/2003	140	360	158	2600	0.93	0.33	24	76	240	760	ND	1760
	5/28/2003	150	340	172	2490	1.00	0.40	25	83	250	740	11	1730
	6/25/2003	130	290	157	2240	0.96	0.34	20	71	220	590	ND	1640
	7/23/2003	130	310	162	2400	0.99	0.58	22	71	220	650	14	1790
	8/27/2003	130	230	155	1860	0.78	0.24	17	60	160	510	140	1270
	9/24/2003	130	290	160	2280	1.00	0.33	22	72	220	620	17	1610
	10/22/2003	150	340	152	2490	1.10	0.33	26	78	260	700	ND	1700
	11/19/2003	150	310	159	2510	1.10	0.33	26	79	270	650	14	1690
	12/23/2003	150	320	151	2510	0.96	0.30	26	76	270	650	ND	1720
LW5.3	1/22/2003	160	38	158	2770	1.10	0.32	27	88	290	76	ND	2050
	2/19/2003	150	350	159	2560	0.99	0.31	24	78	260	731	18	1830
	3/26/2003	150	360	166	2650	0.98	0.36	26	84	250	790	17	1860
	4/23/2003	140	360	157	2580	0.94	0.32	24	76	240	750	11	1750
	5/28/2003	160	360	175	2670	1.00	0.41	26	93	260	790	20	1870
	6/25/2003	140	310	157	2300	0.99	0.34	23	75	230	640	12	1690
	7/23/2003	120	320	162	2360	0.98	0.59	22	69	220	650	14	1740
	8/27/2003	120	240	155	1910	0.80	0.26	18	59	170	510	42	1290
	9/24/2003	140	330	160	2390	1.00	0.34	24	78	240	690	37	1700
	10/22/2003	160	350	152	2540	1.10	0.34	27	80	270	710	ND	1710
	11/19/2003	150	320	159	2530	1.10	0.31	27	79	270	650	13	1700
	12/23/2003	150	330	151	2550	0.96	0.27	27	77	270	660	12	1730
LW3.85	1/22/2003	170	410	157	2750	1.10	0.32	27	85	290	810	ND	2040
	2/19/2003	160	390	162	2700	1.00	0.31	25	83	280	800	33	1970
	3/26/2003	160	370	158	2710	0.98	0.32	26	82	250	800	11	1880
	4/23/2003	150	360	153	2620	0.95	0.33	24	75	250	740	21	1770
	5/28/2003	160	350	168	2560	0.99	0.36	26	81	260	710	22	1760
	6/25/2003	150	320	157	2320	0.97	0.34	22	73	230	620	79	1720
	7/23/2003	120	310	157	2300	0.96	0.73	22	65	210	590	15	1700
	8/27/2003	130	260	159	2110	0.85	0.28	20	62	190	550	20	1430
	9/24/2003	140	330	158	2410	0.97	0.32	24	75	240	650	13	1700
	10/22/2003	150	360	148	2500	1.10	0.33	27	75	260	680	ND	1670
	11/19/2003	150	330	155	2480	1.00	0.26	27	76	270	630	ND	1670
	12/23/2003	150	340	146	2510	0.96	290.00	27	72	270	640	10	1690
*NA = Not Analyzed, ND = Non Detect													

Appendix IIb. Monthly Major Cation, Anion, TSS and TDS Data from the Las Vegas Wash Mainstream Sites													
Site Location	Sample Date	Calcium (mg/l)	Chloride (mg/l)	Biocarbonate as HCO3 (mg/l)	Conductance (umho/cm)	Fluoride (mg/l)	Bromide (mg/l)	Potassium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Sulfate (mg/l)	Total Suspended Solids (mg/l)	Total Dissolved Solids (mg/l)
LW3.75	1/22/2003	170	390	158	2730	1.10	0.29	27	82	280	770	10	1990
	2/19/2003	160	400	161	2670	1.00	0.28	25	81	280	810	37	1900
	3/26/2003	160	370	158	2720	0.98	0.32	26	81	250	780	17	1830
	4/23/2003	150	370	157	2670	0.95	0.34	25	77	250	750	19	1820
	5/28/2003	150	360	168	2560	0.99	0.37	25	80	250	710	15	1760
	6/25/2003	140	330	157	2330	0.96	0.33	22	72	240	640	33	1700
	7/23/2003	130	310	157	2310	0.96	0.76	22	65	210	610	29	1700
	8/27/2003	130	270	159	2130	0.85	0.29	21	63	190	560	24	1480
	9/24/2003	140	330	159	2430	0.95	0.32	24	72	230	650	15	1730
	10/22/2003	150	370	152	2540	1.10	0.32	27	76	270	690	10	1710
	11/19/2003	150	330	155	2490	1.10	0.28	28	76	270	620	11	1670
	12/23/2003	150	330	147	2520	0.98	0.28	27	72	270	630	10	1700
LW0.8	1/22/2003	150	380	152	2590	1.00	0.31	25	75	270	730	ND	1840
	2/19/2003	160	370	157	2550	1.00	0.31	25	77	270	740	35	1810
	3/26/2003	160	370	152	2640	0.99	0.31	26	80	250	770	19	1810
	4/23/2003	140	360	151	2580	0.97	0.32	24	73	240	720	22	1770
	5/28/2003	150	360	164	2480	0.98	0.38	25	77	240	700	15	1700
	6/25/2003	140	310	153	2440	0.95	0.32	22	69	220	600	34	1630
	7/23/2003	120	300	154	2290	0.95	0.84	22	63	210	590	33	1700
	8/27/2003	150	260	160	2220	0.86	0.30	22	68	200	580	130	1530
	9/24/2003	140	370	155	2450	0.97	0.31	24	69	260	650	23	1710
	10/22/2003	150	370	147	2550	1.10	0.34	27	72	280	640	20	1680
	11/19/2003	150	350	151	2630	1.00	0.28	28	73	280	620	12	1690
	12/23/2003	150	350	145	2590	0.97	0.25	28	71	290	620	16	1720
LW10.75	1/21/2004	190	250	261	3480	1.10	0.81	27	270	290	1600	ND	3090
	2/25/2004	200	220	255	3320	0.81	0.68	25	230	240	1500	13	2840
	3/24/2004	270	260	212	3610	0.73	0.78	35	230	280	1600	ND	3240
	4/28/2004	260	320	187	3590	0.73	0.79	37	230	310	1800	12	3180
	5/26/2004	270	280	211	3610	0.77	0.77	38	240	310	1700	ND	3220
	6/23/2004	270	280	211	3490	0.798	0.80	34	230	290	1600	ND	3180
	7/21/2004	250	300	157	3420	0.74	0.79	30	210	260	1600	ND	3040
	8/25/2004	280	320	184	3500	0.71	0.71	32	220	290	ND	ND	3070
	9/22/2004	290	250	231	3650	0.79	0.75	34	220	290	1700	ND	3240
	10/28/2004	280	290	255	3490	0.79	0.75	33	220	300	1700	ND	3240
	11/17/2004	270	240	223	3170	0.76	0.75	32	210	290	1500	ND	2810
	12/22/2004	260	270	264	3010	0.78	0.82	34	220	280	1600	ND	3100
*NA = Not Analyzed, ND = Non Detect													

Appendix IIb. Monthly Major Cation, Anion, TSS and TDS Data from the Las Vegas Wash Mainstream Sites													
Site Location	Sample Date	Calcium (mg/l)	Chloride (mg/l)	Biocarbonate as HCO3 (mg/l)	Conductance (umho/cm)	Fluoride (mg/l)	Bromide (mg/l)	Potassium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Sulfate (mg/l)	Total Suspended Solids (mg/l)	Total Dissolved Solids (mg/l)
LW6.05	1/21/2004	150	310	147	2330	1.10	0.30	25	77	250	660	ND	1610
	2/25/2004	150	290	161	2320	0.94	0.33	24	78	230	640	46	1590
	3/24/2004	160	300	148	2290	0.98	0.31	25	78	230	650	85	1610
	4/28/2004	150	290	154	2310	1.10	0.33	26	82	250	660	ND	1660
	5/26/2004	160	310	145	2440	1.10	0.32	26	87	260	690	12	1760
	6/23/2004	140	290	149	2230	1.05	0.30	24	73	240	610	ND	1590
	7/21/2004	140	280	159	2180	0.97	0.42	23	76	230	580	16	1540
	8/25/2004	130	260	150	2010	0.99	0.25	23	67	220	520	12	1380
	9/22/2004	150	290	153	2330	0.97	0.30	25	80	250	640	ND	1650
	10/28/2004	130	320	150	2320	0.94	0.30	23	68	250	640	ND	1690
	11/17/2004	150	290	159	2270	1.00	0.31	26	77	260	630	10	1640
	12/22/2004	160	330	160	2140	0.99	0.33	26	88	280	750	ND	1810
LW5.9	1/21/2004	140	310	135	2380	0.85	0.28	26	69	270	590	ND	1640
	2/25/2004	150	340	163	2370	0.88	0.33	23	75	250	660	37	1680
	3/24/2004	140	340	144	2370	0.87	0.29	25	70	260	630	29	1640
	4/28/2004	140	320	162	2350	0.94	0.30	25	76	270	630	ND	1660
	5/26/2004	150	340	146	2460	0.98	0.29	25	77	280	640	ND	1710
	6/23/2004	140	290	151	2270	1.01	0.30	23	72	240	570	ND	1650
	7/21/2004	140	310	159	2190	0.94	0.43	22	72	230	590	13	1530
	8/25/2004	130	300	150	2120	0.94	0.26	23	67	230	580	10	1460
	9/22/2004	140	340	153	2400	0.86	0.28	24	71	280	590	ND	1650
	10/28/2004	130	370	144	2350	0.84	0.27	24	61	270	580	ND	1660
	11/17/2004	140	330	156	2280	0.87	0.29	26	66	290	560	ND	1610
	12/22/2004	140	350	155	2110	0.78	0.27	24	66	290	580	ND	1580
LW5.5	1/21/2004	150	320	144	2460	0.99	0.30	26	78	270	670	ND	1680
	2/25/2004	150	300	162	2360	0.93	0.32	24	78	240	640	49	1620
	3/24/2004	150	320	144	2430	0.96	0.34	27	78	250	670	17	1730
	4/28/2004	150	320	159	2440	1.00	0.34	26	82	280	680	ND	1750
	5/26/2004	160	320	147	2470	1.10	0.31	26	84	280	670	ND	1780
	6/23/2004	150	290	152	2300	1.05	0.31	24	77	250	590	ND	1690
	7/21/2004	140	310	159	2300	0.99	0.41	22	74	230	620	ND	1640
	8/25/2004	150	310	152	2200	0.96	0.28	24	50	240	630	11	1550
	9/22/2004	150	310	153	2370	0.92	0.28	25	76	270	600	ND	1660
	10/28/2004	140	390	151	2350	0.97	0.30	24	72	260	760	ND	1710
	11/17/2004	160	320	162	2360	1.00	0.34	28	85	290	690	ND	1740
	12/22/2004	160	330	163	2250	0.96	0.32	26	85	280	730	ND	1780
*NA = Not Analyzed, ND = Non Detect													

Appendix IIb. Monthly Major Cation, Anion, TSS and TDS Data from the Las Vegas Wash Mainstream Sites													
Site Location	Sample Date	Calcium (mg/l)	Chloride (mg/l)	Biocarbonate as HCO3 (mg/l)	Conductance (umho/cm)	Fluoride (mg/l)	Bromide (mg/l)	Potassium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Sulfate (mg/l)	Total Suspended Solids (mg/l)	Total Dissolved Solids (mg/l)
LW5.3	1/21/2004	160	330	142	2500	0.99	0.31	27	79	270	680	ND	1740
	2/25/2004	170	320	163	2380	0.92	0.34	25	85	250	700	58	1740
	3/24/2004	160	340	150	2530	0.97	0.33	27	82	260	700	17	1810
	4/28/2004	160	320	161	2480	1.00	0.35	26	86	280	710	ND	1800
	5/26/2004	160	330	147	2510	1.10	0.31	26	82	280	660	ND	1780
	6/23/2004	160	310	151	2390	1.06	0.32	25	80	260	620	ND	1750
	7/21/2004	150	330	164	2370	0.98	0.41	23	78	250	650	ND	1690
	8/25/2004	140	310	152	2310	0.98	0.28	23	74	240	620	ND	1640
	9/22/2004	150	310	153	2370	0.97	0.29	25	77	260	600	ND	1670
	10/28/2004	140	330	151	2340	0.97	0.30	24	71	250	660	ND	1720
	11/17/2004	170	340	162	2490	1.10	0.34	29	89	300	730	ND	1840
	12/22/2004	160	340	162	2230	0.96	0.33	26	86	280	740	ND	1820
LW3.85	1/21/2004	160	330	142	2500	1.00	0.29	27	78	280	650	ND	1700
	2/25/2004	170	360	163	2500	0.92	0.35	25	83	260	750	42	1810
	3/24/2004	160	350	151	2520	0.98	0.31	27	78	270	700	18	1800
	4/28/2004	150	310	155	2350	1.00	0.30	27	77	270	610	34	1680
	5/26/2004	150	310	141	2350	1.10	0.28	26	73	270	580	ND	1650
	6/23/2004	140	290	145	2240	1.06	0.29	24	70	250	540	ND	1610
	7/21/2004	140	320	156	2250	0.96	0.38	24	70	240	570	ND	1560
	8/25/2004	150	340	152	2310	1.00	0.28	25	75	260	630	ND	1630
	9/22/2004	140	310	146	2220	0.93	0.26	24	67	250	540	16	1540
	10/28/2004	150	340	153	2340	0.98	0.29	26	74	270	640	12	1710
	11/17/2004	170	340	157	2400	1.10	0.31	29	81	290	670	19	1720
	12/22/2004	180	350	163	2250	0.96	0.31	28	84	280	720	160	1760
LW3.75	1/21/2004	160	330	142	2500	1.00	0.28	27	77	280	650	ND	1730
	2/25/2004	170	340	164	2540	0.93	0.35	26	83	260	720	41	1840
	3/24/2004	160	340	141	2540	0.97	0.31	28	80	270	680	29	1800
	4/28/2004	150	330	155	2360	1.00	0.31	25	76	270	640	27	1700
	5/26/2004	160	320	142	2360	1.00	0.27	28	77	280	600	11	1670
	6/23/2004	150	330	148	2250	1.03	0.29	25	71	250	600	ND	1610
	7/21/2004	140	300	152	2220	0.94	0.41	24	69	240	540	ND	1540
	8/25/2004	150	340	152	2290	1.00	0.28	25	73	250	630	11	1650
	9/22/2004	140	310	146	2240	0.92	0.26	25	68	250	550	17	1550
	10/28/2004	150	340	155	2380	0.98	0.30	26	73	260	660	14	1760
	11/17/2004	160	340	157	2410	1.10	0.31	28	78	280	670	15	1750
	12/22/2004	200	350	159	2310	0.97	0.31	29	89	280	720	260	1860
*NA = Not Analyzed, ND = Non Detect													

Appendix IIb. Monthly Major Cation, Anion, TSS and TDS Data from the Las Vegas Wash Mainstream Sites													
Site Location	**Sample Date**	**Calcium (mg/l)**	**Chloride (mg/l)**	**Biocarbonate as HCO3 (mg/l)**	**Conductance (umho/cm)**	**Fluoride (mg/l)**	**Bromide (mg/l)**	**Potassium (mg/l)**	**Magnesium (mg/l)**	**Sodium (mg/l)**	**Sulfate (mg/l)**	**Total Suspended Solids (mg/l)**	**Total Dissolved Solids (mg/l)**
LW0.8	1/21/2004	160	720	141	2540	1.00	0.28	28	76	290	1300	10	1750
	2/25/2004	170	370	159	2530	0.91	0.35	26	81	270	730	49	1810
	3/24/2004	160	350	148	2470	0.98	0.30	27	76	260	690	24	1760
	4/28/2004	150	310	150	2320	1.00	0.27	26	73	270	590	20	1640
	5/26/2004	150	320	141	2330	1.00	0.27	26	71	270	580	ND	1620
	6/23/2004	140	290	146	2220	0.95	0.29	25	69	250	530	ND	1570
	7/21/2004	140	320	154	2160	0.94	0.39	23	66	230	570	14	1510
	8/25/2004	140	340	147	2220	0.99	0.27	24	68	240	610	13	1570
	9/22/2004	140	300	143	2170	0.91	0.25	24	65	240	520	21	1540
	10/28/2004	150	340	152	2360	0.97	0.29	25	71	260	640	14	1740
	11/17/2004	160	330	152	2310	1.10	290.00	28	75	280	610	30	1670
	12/22/2004	170	350	162	2280	0.96	0.30	27	79	280	710	61	1890
LW10.75	1/26/2005	490	64	132	977	0.46	0.18	18	150	62	300	1910	700
	2/28/2005	290	250	244	3380	0.66	0.73	35	230	270	1500	ND	3050
	3/30/2005	240	250	243	3570	0.68	0.74	33	210	250	1600	ND	3120
	4/19/2005	270	300	221	3620	0.69	0.80	36	240	290	1800	ND	3270
	5/25/2005	260	300	261	3310	0.75	0.86	36	240	300	1700	ND	3210
	6/22/2005	250	320	244	3520	0.770	0.80	32	230	310	1500	32	3250
	7/27/2005	250	280	225	3120	0.69	0.77	29	210	270	1400	ND	2830
	8/24/2005	270	300	222	3400	0.76	0.74	32	220	310	1500	12	2980
	9/21/2005	200	180	214	2650	0.74	0.56	23	160	200	1100	12	2140
	10/26/2005	140	110	156	1820	0.53	0.36	15	99	130	620	57	1420
	11/30/2005	270	300	267	2990	0.74	0.75	32	230	300	1700	ND	3020
	12/28/2005	270	290	240	3590	0.66	0.75	34	220	310	1469	ND	2830
LW6.05	1/26/2005	160	170	158	2530	1.00	0.33	28	90	260	410	ND	1810
	2/28/2005	170	280	181	2410	0.92	0.32	28	96	270	730	14	1800
	3/30/2005	160	300	182	2640	0.97	0.34	27	92	260	770	ND	1880
	4/19/2005	180	330	178	2690	0.98	0.37	29	100	280	830	ND	1970
	5/25/2005	160	360	165	2350	1.00	0.34	28	87	290	750	ND	1880
	6/22/2005	150	310	168	2310	0.97	0.31	25	83	250	680	ND	1740
	7/27/2005	150	320	161	2290	0.84	0.34	24	77	250	650	10	1670
	8/24/2005	150	300	167	2350	0.93	0.31	26	80	260	640	ND	1650
	9/21/2005	140	280	161	2270	0.94	0.31	23	72	230	590	ND	1510
	10/26/2005	130	210	148	1960	0.93	0.26	21	63	200	490	26	1390
	11/30/2005	150	300	170	2010	0.97	0.30	26	82	250	720	ND	1730
	12/28/2005	160	290	160	2460	0.97	0.38	30	89	280	684	ND	1670
*NA = Not Analyzed, ND = Non Detect													

Appendix IIb. Monthly Major Cation, Anion, TSS and TDS Data from the Las Vegas Wash Mainstream Sites													
Site Location	Sample Date	Calcium (mg/l)	Chloride (mg/l)	Biocarbonate as HCO3 (mg/l)	Conductance (umho/cm)	Fluoride (mg/l)	Bromide (mg/l)	Potassium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Sulfate (mg/l)	Total Suspended Solids (mg/l)	Total Dissolved Solids (mg/l)
LW5.9	1/26/2005	160	330	156	2520	0.90	0.32	27	81	280	690	ND	1800
	2/28/2005	160	310	171	2400	0.82	0.30	27	82	270	680	15	1770
	3/30/2005	160	350	176	2760	0.91	0.34	26	90	280	790	ND	1960
	4/19/2005	180	370	174	2770	0.94	0.39	28	97	310	800	ND	1990
	5/25/2005	170	370	167	2430	1.00	0.34	28	88	300	760	ND	1930
	6/22/2005	160	350	172	2510	0.95	0.37	25	86	270	720	ND	1850
	7/27/2005	160	340	159	2330	0.81	0.33	25	76	270	650	ND	1690
	8/24/2005	160	320	166	2420	0.92	0.32	26	83	280	650	ND	1710
	9/21/2005	140	290	157	2280	0.91	0.29	24	72	250	580	ND	1520
	10/26/2005	120	300	140	2090	0.85	0.23	23	58	230	560	22	1480
	11/30/2005	160	320	172	2080	1.04	0.31	26	86	260	750	ND	1780
	12/28/2005	140	330	150	2490	0.83	0.31	28	73	280	620	ND	1620
LW5.5	1/26/2005	170	330	161	2630	0.99	0.35	28	91	280	770	ND	1910
	2/28/2005	180	300	175	2500	0.90	0.34	28	98	280	760	21	1890
	3/30/2005	180	340	179	2720	0.99	0.37	28	100	280	850	10	2050
	4/19/2005	180	360	176	2780	0.98	0.36	28	100	290	830	ND	2030
	5/25/2005	170	360	167	2340	1.00	0.34	28	89	290	760	ND	1910
	6/22/2005	160	330	170	2330	0.97	0.32	26	87	260	720	ND	1770
	7/27/2005	160	320	158	2330	0.87	0.34	25	80	260	670	ND	1720
	8/24/2005	160	310	168	2420	0.95	0.32	26	84	270	670	ND	1700
	9/21/2005	140	280	161	2280	0.95	0.30	24	75	230	610	ND	1550
	10/26/2005	130	260	142	1980	0.86	0.24	21	63	200	590	35	1350
	11/30/2005	170	340	175	2200	1.06	0.33	28	95	280	800	ND	1830
	12/28/2005	150	320	150	2540	0.91	0.33	29	82	280	660	ND	1660
LW5.3	1/26/2005	180	350	161	2700	0.97	0.35	29	92	290	790	ND	1960
	2/28/2005	190	320	180	2650	0.91	0.37	29	110	290	820	15	2010
	3/30/2005	170	340	173	2690	0.95	0.35	27	92	280	800	ND	1970
	4/19/2005	180	260	174	2770	0.97	0.36	29	100	300	820	ND	2020
	5/25/2005	170	360	167	2300	1.00	0.34	29	89	290	770	ND	1920
	6/22/2005	160	340	170	2350	0.97	0.32	26	85	260	730	10	1840
	7/27/2005	160	320	159	2320	0.86	0.35	26	81	260	660	10	1730
	8/24/2005	170	320	167	2440	0.94	0.32	28	86	280	670	ND	1720
	9/21/2005	150	290	161	2300	0.92	0.29	24	77	240	620	ND	1560
	10/26/2005	140	260	141	1990	0.82	0.27	22	66	210	590	30	1440
	11/30/2005	170	350	173	2170	0.99	0.33	29	93	280	800	ND	1920
	12/28/2005	140	330	150	2590	0.97	0.35	27	75	260	660	ND	1680
*NA = Not Analyzed, ND = Non Detect													

Appendix IIb. Monthly Major Cation, Anion, TSS and TDS Data from the Las Vegas Wash Mainstream Sites													
Site Location	**Sample Date**	**Calcium (mg/l)**	**Chloride (mg/l)**	**Biocarbonate as HCO3 (mg/l)**	**Conductance (umho/cm)**	**Fluoride (mg/l)**	**Bromide (mg/l)**	**Potassium (mg/l)**	**Magnesium (mg/l)**	**Sodium (mg/l)**	**Sulfate (mg/l)**	**Total Suspended Solids (mg/l)**	**Total Dissolved Solids (mg/l)**
LW3.85	1/26/2005	170	340	155	2640	0.96	0.32	29	86	280	730	22	1880
	2/28/2005	190	350	175	2680	0.92	0.36	31	100	310	810	ND	2020
	3/30/2005	160	330	172	2550	0.96	0.32	27	84	270	730	ND	1880
	4/19/2005	170	250	176	2660	0.97	0.32	28	91	290	750	ND	1900
	5/25/2005	170	350	165	2190	1.00	0.32	29	85	290	730	ND	1880
	6/22/2005	160	330	164	2240	0.94	0.30	26	81	260	680	ND	1740
	7/27/2005	160	320	156	2240	0.84	0.31	26	75	250	620	15	1620
	8/24/2005	160	310	163	2340	0.93	0.30	27	77	260	620	10	1620
	9/21/2005	150	300	163	2350	0.94	0.30	25	77	230	630	11	1600
	10/26/2005	130	100	141	1940	0.83	0.23	22	62	200	300	29	1360
	11/30/2005	160	353	164	2080	0.94	0.29	28	80	280	719	ND	1830
	12/28/2005	160	330	150	2500	0.95	0.30	31	80	290	630	10	1660
LW3.75	1/26/2005	170	340	37.4	2640	0.97	0.32	29	85	280	730	22	1880
	2/28/2005	190	350	174	2710	0.94	0.35	30	100	300	810	ND	2020
	3/30/2005	160	330	170	2560	0.96	0.32	27	83	270	740	ND	1870
	4/19/2005	180	360	175	2640	0.96	0.32	29	90	290	760	ND	1890
	5/25/2005	170	360	165	2220	1.00	0.33	29	84	280	740	ND	1890
	6/22/2005	160	330	165	2280	0.95	0.29	27	82	260	680	10	1740
	7/27/2005	150	320	153	2250	0.84	0.31	25	74	250	620	18	1640
	8/24/2005	160	320	163	2380	0.95	0.29	28	78	270	630	ND	1660
	9/21/2005	150	300	164	2150	0.95	0.31	26	80	240	640	11	1620
	10/26/2005	130	240	141	1980	0.85	0.23	22	61	200	520	37	1410
	11/30/2005	160	357	164	2050	0.97	0.29	28	78	270	727	ND	1830
	12/28/2005	160	330	150	2510	0.98	0.30	31	79	290	630	ND	1650
LW0.8	1/26/2005	170	340	151	2600	0.97	0.34	28	81	280	720	16	1860
	2/28/2005	190	330	165	2560	0.88	0.32	29	93	290	750	31	1890
	3/30/2005	160	330	169	2520	0.94	0.31	27	84	270	710	ND	1830
	4/19/2005	170	350	171	2570	0.95	0.31	28	85	280	730	ND	1840
	5/25/2005	170	270	165	2430	1.00	0.32	29	85	280	740	17	1870
	6/22/2005	150	320	162	2170	0.94	0.27	26	74	250	630	ND	1660
	7/27/2005	150	310	153	2220	0.84	0.31	25	74	250	610	19	1600
	8/24/2005	160	320	160	2340	0.93	0.29	28	77	270	620	14	1620
	9/21/2005	150	300	160	2350	0.96	0.32	25	75	240	620	17	1600
	10/26/2005	130	240	140	1900	0.81	0.20	20	57	190	490	44	1330
	11/30/2005	160	360	160	2040	0.92	0.27	28	78	280	690	ND	1680
	12/28/2005	150	330	140	2460	0.97	0.29	30	76	280	610	ND	1640
*NA = Not Analyzed, ND = Non Detect													

Appendix IIb. Monthly Major Cation, Anion, TSS and TDS Data from the Las Vegas Wash Mainstream Sites													
Site Location	Sample Date	Calcium (mg/l)	Chloride (mg/l)	Biocarbonate as HCO3 (mg/l)	Conductance (umho/cm)	Fluoride (mg/l)	Bromide (mg/l)	Potassium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Sulfate (mg/l)	Total Suspended Solids (mg/l)	Total Dissolved Solids (mg/l)
LW10.75	1/25/2006	290	300	220	4400	0.66	0.69	38	240	320	1700	<5	3200
	2/22/2006	270	320	160	4600	0.68	0.81	39	240	320	1700	18	3400
	3/22/2006	190	210	170	2700	1.10	0.39	24	130	210	1000	5	1800
	4/26/2006	310	290	220	2500	0.67	0.71	40	250	330	1500	14	1900
	5/17/2006	280	290	170	4600	0.62	0.74	34	250	310	1600	5	3000
	6/21/2006	320	570	220	4700	0.60	0.78	38	260	330	1600	<5	1700
	7/27/2006	280	300	190	4800	0.70	0.72	32	210	300	1500	8	3200
	8/23/2006	350	360	220	5000	0.93	0.76	44	300	370	1600	7	3700
	9/19/2006	270	320	230	4400	0.75	0.70	33	210	310	1600	6	2900
	10/17/2006	280	280	250	4000	0.77	0.70	28	200	270	1500	17	2600
	11/14/2006	280	310	240	5400	0.85	0.72	34	230	330	1600	<5	3000
	12/13/2006	260	260	220	4100	0.82	0.65	49	210	300	1600	<5	3200
LW6.05	1/25/2006	150	310	160	2900	0.81	0.26	29	83	280	690	5	1700
	2/22/2006	140	310	160	2900	0.81	0.34	28	80	270	660	6	1700
	3/22/2006	160	320	160	2600	1.30	0.26	31	77	270	720	110	1500
	4/26/2006	180	310	180	2800	0.88	0.38	31	91	300	670	24	1900
	5/17/2006	160	300	160	3000	0.91	0.40	29	91	270	700	<5	1700
	6/21/2006	170	360	260	2900	0.78	0.26	29	89	270	350	<5	1600
	7/27/2006	140	240	170	2800	0.78	0.28	27	71	230	570	6	1600
	8/23/2006	150	280	170	2700	0.94	0.27	31	83	270	620	15	1800
	9/19/2006	140	260	160	2600	0.78	0.26	26	71	240	600	5	1700
	10/17/2006	150	290	160	2500	1.10	0.30	25	77	250	660	18	1700
	11/14/2006	150	300	170	1900	0.94	0.29	29	82	290	700	<5	1600
	12/13/2006	150	290	150	2500	1.00	0.31	30	79	290	700	<5	1700
LW5.9	1/25/2006	150	330	150	2800	0.76	0.30	29	78	290	670	5	1700
	2/22/2006	150	350	150	3000	0.76	0.33	29	79	300	670	9	1800
	3/22/2006	150	380	160	2500	1.20	0.27	30	72	310	680	88	1600
	4/26/2006	170	340	170	2700	0.72	0.34	35	87	350	620	13	1700
	5/17/2006	160	390	160	3100	0.79	0.36	29	84	330	660	7	1700
	6/21/2006	170	300	170	2800	0.73	0.26	28	85	280	630	<5	1600
	7/27/2006	140	270	180	2800	0.77	0.32	25	69	240	570	9	1600
	8/23/2006	150	370	170	2800	0.88	0.30	33	79	320	610	<5	1900
	9/19/2006	130	310	170	2600	0.81	0.27	25	64	270	550	6	1700
	10/17/2006	150	300	160	2700	1.00	0.30	26	72	250	640	18	1800
	11/14/2006	130	320	180	2800	0.80	0.25	28	69	290	640	<5	1600
	12/13/2006	140	320	140	2500	0.90	0.30	31	70	320	650	<5	1700
*NA = Not Analyzed, ND = Non Detect													

Appendix IIb. Monthly Major Cation, Anion, TSS and TDS Data from the Las Vegas Wash Mainstream Sites													
Site Location	Sample Date	Calcium (mg/l)	Chloride (mg/l)	Biocarbonate as HCO3 (mg/l)	Conductance (umho/cm)	Fluoride (mg/l)	Bromide (mg/l)	Potassium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Sulfate (mg/l)	Total Suspended Solids (mg/l)	Total Dissolved Solids (mg/l)
LW5.5	1/25/2006	160	330	160	2900	0.80	0.30	30	85	290	690	5	1700
	2/22/2006	150	340	160	3100	0.80	0.35	29	82	300	690	<5	1700
	3/22/2006	150	340	150	2400	1.20	0.26	31	78	310	690	16	1600
	4/26/2006	180	340	180	2700	0.78	0.28	35	93	330	670	10	1600
	5/17/2006	160	350	160	2900	0.86	0.39	29	84	310	680	<5	1700
	6/21/2006	170	300	170	2800	0.76	0.28	29	87	280	640	6	1600
	7/27/2006	140	270	180	2800	0.78	0.29	27	70	240	570	9	1600
	8/23/2006	150	340	170	2700	0.94	0.31	32	83	310	640	6	1900
	9/19/2006	140	300	160	2600	0.87	0.28	26	72	260	600	6	1700
	10/17/2006	170	300	170	2800	1.10	0.32	27	84	270	710	17	1900
	11/14/2006	150	350	170	3000	0.90	0.30	31	80	300	760	<5	1700
	12/13/2006	150	330	150	2400	0.96	0.33	29	78	330	690	<5	1700
LW5.3	1/25/2006	160	360	150	2900	0.81	0.28		84	290	630	<5	1800
	2/22/2006	150	350	130	3100	0.80	0.32	29	79	300	680	<5	1800
	3/22/2006	150	380	160	2400	1.30	0.25	32	77	300	610	21	1600
	4/26/2006	190	370	180	2800	0.82	0.35	34	95	330	670	<5	1800
	5/17/2006	160	360	170	3000	0.86	0.34	30	86	320	680	<5	1700
	6/21/2006	170	460	180	2900	0.76	0.30	28	90	280	650	6	1700
	7/27/2006	14	280	180	2900	0.80	0.26	27	70	250	560	10	1600
	8/23/2006	150	340	170	2900	0.90	0.29	28	78	300	620	5	2000
	9/19/2006	140	300	170	2500	0.88	0.29	27	75	270	650	5	1600
	10/17/2006	170	310	170	2800	1.10	0.33	27	82	270	720	39	1900
	11/14/2006	150	340	170	2500	0.88	0.28	32	79	310	700	<5	1600
	12/13/2006	160	340	140	2700	0.98	0.32	33	79	310	750	<5	1800
LW3.85	1/25/2006	160	350	150	2900	0.78	0.26	30	79	290	660	<5	1700
	2/22/2006	150	350	120	2900	0.80	0.27	29	76	290	640	<5	1800
	3/22/2006	140	370	160	2200	1.20	0.24	29	69	280	570	8	1500
	4/26/2006	180	370	170	2700	0.80	0.28	33	85	310	610	12	1600
	5/17/2006	160	330	170	2800	0.85	0.35	31	79	290	620	<5	1600
	6/21/2006	190	320	180	2900	0.80	0.30	30	80	290	650	8	1700
	7/27/2006	140	280	170	2600	0.80	0.26	27	65	240	530	<5	1600
	8/23/2006	140	350	170	3000	0.93	0.25	29	75	280	630	9	1900
	9/19/2006	140	320	160	2700	0.86	0.27	28	70	270	600	7	1800
	10/17/2006	160	320	160	2600	1.10	0.30	28	76	270	680	16	1700
	11/14/2006	150	340	170	2700	0.87	0.28	31	75	290	670	<5	1600
	12/13/2006	150	360	130	2600	1.00	0.30	31	74	320	700	<5	1700
*NA = Not Analyzed, ND = Non Detect													

Appendix IIb. Monthly Major Cation, Anion, TSS and TDS Data from the Las Vegas Wash Mainstream Sites													
Site Location	Sample Date	Calcium (mg/l)	Chloride (mg/l)	Biocarbonate as HCO3 (mg/l)	Conductance (umho/cm)	Fluoride (mg/l)	Bromide (mg/l)	Potassium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Sulfate (mg/l)	Total Suspended Solids (mg/l)	Total Dissolved Solids (mg/l)
LW3.75	1/25/2006	160	340	150	2800	0.79	0.24	30	78	290	660	<5	1700
	2/22/2006	150	350	160	2900	0.80	0.30	28	74	290	640	<5	1800
	3/22/2006	150	340	140	2300	1.20	0.24	30	70	280	650	11	1500
	4/26/2006	180	350	170	2600	0.81	0.32	34	83	320	630	12	1600
	5/17/2006	160	330	160	3100	0.85	0.34	31	81	300	630	7	1600
	6/21/2006	170	430	170	3000	0.80	0.26	29	84	290	650	14	1700
	7/27/2006	140	280	170	2900	0.80	0.24	26	65	240	540	10	1600
	8/23/2006	150	330	170	3100	0.79	0.27	28	74	270	600	7	1800
	9/19/2006	140	310	170	2400	0.87	0.26	28	70	280	600	<5	1600
	10/17/2006	160	330	160	3000	1.10	0.30	29	77	280	690	21	2000
	11/14/2006	150	410	160	2700	0.87	0.27	31	72	290	710	<5	1600
	12/13/2006	150	360	140	2700	0.96	0.31	31	74	330	700	<5	1800
LW0.8	1/25/2006	150	340	150	3000	0.81	0.25	29	74	280	660	9	1700
	2/22/2006	140	360	150	2800	0.80	0.27	29	72	290	610	<5	1700
	3/22/2006	140	350	160	2100	1.20	0.24	27	65	270	630	20	1500
	4/26/2006	170	370	170	2700	0.83	0.27	36	80	340	620	16	1600
	5/17/2006	150	340	170	3000	0.86	0.34	30	76	310	620	5	1600
	6/21/2006	170	410	170	3000	0.800	0.25	30	84	300	660	11	1700
	7/27/2006	140	300	170	2900	0.84	0.22	28	63	250	530	9	1600
	8/23/2006	150	330	170	3000	0.92	0.29	31	76	290	570	14	1900
	9/19/2006	140	310	160	2600	0.86	0.26	27	66	270	600	7	1700
	10/17/2006	160	330	160	2700	1.00	0.29	28	74	270	620	26	1800
	11/14/2006	150	330	160	2800	0.86	0.27	32	72	300	630	<5	1600
	12/13/2006	150	340	140	2500	0.98	0.31	31	71	320	660	<5	1700
LW10.75	1/17/2007	230	280	240	4500	0.95	1.00	30	230	370	1600	13	2900
	2/21/2007	190	300	280	4200	1.10	11.00	30	270	290	1600	<5	2700
	3/21/2007	290	310	240	4800	0.46	0.74	44	230	310	1800	10	3200
	4/25/2007	280	350	270	4600	0.34	0.75	37	220	290	1700	<5	2400
	5/23/2007	250	330	260	5600	0.60	0.80	39	230	310	1700	9	3300
	6/20/2007	290	340	240	4900	0.48	0.71	36	210	310	1700	<5	3000
	7/16/2007	210	290	260	4000	0.96	0.80	24	220	290	1500	10	2600
	8/22/2007	290	300	230	4400	0.54	0.65	36	200	290	1700	NA	2400
	9/19/2007	270	310	240	4100	0.58	0.55	36	200	290	1700	6	2900
	10/17/2007	290	320	230	4700	0.45	0.65	29	210	300	1700	7	3100
	11/19/2007	180	270	280	4400	1.30	1.70	25	270	320	1700	<5	720
	12/19/2007	280	290	260	4400	0.46	0.61	39	210	310	1600	8	2800
*NA = Not Analyzed, ND = Non Detect													

Appendix IIb. Monthly Major Cation, Anion, TSS and TDS Data from the Las Vegas Wash Mainstream Sites													
Site Location	Sample Date	Calcium (mg/l)	Chloride (mg/l)	Biocarbonate as HCO3 (mg/l)	Conductance (umho/cm)	Fluoride (mg/l)	Bromide (mg/l)	Potassium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Sulfate (mg/l)	Total Suspended Solids (mg/l)	Total Dissolved Solids (mg/l)
LW8.85	1/17/2007	120	250	150	2200	0.90	0.21	28	63	260	510	<5	1200
	2/21/2007	110	250	160	2300	0.90	0.17	26	56	230	530	<5	1300
	3/21/2007	120	270	160	2500	0.90	0.21	28	57	230	550	5	1400
	4/25/2007	110	260	170	2400	0.69	0.17	25	55	230	510	<5	1300
	5/23/2007	120	260	170	2600	0.71	0.24	28	60	230	530	7	1500
	6/20/2007	120	260	160	2300	0.77	0.22	25	59	230	500	<5	1300
	7/16/2007	130	240	160	2200	0.78	0.21	25	62	220	500	<5	1600
	8/22/2007	110	250	160	2300	0.83	0.27	23	53	200	490	NA	1300
	9/20/2007	110	230	160	2000	0.79	0.20	24	53	200	470	5	1400
	10/17/2007	120	250	150	2400	0.77	0.21	28	59	230	510	<5	1300
	11/19/2007	110	230	170	2100	0.87	0.18	24	57	230	470	<5	2700
	12/19/2007	120	240	150	2200	0.78	0.19	26	58	230	530	<5	1400
LW6.85	1/17/2007	140	280	160	2500	0.88	0.26	28	75	260	640	6	1500
	2/21/2007	150	300	170	2700	0.93	0.26	29	82	260	690	<5	1600
	3/21/2007	150	310	170	3000	0.97	0.30	33	81	270	730	11	1700
	4/25/2007	140	300	180	2900	0.76	0.31	27	78	250	690	<5	1700
	5/23/2007	150	300	170	3000	0.77	0.31	30	80	260	700	5	1800
	6/20/2007	140	300	160	2800	0.85	0.28	27	72	250	660	<5	1600
	7/16/2007	150	280	170	3000	0.80	0.27	28	77	240	640	<5	2100
	8/22/2007	130	290	170	2700	0.86	0.32	26	65	220	630	NA	1400
	9/19/2007	140	270	170	2200	0.85	0.27	28	72	230	630	13	1500
	10/17/2007	140	280	160	2900	0.84	0.27	26	75	250	660	<5	1600
	11/19/2007	130	270	180	2400	0.89	0.23	27	70	250	590	15	1300
	12/19/2007	150	280	170	2700	0.87	0.25	31	77	270	690	19	1700
LW5.9	1/17/2007	150	310	160	2600	0.83	0.26	27	76	270	640	6	1600
	2/21/2007	140	340	150	2600	0.77	0.24	29	67	270	610	<5	1500
	3/21/2007	160	370	170	3400	0.90	0.32	32	80	310	750	10	1800
	4/25/2007	150	360	190	3000	0.75	0.40	28	80	280	730	<5	1700
	5/23/2007	150	390	180	3600	0.72	0.35	28	80	290	750	7	2000
	6/20/2007	150	380	170	3100	0.80	0.34	27	79	300	700	5	1800
	7/16/2007	160	340	170	3100	0.84	0.30	25	79	270	680	<5	2200
	8/22/2007	140	320	170	2700	0.86	0.33	26	69	250	630	NA	1500
	9/19/2007	140	340	170	2800	0.80	0.21	27	67	270	610	5	1700
	10/17/2007	140	370	160	2900	0.76	0.27	29	70	300	670	<5	1600
	11/19/2007	130	310	170	2500	0.80	0.24	27	64	280	530	<5	1600
	12/19/2007	130	400	160	2900	0.71	0.23	28	59	340	570	5	1900
*NA = Not Analyzed, ND = Non Detect													

Appendix IIb. Monthly Major Cation, Anion, TSS and TDS Data from the Las Vegas Wash Mainstream Sites													
Site Location	Sample Date	Calcium (mg/l)	Chloride (mg/l)	Biocarbonate as HCO3 (mg/l)	Conductance (umho/cm)	Fluoride (mg/l)	Bromide (mg/l)	Potassium (mg/l)	Magnesium (mg/l)	Sodium (mg/l)	Sulfate (mg/l)	Total Suspended Solids (mg/l)	Total Dissolved Solids (mg/l)
LW5.5	1/17/2007	160	290	160	2500	0.91	0.28	29	83	290	650	5	1500
	2/21/2007	140	320	170	2600	0.88	0.25	29	75	260	660	<5	1600
	3/21/2007	160	350	170	3200	0.96	0.32	33	84	280	780	8	1800
	4/25/2007	150	340	180	2900	0.77	0.33	27	81	270	730	6	1700
	5/23/2007	150	330	170	3300	0.72	0.31	30	78	270	690	10	1800
	6/20/2007	150	360	160	3000	0.82	0.32	27	80	290	700	<5	1800
	7/16/2007	150	320	170	3500	0.84	0.29	26	78	270	670	7	2300
	8/22/2007	140	300	170	2400	0.86	0.33	25	69	240	640	NA	1500
	9/19/2007	140	300	170	2200	0.85	0.28	27	70	240	640	<5	1600
	10/17/2007	150	320	160	2900	0.83	0.28	26	73	270	660	<5	1700
	11/19/2007	140	290	180	2500	0.88	0.24	27	71	270	600	<5	1700
	12/19/2007	140	330	160	2900	0.84	0.26	29	73	290	670	7	1900
LW4.95	1/17/2007	160	310	160	2700	0.90	0.29	29	82	300	710	9	1600
	2/21/2007	150	330	170	2700	0.87	0.28	30	78	260	700	<5	1700
	3/21/2007	170	370	170	3100	0.97	0.33	34	85	300	810	9	1900
	4/25/2007	160	350	190	3100	0.80	0.34	28	84	280	750	7	1900
	5/23/2007	160	360	180	3400	0.72	0.34	29	82	290	740	9	1900
	6/20/2007	150	370	160	3000	0.78	0.30	28	73	280	670	<5	1800
	7/16/2007	160	330	160	2600	0.84	0.30	28	81	280	670	<5	1700
	8/22/2007	150	330	170	2600	0.87	0.34	29	72	260	660	NA	1500
	9/19/2007	150	320	160	2300	0.86	0.23	29	72	250	670	9	1600
	10/17/2007	150	320	160	2900	0.82	0.29	28	74	270	680	5	1600
	11/19/2007	140	310	180	2600	0.89	0.26	26	73	270	640	6	1700
	12/19/2007	140	340	160	2800	0.83	0.26	29	71	300	660	7	1800
LW3.1	1/17/2007	170	330	160	2700	0.82	0.30	30	82	300	710	<5	1600
	2/21/2007	160	460	170	3000	0.89	0.30	30	81	290	900	<5	1600
	3/21/2007	160	380	160	3200	0.95	0.31	35	78	300	770	9	1800
	4/25/2007	150	350	180	3000	0.75	0.31	34	74	270	680	5	1800
	5/23/2007	150	350	170	3100	0.73	0.30	32	73	280	690	9	1800
	6/20/2007	140	360	160	2900	0.78	0.29	28	67	280	620	8	1700
	7/16/2007	140	320	160	3400	0.78	0.27	26	68	250	620	8	2300
	8/22/2007	150	340	170	2500	0.87	0.30	29	69	260	640	NA	1500
	9/19/2007	140	330	170	2800	0.85	0.28	29	67	240	650	9	2000
	10/17/2007	140	350	160	2900	0.82	0.25	29	68	270	650	<5	1600
	11/19/2007	140	330	180	2700	0.89	0.26	28	72	300	630	<5	1800
	12/19/2007	140	330	160	2800	0.83	0.24	30	66	290	630	12	1800
*NA = Not Analyzed, ND = Non Detect													

Appendix IIb. Monthly Major Cation, Anion, TSS and TDS Data from the Las Vegas Wash Mainstream Sites													
Site Location	**Sample Date**	**Calcium (mg/l)**	**Chloride (mg/l)**	**Biocarbonate as HCO3 (mg/l)**	**Conductance (umho/cm)**	**Fluoride (mg/l)**	**Bromide (mg/l)**	**Potassium (mg/l)**	**Magnesium (mg/l)**	**Sodium (mg/l)**	**Sulfate (mg/l)**	**Total Suspended Solids (mg/l)**	**Total Dissolved Solids (mg/l)**
LW0.8	1/17/2007	140	330	160	2700	0.85	0.30	27	74	280	720	7	1700
	2/21/2007	160	350	170	3000	0.89	0.29	32	80	290	730	7	1700
	3/21/2007	170	380	160	3400	0.96	0.31	36	80	310	790	21	1800
	4/25/2007	150	360	180	3100	0.77	0.30	28	74	280	690	8	1800
	5/23/2007	150	350	170	3100	0.73	0.30	32	73	280	690	9	1800
	6/20/2007	150	360	160	2900	0.79	0.29	28	70	280	660	12	1700
	7/16/2007	150	320	160	2900	0.81	0.27	29	71	260	630	7	2000
	8/22/2007	150	340	170	2500	0.87	0.31	28	70	260	640	NA	1600
	9/19/2007	150	310	53	2300	0.86	0.28	30	70	250	610	13	1600
	10/17/2007	150	320	160	2800	0.82	0.26	28	68	270	640	<5	1600
	11/19/2007	150	340	180	2700	0.88	0.26	28	72	300	640	<5	1800
	12/19/2007	140	340	160	2900	0.84	0.25	32	67	290	650	5	1900
*NA = Not Analyzed, ND = Non Detect													

Appendix IIc. Monthly Nutrient Data from the Las Vegas Wash Mainstream Sites								
Site Location	**Sample Date**	**NH4* mg/L**	**NO3* mg/L**	**NO2* mg/L**	**NO3+NO2* mg/L**	**TKN* mg/L**	**OrthoPO4** mg/L**	**Total P** mg/L**
LW10.75	1/22/2003	0.08	4.09	0.08	4.09	N/A	0.040	0.049
	2/19/2003	0.48	3.82	0.10	4.30	11.30	0.058	0.643
	3/26/2003	0.08	3.72	0.08	3.72	0.70	0.039	3.260
	4/23/2003	0.08	3.64	0.08	3.64	N/A	N/A	N/A
	5/28/2003	ND	2.90	ND	2.90	0.40	0.013	0.051
	6/25/2003	ND	3.30	ND	3.30	0.46	ND	0.044
	7/23/2003	ND	NA	NA	NA	0.66	0.024	0.043
	8/27/2003	0.28	1.50	ND	1.60	1.60	ND	0.097
	9/24/2003	ND	3.80	ND	3.80	0.56	ND	0.031
	10/22/2003	ND	4.10	ND	4.50	0.56	ND	ND
	11/19/2003	ND	4.70	ND	4.70	0.56	0.024	0.030
	12/23/2003	ND	4.10	ND	4.10	0.42	ND	0.030
LW6.05	1/22/2003	0.08	11.80	0.08	11.80	N/A	0.108	0.150
	2/19/2003	1.28	13.72	0.08	15.00	2.10	0.085	0.143
	3/26/2003	0.10	14.92	0.08	15.02	0.40	0.099	3.260
	4/23/2003	0.08	17.05	0.08	17.05	N/A	N/A	0.089
	5/28/2003	ND	12.00	ND	12.00	0.84	0.140	0.170
	6/25/2003	ND	12.00	ND	12.00	0.80	0.100	0.160
	7/23/2003	ND	NA	NA	NA	0.42	0.140	0.180
	8/27/2003	0.22	9.90	ND	10.00	1.20	0.130	0.230
	9/24/2003	ND	13.00	ND	13.00	0.70	0.150	0.190
	10/22/2003	ND	14.00	ND	15.00	0.84	0.110	0.140
	11/19/2003	0.34	14.00	ND	14.00	0.84	0.220	0.220
	12/23/2003	0.45	13.00	ND	13.00	1.10	0.063	0.083
LW5.9	1/22/2003	0.08	12.76	0.08	12.76	N	0.116	0.170
	2/19/2003	0.13	13.25	0.08	13.38	0.90	0.077	0.118
	3/26/2003	0.29	14.06	0.08	14.35	1.40	0.097	3.260
	4/23/2003	0.08	8.61	0.08	8.61	N/A	N/A	0.112
	5/28/2003	ND	10.00	ND	10.00	0.76	0.180	0.240
	6/25/2003	ND	12.00	ND	12.00	0.64	0.076	0.140
	7/23/2003	0.56	NA	NA	NA	0.14	0.130	0.150
	8/27/2003	0.22	9.20	ND	9.70	1.40	0.130	0.220
	9/24/2003	ND	11.00	ND	11.00	0.70	0.150	0.190
	10/22/2003	ND	13.00	ND	14.00	0.70	0.120	0.140
	11/19/2003	ND	11.00	ND	11.00	5.20	0.700	0.630
	12/23/2003	0.60	11.00	ND	11.00	0.98	0.110	0.130
*NA = Not Analyzed, ND = Non Detect								

Appendix IIc. Monthly Nutrient Data from the Las Vegas Wash Mainstream Sites								
Site Location	**Sample Date**	**NH4* mg/L**	**NO3* mg/L**	**NO2* mg/L**	**NO3+NO2* mg/L**	**TKN* mg/L**	**OrthoPO4** mg/L**	**Total P** mg/L**
LW5.5	1/22/2003	0.08	12.77	0.08	12.77	N	0.117	0.165
	2/19/2003	0.08	13.49	0.08	13.49	0.70	0.079	0.114
	3/26/2003	1.07	13.00	0.08	14.08	2.90	0.107	3.260
	4/23/2003	0.08	13.61	0.08	13.61	N/A	N/A	0.092
	5/28/2003	ND	12.00	ND	12.00	0.66	0.150	0.180
	6/25/2003	ND	14.00	ND	14.00	0.63	0.087	0.170
	7/23/2003	ND	NA	NA	NA	0.28	0.140	0.180
	8/27/2003	0.22	9.20	ND	9.40	1.60	0.088	0.280
	9/24/2003	ND	13.00	ND	13.00	0.98	0.150	0.220
	10/22/2003	ND	14.00	ND	15.00	0.84	0.120	0.120
	11/19/2003	ND	13.00	ND	13.00	1.10	0.340	0.620
	12/23/2003	0.45	13.00	ND	13.00	1.10	0.080	0.100
LW5.3	1/22/2003	0.08	13.44	0.08	13.44	N	0.118	0.170
	2/19/2003	0.08	14.16	0.08	14.16	1.00	0.083	0.115
	3/26/2003	1.08	12.36	0.08	13.45	1.90	0.100	3.260
	4/23/2003	0.08	13.76	0.08	13.76	N/A	N/A	0.090
	5/28/2003	ND	12.00	ND	12.00	0.66	0.140	0.170
	6/25/2003	ND	14.00	ND	14.00	0.73	0.089	0.150
	7/23/2003	ND	NA	NA	NA	0.70	0.140	0.170
	8/27/2003	0.22	9.60	ND	10.00	1.20	0.130	0.210
	9/24/2003	ND	13.00	ND	13.00	0.42	0.160	0.210
	10/22/2003	ND	14.00	ND	15.00	0.98	0.120	0.130
	11/19/2003	ND	14.00	ND	14.00	0.98	0.350	0.350
	12/23/2003	0.60	13.00	ND	13.00	1.10	0.090	0.110
LW3.85	1/22/2003	0.08	14.46	0.08	14.46	N	0.113	0.164
	2/19/2003	0.09	14.32	0.08	14.41	0.50	0.082	0.126
	3/26/2003	0.10	14.21	0.08	14.30	1.20	0.099	3.260
	4/23/2003	0.08	15.26	0.08	15.26	N/A	N/A	0.086
	5/28/2003	ND	14.00	ND	14.00	0.51	0.120	0.160
	6/25/2003	ND	15.00	ND	15.00	0.73	0.200	0.300
	7/23/2003	ND	NA	NA	NA	1.30	0.140	0.200
	8/27/2003	0.22	11.00	ND	12.00	1.10	0.120	0.180
	9/24/2003	ND	14.00	ND	14.00	0.42	0.140	0.180
	10/22/2003	ND	15.00	ND	17.00	0.98	0.120	0.150
	11/19/2003	ND	15.00	ND	15.00	0.98	0.260	0.260
	12/23/2003	0.90	14.00	ND	14.00	1.30	0.084	0.094
*NA = Not Analyzed, ND = Non Detect								

Appendix IIc. Monthly Nutrient Data from the Las Vegas Wash Mainstream Sites								
Site Location	**Sample Date**	**NH4* mg/L**	**NO3* mg/L**	**NO2* mg/L**	**NO3+NO2* mg/L**	**TKN* mg/L**	**OrthoPO4** mg/L**	**Total P** mg/L**
LW3.75	1/22/2003	0.08	14.31	0.08	14.31	N	0.106	0.147
	2/19/2003	0.09	1.81	0.08	1.90	0.70	0.078	0.111
	3/26/2003	0.08	14.34	0.08	14.34	0.50	0.096	3.260
	4/23/2003	0.09	15.60	0.08	15.69	N/A	N/A	0.082
	5/28/2003	ND	14.00	ND	14.00	0.73	0.120	0.150
	6/25/2003	ND	15.00	ND	15.00	0.69	0.120	0.190
	7/23/2003	0.22	NA	NA	NA	0.70	0.150	0.190
	8/27/2003	0.56	11.00	ND	12.00	1.00	0.120	0.180
	9/24/2003	ND	13.00	ND	13.00	0.56	0.140	0.190
	10/22/2003	ND	14.00	ND	16.00	0.84	0.120	0.130
	11/19/2003	ND	15.00	ND	15.00	0.84	0.250	0.260
	12/23/2003	0.90	14.00	ND	14.00	0.98	0.079	0.098
LW0.8	1/22/2003	0.08	14.58	0.08	14.58	N	0.105	0.151
	2/19/2003	0.08	15.29	0.08	15.29	0.50	0.072	0.117
	3/26/2003	0.08	15.39	0.08	15.39	0.20	0.103	3.260
	4/23/2003	0.85	16.18	0.08	16.26	N/A	N/A	0.111
	5/28/2003	ND	14.00	ND	14.00	0.73	0.120	0.160
	6/25/2003	ND	15.00	ND	15.00	0.70	0.097	0.160
	7/23/2003	0.22	NA	NA	NA	0.56	0.160	0.190
	8/27/2003	0.11	12.00	ND	11.00	1.10	0.049	0.300
	9/24/2003	ND	14.00	ND	14.00	0.56	0.150	0.190
	10/22/2003	0.45	15.00	ND	17.00	0.70	0.120	0.120
	11/19/2003	ND	16.00	ND	16.00	0.98	0.250	0.240
	12/23/2003	0.90	14.00	ND	14.00	1.10	0.094	0.100
LW10.75	1/21/2004	ND	3.70^	ND^	3.70	0.84	ND	0.017
	2/25/2004	0.11	4.20	ND^	4.20	0.56	0.042	0.046
	3/24/2004	0.11	4.20	ND^	4.20	0.56	ND	0.017
	4/28/2004	ND	3.20	ND^	3.20	0.42	0.013	0.055
	5/26/2004	ND	3.10	ND^	3.10	ND	ND	ND
	6/23/2004	ND	3.30	ND^	3.30	0.42	ND	0.013
	7/21/2004	ND	2.80	ND^	2.80	0.70	0.013	0.055
	8/25/2004	ND	6.60	ND^	6.60	ND	ND	0.210
	9/22/2004	ND	3.60	ND^	3.60	0.42	ND	0.028
	10/27/2004	ND	4.60	ND^	4.60	0.42	0.016	0.035
	11/17/2004	ND	4.70	ND^	4.70	0.63	ND	0.043
	12/22/2004	ND	4.80	ND	4.80	0.34	0.006	ND
*NA = Not Analyzed, ND = Non Detect								

Appendix IIc. Monthly Nutrient Data from the Las Vegas Wash Mainstream Sites								
Site Location	**Sample Date**	**NH4* mg/L**	**NO3* mg/L**	**NO2* mg/L**	**NO3+NO2* mg/L**	**TKN* mg/L**	**OrthoPO4** mg/L**	**Total P** mg/L**
LW6.05	1/21/2004	ND	14.00^	ND^	14.00	1.10	0.090	0.120
	2/25/2004	0.11	14.00	ND	14.00	0.84	0.140	0.180
	3/24/2004	0.22	17.00	ND	17.00	0.70	0.041	0.280
	4/28/2004	ND	13.00	ND	13.00	0.56	0.140	0.190
	5/26/2004	ND	14.00	ND	14.00	ND	0.086	0.120
	6/23/2004	ND	14.00	ND	14.00	0.70	0.100	0.130
	7/21/2004	ND	14.00	ND	14.00	0.96	0.160	0.220
	8/25/2004	ND	14.00	ND	14.00	0.56	0.140	0.190
	9/22/2004	ND	12.00	ND	12.00	0.70	0.070	0.091
	10/27/2004	ND	14.00	ND	14.00	0.56	0.085	0.120
	11/17/2004	ND	14.00	ND	14.00	1.10	0.140	0.180
	12/22/2004	0.08	11.00	ND	11.00	0.98	0.050	0.036
LW5.9	1/21/2004	ND	12.00^	ND^	12.00	1.30	0.086	0.110
	2/25/2004	0.22	13.00	ND	13.00	0.84	0.140	0.160
	3/24/2004	0.34	16.00	ND	16.00	0.98	0.140	0.180
	4/28/2004	ND	12.00	ND	12.00	0.70	0.110	0.170
	5/26/2004	ND	12.00	ND	12.00	0.42	0.110	0.150
	6/23/2004	ND	13.00	ND	13.00	0.70	0.100	0.120
	7/21/2004	ND	13.00	ND	13.00	0.81	0.160	0.200
	8/25/2004	ND	13.00	ND	13.00	0.77	0.130	0.280
	9/22/2004	ND	9.80	ND	9.90	0.77	0.076	0.096
	10/27/2004	0.45	12.00	ND	12.00	1.10	0.110	0.150
	11/17/2004	0.45	11.00	0.14	11.00	1.40	0.120	0.160
	12/22/2004	0.26	8.10	ND	8.10	1.2*	0.088	0.140
LW5.5	1/21/2004	ND	13.00	ND^	13.00	1.10	0.078	0.120
	2/25/2004	0.22	14.00	ND	14.00	0.84	0.140	0.180
	3/24/2004	0.22	17.00	ND	17.00	0.70	0.130	0.160
	4/28/2004	ND	13.00	ND	13.00	0.42	0.120	0.210
	5/26/2004	ND	13.00	ND	13.00	0.84	0.080	0.110
	6/23/2004	ND	14.00	ND	14.00	0.70	0.096	0.110
	7/21/2004	ND	13.00	ND	13.00	0.93	0.150	0.190
	8/25/2004	ND	14.00	ND	14.00	0.91	0.140	0.170
	9/22/2004	ND	12.00	ND	12.00	0.49	0.074	0.200
	10/27/2004	ND	14.00	ND	14.00	0.91	0.083	0.120
	11/17/2004	ND	13.00	0.07	13.00	1.10	0.140	0.170
	12/22/2004	0.09	11.00	ND	11.00	1.10	0.057	0.072
*NA = Not Analyzed, ND = Non Detect								

Appendix IIc. Monthly Nutrient Data from the Las Vegas Wash Mainstream Sites								
Site Location	**Sample Date**	**NH4* mg/L**	**NO3* mg/L**	**NO2* mg/L**	**NO3+NO2* mg/L**	**TKN* mg/L**	**OrthoPO4** mg/L**	**Total P** mg/L**
LW5.3	1/21/2004	ND	13.00^	ND^	13.00	1.30	0.091	0.120
	2/25/2004	0.34	14.00	ND	14.00	0.84	0.140	0.160
	3/24/2004	0.22	17.00	ND	17.00	0.84	0.130	0.150
	4/28/2004	ND	13.00	ND	13.00	0.42	0.120	0.170
	5/26/2004	ND	13.00	ND	13.00	0.70	0.078	0.110
	6/23/2004	ND	14.00	ND	14.00	0.84	0.094	0.150
	7/21/2004	ND	13.00	ND	13.00	0.78	0.140	0.180
	8/25/2004	ND	13.00	ND	13.00	0.84	0.130	0.170
	9/22/2004	ND	12.00	ND	12.00	0.70	0.070	0.095
	10/27/2004	ND	14.00	ND	14.00	0.91	0.088	0.130
	11/17/2004	ND	14.00	0.06	14.00	1.00	0.140	0.170
	12/22/2004	0.08	11.00	ND	11.00	0.95	0.053	0.081
LW3.85	1/21/2004	ND	15.00	ND^	15.00	1.10	0.080	0.099
	2/25/2004	0.11	14.00	ND	14.00	0.84	0.150	0.190
	3/24/2004	0.26	17.00	ND	17.00	0.70	0.130	0.160
Duplicate	3/24/2004	0.22	17.00	ND	17.00	0.84	0.120	0.150
	4/28/2004	ND	14.00	ND	14.00	0.56	0.140	0.200
	5/26/2004	ND	15.00	ND	15.00	1.40	0.064	0.096
	6/23/2004	ND	15.00	ND	15.00	0.56	0.080	0.110
	7/21/2004	ND	14.00	ND	14.00	0.86	0.140	0.180
	8/25/2004	ND	14.00	ND	14.00	0.70	0.140	0.180
	9/22/2004	ND	13.00	ND	13.00	0.42	0.073	0.110
	10/27/2004	ND	14.00	ND	14.00	0.91	0.097	0.130
	11/17/2004	ND	15.00	ND	15.00	1.00	0.140	0.170
	12/22/2004	0.06	12.00	ND	12.00	0.95	0.052	0.150
LW3.75	1/21/2004	ND	15.00^	ND^	15.00	0.98	0.079	0.110
	2/25/2004	0.34	14.00	ND	14.00	0.70	0.150	0.160
	3/24/2004	0.22	17.00	ND	17.00	0.70	0.140	0.180
	4/28/2004	ND	14.00	ND	14.00	0.42	0.130	0.170
	5/26/2004	ND	15.00	ND	15.00	0.70	0.067	0.097
	6/23/2004	ND	15.00	ND	15.00	0.63	0.085	0.110
	7/21/2004	ND	14.00	ND	14.00	0.74	0.150	0.180
	8/25/2004	ND	14.00	ND	14.00	0.70	0.140	0.170
	9/22/2004	ND	13.00	ND	13.00	0.84	0.078	0.110
	10/27/2004	ND	14.00	ND	14.00	0.77	0.090	0.130
	11/17/2004	ND	15.00	ND	15.00	0.98	0.140	0.170
	12/22/2004	0.05	12.00	ND	12.00	1.00	0.053	0.200
*NA = Not Analyzed, ND = Non Detect								

Appendix IIc. Monthly Nutrient Data from the Las Vegas Wash Mainstream Sites								
Site Location	**Sample Date**	**NH4* mg/L**	**NO3* mg/L**	**NO2* mg/L**	**NO3+NO2* mg/L**	**TKN* mg/L**	**OrthoPO4** mg/L**	**Total P** mg/L**
LW0.8	1/21/2004	ND	15.00^	ND^	15.00	1.10	0.085	0.120
	2/25/2004	0.11	14.00	ND	14.00	0.70	0.150	0.170
	3/24/2004	0.11	18.00	ND	18.00	0.70	0.120	0.150
	4/28/2004	ND	15.00	ND	15.00	0.56	0.130	0.170
	5/26/2004	ND	15.00	ND	15.00	0.56	0.071	0.130
	6/23/2004	ND	15.00	ND	15.00	0.70	0.085	0.100
	7/21/2004	ND	15.00	ND	15.00	0.78	0.150	0.200
	8/25/2004	ND	15.00	ND	15.00	0.77	0.160	0.240
	9/22/2004	ND	13.00	ND	13.00	0.63	0.098	0.098
	10/27/2004	ND	14.00	ND	14.00	0.77	0.095	0.120
	11/17/2004	ND	15.00	ND	15.00	0.98	0.170	0.200
	12/22/2004	0.05	12.00	ND	12.00	0.62	0.053	0.082
LW10.75	1/26/2005	0.54	1.80	ND	1.80	4.40	0.146	1.100
	2/28/2005	ND	4.50	ND	4.50	0.28	0.020	ND
	3/30/2005	ND	4.20	ND	4.20	0.47	0.005	ND
	4/19/2005	ND	4.00	ND	4.00	0.71	0.006	ND
	5/25/2005	ND	3.70	ND	3.70	0.55	0.010	ND
	6/22/2005	0.03	3.80	ND	3.80	0.65	0.013	0.029
	7/27/2005	ND	3.50	ND	3.50	0.67	0.034	0.034
	8/24/2005	ND	3.90	ND	3.90	0.63	0.006	0.054
	9/21/2005	0.21	3.50	ND	3.50	2.20	0.009	0.022
	10/26/2005	0.12	2.40	ND	2.40	0.77	0.076	0.150
	11/30/2005	0.24	5.30	ND	5.30	0.70	0.011	ND
	12/28/2005	0.04	4.60	ND	4.60	0.60	0.008	0.029
LW6.05	1/26/2005	ND	7.70	ND	7.70	1.10	0.114	0.110
	2/28/2005	ND	9.90	ND	9.90	0.98	0.028	0.055
	3/30/2005	ND	12.00	ND	12.00	1.00	0.032	0.058
	4/19/2005	ND	13.00	ND	13.00	1.10	0.023	0.061
	5/25/2005	0.06	14.00	ND	14.00	0.90	0.027	0.046
	6/22/2005	0.04	11.00	ND	11.00	0.97	0.013	0.038
	7/27/2005	0.08	11.00	ND	11.00	1.10	0.053	0.068
	8/24/2005	0.07	12.00	ND	12.00	1.30	0.040	0.110
	9/21/2005	0.18	11.00	ND	11.00	1.90	0.035	0.058
	10/26/2005	0.09	8.80	ND	8.80	1.10	0.063	0.098
	11/30/2005	0.38	13.00	ND	13.00	1.50	0.072	0.150
	12/28/2005	0.31	12.00	ND	12.00	1.60	0.140	0.190
*NA = Not Analyzed, ND = Non Detect								

Appendix IIc. Monthly Nutrient Data from the Las Vegas Wash Mainstream Sites								
Site Location	**Sample Date**	**NH4* mg/L**	**NO3* mg/L**	**NO2* mg/L**	**NO3+NO2* mg/L**	**TKN* mg/L**	**OrthoPO4** mg/L**	**Total P** mg/L**
LW5.9	1/26/2005	0.07	12.00	ND	12.00	1.30	0.108	0.120
	2/28/2005	0.24	8.90	ND	8.90	1.30	0.038	0.092
	3/30/2005	0.04	11.00	ND	11.00	1.00	0.035	0.052
	4/19/2005	0.08	11.00	ND	11.00	1.10	0.028	0.066
	5/25/2005	0.06	14.00	ND	14.00	0.86	0.029	0.036
	6/22/2005	0.06	11.00	ND	11.00	1.10	0.015	0.033
	7/27/2005	0.09	10.00	ND	10.00	0.76	0.068	0.089
	8/24/2005	0.06	11.00	ND	11.00	0.17	0.050	0.110
	9/21/2005	0.12	10.00	ND	10.00	1.60	0.060	0.073
	10/26/2005	0.28	10.00	ND	10.00	1.20	0.059	0.120
	11/30/2005	0.30	13.00	ND	13.00	1.20	0.074	0.150
	12/28/2005	0.39	11.00	ND	11.00	1.80	0.110	0.180
LW5.5	1/26/2005	0.07	13.00	ND	14.00	1.20	0.112	0.096
	2/28/2005	0.16	9.80	ND	9.80	1.10	0.036	0.091
	3/30/2005	ND	11.00	ND	11.00	1.00	0.036	0.056
	4/19/2005	0.05	12.00	ND	12.00	1.30	0.023	0.065
	5/25/2005	ND	14.00	ND	14.00	1.00	0.025	0.036
	6/22/2005	0.03	11.00	ND	11.00	0.75	0.015	0.024
	7/27/2005	0.06	11.00	ND	11.00	0.75	0.051	0.063
	8/24/2005	ND	12.00	ND	12.00	1.10	0.038	0.100
	9/21/2005	0.08	11.00	ND	11.00	1.70	0.039	0.056
	10/26/2005	0.16	9.80	ND	9.80	1.10	0.072	0.120
	11/30/2005	0.27	13.00	ND	13.00	1.30	0.089	0.160
	12/28/2005	0.27	12.00	ND	12.00	1.60	0.140	0.190
LW5.3	1/26/2005	0.05	13.00	ND	13.00	1.10	0.112	0.110
	2/28/2005	0.21	9.70	ND	9.70	1.10	0.039	0.075
	3/30/2005	0.04	12.00	ND	12.00	1.00	0.039	0.054
	4/19/2005	0.04	12.00	ND	12.00	1.20	0.023	0.052
	5/25/2005	ND	14.00	ND	14.00	0.88	0.021	0.014
	6/22/2005	ND	12.00	ND	12.00	0.62	0.014	0.037
	7/27/2005	0.06	12.00	ND	12.00	0.81	0.051	0.057
	8/24/2005	ND	12.00	ND	12.00	0.92	0.040	0.100
	9/21/2005	0.10	11.00	ND	11.00	1.60	0.045	0.057
	10/26/2005	0.18	9.30	ND	9.30	1.60	0.078	0.110
	11/30/2005	0.25	14.00	ND	14.00	1.20	0.110	0.150
	12/28/2005	0.22	12.00	ND	12.00	2.10	0.130	0.200
*NA = Not Analyzed, ND = Non Detect								

Appendix IIc. Monthly Nutrient Data from the Las Vegas Wash Mainstream Sites								
Site Location	**Sample Date**	**NH4* mg/L**	**NO3* mg/L**	**NO2* mg/L**	**NO3+NO2* mg/L**	**TKN* mg/L**	**OrthoPO4** mg/L**	**Total P** mg/L**
LW3.85	1/26/2005	0.06	14.00	ND	14.00	1.10	0.106	0.130
	2/28/2005	0.29	10.00	ND	10.00	1.10	0.047	0.063
	3/30/2005	ND	12.00	ND	12.00	0.96	0.031	0.035
	4/19/2005	ND	13.00	ND	13.00	1.00	0.014	0.045
	5/25/2005	ND	14.00	ND	14.00	1.10	0.011	0.011
	6/22/2005	ND	12.00	ND	12.00	0.55	0.008	0.033
	7/27/2005	0.06	13.00	ND	13.00	0.85	0.053	0.067
	8/24/2005	ND	12.00	ND	12.00	0.91	0.040	0.097
	9/21/2005	0.08	12.00	ND	12.00	0.86	0.045	0.050
	10/26/2005	0.13	9.60	ND	9.60	1.30	0.087	0.087
	11/30/2005	0.63	13.80	ND	13.80	1.50	0.093	0.160
	12/28/2005	0.14	13.00	ND	13.00	1.40	0.160	0.200
LW3.75	1/26/2005	0.05	14.00	ND	14.00	1.30	0.106	0.110
	2/28/2005	0.32	11.00	ND	11.00	1.20	0.044	0.067
	3/30/2005	ND	12.00	ND	12.00	0.98	0.031	0.039
	4/19/2005	ND	13.00	ND	13.00	1.10	0.016	0.051
	5/25/2005	ND	14.00	ND	17.00	0.78	0.009	ND
	6/22/2005	ND	12.00	ND	12.00	0.75	0.008	0.014
	7/27/2005	0.05	13.00	ND	13.00	0.85	0.052	0.063
	8/24/2005	ND	12.00	ND	12.00	0.95	0.041	0.100
	9/21/2005	0.07	12.00	ND	12.00	1.10	0.039	0.052
	10/26/2005	0.12	8.70	ND	8.70	1.20	0.086	0.110
	11/30/2005	0.42	13.80	ND	13.80	1.00	0.090	0.150
	12/28/2005	0.13	13.00	ND	13.00	1.30	0.140	0.180
LW0.8	1/26/2005	0.05	15.00	ND	15.00	0.97	0.108	0.110
	2/28/2005	0.36	11.00	ND	11.00	1.20	0.049	0.098
	3/30/2005	ND	13.00	ND	13.00	0.96	0.032	0.037
	4/19/2005	ND	14.00	ND	17.00	0.90	0.012	0.046
	5/25/2005	ND	14.00	ND	14.00	0.82	0.007	0.035
	6/22/2005	ND	13.00	ND	13.00	0.82	0.007	0.037
	7/27/2005	0.07	13.00	ND	13.00	0.72	0.054	0.080
	8/24/2005	ND	13.00	ND	13.00	0.94	0.040	ND
	9/21/2005	0.11	12.00	ND	12.00	0.97	0.042	0.062
	10/26/2005	0.13	8.90	ND	8.90	1.40	0.087	0.095
	11/30/2005	0.20	15.00	ND	15.00	1.30	0.088	0.140
	12/28/2005	0.16	14.00	ND	14.00	1.50	0.140	0.180
*NA = Not Analyzed, ND = Non Detect								

Appendix IIc. Monthly Nutrient Data from the Las Vegas Wash Mainstream Sites								
Site Location	**Sample Date**	**NH4* mg/L**	**NO3* mg/L**	**NO2* mg/L**	**NO3+NO2* mg/L**	**TKN* mg/L**	**OrthoPO4** mg/L**	**Total P** mg/L**
LW10.75	1/25/2006	0.11	5.00	<0.10	5.00	0.28	<0.002	<0.01
	2/22/2006	<0.03	4.80	<0.10	4.80	0.42	<0.002	0.057
	3/22/2006	0.04	2.90	0.11	3.00	2.10	<0.002	0.024
	4/26/2006	0.07	4.10	<0.10	4.10	0.33	0.005	0.012
	5/17/2006	0.06	3.80	<0.10	3.80	0.62	0.002	0.012
	6/21/2006	0.08	3.80	0.13	3.80	0.40	<0.002	0.019
	7/27/2006	0.08	3.80	0.15	3.90	0.65	0.007	0.021
	8/23/2006	0.06	4.30	<0.10	4.30	0.51	0.005	0.016
	9/19/2006	0.03	4.40	<0.10	4.50	0.23	<0.002	<0.01
	10/17/2006	0.05	4.80	<0.10	4.80	0.46	0.022	0.035
	11/14/2006	<0.03	4.40	<0.10	4.40	0.62	0.005	0.030
	12/13/2006	<0.030	22.00	<0.10	5.00	0.34	0.004	<0.01
LW6.05	1/25/2006	0.15	15.00	<0.10	15.00	0.92	0.140	0.190
	2/22/2006	<0.03	15.00	<0.10	15.00	<0.10	0.093	0.170
	3/22/2006	<0.03	15.00	<0.10	15.00	0.62	0.031	0.170
	4/26/2006	0.06	17.00	<0.10	17.00	<0.10	0.070	0.120
	5/17/2006	0.04	16.00	<0.10	16.00	<0.10	0.059	0.098
	6/21/2006	0.08	14.00	<0.10	14.00	<0.10	0.050	0.084
	7/27/2006	0.08	14.00	<0.10	14.00	0.24	0.048	0.084
	8/23/2006	0.05	15.00	<0.10	15.00	0.62	0.076	0.120
	9/19/2006	0.04	13.00	<0.10	13.00	<0.10	0.050	0.075
	10/17/2006	0.08	14.00	<0.10	14.00	0.26	0.056	0.094
	11/14/2006	0.04	13.00	<0.10	13.00	1.10	0.059	0.100
	12/13/2006	<0.030	15.00	<0.10	15.00	<0.10	0.060	0.100
LW5.9	1/25/2006	0.21	14.00	<0.10	14.00	0.91	0.140	0.190
	2/22/2006	<0.03	14.00	<0.10	14.00	<0.10	0.092	0.200
	3/22/2006	0.32	14.00	0.12	14.00	1.40	0.110	0.280
	4/26/2006	0.11	14.00	<0.10	14.00	<0.10	0.086	0.150
	5/17/2006	<0.03	14.00	<0.10	14.00	<0.10	0.061	0.110
	6/21/2006	0.11	13.00	<0.10	13.00	0.23	0.078	0.120
	7/27/2006	0.08	13.00	<0.10	13.00	<0.10	0.049	0.086
	8/23/2006	0.12	13.00	<0.10	13.00	0.28	0.092	0.140
	9/19/2006	0.11	9.60	<0.10	9.60	<0.10	0.068	0.130
	10/17/2006	0.16	13.00	<0.10	13.00	0.17	0.078	0.130
	11/14/2006	3.50	10.00	0.13	10.00	4.50	0.100	0.170
	12/13/2006	0.09	14.00	<0.10	14.00	<0.10	0.096	0.180
*NA = Not Analyzed, ND = Non Detect								

Appendix IIc. Monthly Nutrient Data from the Las Vegas Wash Mainstream Sites								
Site Location	**Sample Date**	**NH4* mg/L**	**NO3* mg/L**	**NO2* mg/L**	**NO3+NO2* mg/L**	**TKN* mg/L**	**OrthoPO4** mg/L**	**Total P** mg/L**
LW5.5	1/25/2006	0.19	14.00	<0.10	14.00	0.89	0.150	0.200
	2/22/2006	<0.03	14.00	<0.10	14.00	<0.10	0.093	0.210
	3/22/2006	0.17	14.00	0.12	14.00	1.10	0.055	0.110
	4/26/2006	0.08	15.00	<0.10	15.00	0.32	0.078	0.120
	5/17/2006	0.06	16.00	<0.10	16.00	<0.10	0.073	0.097
	6/21/2006	0.09	13.00	<0.10	13.00	<0.10	0.068	0.110
	7/27/2006	0.08	14.00	<0.10	14.00	<0.10	0.049	0.090
	8/23/2006	0.09	11.00	<0.10	11.00	0.34	0.095	0.140
	9/19/2006	0.07	11.00	<0.10	11.00	0.36	0.061	0.100
	10/17/2006	0.12	13.00	<0.10	13.00	0.20	0.065	0.100
	11/14/2006	1.20	13.00	<0.10	13.00	2.40	0.077	0.130
	12/13/2006	0.05	65.00	<0.10	15.00	<0.10	0.079	0.180
LW5.3	1/25/2006	0.18	15.00	<0.10	15.00	0.77	0.089	0.820
	2/22/2006	<0.03	15.00	<0.10	15.00	<0.10	0.110	0.170
	3/22/2006	0.17	15.00	<0.10	15.00	0.86	0.054	0.110
	4/26/2006	0.07	16.00	<0.10	16.00	0.44	0.065	0.100
	5/17/2006	0.05	16.00	<0.10	16.00	<0.10	0.070	0.098
	6/21/2006	0.08	14.00	<0.10	14.00	<0.10	0.065	0.100
	7/27/2006	0.08	14.00	<0.10	14.00	<0.10	0.053	0.093
	8/23/2006	0.09	14.00	<0.10	14.00	<0.10	0.100	0.140
	9/19/2006	0.05	12.00	<0.10	12.00	<0.10	0.059	0.095
	10/17/2006	0.12	13.00	<0.10	13.00	0.40	0.065	0.120
	11/14/2006	1.50	13.00	0.11	13.00	3.00	0.084	0.150
	12/13/2006	0.04	66.00	<0.10	15.00	<0.10	0.078	0.140
LW3.85	1/25/2006	0.17	15.00	<0.10	15.00	0.71	0.150	0.190
	2/22/2006	<0.03	16.00	<0.10	16.00	<0.10	0.100	0.170
	3/22/2006	0.10	15.00	<0.10	15.00	0.59	0.044	0.077
	4/26/2006	0.05	17.00	<0.10	17.00	<0.10	0.054	0.098
	5/17/2006	0.04	16.00	<0.10	16.00	<0.10	0.058	0.092
	6/21/2006	0.09	14.00	<0.10	14.00	<0.10	0.052	0.085
	7/27/2006	0.08	14.00	<0.10	14.00	<0.10	0.053	0.088
	8/23/2006	0.07	15.00	<0.10	15.00	<0.10	0.093	0.130
	9/19/2006	0.05	13.00	<0.10	13.00	<0.10	0.054	0.080
	10/17/2006	0.07	14.00	<0.10	14.00	<0.10	0.070	0.110
	11/14/2006	0.98	14.00	0.14	14.00	2.60	0.082	0.140
	12/13/2006	<0.03	16.00	<0.10	16.00	<0.10	0.075	0.120
*NA = Not Analyzed, ND = Non Detect								

Appendix IIc. Monthly Nutrient Data from the Las Vegas Wash Mainstream Sites								
Site Location	**Sample Date**	**NH4* mg/L**	**NO3* mg/L**	**NO2* mg/L**	**NO3+NO2* mg/L**	**TKN* mg/L**	**OrthoPO4** mg/L**	**Total P** mg/L**
LW3.75	1/25/2006	0.14	14.00	<0.10	14.00	0.44	0.150	0.190
	2/22/2006	<0.03	15.00	<0.10	15.00	<0.10	0.110	0.160
	3/22/2006	0.10	15.00	<0.10	15.00	0.45	0.044	0.076
	4/26/2006	0.06	16.00	<0.10	16.00	0.11	0.053	0.092
	5/17/2006	0.04	16.00	<0.10	16.00	<0.10	0.057	0.088
	6/21/2006	0.09	13.00	<0.10	13.00	<0.10	0.053	0.092
	7/27/2006	0.08	14.00	<0.10	14.00	<0.10	0.053	0.088
	8/23/2006	0.07	15.00	<0.10	15.00	<0.10	0.120	0.140
	9/19/2006	0.05	12.00	<0.10	12.00	<0.10	0.047	0.059
	10/17/2006	0.07	14.00	<0.10	14.00	<0.10	0.064	0.100
	11/14/2006	0.95	14.00	0.13	14.00	2.10	0.080	0.120
	12/13/2006	<0.03	69.00	<0.10	16.00	0.12	0.073	0.120
LW0.8	1/25/2006	0.17	16.00	<0.10	16.00	0.58	0.150	0.200
	2/22/2006	<0.03	16.00	<0.10	16.00	<0.10	0.094	0.160
	3/22/2006	0.11	15.00	<0.10	15.00	0.24	0.041	0.075
	4/26/2006	0.05	17.00	<0.10	17.00	<0.10	0.046	0.089
	5/17/2006	0.05	17.00	<0.10	17.00	<0.10	0.077	0.089
	6/21/2006	0.07	14.00	<0.10	14.00	<0.10	0.048	0.072
	7/27/2006	0.08	14.00	<0.10	14.00	<0.10	0.050	0.089
	8/23/2006	0.06	16.00	<0.10	16.00	0.37	0.090	0.130
	9/19/2006	0.04	13.00	<0.10	13.00	<0.10	0.055	0.079
	10/17/2006	0.10	15.00	<0.10	15.00	<0.10	0.069	0.110
	11/14/2006	0.57	15.00	0.13	15.00	3.30	0.071	0.120
	12/13/2006	<0.03	16.00	<0.10	16.00	<0.10	0.070	0.110
LW10.75	1/17/2007	<.03	5.50	<.1	5.50	<.1	0.006	0.017
	2/21/2007	<.03	4.30	<.1	4.30	<.1	0.010	<0.010
	3/21/2007	<.03	4.30	<.1	4.30	0.50	0.006	<0.010
	4/25/2007	<.03	3.40	<.1	3.50	0.90	<0.002	0.012
	5/23/2007	<.03	4.30	<.1	4.30	0.32	0.006	<.010
	6/20/2007	0.05	3.90	<.1	3.90	0.52	0.003	0.018
	7/16/2007	0.07	14.00	<.1	14.00	0.75	0.010	0.018
	8/22/2007	0.07	3.70	<1.5	3.70	4.60	0.004	0.030
	9/19/2007	0.08	4.80	<1.5	4.80	0.11	0.008	0.014
	10/17/2007	0.03	4.80	<.1	4.80	<.2	0.006	0.011
	11/19/2007	<.03	4.90	<.1	4.90	<.1	0.012	<.01
	12/19/2007	<.03	5.30	<.1	5.30	0.27	0.006	0.014
*NA = Not Analyzed, ND = Non Detect								

Appendix IIc. Monthly Nutrient Data from the Las Vegas Wash Mainstream Sites								
Site Location	**Sample Date**	**NH4* mg/L**	**NO3* mg/L**	**NO2* mg/L**	**NO3+NO2* mg/L**	**TKN* mg/L**	**OrthoPO4** mg/L**	**Total P** mg/L**
LW8.85	1/17/2007	0.17	16.00	<.1	16.00	<.1	0.043	0.120
	2/21/2007	<.03	14.00	<.1	14.00	<.1	0.093	0.150
	3/21/2007	<.03	15.00	<.1	15.00	<.1	0.052	0.084
	4/25/2007	0.04	16.00	<.1	16.00	0.10	0.099	0.160
	5/23/2007	<.03	16.00	<.1	16.00	<.1	0.130	0.160
	6/20/2007	0.06	17.00	<.1	17.00	<.1	0.054	0.130
	7/16/2007	<.03	14.00	<.1	14.00	<.1	0.073	0.120
	8/22/2007	0.13	14.00	<1.5	14.00	0.30	0.091	0.120
	9/19/2007	0.08	14.00	<1.5	14.00	<.1	0.087	0.120
	10/17/2007	0.06	17.00	<.1	17.00	<.2	0.150	0.180
	11/19/2007	0.04	14.00	<.1	14.00	<.1	0.044	0.094
	12/19/2007	0.04	17.00	<.1	17.00	<.1	0.060	0.100
LW6.85	1/17/2007	0.07	15.00	<.1	15.00	0.46	0.030	0.094
	2/21/2007	<.03	13.00	<.1	13.00	<.1	0.085	0.130
	3/21/2007	<.03	14.00	<.1	14.00	0.19	0.056	0.093
	4/25/2007	0.05	15.00	<.1	15.00	<.1	0.100	0.160
	5/23/2007	<.03	16.00	<.1	16.00	<.1	0.170	0.150
	6/20/2007	0.06	17.00	<.1	17.00	<.1	0.110	0.130
	7/16/2007	0.09	11.00	<.1	11.00	<.1	0.082	0.120
	8/22/2007	0.05	14.00	<1.5	14.00	0.11	0.089	0.110
	9/19/2007	0.09	14.00	<1.5	14.00	<.1	0.092	0.120
	10/17/2007	0.09	16.00	<.1	16.00	<.2	0.140	0.160
	11/19/2007	0.05	13.00	<.1	13.00	<.1	0.052	0.120
	12/19/2007	0.05	14.00	<.1	14.00	<.1	0.089	0.120
LW5.9	1/17/2007	0.10	15.00	<.1	15.00	<.1	0.038	0.083
	2/21/2007	0.14	14.00	<.1	14.00	0.41	0.100	0.160
	3/21/2007	0.07	13.00	<.1	13.00	<.1	0.071	0.100
	4/25/2007	0.06	14.00	<.1	14.00	0.12	0.100	0.150
	5/23/2007	0.07	14.00	<.1	14.00	<.1	0.120	0.150
	6/20/2007	0.08	16.00	<.1	16.00	<.1	0.088	0.140
	7/16/2007	0.08	15.00	<.1	15.00	<.1	0.092	0.130
	8/22/2007	0.06	13.00	<1.5	13.00	0.38	0.090	0.120
	9/19/2007	0.16	12.00	<1.5	12.00	<.2	0.120	0.160
	10/17/2007	0.20	13.00	<.1	13.00	0.48	0.160	0.190
	11/19/2007	0.12	12.00	<.1	12.00	0.14	0.079	0.150
	12/19/2007	0.15	12.00	<.1	12.00	1.10	0.140	0.220
*NA = Not Analyzed, ND = Non Detect								

Appendix IIc. Monthly Nutrient Data from the Las Vegas Wash Mainstream Sites								
Site Location	**Sample Date**	**NH4* mg/L**	**NO3* mg/L**	**NO2* mg/L**	**NO3+NO2* mg/L**	**TKN* mg/L**	**OrthoPO4** mg/L**	**Total P** mg/L**
LW5.5	1/17/2007	0.07	15.00	<.1	15.00	0.13	0.042	0.084
	2/21/2007	0.03	13.00	<.1	13.00	0.14	0.092	0.140
	3/21/2007	0.05	14.00	<.1	14.00	<0.10	0.062	0.098
	4/25/2007	0.05	15.00	<.1	15.00	<0.10	0.100	0.160
	5/23/2007	0.04	15.00	<.1	15.00	<.10	0.120	0.150
	6/20/2007	0.07	16.00	<.1	16.00	0.46	0.110	0.140
	7/16/2007	0.08	15.00	<.1	15.00	<.10	0.092	0.130
	8/22/2007	0.05	12.00	<1.5	12.00	0.34	0.094	0.120
	9/19/2007	0.11	14.00	<1.5	14.00	0.63	0.100	0.130
	10/17/2007	0.10	15.00	<.1	15.00	<.2	0.150	0.170
	11/19/2007	0.08	13.00	<.1	13.00	<.1	0.066	0.110
	12/19/2007	0.07	15.00	<.1	15.00	<.1	0.090	0.140
LW4.95	1/17/2007	0.06	15.00	<.1	15.00	0.28	0.041	0.080
	2/21/2007	<0.03	13.00	<.1	14.00	<.1	0.100	0.160
	3/21/2007	<0.03	14.00	0.13	14.00	0.28	<0.002	0.096
	4/25/2007	0.04	14.00	<.1	14.00	0.26	0.100	0.150
	5/23/2007	<.03	15.00	<.1	15.00	<.1	0.110	0.140
	6/20/2007	0.06	16.00	<.1	16.00	0.19	0.091	0.130
	7/16/2007	<0.03	15.00	<.1	15.00	<.1	0.110	0.140
	8/22/2007	0.05	13.00	<1.5	13.00	0.35	0.095	0.120
	9/19/2007	0.10	14.00	<1.5	14.00	<.2	0.110	0.130
	10/17/2007	0.15	15.00	<.1	15.00	0.21	0.150	0.170
	11/19/2007	0.05	13.00	<.1	13.00	<.1	0.073	0.120
	12/19/2007	0.06	16.00	<.1	16.00	1.40	0.100	0.140
LW3.1	1/17/2007	0.04	14.00	<.1	14.00	<.1	0.041	0.073
	2/21/2007	<0.03	14.00	<.1	14.00	0.18	0.100	0.140
	3/21/2007	<0.03	14.00	<.1	14.00	<.1	<0.002	0.090
	4/25/2007	0.03	15.00	<.1	15.00	0.12	0.097	0.140
	5/23/2007	<.03	15.00	<.1	15.00	<.1	0.100	0.140
	6/20/2007	0.05	17.00	<.1	17.00	0.65	0.081	0.110
	7/16/2007	0.08	15.00	<.1	15.00	<.1	0.090	0.120
	8/22/2007	0.05	14.00	<1.5	14.00	0.58	0.100	0.130
	9/19/2007	0.10	14.00	<1.5	14.00	<.2	0.110	0.110
	10/17/2007	0.17	15.00	<.1	15.00	3.00	0.160	0.170
	11/19/2007	0.05	13.00	<.1	13.00	<.1	0.079	0.120
	12/19/2007	0.04	16.00	<.1	16.00	<.1	0.098	0.140
*NA = Not Analyzed, ND = Non Detect								

Appendix IIc. Monthly Nutrient Data from the Las Vegas Wash Mainstream Sites								
Site Location	**Sample Date**	**NH4* mg/L**	**NO3* mg/L**	**NO2* mg/L**	**NO3+NO2* mg/L**	**TKN* mg/L**	**OrthoPO4** mg/L**	**Total P** mg/L**
LW0.8	1/17/2007	0.05	14.00	<.1	14.00	<.1	0.038	0.079
	2/21/2007	<0.03	14.00	<.1	14.00	0.25	0.100	0.150
	3/21/2007	<0.03	14.00	<.1	14.00	0.28	<0.002	0.093
	4/25/2007	<0.03	15.00	<.1	15.00	0.16	0.097	0.150
	5/23/2007	<.03	15.00	<.1	15.00	<.1	0.100	0.140
	6/20/2007	0.04	16.00	<.1	16.00	0.30	0.140	0.230
	7/16/2007	0.06	2.60	<.1	2.70	<.1	0.084	0.120
	8/22/2007	0.05	14.00	<1.5	14.00	<.1	0.100	0.120
	9/19/2007	0.08	14.00	<1.5	14.00	0.14	0.100	0.130
	10/17/2007	0.21	15.00	<.1	15.00	2.40	0.150	0.170
	11/19/2007	0.05	13.00	<.1	13.00	<.1	0.079	0.120
	12/19/2007	0.05	16.00	<.1	16.00	<.1	0.098	0.130
*NA = Not Analyzed, ND = Non Detect								

Appendix IId. Monthly Metal Data from the Las Vegas Wash Mainstream Sites																			
Site Location	Sample Date	Aluminum (ug/l)	Antimony (ug/l)	Arsenic (ug/l)	Barium (ug/l)	Beryllium (ug/l)	Cadmium (ug/l)	Chromium (ug/l)	Copper (ug/l)	Iron (mg/l)	Mercury (ug/l)	Manganese (ug/l)	Lead (ug/l)	Nickel (ug/l)	Selenium (ug/l)	Silica (mg/l)	Silver (ug/l)	Thallium (ug/l)	Zinc (ug/l)
LW10.75	1/22/2003	ND	ND	15.0	32	ND	ND	1.4	2.3	ND	ND	15	ND	7.3	14.40	ND	ND	ND	7
	2/19/2003	ND	ND	30.0	420	ND	ND	41.0	ND	20.00	ND	660	57.00	49.0	19.20	24.0	ND	ND	350
	3/26/2003	790	ND	12.0	51	ND	ND	4.0	4.8	0.95	ND	54	1.90	16.0	14.60	37.0	ND	ND	25
	4/23/2003	57	ND	9.7	38	ND	ND	1.8	3.8	ND	ND	30	0.53	7.1	13.80	33.0	ND	ND	9
	5/28/2003	39	ND	20.0	33	ND	ND	2.4	2.5	ND	ND	10	ND	10.0	12.80	66.0	ND	ND	16
	6/25/2003	56	ND	7.0	31	ND	ND	1.6	ND	ND	ND	7	ND	6.4	13.00	23.0	ND	ND	14
	7/23/2003	ND	ND	6.3	50	ND	ND	1.0	3.5	ND	ND	12	ND	8.0	12.20	86.0	ND	ND	7
	8/27/2003	380	2.4	5.8	57	ND	ND	4.7	6.6	0.36	ND	24	1.40	7.1	3.82	20.0	ND	ND	39
	9/24/2003	29	ND	3.7	46	ND	ND	1.3	9.7	ND	ND	190	0.43	11.0	12.90	35.0	ND	ND	7
	10/22/2003	41	ND	8.8	39	ND	ND	1.8	2.5	0.05	ND	5	ND	14.0	13.90	39.0	ND	ND	8
	11/19/2003	ND	ND	11.0	41	ND	ND	ND	ND	0.04	ND	ND	ND	ND	14.10	46.0	ND	ND	ND
	12/23/2003	ND	ND	10.0	35	ND	ND	1.3	ND	0.03	ND	2	ND	15.0	13.60	43.0	ND	ND	7
LW6.05	1/22/2003	100	ND	13.0	47	ND	ND	ND	4.3	ND	ND	56	ND	7.8	4.02	ND	ND	ND	49
	2/19/2003	510	ND	6.7	48	ND	ND	1.9	4.4	0.54	ND	57	1.10	9.5	3.56	26.0	ND	ND	47
	3/26/2003	270	ND	4.5	44	ND	ND	1.6	4.4	0.28	ND	39	0.84	9.8	3.34	31.0	0.59	ND	43
	4/23/2003	130	ND	5.9	43	ND	ND	ND	3.1	0.13	ND	47	0.63	ND	3.78	19.0	ND	ND	31
	5/28/2003	160	ND	6.5	44	ND	ND	1.5	2.9	0.20	ND	40	0.85	8.6	3.58	22.0	ND	ND	34
	6/25/2003	270	ND	5.3	41	ND	ND	1.8	2.5	ND	ND	43	ND	7.4	2.80	18.0	ND	ND	73
	7/23/2003	220	ND	6.4	46	ND	ND	ND	2.9	0.26	ND	74	0.54	7.6	2.83	25.0	ND	ND	31
	8/27/2003	410	ND	6.4	51	ND	ND	4.3	5.1	0.38	ND	47	1.20	7.8	2.54	22.0	ND	ND	49
	9/24/2003	165	ND	5.5	49	ND	ND	ND	13.0	0.17	ND	43	0.50	8.0	2.58	25.0	ND	ND	63
	10/22/2003	180	ND	5.3	52	ND	ND	1.3	4.3	0.24	ND	34	ND	11.0	3.03	23.0	ND	ND	40
	11/19/2003	490	ND	7.6	52	ND	ND	ND	ND	0.43	ND	64	ND	ND	3.08	27.0	ND	ND	53
	12/23/2003	180	ND	7.5	43	ND	ND	ND	2.7	0.25	ND	59	ND	11.0	3.31	25.0	ND	ND	41
*NA = Not Analyzed, ND = Non Detect																			

Appendix IId. Monthly Metal Data from the Las Vegas Wash Mainstream Sites																			
Site Location	**Sample Date**	**Aluminum (ug/l)**	**Antimony (ug/l)**	**Arsenic (ug/l)**	**Barium (ug/l)**	**Beryllium (ug/l)**	**Cadmium (ug/l)**	**Chromium (ug/l)**	**Copper (ug/l)**	**Iron (mg/l)**	**Mercury (ug/l)**	**Manganese (ug/l)**	**Lead (ug/l)**	**Nickel (ug/l)**	**Selenium (ug/l)**	**Silica (mg/l)**	**Silver (ug/l)**	**Thallium (ug/l)**	**Zinc (ug/l)**
LW5.9	1/22/2003	170	ND	16.0	41	ND	ND	ND	4.5	ND	ND	67	ND	8.9	4.62	ND	ND	ND	46
	2/19/2003	390	ND	8.8	57	ND	ND	2.3	5.0	0.37	ND	50	1.00	9.5	3.63	20.0	ND	ND	52
	3/26/2003	370	ND	5.5	48	ND	ND	1.9	4.9	0.37	ND	47	0.96	10.0	3.52	17.0	ND	ND	47
	4/23/2003	80	ND	7.6	57	ND	ND	2.4	4.5	ND	ND	28	ND	6.0	3.04	17.0	ND	ND	43
	5/28/2003	120	ND	9.9	53	ND	ND	2.1	4.7	ND	ND	36	0.62	8.8	3.34	22.0	ND	ND	44
	6/25/2003	150	ND	9.3	49	ND	ND	2.4	3.2	ND	ND	42	ND	7.5	3.00	19.0	ND	ND	31
	7/23/2003	200	ND	8.9	52	ND	ND	1.7	3.6	0.21	ND	66	ND	7.4	2.92	26.0	ND	ND	26
	8/27/2003	450	ND	8.7	58	ND	ND	4.1	5.3	0.46	ND	58	1.40	8.4	2.70	24.0	ND	ND	48
	9/24/2003	320	ND	8.4	60	ND	ND	1.7	14.0	0.27	ND	57	0.90	8.9	2.70	24.0	ND	ND	45
	10/22/2003	160	ND	7.6	60	ND	ND	2.2	5.3	0.21	ND	37	ND	13.0	3.01	25.0	ND	ND	44
	11/19/2003	280	ND	10.0	61	ND	ND	ND	ND	0.22	ND	51	ND	ND	3.14	24.0	ND	ND	61
	12/23/2003	150	ND	9.9	55	ND	ND	ND	3.1	0.19	ND	50	ND	11.0	3.28	24.0	ND	ND	49
LW5.5	1/22/2003	160	ND	14.0	44	ND	ND	ND	4.3	ND	ND	59	ND	8.8	4.25	ND	ND	ND	50
	2/19/2003	400	ND	9.8	53	ND	ND	2.0	4.8	0.42	ND	64	1.20	11.0	4.66	19.0	ND	ND	47
	3/26/2003	470	ND	6.5	51	ND	ND	2.4	6.0	0.57	ND	52	1.40	11.0	3.99	13.0	ND	ND	49
	4/23/2003	95	ND	7.5	43	ND	ND	1.1	3.2	ND	ND	45	ND	5.8	3.90	11.0	ND	ND	36
	5/28/2003	160	ND	8.6	47	ND	ND	1.7	3.5	0.18	ND	45	0.65	9.4	3.78	23.0	ND	ND	37
	6/25/2003	140	ND	6.5	39	ND	ND	1.8	2.8	ND	ND	40	ND	7.1	3.04	16.0	ND	ND	31
	7/23/2003	180	ND	7.3	45	ND	ND	1.0	2.8	0.23	ND	65	ND	6.9	2.88	25.0	ND	ND	26
	8/27/2003	970	ND	11.0	78	ND	ND	3.0	ND	0.83	ND	77	ND	8.8	2.74	25.0	ND	ND	30
	9/24/2003	200	ND	6.9	49	ND	ND	1.0	17.0	0.24	ND	51	0.63	8.8	2.85	23.0	ND	ND	39
	10/22/2003	130	ND	7.0	53	ND	ND	1.5	4.1	0.19	ND	39	ND	11.0	3.30	27.0	ND	ND	37
	11/19/2003	280	ND	10.0	54	ND	ND	ND	ND	0.25	ND	63	ND	ND	3.40	28.0	ND	ND	51
	12/23/2003	180	ND	9.8	49	ND	ND	ND	2.8	0.19	ND	61	ND	11.0	3.60	26.0	0.5	ND	44
*NA = Not Analyzed, ND = Non Detect																			

Appendix IId. Monthly Metal Data from the Las Vegas Wash Mainstream Sites																			
Site Location	Sample Date	Aluminum (ug/l)	Antimony (ug/l)	Arsenic (ug/l)	Barium (ug/l)	Beryllium (ug/l)	Cadmium (ug/l)	Chromium (ug/l)	Copper (ug/l)	Iron (mg/l)	Mercury (ug/l)	Manganese (ug/l)	Lead (ug/l)	Nickel (ug/l)	Selenium (ug/l)	Silica (mg/l)	Silver (ug/l)	Thallium (ug/l)	Zinc (ug/l)
LW5.3	1/22/2003	150	ND	14.0	41	ND	ND	ND	4.8	ND	ND	57	ND	8.7	4.38	ND	ND	ND	44
	2/19/2003	330	ND	9.9	51	ND	ND	1.9	13.0	0.36	ND	58	2.10	11.0	4.02	24.0	ND	ND	46
	3/26/2003	280	ND	8.9	52	ND	ND	1.9	6.5	0.28	ND	57	1.10	12.0	4.72	9.3	ND	ND	54
	4/23/2003	110	ND	8.0	45	ND	ND	1.0	3.9	ND	ND	45	0.56	5.8	3.80	16.0	ND	ND	36
	5/28/2003	190	ND	6.2	48	ND	ND	1.8	3.9	0.25	ND	56	0.56	11.0	4.05	27.0	ND	ND	34
	6/25/2003	210	ND	7.3	41	ND	ND	1.9	2.9	ND	ND	55	ND	7.8	3.14	19.0	ND	ND	42
	7/23/2003	200	ND	7.4	47	ND	ND	1.1	3.2	0.24	ND	65	ND	7.2	2.76	25.0	ND	ND	28
	8/27/2003	350	ND	9.3	51	ND	ND	2.9	4.8	0.34	ND	51	1.20	7.8	2.64	24.0	ND	ND	47
	9/24/2003	390	ND	8.9	55	ND	ND	1.3	20.0	0.24	ND	63	0.93	9.6	3.04	26.0	ND	ND	63
	10/22/2003	160	ND	8.5	49	ND	ND	1.7	4.4	0.21	ND	41	ND	12.0	3.46	28.0	ND	ND	34
	11/19/2003	320	ND	11.0	54	ND	ND	ND	ND	0.27	ND	61	ND	ND	3.40	28.0	ND	ND	58
	12/23/2003	213	ND	10.0	51	ND	ND	ND	3.3	0.26	ND	62	0.54	11.0	3.45	27.0	ND	ND	44
LW3.85	1/22/2003	180	ND	16.0	40	ND	ND	ND	4.9	ND	ND	90	ND	9.7	3.97	ND	ND	ND	40
	2/19/2003	720	ND	12.0	56	ND	ND	2.5	5.1	0.67	ND	110	1.20	12.0	3.99	22.0	ND	ND	45
	3/26/2003	210	ND	9.8	52	ND	ND	1.9	4.4	0.20	ND	74	0.80	12.0	4.14	15.0	ND	ND	41
	4/23/2003	110	ND	8.7	45	ND	ND	1.1	3.6	ND	ND	56	ND	6.1	3.59	16.0	ND	ND	32
	5/28/2003	230	ND	7.6	51	ND	ND	2.1	4.6	0.32	ND	56	0.65	11.0	3.54	21.0	ND	ND	34
	6/25/2003	1700	ND	10.0	67	ND	ND	ND	ND	0.23	ND	98	ND	ND	3.07	19.0	ND	ND	ND
	7/23/2003	220	ND	7.6	49	ND	ND	1.1	3.8	0.26	ND	52	0.56	7.8	2.46	25.0	ND	ND	24
	8/27/2003	180	ND	9.4	51	ND	ND	3.3	4.3	0.25	ND	48	0.63	9.0	2.84	24.0	ND	ND	44
	9/24/2003	200	ND	9.9	54	ND	ND	1.1	22.0	0.21	ND	47	0.67	10.0	2.80	25.0	ND	ND	31
	10/22/2003	160	ND	7.7	53	ND	ND	1.5	4.2	0.20	ND	38	ND	11.0	2.96	26.0	ND	ND	33
	11/19/2003	230	ND	10.0	53	ND	ND	ND	ND	0.22	ND	46	ND	ND	3.02	26.0	ND	ND	44
	12/23/2003	170	ND	10.0	50	ND	ND	ND	3.1	0.24	ND	48	ND	12.0	3.16	26.0	ND	ND	38
*NA = Not Analyzed, ND = Non Detect																			

Appendix IId. Monthly Metal Data from the Las Vegas Wash Mainstream Sites																			
Site Location	**Sample Date**	**Aluminum (ug/l)**	**Antimony (ug/l)**	**Arsenic (ug/l)**	**Barium (ug/l)**	**Beryllium (ug/l)**	**Cadmium (ug/l)**	**Chromium (ug/l)**	**Copper (ug/l)**	**Iron (mg/l)**	**Mercury (ug/l)**	**Manganese (ug/l)**	**Lead (ug/l)**	**Nickel (ug/l)**	**Selenium (ug/l)**	**Silica (mg/l)**	**Silver (ug/l)**	**Thallium (ug/l)**	**Zinc (ug/l)**
LW3.75	1/22/2003	160	ND	17.0	41	ND	ND	ND	4.5	ND	ND	86	ND	10.0	3.68	ND	ND	ND	39
	2/19/2003	770	ND	13.0	56	ND	ND	2.9	5.3	0.75	ND	110	1.20	12.0	3.92	21.0	ND	ND	44
	3/26/2003	300	ND	11.0	53	ND	ND	2.4	5.2	0.32	ND	77	0.90	13.0	3.86	14.0	ND	ND	45
	4/23/2003	120	ND	9.7	45	ND	ND	1.2	4.0	0.11	ND	63	0.63	6.3	3.94	25.0	ND	ND	32
	5/28/2003	220	ND	7.5	48	ND	ND	2.1	4.0	0.26	ND	53	1.20	11.0	3.54	22.0	ND	ND	30
	6/25/2003	750	ND	9.4	49	ND	ND	2.4	3.5	0.10	ND	65	0.77	8.3	3.05	21.0	ND	ND	31
	7/23/2003	420	ND	8.5	49	ND	ND	1.4	3.6	0.45	ND	64	0.71	7.9	2.56	26.0	ND	ND	25
	8/27/2003	220	ND	10.0	51	ND	ND	3.7	4.4	0.24	ND	53	0.70	9.3	2.82	25.0	ND	ND	44
	9/24/2003	210	ND	11.0	54	ND	ND	1.5	24.0	0.24	ND	50	0.68	11.0	2.77	27.0	ND	ND	29
	10/22/2003	170	ND	8.9	55	ND	ND	1.6	4.3	0.21	ND	43	ND	12.0	3.12	28.0	ND	ND	32
	11/19/2003	270	ND	12.0	53	ND	ND	ND	ND	0.24	ND	49	ND	ND	2.96	28.0	ND	ND	43
	12/23/2003	196	ND	11.0	49	ND	ND	ND	3.2	0.23	ND	51	ND	11.0	3.20	27.0	ND	ND	37
LW0.8	1/22/2003	140	ND	14.0	43	ND	ND	ND	4.2	ND	ND	68	ND	9.4	3.31	ND	ND	ND	41
	2/19/2003	860	ND	11.0	57	ND	ND	2.8	5.4	0.83	ND	100	1.90	12.0	3.58	19.0	ND	ND	47
	3/26/2003	330	ND	9.3	53	ND	ND	2.1	5.1	0.38	ND	69	1.20	12.0	3.56	13.0	ND	ND	40
	4/23/2003	140	ND	8.7	46	ND	ND	1.0	3.5	0.13	ND	56	0.79	6.0	3.17	20.0	ND	ND	32
	5/28/2003	230	ND	7.8	48	ND	ND	2.0	4.4	0.32	ND	48	0.86	11.0	3.36	20.0	ND	ND	35
	6/25/2003	480	ND	8.0	46	ND	ND	2.1	3.2	0.11	ND	53	0.69	7.6	2.70	18.0	ND	ND	28
	7/23/2003	450	ND	7.5	51	ND	ND	1.5	3.6	0.55	ND	64	1.20	7.5	2.48	27.0	ND	ND	25
	8/27/2003	940	ND	11.0	91	ND	ND	ND	15.0	1.40	ND	150	12.00	ND	2.89	28.0	ND	ND	59
	9/24/2003	330	ND	10.0	55	ND	ND	1.5	8.6	0.36	ND	51	0.92	9.7	2.54	21.0	ND	ND	30
	10/22/2003	310	ND	8.3	54	ND	ND	1.8	4.8	0.37	ND	41	0.61	11.0	2.84	27.0	ND	ND	33
	11/19/2003	320	ND	12.0	56	ND	ND	1.0	3.6	0.33	ND	50	0.64	10.0	2.79	28.0	ND	ND	39
	12/23/2003	280	ND	11.0	50	ND	ND	1.1	3.3	0.36	ND	51	0.61	11.0	3.01	27.0	ND	ND	38
*NA = Not Analyzed, ND = Non Detect																			

Appendix IId. Monthly Metal Data from the Las Vegas Wash Mainstream Sites																			
Site Location	**Sample Date**	**Aluminum (ug/l)**	**Antimony (ug/l)**	**Arsenic (ug/l)**	**Barium (ug/l)**	**Beryllium (ug/l)**	**Cadmium (ug/l)**	**Chromium (ug/l)**	**Copper (ug/l)**	**Iron (mg/l)**	**Mercury (ug/l)**	**Manganese (ug/l)**	**Lead (ug/l)**	**Nickel (ug/l)**	**Selenium (ug/l)**	**Silica (mg/l)**	**Silver (ug/l)**	**Thallium (ug/l)**	**Zinc (ug/l)**
LW10.75	1/21/2004	ND	ND	27.0	30	ND	ND	3.0	ND	0.03	ND	8	ND	13.0	12.60	80.0	ND	ND	ND
	2/25/2004	190	ND	18.0	58	ND	ND	ND	ND	0.21	ND	24	ND	ND	12.20	69.0	ND	ND	ND
	3/24/2004	ND	ND	14.0	35	ND	ND	ND	ND	0.01	ND	ND	ND	ND	12.90	48.0	ND	ND	ND
	4/28/2004	150	ND	7.3	57	ND	ND	ND	ND	0.18	ND	50	ND	ND	12.90	47.0	ND	ND	47
	5/26/2004	ND	ND	12.0	32	ND	ND	ND	ND	0.04	ND	ND	ND	ND	12.90	46.0	ND	ND	ND
	6/23/2004	ND	ND	14.0	44	ND	ND	ND	ND	0.02	ND	22	ND	11.0	12.00	49.0	ND	ND	ND
	7/21/2004	37	ND	12.0	45	ND	ND	1.6	3.4	<DL	ND	20	ND	13.0	12.20	49.0	ND	ND	10
	8/25/2004	ND	ND	12.0	56	ND	ND	ND	ND	0.03	ND	16	ND	ND	13.80	50.0	ND	ND	ND
	9/22/2004	ND	ND	15.0	35	ND	ND	3.9	ND	ND	ND	9	ND	11.0	NA	53.0	ND	ND	ND
	10/28/2004	ND	ND	14.0	41	ND	ND	ND	ND	0.03	ND	16	ND	ND	NA	0.6	ND	ND	32
	11/17/2004	ND	ND	19.0	39	ND	ND	ND	ND	0.04	ND	11	ND	ND	NA	54.0	ND	ND	ND
	12/22/2004	ND	ND	14.0	36	ND	ND	ND	ND	ND	ND	11	ND	ND	NA	54.0	ND	ND	ND
LW6.05	1/21/2004	180	ND	7.8	50	ND	ND	2.9	ND	0.15	ND	45	ND	14.0	3.00	23.0	ND	ND	55
	2/25/2004	930	ND	6.4	56	ND	ND	ND	ND	0.91	ND	60	ND	ND	3.34	25.0	ND	ND	45
	3/24/2004	1700	ND	7.0	77	ND	ND	ND	ND	2.00	ND	99	ND	ND	2.92	24.0	ND	ND	55
	4/28/2004	ND	ND	14.0	34	ND	ND	ND	ND	0.24	ND	ND	ND	ND	3.16	21.0	ND	ND	ND
	5/26/2004	200	ND	6.1	55	ND	ND	ND	ND	0.27	ND	46	ND	ND	3.43	23.0	ND	ND	38
	6/23/2004	180	ND	6.3	53	ND	ND	ND	ND	0.17	ND	41	ND	ND	2.43	24.0	ND	ND	45
	7/21/2004	240	ND	6.5	54	ND	ND	1.3	3.8	0.29	ND	42	ND	9.1	3.06	24.0	ND	ND	41
	8/25/2004	200	ND	ND	61	ND	ND	ND	ND	0.24	ND	37	ND	ND	2.58	22.0	ND	ND	46
	9/22/2004	ND	ND	7.5	56	ND	ND	ND	ND	0.14	ND	48	ND	ND	NA	25.0	ND	ND	35
	10/28/2004	ND	ND	ND	22	ND	ND	ND	ND	0.14	ND	20	ND	ND	NA	24.0	ND	ND	ND
	11/17/2004	220	ND	6.1	54	ND	ND	ND	ND	0.23	ND	40	ND	ND	NA	25.0	ND	ND	52
	12/22/2004	140	ND	8.3	74	ND	ND	ND	ND	0.12	ND	54	ND	ND	NA	26.0	ND	ND	43
*NA = Not Analyzed, ND = Non Detect																			

Appendix IId. Monthly Metal Data from the Las Vegas Wash Mainstream Sites																			
Site Location	**Sample Date**	**Aluminum (ug/l)**	**Antimony (ug/l)**	**Arsenic (ug/l)**	**Barium (ug/l)**	**Beryllium (ug/l)**	**Cadmium (ug/l)**	**Chromium (ug/l)**	**Copper (ug/l)**	**Iron (mg/l)**	**Mercury (ug/l)**	**Manganese (ug/l)**	**Lead (ug/l)**	**Nickel (ug/l)**	**Selenium (ug/l)**	**Silica (mg/l)**	**Silver (ug/l)**	**Thallium (ug/l)**	**Zinc (ug/l)**
LW5.9	1/21/2004	140	ND	8.5	68	ND	ND	3.0	4.1	0.10	ND	44	ND	14.0	3.24	22.0	ND	ND	67
	2/25/2004	600	ND	8.4	57	ND	ND	ND	10.0	0.58	ND	61	ND	ND	3.44	25.0	ND	ND	45
	3/24/2004	710	ND	6.3	73	ND	ND	ND	ND	0.69	ND	87	ND	ND	3.02	23.0	ND	ND	65
	4/28/2004	ND	ND	7.3	69	ND	ND	ND	ND	0.15	ND	54	ND	ND	3.06	22.0	ND	ND	50
	5/26/2004	ND	ND	6.7	65	ND	ND	ND	ND	0.15	ND	49	ND	ND	3.08	23.0	ND	ND	41
	6/23/2004	130	ND	6.4	59	ND	ND	ND	ND	0.18	ND	49	ND	ND	2.47	24.0	ND	ND	34
	7/21/2004	180	ND	7.4	60	ND	ND	1.1	4.2	0.23	ND	50	0.59	11.0	2.70	24.0	ND	ND	36
	8/25/2004	190	ND	5.5	68	ND	ND	ND	ND	0.21	ND	46	ND	ND	2.81	23.0	ND	ND	47
	9/22/2004	ND	ND	6.4	75	ND	ND	ND	ND	0.14	ND	63	ND	ND	NA	24.0	ND	ND	42
	10/28/2004	ND	ND	5.6	68	ND	ND	ND	ND	0.15	ND	59	ND	ND	NA	23.0	ND	ND	70
	11/17/2004	160	ND	5.3	68	ND	ND	ND	ND	0.18	ND	49	ND	ND	NA	22.0	ND	ND	73
	12/22/2004	ND	ND	5.5	99	ND	ND	ND	ND	0.13	ND	46	ND	ND	NA	21.0	ND	ND	57
LW5.5	1/21/2004	140	ND	8.9	57	ND	ND	3.1	ND	0.11	ND	50	ND	15.0	3.42	24.0	ND	ND	59
	2/25/2004	910	ND	7.3	61	ND	ND	ND	ND	0.82	ND	62	ND	ND	3.24	25.0	ND	ND	46
	3/24/2004	460	ND	7.6	62	ND	ND	ND	ND	0.48	ND	76	ND	ND	3.26	24.0	ND	ND	50
	4/28/2004	160	ND	9.0	68	ND	ND	ND	ND	0.18	ND	58	ND	ND	3.28	23.0	ND	ND	48
	5/26/2004	150	ND	7.7	63	ND	ND	ND	ND	0.18	ND	55	ND	ND	3.14	23.0	ND	ND	40
	6/23/2004	140	ND	7.2	57	ND	ND	ND	ND	0.14	ND	49	ND	ND	2.66	24.0	ND	ND	34
	7/21/2004	130	ND	8.1	63	ND	ND	ND	ND	0.18	ND	53	ND	ND	2.89	26.0	ND	ND	37
	8/25/2004	140	ND	6.3	65	ND	ND	ND	ND	0.17	ND	50	ND	ND	3.10	24.0	ND	ND	44
	9/22/2004	ND	ND	7.6	66	ND	ND	ND	ND	0.13	ND	56	ND	ND	NA	25.0	ND	ND	37
	10/28/2004	150	ND	7.4	58	ND	ND	ND	ND	0.15	ND	53	ND	ND	NA	24.0	ND	ND	61
	11/17/2004	170	ND	7.8	55	ND	ND	ND	ND	0.19	ND	47	ND	ND	NA	26.0	ND	ND	55
	12/22/2004	150	ND	8.0	75	ND	ND	ND	ND	0.13	ND	51	ND	ND	NA	25.0	ND	ND	42
*NA = Not Analyzed, ND = Non Detect																			

Appendix IId. Monthly Metal Data from the Las Vegas Wash Mainstream Sites																			
Site Location	**Sample Date**	**Aluminum (ug/l)**	**Antimony (ug/l)**	**Arsenic (ug/l)**	**Barium (ug/l)**	**Beryllium (ug/l)**	**Cadmium (ug/l)**	**Chromium (ug/l)**	**Copper (ug/l)**	**Iron (mg/l)**	**Mercury (ug/l)**	**Manganese (ug/l)**	**Lead (ug/l)**	**Nickel (ug/l)**	**Selenium (ug/l)**	**Silica (mg/l)**	**Silver (ug/l)**	**Thallium (ug/l)**	**Zinc (ug/l)**
LW5.3	1/21/2004	225	ND	10.0	62	ND	ND	21.0	4.1	0.16	ND	57	ND	16.0	3.54	24.0	ND	ND	62
	2/25/2004	1200	ND	8.8	68	ND	ND	ND	ND	1.00	ND	79	ND	ND	3.72	28.0	ND	ND	52
	3/24/2004	440	ND	7.8	65	ND	ND	ND	18.0	0.41	ND	82	3.40	ND	3.39	25.0	ND	ND	370
	4/28/2004	150	ND	9.9	69	ND	ND	ND	ND	0.17	ND	62	ND	ND	3.39	23.0	ND	ND	46
	5/26/2004	140	ND	7.4	57	ND	ND	ND	ND	0.18	ND	57	ND	ND	3.14	23.0	ND	ND	37
	6/23/2004	160	ND	8.4	60	ND	ND	ND	ND	0.16	ND	61	ND	ND	2.66	25.0	ND	ND	35
	7/21/2004	140	ND	8.1	66	ND	ND	ND	ND	0.21	ND	40	ND	ND	3.04	24.0	ND	ND	37
	8/25/2004	130	ND	7.6	66	ND	ND	ND	ND	0.13	ND	59	ND	ND	3.10	26.0	ND	ND	45
	9/22/2004	ND	ND	7.5	60	ND	ND	ND	ND	0.15	ND	54	ND	ND	NA	26.0	ND	ND	41
	10/28/2004	190	ND	7.5	59	ND	ND	ND	ND	0.19	ND	55	ND	ND	NA	25.0	ND	ND	58
	11/17/2004	160	ND	8.3	59	ND	ND	ND	ND	0.18	ND	57	ND	ND	NA	28.0	ND	ND	63
	12/22/2004	160	ND	8.2	74	ND	ND	ND	ND	0.14	ND	52	ND	ND	NA	25.0	ND	ND	43
LW3.85	1/21/2004	190	ND	9.8	57	ND	ND	ND	ND	0.16	ND	42	ND	13.0	3.19	24.0	ND	ND	42
	2/25/2004	960	ND	11.0	68	ND	ND	ND	ND	0.82	ND	84	ND	ND	3.64	29.0	ND	ND	41
	3/24/2004	440	ND	9.4	67	ND	ND	ND	ND	0.40	ND	78	ND	ND	3.10	24.0	ND	ND	45
	4/28/2004	710	ND	9.5	79	ND	ND	ND	ND	0.88	ND	83	ND	ND	2.90	22.0	ND	ND	46
	5/26/2004	180	ND	6.5	58	ND	ND	ND	ND	0.24	ND	41	ND	ND	2.62	20.0	ND	ND	35
	6/23/2004	ND	ND	7.6	58	ND	ND	ND	ND	0.14	ND	39	ND	ND	2.12	22.0	ND	ND	42
	7/21/2004	140	ND	8.1	66	ND	ND	ND	ND	0.21	ND	40	ND	ND	2.45	24.0	ND	ND	37
	8/25/2004	150	ND	8.7	65	ND	ND	ND	ND	0.16	ND	46	ND	ND	2.72	26.0	ND	ND	40
	9/22/2004	270	ND	7.3	61	ND	ND	ND	ND	0.30	ND	41	ND	ND	NA	24.0	ND	ND	33
	10/28/2004	260	ND	8.5	61	ND	ND	ND	ND	0.19	ND	46	ND	ND	NA	25.0	ND	ND	55
	11/17/2004	330	ND	9.8	59	ND	ND	ND	ND	0.40	ND	55	ND	ND	NA	26.0	ND	ND	59
	12/22/2004	2100	ND	11.0	130	ND	ND	ND	ND	2.10	ND	140	ND	ND	NA	42.0	ND	ND	47
*NA = Not Analyzed, ND = Non Detect																			

Appendix IId. Monthly Metal Data from the Las Vegas Wash Mainstream Sites																			
Site Location	Sample Date	Aluminum (ug/l)	Antimony (ug/l)	Arsenic (ug/l)	Barium (ug/l)	Beryllium (ug/l)	Cadmium (ug/l)	Chromium (ug/l)	Copper (ug/l)	Iron (mg/l)	Mercury (ug/l)	Manganese (ug/l)	Lead (ug/l)	Nickel (ug/l)	Selenium (ug/l)	Silica (mg/l)	Silver (ug/l)	Thallium (ug/l)	Zinc (ug/l)
LW3.75	1/21/2004	210	ND	10.0	57	ND	ND	ND	4.6	0.16	ND	46	ND	14.0	3.30	24.0	ND	ND	38
	2/25/2004	870	ND	12.0	63	ND	ND	ND	ND	0.78	ND	83	ND	ND	3.57	32.0	ND	ND	38
	3/24/2004	640	ND	9.9	70	ND	ND	ND	ND	0.67	ND	94	ND	ND	3.17	26.0	ND	ND	43
	4/28/2004	450	ND	10.0	72	ND	ND	ND	ND	0.49	ND	68	ND	ND	2.88	21.0	ND	ND	45
	5/26/2004	210	ND	7.8	64	ND	ND	ND	ND	0.27	ND	47	2.50	ND	2.53	20.0	ND	ND	40
	6/23/2004	ND	ND	8.3	55	ND	ND	ND	ND	0.18	ND	44	ND	ND	2.12	23.0	ND	ND	37
	7/21/2004	140	ND	8.2	64	ND	ND	ND	ND	0.17	ND	41	ND	ND	2.36	25.0	ND	ND	34
	8/25/2004	150	ND	9.1	62	ND	ND	ND	ND	0.19	ND	51	ND	ND	2.74	27.0	ND	ND	36
	9/22/2004	360	ND	7.9	62	ND	ND	ND	ND	0.42	ND	50	ND	ND	NA	25.0	ND	ND	39
	10/28/2004	260	ND	10.0	60	ND	ND	ND	ND	0.18	ND	52	ND	ND	NA	26.0	ND	ND	58
	11/17/2004	310	ND	9.6	57	ND	ND	ND	ND	0.34	ND	59	ND	ND	NA	28.0	ND	ND	78
	12/22/2004	4200	ND	12.0	160	ND	ND	ND	ND	4.10	ND	190	ND	ND	NA	57.0	ND	ND	49
LW0.8	1/21/2004	250	ND	10.0	57	ND	ND	ND	4.0	0.27	ND	43	ND	13.0	3.06	24.0	ND	ND	38
	2/25/2004	1100	ND	12.0	69	ND	ND	ND	ND	0.88	ND	83	ND	ND	3.46	28.0	ND	ND	40
	3/24/2004	460	ND	8.6	64	ND	ND	ND	ND	0.49	ND	77	ND	ND	3.06	24.0	ND	ND	42
	4/28/2004	410	ND	9.5	72	ND	ND	ND	ND	0.43	ND	65	ND	ND	2.86	20.0	ND	ND	45
	5/26/2004	200	ND	6.2	61	ND	ND	ND	ND	0.26	ND	44	ND	ND	2.50	19.0	ND	ND	37
	6/23/2004	ND	ND	7.5	59	ND	ND	ND	ND	0.17	ND	43	ND	ND	2.13	21.0	ND	ND	39
	7/21/2004	200	ND	8.4	58	ND	ND	1.2	5.8	0.25	ND	45	0.83	9.6	12.20	24.0	ND	ND	33
	8/25/2004	240	ND	8.0	71	ND	ND	ND	ND	0.30	ND	47	ND	ND	2.62	25.0	ND	ND	40
	9/22/2004	380	ND	7.2	63	ND	ND	ND	ND	0.43	ND	46	ND	ND	NA	23.0	ND	ND	35
	10/28/2004	160	ND	8.8	59	ND	ND	ND	ND	0.24	ND	46	ND	ND	NA	25.0	ND	ND	56
	11/17/2004	520	ND	8.9	62	ND	ND	ND	ND	0.55	ND	54	ND	ND	NA	25.0	ND	ND	56
	12/22/2004	1500	ND	11.0	97	ND	ND	ND	ND	1.10	ND	85	ND	ND	NA	33.0	ND	ND	37
*NA = Not Analyzed, ND = Non Detect																			

Appendix IId. Monthly Metal Data from the Las Vegas Wash Mainstream Sites																			
Site Location	**Sample Date**	**Aluminum (ug/l)**	**Antimony (ug/l)**	**Arsenic (ug/l)**	**Barium (ug/l)**	**Beryllium (ug/l)**	**Cadmium (ug/l)**	**Chromium (ug/l)**	**Copper (ug/l)**	**Iron (mg/l)**	**Mercury (ug/l)**	**Manganese (ug/l)**	**Lead (ug/l)**	**Nickel (ug/l)**	**Selenium (ug/l)**	**Silica (mg/l)**	**Silver (ug/l)**	**Thallium (ug/l)**	**Zinc (ug/l)**
LW10.75	1/26/2005	ND	ND	ND	490	ND	ND	ND	ND	27.00	ND	730	ND	ND	3.78	11.0	ND	ND	ND
	2/28/2005	ND	ND	13.0	57	ND	ND	1.7	2.1	0.10	ND	13	ND	10.0	13.00	48.0	ND	ND	ND
	3/30/2005	ND	ND	12.0	40	ND	ND	3.1	2.2	ND	ND	7	ND	7.2	13.20	49.0	ND	ND	ND
	4/19/2005	ND	ND	13.0	34	ND	ND	2.7	3.4	ND	ND	3	ND	13.0	13.60	42.0	ND	ND	ND
	5/25/2005	ND	ND	ND	ND	ND	ND	ND	ND	0.05	ND	ND	ND	ND	13.40	50.0	ND	ND	ND
	6/22/2005	620	ND	14.0	49	ND	ND	3.5	ND	0.53	ND	49	0.70	25.0	12.70	51.0	ND	ND	8
	7/27/2005	28	ND	11.0	52	ND	ND	2.8	4.1	0.16	ND	34	ND	12.0	11.50	50.0	ND	ND	8
	8/24/2005	44	ND	12.0	80	ND	ND	3.5	5.1	0.06	ND	15	ND	16.0	12.90	49.0	ND	ND	ND
	9/21/2005	140	2.7	12.0	52	ND	ND	2.9	8.7	0.17	ND	50	ND	15.0	9.94	41.0	ND	ND	10
	10/26/2005	1400	1.1	8.4	74	ND	ND	3.4	5.7	1.30	ND	48	1.70	6.9	6.46	29.0	ND	ND	12
	11/30/2005	ND	ND	14.0	45	ND	ND	2.2	ND	0.03	ND	8	ND	7.9	13.80	53.0	ND	ND	ND
	12/28/2005	73	ND	12.0	60	ND	ND	2.6	4.1	0.07	ND	9	ND	8.9	12.80	45.0	ND	ND	ND
LW6.05	1/26/2005	150	ND	6.5	63	ND	ND	ND	ND	0.14	ND	44	ND	ND	4.44	23.0	ND	ND	70
	2/28/2005	250	ND	6.6	66	ND	ND	1.4	3.2	0.27	ND	42	ND	8.3	4.58	23.0	ND	ND	58
	3/30/2005	170	ND	7.3	68	ND	ND	ND	2.7	0.15	ND	39	ND	7.0	4.42	28.0	ND	ND	48
	4/19/2005	230	ND	8.9	67	ND	ND	2.1	3.4	0.18	ND	64	ND	11.0	4.30	23.0	ND	ND	29
	5/25/2005	75	ND	7.6	69	ND	ND	1.2	3.4	0.12	ND	55	ND	11.0	3.64	22.0	ND	ND	36
	6/22/2005	110	ND	6.7	70	ND	ND	1.9	ND	0.11	ND	57	ND	17.0	3.38	23.0	ND	ND	30
	7/27/2005	150	ND	6.7	67	ND	ND	1.3	4.7	0.23	ND	66	ND	9.4	2.96	24.0	ND	ND	37
	8/24/2005	89	ND	6.6	86	ND	ND	2.3	5.0	0.11	ND	52	ND	11.0	3.29	21.0	ND	ND	32
	9/21/2005	170	ND	7.2	79	ND	ND	1.2	5.5	0.19	ND	50	ND	12.0	3.37	22.0	ND	ND	33
	10/26/2005	570	ND	6.7	75	ND	ND	1.3	4.7	0.47	ND	57	0.72	7.7	3.08	19.0	ND	ND	36
	11/30/2005	120	ND	7.3	74	ND	ND	ND	3.0	0.11	ND	41	ND	6.5	3.66	23.0	ND	ND	42
	12/28/2005	130	ND	8.8	75	ND	ND	1.1	3.3	0.12	ND	60	ND	7.6	3.73	24.0	ND	ND	41
*NA = Not Analyzed, ND = Non Detect																			

Appendix IId. Monthly Metal Data from the Las Vegas Wash Mainstream Sites																			
Site Location	Sample Date	Aluminum (ug/l)	Antimony (ug/l)	Arsenic (ug/l)	Barium (ug/l)	Beryllium (ug/l)	Cadmium (ug/l)	Chromium (ug/l)	Copper (ug/l)	Iron (mg/l)	Mercury (ug/l)	Manganese (ug/l)	Lead (ug/l)	Nickel (ug/l)	Selenium (ug/l)	Silica (mg/l)	Silver (ug/l)	Thallium (ug/l)	Zinc (ug/l)
LW5.9	1/26/2005	160	ND	5.9	71	ND	ND	ND	ND	0.17	ND	48	ND	ND	4.24	21.0	ND	ND	76
	2/28/2005	230	ND	5.9	73	ND	ND	1.6	4.8	0.28	ND	42	ND	8.5	4.47	22.0	ND	ND	71
	3/30/2005	140	ND	7.8	75	ND	ND	3.2	4.2	0.14	ND	50	ND	8.3	4.57	26.0	ND	ND	48
	4/19/2005	200	ND	8.4	73	ND	ND	2.6	4.7	0.15	ND	67	ND	11.0	4.30	23.0	ND	ND	34
	5/25/2005	73	ND	8.6	68	ND	ND	2.5	3.3	0.11	ND	55	ND	12.0	3.94	23.0	ND	ND	38
	6/22/2005	100	ND	8.1	70	ND	ND	2.4	2.3	0.11	ND	70	ND	18.0	3.88	24.0	ND	ND	29
	7/27/2005	140	ND	7.5	72	ND	ND	1.3	5.3	0.22	ND	69	ND	9.8	3.16	23.0	ND	ND	41
	8/24/2005	88	ND	7.6	88	ND	ND	2.1	5.6	0.12	ND	60	ND	12.0	3.49	21.0	ND	ND	32
	9/21/2005	130	ND	7.8	82	ND	ND	1.5	6.2	0.17	ND	48	ND	12.0	3.44	21.0	ND	ND	36
	10/26/2005	290	ND	6.1	85	ND	ND	1.0	5.5	0.43	ND	61	0.57	7.5	2.94	18.0	ND	ND	46
	11/30/2005	110	ND	8.4	74	ND	ND	1.0	3.3	0.11	ND	46	ND	7.1	3.86	24.0	ND	ND	41
	12/28/2005	150	ND	6.2	92	ND	ND	1.2	5.2	0.13	ND	65	ND	8.0	3.42	21.0	ND	ND	50
LW5.5	1/26/2005	180	ND	7.7	67	ND	ND	ND	ND	0.15	ND	55	ND	ND	4.40	23.0	ND	ND	73
	2/28/2005	350	ND	7.7	74	ND	ND	1.4	3.9	0.40	ND	51	ND	8.3	4.78	24.0	ND	ND	61
	3/30/2005	180	ND	9.5	75	ND	ND	5.4	3.3	0.17	ND	58	ND	8.3	4.66	27.0	ND	ND	48
	4/19/2005	200	ND	9.3	69	ND	ND	2.4	4.1	0.14	ND	65	ND	11.0	4.26	23.0	ND	ND	32
	5/25/2005	72	ND	8.5	67	ND	ND	1.3	2.7	0.10	ND	51	ND	11.0	3.33	22.0	ND	ND	33
	6/22/2005	100	ND	8.3	70	ND	ND	3.7	ND	0.12	ND	63	ND	18.0	3.70	23.0	ND	ND	29
	7/27/2005	150	ND	7.7	63	ND	ND	1.2	4.0	0.20	ND	69	ND	9.5	3.08	24.0	ND	ND	35
	8/24/2005	69	ND	7.7	83	ND	ND	1.8	4.5	0.09	ND	54	ND	11.0	3.57	22.0	ND	ND	29
	9/21/2005	150	1	8.3	78	ND	ND	1.2	5.4	0.13	ND	47	ND	12.0	3.34	22.0	ND	ND	33
	10/26/2005	600	ND	7.5	75	ND	ND	1.6	4.9	0.54	ND	66	0.84	7.5	3.06	20.0	ND	ND	36
	11/30/2005	92	ND	9.5	72	ND	ND	ND	3.3	0.12	ND	53	ND	7.4	4.00	25.0	ND	ND	41
	12/28/2005	130	ND	8.0	83	ND	ND	1.2	4.2	0.13	ND	63	ND	8.0	3.50	23.0	ND	ND	45
*NA = Not Analyzed, ND = Non Detect																			

Appendix IId. Monthly Metal Data from the Las Vegas Wash Mainstream Sites																			
Site Location	Sample Date	Aluminum (ug/l)	Antimony (ug/l)	Arsenic (ug/l)	Barium (ug/l)	Beryllium (ug/l)	Cadmium (ug/l)	Chromium (ug/l)	Copper (ug/l)	Iron (mg/l)	Mercury (ug/l)	Manganese (ug/l)	Lead (ug/l)	Nickel (ug/l)	Selenium (ug/l)	Silica (mg/l)	Silver (ug/l)	Thallium (ug/l)	Zinc (ug/l)
LW5.3	1/26/2005	180	ND	8.4	70	ND	ND	ND	ND	0.15	ND	62	ND	ND	4.51	25.0	ND	ND	68
	2/28/2005	240	ND	9.1	71	ND	ND	1.3	4.1	0.26	ND	58	ND	9.3	5.76	26.0	ND	ND	54
	3/30/2005	130	ND	8.8	73	ND	ND	5.4	3.5	0.11	ND	59	ND	7.8	4.38	29.0	ND	ND	48
	4/19/2005	190	ND	9.3	72	ND	ND	2.0	4.2	0.30	ND	68	ND	12.0	4.22	23.0	ND	ND	33
	5/25/2005	79	ND	8.9	69	ND	ND	1.5	2.9	0.10	ND	52	ND	12.0	3.38	21.0	ND	ND	39
	6/22/2005	120	ND	8.5	70	ND	ND	2.3	2.3	0.13	ND	64	ND	18.0	4.20	23.0	ND	ND	29
	7/27/2005	160	ND	7.8	64	ND	ND	1.2	4.6	0.24	ND	71	ND	9.8	3.13	24.0	ND	ND	34
	8/24/2005	97	ND	8.0	81	ND	ND	2.2	5.1	0.11	ND	58	ND	12.0	3.34	22.0	ND	ND	29
	9/21/2005	160	1.1	8.8	80	ND	ND	1.4	6.6	0.14	ND	53	ND	13.0	3.18	23.0	ND	ND	36
	10/26/2005	760	1.3	8.1	75	ND	ND	2.1	6.0	0.63	ND	70	1.10	8.1	3.09	21.0	ND	ND	36
	11/30/2005	98	ND	10.0	73	ND	ND	ND	3.7	0.13	ND	59	ND	7.8	4.04	25.0	ND	ND	41
	12/28/2005	140	ND	8.5	85	ND	ND	1.2	4.6	0.12	ND	64	ND	8.5	3.44	23.0	ND	ND	46
LW3.85	1/26/2005	350	ND	8.6	69	ND	ND	ND	ND	0.36	ND	55	ND	ND	4.08	24.0	ND	ND	73
	2/28/2005	180	ND	10.0	69	ND	ND	1.3	4.5	0.16	ND	53	ND	10.0	4.68	27.0	ND	ND	55
	3/30/2005	90	ND	8.5	68	ND	ND	1.2	2.9	0.08	ND	38	ND	7.1	3.76	27.0	ND	ND	40
	4/19/2005	210	ND	8.8	72	ND	ND	2.1	3.9	0.18	ND	53	ND	12.0	3.66	20.0	ND	ND	28
	5/25/2005	100	ND	9.5	68	ND	ND	1.5	3.1	0.13	ND	46	ND	13.0	3.09	17.0	ND	ND	32
	6/22/2005	140	ND	8.3	69	ND	ND	2.3	2.6	0.15	ND	52	ND	18.0	3.95	19.0	ND	ND	27
	7/27/2005	210	ND	7.6	64	ND	ND	1.4	4.0	0.35	ND	60	ND	9.9	2.70	23.0	ND	ND	31
	8/24/2005	64	ND	7.9	100	ND	ND	1.8	4.9	0.09	ND	53	ND	11.0	2.98	21.0	ND	ND	29
	9/21/2005	170	ND	8.5	75	ND	ND	1.6	5.3	0.18	ND	48	ND	13.0	3.27	23.0	ND	ND	27
	10/26/2005	790	1.3	8.8	73	ND	ND	2.4	5.3	0.57	ND	65	0.94	8.7	2.92	20.0	ND	ND	31
	11/30/2005	130	ND	9.9	75	ND	ND	1.0	4.5	0.14	ND	42	ND	7.6	3.56	24.0	ND	ND	42
	12/28/2005	170	ND	8.7	82	ND	ND	1.2	4.3	0.20	ND	49	ND	8.3	3.15	23.0	ND	ND	40
*NA = Not Analyzed, ND = Non Detect																			

Appendix IId. Monthly Metal Data from the Las Vegas Wash Mainstream Sites																			
Site Location	Sample Date	Aluminum (ug/l)	Antimony (ug/l)	Arsenic (ug/l)	Barium (ug/l)	Beryllium (ug/l)	Cadmium (ug/l)	Chromium (ug/l)	Copper (ug/l)	Iron (mg/l)	Mercury (ug/l)	Manganese (ug/l)	Lead (ug/l)	Nickel (ug/l)	Selenium (ug/l)	Silica (mg/l)	Silver (ug/l)	Thallium (ug/l)	Zinc (ug/l)
LW3.75	1/26/2005	420	ND	8.6	69	ND	ND	ND	ND	0.46	ND	62	ND	ND	4.00	24.0	ND	ND	61
	2/28/2005	180	ND	11.0	67	ND	ND	1.4	4.9	0.17	ND	53	ND	10.0	4.80	28.0	ND	ND	39
	3/30/2005	100	ND	9.4	68	ND	ND	1.7	3.3	0.09	ND	43	ND	7.9	3.79	29.0	ND	ND	40
	4/19/2005	220	ND	10.0	70	ND	ND	2.4	4.4	0.19	ND	52	ND	12.0	3.62	21.0	ND	ND	33
	5/25/2005	120	ND	10.0	69	ND	ND	2.0	3.2	0.17	ND	48	ND	13.0	3.22	17.0	ND	ND	33
	6/22/2005	150	ND	9.2	68	ND	ND	2.4	2.8	0.15	ND	55	ND	19.0	3.30	20.0	ND	ND	25
	7/27/2005	210	ND	8.5	64	ND	ND	1.5	4.6	0.51	ND	63	ND	10.0	2.72	24.0	ND	ND	32
	8/24/2005	110	ND	8.6	96	ND	ND	2.2	5.3	0.16	ND	51	ND	11.0	3.02	22.0	ND	ND	28
	9/21/2005	200	ND	9.6	75	ND	ND	1.5	6.4	0.22	ND	51	ND	13.0	3.42	24.0	ND	ND	29
	10/26/2005	750	1.2	9.1	71	ND	ND	2.2	5.4	0.64	ND	63	0.98	8.2	2.82	21.0	ND	ND	29
	11/30/2005	130	ND	11.0	72	ND	ND	1.2	4.0	0.15	ND	48	ND	8.1	3.37	25.0	ND	ND	37
	12/28/2005	130	ND	9.5	81	ND	ND	1.3	6.1	0.14	ND	49	ND	8.5	3.48	23.0	ND	ND	39
LW0.8	1/26/2005	390	ND	8.3	72	ND	ND	ND	ND	0.38	ND	55	ND	ND	3.80	23.0	ND	ND	69
	2/28/2005	420	ND	9.8	76	ND	ND	1.7	4.6	0.62	ND	64	1.60	9.6	4.33	25.0	ND	ND	63
	3/30/2005	104	ND	8.4	69	ND	ND	2.2	3.0	0.15	ND	41	ND	7.5	3.67	26.0	ND	ND	41
	4/19/2005	270	ND	8.2	74	ND	ND	2.7	5.4	0.23	ND	48	0.61	12.0	4.03	19.0	ND	ND	28
	5/25/2005	230	ND	8.6	74	ND	ND	1.3	7.0	0.40	ND	62	0.78	7.6	3.20	16.0	ND	ND	31
	6/22/2005	120	ND	6.8	71	ND	ND	ND	3.0	0.15	ND	47	ND	17.0	2.69	17.0	ND	ND	27
	7/27/2005	260	ND	7.8	65	ND	ND	1.4	4.9	0.42	ND	68	0.67	9.6	2.60	23.0	ND	ND	32
	8/24/2005	140	ND	7.6	83	ND	ND	2.0	4.5	0.20	ND	47	ND	10.0	2.90	21.0	ND	ND	28
	9/21/2005	300	ND	8.8	77	ND	ND	1.9	6.8	0.32	ND	50	0.62	12.0	3.20	23.0	ND	ND	30
	10/26/2005	900	1.2	8.5	74	ND	ND	2.5	6.1	0.86	ND	69	1.50	8.0	2.76	20.0	ND	ND	33
	11/30/2005	120	ND	8.8	76	ND	ND	ND	4.4	0.15	ND	44	ND	7.8	3.34	23.0	ND	ND	41
	12/28/2005	180	ND	8.3	82	ND	ND	1.2	4.4	0.19	ND	48	ND	7.8	3.06	23.0	ND	ND	41
*NA = Not Analyzed, ND = Non Detect																			

Appendix IId. Monthly Metal Data from the Las Vegas Wash Mainstream Sites																			
Site Location	Sample Date	Aluminum (ug/l)	Antimony (ug/l)	Arsenic (ug/l)	Barium (ug/l)	Beryllium (ug/l)	Cadmium (ug/l)	Chromium (ug/l)	Copper (ug/l)	Iron (mg/l)	Mercury (ug/l)	Manganese (ug/l)	Lead (ug/l)	Nickel (ug/l)	Selenium (ug/l)	Silica (mg/l)	Silver (ug/l)	Thallium (ug/l)	Zinc (ug/l)
LW10.75	1/25/2006	14	<0.50	10.0	42	<0.10	<0.10	2.0	1.9	<0.020	<0.10	9	<0.20	11.0	13.80	41.0	<0.20	<0.20	4
	2/22/2006	210	<0.50	14.0	39	<0.10	<0.10	1.9	1.9	0.10	<0.10	13	0.34	12.0	14.00	39.0	<0.20	<0.20	6
	3/22/2006	42	2.3	7.8	51	<0.10	0.11	1.7	5.0	0.05	<0.10	33	0.43	11.0	7.95	30.0	<0.20	<0.20	20
	4/26/2006	150	0.71	13.0	44	<0.10	<0.10	1.2	1.9	0.18	<0.10	15	0.25	13.0	12.20	34.0	<0.20	<0.20	7
	5/17/2006	70	<0.50	11.0	42	<0.10	<0.10	1.0	1.9	0.08	<0.10	14	<0.20	13.0	12.30	110.0	<0.20	<0.20	7
	6/21/2006	18	<0.50	13.0	41	<0.10	<0.10	1.0	1.9	0.03	<0.10	22	<0.20	14.0	12.80	45.0	<0.20	<0.20	6
	7/27/2006	17	0.52	12.0	45	<0.10	<0.10	1.0	1.7	<0.020	<0.10	20	<0.20	1.8	12.20	37.0	<0.20	<0.20	4
	8/23/2006	880	0.71	19.0	66	<0.10	0.1	2.7	6.7	0.91	<0.10	53	1.90	20.0	12.60	56.0	<0.20	<0.20	14
	9/19/2006	14	<0.50	7.4	42	<0.10	<0.10	1.7	1.6	<0.020	<0.10	9	<0.20	1.6	13.00	39.0	<0.20	<0.20	4
	10/17/2006	140	0.78	7.0	67	<0.10	<0.10	1.9	2.1	0.20	<0.10	21	0.49	6.9	12.20	45.0	<0.20	<0.20	7
	11/14/2006	8.4	<0.50	8.7	40	<0.10	<0.10	1.9	1.5	<0.020	<0.10	6	<0.20	5.3	13.80	45.0	<0.20	<0.20	6
	12/13/2006	6.7	1.3	11.0	32	<0.10	<0.10	1.5	2.5	0.03	<0.10	16	<0.20	4.4	15.00	47.0	<0.20	<0.20	5
LW6.05	1/25/2006	70	0.6	7.3	63	<0.10	<0.10	0.6	2.7	0.09	<0.10	47	0.48	8.4	3.62	19.0	<0.20	<0.20	49
	2/22/2006	220	0.52	8.6	68	<0.10	<0.10	0.6	2.8	0.09	<0.10	44	<0.20	8.6	3.64	18.0	<0.20	<0.20	41
	3/22/2006	580	0.79	8.6	64	<0.10	<0.10	1.4	4.0	0.58	<0.10	110	1.40	11.0	3.28	22.0	<0.20	<0.20	43
	4/26/2006	330	0.79	7.7	64	<0.10	<0.10	1.3	3.1	0.37	<0.10	63	0.57	11.0	3.15	21.0	<0.20	<0.20	39
	5/17/2006	140	0.54	7.4	58	<0.10	<0.10	0.6	2.8	0.12	<0.10	52	<0.20	11.0	3.52	32.0	<0.20	<0.20	32
	6/21/2006	86	<0.50	7.1	63	<0.10	<0.10	0.3	3.0	0.09	<0.10	41	<0.20	9.7	3.30	22.0	<0.20	<0.20	37
	7/27/2006	91	0.58	6.7	54	<0.10	<0.10	0.2	2.7	0.07	<0.10	35	<0.20	3.1	3.12	18.0	<0.20	<0.20	26
	8/23/2006	130	0.53	6.8	61	<0.10	<0.10	0.5	3.6	0.12	<0.10	31	<0.20	11.0	3.09	23.0	<0.20	<0.20	24
	9/19/2006	96	0.5	4.1	62	<0.10	<0.10	0.4	3.1	0.08	<0.10	27	<0.20	3.8	3.36	18.0	<0.20	<0.20	24
	10/17/2006	260	0.69	5.3	62	<0.10	<0.10	0.8	3.1	0.28	<0.10	41	0.44	5.9	3.38	21.0	<0.20	<0.20	34
	11/14/2006	140	0.61	6.5	61	<0.10	<0.10	0.6	3.2	0.10	<0.10	34	<0.20	5.8	3.42	21.0	<0.20	<0.20	37
	12/13/2006	160	0.53	5.0	52	<0.10	<0.10	0.4	3.2	0.09	<0.10	35	<0.20	4.4	3.70	22.0	<0.20	<0.20	33
*NA = Not Analyzed, ND = Non Detect																			

Appendix IId. Monthly Metal Data from the Las Vegas Wash Mainstream Sites																			
Site Location	**Sample Date**	**Aluminum (ug/l)**	**Antimony (ug/l)**	**Arsenic (ug/l)**	**Barium (ug/l)**	**Beryllium (ug/l)**	**Cadmium (ug/l)**	**Chromium (ug/l)**	**Copper (ug/l)**	**Iron (mg/l)**	**Mercury (ug/l)**	**Manganese (ug/l)**	**Lead (ug/l)**	**Nickel (ug/l)**	**Selenium (ug/l)**	**Silica (mg/l)**	**Silver (ug/l)**	**Thallium (ug/l)**	**Zinc (ug/l)**
LW5.9	1/25/2006	92	0.61	7.4	69	<0.10	<0.10	0.5	4.2	0.10	<0.10	57	<0.20	8.8	3.62	18.0	<0.20	<0.20	54
	2/22/2006	320	0.53	8.4	72	<0.10	<0.10	0.8	4.3	0.17	<0.10	57	0.30	9.4	3.67	19.0	<0.20	<0.20	45
	3/22/2006	620	0.78	8.1	72	<0.10	<0.10	1.4	5.8	0.59	<0.10	110	1.30	12.0	3.20	22.0	<0.20	<0.20	53
	4/26/2006	230	0.88	8.0	75	<0.10	<0.10	1.0	4.0	0.25	<0.10	67	0.39	11.0	3.27	21.0	0.21	<0.20	52
	5/17/2006	130	0.58	6.8	71	<0.10	<0.10	0.7	4.5	0.15	<0.10	62	0.23	10.0	3.28	20.0	<0.20	<0.20	41
	6/21/2006	85	<0.50	7.4	66	<0.10	<0.10	0.5	3.5	0.15	<0.10	43	<0.20	9.3	3.08	21.0	<0.20	<0.20	38
	7/27/2006	120	0.6	7.0	60	<0.10	<0.10	0.9	3.1	0.10	<0.10	39	<0.20	3.3	2.89	18.0	<0.20	<0.20	30
	8/23/2006	85	0.55	6.8	69	<0.10	<0.10	0.7	4.4	0.13	<0.10	43	<0.20	12.0	2.92	22.0	<0.20	<0.20	26
	9/19/2006	99	0.52	4.0	73	<0.10	<0.10	0.7	4.5	0.19	<0.10	48	0.20	4.6	2.82	17.0	<0.20	<0.20	33
	10/17/2006	240	0.7	5.5	68	<0.10	<0.10	0.8	4.0	0.25	<0.10	44	0.48	8.8	3.16	20.0	<0.20	<0.20	35
	11/14/2006	140	0.61	5.8	68	<0.10	<0.10	0.6	4.5	0.08	<0.10	39	<0.20	5.4	3.25	18.0	<0.20	<0.20	44
	12/13/2006	180	0.6	4.8	62	<0.10	<0.10	0.7	4.1	0.13	<0.10	48	0.29	5.2	3.90	20.0	<0.20	<0.20	44
LW5.5	1/25/2006	77	0.62	8.6	62	<0.10	<0.10	0.6	3.9	0.16	<0.10	60	<0.20	10.0	3.96	20.0	0.23	<0.20	54
	2/22/2006	280	0.59	8.8	71	<0.10	<0.10	0.7	4.0	0.14	<0.10	57	0.30	9.3	3.80	19.0	<0.20	<0.20	44
	3/22/2006	210	0.92	7.0	60	<0.10	<0.10	0.8	4.0	0.16	<0.10	61	0.41	10.0	3.23	20.0	0.33	<0.20	46
	4/26/2006	180	0.8	8.8	69	<0.10	<0.10	0.8	4.1	0.19	<0.10	70	0.52	12.0	3.19	21.0	<0.20	<0.20	43
	5/17/2006	130	0.55	7.7	65	<0.10	<0.10	0.7	3.7	0.11	<0.10	59	<0.20	10.0	3.38	20.0	<0.20	<0.20	36
	6/21/2006	100	<0.50	6.7	65	<0.10	<0.10	0.5	3.2	0.15	<0.10	45	<0.20	9.8	3.24	22.0	<0.20	<0.20	37
	7/27/2006	110	0.56	7.4	58	<0.10	<0.10	0.3	3.0	0.09	<0.10	42	<0.20	3.2	3.11	19.0	<0.20	<0.20	26
	8/23/2006	86	0.52	7.5	66	<0.10	<0.10	0.6	3.8	0.10	<0.10	36	0.23	12.0	3.08	23.0	<0.20	<0.20	60
	9/19/2006	92	0.51	5.1	66	<0.10	<0.10	0.6	3.9	0.12	<0.10	37	<0.20	3.6	3.22	19.0	<0.20	<0.20	27
	10/17/2006	250	0.74	6.4	68	<0.10	<0.10	1.0	3.7	0.28	<0.10	50	0.49	7.6	3.87	23.0	<0.20	<0.20	35
	11/14/2006	130	0.58	7.0	60	<0.10	<0.10	0.6	3.6	0.08	<0.10	41	<0.20	6.5	3.41	21.0	<0.20	<0.20	34
	12/13/2006	160	0.63	6.9	57	<0.10	<0.10	1.3	3.5	0.40	<0.10	45	<0.20	5.2	3.90	22.0	<0.20	<0.20	35
*NA = Not Analyzed, ND = Non Detect																			

Appendix IId. Monthly Metal Data from the Las Vegas Wash Mainstream Sites																			
Site Location	Sample Date	Aluminum (ug/l)	Antimony (ug/l)	Arsenic (ug/l)	Barium (ug/l)	Beryllium (ug/l)	Cadmium (ug/l)	Chromium (ug/l)	Copper (ug/l)	Iron (mg/l)	Mercury (ug/l)	Manganese (ug/l)	Lead (ug/l)	Nickel (ug/l)	Selenium (ug/l)	Silica (mg/l)	Silver (ug/l)	Thallium (ug/l)	Zinc (ug/l)
LW5.3	1/25/2006	74	0.59	8.2	69	<0.10	<0.10	0.6	3.8	0.08	<0.10	59	0.20	9.1	3.76	20.0	<0.20	<0.20	52
	2/22/2006	170	0.54	8.8	69	<0.10	<0.10	0.6	3.9	0.09	<0.10	52	<0.20	9.0	3.65	18.0	<0.20	<0.20	47
	3/22/2006	270	0.87	8.3	63	<0.10	<0.10	0.9	4.3	0.20	<0.10	69	0.85	10.0	3.16	20.0	<0.20	<0.20	51
	4/26/2006	160	0.77	9.0	62	<0.10	<0.10	0.7	3.1	0.18	<0.10	74	0.22	12.0	3.16	21.0	<0.20	<0.20	43
	5/17/2006	170	0.56	7.3	67	<0.10	<0.10	0.6	3.7	0.16	<0.10	62	0.22	10.0	3.23	20.0	<0.20	<0.20	36
	6/21/2006	110	<0.50	7.3	66	<0.10	<0.10	0.5	2.9	0.13	<0.10	47	<0.20	10.0	3.26	22.0	<0.20	<0.20	36
	7/27/2006	140	0.58	7.9	61	<0.10	<0.10	0.3	3.2	0.12	<0.10	44	<0.20	3.4	2.74	18.0	<0.20	<0.20	27
	8/23/2006	85	0.55	7.6	68	<0.10	<0.10	0.6	4.3	0.09	<0.10	36	<0.20	12.0	3.02	21.0	<0.20	<0.20	28
	9/19/2006	87	<0.50	5.8	64	<0.10	<0.10	0.6	3.9	0.11	<0.10	39	<0.20	3.8	3.44	20.0	<0.20	<0.20	27
	10/17/2006	520	0.69	6.9	80	<0.10	<0.10	1.8	4.3	0.61	<0.10	76	1.00	9.6	3.82	26.0	<0.20	<0.20	35
	11/14/2006	140	0.57	7.1	62	<0.10	<0.10	0.7	3.9	0.09	<0.10	43	<0.20	6.1	3.21	21.0	<0.20	<0.20	36
	12/13/2006	160	0.54	6.5	57	<0.10	<0.10	0.7	4.3	0.08	<0.10	40	<0.20	5.5	4.10	23.0	<0.20	<0.20	38
LW3.85	1/25/2006	95	0.57	9.8	65	<0.10	<0.10	0.7	3.8	0.11	<0.10	54	0.24	10.0	3.40	20.0	<0.20	<0.20	49
	2/22/2006	160	<0.50	8.9	68	<0.10	<0.10	0.7	3.6	0.09	<0.10	44	<0.20	9.2	3.31	18.0	<0.20	<0.20	40
	3/22/2006	150	0.86	7.8	58	<0.10	<0.10	0.8	4.0	0.09	<0.10	49	0.23	9.6	2.78	18.0	<0.20	<0.20	41
	4/26/2006	210	0.77	9.6	64	<0.10	<0.10	0.8	3.1	0.22	<0.10	56	0.39	12.0	2.70	18.0	<0.20	<0.20	42
	5/17/2006	170	0.53	8.1	61	<0.10	<0.10	0.8	3.8	0.16	<0.10	50	0.24	11.0	2.92	18.0	<0.20	<0.20	30
	6/21/2006	110	<0.50	8.4	61	<0.10	<0.10	0.6	3.0	0.14	<0.10	44	<0.20	11.0	3.03	23.0	<0.20	<0.20	39
	7/27/2006	130	0.57	8.3	58	<0.10	<0.10	0.5	3.3	0.13	<0.10	38	0.20	4.0	2.34	18.0	<0.20	<0.20	28
	8/23/2006	100	<0.50	8.5	63	<0.10	<0.10	0.7	3.9	0.10	<0.10	28	<0.20	12.0	2.68	23.0	<0.20	<0.20	22
	9/19/2006	74	<0.50	6.6	63	<0.10	<0.10	0.7	3.7	0.09	<0.10	26	<0.20	4.4	3.05	20.0	<0.20	<0.20	24
	10/17/2006	250	0.7	7.0	67	<0.10	<0.10	1.1	3.7	0.26	<0.10	47	0.49	9.1	3.24	23.0	<0.20	<0.20	32
	11/14/2006	140	0.58	7.8	59	<0.10	<0.10	0.8	3.9	0.11	<0.10	32	<0.20	6.4	2.90	21.0	<0.20	<0.20	34
	12/13/2006	140	0.52	6.8	55	<0.10	<0.10	0.7	4.5	0.10	<0.10	30	<0.20	5.6	3.70	23.0	<0.20	<0.20	32
*NA = Not Analyzed, ND = Non Detect																			

Appendix IId. Monthly Metal Data from the Las Vegas Wash Mainstream Sites																			
Site Location	Sample Date	Aluminum (ug/l)	Antimony (ug/l)	Arsenic (ug/l)	Barium (ug/l)	Beryllium (ug/l)	Cadmium (ug/l)	Chromium (ug/l)	Copper (ug/l)	Iron (mg/l)	Mercury (ug/l)	Manganese (ug/l)	Lead (ug/l)	Nickel (ug/l)	Selenium (ug/l)	Silica (mg/l)	Silver (ug/l)	Thallium (ug/l)	Zinc (ug/l)
LW3.75	1/25/2006	93	0.57	10.0	60	<0.10	<0.10	0.8	4.1	0.10	<0.10	58	0.20	11.0	3.46	20.0	<0.20	<0.20	46
	2/22/2006	150	0.5	9.0	66	<0.10	<0.10	0.7	3.7	0.09	<0.10	47	<0.20	9.0	3.30	18.0	<0.20	<0.20	39
	3/22/2006	140	0.87	8.4	56	<0.10	<0.10	0.8	3.9	0.09	<0.10	54	0.23	9.5	2.78	18.0	<0.20	<0.20	38
	4/26/2006	200	0.77	9.7	62	<0.10	<0.10	0.9	3.5	0.22	<0.10	59	0.28	12.0	2.76	18.0	<0.20	<0.20	41
	5/17/2006	190	0.52	8.8	63	<0.10	<0.10	1.0	4.1	0.17	<0.10	52	0.27	13.0	2.79	19.0	<0.20	<0.20	30
	6/21/2006	120	<0.50	9.7	61	<0.10	<0.10	0.6	2.9	0.12	<0.10	50	<0.20	11.0	3.18	22.0	<0.20	<0.20	34
	7/27/2006	110	0.56	9.1	58	<0.10	<0.10	0.5	3.5	0.11	<0.10	42	<0.20	4.0	2.62	18.0	<0.20	<0.20	27
	8/23/2006	90	<0.50	8.9	60	<0.10	<0.10	0.7	4.3	0.09	<0.10	30	<0.20	12.0	2.66	22.0	<0.20	<0.20	20
	9/19/2006	82	0.5	6.5	64	<0.10	<0.10	0.6	4.3	0.10	<0.10	31	<0.20	5.1	2.98	21.0	<0.20	<0.20	26
	10/17/2006	290	0.66	7.5	66	<0.10	<0.10	1.2	4.0	0.32	<0.10	51	0.55	9.5	3.82	24.0	<0.20	<0.20	31
	11/14/2006	130	0.55	6.8	58	<0.10	<0.10	0.8	3.7	0.10	<0.10	35	<0.20	6.8	3.12	21.0	<0.20	<0.20	30
	12/13/2006	130	0.53	7.1	55	<0.10	<0.10	0.7	4.5	0.08	<0.10	33	<0.20	6.1	3.80	23.0	<0.20	<0.20	33
LW0.8	1/25/2006	120	0.58	9.8	63	<0.10	<0.10	0.9	4.8	0.13	<0.10	66	1.90	10.0	3.30	18.0	<0.20	<0.20	46
	2/22/2006	300	0.54	8.1	70	<0.10	<0.10	0.7	3.8	0.13	<0.10	53	1.00	8.4	3.12	17.0	<0.20	<0.20	40
	3/22/2006	170	0.95	7.1	59	<0.10	<0.10	0.8	4.2	0.14	<0.10	52	0.51	8.8	3.68	17.0	<0.20	<0.20	40
	4/26/2006	220	0.79	9.1	65	<0.10	<0.10	0.8	3.6	0.25	<0.10	56	0.46	11.0	2.63	17.0	<0.20	<0.20	40
	5/17/2006	200	0.6	8.5	64	<0.10	<0.10	0.8	4.2	0.21	<0.10	53	0.36	11.0	2.80	17.0	<0.20	<0.20	31
	6/21/2006	130	<0.50	10.0	62	<0.10	<0.10	0.6	3.0	0.14	<0.10	42	0.27	11.0	3.06	22.0	<0.20	<0.20	29
	7/27/2006	140	0.58	8.7	57	<0.10	<0.10	0.4	3.4	0.14	<0.10	38	0.36	3.9	2.44	17.0	<0.20	<0.20	28
	8/23/2006	160	0.55	9.1	64	<0.10	<0.10	0.7	5.0	0.15	<0.10	31	0.27	13.0	2.52	22.0	<0.20	<0.20	22
	9/19/2006	120	0.57	6.3	63	<0.10	<0.10	0.7	3.9	0.14	<0.10	29	0.23	4.0	2.77	20.0	<0.20	<0.20	24
	10/17/2006	340	0.74	6.8	69	<0.10	<0.10	1.2	4.0	0.38	<0.10	47	1.10	8.2	3.18	23.0	<0.20	<0.20	31
	11/14/2006	140	0.54	6.8	58	<0.10	<0.10	0.7	3.5	0.11	<0.10	30	0.29	6.5	2.78	20.0	<0.20	<0.20	29
	12/13/2006	130	0.66	6.4	56	<0.10	<0.10	0.6	5.0	0.08	<0.10	25	0.30	5.3	3.60	21.0	<0.20	<0.20	34
*NA = Not Analyzed, ND = Non Detect																			

Appendix IId. Monthly Metal Data from the Las Vegas Wash Mainstream Sites																			
Site Location	**Sample Date**	**Aluminum (ug/l)**	**Antimony (ug/l)**	**Arsenic (ug/l)**	**Barium (ug/l)**	**Beryllium (ug/l)**	**Cadmium (ug/l)**	**Chromium (ug/l)**	**Copper (ug/l)**	**Iron (mg/l)**	**Mercury (ug/l)**	**Manganese (ug/l)**	**Lead (ug/l)**	**Nickel (ug/l)**	**Selenium (ug/l)**	**Silica (mg/l)**	**Silver (ug/l)**	**Thallium (ug/l)**	**Zinc (ug/l)**
LW10.75	1/17/2007	15	0.55	20.0	29	<.1	<.1	2.1	1.0	<.02	<.1	5	<.2	<.8	16.00	72.0	<0.2	<.2	4
	2/21/2007	14	<.50	20.0	28	<.1	<.1	1.9	1.9	<.02	<.1	5		0.9	15.00	72.0	<0.2	<.2	3
	3/21/2007	6	<.50	5.7	35	<.1	<.1	1.1	0.6	<.02	<.1	1	<.2	1.2	15.00	27.0	<0.2	<.2	10
	4/25/2007	8.7	0.57	5.7	41	<.1	<.1	1.1	2.2	<.02	<.1	8	<.2	1.5	14.00	21.0	<0.2	<.2	5
	5/23/2007	14	0.53	10.0	<.10	<.1	<.1	1.0	1.6	<.02	<.1	7	<.2	1.1	13.00	15.0	<.2	<.2	<5.0
	6/20/2007	26	<.5	5.5	47	<.1	<.1	0.9	2.9	0.03	<.1	14	<.2	1.5	14.00	28.0	<.2	<.2	<5.0
	7/16/2007	51	<.5	16.0	39	<.1	<.1	1.8	1.3	0.06	<.1	8	<.2	<.8	13.00	63.0	<.2	<.2	<5.0
	8/22/2007	120	0.6	5.8	56	<.1	<.1	0.9	1.9	0.10	<.1	13	0.34	1.5	15.00	35.0	<.2	<.2	6
	9/19/2007	29	<.5	8.0	48	<.1	<.1	1.1	2.8	0.02	<.1	6	<.2	1.5	16.00	39.0	<.2	<.2	6
	10/17/2007	21	<.5	5.7	49	<.1	<.1	1.2	3.3	0.07	<.1	4	<.2	1.4	16.00	34.0	<.2	<.2	7
	11/19/2007	5.2	<.5	13.0	23	<.1	<.1	2.0	0.8	<.02	<.1	16	<.2	2.7	<.2	77.0	<.2	<.2	<5
	12/19/2007	31	<.5	5.5	41	<.1	<.1	1.9	2.3	0.03	<.1	9	<.2	6.1	14.00	32.0	<.2	<.2	8
LW8.85	1/17/2007	200	0.79	2.4	57	<.1	<.1	0.4	3.8	0.07	<.1	130	<.2	2.5	3.00	16	<0.2	<.2	45
	2/21/2007	140	<.50	1.9	60	<.1	<.1	0.4	4.0	0.08	<.1	18	<.2	2.2	2.60	14.0	<0.2	<.2	41
	3/21/2007	120	0.57	2.3	65	<.1	<.1	0.4	0.9	0.07	<.1	20	<.2	2.4	2.90	16.0	<0.2	<.2	41
	4/25/2007	120	0.71	2.5	62	<.1	<.1	0.6	3.7	0.09	<.1	22	<.2	2.4	2.80	15.0	<0.2	<.2	40
	5/23/2007	140	0.61	2.8	62	<.1	<.1	0.4	3.4	0.12	<.1	24	<.2	2.3	2.71	18.0	<.2	<.2	35
	6/20/2007	83	0.56	2.6	56	<.1	<.1	0.5	4.1	0.07	<.1	23	<.2	2.2	2.70	17.0	<.2	<.2	32
	7/16/2007	100	0.64	2.7	62	<.1	<.1	0.5	2.6	0.06	<.1	23	<.2	2.2	2.90	19.0	<.2	<.2	29
	8/22/2007	120	<.50	2.5	53	<.1	<.1	0.3	2.4	0.06	<.1	13	<.2	1.8	2.60	16.0	<.2	<.2	30
	9/19/2007	150	0.6	2.4	60	<.1	<.1	0.2	3.3	0.08	<.1	15	<.2	2.2	2.60	16.0	<.2	<.2	39
	10/17/2007	120	0.59	3.0	58	<.1	<.1	0.2	3.7	0.07	<.1	15	<.2	2.3	2.90	17.0	<.2	<.2	37
	11/19/2007	150	0.58	1.8	50	<.1	<.1	0.5	1.9	0.06	<.1	16	<.2	3.0	2.70	16.0	<.2	<.2	31
	12/19/2007	180	0.57	2.6	55	<.1	<.1	0.5	3.0	0.04	<.1	35	<.2	3.9	3.60	16.0	<.2	<.2	45
*NA = Not Analyzed, ND = Non Detect																			

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Site Location	**Sample Date**	**Aluminum (ug/l)**	**Antimony (ug/l)**	**Arsenic (ug/l)**	**Barium (ug/l)**	**Beryllium (ug/l)**	**Cadmium (ug/l)**	**Chromium (ug/l)**	**Copper (ug/l)**	**Iron (mg/l)**	**Mercury (ug/l)**	**Manganese (ug/l)**	**Lead (ug/l)**	**Nickel (ug/l)**	**Selenium (ug/l)**	**Silica (mg/l)**	**Silver (ug/l)**	**Thallium (ug/l)**	**Zinc (ug/l)**
LW6.85	1/17/2007	250	0.79	5.1	58	<.1	<.1	0.6	3.4	0.10	<.1	48	<.2	2.8	4.00	19.0	<0.2	<.2	42
	2/21/2007	190	<.50	5.9	58	<.1	<.1	0.5	3.7	0.13	<.1	35	<.2	2.6	3.80	19.0	<0.2	<.2	37
	3/21/2007	150	0.59	6.5	61	<.1	<.1	0.4	1.1	0.09	<.1	39	<.2	2.8	4.10	20.0	<0.2	<.2	40
	4/25/2007	130	0.67	7.2	58	<.1	<.1	0.7	3.4	0.09	<.1	37	<.2	2.9	3.90	19.0	<.2	<.2	36
	5/23/2007	110	0.58	7.5	57	<.1	<.1	0.4	3.3	0.09	<.1	37	<.2	2.9	3.65	22.0	<.2	<.2	35
	6/20/2007	100	0.57	6.2	54	<.1	<.1	0.5	3.4	0.09	<.1	33	<.2	2.5	3.30	20.0	<.2	<.2	28
	7/16/2007	100	0.57	6.5	57	<.1	<.1	0.5	2.4	0.06	<.1	30	<.2	2.6	3.60	22.0	<.2	<.2	25
	8/22/2007	140	<.50	5.7	52	<.1	<.1	0.4	2.4	0.10	0.16	29	<.2	2.2	3.30	20.0	<.2	<.2	27
	9/19/2007	200	0.57	6.6	59	<.1	<.1	0.4	3.4	0.15	<.1	33	0.21	2.7	3.90	22.0	<.2	<.2	36
	10/17/2007	110	0.56	6.6	56	<.1	<.1	0.3	2.8	0.08	<.1	28	<.2	2.6	3.70	21.0	<.2	<.2	32
	11/19/2007	260	0.53	4.1	50	<.1	<.1	0.8	2.1	0.18	<.1	33	0.39	3.7	3.10	20.0	<.2	<.2	30
	12/19/2007	320	0.53	7.3	54	<.1	<.1	1.0	3.6	0.26	<.1	39	0.53	5.1	4.20	23.0	<.2	<.2	41
LW5.9	1/17/2007	220	0.73	5.1	64	<.1	<.1	0.7	4.3	0.09	<.1	44	<.2	3.2	4.00	19.0	<0.2	<.2	43
	2/21/2007	170	<.50	5.6	69	<.1	<.1	0.7	5.0	0.11	<.1	42	<.2	3.1	3.20	18.0	<0.2	<.2	49
	3/21/2007	150	0.56	7.5	66	<.1	<.1	0.8	2.1	0.10	<.1	63	<.2	3.6	3.90	21.0	<0.2	<.2	43
	4/25/2007	120	0.66	8.6	61	<.1	<.1	1.0	4.2	0.08	<.1	55	<.2	4.1	4.00	21.0	<0.2	<.2	36
	5/23/2007	95	0.53	8.4	58	<.1	<.1	1.0	3.6	0.18	<.1	76	<.2	4.7	3.74	23.0	<.2	<.2	27
	6/20/2007	110	0.53	7.9	59	<.1	<.1	0.7	4.1	0.12	<.1	59	<.2	3.8	3.60	23.0	<.2	<.2	29
	7/16/2007	120	0.55	7.9	57	<.1	<.1	0.6	2.9	0.13	<.1	55	<.2	4.1	3.60	24.0	<.2	<.2	23
	8/22/2007	120	<.50	6.6	57	<.1	<.1	0.4	2.8	0.10	0.16	54	0.22	3.0	3.50	21.0	<.2	<.2	27
	9/19/2007	160	0.57	6.8	71	<.1	<.1	0.7	4.8	0.17	<.1	59	0.22	3.8	3.60	21.0	<.2	<.2	35
	10/17/2007	140	0.56	7.7	71	<.1	<.1	0.5	3.9	0.06	<.1	58	<.2	4.7	3.50	22.0	<.2	<.2	36
	11/19/2007	260	0.57	4.1	67	<.1	<.1	0.7	3.8	0.09	<.1	36	0.24	3.9	3.10	19.0	<.2	<.2	37
	12/19/2007	320	0.57	6.6	71	<.1	<.1	1.7	4.9	0.08	<.1	53	0.24	6.0	3.00	18.0	<.2	<.2	55
*NA = Not Analyzed, ND = Non Detect																			

Appendix IId. Monthly Metal Data from the Las Vegas Wash Mainstream Sites																			
Site Location	**Sample Date**	**Aluminum (ug/l)**	**Antimony (ug/l)**	**Arsenic (ug/l)**	**Barium (ug/l)**	**Beryllium (ug/l)**	**Cadmium (ug/l)**	**Chromium (ug/l)**	**Copper (ug/l)**	**Iron (mg/l)**	**Mercury (ug/l)**	**Manganese (ug/l)**	**Lead (ug/l)**	**Nickel (ug/l)**	**Selenium (ug/l)**	**Silica (mg/l)**	**Silver (ug/l)**	**Thallium (ug/l)**	**Zinc (ug/l)**
LW5.5	1/17/2007	220	0.71	5.4	59	<.1	<.1	0.7	3.6	0.08	<.1	39	<.2	3.0	3.90	21.0	<0.2	<.2	41
	2/21/2007	180	<.50	5.9	61	<.1	<.1	0.6	3.9	0.11	<.1	40	<.2	2.9	3.50	8700.0	<0.2	<.2	40
	3/21/2007	160	0.57	7.4	62	<.1	<.1	0.6	1.5	0.10	<.1	54	1.70	3.4	4.20	21.0	<0.2	<.2	42
	4/25/2007	140	0.68	8.7	61	<.1	<.1	0.7	3.7	0.09	<.1	52	<.2	3.7	4.10	21.0	<0.2	<.2	36
	5/23/2007	120	0.58	7.5	62	<.1	<.1	0.6	3.7	0.11	<.1	55	<.2	3.5	3.41	22.0	<.2	<.2	33
	6/20/2007	94	0.54	8.0	58	<.1	<.1	0.6	3.7	0.10	<.1	51	<.2	3.6	3.60	23.0	<.2	<.2	27
	7/16/2007	110	0.55	7.7	56	<.1	<.1	0.6	2.8	0.09	<.1	49	<.2	3.8	3.60	23.0	<.2	<.2	23
	8/22/2007	140	<.50	6.7	55	<.1	<.1	0.4	2.6	0.10	0.16	38	<.2	2.8	3.40	21.0	<.2	<.2	27
	9/19/2007	130	0.58	7.2	61	<.1	<.1	0.4	3.5	0.10	<.1	41	<.2	3.1	3.80	22.0	<.2	<.2	32
	10/17/2007	140	0.57	7.8	61	<.1	<.1	0.3	2.9	0.09	<.1	43	<.2	3.4	3.40	22.0	<.2	<.2	32
	11/19/2007	210	0.56	4.7	55	<.1	<.1	0.5	2.4	0.13	<.1	33	0.22	3.7	3.50	21.0	<.2	<.2	31
	12/19/2007	210	<.5	8.0	54	<.1	<.1	0.9	3.4	0.09	<.1	44	0.20	5.4	4.30	21.0	<.2	<.2	42
LW4.95	1/17/2007	200	0.68	7.2	60	<.1	<.1	0.7	3.6	0.08	<.1	39	<.2	3.4	4.30	22.0	<0.2	<.2	39
	2/21/2007	210	<.50	7.2	60	<.1	<.1	0.7	4.4	0.12	<.1	44	<.2	3.3	3.50	20.0	<0.2	<.2	40
	3/21/2007	150	0.56	9.0	63	<.1	<.1	0.6	1.5	0.09	<.1	48	<.2	3.7	4.20	22.0	<0.2	<.2	39
	4/25/2007	140	0.64	10.0	61	<.1	<.1	0.8	3.5	0.09	<.1	46	<.2	3.9	4.00	21.0	<0.2	<.2	34
	5/23/2007	120	0.56	9.0	61	<.1	<.1	0.7	3.4	0.13	<.1	51	<.2	4.0	3.62	23.0	<.2	<.2	28
	6/20/2007	95	0.52	7.5	58	<.1	<.1	0.7	3.6	0.09	<.1	42	<.2	3.7	3.20	21.0	<.2	<.2	26
	7/16/2007	120	0.57	8.6	61	<.1	<.1	0.7	2.9	0.09	<.1	45	<.2	4.1	3.70	25.0	<.2	<.2	23
	8/22/2007	140	<.50	7.9	56	<.1	<.1	0.5	2.8	0.10	0.18	38	0.20	3.2	3.40	22.0	<.2	<.2	26
	9/19/2007	140	0.54	8.6	62	<.1	<.1	0.5	3.7	0.12	<.1	47	<.2	3.6	3.90	23.0	<.2	<.2	30
	10/17/2007	150	0.56	8.8	63	<.1	<.1	0.6	3.4	0.09	<.1	51	<.2	4.0	3.50	23.0	<.2	<.2	32
	11/19/2007	87	0.54	5.4	57	<.1	<.1	0.4	2.1	0.03	<.1	28	<.1	4.0	3.40	21.0	<.2	<.2	27
	12/19/2007	200	0.54	8.7	57	<.1	<.1	0.8	3.4	0.09	<.1	48	0.21	5.6	3.40	21.0	<.2	<.2	40
*NA = Not Analyzed, ND = Non Detect																			

Appendix IId. Monthly Metal Data from the Las Vegas Wash Mainstream Sites																			
Site Location	**Sample Date**	**Aluminum (ug/l)**	**Antimony (ug/l)**	**Arsenic (ug/l)**	**Barium (ug/l)**	**Beryllium (ug/l)**	**Cadmium (ug/l)**	**Chromium (ug/l)**	**Copper (ug/l)**	**Iron (mg/l)**	**Mercury (ug/l)**	**Manganese (ug/l)**	**Lead (ug/l)**	**Nickel (ug/l)**	**Selenium (ug/l)**	**Silica (mg/l)**	**Silver (ug/l)**	**Thallium (ug/l)**	**Zinc (ug/l)**
LW3.1	1/17/2007	170	0.67	8.9	60	<.1	<.1	0.7	3.5	0.09	<.1	32	<.2	3.9	4.00	22.0	<0.2	<.2	35
	2/21/2007	190	<.50	9.2	58	<.1	<.1	0.8	4.0	0.11	<.1	38	0.20	3.9	3.40	21.0	<0.2	<.2	35
	3/21/2007	160	0.57	9.8	63	<.1	<.1	0.8	1.7	0.11	<.1	44	0.33	4.3	3.70	21.0	<0.2	<.2	37
	4/25/2007	130	0.63	11.0	59	<.1	<.1	0.8	3.8	0.08	<.1	36	0.22	4.5	3.60	19.0	<0.2	<.2	32
	5/23/2007	110	0.54	9.4	57	<.1	<.1	0.7	3.6	0.10	<.1	41	0.29	4.3	3.16	19.0	<.2	<.2	26
	6/20/2007	110	<.50	8.3	51	<.1	<.1	0.7	3.6	0.10	<.1	40	0.22	4.0	2.80	19.0	<.2	<.2	24
	7/16/2007	110	0.52	8.4	54	<.1	<.1	0.8	2.8	0.09	<.1	36	0.25	4.0	2.90	21.0	<.2	<.2	20
	8/22/2007	140	<.50	9.3	54	<.1	<.1	0.6	3.1	0.10	0.16	33	0.28	3.7	3.10	22.0	<.2	<.2	25
	9/19/2007	140	0.54	10.0	57	<.1	<.1	0.6	3.8	0.11	<.1	40	0.25	4.3	3.40	23.0	<.2	<.2	27
	10/17/2007	170	0.56	9.7	62	<.1	<.1	0.5	3.5	0.04	<.1	36	<.2	4.3	3.10	24.0	<.2	<.2	31
	11/19/2007	150	0.54	7.2	57	<.1	<.1	0.4	2.5	0.07	<.1	30	<.1	4.5	3.20	23.0	<.2	<.2	28
	12/19/2007	220	0.5	9.7	55	<.1	<.1	0.8	3.5	0.13	<.1	38	0.30	5.7	3.30	21.0	<.2	<.2	36
LW0.8	1/17/2007	180	0.64	8.9	59	<.1	<.1	0.7	3.5	0.03	<.1	33	<.2	3.8	4.00	19.0	<0.2	<.2	33
	2/21/2007	240	<.50	9.5	60	<.1	<.1	0.8	4.2	0.15	<.1	45	0.32	3.9	3.50	22.0	<0.2	<.2	36
	3/21/2007	170	0.55	11.0	63	<.1	<.1	0.8	1.8	0.12	<.1	46	0.35	4.3	3.60	21.0	<0.2	<.2	38
	4/25/2007	140	0.63	11.0	59	<.1	<.1	0.9	3.7	0.10	<.1	38	0.31	4.5	3.60	19.0	<0.2	<.2	31
	5/23/2007	110	0.54	9.4	57	<.1	<.1	0.7	3.6	0.10	<.1	41	0.29	4.3	3.12	19.0	<.2	<.2	26
	6/20/2007	120	<.50	8.8	52	<.1	<.1	0.7	3.5	0.11	<.1	42	0.22	3.8	2.70	20.0	<.2	<.2	23
	7/16/2007	140	0.53	8.8	56	<.1	<.1	0.8	2.9	0.11	<.1	42	0.30	4.2	2.80	22.0	<.2	<.2	21
	8/22/2007	150	<.50	9.7	54	<.1	<.1	0.6	3.2	0.12	0.14	35	0.33	3.8	3.10	23.0	<.2	<.2	25
	9/19/2007	160	0.61	10.0	59	<.1	<.1	0.6	3.7	0.13	<.1	41	0.29	4.3	3.40	24.0	<.2	<.2	27
	10/17/2007	170	0.54	9.7	59	<.1	<.1	0.5	3.4	0.11	<.1	35	<.2	4.2	3.10	22.0	<.2	<.2	30
	11/19/2007	140	0.55	7.1	57	<.1	<.1	0.4	2.4	0.06	<.1	30	<.2	4.3	3.10	23.0	<.2	<.2	26
	12/19/2007	210	0.52	10.0	57	<.1	<.1	0.7	3.2	0.11	<.1	36	0.27	5.4	3.60	21.0	<.2	<.2	35
*NA = Not Analyzed, ND = Non Detect																			