GROUNDWATER SAMPLING

Well No.: BTNB-R6-PZ-D

Project No.	Y0239-03.B4	Well screened interval (feet) BTOC:	60	80.0	Date: 9/3/2009
Project name:	Doyle Drive Replacement Project				Depth of well (feet) BTOC: 80.0
Location:	San Francisco, CA	Tube inlet placed at (feet) BTOC :		70.0	Well diameter (inches): 2
Sampled and Recorded by:	WKS/RR	Tubing Diameter ID Used:		0.17 inches	Time: 13:25
Weather:	AM Fog	Water Level from rim (feet):		38	
Precip. in past 5 days (inches):	0	3/8-inch OD tubing =		0.25 inch ID	
Water Level Instrument:	Solinst Model 122, s/n 001654-1	1/4-inch OD tubing =		0.17 inch ID	

CALCULATION OF THE WATER VOLUME CONTAINED WITHIN THE LOW-FLOW SYSTEM

70.0 ft. x (0.00708 ft)^2 x π x 28.32 liters/ft^3 + 0.5 L = 0.81 liters of water in tubing and flow cell

min. tubing length (ft.) tubing diameter (ft.) flow cell vol (L)

CALIBRATION	Before Purging	After Purging	Standard
Time:	NA	NA	- -
Temp (°C):	NA	NA	- -
DO	100%	NA	100% 0^2 saturated
NTU:	0.0 / 20.0	NA	0.0 / 20.0
ORP (mV):	231	NA	231
pH:	4.00 / 7.00 /10.00	NA	4.00 / 7.00 /10.00
E C (µmho/cm):	1,000	NA	1,000

FIELD MEASUREMENTS

Time	Water Level from TOC (ft.)	Purge Rate (L / min)	pH	EC (µmho/cm):	ORP (mV):	DO (mg/l):	NTU	Cumulative Purge Vol. Removed (L)	Temp (°C)
1334	39.55	--	8.18	911	245	5.21	33.60	1.0	24.74
1344	39.71	0.10	8.18	877	291	4.20	40.10	2.0	22.35
1354	39.73	0.10	8.19	870	299	3.75	29.70	3.0	21.75
1400	39.73	0.17	8.21	858	304	3.35	18.80	4.0	19.19
1406	40.13	0.17	8.22	855	304	3.26	16.40	5.0	19.1
1413	40.40	0.14	8.23	853	304	3.10	13.10	6.0	18.93
1417	40.40	0.25	8.23	850	304	2.97	12.20	7.0	18.94
1422	40.40	0.20	8.22	850	303.0	2.81	12.19	8.0	18.9

				Laboratory:	C&T
Appearance of sample:	Clear	Sample Time:	14:25		
Duplicate/blank number:	None	Time:	None	Rinsate disposal:	55-gallon drum
Sampling equipment:	Bladder Pump w/clean poly tubing and silicone tubing	Sample analyses:	Refer to Chain of Custody		
		Sample containers:	Refer to Chain of Custody	Decon method:	ASTM 5088-02, (three bucket wash)

BTOC= below top of casing bgs= below ground surface

BASELINE QA/QC Peer Review Completed: PS, 9/18/09

GROUNDWATER SAMPLING

Well No.: BTNB-R7A-PZ-S

Project No.	Y0239-03.B4	Well screened interval (feet) BTOC:	28.5	43.5	Date: 9/3/2009
Project name:	Doyle Drive Replacement Project				Depth of well (feet) BTOC: 43.5
Location:	San Francisco, CA	Tube inlet placed at (feet) BTOC :	38.8		Well diameter (inches): 2
Sampled and Recorded by:	WKS/RR	Tubing Diameter ID Used:	0.17 inches		Time: 8:10
Weather:	AM Fog	Water Level from rim (feet):	34.12		
Precip. in past 5 days (inches):	0	3/8-inch OD tubing =	0.25 inch ID		
Water Level Instrument:	Solinst Model 122, s/n 001654-1	1/4-inch OD tubing =	0.17 inch ID		

CALCULATION OF THE WATER VOLUME CONTAINED WITHIN THE LOW-FLOW SYSTEM

38.8 ft. x (0.00708 ft)^2 x π x 28.32 liters/ft^3 + 0.5 L = 0.67 liters of water in tubing and flow cell

min. tubing length (ft.) tubing diameter (ft.) flow cell vol (L)

CALIBRATION	Before Purging	After Purging	Standard
Time:	NA	NA	- -
Temp (°C):	NA	NA	- -
DO	100%	NA	100% 0^2 saturated
NTU:	0.0 / 20.0	NA	0.0 / 20.0
ORP (mV):	231	NA	231
pH:	4.00 / 7.00 /10.00	NA	4.00 / 7.00 /10.00
E C (µmho/cm):	1,000	NA	1,000

FIELD MEASUREMENTS

Time	Water Level from TOC (ft.)	Purge Rate (L / min)	pH	EC (µmho/cm):	ORP (mV):	DO (mg/l):	NTU	Cumulative Purge Vol. Removed (L)	Temp (°C)
0909	34.80	--	6.68	740	268	2.05	309.00	1.0	17.33
0914	35.01	0.20	6.74	730	256	1.76	156.00	2.0	16.86
0919	35.05	0.20	6.36	725	260	1.71	104.00	3.0	16.69
0924	35.10	0.20	6.34	718	273	1.78	65.00	4.0	16.55
0929	35.11	0.20	6.33	718	278	1.82	47.10	5.0	16.47
0934	35.12	0.20	6.32	719	285	1.77	38.70	6.0	16.4
0939	35.14	0.20	6.30	719	291	1.69	33.40	7.0	16.4
0944	35.18	0.20	6.29	719	300.0	1.64	31.70	8.0	16.38
0949	35.19	0.20	6.28	719	306.0	1.61	30.00	9.0	16.36
0954	35.20	0.20	6.27	721	312.0	1.58	29.21	10.0	16.37

				Laboratory:	C&T
Appearance of sample:	Clear	Sample Time:	10:00		
Duplicate/blank number:	None	Time:	None	Rinsate disposal:	55-gallon drum
Sampling equipment:	Bladder Pump w/clean poly tubing and silicone tubing	Sample analyses:	Refer to Chain of Custody		
		Sample containers:	Refer to Chain of Custody	Decon method:	ASTM 5088-02, (three bucket wash)

BTOC= below top of casing bgs= below ground surface

BASELINE QA/QC Peer Review Completed: PS, 9/18/09

GROUNDWATER SAMPLING

Well No.: BTNB-R7-PZ-D

Project No.	Y0239-03.B4	Well screened interval (feet) BTOC:	50	70	Date: 9/3/2009
Project name:	Doyle Drive Replacement Project				Depth of well (feet) BTOC: 70.0
Location:	San Francisco, CA	Tube inlet placed at (feet) BTOC :	60.0		Well diameter (inches): 2
Sampled and Recorded by:	WKS/RR	Tubing Diameter ID Used:	0.17 inches		Time: 10:53
Weather:	AM Fog	Water Level from rim (feet):	35.65		
Precip. in past 5 days (inches):	0	3/8-inch OD tubing =	0.25 inch ID		
Water Level Instrument:	Solinst Model 122, s/n 001654-1	1/4-inch OD tubing =	0.17 inch ID		

CALCULATION OF THE WATER VOLUME CONTAINED WITHIN THE LOW-FLOW SYSTEM

60.0 ft. x (0.00708 ft)^2 x π x 28.32 liters/ft^3 + 0.5 L = 0.77 liters of water in tubing and flow cell

min. tubing length (ft.) tubing diameter (ft.) flow cell vol (L)

CALIBRATION	Before Purging	After Purging	Standard
Time:	NA	NA	- -
Temp (°C):	NA	NA	- -
DO	100%	NA	100% 0^2 saturated
NTU:	0.0 / 20.0	NA	0.0 / 20.0
ORP (mV):	231	NA	231
pH:	4.00 / 7.00 /10.00	NA	4.00 / 7.00 /10.00
E C (µmho/cm):	1,000	NA	1,000

FIELD MEASUREMENTS

Time	Water Level from TOC (ft.)	Purge Rate (L / min)	pH	EC (µmho/cm):	ORP (mV):	DO (mg/l):	NTU	Cumulative Purge Vol. Removed (L)	Temp (°C)
1112	38.00	--	7.33	934	298	3.08	60.80	1.0	18.85
1118	38.30	0.17	7.74	921	295	1.98	28.80	2.0	18.5
1125	38.71	0.14	7.89	916	296	1.45	17.40	3.0	19.01
1132	38.79	0.14	7.98	913	295	1.21	12.40	4.0	19.32
1143	41.12	0.09	8.05	904	297	0.74	11.30	5.0	19.74
1153	41.25	0.10	8.07	895	299	0.70	11.90	6.0	19.81
1203	41.49	0.10	8.09	882	300	0.69	11.70	7.0	19.94

				Laboratory:	C&T
Appearance of sample:	Clear	Sample Time:	14:25		
Duplicate/blank number:	None	Time:	None	Rinsate disposal:	55-gallon drum
Sampling equipment:	Bladder Pump w/clean poly tubing and silicone tubing	Sample analyses:	Refer to Chain of Custody		
		Sample containers:	Refer to Chain of Custody	Decon method:	ASTM 5088-02, (three bucket wash)

BTOC= below top of casing bgs= below ground surface

BASELINE QA/QC Peer Review Completed: PS, 9/18/09

GROUNDWATER SAMPLING

Well No.: BTSB-R1-PZ

Project No.	Y0239-03.B4	Well screened interval (feet) BTOC:	23.5	33.5	Date: 9/3/2009
Project name:	Doyle Drive Replacement Project				Depth of well (feet) BTOC: 33.5
Location:	San Francisco, CA	Tube inlet placed at (feet) BTOC :	28.5		Well diameter (inches): 2
Sampled and Recorded by:	WKS/RR	Tubing Diameter ID Used:	0.17 inches		Time: 7:15
Weather:	AM Fog	Water Level from rim (feet):	20.92		
Precip. in past 5 days (inches):	0	3/8-inch OD tubing =	0.25 inch ID		
Water Level Instrument:	Solinst Model 122, s/n 001654-1	1/4-inch OD tubing =	0.17 inch ID		

CALCULATION OF THE WATER VOLUME CONTAINED WITHIN THE LOW-FLOW SYSTEM

28.5 ft. x (0.00708 ft)^2 x π x 28.32 liters/ft^3 + 0.5 L = 0.63 liters of water in tubing and flow cell

min. tubing length (ft.) tubing diameter (ft.) flow cell vol (L)

CALIBRATION	Before Purging	After Purging	Standard
Time:	NA	NA	- -
Temp (°C):	NA	NA	- -
DO	100%	NA	100% 0^2 saturated
NTU:	0.0 / 20.0	NA	0.0 / 20.0
ORP (mV):	231	NA	231
pH:	4.00 / 7.00 /10.00	NA	4.00 / 7.00 /10.00
E C (µmho/cm):	1,000	NA	1,000

FIELD MEASUREMENTS

Time	Water Level from TOC (ft.)	Purge Rate (L / min)	pH	EC (µmho/cm):	ORP (mV):	DO (mg/l):	NTU	Cumulative Purge Vol. Removed (L)	Temp (°C)
0755	22.38	--	6.53	1,091	-14.7	1.88	24.3	3.0	16.55
0803	22.38	0.13	6.53	1,091	-10.7	1.69	14.6	4.0	16.46
0805	22.38	0.50	6.52	1,087	-9.3	1.67	13.3	5.0	16.45
0810	22.42	0.40	6.51	1,071	-4.8	1.52	9.7	7.0	16.43
0815	22.42	0.24	6.50	1,060	-2.4	1.41	6.9	8.2	16.43
0820	22.42	0.24	6.49	1,047	0.6	1.27	5.2	9.4	16.43
0825	22.42	0.24	6.49	1,032	3.0	1.14	4.0	10.6	16.43
0830	22.42	0.24	6.49	1,024	4.9	1.05	3.2	11.8	16.45
0835	22.42	0.24	6.49	1,016	6.4	0.98	3.2	13.0	16.45
0840	22.42	0.24	6.46	1,009	7.7	0.94	2.3	14.2	16.46
0845	22.42	0.24	6.48	1,003	9.3	0.91	2.0	15.4	16.49
0850	22.42	0.24	6.49	999	10.7	0.92	2.0	16.6	16.51
0855	22.42	0.24	6.48	994	12.2	0.94	1.8	17.8	16.58
0900	22.42	0.24	6.49	992	13.0	0.94	1.8	19.0	16.57
0905	22.42	0.20	6.48	989	14.0	0.81	1.6	20.0	16.55
0910	22.42	0.40	6.47	985	15.4	0.72	1.5	22.0	16.54
0915	22.42	0.40	6.48	981	16.7	0.68	1.5	24.0	16.54
0920	22.42	0.20	6.48	978	17.5	0.68	1.4	25.0	16.56
0923	22.42	0.20	6.47	976	17.7	0.70	1.4	25.6	16.58

				Laboratory:	C&T
Appearance of sample:	Clear	Sample Time:	9:30		
Duplicate/blank number:	None	Time:	None	Rinsate disposal:	55-gallon drum
Sampling equipment:	Bladder Pump w/clean poly tubing and silicone tubing	Sample analyses:	Refer to Chain of Custody		
		Sample containers:	Refer to Chain of Custody	Decon method:	ASTM 5088-02, (three bucket wash)

BTOC= below top of casing bgs= below ground surface

BASELINE QA/QC Peer Review Completed: PS, 9/18/09

GROUNDWATER SAMPLING

Well No.: RW8-R1-PZ

Project No.	Y0239-03.B4	Well screened interval (feet) BTOC:	25	45.0	Date: 9/3/09-9/4/09
Project name:	Doyle Drive Replacement Project				Depth of well (feet) BTOC: 45.0
Location:	San Francisco, CA	Tube inlet placed at (feet) BTOC :		42.3	Well diameter (inches): 2
Sampled and Recorded by:	WKS/RR	Tubing Diameter ID Used:		0.17 inches	Time: 14:10
Weather:	AM Fog	Water Level from rim (feet):		39.55	
Precip. in past 5 days (inches):	0	3/8-inch OD tubing =		0.25 inch ID	
Water Level Instrument:	Solinst Model 122, s/n 001654-1	1/4-inch OD tubing =		0.17 inch ID	

CALCULATION OF THE WATER VOLUME CONTAINED WITHIN THE LOW-FLOW SYSTEM

42.3 ft. x (0.00708 ft)^2 x π x 28.32 liters/ft^3 + 0.5 L = 0.69 liters of water in tubing and flow cell

min. tubing length (ft.) tubing diameter (ft.) flow cell vol (L)

CALIBRATION	Before Purging	After Purging	Standard
Time:	NA	NA	- -
Temp (°C):	NA	NA	- -
DO	100%	NA	100% 0^2 saturated
NTU:	0.0 / 20.0	NA	0.0 / 20.0
ORP (mV):	231	NA	231
pH:	4.00 / 7.00 /10.00	NA	4.00 / 7.00 /10.00
E C (µmho/cm):	1,000	NA	1,000

FIELD MEASUREMENTS

Time	Water Level from TOC (ft.)	Purge Rate (L / min)	pH	EC (µmho/cm):	ORP (mV):	DO (mg/l):	NTU	Cumulative Purge Vol. Removed (L)	Temp (°C)
1431	40.11	--	6.82	896	65.3	6.01	30.40	1.0	19.49
1439	40.45	0.28	6.70	902	68.0	6.31	22.30	3.2	19.51
1442	40.57	0.10	6.70	903	71.2	6.43	19.50	3.5	19.36
1448	40.91	0.17	6.73	903	73.0	6.74	13.40	4.5	18.83
1451	41.03	0.27	6.75	902	76.7	6.88	15.50	5.3	18.94
	Well Pumped Dry								

				Laboratory:	C&T
Appearance of sample:	Clear	Sample Time:	8:40 (9-4-09)		
Duplicate/blank number:	None	Time:	None	Rinsate disposal:	55-gallon drum
Sampling equipment:	Purge w/Bladder Pump (9/3/09) Sample w/Bailer (9/4/09)	Sample analyses:	Refer to Chain of Custody		
		Sample containers:	Refer to Chain of Custody	Decon method:	ASTM 5088-02, (three bucket wash)

BTOC= below top of casing bgs= below ground surface

BASELINE QA/QC Peer Review Completed: PS, 9/18/09

GROUNDWATER SAMPLING

Well No.: BTSB-R3-PZ-D

Project No.	Y0239-03.B4	Well screened interval (feet) BTOC:	50	70.0	Date: 9/3/2009
Project name:	Doyle Drive Replacement Project				Depth of well (feet) BTOC: 70.0
Location:	San Francisco, CA	Tube inlet placed at (feet) BTOC :	60.0		Well diameter (inches): 2
Sampled and Recorded by:	WKS/RR	Tubing Diameter ID Used:	0.17 inches		Time: 11:00
Weather:	AM Fog	Water Level from rim (feet):	18.09		
Precip. in past 5 days (inches):	0	3/8-inch OD tubing =	0.25 inch ID		
Water Level Instrument:	Solinst Model 122, s/n 001654-1	1/4-inch OD tubing =	0.17 inch ID		

CALCULATION OF THE WATER VOLUME CONTAINED WITHIN THE LOW-FLOW SYSTEM

60.0 ft. x (0.00708 ft)^2 x π x 28.32 liters/ft^3 + 0.5 L = 0.77 liters of water in tubing and flow cell

min. tubing length (ft.) tubing diameter (ft.) flow cell vol (L)

CALIBRATION	Before Purging	After Purging	Standard
Time:	NA	NA	- -
Temp (°C):	NA	NA	- -
DO	100%	NA	100% 0^2 saturated
NTU:	0.0 / 20.0	NA	0.0 / 20.0
ORP (mV):	231	NA	231
pH:	4.00 / 7.00 /10.00	NA	4.00 / 7.00 /10.00
E C (µmho/cm):	1,000	NA	1,000

FIELD MEASUREMENTS

Time	Water Level from TOC (ft.)	Purge Rate (L / min)	pH	EC (µmho/cm):	ORP (mV):	DO (mg/l):	NTU	Cumulative Purge Vol. Removed (L)	Temp (°C)
1138	18.33	--	7.60	714	-65.0	1.80	37.2	1.0	19.93
1145	18.47	0.14	7.10	853	-12.5	0.70	23.5	2.0	19.65
1150	18.61	0.16	7.05	861	6.1	0.58	17.0	2.8	19.50
1156	18.76	0.12	7.00	855	20.4	0.49	13.1	3.5	19.19
1200	18.79	0.13	6.97	850	25.7	0.45	13.3	4.0	19.14
1205	18.85	0.10	6.93	844	29.1	0.42	10.5	4.5	19.14
1210	18.95	0.20	6.92	838	31.5	0.39	9.1	5.5	18.96
1215	19.02	0.14	6.90	835	32.4	0.37	7.8	6.2	18.82
1223	19.11	0.10	6.87	838	36.0	0.35	16.6	7.0	18.6
1230	19.13	0.14	6.87	835	37.0	0.33	7.1	8.0	18.59
1233	19.13	0.10	6.87	834	36.9	0.33	7.7	8.3	18.61
1236	19.09	0.10	6.87	833	37.3	0.32	7.00	8.6	18.68

				Laboratory:	C&T
Appearance of sample:	Clear	Sample Time:	12:46		
Duplicate/blank number:	None	Time:	None	Rinsate disposal:	55-gallon drum
Sampling equipment:	Bladder Pump w/clean poly tubing and silicone tubing	Sample analyses:	Refer to Chain of Custody		
		Sample containers:	Refer to Chain of Custody	Decon method:	ASTM 5088-02, (three bucket wash)

BTOC= below top of casing bgs= below ground surface

BASELINE QA/QC Peer Review Completed: PS, 9/18/09

GROUNDWATER SAMPLING

Well No.: RW8-R1-PZ

Project No.	Y0239-03.B4	Well screened interval (feet) BTOC:	25	45.0	Date: 9/3/09-9/4/09
Project name:	Doyle Drive Replacement Project				Depth of well (feet) BTOC: 45.0
Location:	San Francisco, CA	Tube inlet placed at (feet) BTOC :		42.3	Well diameter (inches): 2
Sampled and Recorded by:	WKS/RR	Tubing Diameter ID Used:		0.17 inches	Time: 14:10
Weather:	AM Fog	Water Level from rim (feet):		39.55	
Precip. in past 5 days (inches):	0	3/8-inch OD tubing =		0.25 inch ID	
Water Level Instrument:	Solinst Model 122, s/n 001654-1	1/4-inch OD tubing =		0.17 inch ID	

CALCULATION OF THE WATER VOLUME CONTAINED WITHIN THE LOW-FLOW SYSTEM

42.3 ft. x (0.00708 ft)^2 x π x 28.32 liters/ft^3 + 0.5 L = 0.69 liters of water in tubing and flow cell

min. tubing length (ft.) tubing diameter (ft.) flow cell vol (L)

CALIBRATION	Before Purging	After Purging	Standard
Time:	NA	NA	- -
Temp (°C):	NA	NA	- -
DO	100%	NA	100% 0^2 saturated
NTU:	0.0 / 20.0	NA	0.0 / 20.0
ORP (mV):	231	NA	231
pH:	4.00 / 7.00 /10.00	NA	4.00 / 7.00 /10.00
E C (µmho/cm):	1,000	NA	1,000

FIELD MEASUREMENTS

Time	Water Level from TOC (ft.)	Purge Rate (L / min)	pH	EC (µmho/cm):	ORP (mV):	DO (mg/l):	NTU	Cumulative Purge Vol. Removed (L)	Temp (°C)
1431	40.11	--	6.82	896	65.3	6.01	30.40	1.0	19.49
1439	40.45	0.28	6.70	902	68.0	6.31	22.30	3.2	19.51
1442	40.57	0.10	6.70	903	71.2	6.43	19.50	3.5	19.36
1448	40.91	0.17	6.73	903	73.0	6.74	13.40	4.5	18.83
1451	41.03	0.27	6.75	902	76.7	6.88	15.50	5.3	18.94
	Well Pumped Dry								

				Laboratory:	C&T
Appearance of sample:	Clear	Sample Time:	8:40 (9-4-09)		
Duplicate/blank number:	None	Time:	None	Rinsate disposal:	55-gallon drum
Sampling equipment:	Purge w/Bladder Pump (9/3/09) Sample w/Bailer (9/4/09)	Sample analyses:	Refer to Chain of Custody		
		Sample containers:	Refer to Chain of Custody	Decon method:	ASTM 5088-02, (three bucket wash)

BTOC= below top of casing bgs= below ground surface

BASELINE QA/QC Peer Review Completed: PS, 9/18/09