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CITY OF OAKLAND



DALZIEL BUILDING • 250 FRANK H. OGAWA PLAZA, SUITE 5301 • OAKLAND, CALIFORNIA 94612-2034

Public Works Agency
Environmental Services

FAX (510) 238-7286
TDD (510) 238-7644

November 6, 2009

Mr. Paresh Khatri
Hazardous Materials Specialist
Alameda County- Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

Re: Revised Groundwater Monitoring Schedule- Fuel Leak Case No. RO0000293-7101
Edgewater Drive, Municipal Service Center, Oakland, CA

Dear Mr. Khatri:

Thank you very much for our meeting on October 7, 2009 related to the above referenced project. Based on our discussions, we have reviewed the groundwater monitoring program, and have revised the sampling schedule. The recommendations for the revised sampling schedule are based on the contaminants concentrations, the site history, and the well locations.

Please see the attached table (Table 1) showing the revised monitoring schedule. It shows the proposed groundwater monitoring schedule for the sampling events in March 2010, September 2010, and September 2011 (annual) and thereafter. I have also attached a well location map as well as the existing monitoring schedule (Table 2) for comparison. Groundwater elevation and floating product (if any) measurements will be continued at all well locations, including the locations proposed for reduction in groundwater sampling and analysis. I request you to review and approve this revised monitoring plan.

If you have any questions, or would like additional information, please call me at (510) 238-6361.

Sincerely,

Gopal Nair
Environmental Specialist

cc: Charles Pardini, LFR, Inc. (sent via email)

Table 1 - Revised Well Sampling Schedule and Protocol

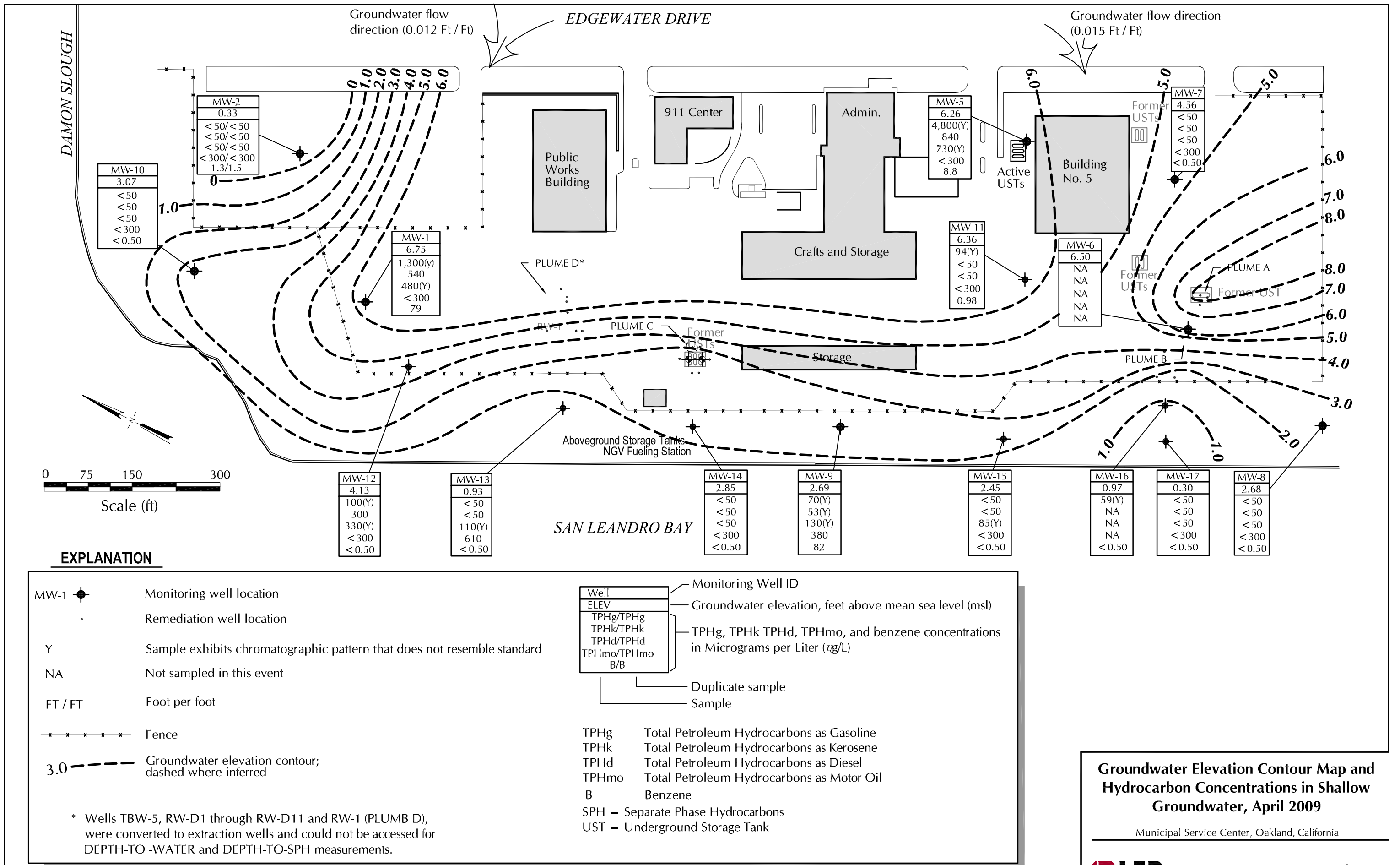
City of Oakland Municipal Services Center

Well ID	Sampling Frequency			Elevation	Parameters to be Monitored								Notes
	March-2010 semi-annual	Sept-2010 semi-annual	Sept-2011 annual thereafter		Floating Product Thickness	pH	Dissolved Oxygen	Temp.	Specific Conduct.	TPH gas BTEX & MTBE	TPH d/k/mo		
MW-1	X	gauge only	X	X	X	X	X	X	X	X	X	benzene at 79 ug/L in April 09; interior well	
MW-2	gauge only	gauge only	gauge only	X	X							up/cross gradient well, benzene <2 ug/L since 07	
MW-3	closed/destroyed												
MW-4	closed/destroyed												
MW-5	X	gauge only	X	X	X	X	X	X	X	X	X	TPH-g still over 2,000 ug/L; near active USTs	
MW-6	gauge only	X	X	X	X	X	X	X	X	X	X	0.03" free-phase product in April 09	
MW-7	gauge only	gauge only	gauge only	X	X							upgradient well, only MTBE around 2 ug/L since 06	
MW-8	gauge only	gauge only	gauge only	X	X							ND for all constituents since Sept 02	
MW-9	X	X	X	X	X	X	X	X	X	X	X	benzene still at 82 ug/L in April 09; perimeter/sentinel well	
MW-10	X	gauge only	X	X	X	X	X	X	X	X	X	ND for everything except benzene around 10 ug/L since 08	
MW-11	gauge only	gauge only	gauge only	X	X							interior/upgradient well, only benzene around 5 ug/L since 05	
MW-12	X	gauge only	gauge only	X	X	X	X	X	X	X	X	TPH-g around 150 ug/L, benzene ND (<0.5) since 2002	
MW-13	X	X	X	X	X	X	X	X	X	X	X	only TPH-d around 100 ug/L, TPH-mo 600 ug/L since 06; perimeter/sentinel well	
MW-14	X	X	X	X	X	X	X	X	X	X	X	all ND in April 09, but TPHmo at 660 ug/l in Nov 08; perimeter/sentinel well	
MW-15	gauge only	gauge only	gauge only	X	X	X	X	X	X	X	X	only TPH-d around 100 ug/L since Sept 02; benzene ND since 04	
MW-16	gauge only	gauge only	gauge only	X	X							often dry/no water, MW-17 directly downgradient as sentinel well	
MW-17	X	gauge only	X	X	X	X	X	X	X	X	X	ND for all since 02, but directly downgradient of Plume B; perimeter/sentinel well	
MW-18	gauge only	gauge only	gauge only	X	X							not located since 2003, seach & apply for closure in 2010	
TBW-1	closed/destroyed												
TBW-2	closed/destroyed												
TBW-3	closed/destroyed												
TBW-4	closed/destroyed												
TBW-5	gauge only	gauge only	gauge only	X	X							remediation well	
TBW-6	gauge only	gauge only	gauge only	X	X							excavation backfill well	
RW-A1	gauge only	gauge only	gauge only	X	X							remediation well	
RW-A2	gauge only	gauge only	gauge only	X	X							remediation well	
OB-A1	gauge only	gauge only	gauge only	X	X							remediation observation well	
RW-B1	gauge only	gauge only	gauge only	X	X							remediation well	
RW-B2	gauge only	gauge only	gauge only	X	X							remediation well	
RW-B3	gauge only	gauge only	gauge only	X	X							remediation well	
RW-B4	gauge only	gauge only	gauge only	X	X							remediation well	
RW-C1	gauge only	gauge only	gauge only	X	X							remediation well	
RW-C2	gauge only	gauge only	gauge only	X	X							remediation well	
RW-C3	gauge only	gauge only	gauge only	X	X							remediation well	
RW-C4	gauge only	gauge only	gauge only	X	X							remediation well	
RW-C5	gauge only	gauge only	gauge only	X	X							remediation well	
RW-C6	gauge only	gauge only	gauge only	X	X							remediation well	
RW-C7	gauge only	gauge only	gauge only	X	X							remediation well	
OB-C1	gauge only	gauge only	gauge only	X	X							remediation observation well	
RW-D1	gauge only	gauge only	gauge only	X	X							remediation well	
RW-D2	gauge only	gauge only	gauge only	X	X							remediation well	
RW-D3	gauge only	gauge only	gauge only	X	X							remediation well	
RW-D4	gauge only	gauge only	gauge only	X	X							remediation well	
RW-D5	gauge only	gauge only	gauge only	X	X							remediation well	
RW-D6	gauge only	gauge only	gauge only	X	X							remediation well	
RW-D7	gauge only	gauge only	gauge only	X	X							remediation well	
RW-D8	gauge only	gauge only	gauge only	X	X							remediation well	
RW-D9	gauge only	gauge only	gauge only	X	X							remediation well	
RW-D10	gauge only	gauge only	gauge only	X	X							remediation well	
RW-D11	gauge only	gauge only	gauge only	X	X							remediation well	
RW-1	gauge only	gauge only	gauge only	X	X							remediation well	
OB-D1	gauge only	gauge only	gauge only	X	X							remediation observation well	
OB-D2	gauge only	gauge only	gauge only	X	X							remediation observation well	
Notes:													
gauge only = measure groundwater elevation and floating product thickness only													
TPH d/k/mo = total petroleum hydrocarbons as diesel, kerosene, and motor oil after silica gel cleanup.													
an "X" in the column means the well will be sampled.													

Table 2 - Existing Well Sampling Schedule and Protocol as of October 2009

City of Oakland Municipal Services Center

Well ID	Monitoring Schedule		Parameters to be Monitored							
	March	September	Elevation	Floating	pH	Dissolved	Temp.	Specific	TPH gas	TPH
				Product		Oxygen		Conduct.	BTEX &	d/k/mo
			Thickness					MTBE		
MW-1	X	X	X	X	X	X	X	X	X	X
MW-2	X	gauge only	X	X	X	X	X	X	X	X
MW-3	closed/destroyed									
MW-4	closed/destroyed									
MW-5	X	X	X	X	X	X	X	X	X	X
MW-6	X	X	X	X	X	X	X	X	X	X
MW-7	X	gauge only	X	X	X	X	X	X	X	X
MW-8	X	X	X	X	X	X	X	X	X	X
MW-9	X	X	X	X	X	X	X	X	X	X
MW-10	X	X	X	X	X	X	X	X	X	X
MW-11	X	gauge only	X	X	X	X	X	X	X	X
MW-12	X	X	X	X	X	X	X	X	X	X
MW-13	X	X	X	X	X	X	X	X	X	X
MW-14	X	X	X	X	X	X	X	X	X	X
MW-15	X	X	X	X	X	X	X	X	X	X
MW-16	X	X	X	X	X	X	X	X	X	X
MW-17	X	X	X	X	X	X	X	X	X	X
MW-18	gauge only	gauge only	X	X						
TBW-1	gauge only	gauge only	X	X						
TBW-2	gauge only	gauge only	X	X						
TBW-3	gauge only	gauge only	X	X						
TBW-4	gauge only	gauge only	X	X						
TBW-5	gauge only	gauge only	X	X						
TBW-6	gauge only	gauge only	X	X						
RW-A1	gauge only	gauge only	X	X						
RW-A2	gauge only	gauge only	X	X						
OB-A1	gauge only	gauge only	X	X						
RW-B1	gauge only	gauge only	X	X						
RW-B2	gauge only	gauge only	X	X						
RW-B3	gauge only	gauge only	X	X						
RW-B4	gauge only	gauge only	X	X						
RW-C1	gauge only	gauge only	X	X						
RW-C2	gauge only	gauge only	X	X						
RW-C3	gauge only	gauge only	X	X						
RW-C4	gauge only	gauge only	X	X						
RW-C5	gauge only	gauge only	X	X						
RW-C6	gauge only	gauge only	X	X						
RW-C7	gauge only	gauge only	X	X						
OB-C1	gauge only	gauge only	X	X						
RW-D1	gauge only	gauge only	X	X						
RW-D2	gauge only	gauge only	X	X						
RW-D3	gauge only	gauge only	X	X						
RW-D4	gauge only	gauge only	X	X						
RW-D5	gauge only	gauge only	X	X						
OB-D1	gauge only	gauge only	X	X						
OB-D2	gauge only	gauge only	X	X						
Notes:										
gauge only = measure groundwater elevation and floating product thickness only										
TPH d/k/mo = total petroleum hydrocarbons as diesel, kerosene, and motor oil after silica gel cleanup.										



Groundwater Elevation Contour Map and Hydrocarbon Concentrations in Shallow Groundwater, April 2009
 Municipal Service Center, Oakland, California

Source: CAMBRIA
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