

## Nowell, Keith, Env. Health

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**From:** Nowell, Keith, Env. Health  
**Sent:** Wednesday, June 06, 2018 9:24 AM  
**To:** 'Casey Satkowski (Casey.Satkowski@Waterboards.ca.gov)'  
**Cc:** 'Sheehan, Caryl@Waterboards'; Roe, Dilan, Env. Health (Dilan.Roe@acgov.org); Khatri, Paresh, Env. Health  
**Subject:** ECAP case RO271- Exxon, 3055 35th Ave., Oakland, GeoTracker Global ID T0600100538  
**Attachments:** RO271\_Well\_Matrix\_2018-06-06.pdf

Casey,

I'm in the process of getting together with Dilan to arrange time for a conference call prior to a JET meeting. Meanwhile I've constructed a table included as an attachment consisting of data from the on-site monitoring and remediation wells. The table summarizes distribution of contamination at each well location and indicates if the well screen interval appears to intersect more than one groundwater bearing zone. By destroying the wells screened across more than one zone, monitoring the single-zone wells may permit testing the hypothesis put forward by Weber Hayes with regard to cross-zone contamination.

I spoke with Weber Hayes last week regarding this approach. All the wells reviewed at that point intersected more than one zone and would be flagged for destruction- if based solely on screening criteria. However, wells RW- 10 through RW-14 appear to be screened only in the upper water bearing zone and might be appropriate for verification monitoring. Unfortunately, none of the wells are in the downgradient vicinity of MW-3 and MW-4.

At a minimum this will provide a basis for discussion at the next JET meeting.

Regards,  
Keith

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Well Screen    Screen Encountered

Shallow GW (<20')

Deep GW (>20')

Well set in low perm zone?  
Notes/ observations

Retain or  
Replace Well

Well	Screen Encountered		Shallow GW (<20')	Deep GW (>20')	Well set in low perm zone? Notes/ observations	Retain or Replace Well
MW-1	Screen Encountered		Y	Y	Y- CLAYEY SILT;	
(10-25)	Soil Samples	TPH(g+d)	38 MG/KG @ 11' 442 MG/KG @ 15'	----	Moderate to strong HC odor 10-23'	
		B	<10 MG/KG @ 11' <10 MG/KG @ 15'	----		
		EB	0.014 MG/KG @ 11' 6.1 MG/KG @ 15'	----		
		Naphthalene	----	----		
		PID	NONE	NONE	----	
	GW	B	1,100 TO 1,700 ug/L			
	([ ] range past 2 yrs)	EB	<0.16 TO 16 ug/L			
		Naphthalene	----			
	DTW (FT. BGS)		10.52 to26.55			
MW-2	Screen Encountered		Y	Y	Y- CLAYEY SILT	
(10-25)	Soil Samples	TPH(g+d)	427 MG/KG @ 11' 3,350 MG/KG @ 15'	N	strong HC odor 9-25'	
		B	<10 MG/KG @ 11' <100 MG/KG @ 15'	----	HC sheen on soil 15 to 22 feet	
		EB	<0.25 MG/KG @ 11' 41 MG/KG @ 15'	----		
		Naphthalene	----	----		
		PID	NONE	NONE	----	
	GW	B	440 TO 700 ug/L			
	([ ] range past 2 yrs)	EB	13 TO 33 ug/L			
		Naphthalene	----			
	DTW (FT. BGS)		9.15 to 24.45			

Well Screen	Screen Encountered	Shallow GW (<20')	Deep GW (>20')	Well set in low perm zone? Notes/ observations	Retain or Replace Well
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MW-3	Screen Encountered		Y	Y	Y- CLAYEY SILT (1-foot above SM)
(10-25)	Soil Samples	TPH(g+d)	31.7 MG/KG @ 11' 770 MG/KG @ 15'	N	very strong HC odor 12 to 22'
		B	<10 MG/KG @ 11' <500 MG/KG @ 16'	----	sheen 13 to 26.5'
		EB	0.014 MG/KG @ 11' 6.1 MG/KG @ 15'	----	
		Naphthalene	----	----	
	PID		NONE	NONE	----
	GW ([ ] range past 2 yrs)	B	4,400 TO 4,500 ug/L		
		EB	230 TO 320 ug/L		
		Naphthalene	----		
	DTW (FT. BGS)		7.90 to 24.65		
MW-4	Screen Encountered		Y	Y	---: SANDY CLAYEY SILT
(10-30)	Soil Samples	TPH(g+d)	126 MG/KG @ 11' 680 MG/KG @ 15'	N	
		B	0.24 MG/KG @ 11' 5.1 MG/KG @ 15'	----	
		EB	0.7 MG/KG @ 11' 8.4 MG/KG @ 15'	----	
		Naphthalene	----	----	
	PID		NONE	NONE	----
	GW ([ ] range past 2 yrs)	B	1,500 TO 2,300 ug/L		
		EB	47 TO 78 ug/L		
		Naphthalene	----		
	DTW (FT. BGS)		7.52 to 23.45		

Well Screen Screen Encountered

Shallow GW (<20')

Deep GW (>20')

Well set in low perm zone?  
Notes/ observations

Retain or  
Replace Well

Well	Screen Encountered		Shallow GW (<20')	Deep GW (>20')	Well set in low perm zone? Notes/ observations	Retain or Replace Well
RW-5 (5-25.5)	Screen Encountered		Y	Y	Silty Clay (CL-ML)	
	Soil Samples	TPH(g+d)	----	----		
		B	----	----		
		EB	----	----		
		Naphthalene	----	----		
	PID		NONE	NONE		
	GW ([ ] range past 2 yrs)	B	<0.16 to 1.2 ug/L			
		EB	<0.20 to <0.50			
		Naphthalene	----			
	DTW (FT. BGS)		0.40 to 25.55			
RW-6 (5-25.5)	Screen Encountered		Y	Y	N- Gravel	
	Soil Samples	TPH(g+d)	----	----		
		B	----	----		
		EB	----	----		
		Naphthalene	----	----		
	PID		NONE	NONE		
	GW ([ ] range past 2 yrs)	B	1.3 ug/L			
		EB	<0.20			
		Naphthalene	----			
	DTW (FT. BGS)		5.85 to 18.46			

Well Screen	Screen Encountered		Shallow GW (<20')	Deep GW (>20')	Well set in low perm zone? Notes/ observations	Retain or Replace Well
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RW-7 (5-29.5)	Screen Encountered		Y	Y	N- Clayey Sand (SC)- fine to medium Sand	
	Soil Samples	TPH(g+d)	----	----		
		B	----	----		
		EB	----	----		
		Naphthalene	----	----		
	PID		NONE	NONE		
	GW ([ ] range past 2 yrs)	B	<0.16 ug/L			
		EB	<0.20			
		Naphthalene	----			
	DTW (FT. BGS)	5.75 to 18.98				
RW-8 (5-29.5)	Screen Encountered		Y	Y	Y- Clay (CL)	
	Soil Samples	TPH(g+d)	----	----	Strong HC odor: 10 to 25 feet	
		B	----	----		
		EB	----	----		
		Naphthalene	----	----		
	PID		NONE	NONE		
	GW ([ ] range past 2 yrs)	B	<0.16 ug/L			
		EB	<0.20			
		Naphthalene	----			
	DTW (FT. BGS)	7.88 to 19.74				

Well Screen	Screen Encountered		Shallow GW (<20')	Deep GW (>20')	Well set in low perm zone? Notes/ observations	Retain or Replace Well
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RW-9	Screen Encountered		Y	Y	N- Clayey Gavel (GC)	
(5-25)	Soil Samples	TPH(g+d)	----	----	Strong HC odor: 10 to 20 feet	
		B	----	----		
		EB	----	----		
		Naphthalene	----	----		
	PID		NONE	NONE		
	GW ([ ] range past 2 yrs)	B	<0.16 to 120 ug/L			
		EB	<0.20 to <0.50			
		Naphthalene	----			
	DTW (FT. BGS)	7.63 to 24.88				
RW-10	Screen Encountered		Y	N	Y- Sandy Clay	Retain
(5-25)	Soil Samples	TPH(g+d)	----	----	Strong HC odor at 8 feet	
		B	----	----		
		EB	----	----		
		Naphthalene	----	----		
	PID		NONE	NONE		
	GW ([ ] range past 2 yrs)	B	<0.16			
		EB	<0.20			
		Naphthalene	----			
	DTW (FT. BGS)	6.32 to 19.39				

Well Screen	Screen Encountered	Shallow GW (<20')	Deep GW (>20')	Well set in low perm zone? Notes/ observations	Retain or Replace Well
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RW-11 (5-25)	Screen Encountered	Y	N	Y- Clayey Sand	Retain
	Soil Samples	TPH(g+d) -----	-----	Strong HC odor at 5 feet & 25 feet	
		B -----	-----		
		EB -----	-----		
		Naphthalene -----	-----		
	PID	NONE	NONE		
	GW ( [ ] range past 2 yrs)	B	<0.16		
		EB	<0.20		
		Naphthalene	-----		
	DTW (FT. BGS)	5.70 to 18.44			
RW-12 (5-27)	Screen Encountered	Y	N	Y- Clayey Sand	Retain
	Soil Samples	TPH(g+d) -----	-----	Strong HC odor at 10 feet	
		B -----	-----		
		EB -----	-----		
		Naphthalene -----	-----		
	PID	NONE	NONE		
	GW ( [ ] range past 2 yrs)	B	<0.16		
		EB	<0.20		
		Naphthalene	-----		
	DTW (FT. BGS)	6.35 to 19.09			

Well Screen	Screen Encountered	Shallow GW (<20')	Deep GW (>20')	Well set in low perm zone? Notes/ observations	Retain or Replace Well
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RW-13 (10-25)	Screen Encountered		Y	N	Y- Clayey Sand	Retain
	Soil Samples	TPH(g+d)	----	----	Strong HC odor at 15 & 25 feet	
		B	----	----		
		EB	----	----		
		Naphthalene	----	----		
	PID		NONE	NONE		
	GW ( [ ] range past 2 yrs)	B	<0.16 to 1.2 ug/L			
		EB	<0.20 to <0.5			
		Naphthalene	----			
	DTW (FT. BGS)					
RW-14 (5-25)	Screen Encountered		Y	N	Y- Sandy Clay	Retain
	Soil Samples	TPH(g+d)	----	----	Strong HC odor at 10 feet	
		B	----	----		
		EB	----	----		
		Naphthalene	----	----		
	PID		NONE	NONE		
	GW ( [ ] range past 2 yrs)	B	1.2 to 7.7 ug/L			
		EB	<0.50 to 2.9 ug/L			
		Naphthalene	----			
	DTW (FT. BGS)	6.32 to 19.39				