AP - 001

GENERAL CORRESPONDENCE

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AP001

Environmental
Resources
Management

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October 10, 2008

Mr. Glen Von Gonten
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

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Subject: Former Brickland Refinery, Sunland Park, NM
Modification of Sampling Program Project No. 0085439

Dear Mr. Von Gonten,

We would like to request a modification to the sampling program being conducted at the former Brickland Refinery site. A review of the historical analytical results indicates that some parameters are not detected, are naturally occurring, or would have individually met closure criteria some time ago. In particular, we find that the poly-aromatic hydrocarbons (PAHs) and metals suites of analyses both should be eliminated from the current sampling list. Below is a discussion of our evaluations and the rationale for the elimination of these parameters from the sampling program:

Poly-Aromatic Hydrocarbons (PAH)
During the most recent 6 years of groundwater monitoring, no PAH compounds have been detected in groundwater. This vast amount of sampling data shows that groundwater is not affected by PAH compounds. The PAH compounds would have met the Abatement Plan criteria for termination of abatement and monitoring several years ago.

Metals
During the most recent six years of sampling, 62 samples have been collected for analysis of metals. The analytical list includes 20 metals, many of which are not typically associated with crude oil refining. We have reviewed analytical results for these metals and find that, for most, there is little technical rationale for continued analysis. The attached Table 1 shows a summary of results, with numbers of samples below detection limits, numbers of samples detected but below NMWQCC Standards, and number of samples detected above NMWQCC Standards. Table 2 presents the same information, but is sorted by ranking. We have categorized them by the following:

Category 1: Metals that have not been detected above detection limits. The following metals fall under Category 1: Antimony, Cadmium, and Nickel.

Category 2: Metals that have been detected above detection limits but below NMWQCC Standards. The following metals fall under Category 2: Arsenic, Barium, Beryllium, Chromium, Copper, Mercury, Molybdenum, Silver, Thallium, and Zinc.

Category 3a: Metals that have been detected above the Standard, but only in river water samples. The following metals fall under Category 3a: Aluminum, appearing in both upstream and downstream river water. Because it was noted in upstream river water, it is regarded as a background metal and not a result of on-site conditions. It should be noted that Aluminum also appears in recent field blanks, indicating an

airborne source that potentially can affect all samples with a false positive indication.

Category 3b: Metals that have been detected above the Standard once or twice in a past event but have been below detection limits in all subsequent sampling events. The following metals fall under Category 3b: Cobalt, Lead, Selenium. Cobalt has been detected in groundwater twice, with only one exceedence of the Standard in 2002, and has been below detection limits since that time. Lead has been detected above the standard once in 2004, and has been below detection limits since that time. Selenium has been detected eight times with a single past exceedence of the Standard in each of two wells. Exceedences of the Standard were noted in MW-6s (0.099 mg/L in 2002) and MW-7 (0.090 mg/L in 2002). Selenium concentrations have been below detection limits in both wells since that time.

Category 4: Numerous detections above the Standard. The following metals fall under Category 4: Boron, Iron, and Manganese. Iron and Manganese are known to occur naturally in the groundwater, and data from MW-12 (the upgradient background well) collected in 1994 show both Fe and Mn present in groundwater at concentrations similar to present conditions. This data was presented to the NMOCD in Table 16 of the *Final Site Investigation Report for the Former Brickland Refinery Site, Stage 1 Abatement Plan*, on June 20, 1996. Because Fe and Mn appear in groundwater samples from an upgradient well, they are judged to be naturally-occurring background constituents. Boron data was not available for MW-12.

The approved Stage 2 Abatement Plan does not specifically discuss the criteria to allow termination of abatement and monitoring activities for metals in groundwater, however, the results of the past six years of monitoring indicate that the metals would either meet the same termination criteria used for hydrocarbons, or are naturally occurring and should not be included in a monitoring program. We propose that metals under category 1, 2, 3a, and 3b be deleted from the monitoring list. We further recommend that Fe and Mn be eliminated from the groundwater monitoring list because these constituents are naturally-occurring and appear in upgradient well samples. Finally, because there is no background data on Boron, we propose to sample MW-12 for Boron at the next sampling event, and thereby evaluate if it is naturally-occurring in groundwater.

Conclusions

We conclude that PAHs and metals should be removed from the groundwater monitoring program. Boron will be analyzed in MW-12 and re-evaluated at the next sampling event. We trust you will agree that continued monitoring of these parameters is an inefficient use of resources.

Best regards,

Environmental Resources Management

Brad Stokes, P.G.

Attachment

CC: Ronald Keichline, Huntsman

Table 1
Historical Metals Review - 2002 to 2007 by Metal
Huntsman Brickland Refinery, Sunland Park New Mexico

Ranking	Metal	NMWQCC Standard	# Samples	# < Detect	# >Detect <Standard	# > Standard	Highest Concentration	Notes
3a	Aluminum	5	62	29	25	8	3.04	Highest concentration in GW is 3.04, all exceedences are in river water, detected in blanks.
1	Antimony	NA	62	62	0	0	ND	
2	Arsenic	0.1	62	51	11	0	0.053	
2	Barium	1	61	12	49	0	0.78	
2	Beryllium	NA	62	54	8	NA	0.006	
4	Boron	0.8	62	4	10	48	3.1	
1	Cadmium	0.01	62	62	0	0	ND	
2	Chromium	0.05	62	61	1	0	0.014	
3b	Cobalt	0.05	62	60	1	1	0.11	Exceedance in MW-14 on 8/02, nondetect since then.
2	Copper	1	62	49	13	0	0.31	
4	Iron	1	62	1	4	57	12	
3b	Lead	0.05	62	55	6	1	0.19	Exceedence in MW-7 in 2004, nondetect since then.
4	Manganese	0.2	62	3	2	57	7.2	
2	Mercury	0.002	42	41	1	0	0.00045	
2	Molybdenum	1.0	62	48	14	0	0.041	
1	Nickel	0.2	62	62	0	0	ND	
3b	Selenium	0.05	62	52	8	2	0.099	Exceedances in MW-6s (0.099 in 2002) and MW-7 (0.090 in 2002), both nondetect since then.
2	Silver	0.05	62	61	1	0	0.036	
2	Thallium	NA	62	61	1	NA	0.17	
2	Zinc	10	62	58	4	0	0.11	Two of the detected samples were from river water in 2007.

1 Not detected
2 Detected but below standard, or no standard
3a Detected above standard, no GW exceedences, only in river water
3b Detected above standard, few exceedences, nondetect since
4 Many above standard
ND Not detected

Table 2
Historical Metals Review - 2002 to 2007 by Ranking
Huntsman Brickland Refinery, Sunland Park New Mexico

Ranking	Metal	NMWQCC Standard	# Samples	# < Detect	# >Detect <Standard	# > Standard	Highest Concentration	Notes
1	Antimony	NA	62	62	0	0	ND	
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2	Chromium	0.05	62	61	1	0	0.014	
2	Copper	1	62	49	13	0	0.31	
2	Mercury	0.002	42	41	1	0	0.00045	
2	Molybdenum	1.0	62	48	14	0	0.041	
2	Silver	0.05	62	61	1	0	0.036	
2	Thallium	NA	62	61	1	NA	0.17	
2	Zinc	10	62	58	4	0	0.11	Two of the detected samples were from river water in 2007
3a	Aluminum	5	62	29	25	8	3.04	Highest concentration in GW is 3.04, all exceedences are in river water, detected in blanks
3b	Cobalt	0.05	62	60	1	1	0.11	Exceedence in MW-14 on 8/02, nondetect since then.
3b	Lead	0.05	62	55	6	1	0.19	Exceedence in MW-7 in 2004, nondetect since then.
3b	Selenium	0.05	62	52	8	2	0.099	Exceedences in MW-6s (0.099 in 2002) and MW-7 (0.090 in 2002), both nondetect since then
4	Boron	0.8	62	4	10	48	3.1	
4	Iron	1	62	1	4	57	12	
4	Manganese	0.2	62	3	2	57	7.2	

1 Not detected
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3a Detected above standard, no GW exceedences, only in river water
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ND Not detected