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October 23, 2007

Kleinfelder Project No. 84679
File No.: 84679.3-ALB07LT001

Giant Refining Company
Ciniza Refinery
Route 3, Box 7
Gallup, NM 87301
Attn: Mr. Jim Lieb

Subject: Response to Notice of Disapproval
Monitoring Well Installation Report
Ciniza Refinery
Jamestown, New Mexico

Dear Mr. Lieb:

Kleinfelder West, Inc. (Kleinfelder) has reviewed the Notice of Disapproval letter issued by the New Mexico Environment Department (NMED) Hazardous Waste Bureau (HWB) dated October 15, 2007 in response to Kleinfelder's Monitoring Well Installation Report dated August 7, 2007.

In reviewing the NMED-HWB's October 15, 2007 disapproval letter and comparing it to their March 23, 2007 and June 4, 2007 work plan approval letters, there appears to be significant differences in what was required and approved (March and June letters) and what was expected (October letter). The March 23 letter states "the purpose of the installation of the wells was to evaluate for the presence of contaminates at the NAPIS." Petroleum hydrocarbon concentrations were observed in samples collected wells installed in June 2007.

As stated in the March 2007 HWB letter, and Kleinfelder's approved work plan, shallow wells KA-1 and KA-2 were installed to intersect the base of the NAPIS, with a screened-interval of 5 -10 feet below grade and the deeper well, KA-3, was installed to intersect the Chinle Formation. The October 2007 disapproval letter was the first time discussions of installation of KA-3 in dry strata was mentioned.

In water level measurements from June 21, 2007, nine to ten days after well installation, depth to water ranged from 8.22 (KA-1) to 8.5 (KA-3) to 8.54 (KA-2) feet below ground surface. This indicates that the deep and shallow screened intervals are hydraulically connected. The wells, as constructed, give an accurate documentation of groundwater

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conditions upgradient, downgradient, and at different vertical depths in the vicinity of the NAPIS.

A comparison of what was stated in the March 23, June 4, and October 15, 2007 NMED-HWB letters, Kleinfelder's May 24, 2007 work plan and August 7, 2007 report is included in the attached Table 1. Also included in Table 1 is a more detailed Kleinfelder response to the NMED-HWB Comments 4 and 5 in the October 15 letter.

Kleinfelder has also prepared the following responses to the itemized comments:

Comment 1:

"In future reports, the Permittee must compare soil analytical results to the New Mexico Soil Screening Levels (NMSSLs) found on the Hazardous Waste Bureau's (HWB) website: http://www.nmenv.statenmns/hwb/guidance.html. Soil and groundwater diesel range organic (DRO) analytical results must be compared to NMED's guidance document New Mexico Environment Department TPH Screening Guidelines posted on the same web address. Groundwater analytical results must be compared to the lower of the Water Quality Control Commission (WQCC) standards or EPA's maximum contaminant levels (MCLs). The EPA Region VI Human Health Medium-Specific Screening Levels (Region VI) for Tap Water must be applied if a WQCC standard or MCL has not been established for a compound."

Kleinfelder Response: The attached soil and groundwater sample analytical result tables (Tables 2 and 3, respectively) have been revised to compare to the appropriate referenced standards.

Comment 2:

"The Permittee states in Section 2.2 (Monitoring Well Installation and Groundwater Sampling) on page 4, paragraph 4 that '[t]he temperature, specific conductivity, and pH were measured and logged at regular intervals using a YSI-556 water quality meter. These recorded values are included with the field notes in Appendix B.'

The Permittee must submit the water quality parameters in tabular format. Appendix B made reference to the collection of water quality parameters but the values were not included."

Kleinfelder Response: The water quality parameters logged with the YSI-556 meter were inadvertently omitted and are attached.

Comment 3:

"In Section 2.3 (Site Survey), the Permittee discusses "Investigation Derived Waste Management" for soil but does not identify what laboratory analyses were conducted for the soil samples, nor does it address disposal of water.

The New Mexico Oil Conservation Division (OCD) must approve disposal of soil in an OCD - approved landfarm, All wastewater generated during monitoring well installation and sampling activities must be placed in the refinery wastewater treatment system, upgradient of the NAPIS.

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In addition, the Permittee must also identify what analytical methods were performed on soils to determine disposal options.

Investigation-Derived Waste Management described in Appendix A of the Work Plan for Monitoring Well Installation states "[s]oil borings identified through field-screening procedures as containing 100 ppm or greater volatile organic compounds (VOCs) will be placed in 55-gallon drums and disposed of at a regulated disposal facility." The use of a photo ionization detector to determine which soils are to be placed in a 55-gallon drum for disposal is not appropriate and also does not account for soils containing heavy end contaminants such as diesel range organics (DRO). In the future, field screening cannot be the only method for determining how soils will be disposed."

Kleinfelder Response: Water generated during well development and well sampling was discharged to an impervious surface and allowed to evaporate, as discussed in Kleinfelder's approved May 24, 2007 work plan.

All soil cuttings generated during boring installation were drummed pending determination of disposal options. The ten individual soil samples collected for characterization (Table 2) are a conservative concentration summary of the soil cuttings. A letter with the laboratory results will be prepared and submitted to OCD requesting permission to dispose of the drill cuttings at Ciniza's landfarm.

Comment 6:

"Based on the information provided in this Report, it appears the NAPIS is leaking. Shallow groundwater generally flows in a west-northwest direction at this location. The groundwater chemical analytical results obtained from monitoring well KA-1 located on the upgradient side (east) of the NAPIS did not indicate the presence of contamination. However, the groundwater chemical analytical results from monitoring wells KA-2 and KA-3 located on the downgradient side (west) of the NAPIS indicated the presence of benzene, toluene, ethylbenzene, xylenes (BTEX), DRO and gasoline range organics (GRO). Based on the information provided in the Report and upon the installation of the replacement monitoring wells, the Permittee must implement the following:

a. *Monitor and collect groundwater samples from replacement monitoring wells for KA-1 and KA-2 within two weeks, one month, three months, and quarterly thereafter from the date of completion of well development.*

b. *The initial sampling event must include laboratory analyses of groundwater samples collected from KA-1 and KA-2 replacement wells for VOCs using EPA Method 8260, semi-volatile organic compounds (SVOCs) using EPA Method 8310, GRO, DRO extended, and RCRA metals. The following sampling events must include chemical analyses of water samples for BTEX plus methyl tertbutyl ether (MTBE) using EPA Method 8021B, GRO, DRO extended, and general chemistry in accordance with item19 of OCD's Discharge Plan... The sampling suite may be modified by NMED and in concurrence with OCD upon review of the laboratory reports.*

c. *The Permittee must submit the laboratory results from each sampling event to NMED and OCD within seven business days upon receipt of the final laboratory report.*

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d. *According to the Permittee, the liner for the NAPIS should be installed between mid November and December 31, 2007, The Permittee must notify NMED and OCD within one week of the completion of all repair work and installation of liners at the NAPIS."*

Kleinfelder Response: To clarify sampling requirements:

- The sample collected "within two weeks" will include: VOCs per EPA Method 8260; semi-volatile (polyaromatic hydrocarbons only) per EPA Method 8310; Total Petroleum Hydrocarbons (GRO and DRO extended) per EPA Method 8015B; and RCRA metals per EPA Method 6010/7470.

- Samples collected "one month, three months, and quarterly thereafter" will include: BTEX plus MTBE, Total Petroleum Hydrocarbons (GRO and DRO extended) per EPA Method 8021B/8015B; and general chemistry (per OCD's discharge plan).

We will present these items at our meeting scheduled for 1:30 PM on Wednesday October 24, 2007 at the NMED Hazardous Waste Bureau offices at 2905 Rodeo Park Drive East, Building 1 in Santa Fe.

Should any questions or need additional information please contact me at (505) 344-7373.

Respectfully submitted,
KLEINFELDER WEST, INC.

Eileen Shannon, P.G.
Project Manager

Reviewed by:

Fred T. Schelby, P.E.
Environmental Department Manager

Enclosures:
Table 1 – Response to Comments 4 and 5
Table 2 – Soil Sample Analytical Results (revised)
Table 3 – Groundwater Sample Analytical Results (revised)
YSI-556 Groundwater Quality Parameter Readings

cc: J. Bearzi, Bureau Chief, NMED-HWB, Santa Fe
J. Kieling, NMED-HWB, Santa Fe
D. Cobrain, NMED-HWB, Santa Fe
C. Frischkorn, NMED-HWB, Santa Fe
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Table 1
Ciniza Refinery, Giant Refining Company
Response to Comments 4 and 5 (NMED-HWB October 15, 2007 letter)

	March 23, 2007, NMED-HWB Letter to Giant, re: Work Plan with Comments	May 24, 2007, Kleinfelder Work Plan	June 4, 2007, NMED-HWB Work Plan Approval Letter with Comments	August 7, 2007, Kleinfelder Monitoring Well Installation Report	October 15, 2007, NMED-HWB Notice of Disapproval of Monitoring Well Installation Report/Wells	**Kleinfelder Response**
Comment 4 Purpose of Well (KA-3)	Page 2, 1st Paragraph "The other well must be constructed so that the screened interval **intersects** the confining layer located directly below the uppermost water bearing zone to evaluate for the downward migration of groundwater"	Page 3, 1st Paragraph "The third boring (KA-3) will be located adjacent to the downgradient shallow boring KA-2. KA-3 will be advanced to approximately 25 ft bgs and **intersect** the upper surface of the Chinle Group, a regional aquitard located beneath the site." Page 4, 2nd Paragraph "Deep monitoring well KA-3 will be constructed with 10 feet of screen slightly below the top of the Chinle Group contact, estimated at 25 to 15 ft bgs."	Page 1, 2nd Paragraph "NMED hereby approves the Work Plan. The Permittee must include all requirements established in the March 23, 2007 letter from NMED to the Permittee."	Page 4, 2nd Paragraph "Monitoring well KA-3 was constructed with the screened interval from 15 to 25 ft bgs, **across** alluvial-Chinle Formation contact."	Comment 4, Page 2 "The objective of the installation of deep monitoring well KA-3 was not achieved. This well should have been screened within the confining layer that underlies the uppermost water bearing zone and also should have been hydraulically isolated from the overlying saturated zone, The purpose of this well is to evaluate the downward migration of the water and determine if the overlying water bearing zone infiltrates into the confining layer." Page 3, 2nd Paragraph The well log for KA-3 identifies the Chinle formation starting at 20 feet bgs, including wet fractured Chinle Formation from approximately 18 to 22 feet bgs. Therefore, the screened interval should have been set below this not within the water-bearing zone between 15 and 25 feet bgs. Page 3, 3rd Paragraph "a. Install the monitoring well so that the screened interval is placed within the confining layer, **in dry strata**, below the overlying water-bearing zone."	Approved work plan and letters from the NMED state that well KA-3 should intersect, or cross the alluvial-Chinle Formation contact. No where was it stated that the well should be installed completely within the Chinle Formation entirely beneath the alluvial water-bearing zone. The Chinle Formation starts at 18 feet, based on the soil boring log. The well was screened across the formation contact from 15-25 feet. If the objective is to evaluate downward contaminant transport, a well within a dry aquitard will not give any data other than that the hydrologic unit is dry. In this scenario, contaminant transport would be limited to flow through fractures. The existing deeper monitoring well intersects the top of the aquitard, likely intersecting the potential flow path of contaminates down from the bottom of the source and the across the surface of the aquitard. The vertical gradient between KA-2 and KA-3 is 0.003 ft/ft.

Table 1
Ciniza Refinery, Giant Refining Company
Response to Comments 4 and 5 (NMED-HWB October 15, 2007 letter)

	March 23, 2007, NMED-HWB Letter to Giant, re: Work Plan with Comments	May 24, 2007, Kleinfelder Work Plan	June 4, 2007, NMED-HWB Work Plan Approval Letter with Comments	August 7, 2007, Kleinfelder Monitoring Well Installation Report	October 15, 2007, NMED-HWB Notice of Disapproval of Monitoring Well Installation Report/Wells	**Kleinfelder Response**
Comment 5 Wells KA-1 and KA-2	Page 1, Last Paragraph "The boring log information will be used to place the location of the screened interval of the monitoring well in the uppermost water-bearing zone that is anticipated to intersect the base of the NAPIS. One of the wells must be constructed so that the screened interval corresponds to that of the well located to the east (upgradient) side of the NAPIS to evaluate for releases from the NAPIS."	Page 1, Last Paragraph "Two of these borings will be advanced in order to intersect the uppermost water-bearing zone anticipated to intersect the base of the separator. Previous borings advanced onsite indicate this uppermost water-bearing zone is between 5 and 8 ft bgs. These two shallow borings will be located immediately upgradient (KA-1) and downgradient (KA-2), and within 20 feet of the separator. Borings KA-1 and KA-2 will be terminated within the confining unit."	Page 1, 2nd Paragraph "NMED hereby approves the Work Plan. The Permittee must include all requirements established in the March 23, 2007 letter from NMED to the Permittee."	Page 4, 2nd Paragraph "Monitoring wells KA-1 and KA-2 were constructed with the screened interval set from 4.5 to 9.5 ft bgs in order to intersect the water table. Since KA-1 and KA-2 were advanced into the confining unit, the bottom of each boring was backfilled with hydrated bentonite chips to prevent downward migration of fluids through the confining unit."	Page 3, Last Paragraph According to the boring log for well KA-3, the saturated zone appears to extend into the upper portion of the Chinle Formation to approximately 20 feet bgs, with moist to wet conditions present up to approximately 22 feet bgs. From this information and the boring logs for wells KA-1 and KA-2, it appears these wells were not drilled into the confining unit and the screened interval intersects only the uppermost portion of the water table, resulting in a very limited section of the well screen intersecting the saturated zone.	The 3/23/07 NMED Work Plan letter stated that the shallow wells should be installed to intersect the **uppermost** water-bearing zone anticipated to intersect the base of the separator. The base of the sump of the new API separator is approximately 10 feet. The KA-2 well screen (first of the shallow wells installed) was installed in a clay strata observed as "moist to very moist" and appeared to be the shallowest zone groundwater is present.
					Page 4, 1st Paragraph NMED requested that the Permittee collect water table measurements during the week of September 17, 2007; KA-1 measured 8.89 feet bgs, KA-2 9.51 bgs, and KA-3 8.95 feet bg. The well logs for KA-1 and. KA-2 identify these wells as being ten foot in depth, it is therefore difficult to determine whether the water in KA-1 and KA-2 is formation water or standing water in the end cap. The current screened intervals for KA-1 and KA-2 do not appear to be screened to accommodate seasonal water table fluctuations.	Wells KA-1 and KA-2 were purged dry, allowed to recover, and then sampled. This indicates that the water recovery into the well is formation water. When water levels were measured on June 21, 2007, between 0.096 and 1.28 feet of water had recovered into KA-2 and KA-1, respectively. Determination of seasonal water fluctuations requires a minimum of four quarters of monitoring.
Purpose of the Investigation	Page 1, 1st paragraph "The purpose of the monitoring well installations is to evaluate for the presence of contaminants at the NAPIS."		Page 1, 2nd Paragraph "NMED hereby approves the Work Plan. The Permittee must include all requirements established in the March 23, 2007 letter from NMED to the Permittee."	Page 8, 2nd and 3rd Bullets "Soil samples .... Analytical results were above the NMED standard for total TPH at 9 ft bgs in boring KA-2 and 10 ft bgs in boring KA-3." "...monitoring well..... developed, and sampled .... Benzene, total xylenes, and MTBE were detected at levels above regulatory limits in well KA-2. MTBE was detected above regulatory limits in well KA-3."	Page 4, last paragraph "Based on the information provided in this Report, it appears the NAPIS is leaking..... However, the groundwater chemical analytical results from monitoring wells KA-2 and KA-3 located on the downgradient side (west) of the NAPIS indicated the presence of benzene, toluene, ethylbenzene, xylenes (BTEX), DRO and gasoline range organics (GRO)."	Monitor wells KA-2 and KA-3 indicate that contamination is present downgradient of the NAIPS, fulfilling the purpose of the March 23, 2007 letter from NMED-HWB.

Table 2
Soil Sample Laboratory Analytical Results
Ciniza Refinery, Jamestown, New Mexico

Sample ID	Date Collected	Depth	B[1]	T[2]	E[3]	X[4]	BTEX[5]	MTBE[6]	Total TPH[7]	TPH-GRO[8]	TPH-DRO[9]	TPH-MRO[10]
KA1@1	6/12/2007	1	<0.050	<0.050	<0.050	<0.10	<0.25	<0.10	99	<5	47	52
KA1@5	6/12/2007	5	<0.050	<0.050	<0.050	<0.10	<0.25	<0.10	<65	<5	<10	<50
KA1@10	6/12/2007	10	<0.050	<0.050	<0.050	<0.10	<0.25	<0.10	<65	<5	<10	<50
KA2@5	6/12/2007	5	<0.050	<0.050	<0.050	<0.10	<0.25	<0.10	40	<5	40	<50
KA2@9	6/11/2007	9	0.051	<0.050	<0.050	<0.10	0.051	<0.10	400	<5	240	160
KA2@10	6/11/2007	10	<0.050	<0.050	0.058	0.19	0.25	<0.10	10	10	<10	<50
KA3@10	6/11/2007	10	<0.050	<0.050	<0.050	<0.10	<0.25	<0.10	460	<5	240	220
KA3@12.5	6/11/2007	12.5	<0.050	<0.050	<0.050	<0.10	<0.25	<0.10	<65	<5	<10	<50
KA3@22.5	6/11/2007	22.5	<0.050	<0.050	<0.050	<0.10	<0.25	<0.10	<65	<5	<10	<50
KA3@25	6/11/2007	25	<0.050	<0.050	<0.050	<0.10	<0.25	<0.10	<65	<5	<10	<50
NMED SSL [11]			25.8	252	128	82	--	--	--	--	--	--
NMED TPH - Diesel #2 [12]			--	--	--	--	--	--	1120	--	--	--
NMED TPH - Mineral Oil [12]			--	--	--	--	--	--	3040	--	--	--

Depths in Feet below ground surface

[1] benzene, mg/kg

[2] toluene, mg/kg

[3] ethylbenzene, mg/kg

[4] total xylenes, mg/kg

[5] BTEX = benzene + toluene + ethylbenzene + total xylenes by EPA Method 8021B, mg/kg

[6] Methyl tert-Butyl Ether by EPA Method 8021B, mg/kg

[7] Total TPH = GRO+DRO+MRO

[8] TPH-GRO = total petroleum hydrocarbons - gasoline range organics by EPA Method 8015B, mg/kg

[9] TPH-DRO = total petroleum hydrocarbons - diesel range organics by EPA Method 8015B, mg/kg

[10] TPH-MRO = total petroleum hydrocabons - motor oil range organics by EPA Method 8015B, mg/kg

[11] New Mexico Environment Department Soil Screening Levels, June 06, Rev. 4.0 - Industrial Soil

[12] New Mexico Environment Department TPH Screening Guidelines, October 06, Industrial Direct Exposure. Standards listed based upon ratio of GRO, DRO and MRO, compared to Table 1 of this reference.

Soil Screening Levels are considered the lowest levels of each compound requiring response action, in mg/kg (NMED 2005)

Table 3
Groundwater Sample Laboratory Analytical Results
Ciniza Refinery, Jamestown, New Mexico

Sample ID	Date Collected	B[1]	T[2]	E[3]	X[4]	BTEX[5]	MtBE[6]	Total TPH[7]	TPH - GRO[8]	TPH - DRO[9]	TPH - MRO[10]
KA-1	6/21/2007	<1.0	<1.0	<1.0	<2.0	<5.0	<2.5	<5.0	<0.050	<1.0	<5.0
KA-2	6/21/2007	**870**	74	260	**860**	2,100	**680**	**47**	5.6	41	<5.0
KA-3	6/21/2007	<1.0	<1.0	<1.0	<2.0	<5.0	**150**	0.16	0.16	<1.0	<5.0
NMWQCC Standard [11]		*10*	***750***	*750*	***620***	--	--	--	--	--	--
USEPA MCLs [12]		***5***	*1000*	***700***	*10,000*	--	--	--	--	--	--
USEPA Region 6 HHMSSL - Tap Water [13]		--	--	--	--	--	***11***	--	--	--	--
NMED TPH - Diesel #2 [14]		--	--	--	--	--	--	*1.72*	--	--	--
NMED TPH - Mineral Oil [14]		--	--	--	--	--	--	*3.64*	--	--	--

Values in shaded boxes indicate that the result exceeds the applicable standard, applicable standard in bold.

[1] B = benzene (µg/L)

[2] T = toluene (µg/L)

[3] E = ethylbenzene (µg/L)

[4] X = total xylenes (µg/L)

[5] BTEX = B+T+E+X (µg/L)

[6] M = Methyl tert-butyl ether (MTBE, µg/L)

[7] Total TPH = GRO+DRO+MRO

[8] Total Petroleum Hydrocarbons, Gasoline Range Organics (mg/L)

[9] Total Petroleum Hydrocarbons, Diesel Range Organics (mg/L)

[10] Total Petroleum Hydrocarbons, Motor Oil Range Organics (mg/L)

[11] New Mexico Water Quality Control Commission

[12] United States Environmental Protection Agency Maximum Contaminant Level

[13] United States Environmental Protection Agency, Region 6 Human Health Medium Specific Screening Levels - Tap Water

[14] New Mexico Environment Department TPH Screening Guidelines, October 06, Groundwater (GW-1). Standards listed based upon ratio of GRO, DRO and MRO in soil, compared to Table 1 of this reference.

YSI-556 Groundwater Quality Parameter Readings
Ciniza Refinery

KA-2	DateTime	Temp	SpCond	DO Conc	pH
Gallons Purged	M/D/Y	C	mS/cm	mg/L	
0.33	6/21/2007 9:32	16.82	1.685	5.47	8.26

KA-3	DateTime	Temp	SpCond	DO Conc	pH
Gallons Purged	M/D/Y	C	mS/cm	mg/L	
1	6/21/2007 9:46	22.59	2.060	3.03	7.88
2	6/21/2007 9:49	22.02	2.120	2.32	7.66
3	6/21/2007 9:51	21.79	2.252	2.33	7.57
4	6/21/2007 9:53	21.32	2.241	2.62	7.68
5	6/21/2007 9:54	20.66	2.210	2.49	7.71
6	6/21/2007 9:57	20.73	2.228	2.25	7.54
7	6/21/2007 9:59	20.07	2.179	2.56	7.66
8	6/21/2007 10:01	20.78	2.215	2.80	7.54
9	6/21/2007 10:05	19.96	2.121	2.25	7.57

KA-1	DateTime	Temp	SpCond	DO Conc	pH
Gallons Purged	M/D/Y	C	mS/cm	mg/L	
0.66	6/21/2007 9:25	23.68	3.432	3.98	7.73