



May 24, 2007  
File No. 83817.PROP-ALB07LT001

Ms. Hope Monzeglio  
New Mexico Environment Department  
Hazardous Waste Bureau  
2905 Rodeo Park Drive East, Building 1  
Santa Fe, New Mexico 87505-6313

**RE: Request for Approval of Boring/Monitoring Well Locations  
Ciniza Refinery  
Jamestown, New Mexico**

Dear Ms. Monzeglio:

Kleinfelder, Inc. (Kleinfelder) would like to formally request approval of the locations of the proposed borings/monitoring wells at the Ciniza refinery operated by Giant Industries. The attached Work Plan was developed in response to your March 23, 2007 correspondence to Giant. The proposed boring/monitoring locations were determined in accordance with your letter and are depicted in Figure 2 of the attached Work Plan. Kleinfelder reserves the ability for minor relocation of these locations depending on field conditions, i.e. relocation due to underground utilities.

Kleinfelder is currently planning to mobilize to the site for drilling activities the week of May 28<sup>th</sup>, 2007 and as such, your prompt attention is appreciated.

We appreciate the opportunity to work with you on this project. If you have any questions, or need additional information, please contact this office at 344-7373.

Respectfully submitted,  
**KLEINFELDER WEST, INC. (formerly Kleinfelder)**

Justin D. Ball, P.G.  
Project Manager

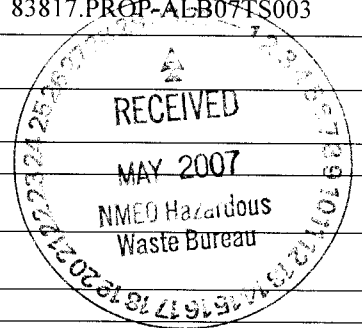
**Reviewed by:**

Bernard Bockisch, PMP  
Project Manager

c: Carl Chavez, NMOCD

JDB:ad

<b>TO:</b> Ms. Hope Monzeglio NMED Hazardous Waste Bureau 2905 Rodeo Park Drive East, Building 1 Santa Fe, NM 87505-6313	<b>PAGE</b>	<b>OF</b>
	<b>TRANSMITTAL DATE:</b> 05/25/07	
	<b>TRANSMITTAL DCN:</b> 83817.PROP-ALB07TS003	
<b>RETURN RESPONSES/COMMENTS TO:</b>	J. Ball	
<b>RETURN RESPONSES/COMMENTS BY:</b>		
<b>PROJECT NO.:</b> 83817	<b>PROJECT NAME:</b>	Giant Ciniza Refinery
<b>ACTIVITY/DESCRIPTION:</b>	Rev. 1 Work Plan	



DOCUMENTS BEING TRANSMITTED				
ITEM	REV.	PAGES	DATE	DESIGNATOR
Work Plan for Monitoring Well Installation – Ciniza Refinery	1		05/25/07	83817.PROP-ALB07WP001 Rev. 1

<b>INSTRUCTIONS/REMARKS</b>	<b>RECEIPT AND READ ACKNOWLEDGEMENT PLEASE COMPLETE AND RETURN WITHIN 15 WORKING DAYS TO:</b>
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**WORK PLAN FOR MONITORING  
WELL INSTALLATION  
CINIZA REFINERY  
JAMESTOWN, NEW MEXICO**

PREPARED FOR:

**GIANT INDUSTRIES  
CINIZA REFINERY  
I-40, EXIT 39  
JAMESTOWN, NEW MEXICO**

PREPARED BY:

**KLEINFELDER**  
8300 JEFFERSON NE, SUITE B  
ALBUQUERQUE, NEW MEXICO 87113



May 24, 2007



**KLEINFELDER**

*An employee owned company*

May 24, 2007  
File No. 83817.PROP-ALB07WP001

Giant Industries  
Ciniza Refinery  
I-40, Exit 39  
Jamestown, NM 87347  
Attn: Mr. Jim Lieb

**Subject: Work Plan for  
Monitoring Well Installation Rev. 1  
Ciniza Refinery  
Jamestown, New Mexico**

Dear Mr. Lieb:

Kleinfelder West, Inc. is pleased to submit this work plan to Giant Industries (Client) to provide monitoring well installation services for the Ciniza refinery (Site) in Jamestown, New Mexico. This work plan was developed after discussions with you, Mr. Steve Morris and Mr. Frank Diller. Copies of this work plan have been sent to Ms. Hope Monzeglio of the New Mexico Environment Department Hazardous Waste Bureau and Carl Chavez of the Oil Conservation Division.

Respectfully submitted,  
**KLEINFELDER WEST, INC.**

Justin D. Ball, P.G.  
Project Manager

Reviewed by:

Bernard Bockisch, PMP  
Senior Project Manager

JDB:BB:ad

c: Hope Monzeglio, NMED HWB  
Carl Chavez, OCD

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- Appendix A – Field Operating Procedures
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## 1.0 INTRODUCTION

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Giant Industries, Inc., (Client) has requested that Kleinfelder West, Inc. (Kleinfelder), develop a work plan to perform services in the vicinity of the new American Petroleum Institute (API) oil/water separator (separator) at the Ciniza Refinery (Site) located at I-40, Exit 39, in Jamestown, New Mexico (Figure 1). The objectives of the work plan are to (1) summarize relevant information obtained from Giant, (2) detail a scope of work for installation of three monitoring wells at the Site, and (3) establish a schedule and budget for the proposed activities. The scope of work, project schedule, and project budget follow in Sections 2, 3, and 4, respectively.

The Site is located at 35° 29.41'N, 108° 25.80'W, McKinley County, New Mexico. The facility is an active refinery. Pertinent refinery equipment at the site includes the separator, an off-gas flare, aeration lagoons and an evaporation pond.

Mr. Justin Ball mobilized on May 9<sup>th</sup>, 2007 for a site orientation and reconnaissance with Mr. Jim Lieb, and Mr. Steve Morris of Giant Industries, Inc. Various issues were discussed concerning addressing the Work Plan detailed in the New Mexico Environment Department (NMED) Hazardous Waste Bureau (HWB) letter dated March 23, 2007. This and subsequent conversations refined following scope of work and cost estimate. The installation of the three monitoring is designed to evaluated the presence of impact due to potential leaks from the separator.



## 2.0 SCOPE OF WORK

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The scope of work has been divided into the following three tasks:

- Task 1: Work plan development and project preparation
- Task 2: Field activities
- Task 3: Reporting

### 2.1 Task 1: Work Plan and Project Preparation

This task includes preparing and submitting this work plan and other project preparation activities that occur after work plan approval but before fieldwork mobilization. After receiving authorization to proceed, Kleinfelder will:

- Develop work orders for subcontractors.
- Notify the Client and NMED HWB a minimum of one week prior to the commencement of field and sampling activities.
- Notify New Mexico One-Call to facilitate location of underground utilities; and,
- Develop a Health and Safety Plan (HASP) that addresses field work specified in this work plan.
- Submission of the HASP to the Ciniza Refinery Health and Safety Office, Mr. Frank Diller, for approval a minimum of one week prior to the commencement of field and sampling activities.
- Review sample excavation and hot work permits and compile documentation necessary for their completion.
- Request an excavation permit a minimum of 24 hours prior to the commencement of field and sampling activities.
- Prepare a letter and site plan showing boring/monitoring well installation locations and change to flush-mounted well completions for NMED HWB approval.

### 2.2 Task 2: Field Activities

Task 2 will consist of field activities necessary to address the NMED HWB March 23, 2007 work plan letter.

#### 2.2.1 Soil Borings

Three soil borings will be advanced in the vicinity of the separator utilizing hollow stem auger drilling techniques. Soil boring locations are shown on Figure 2. 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. 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.

Each boring location will be hand-cleared to a depth of 5 ft bgs with a diameter greater than the auger flight in order to decrease the likelihood of drilling through unmarked or unknown underground utilities. A hole will be dug to four ft bgs with shovels and post hole diggers and advanced to 5 ft with hand augers and soil probes. Soil samples will be collected during hand clearing as discussed below.

At each boring, soil samples will be collected continuously from 5 ft bgs to the total depth using a 5-ft-long, continuous sampler. A degreed geologist will direct field activities and will describe the soil samples using ASTM's "Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)" (ASTM, 2000). petroleum hydrocarbon concentration will be identified in 5-foot intervals by screening the soil samples for the presence of Volatile Organic Compounds (VOCs) using the heated headspace method detailed in Appendix A.

During boring advancement, soil samples will also be collected from 1) soil intervals with elevated headspace readings, and/or staining or olfactory evidence of hydrocarbon impact, 2) the bottom of each boring, 3) from the surface of the water table. In addition, per the March 23, 2007 NMED HWB letter, a sample will be collected "from the confining layer in the deepest boring". Kleinfelder has interpreted this phase as the confining layer beneath the uppermost water-bearing layer targeted by the shallow borings, not the upper portion of the Chinle Group in boring KA-3. Due to NMED HWB broad requirement of sampling "any soils containing visual contamination," Kleinfelder has conservatively estimated submitting 12 samples for laboratory analysis. Samples will be analyzed for benzene, toluene, ethylbenzene, total xylenes (BTEX) and methyl tert-butyl ether (MtBE) by EPA Method 8021 and gasoline and diesel range total petroleum hydrocarbons (TPH-GRO, DRO) by EPA method 8015B.

### **2.2.2 Monitoring Well Installation and Groundwater Sampling**

The monitoring wells will be constructed with 2-in inside diameter (I.D.), Schedule 40, flush-joint, threaded polyvinyl chloride (PVC) casing and screen. Groundwater monitoring well construction will consist of a threaded PVC bottom plug and flush-joint, threaded, factory-slotted well screen (0.010 machine-slot). A sump and or end cap will be placed at the bottom of the screen. The remainder of the groundwater monitoring well will be constructed with the appropriate length of flush-joint, threaded PVC blank casing. A 2-inch diameter PVC expanding locking top plug will be placed at the top of the groundwater monitoring well.

The annular space around and 1 ft above the screen will be filled with 10-20 Colorado silica sand. Approximately 2 ft of 3/8-inch hydrated bentonite chips will be placed above the sand pack. The casing, sand filter pack, and bentonite seal will be placed inside the annulus as the augers are withdrawn from the soil boring. The surface completion will be constructed with a traffic rated flush mount 8" diameter manhole set in a 4 ft by 4 ft

concrete pad. Once constructed, the monitoring well will be developed in accordance with procedures in Appendix A; however, no more than 2 hours will be devoted to well development. Well development will not be conducted on monitoring wells containing measurable (0.01 ft or greater) quantities of LNAPL.

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. Shallow monitoring wells KA-1 and KA-2 will be constructed so that a five foot screened interval intercepts the shallow water bearing zone estimated at 5 to 8 ft bgs. Since KA-1 and KA-2 will be advanced into the confining unit, the bottom of the boring will be backfilled with hydrated bentonite chips to prevent downward migration of fluids through the confining unit. The well screen will be isolated from this bentonite seal by at least six inches of 10-20 Colorado silica sand.

A professional surveyor licensed in the State of New Mexico will survey the horizontal location of each well to the nearest 0.1 ft and the top of casing and ground surface elevations of the new monitoring wells to the nearest 0.01 ft. The surveyor will tie in previously completed monitoring wells GMW-1 through GMW-3.

Fluid-level data collection and groundwater sampling will be performed in accordance with the procedures outlined in Appendix A. The wells will be purged and sampled using disposable bailers. Groundwater samples will be analyzed for BTEX and MtBE by EPA Method 8021B and TPH GRO and DRO by EPA Method 8015B. Well development and groundwater sampling will not be conducted in wells containing measurable (0.01 ft or greater) quantities of light non-aqueous phase liquids (LNAPL).

### **2.2.3 Investigation Derived Waste (IDW) Management**

IDW soil cuttings will be drummed pending soil analytical results. If appropriate, soil cutting will be disposed of in the Ciniza refinery on-site land-farm. Groundwater generated during well development or sampling will be discharged to an impermeable surface and allowed to evaporate as discussed in Appendix A.

### **2.2.4 Health and Safety Considerations**

Personal protective equipment (PPE) including steel-toed work boots, gloves, safety glasses and hard hats will be required (basic Level D requirements). Refinery specific PPE including fire resistant clothing and hydrogen sulfide personal air monitors will also be required. Kleinfelder will provide a HASP that will be reviewed and signed by on-site Kleinfelder personnel, subcontractors, and authorized visitors. The HASP will be submitted for review to Ciniza Refinery Health and Safety Office, Mr. Frank Deller, for approval a minimum of one week prior to the commencement of field and sampling activities.

At 8:00 am the morning of initial field work, Kleinfelder personnel, subcontractors, and authorized visitors will attend subcontractor training provided by the Ciniza Safety Department. A daily Hot Work Permit and a project long Excavation Permit will be obtained from the Ciniza Refinery prior to beginning work. In order to minimize ignition

sources, only diesel powered engines will be used onsite. While working in the vicinity of the off-gas flare, workers will be in contact with the Refinery Operator by refinery issued radio.

Kleinfelder anticipates conducting drilling under Level D conditions. Kleinfelder personnel and subcontractors will be prepared to upgrade to Level C PPE if warranted by working conditions. Air monitoring will be conducted in accordance with Kleinfelder's HASP and refinery subcontractor training.

### **2.2.5 Quality Assurance/Quality Control**

Drilling and sampling will be completed in accordance with our standard Quality Assurance/Quality Control procedures designed to minimize cross-contamination between samples and to provide reliable laboratory results.

### **2.3 Task 3: Reporting**

A draft report summarizing our field activities and findings will be submitted to the Client. The report will include a Site description, limited project history, description of data collection procedures, and a discussion of results. The report will also include:

- A scaled site plan showing the locations of newly installed monitoring wells, pertinent site features including the aeration lagoon, evaporation pond #1, the separator, existing monitoring wells GMW-1 through GMW-3 and identified utilities;
- Soil boring logs;
- Monitoring well construction diagrams;
- Tabulation of field VOC screening results and laboratory analytical test results;
- A map illustrating the distribution of petroleum hydrocarbon contaminants in soil, if extensive enough to map;
- A map illustrating the distribution of petroleum hydrocarbon contaminants in groundwater, if extensive enough to map;
- Description of sampling methods and procedures.

Following the Client's review of the draft report, Kleinfelder will incorporate any requested revisions before submission of the report to NMED HWB and the Oil Conservation District.

### 3.0 SCHEDULE

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Kleinfelder will schedule this project for the week of May 28<sup>th</sup>, after Memorial Day and begin immediately upon receipt of your written authorization to proceed. Kleinfelder estimates the field program will be completed in two weeks after inception, the laboratory analyses will be completed two weeks after samples have been submitted to the laboratory, and the report will be completed 45 days after receiving the results of the laboratory testing

## 4.0 PROJECT BUDGET

Our lump sum fee for the described scope of work is as follows:

TASK NO.	TASK DESCRIPTION	LUMP SUM FEE	LUMP SUM FEE WITH NMGR* <sup>T</sup>
1	Work Plan, HASP, Regulatory Correspondence and Project Preparation	\$3,164.00	\$3,381.53
2	Field Activities	\$18,540.40	\$19,815.05
3	Reporting	\$4,514.00	\$4,824.34
<b>TOTAL LUMP SUM FEE</b>		<b>\$26,218.40</b>	<b>\$28,020.92</b>

\* NMGR<sup>T</sup> for Bernalillo County is 6.875%

The cost assumes (1) Kleinfelder standard rates less 5%, (2) three days of field work to complete drilling activities and a second single day mobilization for groundwater sampling and surveying activities, (3) refinery permits will be completed within one hour of arrival onsite each day, (4) all work will be conducted in Level D PPE, and (5) a total of 12 soil and 6 groundwater samples will be submitted for laboratory analysis. Standby due to the permit process will be assessed at a standby rate of \$275 per hour, excluding NMGR<sup>T</sup>. The total lump sum fee will be discounted by \$132 and \$120, excluding NMGR<sup>T</sup>, per each soil and groundwater sample, respectively, not submitted for laboratory analysis. If conditions require upgrading to Level C PPE during drilling, the total lump sum fee will be increased by \$2,500, excluding NMGR<sup>T</sup>. If Ciniza refinery is unable to provide a CADD version of the Plant Site Drawing, Kleinfelder will reproduce the drawing and the total lump sum fee will be increased by 540 excluding NMGR<sup>T</sup>. Additional fees necessary to accomplish project objectives will be approved by the Client prior to performing additional work.

## 5.0 QUALIFICATIONS

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The project manager for the proposed work is Justin D. Ball, P.G. A copy of Mr. Ball's resume is presented in Appendix B.

## 6.0 REFERENCES

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ASTM, 2000. Designation D 2488-00, "Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)."

NMED HWB, 2007. "Work Plan for Monitoring Well Installation around the New API Separator; HWB-GRCC-07-001, Giant Refining Company, Ciniza Refinery, NMED ID # NMD000333211". March 23, 2007



**FIGURES**

**Figure 1 – Site Location Map**

**Figure 2 – Site Plan With Proposed Well Location**