ENTERED

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 377TH AIR BASE WING (AFMC)

Colonel Tom D. Miller
377 ABW/CC
2000 Wyoming Blvd SE
Kirtland AFB NM 87117-5600

JUN 10 2014

RECEIVED

JUN 12 2014

NMED
Hazardous Waste Bureau

Mr. Isreal Tavarez, P.E.
Environmental Manager
Air Quality Division
Albuquerque Environmental Health Department
P.O. Box 1293
Albuquerque, New Mexico 87103

Dear Mr. Tavarez

On March 18, 2014 Kirtland Air Force Base (KAFB) submitted a 20.11.41 New Mexico Administrative Code (NMAC) construction permit application for the soil vapor extraction (SVE) thermal oxidizer with catalyst (CATOX) system in operation at the Bulk Fuels Facility (BFF). The SVE CATOX system is currently operating under Emergency Permit #3036-EP, issued August 31, 2012. The Albuquerque Environmental Health Department (AEHD) ruled the March 18, 2014 application incomplete on April 14, 2014, and requested additional information by June 12, 2014. KAFB would like to withdraw the permit application and will continue operating the SVE CATOX system under Emergency Permit #3036-EP until it is replaced by a new system, most likely an SVE regenerative thermal oxidizer (RTO), in late 2014. The new system will significantly expand the treatment capacity for soil vapor extracted from the BFF vadose zone using five currently-operating SVE wells and four new SVE wells to be installed later this year. The new system will have the potential to destroy up to 320 pounds per hour (lbs/hr) of contaminants which is more than three times the capacity of the current SVE CATOX system. The new system will also operate at a higher air pollutant destruction efficiency.

The SVE CATOX system began operation on January 22, 2013 and was installed as an Interim Measure for Solid Waste Management Units ST-106 and SS-111. Prior to the SVE CATOX system, four SVE internal combustion engine (ICE) units were in place to remediate fuel contamination. The ICE units were permitted under 20.11.41 NMAC Authority to Construct Permit #1984-M1. The ICE units were decommissioned and Permit #1984-M1 was officially cancelled on June 25, 2013. Together, the SVE ICE and SVE CATOX systems have remediated over three million pounds of hydrocarbon contamination in the vadose zone at the BFF spill site.

In a draft letter dated April 4, 2014, the New Mexico Environment Department (NMED) has directed KAFB to expand the current SVE remediation system by installing at least four additional wells and upgrading the current treatment technology by December 31, 2014. Subject to NMED approval, KAFB proposes to enhance the remediation process by installing a new system that will extract and treat fuel contamination from a total of nine SVE wells. This includes the existing five extraction wells that are connected to the SVE CATOX system with an additional four wells that will be installed in the highly contaminated area of the vadose zone, near the Former Fuel Off-Loading Rack.

The new system will have the capability to destroy up to 320 pounds per hour (lbs/hr) of contaminants – more than three times the capacity of the current SVE CATOX system, and at a higher pollutant destruction efficiency. The estimated soil vapor recovery (lbs/hr) from the nine SVE wells that

KAFB4150

will be treated by the new system is shown in Attachment 1. Although the system is designed to treat up to 320 lbs/hr, due to fluctuations in soil vapor concentrations and required maintenance activities, the system will not operate constantly at 320 lbs/hr for 24 hours a day, 365 days a year. Additionally, it may be necessary to run the system at less than 320 lbs/hr for certain periods of time for system balancing, and to determine optimal system performance.

Under Emergency Permit #3036-EP, KAFB will continue treating the contaminated vadose zone with the SVE CATOX during design and construction of the new system. KAFB plans to submit an emergency air quality permit application for the new system to AEHD by September 10, 2014, in parallel with the development of the full permit application. After receiving an emergency permit from AEHD, the installation of the new system will begin and the SVE CATOX system will be shut down and replaced by the new system. There will be 6 to 8 weeks of down time when no vadose zone remediation is taking place between shutdown/disassembly of the SVE CATOX system and installation of the new system. The SVE CATOX system is expected to be decommissioned in October 2014. The new system is anticipated to begin operation in December 2014, in accordance with NMED direction, to expand the current SVE system by December 31, 2014. All of the dates are contingent upon NMED's approval of the Work Plan for installation of the new system that is scheduled to be submitted to NMED August 6, 2014.

The design details and emission estimates for the new system will be provided to the AEHD in the emergency permit application. In addition, air dispersion modeling will be completed for the new system and will be included in the emergency permit application. Soon after the submittal of the emergency air quality permit application, a 20.11.41 NMAC construction permit application will be submitted to AEHD with unit specifications and operating settings selected for the new system. The design details of the new system and the submittal of the 20.11.41 NMAC construction permit application are also dependent upon approval of the Work Plan by NMED.

Please contact Mr. L. Wayne Bitner at 505.853.3484 or at ludie.bitner@us.af.mil or Ms. Victoria R. Branson at 505.846.6362 or at victoria.branson@us.af.mil if you have any questions.

Sincerely

TOM D. MILLER, Colonel USAF
Commander

Attachment: Design Basis for Thermal Unit

cc:
NMED-EHD (Blaine) w/attch
NMED-HWB (Cobrain, Moats, McDonald, Brandwein) w/attch
NMED-GWQB (J. Schoeppner) w/attch
NMED-PSTB (Reuter) w/attch
NMED-OGC (deSaillan) w/attch
EPA Region 6 (King) w/attch
AFCEC/CMSE (Oyelowo) w/attch
Public Info Repository (Central New Mexico) w/attch
Administrative Record/Information Repository (AR/IR) w/attch
File, w/attch

ATTACHMENT 1

Design Basis for Thermal Unit

Attachment 1 Design Basis for Thermal Unit

	Wellhead vacuum	Flow rate	Estimated TPH[2] Concentration (as hexane)	LEL	TPH mass flow
	in- WC	SCFM	ppmv	%	lb/hr
Existing East manifold leg					
SVE well KAFB-106161	40	931	3,600		45.7
Pneulog well KAFB-106154 middle screen	40	136	100		0.2
Pneulog well KAFB-106150 bottom screen	40	177	8,000		19.3
Dilution air to reduce LEL		400			
Combined East Manifold		1643	2,907	22.7%	65.1
Existing West manifold leg					
SVE well KAFB-106160	40	789	3,200		34.4
Pneulog well KAFB-106149 middle screen	40	207	500		1.4
Dilution air to reduce LEL		180			
Combined West Manifold		1177	2,235	17.5%	35.9
Combined Vapor (existing wells)		**2820**	**2627**	20.5%	**101.0**
Proposed FFOR Wells[1]					
Shallow wells (1 and 2)	40	960	5500		72.0
Middle well (3)	40	960	5600		73.3
Deep (250 ft bgs) well (4)	40	960	2900		38.0
Dilution air to reduce LEL		1800			
		4680	**2872**	22.4%	**183.3**
Total of all wells		**7500**	**2780**	21.7%	**284.3**
10% contingency factor					312.7
Design basis for thermal unit					**320.0**

in-WC - inches of water column
lbs/hr - pounds per hour
LEL - lower explosive limit
ppmv - parts per million by volume
SCFM - standard cubic feet per minute
TPH - total petroleum hydrocarbons

[1]Analytical data from the last six quarters (Fourth Quarter 2012 to First Quarter 2014) was used to estimate TPH in the new SVE wells. Data from SVEW-01 to SVEW-09 and SVMW-04, SVMW-08, SVMW-09, SVMW-10 and SVMW-11 were used as these wells are in the center of the FFOR area and historically have highest TPH concentration. The TPH data from the last 6 quarters was used to calculate an average TPH content. Based on sample depth bgs these averages were used to estimate TPH in the new wells.

[2] TPH concentrations in the existing wells are based on recent operating data.