UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY
1110 West Washington Street
Phoenix, Arizona 85007

March 7, 2016

Cathy Jerrard
AFCEC/CIBW
706 Hangar Road
Rome, New York 13441

RE: Timing of Shutdown of Steam Enhanced Extraction System at ST-12 Fuels Spill Site, Former Williams Air Force Base, Mesa, AZ.

Dear Ms. Jerrard:

This letter follows numerous discussions over the past several months amongst the Base Closure Team (BCT) concerning the timing of shut down of the Steam Enhanced Extraction (SEE) system. As you know, this month marks the one year anniversary of the "Full Steam Ahead" Event celebrating the significant progress made on the final remedy for ST012. To date, nearly 2.5 million pounds of fuel related petroleum hydrocarbons have been removed from the subsurface in both vapor phase and as LNAPL since the system began operating in October 2014, and thousands of pounds of hydrocarbons still continue to be removed via the SEE system on a daily basis. While we celebrate the commendable success of the SEE system, EPA and ADEQ both remain concerned that significant mass still remains behind at the site. When Enhanced Bioremediation (EBR) was selected in the 2012 Amendment to the Record of Decision (RODA) for ST012 it was intended as a polishing step to degrade residual contaminants and it was not anticipated that EBR would be relied upon to address large quantities of potentially mobile NAPL. The observed migration of LNAPL into wells W11 and W37 is evidence of the continuing presence of mobile LNAPL at this site. The estimates provided in the recent draft Addendum II of the Enhanced Bioremediation Work Plan of mass potentially remaining at the site appear to be far greater than what EBR alone could be expected to be capable of addressing. Also, the areas outside of the Thermal Treatment Zone to be addressed by EBR still remains largely uncharacterized.

Although the rate of LNAPL and vapor recovery has significantly declined from the peak in June 2015, the latest Weekly Progress Report of March 2, 2016 indicates a current average daily LNAPL recovery rate of 1,343 lbs. /day, while over 16,000 lbs. of petroleum hydrocarbons were also removed in the vapor phase just since last week's report (daily average of 2,354 lbs./day). This is still a very impressive rate of mass removal. By comparison, the entire TEE pilot study, which operated for 9 months, only removed 117,902 lbs. of hydrocarbons in total. Over 36 weeks of operation, the TEE pilot study removed an average of approximately 3,275 lbs. per week. The current weekly mass removal from the SEE still exceeds by four times the weekly removal rate of the TEE pilot study. From that perspective, the SEE system cannot be considered inefficient. Not to disregard the differences between the scale of the two projects; but the agencies have not seen any demonstration that EBR technology can achieve similar results. EBR is not a source control technology and has not been demonstrated to effectively address large quantities of mobile NAPL at any other site. Thus, we are very concerned that remedy failure could be a likely outcome if SEE operations are prematurely terminated. Given the lack of characterization of the areas exterior to the treatment zone, for as long as mobile NAPL is actively and passively being recovered and significant mass is being removed, we recommend continuing to operate the SEE system as far more cost effective than a future third mobilization for steam treatment.

Please contact us if you would like to set up a call to discuss.

Sincerely,

Carolyn d'Almeida

Carolyn d'Almeida
Remedial Project Manager, EPA

Wayne Miller
Remedial Project Manager, ADEQ