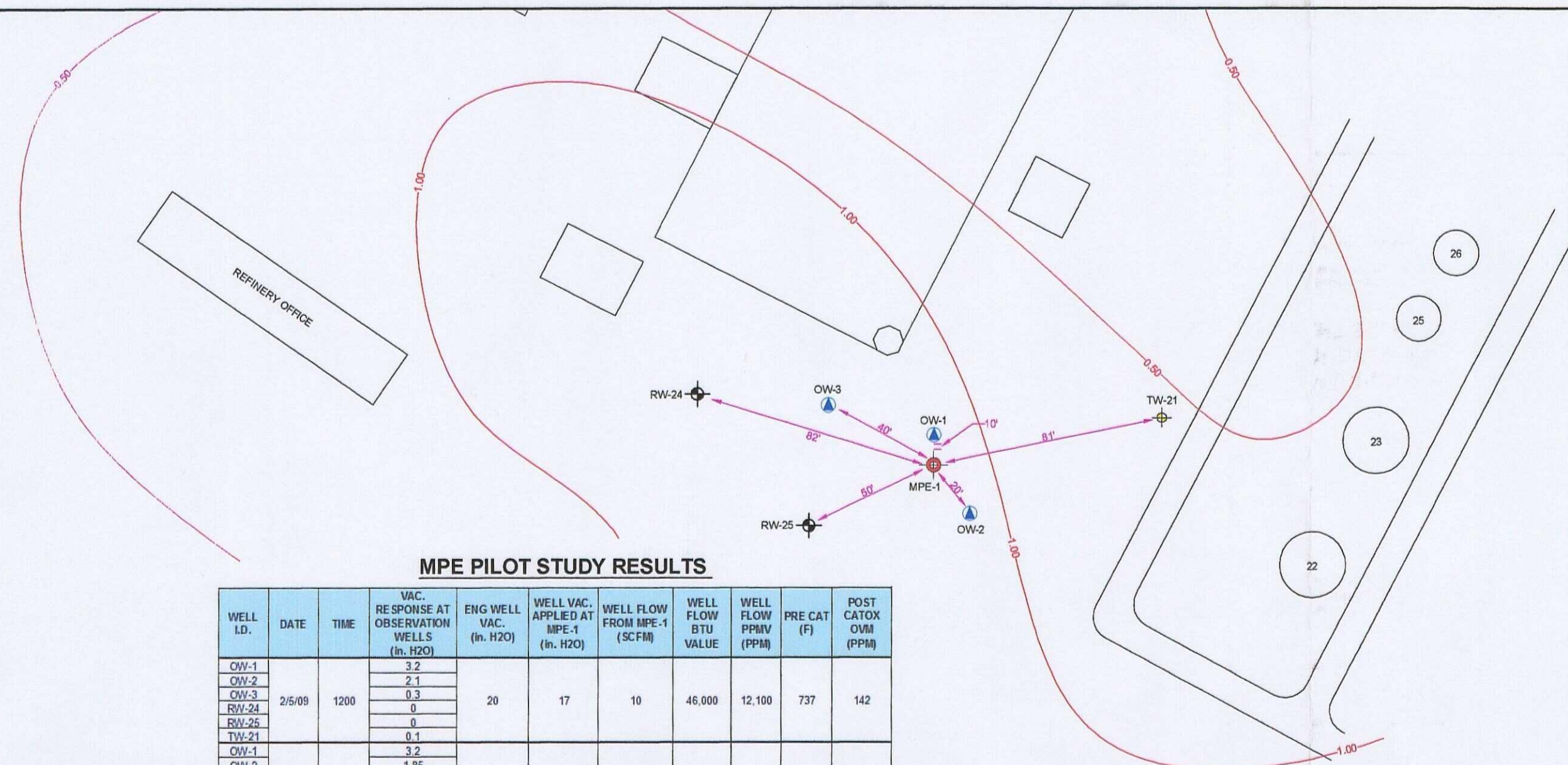


GW - 55

# WORK PLANS Figure 10

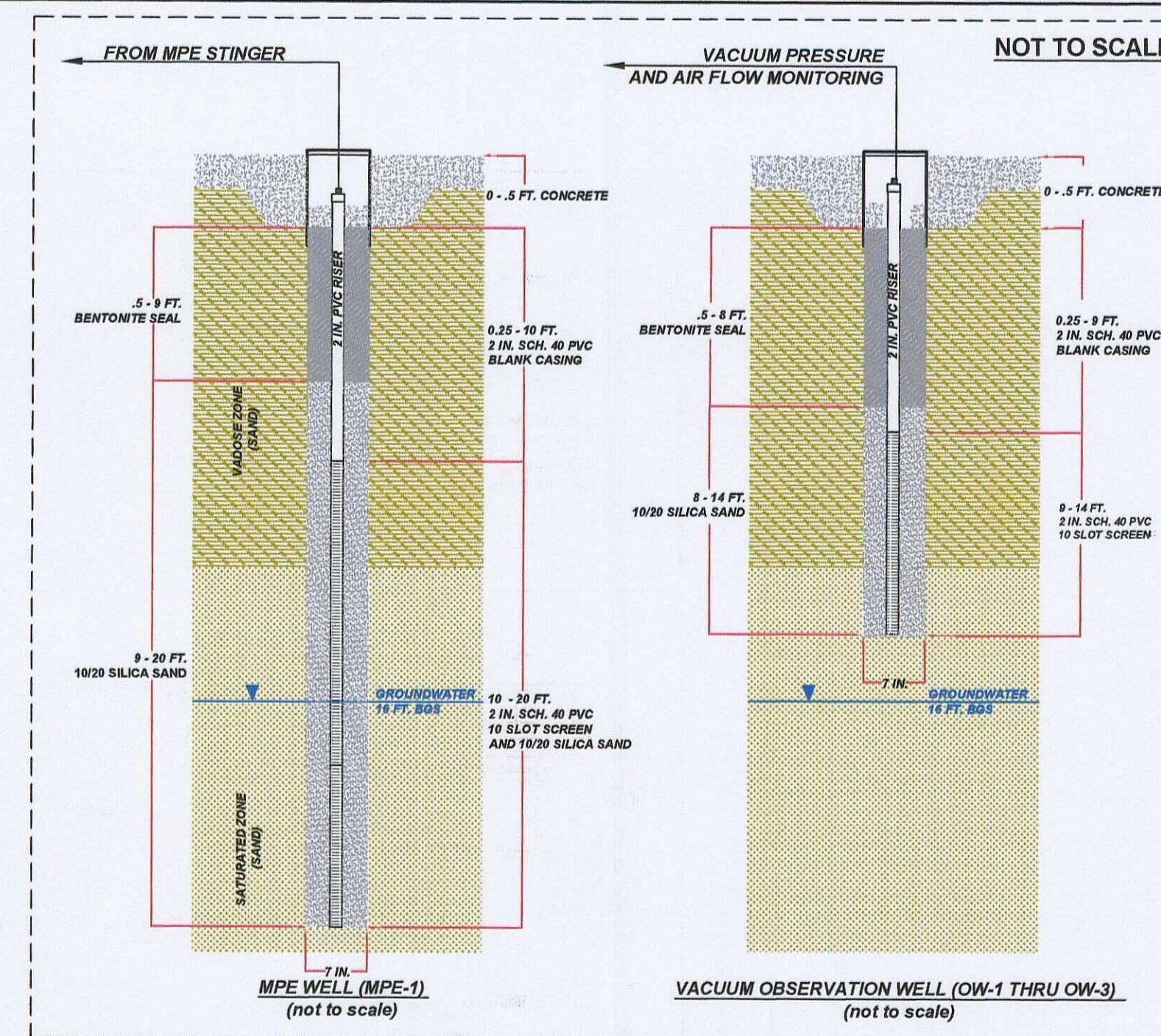
May 4, 2009



MPE PILOT STUDY RESULTS

WELL ID	DATE	TIME	VAC. RESPONSE AT OBSERVATION WELLS (in. H <sub>2</sub> O)	ENG WELL VAC. (in. H <sub>2</sub> O)	WELL VAC. APPLIED AT MPE-1 (in. H <sub>2</sub> O)	WELL FLOW FROM MPE-1 (SCFH)	WELL FLOW BTU VALUE	WELL FLOW PPMV (PPM)	PRE CAT (F)	POST CATOX OVM (PPM)
OW-1	2/5/09	1200	3.2	20	17	10	46,000	12,100	737	142
OW-2			2.1							
OW-3			0.3							
RW-24			0							
RW-25			0							
TW-21			0.1							
OW-1	2/5/09	1300	3.2	20	14	10	42,000	11,200	726	95
OW-2			1.85							
OW-3			0.2							
RW-24			0.5							
RW-25			0.3							
TW-21			0.5							
OW-1	2/5/09	1400	5.2	40	25	11	71,000	15,800	775	103
OW-2			3.1							
OW-3			0.4							
RW-24			0.4							
RW-25			0.1							
TW-21			0.1							
OW-1	2/5/09	1500	5.1	40	25	11	71,000	17,100	777	92
OW-2			3.1							
OW-3			0.5							
RW-24			0.2							
RW-25			0.5							
TW-21			0.2							
OW-1	2/5/09	1600	4.5	40	25	11	68,000	16,600	770	66
OW-2			3							
OW-3			0.5							
RW-24			0.2							
RW-25			0.4							
TW-21			0.2							
OW-1	2/5/09	1700	5.9	90	25	11	82,000	19,800	783	81
OW-2			3.1							
OW-3			0.6							
RW-24			0.2							
RW-25			0.5							
TW-21			0.2							
OW-1	2/6/09	0700	7	100	30	11	48,000	11,600	794	290
OW-2			4.2							
OW-3			0.6							
RW-24			0.2							
RW-25			0.6							
TW-21			0.2							
OW-1	2/6/09	0800	6.8	100	40	11	49,000	12,100	800	284
OW-2			4.1							
OW-3			0.7							
RW-24			0.2							
RW-25			0.7							
TW-21			0.2							
OW-1	2/6/09	0900	7	100	42	13	63,000	13,100	809	266
OW-2			4.3							
OW-3			0.7							
RW-24			0.2							
RW-25			0.7							
TW-21			0.2							
OW-1	2/6/09	0900	7.2	100	42	13	63,000	13,100	809	266
OW-2			4.3							
OW-3			0.7							
RW-24			0.2							
RW-25			0.7							
TW-21			0.2							
OW-1	2/6/09	1000	4.5	100	43	13	81,000	16,500	806	143
OW-2			2.2							
OW-3			0.7							
RW-24			0.2							
RW-25			0.7							
TW-21			0.2							

During 22 hours of pilot study operations, 16,736 standard cubic feet of well gas were processed from MPE-1. A total of 79.73 pounds of hydrocarbons (equal to 12.85 gallons) were extracted as vapors, and 13 gallons of free product (diesel fuel) were collected. Additionally, 600 gallons of groundwater, approximately 0.5 gallons per minute (gpm), were collected. Free product and diesel fuel are stored in Tank #22 and will be properly disposed of at a later date. Vacuum response data indicates that with an applied vacuum pressure of 40 in H<sub>2</sub>O at MPE-1, 0.7 in H<sub>2</sub>O of vacuum influence was measured in RW-25, which is located 50 feet from MPE-1.



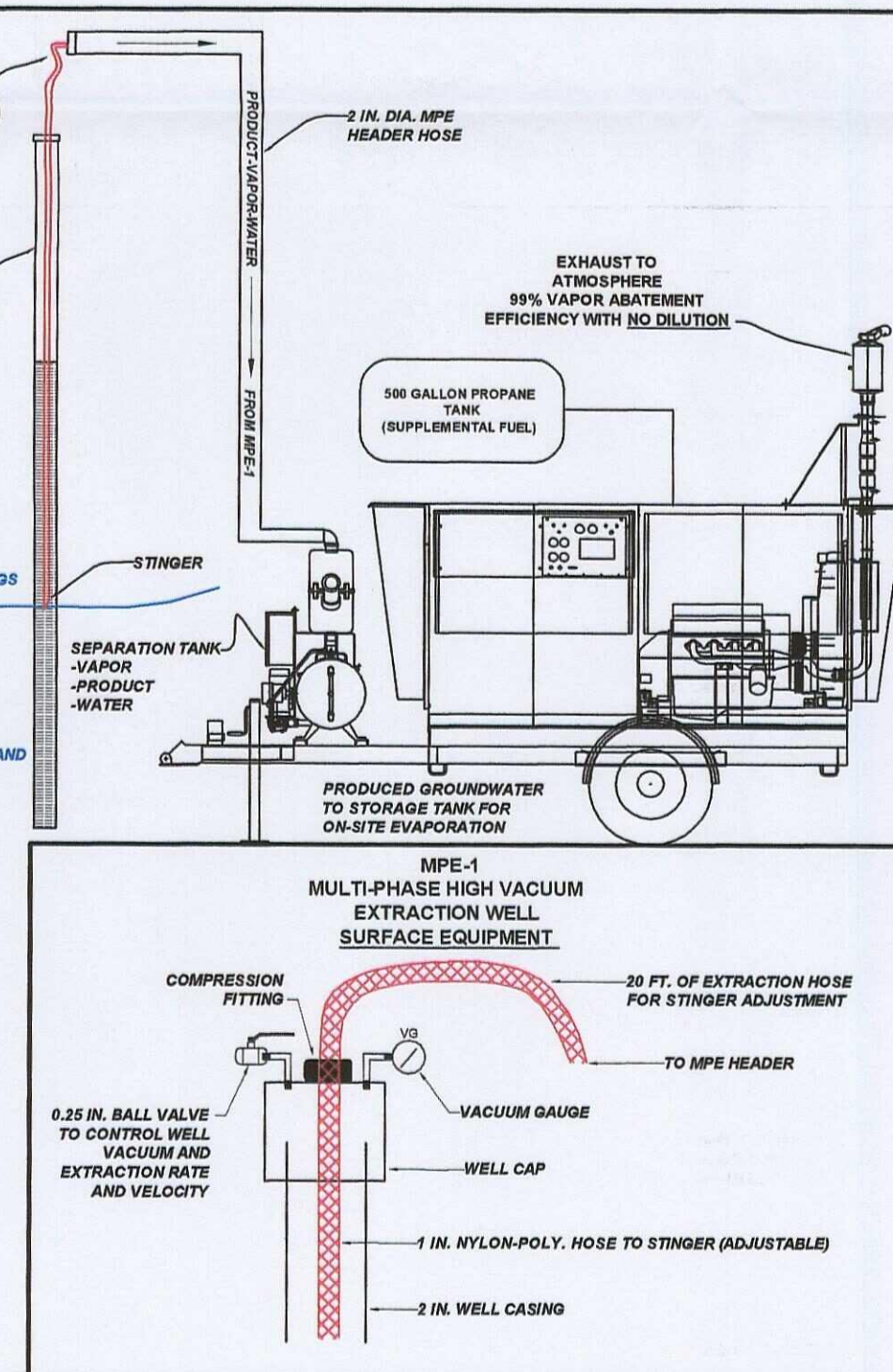
NOT TO SCALE

## PILOT STUDY PROCEDURE

- 1) COLLECT SOIL GAS CHEMISTRY DATA AND INITIAL DEPTH TO GROUNDWATER MEASUREMENTS FROM ALL PILOT STUDY WELLS
- 2) MARK STINGER/HOSE IN 1 FT. INCREMENTS
- 3) BEGIN WITH STINGER OUT OF WATER (SVE ONLY) AND CHECK WELL CASING VACUUM
- 4) SLOWLY LOWER STINGER TO PREDETERMINED DEPTH (APPROXIMATELY 1 FT. BELOW STATIC WATER LEVEL)
- 5) NOTE: AS STINGER ENTERS WATER, VACUUM WILL INITIALLY INCREASE, THEN REBOUND
- 6) CONTINUALLY OPERATE SYSTEM FOR 24 HOURS, COLLECTING VAPOR, GROUNDWATER AND PRODUCT RECOVERY DATA FROM MPE-1; VACUUM RESPONSE FROM OW-1 THRU OW-3
- 7) AFTER 24 HOURS, SHUT SYSTEM OFF AND COLLECT SOIL GAS CHEMISTRY DATA (TO DETERMINE PORE VOLUME EXCHANGE)

## MULTI-PHASE HIGH VACUUM EXTRACTION PILOT STUDY UNIT WITH VAPOR ABATEMENT SYSTEM

1. RSI S.A.V.E. II MODULAR BASE SYSTEM (Model V3) SINGLE ENGINE, WITH UP TO 292 ACFM AT 2000 RPM @ 28 IN. H<sub>2</sub>O VACUUM.
2. COMPRESSIVE THERMAL OXIDIZER (POWER SOURCE) RATED AT 60 LBS/HR DESTRUCTION RATE.
3. CONDENSATE TREATMENT TANK.
4. PHOENIX 1000 AUTOMATION SYSTEM.



## LEGEND

- MPE-1 MULTI-PHASE VACUUM EXTRACTION WELL
- OW-1 VACUUM RESPONSE OBSERVATION WELL
- TW-21 VACUUM RESPONSE OBSERVATION WELL
- RW-24 VACUUM RESPONSE OBSERVATION WELL
- 1.00 FREE PRODUCT THICKNESS CONTOUR IN FEET

**FIGURE 10**  
**MPE PILOT STUDY LAYOUT**  
**AND RESULTS, FEBRUARY 2009**  
THRIFTWAY REFINERY  
626 ROAD 5500  
BLOOMFIELD, NEW MEXICO

DRAWN BY:  
R. Kennemer  
REVISIONS BY:  
R. Kennemer  
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DATE DRAWN:  
February 26, 2009  
DATE REVISED:  
April 30, 2009  
DATE CHECKED:  
April 30, 2009  
DATE APPROVED:  
May 1, 2009

