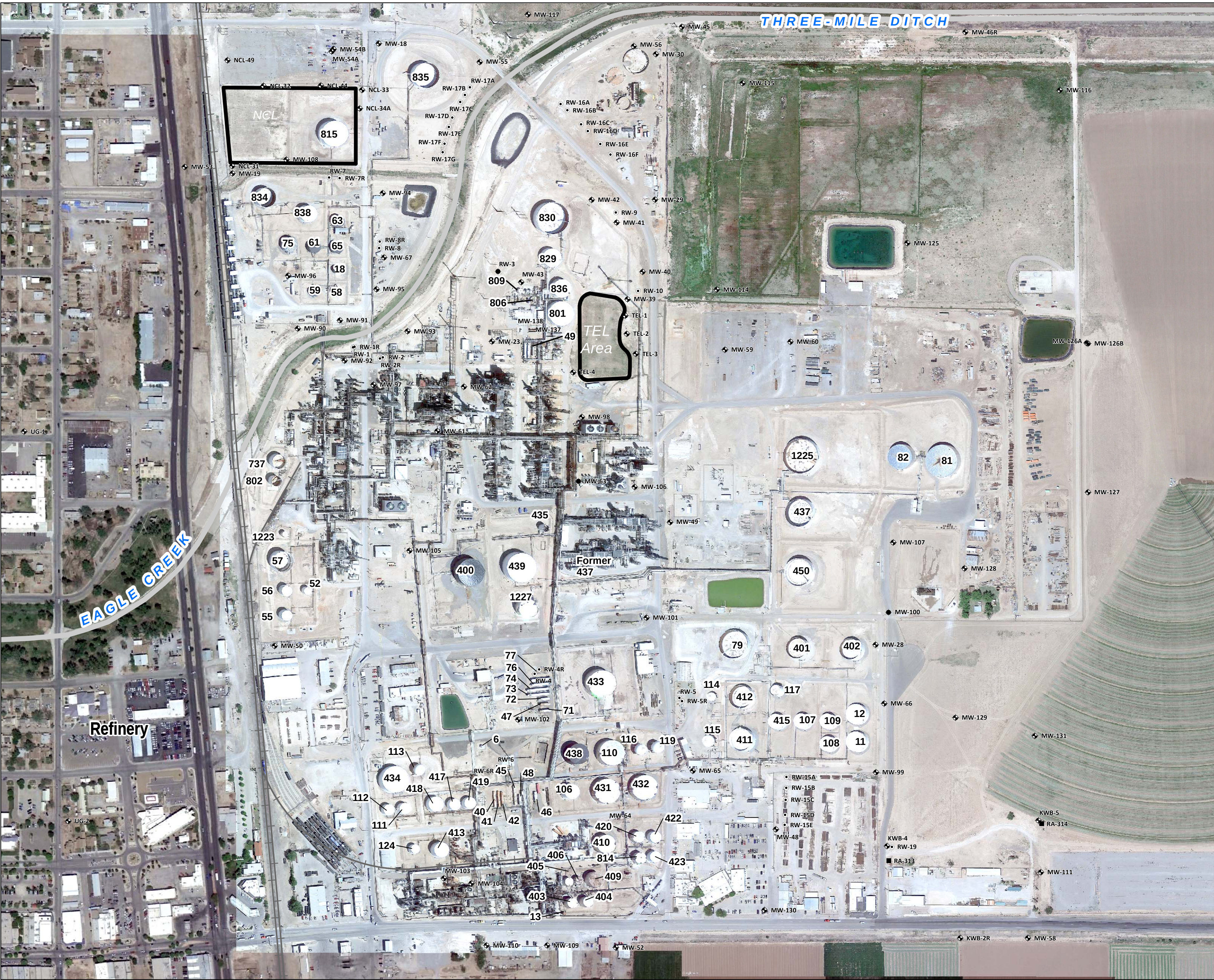


GW - 028

**FACILITY-WIDE GW
MONITORING PLAN
(3 of 3)**

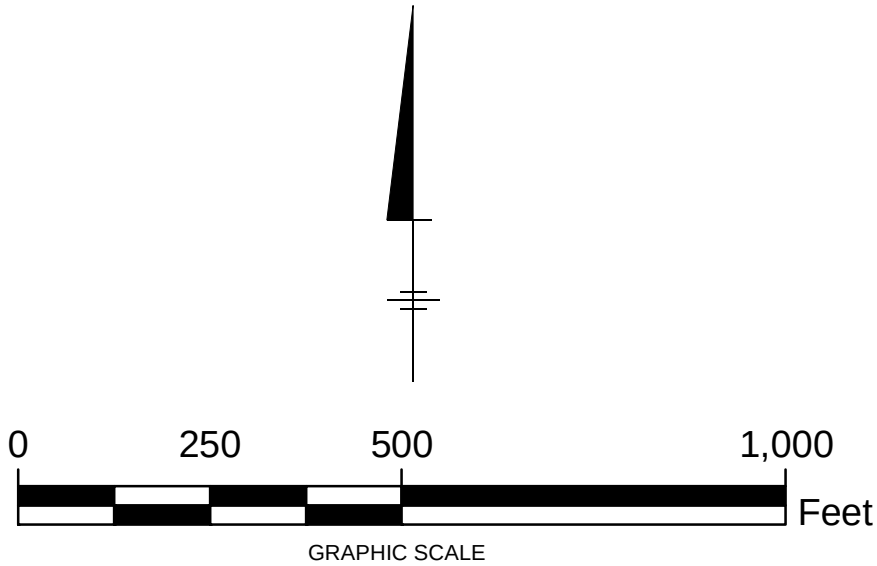
2015

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Project (Project #) TX000836.0004.0004
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- LEGEND:
- MONITORING WELL
 - RECOVERY WELL
 - IRRIGATION WELL
 - ABANDONED WELL

TANK TABLE NOTES:
AOC = AREA OF CONCERN
B. = BEFORE DATE SHOWN, ACTUAL DATE UNKNOWN
RBLT = REBUILT DATE SHOWN
SWMU = SOLID WASTE MANAGEMENT UNIT
BLANK CELLS INDICATE DATA IS UNKNOWN OR UNAVAILABLE AT THIS TIME.



Tank Number	Location in Relation to AOCs & SWMUs	Diameter (feet)	Height / Length (feet)	Capacity (barrels)	Date Constructed	Contents (2013)
6	RW-6 between AOC 3 & AOC 4					Out of Service
11	AOC 3	89	29	31,500	B. 1983	Reformate
12	AOC 3	89	29	31,500	B. 1983	Reformate
13	AOC 8	10	20	250	1990	Slop
18	SWMU 17	29	24	2,250	B. 1979	Out of Service
40	Between AOC 3 & AOC 4	9	72	730		Spent Caustic
41	Between AOC 3 & AOC 4	9	72	730		Spent Caustic
42	Between AOC 3 & AOC 4	9	67	700		Wild Naphtha
45	Between AOC 3 & AOC 4	11	90	1,400		Butane
46	Between AOC 3 & AOC 4	12	47	920		Isobutane
47	West of AOC 3	11	36	700		Out of Service
48	Between AOC 3 & AOC 4	11	36	700		Butane
52	AOC 7					Out of Service
55	AOC 7	45	36	10,800	RBLT 1979	Stripped Sour Water
56	AOC 7	48	36	10,800	B. 1976	Sweet Naphtha
57	AOC 7	90	49	55,000	1981	Benfree Unit Feed
58	SWMU 17	35	30	4,700	B. 1979	Out of Service
59	SWMU 17	35	30	4,700	B. 1979	Light Cycle Oil
61	SWMU 17	50	30	9,700	B. 1987	Light Cycle Oil
63	SWMU 17	51	30	10,000	B. 1987	Carbon Black Oil
65	SWMU 17	50	30	10,380	1999	Carbon Black Oil
71	West of AOC 3	10.5	44	714		Propane
72	West of AOC 3	10.5	44	714		Propane
73	West of AOC 3	10	103	1,525		Propane
74	West of AOC 3	10	103	1,525		Propane
75	SWMU 17	65	32	18,900	2003	Carbon Black Oil
76	West of AOC 3	11	79			Propane
77	West of AOC 3	11	79			Propane
79	AOC 3	125	40	70,000	2008	Reformate
81	AOC 6	108.5	40	60,000	2009	PG Asphalt
82	AOC 6	140	40	100,000	2009	PG Asphalt
106	AOC 3	67	40	22,500	B. 1971	Sour Water
107	AOC 3	67	40	22,500	B. 1971	Casing Head
108	AOC 3	67	40	22,500	1951	Alkylate
109	AOC 3	67	40	22,500	B. 1971	Alkylate
110	AOC 3	108	35	54,000	1929	Asphalt
111	AOC 4	49	30	9,100	B. 1981	Splitter Bottoms
112	AOC 4	49	30	9,100	B. 1981	Splitter Bottoms
113	AOC 4	48		10,300		Out of Service
114	AOC 3	38		5,100		N-Butane
115	AOC 3	51		12,300		N-Butane
116	AOC 3	48				Isobutane
117	AOC 3	48	48	15,470	1960	Splitter Bottoms
119	AOC 3	51		12,300		Isobutane
124	AOC 4	40	30	6,700	1955	Gasoline
400	AOC 5	120	48	96,786	1983	Gas Oil
401	AOC 3	90	50	55,000	1982	Benfree Product
402	AOC 3	90	50	55,000	1983	Light Cat Naphtha
403	AOC 8	45	36	8,250		Out of Service
404	AOC 8	45	36	8,250		Out of Service
405	AOC 8	37	28	4,575		Out of Service
406	AOC 8	38	28	5,400		Out of Service
409	AOC 8	67	40	21,450		Out of Service
410	AOC 8	79	40	30,850		Asphalt
411	AOC 3	100	40	52,000	1951	Casing Head
412	AOC 3	100	40	52,000	1951	Gasoline Blend
413	AOC 4	67	39	22,500	about 1960	Raw Kerosene
415	AOC 3	67	40	25,000	1953	Alkylate
417	AOC 4	50	30	9,300	B. 1981	Gasoline
418	AOC 4	67	33	25,000	B. 1987	Raw Kerosene
419	AOC 4	53	28	10,300	B. 1981	Diesel
420	AOC 8	50	30	8,200	B. 1989	Asphalt
422	AOC 8	50	30	8,200		Light Cycle Oil
423	AOC 8	50	30	8,200	B. 1970	Light Cycle Oil
431	AOC 3	109	32	45,800	B. 1984	Fuel Oil
432	AOC 3	109	32	45,800	B. 1973	Fuel Oil
433	AOC 3	117	42	72,500	B. 1984	Gas Oil
434	AOC 4	117	42	7,600		Raw Diesel
435	AOC 5	30	40	5,000	Reloc. 1997	Sour Water
437	AOC 6	120	45	80,000	1976/2009	Crude Oil
438	AOC 3	90	48	54,500	1978	Gas Oil
439	AOC 5	130	46	107,900	1978	Sour Naphtha
450	AOC 3	120	40	80,570	1997	Sour Naphtha
737	AOC 7	63	40	20,000	2009	Sour Water
801	AOC 9	110	32	54,000	1987	Wastewater
802	AOC 7	45	40	10,000	2002	Sour Water
806	AOC 11	30	7	800		Separator (OOS)
809	West of AOC 11	20	16	850	1954	Treated Wastewater
814	AOC 8	50	32	10,000	2005	Pitch
815	SWMU 6	116	43	90,000	2005	ULSD
829	AOC 9					Wastewater (OOS)
830	AOC 9					Stormwater
834	AOC 1	85	40	40,000	1967	Diesel
835	Northeast of SWMU 6	111	40	68,000		Diesel
836	AOC 9	82.5	32	30,460	1998	Wastewater
838	AOC 1	74	40	29,900		Diesel
1223	AOC 7	25	24	2,000	2002	Caustic
1225	AOC 6	150	40	100,000	2009	Crude Oil
1227	AOC 5	77	40	30,000	2009	Pitch

NAVAJO REFINING COMPANY
ARTESIA REFINERY, EDDY COUNTY, NEW MEXICO
2015 FACILITY WIDE GROUNDWATER MONITORING WORK PLAN

WELL LOCATIONS AND TANK
INFORMATION WITHIN REFINERY

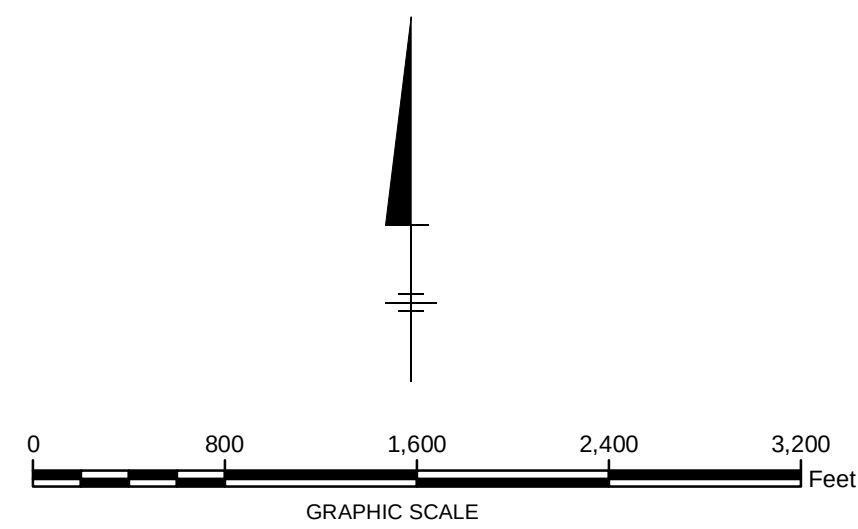




- LEGEND:
- ◆ MONITORING WELL
 - RECOVERY WELL
 - SHALLOW SATURATED ZONE POTENTIOMETRIC SURFACE CONTOURS (HASHED WHERE DEPRESSED)

NOTES:

- POTENTIOMETRIC SURFACE ELEVATION IN FEET ABOVE MEAN SEA LEVEL.
- * = NOT USED TO CONSTRUCT CONTOURS.
- ** = INACCESSIBLE WELL.



NAVAJO REFINING COMPANY
ARTESIA REFINERY, EDDY COUNTY, NEW MEXICO
2015 FACILITY WIDE GROUNDWATER MONITORING WORK PLAN

SHALLOW SATURATED ZONE
POTENTIOMETRIC SURFACE MAP
2014 SECOND SEMIANNUAL EVENT (NOV)

FIGURE
4

Table 1
Revised Monitoring Program and Schedule
Navajo Refining Company - Artesia Refinery, Artesia, New Mexico

Well ID	Well Type	Location Information		Well Construction Information ^a								PSH Expected? ^b	Gauging Frequency	Analytical Suite and Frequency ^c									
		Associated Area of Concern	Approximate Location	Install Date	Diameter (in)	Top of Casing (ft MSL)	Ground Surface (ft MSL)	Total Depth (ft btoc)	Screen Interval (ft bgs)	Water Bearing Zone	Surface Finish			Purge Parameters	TPH	VOCs	Metals (As, Ba, Cr, Fe, Pb, Mn, Se)	Metals (Hg, Ni, Va)	Cyanide	Cations/Anions	Nitrates / Nitrites as Nitrogen	Total Dissolved Solids	
KWB-1A	Monitoring	Field E of Refinery	S of ED, W of BR	2/11/92	2	3353.46	3351.25	33.49	18 to 32	Shallow	stickup		SA	SA	SA	SA	SA	SA	SA	SA	SA		
KWB-1B	Monitoring	Field E of Refinery	S of ED, W of BR	2/15/92	4	3352.83	3351.14	33.95	18 to 32	Shallow	stickup		SA	No analytical samples to be collected									
KWB-1C	Monitoring	Field E of Refinery	S of ED, W of BR	9/29/92	4	3351.38	3351.18	52.71	30.5 to 49.5	Valley Fill	stickup		SA	B	B	B	B	-	-	B	B	B	
KWB-2R	Monitoring	Field E of Refinery	S of US82 on Armstrong & Son		2	3364.32	3364.56	39.86		Shallow	flush mount	Y	SA	SA ^d	SA ^d	SA ^d	SA ^d	-	-	SA ^d	SA ^d	SA ^d	
KWB-3AR	Monitoring	Field E of Refinery	S of US82, replaced KWB #3R	9/3/03	2	3347.08	3347.36	no access	17 to 33	Shallow	flush mount		SA ^f	SA ^f	SA ^f	SA ^f	SA ^f	SA ^f	SA ^f	SA ^f	SA ^f		
KWB-4	Monitoring	S Refinery	N of US82, W of BR	2/17/92	2	3370.25	3368.36	41.74	20 to 39	Shallow	stickup	Y	SA	SA ^d	SA ^d	SA ^d	SA ^d	-	-	SA ^d	SA ^d	SA ^d	
KWB-5	Monitoring	Field E of Refinery	N of US82, W of BR	2/11/92	2	3364.72	3362.60	37.68	24.7 to 38.7	Shallow	stickup	Y	SA	SA ^d	SA ^d	SA ^d	SA ^d	-	-	SA ^d	SA ^d	SA ^d	
KWB-6	Monitoring	Field E of Refinery	N of US82, W of BR	2/12/92	2	3360.30	3358.02	36.38	17.5 to 36.5	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
KWB-7	Monitoring	Field E of Refinery	N of US82, between BR & Dirt Rd	2/13/92	2	3346.16	3343.00	34.83	18 to 32	Shallow	stickup		SA	SA	SA	SA	SA	SA	SA	SA	SA		
KWB-8	Monitoring	Field E of Refinery	N of US82, between BR & Dirt Rd	2/12/92	2	3350.41	3347.90	35.83	15 to 34	Shallow	stickup	Y	SA	SA ^d	SA ^d	SA ^d	SA ^d	SA ^d	SA ^d	SA ^d	SA ^d		
KWB-9	Monitoring	Field E of Refinery	S of US82, E of BR	2/13/92	2	3354.53	3351.81	obstructed	20 to 34	Shallow	stickup		SA ^f	A ^f	A ^f	A ^f	A ^f	A ^f	A ^f	A ^f	A ^f		
KWB-10R	Monitoring	Field E of Refinery	S of ED, N of US82	10/1/10	4	3350.97	3351.23	29.48	9 to 29	Shallow	flush mount	Y	SA	SA ^d	SA ^d	SA ^d	SA ^d	-	-	SA ^d	SA ^d	SA ^d	
KWB-11A	Monitoring	Field E of Refinery	N of US82, between BR & Dirt Rd	10/4/92	4	3348.72	3346.13	42.32	30 to 39.5	Shallow	stickup		SA	SA	SA	SA	SA	SA	SA	SA	SA		
KWB-11B	Monitoring	Field E of Refinery	N of US82, between BR & Dirt Rd	10/4/92	4	3348.03	3345.91	72.47	50 to 69.5	Valley Fill	stickup		SA	SA	SA	SA	SA	SA	SA	SA	SA		
KWB-12A	Monitoring	Field E of Refinery	S of US82, E of BR	10/4/92	4	3351.81	3352.01	25.03	15.5 to 24.5	Shallow	flush mount		SA	SA	SA	SA	SA	SA	SA	SA	SA		
KWB-12B	Monitoring	Field E of Refinery	S of US82, E of BR	10/4/92	4	3351.63	3351.84	39.39	25.5 to 39.5	Valley Fill	flush mount		SA	SA	SA	SA	SA	SA	SA	SA	SA		
KWB-13	Monitoring	Crossgradient	S of US82, W of BR		2	3365.67	3366.02	33.10		Shallow	flush mount		SA	A	A	A	A	A	A	A	A		
KWB-P4	Monitoring	Field E of Refinery	Haines House		2	3305.39	3305.76	30.26		Shallow	flush mount		B	B	B	B	-	-	-	-	-		
MW-1R	Monitoring	EP	W of the EPs	9/3/03	2	3313.28	3311.58	20.64	8 to 23	Shallow	stickup		SA	A	A	A	A	-	-	A	A	A	
MW-2A	Monitoring	EP	W of the EPs	6/18/86	2	3312.97	3310.55	17.35		Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-2B	Monitoring	EP	W of the EPs	12/12/92	2	3312.49	3309.94	51.98	38.5 to 48	Valley Fill	stickup		SA	No analytical samples to be collected									
MW-3	Monitoring	EP	S of EP 1 & 2	6/17/86	2	3310.32	3309.07	20.08		Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-4A	Monitoring	EP	S of EP 1 & 2	6/17/86	4	3312.71	3308.64	obstructed		Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-4B	Monitoring	EP	S of EP 1 & 2	2/24/95	4	3312.01	3308.73	72.37	60.25 to 70	Valley Fill	stickup		SA	B	B	B	B	-	-	B	B	B	
MW-5A	Monitoring	EP	S of EP 2	6/19/86	2	3308.62	3306.59	20.19		Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-5B	Monitoring	EP	S of EP 2	12/16/92	2	3308.95	3306.71	53.54	41.5 to 50.5	Valley Fill	stickup		SA	B	B	B	B	-	-	B	B	B	
MW-5C	Monitoring	EP	S of EP 2	1/19/95	2	3309.28	3306.55	71.64	59.25 to 68.75	Valley Fill	stickup		SA	B	B	B	B	-	-	B	B	B	
MW-6A	Monitoring	EP	S of EP 1	6/19/86	2	3313.46	3310.40	19.05		Shallow	stickup		SA	A	A	A	A	-	-	A	A	A	
MW-6B	Monitoring	EP	S of EP 1	10/12/93	2	3313.35	3310.09	52.27	39.5 to 49	Valley Fill	stickup		SA	B	B	B	B	-	-	B	B	B	
MW-7A	Monitoring	EP	S of EP 3	6/19/86	2	3309.24	3306.04	17.40		Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-7B	Monitoring	EP	S of EP 3	1/18/93	4	3307.87	3306.05	52.56	39.5 to 49	Valley Fill	stickup		SA	B	B	B	B	-	-	B	B	B	
MW-8	Monitoring	TMD	S of ED between BR & HR	6/20/86	2	3336.42	3334.81	20.33		Shallow	stickup		SA	A	A	A	A	-	-	A	A	A	
MW-9	Monitoring	TMD	S of ED between BR & HR	6/20/86	2	3336.20	3334.50	20.20		Shallow	stickup		SA	No analytical samples to be collected									
MW-10	Monitoring	EP	S of EPs	11/18/92	2	3304.76	3304.14	18.53		Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	

Table 1
Revised Monitoring Program and Schedule
Navajo Refining Company - Artesia Refinery, Artesia, New Mexico

Well ID	Well Type	Location Information		Well Construction Information ^a								PSH Expected? ^b	Gauging Frequency	Analytical Suite and Frequency ^c									
		Associated Area of Concern	Approximate Location	Install Date	Diameter (in)	Top of Casing (ft MSL)	Ground Surface (ft MSL)	Total Depth (ft btoc)	Screen Interval (ft bgs)	Water Bearing Zone	Surface Finish			Purge Parameters	TPH	VOCs	Metals (As, Ba, Cr, Fe, Pb, Mn, Se)	Metals (Hg, Ni, Va)	Cyanide	Cations/Anions	Nitrates / Nitrites as Nitrogen	Total Dissolved Solids	
MW-11A	Monitoring	EP	NE of EP 6	12/10/92	4	3310.76	3308.42	22.01	5.5 to 20	Shallow	stickup		SA	A	A	A	A	-	-	SA	SA	SA	
MW-11B	Monitoring	EP	NE of EP 6	12/14/92	2	3310.76	3308.34	47.30	35.5 to 45	Valley Fill	stickup		SA	B	B	B	B	-	-	B	B	B	
MW-12	Monitoring	EP	N of OCD #1	12/16/92	4	3312.73	3310.37	17.93	6.5 to 16	Shallow	stickup		SA	Not included in monitoring program due to location (north of river)									
MW-13	Monitoring	EP	N of EP 1	12/16/92	4	3314.24	3311.95	21.13	9.5 to 19	Shallow	stickup		SA	Not included in monitoring program due to location (north of river)									
MW-14	Monitoring	EP	E of OCD #7	12/16/92	4	3311.84	3309.44	obstructed	5.5 to 20	Shallow	stickup		SA	Not included in monitoring program due to location (north of river)									
MW-15	Monitoring	EP	W of EP 1	12/16/92	4	3313.72	3310.97	21.70	9 to 19	Shallow	stickup		SA	A	A	A	A	-	-	A	A	A	
MW-16	Monitoring	TMD	E of HR, N of ED	1/19/93	4	3316.12	3313.50	21.24	8.5 to 19	Shallow	stickup		SA	A	A	A	A	-	-	A	A	A	
MW-17	Monitoring	Crossgradient	NE of Artesia POTW	1/20/93	4	3322.01	3319.43	34.41	17 to 32	Shallow	stickup		Not included in monitoring program due to distance from impacts										
MW-18	Monitoring	NCL	N Refinery, E of NCL	6/8/82	8	3365.42	3363.06	22.20	15 to 19	Shallow	stickup		SA	A	A	A	A	A	A	A	A	A	
MW-18A	Monitoring	EP	S of EPs	1/21/93	4	3308.58	3306.33	22.59	10 to 20	Shallow	stickup		SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	
MW-18B	Monitoring	EP	S of EPs	1/22/93	2	3308.74	3306.23	50.59	37 to 47	Valley Fill	stickup		SA	B	B	B	B	-	-	B	B	B	
MW-18T	Monitoring	EP	S of EPs	1/22/93	4	3308.55	3306.30	50.40	37 to 47	Valley Fill	stickup		SA	No analytical samples to be collected									
MW-19	Monitoring	NCL	S of NCL		2	3368.00	3366.00	22.10		Shallow	stickup		SA	No analytical samples to be collected									
MW-20	Monitoring	TMD	E of BR, S of ED	1/21/93	4	3340.91	3338.43	26.86	9.5 to 23.5	Shallow	stickup		SA	A	A	A	A	-	-	A	A	A	
MW-21	Monitoring	TMD	S of ED between BR & HR	1/23/93	4	3337.31	3334.65	25.06	7.5 to 22	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-22A	Monitoring	EP	S of EPs	1/27/93	4	3307.62	3305.24	22.70	5.5 to 20.5	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-22B	Monitoring	EP	S of EPs	1/28/93	2	3307.63	3305.08	54.66	42.3 to 52	Valley Fill	stickup		SA	B	B	B	B	-	-	B	B	B	
MW-23	Monitoring	N Refinery	W of TEL	6/28/82	6	3368.38	3365.09	19.90	15 to 20	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-24	Monitoring	EP	E of OCD #6	7/5/82	6	3312.85	3310.33	23.50	15 to 20	Shallow	stickup		SA	Not included in monitoring program due to location (east of river)									
MW-25	Monitoring	TMD	S of ED, E of HR	1/13/95	2	3312.29	3310.35	28.18	15.75 to 25.25	Shallow	stickup		SA	A	A	A	A	-	-	A	A	A	
MW-26	Monitoring	TMD	S of ED, E of HR	1/13/95	2	3314.87	3312.08	27.60	15.25 to 24.25	Shallow	stickup		SA	A	A	A	A	-	-	A	A	A	
MW-27	Monitoring	TMD	E of HR, S of ED	1/12/95	2	3320.85	3319.46	29.98	18.25 to 27.75	Shallow	stickup		SA	A	A	A	A	-	-	A	A	A	
MW-28	Monitoring	S Refinery	E of SE Tankfarm	7/8/82	6	3370.27	3366.79	34.48	25 to 30	Shallow	stickup		SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	
MW-29	Monitoring	N Refinery	N of TEL	1/10/95	2	3360.64	3359.79	22.00	9.75 to 19.25	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-30	Monitoring	N Refinery	W of BR		8	3361.98	3359.14	23.50		Shallow	stickup		SA	No analytical samples to be collected									
MW-39	Monitoring	N Refinery	N of TEL	6/13/84	2	3358.79	3357.94	22.85	14 to 24	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-40	Monitoring	N Refinery	N of TEL	6/14/84	2	3356.93	3356.56	24.75		Shallow	stickup		SA	A	A	A	A	-	-	A	A	A	
MW-41	Monitoring	N Refinery	N of TEL	6/15/84	2	3356.58	3356.38	21.56	14 to 19	Shallow	stickup		SA	A	A	A	A	-	-	A	A	A	
MW-42	Monitoring	N Refinery	N of TEL	6/19/84	2	3358.44	3355.64	24.34		Shallow	stickup		SA	A	A	A	A	-	-	A	A	A	
MW-43	Monitoring	N Refinery	NW of TEL	7/17/84	6	3365.49	3363.38	21.40	15.5 to 20.5	Shallow	stickup		SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	
MW-45	Monitoring	NCL	E of Refinery, S of ED	8/22/84	2	3351.51	3351.32	15.05	10.5 to 15.5	Shallow	stickup		SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	
MW-46R	Monitoring	TMD	E of Refinery, S of ED	10/1/10	2	3350.11	3350.41	19.38	3.5 to 18.5	Shallow	flush mount		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-48	Monitoring	S Refinery	S of SE Tankfarm	12/14/94	2	3362.97	3363.04	31.89	19 to 34	Shallow	flush mount	Y	SA	SA ^d	SA ^d	SA ^d	SA ^d	-	-	SA ^d	SA ^d	SA ^d	
MW-49	Monitoring	TEL	E Refinery, midway from ED to US82	12/20/94	2	3359.77	3359.69	33.15	19 to 34	Shallow	flush mount		SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	

Table 1
Revised Monitoring Program and Schedule
Navajo Refining Company - Artesia Refinery, Artesia, New Mexico

Well ID	Well Type	Location Information		Well Construction Information ^a								PSH Expected? ^b	Gauging Frequency	Analytical Suite and Frequency ^c									
		Associated Area of Concern	Approximate Location	Install Date	Diameter (in)	Top of Casing (ft MSL)	Ground Surface (ft MSL)	Total Depth (ft btoc)	Screen Interval (ft bgs)	Water Bearing Zone	Surface Finish			Purge Parameters	TPH	VOCs	Metals (As, Ba, Cr, Fe, Pb, Mn, Se)	Metals (Hg, Ni, Va)	Cyanide	Cations/Anions	Nitrates / Nitrites as Nitrogen	Total Dissolved Solids	
MW-50	Monitoring	S Refinery	W of Refinery, E of US285, N of US 82	12/21/94	2	3371.05	3368.91	28.28	12 to 27	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-52	Monitoring	S Refinery	S of Refinery & US82	1/14/95	2	3368.30	3368.36	34.70	19 to 34	Shallow	flush mount		SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	
MW-53	Monitoring	NCL	W of Refinery, E of rail	6/25/95	2	3368.73	3368.86	23.60	13.8 to 23.8	Shallow	flush mount		SA	A	A	A	A	-	-	A	A	A	
MW-54A	Monitoring	NCL	NW of NCL	12/11/95	2	3366.49	3363.55	31.34	12.7 to 27.7	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-54B	Monitoring	NCL	NW of NCL	12/20/95	2	3366.47	3363.47	46.83	33.8 to 43.8	Valley Fill	stickup		SA	B	B	B	B	-	-	B	B	B	
MW-55	Monitoring	NCL	E of NCL	6/25/95	2	3364.77	3361.90	26.58	13.7 to 23.7	Shallow	stickup		SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	
MW-56	Monitoring	NCL	NE of Refinery	8/7/95	2	3357.44	3354.84	26.50	13.4 to 23.4	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-57	Monitoring	Field E of Refinery	S BR	9/8/03	2	3350.91	3350.95	34.36	10 to 30	Shallow	flush mount		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-58	Monitoring	Field E of Refinery	S of US82, W of BR	9/5/03	4	3362.22	3362.56	33.06	13 to 28	Shallow	flush mount	Y	SA	SA ^d	SA ^d	SA ^d	SA ^d	SA ^d	SA ^d	SA ^d	SA ^d	SA ^d	
MW-59	Monitoring	N Refinery	Boneyard	9/4/03	2	3362.43	3359.44	32.82	15 to 30	Shallow	stickup		SA	A	A	A	A	-	-	A	A	A	
MW-60	Monitoring	N Refinery	Boneyard	9/4/03	2	3361.98	3359.26	37.70	15 to 30	Shallow	stickup		SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	
MW-61	Monitoring	N Refinery	SW of TEL	4/27/05	4	3369.47	3369.45	29.50	14 to 29	Shallow	flush mount		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-62	Monitoring	N Refinery	SW of TEL	4/27/05	4	3368.81	3369.01	23.00	14 to 29	Shallow	flush mount		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-64	Monitoring	S Refinery	SW of SE Tankfarm	4/28/05	4	3369.52	3365.56	34.08	15 to 30	Shallow	flush mount	Y	SA	SA ^d	SA ^d	SA ^d	SA ^d	-	-	SA ^d	SA ^d	SA ^d	
MW-65	Monitoring	S Refinery	S of SE Tankfarm	4/26/05	4	3363.60	3363.84	28.80	14.5 to 29.5	Shallow	flush mount	Y	SA	SA ^d	SA ^d	SA ^d	SA ^d	-	-	SA ^d	SA ^d	SA ^d	
MW-66	Monitoring	S Refinery	E of SE Tankfarm	4/26/05	4	3363.46	3363.66	29.80	14.6 to 29.6	Shallow	flush mount		SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	
MW-67	Monitoring	N Refinery	E of Diesel Tank Farm	4/25/05	4	3365.45	3365.59	27.30	12 to 27	Shallow	flush mount		SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	
MW-68	Monitoring	TMD	S of ED, west of HR, formerly MW #28	1/11/95	2	3328.21	3325.81	26.52	14.75 to 24.5	Shallow	stickup		SA	A	A	A	A	-	-	A	A	A	
MW-69	Monitoring	EP	N of River, formerly MW #23	1/27/93	2	3313.86	3311.40	22.51	5 to 20	Shallow	stickup		SA	Not included in monitoring program due to location (north of river)									
MW-70	Monitoring	EP	S of EPs, formerly MW #19	1/23/93	4	3306.30	3303.84	22.06	5 to 20	Shallow	stickup		SA	SA	SA	SA	SA	-	-	A	A	A	
MW-71	Monitoring	TMD	S of ED, formerly MW #29	1/10/95	2	3335.29	3332.99	21.85	9.75 to 19.5	Shallow	stickup		SA	A	A	A	A	A	A	A	A	A	
MW-72	Monitoring	EP	EP 6	3/29/07	4	3308.45	3306.40	13.93	2 to 12	Shallow	stickup		SA	A	A	A	A	-	-	A	A	A	
MW-73	Monitoring	EP	EP 3	3/29/07	4	3310.18	3308.02	19.60	2 to 17	Shallow	stickup		SA	A	A	A	A	-	-	A	A	A	
MW-74	Monitoring	EP	EP 2	3/29/07	4	3310.03	3307.78	20.16	2 to 17	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-75	Monitoring	EP	EP 2	3/29/07	4	3310.21	3307.80	23.71	3 to 18	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-76	Monitoring	EP	EP 2	3/29/07	4	3311.84	3309.70	20.35	3 to 18	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-77	Monitoring	EP	EP 2	3/29/07	4	3310.07	3307.97	20.57	3 to 18	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-78	Monitoring	EP	EP 2	3/29/07	4	3310.14	3307.94	19.61	2 to 17	Shallow	stickup		SA	A	A	A	A	-	-	A	A	A	
MW-79	Monitoring	EP	EP 5	3/29/07	4	3311.43	3309.08	19.32	2 to 17	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-80	Monitoring	EP	EP 5	3/29/07	4	3310.79	3308.73	19.67	2 to 17	Shallow	stickup		SA	A	A	A	A	-	-	A	A	A	
MW-81	Monitoring	EP	EP 5	3/29/07	4	3312.34	3310.19	18.70	2 to 17	Shallow	stickup		SA	A	A	A	A	-	-	A	A	A	
MW-82	Monitoring	EP	EP 1	3/29/07	4	3310.75	3308.64	20.00	2 to 17	Shallow	stickup		SA	A	A	A	A	-	-	A	A	A	
MW-83	Monitoring	EP	EP 1	3/29/07	4	3310.19	3307.93	19.95	2 to 17	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-84	Monitoring	EP	EP 1	3/29/07	4	3311.59	3309.83	20.56	2 to 17	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	

Table 1
Revised Monitoring Program and Schedule
Navajo Refining Company - Artesia Refinery, Artesia, New Mexico

Well ID	Well Type	Location Information		Well Construction Information ^a								PSH Expected? ^b	Gauging Frequency	Analytical Suite and Frequency ^c									
		Associated Area of Concern	Approximate Location	Install Date	Diameter (in)	Top of Casing (ft MSL)	Ground Surface (ft MSL)	Total Depth (ft btoc)	Screen Interval (ft bgs)	Water Bearing Zone	Surface Finish			Purge Parameters	TPH	VOCs	Metals (As, Ba, Cr, Fe, Pb, Mn, Se)	Metals (Hg, Ni, Va)	Cyanide	Cations/Anions	Nitrates / Nitrites as Nitrogen	Total Dissolved Solids	
MW-85	Monitoring	EP	EP 1	3/29/07	4	3311.09	3308.99	20.34	3 to 18	Shallow	stickup	Y	SA	SA ^d	SA ^d	SA ^d	SA ^d	-	-	SA ^d	SA ^d	SA ^d	
MW-86	Monitoring	EP	EP 1	3/29/07	4	3311.06	3308.98	19.21	2 to 17	Shallow	stickup	Y	SA	SA ^d	SA ^d	SA ^d	SA ^d	SA ^d	SA ^d	SA ^d	SA ^d	SA ^d	
MW-87	Monitoring	EP	S of EPs	3/29/07	4	3307.64	3305.42	20.41	2 to 17	Shallow	stickup		SA	SA	SA	SA	SA	-	-	A	A	A	
MW-88	Monitoring	EP	S of EPs	3/29/07	4	3308.68	3306.43	20.33	3 to 18	Shallow	stickup		SA	SA	SA	SA	SA	-	-	A	A	A	
MW-89	Monitoring	TMD	S of ED, E of HR	3/29/07	4	3318.32	3316.38	20.24	2 to 17	Shallow	stickup		SA	A	A	A	A	-	-	A	A	A	
MW-90	Monitoring	N Refinery	S of Diesel Tankfarm	6/29/07	4	3369.42	3367.13	22.80	5 to 20	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-91	Monitoring	N Refinery	S of Diesel Tankfarm	6/28/07	4	3367.73	3365.72	25.31	7 to 22	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-92	Monitoring	N Refinery	S of ED, N of NAPI	6/28/07	4	3368.72	3366.75	22.62	5 to 20	Shallow	stickup	Y	SA	SA ^d	SA ^d	SA ^d	SA ^d	-	-	SA ^d	SA ^d	SA ^d	
MW-93	Monitoring	N Refinery	S of ED, NE of NAPI	6/29/07	4	3363.79	3364.22	20.23	5 to 20	Shallow	flush mount		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-94	Monitoring	N Refinery	SE of Diesel Tankfarm, N of ED	7/2/07	4	3367.97	3365.82	23.48	5 to 20	Shallow	stickup	Y	SA	SA ^d	SA ^d	SA ^d	SA ^d	-	-	SA ^d	SA ^d	SA ^d	
MW-95	Monitoring	N Refinery	NE of Diesel Tankfarm	7/2/07	4	3368.70	3366.48	25.40	7 to 22	Shallow	stickup		SA	A	A	A	A	-	-	A	A	A	
MW-96	Monitoring	N Refinery	S of Diesel Tankfarm	7/3/07	4	3368.92	3366.83	25.55	7 to 22	Shallow	flush mount		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-97	Monitoring	N Refinery	SE of NAPI	7/3/07	4	3365.92	3366.38	21.24	8 to 23	Shallow	flush mount	Y	SA	SA ^d	SA ^d	SA ^d	SA ^d	-	-	SA ^d	SA ^d	SA ^d	
MW-98	Monitoring	N Refinery	E of Former Diesel Storage Tank Area	7/3/07	4	3361.36	3358.96	26.80	13 to 23	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-99	Monitoring	S Refinery	NE of Loading Rack	7/5/07	4	3364.07	3362.33	27.90	12 to 27	Shallow	flush mount		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-101	Monitoring	S Refinery	E Loading Rack	7/6/07	4	3364.23	3362.07	26.86	8 to 23	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-102	Monitoring	S Refinery	E West Firewater Pond	7/6/07	4	3367.64	3365.51	26.48	12 to 27	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-103	Monitoring	S Refinery	Old Rail ROW	8/18/08	4	3372.47	3370.89	25.22	7 to 22	Shallow	stickup		SA	A	A	A	A	-	-	A	A	A	
MW-104	Monitoring	S Refinery	Old Rail ROW	8/19/08	4	3371.43	3369.41	21.95	3 to 18	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-105	Monitoring	S Refinery	W of Crude Tankfarm	2/19/09	4	3364.99	3365.20	17.24	8 to 18	Shallow	flush mount		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-106	Monitoring	S Refinery	E of Crude Tankfarm	2/9/09	4	3358.98	3359.29	22.80	0 to 11	Shallow	flush mount		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-107	Monitoring	S Refinery	NE of SE Tankfarm	2/24/09	4	3359.44	3359.63	19.05	12 to 22	Shallow	flush mount		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-108	Monitoring	NCL	S of NCL	7/17/09	4	3369.11	3366.25	27.75	9 to 24	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-109	Monitoring	S Refinery	S of Highway 82 at warehouse	1/6/11	2	3368.09	3368.27	29.50	15 to 29.5	Shallow	flush mount		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-110	Monitoring	S Refinery	S of Highway 82 at warehouse	1/5/11	2	3368.03	3368.46	29.75	15 to 29.5	Shallow	flush mount		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-111	Monitoring	Field E of Refinery	E of Refinery, N of Highway 82, W of BR	2/2/13	2	3365.51	3362.52	40.84	25 to 40	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-112	Monitoring	Field E of Refinery	E of Refinery, N of Highway 82, W of BR	2/1/13	2	3358.38	3355.38	37.53	25 to 35	Shallow	stickup	Y	SA	SA ^d	SA ^d	SA ^d	SA ^d	-	-	SA ^d	SA ^d	SA ^d	
MW-113	Monitoring	Field E of Refinery	E of Refinery, N of Highway 82, W of BR	2/2/13	2	3352.93	3350.06	37.68	20 to 35	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-114	Monitoring	S RO Reject Field	SW corner (outfall) of S RO Reject Field	1/28/13	2	3361.68	3358.62	38.20	20 to 35	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-115	Monitoring	S RO Reject Field	NW corner of S RO Reject Field	1/29/13	2	3359.31	3356.48	27.49	10 to 25	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-116	Monitoring	S RO Reject Field	NE corner of S RO Reject Field	1/30/13	2	3353.77	3350.99	27.62	10 to 25	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-117	Monitoring	N RO Reject Field	SW corner (outfall) of N RO Reject Field	1/31/13	2	3363.01	3360.07	27.24	10 to 25	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-118	Monitoring	N RO Reject Field	NW corner of N RO Reject Field	2/4/13	2	3361.95	3359.62	28.29	10 to 25	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-119	Monitoring	N RO Reject Field	NE corner of N RO Reject Field	2/4/13	2	3356.11	3353.83	28.16	10 to 25	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	

Table 1
Revised Monitoring Program and Schedule
Navajo Refining Company - Artesia Refinery, Artesia, New Mexico

Well ID	Well Type	Location Information		Well Construction Information ^a								PSH Expected? ^b	Gauging Frequency	Analytical Suite and Frequency ^c									
		Associated Area of Concern	Approximate Location	Install Date	Diameter (in)	Top of Casing (ft MSL)	Ground Surface (ft MSL)	Total Depth (ft btoc)	Screen Interval (ft bgs)	Water Bearing Zone	Surface Finish			Purge Parameters	TPH	VOCs	Metals (As, Ba, Cr, Fe, Pb, Mn, Se)	Metals (Hg, Ni, Va)	Cyanide	Cations/Anions	Nitrates / Nitrites as Nitrogen	Total Dissolved Solids	
MW-120	Monitoring	EP	Between EP1 outfall and Pecos River	5/8/13	2	3313.55	3310.66	27.98	10 to 25	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-121	Monitoring	EP	Between EP1 berm and Pecos River	5/8/13	2	3314.68	3311.77	27.28	10 to 25	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-122	Monitoring	EP	Between EP5 berm and Pecos River	5/8/13	2	3311.69	3308.78	23.31	10 to 20	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-123	Monitoring	EP	S of EPs, N of 82	5/11/13	2	3303.98	3302.78	25.81	10 to 25	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-124	Monitoring	EP	S of EPs, N of 82	5/11/13	2	3305.84	3302.99	22.01	5 to 20	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-125	Monitoring	Field E of Refinery	E of fire water pond, S of S RO Reject Field	2/5/14	2	3358.81	3355.60	28.30	15 to 25	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-126A	Monitoring	Field E of Refinery	E of stormwater pond, W of irrigated field	1/29/14	2	3356.60	3353.60	37.56	19 to 34	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-126B	Monitoring	Field E of Refinery	E of stormwater pond, W of irrigated field	1/27/14	2	3356.67	3353.60	51.99	40 to 50	Valley Fill	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-127	Monitoring	Field E of Refinery	E of laydown yard, W of irrigated field	1/23/14	2	3358.39	3355.50	53.25	20 to 50	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-128	Monitoring	Field E of Refinery	In laydown yard	1/29/14	2	3358.77	3358.80	35.38	15 to 35	Shallow	flush mount		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-129	Monitoring	Field E of Refinery	W of irrigated field	1/22/14	2	3364.38	3361.60	53.20	20 to 50	Shallow	stickup	Y	SA	SA ^d	SA ^d	SA ^d	SA ^d	-	-	SA ^d	SA ^d	SA ^d	
MW-130	Monitoring	S Refinery	In refinery office parking lot	2/7/14	2	3369.86	3370.20	44.90	30 to 45	Shallow	flush mount		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-131	Monitoring	Field E of Refinery	SW edge of irrigated field	1/23/14	2	3363.49	3360.40	53.48	20 to 50	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-132	Monitoring	Field E of Refinery	Near 82 at E end of parking area	1/30/14	2	3357.12	3354.30	42.71	15 to 40	Shallow	stickup	Y	SA	SA ^d	SA ^d	SA ^d	SA ^d	-	-	SA ^d	SA ^d	SA ^d	
MW-133	Monitoring	Field E of Refinery	E edge of irrigated field, N of RW-14	2/4/14	2	3349.45	3343.40	37.64	15 to 35	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-134	Monitoring	Field E of Refinery	NE of irrigated field	2/4/14	2	3346.23	3343.10	32.89	20 to 30	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-135	Monitoring	Field E of Refinery	E edge of pecan orchard	2/11/14	2	3337.65	3338.00	65.55	35 to 65	Shallow	flush mount		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
MW-136	Monitoring	Crossgradient	North of North RO Field	7/28/14	2	3360.83	3358.62	27.42	10 to 25	Shallow	stickup		SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	
MW-137	Monitoring	N Refinery	Main API Separator	11/9/14	2	TBD	TBD	31	10 to 30	Shallow	stickup		SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	
MW-138	Monitoring	N Refinery	Main API Separator	2015	2	TBD	TBD	TBD	TBD	Shallow	stickup		SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	
NCL-31	Monitoring	NCL	NCL	10/19/82	2	3367.54	3366.21	20.16	13 to 18	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
NCL-32	Monitoring	NCL	NCL	10/20/82	2	3364.91	3364.96	17.23	17 to 22	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
NCL-33	Monitoring	NCL	NCL	10/20/82	2	3363.97	3364.26	19.62	13 to 18	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
NCL-34	Monitoring	NCL	NCL	10/20/82	2	3365.49	3364.82	19.31	16 to 21	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
NCL-44	Monitoring	NCL	NCL		2	3364.45	3364.01	21.61		Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
NCL-49	Monitoring	NCL	NCL	5/17/90	2	3371.13	3368.26	32.20	16.8 to 17.8	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
NP-1	Monitoring	TMD	S of ED, E of BR	1/22/93	2	3342.40	3339.69	21.53	9.5 to 19	Shallow	stickup		SA	SA	-	SA	-	-	-	A	A	A	
NP-2	Monitoring	TMD	S of ED, E of BR	1/21/93	2	3342.77	3340.58	21.48	9.5 to 18.5	Shallow	stickup		SA	No analytical samples to be collected									
NP-3	Monitoring	TMD	N of ED, NE of BR	1/22/93	2	3342.93	3340.40	21.92	9.5 to 18.5	Shallow	stickup		SA	No analytical samples to be collected									
NP-4	Monitoring	TMD	NE of NP #3	1/23/93	2	3345.73	3343.24	36.72	24.5 to 33.5	Shallow	stickup		SA	No analytical samples to be collected									
NP-5	Monitoring	Crossgradient	S of RR, N of ED, W of BR	1/11/95	2	3349.29	3346.31	25.09	10.25 to 20	Shallow	stickup		SA	B	B	B	B	-	-	B	B	B	
NP-6	Monitoring	TMD	S of ED, W of BR	1/10/95	2	3338.05	3336.31	20.35	8.75 to 18.75	Shallow	stickup		SA	B	-	B	-	-	-	-	-	-	
NP-8	Monitoring	TMD	S of ED, E of HR		2	3314.67	3310.53	15.22		Shallow	stickup		SA	No analytical samples to be collected									
NP-9	Monitoring	TMD	S of RR, N of ED, W of BR		2	3360.62	3357.86	25.90		Shallow	stickup		SA	No analytical samples to be collected									

Table 1
Revised Monitoring Program and Schedule
Navajo Refining Company - Artesia Refinery, Artesia, New Mexico

Well ID	Well Type	Location Information		Well Construction Information ^a								PSH Expected? ^b	Gauging Frequency	Analytical Suite and Frequency ^c									
		Associated Area of Concern	Approximate Location	Install Date	Diameter (in)	Top of Casing (ft MSL)	Ground Surface (ft MSL)	Total Depth (ft btoc)	Screen Interval (ft bgs)	Water Bearing Zone	Surface Finish			Purge Parameters	TPH	VOCs	Metals (As, Ba, Cr, Fe, Pb, Mn, Se)	Metals (Hg, Ni, Va)	Cyanide	Cations/Anions	Nitrates / Nitrites as Nitrogen	Total Dissolved Solids	
OCD-1R	Monitoring	EP	NW of EP 6, replaced OCD-1		2	3314.27	3310.69	23.90		Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
OCD-2A	Monitoring	EP	N of EP 6	4/28/88	2	3314.16	3310.83	27.60	8.5 to 23.5	Shallow	stickup		SA	SA	SA	SA	SA	-	-	A	A	A	
OCD-2B	Monitoring	EP	N of EP 6	12/14/92	2	3313.07	3310.66	50.40	38.5 to 48	Valley Fill	stickup		SA	No analytical samples to be collected									
OCD-3	Monitoring	EP	NE of EP 6	4/28/88	2	3314.43	3310.89	25.48	6.5 to 21.5	Shallow	stickup		SA	SA	SA	SA	SA	-	-	A	A	A	
OCD-4	Monitoring	EP	NE of EP 6	4/28/88	2	3313.68	3310.31	25.44	6.5 to 21.5	Shallow	stickup		SA	SA	SA	SA	SA	-	-	A	A	A	
OCD-5	Monitoring	EP	NE of EP 6	4/26/88	2	3311.27	3308.76	25.44		Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
OCD-6	Monitoring	EP	E of EP 6	4/26/88	2	3311.40	3308.11	26.91	8 to 23	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
OCD-7AR	Monitoring	EP	SE of EP 6	12/15/92	4	3310.03	3308.86	21.28	5.5 to 19.5	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
OCD-7B	Monitoring	EP	SE of EP 6	12/15/92	2	3310.26	3307.57	56.85	43.5 to 52.5	Valley Fill	stickup		SA	B	B	B	B	-	-	B	B	B	
OCD-7C	Monitoring	EP	SE of EP 6	1/20/95	2	3310.10	3307.74	71.87	60.25 to 69.75	Valley Fill	stickup		SA	No analytical samples to be collected									
OCD-8A	Monitoring	EP	SE of EP 3	4/25/88	2	3308.72	3306.43	20.76	3 to 18	Shallow	stickup		SA	SA	SA	SA	SA	SA	SA	SA	SA	SA	
OCD-8B	Monitoring	EP	SE of EP 3	12/14/92	2	3309.19	3306.11	56.65	43.5 to 53	Valley Fill	stickup		SA	B	B	B	B	-	-	B	B	B	
TEL-1	Monitoring	TEL	E of TEL cap	5/1/90	2	3358.23	3356.79	27.00	13 to 23	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
TEL-2	Monitoring	TEL	E of TEL cap	5/1/90	2	3359.12	3356.80	27.20	13 to 23	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
TEL-3	Monitoring	TEL	E of TEL cap	5/1/90	2	3358.33	3356.43	27.19	13 to 23	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
TEL-4	Monitoring	TEL	W of TEL cap	5/1/90	2	3360.24	3358.21	27.28	13 to 23	Shallow	stickup		SA	SA	SA	SA	SA	-	-	SA	SA	SA	
UG-1	Monitoring	Upgradient	W of Refinery, James Street	7/28/08	4	3372.94	3373.02	24.10	8 to 23	Shallow	flush mount		A	A	A	A	A	A	A	A	A	A	
UG-2	Monitoring	Upgradient	W of Refinery, Roselawn	7/28/08	4	3380.41	3380.30	29.26	15 to 30	Shallow	flush mount		A	A	A	A	A	A	A	A	A	A	
UG-3R	Monitoring	Upgradient	W of Refinery, 7th Street	9/8/08	4	3384.08	3384.62	38.58	17 to 37	Shallow	flush mount		A	A	A	A	A	A	A	A	A	A	
UG-4	Monitoring	Upgradient	W of Refinery, Logan at 4th Street	9/2/14	2	3384.08	3384.62	39.25	19.5 to 39.5	Shallow	flush mount		A	A	A	A	A	A	A	A	A	A	
RA-1227	Irrigation	Field E of Refinery	S of US82, E of BR	12/30/35	10 / 8	3352.80	3352.27	246	194 to 246	Artesian	irrigation well		NA	A ^f	-	A ^f	-	-	-	A ^f	A ^f	A ^f	
RA-313	Irrigation	S Refinery	N of US82, W of BR	10/1/40	10	3370.62	3369.96	1157	904 to 1157	Artesian	irrigation well		NA	A	-	A	-	-	-	A	A	A	
RA-3156	Irrigation	Field E of Refinery	S of US82, E of BR	11/5/53	4	3353.28	3353.02		182 to ?	Artesian	irrigation well		NA	A	-	A	-	-	-	A	A	A	
RA-4196	Irrigation	Field E of Refinery	N of US82, E of BR	4/26/60	8	3351.52	3350.75	294	280 to 292	Artesian	irrigation well		NA	SA	-	SA	-	-	-	SA	SA	SA	
RA-4798	Irrigation	Field E of Refinery	E of BR, N of US82	5/23/63	7	3348.31	3347.65	850	840 to 850	Artesian	irrigation well		NA	SA	-	SA	-	-	-	SA	SA	SA	
RW-1R	Recovery ^d	N Refinery	S of ED, NW portion of Refinery	10/16/13	12	3367.27	3365.29	pump	15 to 35	Shallow	recovery well	Y	SA	A ^d	A ^d	A ^d	A ^d	-	-	A ^d	A ^d	A ^d	
RW-2R	Recovery ^d	N Refinery	S of ED, NW portion of Refinery	10/15/13	12	3368.23	3368.17	pump	14.5 to 34.5	Shallow	recovery well	Y	SA	A ^d	A ^d	A ^d	A ^d	-	-	A ^d	A ^d	A ^d	
RW-4R	Recovery ^d	S Refinery	NW of SE Tankfarm	10/21/13	12	3370.32	3364.41	pump	14.5 to 34.5	Shallow	recovery well	Y	SA	A ^d	A ^d	A ^d	A ^d	-	-	A ^d	A ^d	A ^d	
RW-5R	Recovery ^d	S Refinery	SW Tankfarm	8/24/11	12	3368.56	3362.79	pump	13 to 33	Shallow	recovery well	Y	SA	A ^d	A ^d	A ^d	A ^d	-	-	A ^d	A ^d	A ^d	
RW-6R	Recovery ^d	S Refinery	W of SE Tankfarm	10/22/13	12	3372.12	3366.03	pump	14.5 to 34.5	Shallow	recovery well	Y	SA	A ^d	A ^d	A ^d	A ^d	-	-	A ^d	A ^d	A ^d	
RW-7R	Recovery ^d	N Refinery	N of ED, NW portion of Refinery	10/17/13	12	3367.25	3365.03	pump	14.5 to 34.5	Shallow	recovery well	Y	SA	A ^d	A ^d	A ^d	A ^d	-	-	A ^d	A ^d	A ^d	
RW-8R	Recovery ^d	N Refinery	N of ED, S of NCL	10/18/13	12	3367.00	3364.89	pump	14.5 to 34.5	Shallow	recovery well	Y	SA	A ^d	A ^d	A ^d	A ^d	-	-	A ^d	A ^d	A ^d	
RW-9	Recovery ^d	N Refinery	N of TEL		36	3359.51	3356.30	21.97		Shallow	recovery well		SA	A	A	A	A	-	-	A	A	A	
RW-10	Recovery ^d	N Refinery	N of TEL		36	3360.61	3356.12	23.77		Shallow	recovery well		SA	A	A	A	A	-	-	A	A	A	

Table 1
Revised Monitoring Program and Schedule
Navajo Refining Company - Artesia Refinery, Artesia, New Mexico

Well ID	Well Type	Location Information		Well Construction Information ^a								PSH Expected? ^b	Gauging Frequency	Analytical Suite and Frequency ^c								
		Associated Area of Concern	Approximate Location	Install Date	Diameter (in)	Top of Casing (ft MSL)	Ground Surface (ft MSL)	Total Depth (ft btoc)	Screen Interval (ft bgs)	Water Bearing Zone	Surface Finish			Purge Parameters	TPH	VOCs	Metals (As, Ba, Cr, Fe, Pb, Mn, Se)	Metals (Hg, Ni, Va)	Cyanide	Cations/Anions	Nitrates / Nitrites as Nitrogen	Total Dissolved Solids
RW-11 ^e	Recovery ^d	Field E of Refinery	S of US82, W side of BR		36	3353.95	3351.48	22.20		Shallow	recovery well		SA	A	A	A	A	-	-	A	A	A
RW-12R	Recovery ^d	Field E of Refinery	N of US 82, W of BR	8/21/11	12	3351.54	3350.58	pump	15 to 35	Shallow	recovery well	Y	SA	A ^d	A ^d	A ^d	A ^d	-	-	A ^d	A ^d	A ^d
RW-13R	Recovery ^d	Field E of Refinery	N of US 82, W of BR	8/21/11	12	3351.54	3349.60	pump	15 to 35	Shallow	recovery well	Y	SA	A ^d	A ^d	A ^d	A ^d	-	-	A ^d	A ^d	A ^d
RW-14R	Recovery ^d	Field E of Refinery	N of US 82, W of BR	8/21/11	12	3349.37	3347.39	pump	15 to 35	Shallow	recovery well	Y	SA	A ^d	A ^d	A ^d	A ^d	-	-	A ^d	A ^d	A ^d
RW-15 ^e	Recovery ^d	S Refinery	S of SE Tankfarm		36	3362.30	3363.58	18.35		Shallow	recovery well	Y	SA	A ^d	A ^d	A ^d	A ^d	-	-	A ^d	A ^d	A ^d
RW-16 ^e	Recovery ^d	N Refinery	NE of Refinery, S of ED		36	3360.01	3357.51	17.70		Shallow	recovery well		SA	A	A	A	A	-	-	A	A	A
RW-17 ^e	Recovery ^d	N Refinery	N of ED, E of NCL		36	3366.15	3362.58	16.02		Shallow	recovery well		SA	A	A	A	A	-	-	A	A	A
RW-18 ^e	Recovery ^d	Field E of Refinery	S of ED, W of BR		36	3352.05	3349.53	17.75		Shallow	recovery well		SA	A	-	A	A	-	-	A	A	A
RW-19	Recovery ^d	S Refinery	N of US 82, near KWB-4	8/20/11	12	3369.11	3367.09	pump	11 to 46	Shallow	recovery well	Y	SA	A ^d	A ^d	A ^d	A ^d	-	-	A ^d	A ^d	A ^d
RW-20	Recovery ^d	Field E of Refinery	E of BR, at pecan orchard building		4	3348.44	3347.75	pump		Shallow	recovery well	Y	SA	A ^d	A ^d	A ^d	A ^d	-	-	A ^d	A ^d	A ^d
RW-22	Recovery ^d	Field E of Refinery	E of BR, in pecan orchard, near KWB-8	8/23/11	12	3350.84	3349.04	pump	11.5 to 39	Shallow	recovery well	Y	SA	A ^d	A ^d	A ^d	A ^d	-	-	A ^d	A ^d	A ^d

Note: Blank cells indicate that information is not available or applicable.

Abbreviations:

A = Annual (March/April event)	OCD = Oil Conservation District
B = Biennial (starts March/April 2011)	PSH = Phase Separated Hydrocarbons
BR = Bolton Road	ROW = right of way
E = East	RR = Richey Road
ED = Eagle Draw	S = South
EP = Evaporation Ponds	SA = Semi-annual (March/April and September/October events)
ft bgs = feet below ground surface	SE = Southeast
ft btoc = feet below top of casing	SW = Southwest
ft MSL = feet Mean Sea Level	TEL = Tetra Ethyl Lead Impoundment
HR = Haldeman Road	TMD = Three Mile Ditch
in = inches	TPH = Total Petroleum Hydrocarbons
N = North	UG = Upgradient
NA = Not accessible	US285 = U.S. Highway 285
NAPI = North API Separator	US82 = U.S. Highway 82
NCL = North Colony Landfarm	VOCs = Volatile Organic Compounds
NE = Northeast	W = West
NS = Not surveyed yet	Y = Yes
NW = Northwest	

Footnotes:

- ^a Well construction information provided where available. Top of casing and ground surface elevations relative to benchmark G-416. Total depth based on 4/2015 measurements
- ^b PSH was present during 4/2015 groundwater monitoring event or a recovery pump is in place. Note that recovery wells are also gauged at least monthly.
- ^c Analytical Suite to include the following:
- Purge parameters to be measured and recorded in the field will include pH, temperature, specific conductivity, dissolved oxygen, and oxygen-reduction potential.
 - TPH by TX Method 1005 (select samples may also be analyzed by TX Method 1006).
 - VOCs by Method 8260, to include methyl tert butyl ether (MTBE) and naphthalene.
 - Total metals by Method 6010/6020 and/or 7470. Specific metals shown in heading, abbreviations from periodic chart.
 - Cyanide by Method SM4500.
 - Cations/anions to include Calcium, Potassium, and Sodium by Method 6010 or 6020 and Sulfate, Chloride and Fluoride by Method 300.
 - Nitrates/Nitrites as Nitrogen by Method 300.
 - Total Dissolved Solids by Method 2540C.
- "-" indicates parameter not required.
- Note - samples will not be collected from any well where PSH is measured to be 0.03 feet thick or greater.
- ^d Samples to be collected at frequency indicated only if <0.03 feet of PSH is present.
- ^e Recovery trenches 11, 15, 16, 17 and 18 have multiple "wells". Gauging and sampling points are as follows: RW #11-0, RW #15C, RW #16B, RW #17A and RW #18A.
- ^f Wells will be gauged and/or sampled only if the landowner grants access.

**Table 2. Statistical Comparison of the Dissolved and Total Concentrations of Nine Metals
Navajo Refinery, Artesia, New Mexico**

Metal	Data Points	Detections	Detection Rate (Percent)	Arithmetic Mean^a (mg/L)	Adjusted Arithmetic Mean^b (mg/L)	Statistical Significance^c	Correlation Coefficient	Correlation Coefficient^b
Arsenic, total	313	201	64.20%	0.02327	0.03402			
Arsenic, dissolved	313	206	65.80%	0.02049	0.02938	none	97%	97%
Barium, total	313	278	88.80%	0.1884	0.1986			
Barium, dissolved	313	291	93.00%	0.1633	0.1721	none	99%	99%
Chromium, total	313	34	10.90%	0.00611	0.02732	Total is		
Chromium, dissolved	313	21	6.70%	0.00310	0.00632	elevated	32%	25%
Iron, total	313	173	55.30%	1.848	3.222	Total is		
Iron, dissolved	313	128	40.90%	1.250	2.154	elevatedb	79%	75%
Lead, total	313	32	10.20%	0.00323	0.00516			
Lead, dissolved	313	22	7.00%	0.00264	0.00296	none	61%	30%
Manganese, total	313	285	91.10%	0.7766	0.8527			
Manganese, dissolved	313	278	88.80%	0.7475	0.8207	none	99%	99%
Nickel, total	63	29	46.00%	0.00630	0.00980			
Nickel, dissolved	63	30	47.60%	0.00609	0.01035	none	96%	94%
Selenium, total	313	97	31.00%	0.00666	0.01046			
Selenium, dissolved	313	96	30.70%	0.00623	0.01062	none	93%	95%
Vanadium, total	63	38	60.30%	0.01062	0.01482			
Vanadium, dissolved	63	39	61.90%	0.01037	0.01449	none	97%	93%

Footnotes:

mg/L: Milligrams per liter

a. Non-detects were replaced by one half of the detection limit.

b. Based upon dissolved-total data pairs with at least one detection.

c. Based on a Mann-Whitney test (or a t-test if the data were parametric).

**Table 3. Slope and Intercept for Computing the Dissolved Concentration from the Total Metal Concentration
Navajo Refinery, Artesia, New Mexico**

Metal	Slope (Dimensionless)	Intercept (mg/L)	Cross-over (mg/L)	Regulatory Threshold (mg/L)	Comment
Arsenic	0.8040	0.0018	0.0092	0.010	
Barium	0.8959	-0.0055	n.a.	1.000	
Lead	0.4448	0.0012	0.0022	0.015	Poor correlation, low detection rate
Manganese	0.9553	0.0056	0.1253	0.200	
Nickel	0.9356	0.0002	0.0031	0.200	
Selenium	0.9800	-0.0002	n.a.	0.050	
Vanadium	0.9637	0.0001	0.0028	0.063	

Footnotes:

mg/L: Milligrams per liter.

n.a.: Not Applicable

Negative concentrations are not possible

The crossover is the total concentration above which the predicted dissolved concentration will always be less than the total concentration. If the cross-over point was a negative value, then "n.a." was recorded.

The regulatory threshold concentrations are from the New Mexico Environment Department (NMED).