TABLE 3.3-2d
MNA SCREENING PROCESS CALCULATIONS
Former York Naval Ordnance Plant
1425 Eden Road, Springettsbury Township, York, PA

Area		Northern Property Boundary Area																							
Location		CW-4		CW-4		MW-3		MW-3		MW-9		MW-9		MW-12		MW-12		MW-18D		MW-18D		MW-18S		MW-18S		RW-2		RW-2	
Open Interval FBGS		(63-150)		(63-150)		(50-102)		(50-102)		(59-97)		(59-97)		(30-100)		(30-100)		(130-140)		(130-140)		(45-65)		(45-65)		NA		NA	
Sample Type																													
Sample Date		9/16/2013		10/14/14		9/11/13		10/14/14		9/12/13		10/16/14		9/12/13		10/17/14		9/10/13		10/23/14		9/9/13		10/23/14		9/10/13		10/20/14	
Analytical Parameters	***USEPA Concentration Criteria/ Possible Points Value (1)***	***Concentration in Well***	***Points Awarded***	***Concentration in Well***	***Points Awarded***	***Concentration in Well***	***Points Awarded***	***Concentration in Well***	***Points Awarded***	***Concentration in Well***	***Points Awarded***	***Concentration in Well***	***Points Awarded***	***Concentration in Well***	***Points Awarded***	***Concentration in Well***	***Points Awarded***	***Concentration in Well***	***Points Awarded***	***Concentration in Well***	***Points Awarded***	***Concentration in Well***	***Points Awarded***	***Concentration in Well***	***Points Awarded***	***Concentration in Well***	***Points Awarded***	***Concentration in Well***	***Points Awarded***
Dissolved Oxygen	<0.5 (mg/L) / 3 >1 (mg/L) / -3	6.39	**-3**	4.52	**-3**	6.44	**-3**	5.6	**-3**	6.11	**-3**	0	**3**	0	**3**	1.66	**-3**	0	**3**	0	**3**	0	**3**	0	**3**	0	**3**	0.05	**3**
Nitrate	<1 (mg/L) / 2	< 0.1	**0**	< 0.1	**0**	5.2	**0**	5.5	**0**	< 0.1	**0**	0.0063 J	**2**	< 0.1	**0**	0.57	**2**	< 0.1	**0**	< 0.1	**0**	0.062 J	**2**	< 0.1	**0**	5.2	**0**	4.2	**0**
Ferrous Iron	>1 (mg/L) / 3	1.1 HF	**3**	2.7 HF	**3**	0.023 J HF	**0**	< 0.05	**0**	6.9 HF	**3**	12 HF	**3**	1.0 HF	**0**	0.37 HF	**0**	0.81 HF	**0**	2.8 HF	**3**	< 0.05	**0**	0.11 HF	**0**	< 0.05	**0**	0.15 HF	**0**
Sulfate	<20 (mg/L) / 2	29	**0**	29	**0**	1.8	**2**	1.2	**2**	12	**2**	13	**2**	16	**2**	13	**2**	18	**2**	18	**2**	17	**2**	20	**0**	2.7	**2**	2.2	**2**
Sulfide	>1 (mg/L) / 3	R	**0**	R	**0**	< 3	**0**	R	**0**	< 3	**0**	< 3	**0**	< 3	**0**	< 3	**0**	< 3	**0**	< 3	**0**	< 3	**0**	< 3	**0**	< 3	**0**	< 3	**0**
Methane	<0.5 (mg/L) / 0 >0.5 (mg/L) / 3	NA	**0**	0.0016	**0**	NA	**0**	0.00011 J	**0**	NA	**0**	0.023	**0**	NA	**0**	0.00093	**0**	NA	**0**	0.0013	**0**	NA	**0**	0.0035	**0**	NA	**0**	0.00095	**0**
Ethene/Ethane	>0.01 (mg/L) / 2 >0.1 (mg/L) / 3	NA	**0**	< 0.0005	**0**	NA	**0**	< 0.0005	**0**	NA	**0**	< 0.0005	**0**	NA	**0**	< 0.0005	**0**	NA	**0**	< 0.0005	**0**	NA	**0**	< 0.0005	**0**	NA	**0**	< 0.0005	**0**
Alkalinity (2)	>2x background / 1	86 B	**0**	110 B	**0**	13 B	**0**	10 B	**0**	66 B	**0**	80 B	**0**	50 B	**0**	32 B	**0**	120 B	**0**	150 B	**1**	130 B	**1**	160 B	**1**	11 B	**0**	8 B	**0**
Chloride (2)	>2x background / 2	29	**2**	28	**2**	26 B	**2**	28	**2**	91 B	**2**	89	**2**	2.9 B	**0**	3.0	**0**	7.9	**0**	9.5	**0**	8.0	**0**	9.9	**0**	9.0	**0**	11	**0**
BTEX	>0.1 (mg/L) / 2	< 0.012	**0**	< 0.006	**0**	< 0.006	**0**	< 0.006	**0**	< 0.03	**0**	< 0.006 J	**0**	< 0.03	**0**	< 0.006 J	**0**	< 0.03	**0**	< 0.006	**0**	< 0.03	**0**	< 0.006	**0**	0.00026 J	**0**	< 0.006	**0**
PCE	Material Released /0	3.5	**0**	1.2	**0**	0.47 J	**0**	0.33 J	**0**	< 5	**0**	0.22 J	**0**	4.7 J	**0**	5.4 J	**0**	< 5	**0**	< 1	**0**	< 5	**0**	< 1	**0**	< 1	**0**	< 1	**0**
TCE	Material Released or Daughter Product / 0/2	19	**0**	5.6	**0**	32	**0**	31	**0**	44	**0**	41 J	**0**	130	**0**	90 J	**0**	42	**0**	8.1	**0**	45	**0**	5.5	**0**	1.9	**0**	3.1	**0**
cis-1,2-DCE	Material Released or Daughter Product / 0/2	40	**2**	36	**2**	0.66 J	**2**	0.75 J	**2**	32	**2**	30 J	**2**	42	**2**	47 J	**2**	66	**2**	14	**2**	71	**2**	7	**2**	< 1	**0**	< 1	**0**
VC	Material Released or Daughter Product / 0/2	< 2	**0**	< 1	**0**	< 1	**0**	< 1	**0**	< 5	**0**	1.0 UJ	**0**	5 U	**0**	1.0 UJ	**0**	5 U	**0**	1.0 U	**0**	5 U	**0**	1.0 U	**0**	1 U	**0**	1.0 U	**0**
TCA	Material Released /0	< 2	**0**	< 1	**0**	< 1	**0**	< 1	**0**	< 5	**0**	1.0 UJ	**0**	5 U	**0**	1.0 UJ	**0**	5 U	**0**	1.0 U	**0**	5 U	**0**	1.0 U	**0**	1 U	**0**	1.0 U	**0**
11 DCA	Material Released or Daughter Product / 0/2	< 2	**0**	< 1	**0**	< 1	**0**	< 1	**0**	< 5	**0**	1.0 UJ	**0**	5 U	**0**	1.0 UJ	**0**	5 U	**0**	1.0 U	**0**	5 U	**0**	1.0 U	**0**	1 U	**0**	1.0 U	**0**
Chlorethane	Daughter Product /2	< 2	**0**	< 1	**0**	< 1	**0**	< 1	**0**	< 5	**0**	1.0 UJ	**0**	< 5	**0**	1	**2**	1.6 J	**2**	0.58 J	**2**	1.7 J	**2**	0.34 J	**2**	< 1	**0**	< 1	**0**
ORP	<50 (mV) / 1 <-100 (mV) / 2	-61	**1**	-5	**1**	309	**0**	209	**0**	8	**1**	-110	**2**	35	**1**	-36	**1**	-111	**2**	-87	**1**	-133	**2**	-91	**1**	165	**0**	80	**0**
pH	5 < pH < 9 / 0 5 > pH > 9 / -2	6.78	**0**	6.64	**0**	4.93	**-2**	4.86	**-2**	6.05	**0**	6.64	**0**	5.94	**0**	6.24	**0**	7.05	**0**	6.83	**0**	7.43	**0**	7.22	**0**	5.95	**0**	5.7	**0**
Temperature	> 20 °C / 1	17.5	**0**	15.58	**0**	13.76	**0**	14.16	**0**	14.41	**0**	15.5	**0**	16.7	**0**	13.71	**0**	15.99	**0**	11.3	**0**	14.7	**0**	12.27	**0**	16.6	**0**	13.7	**0**
Total Points Awarded (Score)			**5**		**5**		**1**		**1**		**7**		**16**		**8**		**6**		**11**		**14**		**14**		**9**		**5**		**5**

Score	Evidence for Reductive Dechlorination
0 to 5	Inadequate
6 to 14	Limited
15 to 20	Adequate
> 20	Strong

Notes:
NA = Not available. J = Organics; estimated. Inorganics; blank contamination; B = Organics; blank contamination. Inorganics; estimated; HF = Hold time exceedance as analysis is a field method; R = Data Rejected

Material Released = Released at Site; Daughter Product = From reductive dechlorination.

(1) Concentration Criteria and Points Awarded are from Table 2.3 (Analytical Parameters and Weighting for Preliminary Screening for Anaerobic Biodegradation Processes) in the USEPA *Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater* (EPA/600/R-981/28) dated September 1998.

(2) Published background concentrations for alkalinity and chloride obtained from *Groundwater Resources of the Lower Susquehanna River Basin, Pennsylvania*, 1986. 2X background concentrations for alkalinity and chloride in the Antietam Formation are 128 mg/L and 20 mg/L, respectively and in the Vintage Formation are 396 mg/L and 48 mg/L, respectively.