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

Area		Codorus Creek Levee																													
Location		MW-98S		MW-98S		MW-98I		MW-98I		MW-99S		MW-99S		MW-99S		MW-99D		MW-99D		MW-100S		MW-100S		MW-100D		MW-100D		MW-146		MW-146		MW-147A		MW-147A		MW-147A	
Open Interval FBGS		(58-68)		(58-68)		(98-105)		(98-105)		(57.8-74.3)		(57.8-74.3)		(57.8-74.3)		(125.5-142)		(125.5-142)		(45-51)		(45-51)		(93-114)		(93-114)		(13-25)		(13-25)		(200-250)		(200-250)		(200-250)	
Sample Type														Duplicate																					Duplicate	
Sample Date		9/18/13		10/29/14		9/18/13		10/29/14		9/16/13		10/30/14		10/30/14		9/16/13		10/30/14		9/17/13		10/28/14		9/17/13		10/28/14		9/17/13		10/14/14		9/17/13		10/28/14		9/17/13	
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***	***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	0	**3**	1.56	**-3**	0	**3**	0.09	**0**	0	**3**	2.13	**-3**	2.13	**-3**	0	**3**	0.60	**0**	0	**3**	0	**3**	0	**3**	0	**3**	NA	**0**	1.36	**-3**	0	**3**	0	**3**	0	**3**
Nitrate	<1 (mg/L) / 2	2.8	**0**	2.1	**0**	2.7	**0**	1.3 B	**0**	3.6	**0**	1.9 B	**0**	1.8 B	**0**	3.5	**0**	2.0 B	**0**	3.6	**0**	3.5	**0**	3.6	**0**	3.4	**0**	3.9	**0**	4.7	**0**	3.1	**0**	3.6	**0**	3.1	**0**
Ferrous Iron	>1 (mg/L) / 3	< 0.05	**0**	< 0.05	**0**	< 0.05	**0**	< 0.05	**0**	< 0.05	**0**	< 0.05	**0**	< 0.05	**0**	< 0.05	**0**	< 0.05	**0**	< 0.05	**0**	< 0.05	**0**	< 0.05	**0**	< 0.25	**0**	0.075 HF	**0**	< 0.05	**0**	0.064 HF	**0**	< 0.05	**0**	0.044 J HF	**0**
Sulfate	<20 (mg/L) / 2	42	**0**	46 B	**0**	40	**0**	28 B	**0**	42	**0**	24 B	**0**	22 B	**0**	40	**0**	24 B	**0**	35	**0**	35	**0**	37	**0**	37	**0**	37	**0**	40	**0**	36	**0**	37	**0**	35	**0**
Sulfide	>1 (mg/L) / 3	R	**0**	< 3	**0**	R	**0**	< 3	**0**	R	**0**	< 3	**0**	< 3	**0**	R	**0**	< 3	**0**	R	**0**	< 3	**0**	R	**0**	< 3	**0**	R	**0**	R	**0**	R	**0**	< 3	**0**	R	**0**
Methane	<0.5 (mg/L) / 0 >0.5 (mg/L) / 3	NA	**0**	0.000085 J	**0**	NA	**0**	0.00014 J	**0**	NA	**0**	0.0001 JB	**0**	0.000099 JB	**0**	NA	**0**	0.00012 JB	**0**	NA	**0**	0.00038 J	**0**	NA	**0**	0.00041 J	**0**	NA	**0**	0.00015 J	**0**	NA	**0**	0.00027 J	**0**	NA	**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**	< 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**
Alkalinity (2)	>2x background / 1	290 B	**0**	300 B		290 B	**0**	290 B	**0**	240 B	**0**	260 B	**0**	260 B	**0**	230 B	**0**	250 B	**0**	220 B	**0**	240 B	**0**	230 B	**0**	230 B	**0**	233	**0**	270	**0**	230 B	**0**	210 B	**0**	220 B	**0**
Chloride (2)	>2x background / 2	43	**0**	65 B	**2**	38	**0**	36 B	**0**	83	**2**	55 B	**2**	51 B	**2**	80	**2**	53 B	**2**	76	**2**	100	**2**	77	**2**	110	**2**	79	**2**	100	**2**	76	**2**	120	**2**	76	**2**
BTEX	>0.1 (mg/L) / 2	< 0.006	**0**	< 0.012	**0**	< 0.006	**0**	< 0.006	**0**	0.00035 J	**0**	< 0.006	**0**	< 0.006	**0**	< 0.018	**0**	< 0.030	**0**	< 0.030	**0**	< 0.006	**0**	0.00016 J	**0**	< 0.024	**0**	< 0.018	**0**	< 0.018	**0**	0.00016 J	**0**	< 0.006	**0**	< 0.006	**0**
PCE	Material Released /0	3.3	**0**	48	**0**	3.4	**0**	34	**0**	4.9	**0**	24	**0**	24	**0**	5.5	**0**	20	**0**	71	**0**	12	**0**	18	**0**	43	**0**	44	**0**	52	**0**	3.2	**0**	1.3	**0**	3.8	**0**
TCE	Material Released or Daughter Product / 0/2	5.1	**0**	41	**0**	6.7	**0**	32	**0**	37	**0**	31	**0**	32	**0**	44	**0**	130	**0**	100	**0**	16	**0**	26	**0**	52	**0**	58	**0**	34	**0**	4.7	**0**	2.2	**0**	5.2	**0**
cis-1,2-DCE	Material Released or Daughter Product / 0/2	3.1	**2**	42	**2**	5.8	**2**	34	**2**	9.6	**2**	35	**2**	35	**2**	8.7	**2**	53	**2**	39	**2**	7.1	**2**	9.3	**2**	42	**2**	25	**2**	33	**2**	1.6	**2**	2.5	**2**	1.7	**2**
VC	Material Released or Daughter Product / 0/2	< 1	**0**	< 2	**0**	< 1	**0**	< 1	**0**	< 1	**0**	< 1	**0**	< 1	**0**	< 3	**0**	< 5	**0**	< 5	**0**	< 1	**0**	< 1	**0**	< 4	**0**	< 3	**0**	< 3	**0**	< 1	**0**	< 1	**0**	< 1	**0**
TCA	Material Released /0	< 1	**0**	9.1	**0**	< 1	**0**	7.1	**0**	< 1	**0**	5.8	**0**	5.8	**0**	< 3	**0**	15	**0**	1.9 J	**0**	< 1	**0**	0.51 J	**0**	3.2 J	**0**	< 3	**0**	1.7 J	**0**	< 1	**0**	< 1	**0**	< 1	**0**
11 DCA	Material Released or Daughter Product / 0/2	0.28 J	**2**	1.1 J	**2**	0.28 J	**2**	0.98 J	**2**	< 1	**0**	1.8	**0**	1.8	**2**	< 3	**0**	< 5	**0**	1.2 J	**2**	< 1	**0**	0.34 J	**2**	< 4	**0**	0.99 J	**2**	1.0 J	**2**	< 1	**0**	< 1	**0**	< 1	**0**
Chlorethane	Daughter Product /2	< 1	**0**	< 2	**0**	< 1	**0**	< 1	**0**	< 1	**0**	< 1	**0**	< 1	**0**	< 3	**0**	< 5	**0**	< 5	**0**	< 1	**0**	< 1	**0**	< 4	**0**	< 3	**0**	< 3	**0**	< 1	**0**	< 1	**0**	< 1	**0**
ORP	<50 (mV) / 1 <-100 (mV) / 2	112	**0**	91	**0**	19	**1**	124	**0**	82	**0**	134	**0**	134	**0**	79	**0**	92	**0**	82	**0**	168	**0**	85	**0**	172	**0**	115	**0**	129	**0**	-71	**1**	8	**1**	8	**1**
pH	5 < pH < 9 / 0 5 > pH > 9 / -2	7.02	**0**	6.9	**0**	7.08	**0**	6.86	**0**	7.3	**0**	6.7	**0**	6.7	**0**	7.04	**0**	7.24	**0**	7.4	**0**	7.13	**0**	7.29	**0**	7.04	**0**	7.04	**0**	6.58	**0**	7.1	**0**	7.02	**0**	7.02	**0**
Temperature	> 20 °C / 1	14.87	**0**	12.99	**0**	13.97	**0**	13.27	**0**	15.72	**0**	13.43	**0**	13.43	**0**	14.2	**0**	4.06	**0**	15.11	**0**	14.5	**0**	14.59	**0**	13.9	**0**	15.34	**0**	15.09	**0**	13.45	**0**	13.9	**0**	13.9	**0**
Total Points Awarded (Score)			**7**		**3**		**8**		**4**		**7**		**1**		**3**		**7**		**4**		**9**		**7**		**9**		**7**		**6**		**3**		**8**		**8**		**8**

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-98I/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.