

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

Area	Southern Property Boundary Area																		
	Cole F		Cole F		MW-64D		MW-64D		MW-64S		MW-110		MW-110		MW-141A		MW-141A		
Location																			
Open Interval FBGS	(17-35)		(17-35)		(68-77)		(68-77)		(33-42)		(31.5-44)		(31.5-44)		(200-300)		(200-300)		
Sample Type																			
Sample Date	9/19/2013		10/28/14		9/11/13		10/22/14		9/12/13		9/12/13		10/22/14		9/5/13		10/21/14		
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
Dissolved Oxygen	<0.5 (mg/L) / 3 >1 (mg/L) / -3	2.67	-3	2.67	-3	8.17	-3	7.65	-3	6.7	-3	5.94	-3	6.24	-3	3.8	-3	2.15	-3
Nitrate	<1 (mg/L) / 2	2.4	0	3.0	0	3.5	0	3.8	0	3.5	0	5.8	0	5.9	0	0.68	2	0.56	2
Ferrous Iron	>1 (mg/L) / 3	< 0.05	0	< 0.05	0	< 0.05	0	< 0.05	0	0.81 HF	0	< 0.05	0	< 0.05	0	0.044 J HF	0	< 0.05	0
Sulfate	<20 (mg/L) / 2	11	2	12	2	2.1	2	1.4	2	2.2	2	5.0	2	5.6	2	11	2	11	2
Sulfide	>1 (mg/L) / 3	R	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	< 0.5	0	NA	0	< 0.5	0	NA	0	NA	0	< 0.5	0	NA	0	0.014 B	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	NA	0	< 0.0005	0	NA	0	< 0.0005	0
Alkalinity (2)	>2x background / 1	200 B	0	240 B	0	170 B	0	190 B	0	11 B	0	170 B	0	180 B	0	110 B	0	130 B	0
Chloride (2)	>2x background / 2	41	0	63	2	5.8 B	0	6.0	0	3.6 B	0	30 B	0	35 B	0	12	0	9.1	0
BTEX	>0.1 (mg/L) / 2	0.00101 J	0	< 0.006	0	< 0.15	0	< 0.006	0	< 0.06	0	< 0.030	0	< 0.006	0	< 0.006	0	< 0.006	0
PCE	Material Released / 0	12	0	2.6	0	480	0	19	0	63	0	56	0	55	0	14	0	6.8	0
TCE	Material Released or Daughter Product / 0/2	0.95 J	0	0.33 J	0	230	0	7.4	0	110	0	1.2 J	0	1.3	0	8	0	3.4	0
cis-1,2-DCE	Material Released or Daughter Product / 0/2	< 1	0	< 1	0	< 25	0	< 1	0	< 10	0	< 5	0	< 1	0	0.8 J	2	1.4	2
VC	Material Released or Daughter Product / 0/2	1 U	0	1.0 U	0	25 U	0	1.0 U	0	10 U	0	5 U	0	1.0 U	0	1 U	0	1 U	0
TCA	Material Released / 0	1 U	0	1.0 U	0	25 U	0	1.0 U	0	10 U	0	5 U	0	1.0 U	0	1 U	0	1 U	0
1,1 DCA	Material Released or Daughter Product / 0/2	1 U	0	1.0 U	0	25 U	0	1.0 U	0	10 U	0	5 U	0	1.0 U	0	1 U	0	1 U	0
Chloroethane	Daughter Product / 2	< 1	0	< 1	0	< 25	0	< 1	0	< 10	0	< 5	0	< 1	0	< 1	0	< 1	0
ORP	<50 (mV) / 1 <-100 (mV) / 2	140	0	88	0	228	0	53	0	308	0	122	0	263	0	-150	2	-130	2
pH	5 < pH < 9 / 0 5 > pH > 9 / -2	7.03	0	7.09	0	7.14	0	7.49	0	5.08	0	7.29	0	6.67	0	7.59	0	6.91	0
Temperature	> 20 °C / 1	17	0	15	0	14.83	0	15.1	0	18.06	0	16.8	0	14.22	0	14.06	0	13.53	0
Total Points Awarded (Score)			-1		1		-1		-1		-1		-1		-1		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.