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

Area		Source/Plume in Central Plant Area																					
Location		CW-13		CW-13		CW-15A		CW-15A		MW-7		MW-7		MW-49D		MW-51D		MW-51D		MW-51S		MW-51S		MW-139A	
Open Interval FBGS		(59.6-70)		(59.6-70)		(18-68)		(18-68)		(13-35)		(13-35)		(202-212)		(88-120)		(88-120)		(34-51)		(34-51)		(421.5-422)	
Sample Type																									
Sample Date		9/16/2013		10/30/14		9/16/13		10/30/14		9/19/13		10/29/14		10/23/14		9/18/13		10/30/14		9/12/13		10/29/14		10/16/14	
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***
Dissolved Oxygen	<0.5 (mg/L) / 3 >1 (mg/L) / -3	3.7	**-3**	4.87	**-3**	1.36	**-3**	6.34	**-3**	0	**3**	0	**3**	0.27	**3**	0.31	**3**	0	**3**	0.36	**3**	0	**3**	0.17	**3**
Nitrate	<1 (mg/L) / 2	3.0	**0**	7.3 B	**0**	4.2	**0**	1.0 B	**0**	4.0	**0**	6.7 B	**0**	< 0.1	**0**	0.18 J	**2**	1.0 B	**0**	2.6	**0**	3.0 B	**0**	< 0.1	**0**
Ferrous Iron	>1 (mg/L) / 3	< 0.05	**0**	< 0.05	**0**	< 0.05	**0**	< 0.05	**0**	0.023 HF J	**0**	< 0.05	**0**	0.33 HF	**0**	< 0.05	**0**	< 0.05	**0**	< 0.05	**0**	< 0.05	**0**	0.23 HF	**0**
Sulfate	<20 (mg/L) / 2	34	**0**	39 B	**0**	140	**0**	35 B	**0**	30	**0**	39 B	**0**	160	**0**	27	**0**	72 B	**0**	52	**0**	68 B	**0**	4.3	**2**
Sulfide	>1 (mg/L) / 3	R	**0**	<3	**0**	R	**0**	< 3	**0**	R	**0**	< 3	**0**	< 3	**0**	R	**0**	< 3	**0**	< 3	**0**	< 3	**0**	6.6	**3**
Methane	<0.5 (mg/L) / 0 >0.5 (mg/L) / 3	NA	**0**	0.0054 B	**0**	NA	**0**	0.001 B	**0**	NA	**0**	0.00016 J	**0**	0.0013	**0**	NA	**0**	0.00066 B	**0**	NA	**0**	0.0001	**0**	1	**3**
Ethene/Ethane	>0.01 (mg/L) / 2 >0.1 (mg/L) / 3	NA	**0**	0.0023	**0**	NA	**0**	0.00104 J	**0**	NA	**0**	< 0.0005	**0**	0.00243 J	**0**	NA	**0**	0.00034 J	**0**	NA	**0**	0.00063	**0**	0.0017	**0**
Alkalinity (2)	>2x background / 1	250 B	**0**	260 B	**0**	250 B	**0**	180 B	**0**	230 B	**0**	270 B	**0**	280 B	**0**	110 B	**0**	270 B	**0**	210 B	**0**	240 B	**0**	120 B	**0**
Chloride (2)	>2x background / 2	120	**2**	330 B	**2**	290	**2**	130 B	**2**	130	**2**	260 B	**2**	95	**2**	990	**2**	220 B	**2**	150 B	**2**	200 B	**2**	0.940 J	**0**
BTEX	>0.1 (mg/L) / 2	< 0.15	**0**	< 0.15	**0**	< 6.0	**0**	< 30	**0**	< 0.15	**0**	< 0.06	**0**	0.00034 J	**0**	< 0.077	**0**	< 0.15	**0**	< 0.3	**0**	< 0.3	**0**	0.00081 J	**0**
PCE	Material Released /0	160	**0**	380	**0**	1600	**0**	2200	**0**	240	**0**	130	**0**	380	**0**	11 J	**0**	53	**0**	410	**0**	700	**0**	0.43 J	**0**
TCE	Material Released or Daughter Product / 0/2	220	**0**	410	**0**	6700	**0**	1900	**0**	430	**0**	160	**0**	2800	**0**	200	**0**	840	**0**	860	**0**	920	**0**	< 1	**0**
cis-1,2-DCE	Material Released or Daughter Product / 0/2	330	**2**	1100	**2**	8700	**2**	15000	**2**	320	**2**	150	**2**	4800	**2**	140	**2**	470	**2**	780	**2**	990	**2**	1.6	**2**
VC	Material Released or Daughter Product / 0/2	< 25	**0**	30	**2**	< 1000	**0**	< 500	**0**	< 25	**0**	< 10	**0**	30	**2**	7.3 J	**2**	< 25	**0**	< 50	**0**	< 50	**0**	< 1	**0**
TCA	Material Released /0	< 25	**0**	22 J	**0**	12000	**0**	13000	**0**	23 J	**0**	10	**0**	1300	**0**	<13	**0**	30	**0**	< 50	**0**	310	**0**	< 1	**0**
11 DCA	Material Released or Daughter Product / 0/2	< 25	**0**	< 25	**0**	< 1000	**0**	180 J	**2**	11 J	**2**	< 10	**0**	930	**2**	6.4 J	**2**	62	**2**	14 J	**2**	21 J	**2**	< 1	**0**
Chlorethane	Daughter Product /2	< 25	**0**	< 25	**0**	< 1000	**0**	< 500	**0**	< 25	**0**	< 10	**0**	3.3	**2**	<13	**0**	< 25	**0**	< 50	**0**	< 50	**0**	< 1	**0**
ORP	<50 (mV) / 1 <-100 (mV) / 2	136	**0**	230	**0**	28	**1**	86	**0**	87	**0**	290	**0**	-76	**1**	57	**0**	98	**0**	122	**0**	151	**0**	-274	**2**
pH	5 < pH < 9 / 0 5 > pH > 9 / -2	7.24	**0**	7.08	**0**	7.05	**0**	7.17	**0**	7.01	**0**	6.83	**0**	7.03	**0**	7.9	**0**	7.61	**0**	6.87	**0**	6.97	**0**	6.84	**0**
Temperature	> 20 °C / 1	15.2	**0**	13.31	**0**	18.8	**0**	14.82	**0**	18.2	**0**	15.84	**0**	1.055	**0**	18.8	**0**	19.1	**0**	19.6	**0**	18.3	**0**	0.214	**0**
Total Points Awarded (Score)			**1**		**3**		**2**		**3**		**9**		**7**		**14**		**13**		**9**		**9**		**9**		**15**

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.