APPENDIX J

Piazza Road Simulation Results

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Piazza Road Simulation Results

Section 4.3.6 contains background information on the Piazza Road site and its seven exposure areas (EAs), as well as a complete description of the simulation setup and parameters. The following notation is used in the tables of this appendix.

EA	=	exposure area number (from 1 to 7)
MEAN	[=	the true mean for the EA (an average of 96 measurements)
CV	=	the true value of the coefficient of variation for the EA
DES	=	indicator of whether compositing within strata (DES = W) or compositing across strata (DES = X) was used
С	=	the number of specimens per composite
N	=	the number of composite samples chemically analyzed.

The remaining four variables give the estimated error rates at 0.5 SSL and 2 SSL for the Max test (labelled as MAX 0.5SSL and MAX 2.0SSL) and the Chen test at the nominal .10 level (labelled as CHEN 0.5SSL and CHEN 2.0SSL).

EA=1 MEAN=2.1 CV=1.0									
DES	м	N	MAX 0.5SSL	MAX 2.0SSL	CHEN 0.5SSL	CHEN 2.0SSL			
W	4	4	.01	.03	.02	.00			
Х	4	4	.00	.12	.12	.00			
W	4	6	.01	.01	.04	.00			
Х	4	6	.00	.04	.11	.00			
W	4	8	.02	.00	.01	.00			
Х	4	8	.00	.01	.15	.00			
W	6	4	.00	.01	.01	.00			
Х	6	4	.00	.11	.13	.00			
W	6	6	.00	.01	.04	.00			
Х	6	6	.00	.04	.12	.00			
W	6	8	.01	.00	.01	.00			
Х	6	8	.00	.01	.12	.00			
W	8	4	.00	.02	.00	.00			
Х	8	4	.00	.09	.12	.00			
W	8	6	.00	.01	.02	.00			
Х	8	6	.00	.04	.13	.00			
W	8	8	.00	.00	.01	.00			
Х	8	8	.00	.02	.10	.00			
EA=2 MEAN=2.4 CV=1.6									
			I.						
DES	м	N	EA=2 MEAN Max 0.5SSL	H=2.4 CV=1.6 MAX 2.0SSL	CHEN 0.5SSL	CHEN 2.0SSL			
DES W	м 4		MAX	MAX					
		N	MAX 0.5SSL	MAX 2.0SSL	0.5SSL	2.0SSL			
W	4	N 4	MAX 0.5SSL .07	MAX 2.0SSL .13	0.5SSL .08	2.0SSL .05			
W X	4 4	N 4 4	MAX 0.5SSL .07 .04	MAX 2.0SSL .13 .13	0.5SSL .08 .11	2.0SSL .05 .05			
W X W	4 4 4	N 4 4 6	MAX 0.5SSL .07 .04 .09	MAX 2.0SSL .13 .13 .04	0.5SSL .08 .11 .05	2.0SSL .05 .05 .02			
W X W X	4 4 4 4	N 4 6 6	MAX 0.5SSL .07 .04 .09 .05	MAX 2.0SSL .13 .13 .04 .05	0.5SSL .08 .11 .05 .11	2.0SSL .05 .02 .01			
W X W X W	4 4 4 4	N 4 6 6 8	MAX 0.5SSL .07 .04 .09 .05 .11	MAX 2.0SSL .13 .04 .05 .02	0.5SSL .08 .11 .05 .11 .05	2.0SSL .05 .02 .01 .00			
W X W X W X	4 4 4 4 4	N 4 6 6 8 8	MAX 0.5SSL .07 .04 .09 .05 .11 .07	MAX 2.0SSL .13 .04 .05 .02 .01	0.5SSL .08 .11 .05 .11 .05 .11	2.0SSL .05 .02 .01 .00 .00			
W X W X W X	4 4 4 4 4 6	N 4 6 6 8 8 4	MAX 0.5SSL .07 .04 .09 .05 .11 .07 .04	MAX 2.0SSL .13 .04 .05 .02 .01 .13	0.5SSL .08 .11 .05 .11 .05 .11 .09	2.0SSL .05 .02 .01 .00 .00 .02			
W X W X X X X	4 4 4 4 4 6 6	N 4 6 6 8 8 4 4	MAX 0.5SSL .07 .04 .09 .05 .11 .07 .04 .01	MAX 2.0SSL .13 .04 .05 .02 .01 .13 .14	0.5SSL .08 .11 .05 .11 .05 .11 .09 .09	2.0SSL .05 .02 .01 .00 .00 .02 .02			
W X W X W X W	4 4 4 4 6 6	N 4 6 8 8 4 4 6	MAX 0.5SSL .07 .04 .09 .05 .11 .07 .04 .01 .05	MAX 2.0SSL .13 .04 .05 .02 .01 .13 .14 .03	0.5SSL .08 .11 .05 .11 .05 .11 .09 .09 .04	2.0SSL .05 .02 .01 .00 .00 .02 .02 .02 .00			
W X W X W X X X X X X X	4 4 4 4 6 6 6 6 6	N 4 6 8 8 4 4 6 8 8	MAX 0.5SSL .07 .04 .09 .05 .11 .07 .04 .01 .05 .01 .06 .01	MAX 2.0SSL .13 .13 .04 .05 .02 .01 .13 .14 .03 .04	0.5SSL .08 .11 .05 .11 .05 .11 .09 .09 .09 .04 .09	2.0SSL .05 .02 .01 .00 .00 .02 .02 .02 .00 .00			
W X W X W X W X W	4 4 4 4 6 6 6 6 6	N 4 6 8 8 4 4 6 8	MAX 0.5SSL .07 .04 .09 .05 .11 .07 .04 .01 .05 .01 .06	MAX 2.0SSL .13 .13 .04 .05 .02 .01 .13 .14 .03 .04 .01	0.5SSL .08 .11 .05 .11 .05 .11 .09 .09 .09 .04 .09 .04	2.0SSL .05 .02 .01 .00 .00 .02 .02 .02 .00 .00 .00			
W X W X W X X X X X X X	4 4 4 4 6 6 6 6 6	N 4 6 8 8 4 4 6 8 8	MAX 0.5SSL .07 .04 .09 .05 .11 .07 .04 .01 .05 .01 .06 .01	MAX 2.0SSL .13 .13 .04 .05 .02 .01 .13 .14 .03 .04 .01 .01	0.5SSL .08 .11 .05 .11 .05 .11 .09 .09 .04 .09 .04 .04 .13	2.0SSL .05 .02 .01 .00 .00 .02 .02 .00 .00 .00 .00			
W X W X W X X X X X X X X	4 4 4 4 6 6 6 6 6 8	N 4 6 8 8 4 4 6 8 8 4 4 8 8 4	MAX 0.5SSL .07 .04 .09 .05 .11 .07 .04 .01 .05 .01 .06 .01 .03	MAX 2.0SSL .13 .13 .04 .05 .02 .01 .13 .14 .03 .04 .01 .01 .01 .08	0.5SSL .08 .11 .05 .11 .05 .11 .09 .09 .04 .09 .04 .13 .09	2.0SSL .05 .02 .01 .00 .00 .02 .02 .02 .00 .00 .00 .00 .00			
W X W X W X W X W X W X W X W X W X W X	4 4 4 4 6 6 6 6 8 8	N 4 6 8 8 4 4 6 8 8 4 4 4	MAX 0.5SSL .07 .04 .09 .05 .11 .07 .04 .01 .05 .01 .06 .01 .03 .00	MAX 2.0SSL .13 .04 .05 .02 .01 .13 .14 .03 .04 .01 .01 .01 .08 .12	0.5SSL .08 .11 .05 .11 .05 .11 .09 .09 .04 .09 .04 .09 .04 .13 .09 .10	2.0SSL .05 .02 .01 .00 .00 .02 .02 .02 .00 .00 .00 .00 .00			
W X W X W X X X X X X X X X X	4 4 4 6 6 6 6 8 8 8	N 4 6 8 8 4 6 8 8 4 6 8 8 4 4 6	MAX 0.5SSL .07 .04 .09 .05 .11 .07 .04 .01 .05 .01 .05 .01 .06 .01 .03 .00 .04	MAX 2.0SSL .13 .04 .05 .02 .01 .13 .14 .03 .04 .01 .01 .01 .08 .12 .02	0.5SSL .08 .11 .05 .11 .05 .11 .09 .09 .04 .09 .04 .13 .09 .10 .04	2.0SSL .05 .02 .01 .00 .00 .02 .02 .02 .00 .00 .00 .00 .00			

EA=3 MEAN=5.1 CV=1.1							
DES	М	N	MAX 0.5SSL	MAX 2.0SSL	CHEN 0.5SSL	CHEN 2.0SSL	
W	4	4	.01	.03	.03	.01	
Х	4	4	.00	.11	.14	.00	
W	4	6	.02	.00	.00	.00	
Х	4	6	.00	.03	.11	.00	
W	4	8	.06	.00	.00	.00	
Х	4	8	.00	.01	.10	.00	
W	6	4	.00	.02	.01	.00	
Х	6	4	.00	.09	.12	.00	
W	6	6	.01	.00	.00	.00	
Х	6	6	.00	.03	.11	.00	
W	6	8	.02	.00	.00	.00	
Х	6	8	.00	.01	.11	.00	
W	8	4	.00	.02	.01	.00	
Х	8	4	.00	.10	.14	.00	
W	8	6	.01	.00	.00	.00	
Х	8	6	.00	.03	.12	.00	
W	8	8	.03	.00	.00	.00	
Х	8	8	.00	.01	.12	.00	
			1	I=3.8 CV=1.2-			
DES	м	N	MAX 0.5SSL	MAX 2.0SSL	CHEN 0.5SSL	CHEN 2.0SSL	
W	4	4	.01	.11	.07	.00	
Х	4	4	.00	.11	.10	.00	
W	4	6	.02	.04	.06	.00	
Х	4	6	.00	.04	.11	.00	
W	4	8	.02	.01	.05	.00	
Х	4	8	.00	.01	.09	.00	
W	6	4	.01	.10	.05	.00	
V							
Х	6	4	.00	.10	.12	.00	
W	6 6		.00. .00	.10 .02	.12 .04	.00. .00	
		4					
W	6	4 6	.00	.02	.04	.00	
W X W X	6 6 6	4 6 8 8	.00 .00 .01 .00	.02 .03 .01 .02	.04 .09 .04 .10	.00 .00 .00 .00	
W X W X W	6 6 6	4 6 8 8 4	.00 .00 .01	.02 .03 .01	.04 .09 .04	.00 .00 .00	
W X W X W X	6 6 6	4 6 8 8	.00 .00 .01 .00 .00	.02 .03 .01 .02	.04 .09 .04 .10	.00 .00 .00 .00	
W X W X W	6 6 6 8	4 6 8 8 4	.00 .00 .01 .00 .00	.02 .03 .01 .02 .09	.04 .09 .04 .10 .04	.00 .00 .00 .00	
W X X X X X X X	6 6 6 8 8	4 6 8 8 4 4 6 6	.00 .00 .01 .00 .00 .00 .00	.02 .03 .01 .02 .09 .12	.04 .09 .04 .10 .04 .12 .06 .11	.00 .00 .00 .00 .00	
W X W X X W	6 6 6 8 8	4 6 8 8 4 4 6	.00 .00 .01 .00 .00 .00	.02 .03 .01 .02 .09 .12 .03	.04 .09 .04 .10 .04 .12 .06	.00 .00 .00 .00 .00 .00	

			EA=5 MEAN	I=9.3 CV=2.0-		
DES	м	N	MAX 0.5SSL	MAX 2.0SSL	CHEN 0.5SSL	CHEN 2.0SSL
W	4	4	.22	.13	.01	.12
Х	4	4	.03	.17	.07	.04
W	4	6	.48	.03	.00	.02
Х	4	6	.03	.06	.08	.00
W	4	8	.71	.00	.00	.00
Х	4	8	.05	.03	.10	.00
W	6	4	.18	.06	.00	.05
Х	6	4	.00	.10	.10	.01
W	6	6	.47	.01	.00	.00
Х	6	6	.00	.02	.10	.00
W	6	8	.76	.00	.00	.00
Х	6	8	.00	.01	.11	.00
W	8	4	.19	.05	.00	.03
Х	8	4	.00	.08	.12	.00
W	8	6	.45	.01	.00	.00
Х	8	6	.00	.03	.14	.00
W	8	8	.76	.00	.00	.00
Х	8	8	.00	.01	.10	.00
			EA=6 MEAN=	=15.8 CV=2.2-		
DES	м	N	MAX 0.5SSL	=15.8 CV=2.2- MAX 2.0SSL	CHEN 0.5SSL	CHEN 2.0SSL
 DES W	м 4		MAX	MAX	CHEN	
		N	MAX 0.5SSL	MAX 2.0SSL	CHEN 0.5SSL	2.0SSL
W	4	N 4	MAX 0.5SSL .18	MAX 2.0SSL .16	CHEN 0.5SSL .03	2.0SSL .21
W X	4 4	N 4 4	MAX 0.5SSL .18 .07	MAX 2.0SSL .16 .20	CHEN 0.5SSL .03 .10	2.0SSL .21 .19
W X W	4 4 4	N 4 4 6	MAX 0.5SSL .18 .07 .22	MAX 2.0SSL .16 .20 .06	CHEN 0.5SSL .03 .10 .03	2.0SSL .21 .19 .07
W X W X	4 4 4 4	N 4 6 6	MAX 0.5SSL .18 .07 .22 .10	MAX 2.0SSL .16 .20 .06 .08	CHEN 0.5SSL .03 .10 .03 .09	2.0SSL .21 .19 .07 .07
W X W X W	4 4 4 4	N 4 6 6 8	MAX 0.5SSL .18 .07 .22 .10 .34	MAX 2.0SSL .16 .20 .06 .08 .03	CHEN 0.5SSL .03 .10 .03 .09 .02	2.0SSL .21 .19 .07 .07 .03
W X W X W X	4 4 4 4 4	N 4 6 6 8 8	MAX 0.5SSL .18 .07 .22 .10 .34 .13	MAX 2.0SSL .16 .20 .06 .08 .03 .03	CHEN 0.5SSL .03 .10 .03 .09 .02 .09	2.0SSL .21 .19 .07 .07 .03 .03
W X W X W X	4 4 4 4 4 6	N 4 6 8 8 4	MAX 0.5SSL .18 .07 .22 .10 .34 .13 .13	MAX 2.0SSL .16 .20 .06 .08 .03 .03 .03 .11	CHEN 0.5SSL .03 .10 .03 .09 .02 .09 .02 .09 .02	2.0SSL .21 .19 .07 .07 .03 .03 .03 .11
W X X X X X X X	4 4 4 4 4 6 6	N 4 6 6 8 8 4 4	MAX 0.5SSL .18 .07 .22 .10 .34 .13 .13 .02	MAX 2.0SSL .16 .20 .06 .08 .03 .03 .03 .11 .16	CHEN 0.5SSL .03 .10 .03 .09 .02 .09 .02 .09 .02	2.0SSL .21 .19 .07 .07 .03 .03 .11 .09
W X W X W X W	4 4 4 4 6 6	N 4 6 8 8 4 4 6	MAX 0.5SSL .18 .07 .22 .10 .34 .13 .13 .02 .15	MAX 2.0SSL .16 .20 .06 .08 .03 .03 .11 .16 .04	CHEN 0.5SSL .03 .10 .03 .09 .02 .09 .02 .09 .02 .09 .02	2.0SSL .21 .19 .07 .03 .03 .11 .09 .03
W X W X W X X X X	4 4 4 4 6 6 6 6	N 4 6 8 8 4 4 6 6	MAX 0.5SSL .18 .07 .22 .10 .34 .13 .13 .02 .15 .05	MAX 2.0SSL .16 .20 .06 .08 .03 .03 .11 .16 .04 .06	CHEN 0.5SSL .03 .10 .03 .09 .02 .09 .02 .09 .02 .09 .02 .08	2.0SSL .21 .19 .07 .03 .03 .11 .09 .03 .02
W X W X W X W X W	4 4 4 4 6 6 6 6 6	N 4 6 8 8 4 4 6 8	MAX 0.5SSL .18 .07 .22 .10 .34 .13 .13 .02 .15 .05 .33	MAX 2.0SSL .16 .20 .06 .08 .03 .03 .11 .16 .04 .04 .06 .01	CHEN 0.5SSL .03 .10 .03 .09 .02 .09 .02 .09 .02 .09 .02 .09 .02 .08 .02	2.0SSL .21 .19 .07 .03 .03 .03 .11 .09 .03 .02 .01
W X W X W X X X X X X X X	4 4 4 4 6 6 6 6 6	N 4 6 8 8 4 4 6 8 8	MAX 0.5SSL .18 .07 .22 .10 .34 .13 .13 .02 .15 .05 .33 .07	MAX 2.0SSL .16 .20 .06 .08 .03 .03 .11 .16 .04 .04 .06 .01 .03	CHEN 0.5SSL .03 .10 .03 .09 .02 .09 .02 .09 .02 .09 .02 .08 .02 .08 .02 .09	2.0SSL .21 .19 .07 .03 .03 .11 .09 .03 .02 .01 .01
 ₩ × ×	4 4 4 4 6 6 6 6 6 8	N 4 6 8 8 4 6 6 8 8 4 4 6 8 8 4	MAX 0.5SSL .18 .07 .22 .10 .34 .13 .02 .15 .05 .33 .07 .08	MAX 2.0SSL .16 .20 .06 .08 .03 .03 .11 .16 .04 .06 .01 .03 .09	CHEN 0.5SSL .03 .10 .03 .09 .02 .09 .02 .09 .02 .09 .02 .09 .02 .08 .02 .08 .02 .09 .02	2.0SSL .21 .19 .07 .03 .03 .11 .09 .03 .02 .01 .01 .01 .07
 ₩ × ×	4 4 4 4 6 6 6 6 6 8 8	N 4 6 8 8 4 4 6 8 8 4 4 4	MAX 0.5SSL .18 .07 .22 .10 .34 .13 .02 .15 .05 .33 .07 .08 .01	MAX 2.0SSL .16 .20 .06 .08 .03 .03 .11 .16 .04 .06 .01 .03 .09 .14	CHEN 0.5SSL .03 .10 .03 .09 .02 .09 .02 .09 .02 .09 .02 .08 .02 .08 .02 .09 .00 .00	2.0SSL .21 .19 .07 .03 .03 .03 .01 .09 .03 .02 .01 .01 .07 .03
W X W X W X W X W X W X W X W X W X W X	4 4 4 6 6 6 6 8 8 8	N 4 6 8 8 4 6 8 8 4 6 8 8 4 4 6	MAX 0.5SSL .18 .07 .22 .10 .34 .13 .13 .02 .15 .05 .33 .07 .08 .01 .11	MAX 2.0SSL .16 .20 .06 .08 .03 .03 .11 .16 .04 .06 .01 .03 .09 .14 .03	CHEN 0.5SSL .03 .10 .03 .09 .02 .09 .02 .09 .02 .09 .02 .08 .02 .08 .02 .09 .00 .00 .09 .00	2.0SSL .21 .19 .07 .03 .03 .03 .01 .09 .03 .02 .01 .01 .07 .03 .01

EA=7 MEAN=2.8 CV=1.4								
DES	м	N	MAX 0.5SSL	MAX 2.0SSL	CHEN 0.5SSL	CHEN 2.0SSL		
W	4	4	.03	.11	.02	.00		
Х	4	4	.00	.13	.09	.00		
W	4	6	.09	.03	.02	.00		
Х	4	6	.01	.06	.07	.00		
W	4	8	.16	.01	.02	.00		
Х	4	8	.01	.02	.09	.00		
W	6	4	.02	.08	.01	.00		
Х	6	4	.00	.10	.12	.00		
W	6	6	.06	.02	.01	.00		
Х	6	6	.00	.03	.09	.00		
W	6	8	.10	.00	.01	.00		
Х	6	8	.00	.02	.09	.00		
W	8	4	.01	.06	.01	.00		
Х	8	4	.00	.10	.12	.00		
W	8	6	.04	.01	.00	.00		
Х	8	6	.00	.03	.10	.00		
W	8	8	.06	.00	.00	.00		
Х	8	8	.00	.01	.11	.00		