

# Appendix D

## ESEM/EDS Data for Test #4 Day-30 Low-Flow Cal-sil Samples

### List of Figures

Figure D-1: Environmental SEM image magnified 100 times for a Test #4 Day-30 low-flow exterior raw cal-sil sample. (T4RCEx01.jpg) .....	D-5
Figure D-2: Environmental SEM image magnified 500 times for a Test #4 Day-30 low-flow exterior raw cal-sil sample. (t4rcex02.jpg) .....	D-5
Figure D-3: EDS counting spectrum for the whole image shown in Figure D-2. (t4rcex03.jpg).....	D-6
Figure D-4: Environmental SEM image magnified 100 times for a Test #4 Day-30 low-flow interior raw cal-sil sample. (t4rcin04.jpg).....	D-6
Figure D-5: Environmental SEM image magnified 500 times for a Test #4 Day-30 low-flow interior raw cal-sil sample. (t4rcin05.jpg).....	D-7
Figure D-6: EDS counting spectrum for the whole image shown in Figure D-5. (t4rcin06.jpg) .....	D-7
Figure D-7: Environmental SEM image magnified 100 times for a Test #4 Day-30 low-flow exterior baked cal-sil sample. (T4BCEx07.jpg).....	D-8
Figure D-8: Environmental SEM image magnified 500 times for a Test #4 Day-30 low-flow exterior baked cal-sil sample. (t4bcex08.jpg) .....	D-8
Figure D-9: EDS counting spectrum for the whole image shown in Figure D-7. (t4bcex09.jpg) .....	D-9
Figure D-10: Environmental SEM image magnified 100 times for a Test #4 Day-30 low-flow interior baked cal-sil sample. (T4BCIN10.jpg) .....	D-9
Figure D-11: Environmental SEM image magnified 500 times for a Test #4 Day-30 low-flow interior baked cal-sil sample. (t4bcin11.jpg) .....	D-10
Figure D-12: EDS counting spectrum for the whole image shown in Figure D-11. (t4bcin12.jpg).....	D-10

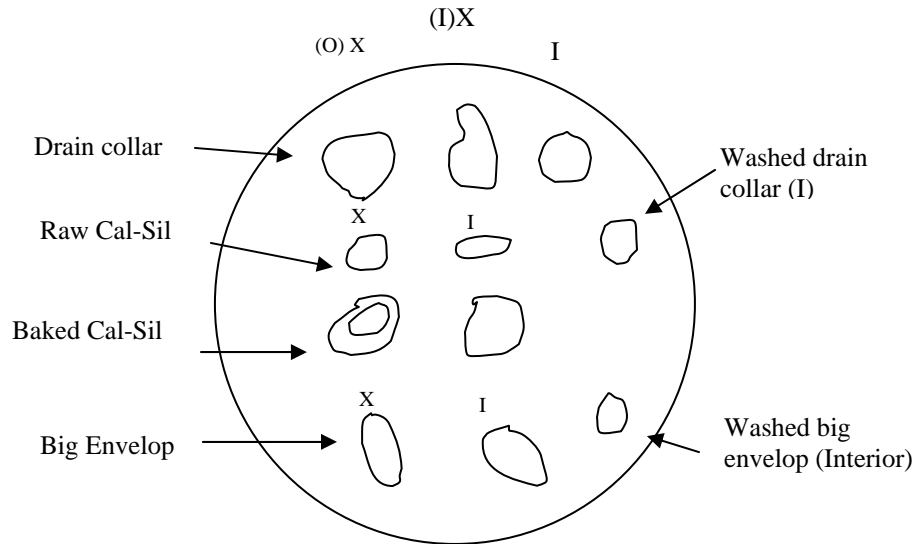
This appendix presents the ESEM/EDS results of Test #4 Day-30 raw and baked cal-sil samples submerged in a low-flow zone. The cal-sil samples were collected on the date Test #4 was shut down (June 23, 2005). Environmental SEM (ESEM) was employed to analyze the hydrated cal-sil samples without any coating under a low vacuum condition (i.e., 80 Pa), to minimize the modification of the cal-sil samples through drying process. The ESEM/EDS analytical results of the cal-sil samples were obtained on June 30, 2005. EDS results provide a semi-quantitative elemental analysis of the sample compositions.

This page is intentionally blank.

## Transcribed Laboratory Log

Laboratory session from June 30, 2005.

ESEM/EDS Test #4 Day-30 Low-Flow Cal-Sil.



### Submerged Raw cal-sil (low-flow) Exterior

Image:	T4RC EX01	100 ×	ESEM image	Figure D-1
	t4rcex02	500 ×	ESEM at higher magnification	Figure D-2
EDS:	t4rcex03		EDS on whole image t4rcex02	Figure D-3

### Submerged Raw cal-sil (low-flow) Interior

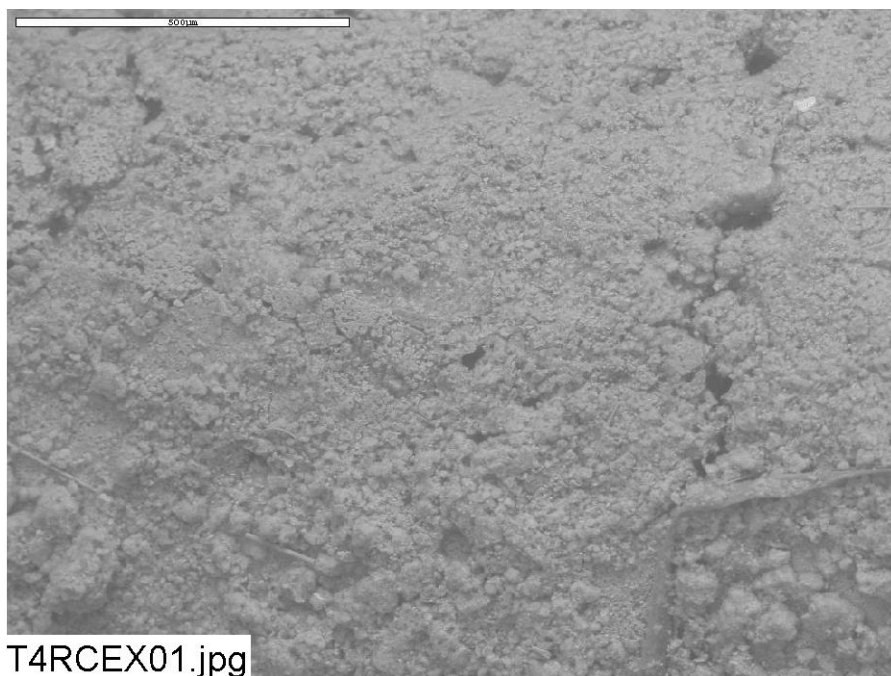
Image:	t4rcin04	100 ×	ESEM image	Figure D-4
	t4rcin05	500 ×	ESEM at higher magnification	Figure D-5
EDS:	t4rcin06		EDS of whole image t4rcin05	Figure D-6

### **Low-Flow Exterior Submerged Baked Cal-Sil.**

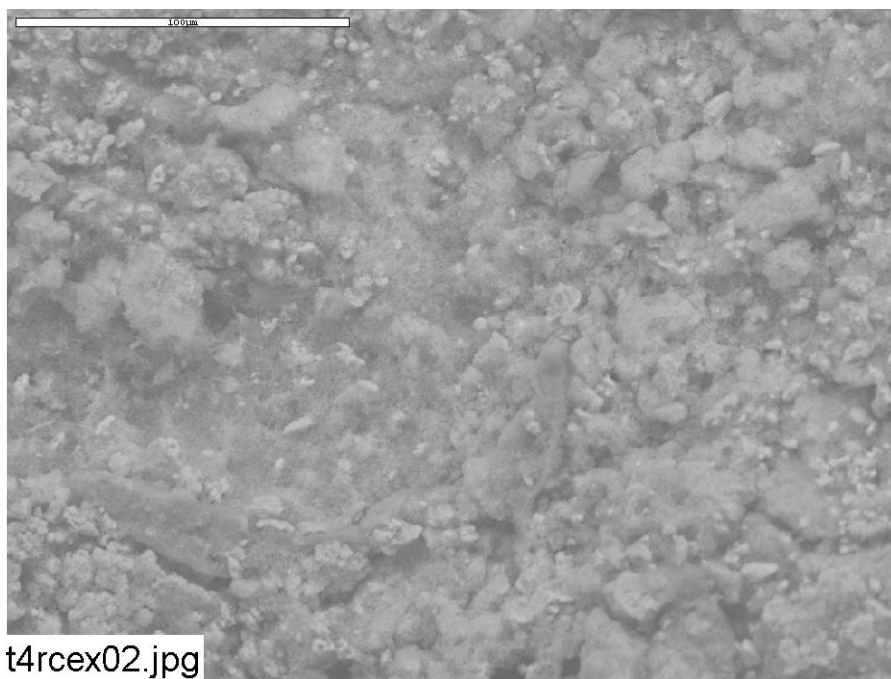
Image:	T4BCEX07	100 ×	ESEM image	Figure D-7
	t4bcex08	500 ×	ESEM at higher magnification	Figure D-8
EDS:	t4bcex09		EDS of whole image of t4bcex08	Figure D-9

### **Low-Flow Interior Submerged Baked Cal-Sil.**

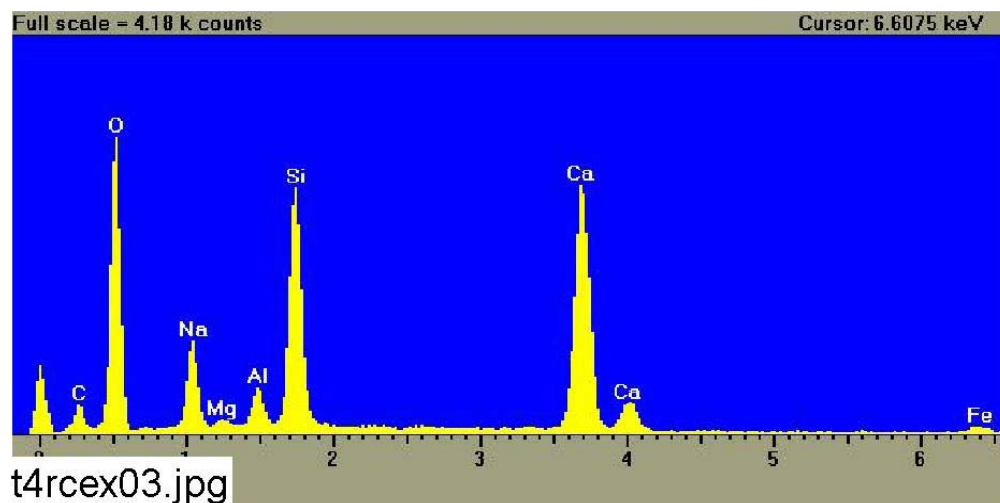
Image:	T4BCIN10	100 ×	ESEM image	Figure D-10
	t4bcin11	500 ×	ESEM at higher magnification	Figure D-11
EDS:	t4bcin12		EDS of whole image of t4bcin11	Figure D-12



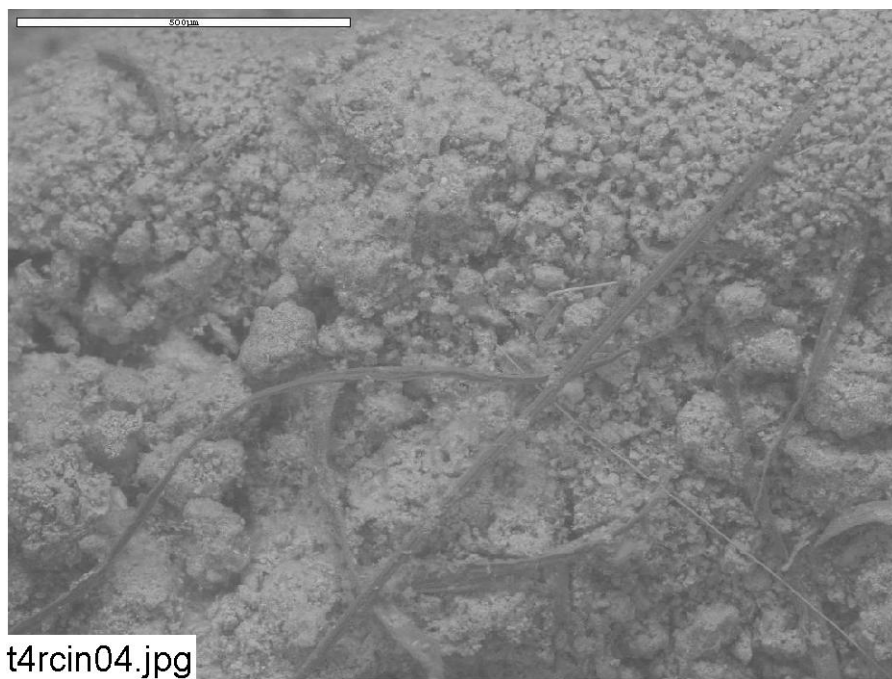
**Figure D-1: Environmental SEM image magnified 100 times for a Test #4 Day-30 low-flow exterior raw cal-sil sample. (T4RCEX01.jpg)**



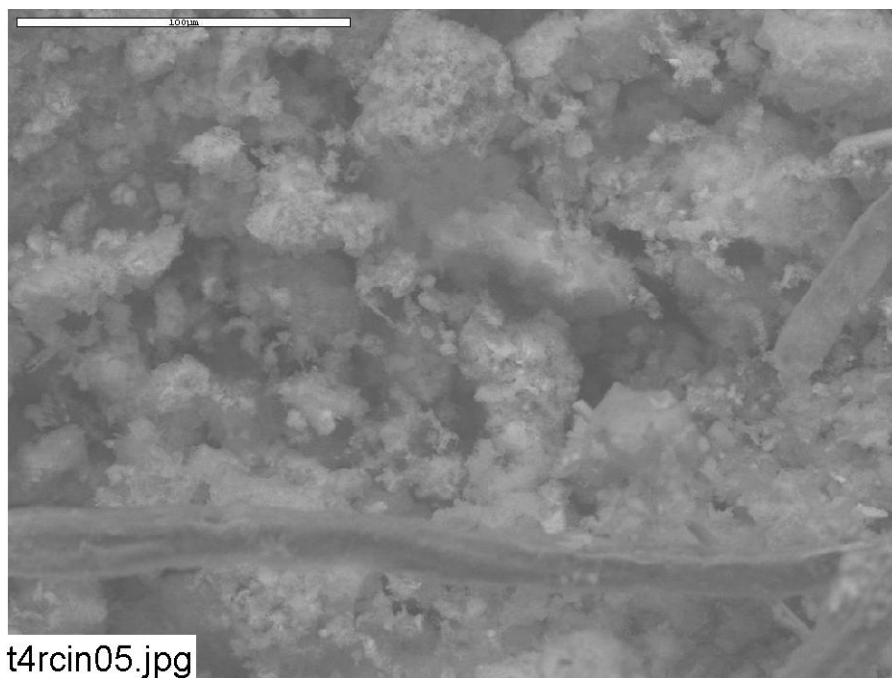
**Figure D-2: Environmental SEM image magnified 500 times for a Test #4 Day-30 low-flow exterior raw cal-sil sample. (t4rcex02.jpg)**



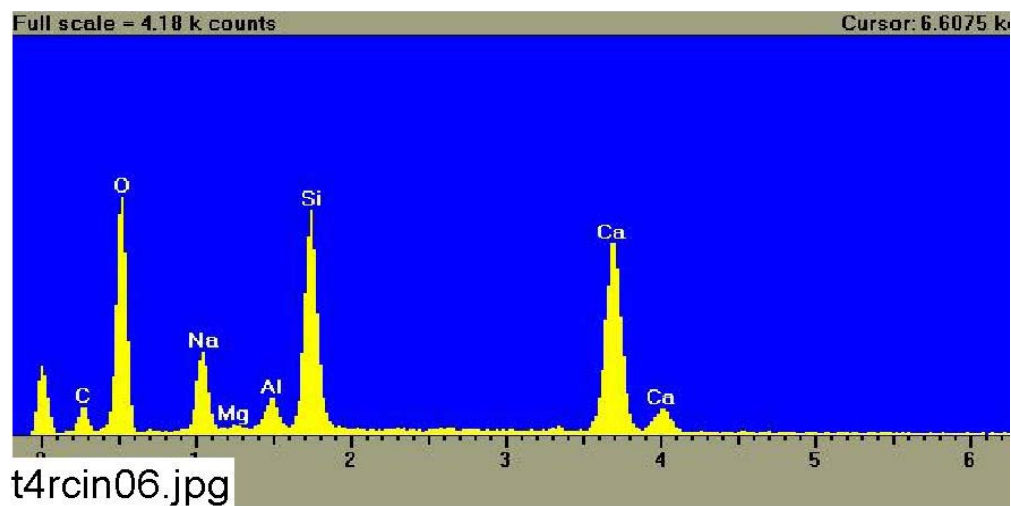
**Figure D-3: EDS counting spectrum for the whole image shown in Figure D-2. (t4rcex03.jpg)**



**Figure D-4: Environmental SEM image magnified 100 times for a Test #4 Day-30 low-flow interior raw cal-sil sample. (t4rcin04.jpg)**

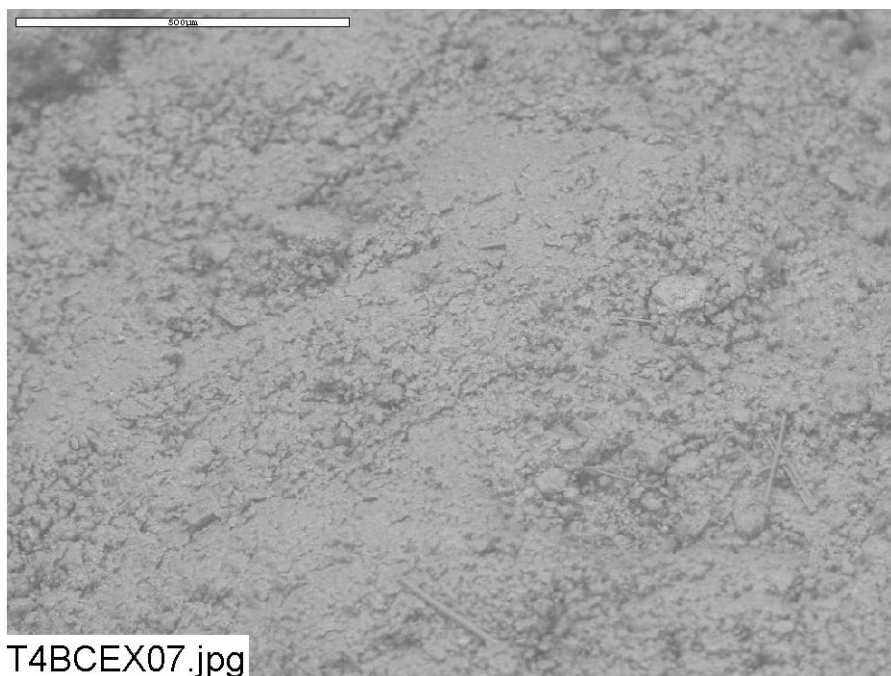


**Figure D-5: Environmental SEM image magnified 500 times for a Test #4 Day-30 low-flow interior raw cal-sil sample. (t4rcin05.jpg)**

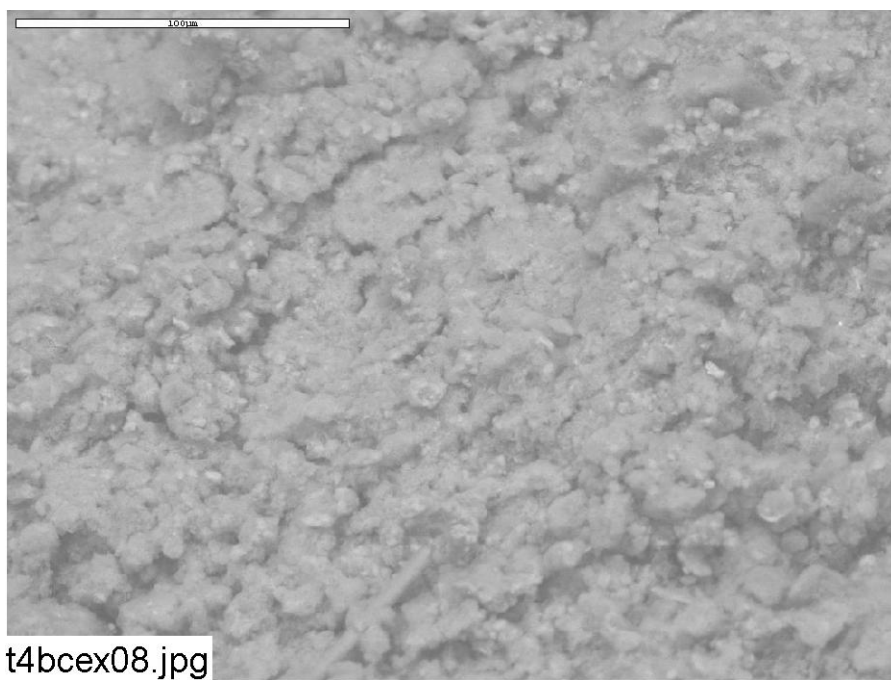


**Figure D-6: EDS counting spectrum for the whole image shown in Figure D-5. (t4rcin06.jpg)**





**Figure D-7: Environmental SEM image magnified 100 times for a Test #4 Day-30 low-flow exterior baked cal-sil sample. (T4BCEX07.jpg)**



**Figure D-8: Environmental SEM image magnified 500 times for a Test #4 Day-30 low-flow exterior baked cal-sil sample. (t4bcex08.jpg)**

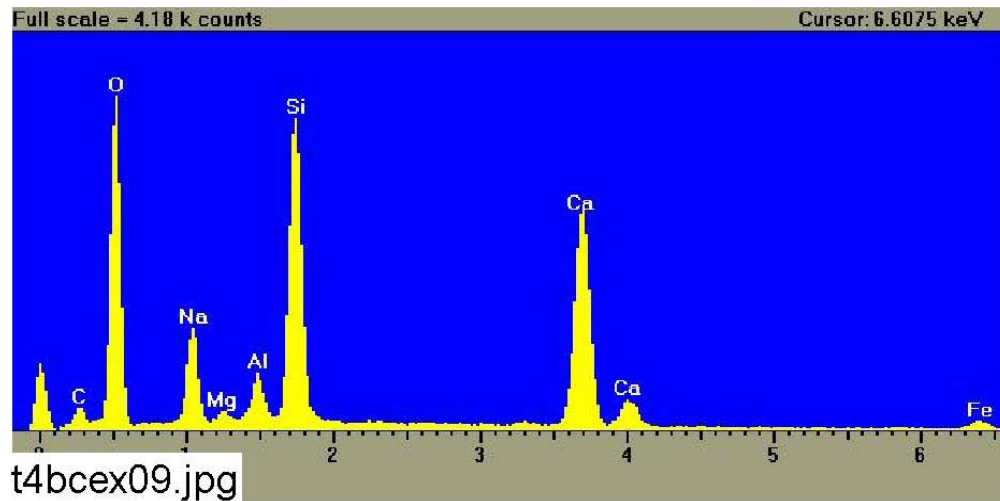


Figure D-9: EDS counting spectrum for the whole image shown in Figure D-7.  
(t4bcex09.jpg)

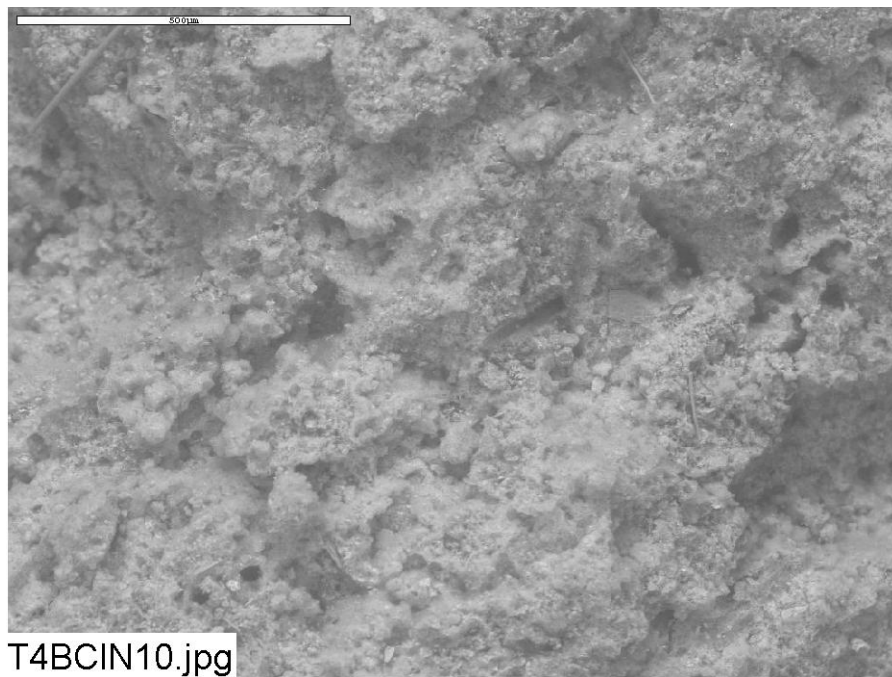
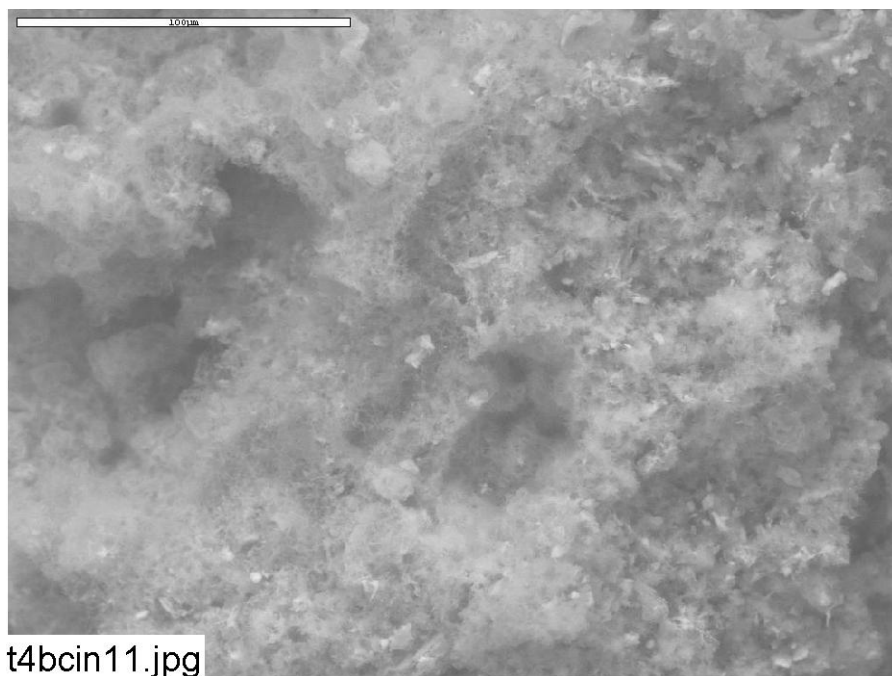
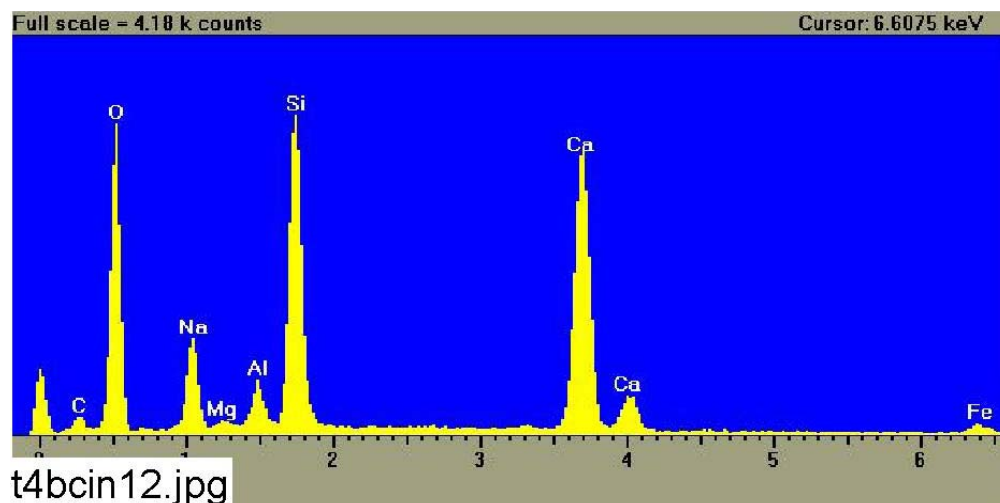


Figure D-10: Environmental SEM image magnified 100 times for a Test #4 Day-30 low-flow interior baked cal-sil sample. (T4BCIN10.jpg)



**Figure D-11: Environmental SEM image magnified 500 times for a Test #4 Day-30 low-flow interior baked cal-sil sample. (t4bcin11.jpg)**



**Figure D-12: EDS counting spectrum for the whole image shown in Figure D-11. (t4bcin12.jpg)**