

## **Appendix I**

### **XRD and XRF Data for Test-2 Day-30 Sediment and Fiberglass in Birdcage**

#### **List of Figures**

Figure I-1. XRD Results for Test-2 Day-30 Sediment. ....	I-4
Figure I-2. XRD Results for Test-2 Day-30-Cage-1-Match. ....	I-5

#### **List of Tables**

Table I-1. XRF Results for Test-2 Day-30 Sediment and Birdcage Fiberglass .....	I-2
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This appendix shows XRD and XRF results for Test-2 Day-30 sediment and submerged birdcage fiberglass samples. XRD analysis provided the identity of the existing crystalline materials in the samples, and XRF gave the elemental composition of the samples. The purpose of these analyses is to provide the morphology and the composition of the sediment and the fiberglass samples, in order to understand the chemical reactions that may have occurred during the ICET tests.

The sediment and the birdcage fiberglass samples were collected from the tank on the date Test 2 was terminated (March 7, 2005). These samples were dried in air at room temperature. XRD and XRF analysis were performed on April 26 and April 28, 2005, respectively. Based on XRD results, Test-2 Day-30 sediment sample contained some amount of quartz. However, the Test-2 Day-30 birdcage fiberglass sample was mostly amorphous. XRF results show that both the sediment and the fiberglass contained significant amounts of silicon.

**Table I-1. XRF Results for Test-2 Day-30 Sediment and Birdcage Fiberglass**

Project name:- ICP - XRF Conversion

(LANL)

Instrument:-

XRF

Analyst:- Mehdi & Blake

Analysis Date:- 4/28/05      Sample ID: Test-2 Day-30 sediment and Test-2 Day-30 fiberglass in birdcage

Sample ID	Ratio	XRF (%)	ICP (%)	ICP (mg/Kg)
	Si/SiO <sub>2</sub>	SiO <sub>2</sub>	<b>Si</b>	<b>Si</b>

Test-2 Sediment 0.467 37.38 17.4 174440

T2D30

Fiberglass in

Birdcage 0.467 50.42 23.5 235293

Sample ID	Ratio	XRF (%)	ICP (%)	ICP (mg/Kg)
	Al/Al <sub>2</sub> O <sub>3</sub>	Al <sub>2</sub> O <sub>3</sub>	<b>Al</b>	<b>Al</b>

Test-2 Sediment 0.529 16.06 8.50 85024

T2D30

Fiberglass in

Birdcage 0.529 4.6 2.44 24353

Sample ID	Ratio	XRF (%)	ICP (%)	ICP (mg/Kg)
	P/P <sub>2</sub> O <sub>5</sub>	P <sub>2</sub> O <sub>5</sub>	<b>P</b>	<b>P</b>

Test-2 Sediment 0.437 10.01 4.37 43697

T2D30

Fiberglass in

Birdcage 0.437 2.78 1.21 12136

Sample ID	Ratio	XRF (%)	ICP (%)	ICP (mg/L)
	Na/Na <sub>2</sub> O	Na <sub>2</sub> O	<b>Na</b>	<b>Na</b>

Test-2 Sediment 0.742 3.96 2.94 29382

T2D30

Fiberglass in

Birdcage 0.742 12.29 9.12 91188

Sample ID	Ratio	XRF (%)	ICP (%)	ICP (mg/Kg)
	Ca/CaO	CaO	<b>Ca</b>	<b>Ca</b>

Test-2 Sediment 0.714 5.08 3.63 36286

T2D30

Fiberglass in

Birdcage 0.714 6.83 4.88 48786

Sample ID	Ratio	XRF (%)	ICP (%)	ICP (mg/Kg)
	Mn/MnO	MnO	<b>Mn</b>	<b>Mn</b>

Test-2 Sediment 0.775 0.110 0.085 852

T2D30

Fiberglass in

Birdcage 0.775 0.030 0.023 232

Sample ID	Ratio	XRF (%)	ICP (%)	ICP (mg/Kg)
	Mg/MgO	MgO	<b>Mg</b>	<b>Mg</b>

Test-2 Sediment 0.603 1.42 0.857 8566

T2D30

Fiberglass in

Birdcage 0.603 2.62 1.580 15805

Sample ID	Ratio	XRF (%)	ICP (%)	ICP (mg/Kg)
	K/K <sub>2</sub> O	K <sub>2</sub> O	<b>K</b>	<b>K</b>

Test-2 Sediment 0.830 0.720 0.598 5978

T2D30

Fiberglass in

Birdcage 0.830 0.570 0.473 4732

Sample ID	Ratio	XRF (%)	ICP (%)	ICP (mg/Kg)
	Fe/Fe <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	<b>Fe</b>	<b>Fe</b>

Test-2 Sediment 0.700 0.780 0.546 5457

T2D30

Fiberglass in

Birdcage 0.700 0.550 0.385 3848

Sample ID	Ratio	XRF (%)	ICP (%)	ICP (mg/Kg)
	Ti/TiO <sub>2</sub>	TiO <sub>2</sub>	<b>Ti</b>	<b>Ti</b>

Test-2 Sediment 0.600 0.100 0.060 600

T2D30

Fiberglass in

Birdcage 0.600 0.030 0.018 180

Sample ID	<b>H<sub>2</sub>O(-)</b>	<b>H<sub>2</sub>O(+)</b>	<b>CO<sub>2</sub></b>	<b>Total (%)</b>
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Test-2 Sediment 5.73 21.1 102

T2D30

Fiberglass in

Birdcage 3.26 11.2 95

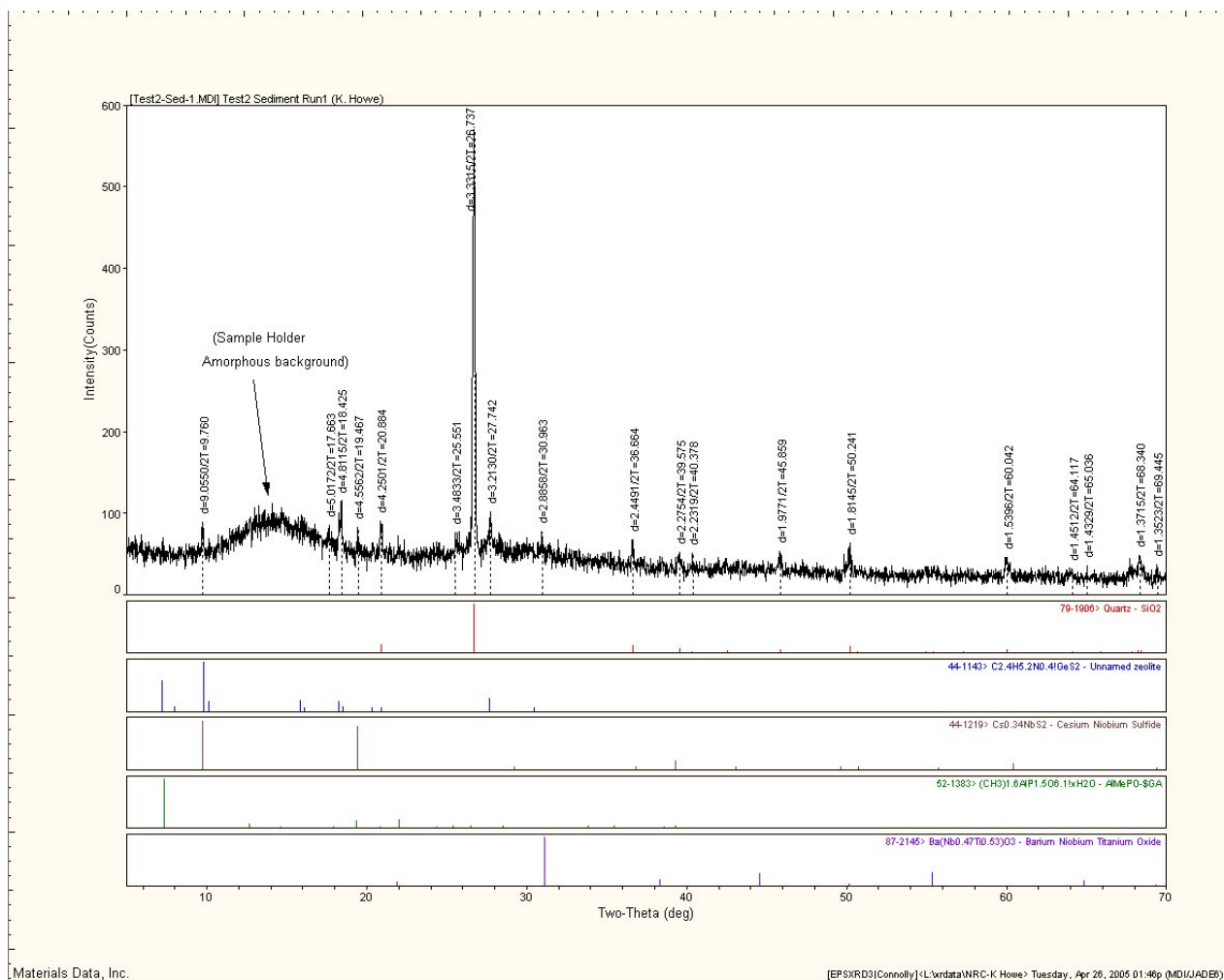


Figure I-1. XRD Results for Test-2 Day-30 Sediment.

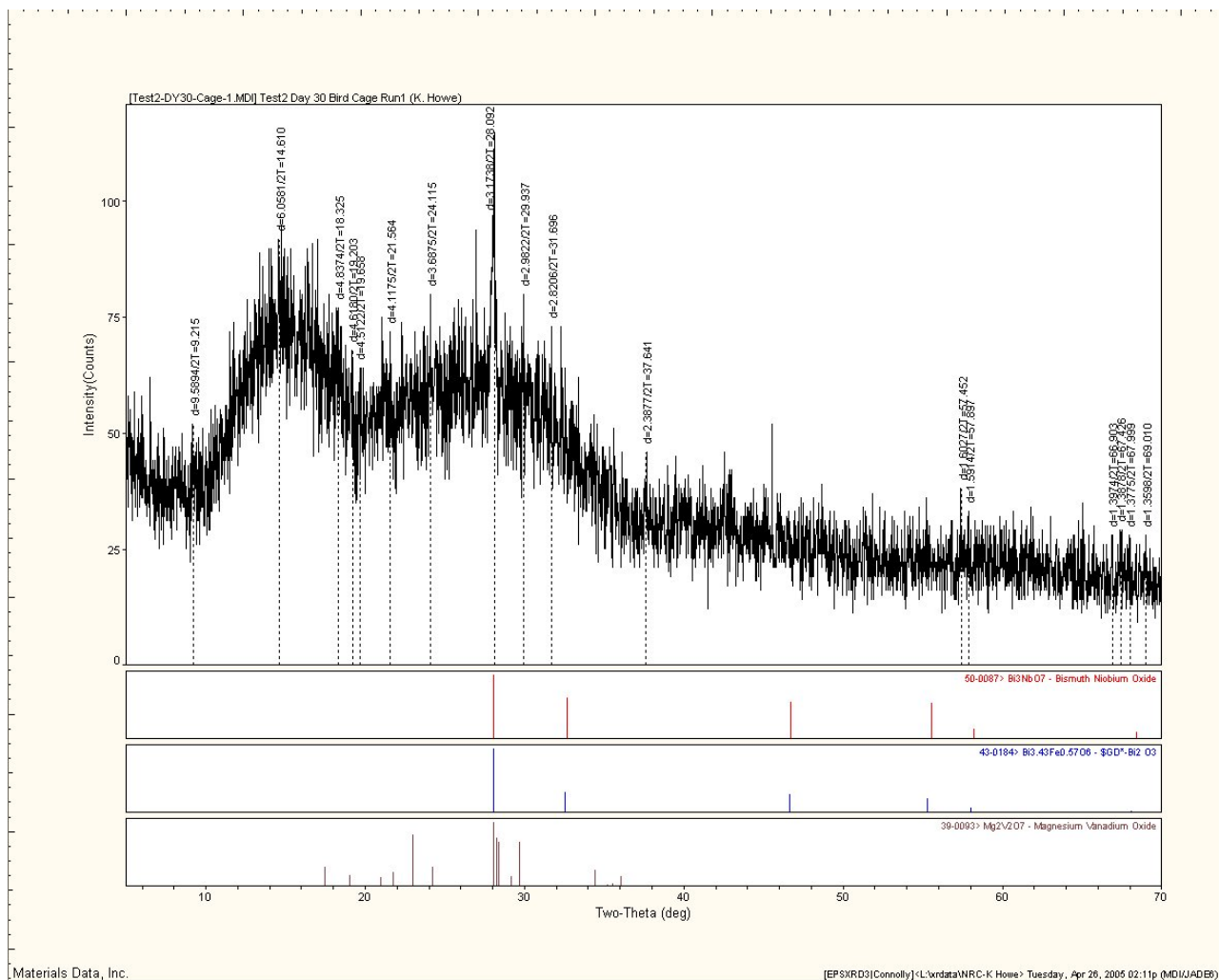


Figure I-2. XRD Results for Test-2 Day-30-Cage-1-Match.

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