



**Cement**

**FLY ASH TEST REPORT**

Analysis by: Lafarge Seattle Concrete Lab  
Sample from : Centralia Power Plant  
Average Analysis: September 2021  
Test Report Number 10-21 Class F

**Chemical Analysis**

	<b>Results</b>	<b>Limits</b>
Silicon Dioxide (SiO <sub>2</sub> )	<b>48.7 %</b>	
Aluminum Oxide (Al <sub>2</sub> O <sub>3</sub> )	<b>18.1 %</b>	
Iron Oxide (Fe <sub>2</sub> O <sub>3</sub> )	<b>5.9 %</b>	
Total (SiO <sub>2</sub> ) + (Al <sub>2</sub> O <sub>3</sub> ) + (Fe <sub>2</sub> O <sub>3</sub> )	<b>73 %</b>	50% Min - ASTM
Sulphur Trioxide (SO <sub>3</sub> )	<b>0.8 %</b>	5% Max - ASTM
Calcium Oxide (CaO)	<b>14.4 %</b>	18% Max - ASTM
Magnesium Oxide	<b>5.4 %</b>	
Moisture Content	<b>0.22 %</b>	3% Max - ASTM
Loss on Ignition	<b>0.23 %</b>	5% Max
Available Alkali as Equiv. Na <sub>2</sub> O ( <i>previous month's result</i> )	<b>0.37 %</b>	1.5% Max

**Physical Analysis**

Fineness Retained on 45 um (No. 325 Sieve)	<b>15.8 %</b>	34% Max - ASTM
Strength Activity Index with Portland Cement		
% of Control at 7 Days	<b>94 %</b>	75% Min - ASTM
% of Control at 28 Days ( <i>previous month's result</i> )	<b>101 %</b>	75% Min - ASTM
Water Requirement, Percent of Control	<b>93 %</b>	105% Max- ASTM
Autoclave Expansion	<b>0.02 %</b>	0.8% Max - ASTM
Density	<b>2.63 Mg/m<sup>3</sup></b>	

**Uniformity Requirements**

Density, Variation from Average	<b>0.00 %</b>	5% Max - ASTM
Fineness 45um Sieve, Variation from Average	<b>3.20 %</b>	5% Max - ASTM

We hereby certify that the composite fly ash sample above meets the chemical and physical requirements of ASTM C618 and AASHTO M295 for class F fly ash.

Certified : \_\_\_\_\_

Rob Shogren  
Technical Director

**WESTERN REGION**

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