

Chemical and Physical Analysis of Fly Ash

Developed For: *Headwaters Resources*
 16817 - 155th PI SE
 Renton, WA 98058

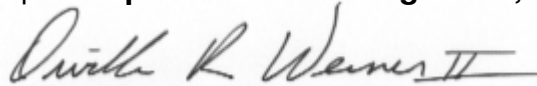
Ticket: 9170 Job: 14708 Report Date: 08/27/2009	Plant of Origin: <i>Centralia US</i> Sample ID: <i>Ce-021-09</i> Docket: 3030964 - 3031123	Sample Date Range: 04/17/2009 to: 07/08/2009 Date Received: 07/15/2009
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<u>Chemical Composition (%)</u> <small>(by Wyoming Analytical Laboratories, Inc.)</small>	CSA A3000-08 Specifications	
	<u>Class F</u>	<u>Class CI</u>
Total Silica, Aluminum, Iron:	71.5	
Silicon Dioxide:	48.8	
Aluminum Oxide:	16.9	
Iron Oxide:	5.8	
Sulfur Trioxide:	0.9	5.0 Max
Calcium Oxide:	16.3	8 Max
Moisture Content:	0.0	3.0 Max
Loss on Ignition:	0.1	8.0 Max

<u>Physical Test Results</u>	CSA A3000-08 Specifications	
	<u>Class F</u>	<u>Class CI</u>
Fineness, Retained on #325 Sieve (%):	19.0	34 Max
Optional Strength Activity Index (%)		
ASTM C-311 (28 Days @ 23 C):	93.5	75 Min
Water Requirement, % of Control:	93.0	
Soundness, Autoclave Expansion (%):	0.01	0.8 Max
Density Mg/m ³ :	2.59	

Comments:

CTL | Thompson Materials Engineers, Inc.



Orville R. Werner II, P.E.

