

# Chemical and Physical Analysis of Fly Ash

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

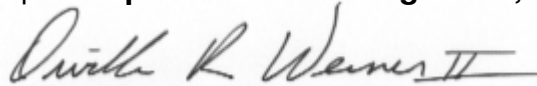
Ticket: 9340 Job: 14708 Report Date: 01/14/2010	Plant of Origin: <i>Centralia US</i> Sample ID: <i>Ce-051-09</i> Docket: 3033212 - 3033262	Sample Date Range: 11/24/2009 to: 12/05/2009 Date Received: 12/11/2009
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<u>Chemical Composition (%)</u> <small>(by Wyoming Analytical Laboratories, Inc.)</small>	CSA A3000-08 Specifications	
	<u>Class F</u>	<u>Class CI</u>
Total Silica, Aluminum, Iron:	69.4	
Silicon Dioxide:	47.0	
Aluminum Oxide:	16.5	
Iron Oxide:	5.9	
Sulfur Trioxide:	1.2	5.0 Max
Calcium Oxide:	17.2	8 Max
Moisture Content:	0.1	3.0 Max
Loss on Ignition:	0.2	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 (%):	16.5	34 Max
Optional Strength Activity Index (%)		
ASTM C-311 (28 Days @ 23 C):	98.1	75 Min
Water Requirement, % of Control:	95.0	
Soundness, Autoclave Expansion (%):	0.02	0.8 Max
Density Mg/m <sup>3</sup> :	2.62	

Comments:

CTL | Thompson Materials Engineers, Inc.



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