CTL | THOMPSON MATERIALS ENGINEERS, INC.

Chemical and Physical Analysis of Fly Ash

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

Ticket: *9170*	**Plant of Origin:** *Centralia US*	**Sample Date Range:** *04/17/2009*
Job: *14708*	**Sample ID:** *Ce-021-09*	**to:** *07/08/2009*
Report Date: *08/27/2009*	**Docket:** *3030964 - 3031123*	**Date Received:** *07/15/2009*

Chemical Composition (%)

(by Wyoming Analytical Laboratories, Inc.)

			CSA A3000-08 Specifications Class F	CSA A3000-08 Specifications Class CI
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	5.0 Max
Calcium Oxide:	*16.3*		8 Max	8 - 20
Moisture Content:	*0.0*		3.0 Max	3.0 Max
Loss on Ignition:	*0.1*		8.0 Max	6.0 Max

Physical Test Results

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

Comments:

CTL | Thompson Materials Engineers, Inc.

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