Client:	**Geofortis Pozzolans**	CTL Project No:	**403014**
Project:	**Various Testing**	CTL Project Mgr.:	**Simonida Grubjesic**
		Analysts:	**PS, JB, AP, MAS, WD**
Contact:	**Mike Donovan**	Approved:	***Scott Nettles***
Submitter:	**Mike Donovan**	Date Analyzed:	**18-Apr-18 to 16-May-18**
Date Received:	**12-Apr-18**	First Interim Report:	**01-May-18**
		Final Update:	**31-May-18**

Report of Analysis - ASTM C618-15 Standard Chemical and Physical Requirements

Sample Identification:

CTL ID 4669303

Client ID Lassenite; March 2018

Standard Physical Requirements	Mineral Admixture Class N	F	C	Test Results
Fineness:				
Amount retained when wet sieved on No. 325 (45µ) sieve, maximum %	34	34	34	**18.0**
Specific Gravity, g/cc	----	----	----	**2.42**
Strength Activity Index: [A]				
With Portland cement,				
at 7 days, minimum percent of control	75[B]	75[B]	75[B]	**106**
at 28 days, minimum percent of control	75[B]	75[B]	75[B]	**110**
Water requirement, maximum percent of control	115	105	105	**100**
Soundness: [C]				
Autoclave expansion or contraction, maximum %	0.80	0.80	0.80	**-0.06**
Optional: Increase of Drying Shrinkage at 28 days[D] maximum % over control	0.03	0.03	0.03	**0.03**

Standard Chemical Requirements	Mineral Admixture Class N	F	C	Test Results
Silicon dioxide (SiO_2) plus aluminum oxide (Al_2O_3) plus iron oxide (Fe_2O_3), minimum %	70.0	70.0	50.0	**84.6**
Sulfur trioxide (SO_3), maximum %	4.0	5.0	5.0	**0.2**
Moisture content, maximum %	3.0	3.0	3.0	**0.8**
Loss on ignition, maximum %	10.0	6.0*	6.0	**7.5**

*The use of Class F pozzolan containing up to 12.0% loss on ignition may be approved by the user if either acceptable performance records or laboratory test results are made available.

Notes:

A The strength activity index with Portland cement is not to be considered a measure of compressive strength of concrete containing the mineral admixture. For more information see note A in ASTM C618-15, 'Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolans for Use as a Mineral Admixture in Concrete.'

B Meeting the 7 or 28 day strength activity index will indicate specification compliance.

C If the mineral admixture will constitute more than 20 % by weight of the cementitious material in the project mix design, the test specimens for autoclave expansion shall contain that anticipated percentage. For more information see note C in 'ASTM C618-15, 'Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolans for Use as a Mineral Admixture in Concrete.'

D Determination of compliance or noncompliance with the requirement relating to increase in drying shrinkage will be made only at the request of the purchaser.

E Testing performed using laboratory stocked portland cement lot number 4540901.