

ENX Inc.  
Acheson Terminal  
10798 HWY 60  
Acheson, AB T7X 6N5

Report Date: November 2, 2021  
Project Number: 19-01608-002  
Test No.: 21ENX-11  
Revision: 0

Attention: Mr. Paul Johnson

<b>Test Report Number:</b>	<b>ENX G12-11-21_F_ASTM</b>
<b>Year:</b>	<b>2021</b>
<b>Month of Analysis:</b>	<b>November</b>

FLY ASH SOURCE: Genesee Generating Station (G12)      SAMPLED BY: Client  
SAMPLE DATE: October 13, 2021      SAMPLES RECEIVED: October 22, 2021

CHEMICAL ANALYSIS				
TEST DESCRIPTION	TEST RESULTS	UNITS	SPECIFICATION LIMITS	
			CLASS F	CLASS C
Silicon Dioxide (SiO <sub>2</sub> )	58.2	%	-	-
Aluminum Oxide (Al <sub>2</sub> O <sub>3</sub> )	23.0	%	-	-
Iron Oxide (Fe <sub>2</sub> O <sub>3</sub> )	4.3	%	-	-
Total (SiO <sub>2</sub> ) + (Al <sub>2</sub> O <sub>3</sub> ) + (Fe <sub>2</sub> O <sub>3</sub> )	85.5	%	50% (min)	50% (min)
Sulphur Trioxide (SO <sub>3</sub> )	0.03	%	5.0% (max)	5.0% (max)
Calcium Oxide (CaO)	7.80	%	18.0% (max)	> 18.0%
Magnesium Oxide (MgO)	1.35	%	-	-
Moisture Content	0.17	%	3% (max)	3% (max)
Loss on Ignition (LOI)	0.83	%	6% (max)	6% (max)
Total Equivalent Alkali Content (Na <sub>2</sub> O <sub>eq</sub> )	3.63	%	-	-
Total Available Equivalent Alkali Content (Na <sub>2</sub> O <sub>eq</sub> )	0.40	%	-	-

PHYSICAL ANALYSIS				
TEST DESCRIPTION	TEST RESULTS	UNITS	SPECIFICATION LIMITS	
			CLASS F	CLASS C
Fineness Retained on 45µm (No. 325 Sieve)	27.6	%	34% (max)	34% (max)
Quantity of Air Entrainment	1.00	%	-	-
Drying Shrinkage (Increase at 28-days)	0.00	%	0.03% (max)	0.03% (max)
Strength Activity Index with Portland Cement				
% of Control at 7-Days	82	%	75% (min)	75% (min)
% of Control at 28-Days ( <i>previous month's result</i> )	80	%	75% (min)	75% (min)
Water Requirement, Percent of Control	95	%	105% (max)	105% (max)
Soundness, Autoclave Expansion	-0.02	%	0.8% (max)	0.8% (max)
Density	2.08	g/cm <sup>3</sup>	-	-
Density, Variation from Average	1.80	%	5% (max)	5% (max)
Fineness Retained 45µm, Variation from Average	2.50	%	5% (max)	5% (max)

COMMENTS
We hereby certify that the fly ash represented by the above chemical and physical analyses meets the requirements of ASTM C618-19 and AASHTO M295-11 (2015) for Class F. Testing performed by accredited laboratory in accordance with ASTM C1077-17, AASHTO R18 and Concrete Reference Laboratory (CCRL) certification requirements. Accredited laboratory - Lafarge Seattle, 5400 W Marginal Way SW, Seattle, WA 98106, USA

Report prepared by:

EXL Engineering Inc.



Gene Lecuyer, P. Eng.  
Senior Materials Engineer



Results pertain only to the sample(s) provided and constitutes a testing service only. Engineering interpretation or evaluation of the test results will be provided upon written request only.