HAWAIIAN CEMENT

F20220923-Silo #7-CIP
CERTIFICATE NUMBER

September 23, 2022
DATE

Laboratory Test Certification

Class F Fly Ash

Source: Qinhuangdao, China

Chemical Analysis: (QUAL-XRF) - %		**ASTM C 618-22 Limits Class F**
Silicon Oxide (SiO_2)	**46.22**	
Aluminum Oxide (Al_2O_3)	**40.00**	
Iron Oxide (Fe_2O_3)	**3.82**	
Sum (SiO_2+Al_2O_3+Fe_2O_3)	**90.04**	**50 Min.**
Calcium Oxide (CaO)	**3.83**	**18 Max.**
Magnesium Oxide (MgO)	**1.01**	
Sulfur Trioxide (SO_3)	**0.95**	**5.0 Max.**
Sodium Oxide (Na_2O)	**0.42**	
Potassium Oxide (K_2O)	**1.04**	
NaEq (Na_2O + 0.658 K_2O)	**1.13**	
Moisture Content	**0.04**	**3.0 Max.**
Loss on Ignition (LOI)	**1.85**	**6.0 Max.**

Physical Analysis:

Specific Gravity	**2.22**	**CTL#3923002**
Variation, % from Average	**0.45**	**5% Max**
Fineness - Retained on No. 325, %	**10.0**	**34% Max**
Variation, Points from Average	**0.63**	**5 Max**
Water Requirement, % of Control	**103**	**105% Max**
Strength Activity Index :		
% of Control at 7 Days	**78 %**	**75% Min.**
% of Control at 28 Days	**98 %**	**75% Min.**

We certify that the above described composite sample of fly ash, complies with the standard chemical and physical requirements of ASTM C618-22, Class F.

Cement Division

Office: 99-1300 Halawa Valley Street
Aiea, HI 96701
Phone: (808) 532-3400

Daniel K. Paaaina III
Cement Chemist