

# Alethea Muno

## Petrographer II

Mrs. Muno has experience testing a wide variety of construction materials, including aggregate, hardened concrete, and riprap, using polarized-light microscopy, scanning electron microscopy with x-ray spectroscopy, and other petrographic methods. She performs petrographic and microscopical examinations on rocks, minerals, cement, and other construction materials to assess the quality and condition of concrete. She has experience documenting the composition of cementitious materials and geological construction materials, alkali-silica reaction (ASR), scaling, debonding, delamination, and freeze-thaw deterioration.

### Representative Project Experience

#### Petrographic Analysis and Forensic Investigation

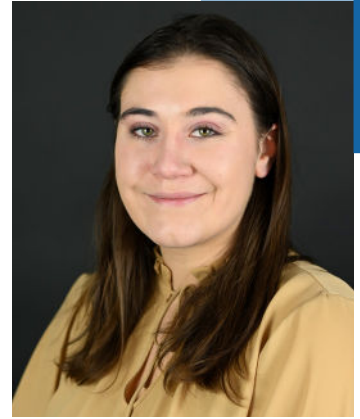
- Petrographic examination of terrazzo, mortar, and grout from a condominium to evaluate the mechanisms for observed materials defects in Coral Gables, Florida.
- Petrographic examination of grout, coatings, mortar, and stucco from a condominium to evaluate the mechanisms for observed material defects in Miami, Florida.
- Petrographic examination for conditional assessment of concrete from a hydroelectric power dam in Tumtum, Washington.
- Petrographic examination of concrete and evaluation of ASR in pools in and around the Austin, Texas area.
- Petrographic examination of concrete constituents and hardened concrete railroad ties from Clinton, Iowa.

#### SEM/EDS Analysis

- Evaluation of outgassing deposits from residential swimming pools in Frisco, Texas.
- Evaluation of discoloration on a terrazzo sample from a condominium that experienced material defects and corrosion.
- Evaluation of plaster discoloration in a residential pool in Tucson, Arizona.
- DEF evaluation of concrete from a thermal control wall in Tempe, Arizona.

#### Aggregate Petrography

- Petrographic examination of aggregates (ASTM C295) as part of preconstruction evaluations of materials from Fort Pierce, Florida.
- Petrographic examination of reclaimed aggregates (ASTM C295) and determination of the amount of cementitious materials adhered to the aggregate particles as a part of qualifications for use in hardened concrete.
- Erosion control evaluation of various rock samples collected from Alaska for several projects.



#### Academic Credentials

M.S. in Geoscience University of Iowa, 2022

B.S. in Geoscience University of Iowa, 2020

B.S. in Environmental Sciences University of Iowa, 2020

Sustainability Certificate University of Iowa, 2020

#### Professional Affiliations

American Concrete Institute (ACI)

American Society for Testing and Materials International

#### Contact Information

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