Alpha Resources, Inc.
Certificate Of Analysis

AR-2816

RESIDUAL FUEL OIL STANDARD

LOT # 161113 LID ID 161113

WEIGHT PERCENT SULFUR	**=**	**2.92**
EXPANDED UNCERTAINTY	**=**	**0.10**

(k=2, 95% confidence limit)

Method used for analysis: ASTM D 4294-10
NMI Standard(s) used: NIST 2717, 1622d, 1619a

This standard was produced gravimetrically using high purity materials, with balances calibrated and checked by precision NIST traceable weights. The above ASTM test method and NMI references listed were used for testing. The uncertainty value represents the 95% confidence limit (k=2) derived from analysis (n=30), and possible errors in weighing. When necessary, professional judgment is applied toward consideration of data and statistical information. The statistical analysis and the overall direction and coordination of the analytical measurements leading to certification were performed by K.E. Dyer, Technical Manager at Alpha Resources. Normal test procedures should be employed when using this standard. This includes using the *reproducibility* and *repeatability* uncertainty for the test method you wish to employ. The material used in production of this standard was sampled in accordance with ARI 032. The samples for round robin testing were selected in accordance with ARI 014. The above values relate only to the material used to produce this standard.

Notes:

Before use, the contents of the bottle should be mixed by vigorous shaking. Any exposure to air and light should be kept to a minimum. Keep sealed and store upright under normal laboratory conditions. This bottle contains 100ml to be used as per the test method. Unopened and stored properly this product has an indefinite shelf life. Once opened this standard is only valid for two years. This reference material was produced in accordance to ISO Guide 34-2009.

This is a Certified Reference Material (Working Standard), and is traceable to the above-mentioned NMI standards. For good laboratory practice it is recommended that all standards be verified prior to use. Remedies for any claimed defect in this product will be limited to product replacement or refund of the purchase price. In no event shall Alpha Resources be liable for incidental or consequential damages.

This calibration standard is accredited and meets the requirements of ISO/IEC 17025 as verified by the ANSI-ASQ National Accreditation board. Alpha Resources is an ISO/IEC 17025 accredited laboratory. For more information concerning our scope of accreditation contact Alpha Resources.

EXPIRATION DATE
THIS CRM IS VALID FOR TWO YEARS FROM THE DATE OF OPENING

Certified November 7, 2013

Technical Manager

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