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Report No: USR:W215-1259-01
Issue No: 1

Analytical Test Report

Client: ALLIANCE FOR GREEN HEAT
 512 Elm Avenue
 Takoma Park, MD 20912
Attention: John Ackerly
PO No:

Signed: *Stephen Sundeen*
 Stephen Sundeen
 Chemistry Laboratory Manager
 Date of Issue: 12/4/2015
THIS DOCUMENT SHALL NOT BE REPRODUCED EXCEPT IN FULL

| Sample Details | | | |
|------------------------------|--------------|----------------------|------------|
| Sample Log No: | W215-1259-01 | Sample Date: | |
| Sample Designation: | Sample #1 | Sample Time: | |
| Sample Recognized As: | Pellets | Arrival Date: | 11/30/2015 |

Test Results

| | METHOD | UNITS | MOISTURE FREE | AS RECEIVED |
|-----------------------------------|------------|----------|---------------|-------------|
| Moisture Total | ASTM E871 | wt. % | | 5.86 |
| Ash | ASTM D1102 | wt. % | 0.63 | 0.59 |
| Volatile Matter | ASTM D3175 | wt. % | | |
| Fixed Carbon by Difference | ASTM D3172 | wt. % | | |
| Sulfur | ASTM D4239 | wt. % | 0.013 | 0.012 |
| SO ₂ | Calculated | lb/mmbtu | | 0.029 |
| Net Cal. Value at Const. Pressure | ISO 1928 | GJ/tonne | | |
| Net Cal. Value at Const. Pressure | ISO 1928 | J/g | | |
| Gross Cal. Value at Const. Vol. | ASTM E711 | J/g | 19948 | 18779 |
| Gross Cal. Value at Const. Vol. | ASTM E711 | Btu/lb | 8577 | 8074 |

| | | | | |
|-----------|------------|-------|--|--|
| Carbon | ASTM D5373 | wt. % | | |
| Hydrogen* | ASTM D5373 | wt. % | | |
| Nitrogen | ASTM D5373 | wt. % | | |
| Oxygen* | ASTM D3176 | wt. % | | |

*Note: As received values do not include hydrogen and oxygen in the total moisture.

| | | | | |
|----------|------------|-------|--|--|
| Chlorine | ASTM D6721 | mg/kg | | |
| Fluorine | ASTM D3761 | mg/kg | | |
| Mercury | ASTM D6722 | mg/kg | | |

| | | | | |
|--------------------------------|--------------|---------------------|--|----|
| Bulk Density | ASTM E873 | lbs/ft ³ | | |
| Fines (Less than 1/8") | TPT CH-P-06 | wt. % | | |
| Durability Index | Kansas State | PDI | | |
| Sample Above 1.50" | TPT CH-P-06 | wt. % | | |
| Maximum Length (Single Pellet) | TPT CH-P-06 | inch | | |
| Diameter, Range | TPT CH-P-05 | inch | | to |
| Diameter, Average | TPT CH-P-05 | inch | | |
| Stated Bag Weight | TPT CH-P-01 | lbs | | |
| Actual Bag Weight | TPT CH-P-01 | lbs | | |

Comments