Assurance Statement related to
GHG Inventory for Calendar Year 2015
prepared for Northrop Grumman, Incorporated

Terms of Engagement
This Assurance Statement has been prepared for Northrop Grumman, Incorporated.

Lloyd’s Register Quality Assurance, Inc. (LRQA) was commissioned by Northrop Grumman, Incorporated (Northrop Grumman) to assure its GHG Emissions Inventory for the calendar year 2015, (hereafter referred to as “the Inventory”).

The Inventory includes direct (Scope 1) GHG emissions, energy indirect (Scope 2) GHG emissions and other indirect (Scope 3) GHG emissions. The Scope 2 GHG emissions were adjusted to account for the purchase of Renewable Energy Credits (RECs). The Scope 3 GHG emissions include air travel, rental cars, and hotel accommodation for business travel.

The following sources were excluded from the Inventory on the basis of their de minimis contribution and sense-checked during the engagement:

- Scope 1 emissions from non-utility data fuel usage for buildings less than 100,000 square feet;
- Mobile emissions at sites with less than 10 vehicles;
- Process emissions for buildings less than 100,000 square feet;
- Fugitive emissions of all HFCs;
- Fugitive emissions from PFCs in fire suppression systems; and
- Scope 1 emissions of CH₄ and N₂O from the combustion of fossil fuels.

Management Responsibility
Northrop Grumman’s management was responsible for preparing the Inventory and for maintaining effective internal controls over the data and information disclosed. LRQA’s responsibility was to carry out an assurance engagement on the Inventory in accordance with our contract with Northrop Grumman.

Ultimately, the Inventory has been approved by, and remains the responsibility of Northrop Grumman.

LRQA’s Approach
Our verification was conducted in accordance with ISO14064 – 3:2006 Specification with guidance for validation and verification of greenhouse gas assertions, to provide reasonable assurance that the GHG data as presented in the Inventory for Northrop Grumman have been prepared in conformance with the World Resource Institute/World Business Council for Sustainable Development (WRI/WBCSD) GHG Protocol: A Corporate Accounting and Reporting Standard and the internal Northrop Grumman GHG Reporting Protocol, Version 2.3 (NG GHG Protocol).

To form our conclusion, the assurance was undertaken as a sampling exercise and covered the following activities:

- Conducted site visits to Northrop Grumman facilities and reviewed primary data and information related to the Scope 1 and Scope 2 GHG emissions for CY 2015 included in the entity level GHG Emissions Inventory;
- Reviewed the processes for the management of data and information related to the Scope 1, Scope 2, and Scope 3 GHG emissions used at the corporate level and by each Northrop Grumman operating sector;
- Interviewed relevant staff responsible for managing and maintaining data and information and for preparing the Inventory at the sector and corporate levels;
- Verified the Scope 1 and Scope 2 GHG emissions for CY 2015 included in the Inventory back to source using data and information made available at the facility level; and
• Verified the Scope 3 GHG emissions for CY 2015 through a review of aggregated level data and information and calculation spreadsheets provided by Northrop Grumman.

**Level of Assurance & Materiality**
The opinion expressed in this Assurance Statement for Scope 1 and Scope 2 GHG emissions has been formed on the basis of a reasonable level of assurance and at a materiality of 5%.

For Scope 3 GHG emissions, the opinion has been formed on the basis of a limited level of assurance and at a materiality of the professional judgment of the verifier.

**LRQA’s Opinion**
Based on LRQA’s approach, the total Scope 1 and Scope 2 GHG emissions disclosed in the Inventory for CY 2015, as summarized in Table 1 below, are materially correct, and the Inventory has been prepared in accordance with the WRI/WBCSD GHG Protocol and the NG GHG Protocol.

In addition, LRQA did not find any evidence that the Scope 3 GHG emissions disclosed in the Inventory for CY 2015, as summarized in Table 1 below, are not materially correct and are not prepared in accordance with the WRI/WBCSD GHG Protocol and the NG GHG Protocol.

**LRQA’s Recommendations**
Management may consider ensuring that all facilities with process emissions are using Appendix B of NGC’s GHG Protocol to determine the SAP search content.

Signed

Dated: June 14, 2016

Heather Moore, P.E.
Lead Verifier
On behalf of Lloyd’s Register Quality Assurance, Inc.,
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Houston, TX 77077

LRQA Reference: RMA10193A
Table 1. Summary of Northrop Grumman GHG Emissions Inventory CY2015

<table>
<thead>
<tr>
<th>Scope of GHG emissions</th>
<th>Description</th>
<th>tCO2e</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scope 1</td>
<td>Direct GHG emissions</td>
<td>145,368</td>
</tr>
<tr>
<td>Scope 2 (Location-Based)</td>
<td>Energy Indirect – Location-Based</td>
<td>433,105</td>
</tr>
<tr>
<td>Scope 2 (Market-Based)</td>
<td>Energy Indirect – Market-Based</td>
<td>424,755</td>
</tr>
<tr>
<td>Scope 3 (business travel)</td>
<td>Other Indirect GHG emissions</td>
<td>142,281</td>
</tr>
</tbody>
</table>

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