



**Assurance Statement related to Northrop Grumman
Greenhouse Gas Emissions Data for calendar year ended December 31st 2011**

Terms of Engagement

This Assurance Statement has been prepared for Northrop Grumman Corporation (Northrop Grumman).

LRQA Americas Sustainability, Inc., (LRQA-AS) a member of the Lloyd's Register group of entities, was commissioned by Northrop Grumman to assure the Greenhouse Gas (GHG) Assertion and GHG Emissions Inventory for their entity total direct and energy indirect GHG emissions for the calendar year 2011 (CY 2011). The inventory of emissions was prepared by Northrop Grumman using operational control as the basis for aggregation.

The GHG Assertion to be assured for CY 2011 was prepared by Northrop Grumman and taken from the ENX database on June 1st, 2012, as follows:

- Direct GHG emissions of 170,019 metric tons CO₂ equivalent (Scope 1); and
- Energy indirect GHG emissions of 538,954 metric tons CO₂ equivalent (Scope 2).

Boundary and Scope

The boundary of the verification review was defined by Northrop Grumman as operational control, including international sites. The emissions data that was verified included seven gases that comprise Scope 1 and Scope 2 emissions for CY 2011, including CO₂, CH₄, N₂O, SF₆, PFC, HFC, and NF₃.

Management Responsibility

The management of Northrop Grumman was responsible for preparing the GHG data and information disclosed in the GHG Emissions Inventory and GHG Assertion and for maintaining effective internal controls, including assuring all inputs into the GHG data and information in the GHG Emissions Inventory and GHG Assertion. LRQA-AS's responsibility was to carry out an assurance engagement on the GHG data and information, as presented in the GHG Emissions Inventory and GHG Assertion, in accordance with our contract with Northrop Grumman. Ultimately, the GHG Emissions Inventory and GHG Assertion have been approved by, and remain the responsibility of Northrop Grumman.

LRQA-AS Approach

Our verification has been conducted in accordance with *ISO14064 – 3:2006 Specification with guidance for validation and verification of greenhouse gas assertions* and with the methods defined in the *General Verification Protocol, issued by The Climate Registry, dated May 2008*, to provide reasonable assurance that the GHG emissions data and information presented in the GHG Emissions Inventory and GHG Assertion have been prepared in conformance with the *WBCSD/WRI GHG Protocol* and Northrop Grumman's internal GHG inventory management procedures for calculating and reporting GHG emissions, as of March 2012.

In order to form our conclusions we have:

- Conducted site visits to each of the five Northrop Grumman operating sectors (Aerospace, Electronics, Information Systems, Technical Services, and Enterprise Shared Services) and reviewed data and information related to the direct and energy indirect GHG emissions for 2011 included in the entity level GHG Emissions Inventory;
- Reviewed the processes for the management of data and information related to the direct and energy indirect 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 GHG Emissions Inventory at the sector and corporate levels; and
- Verified the direct and energy indirect GHG emissions for CY 2011 included in the GHG Emissions Inventory back to source using data and information made available at the facility level.



Level of Assurance, Materiality and Opinion

The opinion expressed in this Assurance Statement has been formed on the basis of a reasonable level of assurance and at a materiality of 5%.

Based on the approach taken by LRQA-AS, in our opinion the data and information presented in the GHG Emissions Inventory and GHG Assertion above are materially correct.

LRQA-AS Accreditations

LRQA-AS holds accreditation for the delivery of GHG verification services for The Climate Registry and the California Air Resources Board, and the verification team for this verification consisted of qualified Lead Verifiers and Verifiers under these schemes.

Recommendations

It is recommended that Northrop Grumman consider the improvements provided by LRQA-AS in the CY 2010 GHG Assurance Statement for Northrop Grumman, issued on June 14th, 2012. These recommendations are repeated below. No additional recommendations are provided based on the CY 2011 verification.

- Consider an electronic data management system for reporting utility data into the GHG reporting system. This would eliminate much of the tedious and time-consuming effort that is currently required by each sector to assemble and upload such data. It would also reduce the potential for human error in the data transcription process.
- In the absence of an electronic reporting system for utility data, designate responsibilities for maintaining records to demonstrate how monthly data are aggregated to annual totals for each facility or each account.
- Provide further guidance to sector staff for: (1) determining operational control in cases where building lease and landlord arrangements are unusual; and (2) identifying and managing relatively high emissions sources (such as compressors) in small buildings.
- Provide clearer documentation on the various systems used by the sectors for tracking fuel use and mileage for fleet vehicles.
- Ensure that QC data checks are performed at the facility, sector and corporate levels (as defined in the GHG procedures) to ensure that reported data are accurate and reasonable.
- Clarify how small sources of emissions (including hand-held equipment, fire extinguishers welders and barbeques) are to be accounted for in the GHG inventory.

Signed

Dated: June 14th, 2012

A handwritten signature in blue ink, appearing to read 'I. John', is written over a light blue horizontal line.

Ivor John
Lead Verifier

On behalf of LRQA Americas Sustainability, Inc.
Granada Building
1216 State Street, Fifth Floor
Santa Barbara, CA 93101

LRQA-AS Reference: RMA10084



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Because of the inherent limitations in any internal control it is possible that fraud, error, or non-compliance with laws and regulations may occur and not be detected. Further, the verification was not designed to detect all weakness or errors in internal controls so far as they relate to the requirements set out above as the verification has not been performed continuously throughout the period and the verification carried out on the relevant internal controls were on a test basis. Any projection of the evaluation of control to future periods is subject to the risk that the processes may become inadequate because of changes in conditions, or that the degree of compliance with them may deteriorate.

The English version of this statement is the only valid version. The Lloyd's Register Group assumes no responsibility for versions translated into other languages.

This Assurance Statement is only valid when published with the GHG Report (Assertion) to which it refers.