

Document # AFS-18-0027

Delivery via email

Patrick R. Schwab, Contracting Officer Representative

U.S. Department of Energy

Office of Nuclear Energy

1000 Independence Ave., SW

Washington, D.C. 20585

February 2, 2018

**Subject: CLIN 2, Event 4, Revised and Final Submission of Railcar Document Package**

**Reference: Atlas HLRM Railcar Project, Contract DE-NE-0008390**

Dear Mr. Schwab;

Enclosed are the revised and final final Kasgro Rail drawings, structural analysis, bill of materials and dynamic modeling reports for the Atlas and buffer railcars. These include changes for additional AAR EEC modeling requirements, incorporation of AAR S-2044, *Safety Appliances f or Freight Cars*, and the replacement of the ECP brake system. Also enclosed are the final information packages for the Atlas railcar conceptual ballast load and the Atlas test loads. These final document packages are formally submitted for review and approval for invoicing.

The enclosed Atlas railcar document package includes the following files *with revised drawings in italics*:

|  |  |  |
| --- | --- | --- |
| **File Names** | **Kasgro Rail Drawing Number** | **Description** |
| 1155-1.dwg  1155-1.pdf | 1155-1 | Car Body Arrangement |
| *1155-2.dwg*  *1155-2.pdf* | *1155-2* | *Brake Arrangement* |
| *1155-3.edrw*  *1155-3.pdf* | *1155-3* | *Stencil Arrangement* |
| *1155-4.dwg*  *1155-4.pdf* | *1155-4* | *End Platform Arrangement* |
| *1155-5.dwg*  *1155-5.pdf* | *1155-5* | *End Platform Details* |
| 1155-6.dwg  1155-6.pdf | 1155-6 | End Platform Details |
| *1155-7.dwg*  *1155-7.pdf* | *1155-7* | *Air Brake Schematic* |
| 1155-8.dwg  1155-8.pdf | 1155-8 | Body Bolster |

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| **File Names** | **Kasgro Rail Drawing Number** | **Description** |
| 1155-9.dwg  1155-9.pdf | 1155-9 | Center Plate |
| 1155-10.dwg  1155-10.pdf | 1155-10 | Steel Details |
| 1155-11.dwg  1155-11.pdf | 1155-11 | Steel Details |
| 1155-12.dwg  1155-12.pdf | 1155-12 | Steel Details |
| 1155-13.dwg  1155-13.pdf | 1155-13 | Steel Details |
| 1155-14.dwg  1155-14.pdf | 1155-14 | Steel Details |
| 1155-15.dwg  1155-15.pdf | 1155-15 | Steel Details |
| 1155-16.dwg  1155-16.pdf | 1155-16 | Steel Details |
| 1155-17.dwg  1155-17.pdf | 1155-17 | Steel Details |
| 1155-18.dwg  1155-18.pdf | 1155-18 | Steel Details |
| 1155-19.dwg  1155-19.pdf | 1155-19 | Brake Steel Details |
| 1155-20.dwg  1155-20.pdf | 1155-20 | Brake Steel Details |
| 1155-21.dwg  1155-21.pdf | 1155-21 | Pipe Details |
| 1155-22.dwg  1155-22.pdf | 1155-22 | Pipe Details |

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| **File Names** | **Kasgro Rail Drawing Number** | **Description** |
| 1155-23.dwg  1155-23.pdf | 1155-23 | Brake Pipes |
| 1155-24.dwg  1155-24.pdf | 1155-24 | Steel Details |
| *1155-25.dwg*  *1155-25.pdf* | *1155-25* | *Hand Brake Details* |
| 1155-26.dwg  1155-26.pdf | 1155-26 | Hand Brake Details |
| 1155-27.dwg  1155-27.pdf | 1155-27 | Hand Brake Details |
| 1155-28.dwg  1155-28.pdf | 1155-28 | Hand Brake Details |
| 1155-29.dwg  1155-29.pdf | 1155-29 | Brake Badge Plate |
| 1155-30.dwg  1155-30.pdf | 1155-30 | Locking Center Pins |
| *1155-31.dwg*  *1155-31.[df* | *1155-31* | *Hand Brake Details* |
| 1155-32.dwg  1155-32.pdf | 1155-32 | Spring Grouping  290 Ton Straight Deck Flat Car |
| *1155-33.dwg*  *1155-33.pdf* | *1155-33* | *Brake Steel Details* |
| 1155-34.dwg  1155-34.pdf | 1155-34 | Camber Diagram |
| 1155-35.dwg  1155-35.pdf | 1155-35 | Clearance |
| 1155-36.dwg  1155-36.pdf | 1155-36 | Steel Details |

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| **File Names** | **Kasgro Rail Drawing Number** | **Description** |
| 1155-37.dwg  1155-37.pdf | 1155-37 | Steel Details |
| 1155-38.dwg  1155-38.pdf | 1155-38 | Steel Details |
| 1155-39.dwg  1155-39.pdf | 1155-39 | Center Pin Details |
| *1155-40.dwg*  *1155-40.pdf* | *1155-40* | *Handbrake Arrangement* |
| *1155-41.dwg*  *1155-41.pdf* | *1155-41* | *Attachment Arrangement* |
| *1155-42.dwg*  *1155-42.pdf* | *1155-42* | *Sheave Brkts* |
| *1155-43.dwg*  *1155-43.pdf* | *1155-43* | *HB Steel Details* |
| *1155-44.dwg*  *1155-44.pdf* | *1155-44* | *Steps* |
| *Atlas Structural Analysis 11-07-17.pdf* | *N/A* | *Atlas 12-Axle Flat Car*  *S-2043 4.1 Structural Analysis* |
| *1155-BOM Atlas Car.pdf* | *N/A* | *12-Axle Flat*  *Atlas Cask Car Bill of Material* |
| *Atlas Dyn Modeling Report P-17-021 Rev 12-14-2017.pdf* | *N/A* | *S-2043 Certification: Preliminary Simulations of Kasgro-Atlas*  *12-Axle Cask Car*  *Report P-17-021, Revised December 14, 2017* |

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The enclosed buffer railcar document package includes the following files *with revised drawings in italics*:

|  |  |  |
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| **File Names** | **Kasgro Rail Drawing Number** | **Description** |

|  |  |  |
| --- | --- | --- |
| 1160-1.dwg  1160-1.pdf | 1160-1 | General Arrangement  110 Ton Straight Deck Flat |
| *1160-2 Rev C.dwg*  *1160-2 Rev C.pdf* | *1160-2 Rev C* | *Air Brake Arrangement*  *110 Ton Flat Car* |
| 1160-3.edrw  1160-3.pdf | 1160-3 | Stencil Arrangement |
| 1160-4.dwg  1160-4.pdf | 1160-4 | Hand Brake Arrangement |
| 1160-5.dwg  1160-5.pdf | 1160-5 | Draft Sill Details |
| 1160-6.dwg  1160-6.pdf | 1160-6 | Bolster Assembly and Details |
| 1160-7.dwg  1160-7.pdf | 1160-7 | Steel Details |
| 1160-8.dwg  1160-8.pdf | 1160-8 | Steel Details |
| 1160-9.dwg  1160-9.pdf | 1160-9 | Steel Details |
| 1160-10.dwg  1160-10.pdf | 1160-10 | Steel Details |
| 1160-11.dwg  1160-11.pdf | 1160-11 | Steel Details |
| 1160-12.dwg  1160-12.pdf | 1160-12 | Steel Details |
| 1160-13.dwg  1160-13.pdf | 1160-13 | Steel Details |
| 1160-14.dwg  1160-14.pdf | 1160-14 | Steel Details |

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| **File Names** | **Kasgro Rail Drawing Number** | **Description** |

|  |  |  |
| --- | --- | --- |
| 1160-15.dwg  1160-15.pdf | 1160-15 | Steel Details |
| 1160-16.dwg  1160-16.pdf | 1160-16 | Deck Plate |
| 1160-17.dwg  1160-17.pdf | 1160-17 | Steel Details |
| 1160-18.dwg  1160-18.pdf | 1160-18 | Steel Details |
| 1160-19.dwg  1160-19.pdf | 1160-19 | Hand Brake Details |
| 1160-20.dwg  1160-20.pdf | 1160-20 | Brake Badge Plate |
| 1160-21.dwg  1160-21.pdf | 1160-21 | Hand Brake Steel Details |
| 1160-22.dwg  1160-22.pdf | 1160-22 | Hand Brake Details |
| 1160-23.dwg  1160-23.pdf | 1160-23 | Air Brake Steel Details |
| 1160-24.dwg  1160-24.pdf | 1160-24 | Air Brake Steel Details |
| 1160-25.dwg  1160-25.pdf | 1160-25 | Pipe Details |
| 1160-26.dwg  1160-26.pdf | 1160-26 | Pipe Details |
| 1160-27.dwg  1160-27.pdf | 1160-27 | Pipe Details |
| 1160-28.dwg  1160-28.pdf | 1160-28 | Brake Pipe Details |
| 1160-29.dwg  1160-29.pdg | 1160-29 | Air Brake Details |

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| **File Names** | **Kasgro Rail Drawing Number** | **Description** |

|  |  |  |
| --- | --- | --- |
| 1160-30.dwg  1160-30.pdf | 1160-30 | Air Brake Details |
| 1160-31.dwg  1160-31.pdf | 1160-31 | Air Brake Details |
| 1160-32.dwg  1160-32.pdf | 1160-32 | Air Brake Steel Details |
| 1160-33.dwg  1160-33.pdf | 1160-33 | Air Brake Steel Details |
| 1160-34.dwg  1160-34.pdf | 1160-34 | Pipe Details |
| 1160-35.dwg  1160-35.pdf | 1160-35 | Camber Diagram |
| 1160-37.dwg  1160-37.pdf | 1160-37 | Pipe Details |
| 1160-40.dwg  1160-40.pdf | 1160-40 | Ballast Wt Arrangement |
| 1160-41.dwg  1160-41.pdf | 1160-41 | Dummy Wt |
| 1160-42.dwg  1160-42.pdf | 1160-42 | Dummy Wt |
| 1160-43.dwg  1160-43.pdf | 1160-43 | Dummy Wt |
| 1160-44.dwg  1160-44.pdf | 1160-44 | Locking Center Pins |
| 1160-45.dwg  1160-45.pdf | 1160-45 | Steel Details |
| *Buffer Structural Analysis 11-03-17.pdf* | *N/A* | *Atlas 4-Axle Flat Car*  *Preliminary Loading Analysis*  *60 Ft 110-Ton Flatcar*  *For S-2043 Service* |

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| **File Names** | **Kasgro Rail Drawing Number** | **Description** |

|  |  |  |
| --- | --- | --- |
| *1160-BOM Buffer Car* | *N/A* | *4-Axle Flat Atlas Buffer Railcar Bill of Material* |
| *Buffer Dyn Modeling Report P-17-023 Rev 11-20-2017.pdf* | *N/A* | *S-2043 Certification: Preliminary Simulation of Kasgro Buffer Railcar, Report P-17-023, Revised November 20, 2017* |

The enclosed Atlas railcar conceptual ballast load document package includes the following files:

|  |  |  |
| --- | --- | --- |
| **File Names** | **AFS Document Number** | **Description** |

|  |  |  |
| --- | --- | --- |
| DWG-3018955-000.zip  DWG-3018955-000.pdf | DWG-3018955-000 | Atlas Railcar Ballast Load Conceptual Drawing |
| CALC-3018954-000.docx  CALC-3018954-000.pdf | CALC-3018954-000 | Atlas Railcar Conceptual Ballast Load Structural Calculation |

The enclosed Atlas test loads document package includes the following files:

|  |  |  |
| --- | --- | --- |
| **File Names** | **AFS Document Number** | **Description** |

|  |  |  |
| --- | --- | --- |
| EIR-3018494-000.docx  EIR-3018494-000.pdf | EIR-3018494-000 | Atlas Railcar Test Load Design Information |

This document supports the completion of referenced contract, page G-4, item CLIN 2, Event 4.

For questions and comments, contact me at 704-805-2994 or at [mark.denton@areva.com](mailto:mark.denton@areva.com) .

Best Regards,



Mark A. Denton

Sr. Project Manager

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