Personal information including names, contact numbers, and email addresses has been redacted from this GHG verification report to protect the privacy of Union Pacific employees.

1. Introduction

Union Pacific Railroad Company (UP or Client) retained GHD Services Inc. (GHD) to undertake a verification of its Greenhouse Gas (GHG) Inventory report (Report) for the compliance period of January 1 to December 31, 2024. GHD understands that UP intends to use the GHG inventory to support its submission to the CDP. Further, GHD understands UP has prepared their GHG Report for 2024 in general accordance with the requirements of *The Greenhouse Gas Protocol, A Corporate Accounting and Reporting Standard (Revised Edition) (GHG Protocol)*.

GHD Services Inc. is accredited by ANAB under *ISO 14065 Greenhouse Gases – Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition* (ISO 14065) as a greenhouse gas validation and verification body.

GHD has prepared this Verification Report in accordance with ISO Standard ISO 14064 Greenhouse gases - Part 3: Specification with guidance for the verification and validation of greenhouse gas statements (ISO 14064-3:2019) and with the Program requirements.

2. Verification Objective

The objective of the verification is to provide Client and the Program with an opinion on whether the Facility's 2024 Inventory Report is free of material misstatement and that the information reported is accurate and consistent with the requirements of the Program.

3. Level of Assurance

GHD conducted the verification to a reasonable level of assurance.

4. Verification Standards

For the verification, GHD applied ISO 14064-3:2019 and the Program verification standards.

5. Verification Criteria

GHD will apply the following verification criteria:

– ISO 14064 Greenhouse Gases - Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals, ISO, December 2018 (ISO 14064-1)
– ISO 14064 Greenhouse Gases - Part 3: Specification with guidance for the verification and validation of greenhouse gas statements, ISO, April 2019 (ISO 14064-3:2019)
– IAF Mandatory Document for the Use of Information and Communication Technology (ICT) for Conformity Purposes: Issue 3, Version 4, International Accreditation Forum, Inc., January 2025 (IAF MD 5: 2025)
– The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition) (GHG Protocol)
– The Greenhouse Gas Protocol Scope 2 Guidance
– The Corporate Value Chain (Scope 3) Accounting and Reporting Standard

6. Verification Team and Independent Reviewer

6.1 Roles and Responsibilities

Lead Verifier/Technical Expert – **Erik Martinez** – Mr. Martinez lead the verification and was responsible for development of the verification plan. Mr. Martinez reviewed the risk assessment and evidence gathering plan, recalculation of raw data, data management and draft findings. Mr. Martinez reviewed and signed the verification opinion and verification report.

Support Staff **– Lakshaya Grover** – Mr. Grover assisted in the development of the verification plan, evidence gathering plan and risk assessment. Mr. Grover also assisted in the recalculation of raw data, the review of data management, and the preparation of draft findings.

Independent Reviewer/Technical Expert **– Gordon Reusing** – Mr. Reusing conducted an independent review of the risk assessment, evidence gathering plan, working papers, verification plan, verification report, and findings. Mr. Reusing approved the issuance of the opinion.

6.2 Qualifications

Erik Martinez, P.Eng. – Mr. Martinez is a Principal and the Business Group Leader of GHD's EHS Compliance Group in Ontario, with over 19 years of experience in air, noise and greenhouse gas assurance services. Erik has a Bachelor of Applied Science in Environmental Engineering - Chemical Specialization from the University of Waterloo. Mr. Martinez is an accredited Lead Verifier and Lead Validator for greenhouse gas reports and

offset projects for numerous programmes, including those under the American National Standards Institute. Mr. Martinez has extensive experience preparing emissions inventories, and Facility GHG assessments in accordance with the ISO protocols and reporting requirements under O. Reg. 390/18 and the Output-Based Pricing System Regulations, SOR/2019-266, and other various programmes. Mr. Martinez has over 6 years of verification experience including acting as the Lead Verifier and Lead Validator on numerous GHG assessments in Ontario and has completed peer reviews and acted as the Technical Expert for compliance reports, emission reduction projects and offsets under the OCE TargetGHG Program, GreenON Industries, and the Alberta Specified Gas Emitters Regulation. Mr. Martinez has completed over 100 verifications and has competent knowledge of ISO 14064-1, ISO 14064-2, and ISO 14064-3 guidance documents and various GHG programmes, regulations, and protocols. In addition, Mr. Martinez has received training in ISO14064-3 through GHD's greenhouse gas assurance services accreditation process that requires multiple competency requirements to be achieved before being approved as a lead verifier on March 27, 2015.

Lakshaya Grover, B.A.Sc. – Mr. Grover is an Air Quality Engineering Graduate and a member of the Sustainability Advisory team at GHD. Mr. Grover holds a Bachelor of Applied Science degree in Environmental Engineering from the University of Waterloo. Mr. Grover has been involved with numerous GHG verifications in various sectors under The Management and Reduction of Greenhouse Gases in Saskatchewan, the Technology Innovation and Emissions Reduction regulations in Alberta, Emissions Performance Standards program in Ontario as well as The Climate Registry. Mr. Grover has experience in a range of industries including manufacturing, oil and gas extraction and power generation.

Gordon Reusing, M. Sc., P. Eng. – Mr. Reusing is a greenhouse gas (GHG) Lead Verifier, Lead Validator, and Peer Reviewer with extensive experience including GHG programmes in Alberta, British Columbia, Saskatchewan, Ontario, Quebec, Nova Scotia, California, and programmes operated by the United Nations Framework Convention on Climate Change (UNFCCC) Clean Development Mechanism (CDM), The Gold Standard, The Climate Registry (TCR), the Carbon Disclosure Project (CDP), and Verra: Verified Carbon Standard (VCS). He has completed numerous GHG quantification studies for the oil and gas sector, including upstream, midstream and downstream facilities. Mr. Reusing has conducted GHG verifications as a Lead Verifier, Technical Expert and Peer Reviewer in many jurisdictions, including, but not limited to, British Columbia, Alberta, Ontario, Quebec, and Nova Scotia.

7. Corporate Operations Overview

Union Pacific Railroad Company operates a vast network spanning 23 states in the western U.S., covering 32,200 miles of track. Primarily engaged in freight transportation, it serves diverse industries including agriculture, automotive, chemicals, and energy. The company facilitates the movement of commodities like grains, coal, automobiles, and consumer goods.

7.1 Client Contact

Mr. Tom Cappucci was GHD’s Client contact for this verification.

8. Verification Scope

The following sections describe the scope of the verification.

8.1 Facility Emission Sources

The GHG emission source categories and specific greenhouse gases emitted from these sources at the Facility include:

Scope 1 – Direct Emissions Sources:

– Mobile Combustion (CO_2, CH_4, N_2O)
– Stationary Combustion (CO_2, CH_4, N_2O)
– Fugitive Emissions – Refrigerants (HFCs)

Scope 2 – Indirect Emissions Sources (Location-based & Market-based):

– Imported Electricity (CO_2, CH_4, N_2O)
– Imported Cooling (CO_2, CH_4, N_2O)
– Imported Steam (CO_2, CH_4, N_2O)

Scope 3 – Other Indirect Emissions Sources:

– Purchased Goods and Services
– Capital Goods
– Fuel and Energy Related Activities
– Upstream Transportation and Distribution
– Waste Generated in Operations
– Business Travel
– Employee Commuting
– Downstream leased assets
– Investments

8.2 Geographical and Operational Boundaries

UP operations assessed as part of this verification include UP's entire corporate operations, with the exception of the passenger service sector and properties where UP ownership was less than 50 percent during the reporting year. The inventory boundary also included the UP vehicle fleet (locomotive, corporate jet, and other vehicles such as corporate cars/trucks), UP corporate operations buildings, and other indirect emission sources including air travel, car rentals, railway tie combustion, and fuel extraction, production, and transportation. Verification will be completed at the corporate level.

8.3 Reporting Period

The reporting period is between January 1, 2024 and December 31, 2024.

8.4 Use of this Report

The verification report was prepared for the use of Client and the Program.

References from GHD's Verification Report must use the language in which the statement was issued, and reference the date of issuance of GHD's report, the applicable verification period and the associated program for which the verification was conducted. The GHG assertion provided by GHD can be freely used by Client for marketing or other purposes other than in a manner misleading to the reader. The GHD mark shall not be used by Client in any way that might mislead the reader about the verification status of the organization. The GHD mark can only be used with the expressed consent of GHD and then, only in relation to the specific time period verified by GHD.

8.5 Use of Information and Communication Technology

As part of the verification process, GHD utilized information and communication technology (ICT) in accordance with IAF Mandatory Document for the use of Information and Communication Technology for Conformity Purposes (IAF MD 5:2025) for various aspects of the verification, including conducting video/tele-conferencing with various personnel up to full virtual site visits.

The agreed upon ICT methods were MS Teams, Zoom, Google Meet, or Webex. By accepting GHD's proposal, Client agreed to the use of the aforementioned ICT methods and their associated information security, data protection and confidentiality measures. Throughout the entire verification process, including use of ICT, GHD abided by the confidentiality procedures.

8.6 Facility Emission Sources

The Corporate Operations emissions sources include the following main groups, as listed in the GHG Inventory:

Table 1 Emission Sources

Source Group	Approximate Emissions (tonnes CO_2e)	Percentage of Total Emissions (%)	Calculation Methodology
Scope 1 Emission Sources			
Mobile Combustion Sources	**9,206,762 (Total for all mobile combustion)**	**64.3%**	See below for estimation methods by source.
Locomotives	8,965,270	97.4%	Calculation based on fuel consumption from Tableau Report and emission factors used from the US EPA Greenhouse Gas Emission Factors Hub, Table 2 for CO2 and Table 5 for CH4 and N2O.
Other Mobile Combustion Sources	241,492	2.6%	Emissions are based on fuel purchase data (costs) obtained from finance department and the relevant emission factors from the US EPA Greenhouse Gas Emission Factors Hub based on vehicle and fuel type, Table 2 for CO2 and Table 3 for CH4 and N2O. Fuel costs are converted to quantity based on the average price per unit of fuel.
Stationary Combustion Sources Fuel Consumption (i.e., heating, emergency generators, etc.)	**60,695**	**0.4%**	Emissions are based on fuel purchase data (costs) obtained from finance department and the relevant emission factors from the US EPA Greenhouse Gas Emission Factors Hub Table 1, based on vehicle and fuel type. Fuel costs are converted to quantity based on the average price per unit of fuel.
Refrigerant Losses - Fugitive Emission Source	**11,829**	**0.1%**	Calculations are based on UPRR's inventory of refrigerant replacements during the reporting year (provided by Facilities Department), multiplied by their respective Global Warming Potential Factors. Refrigerant losses include use in buildings, railcars, vehicles and other miscellaneous sources. In accordance with the GHG Protocol Guidance, only contaminants included in the

Source Group	Approximate Emissions (tonnes CO_2e)	Percentage of Total Emissions (%)	Calculation Methodology
			Kyoto Protocol (HFCs) should be included. Ozone Depleting Substances (ODS) such as CFCs and HCFCs, which are being phased out may be included in the inventory but should not be reported.
Oil Water Separators (OWS)	**774**	**< 0.1%**	Emissions are based on the quantity of OWSs and the CH4 emission factor from the American Petroleum Institute (API) Compendium of GHG Emissions Methodologies for the Oil & Gas Industry, 2009 version (Section 6, Table 6-3).
Scope 2 Emission Sources – Location-Based			
Imported Electricity	**206,212**	**1.4%**	CO_2, CH_4, and N_2O emissions are based on electricity use and the eGRID emission factors.
Imported Chilled Water	**36**	**< 0.1%**	CO_2, CH_4, and N_2O emissions based on simplified estimates, using known chilled water purchases (demand), and an assumed Coefficient of Performance (COP) to determine the electrical equivalence and the relevant eGRID emission factors.
Imported Steam	**65**	**< 0.1%**	CO_2, CH_4, and N_2O emissions based on simplified estimates, using known steam purchases, and the USEPA GHG Emission Factor Hub for steam, Table 7.
Scope 2 Emission Sources – Market-Based			
Imported Electricity	**226,412**	**1.6%**	CO_2, CH_4, and N_2O emissions are based on electricity use and the eGRID emission factors. CO_2 emissions followed a similar method, with residual mix emission rates published on Green-e.
Imported Chilled Water	**36**	**< 0.1%**	CO_2, CH_4, and N_2O emissions based on simplified estimates, using known chilled water purchases (demand), and an assumed Coefficient of Performance (COP) to determine the electrical equivalence and the relevant eGRID emission factors.
Imported Steam	**65**	**< 0.1%**	CO_2, CH_4, and N_2O emissions based on simplified estimates, using known steam purchases, and the USEPA GHG Emission Factor Hub for steam, Table 7.
Scope 3 Emission Sources			
Purchased goods and services	**805,302**	**5.6%**	All UP purchasing data is managed and obtained through UP's SourceHub BI portal. All UP cost classifications were reviewed to determine the source group. Each UP costing category was then matched with the closest corresponding sector category for life cycle assessment emission factors derived from the US EPA Economic Input Output (USEEIO) dataset published by the U.S. EPA Office of Research and

Source Group	Approximate Emissions (tonnes CO_2e)	Percentage of Total Emissions (%)	Calculation Methodology
			Development (ORD) November 2020. The USEEIO dataset uses more recent life cycle results (2018 USD) using the methodology described in Yang, Ingwersen et al. (2017). Costs were adjusted to the 2018 base year using published inflation data.
Capital goods	**226,419**	**1.6%**	Each UP costing category was then matched with the closest corresponding sector category for life cycle assessment emission factors derived from the US EPA Economic Input Output (USEEIO) dataset published by the U.S. EPA Office of Research and Development (ORD) November 2020. The USEEIO dataset uses more recent life cycle results (2018 USD) using the methodology described in Yang, Ingwersen et al. (2017). Costs were adjusted to the 2018 base year using published inflation data.
Fuel-and-energy-related activities (WTT)	**3,028,819**	**21.1%**	**Fuel** Emissions resulting from extraction, production, and transportation of fuel consumed by UP including diesel (locomotives), diesel (other mobile sources), gasoline, jet fuel, propane and natural gas were based on consumption and the emission factors from The Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation (GREET) model. **Electricity** UP calculated the upstream emissions associated with transmission and distribution losses of electricity using the eGRID emission factor and quantity electricity purchased, for each region.
Upstream transportation and distribution	**259,198**	**1.8%**	All UP purchasing data is managed and obtained through UP's SourceHub BI portal. UP extracted company-wide spend on Truck & Vans and Air Transportation, and converted spend into emissions using an appropriate emission factors for each spend category. Emission factors obtained from the Supply Chain Greenhouse Gas Emission Factors v1.2 by NAICS.
Waste generated from operations	**83,627**	**0.6%**	Emissions were calculated using data directly collected by UP from waste suppliers for total tonnage sent to landfills, total tonnage of Municipal Solid Waste Recycling, and total tonnage of waste incinerated. No calculations were made using secondary data (i.e. industry averages). Emissions were calculated by applying the emissions factors from the USEPA GHG Emission Factor Hub, Table 9. Starting with the 2022 reporting year, UP determined that energy recovery and recycling should be excluded from the

Source Group	Approximate Emissions (tonnes CO_2e)	Percentage of Total Emissions (%)	Calculation Methodology
			inventory as these emissions are attributed to the user of the recycled materials, not the producer of the waste. Therefore, UP excluded the following from Scope 3 Category 5 emissions: Scrap metal, wood ties sent to co-gen, recycled/repurposed concrete ties, recycled/repurposed composite ties, and used oil/recovered oil.
Business travel	**37,357**	**0.3%**	Emissions associated with business travel includes supplier provided data for rental car miles, aircraft miles, hotel stays, and crew shuttle miles. Emission factors used are based on fuel type (gasoline, diesel fuel and jet fuel) from USEPA GHG Emission Factor Hub.
Employee commuting	**63,397**	**0.4%**	Emissions were calculated using UP data for employee count, and assumptions about use of UPs allowable work from home policy for non-agreement employees. The average number of commute miles per person was estimated (Numbeo), using "Average when using primary Car" value, and emission factors from USEPA GHG Emission Factor Hub.
Downstream leased assets	**6,874**	**< 0.1%**	This category includes emissions from the operation of real estate assets owned by UP and leased to other entities. Emissions were calculated using square footage of the buildings and average energy intensities from the U.S. Energy Information Association (EIA) Electricity Consumption and Conditional Energy Intensity by Building Size, 2018 (Table C21) - Release date December 2022; EIA Natural Gas Consumption and Conditional Energy Intensity by Building Size, 2018 (Table C31) - Release date December 2022, to determine natural gas and electricity consumption and emission factors from USEPA GHG Emission Factor Hub.
Investments	**325,339**	**2.3%**	Emissions were calculated using Scope 1 & 2 emissions data provided directly by UPs investment & joint venture partners. Office & shop emissions were calculated using square footage measurements and average emission factors USEPA GHG Emission Factor Hub. Total emissions were based on UP's percent stake in each investment.

9. Strategic Analysis

To understand the activities and complexity of the Corporate Operations, and to determine the nature and extent of the validation/verification activities, GHD has completed a strategic analysis. The strategic analysis involves consideration of the details of the Corporate Operations and its operations, the GHG Inventory and its

preparation, and the verification requirements per the Program. The information considered in the strategic analysis is documented in GHD's working papers and was used to inform the assessment of risks and the development of an evidence gathering plan.

10. Assessment of Risk and Magnitude of Potential Errors, Omissions or Misrepresentations

GHD conducted an assessment of the risk and magnitude of potential errors, omissions or misrepresentations associated with the GHG Inventory statement/assertion. GHD then identified areas where qualitative or quantitative errors could occur and assigned risks to the areas. The inherent and control risks were evaluated, and detection risks were established. The risks were identified as high, medium and low. The risk assessment was a key input to developing an effective evidence gathering plan.

11. Evidence-Gathering Plan

GHD has developed an Evidence Gathering Plan (EGP) for internal use based on review of the objectives, criteria, scope, and level of assurance detailed above, along with consideration of the strategic analysis and assessment of risks. The EGP was designed to lower the verification risk to an acceptable level and specifies the evidence (data and information) reviewed as part of the verification in the evidence gathering activities. The EGP was reviewed and approved by the Lead Verifier prior to issuing the verification plan. The EGP is dynamic and was revised, as required, throughout the course of the verification. Any modifications to the EGP were reviewed and approved by the Lead Verifier, with the final EGP being completed prior to issuing the final verification report and opinion.

12. Verification Plan

GHD developed a Verification Plan based on a preliminary review of the data initially provided. GHD submitted the Verification Plan to Client on April 8, 2025. GHD's Verification Plan was revised, as required, throughout the course of the verification to address questions or initial concerns with data originally provided.

13. Quantitative Testing

Quantitative data or raw data was made available to GHD. GHD used the data to recalculate and check the GHG emission calculations and assess the methodologies that were used in the development of the Inventory Report.

14. Materiality Level

The quantitative materiality for this verification is set at 5 percent of the reported GHG emissions as per GHG Protocol Guidance and industry standard. In addition, a series of discrete errors, omissions, or misrepresentations of individual or a series of qualitative factors, when aggregated, may be considered material.

15. Verification Procedures

15.1 Conflict of Interest (COI) and Independence

GHD has undergone a thorough evaluation for conflict of interest (COI) and independence for this verification work. This included a review of other potential work conducted by GHD for Client and the facilities included in the Corporate Operations listed in the scope of work. We have confirmed that this verification work can be successfully completed without undue risk of impartiality and conflict of interest. We have assessed the following key aspects:

i. Verification evaluation

ii. Team evaluation

GHD has rigorous COI and verifier competency evaluation procedures that are followed for every verification project. Our documented procedures ensure that all COI and independence criteria are properly evaluated. GHD's COI program ensures that both the company and the Project Team have no potential COIs.

GHD has also evaluated and approved our Verification Team's competencies. GHD can attest that we have highly qualified staff with the appropriate technical expertise for the verification work.

15.2 Issues Communications

During the course of the document review and interviews, questions and clarifications were identified by the Project Team; these were communicated with Client either verbally, by email, or in an Issues Log (Excel workbook). Client and/or Facility staff had the opportunity to respond to and resolve identified issues, material and/or non-material, prior to the completion of GHD's draft and final verification reports.

15.3 Independent Review

GHD conducted an independent review of the verification, which included a review of findings, emission calculations and opinion developed by the verification team.

15.4 Methodologies Used to Assess/Verify Emissions Data

The verification procedures were used to assess the following:

1. Accuracy and completeness of the Inventory Report
2. Uncertainty of external data sources used
3. Emission assumptions
4. Accuracy of emission calculations
5. Potential magnitude of errors and omissions

To sustain a risk-based assessment, the GHD Project Team identified and determined risks related to the GHG emissions during the document reviews, site visit and the follow-up interviews as applicable. The GHD Project Team focused on the accuracy and completeness of provided information. The components of the document review and follow-up interviews were:

– Document Review:
  - Review of data and information to confirm the correctness and completeness of presented information
  - Cross-checks between information provided in the Inventory Report and information from independent background investigations
  - Determine sensitivity and magnitude analysis for parameters that may be the largest sources of error
  - Comparison of reported emissions with emissions from previous reporting year(s)

– Follow-up Interviews:
  - Via telephone
  - Via email
  - Via ICT

The document review established to what degree the presented Inventory Report documentation met the verification standards and criteria.

The GHD Project Team's document review during the review process comprised of, but was not be limited to, an evaluation of whether or not:

– The documentation is complete and comprehensive and follows the structure and criteria required by the Program.
– The monitoring methodologies are justified and appropriate.
– The assumptions behind the inventory are conservative and appropriate.
– The GHG emission calculations are appropriate and use conservative assumptions for estimating GHG emissions.
– The GHG information system and its controls are sufficiently robust to minimize the potential for errors, omissions, or misrepresentations.

The GHD Project Team interviewed Corporate Operations personnel to:

– Cross-check information provided
– Test the correctness of critical formulae and calculations
– Review data management and recording procedures

GHD completed checks of data from point of collection (meter, scale, etc.), through the Corporate Operations' data management systems, then it's use in the development of the Inventory Report. A sample of raw data was collected for checks and recalculations as applicable. Where errors or anomalies were identified that could lead to a material misstatement, GHD requested further raw data samples to assess the pervasiveness of the errors or anomalies, as applicable. GHD identified the source and magnitude of data or methodology errors or anomalies; however, as a verification body, GHD did not provide solutions to issues identified, where applicable.

16. Verification Findings

The following subsections provide details of GHD's findings and conclusions.

16.1 Verification Findings

The following presents a summary of the qualitative and quantifications findings from the document review:

Scope Item Verified	Effectiveness of ICT
Scope Item Description	ICT techniques used and effectiveness of these techniques
Verification Procedure	GHD discussed with Client the availability of ICT technologies. Client agreed to the use if ICT by accepting GHD's proposal. GHD reviewed and confirmed the effectiveness of these techniques.
Verification Findings	GHD and UP agreed upon the use of MS Teams as the ICT platform to be used as part of this verification. GHD and UP used MS Teams to hold calls, including live screen sharing and file-transfer. Neither GHD nor UP raised any concerns or issues with the use of MS Teams.
Conclusion	The ICT techniques were effective in supporting the verification activities.

Emission Source Group	Organization and Operational Boundary
Scope Item Verified	Organization and Operational Boundary
Verification Procedure	GHD reviewed the Facility operations to confirm that all emission sources are included in the Emission Report. Specifically, GHD completed the following: – Reviewed data management systems – Facility calculation spreadsheets
Verification Findings	UP's emission sources and operations are well defined. UP has reported scope 1 (mobile combustion, stationary combustion, fugitive emissions), scope 2 (imported electricity, imported cooling, imported steam) and scope 3 (purchased goods and services, capital goods, fuel and energy related activities, upstream transportation and distribution, waste generated in operations, business travel, employee commuting, downstream leased assets, investments) emissions. During the document review, GHD confirmed the following: – All emission sources were included in the Emission Report – No changes in the operations at UP in 2024
Conclusion	GHD confirmed that all applicable emissions were included as part of the Inventory Report.

Scope Item Verified	Data Management System
Scope Item Description	Data Management Systems used by the Corporate Operations
Verification Procedure	GHD discussed with Facility the data management systems used and has knowledge of the Union Pacific's operations from previous verifications. The data management systems include Electronic Data Interchange (EDI), ORISS, Hardcopy Invoices, US EPA "Power Profiler Emissions Tool" etc. GHD reviewed and confirmed the effectiveness of these systems.
Verification Findings	Based on GHD's review of the Facility's Data Management System and Data retention policies, no non conformances were found.
Conclusion	Based on GHD's review, the Facility's data management systems are secure and well maintained.

Emission Source Group	Year to Year Change
Scope Item Verified	Previous year's emissions and production compared to current year emissions
Verification Procedure	GHD compared the greenhouse gas emissions and production levels for the Corporate Operations for the previous calendar year with the current calendar year. Where significant changes were identified the reasons for the changes were investigated.
Verification Findings	**Scope 1:** Mobile combustion emissions from corporate jet fuel decreased by 11.77% year over year. This reduction was due to fewer corporate jet flights compared to the previous year. Stationary combustion emissions decreased by 15.5% year over year. Natural gas, which makes up approximately 30% of this category, was down 16%, while propane, accounting for 8%, decreased by 31%, in part due to the Signal Department replacing propane-fired generators with hydrogen alternatives. All other stationary sources increased slightly, up 5% year over year. Refrigerant losses decreased by 9.7% year over year. Emissions from company vehicle refrigeration systems, which represent 55% of this category, were down 30% due to fewer maintenance events. Railcar refrigeration systems, which account for about 40% of emissions, remained flat year over year.

Emission Source Group	Year to Year Change
	Scope 2: Steam consumption at the Omaha, NE CDC facility decreased by 13.2%, primarily due to a milder winter season. **Scope 3:** Scope 3 Category 2 Capital Goods emissions decreased by 63.4% year over year. This was due to revised mapping to EEIO v1.3 and the removal of operating leases for locomotives, railcars, and intermodal equipment, which were deemed not applicable to this category. Scope 3 Category 4 Upstream Transportation and Distribution emissions increased by 26.3% year over year. This was driven by updated mapping, exclusion of fuel delivery spend already captured in Category 3, and recalculated Loup emissions, which included higher truck and rail inputs in 2023. However, 2024 saw a 46% decrease in rail emissions and a 5% increase in trucking emissions compared to the recalculated 2023 baseline. Scope 3 Category 5 Waste Generated in Operations emissions decreased by 24.8% year over year. This was due to a 25% reduction in landfill waste, 17% reduction in recycled waste, and an 89% reduction in incinerated waste, with no changes to emission factors. Scope 3 Category 6 Business Travel emissions decreased by 51.7% year over year. The reduction was primarily due to updated EPA emission factors, with crew transport CO_2 emissions down 41%, CH_4 down 42%, and N_2O down 4%. Scope 3 Category 7 Employee Commuting emissions increased by 55.8% year over year. Despite reductions in average commute distance, FTEs, and total mileage, the increase was driven by higher EPA emission factors, with CO_2 up 59% and N_2O up 57%. Scope 3 Category 13 Downstream Leased Assets emissions decreased by 8.1% year over year. This was due to a net reduction of three active leases, representing a 3% decrease in total leased space. Electric emissions dropped 9.7%, while natural gas emissions decreased 3%. Scope 3 Category 15 Investments emissions increased by 7.1% year over year. This was attributed to higher fuel consumption by partner railroads, including FXE (up 6.5%), Texas City Terminal (up 12%), POCCA (up 7%), and PTRA (up 2%).
Conclusion	The year over year changes in emissions were explained and justified.

Emission Source Group	Stationary Combustion Emissions
Scope Item Verified	Scope 1 Emissions
Verification Procedure	When reviewing the Scope 1 emissions GHD focused mainly on the locomotive emission estimates, methodologies, and supporting information for determining whether any material discrepancies existed. All other mobile combustion sources, stationary combustion sources, refrigerant use that comprise the balance of the Scope 1 emissions were reviewed to determine the adequacy of the methodologies and calculations used.
Verification Findings	GHD reviewed the locomotive emission estimates and methodologies and noted no material discrepancies when recalculating the total emissions using the reported fuel consumption data provided by UP in the 2024 GHG Report. GHD reviewed the 2024 diesel purchases, provided in a spreadsheet by UP. The locomotive diesel consumption reported by UP matched the inventory records reviewed by GHD.
Conclusion	GHD did not identify any discrepancies in the reported locomotive emission estimates. GHD has reviewed the remaining methodologies and calculations associated with mobile combustion, stationary combustion, and refrigerant use sources and noted no material discrepancies.

Emission Source Group	Scope 2 Emission Sources
Scope Item Verified	Scope 2 Emissions
Verification Procedure	UP's Scope 2 emissions are reported in two ways, using the location-based method and the market-based method. The location-based method reflects the GHG emissions from locally-generated energy delivered through the grid. While the market-based method reflects the GHG emissions associated with choices an organization makes about its energy supply or product. **Location Based Emissions:** UP takes this billing data and imports it into the US EPA "Power Profiler Emissions Tool", which takes the address ZIP codes and assigns the energy use to an eGRID region. The energy use totals are then multiplied by the corresponding eGRID region-specific emission factors to obtain GHG emission values. For purchasing data where ZIP codes are not available, the Power Profiler Emissions Tool assigns U.S. average eGRID emission factors for determining emissions associated with that electricity use. **Market Based Emissions**: The GRP V3.0 has listed the types of contractual instruments that convey specific emissions factors for the market-based method in order from the most specific to least specific in the hierarchy. UP has selected the method of Market-D Residual mix emission factors. The published 2024 Green-e® residual mix emissions rates provide CO_2 emissions rates that are adjusted to remove all Green-e® Energy certified sales for each Emissions & Generation Resource Integrated Database (eGRID) subregion to prevent double counting of these claims. CH_4 and N_2O emissions are based on the US EPA eGRID subregion emission factors, following the same approach used for location-based emissions. **Purchased Steam and Chilled Water:** GHD reviewed the remaining methodology and calculations associated with purchased steam and chilled water.
Verification Findings	**Location Based Emissions:** GHD reviewed the electricity emission estimates, methodologies, and available invoicing. For leased buildings, UP used the US national average eGRID emission rates to calculate indirect emissions from purchased electricity. GHD also reviewed the emission factors used in the calculator and compared them to the updated eGRID emission factors. GHD noted a discrepancy of 84,980.43 kWh between the backup data and the reported electricity consumption values for Q4 of 2024. UPRR decided to not update their inventory spreadsheet in order to maintain a conservative estimate of Scope 2 emissions. This discrepancy did not lead to a material difference in the total Scope 2 emissions. **Market Based Emissions**: Similar as the location-based approach, the US average residual mix emission rate for CO_2 is calculated using the average residual mix rates from the subregions where UP had electricity usage. GHD reviewed the US Green-e residual mix emission rates, electricity consumption data and electricity emission estimates and noted that UPRR were not utilizing the latest emission rates. UPRR resolved this issue by updating their inventory spreadsheet. GHD calculated an immaterial difference as noted above. **Purchased Steam and Chilled Water:** GHD reviewed the methodology and calculations associated with purchased steam and chilled water and noted no material discrepancies.
Conclusion	GHD did not identify any material discrepancies in the reported scope 2 emission estimates.

Emission Source Group	Scope 3 Emission Sources
Scope Item Verified	Scope 3 Emissions
Verification Procedure and Findings	GHD reviewed the Scope 3 emission estimates, methodologies, and supporting data relating to the following Scope 3 emissions: – Category 1: Purchased goods and services (CO_2e) – Category 2: Capital goods (CO_2e) – Category 3: Fuel- and energy related activities (CO_2e) – Category 4: Upstream transportation and distribution (CO_2e) – Category 5: Waste generated in operations (CO_2e) – Category 6: Business travel (CO_2e) – Category 7: Employee commuting (CO_2e) – Category 9: Downstream leased assets (CO_2, CH_4, N_2O) – Category 15: Investments (CO_2e) The following sections provide a more detailed review of the 9 reportable Scope 3 category emissions that account for 33.8 percent of the total reported emissions. *Category 1: Purchased goods and services and* *Category 2: Capital goods* Both Category 1 and 2 emissions are based on purchasing data and the associated cost element codes to determine applicable purchasing categories. Any purchasing data related to other inventory elements (e.g., fuel purchasing data for Scope 1 reporting) or that were unrelated to purchased goods and services or capital goods were screened out of this Scope 3 reporting. All final screened cost element codes were then summed and matched with the closest corresponding sector category for life cycle assessment emission factors obtained from the US EPA Economic Input-Output (USEEIO) dataset (version 1.3). The emission factors from the USEEIO dataset can be quite broad categories and are not always an exact fit for each cost element but broad association matching/choosing a category of best fit based on the available factors. *Category 3: Fuel and energy-related activities* GHG emissions associated with fuel extraction, production, and transportation to UP facilities account for 62.6 percent of the total Scope 3 emissions included in the inventory. For this calculation UP used emission factors presented in the California Air Resources Board (CARB) document “CA-GREET3.0 Lookup Table Pathways Technical Support Documentation” (August 13, 2018). Included in this calculation are all of UP’s 2024 purchases for all mobile and stationary fuel sources, which were reviewed as part of the Scope 1 verification. For diesel, kerosene, jet fuel, and gasoline purchases, UP approximated their emissions using life cycle emission factors for ultra-low sulfur diesel (ULSD). For propane and natural gas purchases, UP approximated their emissions using the life cycle emission factors for natural gas. UP calculated the upstream emissions associated with transmission and distribution losses of electricity using the eGRID emission factor and quantity of electricity purchased, for each region. In addition, GHD reviewed the year-to-year change in emissions associated with Scope 3 fuel extraction, production, and transportation, which increased by 1.3 percent from 2023 to 2024. This decrease is largely driven by the increased use of locomotive fleet diesel fuel in 2024. *Category 4: Upstream transportation and distribution* Category 4 emissions are based on the transportation and distribution of products purchased by a company between their Tier 1 suppliers[1] and UP’s own operations, in vehicles not owned or operated by the company. These also include third-part transportation/distribution services purchased by the company including inbound/outbound logistics and third-party transportation/distribution between the company’s own facilities. UP maintains cost element codes in their finance data

[1] Companies with which the reporting company has a purchase order for goods and services.

Emission Source Group	Scope 3 Emission Sources
	management system for the tracking of purchased material transportation or for other purchased third-party transportation/distribution services. In some cases, actual data (ton-miles) was provided directly by the 3rd party service (LOUP) and the emission factors from the US EPA Emission Factor Hub, Table 8 for Scope 3 Category: Upstream Transportation and Distribution for medium and heavy-duty trucks or rails. GHD reviewed the Scope 3 emission estimates and methodologies relating to upstream transportation and distribution and noted no discrepancies in the 2024 GHG Report when recalculating the total emissions using the spend data and other supporting documentation provided by UP. *Category 5: Waste generated in operations* Emissions from waste were calculated using data directly collected by UP from waste suppliers for total tonnage sent to landfills, total tonnage sent to recycling, and total tonnage of waste incinerated. Emissions were calculated by applying the emissions factors from the USEPA GHG Emission Factor Hub, Table 9. Starting in the 2022 reporting year, UP determined that energy recovery and recycling should be excluded from the inventory as these emissions are attributed to the user of the recycled materials, not the producer of the waste. Therefore, UP excluded the following from Scope 3 Category 5 emissions: Scrap metal, rail ties sent to co-gen, recycled/repurposed concrete ties, recycled/repurposed composite ties, and used oil/recovered oil. Waste Generated in operations decreased 25% year over year, mainly due to an increase in waste diversion practices. GHD reviewed the calculations and emission factors and did not identify any discrepancies. *Category 6: Business travel* Category 6 emissions are quantified for air travel, car rentals, hotel stays, and crew shuttles. Flight data, car rental data and hotel stays are obtained by UP directly from the suppliers. Emission factors were obtained from the USEPA GHG Emission Factor Hub. Business travel emissions account for 0.3% of UP's inventory. Based on a comparison to UP's 2023 inventory data and GHD's prior verification findings, GHD confirmed that these emission sources are of similar magnitude to the total reported in 2024 and are unlikely to be the source of a material misstatement. GHD reviewed the Scope 3 emission estimates and methodologies relating to business travel noted no discrepancies when recalculating the total emissions using the base consumption data provided by UP in the 2024 GHG Report. *Category 7: Employee commuting* Employee commuting emissions were calculated using UP's data for employee count directly from their published 10K filing, and assumptions about use of UPs allowable work from home policy for non-agreement employees. The average number of commute miles per person was estimated, using "Average when using primary Car" value (Numbeo, *https://www.numbeo.com/traffic/country_result.jsp?country=United+States*), and emission factors from the USEPA GHG Emission Factor Hub. GHD reviewed the Scope 3 emission estimates and methodologies relating to employee commuting and noted no discrepancies when recalculating the total emissions using the data provided by UP in the 2024 GHG Report. *Category 13: Downstream Leased Assets* This category includes emissions from the operation of real estate assets owned by UP and leased to other entities. Emissions were calculated using square footage of the buildings and average energy intensities from the U.S. Energy Information Association (EIA) Electricity Consumption and Conditional Energy Intensity by Building Size, 2018 (Table C21) - Release date December 2022; EIA Natural Gas Consumption and Conditional Energy Intensity by Building Size, 2018 (Table C31) - Release date December 2022, to determine natural gas and electricity consumption and emission factors from USEPA GHG Emission Factor Hub. GHD reviewed the Scope 3 emission estimates and methodologies relating to downstream leased assets and noted that while UPRR is using the same emission factors as used in Scope 2 for leased buildings, in this case, UPRR is including buildings

Emission Source Group	Scope 3 Emission Sources
	less than 1000 ft^2, and does not differentiate by building size. This does not contribute to or result in a material discrepancy. *Category 15: Investments* Emissions were calculated using Scope 1 & 2 emissions data provided directly by UPs investment & joint venture partners. Investment partners provided UP with the quantity of diesel fuel used during 2024 and building square footage. UP calculated Scope 1 and 2 emissions using the same methods described above. Office & shop emissions were calculated using square footage measurements and average emission factors USEPA GHG Emission Factor Hub. Total emissions were based on UP's percent stake in each investment. The investment accounting for the largest emissions, Ferromex, provided their already calculated Scope 1 and 2 emissions for CDP reporting purposes.
Conclusion	GHD reviewed the Scope 3 emission estimates and methodologies relating to investments and noted no discrepancies when recalculating the total emissions using the data provided by UP in the 2024 GHG Report.

16.2 Summary of Errors, Omissions, Misstatements or Non-Compliances Identified

Quantitative materiality for GHG emissions this verification is set at plus or minus 5 percent of the total reported emissions. The quantitative aggregated magnitude of errors, omissions, and misstatements for the Client's 2024 Inventory Report is 0.00 percent, which is less than the materiality threshold of 5 percent.

16.3 Corrections Made to Inventory Report

The Facility to make changes to the 2024 Inventory Report based on the issues identified in the Verification Findings in Section 16.1 above.

16.4 Follow up on Issues from Previous Verification

GHD has reviewed the issues from the previous 2023 verification report. There were no issues that required follow-up in 2024.

16.5 GHG Data and Information

The following data and information were obtained during the verification:

Scope 1 Emissions

Regarding fuel purchases other than for locomotive fuel or corporate jets, for non-highway vehicles, UP uses a credit card purchase-based fueling system that limits UP fleet purchases to fuel and provides a management system for all purchase data to differentiate between fuel purchased by vehicle. For highway vehicles, fuel purchases are also based on a card-purchasing system. When a new highway vehicle is purchased by UP, the car comes with a fueling card. These cards can only be used by UP employees that have a registered personal identification number (PIN) through CSI Voyager (managed company fleet fuel purchasing). With each fuel purchase, the data is delivered to CSI Voyager. Final UP fleet billing details (including volumes of fuel purchased by vehicle) is in turn provided to UP for use in the GHG Report. For both of these integrated and secure purchasing and tracking systems, UP provided the purchasing data for 2024, for cross-referencing against the reported totals by UP.

Based on GHD's previous knowledge of the UP locomotive diesel fuel invoicing management system, GHD understands that this invoicing data is managed in three ways:

1. By "Electronic Data Interchange" (EDI) – EDI is the practice of exchanging information or data between organizations in a standardized format, such as invoicing information from a provider of fuel and a purchaser of the fuel.
2. By ORISS – ORISS is a central website used by rail industry suppliers for submitting invoices, where EDI capabilities are not available. ORISS data are electronically imported into EDI.
3. Hardcopy invoices, which are manually entered into the EDI system by UP (representing a small percentage of total invoicing).

GHD received the above listed data for verification of scope 1 emissions.

Scope 2 Emissions

For imported electricity, GHD received monthly invoices summarizing total electricity consumption. The total electricity consumption from the invoices was cross-checked against UP's accounting system.

Scope 3 Emissions

GHD received invoices and purchase data for all categories of scope 3 emissions to confirm the invoicing totals against UP's database system to ensure accuracy.

17. Verification Opinion

GHD has prepared this Verification Report for Client and Program. Client was responsible for the preparation and fair presentation of the Inventory Report for the UP's Corporate Operations for the 2024 reporting year in accordance with the criteria and engaging with a qualified third-party verifier to verify the Inventory Report. The Facility's GHG-related activity is detailed in Section 7.

GHD's objective and responsibility was to provide an opinion regarding whether the Facility's 2024 Inventory Report was free of material misstatement and whether the information reported is a fair and accurate representation of the operations for the reporting period accurate and consistent with the requirements of the Program.

The criteria used by GHD for the verification of the Inventory Report is detailed in Section 5. GHD completed the verification of the Inventory Report in accordance with ISO 14064-3:2019. GHD completed the verification to a reasonable level of assurance.

Client reported 14,322,705 tonnes CO_2e as the total attributable emissions for 2024 for the Facility. This includes the GHG emissions resulting from operating conditions from January 1, 2024 through December 31, 2024 (reporting period). The quantitative aggregated magnitude of errors, omissions, and misstatements is discussed in Section 16.

Based on verification procedures undertaken to a reasonable level of assurance, it is GHD's opinion that the Inventory Report is materially correct and is a fair and accurate representation of the Facility's total attributable emissions for the reporting period; and that the Inventory Report was prepared, and emissions were quantified in accordance with ISO 14064-3, the GHG Protocol and the Program.

This Opinion is effective as of the date of this Verification Report.

18. Limitation of Liability

Because of the inherent limitations in any internal control structure, 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 procedures performed on the relevant internal controls were on a test basis. Any projection of the evaluation of control procedures to future periods is subject to the risk that the procedures may become inadequate because of changes in conditions, or that the degree of compliance with them may deteriorate.

This verification was based on a risk-based approach that follows rigorous methodology with the expectation that it will capture the majority of errors with the potential for a material misstatement. However, GHD does not warrant or guarantee that all errors or omissions, including material issues, made by Client in its Report and/or assertion were identified by GHD.

The verification opinion expressed in this report has been formed on the above basis.

GHD's review of the GHG Inventory included only the information discussed above. While the review included observation of the systems used for determination of the GHG Inventory, GHD did not conduct any direct field measurements and has relied on the primary measurement data and records provided by Client as being reliable and accurate. No other information was provided to GHD or incorporated into this review. GHD assumes no responsibility or liability for the information with which it has been provided by others.

The information and opinions rendered in this report are exclusively for use by Client. GHD will not distribute or publish this report without Client's consent except as required by law or court order. The information and opinions expressed in this report are given in response to a limited assignment and should only be evaluated and implemented in connection with that assignment. GHD accepts responsibility for the competent performance of its duties in executing the assignment and preparing this report in accordance with the normal standards of the profession but disclaims any responsibility for consequential damages.

Should you have any questions on the above, please do not hesitate to contact us.

Regards

Erik Martinez
Lead Verifier

+1 519 340-4213
erik.martinez@ghd.com

Gordon Reusing
Independent Reviewer

+1 519 340-4231
gordon.reusing@ghd.com

Copy to: Lakshaya Grover, GHD